CITY COUNCIL MEETING W/PUBLIC HEARING & EXECUTIVE SESSION

September 03, 2024 at 7:00 PM

Boardman City Hall Council Chambers

AGENDA

1. **CALL TO ORDER**
2. **FLAG SALUTE**
3. **ROLL CALL/EXCUSED ABSENCES**
4. **APPROVAL OF MINUTES**
   - A. Joint Cities, County, Port Meeting Minutes - July 31, 2024
   - B. City Council Meeting Minutes - August 6, 2024
5. **FINANCIAL REPORT**
   - **A.** Financial Report - July 2024
6. **FORMAL PROCEEDINGS**
   - A. Public Hearing - Appeal of CUP24-000001 (Continued)
7. **INTRODUCTIONS**
   - **A.** Stephanie Case - Principal Planner
   - **B.** Maria Lomeli - Office Assistant
8. **PUBLIC COMMENT**
   - **A.** Prearranged Presentation - Boardman Park & Recreation District
   - B. Report Only - July 2024 Chamber & BCDA Report
   - C. Report Only - 2024 2nd Quarter TRT Report
9. **ACTION ITEMS - RESOLUTIONS**
   - **A.** Resolution 17-2024 Decision on CUP24-000001
   - B. Resolution 23-2024 Escrow Account Culbert Construction
   - C. Resolution 24-2024 Boardman to Hemingway Agreements
10. **ACTION ITEMS - OTHER BUSINESS**
    - A. Update Credit Card Account Administrators
    - B. TSP Update - Public Advisory Committee Appointment
    - C. Chapter 2.16 Planning Commission
    - **D.** Garbage Voucher
    - E. Emergency & Evacuation Plan 2024

F. Occupational Safety & Health Manual 2024

G. Missing Middle Housing Fund Decision

H. LOC Legislative Priorities Survey

I. Liquor License Application - River Lodge & Cabins

11. OTHER PUBLIC COMMENT

INVITATION FOR PUBLIC COMMENT – The mayor will announce that any interested audience members are invited to provide comments. Anyone may speak on any topic other than: a matter in litigation, a quasi-judicial land use matter; or a matter scheduled for public hearing at some future date. The mayor may limit comments to 3 minutes per person for a total of 30 minutes. Please complete a request to speak card prior to the meeting. Speakers may not yield their time to others.

12. DOCUMENT SIGNATURES

13. REPORTS, CORRESPONDENCE, AND DISCUSSION

A. Police Report

B. Building Department Report

C. Public Works Department Report

D. City Manager

E. Councilors

F. Mayor

G. Mayor - "Caught Doing Good"

14. EXECUTIVE SESSION

A. ORS 192.660 (2)(d) Conduct deliberations with persons designated by the governing body to carry on labor negotiations.

B. ORS 192.660 (2)(e) To conduct deliberations with persons designated by the governing body to negotiate real property transactions

C. ORS 192.660 (2)(i) Evaluate employment-related performance of the City Manager

15. ACTION ITEMS - OTHER BUSINESS

A. Decision from Executive Session

16. ADJOURNMENT

Zoom Meeting Link: https://us02web.zoom.us/j/2860039400?omn=89202237716

This meeting is being conducted with public access in-person and virtually in accordance with Oregon Public Meeting Law. If remote access to this meeting experiences technical difficulties or is disconnected and there continues to be a quorum of the council present, the meeting will continue.

The meeting location is accessible to persons with disabilities. Individuals needing special accommodations such as sign language, foreign language interpreters or equipment for the hearing impaired must request such services at least 48 hours prior to the meeting. To make

your request, please contact a city clerk at 541-481-9252 (voice), or by e-mail at city.clerk@cityofboardman.com.

JOINT MEETING OF THE CITY OF BOARDMAN, CITY OF HEPPNER, CITY OF IONE, CITY OF IRRIGON, TOWN ON LEXINGTON, MORROW COUNTY BOARD OF COMMISSIONERS AND THE PORT OF MORROW COMMISSION

July 30, 2024 at 6:00 PM

City of Heppner, City Hall, 111 N Main Street, Heppner, OR

MINUTES

1. CALL TO ORDER

The meeting was called to order at 6:00 PM.

2. CALL TO ORDER

Members Present:

City of Boardman: Mayor Paul Keefer, Councilor Heather Baumgartner, Councilor Ethan Salata, Councilor Richard Rockwell, Councilor Karen Pettigrew, City Manager Brandon Hammond

City of Heppner: City Manager John Doherty, Mayor Sweeney, Sharon Inskeep, Ralph Klock, Dale Bates

City of Irrigon: City Manager Aaron Palmquist

Town of Lexington: Autumn Crumpton

Morrow County: Commissioner Jeff Wenholtz, Commissioner David Sykes, Commissioner Jr. Drago

Port of Morrow: Commissioner Rick Stokoe, Commissioner Joe Taylor, Commissioner John Murray, Commissioner Kelly Doherty, Commissioner Joel Peterson, Executive Director Lisa Mittelsdorf

Audience: Lisa Pratt, Mark Patton, [X-Guest], Lori, KF, Brian Lemke

3. REPORTS, CORRESPONDENCE, AND DISCUSSION

Future meeting October 29th, in Irrigon.

A. City of Boardman Update

B. City of Heppner Update

C. City of Irrigon Update

D. Town of Lexington Update

E. Morrow County Update

F. Port of Morrow Update

4. ADJOURNMENT

The meeting was adjourned at 7:27 PM.

Paul Keefer – Mayor

Amanda Mickles – City Clerk

CITY COUNCIL MEETING W/ PUBLIC HEARING & EXECUTIVE SESSION

August 06, 2024 at 7:00 PM

Boardman City Hall Council Chambers

MINUTES

1. CALL TO ORDER

Mayor Keefer called the meeting to order at 7:00 PM.

2. FLAG SALUTE

3. ROLL CALL/EXCUSED ABSENCES

Councilors Present: Mayor Paul Keefer, Councilor Heather Baumgartner, Councilor Brenda Profitt, Councilor Ethan Salata, Councilor Cristina Cuevas, Councilor Richard Rockwell, Councilor Karen Pettigrew

Mayor Keefer stated Councilor Salata was in Heppner for his EMS Shift and may need to leave the meeting if called for an emergency.

4. APPROVAL OF MINUTES

A. City Council Workshop Meeting Minutes - July 2, 2024 – Timestamp 2:06

Motion to approve the Minutes of July 2, 2024, City Council Workshop as presented.

Motion made by Councilor Baumgartner, Seconded by Councilor Rockwell.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Salata, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

B. City Council Regular Meeting - July 2, 2024 – Timestamp – 5:32

Motion to approve the minutes of July 2, 2024, City Council Regular Meeting as presented.

Motion made by Councilor Cuevas, Seconded by Councilor Rockwell.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Salata, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

5. FINANCIAL REPORT

A. Financial Report - June 2024 Final – Timestamp 6:12

Finance Director Barajas presented the report provided to the Council.

B. Financial Report - July 2024 Preliminary – Timestamp 8:07

Finance Director Barajas stated there is not a report for July as bank statements had not yet been received.

6. FORMAL PROCEEDINGS

A. Public Hearing - Appeal of CUP24-000001 – Timestamp 8:24

Mayor Keefer Opened the public hearing at 7:09 PM.

Planning Official McLane presented the staff report.

Jennifer Bragar, Attorney with Tomasi Bragar DuBay, and Rick Nye's, Principal Traffic Engineer with Greenlight Engineering, presented the appellant's testimony.

Testimony in opposition – none.

Testimony in favor – Kathy Street

Neutral testimony – none.

Mayor Keefer closed the public hearing at 8:06 PM.

Motion to keep the record open for 7 days until end of business on August 14, 2024, allowing an additional 7 days to respond which ends at end of business August 21, 2024, and continue the hearing on September 3, 2024, at 7:00 PM at Boardman City Hall Council Chambers.

Motion made by Councilor Profitt, Seconded by Councilor Rockwell.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Salata, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

Resolution 17-2024 will be moved to the September 3 meeting for action.

Councilor Salata asked to be excused due to poor internet connection at 8:47 PM.

B. Public Hearing - Amendment - Adoption of Transit Related Documents to support City TSP Updates – Timestamp 1:46:35

Mayor Keefer opened the public hearing at 8:47 PM.

Planning Official McLane presented the staff report.

Testimony in favor – none.

Testimony in opposition – none.

Neutral Testimony – George Shimer.

Point of Order – Mayor Keefer stated the meeting will continue past 9:00 PM, Council will finish the meeting after Public Comment. Timestamp 2:01:10

Mayor Keefer closed the public hearing at 9:02 PM.

C. Public Hearing - Amendment - Main Street "Downtown" Development Plan – Timestamp 2:02:55

Mayor Keefer opened the public hearing at 9:04 PM.

Planning Official McLane presented the staff report.

Testimony in favor - none.

Testimony in opposition - none.

Neutral testimony - none.

Mayor Keefer closed the public hearing at 9:07 PM.

D. Public Hearing - Amendment - Commercial District Use Zone – Timestamp 2:07:30

Mayor Keefer opened the public hearing at 9:07 PM.

Planning Official McLane presented the staff report.

Testimony in favor - none.

Testimony in opposition - none.

Neutral testimony - none.

Mayor Keefer closed the public hearing at 9:13 PM.

7. ACTION ITEMS - ORDINANCES

A. Ordinance 5-2024 - Boardman Development Code Chapter 2.2 Commercial Update – Timestamp 2:13:04

Councilor Salata was reached by phone for his presence for the Ordinance action as a full Council is required.

Motion to approve the reading by title only of Ordinance No. 5-2024, an ordinance to approve an amendment to the Boardman Development Code Chapter 2.2 Commercial District.

Motion made by Councilor Baumgartner, Seconded by Councilor Cuevas.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Salata, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

City Manager Hammond read the Ordinance No. 5-2024, an ordinance to approve an amendment to the Boardman Development Code Chapter 2.2 Commercial District.

Motion to adopt Ordinance No. 5-2024, an ordinance to approve an amendment to the Boardman Development Code Chapter 2.2 Commercial District.

Motion made by Councilor Baumgartner, Seconded by Councilor Profitt.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Salata, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

Councilor Salata left the meeting.

8. ACTION ITEMS - RESOLUTIONS

A. Resolution 17-2024 - Decision on CUP24-000001

Due to the continuation of Public Hearing Appeal of CUP24-000001, Resolution 17-2024 will be moved to the September 3 meeting for action.

B. Resolution 18-2024 - Adopting Guidance Documents for the TSP – Timestamp 2:18:20

Motion to approve Resolution 18-2024, a resolution adopting the Morrow County Coordinated Human Services Transportation Plan (2022), the Hermiston-Boardman Connector/Boardman-Port of Morrow Circular (2021), and the Morrow County/Umatilla County Transit Development Strategies (2018) as guidance of the pending update of the Boardman Transportation System Plan.

Motion made by Councilor Baumgartner, Seconded by Councilor Rockwell.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

C. Resolution 19-2024 - Downtown Amendment – Timestamp 2:19:06

Motion to approve Resolution 19-2024, a resolution adopting an update to the Downtown Development Plan.

Motion made by Councilor Baumgartner, Seconded by Councilor Cuevas.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

D. Resolution 20-2024 - Contingency Transfer 2024-2025 – Timestamp 2:19:30

Motion to approve Resolution 20-2024, a resolution to decrease contingency and to increase 2024-2025 expenditures for materials and services.

Motion made by Councilor Profitt, Seconded by Councilor Rockwell.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

E. Resolution 21-2024 - Escrow Account Silver Creek Contracting LLC – Timestamp 2:20:27

Motion approve Resolution 21-2024, a resolution establishing an interest-bearing escrow account for Silver Creek Contracting, LLC for work on NW Columbia Ave and assign Mayor Keefer, Council President Baumgartner, and City Manager as signers on the account.

Motion made by Councilor Baumgartner, Seconded by Councilor Rockwell.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

F. Resolution 22-2024 - Escrow Account Granite Construction Company – Timestamp 2:22:59

Motion to approve Resolution 22-2024, a resolution establishing an interest-bearing escrow account for Granite Construction Company for work on Wilson Lane and Faler Road Sidewalk improvements and assign Mayor Keefer, Council President Baumgartner, and City Manager as signers on the account.

Motion made by Councilor Profitt, Seconded by Councilor Cuevas.
Voting Yea: Mayor Keefer, Councilor Baumgartner, Councilor Profitt, Councilor Cuevas, Councilor Rockwell, Councilor Pettigrew

9. ACTION ITEMS - OTHER BUSINESS

A. Approval of the City of Boardman Charter - Final Draft – Timestamp 2:24:03

The Council gave consensus to proceed with submitting the 2024 City of Boardman Charter for vote on the general election in November 2024.

B. Letter of Support - Sunstone Solar Project – Timestamp 2:24:40

The Council gave consensus to have Mayor Keefer sign the letter of support.

10. OTHER PUBLIC COMMENT

Taylor Wightman discussed potential Park Committee. – Timestamp 2:30:10

12. REPORTS, CORRESPONDENCE, AND DISCUSSION

G. Mayor - Evaluation Process – Timestamp 2:33:50

Mayor Keefer asked the Council to discuss the City Manager Evaluation Process.

13. EXECUTIVE SESSION

A. Executive Session 192.660 (2)(i) - Evaluate employment-related performance of the City Manager – Timestamp 2:40:00

Mayor Keefer stated there will not be an Executive Session at this meeting, it will be rescheduled to September 3, 2024.

15. ADJOURNMENT

Mayor Keefer adjourned the meeting at 9:40 PM.

_____ _____

Paul Keefer – Mayor Amanda Mickles – City Clerk

MEMORANDUM

To: Mayor Keefer and Councilors
From: Carla McLane, Planning Official
Date: August 27, 2024
RE: Appeal APP24-000002 of Conditional Use Permit CUP24-000001

City staff including the City Engineer and Contractor for the Main Street Assessment have concluded additional information would best inform the decision that the City Council is being asked to make. To that end, we are requesting that you reopen the public hearing and continue this matter to Tuesday, November 5th at 7:00 p.m. in the Boardman City Council Chambers.

In response to public testimony, the City will be collecting video of traffic conditions in early September (after local schools are back in session) to better quantify and summarize the various safety issues that exist along the North Main Street corridor. The requested continuance will allow this additional assessment to be completed and documented in the public record.

At this point no changes have been made to the Findings of Fact but the packet does include all the additional evidence and testimony that has been submitted by the appellant as well as a letter from an interested party. We anticipate additional comments to be submitted once the record has been reopened.

Thanks for your patience as we work to make both the request and the final decision the best one for the City of Boardman with a focus on the safety of pedestrians, bicyclists, and motorists traveling along North Main Street, Boardman Avenue, and the North Front Streets.

CITY COUNCIL
FINDINGS OF FACT ON APPEAL
APPEAL APP24-000002
CONDITIONAL USE PERMIT
CUP24-000001

APPEAL: Appeal of Conditional Use Permit CUP24-000001.

REQUEST: To approve the installation of a HAWK (High-Intensity Activated CrossWalK) signal with related street improvements at the corner of North Main and Boardman Avenue to include conversion of the North Main Street intersection with the NE and NW Front Streets to a right-in/right-out configuration. To determine that the installation is in conformance with the Main Street Interchange Area Management Plan and meets necessary warrants.

APPELLANT:	Hattenhauer Distributing Company Post Office Box 1397 The Dalles, Oregon 97058
APPLICANT/OWNER:	City of Boardman Post Office Box 229 Boardman, Oregon 97818
ZONING OF THE AREA:	Commercial (Tourist Commercial Sub District) and Residential
PROPERTY LOCATION:	The subject property includes the rights-of-way for both Main Street and Boardman Avenue north of the Main Street Interchange. Adjacent businesses include C&D, Chevron, Sinclair, the Boardman Office Center, and Riverside High School.

I. **APPEAL BACKGROUND:** Hattenhauer Distributing, represented by Jennifer Bragar of TBD, is appealing the Planning Commission decision approving the proposed HAWK signal at the intersection of Boardman Avenue and North Main Street. Their appeal letter is attached and the issues identified are discussed later in this Findings of Fact.

CONDITIONAL USE PERMIT BACKGROUND: A number of years ago the City of Boardman experienced a loss of life at the subject intersection after which the currently installed Rectangular Rapid Flashing Beacon (RRFB) was installed. During peak pedestrian crossings, predominantly at school departure times, use of the RRFB can create traffic backups along Main Street that can impact queuing on the west bound Interstate 84 off ramp creating potential impediments into the west bound travel lane.

This area is subject to the Boardman Main Street Interchange Area Management Plan (MS IAMP) and any development or street projects within the Management Area must conform to the requirements of the IAMP. In the MS IAMP there are streetlights envisioned at the ramp intersections but not other intersections. About two years ago the City engaged Kittelson & Associates to do an evaluation of the Main Street corridor to accomplish an update to the planning level analysis documented in the 2009 MS IAMP. The purpose was to provide an

updated list of improvement projects to support multi-modal circulation improvements along the corridor and at the interchange.

After lengthy discussion with the Oregon Department of Transportation (ODOT) concerning the necessary planning process to authorize the installation of a streetlight it was determined that an amendment to the MS IAMP would not be necessary but signal warrants needed to be identified and no impacts to the interchange could occur. Signal warrants were justified and the streetlight was shown not to impact the interchange in the Kittleson & Associates Main Street corridor assessment. Installation of the center median is also justified to convert NW and NE Front Street to right-in/right-out and for traffic queueing/staging at the signalized intersection.

It should be noted that the MS IAMP does say the following about access to Main Street in the vicinity of the Interchange: “A key element of the IAMP is to the long-range preservation of operational efficiency and safety of the interchange is the management of access to Main Street. Because access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic and reduce the efficiency of the transportation system. However, reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts.” The proposed center median and limiting left hand turns on North Main Street between Front Street and Boardman Avenue affectively achieves the intent of this statement without closing those accesses.

In limiting NE and NW Front Streets to a right-in/right-out configuration the Boardman Avenue and North Main Street intersection allows full turning movements. For comparison the same configuration on South Main Street would mean that Oregon Trail Boulevard will also allow full turning movements.

The street light installation, including street, sidewalk, and parking improvements, has been designed. It is anticipated that the project will go to bid in July 2024 with construction starting in March or April of 2025 and ending in July or August of that same year. The duration of time between the construction bidding process and the start of construction is for the procurement of long-lead time equipment and materials.

This project is identified in the Capital Improvement Plan adopted by the Boardman City Council on April 2 of this year. The City Manager and Planning Official have met with several of the immediately impacted landowners to discuss the project, the safety concerns it is addressing, mitigation of construction impacts, and to express our understanding of how this can create negative impacts to business operations.

After the initial Planning Commission public hearing on April 17 staff did follow up with ODOT to further discuss the impacts of the proposal and their participation in accomplishing the requirements as laid out in the MS IAMP. Based on that conversation and further review of the Kittelson & Associates Main Street Assessment the city is modifying their project in two ways. First the street light infrastructure will be installed but the signal will initially be a High-Intensity Activiated CrossWalK, or HAWK and second the median will only affect the Front Street intersection allowing, for now, left turns across Main Street between Front Street and Boardman Avenue. The modification of Front Streets to a right-in/right-out configuration is maintained.

What is a HAWK signal? *It is a device used to assist people with safely crossing busy streets. They work the same as other button-activated signals, either by pushing a button or an automatic sensor, which directs the person walking or biking to wait for the signal to change and traffic to stop allowing them to cross safely. For a driver, the HAWK signal appears differently than other traffic lights. At rest, HAWKs remain dark. Once triggered, it will then go through a series of yellow and red sequences requiring motorists to slow down and stop. After the people walking and biking cross, the HAWK will go dark again, allowing motorists to continue through the intersection.*

Why are they helpful? *HAWK signals provide safer crossing alternatives for people walking and biking than traditional crosswalks especially in mid-block locations with heavy demand. Because the devices are only activated when walkers or bikers are present, people driving experience minimal delays. HAWK signals can also be installed at the intersection of an arterial road with a smaller side street, which would not otherwise warrant a traffic light signalized crossing. This amounts to easier crossing on busy streets for people walking and biking. Data also suggests that HAWK signals crate safer crossings, reduce crashes, and increase driver compliance with crosswalk laws.*

The city is maintaining the conversion of the Front Street intersection to a right-in/right-out configuration for several reasons outlined here:

1. *The City's Level of Service, or LOS, standard is C which is higher than ODOTs and allows for less congestion.*
2. *Access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic, and reduce the efficiency of the transportation types. Reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts. Reducing Front Street to a right-in-right-out configuration reduces a significant vehicular conflict adjacent to the west bound off-ramp.*
3. *At the time the MS IAMP was adopted the LOS for Main Street and North Front Street was C. Today it is D which, under the MS IAMP, does require action on the part of the city. It should be noted that the LOS for South Front Street is also at a LOS of D. Without action both of those intersections are identified to achieve a LOS of F by 2042.*
4. *The MS IAMP does identify that the City is to work towards two items, the first being development of the local street network both east and west of Main Street and second to limit access at Main Street at both north and south Front Street. The first step of this is to limit those intersections to right turn only.*

For these reasons this request needs to be approved as presented

II. **APPROVAL CRITERIA:** The Boardman Development Code Residential and Commercial use zones both identify in their respective Tables of allowed uses that "transportation projects that are not designated improvements in the Transportation System Plan" are subject to a Conditional Use Permit. While street lights are envisioned in the MS IAMP they are planned for the on- and off-ramps, not other intersections. The applicable criteria are found in Chapter 4.4 Conditional Use Permits at 4.4.400 Criteria, Standards and Conditions of Approval which is in **bold** text with responses in regular text.

4.4.400 Criteria, Standards and Conditions of Approval
The City shall approve, approve with conditions, or deny an application for a conditional use or to enlarge or alter a conditional use based on findings of fact with respect to each of the following standards and criteria:

D. Transportation System Facilities and Improvements

1. **City or County facilities and improvements. Construction, reconstruction, or widening of highways, roads, bridges or other transportation facilities that are (1) not designated in the City's adopted Transportation System Plan ("TSP"), or (2) not designed and constructed as part of an approved subdivision or partition, are allowed in all Districts subject to a Conditional Use Permit and satisfaction of all of the following criteria:**
   a. **The project and its design are consistent with the City's adopted TSP, or, if the city has not adopted a TSP, consistent with the State Transportation Planning Rule, OAR 660-012 ("the TPR").**
   b. **The project design is compatible with abutting land uses in regard to noise generation and public safety and is consistent with the applicable zoning and development standards and criteria for the abutting properties.**
   c. **The project design minimizes environmental impacts to identified wetlands, wildlife habitat, air and water quality, cultural resources, and scenic qualities; and a site with fewer environmental impacts is not reasonably available. The applicant shall document all efforts to obtain a site with fewer environmental impacts, and the reasons alternative sites were not chosen.**
   d. **The project preserves or improves the safety and function of the facility through access management, traffic calming, or other design features.**
   e. **The project includes provisions for bicycle and pedestrian access and circulation consistent with the comprehensive plan, the requirements of this ordinance, and the TSP or TPR.**

The proposed HAWK signal and related improvements are on a city facility and involves the construction of the area in and around the Main Street and Boardman Avenue intersection. The construction will involve the installation of the HAWK signal and its components, improved street base and new pavement in the intersection and along Boardman Avenue to both the east and west, new sidewalk and improved access points, a median along North Main to convert the Front Street intersection into a right-in/right-out only configuration, and new striping throughout the area.

Staff have determined that the HAWK signal is consistent with the MS IAMP as it does conform to the Access Management Plan by:

- Continuing to restrict access to the interchange and interchange ramps and is, in fact, working to eliminate impacts to the interchange ramps from traffic that currently backs up when continual use of the RRFB causes delays of northbound travelers on Main Street.
- Improve safety factors not only within the interchange but also along Main Street and at this intersection in particular.
- Eliminating or reducing turning conflicts along the Main Street corridor at the Front Street intersection.
- Assuring that all current accesses are maintained to allow some level of ingress or egress and improving several accesses with improvements that also support pedestrian utilization.

Staff have also determined that the HAWK signal is warranted based on the following:

- While not within the standard time frame for consideration there has been a pedestrian loss of life at this intersection.
- This intersection is a primary school crossing area for Riverside High School during the arrival, lunch, and departure times. Use of the current RRFB creates backups along Main Street

impacting the west bound off ramp queuing and can result in traffic backing up into the west bound travel lane. This is further discussed on page 7 of the Kittelson & Associates analysis that is attached.
- Pedestrian volume outside of school pedestrian usage continues to increase along Main Street.
- Crash data from 2016 through 2020 identified in the Kittelson & Associates report shows that there are a variety of different types of crashes throughout the study corridor.

Abutting land uses are commercial in nature with the exception of the school. The school building is located 1,000 feet or more from the intersection with school green space and recreational space in between. The C&D Drive-In is most affected by the installation of the HAWK signal and the design of the project took into consideration their setback distance from the road with a desire to maintain their outdoor seating on the west side of their development. On street parking has been the most effected element through the design process with a number of angle and parallel parking spaces being removed. At least as many, if not more, parking spaces are being constructed resulting in a positive number of parking spaces. The new parking opportunity is being developed along the frontage of the Riverside High School with discussion ongoing to extend the parking further to the east from the current terminus shown on the Schematic Layout.

This project is locationally dependent. It is not specifically being designed to move more traffic, but to move current traffic more efficiently and safely.

Safety is one of the primary reasons for pursuing the street light project based on the loss of life from some years ago along with the reporting of a significant number of near misses with both cars and pedestrians.

Pedestrian, and by extension bicycle, movement and safety will be improved with the HAWK signal allowing for protected crossing times and spacing those crossing times to reduce if not eliminate backups along Main Street that can currently affect the queuing of west bound travelers on the west bound off ramp.

2. **State facilities and improvements. The State Department of Transportation ("ODOT") shall provide a narrative statement with the application demonstrating compliance with all of the criteria and standards in Section 4.4.400.D. 1.b. – e. above. Where applicable, an Environmental Impact Statement or Environmental Assessment may be used to address one or more of these criteria.**

The intersection of Main Street and Boardman Avenue is not a state facility. It is within the Management Area of the MS IAMP which was addressed through significant conversation with ODOT staff about the light, the mechanism to approve the installation of the street light, and will also include conversation with ODOT about management of the light once installed. The above criteria for a state facility have been deemed to not be applicable.

3. **Proposal inconsistent with TSP/TPR. If the City determines that the proposed use or activity or its design is inconsistent with the TSP or TPR, then the applicant shall apply for and obtain a plan and/or zoning amendment prior to or in conjunction with conditional use permit approval. The applicant shall choose one of the following options: a. If the city determination of inconsistency is made prior to a final decision on the conditional use permit application, the applicant shall withdraw the conditional use permit application; or b If the city determination of inconsistency is made prior to a final decision on the conditional use permit application, the applicant shall withdraw the conditional permit application, apply for a plan/zone**

amendment, and re-apply for a conditional use permit if and when the amendment is approved; or

a. **If the city determination of inconsistency is made prior to a final decision on the conditional use permit application, the applicant shall submit a plan/zoning amendment application for joint review and decision with the conditional use permit application, along with a written waiver of the ORS 227.178 120-day period within which to complete all local reviews and appeals once the application is deemed complete; or**
b. **If the city determination of inconsistency is part of a final decision on the conditional use permit application, the applicant shall submit a new conditional use permit application, along with a plan/zoning amendment application for joint review and decision.**

The city has determined that the installation of the HAWK signal is consistent with the MS IAMP and is therefore consistent with the Transportation Planning Rule. See the discussion under 1. above and the attached Boardman Main Street Circulation Assessment dated March 2024 and prepared by Kittelson & Associates.

4. **Expiration. A Conditional Use Permit for Transportation System Facilities and Improvements shall be void after three (3) years.**

It is the intent of the City to have this project go to bid in July 2024 with construction to start in March or April 2025 and concluding in July or August 2025.

III. ISSUES RAISED ON APPEAL: The following were outlined in the appeal letter submitted on behalf of Hattenhauer Distributing:

Appellant Issue: While right-in/right-out at North Front Street may have been identified as part of the solution for traffic control along North Main Street under the 2009 IAMP, the timing for such decision should not occur as part of a piecemeal approach. Rather the traffic signal at N.E. Boardman should be installed and then the level of service at North Front Street should be revisited, prior to installing a median to accomplish right-in/right-out access. Further, ODOT's work on the overpass should occur before the right-in/right-out decision is made.
Staff Response: The City of Boardman secured the Boardman Main Street Circulation Assessment to evaluate the various needs along Main Street and the current Level of Service (LOS) identified for the Front Streets is at D which based on the Main Street Interchange Area Management Plan (IAMP) requires action by the city once a LOS of C is reached. This is not being done as a piecemeal approach with city planning and engineering staff evaluating the portion of Main Street north of the Interchange through Boardman Avenue. One of the primary reasons for evaluating these intersections is the conflict between pedestrians and vehicles at the Front Street intersection as well as the Boardman Avenue intersection. Use of the currently installed RRFB causes backup and delay issues along both Main Street to the south and Boardman Avenue to the east. Replacing the RRFB with a HAWK Signal should allow for smoother interaction between vehicle travel and pedestrian crossing, particularly at the Boardman Avenue intersection. The ODOT has been involved with these discussions and has indicated that they do not plan to make any changes to the interchange ramps or intersections.

Appellant Issue: The City is exceeding its authority to propose the median as part of the contemplated scope of improvements.
Staff Response: The median is defined in the MS IAMP as a solution to be implemented when certain conditions have been met, which is the case.

Appellant Issue: Full analysis should be done to ensure the City is not creating a stacking issue on Main Street that does not currently exist.

Staff Response: As discussed previously in these Findings of Fact there is already a stacking issue on Main Street that the upgrade from the RRFB to the HAWK signal should mitigate reducing the stacking that currently occurs. This will be achieved as the HAWK signal uses more advanced logic to balance the needs of the pedestrian crossing with motor vehicle needs.

Appellant Issue: A consistency finding is required for existing uses and there is no analysis that removal of parking from the C & D Drive-in will be consistent with current parking requirements for that use.
Staff Response: The on-street parking that has been utilized by the C&D Drive-in along Boardman Avenue encroached into the Boardman Avenue right-of-way. Development of that use predates current development standards, and no permit has been located as to what may have been permitted. That parking, under today's standards, would not be allowed. It should also be noted that when the drive-in and neighboring gas station where originally built it was under a single ownership and parking was shared. This response is not specifically a 'consistency finding' and one is not proposed as one is not required by the applicable standards. Nor has the appellant provided a requirement for such a finding.

Appellant Issue: The proposal is too premature because the Applicant has no authority over the school property for which it proposes to convert to parking, no basis to turn public school property into parking, and there is no finding of consistency with the school use and whether the proposed parking is allowed on school property.
Staff Response: The City of Boardman has been working with the Morrow County School District Superintendent for many months on this project and has secured a letter of support that outlines the right-of-way access process that will occur prior to the project's construction. The parking that is proposed will be shared by local businesses, including the C&D Drive-in, as well as the school district for sporting events and activities occurring on school property.

Appellant Issue: The Planning Commission decision is tainted by allowing Planning Commissioner Jennifer Leighton to vote and participate in deliberations when she has a financial benefit from the proposed parking on the school property, and a direct interest as her business will be impacted by the proposal.
Staff Response: Any perceived conflict is resolved by this appeal with the final decision before the City Council.

Appellant Issue: Even if a median at North Main Street and North Front Street is approved, the application should not be approved without significant design constraints imposed through this review process to preserve full access to Appellant's property along North Main Street.
Staff Response: The change from the traffic signal to the HAWK signal includes a reduction of the median along Main Street between Front Street and Boardman Avenue that will continue to allow left turns by travelers frequenting businesses on both sides of Main Street.

IV. LEGAL NOTICE PUBLISHED:

City Council
July 17, 2024
East Oregonian

Planning Commission
March 26 and April 23, 2024
East Oregonian

V. PROPERTY OWNERS NOTIFIED (List on File)**:**

City Council
July 17, 2024

Planning Commission
March 26, 2024

VI. **AGENCIES NOTIFIED:** Teresa Penninger, Rich Lani, David Boyd, and Cheryl Jarvis-Smith, Oregon Department of Transportation; Marty Broadbent and Michael Hughes, Boardman Fire Rescue District; Emily Roberts, Morrow County Health District; Mike Lees and Rolf Prag, City of Boardman.

VII. **HEARING DATES:**

City Council
August 6, 2024

Planning Commission
April 17 and May 15, 2024
Boardman City Hall

VIII. **COMMENTS RECEIVED:** The following summarize comments received:

- Letter dated April 10, 2024, from Alex Hattenhauer, Hattenhauer Distributing, in opposition.
- Site Team was held on April 11, 2024, with local utilities, the Fire Marshall, and ODOT staff in attendance. No changes to the proposal emerged from this discussion.
- Public comment was received at the Planning Commission public hearing held on April 17 from Alex Hattenhauer, Greg Miller, Karen Purcell, and Nora Reyna and is summarized in the meeting minutes.

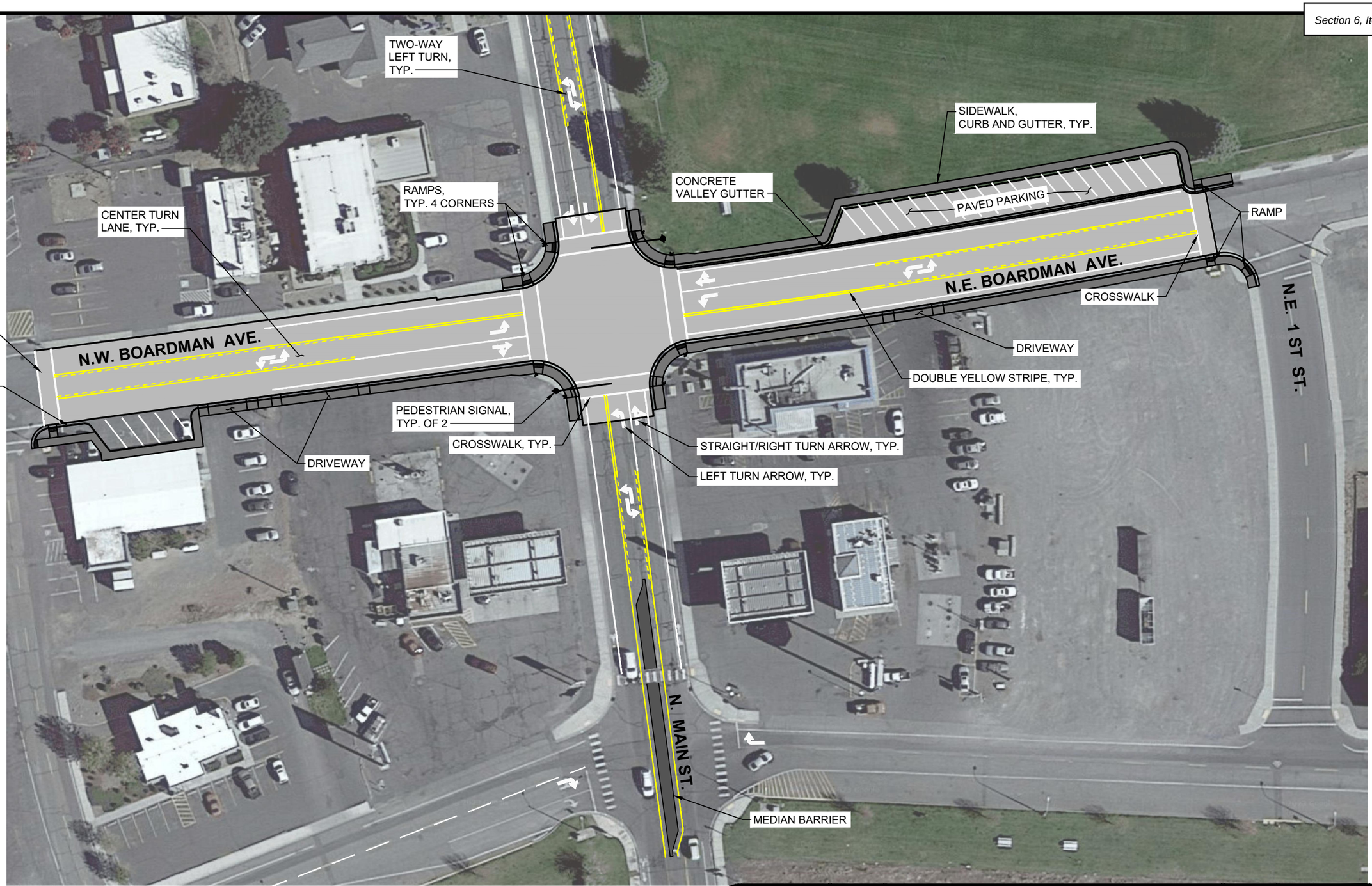
IX. **PLANNING OFFICIAL RECOMMENDATION:** The Planning Official recommends that the City Council deny this appeal and affirm that the HAWK signal is consistent with the MS IAMP and is warranted.

_____

Paul Keefer, Mayor Date

ATTACHMENTS:

- Schematic Layout
- Boardman Main Street Circulation Assessment (March 2024)
- Boardman Main Street Interchange Area Management Plan (2009)
- April 10, 2024, letter in opposition – Alex Hattenhauer, Hattenhauer Distributing
- Planning Commission Findings of Fact dated May 16, 2024
- June 6, 2024, letter of appeal – Jeniffer Bragar, TBD, representing Alex Hattenhauer, Hattenhauer Distributing
- July 1, 2024, letter of support from the Morrow County School District



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SCALE IN FEET

anderson perry

CITY OF
BOARDMAN, OREGON
N. MAIN STREET IMPROVEMENTS

SCHEMATIC LAYOUT

FIGURE
1

X:\Clients\Boardman OR\439-77 N Main St\CAD\439-77-Fig1.dwg, Layout1, 5/6/2024 2:25 PM, lmurphy

KITTELSON & ASSOCIATES
851 SW 6th AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

TECHNICAL MEMORANDUM

Date:	March 2024 Project #: 27246
To:	Brandon Hammond, Carla McLane, Rick Stokoe, & Mike Lees; City of Boardman Teresa Penninger; Oregon Department of Transportation
From:	Matt Hughart, AICP and Ali Razmpa, PE
Project:	Boardman Main Street Circulation Assessment
Subject:	Existing Conditions, Future Conditions, and Circulation Improvements

This report provides an update to the planning level analysis first documented in the 2009 *Boardman Main Street Interchange Area Management Plan (IAMP)*. The purpose of the study is to provide the City of Boardman with an updated list of improvement projects to support multi-modal circulation improvements along Boardman's Main Street corridor and the I-84/Main Street interchange.

BACKGROUND

In 2009, the City of Boardman and Oregon Department of Transportation (ODOT) adopted the *Boardman Main Street IAMP*. The purpose of the IAMP was to formally identify circulation and access management improvements that would be needed to keep the I-84/Main Street interchange and the supporting local roadway network functioning safely and efficiently. Since 2009, Boardman and the adjacent Port of Morrow (POM) have experienced significant residential and employment growth which has led to a measurable increase in traffic volumes along the Main Street corridor. This growth has necessitated an updated look at operations along the Main Street corridor stretching from Columbia Avenue to Wilson Lane.

Consistent with the original IAMP planning process, a planning-level update was performed, documenting the current IAMP study area conditions (existing infrastructure and traffic conditions), the future no-build conditions (assuming expected local and regional growth with no infrastructure improvements), and the evaluation and selection of new/additional corridor capacity, access, and intersection improvements.

Main Street Study Area

To help define the extent of the land use and traffic operations review for this update, the study area includes the Main Street corridor from Columbia Avenue to Wilson Lane and select intersections as illustrated in Figure 1.

Exhibit 1 –Study Area and Study Intersections

EXISTING CONDITIONS

Existing Traffic Volumes and Peak Hour Operations

Intersection turning movement counts were collected at the following study intersections in March 2022:

1. N Main Street/Columbia Avenue
2. N Main Street/Boardman Avenue
3. N Main Street/N Front Street
4. N Main Street/I-84 WB Ramp Terminal
5. S Main Street/I-84 EB Ramp Terminal
6. S Main Street/S Front Street
7. S Main Street/Oregon Trail Boulevard
8. S Main Street/City Center Circle
9. S Main Street/Kincade Road
10. S Main Street/Willow Fork Drive
11. S Main Street/Wilson Lane

A description of the analysis conducted with this data is summarized in the following sections. *Appendix A contains the traffic count worksheets*.

Seasonal Adjustments

Following the methodology outlined by ODOT's Analysis Procedures Manual (APM), a seasonal adjustment factor was applied to the traffic counts collected for the existing conditions analysis to estimate 30th highest hour volumes given Boardman's significant level of highway-oriented retail establishments. Consistent with the previous 2009 IAMP, ATR #25-008, located on I-84 west of US 730, was determined to have the most similar traffic characteristics within the study area. The seasonal adjustment factor calculations for the intersection counts collected in March is 1.28 as noted in Table 2.

Table 1 - Seasonal Adjustment Factor Calculations

	2019	2018	2017	2016	2015	Avg
ATR 25-008						
Peak Month (August)	123	122	~~125~~	~~122~~	124	123
Count Month (March)	96	97	~~99~~	~~96~~	96	96

- The average peak month (August) is: (122% + 123% + 124%) / 3 = 123%
- The average count month (March) is: (96% + 97% + 96%) / 3 = 96.3%
- The seasonal adjustment factor is 123%/96.3% = **1.28**

After applying the 1.28 seasonal adjustment factor, the intersection turning movement volumes at the I-84/Main Street interchange were analyzed to discern any notable traffic patterns that would help inform the IAMP update process as noted in the following sections.

Existing Intersection Operations

ODOT uses volume-to-capacity (v/c) ratios to assess intersection operations. Table 6 of the *Oregon Highway Plan* (OHP) provides maximum volume-to-capacity ratio targets for all signalized/roundabout and unsignalized intersections. Table 2 summarizes the applicable v/c ratio that will be used to evaluate the existing and future operations at the ODOT owned/maintained I-84/Main Street ramp terminals.

Table 2 – ODOT Mobility Targets

Intersection	OHP Mobility Target
Main Street/I-84 WB Ramp Terminal	v/c = 0.85 Main Street Approach/0.80 ramp approach
Main Street/I-84 EB Ramp Terminal	v/c = 0.85 Main Street Approach/0.80 ramp approach

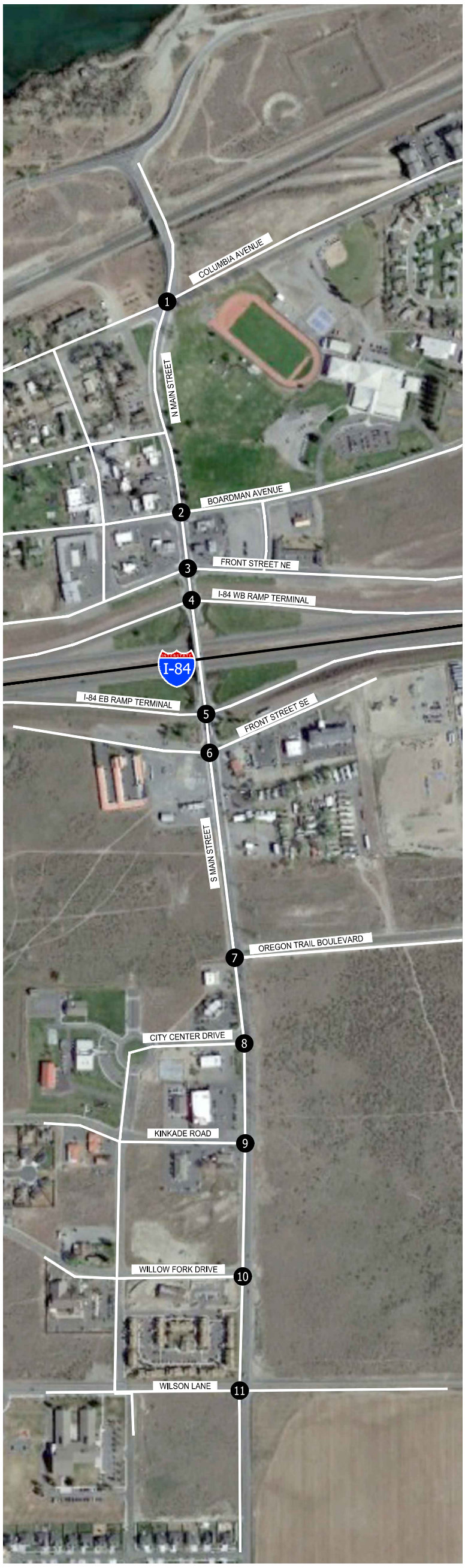
The operational standard for intersections involving only City roadways is based on level-of-service (LOS). The City maintains a LOS standard of "C" or better for all intersections.

Using these standards, an operations assessment was performed at the previously noted intersections. The existing traffic conditions at the study intersections are summarized in Figure 1 during the weekday PM peak hour (4:00-5:00 PM). As shown, the study intersection operations satisfy applicable ODOT and City of Boardman mobility targets/standards. *Appendix B contains the existing traffic operations worksheets.*

While all of the study intersections have the capacity to accommodate existing PM peak hour demand, observations at the ramp terminal intersections found that offramp movements can experience periods of delay. This delay is attributed to continuous demand along the Main Street corridor, the lack of left-turn lanes onto each on-ramp, the close spacing of the north and south Front Street intersections, and periods of occassional vehicle queue spillback generated by a pedestrian crossing beacon at the Boardman Avenue intersection.

Intersection Crash History

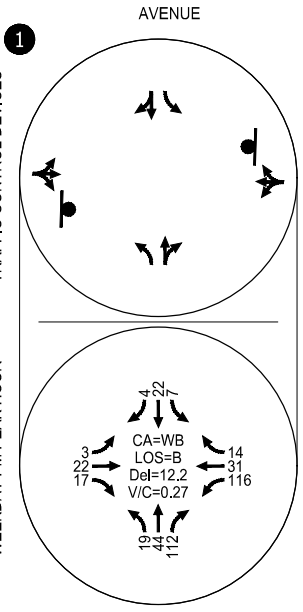
Study intersection crash histories were obtained and reviewed in an effort to identify potential safety issues. ODOT provided crash records for the study intersections for the five-year period from January 1, 2016 through December 31, 2020. *Appendix C provides the ODOT crash report which provides more details on the reported crashes.* Table 3 summarizes the ODOT crash data.



MAIN STREET/ COLUMBIA AVENUE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

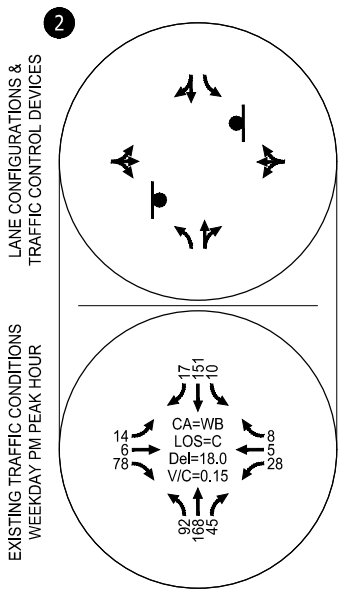
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ BOARDMAN AVENUE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

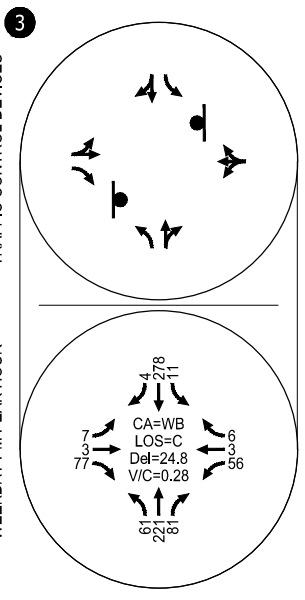
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ FRONT STREET NE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

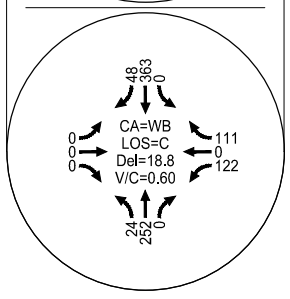
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ I-84 WB RAMP TERMINAL

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

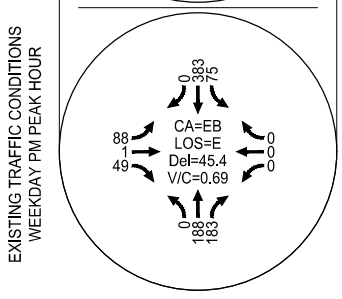
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ I-84 EB RAMP TERMINAL

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

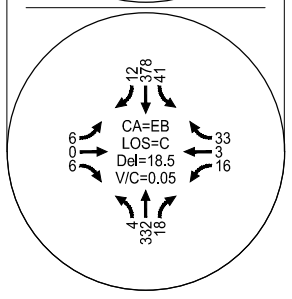
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ FRONT STREET SE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

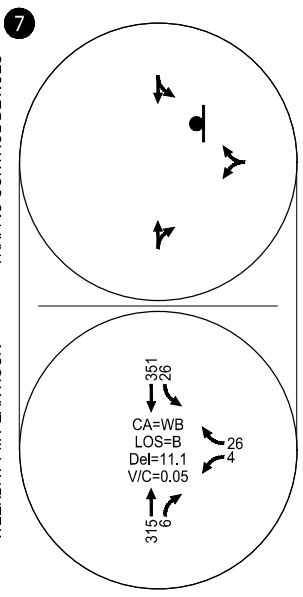
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ OREGON TRAIL BOULEVARD

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

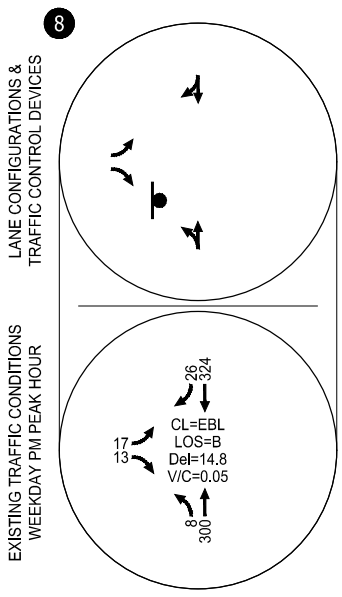
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ CITY CENTER DRIVE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

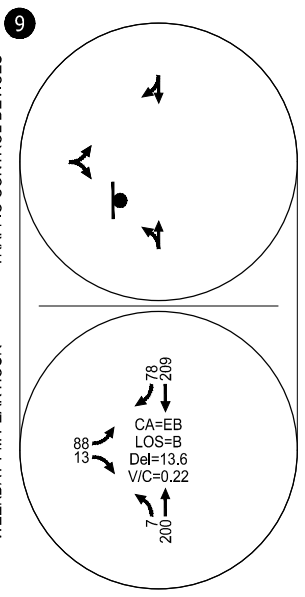
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ KINKADE ROAD

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

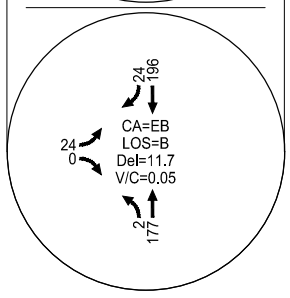
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ WILLOW FORK DRIVE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

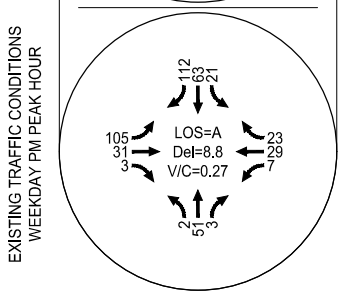
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ WILLOW LANE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



##- Study Intersections

Existing Traffic Conditions Weekday PM Peak Hour City of Boardman, Oregon

Figure 1

KITTELSON & ASSOCIATES

Table 3 – Reported Crash History (January 1, 2016 – December 31, 2020)

Study Intersection	Crash Type					Severity			Total
	Angle	Turn	Rear-End	Sideswipe	Other	PDO	Injury	Fatal	
N Main Street/ Columbia Avenue	-	-	-	-	-	0	0	0	0
N Main Street/ Boardman Avenue	1	-	-	-	-	1	0	0	1
N Main Street/ N Front Street	-	1	-	-	-	1	0	0	1
N Main Street/ I-84 WB Ramp Terminal	2	4	3	-	-	4	5	0	9
S Main Street/ I-84 EB Ramp Terminal	1	2	-	-	-	3	0	0	3
S Main Street/ S Front Street	-	-	-	-	-	0	0	0	0
S Main Street/ Oregon Trail Boulevard	-	-	1	-	-	1	0	0	1
S Main Street/ City Center Circle	-	-	-	-	-	0	0	0	0
S Main Street/ Kincade Road	-	-	-	-	-	0	0	0	0
S Main Street/ Willow Fork Drive	-	-	-	-	-	0	0	0	0
S Main Street/ Wilson Lane	2	1	-	-	-	2	1	0	3

PDO = Property Damage Only

Intersection crash rates were calculated and compared to statewide crash rate performance thresholds. For this analysis, the critical crash rate was calculated and compared to the 90th percentile crash rates for urban intersections by traffic control and 3- versus 4-legged configurations (as appropriate). This is shown in Table 4.

Table 4 – Intersection Crash Rate Assessment

Study Intersection	Total Crashes	Observed Crash Rate	90th Percentile Rate by Lane Type and Traffic Control	Observed Crash Rate > 90th Percentile Rate?
N Main Street/ Boardman Avenue	1	0.09	0.41	No
N Main Street/ N Front Street	1	0.07	0.41	No
N Main Street/ I-84 WB Ramp Terminal	9	0.54	0.29	Yes
S Main Street/ I-84 EB Ramp Terminal	3	0.17	0.29	No
S Main Street/ Oregon Trail Boulevard	1	0.08	0.29	No
S Main Street/ Wilson Lane	3	0.37	0.41	No

Existing Operations/Crash Findings

While the operations analysis indicates that all study intersections have capacity during the peak time periods, a review of the crash history and field observations along the Main Street corridor revealed several characteristics that can impact corridor operations:

- Although not summarized in the operations analysis, the EB and WB I-84/Main Street off ramps are single-lane ramps with shared single-lane stop-controlled approaches to Main Street. During peak time periods, volumes on the off ramps can generate some relatively long queues, especially when there are large trucks exiting the freeway.
- The N Main Street/I-84 WB Ramp Terminal intersection exceeds the critical crash rate based on lane type and traffic control. A detailed review of the intersection crash data revealed that all three rear-end crashes occurred on the westbound I-84 offramp approaching the intersection and all seven turning/angle crashes involved vehicles making left- and right-turns from the westbound offramp ramp approach and interacting with northbound or southbound Main Street vehicles.
    - While the crash data is limited in detail, it appears that some of these crashes could be mitigated by improved access management along the N Main Street corridor (the closely spaced north and south Front Street intersections introduce additional turning movements within close proximity of the ramp terminals) and traffic control improvements at the ramp terminal intersections. These mitigation scenarios will be explored later in this report.
- Field observations were made at the N Main Street/Boardman Avenue intersection during multiple days and time periods to better understand how the adjacent Rectangular Rapid Flashing Beacon (RRFB) impacts traffic circulation along the N Main Street corridor. Key findings from these observations include:
    - The highest concentration of pedestrian crossings were observed to occur during the 10:45 – 11:45 AM time period which coincides with Riverside Jr/Sr High School lunch period. During this period, students were observed walking from the campus to various lunch destinations along the N Main Street corridor. The RRFB was consistently utilized to assist in the crossing of the north leg of N Main Street.
    - While students typically crossed in groups, there were instances where repeated back-to-back activations of the RRFB led to the formation of northbound vehicle queues on N Main Street. In some instances, particularly when there were multiple trucks involved, these vehicle queues were observed backing up to and beyond the I-84 WB Ramp Terminal intersection. This is generally a significant safety concern as the interruption of traffic flow can lead to backups on the offramp, which can in turn impact the I-84 westbound freeway lanes under worst case circumstances.
    - Other peak activation periods of the RRFB occurred in the 6:45-7:45 AM time period and 2:45-3:34 PM time period, however the number of pedestrians were observed to be measurably lower, more spread out, and less likely to generate significant vehicle queues along N Main Street.

FUTURE 2042 CONDITIONS

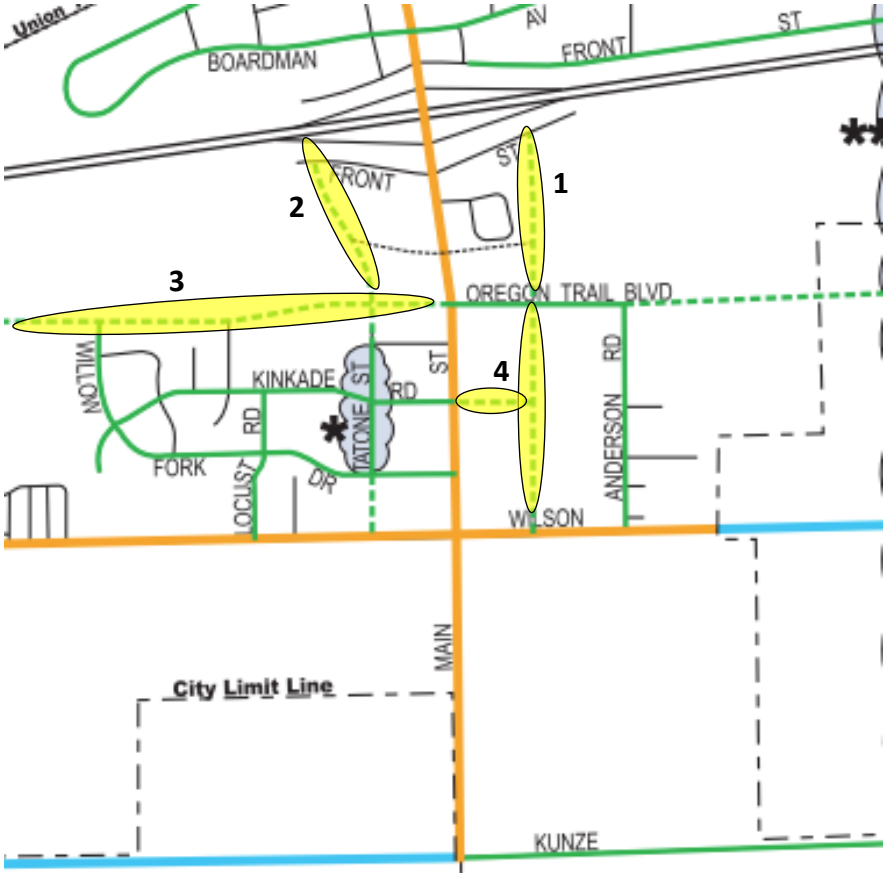
This section documents the future travel demand and forecast traffic operations along the Main Street study corridor. The future traffic projections are based on anticipated land use and development through the year 2042 using the same cumulative traffic forecast methodology from the 2009 IAMP.

Future 2042 Land Uses/Development Projections

Based on an updated land use inventory, a review of current development patterns, and discussions with City of Boardman staff, an updated land use forecast was performed for all vacant/undeveloped parcels located within the larger Main Street study corridor. *Appendix D contains a detailed description of assumed future developments for these parcels*.

From this land use forecast, a future trip generation profile was developed for each vacant parcel with anticipated weekday PM peak hour trips distributed to/from the Main Street corridor and study intersections. This distribution was based on the type of land use (highway-oriented commercial/retail uses with a focus to/from the I-84 corridor, Boardman supporting commercial/retail uses with a focus to/from local residential neighborhoods, and residential uses with a commuting focus to/from local and regional employment centers), and future roadway connections shown in the 2009 IAMP's Roadway Network and Classification Plan (see Exhibit 2).

Exhibit 2 – Excerpt from the 2009 IAMP's Roadway Network and Classification Plan Map



From this map, the following connections were assumed to be constructed as part of future development within the 20-year timeframe of this assessment:

1. A new backage road connection linking SE Front Street to Oregon Trail Boulevard (likely is being constructed in the 2024-2025 period).
2. A new backage road connection linking SW Front Street to a future westerly extension of Oregon Trail Boulevard.
3. A westerly extension of Oregon Trail Boulevard from S Main Street to Faler Road.
4. A new local street grid pattern on the east side of S Main Street connecting Oregon Trail Boulevard to Wilson Lane with a connection to S Main Street.

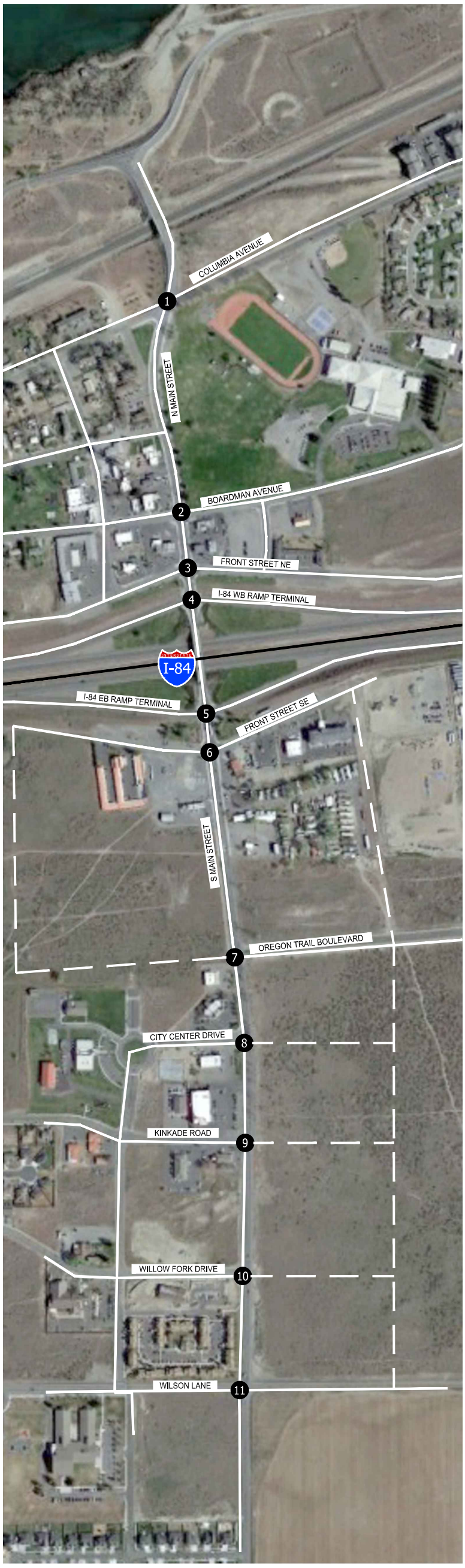
Future 2042 Traffic Conditions

Future year 2042 No-Build weekday PM peak hour traffic volumes were determined by applying the growth projections and development-related trips to the existing traffic network. The resulting future year 2042 No-Build weekday PM peak hour traffic volumes are shown in Figure 2. As shown in the figure, intersection capacity and/or operational performance issues are forecast at the following intersections:

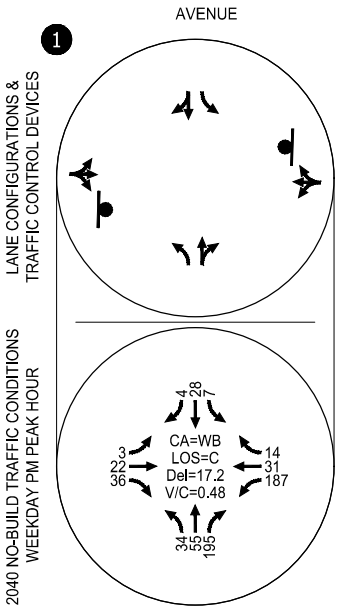
- N Main Street/Boardman Avenue – the critical westbound approach is forecast to operate at LOS E conditions during the weekday PM peak hour. This is primarily due to the limited capacity of the single-lane stop-controlled Boardman Avenue approach and forecast traffic growth along the Boardman Avenue corridor.
- N Main Street/N Front Street – the critical westbound Front Street approach is forecast to operate above capacity during the weekday PM Peak hour. This is primarily due to increasing forecast north/south demand on Main Street and the impacts of anticipated highway-oriented development along the N Front Street corridor.
- N Main Street/I-84 WB Ramp Terminal – the critical westbound offramp approach is forecast to operate above capacity during the weekday PM Peak hour. This is primarily due to anticipated long-term traffic growth and the limited capacity of the single lane stop-controlled offramp approach to Main Street.
- S Main Street/I-84 EB Ramp Terminal – the critical eastbound approach is forecast to operate above capacity during the weekday PM Peak hour. This is primarily due to anticipated traffic growth on Main Street, forecast left-turn demand, and the limited capacity of the single-lane stop-controlled offramp approach to Main Street.
- S. Main Street/Front Street SE – the critical eastbound approach is forecast to operate at LOS E conditions during the weekday PM peak hour. This can be attributed to anticipated highway-oriented retail growth on the southwest corner of the interchange.

Appendix E contains the 2042 no-build traffic conditions worksheets.

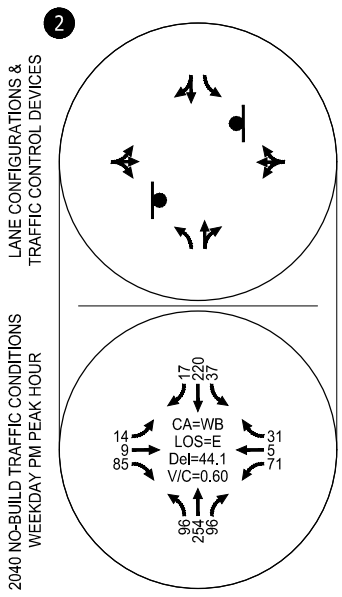
While relatively consistent with the forecast operations from the 2009 IAMP, the forecast operations at the N Main Street/Boardman Avenue and S Main Street/I-84 EB Ramp Terminal intersections necessitated the reinvestigated of several improvement alternatives.



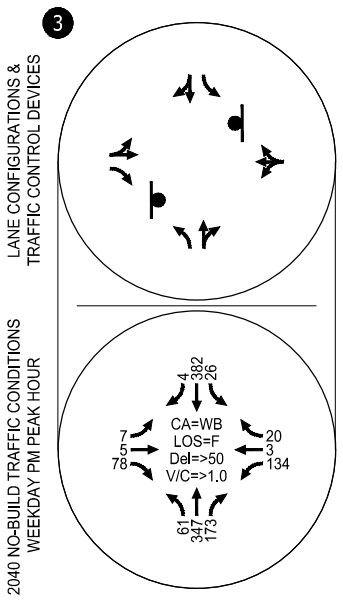
MAIN STREET/ COLUMBIA AVENUE



MAIN STREET/ BOARDMAN AVENUE



MAIN STREET/ FRONT STREET NE



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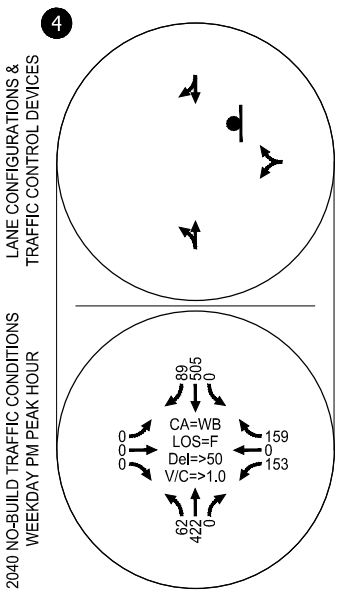

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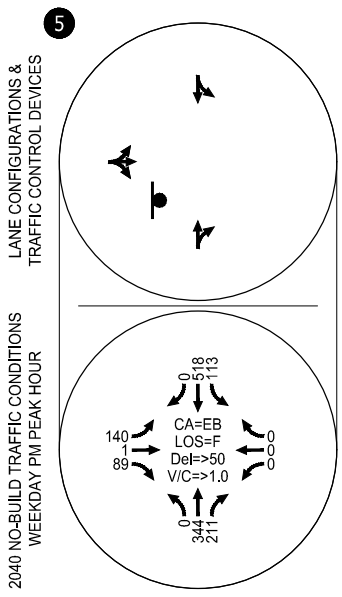

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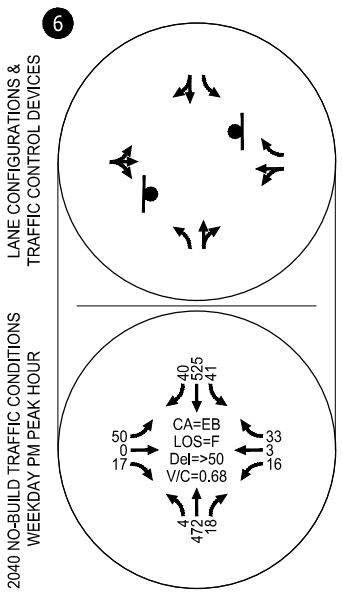
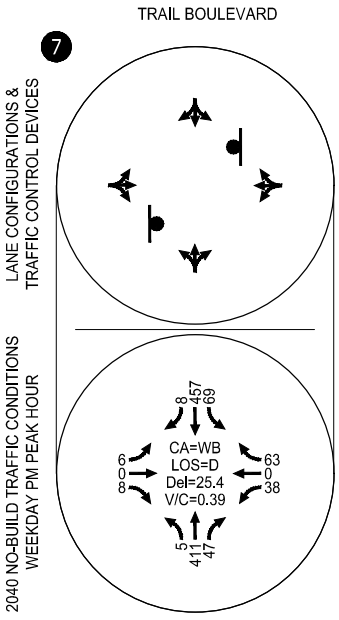
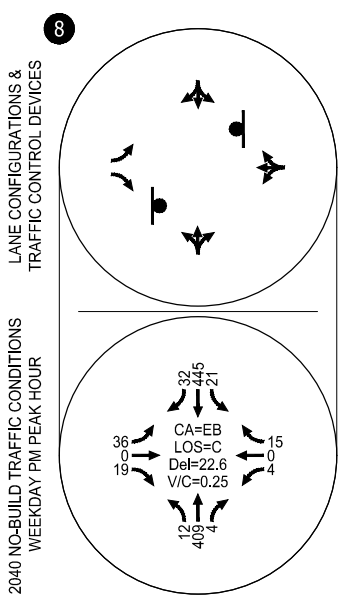


MAIN STREET/ OREGON TRAIL BOULEVARD



MAIN STREET/ CITY CENTER DRIVE



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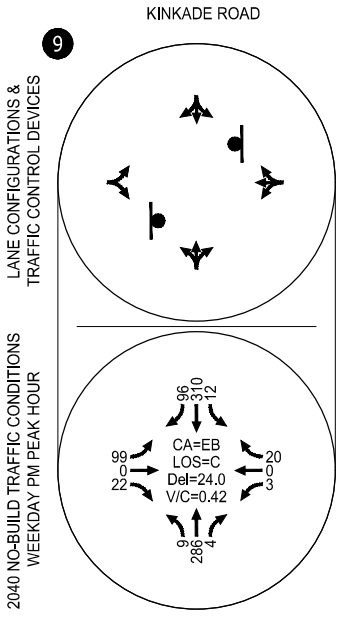
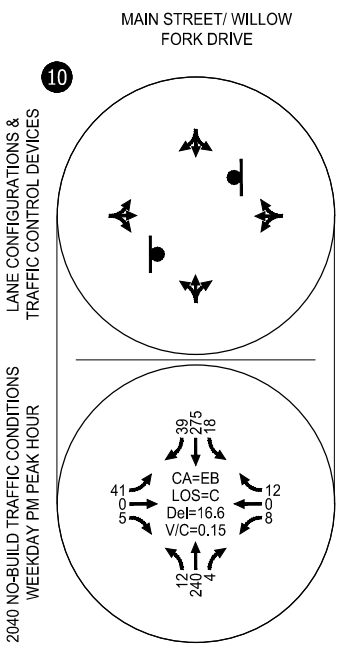
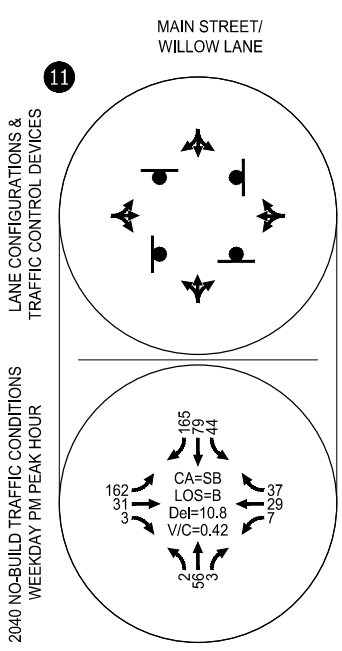


MAIN STREET/ WILLOW FORK DRIVE



MAIN STREET/ WILLOW LANE



2042 No-Build Future Traffic Conditions
Weekday PM Peak Hour
City of Boardman, Oregon

Figure 2

##- Study Intersections

INTERCHANGE CONCEPT REDEVELOPMENT & EVALUATION

This section of the report documents the development and evaluation of new interchange and access configuration concepts for Boardman's Main Street corridor.

Initial Interchange Concept Development

The initial interchange improvement concepts considered in this section were developed by the project team to address the existing and forecast capacity, operations, safety, and access management conditions within the study area. In particular, concepts were developed that focus on addressing the following issues:

- Mitigating the forecast LOS constraints at the critical Boardman Avenue approaches to the N Main Street intersection.
- Improving the turning movement conflicts between the closely spaced north and south Front Street intersections with the I-84 Ramp Terminal intersections.
- Mitigating the forecast over capacity conditions at the N Main Street/I-84 Westbound Ramp Terminal and S Main Street/I-84 Eastbound Ramp Terminal intersections without widening the I-84/Main Street overpass.

N Main Street/Boardman Avenue Intersection Improvements

The 2009 IAMP did not specifically identify future improvements at the N Main Street/Boardman Avenue intersection. However, as documented in the existing conditions section of this report, the intersection has an RRFB crossing, that under certain circumstances, can lead to long vehicle queues along the corridor that can extend back to the I-84 WB ramp terminal and interrupt traffic flow from the offramp. In addition to the RRFB-related queuing issues, the westbound Boardman Avenue approach is forecast to operate at LOS E conditions during the weekday PM peak hour. Based on these findings, improvement scenarios were investigated that would better accommodate the pedestrian crossings and address the forecast operational deficiencies.

Traffic Control Options

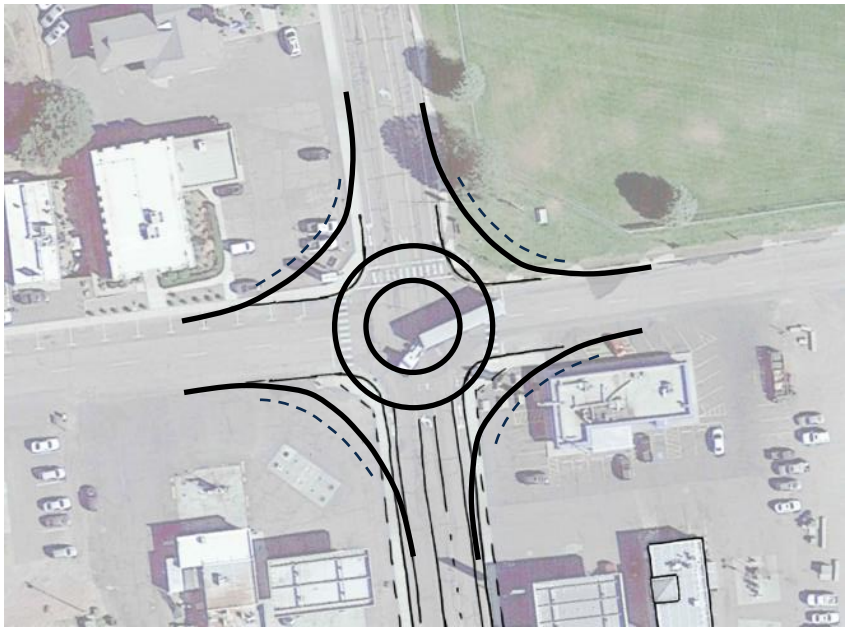
Given the forecast operations and the likely increased volume impacts that could be generated in the near-term by other projects currently in the 2009 IAMP (restrictions of N Front Street to right-in/right-out movements and a raised median along the N Main Street corridor), the need for traffic control improvements was investigated at a planning level.

Roundabout

From an operations perspective and considering it is less than 500 feet north of the I-84 WB ramp terminal, a single lane roundabout would be an appropriate treatment at the N Main Street/Boardman Avenue intersection. However, given the interchange is expected to continue to serve freeway oriented freight traffic, any roundabout treatment would need to be large enough to accommodate the circulation needs of large trucks and trailers. A conceptual sizing footprint of a roundabout large enough to

accommodate WB-67 trucks is shown in Exhibit 3. As shown, there would be significant private property impacts and right-of-way acquisition needs in the northwest, southwest, and southeast quadrants. Based on these impacts, it was determined that a roundabout is not a reasonably viable near or long-term traffic control option.

Exhibit 3 – N Main Street/Boardman Avenue Conceptual Roundabout Footprint



Signalization

Given the existing north, south, east, and west approaches all have adequate width to support separate left-turn and shared through/right movements, a traffic signal was investigated. A planning-level signal warrant analysis was conducted at the intersection in accordance with the procedures outlined in ODOT's preliminary traffic signal warrant analysis. From this analysis, it was found that the intersection would meet this preliminary signal warrant which focuses on high volumes on the intersecting minor street with high volumes on the major street. While meeting this preliminary signal warrant is not an outright indicator that signalization should be implemented, it does suggest there is sufficient projected demand to meet a basic volume-based criteria. In addition, a traffic signal could replace the existing RRFB with a standard signal-integrated pedestrian crossing phase. The pedestrian crossing phase would eliminate repeated back-to-back activations and minimize instances of vehicle queue spillback along the N Main Street corridor. For these reasons, signalization was found to be a reasonably viable and implementable near- or long-term traffic control treatment at the N Main Street/Boardman Avenue intersection. A more detailed operations analysis of a figure signalization scenario is presented later in this report.

Initial Interchange Concept Evaluation

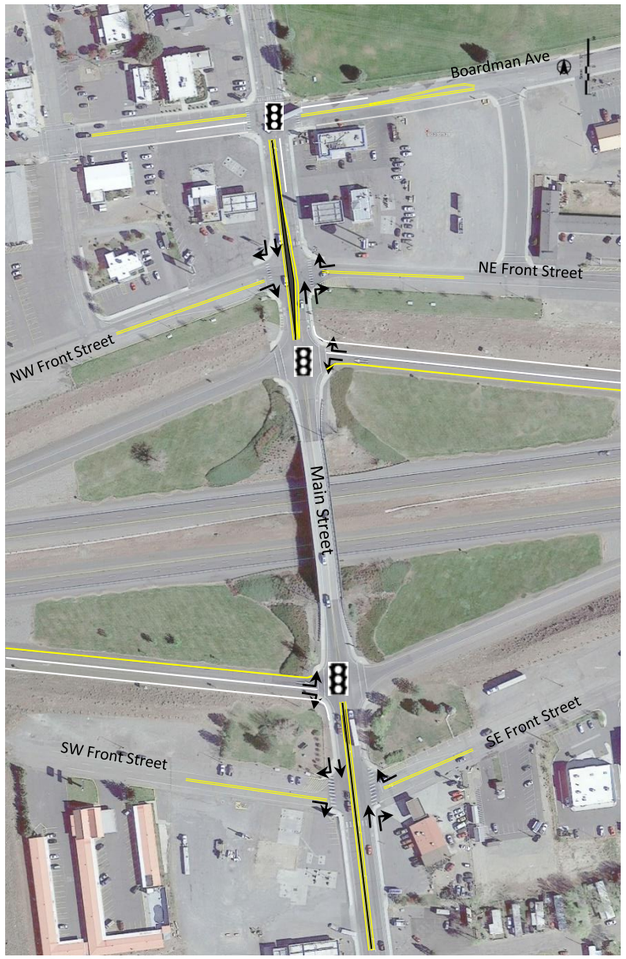
In response to these issues, two interchange improvement concepts were developed as documented in the following tables. Each table contains the following planning-level evaluation:

- A graphical illustration that conveys the basic components of the concept overlaid on an aerial photograph.
- A short narrative summarizing the main infrastructure components of the concept.
- A planning-level evaluation using the operations/land use/access spacing/cost/constructability evaluation criteria from the original IAMP.

The respective 2042 intersection operations associated with each concept are shown in Figures 3 and 4 which follow each evaluation table. *Appendices F and G contains the traffic conditions worksheets.*

Table 5 – Circulation Alternative #1 Summary and Evaluation

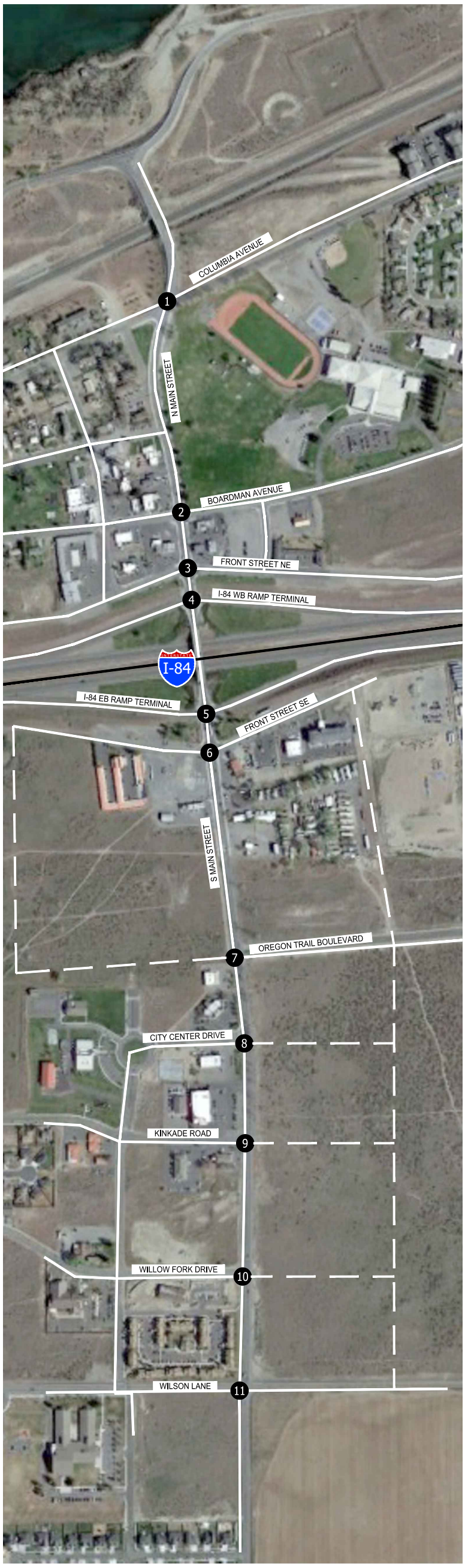
Circulation Alternative #1	Evaluation Information				Evaluation Results	
Concept Description and Illustration	**Category**	**Evaluation Criteria**	**Scoring Key**		**Score**	**Comments**
Circulation Alternative #1 signalizes the two I-84 EB and WB ramp terminals (when warranted) and converts the N Main Street/NE Front Street and S Main Street/SE Front Street intersections to limited access right-in/right-out through a median on Main Street. To accommodate anticipated re-routing of traffic volumes, the N Main Street/Boardman Avenue intersection would be signalized (when warranted) along with widening of the eastbound and westbound Boardman Avenue approaches. Given the complexity and cost, no widening is assumed on the Main Street overpass of I-84. The rationale for this alternative is to develop an attainable (primarily from a cost perspective) corridor improvement that better manages the close spacing of the two Front Street intersections and incorporates long-term intersection traffic control at the adjacent interchange and supporting intersections.	Transportation	Addresses the identified operational deficiencies at the Front Street, WB ramp terminal, and EB ramp terminals	+1	Fully addresses the identified operation, capacity, and queuing concerns	**-1**	**While the signalization of the WB I-84 ramp terminal intersection would improve intersection operations (see the following Figure 3), the I-84 EB ramp terminal would operate over capacity. In addition, the lack of a NB/SB Main Street left-turn lane at both the EB and WB ramp terminals will create long vehicle queues on Main Street and limit the operational efficiency of the intersections and the Main Street corridor.**
			0	Only partially addresses the identified operations, capacity, and queuing concerns		
			-1	Does not fundamentally address the major operations, capacity, and queueing concerns		
		Improves walking and biking along Main Street	+1	Improves walking and biking to existing and future destinations along Main Street	**+1**	**Pedestrian and bicycle movements along Main Street will improve with fewer turning movement interactions at the two Front Street intersections and signalized crossings at Boardman Avenue and the two I-84 ramp terminal volume intersections.**
			0	Does not improve walking or biking to existing or future destination along Main Street relative to existing conditions.		
	Land Use/ Economic Development	Minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW and/or circulation impacts	**0**	**Likely to be no right-of-way impacts. However, a median along N Main Street will have access impacts to adjacent retail establishments along Main Street and Front Street.**
			0	Alternative provides for long-term growth but has some ROW and/or circulation impacts		
	Access Spacing	Moves in the direction of ODOT access spacing requirements	+1	Improves or moves in the direction meeting of ODOT's access spacing guidelines	**+1**	**While the alternative does not close the two Front Street intersections, the limited access right-in/right-out configuration will minimize turning movements near the two ramp terminals and improve the safety and operations along the Main Street corridor.**
			0	Does not meet, improve, or move in the direction of meeting ODOT's access spacing guidelines relative to existing conditions.		
	Cost	Cost relative to other concepts	+1	Low construction costs	**0**	**This concept has a planning level cost estimate of approximately $2.5M.**
			0	Moderate construction costs		
			-1	Substantial construction costs		
	Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.	**+1**	**Minimal implementation issues.**
			0	Construction of improvements will be a physical challenge and/or will require major detours during construction.		
					+2	**Total Score**



Note: Graphic is for illustrative purposes only.

Miscellaneous Evaluation Comments

- While signalization of the I-84 WB and EB ramp terminals is possible, it is unlikely that such a mitigation measure would be considered without an affiliated widening of the Main Street overpass structure that would accommodate separate northbound and southbound left-turn lanes.
- Signalization of the I-84 WB and EB ramp terminals would not preclude the ability to accommodate oversized freight loads. ODOT has noted that oversized height-related loads have needed to utilize the off- and on-ramps due to clearance issues with the Main Street overpass over I-84.



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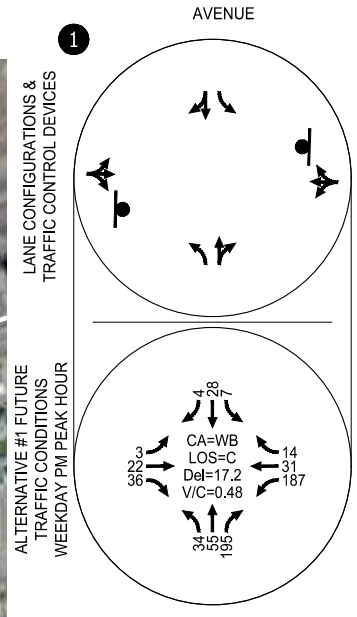

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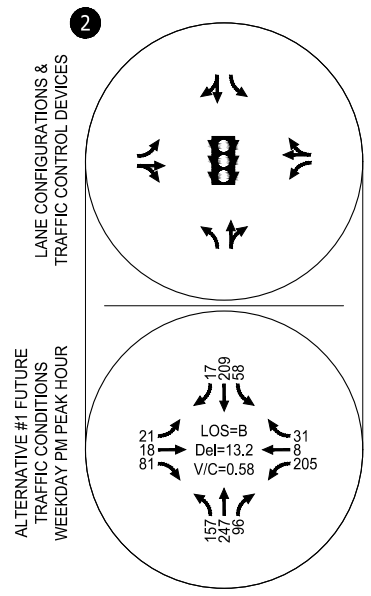

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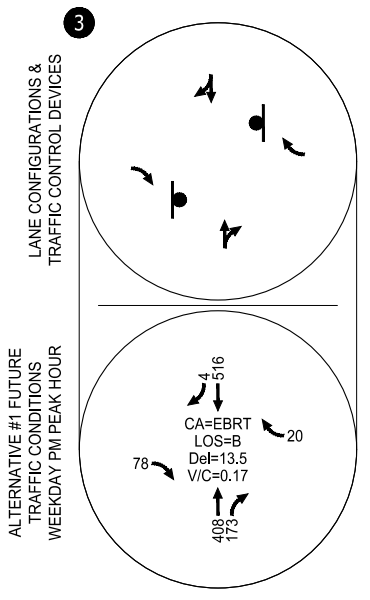

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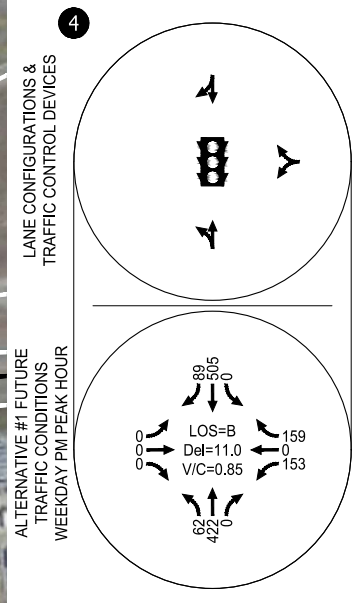

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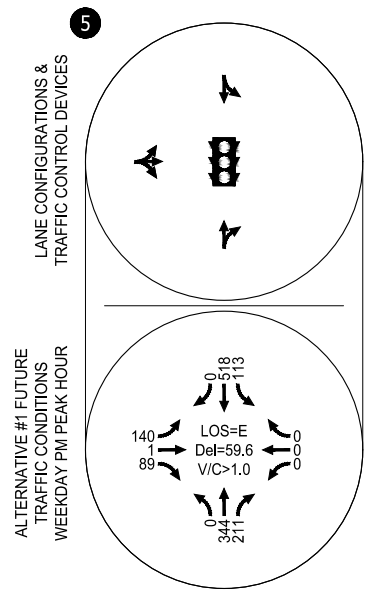

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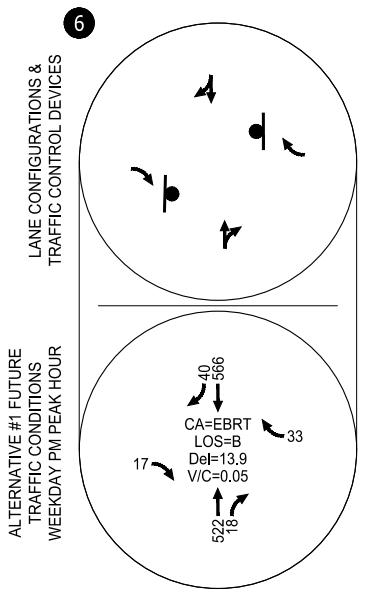

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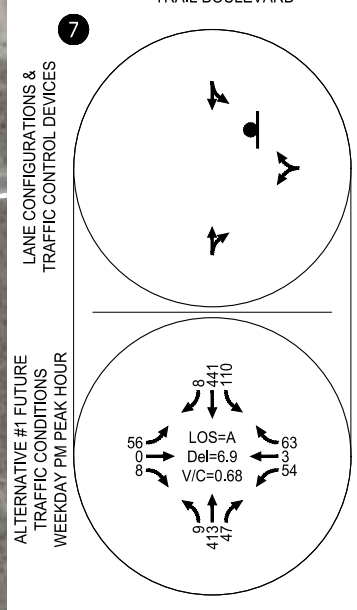

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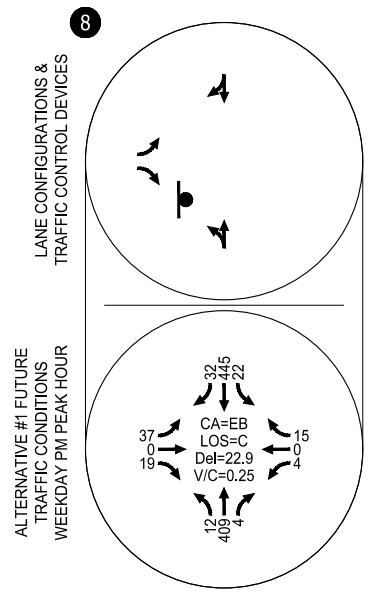

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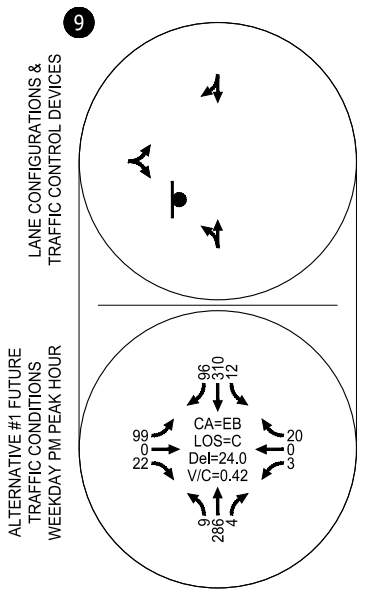

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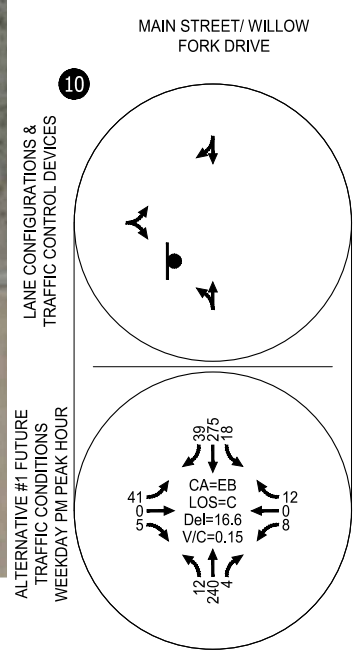

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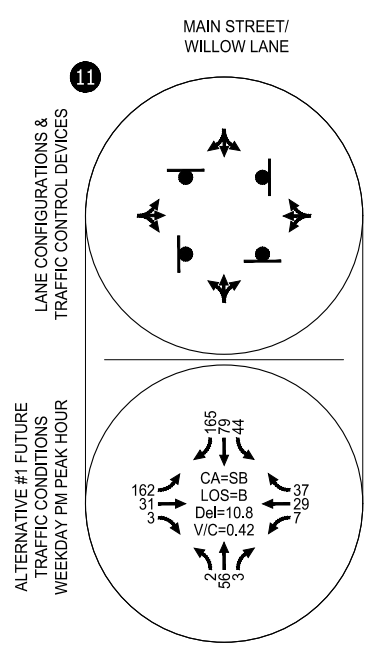


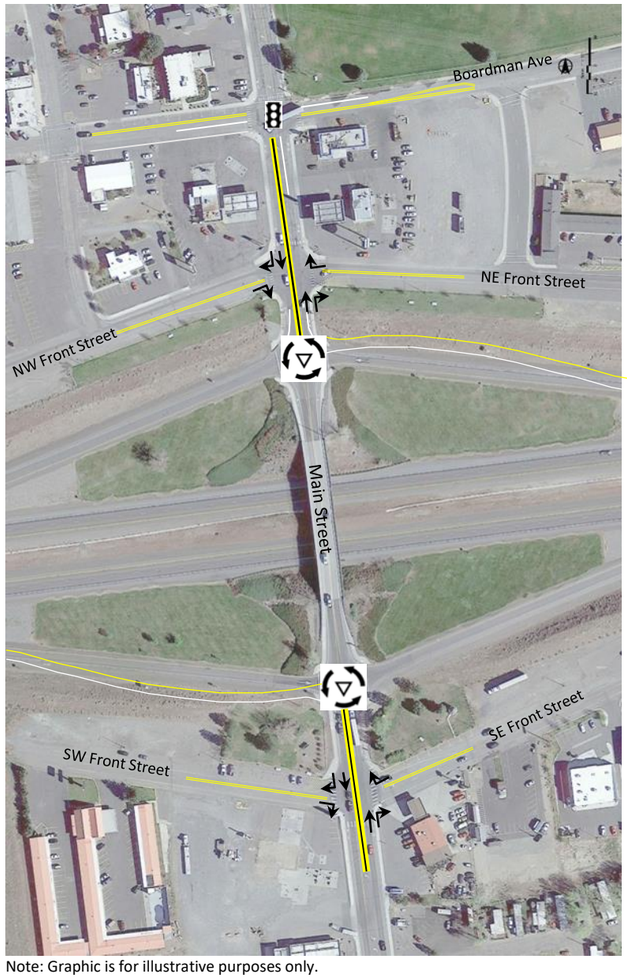
##- Study Intersections

Circulation Alternative #1, Future Traffic Conditions
Weekday PM Peak Hour
City of Boardman, Oregon

Figure
3

Table 6 – Circulation Alternative #2 Summary and Evaluation

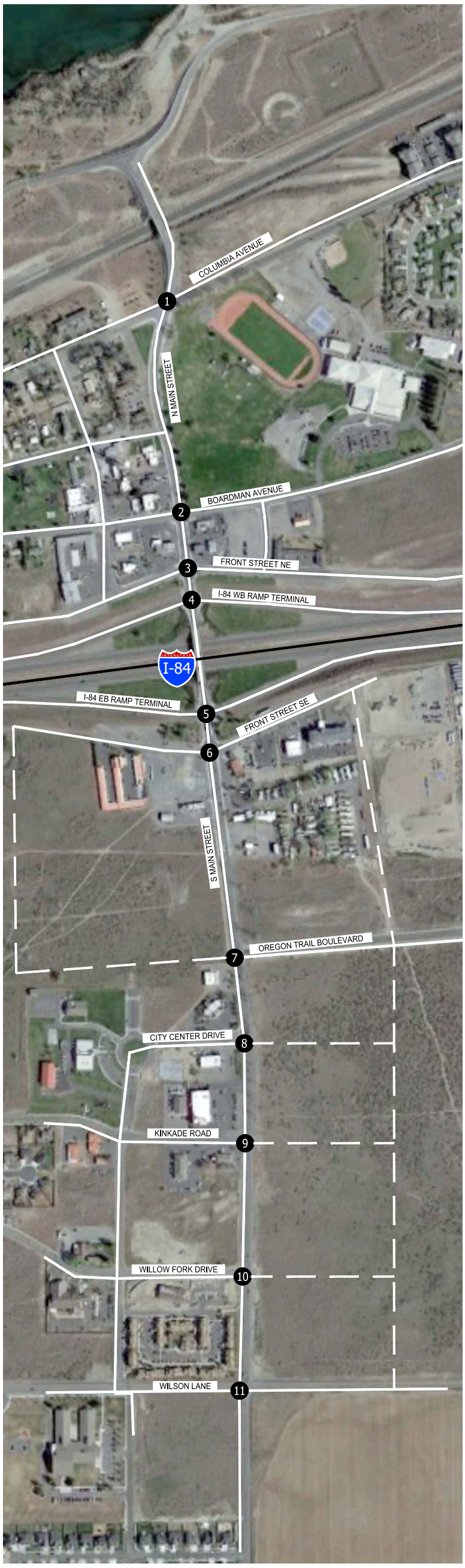
Circulation Alternative #2	Evaluation Information				Evaluation Results	
Concept Description and Illustration	**Category**	**Evaluation Criteria**	**Scoring Key**		**Score**	**Comments**
Circulation Alternative #2 includes single lane roundabouts at the two I-84 EB and WB ramp terminals and converts the N Main Street/NE Front Street and S Main Street/SE Front Street intersections to limited access right-in/right-out through medians on Main Street. To accommodate anticipated re-routing of traffic volumes, the N Main Street/Boardman Avenue intersection would be signalized (when warranted). The rationale for this alternative is to better manage the close spacing of the two Front Street intersections and address the long-term operations at the I-84 ramp terminals without a widening of Main Street over I-84.	Transportation	Addresses the identified operational deficiencies at the Front Street, WB ramp terminal, and EB ramp terminals	+1	Fully addresses the identified operation, capacity, and queuing concerns	**+1**	**Roundabouts at the I-84 ramp terminals will provide improved long-term capacity (see the following Figure 4) and address northbound and southbound left-turn movement without a widening of the Main Street overpass. The limited access restrictions at the two Front Street intersections will improve operations along the Main Street corridor.**
			0	Only partially addresses the identified operations, capacity, and queuing concerns		
			-1	Does not fundamentally address the major operations, capacity, and queueing concerns		
		Improves walking and biking along Main Street	+1	Improves walking and biking to existing and future destinations along Main Street	**+1**	**Pedestrian and bicycle movements along Main Street will improve with fewer turning movement interactions at the two Front Street intersections a signalized crossings at Boardman Avenue, and pedestrian crossing accommodations at the I-84 ramp terminal roundabouts.**
			0	Does not improve walking or biking to existing or future destination along Main Street relative to existing conditions.		
	Land Use/ Economic Development	Minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW and/or circulation impacts	**0**	**Likely to be no right-of-way impacts to private properties as the roundabouts can likely be constructed within existing ODOT right-of-way. However, a median along N Main Street will have access impacts to adjacent retail establishments along Main Street and Front Street.**
			0	Alternative precludes long-term growth or has significant ROW and/or circulation impacts		
	Access Spacing	Moves in the direction of ODOT access spacing requirements	+1	Improves or moves in the direction meeting of ODOT's access spacing guidelines	**+1**	**While the alternative does not close the two Front Street intersections, the limited access right-in/right-out configuration will minimize turning movements near the two ramp terminals and improve the safety and operations along the Main Street corridor.**
			0	Does not meet, improve, or move in the direction of meeting ODOT's access spacing guidelines relative to existing conditions.		
	Cost	Cost relative to other concepts	+1	Low construction costs	**-1**	**This concept has a planning level cost estimate of approximately $10M.**
			0	Moderate construction costs		
			-1	Substantial construction costs		
	Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.	**0**	**Construction of the roundabouts is likely to require some detours and/or temporary lanes to maintain traffic flow.**
			0	Construction of improvements will be a physical challenge and/or will require detours during construction.		
					+2	**Total Score**



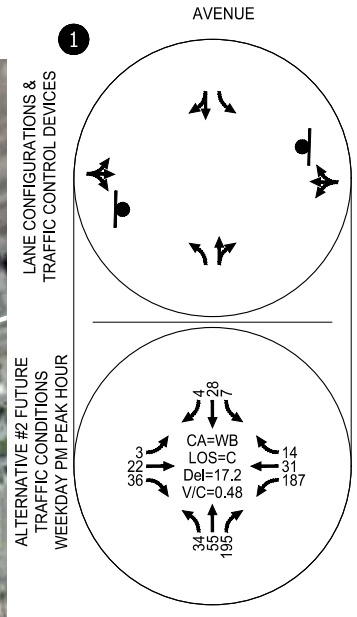
Note: Graphic is for illustrative purposes only.

Miscellaneous Evaluation Comments

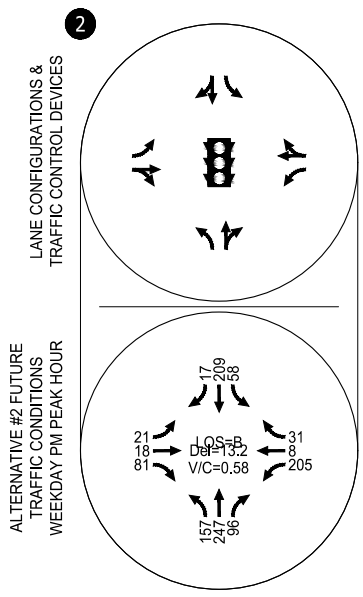
- The accommodation of roundabouts at the I-84 EB and WB ramp terminals will require realignment of the respective offramps. Additional design efforts would need to explore the ramifications of accommodating the offramp realignments considering the sloped embankments at the interchange.
- Additional design efforts would need to explore the size of the roundabouts and their ability to accommodate oversized freight movements.



MAIN STREET/ COLUMBIA AVENUE



MAIN STREET/ BOARDMAN AVENUE



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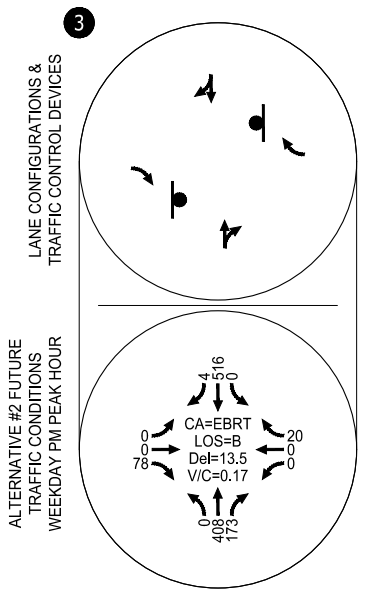

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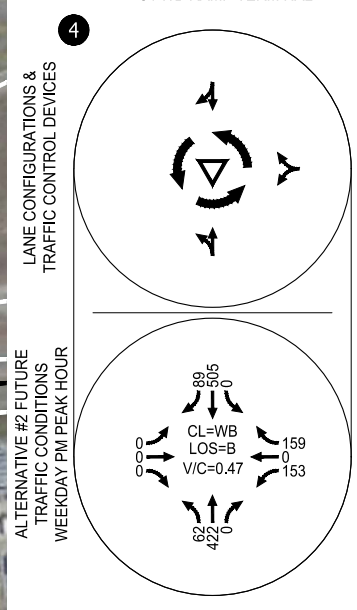

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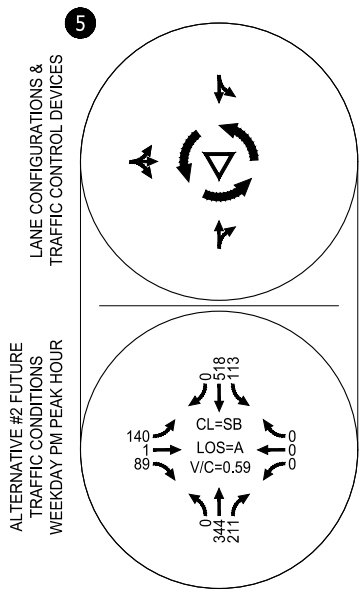

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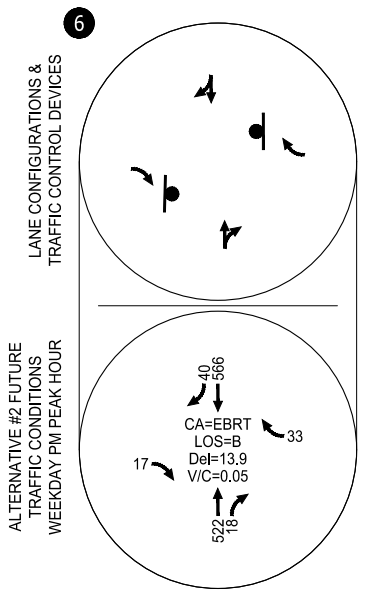

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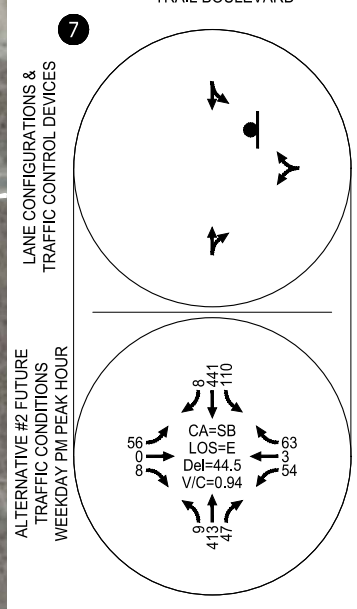
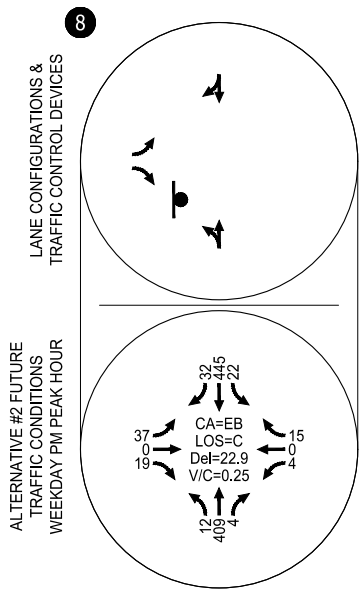


MAIN STREET/ CITY CENTER DRIVE



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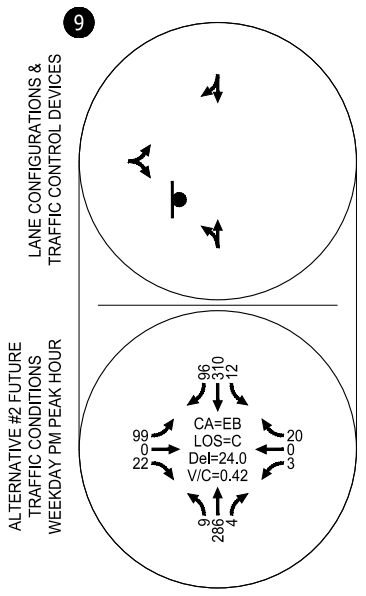
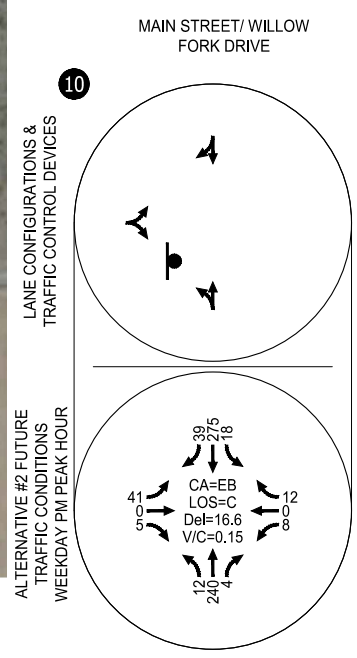
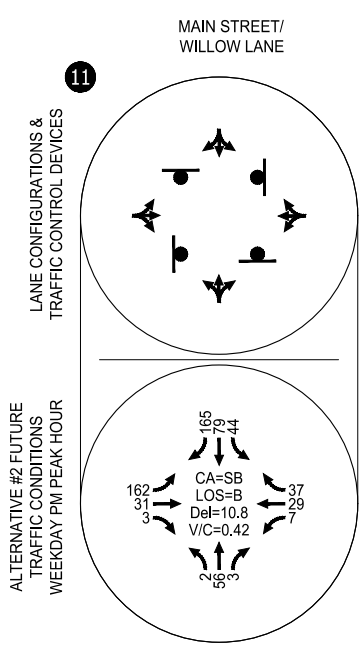


MAIN STREET/ WILLOW FORK DRIVE



MAIN STREET/ WILLOW LANE



Circulation Alternative #2 Future Traffic Conditions Weekday PM Peak Hour City of Boardman, Oregon

Figure 4

##- Study Intersections

Preferred Circulation Alternative Evaluation

As documented in the previous section, Circulation Alternative #1 and #2 both meet many of the important multimodal circulation and access spacing evaluation criteria. However, when reviewing the detailed intersection operations of Circulation Alternative #1 at the I-84 ramp terminals, the lack of a NB/SB left-turn lane (which can only be achieved with a widening or complete rebuild of the Main Street I-84 overpass structure) will significantly limit the long-term capacity and operational efficiency of the ramp terminal intersections as well as the Main Street corridor. For this reason, Circulation Alternative #1 was determined to not fundamentally address the long-term needs of the Main Street corridor. Despite the higher cost and constructability challenges of the roundabout treatments, Circulation Alternative #2 was further evaluated from a geometric, access management, and freight accommodations perspective.

Refined Geometric Layouts

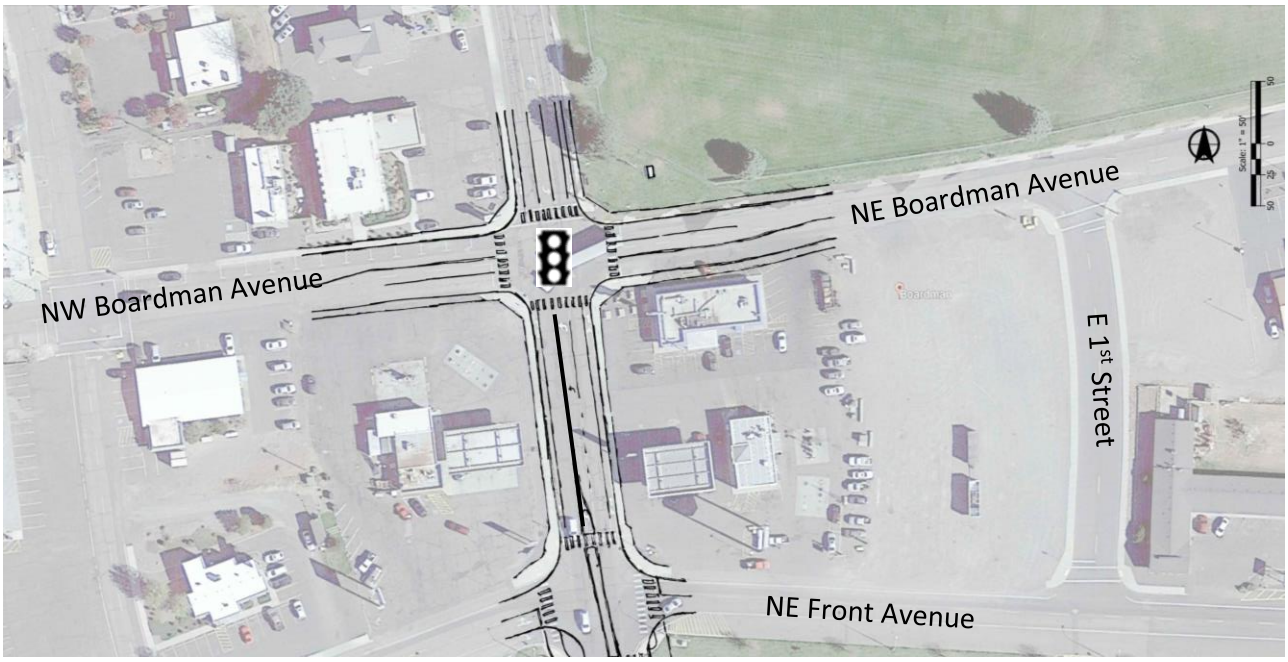
Refined geometric layouts of various components of Circulation Alternative #2 were prepared taking into consideration known right-of-way constraints, forecast traffic demands, the vehicle/truck types associated with the I-84 Main Street interchange, and multimodal considerations. The refined components of Circulation Alternative #2 are summarized and illustrated in the following sections of this report.

Main Street/Boardman Avenue

Figure 5 illustrates a refined layout of the Main Street/Boardman Avenue intersection as a widened signalized intersection. Specific improvements associated with this project would include:

- Installation of a traffic signal and the removal of the existing rectangular rapid flashing beacon (RRFB) on the north leg of the intersection.
- Widening of NE Boardman Avenue to accommodate a three-lane section. This widening would include removal of the head-in parking along the north side of the C&D Drive-in.
- Reallocation of the NW Boardman Avenue travel lanes to accommodate a three-lane section. This would include the partial removal of the on-street parking along the north curb line between Main Street and W 1st Street.
- Installation of a raised median on Main Street from the Boardman Avenue intersection to terminate near the I-84 WB Ramp Terminal intersection. The raised median would modify Front Avenue and all commercial driveways in this section to right-in/right-out movements.

Figure 5 – Refined Sketch Level Layout of Main Street/Boardman Avenue (for illustrative purposes only)



Signalized Queuing Conditions

As noted in either Figure 3 or Figure 4, future signalization of the Main Street/Boardman Avenue intersection under a simple permissive phasing configuration will allow the intersection to operate at LOS B conditions with a V/C ratio of 0.58 during the weekday PM peak hour. This phasing set up will also result in 95th percentile queues that can be accommodated within the defined lane storage areas as summarized in *Appendix F or G*.

I-84/EB & WB Ramp Terminals

Figure 6 illustrates three potential configurations for roundabout treatments at the I-84 EB and WB ramp terminal intersections. It is noted that the refined layout configurations were prepared at a scaled proof-of-concept level. While still a sketch, the following characteristics were included in each layout:

- Maximizing the spacing between the roundabouts and the Main Street overpass structure while also still maintaining spacing and viable geometrics at the north and south Front Street intersections. It is recognized that further refinement of the design would be needed to identify potential impacts to the overpass structure.
- Inscribed circle diameter of 140 feet which is typically the minimum size needed to support the turning movement requirements for a WB-67 truck. The wheel paths for this design vehicle are also shown in Figure 5.
- Pedestrian and bicycle accommodations.

A high-level assessment of each roundabout concept is outlined below.

Traditional Single Lane Roundabout

This configuration includes a traditional single-lane roundabout that would incorporate right-in/right-out access to Front Street.

- With access restrictions to Front Street, the design would accommodate all circulation movements, providing an efficient u-turn maneuver for specific movements exiting both north and south Front Street.
- At a sketch level layout, the design would need additional refinement to determine the ability to not impact the I-84 overpass structure.

Tear-Drop Single Lane Roundabout

This configuration is like the traditional shaped roundabout but includes a tear-drop shaped circulating island that would restrict full internal circulating movements.

- Tear-drop shape circulating island would eliminate the u-turn movement demand that would be generated by the access restrictions to north and south Front Street. This would be particularly problematic for S Front Street where there is a near-term parallel local street network.
- At a sketch level layout, the design would not result in a smaller roundabout or provide the ability to locate the roundabouts further away from the I-84 overpass bridge structure.

5-Legged Single-Lane Roundabout

This single-lane roundabout configuration incorporates Front Street movements resulting in a 5-legged design.

- As shown, incorporating Front Street into the roundabout design would necessitate a much larger oval shaped roundabout footprint.

- The incorporation of Front Street movements into the roundabout is inconsistent with Oregon and Federal Highway Administration (FHWA) local access and hierarchy practices involving direct local street access at an interchange ramp terminal.
- There are likely more constructability challenges associated with the larger footprint.

Following the three roundabout concept sketches shown in Figure 6, Figures 7 and 8 provide a detailed image of the traditional single lane roundabout with the signalized configuration of the Main Street/Boardman Avenue intersection.

Figure 6 – Refined Sketch Level Layout of the I-84 EB and WB Ramp Terminals (for illustrative purposes only)

Figure 7 – Refined Circulation Alternative #2 Sketch-Level Layout (for illustrative purposes only)

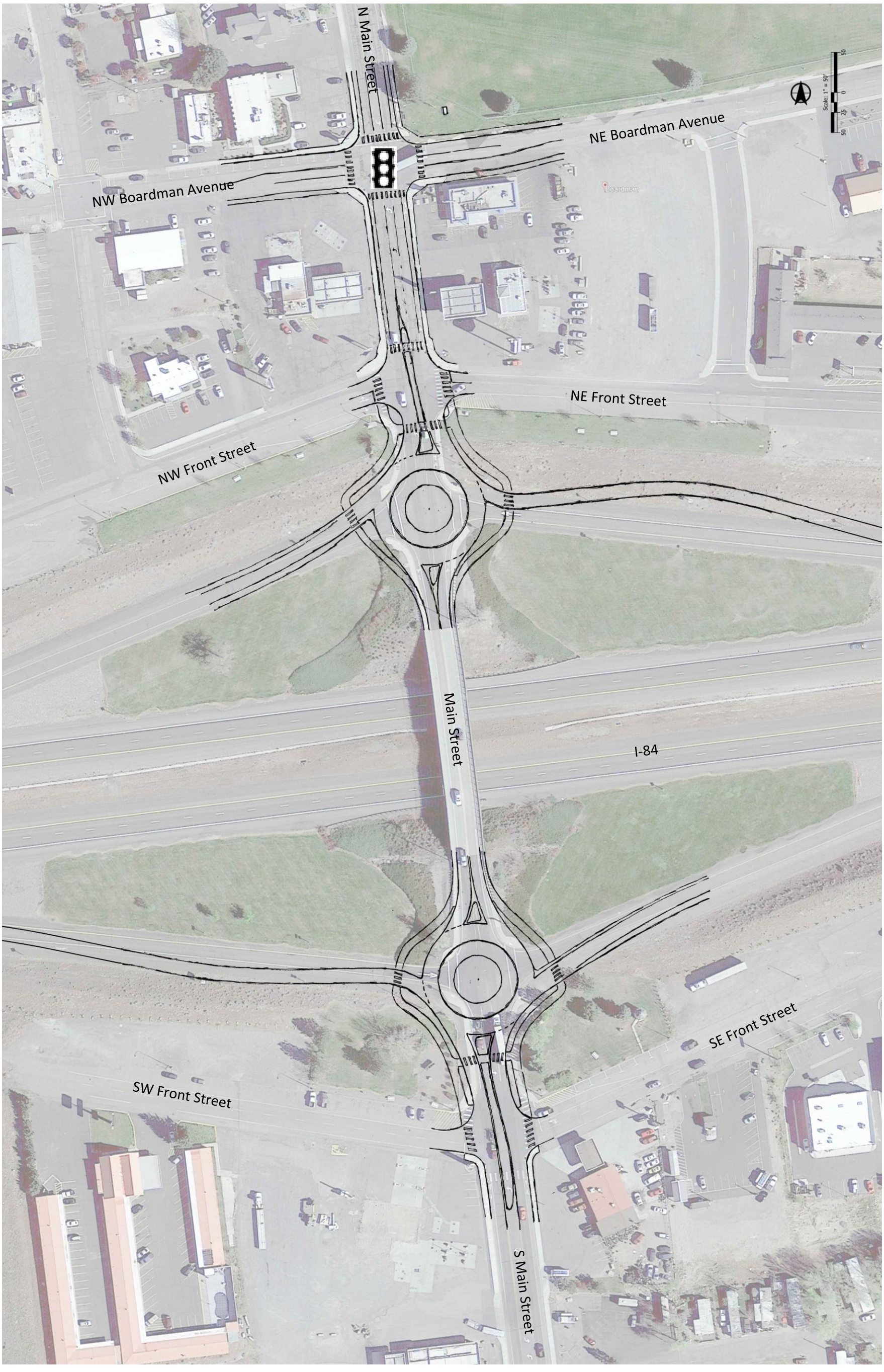
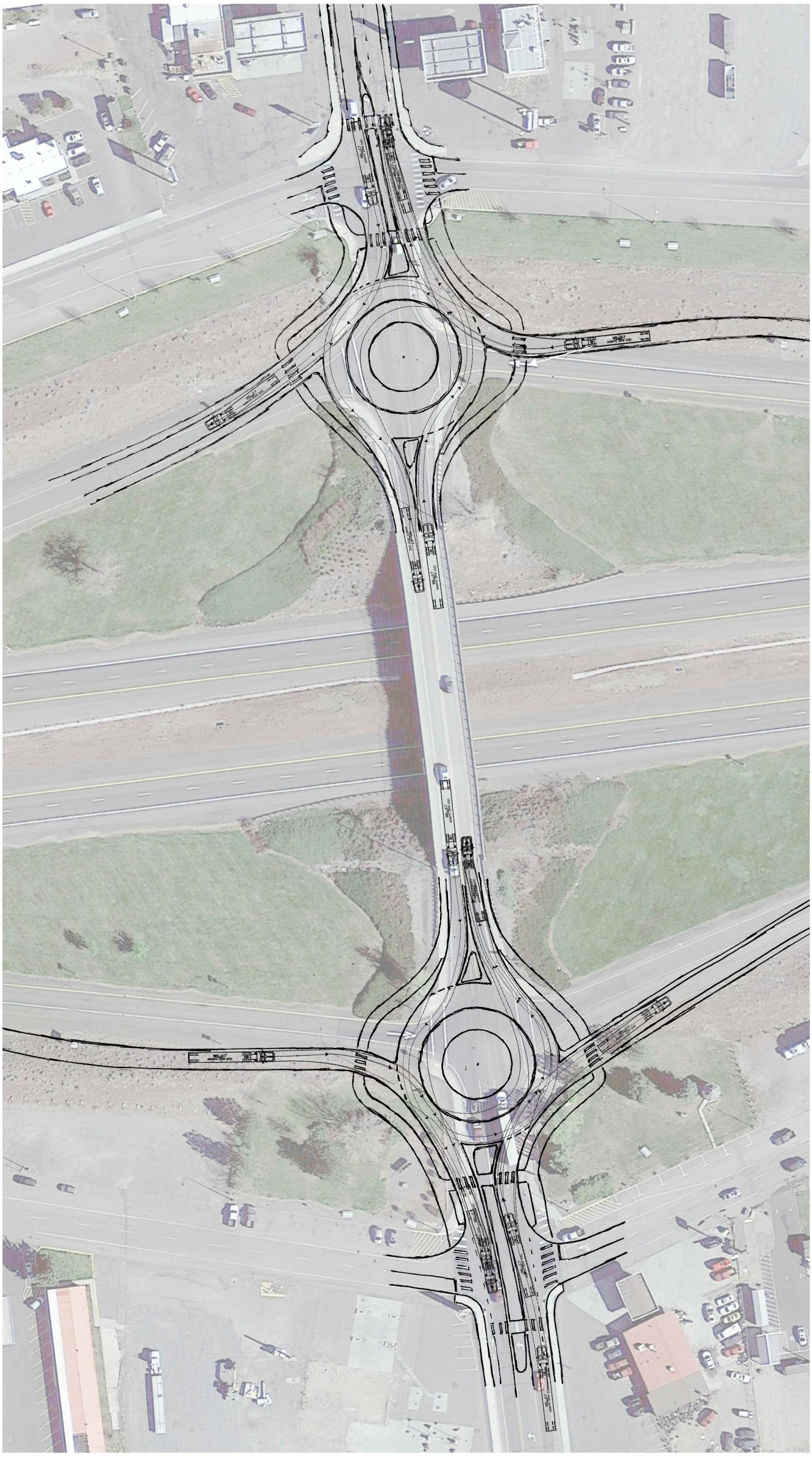


Figure 8 – Refined Circulation Alternative #2 Sketch-Level Layout (with WB-67 Truck Turning Template)



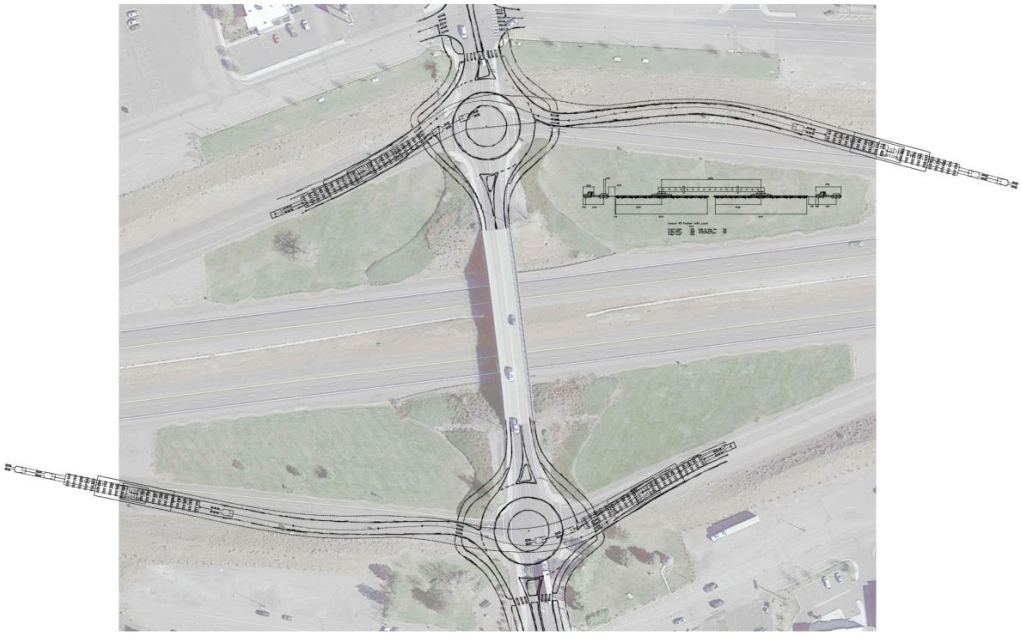
Truck Turning Evaluation

Recognizing that roundabouts have traditionally been a source of concern from truck drivers and businesses that operate large fleets of trucks (such as many of the businesses in the POM), a truck turning analysis was performed using the preliminary roundabout sketch shown in Figure 7. Based on discussions with City and ODOT officials, a WB-67 truck is the most common large vehicle that frequents businesses served by the Main Street corridor. Using this design vehicle, turning movement paths were added to the sketch layout using AutoTurn software as illustrated in Figure 8. As shown, this large design vehicle can reasonably maneuver through the roundabout. It should be noted that since this is just an illustrative sketch, some of the approaching roadway layouts would likely need to be adjusted to better meet some of the tighter turning movements. This can be accomplished in a future design phase.

From an oversized load perspective, planning projects typically include an assessment of oversized loads, particularly when they involve major interchange terminals. Based on feedback from ODOT, the OXBO_MEGA transport vehicle is the largest truck that has frequented this segment of I-84 in recent years.

To conceptually illustrate the circulation challenges associated with this design vehicle, a custom trailer was created in AutoTurn and applied to the sketch interchange layout shown in Figure 9. As shown, special care would need to be taken in future design stages to ensure a vehicle trailer and load of this magnitude could be accommodated through one of the roundabout treatments.

Figure 9 – Overside Load Accommodation



Although the turn exhibits illustrate special care would need to undertaken in a future design phase, it should be noted that Port of Morrow officials have established routes in place for all high, wide, and heavy loads that are generated through the port terminals. Exhibit 6 illustrates how the POM has historically and plans to continue to handle loads of this magnitude. As shown, all oversized loads could be oriented to the US 730 access via Lewis and Clark Drive depending upon the load and terminal. These routes do not rely upon the I-84/Main Street interchange due to internal bridge load constraints on multiple roadway facilities within POM.

Exhibit 4 – High Wide and Heavy Travel Path Options for the Port of Morrow (Source: POM)

COORDINATION WITH 2009 IAMP

The 2009 IAMP remains a key planning document for addressing long-term transportation infrastructure improvements along the Main Street corridor. Through this reevaluation process, three changes are recommended:

- The N Main Street/Boardman Avenue intersection:
  - Signalize the intersection when warranted. Warrants will most likely be met if/when the N Main Street/N Front Street intersection is restricted to right-in/right-out movements (see N Main Street/I-84 Westbound Ramp Terminal improvements below) or from new development along the Boardman Avenue corridor.
  - Widen the east and west Boardman Avenue approaches to include separate left-turn and shared through/right-turn lanes. This widening will require coordination with adjacent properties to remove some head-in parking and modify the location of access driveways. There is also a strip of on-street parking along the north side of NW Boardman Avenue that will have to be removed.
- N Main Street/I-84 Westbound Ramp Terminal intersection:
  - Modify the long-term mitigation plan to include the potential for a single-lane roundabout at the intersection.
  - Modify the westbound offramp to meet the approach deflection angles needed with a roundabout.
  - Modify the N Main Street/N Front Street intersection to right-in/right-out access through the construction of a raised median. This median would need to be modified if/when a roundabout is installed at the I-84 westbound ramp terminal intersection.
- S Main Street/I-84 Eastbound Ramp Terminal intersection:
  - Construct a single-lane roundabout at the intersection.
  - Modify the eastbound offramp to better meet the unique geometric configuration of the roundabout.
  - Modify the S Main Street/S Front Street intersection to right-in/right-out access to meet the unique geometric configuration of the adjacent roundabout. This median would need to be modified if/when a roundabout is installed at the I-84 westbound ramp terminal intersection.

All other previously identified Local Connectivity Plan and multi-modal improvements in the 2009 IAMP are still valid. A complete list of combined projects is summarized in Table 7 below.

Table 7 – Main Street Transportation Improvement Plan

Project	Near/Medium-Term Improvement	Trigger(s) for Improvement	Planning Level Cost	Potential Funding Source
Local Circulation Improvements 1. Construct north-south collector street connecting SE Front Street to Oregon Trail Boulevard. 2. Construct westerly extension of Oregon Trail Boulevard (collector street) from S Main Street to Faler Road SW. 3. Construct north-south collector street connecting SW Front Street to the Oregon Trail Boulevard extension. 4. Construct north-south collector street connecting Oregon Trail Boulevard to Wilson Lane SE. Such a connection would also include east-west connections back to S Main Street at Kinkade Road and Willow Fork Drive.		New private development		- PDF
Widen S Main Street to full Arterial standards from just north of Oregon Trail Boulevard to Wilson Lane		- Private development frontage improvements. - When funding becomes available	$5M	- City funds - PDF
Medium range actions from access management plan		- Increase in crashes - Recurring public complaint - Property (re)development	N/A	- PDF
Project	**Long-Term Improvement**	**Trigger(s) for Improvement**	**Planning Level Cost**	**Potential Funding Source**
Signalize the N Main Street/Boardman Avenue intersection and widen the Boardman Avenue approaches to include separate left-turn and shared through/right-turn lanes.		- LOS drops below standards, and - When the intersection meets traffic signal warrants.	$750k	- City funds - PDF
Construct a single lane roundabout at the N Main Street/I-84 Westbound Ramp Terminal		- Increase in crashes - V/C ratio drops below mobility target - Vehicle queues on offramp regularly back up to I-84 mainline	$5M	- STIP
Construct a single lane roundabout at the S Main Street/I-84 Eastbound Ramp Terminal		- Increase in crashes - V/C ratio drops below mobility target - Vehicle queues on offramp regularly back up to I-84 mainline	$5M	- STIP
Convert the N Front Street and S Front Street intersections at Main Street to right-in/right-out configurations through temporary median treatments or as part of the long-term roundabout treatments at the I-84 Ramp Terminal Intersections.		- Increase in crashes - Construction of I-84 Ramp Terminal Roundabouts	$50-$100k	- City funds - PDF
Long range actions from access management plan		- Increase in crashes - Recurring public complaint - Property (re)development	N/A	- PDF

Appendix A Traffic Count Worksheets

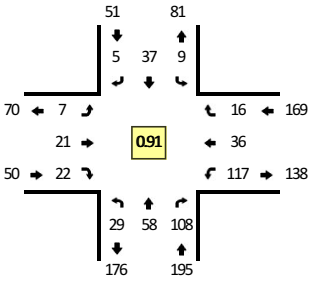
Type of peak hour being reported: Intersection Peak

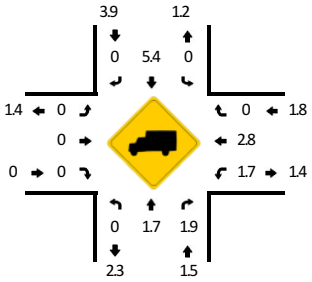
Method for determining peak hour: Tot

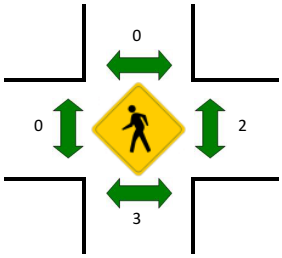
LOCATION: N Main St -- Columbia Ave NE
CITY/STATE: Boardman, OR

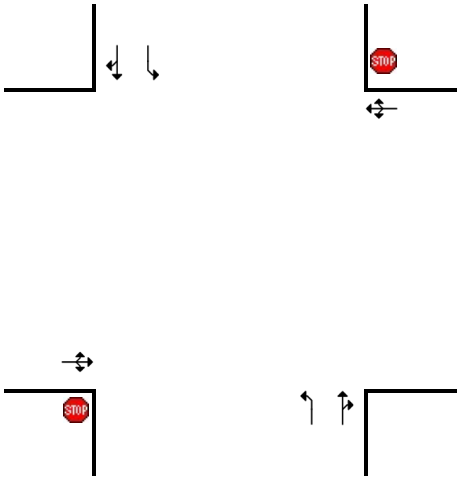
QC JOB #: 15762801
DATE: Thu, Mar 31 2022

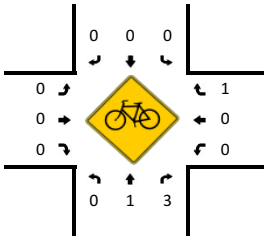
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

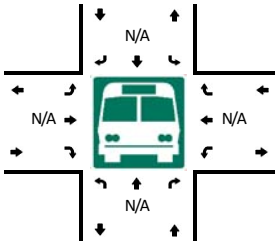


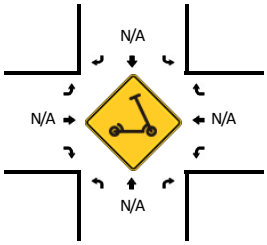












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Columbia Ave NE (Eastbound)				Columbia Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	5	2	0	0	3	2	0	1	0	1	0	5	4	2	0	25	
3:05 PM	1	1	4	0	0	1	0	0	1	0	2	0	15	1	1	0	27	
3:10 PM	1	3	7	0	0	5	0	0	0	2	0	0	18	3	0	0	39	
3:15 PM	2	0	12	0	0	4	0	0	3	0	3	0	8	3	0	0	35	
3:20 PM	2	0	8	0	0	2	0	0	0	3	1	0	8	3	0	0	27	
3:25 PM	1	2	9	0	1	5	2	0	0	2	0	0	6	2	0	0	30	
3:30 PM	3	2	13	0	1	5	1	0	0	0	1	0	10	2	1	0	39	
3:35 PM	5	4	8	0	1	3	0	0	0	4	1	0	17	3	0	0	46	
3:40 PM	1	2	13	0	1	6	0	0	0	3	1	0	6	3	3	0	39	
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4:10 PM	2	1	7	0	1	4	0	0	1	0	2	0	18	2	3	0	41	415
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4:20 PM	1	1	10	0	0	1	0	0	1	4	0	0	7	4	0	0	29	416
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4:55 PM	2	4	5	0	1	1	0	0	1	2	1	0	8	3	0	0	28	411
5:00 PM	3	5	4	0	0	5	2	0	1	0	1	0	13	1	1	0	36	421
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5:25 PM	0	8	9	0	2	2	0	0	0	3	1	0	7	3	0	0	35	440
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5:40 PM	3	7	8	0	2	2	1	0	2	2	2	0	6	4	1	0	40	438
5:45 PM	2	2	4	0	1	7	0	0	1	1	0	0	5	4	3	0	30	441
5:50 PM	2	3	11	0	0	2	0	0	1	2	4	0	8	3	1	0	37	444
5:55 PM	4	4	12	0	0	1	0	0	0	3	3	0	14	6	2	0	49	465

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	68	128	0	12	52	0	0	0	28	20	0	128	32	20	0	512
Heavy Trucks	0	0	0		0	8	0		0	0	0		4	0	0		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	4		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

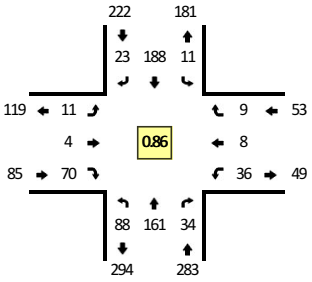
Type of peak hour being reported: Intersection Peak

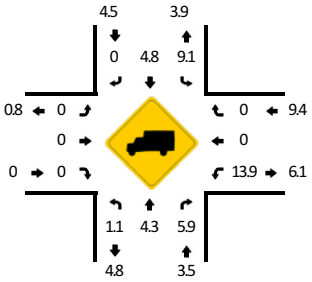
Method for determining peak hour: Tot

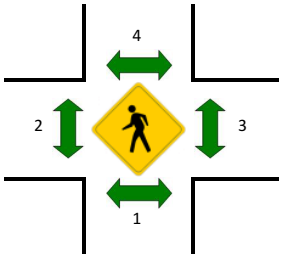
LOCATION: N Main St -- Boardman Ave NW
CITY/STATE: Boardman, OR

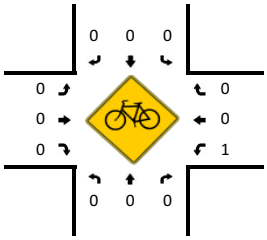
QC JOB #: 15762802
DATE: Thu, Mar 31 2022

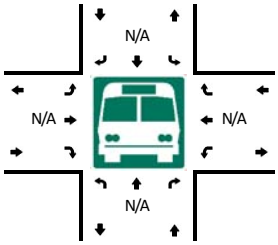
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 3:30 PM -- 3:45 PM

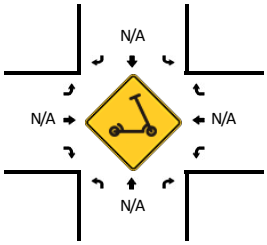












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Boardman Ave NW (Eastbound)				Boardman Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	2	8	2	0	1	9	2	0	0	1	2	0	16	1	2	0	46	
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4:00 PM	10	9	0	0	0	11	1	0	1	0	7	0	0	2	0	0	41	632
4:05 PM	8	13	3	0	2	20	0	0	1	0	10	0	1	1	1	0	60	628
4:10 PM	10	13	1	0	1	23	5	0	0	0	4	0	4	0	0	0	61	627
4:15 PM	9	11	6	0	1	15	0	0	2	1	8	0	3	0	2	0	58	632
4:20 PM	3	13	1	0	0	12	0	0	1	1	9	0	3	0	1	0	44	631
4:25 PM	8	20	7	0	0	10	2	0	0	0	6	0	3	0	0	0	56	643
4:30 PM	10	16	6	0	1	13	2	0	0	1	4	0	3	0	0	0	56	641
4:35 PM	9	21	4	0	2	5	1	0	3	1	7	0	2	0	1	0	56	634
4:40 PM	6	11	5	0	0	17	1	0	3	0	6	0	4	0	1	0	54	621
4:45 PM	8	12	7	0	1	9	2	0	1	1	5	0	3	0	0	0	49	623
4:50 PM	6	17	2	0	1	7	1	0	1	1	6	0	2	0	2	0	46	630
4:55 PM	5	12	3	0	1	9	2	0	1	0	6	0	0	2	0	0	41	622
5:00 PM	7	10	0	0	0	18	0	0	2	0	12	0	5	0	1	0	55	636
5:05 PM	3	10	5	0	1	18	0	0	0	0	4	0	2	0	1	0	44	620
5:10 PM	9	17	2	0	0	17	3	0	1	0	2	0	2	0	0	0	53	612
5:15 PM	11	20	0	0	2	7	2	0	2	0	0	0	3	0	0	0	47	601
5:20 PM	5	15	4	0	2	17	3	0	0	0	3	0	2	0	2	0	53	610
5:25 PM	4	13	5	0	3	9	0	0	3	2	2	0	3	3	2	0	49	603
5:30 PM	11	19	4	0	2	9	3	0	0	1	3	0	3	1	0	0	56	603
5:35 PM	9	21	5	0	2	16	1	0	2	0	5	0	4	0	2	0	67	614
5:40 PM	6	13	3	0	0	7	1	0	0	1	1	0	3	0	0	0	35	595
5:45 PM	9	6	6	0	0	14	1	0	1	1	6	0	4	0	2	0	50	596
5:50 PM	7	16	4	0	0	12	0	0	1	0	6	0	3	0	1	0	50	600
5:55 PM	9	21	1	0	1	16	1	0	1	0	3	0	2	0	1	0	56	615

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	80	208	52	0	12	216	36	0	8	8	64	0	44	12	12	0	752
Heavy Trucks	4	12	4		0	4	0		0	0	0		4	0	0		28
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

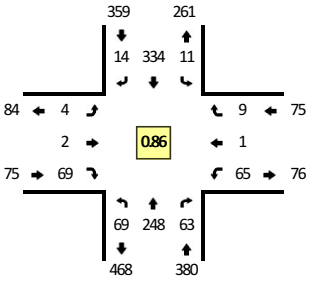
Type of peak hour being reported: Intersection Peak

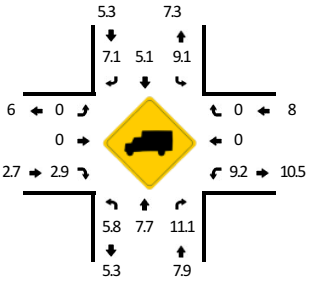
Method for determining peak hour: Tot

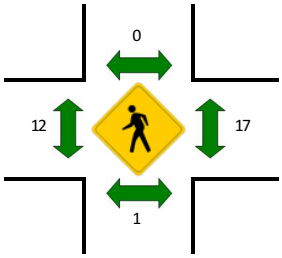
LOCATION: N Main St -- Front St NE
CITY/STATE: Boardman, OR

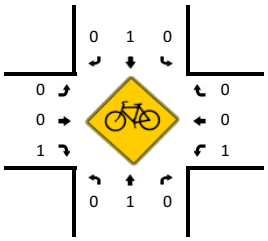
QC JOB #: 15762803
DATE: Thu, Mar 31 2022

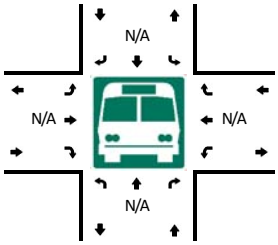
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:00 PM -- 3:15 PM

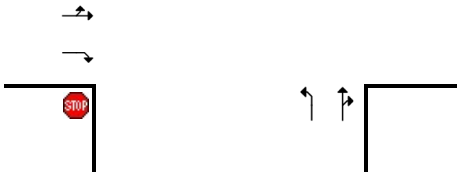


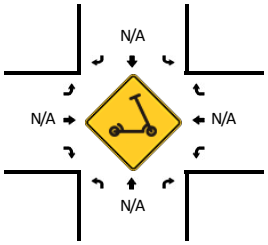












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Front St NE (Eastbound)				Front St NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	7	14	4	0	1	34	2	0	0	0	9	0	9	0	2	0	82	
3:05 PM	6	23	4	0	1	41	4	0	0	1	9	0	9	0	1	0	99	
3:10 PM	5	12	2	0	0	41	1	0	2	0	3	0	10	0	1	0	77	
3:15 PM	7	13	3	0	4	30	2	0	0	0	9	0	5	0	0	0	73	
3:20 PM	7	17	6	0	1	14	0	0	0	0	4	0	3	0	0	0	52	
3:25 PM	4	28	2	0	0	28	0	0	1	0	1	0	2	0	1	0	67	
3:30 PM	9	34	9	0	1	20	1	0	0	0	4	0	1	1	1	0	81	
3:35 PM	5	26	4	0	1	33	2	0	0	1	7	0	3	0	0	0	82	
3:40 PM	3	22	8	0	1	31	0	0	0	0	5	0	6	0	0	0	76	
3:45 PM	7	20	7	0	1	28	0	0	0	0	4	0	5	0	2	0	74	
3:50 PM	4	21	4	0	0	19	2	0	0	0	9	0	6	0	1	0	66	
3:55 PM	5	18	10	0	0	15	0	0	1	0	5	0	6	0	0	0	60	889
4:00 PM	3	16	3	0	3	21	0	0	1	0	4	0	7	0	2	0	60	867
4:05 PM	0	18	6	0	1	34	0	0	1	0	5	0	4	0	0	0	69	837
4:10 PM	3	29	8	0	0	27	0	0	0	0	4	0	5	0	0	0	76	836
4:15 PM	3	20	4	0	0	30	0	0	1	1	8	0	6	1	0	0	74	837
4:20 PM	7	24	3	0	1	24	0	0	1	0	5	0	5	0	0	0	70	855
4:25 PM	6	34	7	0	0	23	0	0	0	1	7	0	2	0	1	0	81	869
4:30 PM	10	33	6	0	0	18	2	0	2	0	6	0	3	1	0	0	81	869
4:35 PM	8	24	10	0	1	20	1	0	1	0	6	0	6	1	1	0	79	866
4:40 PM	3	23	6	0	2	25	0	0	0	0	8	0	4	0	1	0	72	862
4:45 PM	5	33	4	0	2	18	1	0	0	1	8	0	5	0	0	0	77	865
4:50 PM	3	21	9	0	0	17	0	0	0	0	11	0	7	0	1	0	69	868
4:55 PM	3	22	5	0	1	21	0	0	0	0	5	0	2	0	0	0	59	867
5:00 PM	3	22	6	0	2	30	0	0	0	0	4	0	1	0	1	0	69	876
5:05 PM	4	16	4	0	0	23	3	0	0	0	6	0	4	1	0	0	61	868
5:10 PM	2	31	8	0	0	23	0	0	0	0	4	0	2	0	2	0	72	864
5:15 PM	7	28	6	0	0	17	0	0	0	0	11	0	5	0	2	0	76	866
5:20 PM	7	22	8	0	1	21	1	0	1	0	7	0	5	0	0	0	73	869
5:25 PM	4	20	4	0	0	14	0	0	2	0	4	0	2	0	0	0	50	838
5:30 PM	1	33	8	0	0	22	0	0	0	0	5	0	7	0	0	0	76	833
5:35 PM	4	36	3	0	1	22	0	0	0	0	2	0	9	1	2	0	80	834
5:40 PM	7	21	7	0	0	13	0	0	0	0	6	0	1	0	0	0	55	817
5:45 PM	3	23	8	0	0	25	1	0	0	0	6	0	0	0	1	0	67	807
5:50 PM	4	27	3	0	0	26	1	0	1	0	2	0	2	0	0	0	66	804
5:55 PM	4	34	2	0	0	20	1	0	2	1	8	0	3	0	0	0	75	820

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	72	196	40	0	8	464	28	0	8	4	84	0	112	0	16	0	1032
Heavy Trucks	0	28	8		0	20	4		0	0	4		12	0	0		76
Buses																	
Pedestrians		4				0				32				60			96
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

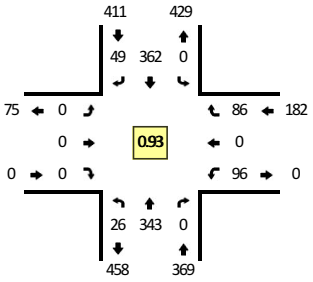
Type of peak hour being reported: Intersection Peak

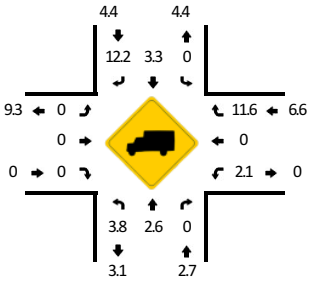
Method for determining peak hour: Tot

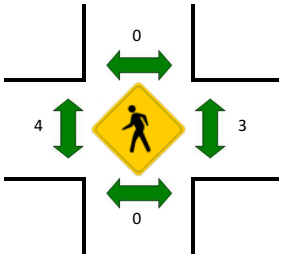
LOCATION: N Main St -- I-84 WB Ramp Terminal
CITY/STATE: Boardman, OR

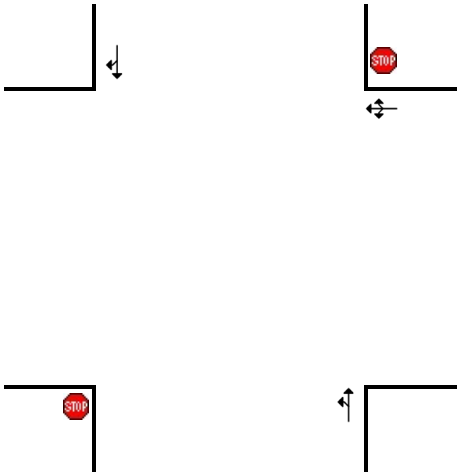
QC JOB #: 15762804
DATE: Thu, Mar 31 2022

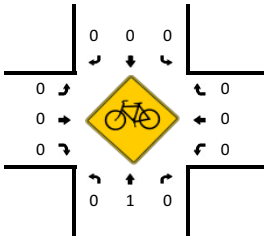
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

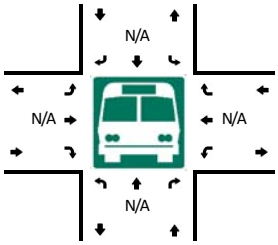


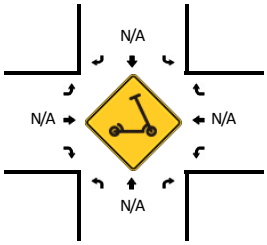












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				I-84 WB Ramp Terminal (Eastbound)				I-84 WB Ramp Terminal (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	2	21	0	0	0	47	2	0	0	0	0	0	6	0	5	0	83	
3:05 PM	2	22	0	0	0	53	2	0	0	0	0	0	5	0	8	0	92	
3:10 PM	0	17	0	0	0	51	3	0	0	0	0	0	6	0	8	0	85	
3:15 PM	1	17	0	0	0	47	3	0	0	0	0	0	9	0	5	0	82	
3:20 PM	6	24	0	0	0	23	2	0	0	0	0	0	7	0	5	0	67	
3:25 PM	0	31	0	0	0	24	2	0	0	0	0	0	10	0	4	0	71	
3:30 PM	0	35	0	0	0	26	1	0	0	0	0	0	11	0	6	0	79	
3:35 PM	2	27	0	0	0	35	4	0	0	0	0	0	8	0	11	0	87	
3:40 PM	0	34	0	0	0	39	4	0	0	0	0	0	6	0	3	0	86	
3:45 PM	1	20	0	0	0	39	3	0	0	0	0	0	7	0	13	0	83	
3:50 PM	0	27	0	0	0	21	6	0	0	0	0	0	9	0	3	0	66	
3:55 PM	0	26	0	0	0	26	10	0	0	0	0	0	8	0	4	0	74	955
4:00 PM	1	21	0	0	0	26	3	0	0	0	0	0	8	0	6	0	65	937
4:05 PM	2	19	0	0	0	32	3	0	0	0	0	0	9	0	7	0	72	917
4:10 PM	4	32	0	0	0	36	5	0	0	0	0	0	6	0	4	0	87	919
4:15 PM	3	20	0	0	0	45	3	0	0	0	0	0	7	0	9	0	87	924
4:20 PM	1	23	0	0	0	27	5	0	0	0	0	0	8	0	8	0	72	929
4:25 PM	2	42	0	0	0	28	4	0	0	0	0	0	7	0	6	0	89	947
4:30 PM	2	38	0	0	0	23	7	0	0	0	0	0	8	0	4	0	82	950
4:35 PM	3	39	0	0	0	23	3	0	0	0	0	0	8	0	13	0	89	952
4:40 PM	2	20	0	0	0	31	7	0	0	0	0	0	13	0	11	0	84	950
4:45 PM	0	32	0	0	0	29	3	0	0	0	0	0	3	0	9	0	76	943
4:50 PM	2	31	0	0	0	33	4	0	0	0	0	0	8	0	4	0	82	959
4:55 PM	2	23	0	0	0	24	1	0	0	0	0	0	10	0	6	0	66	951
5:00 PM	2	22	0	0	0	35	4	0	0	0	0	0	5	0	6	0	74	960
5:05 PM	3	21	0	0	0	28	3	0	0	0	0	0	13	0	6	0	74	962
5:10 PM	0	29	0	0	0	31	1	0	0	0	0	0	10	0	5	0	76	951
5:15 PM	1	35	0	0	0	24	2	0	0	0	0	0	6	0	10	0	78	942
5:20 PM	2	31	0	0	0	29	5	0	0	0	0	0	10	0	5	0	82	952
5:25 PM	0	25	0	0	0	24	0	0	0	0	0	0	11	0	3	0	63	926
5:30 PM	1	38	0	0	0	27	2	0	0	0	0	0	9	0	4	0	81	925
5:35 PM	2	34	0	0	0	32	4	0	0	0	0	0	12	0	9	0	93	929
5:40 PM	2	28	0	0	0	21	0	0	0	0	0	0	13	0	8	0	72	917
5:45 PM	1	26	0	0	0	31	1	0	0	0	0	0	8	0	5	0	72	913
5:50 PM	0	31	0	0	0	28	2	0	0	0	0	0	15	0	5	0	81	912
5:55 PM	1	36	0	0	0	28	3	0	0	0	0	0	7	0	6	0	81	927

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	476	0	0	0	296	56	0	0	0	0	0	92	0	92	0	1040
Heavy Trucks	0	8	0		0	4	12		0	0	0		4	0	8		36
Buses																	
Pedestrians		0				0				4				8			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

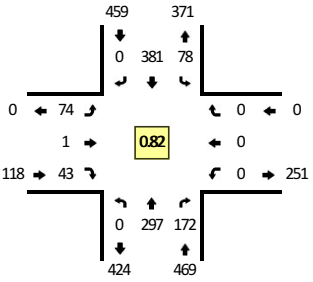
Type of peak hour being reported: Intersection Peak

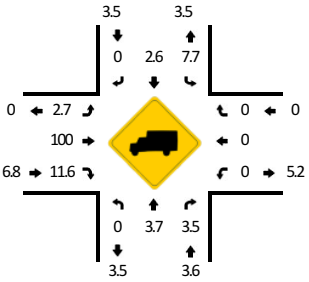
Method for determining peak hour: Tot

LOCATION: S Main St -- I-84 EB Ramp Terminal
CITY/STATE: Boardman, OR

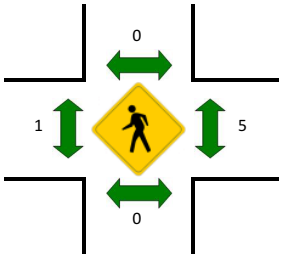
QC JOB #: 15762805
DATE: Thu, Mar 31 2022

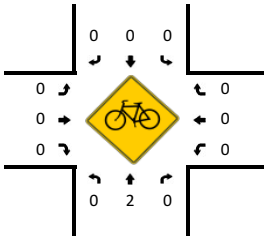
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

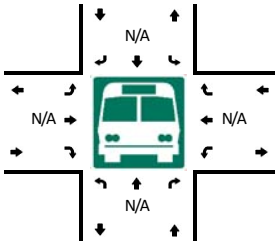


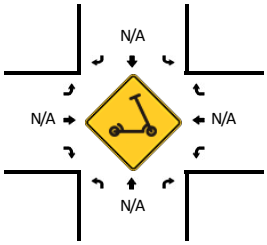


Quality Counts
DATA THAT DRIVES COMMUNITIES









5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				I-84 EB Ramp Terminal (Eastbound)				I-84 EB Ramp Terminal (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	17	6	0	7	40	0	0	6	0	1	0	0	0	0	0	77	
3:05 PM	0	19	6	0	12	45	0	0	5	0	1	0	0	0	0	0	88	
3:10 PM	0	15	5	0	1	59	0	0	2	0	0	0	0	0	0	0	82	
3:15 PM	0	12	10	0	11	46	0	0	5	0	0	0	0	0	0	0	84	
3:20 PM	0	26	11	0	3	28	0	0	2	0	2	0	0	0	0	0	72	
3:25 PM	0	27	7	0	7	25	0	0	4	0	0	0	0	0	0	0	70	
3:30 PM	0	29	9	0	7	30	0	0	6	0	2	0	0	0	0	0	83	
3:35 PM	0	28	7	0	10	29	0	0	4	0	2	0	0	0	0	0	80	
3:40 PM	0	31	4	0	9	35	0	0	1	1	1	0	0	0	0	0	82	
3:45 PM	0	19	6	0	9	38	0	0	2	0	1	0	0	0	0	0	75	
3:50 PM	0	23	10	0	6	27	0	0	5	0	3	0	0	0	0	0	74	
3:55 PM	0	26	7	0	3	32	0	0	2	0	7	0	0	0	0	0	77	944
4:00 PM	0	21	18	0	5	26	0	0	2	0	3	0	0	0	0	0	75	942
4:05 PM	0	18	8	0	5	32	0	0	3	0	1	0	0	0	0	0	67	921
4:10 PM	0	26	8	0	8	39	0	0	8	0	3	0	0	0	0	0	92	931
4:15 PM	0	21	13	0	12	36	0	0	5	0	4	0	0	0	0	0	91	938
4:20 PM	0	16	8	0	5	32	0	0	4	1	3	0	0	0	0	0	69	935
4:25 PM	0	38	40	0	7	25	0	0	7	0	4	0	0	0	0	0	121	986
4:30 PM	0	29	29	0	3	33	0	0	11	0	3	0	0	0	0	0	108	1011
4:35 PM	0	29	13	0	4	30	0	0	13	0	2	0	0	0	0	0	91	1022
4:40 PM	0	21	14	0	6	33	0	0	2	0	2	0	0	0	0	0	78	1018
4:45 PM	0	25	10	0	6	27	0	0	5	0	6	0	0	0	0	0	79	1022
4:50 PM	0	33	17	0	7	33	0	0	4	0	3	0	0	0	0	0	97	1045
4:55 PM	0	19	5	0	7	28	0	0	5	0	4	0	0	0	0	0	68	1036
5:00 PM	0	18	8	0	5	34	0	0	5	0	5	0	0	0	0	0	75	1036
5:05 PM	0	22	7	0	8	31	0	0	5	0	4	0	0	0	0	0	77	1046
5:10 PM	0	27	8	0	8	38	0	0	0	0	3	0	0	0	0	0	84	1038
5:15 PM	0	26	6	0	4	24	0	0	8	0	8	0	0	0	0	0	76	1023
5:20 PM	0	27	4	0	7	32	0	0	7	0	7	0	0	0	0	0	84	1038
5:25 PM	0	23	9	0	3	35	0	0	4	0	3	0	0	0	0	0	77	994
5:30 PM	0	30	7	0	6	25	0	0	7	0	3	0	0	0	0	0	78	964
5:35 PM	0	29	5	0	1	43	0	0	6	0	2	0	0	0	0	0	86	959
5:40 PM	0	24	9	0	7	29	0	0	6	0	2	0	0	0	0	0	77	958
5:45 PM	0	22	6	0	7	31	0	0	5	0	1	0	0	0	0	0	72	951
5:50 PM	0	23	5	0	4	42	0	0	9	0	3	0	0	0	0	0	86	940
5:55 PM	0	27	2	0	3	27	0	0	6	0	4	0	0	0	0	0	69	941

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	384	328	0	56	352	0	0	124	0	36	0	0	0	0	0	1280
Heavy Trucks	0	0	12		4	16	0		8	0	0		0	0	0		40
Buses																	
Pedestrians		0				0				4				4			8
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

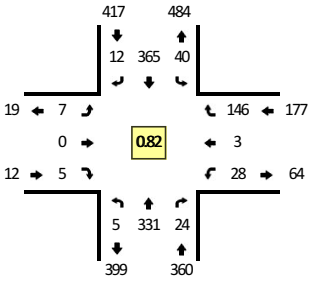
Type of peak hour being reported: Intersection Peak

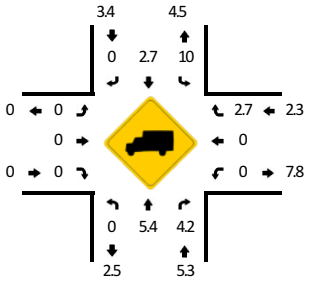
Method for determining peak hour: Tot

LOCATION: S Main St -- Front St SE
CITY/STATE: Boardman, OR

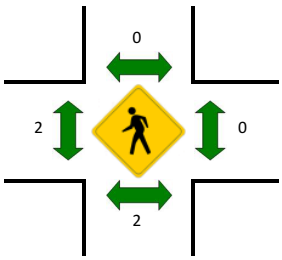
QC JOB #: 15762806
DATE: Thu, Mar 31 2022

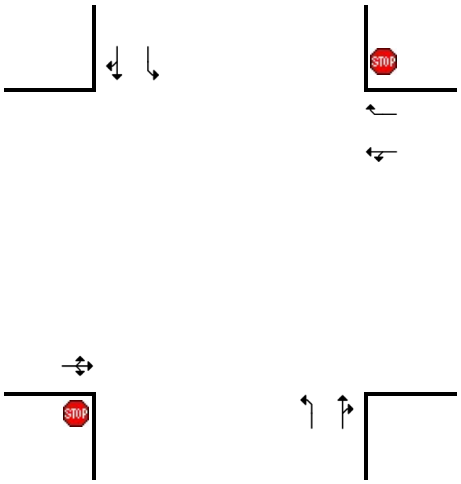
Peak-Hour: 3:55 PM -- 4:55 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

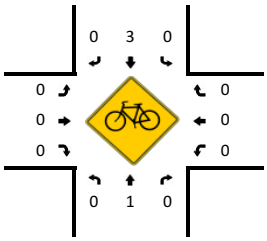


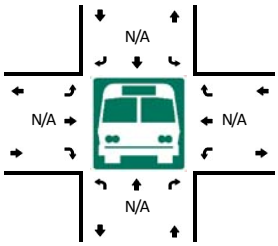


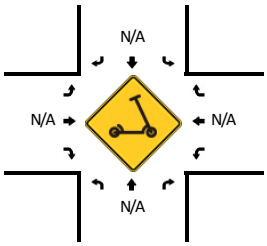
Quality Counts
DATA THAT DRIVES COMMUNITIES











5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Front St SE (Eastbound)				Front St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	16	0	0	1	41	1	0	1	0	0	0	2	0	5	0	67	
3:05 PM	0	23	0	0	5	40	0	0	0	0	0	0	0	0	2	0	70	
3:10 PM	0	15	1	0	4	54	1	0	1	0	0	0	1	0	4	0	81	
3:15 PM	0	22	1	0	10	37	0	0	0	0	0	0	0	0	3	0	73	
3:20 PM	0	31	2	0	4	23	2	0	1	0	0	0	4	0	8	0	75	
3:25 PM	1	27	2	0	3	22	1	0	0	0	0	0	0	0	5	0	61	
3:30 PM	0	31	1	0	3	28	0	0	1	0	1	0	3	0	6	0	74	
3:35 PM	0	33	2	0	3	29	0	0	0	0	0	0	4	0	1	0	72	
3:40 PM	0	31	1	0	3	32	0	0	0	0	0	0	3	0	5	0	75	
3:45 PM	1	23	1	0	0	40	1	0	2	0	1	0	0	0	1	0	70	
3:50 PM	1	26	2	0	3	26	1	0	0	0	0	0	1	0	5	0	65	
3:55 PM	1	26	3	0	8	29	2	0	1	0	0	0	0	0	7	0	77	860
4:00 PM	2	20	1	0	4	24	2	0	1	0	0	0	1	1	18	0	74	867
4:05 PM	0	18	1	0	2	31	0	0	1	0	0	0	3	0	7	0	63	860
4:10 PM	0	26	3	0	1	40	0	0	0	0	0	0	1	0	9	0	80	859
4:15 PM	0	28	1	0	3	36	1	0	1	0	0	0	1	0	3	0	74	860
4:20 PM	0	25	3	1	1	34	0	0	0	0	0	0	2	0	1	0	67	852
4:25 PM	0	41	0	0	3	27	0	0	0	0	0	0	6	0	36	0	113	904
4:30 PM	1	28	5	0	3	31	1	0	0	0	1	0	4	0	30	0	104	934
4:35 PM	0	28	2	0	4	28	0	0	1	0	0	0	1	2	11	0	77	939
4:40 PM	0	28	1	0	5	29	1	0	0	0	1	0	3	0	7	0	75	939
4:45 PM	0	32	3	0	2	29	1	0	1	0	1	0	2	0	4	0	75	944
4:50 PM	0	31	1	0	4	27	4	0	1	0	2	0	4	0	13	0	87	966
4:55 PM	0	24	1	0	1	30	2	0	0	0	1	0	1	0	2	0	62	951
5:00 PM	0	23	2	0	6	32	1	0	0	0	0	0	2	0	3	0	69	946
5:05 PM	0	23	0	0	4	31	0	0	1	0	0	0	1	0	3	0	63	946
5:10 PM	0	32	2	0	4	30	5	0	0	0	1	0	3	0	5	0	82	948
5:15 PM	1	29	0	0	6	26	1	0	0	0	0	0	3	0	4	0	70	944
5:20 PM	0	28	3	0	5	33	0	0	1	0	0	0	1	1	2	0	74	951
5:25 PM	0	27	3	0	4	33	2	0	0	0	0	0	2	0	3	0	74	912
5:30 PM	0	33	5	0	2	26	1	0	0	0	0	0	2	0	4	0	73	881
5:35 PM	0	29	1	0	6	38	1	0	1	0	0	0	0	1	4	0	81	885
5:40 PM	0	28	1	0	5	25	1	0	1	0	1	0	2	0	4	0	68	878
5:45 PM	1	23	1	0	2	29	1	0	0	0	0	0	1	0	4	0	62	865
5:50 PM	1	24	0	0	10	34	1	0	1	0	0	0	2	0	3	0	76	854
5:55 PM	0	27	3	0	4	28	0	0	1	0	0	0	2	0	4	0	69	861

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	388	28	0	40	344	4	0	4	0	4	0	44	8	308	0	1176
Heavy Trucks	0	8	0		4	12	0		0	0	0		0	0	8		32
Buses																	
Pedestrians		4				0				0				0			4
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

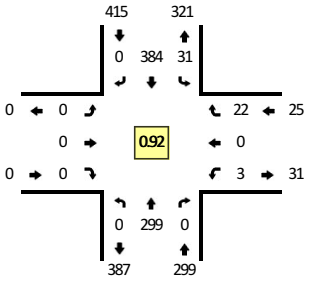
Type of peak hour being reported: Intersection Peak

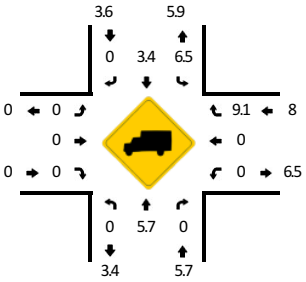
Method for determining peak hour: Tot

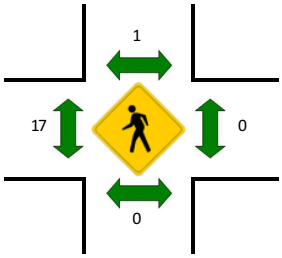
LOCATION: S Main St -- Oregon Trail Blvd
CITY/STATE: Boardman, OR

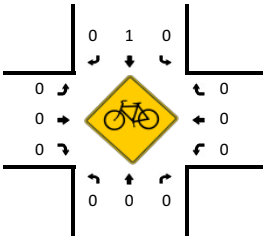
QC JOB #: 15762807
DATE: Thu, Mar 31 2022

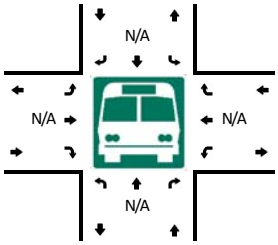
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:05 PM -- 3:20 PM

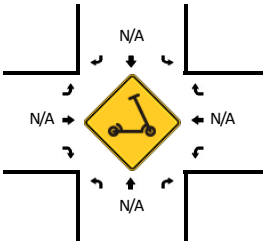












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Oregon Trail Blvd (Eastbound)				Oregon Trail Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	14	0	0	5	31	0	0	0	0	0	0	0	0	1	0	51	
3:05 PM	0	21	0	0	3	39	0	0	0	0	0	0	1	0	4	0	68	
3:10 PM	0	14	0	0	5	54	0	0	0	0	0	0	0	0	0	0	73	
3:15 PM	0	23	0	0	3	33	0	0	0	0	0	0	1	0	0	0	60	
3:20 PM	0	39	0	0	2	26	0	0	0	0	0	0	0	0	1	0	68	
3:25 PM	0	29	0	0	0	21	0	0	0	0	0	0	0	0	1	0	51	
3:30 PM	0	31	0	0	3	28	0	0	0	0	0	0	1	0	4	0	67	
3:35 PM	0	31	0	0	2	29	0	0	0	0	0	0	0	0	4	0	66	
3:40 PM	0	24	0	0	1	35	0	0	0	0	0	0	0	0	2	0	62	
3:45 PM	0	21	0	0	3	34	0	0	0	0	0	0	0	0	2	0	60	
3:50 PM	0	31	0	0	2	28	0	0	0	0	0	0	0	0	0	0	61	
3:55 PM	0	21	0	0	2	26	0	0	0	0	0	0	0	0	3	0	52	739
4:00 PM	0	19	1	0	1	18	0	0	0	0	0	0	0	0	4	0	43	731
4:05 PM	0	16	0	0	2	35	0	0	0	0	0	0	2	0	2	0	57	720
4:10 PM	0	25	0	0	1	35	0	0	0	0	0	0	0	0	2	0	63	710
4:15 PM	0	26	1	0	5	30	0	0	0	0	0	0	0	0	2	0	64	714
4:20 PM	0	30	1	0	1	31	0	0	0	0	0	0	0	0	2	0	65	711
4:25 PM	0	35	0	0	4	29	0	0	0	0	0	0	0	0	2	0	70	730
4:30 PM	0	26	0	0	5	31	0	0	0	0	0	0	0	0	4	0	66	729
4:35 PM	0	29	0	0	1	28	0	0	0	0	0	0	0	0	2	0	60	723
4:40 PM	0	23	1	0	0	32	0	0	0	0	0	0	1	0	2	0	59	720
4:45 PM	0	33	0	0	2	27	0	0	0	0	0	0	0	0	4	0	66	726
4:50 PM	0	27	0	0	3	26	0	0	0	0	0	0	0	0	0	0	56	721
4:55 PM	0	26	2	0	1	29	0	0	0	0	0	0	1	0	0	0	59	728
5:00 PM	0	22	0	0	0	28	0	0	0	0	0	0	1	0	2	0	53	738
5:05 PM	0	19	0	0	1	30	0	0	0	0	0	0	2	0	2	0	54	735
5:10 PM	0	15	0	0	2	30	0	0	0	0	0	0	1	0	3	0	51	723
5:15 PM	0	33	0	0	2	31	0	0	0	0	0	0	0	0	1	0	67	726
5:20 PM	0	31	0	0	2	32	0	0	0	0	0	0	0	0	2	0	67	728
5:25 PM	0	33	0	0	1	30	0	0	0	0	0	0	0	0	0	0	64	722
5:30 PM	0	25	0	0	2	18	0	0	0	0	0	0	0	0	4	0	49	705
5:35 PM	0	30	0	0	2	35	0	0	0	0	0	0	0	0	2	0	69	714
5:40 PM	0	21	1	0	3	27	0	0	0	0	0	0	1	0	2	0	55	710
5:45 PM	0	26	0	0	1	26	0	0	0	0	0	0	1	0	2	0	56	700
5:50 PM	0	22	1	0	0	38	0	0	0	0	0	0	1	0	2	0	64	708
5:55 PM	0	31	1	0	1	29	0	0	0	0	0	0	1	0	1	0	64	713

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	232	0	0	44	504	0	0	0	0	0	0	8	0	16	0	804
Heavy Trucks	0	28	0		4	24	0		0	0	0		0	0	0		56
Buses																	
Pedestrians		0				0				24				0			24
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

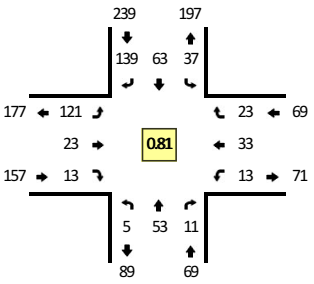
Type of peak hour being reported: Intersection Peak

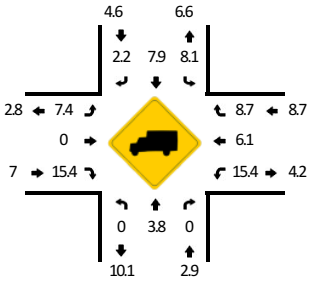
Method for determining peak hour: Tot

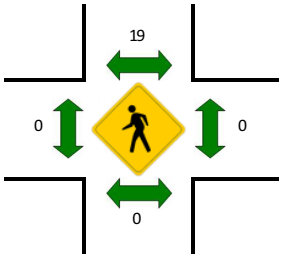
LOCATION: S Main St -- Wilson Ln SE
CITY/STATE: Boardman, OR

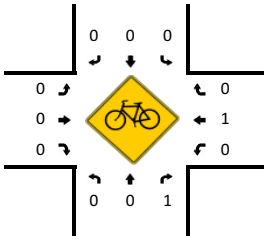
QC JOB #: 15762808
DATE: Thu, Mar 31 2022

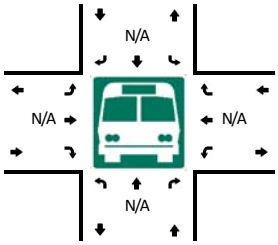
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:10 PM -- 3:25 PM

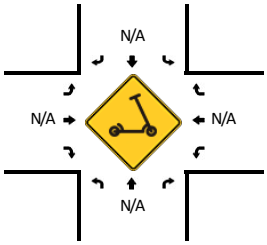












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Wilson Ln SE (Eastbound)				Wilson Ln SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	4	0	0	0	7	9	0	5	0	0	0	2	0	3	0	30	
3:05 PM	0	3	0	0	3	5	20	0	6	0	0	0	1	2	3	0	43	
3:10 PM	1	3	0	0	8	7	21	0	5	1	2	0	2	1	1	0	52	
3:15 PM	1	8	1	0	3	7	21	0	9	0	0	0	1	6	2	0	59	
3:20 PM	2	5	3	0	4	5	7	0	14	2	2	0	2	3	5	0	54	
3:25 PM	1	3	0	0	2	3	11	0	18	4	1	0	3	4	0	0	50	
3:30 PM	0	3	3	0	0	5	6	0	15	4	3	0	1	4	3	0	47	
3:35 PM	0	9	3	0	2	6	8	0	20	5	3	0	0	4	1	0	61	
3:40 PM	0	9	0	0	4	5	5	0	2	0	1	0	0	1	0	0	27	
3:45 PM	0	2	0	0	3	10	11	0	9	2	0	0	1	0	2	0	40	
3:50 PM	0	3	1	0	6	1	14	0	10	3	1	0	0	2	2	0	43	
3:55 PM	0	1	0	0	2	2	6	0	8	2	0	0	0	6	1	0	28	534
4:00 PM	1	4	0	0	3	2	3	0	5	2	0	0	1	1	3	0	25	529
4:05 PM	0	5	0	0	3	5	9	0	7	5	1	0	1	2	1	0	39	525
4:10 PM	0	3	1	0	1	6	6	0	7	3	0	0	1	3	1	0	32	505
4:15 PM	0	1	0	0	1	7	14	0	7	3	0	0	0	0	4	0	37	483
4:20 PM	0	3	0	0	2	6	9	0	10	1	0	0	0	5	4	0	40	469
4:25 PM	0	6	1	0	1	7	11	0	12	0	1	0	1	1	1	0	42	461
4:30 PM	0	3	0	0	3	4	8	0	12	2	0	0	0	1	0	0	33	447
4:35 PM	0	4	0	0	2	4	11	0	8	1	0	0	2	5	3	0	40	426
4:40 PM	0	6	1	0	1	6	12	0	7	3	0	0	0	2	0	0	38	437
4:45 PM	1	8	0	0	2	7	12	0	12	3	1	0	1	4	1	0	52	449
4:50 PM	0	4	0	0	1	2	5	0	6	5	0	0	0	4	3	0	30	436
4:55 PM	0	4	0	0	1	7	12	0	12	3	0	0	0	1	2	0	42	450
5:00 PM	0	6	1	0	3	7	8	0	8	2	0	0	0	2	3	0	40	465
5:05 PM	0	5	0	0	3	7	5	0	2	1	1	0	0	4	0	0	28	454
5:10 PM	1	6	0	0	2	6	9	0	10	1	0	0	0	0	2	0	37	459
5:15 PM	0	3	0	0	3	6	6	0	7	2	0	0	1	6	3	0	37	459
5:20 PM	0	3	0	0	2	7	10	0	10	0	1	0	1	0	5	0	39	458
5:25 PM	0	6	0	0	9	6	9	0	6	0	0	0	1	3	1	0	41	457
5:30 PM	0	6	0	0	2	3	7	0	5	0	0	0	0	3	0	0	26	450
5:35 PM	0	6	1	0	2	11	11	0	10	2	0	0	0	5	3	0	51	461
5:40 PM	0	3	1	0	2	9	8	0	8	3	1	0	0	3	3	0	41	464
5:45 PM	1	4	0	0	3	3	3	0	10	2	0	0	0	0	2	0	28	440
5:50 PM	0	4	1	0	2	7	9	0	6	0	1	0	0	1	0	0	31	441
5:55 PM	0	4	0	0	2	5	10	0	11	4	0	0	1	4	2	0	43	442

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	64	16	0	60	76	196	0	112	12	16	0	20	40	32	0	660
Heavy Trucks	0	0	0		0	4	4		16	0	4		4	4	4		40
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	
Comments:																	

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

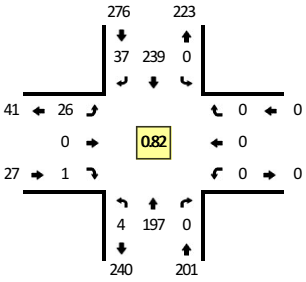
Type of peak hour being reported: Intersection Peak

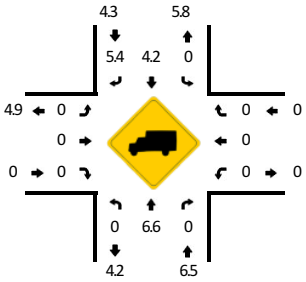
Method for determining peak hour: Tot

LOCATION: S Main St -- Willow Fork Dr SW
CITY/STATE: Boardman, OR

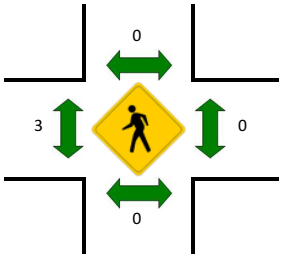
QC JOB #: 15762809
DATE: Thu, Mar 31 2022

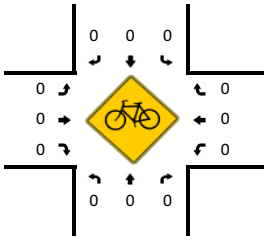
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:10 PM -- 3:25 PM

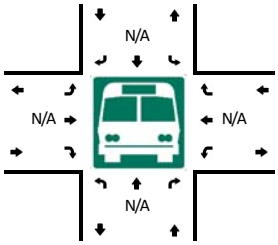


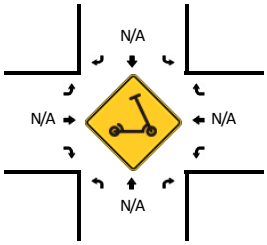


Quality Counts
DATA THAT DRIVES COMMUNITIES









5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Willow Fork Dr SW (Eastbound)				Willow Fork Dr SW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	1	11	0	0	0	18	4	0	0	0	0	0	0	0	0	0	34	
3:05 PM	0	11	0	0	0	27	2	0	2	0	0	0	0	0	0	0	42	
3:10 PM	0	10	0	0	0	38	7	0	2	0	1	0	0	0	0	0	58	
3:15 PM	0	18	0	0	0	27	4	0	1	0	0	0	0	0	0	0	50	
3:20 PM	1	23	0	0	0	16	3	0	3	0	0	0	0	0	0	0	46	
3:25 PM	0	22	0	0	0	15	0	0	2	0	0	0	0	0	0	0	39	
3:30 PM	1	19	0	0	0	14	1	0	3	0	0	0	0	0	0	0	38	
3:35 PM	1	30	0	0	0	14	4	0	4	0	0	0	0	0	0	0	53	
3:40 PM	0	12	0	0	0	13	2	0	3	0	0	0	0	0	0	0	30	
3:45 PM	0	13	0	0	0	27	4	0	2	0	0	0	0	0	0	0	46	
3:50 PM	0	14	0	0	0	18	4	0	3	0	0	0	0	0	0	0	39	
3:55 PM	0	14	0	0	0	12	2	0	1	0	0	0	0	0	0	0	29	504
4:00 PM	1	13	0	0	0	8	0	0	1	0	0	0	0	0	0	0	23	493
4:05 PM	0	10	0	0	0	16	0	0	1	0	0	0	0	0	0	0	27	478
4:10 PM	0	13	0	0	0	13	4	0	2	0	0	0	0	0	0	0	32	452
4:15 PM	0	11	0	0	0	23	3	0	3	0	0	0	0	0	0	0	40	442
4:20 PM	1	17	0	0	0	17	3	0	2	0	0	0	0	0	0	0	40	436
4:25 PM	0	19	0	0	0	17	1	0	4	0	0	0	0	0	0	0	41	438
4:30 PM	0	15	0	0	0	20	4	0	1	0	0	0	0	0	0	0	40	440
4:35 PM	0	15	0	0	0	13	2	0	4	0	0	0	0	0	0	0	34	421
4:40 PM	0	13	0	0	0	23	2	0	2	0	0	0	0	0	0	0	40	431
4:45 PM	0	20	0	0	0	16	1	0	2	0	0	0	0	0	0	0	39	424
4:50 PM	0	13	0	0	0	11	3	0	2	0	0	0	0	0	0	0	29	414
4:55 PM	0	18	0	0	0	17	1	0	0	0	0	0	0	0	0	0	36	421
5:00 PM	1	16	0	0	0	18	1	0	3	0	0	0	0	0	0	0	39	437
5:05 PM	0	7	0	0	0	13	2	0	2	0	1	0	0	0	0	0	25	435
5:10 PM	0	17	0	0	0	17	0	0	5	0	0	0	0	0	0	0	39	442
5:15 PM	0	14	0	0	0	15	4	0	3	0	0	0	0	0	0	0	36	438
5:20 PM	0	18	0	0	0	20	2	0	3	0	0	0	0	0	0	0	43	441
5:25 PM	0	12	0	0	0	23	3	0	0	0	1	0	0	0	0	0	39	439
5:30 PM	0	11	0	0	0	12	3	0	2	0	0	0	0	0	0	0	28	427
5:35 PM	0	19	0	0	0	21	1	0	3	0	1	0	0	0	0	0	45	438
5:40 PM	1	14	0	0	0	20	4	0	1	0	0	0	0	0	0	0	40	438
5:45 PM	0	16	0	0	0	10	1	0	1	0	1	0	0	0	0	0	29	428
5:50 PM	0	10	0	0	0	17	8	0	2	0	0	0	0	0	0	0	37	436
5:55 PM	0	16	0	0	0	21	1	0	2	0	0	0	0	0	0	0	40	440

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	204	0	0	0	324	56	0	24	0	4	0	0	0	0	0	616
Heavy Trucks	0	20	0		0	8	4		0	0	0		0	0	0		32
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

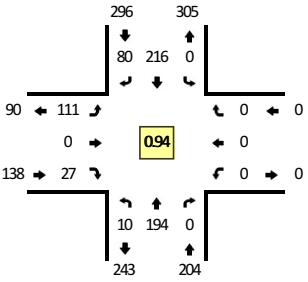
Type of peak hour being reported: Intersection Peak

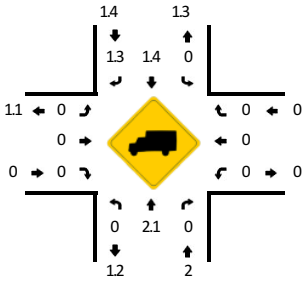
Method for determining peak hour: Tot

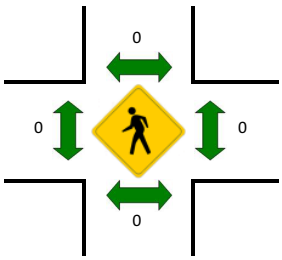
LOCATION: S Main St -- Kinkade Rd
CITY/STATE: Boardman, OR

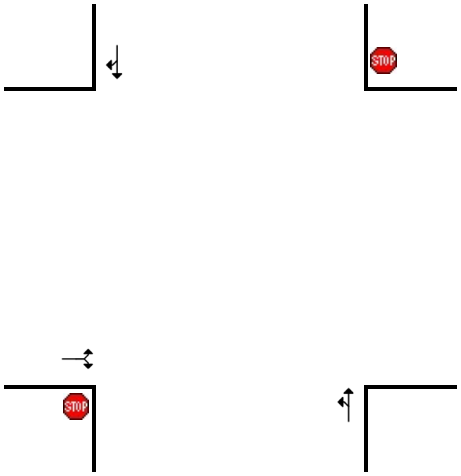
QC JOB #: 15762810
DATE: Thu, Mar 31 2022

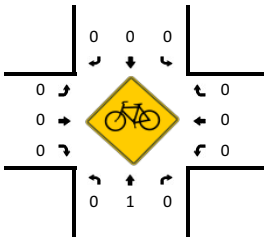
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

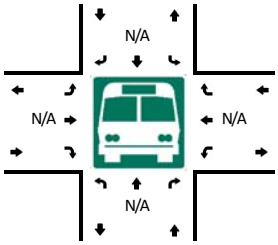


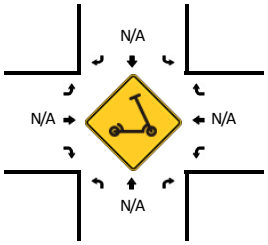












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Kinkade Rd (Eastbound)				Kinkade Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	11	0	0	0	19	6	0	4	0	0	0	0	0	0	0	40	
3:05 PM	1	11	0	0	0	30	2	0	3	0	3	0	0	0	0	0	50	
3:10 PM	0	11	0	0	0	43	7	0	3	0	4	0	0	0	0	0	68	
3:15 PM	1	18	0	0	0	29	4	0	5	0	0	0	0	0	0	0	57	
3:20 PM	1	26	0	0	0	18	7	0	12	0	1	0	0	0	0	0	65	
3:25 PM	2	22	0	0	0	14	3	0	5	0	2	0	0	0	0	0	48	
3:30 PM	2	22	0	0	0	13	7	0	7	0	0	0	0	0	0	0	51	
3:35 PM	0	31	0	0	0	18	5	0	4	0	2	0	0	0	0	0	60	
3:40 PM	0	15	0	0	0	15	11	0	3	0	4	0	0	0	0	0	48	
3:45 PM	1	15	0	0	0	29	5	0	2	0	0	0	0	0	0	0	52	
3:50 PM	1	19	0	0	0	15	6	0	10	0	4	0	0	0	0	0	55	
3:55 PM	2	11	0	0	0	13	3	0	6	0	2	0	0	0	0	0	37	631
4:00 PM	0	11	0	0	0	10	5	0	5	0	0	0	0	0	0	0	31	622
4:05 PM	0	13	0	0	0	14	10	0	3	0	2	0	0	0	0	0	42	614
4:10 PM	1	13	0	0	0	18	12	0	9	0	2	0	0	0	0	0	55	601
4:15 PM	1	13	0	0	0	22	7	0	8	0	1	0	0	0	0	0	52	596
4:20 PM	1	21	0	0	0	20	7	0	9	0	0	0	0	0	0	0	58	589
4:25 PM	0	24	0	0	0	21	3	0	7	0	0	0	0	0	0	0	55	596
4:30 PM	0	18	0	0	0	22	6	0	9	0	1	0	0	0	0	0	56	601
4:35 PM	0	18	0	0	0	11	8	0	10	0	0	0	0	0	0	0	47	588
4:40 PM	0	16	0	0	0	22	7	0	6	0	3	0	0	0	0	0	54	594
4:45 PM	1	21	0	0	0	17	2	0	9	0	1	0	0	0	0	0	51	593
4:50 PM	1	16	0	0	0	13	7	0	8	0	1	0	0	0	0	0	46	584
4:55 PM	2	16	0	0	0	19	4	0	5	0	2	0	0	0	0	0	48	595
5:00 PM	1	19	0	0	0	17	6	0	8	0	2	0	0	0	0	0	53	617
5:05 PM	0	9	0	0	0	16	13	0	6	0	3	0	0	0	0	0	47	622
5:10 PM	2	21	0	0	0	17	8	0	13	0	3	0	0	0	0	0	64	631
5:15 PM	0	17	0	0	0	15	4	0	14	0	4	0	0	0	0	0	54	633
5:20 PM	3	18	0	0	0	16	2	0	12	0	1	0	0	0	0	0	52	627
5:25 PM	0	14	0	0	0	20	7	0	11	0	4	0	0	0	0	0	56	628
5:30 PM	0	14	0	0	0	15	3	0	7	0	1	0	0	0	0	0	40	612
5:35 PM	2	20	0	0	0	22	9	0	7	0	2	0	0	0	0	0	62	627
5:40 PM	1	15	0	0	0	19	8	0	4	0	3	0	0	0	0	0	50	623
5:45 PM	1	16	0	0	0	10	9	0	11	0	2	0	0	0	0	0	49	621
5:50 PM	0	13	0	0	0	29	5	0	8	0	0	0	0	0	0	0	55	630
5:55 PM	0	18	0	0	0	20	6	0	10	0	2	0	0	0	0	0	56	638

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	224	0	0	0	192	56	0	156	0	32	0	0	0	0	0	680
Heavy Trucks	0	0	0		0	0	4		0	0	0		0	0	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

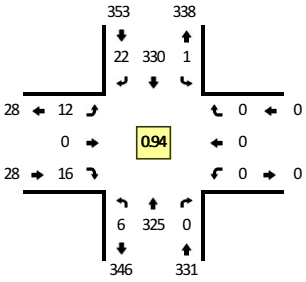
Type of peak hour being reported: Intersection Peak

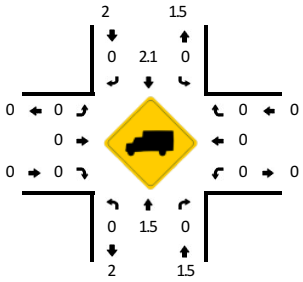
Method for determining peak hour: Tot

LOCATION: S Main St -- City Center Dr
CITY/STATE: Boardman, OR

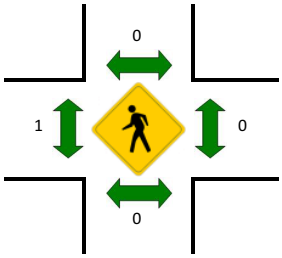
QC JOB #: 15762811
DATE: Thu, Mar 31 2022

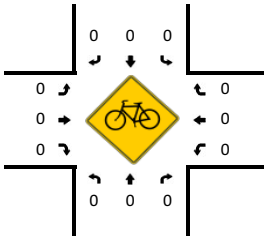
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

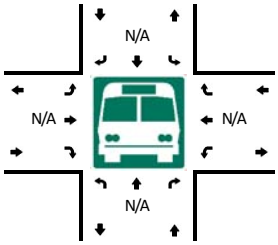


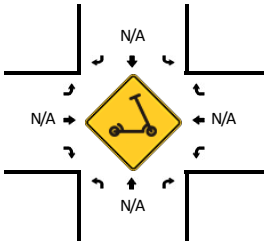


Quality Counts
DATA THAT DRIVES COMMUNITIES









5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				City Center Dr (Eastbound)				City Center Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	2	11	0	0	0	30	0	0	2	0	0	0	0	0	0	0	45	
3:05 PM	0	20	0	0	0	37	1	0	1	0	0	0	0	0	0	0	59	
3:10 PM	1	13	0	0	0	52	2	0	1	0	0	0	0	0	0	0	69	
3:15 PM	2	20	0	0	0	34	3	0	3	0	0	0	0	0	0	0	62	
3:20 PM	0	38	0	0	0	27	1	0	0	0	0	0	0	0	0	0	66	
3:25 PM	0	26	0	0	0	18	1	0	2	0	1	0	0	0	0	0	48	
3:30 PM	0	31	0	0	0	27	3	0	2	0	0	0	0	0	0	0	63	
3:35 PM	0	29	0	0	0	28	2	0	2	0	0	0	0	0	0	0	61	
3:40 PM	1	20	0	0	0	28	4	0	3	0	0	0	0	0	0	0	56	
3:45 PM	2	18	0	0	0	33	1	0	2	0	0	0	0	0	0	0	56	
3:50 PM	0	30	0	0	0	25	3	0	1	0	0	0	0	0	0	0	59	
3:55 PM	1	19	0	0	0	21	1	0	2	0	1	0	0	0	0	0	45	689
4:00 PM	0	19	0	0	0	17	4	0	1	0	2	0	0	0	0	0	43	687
4:05 PM	1	15	0	0	0	26	8	0	1	0	0	0	0	0	0	0	51	679
4:10 PM	2	21	0	0	0	34	2	0	3	0	0	0	0	0	0	0	62	672
4:15 PM	1	23	0	0	0	31	0	0	4	0	1	0	0	0	0	0	60	670
4:20 PM	1	30	0	0	0	25	2	0	1	0	5	0	0	0	0	0	64	668
4:25 PM	0	32	0	0	0	28	2	0	3	0	2	0	0	0	0	0	67	687
4:30 PM	1	22	0	0	0	32	0	0	2	0	1	0	0	0	0	0	58	682
4:35 PM	0	31	0	0	0	25	0	0	0	0	0	0	0	0	0	0	56	677
4:40 PM	0	23	0	0	0	34	1	0	1	0	1	0	0	0	0	0	60	681
4:45 PM	0	31	0	0	0	26	1	1	1	0	0	0	0	0	0	0	60	685
4:50 PM	0	27	0	0	0	20	1	0	0	0	1	0	0	0	0	0	49	675
4:55 PM	2	26	0	0	0	26	5	0	0	0	0	0	0	0	0	0	59	689
5:00 PM	2	21	0	0	0	25	4	0	2	0	3	0	0	0	0	0	57	703
5:05 PM	0	18	0	0	0	31	1	0	0	0	2	0	0	0	0	0	52	704
5:10 PM	0	34	0	0	0	29	2	0	1	0	1	0	0	0	0	0	67	709
5:15 PM	0	30	0	0	0	29	3	0	1	0	0	0	0	0	0	0	63	712
5:20 PM	1	27	0	0	0	30	2	0	3	0	0	0	0	0	0	0	63	711
5:25 PM	0	30	0	0	0	27	0	0	3	0	0	0	0	0	0	0	60	704
5:30 PM	1	24	0	0	0	21	0	0	1	0	0	0	0	0	0	0	47	693
5:35 PM	1	26	0	0	0	32	1	0	3	0	0	0	0	0	0	0	63	700
5:40 PM	0	19	0	0	0	31	1	0	1	0	1	0	0	0	0	0	53	693
5:45 PM	0	26	0	0	0	22	2	0	0	0	0	0	0	0	0	0	50	683
5:50 PM	1	22	0	0	0	39	3	0	2	0	1	0	0	0	0	0	68	702
5:55 PM	1	28	0	0	0	27	1	0	3	0	1	0	0	0	0	0	61	704

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	336	0	0	0	340	16	0	24	0	32	0	0	0	0	0	756
Heavy Trucks	0	8	0		0	0	0		0	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 4/6/2022 2:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix B Existing Traffic Conditions

HCM 6th

Vistro File: H:\...\27246 - Vistro.vistro
Report File: H:\...\Exist Conditions - PM.pdf

Scenario 1 Exist_PM
9/23/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Main St/Columbia Ave	Two-way stop	HCM 7th Edition	WB Left	0.199	12.3	B
2	Main St/Boardman Ave	Two-way stop	HCM 7th Edition	WB Left	0.116	20.0	C
3	Main St/Front St NE	Two-way stop	HCM 7th Edition	WB Left	0.264	25.9	D
4	Main St/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Left	0.430	22.0	C
5	Main St/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Thru	0.008	60.8	F
6	Main St/Front St SE	Two-way stop	HCM 7th Edition	EB Left	0.038	25.1	D
7	Main St/Oregon Trail Blvd	Two-way stop	HCM 7th Edition	WB Left	0.012	15.7	C
8	Main St/City Center Dr	Two-way stop	HCM 7th Edition	EB Left	0.049	14.7	B
9	Main St/Kinkade Rd	Two-way stop	HCM 7th Edition	EB Left	0.196	13.9	B
10	Main St/Willow Fork Dr	Two-way stop	HCM 7th Edition	EB Left	0.050	11.7	B
11	Main St/Wilson Ln	All-way stop	HCM 7th Edition	EB Left	0.267	8.8	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Main St/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.199

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	19	44	112	7	22	4	3	22	17	116	31	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	4.00	0.00	0.00	0.00	0.00	0.00	6.00	3.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	44	112	7	22	4	3	22	17	116	31	14
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	13	32	2	6	1	1	6	5	33	9	4
Total Analysis Volume [veh/h]	22	50	127	8	25	5	3	25	19	132	35	16
Pedestrian Volume [ped/h]	7			0			2			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.04	0.02	0.20	0.05	0.02
d_M, Delay for Movement [s/veh]	7.30	0.00	0.00	7.57	0.00	0.00	10.72	11.05	8.87	12.33	12.20	10.72
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	B
95th-Percentile Queue Length [veh/ln]	0.04	0.00	0.00	0.02	0.00	0.00	0.20	0.20	0.20	1.08	1.08	1.08
95th-Percentile Queue Length [ft/ln]	1.05	0.00	0.00	0.43	0.00	0.00	5.03	5.03	5.03	26.89	26.89	26.89
d_A, Approach Delay [s/veh]	0.81			1.59			10.14			12.16		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	6.26											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Main St/Boardman Ave

Control Type:	Two-way stop	Delay (sec / veh):	20.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.116

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	92	168	45	10	151	17	14	6	78	28	5	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	9.00	10.00	4.00	6.00	0.00	0.00	0.00	11.00	0.00	12.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	168	45	10	151	17	14	6	78	28	5	8
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	48	13	3	43	5	4	2	22	8	1	2
Total Analysis Volume [veh/h]	106	193	52	11	174	20	16	7	90	32	6	9
Pedestrian Volume [ped/h]	2			8			2			7		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.01	0.00	0.00	0.05	0.02	0.11	0.12	0.02	0.01
d_M, Delay for Movement [s/veh]	7.81	0.00	0.00	7.88	0.00	0.00	16.82	16.60	10.35	19.96	17.10	11.55
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.25	0.00	0.00	0.03	0.00	0.00	0.62	0.62	0.62	0.50	0.50	0.50
95th-Percentile Queue Length [ft/ln]	6.20	0.00	0.00	0.66	0.00	0.00	15.54	15.54	15.54	12.54	12.54	12.54
d_A, Approach Delay [s/veh]	2.36			0.42			11.66			17.98		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	4.30											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Main St/Front St NE

Control Type:	Two-way stop	Delay (sec / veh):	25.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.264

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	90.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	61	221	81	11	278	4	7	3	77	56	3	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	6.00	3.00	8.00	0.00	3.00	0.00	0.00	0.00	5.00	11.00	33.00	17.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	61	221	81	11	278	4	7	3	77	56	3	6
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	61	23	3	77	1	2	1	21	16	1	2
Total Analysis Volume [veh/h]	68	246	90	12	309	4	8	3	86	62	3	7
Pedestrian Volume [ped/h]	0			1			2			2		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.01	0.00	0.00	0.03	0.01	0.12	0.26	0.01	0.01
d_M, Delay for Movement [s/veh]	8.12	0.00	0.00	7.96	0.00	0.00	17.79	17.72	10.69	25.87	23.53	15.63
Movement LOS	A	A	A	A	A	A	C	C	B	D	C	C
95th-Percentile Queue Length [veh/ln]	0.18	0.00	0.00	0.03	0.00	0.00	0.12	0.12	0.41	1.14	1.14	1.14
95th-Percentile Queue Length [ft/ln]	4.42	0.00	0.00	0.74	0.00	0.00	2.92	2.92	10.14	28.39	28.39	28.39
d_A, Approach Delay [s/veh]	1.37			0.29			11.49			24.78		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	3.95											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 4: Main St/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	22.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.430

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	24	252	0	0	363	48	0	0	0	122	0	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	3.00	2.00	2.00	3.00	17.00	2.00	2.00	2.00	4.00	0.00	10.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	252	0	0	363	48	0	0	0	122	0	111
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	69	0	0	100	13	0	0	0	34	0	30
Total Analysis Volume [veh/h]	26	277	0	0	399	53	0	0	0	134	0	122
Pedestrian Volume [ped/h]	0			0			3			3		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				Yes
Storage Area [veh]	0	0	0	1
Two-Stage Gap Acceptance				No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.17
d_M, Delay for Movement [s/veh]	8.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.99	21.85	15.30
Movement LOS	A	A			A	A				C	C	C
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	2.41	2.41
95th-Percentile Queue Length [ft/ln]	1.10	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.27	60.27	60.27
d_A, Approach Delay [s/veh]	0.71			0.00			0.00			18.80		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	4.97											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Main St/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	60.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	188	183	75	383	0	88	1	49	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	4.00	2.00	9.00	3.00	2.00	3.00	100.00	13.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	188	183	75	383	0	88	1	49	0	0	0
Peak Hour Factor	1.0000	0.8100	0.8100	0.8100	0.8100	1.0000	0.8100	0.8100	0.8100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	58	56	23	118	0	27	0	15	0	0	0
Total Analysis Volume [veh/h]	0	232	226	93	473	0	109	1	60	0	0	0
Pedestrian Volume [ped/h]	0			0			2			5		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.00	0.57	0.01	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.51	0.00	0.00	49.74	60.85	37.38	0.00	0.00	0.00
Movement LOS		A	A	A	A		E	F	E			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.16	0.16	0.00	4.43	4.43	4.43	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	4.08	4.08	0.00	110.72	110.72	110.72	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			1.40			45.44			0.00		
Approach LOS	A			A			E			A		
d_I, Intersection Delay [s/veh]	7.13											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: Main St/Front St SE

Control Type:	Two-way stop	Delay (sec / veh):	25.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.038

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	85.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	332	18	41	378	12	6	0	6	16	3	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	5.00	12.00	3.00	8.00	0.00	0.00	0.00	0.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	332	18	41	378	12	6	0	6	16	3	33
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	102	6	13	117	4	2	0	2	5	1	10
Total Analysis Volume [veh/h]	5	410	22	51	467	15	7	0	7	20	4	41
Pedestrian Volume [ped/h]	3			0			2			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.05	0.00	0.00	0.04	0.00	0.01	0.10	0.02	0.07
d_M, Delay for Movement [s/veh]	8.33	0.00	0.00	8.51	0.00	0.00	25.11	21.63	11.80	24.85	23.13	11.13
Movement LOS	A	A	A	A	A	A	D	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	0.15	0.00	0.00	0.16	0.16	0.16	0.39	0.39	0.21
95th-Percentile Queue Length [ft/ln]	0.35	0.00	0.00	3.73	0.00	0.00	3.91	3.91	3.91	9.63	9.63	5.22
d_A, Approach Delay [s/veh]	0.10			0.81			18.45			16.09		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	1.70											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 7: Main St/Oregon Trail Blvd

Control Type:	Two-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	315	6	26	351	4	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	17.00	4.00	1.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	315	6	26	351	4	26
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	2	7	96	1	7
Total Analysis Volume [veh/h]	346	7	29	386	4	29
Pedestrian Volume [ped/h]	2		2		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.01	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	8.05	0.00	15.69	10.50
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.05	0.17	0.17
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.23	1.23	4.21	4.21
d_A, Approach Delay [s/veh]	0.00		0.56		11.13	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.75					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 8: Main St/City Center Dr

Control Type:	Two-way stop	Delay (sec / veh):	14.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.049

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	8	300	324	26	17	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	1.00	4.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	300	324	26	17	13
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	83	90	7	5	4
Total Analysis Volume [veh/h]	9	333	360	29	19	14
Pedestrian Volume [ped/h]	0		0		3	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.05	0.02
d_M, Delay for Movement [s/veh]	8.08	0.00	0.00	0.00	14.75	10.47
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.15	0.06
95th-Percentile Queue Length [ft/ln]	0.38	0.38	0.00	0.00	3.85	1.60
d_A, Approach Delay [s/veh]	0.21		0.00		12.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.65					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: Main St/Kinkade Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.196

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	7	200	209	78	88	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	14.00	3.00	1.00	0.00	1.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	200	209	78	88	13
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	57	59	22	25	4
Total Analysis Volume [veh/h]	8	227	238	89	100	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.20	0.02
d_M, Delay for Movement [s/veh]	8.09	0.00	0.00	0.00	13.91	11.71
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.81	0.81
95th-Percentile Queue Length [ft/ln]	0.33	0.33	0.00	0.00	20.37	20.37
d_A, Approach Delay [s/veh]	0.28		0.00		13.62	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.41					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 10: Main St/Willow Fork Dr

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	2	177	196	24	24	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	3.00	0.00	4.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	177	196	24	24	0
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	51	56	7	7	0
Total Analysis Volume [veh/h]	2	203	225	28	28	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	7.72	0.00	0.00	0.00	11.70	9.80
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.08	0.08	0.00	0.00	3.90	3.90
d_A, Approach Delay [s/veh]	0.08		0.00		11.70	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.71					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 11: Main St/Wilson Ln

Control Type:	All-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.267

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	51	3	21	63	112	105	31	3	7	29	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	0.00	0.00	6.00	1.00	2.00	3.00	0.00	14.00	3.00	17.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	51	3	21	63	112	105	31	3	7	29	23
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	15	1	6	18	32	30	9	1	2	8	7
Total Analysis Volume [veh/h]	2	59	3	24	72	129	121	36	3	8	33	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	750	843	746	760
Degree of Utilization, x	0.09	0.27	0.21	0.09

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.28	1.08	0.81	0.29
95th-Percentile Queue Length [ft]	6.98	26.93	20.27	7.22
Approach Delay [s/veh]	8.25	8.82	9.14	8.19
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	8.77			
Intersection LOS	A			

Appendix C Crash Data

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes N. Main St & Boardman Ave in Boardman, OR.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2016														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2016 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0

Disclaimers: *Effective 2016,* ***collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants.*** *Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.*

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes N. Main St & Front St in Boardman, OR.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2020														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2020 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes N. Main St & Interstate 84, Columbia River Hwy (#002), WB Ramps in Boardman, OR.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2020														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2020 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2019														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	1	0	1	1	0	0
2019 TOTAL	0	0	3	3	0	0	0	2	1	2	1	3	0	0
YEAR: 2018														
ANGLE	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2018 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2017														
TURNING MOVEMENTS	0	3	0	3	0	4	0	2	1	2	1	3	0	0
2017 TOTAL	0	3	0	3	0	4	0	2	1	2	1	3	0	0
YEAR: 2016														
REAR-END	0	1	0	1	0	2	0	1	0	0	1	1	0	0
2016 TOTAL	0	1	0	1	0	2	0	1	0	0	1	1	0	0
FINAL TOTAL	0	5	4	9	0	7	0	7	2	6	3	9	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes S. Main St & Interstate 84, Columbia River Hwy (#002), EB Ramps in Boardman, OR.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2020														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2020 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2017														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2017 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2016														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2016 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	0	3	3	0	0	0	3	0	3	0	3	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes S. Main St & Wilson Rd (Ln) in Boardman, OR.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2019														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	0	1	1	0	0
2019 TOTAL	0	1	1	2	0	1	0	1	1	1	1	2	0	0
YEAR: 2018														
ANGLE	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2018 TOTAL	0	0	1	1	0	0	0	1	0	0	1	1	0	0
FINAL TOTAL	0	1	2	3	0	1	0	2	1	1	2	3	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Crashes Main St Between Columbia Ave to Wilson Rd (Ln) in Boardman, OR. Excluding Intersectional Crashes on Road Segment.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2018														
SIDESWIPE - MEETING	0	1	0	1	0	1	0	1	0	0	1	0	0	0
2018 TOTAL	0	1	0	1	0	1	0	1	0	0	1	0	0	0
YEAR: 2017														
REAR-END	0	1	0	1	0	1	0	1	0	0	1	0	1	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	1	1	0	0	0	0
2017 TOTAL	0	1	1	2	0	1	0	1	1	1	1	0	1	0
YEAR: 2016														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	0	1	0	0	1
2016 TOTAL	0	0	1	1	0	0	0	0	1	0	1	0	0	1
FINAL TOTAL	0	2	2	4	0	2	0	2	2	1	3	0	1	1

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
STATE HIGHWAY SYSTEM CRASH LOCATIONS - DRIVER BEHAVIOR FORMAT

Crashes Main St Between Columbia Ave to Wilson Rd (Ln) in Boardman, OR. Excluding Intersectional Crashes on Road Segment.
January 1, 2016 through December 31, 2020

SERIAL NO	DATE	TIME	DAY	*COUNTY OR CITY NAME	COMPNT	MLG TYP	CRASH LOCATION	COLL TYPE	EVENT	CAUSE	ERROR	SURF	TOT VEH	VEHICLE TYP/OWN #1	VEHICLE TYP/OWN #2	--PEOPLE-- KILL	INJ	ALC	SPEED
00071	09/09/2018	9P	SU	Boardman	CN	R	HY 002, COLUMBIA RIVER AT MP 164.16	SS-M		05	080	DRY	2	011	011	0	1	N	N

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CITY STREET LOCATIONS BY COUNTY - DRIVER BEHAVIOR FORMAT

Crashes Main St Between Columbia Ave to Wilson Rd (Ln) in Boardman, OR. Excluding Intersectional Crashes on Road Segment.
January 1, 2016 through December 31, 2020

MORROW COUNTY

SERIAL NO	DATE	TIME	DAY	*COUNTY OR CITY NAME	CRASH LOCATION	COLL TYPE	EVENT	CAUSE	ERROR	SURF	TOT VEH	VEHICLE TYP/OWN #1	VEHICLE TYP/OWN #2	PEOPLE KILL	PEOPLE INJ	PEOPLE ALC	PEOPLE SPEED
00080	10/30/2016	7P	SU	Boardman	N MAIN ST 236 FT N OF BOARDMAN AVE	FIX	054	08		WET	1	010		0	0	N	N
00014	01/09/2017	12P	MO	Boardman	S MAIN ST 230 FT S OF CITY CENTER DR	TURN		01,27		ICE	2	010	030	0	0	N	Y
00013	01/09/2017	5P	MO	Boardman	S MAIN ST 40 FT N OF OREGON TRAIL BLVD	REAR		27,29	016,026	DRY	2	011	011	0	1	N	N

VEHICLE OWNERSHIP CODES

Code	Short Description	Long Description
0	N/A	Not collected for PDO Crashes
1	PRVTE	Private
2	GOVMT	Government
3	PUBLC	Public
4	RENTL	Rental vehicle
5	STOLN	Stolen vehicle
9	UNKN	Unknown ownership

VEHICLE TYPE CODES

Code	Short Description	Long Description
00	PDO	Not collected for PDO Crashes
01	PSNGR CAR	Passenger car, pickup, light delivery, etc.
02	BOBTAIL	Truck tractor with no trailers (bobtail)
03	FARM TRCTR	Farm tractor or self-propelled farm equipment
04	SEMI TOW	Truck Tractor with trailer/mobile home in tow
05	TRUCK	Truck with non-detachable bed, panel, etc.
06	MOPED	Moped, minibike, seated motor scooter, motor bike
07	SCHL BUS	School bus (includes van)
08	OTH BUS	Other bus
09	MTRCYCLE	Motorcycle, dirt bike
10	OTHER	Other: forklift, backhoe, etc.
11	MOTRHOME	Motorhome
12	TROLLEY	Motorized Street Car/Trolley (no rails/wires)
13	ATV	ATV
14	MTRSCTR	Motorized scooter (standing)
15	SNOWMOBILE	Snowmobile
99	UNKNOWN	Unknown vehicle type

CAUSE CODES

Code	Short Description	Medium Description	Long Description	Code Termination Date
00	NO CODE	NO CODE APPLICABLE	No cause associated at this level	
01	TOO-FAST	TOO FAST FOR COND	Too fast for conditions (not exceed posted speed)	
02	NO-YIELD	FAILED YIELD ROW	Did not yield right-of-way	
03	PAS-STOP	PASSED STOP SIGN	Passed stop sign or red flasher	
04	DIS SIG	DISREGRD TRAF SIGNAL	Disregarded traffic signal	
05	LEFT-CTR	LEFT OF CTR/STRADDLE	Drove left of center on two-way road; straddling	
06	IMP-OVER	IMPROPER PASSING	Improper overtaking	
07	TOO-CLOS	FOLLOW TOO CLOSE	Followed too closely	
08	IMP-TURN	IMPROPER TURN	Made improper turn	
09	DRINKING	ALC OR DRUGS	Alcohol or Drug Involved	12/31/2002
10	OTHR-IMP	OTHER DRIVE ERR	Other improper driving	
11	MECH-DEF	MECH DEFECT	Mechanical defect	
12	OTHER	OTHER	Other (not improper driving)	
13	IMP LN C	IMP LANE CHANGE	Improper change of traffic lanes	
14	DIS TCD	DISRG OTHR TCD	Disregarded other traffic control device	
15	WRNG WAY	WRONG WAY / 1-WAY RD	Wrong way on one-way road; wrong side divided road	
16	FATIGUE	DRIVER FATIGUED	Driver drowsy/fatigued/sleepy	
17	ILLNESS	PHYSICAL ILLNESS	Physical illness	
18	IN RDWY	ILLEGALLY IN RDWY	Non-motorist illegally in roadway	
19	NT VISBL	NOT VISIBLE	Non-motorist not visible; non-reflective clothing	
20	IMP PKNG	IMPROPER PARKING	Vehicle improperly parked	
21	DEF STER	DEFECTIVE STEERING	Defective steering mechanism	
22	DEF BRKE	DEFECTIVE BRAKES	Inadequate or no brakes	
24	LOADSHFT	LOAD SHIFTED	Vehicle lost load or load shifted	
25	TIREFAIL	TIRE FAILURE	Tire Failure	
26	PHANTOM	PHANTOM VEHICLE	Phantom / Non-contact Vehicle	
27	INATTENT	INATTENTION	Inattention	
28	NM INATT	NON-MTRST INATTENT	Non-Motorist Inattention	
29	F AVOID	FAIL AVOID VEH AHEAD	Failed to avoid vehicle ahead	
30	SPEED	EXCED POSTED SPEED	Driving in excess of posted speed	
31	RACING	SPEED RACING	Speed Racing (per PAR)	
32	CARELESS	CARELESS DRIVING	Careless Driving (per PAR)	
33	RECKLESS	RECKLESS DRIVING	Reckless Driving (per PAR)	
34	AGGRESV	AGGRESSIVE DRIVING	Aggressive Driving (per PAR)	
35	RD RAGE	ROAD RAGE	Road Rage (per PAR)	
40	VIEW OBS	VIEW OBSCURED	View obscured	
50	USED MDN	IMP USE MEDIAN/SHLDR	Improper use of median or shoulder	
51	FAIL LN	F MAINT LANE	Failed to maintain lane	12/31/2015
52	OFF RD	RAN OFF RD	Ran off road	12/31/2015

ERR CODES

Code	Short Description	Medium Description	Long Description
000	NONE	NO ERROR	No error
001	WIDE TRN	WIDE TURN	Wide turn
002	CUT CORN	CUT CORNER	Cut corner on turn
003	FAIL TRN	F OBEY TRN	Failed to obey mandatory traffic turn signal, sign or lane markings
004	L IN TRF	LTRN FNT TRAF	Left turn in front of oncoming traffic
005	L PROHIB	LTRN PROHIB	Left turn where prohibited
006	FRM WRNG	T FRM WRNG LN	Turned from wrong lane
007	TO WRONG	T TO WRONG LN	Turned into wrong lane
008	ILLEG U	ILLEG U-TURN	U-turned illegally
009	IMP STOP	IMP STOP	Improperly stopped in traffic lane
010	IMP SIG	IMP/FAIL SIG	Improper signal or failure to signal
011	IMP BACK	IMP BACKING	Backing improperly (not parking)
012	IMP PARK	IMP PARKED	Improperly parked
013	UNPARK	IMP STRT PARK	Improper start leaving parked position
014	IMP STRT	IMP STRT STOP	Improper start from stopped position
015	IMP LGHT	IMP/NO LIGHTS	Improper or no lights (vehicle in traffic)
016	INATTENT	INATTENTION	Inattention (Failure to Dim Lights prior to 4/1/97)
017	UNSF VEH	DR UNSAFE VEH	Driving unsafe vehicle (no other error apparent)
018	OTH PARK	PRK MAN N/CLR	Entering/exiting parked position w/ insufficient clearance; other improper parking maneuver
019	DIS DRIV	DISRG DR SIG	Disregarded other driver's signal
020	DIS SGNL	DISRG TRF SIG	Disregarded traffic signal
021	RAN STOP	DISRG STP SGN	Disregarded stop sign or flashing red
022	DIS SIGN	DISRG WRN SGN	Disregarded warning sign, flares or flashing amber
023	DIS OFCR	DISRG POL/FLG	Disregarded police officer or flagman
024	DIS EMER	DISRG SIR/EMR	Disregarded siren or warning of emergency vehicle
025	DIS RR	DISRG RR SIG	Disregarded RR signal, RR sign, or RR flagman
026	REAR-END	F AVOID STP V	Failed to avoid stopped or parked vehicle ahead other than school bus
027	BIKE ROW	F/YLD ROW BIK	Did not have right-of-way over pedalcyclist
028	NO ROW	NO R-O-W	Did not have right-of-way
029	PED ROW	F/YLD ROW PED	Failed to yield right-of-way to pedestrian
030	PAS CURV	PASS ON CURVE	Passing on a curve
031	PAS WRNG	PASS WRNG SID	Passing on the wrong side
032	PAS TANG	PASS TANGENT	Passing on straight road under unsafe conditions
033	PAS X-WK	PASS STP4PED	Passed vehicle stopped at crosswalk for pedestrian
034	PAS INTR	PASS AT INTER	Passing at intersection
035	PAS HILL	PASS ON HILL	Passing on crest of hill
036	N/PAS ZN	PASS N/PASSNG	Passing in "No Passing" zone
037	PAS TRAF	PASS ONC TRAF	Passing in front of oncoming traffic
038	CUT-IN	CUTTING IN	Cutting in (two lanes - two way only)
039	WRNGSIDE	DR WRONG SIDE	Driving on wrong side of the road (2-way undivided roadways)
040	THRU MED	DR THRU MEDN	Driving through safety zone or over island
041	F/ST BUS	F/STP SCHLBUS	Failed to stop for school bus
042	F/SLO MV	F/SLO SLO VEH	Failed to decrease speed for slower moving vehicle
043	TOO CLOSE	FOLLW TO CLOS	Following too closely (must be on officer's report)
044	STRDL LN	STRD/DR WRNG	Straddling or driving on wrong lanes
045	IMP CHG	IMP LANE CHG	Improper change of traffic lanes

Code	Short Description	Medium Description	Long Description
046	WRNG WAY	WRNG WY/1 WAY	Wrong way on one-way roadway; wrong side divided road
047	BASCRULE	V BASIC RULE	Driving too fast for conditions (not exceeding posted speed)
048	OPN DOOR	OPN DOOR TRAF	Opened door into adjacent traffic lane
049	IMPEDING	IMPEDING TRAF	Impeding Traffic
050	SPEED	SPEED	Driving in excess of posted speed
051	RECKLESS	RECKLSS DRVNG	Reckless driving (per PAR)
052	CARELESS	CARELSS DRVNG	Careless driving (per PAR)
053	RACING	RACING	Speed Racing (per PAR)
054	X N/SGNL	X-INT NO SGNL	Crossing at intersection, no traffic signal present
055	X W/SGNL	X-INT W/ SGNL	Crossing at intersection, traffic signal present
056	DIAGONAL	X-INT DIAGNL	Crossing at intersection - diagonally
057	BTWN INT	X-BTWN INTER	Crossing between intersections
059	W/TRAF-S	W SHLD W/TRAF	Walking, running, riding, etc., on shoulder WITH traffic
060	A/TRAF-S	W SHLD A/TRAF	Walking, running, riding, etc., on shoulder FACING traffic
061	W/TRAF-P	W PAVE W/TRAF	Walking, running, riding, etc., on pavement WITH traffic
062	A/TRAF-P	W PAVE A/TRAF	Walking, running, riding, etc., on pavement FACING traffic
063	PLAYINRD	PLAY IN RDWY	Playing in street or road
064	PUSH MV	PUSH MV IN RD	Pushing or working on vehicle in road or on shoulder
065	WORK IN RD	WORK IN RD	Working in roadway or along shoulder
070	LAY ON RD	LYING IN RD	Standing or lying in roadway
071	NM IMP USE	N-M IMP USE	Improper use of traffic lane by non-motorist
073	ELUDING	ELUDING	Eluding / Attempt to elude
079	F NEG CURV	FAIL NEG CURV	Failed to negotiate a curve
080	FAIL LN	F MAINT LANE	Failed to maintain lane
081	OFF RD	RAN OFF RD	Ran off road
082	NO CLEAR	MISJUDGE CLR	Driver misjudged clearance
083	OVRSTEER	OVERSTEER	Over-correcting
084	NOT USED	NOT USED	Code not in use
085	OVRLOAD	OVERLOAD	Overloading or improper loading of vehicle with cargo or passengers
097	UNA DIS TC	UNA DISRG TCD	Unable to determine which driver disregarded traffic control device

EVENT CODES

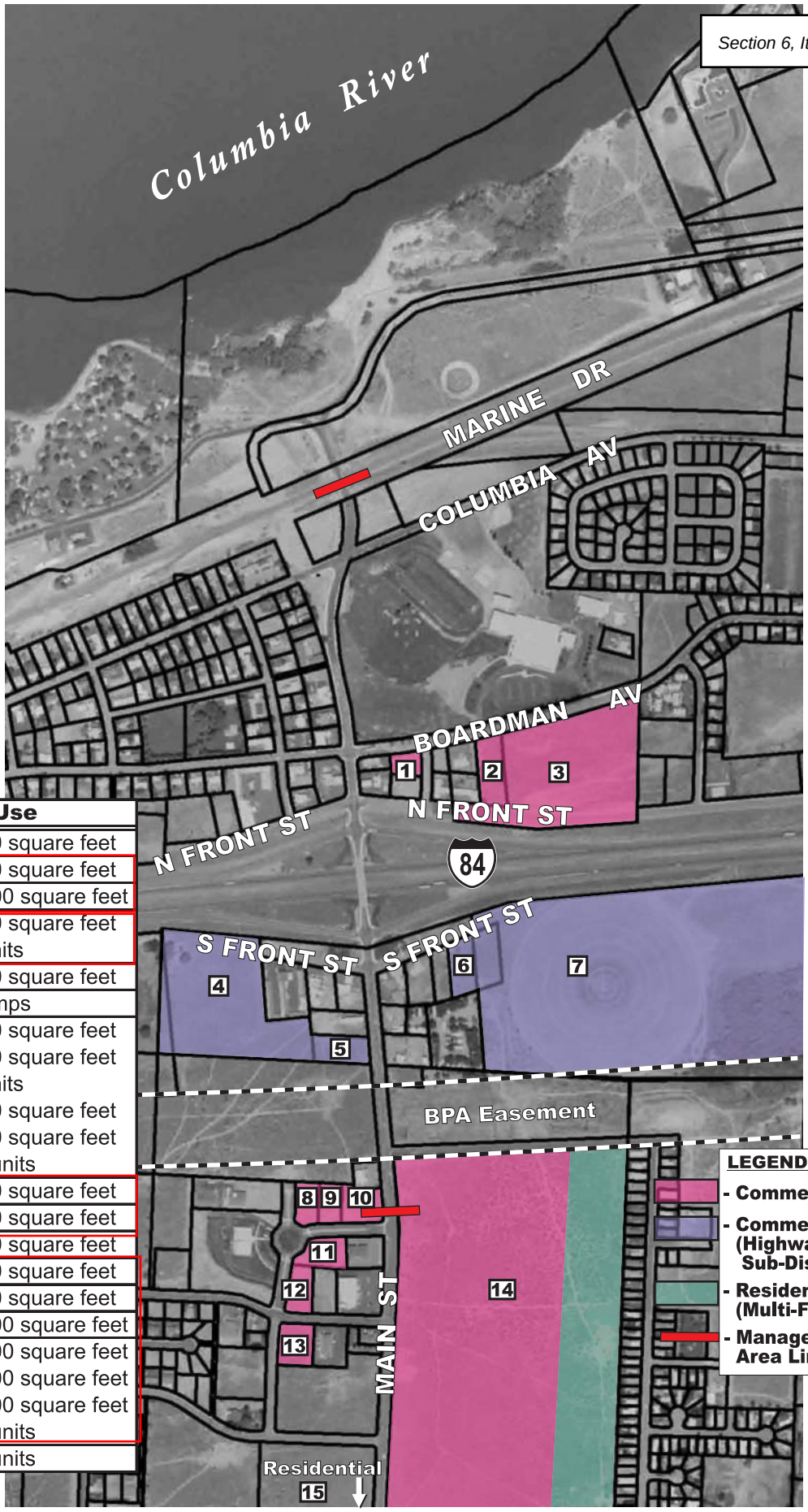
Code	Short Description	Medium Description	Long Description
001	FEL/JUMP	FELL/JUMPED MV	Occupant fell, jumped or was ejected from moving vehicle
002	INTERFER	PSNGR INTERFERED	Passenger interfered with driver
003	BUG INTF	ANML INTERFERED	Animal or insect in vehicle interfered with driver
004	INDRCT PED	PED INDRCTLY INVLV	Pedestrian indirectly involved (not struck)
005	SUB-PED	SUBSEQUENT PED	"Sub-Ped": pedestrian injured subsequent to collision, etc.
006	INDRCT BIK	BIKE INDRCTLY INVLV	Pedalcyclist indirectly involved (not struck)
007	HITCHIKR	HITCHHIKER	Hitchhiker (soliciting a ride)
008	PSNGR TOW	PSNGR TOWED	Passenger or non-motorist being towed or pushed on conveyance
009	ON/OFF V	ON/OFF STOP VEH	Getting on/off stopped/parked vehicle (occupants only; must have physical contact w/ vehicle)
010	SUB OTRN	SUBSEQ OVERTURN	Overturned after first harmful event
011	MV PUSHD	VEH BEING PUSHED	Vehicle being pushed
012	MV TOWED	VEH TOWED/TOWING	Vehicle towed or had been towing another vehicle
013	FORCED	FORCED BY IMPACT	Vehicle forced by impact into another vehicle, pedalcyclist or pedestrian
014	SET MOTN	MV SET IN MOTION	Vehicle set in motion by non-driver (child released brakes, etc.)
015	RR ROW	RAILROAD ROW	At or on railroad right-of-way (not Light Rail)
016	LT RL ROW	LIGHT RAIL ROW	At or on Light-Rail right-of-way
017	RR HIT V	TRAIN HIT VEH	Train struck vehicle
018	V HIT RR	VEH HIT TRAIN	Vehicle struck train
019	HIT RR CAR	VEH HIT RR CAR	Vehicle struck railroad car on roadway
020	JACKNIFE	JACKKNIFE	Jackknife; trailer or towed vehicle struck towing vehicle
021	TRL OTRN	TRAILER O'TURN	Trailer or towed vehicle overturned
022	CN BROKE	TRLR CONN BROKE	Trailer connection broke
023	DETACH TRL	DETCHD TRLR STRKNG	Detached trailing object struck other vehicle, non-motorist, or object
024	V DOOR OPN	V DOOR OPN IN TRAF	Vehicle door opened into adjacent traffic lane
025	WHEELOFF	WHEEL CAME OFF	Wheel came off
026	HOOD UP	HOOD FLEW UP	Hood flew up
028	LOAD SHIFT	LOAD SHIFTED	Lost load, load moved or shifted
029	TIREFAIL	TIRE FAILURE	Tire failure
030	PET	PET	Pet: cat, dog and similar
031	LVSTOCK	LIVESTOCK	Stock: cow, calf, bull, steer, sheep, etc.
032	HORSE	HORSE	Horse, mule, or donkey
033	HRSE&RID	HORSE & RIDER	Horse and rider
034	GAME	GAME NO DEER/ELK	Wild animal, game (includes birds; not deer or elk)
035	DEER ELK	DEER OR ELK	Deer or elk, wapiti
036	ANML VEH	ANIMAL-DRAWN VEH	Animal-drawn vehicle
037	CULVERT	CULVERT/MANHOLE	Culvert, open low or high manhole
038	ATENUATN	IMPACT CUSHION	Impact attenuator
039	PK METER	PARKING METER	Parking meter
040	CURB	CURB	Curb (also narrow sidewalks on bridges)
041	JIGGLE	JIGGLE BAR N/MED	Jiggle bar or traffic snake for channelization

Code	Short Description	Medium Description	Long Description
042	GDRL END	GUARDRAIL END	Leading edge of guardrail
043	GARDRAIL	GUARDRAIL	Guard rail (not metal median barrier)
044	BARRIER	MEDIAN BARRIER	Median barrier (raised or metal)
045	WALL	WALL	Retaining wall or tunnel wall
046	BR RAIL	BRIDGE RAIL	Bridge railing or parapet (on bridge or approach)
047	BR ABUTMNT	BRIDGE ABUTMENT	Bridge abutment (included "approach end" thru 2013)
048	BR COLMN	BRIDGE COLUMN	Bridge pillar or column
049	BR GIRDR	BRIDGE GIRDER	Bridge girder (horizontal bridge structure overhead)
050	ISLAND	TRAFFIC ISLAND	Traffic raised island
051	GORE	GORE	Gore
052	POLE UNK	POLE-UNKNOWN	Pole – type unknown
053	POLE UTL	POLE-UTILITY	Pole – power or telephone
054	ST LIGHT	POLE-ST LIGHT	Pole – street light only
055	TRF SGNL	POLE-TRAF SIGNAL	Pole – traffic signal and ped signal only
056	SGN BRDG	POLE-SIGN BRIDGE	Pole – sign bridge
057	STOPSIGN	STOP/YIELD SIGN	Stop or yield sign
058	OTH SIGN	OTHER SIGN	Other sign, including street signs
059	HYDRANT	HYDRANT	Hydrant
060	MARKER	DELINEATOR	Delineator or marker (reflector posts)
061	MAILBOX	MAILBOX	Mailbox
062	TREE	TREE/STUMP	Tree, stump or shrubs
063	VEG OHED	VEGTN OVER RDWY	Tree branch or other vegetation overhead, etc.
064	WIRE/CBL	CABLE ACROSS RD	Wire or cable across or over the road
065	TEMP SGN	TEMP SIGN/BARR	Temporary sign or barricade in road, etc.
066	PERM SGN	PERM SIGN/BARR	Permanent sign or barricade in/off road
067	SLIDE	SLIDE/ROCKS	Slides, fallen or falling rocks
068	FRGN OBJ	FOREIGN OBJECT	Foreign obstruction/debris in road (not gravel)
069	EQP WORK	EQUIP WORKING	Equipment working in/off road
070	OTH EQP	OTHER EQUIPMENT	Other equipment in or off road (includes parked trailer, boat)
071	MAIN EQP	MAINTNCE EQUIP	Wrecker, street sweeper, snow plow or sanding equipment
072	OTHER WALL	OTHER WALL	Rock, brick or other solid wall
073	IRRGL PVMT	IRREGULAR PAVEMENT	Other bump (not speed bump), pothole or pavement irregularity (per PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJ	Other overhead object (highway sign, signal head, etc.); not bridge
075	CAVE IN	CAVE IN	Bridge or road cave in
076	HI WATER	HIGH WATER	High Water
077	SNO BANK	SNOW BANK	Snow Bank
078	LO-HI EDGE	LOW-HIGH PVMNT EDGE	Low or high shoulder at pavement edge
079	DITCH	CUT SLOPE/DITCH	Cut slope or ditch embankment
080	OBJ FRM MV	OBJ FRM OTHR VEH	Struck by rock or other object set in motion by other vehicle (incl. lost loads)
081	FLY-OBJ	OTHER MOVING OBJ	Struck by rock or other moving or flying object (not set in motion by vehicle)
082	VEH HID	VEH OBSCURE VIEW	Vehicle obscured view
083	VEG HID	VEG OBSCURE VIEW	Vegetation obscured view
084	BLDG HID	BLD OBSCURE VIEW	View obscured by fence, sign, phone booth, etc.

Code	Short Description	Medium Description	Long Description
085	WIND GUST	WIND GUST	Wind Gust
086	IMMERSED	IMMERSION	Vehicle immersed in body of water
087	FIRE/EXP	FIRE/EXPLOSION	Fire or explosion
088	FENC/BLD	FENCE/BUILDING	Fence or building, etc.
089	OTHR CRASH	REFER OTHR CRASH	Crash related to another separate crash
090	TO 1 SIDE	TWO WAY ONE SIDE	Two-way traffic on divided roadway all routed to one side
091	BUILDING	BUILDING	Building or other structure
092	PHANTOM	PHANTOM VEH	Other (phantom) non-contact vehicle
093	CELL PHONE	CELL PHONE PER PAR	Cell phone (on PAR or driver in use)
094	VIOL GDL	VIOL GRAD DR LIC	Teenage driver in violation of graduated license pgm
095	GUY WIRE	GUY WIRE	Guy wire
096	BERM	BERM	Berm (earthen or gravel mound)
097	GRAVEL	GRAVEL IN RDWY	Gravel in roadway
098	ABR EDGE	ABRUPT EDGE	Abrupt edge
099	CELL WTNSD	CELL PHONE WITNESSED	Cell phone use witnessed by other participant
100	UNK FIXD	UNK FIX OBJ	Fixed object, unknown type.
101	OTHER OBJ	OTHER OBJ NOT FIXED	Non-fixed object, other or unknown type
102	TEXTING	TEXTING	Texting
103	WZ WORKER	WZ WORKER	Work Zone Worker
104	ON VEHICLE	RIDE ON VEH EXTERIOR	Passenger riding on vehicle exterior
105	PEDAL PSGR	PSNGR ON PEDALCYCLE	Passenger riding on pedalcycle
106	MAN WHLCHR	NONMOTOR WHEELCHAIR	Pedestrian in non-motorized wheelchair
107	MTR WHLCHR	MOTORIZED WHEELCHAIR	Pedestrian in motorized wheelchair
108	OFFICER	POLICE OFFICER	Law Enforcement / Police Officer
109	SUB-BIKE	SUBSEQUENT BICYCLIST	"Sub-Bike": pedalcyclist injured subsequent to collision, etc.
110	N-MTR	NM STR VEH	Non-motorist struck vehicle
111	S CAR VS V	ST CAR STRUCK VEH	Street Car/Trolley (on rails or overhead wire system) struck vehicle
112	V VS S CAR	VEH STRUCK ST CAR	Vehicle struck Street Car/Trolley (on rails or overhead wire system)
113	S CAR ROW	STREET CAR ROW	At or on street car or trolley right-of-way
114	RR EQUIP	VEH STRUCK RR EQUIP	Vehicle struck railroad equipment (not train) on tracks
115	DSTRCT GPS	DISTRACT GPS DEVICE	Distracted by navigation system or GPS device
116	DSTRCT OTH	DISTRACT OTHR DEVICE	Distracted by other electronic device
117	RR GATE	RR DROP-ARM GATE	Rail crossing drop-arm gate
118	EXPNSN JNT	EXPANSION JOINT	Expansion joint
119	JERSEY BAR	JERSEY BARRIER	Jersey barrier
120	WIRE BAR	WIRE BARRIER	Wire or cable median barrier
121	FENCE	FENCE	Fence
123	OBJ IN VEH	LOOSE OBJ IN VEHICLE	Loose object in vehicle struck occupant
124	SLIPPERY	SLIPPERY SURFACE	Sliding or swerving due to wet, icy, slippery or loose surface (not gravel)
125	SHLDR	SHLDR GAVE	Shoulder gave way
126	BOULDER	ROCKS / BOULDER	Rock(s), boulder (not gravel; not rock slide)
127	LAND SLIDE	ROCK OR LAND SLIDE	Rock slide or land slide
128	CURVE INV	CURVE PRESENT	Curve present at crash location

Code	Short Description	Medium Description	Long Description
129	HILL INV	HILL PRESENT	Vertical grade / hill present at crash location
130	CURVE HID	CURVE OBSCURED VIEW	View obscured by curve
131	HILL HID	HILL OBSCURED VIEW	View obscured by vertical grade / hill
132	WINDOW HID	WINDOW VIEW OBSCURED	View obscured by vehicle window conditions
133	SPRAY HID	SPRAY OBSCURED VIEW	View obscured by water spray
134	TORRENTIAL	TORRENTIAL RAIN	Torrential Rain (exceptionally heavy rain)
135	RAIL OCC	RAIL/CABLE CAR OCC	Injured occupant of railway train, light rail, street car or cable car

Appendix D Land Use Projections



Main Street

Parcel#	Assumed Land Use	
1	Convenience Store	2,000 square feet
2	Fast Food Restaurant	3,000 square feet
3	Specialty Retail	20,000 square feet
4	Restaurant Motel	6,000 square feet 65 units
5	Fast Food Restaurant	4,000 square feet
6	Gas Station with Mart	8 pumps
7	Fast Food Restaurant Restaurant Motel Car Wash Car Service Shop Housing	4,000 square feet 6,000 square feet 65 units 1,000 square feet 2,000 square feet 120 units
8	Office	5,000 square feet
9	Office	5,000 square feet
10	Bank	4,000 square feet
11	Office	5,000 square feet
12	Office	5,000 square feet
13	Medical/Dental	10,000 square feet
14	Specialty Retail Drug Store Hardware/Paint Store Housing	10,000 square feet 20,000 square feet 10,000 square feet 120 units
15	Housing	100 units

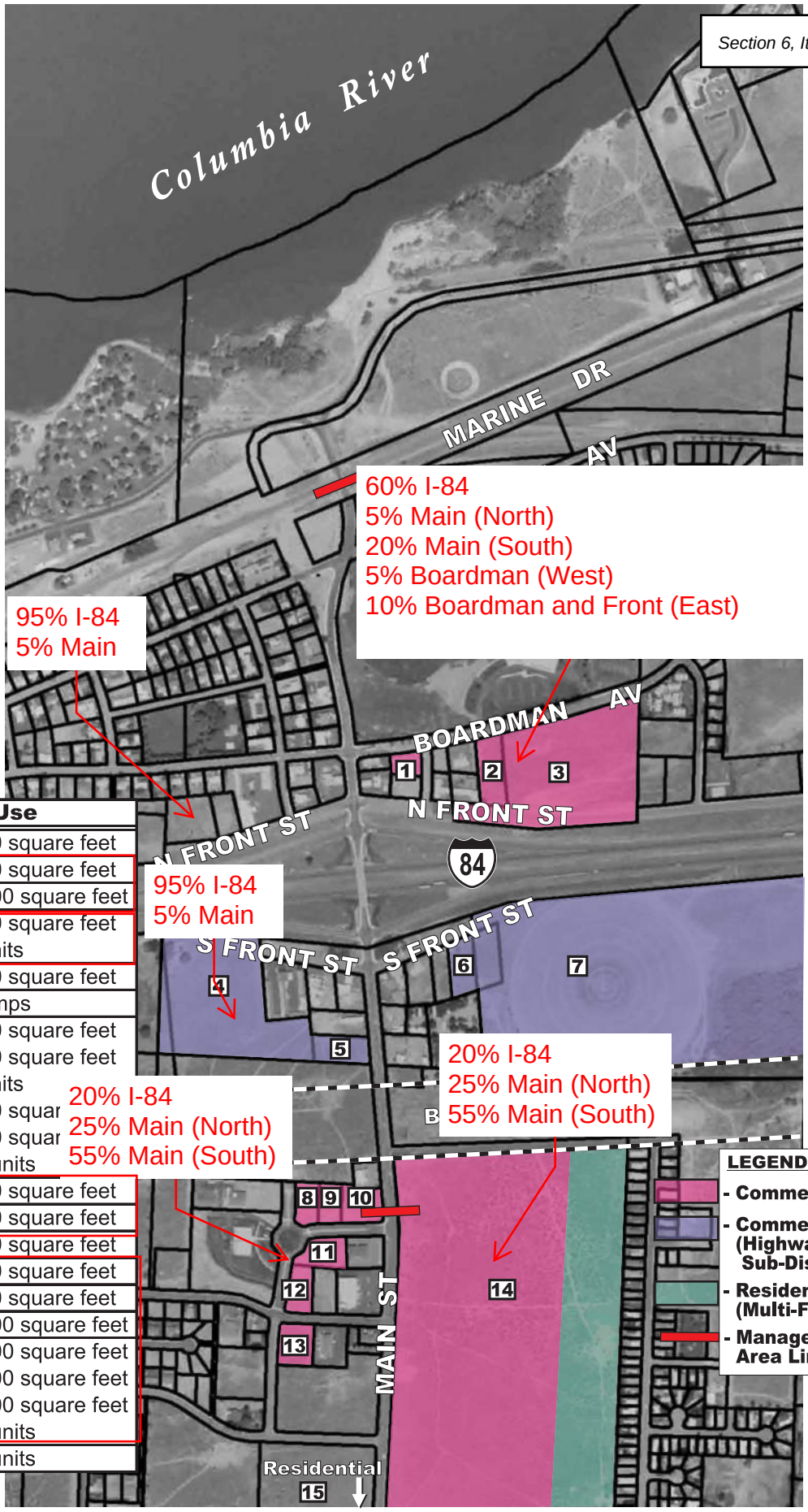
NO SCALE

DKS Associates
TRANSPORTATION SOLUTIONS

City of Boardman Main Street IAMP
April 2009

Figure 4.1

MAIN STREET 20-Y FORECASTED DEVELOPM



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NO SCALE
DKS Associates
TRANSPORTATION SOLUTIONS

City of Boardman Main Street IAMP
April 2009

Figure 4.1

MAIN STREET 20-Y FORECASTED DEVELOPM

115

City Zoning: Commercial - Hwy Sub District
2009 IAMP assumption: None
Proposed Land Use: Motel
Trip Generation: Motel

CODE: 320	Daily	AM	PM
Avg. N. Rooms	109	108	98
in	182	14	21
out	183	24	18
Total	365	38	39

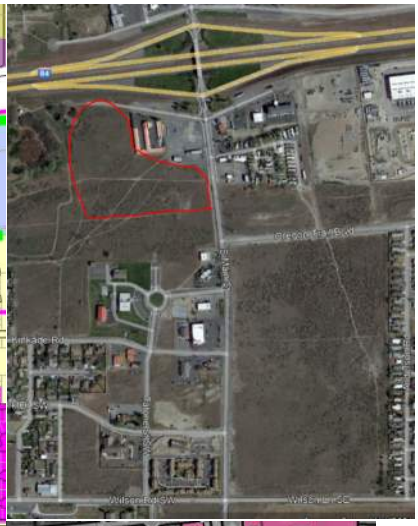
City Zoning: Commercial - Hwy Sub District
2009 IAMP assumption: Fast Food Resturant & Specialty Retail
Proposed Land Use: Fast Food Resturant & High Turn-Over Resturant

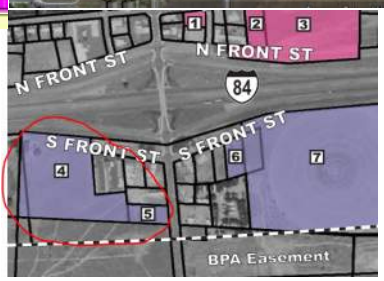
Trip Generation: High-Turnover Resturant

CODE: 932	Daily	AM	PM
Avg. S.F.	5000	5000	6000
in	268	26	33
out	268	22	21
Total	536	48	54

Trip Generation: Fast-Food Resturant with Drive-Through Window

CODE: 934	Daily	AM	PM
Avg. S.F.	3	4	3
in	701	91	51
out	701	87	48
Total	1402	178	99

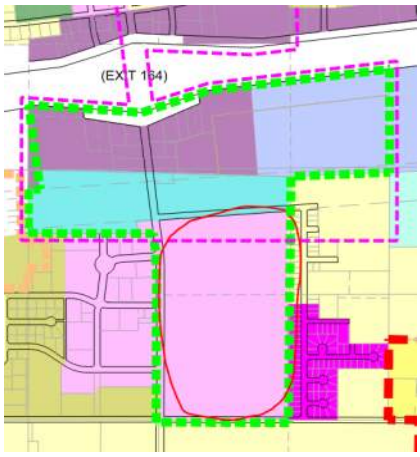


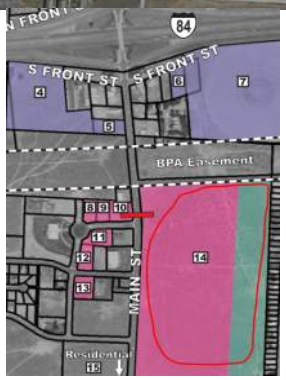


City Zoning: Commercial - Hwy Sub District
2009 IAMP assumption: Resturant & Motel
Proposed Land Use: Truck Stop

Trip Generation: Truck Stop

CODE: 950	Daily	AM	PM
Avg. N. Veh. Fuel. Pos.	9	9	8
in	1008	62	65
out	1008	64	58
Total	2016	126	123





City Zoning: Commercial
2009 IAMP assumption: Specialty Retail, Drug Stor, Hardware Store, Housing
Proposed Land Use: Multi-Family Housing (Low Rise)

Trip Generation: Multi-Family Housing (Low Rise)

CODE: 220	Daily	AM	PM
Dwelling Units	229	249	241
in	771	24	77
out	772	76	46
Total	1543	100	123

Appendix E 2042 No-Build Operations Worksheets

HCM 6th

Vistro File: H:\...\27246 - Vistro.vistro
Report File: H:\...\Future Conditions - No Build.pdf

Scenario 2 Future
9/23/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Main St/Columbia Ave	Two-way stop	HCM 7th Edition	WB Left	0.397	17.4	C
2	Main St/Boardman Ave	Two-way stop	HCM 7th Edition	WB Left	0.508	49.3	E
3	Main St/Front St NE	Two-way stop	HCM 7th Edition	WB Left	1.173	214.8	F
4	Main St/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Left	1.180	176.3	F
5	Main St/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Thru	0.021	803.1	F
6	Main St/Front St SE	Two-way stop	HCM 7th Edition	EB Left	0.626	86.9	F
7	Main St/Oregon Trail Blvd	Two-way stop	HCM 7th Edition	WB Left	0.271	36.0	E
8	Main St/City Center Dr	Two-way stop	HCM 7th Edition	EB Left	0.207	28.4	D
9	Main St/Kinkade Rd	Two-way stop	HCM 7th Edition	EB Left	0.384	25.1	D
10	Main St/Willow Fork Dr	Two-way stop	HCM 7th Edition	EB Left	0.137	17.2	C
11	Main St/Wilson Ln	All-way stop	HCM 7th Edition	SB Right	0.420	10.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Main St/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	19	44	112	7	22	4	3	22	17	116	31	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	4.00	0.00	0.00	0.00	0.00	0.00	6.00	3.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	11	83	0	6	0	0	0	19	71	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	55	195	7	28	4	3	22	36	187	31	14
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	16	55	2	8	1	1	6	10	53	9	4
Total Analysis Volume [veh/h]	39	63	222	8	32	5	3	25	41	213	35	16
Pedestrian Volume [ped/h]	7			0			2			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0.04	0.40	0.06	0.02
d_M, Delay for Movement [s/veh]	7.33	0.00	0.00	7.81	0.00	0.00	11.93	12.53	9.09	17.42	16.81	14.82
Movement LOS	A	A	A	A	A	A	B	B	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.02	0.00	0.00	0.31	0.31	0.31	2.53	2.53	2.53
95th-Percentile Queue Length [ft/ln]	1.90	0.00	0.00	0.47	0.00	0.00	7.82	7.82	7.82	63.35	63.35	63.35
d_A, Approach Delay [s/veh]	0.88			1.39			10.46			17.18		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	7.99											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 2: Main St/Boardman Ave

Control Type:	Two-way stop	Delay (sec / veh):	49.3
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.508

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	92	168	45	10	151	17	14	6	78	28	5	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	9.00	10.00	4.00	6.00	0.00	0.00	0.00	11.00	0.00	12.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	86	51	27	69	0	0	3	7	43	0	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	254	96	37	220	17	14	9	85	71	5	31
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	73	28	11	63	5	4	3	24	20	1	9
Total Analysis Volume [veh/h]	110	292	110	43	253	20	16	10	98	82	6	36
Pedestrian Volume [ped/h]	2			8			2			7		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.04	0.00	0.00	0.08	0.05	0.13	0.51	0.03	0.06
d_M, Delay for Movement [s/veh]	8.03	0.00	0.00	8.40	0.00	0.00	25.91	23.89	12.15	49.26	42.38	32.47
Movement LOS	A	A	A	A	A	A	D	C	B	E	E	D
95th-Percentile Queue Length [veh/ln]	0.28	0.00	0.00	0.12	0.00	0.00	1.00	1.00	1.00	3.30	3.30	3.30
95th-Percentile Queue Length [ft/ln]	6.94	0.00	0.00	3.05	0.00	0.00	25.00	25.00	25.00	82.44	82.44	82.44
d_A, Approach Delay [s/veh]	1.73			1.14			14.87			44.05		
Approach LOS	A			A			B			E		
d_I, Intersection Delay [s/veh]	7.95											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Main St/Front St NE

Control Type:	Two-way stop	Delay (sec / veh):	214.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.173

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	90.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	61	221	81	11	278	4	7	3	77	56	3	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	6.00	3.00	8.00	0.00	3.00	0.00	0.00	0.00	5.00	11.00	33.00	17.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	126	92	15	104	0	0	2	1	78	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	61	347	173	26	382	4	7	5	78	134	3	20
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	96	48	7	106	1	2	1	22	37	1	6
Total Analysis Volume [veh/h]	68	386	192	29	424	4	8	6	87	149	3	22
Pedestrian Volume [ped/h]	0			1			2			2		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.03	0.00	0.00	0.05	0.04	0.14	1.17	0.02	0.04
d_M, Delay for Movement [s/veh]	8.47	0.00	0.00	8.70	0.00	0.00	29.60	28.36	11.76	214.75	207.92	192.95
Movement LOS	A	A	A	A	A	A	D	D	B	F	F	F
95th-Percentile Queue Length [veh/ln]	0.20	0.00	0.00	0.09	0.00	0.00	0.28	0.28	0.49	10.37	10.37	10.37
95th-Percentile Queue Length [ft/ln]	4.90	0.00	0.00	2.23	0.00	0.00	6.92	6.92	12.17	259.19	259.19	259.19
d_A, Approach Delay [s/veh]	0.89			0.55			14.16			211.88		
Approach LOS	A			A			B			F		
d_I, Intersection Delay [s/veh]	28.39											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Main St/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	176.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.180

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	24	252	0	0	363	48	0	0	0	122	0	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	3.00	2.00	2.00	3.00	17.00	2.00	2.00	2.00	4.00	0.00	10.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	38	170	0	0	142	41	0	0	0	31	0	48
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	422	0	0	505	89	0	0	0	153	0	159
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	116	0	0	139	24	0	0	0	42	0	44
Total Analysis Volume [veh/h]	68	464	0	0	555	98	0	0	0	168	0	175
Pedestrian Volume [ped/h]	0			0			3			3		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				Yes
Storage Area [veh]	0	0	0	1
Two-Stage Gap Acceptance				No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.18	0.00	0.30
d_M, Delay for Movement [s/veh]	8.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	176.26	174.34	157.21
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.81	15.81	15.81
95th-Percentile Queue Length [ft/ln]	2.94	2.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	395.14	395.14	395.14
d_A, Approach Delay [s/veh]	1.15			0.00			0.00			166.54		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	37.78											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 5: Main St/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	803.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	188	183	75	383	0	88	1	49	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	4.00	2.00	9.00	3.00	2.00	3.00	100.00	13.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	156	28	38	135	0	52	0	40	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	344	211	113	518	0	140	1	89	0	0	0
Peak Hour Factor	1.0000	0.8100	0.8100	0.8100	0.8100	1.0000	0.8100	0.8100	0.8100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	106	65	35	160	0	43	0	27	0	0	0
Total Analysis Volume [veh/h]	0	425	260	140	640	0	173	1	110	0	0	0
Pedestrian Volume [ped/h]	0			0			2			5		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.16	0.01	0.00	2.23	0.02	0.24	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	9.31	0.00	0.00	772.98	803.12	734.49	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.25	0.25	0.00	25.45	25.45	25.45	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	6.32	6.32	0.00	636.28	636.28	636.28	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			1.67			758.18			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	123.86											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: Main St/Front St SE

Control Type:	Two-way stop	Delay (sec / veh):	86.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.626

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	90.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	85.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	332	18	41	378	12	6	0	6	16	3	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	5.00	12.00	3.00	8.00	0.00	0.00	0.00	0.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	140	0	0	147	28	44	0	11	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	472	18	41	525	40	50	0	17	16	3	33
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	146	6	13	162	12	15	0	5	5	1	10
Total Analysis Volume [veh/h]	5	583	22	51	648	49	62	0	21	20	4	41
Pedestrian Volume [ped/h]	3			0			2			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.06	0.01	0.00	0.63	0.00	0.05	0.19	0.03	0.08
d_M, Delay for Movement [s/veh]	9.00	0.00	0.00	9.11	0.00	0.00	86.94	77.38	58.54	47.13	40.99	12.82
Movement LOS	A	A	A	A	A	A	F	F	F	E	E	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.17	0.00	0.00	3.59	3.59	3.59	0.77	0.77	0.27
95th-Percentile Queue Length [ft/ln]	0.42	0.00	0.00	4.36	0.00	0.00	89.86	89.86	89.86	19.29	19.29	6.65
d_A, Approach Delay [s/veh]	0.07			0.62			79.75			25.11		
Approach LOS	A			A			F			D		
d_I, Intersection Delay [s/veh]	5.82											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: Main St/Oregon Trail Blvd

Control Type:	Two-way stop	Delay (sec / veh):	36.0
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.271

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	315	6	26	351	0	0	0	0	4	0	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	17.00	4.00	1.00	2.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	96	41	43	106	8	6	0	8	34	0	37
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	411	47	69	457	8	6	0	8	38	0	63
Peak Hour Factor	1.0000	0.9100	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000	1.0000	0.9100	1.0000	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	113	13	19	126	2	2	0	2	10	0	17
Total Analysis Volume [veh/h]	5	452	52	76	502	8	6	0	8	42	0	69
Pedestrian Volume [ped/h]	2			2			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.01	0.00	0.05	0.00	0.01	0.27	0.00	0.12
d_M, Delay for Movement [s/veh]	8.42	0.00	0.00	8.52	0.00	0.00	33.47	26.95	12.37	36.02	33.12	18.89
Movement LOS	A	A	A	A	A	A	D	D	B	E	D	C
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.13	0.13	0.13	0.19	0.19	0.19	1.76	1.76	1.76
95th-Percentile Queue Length [ft/ln]	0.21	0.21	0.21	3.32	3.32	3.32	4.75	4.75	4.75	44.06	44.06	44.06
d_A, Approach Delay [s/veh]	0.08			1.10			21.41			25.37		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	3.12											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 8: Main St/City Center Dr

Control Type:	Two-way stop	Delay (sec / veh):	28.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.207

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	300	0	0	324	26	17	0	13	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	2.00	2.00	1.00	4.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	109	4	21	121	6	19	0	6	4	0	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	409	4	21	445	32	36	0	19	4	0	15
Peak Hour Factor	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	1.0000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	114	1	5	124	9	10	0	5	1	0	4
Total Analysis Volume [veh/h]	13	454	4	21	494	36	40	0	21	4	0	15
Pedestrian Volume [ped/h]	0			0			3			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.02	0.00	0.00	0.21	0.00	0.04	0.02	0.00	0.02
d_M, Delay for Movement [s/veh]	8.47	0.00	0.00	8.29	0.00	0.00	28.38	26.19	11.65	24.37	22.19	11.37
Movement LOS	A	A	A	A	A	A	D	D	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.04	0.04	0.04	0.75	0.75	0.12	0.14	0.14	0.14
95th-Percentile Queue Length [ft/ln]	0.55	0.55	0.55	0.90	0.90	0.90	18.80	18.80	2.91	3.60	3.60	3.60
d_A, Approach Delay [s/veh]	0.23			0.32			22.62			14.11		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	1.75											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 9: Main St/Kinkade Rd

Control Type:	Two-way stop	Delay (sec / veh):	25.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	7	200	0	0	209	78	88	0	13	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	14.00	3.00	2.00	2.00	1.00	0.00	1.00	2.00	8.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	86	4	12	101	18	11	0	9	3	0	20
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	286	4	12	310	96	99	0	22	3	0	20
Peak Hour Factor	0.8800	0.8800	1.0000	1.0000	0.8800	0.8800	0.8800	1.0000	0.8800	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	81	1	3	88	27	28	0	6	1	0	5
Total Analysis Volume [veh/h]	10	325	4	12	352	109	113	0	25	3	0	20
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.38	0.00	0.04	0.01	0.00	0.03
d_M, Delay for Movement [s/veh]	8.47	0.00	0.00	7.94	0.00	0.00	25.14	24.19	18.59	17.73	17.35	10.28
Movement LOS	A	A	A	A	A	A	D	C	C	C	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.02	0.02	0.02	2.03	2.03	2.03	0.12	0.12	0.12
95th-Percentile Queue Length [ft/ln]	0.42	0.42	0.42	0.53	0.53	0.53	50.78	50.78	50.78	2.99	2.99	2.99
d_A, Approach Delay [s/veh]	0.25			0.20			23.95			11.25		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	3.85											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 10: Main St/Willow Fork Dr

Control Type:	Two-way stop	Delay (sec / veh):	17.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.137

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	177	0	0	196	24	24	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	2.00	2.00	3.00	0.00	4.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	63	4	18	79	15	17	0	5	8	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	240	4	18	275	39	41	0	5	8	0	12
Peak Hour Factor	0.8700	0.8700	1.0000	1.0000	0.8700	0.8700	0.8700	1.0000	0.8700	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	69	1	5	79	11	12	0	1	2	0	3
Total Analysis Volume [veh/h]	14	276	4	18	316	45	47	0	6	8	0	12
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.14	0.00	0.01	0.02	0.00	0.02
d_M, Delay for Movement [s/veh]	7.99	0.00	0.00	7.83	0.00	0.00	17.21	16.68	11.77	15.60	15.55	10.01
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.03	0.03	0.03	0.51	0.51	0.51	0.12	0.12	0.12
95th-Percentile Queue Length [ft/ln]	0.59	0.59	0.59	0.78	0.78	0.78	12.65	12.65	12.65	3.01	3.01	3.01
d_A, Approach Delay [s/veh]	0.38			0.37			16.59			12.25		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	1.85											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 11: Main St/Wilson Ln

Control Type:	All-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.420

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	51	3	21	63	112	105	31	3	7	29	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	0.00	0.00	6.00	1.00	2.00	3.00	0.00	14.00	3.00	17.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	23	16	53	57	0	0	0	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	56	3	44	79	165	162	31	3	7	29	37
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	16	1	13	23	47	47	9	1	2	8	11
Total Analysis Volume [veh/h]	2	64	3	51	91	190	186	36	3	8	33	43
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	687	792	694	703
Degree of Utilization, x	0.10	0.42	0.32	0.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.33	2.09	1.41	0.40
95th-Percentile Queue Length [ft]	8.33	52.32	35.18	10.12
Approach Delay [s/veh]	8.82	10.80	10.66	8.81
Approach LOS	A	B	B	A
Intersection Delay [s/veh]	10.33			
Intersection LOS	B			

Oregon Department of Transportation

Transportation Development Branch

Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Main Street	**Minor Street:**	Boardman Ave
Project:	Boardman Main Street	**City/County:**	Boardman, Oregon
Year:	2042	**Alternative:**	Signal

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250
	100 percent of standard warrants				
X	70 percent of standard warrants[2]				

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	6200	7200	Y
	Minor	2 or more	2500	2520	
Case B	Major	1	9300	7200	N
	Minor	2 or more	1250	2520	

Analyst and Date: Reviewer and Date:

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. When preliminary signal warrants are met, project analysts need to coordinate with Region Traffic to initiate the traffic signal engineering investigation as outlined in the Traffic Manual. Before a signal can be installed, the engineering investigation must be conducted or reviewed by the Region Traffic Manager who will forward signal recommendations to headquarters. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.

Analysis Procedures

Appendix F Circulation Alternative #1 Traffic Conditions

Intersection Level Of Service Report
Intersection 1: Main St/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	19	44	112	7	22	4	3	22	17	116	31	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	4.00	0.00	0.00	0.00	0.00	0.00	6.00	3.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	11	83	0	6	0	0	0	19	71	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	55	195	7	28	4	3	22	36	187	31	14
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	16	55	2	8	1	1	6	10	53	9	4
Total Analysis Volume [veh/h]	39	63	222	8	32	5	3	25	41	213	35	16
Pedestrian Volume [ped/h]	7			0			2			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0.04	0.40	0.06	0.02
d_M, Delay for Movement [s/veh]	7.33	0.00	0.00	7.81	0.00	0.00	11.93	12.53	9.09	17.42	16.81	14.82
Movement LOS	A	A	A	A	A	A	B	B	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.02	0.00	0.00	0.31	0.31	0.31	2.53	2.53	2.53
95th-Percentile Queue Length [ft/ln]	1.90	0.00	0.00	0.47	0.00	0.00	7.82	7.82	7.82	63.35	63.35	63.35
d_A, Approach Delay [s/veh]	0.88			1.39			10.46			17.18		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	7.99											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 2: Main St/Boardman Ave

Control Type:	Signalized	Delay (sec / veh):	13.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.581

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	153	161	45	21	151	17	21	9	78	84	8	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	9.00	10.00	4.00	6.00	0.00	0.00	0.00	11.00	0.00	12.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	86	51	37	58	0	0	9	3	121	0	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	157	247	96	58	209	17	21	18	81	205	8	31
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	71	28	17	60	5	6	5	23	59	2	9
Total Analysis Volume [veh/h]	180	284	110	67	240	20	24	21	93	236	9	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	15	29	0	9	23	0	0	22	0	0	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	41	41	41	41	41	41	41	41
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	12	19	11	14	14	14	14
g / C, Green / Cycle	0.46	0.30	0.46	0.26	0.34	0.34	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.14	0.24	0.06	0.16	0.02	0.07	0.20	0.03
s, saturation flow rate [veh/h]	1316	1641	1077	1672	1383	1530	1186	1534
c, Capacity [veh/h]	720	496	553	435	551	517	457	519
d1, Uniform Delay [s]	6.96	13.11	7.13	13.27	11.05	9.68	14.86	9.23
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	2.93	0.10	1.32	0.03	0.21	0.90	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.79	0.12	0.60	0.04	0.22	0.52	0.09
d, Delay for Lane Group [s/veh]	7.14	16.04	7.22	14.59	11.08	9.89	15.76	9.30
Lane Group LOS	A	B	A	B	B	A	B	A
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.68	3.03	0.24	1.87	0.14	0.60	1.81	0.22
50th-Percentile Queue Length [ft/ln]	17.09	75.78	5.99	46.67	3.40	14.97	45.30	5.60
95th-Percentile Queue Length [veh/ln]	1.23	5.46	0.43	3.36	0.25	1.08	3.26	0.40
95th-Percentile Queue Length [ft/ln]	30.76	136.40	10.79	84.00	6.13	26.94	81.54	10.08

Movement, Approach, & Intersection Results

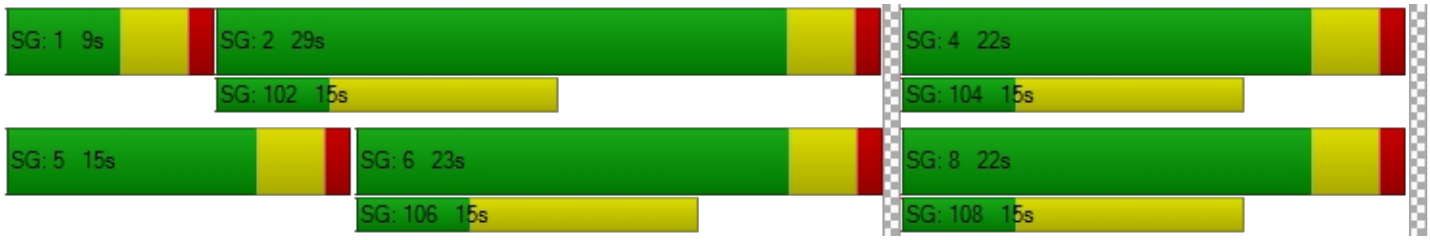
d_M, Delay for Movement [s/veh]	7.14	16.04	16.04	7.22	14.59	14.59	11.08	9.89	9.89	15.76	9.30	9.30
Movement LOS	A	B	B	A	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	13.25			13.08			10.10			14.73		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.19											
Intersection LOS	B											
Intersection V/C	0.581											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	12.45	12.45	12.45	12.45
l_p,int, Pedestrian LOS Score for Intersectio	2.606	2.151	2.090	2.088
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1222	929	880	880
d_b, Bicycle Delay [s]	3.10	5.87	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	2.507	2.099	1.787	2.023
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Main St/Front St NE

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.171

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	282	81	0	334	4	0	0	77	0	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	8.00	0.00	3.00	0.00	0.00	0.00	5.00	0.00	33.00	17.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	126	92	0	182	0	0	0	1	0	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	408	173	0	516	4	0	0	78	0	0	20
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	113	48	0	143	1	0	0	22	0	0	6
Total Analysis Volume [veh/h]	0	453	192	0	573	4	0	0	87	0	0	22
Pedestrian Volume [ped/h]	0			1			2			2		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.17	0.00	0.00	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.51	0.00	0.00	12.47
Movement LOS		A	A		A	A			B			B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.14
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.26	0.00	0.00	3.41
d_A, Approach Delay [s/veh]	0.00			0.00			13.51			12.47		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.09											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 4: Main St/I-84 WB Ramp Terminal

Control Type:	Signalized	Delay (sec / veh):	11.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.850

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	24	252	0	0	363	48	0	0	0	122	0	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	3.00	2.00	2.00	3.00	17.00	2.00	2.00	2.00	4.00	0.00	10.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	38	170	0	0	142	41	0	0	0	31	0	48
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	422	0	0	505	89	0	0	0	153	0	159
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	116	0	0	139	24	0	0	0	42	0	44
Total Analysis Volume [veh/h]	68	464	0	0	555	98	0	0	0	168	0	175
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	29.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	10	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	9	41	0	0	41	0	0	0	0	0	19	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C		C
C, Cycle Length [s]	40	40		40
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00		0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00
g_i, Effective Green Time [s]	21	21		11
g / C, Green / Cycle	0.53	0.53		0.27
(v / s)_i Volume / Saturation Flow Rate	0.46	0.39		0.22
s, saturation flow rate [veh/h]	1151	1658		1570
c, Capacity [veh/h]	709	876		429
d1, Uniform Delay [s]	7.35	7.39		13.60
k, delay calibration	0.17	0.11		0.11
I, Upstream Filtering Factor	1.00	1.00		1.00
d2, Incremental Delay [s]	2.56	1.29		3.49
d3, Initial Queue Delay [s]	0.00	0.00		0.00
Rp, platoon ratio	1.00	1.00		1.00
PF, progression factor	1.00	1.00		1.00

Lane Group Results

X, volume / capacity	0.75	0.75		0.80
d, Delay for Lane Group [s/veh]	9.91	8.68		17.09
Lane Group LOS	A	A		B
Critical Lane Group	Yes	No		Yes
50th-Percentile Queue Length [veh/ln]	2.33	2.86		2.70
50th-Percentile Queue Length [ft/ln]	58.26	71.47		67.59
95th-Percentile Queue Length [veh/ln]	4.19	5.15		4.87
95th-Percentile Queue Length [ft/ln]	104.86	128.64		121.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.91	9.91	0.00	0.00	8.68	8.68	0.00	0.00	0.00	17.09	17.09	17.09
Movement LOS	A	A			A	A				B	B	B
d_A, Approach Delay [s/veh]	9.91			8.68			0.00			17.09		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	11.00											
Intersection LOS	B											
Intersection V/C	0.850											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	12.03	12.03	12.03	12.03
l_p,int, Pedestrian LOS Score for Intersectio	2.284	2.302	1.639	1.839
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1848	1848	0	749
d_b, Bicycle Delay [s]	0.12	0.12	20.02	7.83
l_b,int, Bicycle LOS Score for Intersection	2.437	2.637	4.132	2.126
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Main St/I-84 EB Ramp Terminal

Control Type:	Signalized	Delay (sec / veh):	59.6
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.228

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	188	183	75	383	0	88	1	49	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	4.00	2.00	9.00	3.00	2.00	3.00	7.00	13.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	156	28	38	135	0	52	0	40	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	344	211	113	518	0	140	1	89	0	0	0
Peak Hour Factor	1.0000	0.8100	0.8100	0.8100	0.8100	1.0000	0.8100	0.8100	0.8100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	106	65	35	160	0	43	0	27	0	0	0
Total Analysis Volume [veh/h]	0	425	260	140	640	0	173	1	110	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	2			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	1.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	41	0	0	41	0	0	19	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	
C, Cycle Length [s]	49	49	49	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	2.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	
g_i, Effective Green Time [s]	30	30	11	
g / C, Green / Cycle	0.61	0.61	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.44	0.84	0.19	
s, saturation flow rate [veh/h]	1574	929	1505	
c, Capacity [veh/h]	955	649	349	
d1, Uniform Delay [s]	6.78	12.52	18.00	
k, delay calibration	0.24	0.50	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.29	105.01	4.65	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.72	1.20	0.81	
d, Delay for Lane Group [s/veh]	9.06	117.53	22.65	
Lane Group LOS	A	F	C	
Critical Lane Group	No	Yes	Yes	
50th-Percentile Queue Length [veh/ln]	3.63	22.78	3.14	
50th-Percentile Queue Length [ft/ln]	90.87	569.61	78.40	
95th-Percentile Queue Length [veh/ln]	6.54	34.95	5.64	
95th-Percentile Queue Length [ft/ln]	163.56	873.67	141.11	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	9.06	9.06	117.53	117.53	0.00	22.65	22.65	22.65	0.00	0.00	0.00
Movement LOS		A	A	F	F		C	C	C			
d_A, Approach Delay [s/veh]		9.06			117.53			22.65			0.00	
Approach LOS		A			F			C			A	
d_I, Intersection Delay [s/veh]	59.64											
Intersection LOS	E											
Intersection V/C	1.228											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	16.51	16.51	16.51	16.51
l_p,int, Pedestrian LOS Score for Intersectio	2.384	2.356	1.823	1.983
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1499	1499	608	0
d_b, Bicycle Delay [s]	1.55	1.55	11.96	24.69
l_b,int, Bicycle LOS Score for Intersection	2.690	2.847	2.028	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Main St/Front St SE

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.049

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	338	18	0	419	12	0	0	6	0	0	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	5.00	0.00	3.00	8.00	0.00	0.00	0.00	0.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	184	0	0	147	28	0	0	11	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	522	18	0	566	40	0	0	17	0	0	33
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	161	6	0	175	12	0	0	5	0	0	10
Total Analysis Volume [veh/h]	0	644	22	0	699	49	0	0	21	0	0	41
Pedestrian Volume [ped/h]	3			0			2			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.09
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.92	0.00	0.00	13.54
Movement LOS		A	A		A	A			B			B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.29
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.89	0.00	0.00	7.25
d_A, Approach Delay [s/veh]	0.00			0.00			13.92			13.54		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	0.57											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Main St/Oregon Trail Blvd

Control Type:	Signalized	Delay (sec / veh):	6.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.529

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	315	6	67	335	0	6	0	0	20	3	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	17.00	4.00	1.00	2.00	2.00	2.00	2.00	0.00	2.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	98	41	43	106	8	50	0	8	34	0	37
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	413	47	110	441	8	56	0	8	54	3	63
Peak Hour Factor	1.0000	0.9100	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000	1.0000	0.9100	1.0000	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	113	13	30	121	2	14	0	2	15	1	17
Total Analysis Volume [veh/h]	9	454	52	121	485	8	56	0	8	59	3	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			3			0			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	41	0	0	41	0	0	19	0	0	19	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	30	30	30	30	30	30
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	16	16	7	7
g / C, Green / Cycle	0.51	0.51	0.51	0.51	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.01	0.30	0.14	0.28	0.04	0.09
s, saturation flow rate [veh/h]	904	1674	879	1730	1531	1500
c, Capacity [veh/h]	471	862	449	892	562	504
d1, Uniform Delay [s]	8.43	5.13	10.13	5.00	9.58	10.06
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	0.64	0.32	0.54	0.09	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.59	0.27	0.55	0.11	0.26
d, Delay for Lane Group [s/veh]	8.45	5.76	10.45	5.54	9.67	10.33
Lane Group LOS	A	A	B	A	A	B
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.03	1.03	0.53	0.96	0.26	0.56
50th-Percentile Queue Length [ft/ln]	0.82	25.69	13.32	24.12	6.47	14.10
95th-Percentile Queue Length [veh/ln]	0.06	1.85	0.96	1.74	0.47	1.01
95th-Percentile Queue Length [ft/ln]	1.47	46.25	23.98	43.42	11.64	25.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.45	5.76	5.76	10.45	5.54	5.54	9.67	9.67	9.67	10.33	10.33	10.33
Movement LOS	A	A	A	B	A	A	A	A	A	B	B	B
d_A, Approach Delay [s/veh]	5.81			6.51			9.67			10.33		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.77											
Intersection LOS	A											
Intersection V/C	0.529											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	7.51	7.51	7.51	7.51
l_p,int, Pedestrian LOS Score for Intersectio	2.309	2.346	1.707	1.973
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	2439	2439	989	989
d_b, Bicycle Delay [s]	0.73	0.73	3.88	3.88
l_b,int, Bicycle LOS Score for Intersection	2.409	2.573	1.665	1.776
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 8: Main St/City Center Dr

Control Type:	Two-way stop	Delay (sec / veh):	28.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.210

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	300	0	1	324	26	17	0	13	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	2.00	2.00	1.00	4.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	109	4	21	121	6	20	0	6	4	0	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	409	4	22	445	32	37	0	19	4	0	15
Peak Hour Factor	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	1.0000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	114	1	6	124	9	10	0	5	1	0	4
Total Analysis Volume [veh/h]	13	454	4	22	494	36	41	0	21	4	0	15
Pedestrian Volume [ped/h]	0			0			3			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.02	0.00	0.00	0.21	0.00	0.04	0.02	0.00	0.02
d_M, Delay for Movement [s/veh]	8.50	0.00	0.00	8.33	0.00	0.00	28.28	26.10	11.65	24.21	22.04	11.37
Movement LOS	A	A	A	A	A	A	D	D	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.04	0.00	0.00	0.06	0.00	0.00	0.77	0.77	0.12	0.14	0.14	0.14
95th-Percentile Queue Length [ft/ln]	0.95	0.00	0.00	1.53	0.00	0.00	19.18	19.18	2.91	3.58	3.58	3.58
d_A, Approach Delay [s/veh]	0.23			0.33			22.65			14.07		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	1.78											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 9: Main St/Kinkade Rd

Control Type:	Two-way stop	Delay (sec / veh):	25.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.382

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	7	200	0	0	209	78	88	0	13	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	14.00	3.00	2.00	2.00	1.00	0.00	1.00	2.00	8.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	86	4	12	101	18	11	0	9	3	0	20
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	286	4	12	310	96	99	0	22	3	0	20
Peak Hour Factor	0.8800	0.8800	1.0000	1.0000	0.8800	0.8800	0.8800	1.0000	0.8800	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	81	1	3	88	27	28	0	6	1	0	5
Total Analysis Volume [veh/h]	10	325	4	12	352	109	113	0	25	3	0	20
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.38	0.00	0.04	0.01	0.00	0.03
d_M, Delay for Movement [s/veh]	8.50	0.00	0.00	7.95	0.00	0.00	24.96	24.01	18.48	17.65	17.28	10.28
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.03	0.00	0.00	2.02	2.02	2.02	0.12	0.12	0.12
95th-Percentile Queue Length [ft/ln]	0.73	0.00	0.00	0.74	0.00	0.00	50.39	50.39	50.39	2.99	2.99	2.99
d_A, Approach Delay [s/veh]	0.25			0.20			23.79			11.24		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	3.82											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 10: Main St/Willow Fork Dr

Control Type:	Two-way stop	Delay (sec / veh):	17.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.137

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	177	0	0	196	24	24	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	2.00	2.00	3.00	0.00	4.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	63	4	18	79	15	17	0	5	8	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	240	4	18	275	39	41	0	5	8	0	12
Peak Hour Factor	0.8700	0.8700	1.0000	1.0000	0.8700	0.8700	0.8700	1.0000	0.8700	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	69	1	5	79	11	12	0	1	2	0	3
Total Analysis Volume [veh/h]	14	276	4	18	316	45	47	0	6	8	0	12
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.14	0.00	0.01	0.02	0.00	0.02
d_M, Delay for Movement [s/veh]	8.01	0.00	0.00	7.85	0.00	0.00	17.13	16.60	11.75	15.54	15.48	10.01
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.04	0.00	0.00	0.04	0.00	0.00	0.50	0.50	0.50	0.12	0.12	0.12
95th-Percentile Queue Length [ft/ln]	0.88	0.00	0.00	1.07	0.00	0.00	12.57	12.57	12.57	3.00	3.00	3.00
d_A, Approach Delay [s/veh]	0.38			0.37			16.52			12.22		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	1.84											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 11: Main St/Wilson Ln

Control Type:	All-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.391

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	51	3	21	63	112	105	31	3	7	29	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	0.00	0.00	6.00	1.00	2.00	3.00	0.00	14.00	3.00	17.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	23	16	53	57	0	0	0	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	56	3	44	79	165	162	31	3	7	29	37
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	16	1	13	23	47	47	9	1	2	8	11
Total Analysis Volume [veh/h]	2	64	3	51	91	190	186	36	3	8	33	43
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	577	621	606	719	692	700
Degree of Utilization, x	0.00	0.11	0.08	0.39	0.33	0.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.01	0.36	0.27	1.86	1.41	0.41
95th-Percentile Queue Length [ft]	0.26	9.03	6.87	46.48	35.34	10.18
Approach Delay [s/veh]	9.20		10.61		10.70	8.85
Approach LOS	A		B		B	A
Intersection Delay [s/veh]	10.29					
Intersection LOS	B					

Appendix G Circulation Alternative #2 Traffic Conditions

Intersection Level Of Service Report
Intersection 1: Main St/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	19	44	112	7	22	4	3	22	17	116	31	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	4.00	0.00	0.00	0.00	0.00	0.00	6.00	3.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	11	83	0	6	0	0	0	19	71	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	55	195	7	28	4	3	22	36	187	31	14
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	16	55	2	8	1	1	6	10	53	9	4
Total Analysis Volume [veh/h]	39	63	222	8	32	5	3	25	41	213	35	16
Pedestrian Volume [ped/h]	7			0			2			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.05	0.04	0.40	0.06	0.02
d_M, Delay for Movement [s/veh]	7.33	0.00	0.00	7.81	0.00	0.00	11.93	12.53	9.09	17.42	16.81	14.82
Movement LOS	A	A	A	A	A	A	B	B	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.02	0.00	0.00	0.31	0.31	0.31	2.53	2.53	2.53
95th-Percentile Queue Length [ft/ln]	1.90	0.00	0.00	0.47	0.00	0.00	7.82	7.82	7.82	63.35	63.35	63.35
d_A, Approach Delay [s/veh]	0.88			1.39			10.46			17.18		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	7.99											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 2: Main St/Boardman Ave

Control Type:	Signalized	Delay (sec / veh):	13.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.581

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	153	161	45	21	151	17	21	9	78	84	8	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	9.00	10.00	4.00	6.00	0.00	0.00	0.00	11.00	0.00	12.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	86	51	37	58	0	0	9	3	121	0	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	157	247	96	58	209	17	21	18	81	205	8	31
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	71	28	17	60	5	6	5	23	59	2	9
Total Analysis Volume [veh/h]	180	284	110	67	240	20	24	21	93	236	9	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	15	29	0	9	23	0	0	22	0	0	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	41	41	41	41	41	41	41	41
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	12	19	11	14	14	14	14
g / C, Green / Cycle	0.46	0.30	0.46	0.26	0.34	0.34	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.14	0.24	0.06	0.16	0.02	0.07	0.20	0.03
s, saturation flow rate [veh/h]	1316	1641	1077	1672	1383	1530	1186	1534
c, Capacity [veh/h]	720	496	553	435	551	517	457	519
d1, Uniform Delay [s]	6.96	13.11	7.13	13.27	11.05	9.68	14.86	9.23
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	2.93	0.10	1.32	0.03	0.21	0.90	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.79	0.12	0.60	0.04	0.22	0.52	0.09
d, Delay for Lane Group [s/veh]	7.14	16.04	7.22	14.59	11.08	9.89	15.76	9.30
Lane Group LOS	A	B	A	B	B	A	B	A
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.68	3.03	0.24	1.87	0.14	0.60	1.81	0.22
50th-Percentile Queue Length [ft/ln]	17.09	75.78	5.99	46.67	3.40	14.97	45.30	5.60
95th-Percentile Queue Length [veh/ln]	1.23	5.46	0.43	3.36	0.25	1.08	3.26	0.40
95th-Percentile Queue Length [ft/ln]	30.76	136.40	10.79	84.00	6.13	26.94	81.54	10.08

Movement, Approach, & Intersection Results

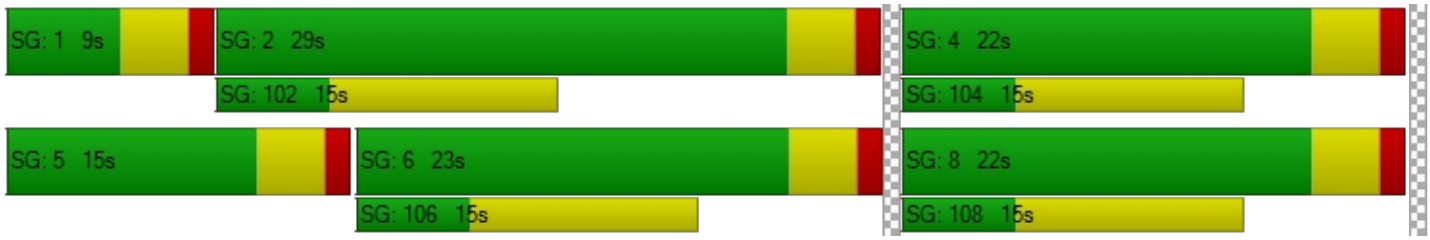
d_M, Delay for Movement [s/veh]	7.14	16.04	16.04	7.22	14.59	14.59	11.08	9.89	9.89	15.76	9.30	9.30
Movement LOS	A	B	B	A	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	13.25			13.08			10.10			14.73		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.19											
Intersection LOS	B											
Intersection V/C	0.581											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	12.45	12.45	12.45	12.45
l_p,int, Pedestrian LOS Score for Intersectio	2.606	2.151	2.090	2.088
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1222	929	880	880
d_b, Bicycle Delay [s]	3.10	5.87	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	2.507	2.099	1.787	2.023
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Main St/Front St NE

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.171

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	282	81	0	334	4	0	0	77	0	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	8.00	0.00	3.00	0.00	0.00	0.00	5.00	0.00	33.00	17.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	126	92	0	182	0	0	0	1	0	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	408	173	0	516	4	0	0	78	0	0	20
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	113	48	0	143	1	0	0	22	0	0	6
Total Analysis Volume [veh/h]	0	453	192	0	573	4	0	0	87	0	0	22
Pedestrian Volume [ped/h]	0			1			2			2		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.17	0.00	0.00	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.51	0.00	0.00	12.47
Movement LOS		A	A		A	A			B			B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.14
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.26	0.00	0.00	3.41
d_A, Approach Delay [s/veh]	0.00			0.00			13.51			12.47		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.09											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 4: Main St/I-84 WB Ramp Terminal

Control Type:	Roundabout	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	24	252	0	0	363	48	0	0	0	122	0	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	3.00	2.00	2.00	3.00	17.00	2.00	2.00	2.00	4.00	0.00	10.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	38	170	0	0	142	41	0	0	0	31	0	48
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	422	0	0	505	89	0	0	0	153	0	159
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	116	0	0	139	24	0	0	0	42	0	44
Total Analysis Volume [veh/h]	68	464	0	0	555	98	0	0	0	168	0	175
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	0			245			746			549		
Exiting Flow Rate [veh/h]	746			670			185			0		
Demand Flow Rate [veh/h]	62	422	0	0	505	89	0	0	0	153	0	159
Adjusted Demand Flow Rate [veh/h]	68	464	0	0	555	98	0	0	0	168	0	175

Lanes

Overwrite Calculated Critical Headway	No	No		No
User-Defined Critical Headway [s]	4.00	4.00		4.00
Overwrite Calculated Follow-Up Time	No	No		No
User-Defined Follow-Up Time [s]	3.00	3.00		3.00
A (intercept)	1380.00	1380.00		1380.00
B (coefficient)	0.00102	0.00102		0.00102
HV Adjustment Factor	0.97	0.95		0.93
Entry Flow Rate [veh/h]	549	685		367
Capacity of Entry and Bypass Lanes [veh/h]	1380	1075		789
Pedestrian Impedance	1.00	1.00		1.00
Capacity per Entry Lane [veh/h]	1339	1025		738
X, volume / capacity	0.40	0.64		0.47

Movement, Approach, & Intersection Results

Lane LOS	A	B		B
95th-Percentile Queue Length [veh]	1.94	4.78		2.49
95th-Percentile Queue Length [ft]	48.56	119.56		62.13
Approach Delay [s/veh]	6.44	12.66	0.00	11.39
Approach LOS	A	B	A	B
Intersection Delay [s/veh]	10.21			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 5: Main St/I-84 EB Ramp Terminal

Control Type:	Roundabout	Delay (sec / veh):	13.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	188	183	75	383	0	88	1	49	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	4.00	2.00	9.00	3.00	2.00	3.00	7.00	13.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	156	28	38	135	0	52	0	40	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	344	211	113	518	0	140	1	89	0	0	0
Peak Hour Factor	1.0000	0.8100	0.8100	0.8100	0.8100	1.0000	0.8100	0.8100	0.8100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	106	65	35	160	0	43	0	27	0	0	0
Total Analysis Volume [veh/h]	0	425	260	140	640	0	173	1	110	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	332			0			812			620		
Exiting Flow Rate [veh/h]	784			620			0			419		
Demand Flow Rate [veh/h]	0	344	211	113	518	0	140	1	89	0	0	0
Adjusted Demand Flow Rate [veh/h]	0	425	260	140	640	0	173	1	110	0	0	0

Lanes

Overwrite Calculated Critical Headway	No	No	No	
User-Defined Critical Headway [s]	4.00	4.00	4.00	
Overwrite Calculated Follow-Up Time	No	No	No	
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	
A (intercept)	1380.00	1380.00	1380.00	
B (coefficient)	0.00102	0.00102	0.00102	
HV Adjustment Factor	0.97	0.96	0.94	
Entry Flow Rate [veh/h]	708	812	303	
Capacity of Entry and Bypass Lanes [veh/h]	984	1380	603	
Pedestrian Impedance	1.00	1.00	1.00	
Capacity per Entry Lane [veh/h]	953	1327	566	
X, volume / capacity	0.72	0.59	0.50	

Movement, Approach, & Intersection Results

Lane LOS	C	A	C	
95th-Percentile Queue Length [veh]	6.43	4.04	2.81	
95th-Percentile Queue Length [ft]	160.85	101.05	70.14	
Approach Delay [s/veh]	16.39	9.45	15.14	0.00
Approach LOS	C	A	C	A
Intersection Delay [s/veh]	13.09			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 6: Main St/Front St SE

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.049

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	338	18	0	419	12	0	0	6	0	0	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	5.00	0.00	3.00	8.00	0.00	0.00	0.00	0.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	184	0	0	147	28	0	0	11	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	522	18	0	566	40	0	0	17	0	0	33
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	161	6	0	175	12	0	0	5	0	0	10
Total Analysis Volume [veh/h]	0	644	22	0	699	49	0	0	21	0	0	41
Pedestrian Volume [ped/h]	3			0			2			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.09
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.92	0.00	0.00	13.54
Movement LOS		A	A		A	A			B			B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.29
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.89	0.00	0.00	7.25
d_A, Approach Delay [s/veh]	0.00			0.00			13.92			13.54		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	0.57											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Main St/Oregon Trail Blvd

Control Type:	All-way stop	Delay (sec / veh):	26.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.848

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	315	6	67	335	0	6	0	0	20	3	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	17.00	4.00	1.00	2.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	98	41	43	106	8	50	0	8	34	0	37
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	413	47	110	441	8	56	0	8	54	3	63
Peak Hour Factor	1.0000	0.9100	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000	1.0000	0.9100	1.0000	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	113	13	30	121	2	14	0	2	15	1	17
Total Analysis Volume [veh/h]	9	454	52	121	485	8	56	0	8	59	3	69
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	548	596	557	610	492	538
Degree of Utilization, x	0.02	0.85	0.22	0.81	0.13	0.24

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.05	9.22	0.82	8.12	0.44	0.95
95th-Percentile Queue Length [ft]	1.25	230.62	20.53	203.10	11.12	23.72
Approach Delay [s/veh]	33.02		25.24		11.41	11.84
Approach LOS	D		D		B	B
Intersection Delay [s/veh]	26.28					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 8: Main St/City Center Dr

Control Type:	Two-way stop	Delay (sec / veh):	28.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.210

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	300	0	1	324	26	17	0	13	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	2.00	2.00	1.00	4.00	0.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	109	4	21	121	6	20	0	6	4	0	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	409	4	22	445	32	37	0	19	4	0	15
Peak Hour Factor	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000	0.9000	1.0000	0.9000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	114	1	6	124	9	10	0	5	1	0	4
Total Analysis Volume [veh/h]	13	454	4	22	494	36	41	0	21	4	0	15
Pedestrian Volume [ped/h]	0			0			3			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.02	0.00	0.00	0.21	0.00	0.04	0.02	0.00	0.02
d_M, Delay for Movement [s/veh]	8.50	0.00	0.00	8.33	0.00	0.00	28.28	26.10	11.65	24.21	22.04	11.37
Movement LOS	A	A	A	A	A	A	D	D	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.04	0.00	0.00	0.06	0.00	0.00	0.77	0.77	0.12	0.14	0.14	0.14
95th-Percentile Queue Length [ft/ln]	0.95	0.00	0.00	1.53	0.00	0.00	19.18	19.18	2.91	3.58	3.58	3.58
d_A, Approach Delay [s/veh]	0.23			0.33			22.65			14.07		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	1.78											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 9: Main St/Kinkade Rd

Control Type:	Two-way stop	Delay (sec / veh):	25.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.382

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	7	200	0	0	209	78	88	0	13	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	14.00	3.00	2.00	2.00	1.00	0.00	1.00	2.00	8.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	86	4	12	101	18	11	0	9	3	0	20
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	286	4	12	310	96	99	0	22	3	0	20
Peak Hour Factor	0.8800	0.8800	1.0000	1.0000	0.8800	0.8800	0.8800	1.0000	0.8800	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	81	1	3	88	27	28	0	6	1	0	5
Total Analysis Volume [veh/h]	10	325	4	12	352	109	113	0	25	3	0	20
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.38	0.00	0.04	0.01	0.00	0.03
d_M, Delay for Movement [s/veh]	8.50	0.00	0.00	7.95	0.00	0.00	24.96	24.01	18.48	17.65	17.28	10.28
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.03	0.00	0.00	2.02	2.02	2.02	0.12	0.12	0.12
95th-Percentile Queue Length [ft/ln]	0.73	0.00	0.00	0.74	0.00	0.00	50.39	50.39	50.39	2.99	2.99	2.99
d_A, Approach Delay [s/veh]	0.25			0.20			23.79			11.24		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	3.82											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 10: Main St/Willow Fork Dr

Control Type:	Two-way stop	Delay (sec / veh):	17.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.137

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	177	0	0	196	24	24	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	2.00	2.00	3.00	0.00	4.00	2.00	0.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	63	4	18	79	15	17	0	5	8	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	240	4	18	275	39	41	0	5	8	0	12
Peak Hour Factor	0.8700	0.8700	1.0000	1.0000	0.8700	0.8700	0.8700	1.0000	0.8700	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	69	1	5	79	11	12	0	1	2	0	3
Total Analysis Volume [veh/h]	14	276	4	18	316	45	47	0	6	8	0	12
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.14	0.00	0.01	0.02	0.00	0.02
d_M, Delay for Movement [s/veh]	8.01	0.00	0.00	7.85	0.00	0.00	17.13	16.60	11.75	15.54	15.48	10.01
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.04	0.00	0.00	0.04	0.00	0.00	0.50	0.50	0.50	0.12	0.12	0.12
95th-Percentile Queue Length [ft/ln]	0.88	0.00	0.00	1.07	0.00	0.00	12.57	12.57	12.57	3.00	3.00	3.00
d_A, Approach Delay [s/veh]	0.38			0.37			16.52			12.22		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	1.84											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 11: Main St/Wilson Ln

Control Type:	All-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.391

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	51	3	21	63	112	105	31	3	7	29	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.00	0.00	0.00	6.00	1.00	2.00	3.00	0.00	14.00	3.00	17.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	23	16	53	57	0	0	0	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	56	3	44	79	165	162	31	3	7	29	37
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	16	1	13	23	47	47	9	1	2	8	11
Total Analysis Volume [veh/h]	2	64	3	51	91	190	186	36	3	8	33	43
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	577	621	606	719	692	700
Degree of Utilization, x	0.00	0.11	0.08	0.39	0.33	0.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.01	0.36	0.27	1.86	1.41	0.41
95th-Percentile Queue Length [ft]	0.26	9.03	6.87	46.48	35.34	10.18
Approach Delay [s/veh]	9.20		10.61		10.70	8.85
Approach LOS	A		B		B	A
Intersection Delay [s/veh]	10.29					
Intersection LOS	B					

Final Report for

Boardman Main Street Interchange Area Management Plan

Prepared by

DKS Associates
TRANSPORTATION SOLUTIONS

Winterbrook Planning

April 2009

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Chapter 1. Executive Summary

The Main Street interchange with Interstate 84 in the City of Boardman is a vital link for regional travel and it provides a connection between the two sides of the community. The Interchange Area Management Plan (IAMP) was initiated to develop a shared plan between the City and the State to make sure that all travelers can use the interchange safely and efficiently as the city continues to grow. The elements of the IAMP lay out the tools needed to make this happen. The City portion of the plan includes specific circulation plans and roadway standards to guide development review and approval and the ODOT portion of the plan includes a list of improvement projects to be done at the interchange. No changes to the current circulation patterns or street conditions will be done until traffic growth reaches specific thresholds identified in the plan.

Goals and Objectives

The main goal of the IAMP is to provide for safe and efficient travel around the interchange. The IAMP report describes the overall study process, identifies expected safety and traffic congestion issues associated with growth, and lays out the responsibilities for the City and ODOT to maintain good traffic operations, while providing for the needs of the property owners who rely on the interchange for local access.

The IAMP objectives include:

- A thorough analysis of the issues for the interchange.
- Identification of the opportunities to improve access and circulation for all modes of transportation.
- Utilization of public involvement and technical methods to develop and refine improvement options.
- Prioritization of improvement projects.

The IAMP was developed in partnership with affected property owners in the interchange area, the City of Boardman, the Oregon Department of Transportation (ODOT), and other stakeholders, including interchange users. The public-at-large and any interested local business operations within the study area were notified of public meetings related to this project, and they were provided opportunities to participate outside of the formal project committee process.

Relevant Plans and Standards

Any roadway improvements on or near state facilities must comply with statewide standards and plans to be funded for construction. Projects that fall short of these standards typically are not advanced to the Statewide Transportation Improvement Program, because they represent higher safety risks and provide less carrying capacity than other standard designs.

One of the fundamental standards measures how congested traffic is during the busiest hours of the day, within the design life of the project. For most cases, new improvements are planned for at least 20 years of useful operation to maximize the investment in the facility. More congestion creates more delays, which can impact freight mobility and general traffic safety. For ODOT facilities, the standard is 85

percent of capacity at the Main Street / I-84 interchange. The city has its own standard, which allows slightly less congestion (80 percent), and it is referred to as Level of Service "C".

Access spacing is the other important standard to be considered, in terms of how it affects traffic safety and mobility. Greater distance between successive cross-streets or driveways allows more reaction time for drivers, reduces conflicts between trucks, cars, pedestrians and bicycles, and gives more vehicle stacking space for turns off of the main roadway. In general, a good access management plan provides a safer and more efficient circulation system. ODOT has specific access standards near interchanges. These standards cannot always be met in communities, and they are balanced against the existing access patterns to identify available options for local access that are closer to preferred standards.

A summary of the background plan review is included in the Appendix.

Existing Land Use and Transportation Issues

Geographic Boundaries

The IAMP study area is divided into two parts: the first is the influence area, which is the land area that generally will affect travel patterns related to the interchange, and the second is the management area, which are the land uses and circulation systems immediately adjacent to interchange. Figure 1.1 shows the study area boundaries.

For the Main Street IAMP, the influence area includes the entire city of Boardman as future development within the city will be considered in assessing the long-range needs and solutions within the interchange. The management area is more narrowly focused on the land uses that have more immediate impacts on roadway access, operations and safety of the interchange.

The management area limits generally extend one-quarter mile north and one-quarter mile south of I-84 along Main Street. North of I-84, most of the property is fully developed along the Main Street frontage area. In this developed portion of the city, the management area was limited to just one block either side of Main Street. This roadway was recently reconstructed (2005) through a Transportation Enhancement Grant, and it is not expected that any changes to existing access patterns would be made along North Main Street. There are several large parcels south of Boardman Avenue and east of Main Street that have commercial zoning and are vacant today. The management area includes those vacant lands.

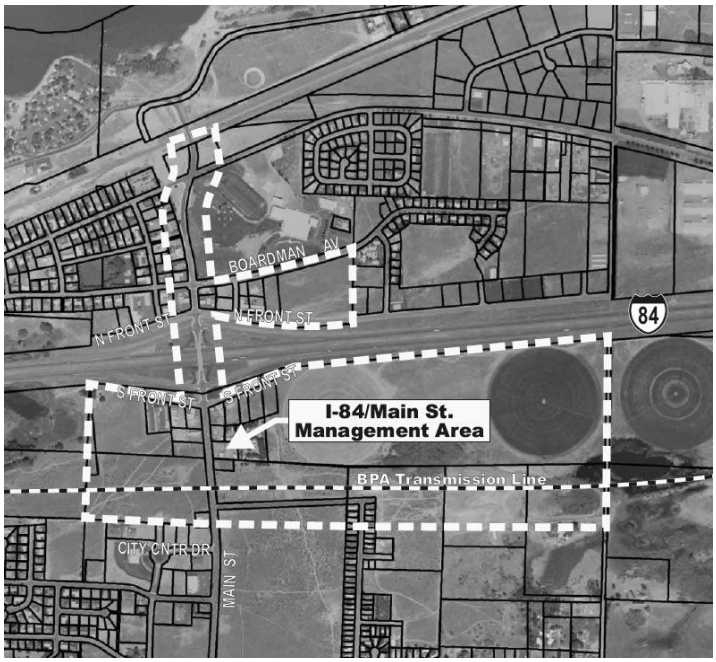

Figure 1.1: Management Area

South of I-84 there is much more opportunity for development of vacant lands or re-development of underutilized commercial land. The boundary of the management area includes all the developable area, extending just south of Oregon Trail Boulevard.

Local Access and Circulation

A total of 28 approaches to Main Street were identified within the management area (see Figure 3.4). Eleven of those are on South Main Street, from Front Street to just past Oregon Trail Boulevard. According to a strict interpretation of the standard, 4 would be allowed on South Main Street within the management area. It is not expected that full compliance can be achieved, given the built environment and prevailing development pattern, which limits alternative circulation options for these properties. Changes to access will only be initiated if the property develops (or re-develops) and there is a reasonable alternate access available. Refer to Figure 3.4 for more details.

A key element of the IAMP is to the long-range preservation of operational efficiency and safety of the interchange is the management of access to Main Street. Because access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic and reduce the efficiency of the transportation system. However, reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts.

An access management plan should be implemented to help work towards better compliance for accesses onto Main Street and to provide a basis for decision-making during the development review. Implementation of the access management plan is intended to occur over a long period of time because some affected properties maintain infrastructure (e.g. buildings and internal roadways) that was established based on prior approvals of access locations to the subject roadways and some elements of the plan depend on the presence of new public streets that can not be constructed until funds are made available. Therefore, the improvements in this plan have been prioritized and categorized into short-range, medium-range, and long-range actions, and a set of performance measures have been identified as 'triggers' for implementing changes to existing circulation and access patterns.

Refer to Chapter 4, for more details about the constraints, issues and challenges in addressing each of these areas. Other issues identified through the IAMP included proper roadway design guidelines for truck traffic, enhancement of non-motorized vehicle connections, and notations about existing right-of-way constraints.

Existing Safety and Operations

Reported vehicle crashes over the last five years showed no locations with significant trends relating to accident location or type. The two most prevalent types of reported crashes were angle crashes and rear end crashes. The crash rate at all of the intersections examined did not exceed 0.26 crashes per million entering vehicles. It does not appear that the roadways within the study area are experiencing an above average rate of crashes, and no countermeasures for crash reduction are needed.

Traffic data for 2006 were evaluated to determine how well the existing road intersections and segments perform compared to state and local standards. All of the state and city intersections within the study area operate within the acceptable performance range. The highest traffic volumes and longest delays were observed at the Main Street interchange. Refer to Table 3.2 for more details.

Future Forecasts and Needs Analysis

City growth projections for 2026 were based on the current land use zoning (from the existing Comprehensive Plan), expected residential construction rates, and input from the city staff and short-term developments. By 2026, the city population is estimated to grow by at least 1,800 persons, to just over 5,000 population. Non-residential growth in the retail and industrial sectors was assumed to be significantly higher than recent construction trends, to develop a conservatively high estimate for planning purposes. The change in auto and truck traffic associated with the forecasted growth was

determined to be nearly 11,700 additional daily trips throughout the city. The future traffic volumes on all study area roadways were identified.

Traffic volumes at the Main Street interchange are expected to more than double the level observed today. The peak hour traffic volumes will grow from about 600 vehicles per hour to about 1,300 vehicles per hour by 2026. This is a very substantial change. North of I-84, where the city is largely developed, the growth is much lower, about 50% above today's volumes. The expected volumes and percent change over current conditions is summarized in Table 1.1 below.

Table 1.1: Traffic Volume Growth at Main Street Interchanges (PM Peak Hour Two-Way Total)

Location	2006	2026	Percent Growth
Main Street north of I-84	635	975	54%
Main Street south of I-84	640	1395	118%

By 2026, one intersection is expected to exceed the performance standards during peak hours:

- Main Street at I-84 Westbound Ramp

Side street approaches at four other Main Street intersections showed heavy delays during peak hours at:

- Main Street at Boardman Avenue;
- Main Street at Front Street (North);
- Main Street at I-84 Eastbound Ramps;
- Main Street at Front Street (South).

A series of different solutions were evaluated, and discussed by staff and stakeholders. The final solution was incorporated into the IAMP, and other alternatives that were set aside for various reasons are summarized in the appendix to this report.

Development that is not consistent with the current zoning (and generates over 10% more PM peak hour traffic than the current zoning) will need to complete a traffic study and amend this IAMP.

Interchange Area Management Plan

The full IAMP plan is presented in Chapter 5 of this report. A summary follows.

Local Connectivity Plan

Incremental improvements can be made to the local street connections near the freeway, as additional land is developed, with the long-term goal of improved street connectivity, improved bicycle/pedestrian network and limited direct access to Main Street.

The future deficiencies analysis in Chapter 4 highlighted several areas where local connectivity was in need of improvement, including:

- Improving east-west connectivity;
- Improving north-south connectivity;
- Filling gaps in pedestrian and bicycle system;
- Providing access to lands surrounding the Main Street interchanges; and
- Reducing access points to Main Street to the north and south of the interchange.

In response to these needs, a local connectivity plan and access management plan were developed that builds on existing and planned streets in IAMP area. These plans not only improve overall connectivity throughout the City, but also provide the ability to consolidate approaches to Main Street, while maintaining accessibility to individual properties in the corridors. Refer to Figure 1.2 and Figure 5.1 for details.

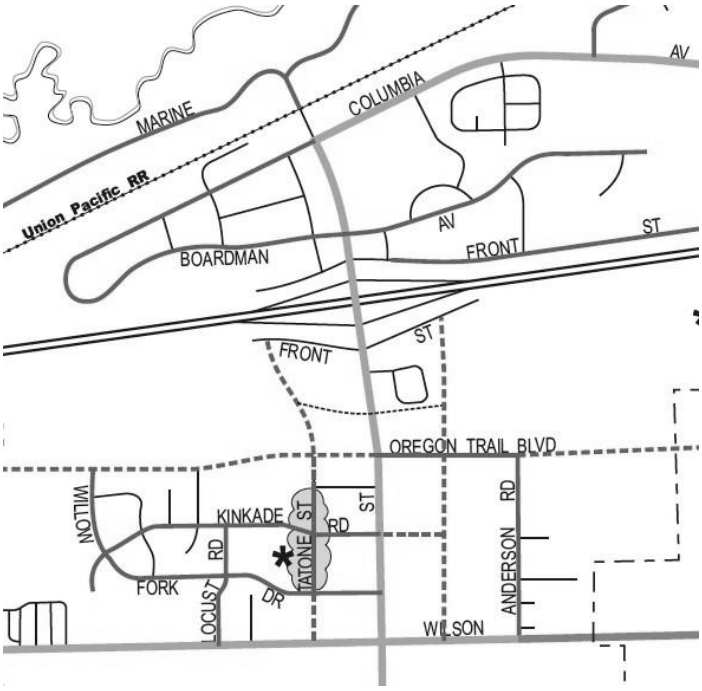

Figure 1.2: Main Street Area Plan

Access Management Plan

A key element of the IAMP related to the long-range preservation of operational efficiency and safety of the interchange is the management of access to the interchange crossroads. Because access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic and reduce the efficiency of the transportation system. However, reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts.

Implementation of the access management plan is intended to occur over a long period of time because some affected properties maintain infrastructure (e.g. buildings and internal roadways) that was established based on prior approvals of access locations to the subject roadways and some elements of the plan depend on the presence of new public streets that cannot be constructed until funds are made available. Therefore, the improvements in this plan have been prioritized and categorized into short-range, medium-range, and long-range actions, where the short-range actions are to be executed at this time and the medium and long-range actions are to be executed as needed funds become available or as opportunities arise during property redevelopment.

The goals of this access management plan are listed below:

1. Restrict all access from abutting properties to the interchange and interchange ramps.
2. Improve access spacing and safety factors within the interchange
3. In attempting to meet access management spacing standards, exceptions may be allowed to take advantage of existing property boundaries and existing or planned public streets, and to accommodate environmental constraints (i.e. BPA Easement).
4. Replace private approaches with public streets, where feasible, to provide consolidated access to multiple properties.
5. Ensure all properties impacted by the project are provided reasonable access to the transportation system.
6. Develop cross access easement agreements as properties (re)develop.
7. Align approaches on opposite sides of roadways where feasible to reduce turning conflicts.

8. Short-range actions shall accommodate existing development needs.

Using the goals, an action plan for each approach to Main Street was developed, as shown in Table 5.1 and Figure 5.2 in Chapter 5.

Interchange Improvements

The preferred Main Street Interchange improvements expand the existing diamond interchange. The project phasing would follow these steps:

- The freeway off-ramps would be widened to provide for separate turning lanes on the approaches to Main Street,
- Traffic signals would be installed at the off-ramp intersections with Main Street once traffic volumes grew enough to meet ODOT standards for traffic signal controls,
- The Main Street overpass would be expanded to accommodate a center left turn lane, bike lanes and wider sidewalks.

Improvement Cost Estimates

The improvement alternatives have been prioritized into short, medium, and long-range actions, as shown in Table 1.2, to provide guidance for future implementation and funding. The timing for implementing these actions assumes average growth over the next 20 years.

It should be recognized that the prioritization of projects is not intended to imply that short range projects must be implemented before the long range projects. Should opportunities arise, through private land development or other means, to construct specific projects earlier than the estimated time frame provided by this list, those resources should be utilized.

Planning-level cost estimates for all improvement alternatives were calculated to aid in the identification of needed funding. Cost estimates, shown in Table 1.2, included the fundamental elements of roadway construction projects, such as the roadway structure, bridge structures, curb and sidewalk, earthwork, retaining walls, pavement removal, and traffic signals. Right of Way costs are not included in the cost estimates. All costs are in 2007 dollars and do not reflect the added cost of inflation.

One way to provide funding for future projects (i.e. local street network and South Main Street), is for the City to establish a System Development Charge (SDC) or Local Improvement District (LID) program. These types of programs are set up to collect funds from developments and/or land owners and are based on the amount of traffic generated.

Table 1.2: IAMP Improvements

Short-Range Improvements (0 to 5 years)	Triggers	Estimated Cost	Potential Funding Source
• No specific short-range actions identified. Mid-range actions triggered earlier than 5 years.	- Increase in crashes - Property (re)development	NA	• City • Property owners
Medium-Range Improvements (5 to 10 years)			
• Reconstruct South Main Street.	- Money becomes available - Property (re)development	$3 Million	• ODOT • City
• Medium-range actions from access management plan.	- Increase in crashes	NA	• City

Short-Range Improvements (0 to 5 years)	Triggers	Estimated Cost	Potential Funding Source
	- Recurring public complaint - Property (re)development		• Property owners
• Construct additional approach lane on I-84 ramp terminals	- Increase in crashes - LOS drops below standards - Turn lanes warranted	$150,000	• FHWA • ODOT • City
Long-Range Improvements (10 to 20 years)			
• Construct new public streets according to adopted Local Connectivity Plan.	- Property (re)development	$10 to 12 million	• City • Property owners
• Install traffic signal at Main Street & I-84 Westbound Ramp	- Traffic signal warrants met	$300,000	• ODOT • City
• Reconstruct Main Street Bridge over I-84 – including wider sidewalk, bike lanes and turn lanes.	- Turn lanes warranted - Money becomes available - ODOT Bridge program – structural deficiency - Increase in bike/ped crashes	$10 to 15 million	• FHWA • ODOT • City
• Long-range actions from access management plan.	- Increase in crashes - Recurring public complaints - Property (re)development	NA	• City • Property Owners

Note: Medium and long-range improvements could be constructed sooner than anticipated as opportunities arise through private property development or other means.

Table 1.3 shows the general size of development that is projected to happen in the next 20 years, assuming a constant growth rate. The magnitude of development (and associated trips) shown in the table is meant to serve as a guide as to when the short, medium and long range improvements may be needed. If growth rates are substantially faster or slower than anticipated, the implementation of the actions should be reevaluated, as appropriate.

Table 1.3: Basis for Project Priorities

Description of Land Development within South Main Street Corridor	Short Range 0 to 5 Years	Medium Range 5 to 10 Years	Long Range 10 to 20 Years	Total
Residential Units	85	85	170	340 residential units
Non-Residential Gross Building Area in Square Feet	65,000	65,000	130,000	260,000 square feet gross building area
Peak Hour trips net new peak hour trips above 2006 traffic counts	250	250	500	1000 new peak hour trip ends

Chapter 2. Plan Goals, Objectives, and Evaluation Criteria

This chapter describes and presents the goals and objectives for the plan, as well as evaluation criteria to measure the effectiveness of strategies. A policy framework was identified based on reviews and summary of the applicable state and local plans, policies, regulations, and design standards (see Appendix for details). This policy framework was used to develop the project goals, objectives and evaluation criteria that are presented in the following sections.

Goals & Objectives

Project Goal

The primary goal of this project is to develop an IAMP for the interchange of I-84 at Main Street (Exit 164), to keep it operating safely and efficiently as the community grows. The IAMP describes the overall study process, identifies potential safety and traffic congestion issues and alternative solutions, and lays out the implementation steps.

The IAMP will be developed in partnership with affected property owners in the interchange area, the City of Boardman and the Oregon Department of Transportation (ODOT), and other stakeholders, including interchange users.

Objectives and Evaluation Criteria

The Project Goals have been met if the following objectives are achieved. A bulleted list of evaluation criteria follows each objective.

1. The IAMP shall include a thorough analysis of the issues for the interchange.
    - Identify and address existing and foreseeable issues related to land use, mobility, accessibility, and safety within the analysis area of the planned interchange.
    - Meet the minimum level of service / mobility standards and other requirements identified in state transportation plans, such as the Oregon Transportation Plan, 1999 Oregon Highway Plan (OHP), and Oregon Freight Plan.
    - Include an inventory map summarizing the existing conditions within the Interchange Study Area.
2. The IAMP shall identify and assess the needs and opportunities to improve access and circulation for all modes of transportation.
    - Describe the roadway network, right-of-way, access control and land parcels in the Interchange Study Area. It also evaluates local street access, circulation, connectivity, and the potential effect of local land use designations on the interchange.
    - Identify development patterns which reduce the reliance on the interchanges while increasing efficiency of the use of land within the urban growth boundary.

- Implement the OHP's Policy 3C criteria, which requires the planning and management of grade-separated interchange areas to ensure safe and efficient operation between connecting roadways.
- Include policies and implementing measures that preserve the functionality of the interchange areas.

3. The preparation of the IAMP shall utilize public involvement and technical methods to develop and refine improvement options.
    - Involve affect property owners in the interchange area, the City of Boardman, the Oregon Department of Transportation (ODOT), and other stakeholders, including interchange users.
    - Incorporate input and guidance from the Project Management Team (PMT).
    - Reflect, to the extent possible, the input of local property owners, interchange users, and other stakeholders, as gathered through public comments.
4. The IAMP shall prioritize improvement projects.
    - Identify and prioritize the transportation improvements, land use, and access management plans needed to maintain acceptable traffic operations in the Interchange Study Area.
    - Include short, medium and long-range actions to improve and maintain roadway operations and safety in the Interchange Study Area. These actions may include local street network improvements, driveways consolidations, shared roadways, access management, traffic control devices, and / or local land use actions.
    - Include a Transportation Improvements Map showing the opportunities to improve operations and safety within the City of Boardman and specifically in the Interchange Study Area.
5. The IAMP shall be forwarded through the adoption process.
    - A draft version shall be reviewed by the Boardman planning Commission, as well as the Boardman City Council. A final draft of the IAMP shall be adopted by the City Council.
    - Identify likely funding sources and requirements for the construction of the infrastructure and facility improvements as new development is approved.
    - Identify partnerships for the cooperative management of future projects and establishes a process for coordinated review of land use decisions affecting transportation facilities.

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Chapter 3. Existing Land Use and Transportation Conditions

This chapter provides an inventory and evaluation of transportation facilities within the IAMP study area, which can be used to identify areas needing improvement and can act as a baseline for assessment of future conditions. This includes identification and description of existing land uses, area streets, traffic controls, pedestrian facilities, freight routes and property access, as well as an analysis of the crash history, access management deficiencies, and intersection capacity.

Study Area Land Uses

Interstate 84 runs east and west through the City of Boardman and divides the town into roughly one third to the north and two-thirds to the south. The two roadways that cross Interstate 84 (I-84) and connect the north and south parts of town are Main Street and Laurel Avenue. The main east-west roads in Boardman are Marine Drive, Columbia Avenue and Wilson Road. Currently, the predominant employment centers are located north of I-84 and the residential is generally south of I-84, which creates the need for regular trips across the freeway.

The IAMP focuses on the land uses and circulation patterns that affect operations and safety at the Main Street interchange. The IAMP study area is divided into two parts: the first is the *influence area*, which considers the current and planned land development patterns that will affect travel patterns related to the interchange, and the second is the *management area*, which are the adjoining land uses and circulation systems within the immediate area of the interchange. The influence area includes the entire city of Boardman as future development within the City will be considered in assessing the long-range needs and solutions at the interchange. The management area is more focused on the land uses in close proximity, as defined by ODOT standards and guidelines. The selected geographic boundaries for the IAMP study area is discussed below and shown in Figure 3.1.

Management area limits generally extend one-quarter mile north and one-quarter mile south of I-84 along Main Street. North of I-84, most of the property is fully developed along the Main Street frontage area. In this developed portion of the city, the management area was limited to just one block either side of Main Street. This roadway was recently reconstructed (2005) through a Transportation Enhancement Grant, and it is not expected that any changes to existing access patterns would be made along North Main Street.

There are several large parcels south of Boardman Avenue and east of Main Street that have commercial zoning and are vacant today. The management area includes those vacant lands.

South of I-84 there is much more opportunity for development of vacant lands or re-development of underutilized commercial land. The boundary of the management area includes all the developable area, extending just south of Oregon Trail Boulevard.

Study Area Street Network

The roadways within the study area have designated functional classifications, which identify how they are to be used, and the appropriate standards for operations and design. These roadways are listed below in Tables 3.1. The I-84 mainline and freeway ramps are federally owned and operated by ODOT, while the rest of the roadways are owned and operated by the City of Boardman.

City of Boardman Main Street IAMP
April 2009

NO SCALE

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Figure 3.1

STUDY AREA

Table 3.1: Study Area Roadways for Main Street IAMP

ODOT Jurisdiction		
Roadway	**Limits**	**Functional Classification**
I-84	Main Street Interchange	Interstate highway on National Highway System and Freight Route
City of Boardman Jurisdiction		
Roadway	**Limits**	**Functional Classification**
Main Street	Wilson Road – Marine Drive	Arterial
Boardman Avenue	W 1st Street – E 1st Street	Minor collector
NW Front Street	W 1st Street – E 1st Street	Minor collector
SW Front Street	Entire length	Local street

With these roadways identified as the primary means of circulation through the area, key intersections along these routes were selected for capacity analysis. Through a field inventory, the existing lane configurations and traffic controls at each intersection were documented and are displayed in Figure 3.2. There are no signalized intersections within the study area. Main Street has a three lane cross-section, including a continuous left turn lane, from I-84 to Columbia Avenue. All other roadways are currently two lanes.

Operational Analysis

Traffic Volumes

Traffic data was collected at five intersections within the City on September 19, 2006.

16-hour intersection turn movement counts were collected at the two interstate ramp intersections:

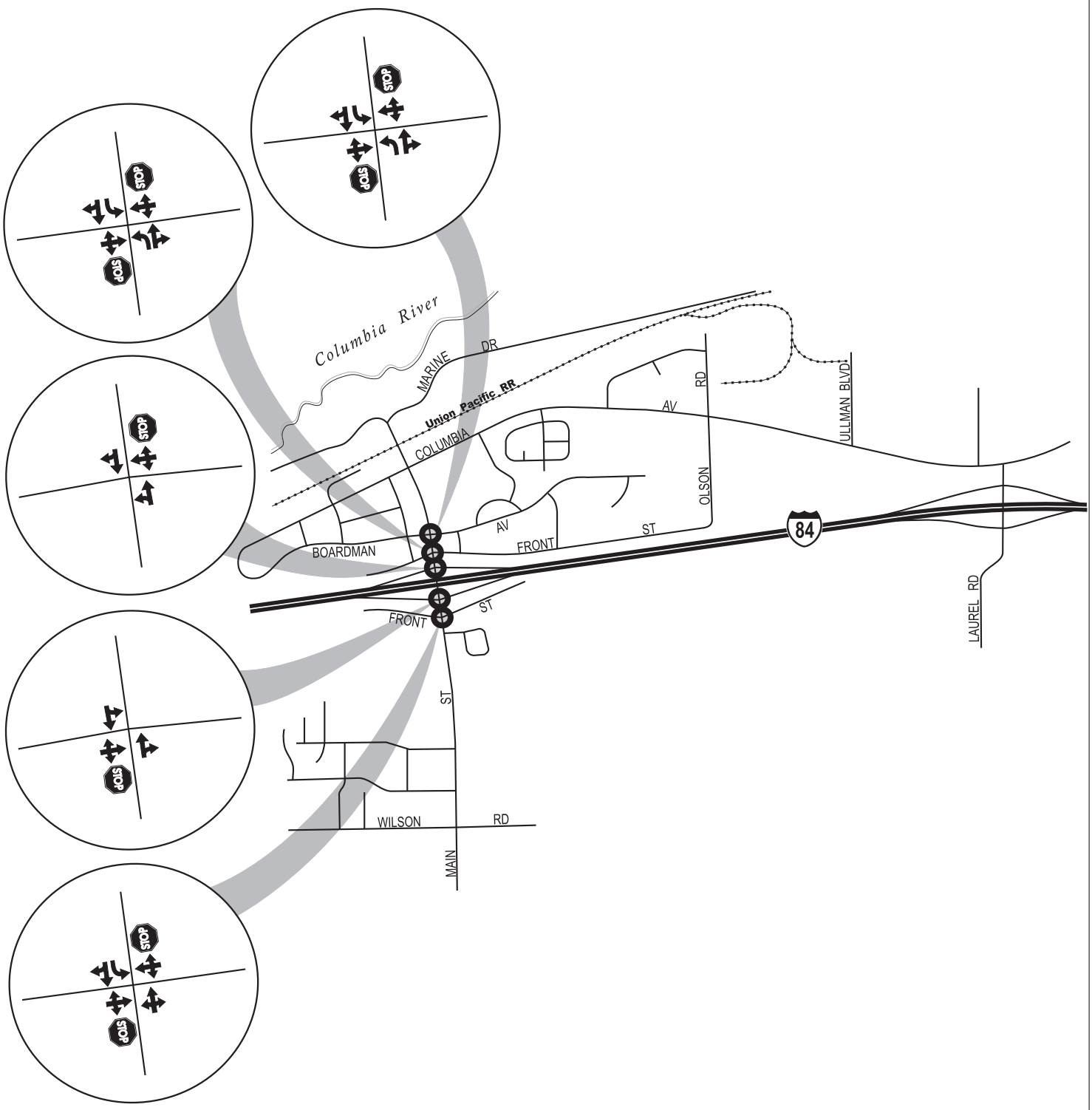
- I-84 EB Ramp at Main Street
- I-84 WB Ramp at Main Street

PM Peak Hour turning movement counts were collected at three additional intersections within the City:

- Main Street at Boardman Avenue
- Main Street at Front Street (north)
- Main Street at Front Street (south)

The PM Peak traffic counts were collected from 4:00 to 6:00 PM. Based on an evaluation of the count data, the evening peak hour for the operational analysis was determined to be from 4:05 to 5:05 PM for study intersections along Main Street.

The existing peak hour volumes were adjusted using the ODOT seasonal trend table. There are no automatic traffic recorders with similar characteristics nearby, therefore the seasonal trend method was used to develop design hour volumes. The Interstate trend was used to determine the seasonal factor. The adjusted PM Peak hour volume data is shown in Figure 3.3.



LEGEND

- Study Intersection
- Lane Configuration
- Stop Sign

City of Boardman Main Street IAMP
April 2009

NO SCALE

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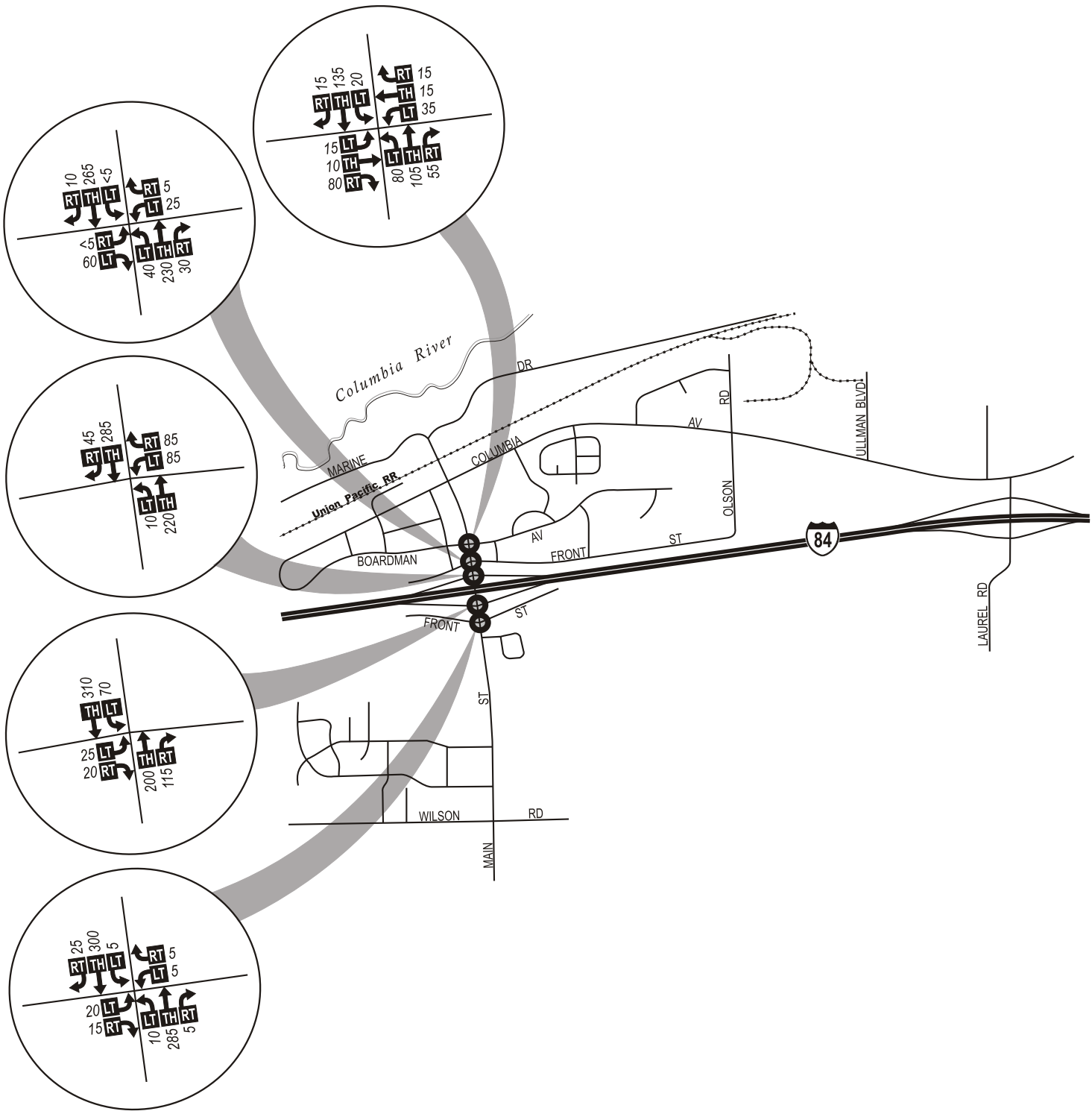
Figure 3.2

EXISTING LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVIC



LEGEND

- Study Intersection
- *PM* - Peak Hour Traffic Volumes
  - *PM Peak* - 4:05-5:05 pm
- LT TH RT - Volume Turn Movement
  Left•Thru•Right

City of Boardman Main Street IAMP
January 2009

NO SCALE

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Figure 3.3

2006 EXISTING WEEKDAY PM PEAK HOURS TRAFFIC VOLUM

Study Area Roadway Performance

Study intersections within the IAMP area were analyzed using *Highway Capacity Manual*[1] methodologies for unsignalized intersections for comparison with the applicable jurisdiction's adopted performance standards. I-84 is designated as an Interstate highway, while Main Street is classified as an arterial and is under the jurisdiction of the city of Boardman. Performance standards for the freeway interchange ramp terminals have been adopted by ODOT in the *1999 Oregon Highway Plan*[2] (*OHP*). The maximum volume to capacity (V/C) ratio of ramp terminals of interchange ramps shall be 0.85.

All non-state roadways within the study area are under the jurisdiction of the City of Boardman. The City has adopted standards for performance of City streets requiring operation of LOS "C" or better during the peak hour of the average weekday.

Level of Service (LOS) categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. LOS A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. LOS D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set LOS D as the minimum acceptable level of service for peak hour operation and plan for LOS C or better for all other times of the day. The *Highway Capacity Manual* provides LOS calculation methodology for both intersections and arterials.

The traffic volume data shown in Figure 3.3 was used in the analysis. The percentage of heavy vehicles at each intersection was obtained from the traffic counts and used in the analysis. From this analysis, intersection LOS and volume to capacity ratios were obtained.

Table 3.2 shows the existing operational analysis for the unsignalized intersections within the Main Street IAMP study area. The results shown represent the critical movement at each intersection (usually a stop-controlled movement, such as a side-street left turn or crossing movement), along with the average intersection delay and LOS. As can be seen from this table, none of the intersections fail to operate within acceptable standards.

Table 3.2: Weekday PM Peak Hour Intersection Level of Service Main Street IAMP Area

Intersection	Critical Movement			Average Intersection		Performance Standard	Met ?
	Direction	LOS	Volume / Capacity	Delay (sec)	LOS		
I-84 EB Ramp / Main Street	EB	B	0.07	1.7	A	V/C < 0.85	Yes
I-84 WB Ramp / Main Street	WB	B	0.18	3.3	A	V/C < 0.85	Yes
Main Street / Boardman Avenue	WB	B	0.10	5.0	A	LOS > C	Yes
Main Street / Front Street (North)	WB	C	0.09	2.4	A	LOS > C	Yes
Main Street / Front Street (South)	EB	B	0.06	1.1	A	LOS > C	Yes

Heavy Vehicles

The percentage of heavy truck vehicles observed at local intersections was a little higher than average. For the purposes of this analysis, a heavy truck is defined as having more than 3 axles. The heavy vehicle traffic is due to the proximity of the industrial land north of I-84 to the interchange, and access to commercial services along an interstate freight route. The actual number of heavy vehicles entering the

[1] *Highway Capacity Manual*, Transportation Research Board, Washington, D.C., 2000.
[2] *1999 Oregon Highway Plan*, Oregon Department of Transportation, 1999.

intersections was not above average, but since the total number of entering vehicles at these intersections is relatively low, it is understandable why the percentage of heavy vehicles is higher than average.

Table 3.3 shows the PM Peak hour heavy vehicle percentages at the Main Street IAMP study area intersections.

Table 3.3: Weekday PM Peak Hour Volumes Within Main Street IAMP Study Area

Intersection	Total Vehicles	Heavy Vehicle	Heavy Vehicle %
I-84 EB Ramp/Main Street			
Northbound	286	16	5.6%
Southbound	351	16	4.6%
Eastbound	45	13	28.9%
I-84 WB Ramp/Main Street			
Northbound	213	14	6.6%
Southbound	299	24	8.0%
Westbound	159	24	15.1%
Main Street/Boardman Ave			
North/Southbound	379	29	7.6%
East/Westbound	162	7	4.3%
Main Street/Front Street (north)			
North/Southbound	540	36	6.6%
East/Westbound	87	15	17.2%
Main Street/Front Street (south)			
North/Southbound	579	36	6.2%
East/Westbound	38	1	2.6%

It is noted that the heavy vehicle percentages were considered in the operational analysis for each of the study area intersections. Due to the length and weight of heavy vehicles, the start up time is much slower that passenger cars. This slow start up time, in addition to the length of the vehicle can create long queues. The heavy vehicles must also wait for a larger gap in the traffic before pulling out, which can add to the delay at the intersection.

The effect of large trucks was included in the foregoing capacity analysis. It was found that all of the study intersections currently operate within acceptable standards even taking into account the high percentage of heavy vehicles.

Heavy vehicles have much larger turning radii than passenger cars and the intersection geometrics along the freight routes must take this into account.

Crash Analysis

The last five years (2001 – 2005) of available crash data for the entire City of Boardman was obtained from the ODOT Crash Analysis and Reporting Unit. The crashes within the Main Street interchange study area were analyzed and are listed in Table 3.4.

Table 3.4: Study Intersection Collision Data by Type

Intersection	Backing	Pedestrian/ Bicycle	Angle	Rear-End	Turning Movement	Fixed Object	Total		Fatality	Injury	Property Damage	Accident Rate*
I-84 EB Ramp/Main Street	-	-	-	-	-	-	-		-	-	-	0.0
I-84 WB Ramp/Main Street	-	-	1	1	1	-	**3**		-	-	3	0.24
Main Street/Boardman Ave	-	-	1	-	-	1	**2**		-	2	-	0.20
Main Street/Front Street (north)	-	1	-	-	-	1	**2**		-	1	1	0.17
Main Street/Front Street (south)	1	-	2	-	-	-	**3**		-	1	2	0.26
Main Street/Columbia Avenue	-	-	1	2	-	-	**3**		-	-	3	0.53
Total Collisions	**1**	**1**	**5**	**3**	**1**	**2**	**13**		**0**	**4**	**9**	

Source: ODOT – Transportation Data Section – Crash Analysis and Reporting Unit, Continuous System Crash Listing, City of Boardman, 2000-2004.

*Accident Rate is measured in Accidents per Million Vehicles Entering intersection per year.

Through an examination of individual crashes over the last five years, it was noted that there were not any significant trends relating to accident location or type. The two most prevalent types of reported crashes were angle crashes and rear end crashes.

Normally, the crash analysis is supplemented by reviewing ODOT's Safety Priority Index System (SPIS) listing for locations in the study areas ranked among the state's top 10% of hazardous locations. The SPIS is a method developed by ODOT for identifying hazardous locations on state highways. None of the intersections within the study area are identified on the ODOT SPIS list

Based on this information, it does not appear that the roadways within the study areas are experiencing an above average rate of crashes. Therefore, no countermeasures for crash reduction are needed.

Local Access and Circulation

An inventory of the existing access points along Main Street was compiled for the management area. Access to Main Street is in the form of private driveways, public easements, and public roadways.

Oregon's Access Management Rule is used to control the issuing of permits for access to state highways, state highway rights of way and other properties under the State's jurisdiction. Access within the influence area of existing or proposed state highway interchanges is regulated by standards in OAR 734-051. These standards do not retroactively apply to interchanges existing prior to adoption of the 1999 Oregon Highway Plan, except or until any redevelopment, change of use, or highway construction, reconstruction or modernization project affecting these existing interchanges occurs.

Figure 3.4 shows the location of the access points in the Main Street IAMP management study area. Main Street north of I-84 was recently reconstructed, which consolidated some access, but there are still a number of driveways and three public roadways that are within the interchange management area. Main Street south of I-84 has very little access control. There are three properties that have no clear curb cuts, which allow vehicles to access the property all along the frontage. This leads to conflicts between entering and exiting vehicles and is dangerous for pedestrians. The close spacing of North Front Street and South Front Street to the I-84 Ramp intersections creates conflict points between vehicles on the ramps and vehicles wanting to access local businesses. The BPA power line crosses South Main Street

just north of Oregon Trail. Access to the power line must be maintained for operational and maintenance purposes.

Issues to be Addressed

- Reduce number of conflict points on Main Street. The close spacing of North Front Street and South Front Street create conflict points between turning vehicles and pedestrians. Alternate access should be investigated.
- The access to the properties directly south of I-84 along Main Street needs to be demarcated and evaluated.
- Ensure the adequacy of the roadway network in terms of function, capacity, level of service and safety.
- Serve the existing, proposed and future land uses with an efficient and safe transportation network.
- Design and construct the transportation system to enhance safety and mobility for all modes.

Some of these issues can be addressed through small incremental projects prior to major reconstruction.

Pedestrians/Bicycles

To assess the adequacy of pedestrian and bicycle facilities in Boardman, an inventory of sidewalks, designated bike lanes, shoulder bikeways, identified shared roadways and off- street trails along the city streets was conducted. The location of existing activity centers such as parks, schools, City Hall and the city library were identified to determine possible pedestrian/bicycle trip generators. The high school is located north of I-84 while the elementary school, library and City Hall are all located south of I-84. The existing pedestrian network includes sidewalks along many of the local roads and a multi-use path along Wilson Road. However, there are very limited locations to cross I-84.

The City has applied for Transportation Enhancement Funding in the past to provide pedestrian and bicycle facilities on South Main Street. This section of Main Street currently has a multi-use path for pedestrians and bicycles. The previously proposed project would have provided sidewalk and bike lanes to improve the north-south connectivity for pedestrians and cyclists. The City may continue to pursue state funding in the future to help rebuild this section of roadway.

Figure 3.5 shows existing pedestrian facility inventory within the study area as well as the location of major activity centers. Sidewalk connectivity is adequate in the residential areas and near most schools. It is desirable to provide at least one continuous sidewalk connection between activity centers and arterial and collector roadways to provide safe and attractive non-motorized travel options. There are locations where sidewalk coverage could be more complete and provide greater connectivity throughout the city.

There is a multi-use path for bicycles along the north side of Wilson Road and bike lanes along North Main Street. Along the other roadways, bicyclists must share the travel lane with motor vehicles or use the shoulder if available. In many cases, this is not a desirable option for bicyclists due to narrow widths or uneven pavement conditions. Adequate bicycle facility connections should be provided to allow for safe travel between neighborhoods and activity centers.

The identified pedestrian and bicycle issues are summarized below.

LEGEND

0 - Access Location & Number

- No Access Control

000 - Tax Lot ID#

SCALE: 1"=400' (Approx.)

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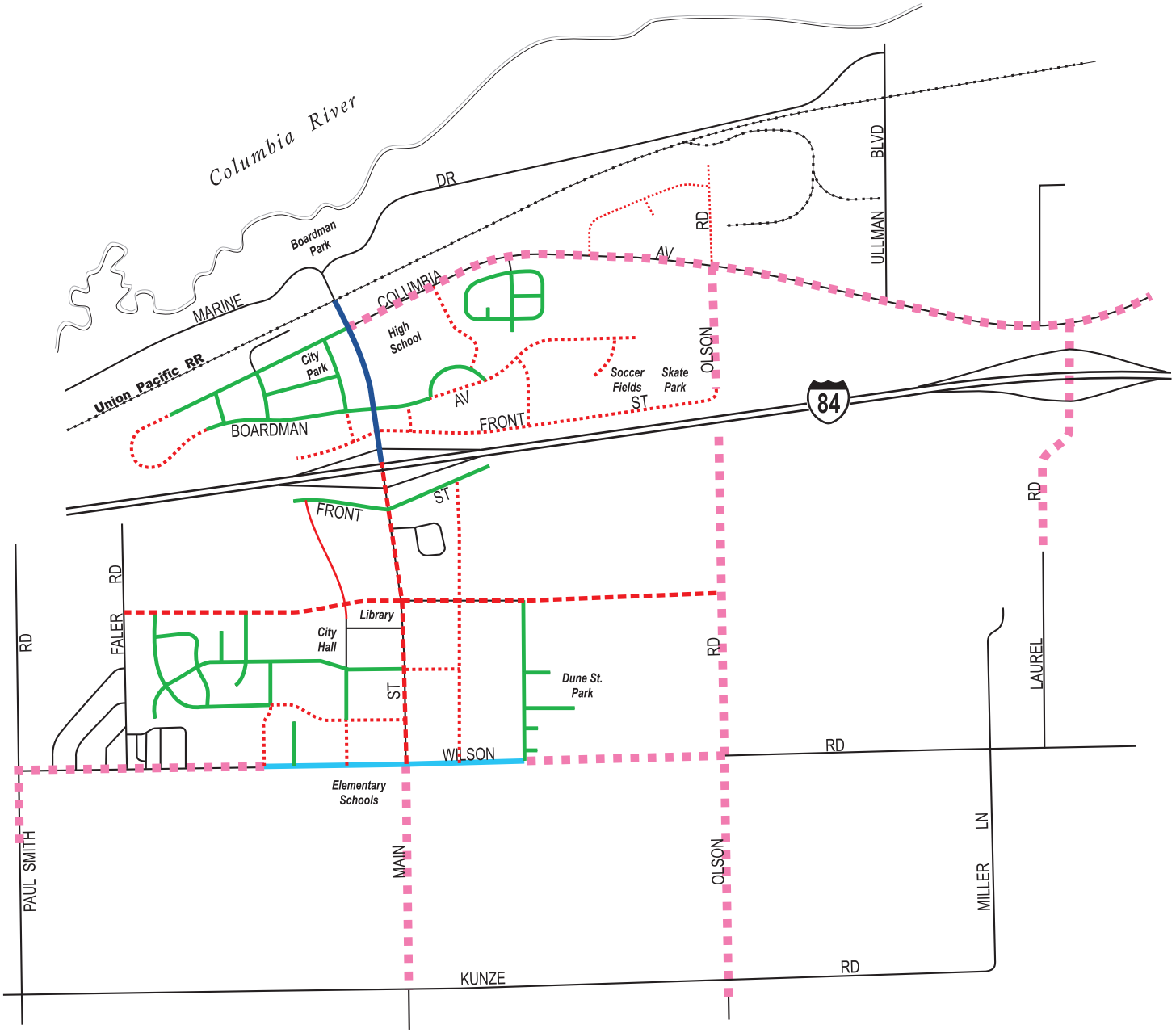
City of Boardman Main Street IAMP
April 2009

Figure 3.4

MAIN STREET IAMP
EXISTING ACCESS POINTS



LEGEND

- Existing Sidewalk
- Existing Sidewalks & Bike Lanes
- Existing Multi-Use Path
- Future Sidewalk
- Future Sidewalks & Bike Lanes
- Future Multi-Use Path

City of Boardman Main Street IAMP
April 2009

NO SCALE

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Figure 3.5

EXISTING PEDESTRIAN AND BICYCLE NETWORK

Issues to be Addressed

Deficiencies in the existing pedestrian facility network include:

- Sidewalks throughout the City should be ADA compliant and meet ODOT grant requirements.
- Continuity and quality of sidewalks on Main Street on the bridge over I-84. The narrow sidewalk width creates an uncomfortable pedestrian environment, particularly with the heavy vehicles that travel along the roadway.
- Several potential enhancements that should be considered are additional street lighting, curb extensions to reduce crossing distance and median treatments to provide pedestrians a "safe haven" at a mid-block crossing.
- There is no connection between Olson Road on the north and south sides of I-84. Pedestrians cannot cross I-84 at this location.

Deficiencies in the existing bicycle facility network include:

- There are no bike lanes on the Main Street overpass. This creates a potentially unsafe environment, particularly with the heavy vehicles within the interchange area.
- There is no connection between Olson Road on the north and south sides of I-84. Bicyclists cannot cross I-84 at this location.

Freight

A large portion of the land north of I-84 in Boardman is zoned for Industrial. The freight transport serving this area consists of truck, rail and barge. These modes all converge in the Port of Morrow which is located north of I-84 near the Laurel Lane Interchange. Local truck traffic uses the Main Street interchange.

The Port of Morrow has six terminals on the Columbia River and is a large generator of freight in the area in addition to being a large employer. Other freight generators in the area include the food processing facilities located in the industrial area. Freight routes in the area include: Laurel Lane (at I-84), Columbia Avenue (aka Boardman-Irrigon Road), and Ullman Boulevard. Main Street is not a state-designated as a freight route.

Based on the traffic volumes collected, the percentage of heavy vehicles are higher than average. The actual number of heavy vehicles entering the intersections was not above average, but since the total number of entering vehicles at these intersections is relatively low, it is understandable why the percentage of heavy vehicles is higher than average. The volume of heavy vehicles at each study intersection during the peak hours are shown in Table 3.3.

Issues to be Addressed

- Any road/intersection designs within the influence area shall take into account the heavy volume of trucks.

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Chapter 4. Future Travel Forecasts and Needs Analysis

This chapter provides an evaluation of how the City of Boardman may grow as vacant lands are developed, and assesses how transportation facilities will perform as that growth occurs. Future year traffic conditions were evaluated to determine where access, capacity and multi-modal improvements would be needed to best serve existing and future residents and businesses in the city. In some cases, a range of solutions is possible for a given problem.

Land Inventory and Analysis

Land use forecasting and the associated travel activity that occurs with growth is a key factor in developing a functional transportation system. The amount of land that is planned to be developed, the type of land uses and how the land uses are mixed together has a direct relationship to the expected demands on the transportation system. Understanding the amount and type of land use is critical to taking actions to maintain or enhance the operation of the transportation system. Projected land uses were developed within the City's Urban Growth Boundary for the forecast year (2026). The following sections summarize the forecasted growth that will influence travel within Boardman. A detailed description of the land use forecasting is included in the Appendix.

Population and Employment Forecasts

Based on the Morrow County Transportation System Plan[3], the population in the City of Boardman is projected to grow at a rate of 2.5% per year. The Office of Economic Analysis (OEA) determined the historical growth rate for the 2000-2025 period. The current population of the City of Boardman is 3,175. Based on the projected growth, the City of Boardman can expect a population of 5,031 in the year 2026.

Table 4.1: Boardman Population Projections

Year	City of Boardman Population
2006	3,175
2026	5,031

The 1997 Land Needs and Supply report[4] states that Boardman had ample land within the Urban Growth Boundary to meet the commercial and housing needs for the next 20 years and beyond, given the population projections for the study. Most of the future employment growth is expected to occur at the Port of Morrow, which is in the northeast corner of the city and extends beyond into unincorporated portions of the county. Additional employment growth will occur along the South Main corridor due to available lands for commercial and office development. Most of the future residential growth is expected to occur south of I-84.

[3] Morrow County 2005 Transportation System Plan, July 23, 2005
[4] Land Needs and Supply – Boardman Urban Growth Boundary, Draft Report, July 17, 1997

The following section summarizes the forecasted growth that will influence future travel within the Main Street IAMP study area. Future development was based on the current land use zoning, expected growth by the forecast year and is consistent with the City's current Comprehensive Plan. Input from the City of Boardman staff to include local expertise and knowledge of known developments was also taken into account. Future development that is not consistent with the current land use zoning (and creates more than 10% more PM peak hour traffic than the current zoning) will need to conduct a traffic study and amend this IAMP.

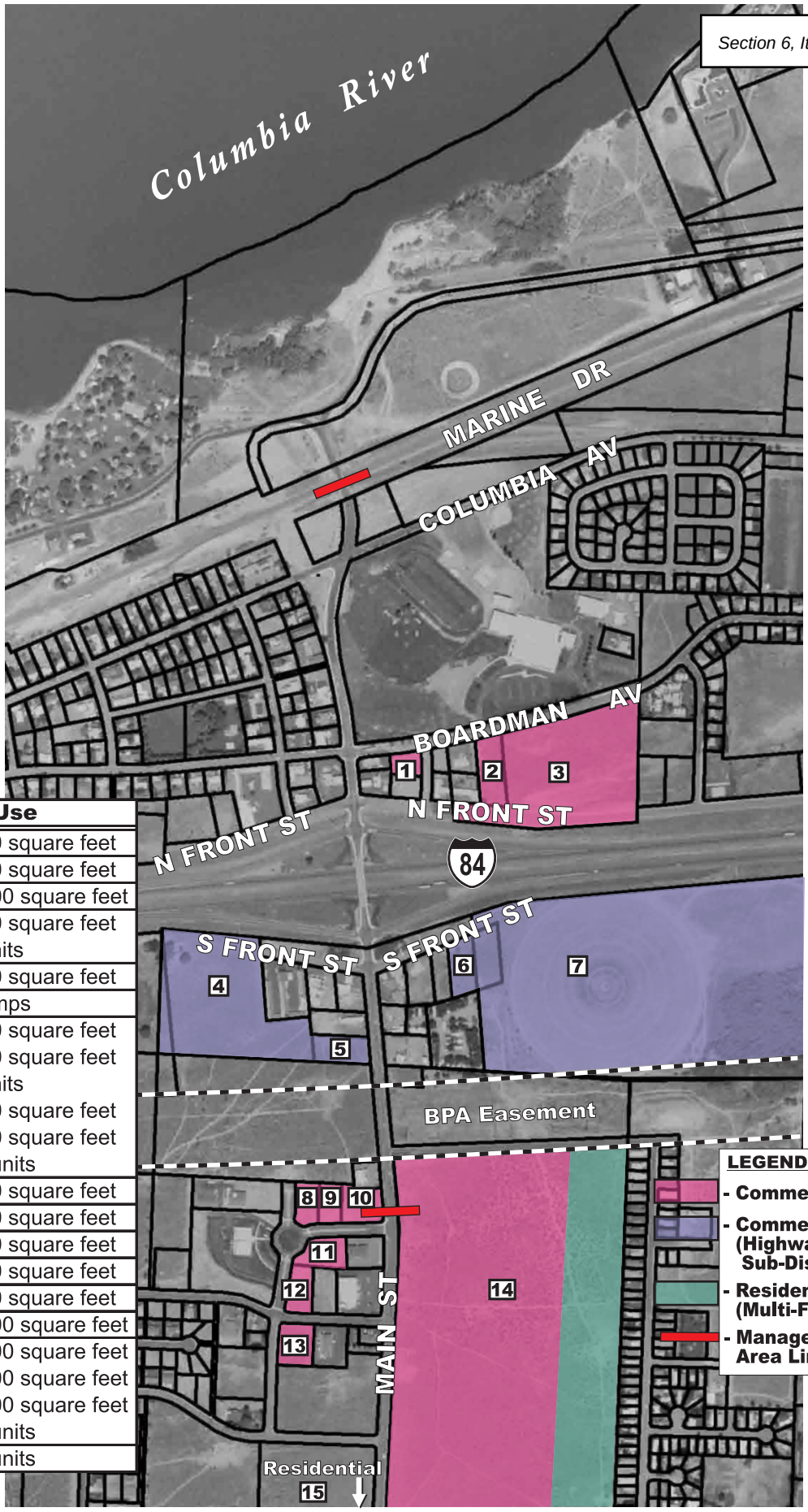
Future Year Forecasts

An analysis was performed of 2026 future travel demand, deficiencies and needs for the transportation system within the Main Street IAMP. The analysis is based upon the transportation system inventory, analysis of existing conditions and forecasts of future demand based on land use projections for 2026. The project scope specifies that a Level 2 Cumulative Analysis be used for traffic volume forecasting. The cumulative analysis was used to forecast the future volumes in the Main Street study area interchange. The cumulative traffic volumes were calculated by adding the trips generated by the assumed development to the existing traffic counts, which were collected in September, 2006 (and factored for seasonal fluctuation).

The trip generation process translates land use quantities (number of households, building square footage or employees) into vehicle trip ends (number of vehicles entering or leaving a particular development area) using established trip generation rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual[5]. Table 4.2 provides a listing of the weekday PM peak hour trip rates used in this analysis. The resulting traffic volume projections form the basis for identifying potential roadway deficiencies and for evaluating alternative circulation improvements.

The following section summarizes the forecasted growth that will influence future travel within the Main Street IAMP study area. Figures 4.1 shows the parcels that are expected to develop by the year 2026 in the Main Street IAMP study area. Future development was based on the current land use zoning, expected growth by the forecast year and is consistent with the City's current Comprehensive Plan.

[5] *Trip Generation Manual*, 7th Edition, Institute of Transportation Engineers, 2003.



Main Street

Parcel#	Assumed Land Use	
1	Convenience Store	2,000 square feet
2	Fast Food Restaurant	3,000 square feet
3	Specialty Retail	20,000 square feet
4	Restaurant Motel	6,000 square feet 65 units
5	Fast Food Restaurant	4,000 square feet
6	Gas Station with Mart	8 pumps
7	Fast Food Restaurant Restaurant Motel Car Wash Car Service Shop Housing	4,000 square feet 6,000 square feet 65 units 1,000 square feet 2,000 square feet 120 units
8	Office	5,000 square feet
9	Office	5,000 square feet
10	Bank	4,000 square feet
11	Office	5,000 square feet
12	Office	5,000 square feet
13	Medical/Dental	10,000 square feet
14	Specialty Retail Drug Store Hardware/Paint Store Housing	10,000 square feet 20,000 square feet 10,000 square feet 120 units
15	Housing	100 units

NO SCALE

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City of Boardman Main Street IAMP
April 2009

Figure 4.1

MAIN STREET 20-Y FORECASTED DEVELOPM

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Table 4.2: PM Peak Hour Trip Generation Rates

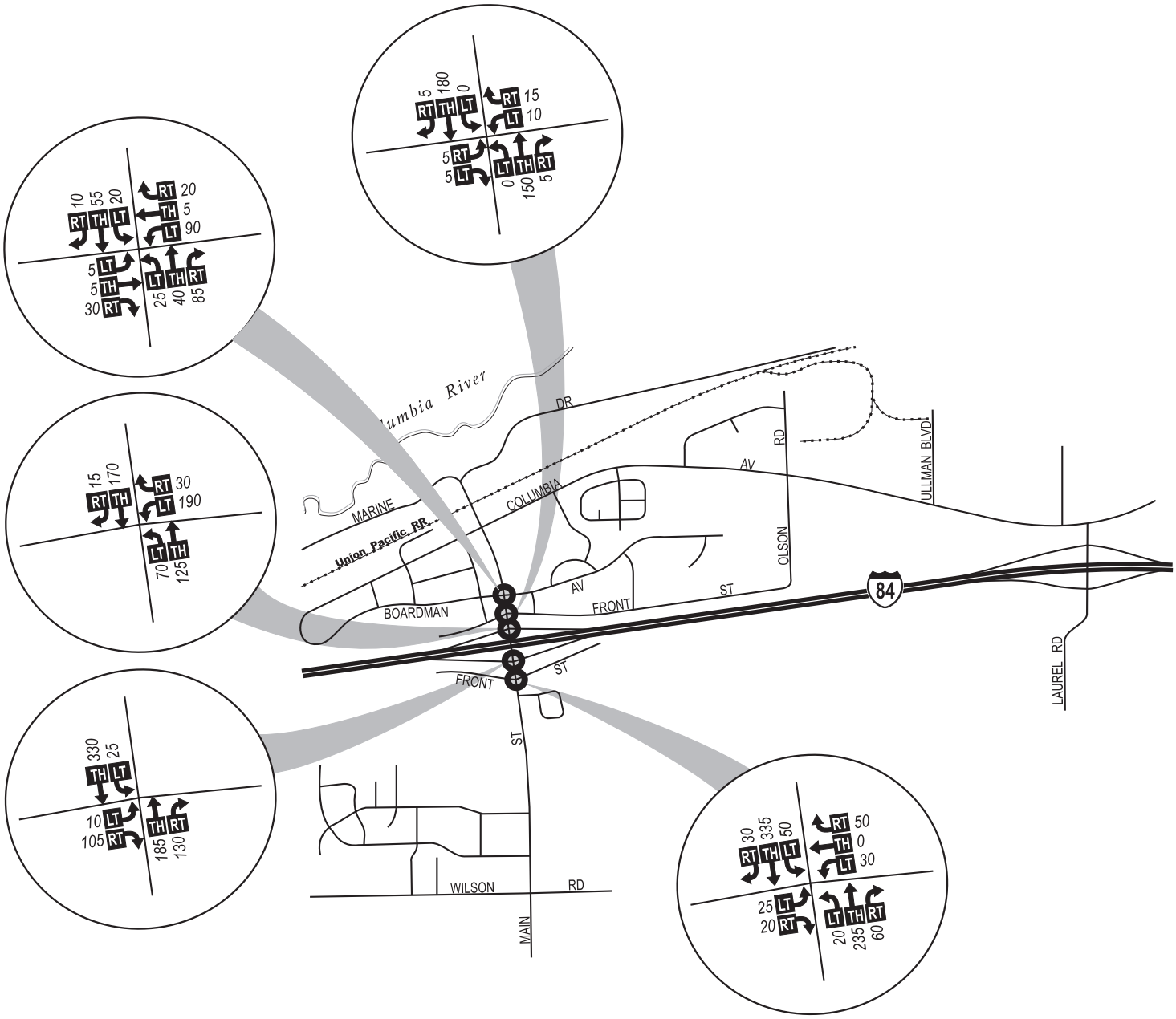
Land Use Description	ITE Code	Land Use Unit	Vehicle Trips Per Land Use Unit	Assumed Size of Land Use
Single Family Detached Housing	210	Dwelling Unit	1.01	220
Housing - Condos	230	Dwelling Unit	0.52	120
Motel	320	Room	0.58	130
Single Tenant Office	715	1,000 s.f. building area	1.73	20
Medical/Dental Office	720	1,000 s.f. building area	5.18	10
Specialty Retail (Lumber store)	812	1,000 s.f. building area	4.49	10
Free Standing Discount Store	815	1,000 s.f. building area	5.06	20
Hardware/Paint Store	816	1,000 s.f. building area	4.84	10
Convenience Mart	851	1,000 s.f. building area	52.41	2
Drug Store	881	1,000 s.f. building area	8.62	20
Bank Drive In	912	1,000 s.f. building area	45.74	4
Sit-Down High Turn Over Restaurant	932	1,000 s.f. building area	10.92	12
Fast Food with Drive In	934	1,000 s.f. building area	34.64	11
Auto Care Center	942	1,000 s.f. building area	3.38	2
Gas Station with Mart	945	Fuel Service Position	13.38	8
Self Service Car Wash	947	1,000 s.f. building area	5.54	3

Based on the assumed land uses for the 20-year forecasted development scenario, it is estimated that there will be an additional 11,700 new trips per day added to the system. During the PM peak hour, it is estimated that there will be an additional 1,100 trips generated by the future development, while an additional 1,000 new trips will be generated in the AM Peak hour. Tables A1 and A1a in the Appendix list each of the land uses and the estimated trips generated by them.

Many of the new trips generated by the future development will be shared by different land uses, so a reduction factor was applied to take this into account. Based on data in the ITE Trip Generation Manual, 5th Edition, a reduction rate of: 60% was applied to the Convenience Store land use, 43% was applied to the Fast Food land use, 35% was applied to the Retail land use and 27% was applied to the Gas Station land use.

Trips from the new development were assigned to specific travel routes in the network, and resulting trip volumes were accumulated on links of the network until all trips are assigned. The trips related to the commercial and industrial development near the interchanges were distributed toward the freeway ramps, using similar turning movement percentages as the current counts. The residential, office, and commercial development on South Main Street has more of the trips distributed locally. It is expected that as more retail and other services are built along South Main Street, that a larger share of shopping trips will be made locally, rather than traveling to nearby cities for services and goods. This dynamic will work towards reducing the use of the Main Street interchange. The projected PM peak hour traffic volumes due to the 20-year forecasted development scenario are shown in Figure 4.2. The cumulative PM Peak hour volume data for the Main Street IAMP study area is shown in Figure 4.3.

A detailed description of the land use forecasting, including key distribution assumptions is included in the Appendix.



LEGEND

- Study Intersection
- 00 - PM Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

City of Boardman Main Street IAMP
April 2009

Figure 4.2

NO SCALE

PM PEAK TRIPS GENERATED BY 20-YEAR FORECASTED DEVELOPME

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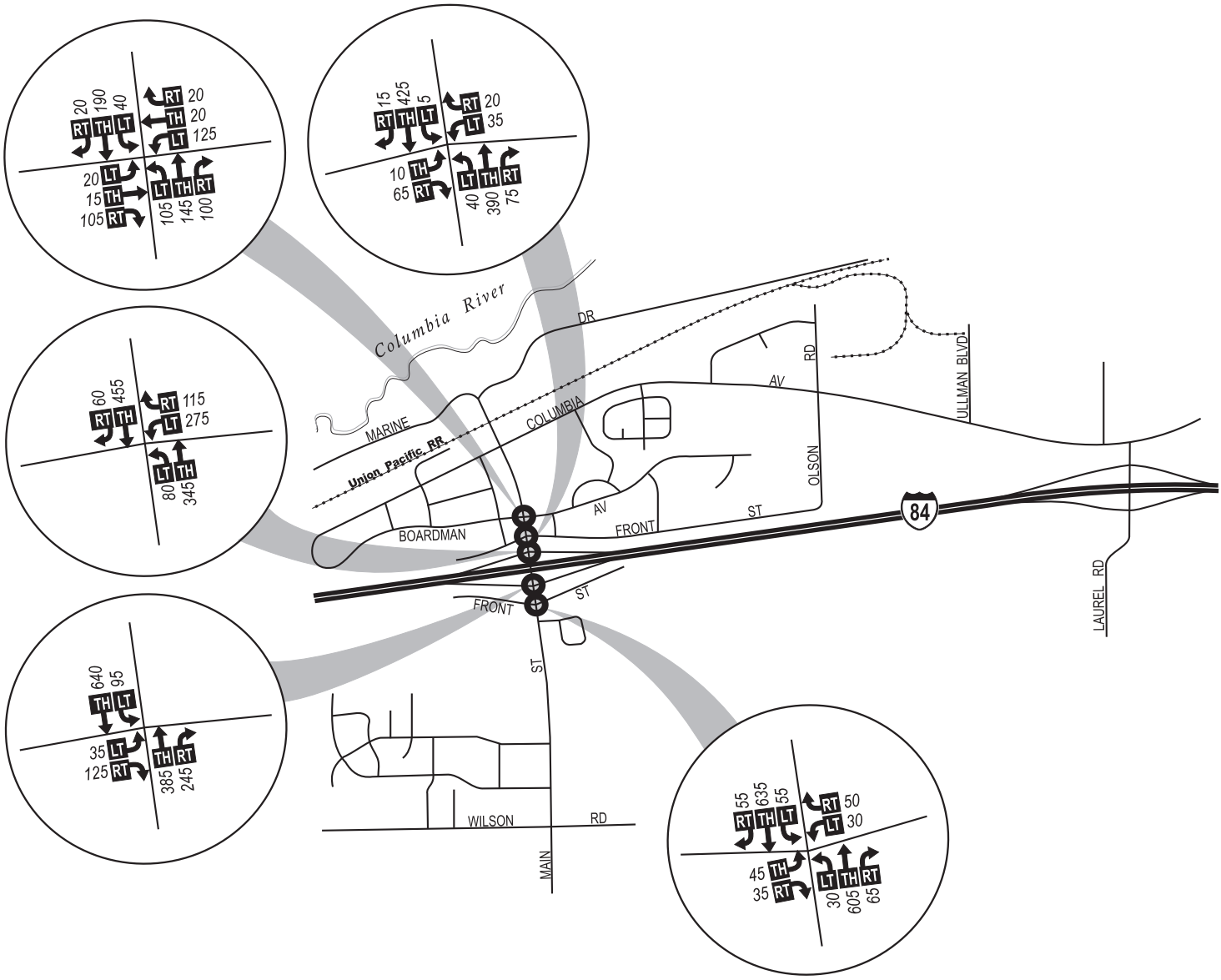

LEGEND

- Study Intersection
- 00 - PM Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

City of Boardman Main Street IAMP
April 2009

NO SCALE

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Figure 4.3

2026 PM PEAK HOUR TRAFFIC VOLUMES

Boardman Speedway

One future land use that was not included in the trip generation was the Boardman Speedway, since as of this writing; a decision has not been made regarding this development. The main access for the speedway is planned to be off of Tower Road, which is about five miles to the west of the Main Street interchange in Boardman. Construction of a speedway will have an impact on the way the City develops and the rate at which it does. If the speedway development were to be built, further studies would need to be prepared by others to quantify all the potential impacts (transportation, environmental, economic, etc.).

Volume Comparisons to Past Studies

The Transportation System Plan[6] documents the 20 year forecasted traffic volumes in Boardman. The TSP volumes were forecasted for the year 2020 and were developed by applying a 2.9 percent annual growth rate to existing volumes. The IAMP forecasts are based on trip generation and distribution from actual land use zoning. In order to compare plans, the 2020 TSP volumes were factored up to arrive at 2026 volumes. Table 4.3 shows the comparison between the volumes forecasted by the TSP[5] and this IAMP.

Table 4.3: PM Peak Hour Volume Comparison between TSP and IAMP (2026)

Location	Two-way PM Peak Hour Volume		Volume Difference
	TSP	IAMP	
Main Street North of I-84	1070	975	-95
Main Street on I-84 Overpass	1070	1100	30
Main Street South of I-84	1140	1400	260

The biggest difference is on Main Street south of I-84. This is reasonable, since most of the development is assumed to take place on Main Street between I-84 and Wilson Road. The TSP assumed a growth rate that is applied to all movements equally, whereas the IAMP used the actual land use type and location in the analysis.

The Main Street Development Plan[7] documents the year 2020 forecasted traffic volumes in the City of Boardman under two scenarios. The first scenario uses a 1.0 percent growth rate per year and also adds in volumes that are expected to be generated by three residential developments. The second scenario uses a 1.0 percent growth rate and adds in the residential development from Scenario 1 plus the new traffic that would be expected from the New Downtown Plan, which includes retail, office and more residential development. Table 4.4 shows the comparison between the volumes forecasted by the Downtown Plan[7] and this IAMP.

Table 4.4: PM Peak Hour Volume Comparison between Downtown Plan and IAMP

Location	Two-way PM Peak Hour Volume		Volume Difference
	Downtown Plan	IAMP	
Main Street North of I-84	1080	975	-105
Main Street on I-84 Overpass	1420	1100	-320
Main Street South of I-84	1830	1400	-430

[6] Transportation System Plan, City of Boardman, Oregon 1999
[7] City of Boardman Main Street "Downtown" Development Plan, 2000-2001

The forecasted volumes for the Downtown Plan were about 30% higher than the IAMP forecasted volumes. The Downtown Plan assumed a growth rate in addition to actual development when forecasting the volumes, whereas the IAMP used only the land use type and location in the analysis and assumed that the growth rate would be included in the trip generation rates.

South Main Street Development Alternative

One of the concurrent planning issues that affects the South Main portion of the study area is a pending rezone for approximately 30 acres at the east end of South Front Street. It is understood that the proposed rezone would change the background residential zoning to allow for more commercial uses. Based on input from the City, it was assumed that approximately half of the 30 acres would be developed as residential (120 residents) with the remaining land developed as commercial. It is estimated that the net change in traffic generation associated with the rezone would be minimal, approximately 400 trips per day or 20 trips in the peak hour. Therefore, we have included this rezone action in the assumptions for future growth, which will be conservatively high, compared to existing zoning provisions.

Future 2026 Operations

Study intersections were analyzed using *Highway Capacity Manual*[8] methodologies for unsignalized intersections for comparison with the applicable jurisdiction's adopted performance standards. Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of *level of service* (LOS) has been developed to subjectively describe traffic performance. LOS can be measured at intersections and along key roadway segments.

Intersection Operations

The traffic volume data shown in Figure 4.3 was used in the analysis, using *Highway Capacity Manual*[8] methodologies for unsignalized intersections for comparison with the applicable jurisdiction's adopted performance standards.

I-84 is designated as an Interstate highway, while Main Street is classified as an arterial and is under the jurisdiction of the city of Boardman. Performance standards for the freeway interchange ramp terminals have been adopted by ODOT in the *1999 Oregon Highway Plan*[9] (*OHP*). The maximum volume to capacity (V/C) ratio of ramp terminals of interchange ramps shall be 0.85. All non-state roadways within the study area are under the jurisdiction of the City of Boardman. The City has adopted standards for performance of City streets requiring operation of LOS "C" or better during the peak hour of the average weekday.

Table 4.5 shows the cumulative (year 2026) operational analysis for the unsignalized intersections within the Main Street IAMP study area (with substandard in bold). The results shown represent the critical movement at each intersection (usually a stop-controlled movement, such as a side-street left turn or crossing movement), along with the average intersection delay and LOS.

[8] *Highway Capacity Manual*, Transportation Research Board, Washington, D.C., 2000.
[9] *1999 Oregon Highway Plan*, Oregon Department of Transportation, 1999.

Table 4.5: Cumulative (2026) Weekday PM Peak Hour Intersection Level of Service

Intersection	Critical Movement			Average Intersection		Performance Standard	Met?
	Direction	LOS	Volume / Capacity	Delay (sec)	LOS		
I-84 EB Ramp / Main Street	EB	E	0.32	4.6	A	V/C < 0.85	Yes
I-84 WB Ramp / Main Street	WB	F	**1.17**	**65.9**	**F**	**V/C < 0.85**	**No**
Main Street / Boardman Avenue	WB	F	0.66	14.0	B	LOS > C	Yes
Main Street / Front Street (North)	WB	D	0.27	3.1	A	LOS > C	Yes
Main Street / Front Street (South)	EB	F	0.77	10.5	B	LOS > C	Yes

Assuming 20 year forecasted development of the assumed land uses, the following intersection is expected to exceed the performance standard of V/C < 0.85 in the PM peak hour:

- Main Street & I-84 Westbound Ramp

There following three intersections have side street movements that will operate with LOS E or F:

- Main Street & Boardman Avenue
- Main Street & I-84 Eastbound Ramp
- Main Street & Front Street (South)

The intersections will continue to operate within the City of Boardman LOS performance standards for average intersection LOS, but may have increased delay for the side street approaches.

Future 2026 Deficiencies

System deficiencies and/or safety issues that were identified from the Future Conditions Analysis are listed below:

- Main Street & I-84 Westbound Ramp is expected to exceed the City standard LOS in the PM peak hour.

The following three intersections have side street movements that will operate with LOS E or F:

- Main Street & Boardman Avenue
- Main Street & I-84 Eastbound Ramp
- Main Street & Front Street (South)

Access/Intersection Spacing

The long term goal is to reduce or minimize the number of access points along South Main Street. As vacant land is developed and street connectivity is completed, the access points should be evaluated. Reasonable alternate access must be in place before any access is removed. North Main Street was recently reconstructed, and all of the land is developed that fronts this roadway. If any of the properties redevelops, the access points onto North Main Street should be re-evaluated.

The number of access points should be reduced and/or combined on South Main Street. By reducing and combining access points, the number of conflict points is reduced, which improves the safety and operation of the roadway. This should be done as property develops and will be based on mutually agreed upon access changes and/or the addition of alternate access.

Left turn lanes should be provided on Main Street at the major access points to provide safe left turning access.

Pedestrian/Bicycle Network

The pedestrian network should be addressed in parallel to the street network improvements. In general, curb and sidewalk similar to North Main Street will improve the safety of pedestrians along South Main Street. Pedestrian access across Main Street is also important. Pedestrian crossings should be accommodated at the major access points (I-84 ramps, Oregon Trail Boulevard, City Center Boulevard, Kinkade Road and Wilson Road). This would include sidewalk with ADA pedestrian ramps on the corners and possibly supplemental signing and/or painted crosswalks. A "mid-block" pedestrian crossing could be accommodated on the north side of the BPA easement. The mid-block crossing could incorporate a center pedestrian refuge island, once South Main Street is reconstructed to the arterial standard. A wider sidewalk and separate bike lanes on the Main Street bridge across I-84 will provide a safer facility for the pedestrians and bicyclists.

Sensitivity Analysis

The future distribution patterns have an impact on the forecasted turning movement volumes at study area intersections. If more traffic than forecasted uses the I-84 interchange ramps to go east or west on I-84 (instead of local trips), the intersection operations at the ramp intersections will degrade before the forecast year. If ten percent more of the forecasted traffic were to go through the I-84 ramp intersections, the intersection of Main Street & I-84 Eastbound ramp would not meet the City LOS standards.

In the forecast year, the minor street volumes at the intersection of Main Street & I-84 Eastbound Ramp are expected to be approximately 90% of the volumes needed to meet the Peak Hour traffic signal warrant. If more traffic than forecasted uses this intersection or if more traffic turns left from the Eastbound ramp onto Main Street, the Peak Hour warrant will be met at this intersection.

Major Constraints

The following section identifies transportation, environmental, socio-economic, multi-modal and right of way constraints and/or issues associated with the transportation deficiencies for the Main Street IAMP area.

- The Bonneville Power Administration (BPA) has a major electrical transmission line that cuts across the city. The BPA easement is 395 feet wide and is about one quarter mile south and parallel to I-84. Any new roadways within the BPA easement would need to comply with regulations set forth by BPA.
- Interstate 84 runs east and west through the City and divides the town into roughly one third to the north and two-thirds to the south. The two roadways that cross I-84 and connect the north and south parts of town are Main Street and Laurel Avenue. Additional roadways that would connect the north and south parts of town would need to cross (over or under) I-84.
- There are identified wetland areas within the City of Boardman. Most of the wetland areas are located where new roadways are not anticipated in the future. However, there are two areas in the vicinity of future roadways and will need to be mitigated if new roadway construction impacts them. One area is approximately 30 acres and located south of I-84 and about a quarter mile west of Main Street. A second area is approximately 10 acres and is south of I-84 and about a third mile east of Main Street.
- A mobile home park is currently located on the west side of South Main Street between South Front Street and the BPA easement. A new roadway that would provide east-west connectivity and access to businesses along Front Street would have an impact on the south part of this

property. The impact may result in the relocation of some of the mobile homes or a redesign of the layout of the mobile home park.

- New roadways that strengthen north-south and east-west connectivity would provide access to businesses and homes, thus having a positive socio-economic impact.
- New roadway connections or road widening projects will require the purchase of right of way.
- There are no identified sources of funding for any of the transportation improvements.

Chapter 5. Interchange Area Management Plan

Alternatives for providing adequate operation of the interchange and the surrounding transportation system were developed and evaluated. This chapter summarizes the alternatives considered, including cost estimates, and provides prioritization for the implementation of these alternatives through short, medium, and long-range actions.

Transportation Alternatives

In Chapter 4, a future deficiencies analysis identified one study area intersection that was projected to fail to meet adopted mobility standards, which for the interchange ramp intersections is a v/c ratio of 0.85. The mobility standard for the City of Boardman intersections is a Level of Service "C".

Assuming 20 year forecasted development of the assumed land uses, the following intersection is expected to exceed the performance standard of V/C < 0.85 in the PM peak hour:

- Main Street & I-84 Westbound Ramp

The following three intersections have side street movements that will operate with LOS E or F:

- Main Street & Boardman Avenue
- Main Street & I-84 Eastbound Ramp
- Main Street & Front Street (South)

The three intersections listed above will continue to operate within the City of Boardman LOS performance standards for average intersection delay and LOS, but may have increased delay for the side street approaches.

Transportation alternatives are aimed at improving capacity and safety through measures such as traffic controls, turn lanes, enhanced street connectivity, and system management techniques.

The planned Main Street improvements are shown in the two graphics below. Most of the improvements will be developed over time as the land develops. Incremental improvements can be made as land is developed with the long-term goal of improved street connectivity, improved bicycle/pedestrian network and limited direct access to Main Street. The project phasing would follow these steps:

1) Develop the local street network east and west of Main Street.
2) Limit access at Main Street/North Front Street and Main Street/South Front Street,
3) Widen the freeway off-ramps to provide for separate turning lanes on the approaches to Main Street,
4) Install a traffic signal at Main Street and I-84 WB Ramp once traffic volumes grew enough to meet ODOT standards for traffic signal controls,
5) Reconstruct and expand the Main Street overpass to accommodate a center left turn lane, bicycle lanes and wider sidewalks.

As traffic volumes on Main Street double over current levels (by year 2026), incremental steps will be required to ensure that the existing interchange configuration performs adequately for autos and trucks, and provides safe facilities for bicycles and pedestrians. The short/mid-term solution is to limit access at the intersections of Main Street with North Front Street and South Front Street to right turn only. The ultimate improvement alternative would expand the current freeway interchange by widening the two off-

ramps and the bridge, and constructing a traffic signal at the ramp westbound terminal. Figure 5.1a shows the short/mid range improvements at the interchange and Figure 5.1b shows the long range improvements at the intersection.

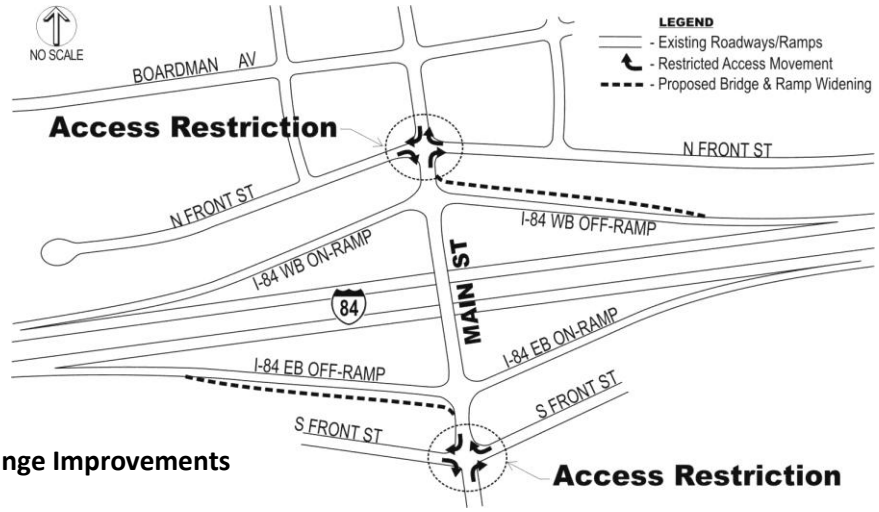


Figure 5.1a
Short/Mid-Range Improvements

The introduction of a traffic signal and the traffic growth on Main Street will substantially increase conflicts at the existing Main Street intersection with North Front Street, which is about 150 feet away from the ramp terminal. For example, it will be much more common during peak hours for queues of vehicles on Main Street to temporarily block the North Front Street intersection and nearby driveways from businesses. By 2026, the vehicle queues on Main Street approaching the off-ramp traffic signal will be 10 to 13 vehicles, and will frequently block the North Front Street intersections. Typically, one vehicle accounts for 25 feet of queue space, so the queues would extend up to 250 to 325 feet during the busy hours of the day. Queues will be longer if commercial trucks are included. Boardman Avenue is approximately 400 feet north of the freeway, and it would not typically be affected by these queues, except under unusual peak conditions.

The intersection at South Front Street will not be affected by queues created by the traffic signal at the westbound ramp, but the close proximity to the eastbound ramp will continue to create conflicts and confusion between all the turning vehicles.

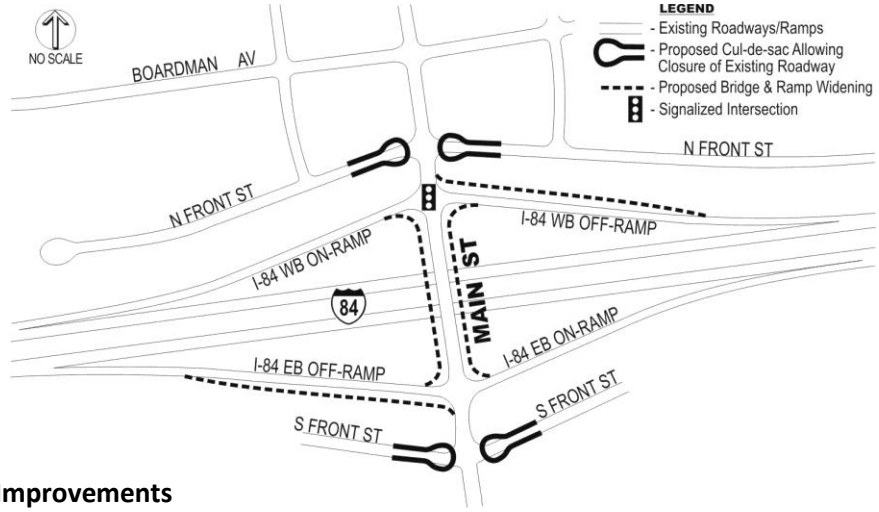


Figure 5.1b
Long-Range Improvements

To reduce the conflicts and potential safety concerns, the full-access intersections at North and South Front Street will gradually need to be more restricted, which may include limiting to right-turn movements only or full closure. North Front Street businesses currently have alternative access onto Boardman Avenue, however businesses along South Front Street do not have access to Main Street other than via South Front Street. The local street network must be in place to provide alternate access to businesses that rely on North and South Front Streets. As development occurs, portions of the network should be constructed or right of way should be set aside for future construction. It is expected that with the low turning volumes at Front Street on either side of the highway, that right-turn access could be retained for the foreseeable future.

The long term component of this alternative would be the widening of the existing bridge to match up to current standards for sidewalks and bike lanes, and provide a center left turn lane area for left-turning vehicles. The widening of the bridge would eliminate the existing sight distance issue for vehicles on the off-ramps looking across the bridge.

Timing of Improvements

It is important to establish thresholds for limiting the North and South Front Street access at Main Street so that decisions can be made through the land use review process, and as various traffic issues arise or the community reports significant conflicts. These thresholds can be tied to traffic volume levels, reported crashes, or recurring conflicts that are observed at these intersections. It is assumed that growth will happen at a constant rate over the next 20 years. If growth happens at a faster rate, then the improvements may need to be completed sooner than estimated. Conversely, if development happens at a slower rate than assumed, the improvements will be delayed until the need arises. Proposed development that is not consistent with the current land use zoning (and creates more than 10% more PM peak hour traffic) will need to amend the IAMP.

Below is a description of when the improvements would be expected to be needed.

Main Street & I-84 Westbound Ramp

Because projected minor street volumes are relatively low, the timing of the need for this signal is uncertain and will depend on the actual pattern of development in the area of the interchange. As development occurs, the City should monitor the traffic volumes at the I-84 Ramp intersection to determine if the volumes would warrant a traffic signal.

Assuming a constant rate of development over the next 20 years, the operation of the intersection, with stop control for the side street, is expected to fall below the performance standards in approximately 15 years. Reconstructing the intersection to include a separate left turn and right turn lane for the westbound approach will improve the operation of the intersection and reduce the westbound queuing. Preliminary traffic signal warrants for the PM peak hour may be met in approximately 10 years. This does not automatically mean a traffic signal should be installed, but the intersection operation should be monitored by the City.

Main Street & I-84 Eastbound Ramp

This intersection does not currently meet the preliminary traffic signal warrants in the forecast year, but a small amount of development beyond what was forecasted would likely increase the volume sufficiently to warrant a signal. In the forecast year, the minor street volumes at the intersection of Main Street & I-84 Eastbound Ramp are expected to be approximately 90% of the volumes needed to meet the Peak Hour traffic signal warrant.

Reconstructing the intersection to include a separate left turn and right turn lane for the eastbound approach will improve the operation of the intersection and reduce the eastbound queuing.

Main Street & Front Avenue (North and South)

The traffic volumes at the intersections of Main Street & Front Avenue North and Main Street & Front Avenue South should be monitored as development occurs to determine if certain turning movements should be prohibited. Access restrictions can include limiting the turning movements to right turns only or eliminating all turning movements. Access restrictions can only be implemented if alternate access is provides to properties along North and South Front Street. If access restrictions were implemented at North Front Street, Boardman Avenue can be used as alternate access to the properties along Front Street North. There is currently no alternate access for the properties along Front Street South, therefore additional access must be in place before restricting access to Front Street South from Main Street. As development occurs along Main Street south of I-84, portions of the local network should be constructed or right of way set aside for future construction.

Triggers for access changes at Front Street North and Front Street South include:

- Side street level of service drops below LOS E (15-20 years from now)
- Traffic signal installed at the I-84 westbound ramp (10-15 years from now)
- Increase in crashes
- Bridge improvement project constructed (15-20 years from now)
- Recurring public complaints about conflicts and safety at these locations

Main Street & Boardman Avenue

In the forecast year, the side-street LOS at the intersection of Main Street & Boardman Avenue is expected to exceed the City standard. The minor street volumes at this intersection are expected to be approximately 85% of the volumes needed to meet the Peak Hour traffic signal warrant. During the school dismissal, this intersection also experiences a brief period of high delay on the side street. One near term mitigation measure would be to direct some of the high school traffic onto Columbia Avenue, so as to spread out the dismissal traffic. This would reduce the number of vehicles turning left from Boardman Avenue onto Main Street.

Main Street Overpass Bridge

From a capacity standpoint, the bridge is able to accommodate the forecasted vehicular traffic. However, the overpass bridge is currently too narrow to incorporate northbound and southbound left turn lanes at the ramp intersections, the sidewalks are very narrow and there are no bike lanes on the bridge. In order to accommodate the turn lanes, bike lanes and wider sidewalks, the bridge should be widened (which would in turn improve the sight distance for drivers on the exit ramp approaches).

Local Connectivity Plan

The future deficiencies analysis in Chapter 4 highlighted several areas where local connectivity was in need of improvement, including:

- East-west connectivity;
- North-south connectivity;
- Access to lands surrounding the Main Street interchange; and
- Access points to Main Street to the north and south of the interchange.

In response to these needs, a local connectivity plan was developed that builds on existing and planned streets in the IAMP area. This plan not only improves overall connectivity throughout the City, but

provides the ability to consolidate approaches to Main Street, while maintaining accessibility to individual properties in the corridors. Figure 5.2 displays the planned local connectivity plan, with key elements described below. The lines shown in the figures represent planned connections and the general location for the placement of the connection. In each case, the specific alignments and design will be better determined as part of development review.

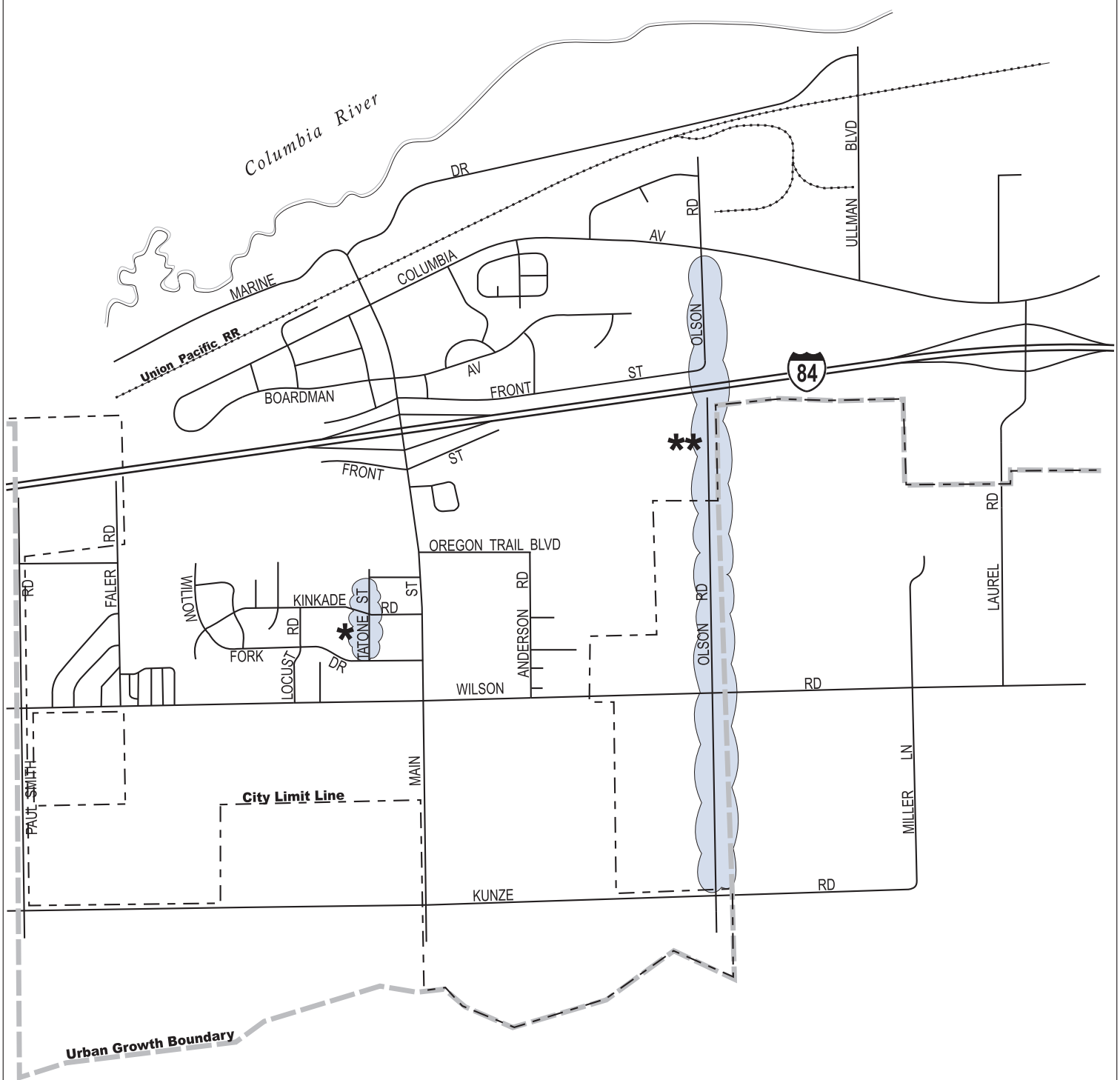
There are several potential opportunities to improve the north-south and east-west connectivity within the City, which will make drivers less dependent on Main Street for every trip around town. Currently, the north-south connectivity is limited to Main Street and Laurel Lane due mainly to the constraints of I-84, the Union Pacific Railroad right of way and the Bonneville Power Administration's right of way. The east-west connectivity is limited to Wilson Lane, I-84 and Columbia Avenue.

North-south connectivity can be strengthened by creating a network of streets that parallel Main Street which provide access to future development. These new roadways provide access for local trips and can be constructed as development occurs. Some examples of street extensions that would strengthen north-south connectivity are:

- Extend Tatone Street from City Center Boulevard to Front Street and from Willow Fork Road to Wilson Lane.
- Construct a new north-south roadway at a minimum of 600 feet east of Main Street, intersecting Oregon Trail Boulevard.

East-west connectivity can be strengthened by creating a network of streets that parallel I-84 and Wilson Lane that provide access to future development. These new roadways provide access for local trips and can be constructed as development occurs. Some examples of street extensions that would strengthen east-west connectivity are:

- Extend Kinkade Road east from Main Street when land east of Main Street develops.
- Extend Oregon Trail to the east to connect to Olson Road and west to connect to Smith Road, with intersections at Faler Road, Willow Fork Drive, Blalock Street and City Center Drive.
- Construct new connections parallel to Front Street near to or within the Bonneville Power Administration easement to better access properties in that area.
- The system improvements that enhance the north-south and east-west street connectivity will be required to be constructed by developers as vacant land is developed. The city can also choose to construct the transportation facilities prior to development as a way to encourage development in certain areas of the City. As the street connectivity is improved, drivers will be less dependent on using Main Street for local trips south of I-84.
- The city should require any future development of land east and west of South Main Street be done with the future local street network taken into account. This includes sighting of buildings on the property so that access to the future local street network will not require major reconstruction. If feasible, portions of the local street network should be constructed at time of land development. At minimum, right of way for the future local street network needs to be set aside as land is developed.
- Cross-easement access between properties should be developed in order to reduce the reliance of direct access onto Main Street. The easements will allow driveways to be consolidated or removed. They will also help to provide access to the future local street network. The cross easement access agreements should be developed as property east and west of Main Street (re)develops.



*- Tatone Street currently designated as Local. Re-designate Tatone Street as a Collector.

**- Olson Road currently designated as an Arterial. Re-designate Olson Road as a Collector inside City and as Major Collector or County segment if Olson Road overpass is not built.

LEGEND

- Existing Arterial
- Existing Collector
- Planned Collector
- Existing Local
- Planned Local
- Major Collector (County)

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Figure 5.2

ROADWAY NETWORK AND CLASSIFICATION PLAN

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South Main Street

South Main Street between I-84 and Wilson Road is currently a two-lane roadway with a separated multi-use path on the west side. This section of roadway should be reconstructed to the current Arterial street standards, which would include turn lanes, bike lanes and sidewalks. Constructing turn lanes at appropriate locations along South Main Street will reduce the conflict between the left turning and through traffic. Bike lanes and sidewalks along South Main Street will increase the safety and mobility of pedestrians using Main Street. An illustration of South Main Street improvements is shown in Figure 5.3.

Olson Road

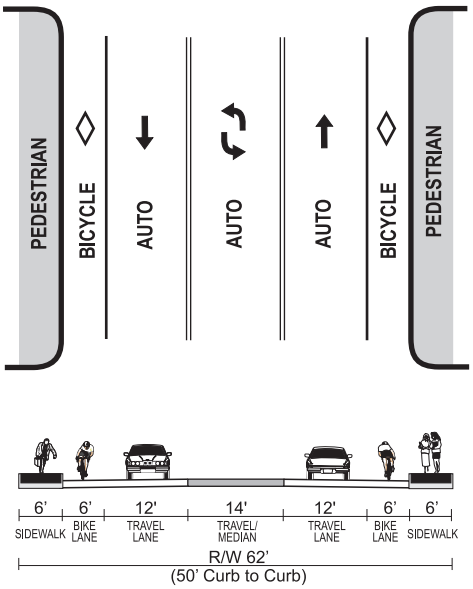
The City's 1999 Transportation System Plan envisions a new I-84 crossing at Olson Road. This new freeway overcrossing would not provide access to/from Interstate 84, but it would provide an alternate north-south circulation route between employment and school uses on the north side of the highway with residential neighborhoods on the south side. If this facility were constructed, the foregoing traffic volume estimates for Main Street would be reduced by the amount that uses the new facility. If one-third of the traffic forecasted on North Main Street chose this new route, the 2026 volumes on Main Street would be the same as they are today. Based on the length of this alternative route, and proximity of land uses nearby, it is roughly estimated that the volume that would use Olson Road to cross I-84 would range from 15% to 25% of the North Main Street forecasted volume, or about 150 to 250 vehicles during peak hours.

Ideally, both freeway overcrossings would be constructed, given adequate funding was available. However, with the limited state and local transportation resources available, it is more likely either Main Street would be widened or a new Olson Road overcrossing would be constructed. The estimated cost for these two improvements are similar, but the utility of the Main Street overpass appears to be significantly higher, since it is close to existing and planned future commercial development. The Olson Road overcrossing adjoins industrial and farmlands, and would require a very substantial upgrade of the roadway south of the highway, currently a gravel road, to be fully functional. Therefore, it appears that the preferred investment for I-84 overcrossings would be the Main Street Bridge.

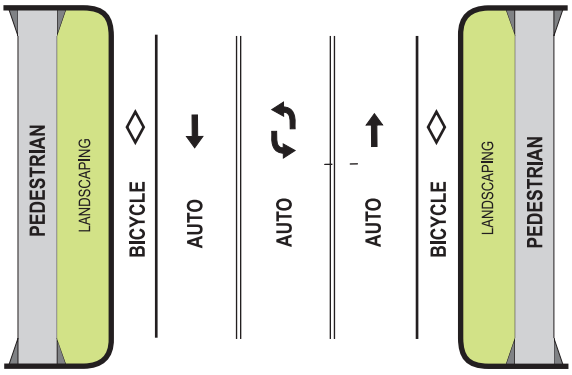
Pedestrian/Bicycle Network

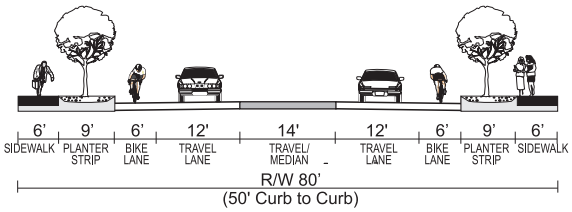
The pedestrian network should be addressed in parallel to the street network improvements. In general, curb and sidewalk similar to North Main Street will improve the safety of pedestrians along South Main Street. Pedestrian access across Main Street is also important. Pedestrian crossings shall be accommodated at the major access points (I-84 ramps, Oregon Trail Boulevard, City Center Boulevard, Kinkade Road and Wilson Road). This would include sidewalk with ADA pedestrian ramps on the corners and possibly supplemental signing and/or painted crosswalks. A "mid-block" pedestrian crossing could be accommodated on the north side of the BPA easement. The mid-block crossing could incorporate a center pedestrian refuge island, once South Main Street is reconstructed to the arterial standard.

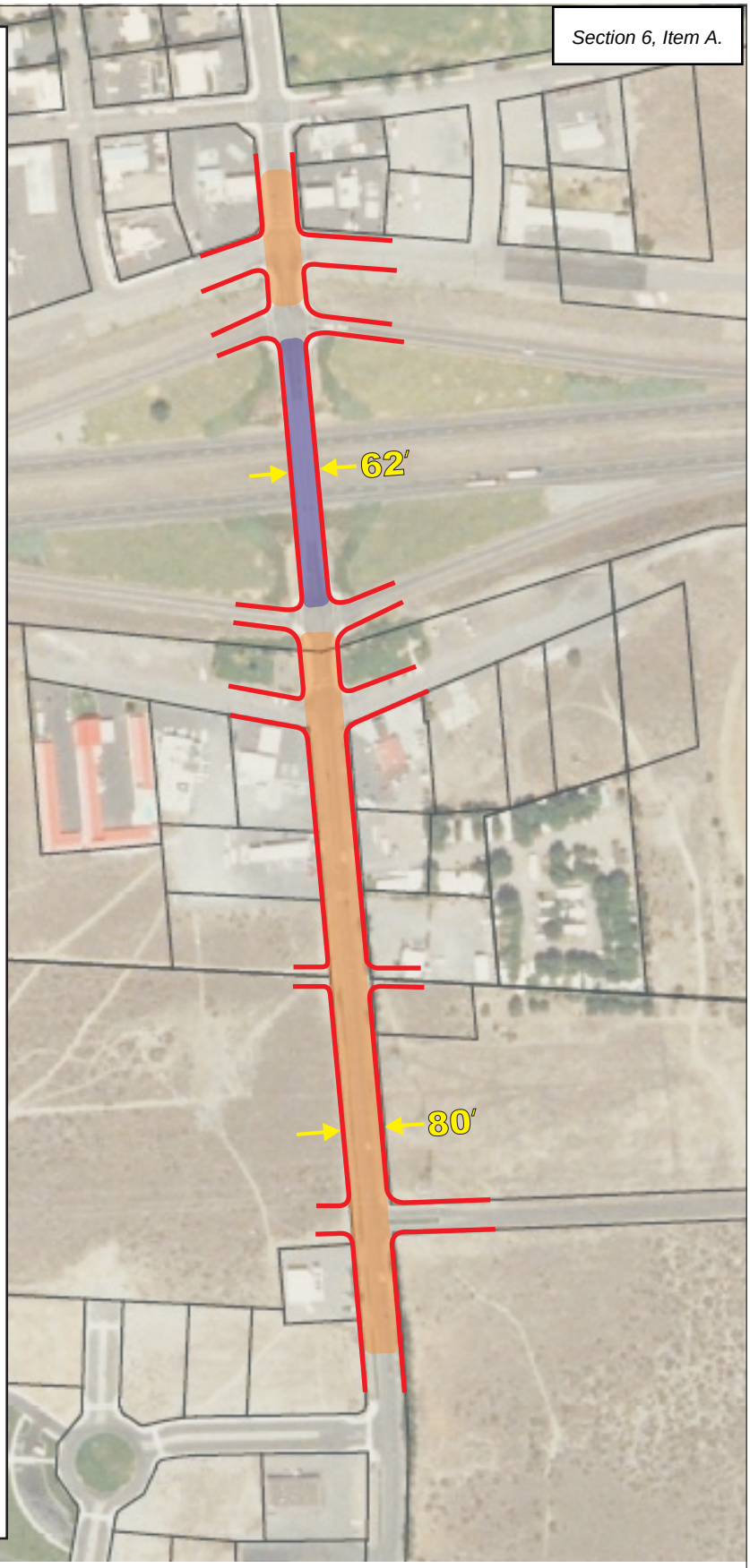
Typical 62 foot cross-section



Typical 80 foot cross-section







LEGEND

- 80' Cross-section
- 62' Cross-section

City of Boardman IAMP
April 2009

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Figure 5.3

SOUTH MAIN STREET IMPROVEMENTS

The Ped/Bike network improvements include:

- A wider sidewalk and separate bike lanes on the Main Street bridge across I-84. This would require the bridge to be widened.
- Extend the multi-use path along Wilson Road from Faler Road to Paul Smith Road.
- Provide pedestrian facilities from Wilson Road to Desert Spring Estates development.
- Provide pedestrian facilities from residential development near Faler Road to Willow Fork Drive.

Gaps in the bicycle network shall be addressed with any new roadway connectivity and new development or done as an interim measure prior to roadway connections. Bicycle lanes should be provided on all arterial roadways.

Access Management Plan

A key element of the IAMP related to the long-range preservation of operational efficiency and safety of the interchange is the management of access to the interchange crossroads (Main Street). Because access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic and reduce the efficiency of the transportation system. However, by reducing the overall number of access points and providing greater separation between them, the impacts of these conflicts can be minimized.

It should be noted that the actions were based on current property configurations and ownerships. Should property boundaries change in the future through consolidation or other land use action, the access management plan may be modified through agreement by the City of Boardman and ODOT, where such modifications would move in the direction of the adopted access management spacing standards in this plan. Modifications to the access management plan will need to be addressed in an amendment to this IAMP. Additional access points shall not be allowed where they would result from future land partitions or subdivisions. The actions listed in this plan shall not prevent the reconstruction of approaches as necessary to meet City or ODOT standard design.

Implementation of the access management plan will occur over a long time since some affected properties maintain infrastructure (e.g. buildings and internal roadways) that was established based on prior approvals of access locations to the subject roadways and some elements of the plan depend on the presence of new public streets that cannot be constructed until funds are made available. The improvements in this plan have been prioritized and categorized into short-range, medium-range, and long-range actions. The short-range actions are to be executed at this time and the medium and long-range actions are to be executed as needed funds become available or as opportunities arise during property redevelopment.

The goals of this access management plan are listed below.

1. Restrict all access from abutting properties to the interchange and interchange ramps.
2. Improve access spacing and safety factors within the interchange area.
3. In attempting to meet access management spacing standards, exceptions may be allowed to take advantage of existing property boundaries and existing or planned public streets, and to accommodate environmental constraints (i.e. BPA Easement).
4. Replace private approaches with public streets, where feasible, to provide consolidated access to multiple properties.

5. Ensure all properties impacted by the project are provided reasonable access to the transportation system.
6. Develop cross easement access agreements as properties (re)develop.
7. Align approaches on opposite sides of roadways where feasible to reduce turning conflicts.
8. Short-range actions shall accommodate existing development needs.

Using the goals, an action plan for each approach to Main Street was developed, as shown below in Table 5.1. Short-range actions shall accommodate existing development needs. There are no short-range actions identified since all of the actions are based on property (re)development to trigger changes to the access. The medium-range actions are intended to be completed within 5 to 10 years, while the long-range actions are to be implemented over the 20-year planning period as funding becomes available. Modifications to access can occur earlier if opportunities arise through property development or funding for the local street network becomes available. The medium-range action plan is illustrated in Figure 5.4, while, the long-range action plan has also been illustrated in Figures 5.4 and 5.5 to aid in the interpretation of the actions in Table 5.1. The city should require any future development of land east and west of South Main Street be done with the future local street network taken into account. This includes sighting of building on property so that access to the future local street network will not require major reconstruction. If feasible, portions of the local street network should be constructed at time of land development. At minimum, right of way for the future local street network needs to be set aside as land is developed.

Cross-easement access between properties should be developed that reduce the reliance of direct access onto Main Street. The easements will allow driveways to be consolidated or removed. They will also help to provide access to the future local street network. The cross easement access agreements should be developed as property east and west of Main Street (re)develops.

Table 5.1: Main Street Access Actions

Approach #	Medium-Range Action (5-10 years)	Long-Range Action (10-20 years)
1	(Columbia Ave) No action.	No action.
2	(Columbia Ave) No action.	No action.
3	No action.	Upon property redevelopment, approach to be combined with Approach 4 and 5, with shared access.
4	No action.	Upon property redevelopment, approach to be combined with Approach 5, with shared access.
5	No action.	Upon property redevelopment, approach to be combined with Approach 4, with shared access.
6	No action.	Upon property redevelopment, approach to be combined with Approach 7 or closed. Future access to be taken at Approach 5.
7	No action.	Upon property redevelopment, approach to be combined with Approach 6 or 8, with shared access.
8	No action.	Upon property redevelopment, approach to be combined with Approach 7, with shared access.
9	(Boardman Ave) No action.	No action.
10	(Boardman Ave) No action.	No action.
11	No action.	Upon property redevelopment, approach to be closed. Future access to be taken from Boardman Avenue and/or Front Street.
12	No action.	Upon property redevelopment, approach to be closed. Future access to be taken from Front Street or shared with Lot 4500 to access Boardman Avenue.
13	(North Front St) Restrict turning movements to only allow	Close approach and use Boardman Ave. (and 1st St. E.) as alternate

Approach #	Medium-Range Action (5-10 years)	Long-Range Action (10-20 years)
	right turn access	access.
14	(North Front St) Restrict turning movements to only allow right turn access.	Close approach and use Boardman Ave. (and 1st St. E.) as alternate access.
15	(I-84 Westbound Ramp) No action.	No action.
16	(I-84 Westbound Ramp) No action.	No action.
17	(I-84 Eastbound Ramp) No action.	No action.
18	(I-84 Eastbound Ramp) No action.	No action.
19	(South Front St) Restrict turning movements to only allow right turn access.	Close approach at such time as reasonable access becomes available (e.g. through construction of public roads and establishment of cross-access easements). This will affect Lots 1000, 1200, 1300 – approach will not be closed until reasonable access becomes available.
20	(South Front St) Restrict turning movements to only allow right turn access	Close approach at such time as reasonable access becomes available (e.g. through construction of public roads and establishment of cross-access easements). This will affect Lots 400, 500, 600, 700 – approach will not be closed until reasonable access becomes available.
21	Currently, there is no curb or gutter along the Main Street frontage of Lot 1300. Upon property redevelopment, the access along Lot 1300 shall be defined at a single point by constructing a driveway or using curb to define access.	Close approach at such time as reasonable access becomes available (e.g. through construction of public roads and establishment of cross-access easements).
22	Currently, there is no curb or gutter along the Main Street frontage of Lot 700. Upon property redevelopment, the access along Lot 700 shall be defined at a single point by constructing a driveway or using curb to define access.	Close approach at such time as reasonable access becomes available (e.g. through construction of public roads and establishment of cross-access easements). Approach will not be closed until reasonable access becomes available.
23	No action.	Close approach at such time as reasonable access becomes available (e.g. through construction of public roads and establishment of cross-access easements). Approach will not be closed until reasonable access becomes available.
24	No action.	Close approach at such time as reasonable access becomes available (e.g. through construction of public roads and establishment of cross-access easements). Approach will not be closed until reasonable access becomes available.
25	No action.	Close approach at such time as reasonable access becomes available (e.g. through construction of public roads and establishment of cross-access easements). Approach will not be closed until reasonable access becomes available.
26	(Oregon Trail Blvd) No action.	No action.
27	No action.	Close approach upon property redevelopment. Future access to be taken from Approach 28 or future Oregon Trail Boulevard.
28	No action.	Approach may remain upon property redevelopment. New approach may be relocated to future Oregon Trail Boulevard.

Notes: Refer to Figure 5.2 for location of state highway approaches cited in the above table.

Policies, Rules, & Ordinances

As land develops, redevelops or changes use within the interchange area, compliance will be required with the access management and circulation plans conceived through this study. As part of the adoption of the IAMP, the City of Boardman development codes are being amended to reflect the standards and plans. In brief, the code amendments implement:

- Access spacing requirements
- Local Street connectivity
- Access Management Plan
- Cross-easement accesses

In addition, the Transportation System Plan will be amended to adopt the Local Street Network and the Access Management Plan

Cost Estimates

Planning-level cost estimates for all improvement alternatives were calculated to aid in the identification of needed funding. Cost estimates included the fundamental elements of roadway construction projects, such as the roadway structure, bridge structures, curb and sidewalk, earthwork, retaining walls, pavement removal, and traffic signals. The estimated costs are shown below in Table 5.2 and Table 5.3. All costs are in 2007 dollars and do not reflect the added cost of inflation. The potential funding sources are indicated (State, City or Private), but they do not assure the availability or approval of such improvements.

In order to provide funding for future projects (i.e. local street network and South Main Street), the City should establish a System Development Charge (SDC) or Local Improvement District (LID) program. These types of programs are set up to collect funds from developments and/or land owners and are based on the amount of traffic generated.

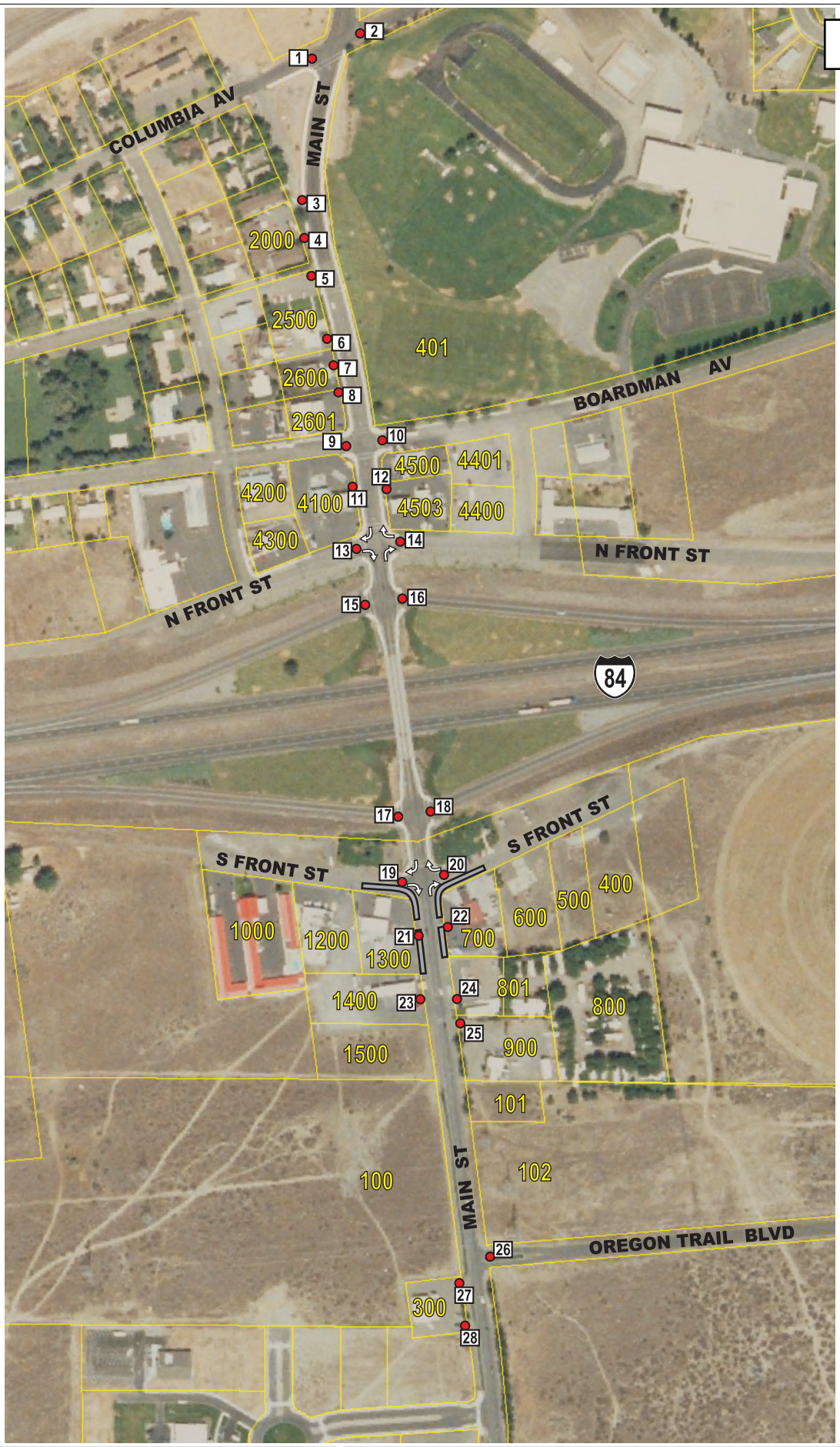
Table 5.2: Cost Estimates for Main Street IAMP Improvements

Alternative	Potential Funding Source	Estimated Cost
Main Street Bridge at I-84		
Additional approach lane on exit ramp	ODOT/ City	$150,000
Traffic Signal at I-84 Westbound Ramp	ODOT / City	$300,000
Reconstruct overpass	ODOT / City	$10-15 million
Reconstruct South Main Street*	City / ODOT	$3 million

* Does not include Right of Way acquisition.

Table 5.3: Cost Estimates for Local Street Network

Improvements (not including right-of-way)	Potential Funding Source	Estimated Cost
Oregon Trail (east)	City / Private	$2 Million
Oregon Trail (west)	City / Private	$3.3 Million
Tatone St (north)	City / Private	$1.3 Million
Tatone St (south)	City / Private	$500,000
North/South Collector (east of Main Street)	City / Private	$3 Million
Expanded Pedestrian & Bicycle Network*	City / Private	$750,000



LEGEND

0 - Access Location & Number

000 - Tax Lot ID#

- Medium Range Limited Access

- Medium Range Future Curb

City of Boardman Main Street IAMP
April 2009

NO SCALE

Figure 5.4

MAIN STREET IAMP MEDIUM RA ACCESS MANAGEM

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LEGEND

0 - Access Location & Number

000 - Tax Lot ID#

- Long Range Future Access

- Long Range Future Curb *

*Approach will not be closed until reasonable access becomes available

City of Boardman Main Street IAMP
April 2009

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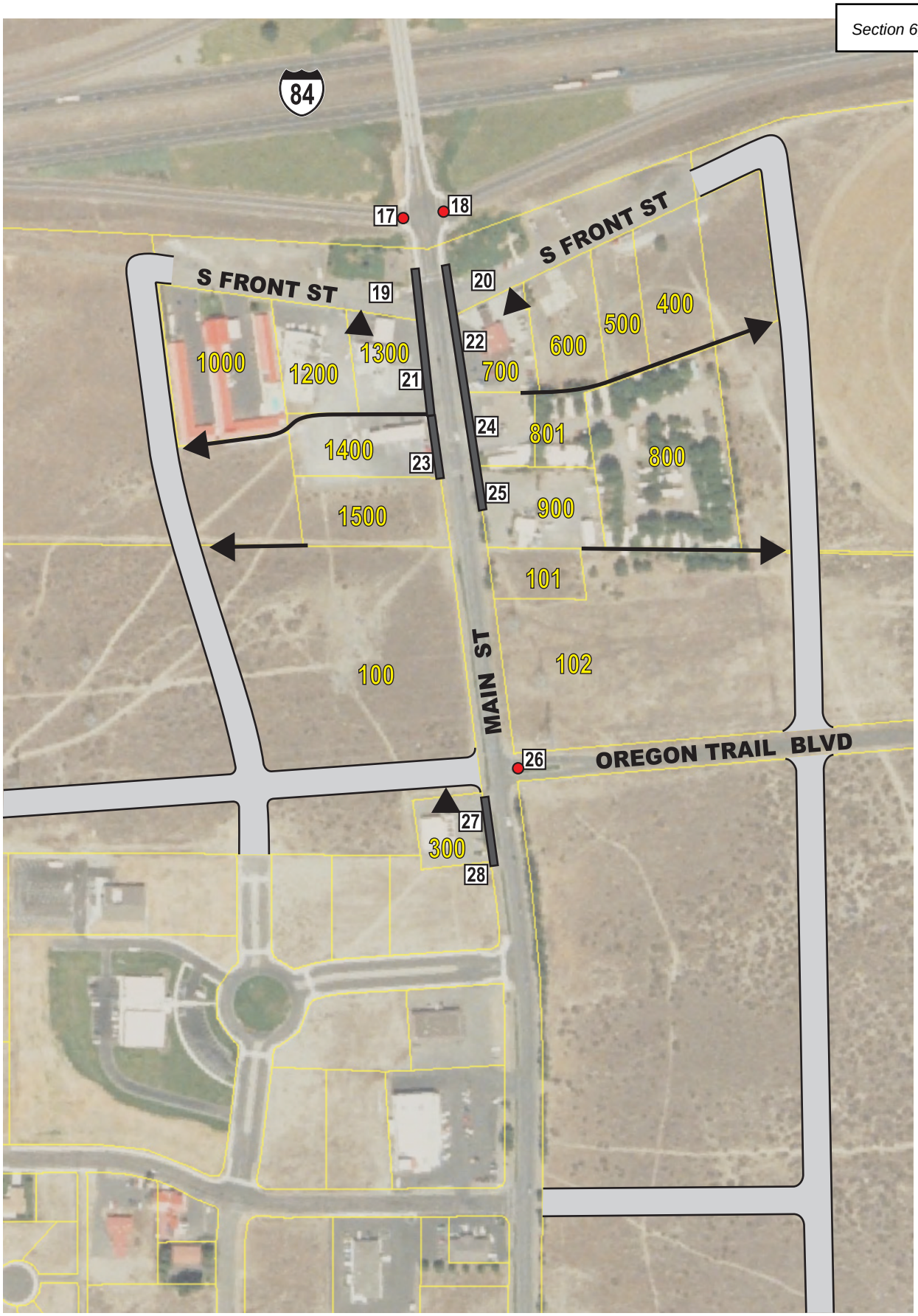
Figure 5.5

MAIN STREET LONG RANGE ACCESS MANAGEMENT PLAN NOR



LEGEND

0 - Access Location & Number

000 - Tax Lot ID#

- Long Range Future Access

- Long Range Future Curb*

- Future Roadway Network

*Approach will not be closed until reasonable access becomes available

City of Boardman Main Street IAMP
April 2009

NO SCALE

Figure 5.6

MAIN STREET LONG RANGE ACCESS MANAGEMENT PLAN SOU

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Alternative Evaluation and Prioritization

Alternative Evaluation

Using the objectives for the Main Street IAMP outlined in Chapter 2, alternatives were evaluated to ensure the goals established at the outset of the project were met. The objectives used included criteria related to public involvement, addressing local issues, provision of transportation improvement alternatives, conformity with statewide plans and policies, and inclusion of policies and implementing measures to preserve the functionality of the interchange.

Prioritization of Improvements

The improvement alternatives have been prioritized into short, medium, and long-range actions, as shown in Table 5.3 to provide guidance for future implementation and funding. Short-range actions represent immediate needs and should be implemented within a 5 year period. There were no short-range actions identified. If medium-range actions are triggered within 5 years, they can be considered short-range improvements. Medium-range actions represent improvements that are not required immediately, but should be given priority over improvements identified as long-range actions. Assuming all improvements are planned for construction within a 20-year period, medium-range actions should be considered for implementation within 5 to 10 years. Long-range actions typically represent improvements of lower priority or requiring higher levels of funding. These improvements should be planned for construction within 10 to 20 years.

It should be recognized that this prioritization of projects is not intended to imply that projects of higher priority must be implemented before projects of lower priority. Should opportunities arise, through private land development or other means, to construct specific projects earlier than the estimated time frame provided by this list, those resources should be utilized.

Table 5.3: Transportation Improvement Prioritization

Short-Range Improvements (0 to 5 years)	Triggers	Estimated Cost	Potential Funding Source
• No Specific short-range actions identified. Medium-range improvements if triggered earlier than 5 years.	- Increase in crashes - Property (re)development	NA	• City • Property owners
Medium-Range Improvements (5 to 10 years)			
• Reconstruct South Main Street.	- Money becomes available - Property (re)development	$3,000,000	• ODOT • City
• Medium-range actions from access management plan.	- Increase in crashes - Recurring public complaint - Property (re)development	NA	• City • Property owners
• Construct additional approach lane on I-84 ramp terminals	- Increase in crashes - LOS drops below standards - Turn lanes warranted	$150,000	• FHWY • ODOT • City
Long-Range Improvements (10 to 20 years)			

• Construct new public streets according to adopted Local Connectivity Plan.	- Property (re)development	$10 to 12 million	• City • Property owners
• Install traffic signal at Main Street & I-84 Westbound Ramp	- Traffic signal warrants met	$300,000	• ODOT • City
• Reconstruct Main Street Bridge over I-84 – including wider sidewalk, bike lanes and turn lanes.	- Turn lanes warranted - Money becomes available - ODOT Bridge program – structural deficiency - Increase in bike/ped crashes	$10 to 15 million	• FHWA • ODOT • City
• Long-range actions from access management plan.	- Increase in crashes - Recurring public complaints - Property (re)development	NA	• City • Property Owners
Note: Medium and long-range improvements could be constructed sooner than anticipated as opportunities arise through private property development or other means.			

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TRANSPORTATION SOLUTIONS

Project Participants

Project Management Team

Cheryl Jarvis-Smith	ODOT Region 5
Teresa Penninger	ODOT Region 5
Barry Beyeler	City of Boardman
Dave Winters	City of Boardman
Carl Springer, PE	DKS Project Manager

Project Staff

Carl Springer, PE	DKS Project Manager
Pamela O'Brien, PE	DKS Senior Engineer
Tom Armstrong	Winterbrook Planning

Project Sponsor

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Transportation Equity Act for the 21st Century (TEA-21), local government, and the State of Oregon funds. The contents of this document do not necessarily reflect views or policies of the State of Oregon.

Appendix 1
Background Plan Review

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TRANSPORTATION SOLUTIONS

Memorandum

TO:	Cheryl Jarvis-Smith (ODOT), Barry Beyeler (City of Boardman)		
FROM:	Carl Springer, Pam O'Brien		
DATE:	September 18, 2006		
SUBJECT:	Task 1a - Reconnaissance Technical Memorandum	P/A No.	06097-005

This memorandum includes a review of planning documents, policies and regulations applicable to the Interstate Area Management Plan (IAMP) and Transportation System Plan (TSP) Update in the City of Boardman. A review of past plans, maps and studies was conducted to determine key elements that would have an impact on the IAMP and TSP update process for the City of Boardman. The following section summarizes key findings, and provides highlights of the relevant issues from state, county and city planning documents. This background review is useful throughout the IAMP and TSP update projects because it identifies how local plans fit into the larger regional context.

Summary

The Boardman IAMP will address necessary changes to implement practical, workable solutions to protect the function of the interchanges and meet the Transportation Planning Rule (TPR).

As appropriate, key elements of the IAMP will be amended to the Boardman TSP to assure implementation. The IAMP will also attempt to anticipate emerging issues.

Key rules and policies found during the Plan and Document Review include the following:

- Use 1992 Oregon Transportation System Planning Guidelines for overall transportation system planning assistance.
- Strive to be consistent with State access management standards for city streets adjacent to freeway interchanges. Balance the safety and mobility of drivers with the access needs of property and business owners.
- The operating LOS standard for intersections operating on state highways is LOS "C".

Follow the guidance of OHP policies related to:

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- Coordination of land use and transportation planning between the City, County, and the State.
- Off-system improvements, where the State may financially assist local jurisdictions in local road projects that are cost-effective improving conditions on state facilities.
- Alternative modes, recognize city walkways and bikeways (paths, sidewalks, wider shoulders) for transportation alternatives within Boardman.
- Proposed development code language that specifies the kinds of transportation facilities and activities that are permitted in each of the City's land use districts, as well as corresponding, enabling policy language for the Comprehensive Plan.
- Account for the transportation impacts of proposed commercial and residential developments in the city.

The TSP Udate shall address the following:

- Updated street standards and functional classifications.
- Mobility standards for City streets and intersections.
- Document the steps of the TSP update in a matrix to demonstrate TPR compliance.
- Address new TPR requirements (OAR 660-12-0050 and -0055) that direct the amendment of local TSPs when land use plan amendments are proposed.

The following sections summarize the key documents, plans, and regulations that were reviewed to reach the above findings. These are summarized for the State of Oregon, Morrow County, and the City of Boardman.

State of Oregon Planning Documents and Regulations

Oregon Transportation Plan (OTP)

The Oregon Transportation Plan (OTP) sets the general direction for transportation development statewide for the next twenty years and provides overall direction for allocating resources and coordinating modes of transportation. It provides policies to increase livability in the State of Oregon by emphasizing alternative forms of transportation to the single occupant vehicle. The plan seeks to develop public transit, rail lines, bicycling and pedestrian facilities, airports and pipelines, while also emphasizing the maintenance and improvement of highways, roads and bridges. Thus, the plan calls for a transportation system that has a modal balance, is both efficient and accessible, provides connectivity among rural and urban places and between modes, and is environmentally and financially stable.

Oregon Highway Plan (OHP)

The Oregon Highway Plan (OHP) defines policies and investment strategies for Oregon's state highway system for the next 20 years by further refining the goals and policies of the OTP. One of the key goals of the OHP is to maintain and improve safe and efficient movement of people and goods, while supporting statewide, regional, and local economic growth and community livability. The implementation of this goal occurs through a number of policies and actions that guide management and investment decisions by defining a classification system for state highways, setting standards for mobility, employing access management techniques, supporting intermodal connections, encouraging public and private partnerships, addressing the relationship between the highway and land development patterns, and recognizing the responsibility to maintain and enhance environmental and scenic resources.

Specific OHP policies with bearing on transportation planning in Boardman include the following.

Goal 1 (System Definition) includes policies on mobility standards and major improvements, which further define state highway management goals and objectives.

- Policy 1A – State Highway Classification System

  The state highways in Boardman are Interstate 84, classified as an Interstate Highway.

- Policy 1B: Land Use and Transportation

  Land use and transportation planning and development need to be coordinated between state, regional, county, and city agencies.

- Policy 1C: State Highway Freight System

  Balance the need for movement of goods with other uses of the highway system, and to recognize the importance of maintaining efficient through movement on major truck routes.

- Policy 1F: Highway Mobility Standards

  Interstate highways should have a maximum v/c of 0.70 in non-MPO areas.

- Policy 1G: Major Improvements

  Improve system efficiency and management before adding capacity. The first priority is to preserve the existing system. The second priority is to improve the efficiency and capacity of the existing system. Adding capacity to the existing system and adding new facilities can be considered once the first two priorities have been met.

Goal 2 (System Management) jurisdictional coordination to create a seamless transportation system with respect to the development, operation and maintenance of the highway and road system.

- Policy 2A: Partnerships

  The limited resources available for transportation planning and development should be efficiently and effectively used by coordinating the efforts of ODOT and other agencies, in this case the City of Boardman, Morrow County and the Port of Morrow.

- Policy 2B: Off-System Improvements

  The State is to provide financial assistance for local road projects when the projects are cost-effective in improving state facility conditions.

- Policy 2D: Public Involvement

  Offer opportunities for effective public involvement in transportation planning and project development.

- Policy 2F: Traffic safety

  Continually improve the safety for all users of the state transportation system through engineering, education, enforcement, and emergency services.

Goal 3 (Access Management) is critical in transportation planning efforts that involve state transportation facilities. This goal is implemented through OAR 734-051.

Specific OHP policies with bearing on the IAMP in Boardman include the following.

- Policy 3C: Interchange Access Management Areas

  Plan for and manage grade separated interchange area to ensure safe and efficient operation between connecting roadways.

Goal 4 (Travel Alternatives) and Goal 5 (Environmental and Scenic Resources) also apply to the TSP update, if in limited ways. Goal 5, with an aim to go beyond what is required by other state and federal regulations, calls for natural resources to be maintained and even improved by transportation planning and projects involving state facilities.

The only highway of statewide importance that is specifically identified in The Highway Plan in the City of Boardman is:

- Interstate 84, which is classified as a Interstate Highway and Major Freight Route with the primary objective being to provide mobility between urban areas and a secondary objective being to provide mobility for regional trips *within* a metropolitan area. The operations of this facility should be safe and efficient high-speed continuous flow. The maximum volume to capacity ratios for peak hour operating conditions is 0.70.

Oregon Bicycle and Pedestrian Plan

The provision of safe and accessible bicycling and walking facilities in an effort to encourage increased levels of bicycling and walking is the goal of the Oregon Bicycle and Pedestrian Plan. The Plan provides actions that will assist local jurisdictions understand the principals and policies that ODOT follows in providing bikeways and walkways along state highways. In order to reach the plan's objectives, the strategies for system design are outlined, including:

- Providing bikeway and walkway systems that are integrated with other transportation systems.
- Providing a safe and accessible biking and walking environment.
- Development of education programs that improve bicycle and pedestrian safety.

The document includes two sections, including the Policy & Action Plan and the Bikeway & Walkway Planning Design, Maintenance & Safety. The first section contains background information, legal mandates and current conditions, goals, actions and implementation strategies ODOT proposes to improve bicycle and pedestrian transportation. The second section assists ODOT, cities and counties in designing, constructing and maintaining pedestrian and bicycle facilities. Design standards are recommended and information on safety is provided. According to the Plan, bicycle facilities should be considered where the speed of the road is over 25 mph or the Average Daily Traffic is over 3,000 vehicles per day.

The Boardman TSP update will address design standards for all bicycling and pedestrian facilities located in the City of Boardman in accordance with the Oregon Bicycle and Pedestrian Plan. Additionally, needs assessment and possible alignment alternatives will be based on the goals espoused in the Policy and Action section of the Oregon Bicycle and Pedestrian Plan.

Oregon Statewide Planning Goals (OAR 660-015)

The Oregon Statewide Planning Goals provide a foundation for expressing state policy on land use planning. The 19 goals for land use planning in the state are to be achieved through local comprehensive planning. Local comprehensive plans must be consistent with the Statewide Planning Goals.

The Transportation goal (Goal 12) is a safe, convenient, multimodal and economic transportation system. Consideration of local and regional economies, social consequences, environmental impacts, energy, the needs of transportation disadvantaged, and over reliance on a single mode should be included in local plans. Guidelines for planning and implementation are included to support the Statewide Planning Goals.

Oregon Transportation Planning Rule (TPR) (OAR 660-012)

The State of Oregon adopted 19 statewide planning goals that must be implemented in a comprehensive plan for each city (with a population over 10,000 individuals) and county in the state. In addition to identifying how land, air and water resources of each specific jurisdiction will be utilized, a review and needs analysis must be completed for improving public facilities.

One of the 19 goals is the Transportation Planning Rule (Goal 12). To comply with this rule, Boardman must adopt a Transportation System Plan (TSP) that complies with the State TSP. The overarching goals to be accomplished by the TPR are to:

- Reduce dependence on the automobile and the number of people driving alone.
- Establish a stronger connection between land use and transportation planning.

Local TSPs are expected to examine possible land use solutions to transportation problems and identify multi-modal, system management and demand management strategies to address transportation needs. This entails the development of modal plans, including pedestrian, bicycle, motor vehicle and transit. These plans must strive to provide a integrated transportation network and include an inventory of current infrastructure, provide a gap analysis and identify how these gaps are going to be filled. The areas of analysis addressed in the TPR for a transportation system plan include:

- Roadway capacity and level of service
- Transit capacity and capacity utilization
- Bicycle and pedestrian system capacity
- Adjustment of turning movement volumes produced by travel demand forecasting models
- Estimation of future transportation needs (person travel), reflecting:
    - Population and employment forecasts consistent with comprehensive plans
    - Measures to reduce reliance on the automobile
    - Increased residential, commercial and retail development densities
    - Location of neighborhood shopping centers near residential areas
    - Better balance between jobs and housing
    - Maximum parking limits for office and institutional developments
    - Appropriate levels of transportation facilities to serve land uses identified in transportation plans

  - Increases in average automobile occupancy
  - Increases in modal shares of non-automobile modes
  - TDM programs
  - Land use and subdivision regulation
- Estimation of future goods movement
- Access management

These strategies were incorporated into the adopted TSP and will be carried forward in the update.

The Oregon Land Conservation and Development Commission adopted amendments to sections of the TPR – OAR 660-12-0050 and -0055 – in 2005. The amendments clarify planning requirements for amending local TSPs when land use plan amendments are proposed. The TSP update should reflect this new rule requirement.

Oregon Access Management Rule (OAR 734-051)

The purpose of Oregon's Access Management Rule is to control the issuing of permits for access to state highways, state highway rights of way and other properties under the State's jurisdiction. In addition, the ability to close existing approaches, set spacing standards and establish a formal appeals process in relation to access issues is also identified.

These rules enable the State to set policy and direct location and spacing of intersections and approaches on state highways, ensuring the relevance of the functional classification system and preserving the efficient operation of state routes.

Access within the influence area of existing or proposed state highway interchanges is regulated by standards in OAR 734-051. These standards do not retroactively apply to interchanges existing prior to adoption of the 1999 Oregon Highway Plan, except or until any redevelopment, change of use, or highway construction, reconstruction or modernization project affecting these existing interchanges occurs. It is the goal at that time to meet the appropriate spacing standards, if possible, but, at the very least, to improve the current conditions by moving in the direction of the spacing standard.

The access management standards adopted by ODOT state that the distance between an interchange ramp intersection and the first right in/right out access shall be no less than 750 feet. The distance between an interchange ramp intersection and the first full access intersection shall be no less than 1,320 feet. These standards apply to a "fully developed urban interchange" which occurs when 85% or more of the parcels along the frontage are developed at urban densities and have driveways accessing the crossroad.

State Transportation Improvement Program (STIP)

The current adopted (2006-2009) Statewide Transportation Improvement Program (STIP) serves as ODOT's short term capital improvement program and provides funding and scheduling information for transportation projects for both ODOT and the metropolitan planning organizations in the state. Projects funded in the STIP reflect and advance the Oregon Transportation Plan for highways, public transportation, freight and passenger rail and bicycle and pedestrian facilities. Additionally, monies obtained from the sale of state bonds authorized in the 2003 Oregon Transportation Investment Act (OTIA III) and placed in the STIP coffers have been dedicated to modernization, bridge and pavement preservation projects. Therefore, many of the projects in the 2006-2009 STIP are preservation oriented.

The following projects will have an impact on the Boardman transportation system:

- Reconstruct Kunze Road between Main Street and Tower Road. Estimated cost $2.7 Million.
- Widen Columbia Avenue from UP Rail mainline to Port Boundary. Estimated cost $5.85 Million.

Morrow County Planning Documents

Transportation System Plan (TSP)

The Morrow County TSP (2005) provides a framework for addressing the transportation needs of Morrow County over the next 20 years, and works within the framework provided by the related state, regional and local plans. The plan was created through an extensive citizen involvement process and represents the vision and goals of the community. The purpose of the plan is to facilitate multi-modal transportation needs of County citizens with coordination between transportation system improvements and land use requirements.

The plan defines goals and policies, identifies transportation system facilities in the county and suggests recommended improvements. Recommended improvements are based on county profiles, trends, and a detailed needs assessment.

Morrow County projects identified in the TSP include projects from the TSP needs assessment, the Oregon Transportation Plan and the Port of Morrow. The following projects identified in the 10-year Morrow County TSP project list will have an impact on the Boardman transportation system:

Near-Term, High Priority Projects (0-5 years)

- Rebuild and pave shoulders on Laurel Lane from Wilson Road to I-84 (0.8 miles). Estimated cost $80,000.

- Rebuild shoulder and chip seal Miller Lane from Wilson Road to Kunze Lane (0.5 miles). Estimated cost $19,000.

Long-Term Projects (5-20 years)

- Reconstruct and pave Kunze Lane from South Main Street to Olson Road and Olson Road from Kunze Lane to I-84 (2.0 miles total). Estimated cost $900,000.
- Reconstruct and pave Miller Road from Kunze Lane to Wilson Lane (0.5 miles). Estimated cost $250,000).
- Reconstruct and pave Kunze Lane from Olson Road to Miller Road (0.5 miles) Estimated cost $250,000).

Appendix E of the TSP addresses states: "Access within the influence area of existing or proposed state highway interchanges is regulated by standards in OAR 734-051, which are included as Appendix F of the 2005 Morrow County Transportation System Plan Update." OAR 734-051 is described earlier in the text.

City of Boardman Documents

Comprehensive Plan

The Boardman Comprehensive Plan provides a framework for future development by presenting goals and policies in a wide array of subjects related to development, including urbanization, land use, housing, natural and cultural resources, environmental quality, public facilities and services, energy and transportation.

Public involvement policies require public hearings and opportunities for citizen participation during the consideration of amendments to the City's Comprehensive Plan, a requirement that adoption of a TSP update will trigger. Natural resource policies protect habitat and natural systems around the city, the most sensitive areas being associated with the Columbia River and the Umatilla Wild Life Refuge. Transportation planning and projects should minimize impacts to these resources as well as minimize degradation of air, water, and general environmental quality.

The development of the City Center will use the Downtown Plan completed in 2000 as a resource document when guiding future development within the City of Boardman.

Transportation System Plan (TSP)

The adopted 1999 Boardman TSP was developed to provide an extensive review of the transportation system, evaluate deficiencies in the system and plan for future improvements for the area through the year 2020. A key objective of this plan was to achieve a balanced, safe transportation system that meets the needs of all modes of travel, including pedestrians, bicycles, transit, motor vehicles and other modes (e.g. rail, air). The

TSP outlines the City's goals for developing its transportation facilities to meet short and long term needs.

Existing conditions were assessed and future needs through 2020 were determined based on growth assumptions. A master plan for roadway improvements and pedestrian and bicycle system improvements were recommended to meet the city's goals and local performance standards. A summary of the project is shown below (estimated costs are in 1999 dollars):

Near-Term, High Priority Projects (0-5 years)

- Revise traffic control devices and improve pedestrian crossings at South Main Street & Wilson Road intersection. Estimated cost $6,000. (completed)
- Re-stripe Main Street to a 3-lane section and provide pedestrian and bicycle facilities in the Main Street corridor. Estimated cost $200,000. (TE Grant received)
- Construct sidewalk and bicycle lanes along Main Street from I-84 to Marine Drive. Estimated cost $46,000. (completed)

Mid-Term Projects (5-10 years)

- Construct Oregon Trail (including pedestrian and bicycle amenities) along the BPA easement. Estimated cost $162,000.
- Extend Olson Road across I-84. Estimated cost $8-10 Million.
- Construct multi-use path along Marine Drive from Main Street to Olson Road. (complete)
- Construct multi-use path along Columbia Avenue from Main Street to UGB. Estimated cost $56,000.

Long-Term Projects (10-20 years)

- Construct sidewalk and bicycle lanes along Olson Road from Kunze Road to Columbia Avenue. Estimated cost $230,000.

As Appropriate/Concurrent with Local Development

- Reduce reliance on vehicles through zoning and development code revisions.
- Extend NE Boardman Road to Olson Road. Estimated cost $420,000.
- Provide strategic roadway extensions (identified in TSP).
- Promote access management.
- Implement Transportation Demand Management measures.

- Construct sidewalk and/or multi-use path along Boardman Avenue, Front Street, Second Street, Third Street, Wilson Road, and Smith Road.

The TSP also provides funding strategies. The TSP update will consider and incorporate all findings and projects from the adopted TSP that are still relevant in addition to incorporating new projects.

Zoning Code

The City of Boardman Zoning Code specifies zoning and land use including permitted uses, conditional uses, standards and exceptions. The goal of zoning and development codes is to promote general welfare and to implement the Comprehensive Plan for the city. The following zoning designations are made in the City Code:

- Residential (R)
- Multi-Family Residential (MF)
- Manufactured Home Park (MH)
- Future Urban Residential (FU)
- Commercial (C)
- Commercial – Tourist Sub District (C)
- Commercial – City Center Sub District (C)
- Commercial – Service Center Sub District (C)
- Light Industrial (LI)
- General Industrial (GI)
- Port Industrial Sub District (PI)

The zoning code establishes permitted uses and design standards for each of these zones. Parking and loading requirements as well as signage standards are included.

The land near the IAMP study area at the Main Street interchange is zoned mostly commercial. North of I-84, the land is zoned for a mix of land uses. The land near the IAMP study area at the Laurel Avenue interchange is zone Service Center Commercial. The land north of I-84 is zoned General Industrial.

Main Street "Downtown" Development Plan

The Boardman Main Street "Downtown" Development Plan was produced as a result of recommendations from the 1999 TSP. The plan was created through an extensive citizen involvement process and represents the vision and goals of the community. The purpose of

the plan was to examine the TSP recommendation of focusing future commercial development in Boardman in a downtown area south of I-84. The preferred plan locates the commercial area south of I-84 on the west side of Main Street. The findings of the Plan were adopted into a TSP amendment in 2001.

Components of the Main Street "Downtown" Development Plan include:

- Flexible land use plan for the preferred Main Street "Downtown" location.
- Street design standards and Streetscape improvements in the Main Street "Downtown" area.
- Analysis of future traffic in the Main Street "Downtown" area and recommended future roadway improvements.
- Construction cost estimates and potential funding sources

Major Development Plans

There are no major development plans within the City of Boardman at this time.

x-drive:projects:2006:p06097-005 (boardman iamp):documents:task 1:task1a_reconnaissance_memo.doc

Appendix 2
Summary of Stakeholder Interviews

Stakeholder Interviews for Boardman Interchange Area Management Plan, January 10th and 11th, 2007
Compilation of Results

A series of stakeholder interviews were conducted at the Boardman city hall over a two-day period. Several additional interviews were done by phone for stakeholders that could not attend the selected days. The summary that follows is a compilation of the responses grouped into the general categories of questions. The initial questions identified on the survey are stated for reference, but, in most cases, the responses were more generalized that detailed replies to each question. The identities of the respondents have been kept confidential.

General

1. What works well today as it relates to traffic access and circulation around the freeway interchange area?
2. Are there any safety or operational issues that you feel need to be addressed through this study?
3. Do you have ideas or specific suggestions about how to address the issues you noted above?

Responses
Increased truck traffic activity at the Columbia / Laurel Lane (Port I/C) probably will need alternative traffic controls. Truckers that are unfamiliar with circulation patterns often stop or slow when they should not. It is a narrow intersection with tight curve radii. The banking feels opposite of what it should be and there is the potential for trucks to tip at high speeds. The 'free' right-turn from Columbia eastbound to the freeway interchange probably should be converted to a stop sign. It is also a tight turn to get onto the westbound on-ramp.
The Laurel Lane/Yates Lane intersection will be difficult to relocate to increase spacing to freeway ramps because of topography – 20-30 foot elevation gain up to BPA power lines. Also, configuration of card-lock station requires unique layout to accommodate long load trucks. Minor congestion is created by drivers who are not familiar with circulation patterns. Wider intersection is needed so trucks turning onto Laurel Lane do not crossover into oncoming traffic.
The current circulation system on Main Street, both north and south of I-84, works pretty well today. The only persistent issue is the lack of vehicle access controls on the retail sites in the south west corner of South Main and South Front Street (i.e., service station, car wash facilities). The absence of curb and sidewalk make it confusing for vehicles and for pedestrians. Vehicles have ingress or egress at any point along the frontage, which causes increased likelihood of conflicts with other motor vehicles and with pedestrians passing through the area.
School traffic is peak during the lunch break, for about one-half hour. It is busier than during the before / after school starts, because there is a relatively high volume of pedestrians traveling to / from local stores. The school has 7 or 8 buses that serve the local community. The school boundary recently added younger classes; so many of the students do not drive cars to the campus, which increases walking trips and bus usage. There should be a traffic light at North Main and Boardman Avenue to handle the school peak activity. Also, their should be another roadway crossing the freeway to allow for shift workers from the industrial area the circulate back to neighborhoods south of I-84. Shift changes about the same time as the high school (and middle school) campus ends. There should be wider sidewalks on the overcrossing to the freeway to better serve the high volume of pedestrians to and from school.
The existing left-turn access on and off of Main Street should not be restricted. This would reduce emergency service response times and adversely impact local businesses. ¼ mile spacing distance is a long way in a small town like Boardman. Please provide examples of other rural communities with these access controls.
The freeway overcrossing at Main Street should be widened. Issues include: 1) limited sight distance for vehicles on off-ramps looking across the bridge for a safe gap due to skewed angle of off-ramps, guard rail and protective fencing, 2) narrow sidewalks for pedestrians, 3) no room for left-turn lanes on Main

Stakeholder Interviews for Boardman Interchange Area Management Plan, January 10th and 11th, 2007
Compilation of Results

Street. Bike facilities on overpass are inadequate – shoulder/fog line is narrow and a drainage grate forces bicycles into travel lane. A dangerous situation if two trucks are passing at the same time. Freeway off-ramps need left and right turn lanes so traffic can pass vehicles/trucks waiting to make left turns. (Multiple respondents)
Need bus service between Boardman and nearby cities for general public.
Marine Drive should be re-paved and sidewalks added near residential and business uses.

Street Design

4. What works well today is it relates to traffic access and circulation around the two freeway interchanges?
5. How do you feel about the city street design standards (lighting, sidewalks, street trees, etc.?)

Responses
Increased truck traffic activity at the Columbia / Laurel Lane (Port I/C) probably will need alternative traffic controls. Truckers that are unfamiliar with circulation patterns often stop or slow when they should not. The 'free' right-turn from Columbia eastbound to the freeway interchange probably should be converted to a stop sign.
Need to extend sidewalks and curbs on South Main Street with a center turn lane through town. The adopted plan for 10-foot sidewalks on South Main Street are too wide. Should be narrowed to 6 feet, like North Main Street. (Nearly all respondents agreed on this point). 10-foot sidewalks would be more attractive and convenient for pedestrians, but the extra cost of a wider sidewalk should be considered. Local opinion does not share what is perceived as ODOT's vision for Main Street. A main street character, similar to Joseph,OR, with buildings at the edge of the sidewalk and parking behind does not fit Boardman.
A center turn lane on South Main Street should be included with any improvement package. By reducing the current standard from 10 feet to 6 feet (see note above), any extra width should be added to the center turn lane area or the landscaping area.
The street design standard should include safety lighting along Main Street (and any arterial roadways). Improves visibility and safety for pedestrians and bicycles, especially in the winter hours and for school kids. (Multiple respondents)

Stakeholder Interviews for Boardman Interchange Area Management Plan, January 10th and 11th, 2007
Compilation of Results

The existing roundabout in front of city hall was not designed to allow for large fire trucks to traverse it. It should be re-designed to allow for a parallel route to South Main Street, especially if Tatone Street is extended north up to South Front Street.
A new roundabout should be added at Wilson Road and Main Street to handle traffic growth and slow vehicles on Wilson Road. High vehicle speeds on Wilson Road conflicts with pedestrians and bike users within the city limits.
Little annual rainfall. Do not need in-street storm drainage area shown in standard cross-section.

Stakeholder Interviews for Boardman Interchange Area Management Plan, January 10th and 11th, 2007
Compilation of Results

Access and Circulation

6. As properties develop (or re-develop), how should truck and auto access be provided?
7. How do street spacing standards established by the city and ODOT relate to your answer above?
8. Do you foresee any circulation issues associated with Front Street intersections being so close to the freeway ramps at Exit 164? If so, what do you suggest for us to consider in correcting them?

Responses
The parallel street schemes for the Port Interchange and for South Main Street seem to be well conceived. North-south local street should parallel Main Street on either side, and connect at least between Front Street and Oregon Trail Boulevard. This would help reduces conflicts on the main road, and allows access to all the affected properties. Shared access between existing businesses is okay as long as circulation and access is still convenient for all properties. Multiple circulation options is good for economic development. Can BPA powerline easement be used for access roads? (Multiple respondents).
A recent example of where access controls went wrong was the access changes to the Napa Auto Parts store on South Main at City Center Boulevard. Patrons have to cross through adjoining parking lots for other businesses to reach the store. Same is true of shared access for Chevron Station and CND. Access to CND parking lot is difficult.
Increased truck traffic activity at the Columbia / Laurel Lane (Port I/C) probably will need alternative traffic controls. Truckers that are unfamiliar with circulation patterns often stop or slow when they should not. The 'free' right-turn from Columbia eastbound to the freeway interchange probably should be converted to a stop sign.
Some truckers (from out of the area) get confused by the existing circulation and traffic control pattern around the Port I/C.
Front Street works fine today, but as development occurs, operational and safety issues may become more of an issue. The concept of establishing growth thresholds based on traffic volumes for implementing solutions at the two Main / Front Street intersections would help to ease transitions to the next stages of improvements. (Multiple respondents)
The residential neighborhood north of Wilson Road at the far west end of town is isolated. A local street connection across (either Mt. Adams or Mt. Hood) the refuge area should extend to Kinkade Road, so local traffic and school kids do not need to walk along Wilson Road only. The existing multi-use path on the north side of Wilson Road terminates at Faler Road. It should be extended to Paul Smith Road.
Any left-turn lanes should be limited to striping only. No raised medians should be included, that restrict safe turning and are easily struck by vehicles
Oregon Trail Boulevard should be extended easterly to Olsen Road and westerly through the wildlife refuge to provide a parallel east-west circulation route other than Wilson Road.
The Front Street intersections with Main Street (both north and south) work fine today, and should not be altered.
The planned sidewalk along Laurel Lane at the Port I/C is not needed. A wide shoulder area is enough for pedestrian safety.

Stakeholder Interviews for Boardman Interchange Area Management Plan, January 10th and 11th, 2007
Compilation of Results

Multi-Modal Issues

9. How could the city improve the bicycle and pedestrian access and safety around the freeway interchange?
10. Would you be encouraged to bike around town if there were more bike lanes or other bike amenities?
11. Does large truck parking impact traffic access and circulation near the interchange?

Responses
Overnight parking for large trucks should be limited to those that are patrons at local hotels. Other recurring parking areas should be posted to restrict parking for extended periods. Posted signing should be put up after a city ordinance is passed to address this issue. (Multiple respondents) Truck parking around the freeway is no big deal. Some think parking around North Main Street reflects poorly on the image of the city. As new development comes, it will be an increasing problem. Any truck services added to the city should be at the Port I/C (Exit 165) and not at Main Street. Truck parking facilities should be added to make it more attractive for long-haul truckers to stop in the city and use its services. Mobile food vendors should be required to have a local business license to operate their services. Then they would have to comply with city standards.
The existing painted crosswalk at the car wash lot should be improved to make it safer. A lot of young kids cross at this point. Either at this location or further south at the Oregon Trail intersection to South Main Street. Or both locations. Also suggested that mid-block pedestrian crossing be located within the BPA right-of-way area, since this area will not develop and chance of conflicts with turning vehicles will be minimal. (Multiple respondents)
The only persistent issue is the lack of vehicle access controls on the retail sites in the southwest corner of South Main and South Front Street (i.e., service station, car wash facilities). The absence of curb and sidewalk make it confusing for vehicles and for pedestrians. Vehicles have ingress or egress at any point along the frontage, which causes increased likelihood of conflicts with other motor vehicles and with pedestrians passing through the area. (Multiple respondents)
Pedestrian access to / from the high school is limited for the neighborhood to the northeast. Residential lots are not set up for pathways, and recurring holes are made in backyard fences to make for more direct walking paths. Ultimately, it would be desirable to have an improved walkway through the neighborhood on a more direct route than is available today. School is also considering realigning the existing access onto Columbia Boulevard further east, around the backside of the ball fields to reduce vehicles and pedestrians conflicts between the two sports fields.
Sidewalks should be constructed on both sides of South Main Street. There are no good, safe walking routes for elementary school kids on South Main Street to and from the two schools along Wilson Road. Need continuous sidewalks improvements, and more safe crossings on arterial roads.
The mobile food vendors that locate on South Main Street exacerbate the uncontrolled vehicle access issues. Their location and activities should be considered as a part of any plans to change permanent access along South Main Street.
Needs better pedestrian and bicycle circulation on North Main Street across the railroad tracks to the Marina Park area. North of Columbia Boulevard the

Stakeholder Interviews for Boardman Interchange Area Management Plan, January 10th and 11th, 2007
Compilation of Results

street narrows, and the intersections with Marine Drive is confusing.

Stakeholder Interviews for Boardman Interchange Area Management Plan, January 10th and 11th, 2007
Compilation of Results

Funding

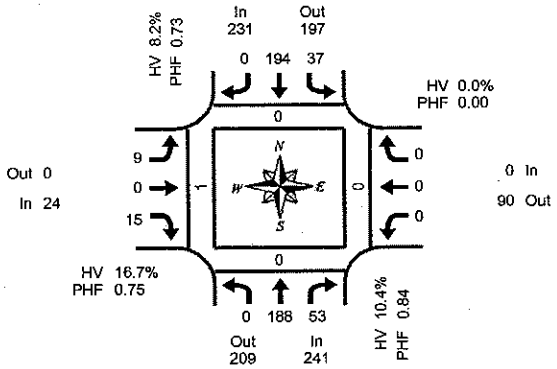
12. How should improvements identified through this plan be funded?
13. Would you be willing to contribute a proportional share to any locally funded portion of the improvements?

Responses
Any local share of the fund required to facilitate new improvements should be shared across the entire city and not just on the new development, or the existing businesses. There is a broader benefit for the whole community if new commercial uses come into town, and the developer of that site should not be left with the whole burden of off-site improvements, as required by this plan. (Multiple respondents).
New development should share in the cost of required improvements. Most other Oregon cities have system development charges (SDC) for transportation improvements. No reason why Boardman should be different. SDC programs are common in Oregon, but they do not help unless there is growth. Need other funding sources to get improvements built.
If local residents or businesses are going to have new costs for improvements related to development, any funding measure should be put to a general public vote.
New development should pay their way. This is typically in most other Oregon cities.
High growth at the Port of Morrow and the industrial users that are being added there should contribute to the funding of improvements within Boardman that provide them services.
If NASCAR does come to the region, the attractiveness of new commercial business will be much higher. Then a local SDC might work.
If local truck services are provided, an extra truck fee could be charged to offset costs of required improvements.
Boardman has a relatively low average income level, and the community would be sensitive to any new funding or fees required from them.

Appendix 3
Traffic Counts

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Main St & I-84 EB Ramps

Tuesday, September 19, 2006
6:00 AM to 8:00 AM

Peak Hour Summary
7:00 AM to 8:00 AM

15-Minute Interval Summary
6:00 AM to 8:00 AM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
6:00 AM	0	16	10	0	6	8	0	0	0	0	0	0	0	0	0	0	40
6:15 AM	0	36	17	0	4	12	0	0	0	1	0	0	0	0	0	0	70
6:30 AM	0	42	26	0	10	17	0	0	2	0	4	0	0	0	0	0	101
6:45 AM	0	54	17	0	9	17	0	0	0	0	3	0	0	0	0	0	100
7:00 AM	0	50	16	0	9	53	0	0	2	0	6	0	0	0	0	0	136
7:15 AM	0	62	10	0	14	65	0	0	2	0	4	0	0	0	0	0	157
7:30 AM	0	34	13	1	6	37	0	0	2	0	4	0	0	0	0	0	96
7:45 AM	0	42	14	0	8	39	0	0	3	0	1	0	0	0	0	0	107
Total Survey	0	336	123	1	66	248	0	0	11	1	22	0	0	0	0	0	807

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0
0	0	0	2
0	0	0	1
0	0	0	2
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	6

Peak Hour Summary
7:00 AM to 8:00 AM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	241	209	450	1	231	197	428	0	24	0	24	0	0	90	90	0	496
%HV	10.4%				8.2%				16.7%				0.0%				9.7%
PHF	0.84				0.73				0.75				0.00				0.79

Pedestrians Crosswalk			
North	South	East	West
0	0	0	1

By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	188	53	241	37	194	0	231	9	0	15	24	0	0	0	0	496
%HV	0.0%	9.0%	15.1%	10.4%	21.6%	5.7%	0.0%	8.2%	11.1%	0.0%	20.0%	16.7%	0.0%	0.0%	0.0%	0.0%	9.7%
PHF	0.00	0.76	0.83	0.84	0.66	0.75	0.00	0.73	0.75	0.00	0.63	0.75	0.00	0.00	0.00	0.00	0.79

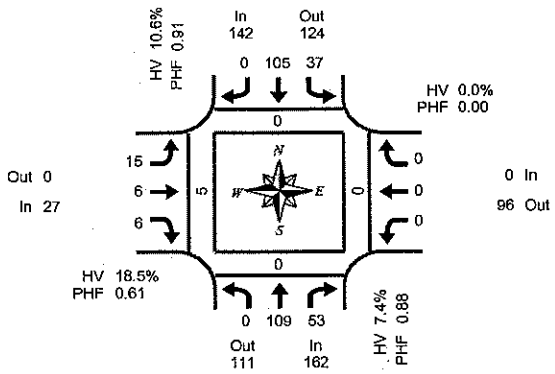
Rolling Hour Summary
6:00 AM to 8:00 AM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
6:00 AM	0	148	70	0	29	54	0	0	2	1	7	0	0	0	0	0	311
6:15 AM	0	182	76	0	32	99	0	0	4	1	13	0	0	0	0	0	407
6:30 AM	0	208	69	0	42	152	0	0	6	0	17	0	0	0	0	0	494
6:45 AM	0	200	56	1	38	172	0	0	6	0	17	0	0	0	0	0	489
7:00 AM	0	188	53	1	37	194	0	0	9	0	15	0	0	0	0	0	496

Pedestrians Crosswalk			
North	South	East	West
0	0	0	5
0	0	0	5
0	0	0	3
0	0	0	3
0	0	0	1

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
8:00 AM to 9:00 AM

Main St & I-84 EB Ramps

Tuesday, September 19, 2006
8:00 AM to 10:00 AM

15-Minute Interval Summary
8:00 AM to 10:00 AM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
8:00 AM	0	33	13	0	10	27	0	0	1	0	0	0	0	0	0	0	84	0	0	0	1
8:15 AM	0	24	13	0	7	32	0	0	4	1	3	0	0	0	0	0	84	0	0	0	1
8:30 AM	0	28	16	0	7	27	0	1	3	2	2	0	0	0	0	0	85	0	0	0	1
8:45 AM	0	24	11	2	13	19	0	0	7	3	1	0	0	0	0	0	78	0	0	0	2
9:00 AM	0	28	10	0	9	22	0	0	4	0	3	0	0	0	0	0	76	0	0	0	0
9:15 AM	0	29	9	0	13	27	0	1	2	0	3	0	0	0	0	0	83	0	0	0	1
9:30 AM	0	21	10	0	9	24	0	0	2	1	4	0	0	0	0	0	71	0	0	0	0
9:45 AM	0	30	6	0	10	27	0	0	4	0	3	0	0	0	0	0	80	0	0	0	0
Total Survey	0	217	88	2	78	205	0	2	27	7	19	0	0	0	0	0	641	0	0	0	6

Peak Hour Summary
8:00 AM to 9:00 AM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	162	111	273	2	142	124	266	1	27	0	27	0	0	96	96	0	331	0	0	0	5
%HV	7.4%				10.6%				18.5%				0.0%				9.7%				
PHF	0.88				0.91				0.61				0.00				0.97				

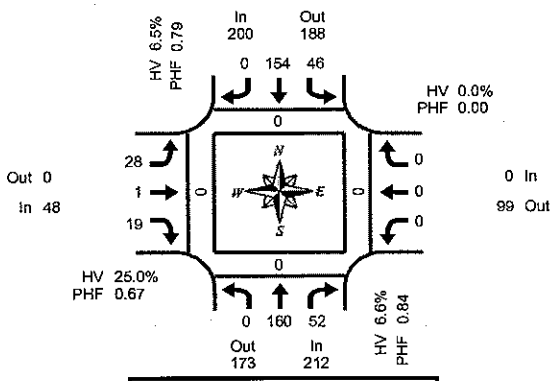
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	109	53	162	37	105	0	142	15	6	6	27	0	0	0	0	331
%HV	0.0%	6.4%	9.4%	7.4%	16.2%	8.6%	0.0%	10.6%	13.3%	50.0%	0.0%	18.5%	0.0%	0.0%	0.0%	0.0%	9.7%
PHF	0.00	0.83	0.83	0.88	0.71	0.82	0.00	0.91	0.54	0.50	0.50	0.61	0.00	0.00	0.00	0.00	0.97

Rolling Hour Summary
8:00 AM to 10:00 AM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
8:00 AM	0	109	53	2	37	105	0	1	15	6	6	0	0	0	0	0	331	0	0	0	5
8:15 AM	0	104	50	2	36	100	0	1	18	6	9	0	0	0	0	0	323	0	0	0	4
8:30 AM	0	109	46	2	42	95	0	2	16	5	9	0	0	0	0	0	322	0	0	0	4
8:45 AM	0	102	40	2	44	92	0	1	15	4	11	0	0	0	0	0	308	0	0	0	3
9:00 AM	0	108	35	0	41	100	0	1	12	1	13	0	0	0	0	0	310	0	0	0	1

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
11:00 AM to 12:00 PM

Main St & I-84 EB Ramps

Tuesday, September 19, 2006
10:00 AM to 12:00 PM

15-Minute Interval Summary
10:00 AM to 12:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
10:00 AM	0	21	17	0	3	30	0	0	5	0	1	0	0	0	0	0	77	0	0	0	2
10:15 AM	0	31	6	0	12	25	0	0	3	2	6	0	0	0	0	0	85	0	0	0	1
10:30 AM	0	33	11	0	12	31	0	2	4	0	6	0	0	0	0	0	97	0	0	0	0
10:45 AM	0	35	8	0	12	46	0	0	7	0	2	0	0	0	0	0	110	0	0	0	0
11:00 AM	0	42	8	0	13	31	0	0	8	1	2	0	0	0	0	0	105	0	0	0	0
11:15 AM	0	41	12	0	11	32	0	0	4	0	7	0	0	0	0	0	107	0	0	0	0
11:30 AM	0	35	11	0	12	38	0	0	10	0	8	0	0	0	0	0	114	0	0	0	0
11:45 AM	0	42	21	0	10	53	0	0	6	0	2	0	0	0	0	0	134	0	0	0	0
Total Survey	0	280	94	0	85	286	0	2	47	3	34	0	0	0	0	0	829	0	0	0	3

Peak Hour Summary
11:00 AM to 12:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	212	173	385	0	200	188	388	0	48	0	48	0	0	99	99	0	460	0	0	0	0
%HV	6.6%				6.5%				25.0%				0.0%				8.5%				
PHF	0.84				0.79				0.67				0.00				0.86				

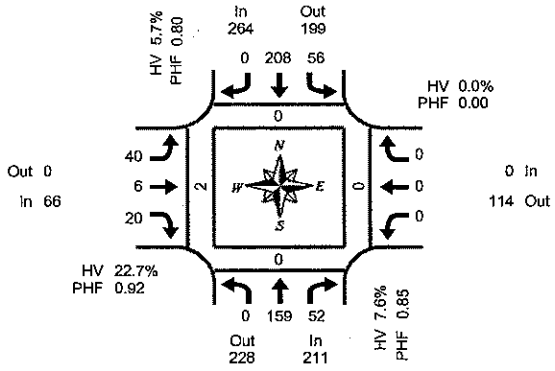
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	160	52	212	46	154	0	200	28	1	19	48	0	0	0	0	460
%HV	0.0%	5.6%	9.6%	6.6%	13.0%	4.5%	0.0%	6.5%	17.9%	#####	31.6%	25.0%	0.0%	0.0%	0.0%	0.0%	8.5%
PHF	0.00	0.95	0.62	0.84	0.88	0.73	0.00	0.79	0.70	0.25	0.59	0.67	0.00	0.00	0.00	0.00	0.86

Rolling Hour Summary
10:00 AM to 12:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
10:00 AM	0	120	42	0	39	132	0	2	19	2	15	0	0	0	0	0	369	0	0	0	3
10:15 AM	0	141	33	0	49	133	0	2	22	3	16	0	0	0	0	0	397	0	0	0	1
10:30 AM	0	151	39	0	48	140	0	2	23	1	17	0	0	0	0	0	419	0	0	0	0
10:45 AM	0	153	39	0	48	147	0	0	29	1	19	0	0	0	0	0	436	0	0	0	0
11:00 AM	0	160	52	0	46	154	0	0	28	1	19	0	0	0	0	0	460	0	0	0	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
12:00 PM to 1:00 PM

Main St & I-84 EB Ramps

Tuesday, September 19, 2006
12:00 PM to 2:00 PM

15-Minute Interval Summary
12:00 PM to 2:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
12:00 PM	0	31	10	0	17	66	0	0	11	1	6	0	0	0	0	0	142	0	0	0	0
12:15 PM	0	52	10	0	13	48	0	0	9	0	6	0	0	0	0	0	138	0	0	0	0
12:30 PM	0	36	14	0	9	46	0	0	9	4	2	0	0	0	0	0	120	0	0	0	2
12:45 PM	0	40	18	2	17	48	0	0	11	1	6	0	0	0	0	0	141	0	0	0	0
1:00 PM	0	41	20	0	11	47	0	0	14	0	6	0	0	0	0	0	139	0	0	0	0
1:15 PM	0	33	11	0	13	39	0	0	11	0	5	0	0	0	0	0	112	0	0	0	0
1:30 PM	0	26	17	0	14	36	0	0	6	1	1	0	0	0	0	0	101	0	0	0	0
1:45 PM	0	31	8	0	13	43	0	0	7	1	4	0	0	0	0	0	107	0	0	0	1
Total Survey	0	290	108	2	107	373	0	0	78	8	36	0	0	0	0	0	1,000	0	0	0	3

Peak Hour Summary
12:00 PM to 1:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	211	228	439	2	264	199	463	0	66	0	66	0	0	114	114	0	541	0	0	0	2
%HV	7.6%				5.7%				22.7%				0.0%				8.5%				
PHF	0.85				0.80				0.92				0.00				0.95				

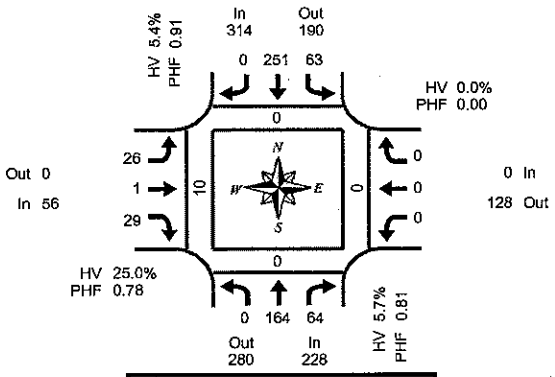
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	159	52	211	56	208	0	264	40	6	20	66	0	0	0	0	541
%HV	0.0%	5.7%	13.5%	7.6%	7.1%	5.3%	0.0%	5.7%	17.5%	66.7%	20.0%	22.7%	0.0%	0.0%	0.0%	0.0%	8.5%
PHF	0.00	0.76	0.72	0.85	0.82	0.79	0.00	0.80	0.91	0.38	0.83	0.92	0.00	0.00	0.00	0.00	0.95

Rolling Hour Summary
12:00 PM to 2:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
12:00 PM	0	159	52	2	56	208	0	0	40	6	20	0	0	0	0	0	541	0	0	0	2
12:15 PM	0	169	62	2	50	189	0	0	43	5	20	0	0	0	0	0	538	0	0	0	2
12:30 PM	0	150	63	2	50	180	0	0	45	5	19	0	0	0	0	0	512	0	0	0	2
12:45 PM	0	140	66	2	55	170	0	0	42	2	18	0	0	0	0	0	493	0	0	0	0
1:00 PM	0	131	56	0	51	165	0	0	38	2	16	0	0	0	0	0	459	0	0	0	1

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
3:00 PM to 4:00 PM

Main St & I-84 EB Ramps

Tuesday, September 19, 2006
2:00 PM to 4:00 PM

15-Minute Interval Summary
2:00 PM to 4:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
2:00 PM	0	33	14	0	23	55	0	0	9	0	2	0	0	0	0	0	136	0	0	0	1
2:15 PM	0	32	12	0	10	46	0	0	7	0	4	0	0	0	0	0	111	0	0	0	0
2:30 PM	0	47	18	1	8	45	0	0	4	0	8	0	0	0	0	0	130	0	0	0	0
2:45 PM	0	42	11	1	3	29	0	1	5	0	6	0	0	0	0	0	96	0	0	0	0
3:00 PM	0	36	9	0	18	68	0	0	9	1	8	0	0	0	0	0	149	0	0	0	3
3:15 PM	0	36	15	1	19	61	0	0	6	0	5	0	0	0	0	0	142	0	0	0	4
3:30 PM	0	50	20	0	13	60	0	1	6	0	9	0	0	0	0	0	158	0	0	0	2
3:45 PM	0	42	20	0	13	62	0	0	5	0	7	0	0	0	0	0	149	0	0	0	1
Total Survey	0	318	119	3	107	426	0	2	51	1	49	0	0	0	0	0	1,071	0	0	0	11

Peak Hour Summary
3:00 PM to 4:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	228	280	508	1	314	190	504	1	56	0	56	0	0	128	128	0	598
%HV	5.7%				5.4%				25.0%				0.0%				7.4%
PHF	0.81				0.91				0.78				0.00				0.95

Pedestrians Crosswalk			
North	South	East	West
0	0	0	10

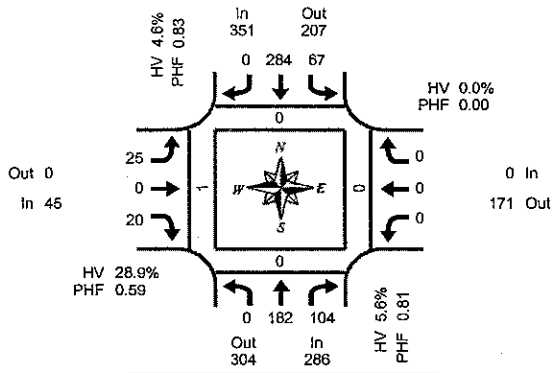
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	164	64	228	63	251	0	314	26	1	29	56	0	0	0	0	598
%HV	0.0%	5.5%	6.3%	5.7%	4.8%	5.6%	0.0%	5.4%	19.2%	#####	27.6%	25.0%	0.0%	0.0%	0.0%	0.0%	7.4%
PHF	0.00	0.82	0.80	0.81	0.83	0.92	0.00	0.91	0.72	0.25	0.81	0.78	0.00	0.00	0.00	0.00	0.95

Rolling Hour Summary
2:00 PM to 4:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
2:00 PM	0	154	55	2	44	175	0	1	25	0	20	0	0	0	0	0	473	0	0	0	1
2:15 PM	0	157	50	2	39	188	0	1	25	1	26	0	0	0	0	0	486	0	0	0	3
2:30 PM	0	161	53	3	48	203	0	1	24	1	27	0	0	0	0	0	517	0	0	0	7
2:45 PM	0	164	55	2	53	218	0	2	26	1	28	0	0	0	0	0	545	0	0	0	9
3:00 PM	0	164	64	1	63	251	0	1	26	1	29	0	0	0	0	0	598	0	0	0	10

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:15 PM to 5:15 PM

Main St & I-84 EB Ramps

Tuesday, September 19, 2006
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	43	23	0	15	73	0	0	6	0	7	0	0	0	0	0	167	0	0	0	0
4:15 PM	0	55	33	0	21	61	0	1	4	0	6	0	0	0	0	0	180	0	0	0	1
4:30 PM	0	44	19	0	14	62	0	0	4	0	4	0	0	0	0	0	147	0	0	0	0
4:45 PM	0	49	20	0	11	76	0	0	11	0	8	0	0	0	0	0	175	0	0	0	0
5:00 PM	0	34	32	0	21	85	0	0	6	0	2	0	0	0	0	0	180	0	0	0	0
5:15 PM	0	42	10	0	13	54	0	0	9	0	7	0	0	0	0	0	135	0	0	0	1
5:30 PM	0	44	21	2	11	49	0	0	8	0	6	0	0	0	0	0	139	0	0	0	0
5:45 PM	0	37	18	0	15	87	0	0	7	2	4	0	0	0	0	0	170	0	0	0	0
Total Survey	0	348	176	2	121	547	0	1	55	2	44	0	0	0	0	0	1,293	0	0	0	2

Peak Hour Summary
4:15 PM to 5:15 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	286	304	590	0	351	207	558	1	45	0	45	0	0	171	171	0	682	0	0	0	1
%HV	5.6%				4.6%				28.9%				0.0%				6.6%				
PHF	0.81				0.83				0.59				0.00				0.95				

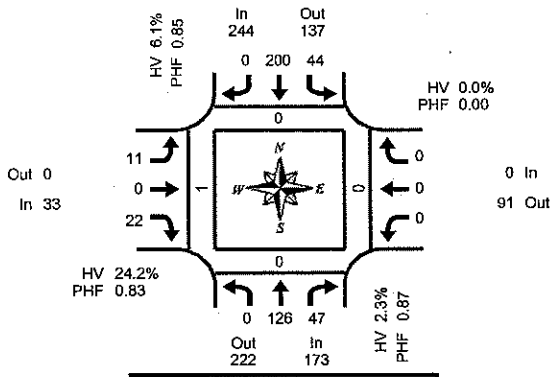
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	182	104	286	67	284	0	351	25	0	20	45	0	0	0	0	682
%HV	0.0%	3.3%	9.6%	5.6%	4.5%	4.6%	0.0%	4.6%	28.0%	0.0%	30.0%	28.9%	0.0%	0.0%	0.0%	0.0%	6.6%
PHF	0.00	0.83	0.79	0.81	0.80	0.84	0.00	0.83	0.57	0.00	0.63	0.59	0.00	0.00	0.00	0.00	0.95

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	191	95	0	61	272	0	1	25	0	25	0	0	0	0	0	669	0	0	0	1
4:15 PM	0	182	104	0	67	284	0	1	25	0	20	0	0	0	0	0	682	0	0	0	1
4:30 PM	0	169	81	0	59	277	0	0	30	0	21	0	0	0	0	0	637	0	0	0	1
4:45 PM	0	169	83	2	56	264	0	0	34	0	23	0	0	0	0	0	629	0	0	0	1
5:00 PM	0	157	81	2	60	275	0	0	30	2	19	0	0	0	0	0	624	0	0	0	1

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Main St & I-84 EB Ramps

Tuesday, September 19, 2006
6:00 PM to 8:00 PM

Peak Hour Summary
6:00 PM to 7:00 PM

15-Minute Interval Summary
6:00 PM to 8:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
6:00 PM	0	35	15	0	10	62	0	0	4	0	5	0	0	0	0	0	131	0	0	0	0
6:15 PM	0	27	14	0	10	35	0	0	3	0	7	0	0	0	0	0	96	0	0	0	0
6:30 PM	0	33	11	0	10	49	0	0	2	0	3	0	0	0	0	0	108	0	0	0	1
6:45 PM	0	31	7	0	14	54	0	0	2	0	7	0	0	0	0	0	115	0	0	0	0
7:00 PM	0	42	5	0	6	54	0	0	2	0	5	0	0	0	0	0	114	0	0	0	2
7:15 PM	0	35	10	0	14	39	0	0	9	0	4	0	0	0	0	0	111	0	0	0	0
7:30 PM	0	14	9	0	5	42	0	0	5	0	7	0	0	0	0	0	82	0	0	0	0
7:45 PM	0	15	8	0	4	32	0	0	5	0	12	0	0	0	0	0	76	0	0	0	2
Total Survey	0	232	79	0	73	367	0	0	32	0	50	0	0	0	0	0	833	0	0	0	5

Peak Hour Summary
6:00 PM to 7:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	173	222	395	0	244	137	381	0	33	0	33	0	0	91	91	0	450	0	0	0	1
%HV	2.3%				6.1%				24.2%				0.0%				6.0%				
PHF	0.87				0.85				0.83				0.00				0.86				

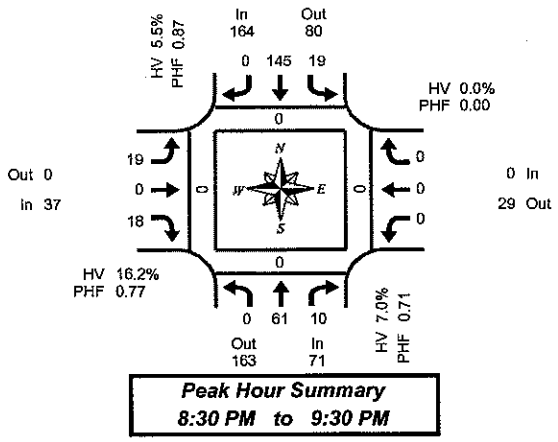
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	126	47	173	44	200	0	244	11	0	22	33	0	0	0	0	450
%HV	0.0%	2.4%	2.1%	2.3%	6.8%	6.0%	0.0%	6.1%	9.1%	0.0%	31.8%	24.2%	0.0%	0.0%	0.0%	0.0%	6.0%
PHF	0.00	0.90	0.78	0.87	0.79	0.81	0.00	0.85	0.69	0.00	0.79	0.83	0.00	0.00	0.00	0.00	0.86

Rolling Hour Summary
6:00 PM to 8:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
6:00 PM	0	126	47	0	44	200	0	0	11	0	22	0	0	0	0	0	450	0	0	0	1
6:15 PM	0	133	37	0	40	192	0	0	9	0	22	0	0	0	0	0	433	0	0	0	3
6:30 PM	0	141	33	0	44	196	0	0	15	0	19	0	0	0	0	0	448	0	0	0	3
6:45 PM	0	122	31	0	39	189	0	0	18	0	23	0	0	0	0	0	422	0	0	0	2
7:00 PM	0	106	32	0	29	167	0	0	21	0	28	0	0	0	0	0	383	0	0	0	4

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
8:30 PM to 9:30 PM

Main St & I-84 EB Ramps

Tuesday, September 19, 2006
8:00 PM to 10:00 PM

15-Minute Interval Summary
8:00 PM to 10:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
8:00 PM	0	9	3	0	5	35	0	0	2	0	6	0	0	0	0	0	60	0	0	0	2
8:15 PM	0	12	10	0	5	26	0	0	3	0	9	0	0	0	0	0	65	0	0	0	0
8:30 PM	0	20	5	0	4	43	0	0	5	0	5	0	0	0	0	0	82	0	0	0	0
8:45 PM	0	12	4	0	7	29	0	0	6	0	3	0	0	0	0	0	61	0	0	0	0
9:00 PM	0	10	0	0	3	38	0	0	6	0	6	0	0	0	0	0	63	0	0	0	0
9:15 PM	0	19	1	0	5	35	0	0	2	0	4	0	0	0	0	0	66	0	0	0	0
9:30 PM	0	17	0	0	2	35	0	0	3	0	4	0	0	0	0	0	61	0	0	0	0
9:45 PM	0	19	1	0	6	33	0	0	4	0	2	0	0	0	0	0	65	0	0	0	0
Total Survey	0	118	24	0	37	274	0	0	31	0	39	0	0	0	0	0	523	0	0	0	2

Peak Hour Summary
8:30 PM to 9:30 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	71	163	234	0	164	80	244	0	37	0	37	0	0	29	29	0	272	0	0	0	0
%HV	7.0%				5.5%				16.2%				0.0%				7.4%				
PHF	0.71				0.87				0.77				0.00				0.83				

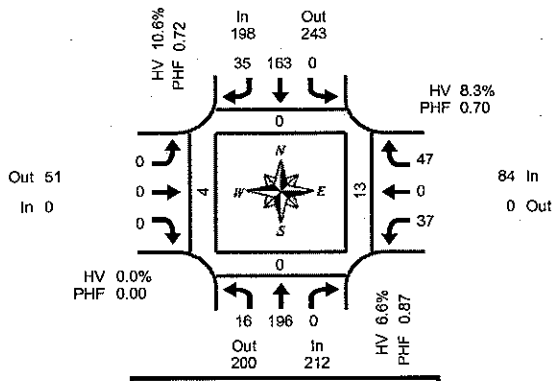
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	61	10	71	19	145	0	164	19	0	18	37	0	0	0	0	272
%HV	0.0%	4.9%	20.0%	7.0%	5.3%	5.5%	0.0%	5.5%	5.3%	0.0%	27.8%	16.2%	0.0%	0.0%	0.0%	0.0%	7.4%
PHF	0.00	0.76	0.50	0.71	0.68	0.84	0.00	0.87	0.79	0.00	0.75	0.77	0.00	0.00	0.00	0.00	0.83

Rolling Hour Summary
8:00 PM to 10:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
8:00 PM	0	53	22	0	21	133	0	0	16	0	23	0	0	0	0	0	268	0	0	0	2
8:15 PM	0	54	19	0	19	136	0	0	20	0	23	0	0	0	0	0	271	0	0	0	0
8:30 PM	0	61	10	0	19	145	0	0	19	0	18	0	0	0	0	0	272	0	0	0	0
8:45 PM	0	58	5	0	17	137	0	0	17	0	17	0	0	0	0	0	251	0	0	0	0
9:00 PM	0	65	2	0	16	141	0	0	15	0	16	0	0	0	0	0	255	0	0	0	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Main St & I-84 WB Ramps

Tuesday, September 19, 2006
6:00 AM to 8:00 AM

Peak Hour Summary
6:30 AM to 7:30 AM

15-Minute Interval Summary
6:00 AM to 8:00 AM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
6:00 AM	1	16	0	0	0	11	4	0	0	0	0	0	5	0	5	0	42	0	0	0	0
6:15 AM	11	26	0	0	0	14	17	0	0	0	0	0	4	0	11	0	83	0	0	0	0
6:30 AM	7	37	0	0	0	23	15	0	0	0	0	0	6	0	11	0	99	0	0	8	3
6:45 AM	4	48	0	0	0	19	7	0	0	0	0	0	3	0	8	0	89	0	0	2	1
7:00 AM	3	52	0	0	0	56	9	0	0	0	0	0	10	0	16	0	146	0	0	3	0
7:15 AM	2	59	0	0	0	65	4	0	0	0	0	0	18	0	12	0	160	0	0	0	0
7:30 AM	3	30	0	1	0	26	8	0	0	0	0	0	7	0	8	0	82	0	0	1	0
7:45 AM	5	39	0	0	0	27	1	0	0	0	0	0	21	0	8	0	101	0	0	0	0
Total Survey	36	307	0	1	0	241	65	0	0	0	0	0	74	0	79	0	802	0	0	14	4

Peak Hour Summary
6:30 AM to 7:30 AM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	212	200	412	0	198	243	441	0	0	51	51	0	84	0	84	0	494	0	0	13	4
%HV	6.6%				10.6%				0.0%				8.3%				8.5%				
PHF	0.87				0.72				0.00				0.70				0.77				

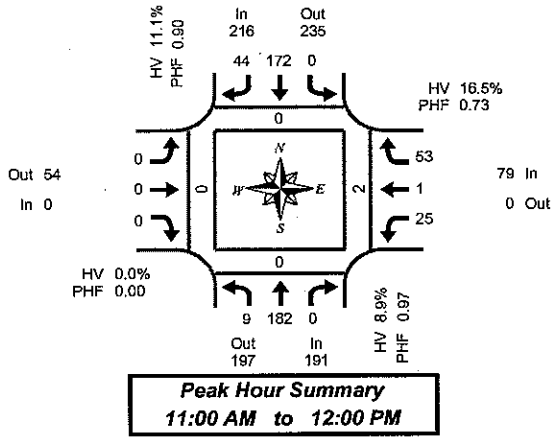
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	16	196	0	212	0	163	35	198	0	0	0	0	37	0	47	84	494
%HV	43.8%	3.6%	0.0%	6.6%	0.0%	5.5%	34.3%	10.6%	0.0%	0.0%	0.0%	0.0%	5.4%	0.0%	10.6%	8.3%	8.5%
PHF	0.57	0.83	0.00	0.87	0.00	0.63	0.58	0.72	0.00	0.00	0.00	0.00	0.51	0.00	0.73	0.70	0.77

Rolling Hour Summary
6:00 AM to 8:00 AM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
6:00 AM	23	127	0	0	0	67	43	0	0	0	0	0	18	0	35	0	313	0	0	10	4
6:15 AM	25	163	0	0	0	112	48	0	0	0	0	0	23	0	46	0	417	0	0	13	4
6:30 AM	16	196	0	0	0	163	35	0	0	0	0	0	37	0	47	0	494	0	0	13	4
6:45 AM	12	169	0	1	0	166	28	0	0	0	0	0	38	0	44	0	477	0	0	6	1
7:00 AM	13	180	0	1	0	174	22	0	0	0	0	0	56	0	44	0	489	0	0	4	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
11:00 AM to 12:00 PM

Main St & I-84 WB Ramps

Tuesday, September 19, 2006
10:00 AM to 12:00 PM

15-Minute Interval Summary
10:00 AM to 12:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
10:00 AM	2	22	0	0	0	28	11	0	0	0	0	0	5	0	13	0	81	0	0	0	0
10:15 AM	2	35	0	0	0	30	7	0	0	0	0	0	5	0	14	0	93	0	0	0	0
10:30 AM	3	32	0	0	0	44	9	2	0	0	0	0	5	0	13	0	106	0	0	0	0
10:45 AM	3	44	0	0	0	51	11	0	0	0	0	0	7	0	17	0	133	0	0	0	0
11:00 AM	3	45	0	0	0	43	11	0	0	0	0	0	4	0	12	0	118	0	0	1	0
11:15 AM	2	47	0	0	0	36	12	0	0	0	0	0	5	0	10	0	112	0	0	1	0
11:30 AM	2	44	0	0	0	41	13	0	0	0	0	0	6	0	15	0	121	0	0	0	0
11:45 AM	2	46	0	0	0	52	8	0	0	0	0	0	10	1	16	0	135	0	0	0	0
Total Survey	19	315	0	0	0	325	82	2	0	0	0	0	47	1	110	0	899	0	0	2	0

Peak Hour Summary
11:00 AM to 12:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	191	197	388	0	216	235	451	0	0	54	54	0	79	0	79	0	486	0	0	2	0
%HV	8.9%				11.1%				0.0%				16.5%				11.1%				
PHF	0.97				0.90				0.00				0.73				0.90				

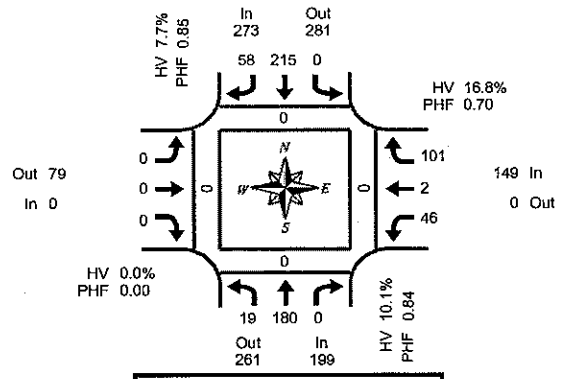
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	9	182	0	191	0	172	44	216	0	0	0	0	25	1	53	79	486
%HV	55.6%	6.6%	0.0%	8.9%	0.0%	5.8%	31.8%	11.1%	0.0%	0.0%	0.0%	0.0%	12.0%	#####	17.0%	16.5%	11.1%
PHF	0.75	0.97	0.00	0.97	0.00	0.83	0.85	0.90	0.00	0.00	0.00	0.00	0.63	0.25	0.83	0.73	0.90

Rolling Hour Summary
10:00 AM to 12:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
10:00 AM	10	133	0	0	0	153	38	2	0	0	0	0	22	0	57	0	413	0	0	0	0
10:15 AM	11	156	0	0	0	168	38	2	0	0	0	0	21	0	56	0	450	0	0	1	0
10:30 AM	11	168	0	0	0	174	43	2	0	0	0	0	21	0	52	0	469	0	0	2	0
10:45 AM	10	180	0	0	0	171	47	0	0	0	0	0	22	0	54	0	484	0	0	2	0
11:00 AM	9	182	0	0	0	172	44	0	0	0	0	0	25	1	53	0	486	0	0	2	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Camey
(503) 833-2740



Main St & I-84 WB Ramps

Tuesday, September 19, 2006
12:00 PM to 2:00 PM

Peak Hour Summary
12:00 PM to 1:00 PM

15-Minute Interval Summary
12:00 PM to 2:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
12:00 PM	5	38	0	0	0	66	14	0	0	0	0	0	18	2	33	0	176
12:15 PM	6	53	0	0	0	49	16	0	0	0	0	0	11	0	26	0	161
12:30 PM	1	44	0	0	0	47	10	0	0	0	0	0	8	0	16	0	126
12:45 PM	7	45	0	1	0	53	18	0	0	0	0	0	9	0	26	0	158
1:00 PM	4	51	0	0	0	60	10	0	0	0	0	0	8	0	14	0	147
1:15 PM	2	43	0	0	0	34	9	0	0	0	0	0	11	0	10	0	109
1:30 PM	2	27	0	0	0	42	15	0	0	0	0	0	10	0	10	0	106
1:45 PM	1	37	0	0	0	47	13	0	0	0	0	0	11	1	15	0	125
Total Survey	28	338	0	1	0	398	105	0	0	0	0	0	86	3	150	0	1,108

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Peak Hour Summary
12:00 PM to 1:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	199	261	460	1	273	281	554	0	0	79	79	0	149	0	149	0	621
%HV	10.1%				7.7%				0.0%				16.8%				10.6%
PHF	0.84				0.85				0.00				0.70				0.88

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0

By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	19	180	0	199	0	215	58	273	0	0	0	0	46	2	101	149	621
%HV	15.8%	9.4%	0.0%	10.1%	0.0%	5.6%	15.5%	7.7%	0.0%	0.0%	0.0%	0.0%	15.2%	#####	15.8%	16.8%	10.6%
PHF	0.68	0.85	0.00	0.84	0.00	0.81	0.81	0.85	0.00	0.00	0.00	0.00	0.64	0.25	0.77	0.70	0.88

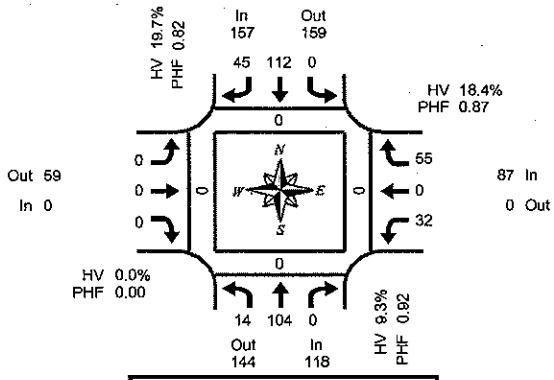
Rolling Hour Summary
12:00 PM to 2:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
12:00 PM	19	180	0	1	0	215	58	0	0	0	0	0	46	2	101	0	621
12:15 PM	18	193	0	1	0	209	54	0	0	0	0	0	36	0	82	0	592
12:30 PM	14	183	0	1	0	194	47	0	0	0	0	0	36	0	66	0	540
12:45 PM	15	166	0	1	0	189	52	0	0	0	0	0	38	0	60	0	520
1:00 PM	9	158	0	0	0	183	47	0	0	0	0	0	40	1	49	0	487

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
9:00 AM to 10:00 AM

Main St & I-84 WB Ramps

Tuesday, September 19, 2006
8:00 AM to 10:00 AM

15-Minute Interval Summary
8:00 AM to 10:00 AM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
8:00 AM	5	30	0	0	0	31	9	0	0	0	0	0	8	0	11	0	94	0	0	1	0
8:15 AM	1	27	0	0	0	31	9	0	0	0	0	0	9	0	11	0	88	0	0	0	0
8:30 AM	3	29	0	0	0	26	7	1	0	0	0	0	8	0	8	0	81	0	0	0	0
8:45 AM	2	28	0	1	0	23	8	0	0	0	0	0	6	1	12	0	80	0	0	0	0
9:00 AM	5	25	0	0	0	27	10	0	0	0	0	0	9	0	15	0	91	0	0	0	0
9:15 AM	4	28	0	0	0	29	9	0	0	0	0	0	8	0	17	0	95	0	0	0	0
9:30 AM	4	20	0	0	0	28	6	1	0	0	0	0	7	0	10	0	75	0	0	0	0
9:45 AM	1	31	0	0	0	28	20	0	0	0	0	0	8	0	13	0	101	0	0	0	0
Total Survey	25	218	0	1	0	223	78	2	0	0	0	0	63	1	97	0	705	0	0	1	0

Peak Hour Summary
9:00 AM to 10:00 AM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	118	144	262	0	157	159	316	1	0	59	59	0	87	0	87	0	362	0	0	0	0
%HV	9.3%				19.7%				0.0%				18.4%				16.0%				
PHF	0.92				0.82				0.00				0.87				0.90				

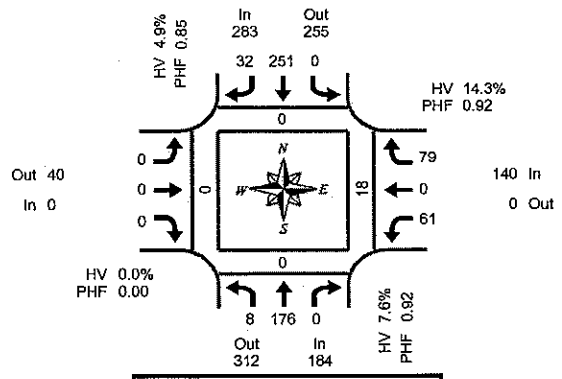
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	14	104	0	118	0	112	45	157	0	0	0	0	32	0	55	87	362
%HV	42.9%	4.8%	0.0%	9.3%	0.0%	11.6%	40.0%	19.7%	0.0%	0.0%	0.0%	0.0%	9.4%	0.0%	23.6%	18.4%	16.0%
PHF	0.70	0.84	0.00	0.92	0.00	0.97	0.56	0.82	0.00	0.00	0.00	0.00	0.89	0.00	0.81	0.87	0.90

Rolling Hour Summary
8:00 AM to 10:00 AM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
8:00 AM	11	114	0	1	0	111	33	1	0	0	0	0	31	1	42	0	343	0	0	1	0
8:15 AM	11	109	0	1	0	107	34	1	0	0	0	0	32	1	46	0	340	0	0	0	0
8:30 AM	14	110	0	1	0	105	34	1	0	0	0	0	31	1	52	0	347	0	0	0	0
8:45 AM	15	101	0	1	0	107	33	1	0	0	0	0	30	1	54	0	341	0	0	0	0
9:00 AM	14	104	0	0	0	112	45	1	0	0	0	0	32	0	55	0	362	0	0	0	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Main St & I-84 WB Ramps

Tuesday, September 19, 2006
2:00 PM to 4:00 PM

Peak Hour Summary
3:00 PM to 4:00 PM

15-Minute Interval Summary
2:00 PM to 4:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
2:00 PM	2	38	0	0	0	62	11	0	0	0	0	0	14	0	11	0	138	0	0	0	0
2:15 PM	2	36	0	0	0	46	11	0	0	0	0	0	10	0	18	0	123	0	0	0	0
2:30 PM	1	51	0	0	0	39	8	0	0	0	0	0	16	0	13	0	128	0	0	0	0
2:45 PM	4	48	0	0	0	24	9	1	0	0	0	0	12	1	16	0	114	0	0	0	0
3:00 PM	3	42	0	0	0	73	10	0	0	0	0	0	13	0	19	0	160	0	0	14	0
3:15 PM	1	41	0	0	0	63	4	0	0	0	0	0	13	0	25	0	147	0	0	3	0
3:30 PM	1	49	0	0	0	61	10	1	0	0	0	0	16	0	19	0	156	0	0	1	0
3:45 PM	3	44	0	0	0	54	8	0	0	0	0	0	19	0	16	0	144	0	0	0	0
Total Survey	17	349	0	0	0	422	71	2	0	0	0	0	113	1	137	0	1,110	0	0	18	0

Peak Hour Summary
3:00 PM to 4:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	184	312	496	0	283	255	538	1	0	40	40	0	140	0	140	0	607
%HV	7.6%				4.9%				0.0%				14.3%				7.9%
PHF	0.92				0.85				0.00				0.92				0.95

Pedestrians Crosswalk			
North	South	East	West
0	0	18	0

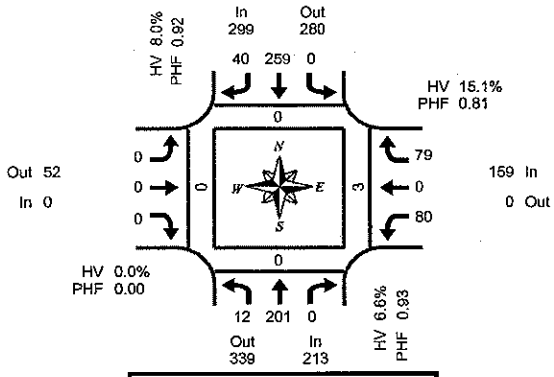
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	8	176	0	184	0	251	32	283	0	0	0	0	61	0	79	140	607
%HV	37.5%	6.3%	0.0%	7.6%	0.0%	3.6%	15.6%	4.9%	0.0%	0.0%	0.0%	0.0%	11.5%	0.0%	16.5%	14.3%	7.9%
PHF	0.67	0.90	0.00	0.92	0.00	0.86	0.80	0.85	0.00	0.00	0.00	0.00	0.80	0.00	0.79	0.92	0.95

Rolling Hour Summary
2:00 PM to 4:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
2:00 PM	9	173	0	0	0	171	39	1	0	0	0	0	52	1	58	0	503	0	0	0	0
2:15 PM	10	177	0	0	0	182	38	1	0	0	0	0	51	1	66	0	525	0	0	14	0
2:30 PM	9	182	0	0	0	199	31	1	0	0	0	0	54	1	73	0	549	0	0	17	0
2:45 PM	9	180	0	0	0	221	33	2	0	0	0	0	54	1	79	0	577	0	0	18	0
3:00 PM	8	176	0	0	0	251	32	1	0	0	0	0	61	0	79	0	607	0	0	18	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:00 PM to 5:00 PM

Main St & I-84 WB Ramps

Tuesday, September 19, 2006
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	3	47	0	0	0	66	9	0	0	0	0	0	24	0	25	0	174	0	0	0	0
4:15 PM	5	52	0	0	0	63	10	0	0	0	0	0	14	0	19	0	163	0	0	3	0
4:30 PM	2	47	0	0	0	59	11	1	0	0	0	0	18	0	17	0	154	0	0	0	0
4:45 PM	2	55	0	0	0	71	10	0	0	0	0	0	24	0	18	0	180	0	0	0	0
5:00 PM	4	38	0	0	0	81	9	0	0	0	0	0	19	0	15	0	166	0	0	4	0
5:15 PM	4	47	0	0	0	51	10	0	0	0	0	0	17	1	23	0	153	0	0	2	0
5:30 PM	5	43	0	2	0	45	14	0	0	0	0	0	17	0	17	0	141	0	0	4	0
5:45 PM	1	45	0	0	0	82	3	0	0	0	0	0	21	0	15	0	167	0	0	4	0
Total Survey	26	374	0	2	0	518	76	1	0	0	0	0	154	1	149	0	1,298	0	0	17	0

Peak Hour Summary
4:00 PM to 5:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	213	339	552	0	299	280	579	1	0	52	52	0	159	0	159	0	671
%HV	6.6%				8.0%				0.0%				15.1%				9.2%
PHF	0.93				0.92				0.00				0.81				0.93

Pedestrians Crosswalk			
North	South	East	West
0	0	3	0

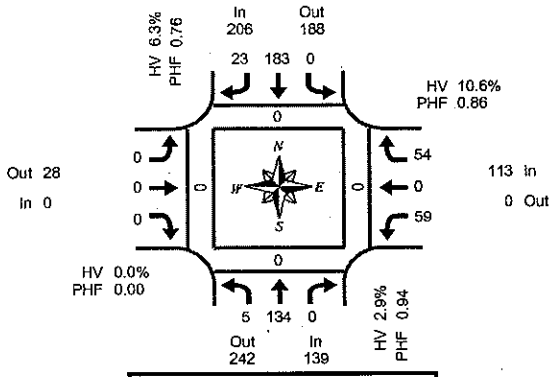
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	12	201	0	213	0	259	40	299	0	0	0	0	80	0	79	159	671
%HV	25.0%	5.5%	0.0%	6.6%	0.0%	3.1%	40.0%	8.0%	0.0%	0.0%	0.0%	0.0%	11.3%	0.0%	19.0%	15.1%	9.2%
PHF	0.60	0.91	0.00	0.93	0.00	0.91	0.91	0.92	0.00	0.00	0.00	0.00	0.83	0.00	0.79	0.81	0.93

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	12	201	0	0	0	259	40	1	0	0	0	0	80	0	79	0	671	0	0	3	0
4:15 PM	13	192	0	0	0	274	40	1	0	0	0	0	75	0	69	0	663	0	0	7	0
4:30 PM	12	187	0	0	0	262	40	1	0	0	0	0	78	1	73	0	653	0	0	6	0
4:45 PM	15	183	0	2	0	248	43	0	0	0	0	0	77	1	73	0	640	0	0	10	0
5:00 PM	14	173	0	2	0	259	36	0	0	0	0	0	74	1	70	0	627	0	0	14	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
6:00 PM to 7:00 PM

Main St & I-84 WB Ramps

Tuesday, September 19, 2006
6:00 PM to 8:00 PM

15-Minute Interval Summary
6:00 PM to 8:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
6:00 PM	1	36	0	0	0	62	6	0	0	0	0	0	6	0	24	0	135	0	0	0	0
6:15 PM	1	30	0	0	0	31	6	0	0	0	0	0	15	0	13	0	96	0	0	0	0
6:30 PM	2	33	0	0	0	40	9	0	0	0	0	0	19	0	14	0	117	0	0	0	0
6:45 PM	1	36	0	0	0	50	2	0	0	0	0	0	19	0	3	0	110	0	0	0	0
7:00 PM	1	40	0	0	0	49	3	0	0	0	0	0	12	0	16	0	121	0	0	0	0
7:15 PM	0	39	0	0	0	45	1	0	0	0	0	0	12	0	4	0	101	0	0	0	0
7:30 PM	1	22	0	0	0	26	5	0	0	0	0	0	19	0	11	0	84	0	0	0	0
7:45 PM	2	17	0	0	0	24	2	0	0	0	0	0	12	0	7	0	64	0	0	0	0
Total Survey	9	252	0	0	0	327	34	0	0	0	0	0	114	0	92	0	828	0	0	0	0

Peak Hour Summary
6:00 PM to 7:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	139	242	381	0	206	188	394	0	0	28	28	0	113	0	113	0	458	0	0	0	0
%HV	2.9%				6.3%				0.0%				10.6%				6.3%				
PHF	0.94				0.76				0.00				0.86				0.85				

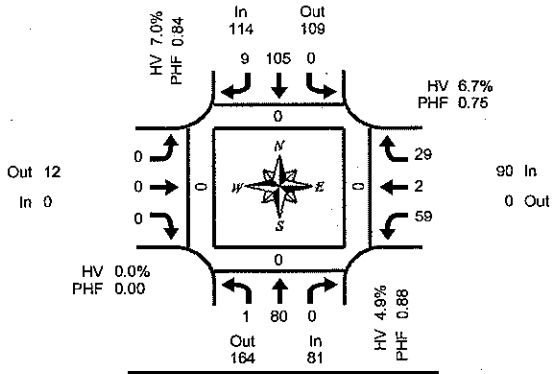
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	5	134	0	139	0	183	23	206	0	0	0	0	59	0	54	113	458
%HV	20.0%	2.2%	0.0%	2.9%	0.0%	4.4%	21.7%	6.3%	0.0%	0.0%	0.0%	0.0%	11.9%	0.0%	9.3%	10.6%	6.3%
PHF	0.63	0.93	0.00	0.94	0.00	0.74	0.64	0.76	0.00	0.00	0.00	0.00	0.78	0.00	0.56	0.86	0.85

Rolling Hour Summary
6:00 PM to 8:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
6:00 PM	5	134	0	0	0	183	23	0	0	0	0	0	59	0	54	0	458	0	0	0	0
6:15 PM	5	138	0	0	0	170	20	0	0	0	0	0	65	0	46	0	444	0	0	0	0
6:30 PM	4	147	0	0	0	184	15	0	0	0	0	0	62	0	37	0	449	0	0	0	0
6:45 PM	3	136	0	0	0	170	11	0	0	0	0	0	62	0	34	0	416	0	0	0	0
7:00 PM	4	118	0	0	0	144	11	0	0	0	0	0	55	0	38	0	370	0	0	0	0

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
8:30 PM to 9:30 PM

Main St & I-84 WB Ramps

Tuesday, September 19, 2006
8:00 PM to 10:00 PM

15-Minute Interval Summary
8:00 PM to 10:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
8:00 PM	1	12	0	0	0	17	4	0	0	0	0	0	24	0	5	0	63
8:15 PM	0	12	0	0	0	20	0	0	0	0	0	0	11	0	2	0	45
8:30 PM	0	23	0	0	0	30	4	0	0	0	0	0	17	2	11	0	87
8:45 PM	1	19	0	0	0	25	2	0	0	0	0	0	11	0	6	0	64
9:00 PM	0	19	0	0	0	28	2	0	0	0	0	0	14	0	5	0	68
9:15 PM	0	19	0	0	0	22	1	0	0	0	0	0	17	0	7	0	66
9:30 PM	0	22	0	0	0	26	4	0	0	0	0	0	15	0	2	0	69
9:45 PM	1	20	0	0	0	25	2	0	0	0	0	0	13	0	6	0	67
Total Survey	3	146	0	0	0	193	19	0	0	0	0	0	122	2	44	0	529

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0
0	0	2	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	2	0

Peak Hour Summary
8:30 PM to 9:30 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	81	164	245	0	114	109	223	0	0	12	12	0	90	0	90	0	285
%HV	4.9%				7.0%				0.0%				6.7%				6.3%
PHF	0.88				0.84				0.00				0.75				0.82

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0

By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	80	0	81	0	105	9	114	0	0	0	0	59	2	29	90	285
%HV	0.0%	5.0%	0.0%	4.9%	0.0%	6.7%	11.1%	7.0%	0.0%	0.0%	0.0%	0.0%	3.4%	#####	6.9%	6.7%	6.3%
PHF	0.25	0.87	0.00	0.88	0.00	0.88	0.56	0.84	0.00	0.00	0.00	0.00	0.87	0.25	0.66	0.75	0.82

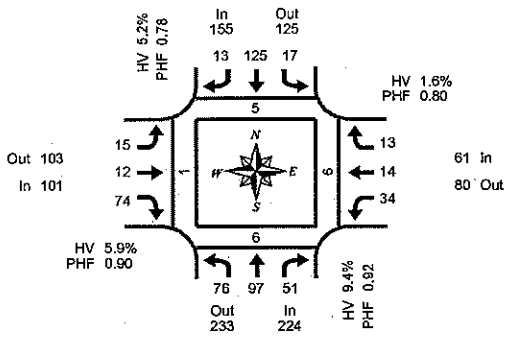
Rolling Hour Summary
8:00 PM to 10:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Interval Total
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	
8:00 PM	2	66	0	0	0	92	10	0	0	0	0	0	63	2	24	0	259
8:15 PM	1	73	0	0	0	103	8	0	0	0	0	0	53	2	24	0	264
8:30 PM	1	80	0	0	0	105	9	0	0	0	0	0	59	2	29	0	285
8:45 PM	1	79	0	0	0	101	9	0	0	0	0	0	57	0	20	0	267
9:00 PM	1	80	0	0	0	101	9	0	0	0	0	0	59	0	20	0	270

Pedestrians Crosswalk			
North	South	East	West
0	0	2	0
0	0	2	0
0	0	0	0
0	0	0	0
0	0	0	0

Total Vehicle Summary

All Traffic Data
Services Inc
Clay Carney
(503) 833-2740



Peak Hour Summary
4:00 PM to 5:00 PM

Main St & Boardman Ave

Tuesday, September 19, 2006
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound Boardman Ave				Westbound Boardman Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	7	7	6	0	1	10	0	0	1	2	6	0	2	1	1	0	44	0	0	1	0
4:05 PM	12	10	5	0	1	16	0	0	0	1	5	0	4	0	0	0	54	0	0	0	0
4:10 PM	4	7	3	0	2	11	1	0	0	2	10	0	4	1	0	0	45	0	0	0	0
4:15 PM	5	8	6	0	3	13	3	0	0	0	7	1	2	0	2	0	49	0	2	1	0
4:20 PM	6	7	3	0	0	8	0	0	1	1	7	0	5	2	3	1	43	1	2	2	0
4:25 PM	6	9	3	0	2	10	0	0	4	3	4	0	0	0	1	0	42	2	0	0	0
4:30 PM	5	8	2	0	3	7	3	0	2	0	4	0	3	2	1	0	40	0	0	0	0
4:35 PM	5	7	4	0	0	12	2	0	2	1	7	0	1	1	1	0	43	0	1	0	0
4:40 PM	6	9	7	0	1	11	2	0	1	1	5	0	2	1	4	0	50	1	0	0	0
4:45 PM	7	8	3	0	2	10	1	0	0	0	7	1	2	3	0	0	43	0	0	0	0
4:50 PM	9	9	2	0	1	6	1	0	1	1	9	0	1	3	0	0	43	1	1	0	1
4:55 PM	4	8	7	0	1	11	0	0	3	0	3	0	8	0	0	0	45	0	0	2	0
5:00 PM	6	5	4	0	1	13	1	0	1	1	2	1	6	2	1	0	43	0	0	0	0
5:05 PM	3	7	2	0	0	7	1	0	0	1	2	0	3	2	0	0	28	0	0	0	3
5:10 PM	2	3	3	0	2	10	0	0	0	0	9	0	3	3	2	2	37	0	3	0	3
5:15 PM	4	5	5	0	0	10	0	0	2	1	6	0	3	1	2	0	39	0	0	0	0
5:20 PM	3	7	4	0	1	5	0	0	1	1	4	0	6	2	1	0	35	0	0	0	0
5:25 PM	4	2	2	0	0	3	1	0	0	0	2	0	4	3	0	0	21	0	0	0	0
5:30 PM	1	6	6	1	2	7	1	0	1	2	6	0	9	1	2	0	44	0	0	0	0
5:35 PM	3	7	3	0	0	6	0	0	1	1	2	0	7	2	0	0	32	0	0	0	0
5:40 PM	1	5	2	0	0	5	1	0	0	0	2	0	5	1	1	0	23	0	0	0	0
5:45 PM	3	3	3	0	0	9	0	0	2	1	9	0	12	0	1	0	43	0	0	0	0
5:50 PM	6	6	5	0	0	4	2	0	0	0	4	0	6	0	3	0	36	2	0	0	2
5:55 PM	2	6	9	0	2	9	3	0	0	3	6	0	6	3	0	0	49	0	0	0	0
Total Survey	114	159	99	1	25	213	23	0	23	23	128	3	104	34	26	3	971	7	9	6	9

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound Boardman Ave				Westbound Boardman Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	23	24	14	0	4	37	1	0	1	5	21	0	10	2	1	0	143	0	0	1	0
4:15 PM	17	24	12	0	5	31	3	0	5	4	18	1	7	2	6	1	134	3	4	3	0
4:30 PM	16	24	13	0	4	30	7	0	5	2	16	0	6	4	6	0	133	1	1	0	0
4:45 PM	20	25	12	0	4	27	2	0	4	1	19	1	11	6	0	0	131	1	1	2	1
5:00 PM	11	15	9	0	3	30	2	0	1	2	13	1	12	7	3	2	108	0	3	0	6
5:15 PM	11	14	11	0	1	18	1	0	3	2	12	0	13	6	3	0	95	0	0	0	0
5:30 PM	5	18	11	1	2	18	2	0	2	3	10	0	21	4	3	0	99	0	0	0	0
5:45 PM	11	15	17	0	2	22	5	0	2	4	19	0	24	3	4	0	128	2	0	0	2
Total Survey	114	159	99	1	25	213	23	0	23	23	128	3	104	34	26	3	971	7	9	6	9

Peak Hour Summary
4:00 PM to 5:00 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound Boardman Ave				Westbound Boardman Ave				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	224	233	457	0	155	125	280	0	101	103	204	2	61	80	141	1	541	5	6	6	1
%HV	9.4%				5.2%				5.9%				1.6%				6.7%				
PHF	0.92				0.78				0.90				0.80				0.91				

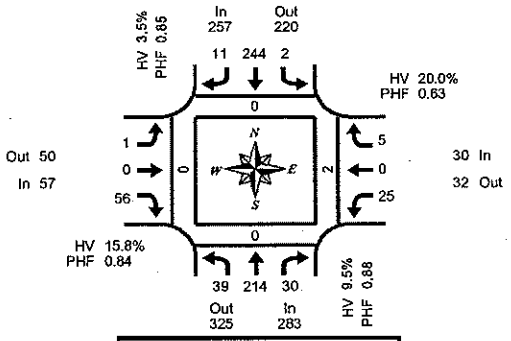
By Movement	Northbound Main St				Southbound Main St				Eastbound Boardman Ave				Westbound Boardman Ave				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	76	97	51	224	17	125	13	155	15	12	74	101	34	14	13	61	541
%HV	5.3%	9.3%	15.7%	9.4%	0.0%	3.2%	30.8%	5.2%	0.0%	8.3%	6.8%	5.9%	2.9%	0.0%	0.0%	1.6%	6.7%
PHF	0.83	0.93	0.91	0.92	0.71	0.78	0.46	0.78	0.47	0.60	0.77	0.90	0.77	0.50	0.54	0.80	0.91

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound Boardman Ave				Westbound Boardman Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	76	97	51	0	17	125	13	0	15	12	74	2	34	14	13	1	541	5	6	6	1
4:15 PM	64	88	46	0	16	118	14	0	15	9	66	3	36	19	15	3	506	5	9	5	7
4:30 PM	58	78	45	0	12	105	12	0	13	7	60	2	42	23	12	2	467	2	5	2	7
4:45 PM	47	72	43	1	10	93	7	0	10	8	54	2	57	23	9	2	433	1	4	2	7
5:00 PM	38	62	48	1	8	88	10	0	8	11	54	1	70	20	13	2	430	2	3	0	8

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:05 PM to 5:05 PM

Main St & Front St NW

Tuesday, September 19, 2006
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound Front St NW				Westbound Front St NW				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	15	2	0	0	12	0	0	1	0	4	0	0	0	0	0	34	0	0	0	0
4:05 PM	2	20	4	0	0	22	0	0	0	0	2	0	2	0	0	0	52	0	0	0	0
4:10 PM	3	21	1	0	0	30	2	0	0	0	6	0	5	0	0	0	68	0	0	0	0
4:15 PM	3	25	0	0	0	19	0	0	0	0	7	0	0	0	0	0	54	0	0	0	0
4:20 PM	6	18	3	0	0	25	0	0	0	0	3	0	1	0	1	0	57	0	0	1	0
4:25 PM	4	12	1	0	0	15	0	1	0	0	5	0	0	0	2	0	39	0	0	0	0
4:30 PM	3	17	2	0	0	17	3	0	1	0	6	0	4	0	0	0	53	0	0	0	0
4:35 PM	2	18	4	0	0	19	2	0	0	0	2	0	1	0	0	0	48	0	0	0	0
4:40 PM	2	18	1	0	0	17	1	0	0	0	2	0	1	0	0	0	42	0	0	0	0
4:45 PM	1	18	3	0	1	19	0	0	0	0	7	0	1	0	0	0	50	0	0	0	0
4:50 PM	4	17	6	0	0	20	2	0	0	0	2	0	3	0	1	0	55	0	0	0	0
4:55 PM	6	15	2	0	1	15	0	0	0	0	8	0	4	0	1	0	52	0	0	0	0
5:00 PM	3	15	3	0	0	26	1	0	0	0	6	0	3	0	0	0	57	0	0	1	0
5:05 PM	3	15	3	0	0	18	1	0	0	3	6	0	1	0	0	0	48	0	0	0	0
5:10 PM	0	10	4	0	0	25	1	0	0	0	6	0	2	0	0	0	48	0	0	0	1
5:15 PM	1	12	2	0	1	20	1	0	0	0	3	0	1	0	0	0	41	0	0	0	1
5:20 PM	8	18	6	0	0	12	0	0	1	0	2	0	3	0	1	0	51	0	0	0	0
5:25 PM	3	20	3	0	0	13	0	0	0	1	5	0	3	0	0	0	48	0	0	1	0
5:30 PM	2	8	1	2	0	13	1	0	0	0	2	0	2	0	0	0	29	0	0	0	0
5:35 PM	4	17	3	0	1	7	1	0	0	0	5	0	1	0	0	0	39	0	0	0	0
5:40 PM	1	16	4	0	0	23	0	0	0	0	4	0	2	1	1	0	52	0	0	4	0
5:45 PM	5	12	3	0	0	22	0	0	0	0	4	0	4	1	1	0	52	0	0	2	0
5:50 PM	3	14	3	0	1	18	2	0	0	1	0	0	4	0	2	0	48	0	0	0	0
5:55 PM	2	12	3	0	0	24	1	0	0	1	3	0	1	0	0	0	47	0	0	0	0
Total Survey	71	383	67	2	5	449	19	1	3	6	100	0	49	2	10	0	1,164	0	0	9	2

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound Front St NW				Westbound Front St NW				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	5	56	7	0	0	64	2	0	1	0	12	0	7	0	0	0	154	0	0	0	0
4:15 PM	13	55	4	0	0	59	0	1	0	0	15	0	1	0	3	0	150	0	0	1	0
4:30 PM	7	53	7	0	0	53	6	0	1	0	10	0	6	0	0	0	143	0	0	0	0
4:45 PM	11	50	11	0	2	54	2	0	0	0	17	0	8	0	2	0	157	0	0	0	0
5:00 PM	6	40	10	0	0	67	3	0	0	3	18	0	6	0	0	0	153	0	0	1	1
5:15 PM	12	50	11	0	1	45	1	0	1	1	10	0	7	0	1	0	140	0	0	1	1
5:30 PM	7	41	8	2	1	43	2	0	0	0	11	0	5	1	1	0	120	0	0	4	0
5:45 PM	10	38	9	0	1	64	3	0	0	2	7	0	9	1	3	0	147	0	0	2	0
Total Survey	71	383	67	2	5	449	19	1	3	6	100	0	49	2	10	0	1,164	0	0	9	2

Peak Hour Summary
4:05 PM to 5:05 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound Front St NW				Westbound Front St NW				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	283	325	608	0	257	220	477	1	57	50	107	0	30	32	62	0	627	0	0	2	0
%HV	9.5%				3.5%				15.8%				20.0%				8.1%				
PHF	0.88				0.85				0.84				0.63				0.88				

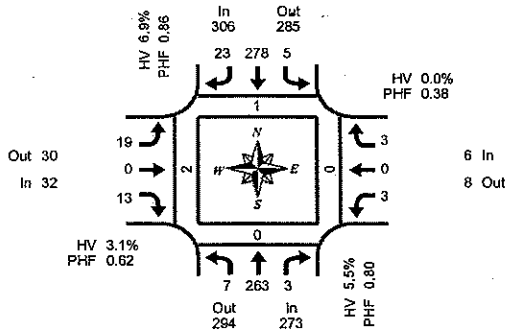
By Movement	Northbound Main St				Southbound Main St				Eastbound Front St NW				Westbound Front St NW				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	39	214	30	283	2	244	11	257	1	0	56	57	25	0	5	30	627
%HV	5.1%	9.3%	16.7%	9.5%	0.0%	3.7%	0.0%	3.5%	0.0%	0.0%	16.1%	15.8%	20.0%	0.0%	20.0%	20.0%	8.1%
PHF	0.75	0.81	0.68	0.88	0.25	0.82	0.46	0.85	0.25	0.00	0.82	0.84	0.63	0.00	0.42	0.63	0.88

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound Front St NW				Westbound Front St NW				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	36	214	29	0	2	230	10	1	2	0	54	0	22	0	5	0	604	0	0	1	0
4:15 PM	37	198	32	0	2	233	11	1	1	3	60	0	21	0	5	0	603	0	0	2	1
4:30 PM	36	193	39	0	3	219	12	0	2	4	55	0	27	0	3	0	593	0	0	2	2
4:45 PM	36	181	40	2	4	209	8	0	1	4	56	0	26	1	4	0	570	0	0	6	2
5:00 PM	35	169	38	2	3	219	9	0	1	6	46	0	27	2	5	0	560	0	0	8	2

Total Vehicle Summary

All Traffic Data Services Inc
Clay Carney
(503) 833-2740



Peak Hour Summary
4:05 PM to 5:05 PM

Main St & Front St SW

Tuesday, September 19, 2006
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound Front St SW				Westbound Front St SW				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	21	0	0	0	20	1	0	2	0	0	0	0	0	1	0	45	0	0	0	0
4:05 PM	0	20	1	0	0	32	0	0	0	0	1	0	0	0	0	0	54	0	0	0	0
4:10 PM	0	22	1	0	0	24	3	0	1	0	1	0	0	0	0	0	52	0	0	0	0
4:15 PM	1	33	0	0	1	24	5	0	4	0	3	0	0	0	0	0	71	0	0	0	0
4:20 PM	0	22	0	0	0	15	1	1	0	0	4	0	1	0	0	0	43	1	0	0	2
4:25 PM	1	28	0	0	3	17	0	0	1	0	0	0	1	0	2	0	53	0	0	0	0
4:30 PM	0	15	1	0	1	18	3	0	0	0	0	0	0	0	0	0	38	0	0	0	0
4:35 PM	0	21	0	0	0	22	1	0	3	0	1	0	0	0	1	0	49	0	0	0	0
4:40 PM	2	21	0	0	0	19	1	0	2	0	0	0	1	0	0	0	46	0	0	0	0
4:45 PM	1	19	0	0	0	30	1	0	3	0	2	0	0	0	0	0	56	0	0	0	0
4:50 PM	1	18	0	0	0	22	3	0	1	0	1	0	0	0	0	0	46	0	0	0	0
4:55 PM	1	23	0	0	0	22	4	0	0	0	0	0	0	0	0	0	50	0	0	0	0
5:00 PM	0	21	0	0	0	33	1	0	4	0	0	0	0	0	0	0	59	0	0	0	0
5:05 PM	0	30	1	0	1	18	1	0	0	0	0	0	1	0	1	0	53	0	0	0	0
5:10 PM	0	12	0	0	0	34	0	0	0	0	0	0	0	0	0	0	46	0	0	0	0
5:15 PM	0	17	0	0	0	23	2	0	2	0	0	0	0	0	0	0	44	0	0	0	0
5:20 PM	1	18	0	0	2	18	1	0	1	0	0	0	0	0	0	0	41	0	0	0	1
5:25 PM	0	15	0	0	1	13	0	0	0	0	0	0	0	0	0	0	29	0	0	0	0
5:30 PM	0	23	0	1	0	18	1	0	0	0	0	0	0	0	1	0	43	0	0	0	0
5:35 PM	1	11	0	0	0	14	1	0	1	0	0	0	0	0	2	0	30	0	0	0	0
5:40 PM	4	23	0	0	0	19	2	0	3	0	0	0	0	1	0	0	52	0	0	0	0
5:45 PM	0	15	2	0	1	35	2	0	2	0	0	0	0	0	0	0	57	0	0	0	0
5:50 PM	2	15	0	0	1	18	3	0	2	0	1	0	2	0	0	0	44	0	0	0	0
5:55 PM	0	21	0	0	0	29	2	0	1	0	0	0	1	0	0	0	54	0	0	0	0
Total Survey	15	484	6	1	11	537	39	1	33	0	14	0	7	1	8	0	1,155	1	0	0	3

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound Front St SW				Westbound Front St SW				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	63	2	0	0	76	4	0	3	0	2	0	0	0	1	0	151	0	0	0	0
4:15 PM	2	83	0	0	4	56	6	1	5	0	7	0	2	0	2	0	167	1	0	0	2
4:30 PM	2	57	1	0	1	59	5	0	5	0	1	0	1	0	1	0	133	0	0	0	0
4:45 PM	3	60	0	0	0	74	8	0	4	0	3	0	0	0	0	0	152	0	0	0	0
5:00 PM	0	63	1	0	1	85	2	0	4	0	0	0	1	0	1	0	158	0	0	0	0
5:15 PM	1	50	0	0	3	54	3	0	3	0	0	0	0	0	0	0	114	0	0	0	1
5:30 PM	5	57	0	1	0	51	4	0	4	0	0	0	0	1	3	0	125	0	0	0	0
5:45 PM	2	51	2	0	2	82	7	0	5	0	1	0	3	0	0	0	155	0	0	0	0
Total Survey	15	484	6	1	11	537	39	1	33	0	14	0	7	1	8	0	1,155	1	0	0	3

Peak Hour Summary
4:05 PM to 5:05 PM

By Approach	Northbound Main St				Southbound Main St				Eastbound Front St SW				Westbound Front St SW				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	273	294	567	0	306	285	591	1	32	30	62	0	6	8	14	0	617	1	0	0	2
%HV	5.5%				6.9%				3.1%				0.0%				6.0%				
PHF	0.80				0.86				0.62				0.38				0.87				

By Movement	Northbound Main St				Southbound Main St				Eastbound Front St SW				Westbound Front St SW				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	7	263	3	273	5	278	23	306	19	0	13	32	3	0	3	6	617
%HV	0.0%	5.7%	0.0%	5.5%	80.0%	4.7%	17.4%	6.9%	0.0%	0.0%	7.7%	3.1%	0.0%	0.0%	0.0%	0.0%	6.0%
PHF	0.44	0.79	0.38	0.80	0.31	0.87	0.64	0.86	0.59	0.00	0.41	0.62	0.38	0.00	0.25	0.38	0.87

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Main St				Southbound Main St				Eastbound Front St SW				Westbound Front St SW				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	7	263	3	0	5	265	23	1	17	0	13	0	3	0	4	0	603	1	0	0	2
4:15 PM	7	263	2	0	6	274	21	1	18	0	11	0	4	0	4	0	610	1	0	0	2
4:30 PM	6	230	2	0	5	272	18	0	16	0	4	0	2	0	2	0	557	0	0	0	1
4:45 PM	9	230	1	1	4	264	17	0	15	0	3	0	1	1	4	0	549	0	0	0	1
5:00 PM	8	221	3	1	6	272	16	0	16	0	1	0	4	1	4	0	552	0	0	0	1

Appendix 4
Operational Analysis

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Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 2 Front S @ Main	B	13.7	0.000	B	13.7	0.000	+ 0.000 D/V
# 3 I84 EB Ramps @ Main	B	13.9	0.000	B	13.9	0.000	+ 0.000 D/V
# 4 I84 WB Ramps @ Main	B	13.4	0.000	B	13.4	0.000	+ 0.000 D/V
# 5 Front N @ Main	C	16.9	0.000	C	16.9	0.000	+ 0.000 D/V
# 6 Boardman @ Main	B	14.4	0.000	B	14.4	0.000	+ 0.000 D/V

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Front S @ Main

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[13.7]

Street Name:	Main						Front S					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			1 0 0 1 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	10	265	5	5	280	25	20	0	15	5	0	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	265	5	5	280	25	20	0	15	5	0	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	11	305	6	6	322	29	23	0	17	6	0	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	11	305	6	6	322	29	23	0	17	6	0	6
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.2	xxxx	xxxxx	7.1	xxxx	6.2	7.1	xxxx	6.2
FollowUpTim:	2.3	xxxx	xxxxx	2.3	xxxx	xxxxx	3.5	xxxx	3.3	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	351	xxxx	xxxxx	310	xxxx	xxxxx	681	xxxx	336	687	xxxx	307
Potent Cap.:	1186	xxxx	xxxxx	1222	xxxx	xxxxx	363	xxxx	704	364	xxxx	737
Move Cap.:	1186	xxxx	xxxxx	1222	xxxx	xxxxx	356	xxxx	704	351	xxxx	737
Volume/Cap:	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.06	xxxx	0.02	0.02	xxxx	0.01
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.1	xxxx	xxxxx	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	452	xxxxx	xxxx	476	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.7	xxxxx	xxxxx	12.8	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			13.7			12.8		
ApproachLOS:	*			*			B			B		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 I84 EB Ramps @ Main

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: B[13.9]

Street Name:	Main						I84 Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 1! 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	180	105	70	285	0	25	0	20	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	180	105	70	285	0	25	0	20	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	189	111	74	300	0	26	0	21	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	189	111	74	300	0	26	0	21	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	6.7	xxxx	6.5	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	3.8	xxxx	3.6	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	300	xxxx	xxxxx	692	xxxx	300	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	1244	xxxx	xxxxx	372	xxxx	680	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	1244	xxxx	xxxxx	354	xxxx	680	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.06	xxxx	xxxx	0.07	xxxx	0.03	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	450	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxxx	0.4	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx	xxxxx	13.9	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			13.9			xxxxxx		
ApproachLOS:	*			*			B			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 I84 WB Ramps @ Main

Average Delay (sec/veh): 3.3 Worst Case Level Of Service: B[13.4]

Street Name:	Main						I84 Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	0 0	0	0 0 0	1 0		0 0 0	0 0		0 0	1! 0	0
Volume Module:												
Base Vol:	10 200	0		0 260	40		0 0	0		80	0	80
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00	1.00	1.00
Initial Bse:	10 200	0		0 260	40		0 0	0		80	0	80
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00	1.00	1.00
PHF Adj:	0.93 0.93	0.93		0.93 0.93	0.93		0.93 0.93	0.93		0.93	0.93	0.93
PHF Volume:	11 215	0		0 280	43		0 0	0		86	0	86
Reduct Vol:	0 0	0		0 0	0		0 0	0		0	0	0
Final Vol.:	11 215	0		0 280	43		0 0	0		86	0	86
Critical Gap Module:												
Critical Gp:	4.2 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		6.6	xxxx	6.4
FollowUpTim:	2.3 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		3.6	xxxx	3.4
Capacity Module:												
Cnflict Vol:	323 xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		538	xxxx	215
Potent Cap.:	1210 xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		483	xxxx	793
Move Cap.:	1210 xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		479	xxxx	793
Volume/Cap:	0.01 xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		0.18	xxxx	0.11
Level Of Service Module:												
2Way95thQ:	0.0 xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx
Control Del:	8.0 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx
LOS by Move:	A *	*	*	*	*	*	*	*		*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	598	xxxxx
SharedQueue:	0.0 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	1.2	xxxxx
Shrd ConDel:	8.0 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	13.4	xxxxx
Shared LOS:	A *	*	*	*	*	*	*	*		*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx				13.4	
ApproachLOS:	*			*			*				B	

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Front N @ Main

Average Delay (sec/veh): 2.4 Worst Case Level Of Service: C[16.9]

Street Name:	Main						Front N					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0 1 0			1 0 0 1 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	40	215	30	5	245	10	5	0	55	25	0	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	40	215	30	5	245	10	5	0	55	25	0	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	45	244	34	6	278	11	6	0	63	28	0	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	45	244	34	6	278	11	6	0	63	28	0	6
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.1	xxxx	xxxxx	7.3	xxxx	6.4	7.3	xxxx	6.4
FollowUpTim:	2.3	xxxx	xxxxx	2.2	xxxx	xxxxx	3.6	xxxx	3.4	3.7	xxxx	3.5
Capacity Module:												
Cnflict Vol:	290	xxxx	xxxxx	278	xxxx	xxxxx	651	xxxx	284	679	xxxx	261
Potent Cap.:	1228	xxxx	xxxxx	1273	xxxx	xxxxx	363	xxxx	723	342	xxxx	736
Move Cap.:	1228	xxxx	xxxxx	1273	xxxx	xxxxx	349	xxxx	723	303	xxxx	736
Volume/Cap:	0.04	xxxx	xxxx	0.00	xxxx	xxxx	0.02	xxxx	0.09	0.09	xxxx	0.01
Level Of Service Module:												
2Way95thQ:	0.1	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.0	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	663	xxxxx	xxxx	336	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.0	xxxxx	xxxxx	16.9	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			11.0			16.9		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Boardman @ Main

Average Delay (sec/veh): 5.0 Worst Case Level Of Service: B[14.4]

Street Name:	Main						Boardman					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0	1 0		0 1 0	0 1		0 0	1! 0 0		0 0	1! 0 0	
Volume Module:												
Base Vol:	75	100	50	20	125	15	15	10	75	35	15	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	75	100	50	20	125	15	15	10	75	35	15	15
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	82	110	55	22	137	16	16	11	82	38	16	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	82	110	55	22	137	16	16	11	82	38	16	16
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.1	xxxx	xxxxx	7.2	6.6	6.3	7.1	6.5	6.2
FollowUpTim:	2.3	xxxx	xxxxx	2.2	xxxx	xxxxx	3.6	4.1	3.4	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	154	xxxx	xxxxx	165	xxxx	xxxxx	500	511	137	538	500	137
Potent Cap.:	1385	xxxx	xxxxx	1395	xxxx	xxxxx	475	460	901	454	473	911
Move Cap.:	1385	xxxx	xxxxx	1395	xxxx	xxxxx	427	426	901	381	437	911
Volume/Cap:	0.06	xxxx	xxxx	0.02	xxxx	xxxx	0.04	0.03	0.09	0.10	0.04	0.02
Level Of Service Module:												
2Way95thQ:	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.8	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	705	xxxxx	xxxx	456	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	0.6	xxxxx	xxxxx	0.6	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	11.0	xxxxx	xxxxx	14.4	xxxxx
Shared LOS:	*	*	*	A	*	*	*	B	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			11.0			14.4		
ApproachLOS:	*			*			B			B		

Note: Queue reported is the number of cars per lane.

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Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 2 Front S @ Main	F	129.6	0.000	F	129.6	0.000	+ 0.000 D/V
# 3 I84 EB Ramps @ Main	E	38.0	0.000	E	38.0	0.000	+ 0.000 D/V
# 4 I84 WB Ramps @ Main	F	206.0	0.000	F	206.0	0.000	+ 0.000 D/V
# 5 Front N @ Main	D	30.4	0.000	D	30.4	0.000	+ 0.000 D/V
# 6 Boardman @ Main	F	57.3	0.000	F	57.3	0.000	+ 0.000 D/V

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Front S @ Main

Average Delay (sec/veh): 10.5 Worst Case Level Of Service: F[129.6]

Street Name:	Main						Front S					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			1 0 0 1 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	30	515	65	55	635	55	45	0	35	30	0	50
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	30	515	65	55	635	55	45	0	35	30	0	50
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	34	592	75	63	730	63	52	0	40	34	0	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	34	592	75	63	730	63	52	0	40	34	0	57
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.2	xxxx	xxxxx	7.1	xxxx	6.2	7.1	xxxx	6.2
FollowUpTim:	2.3	xxxx	xxxxx	2.3	xxxx	xxxxx	3.5	xxxx	3.3	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	793	xxxx	xxxxx	667	xxxx	xxxxx	1615	xxxx	761	1606	xxxx	629
Potent Cap.:	810	xxxx	xxxxx	900	xxxx	xxxxx	83	xxxx	403	86	xxxx	486
Move Cap.:	810	xxxx	xxxxx	900	xxxx	xxxxx	67	xxxx	403	70	xxxx	486
Volume/Cap:	0.04	xxxx	xxxx	0.07	xxxx	xxxx	0.77	xxxx	0.10	0.49	xxxx	0.12
Level Of Service Module:												
2Way95thQ:	0.1	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	9.6	xxxx	xxxxx	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	105	xxxxx	xxxx	151	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	5.1	xxxxx	xxxxx	3.2	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	130	xxxxx	xxxxx	60.1	xxxxx
Shared LOS:	*	*	*	*	*	*	*	F	*	*	F	*
ApproachDel:	xxxxxx			xxxxxx			129.6			60.1		
ApproachLOS:	*			*			F			F		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 I84 EB Ramps @ Main

Average Delay (sec/veh): 4.6 Worst Case Level Of Service: E[38.0]

Street Name:	Main						I84 Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 1! 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	385	245	95	640	0	35	0	125	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	385	245	95	640	0	35	0	125	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	405	258	100	674	0	37	0	132	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	405	258	100	674	0	37	0	132	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	6.7	xxxx	6.5	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	3.8	xxxx	3.6	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	663	xxxx	xxxxx	1408	xxxx	674	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	912	xxxx	xxxxx	134	xxxx	411	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	912	xxxx	xxxxx	122	xxxx	411	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.11	xxxx	xxxx	0.30	xxxx	0.32	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	270	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxxx	3.8	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx	xxxxx	38.0	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	E	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			38.0			xxxxxx		
ApproachLOS:	*			*			E			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 I84 WB Ramps @ Main

Average Delay (sec/veh): 65.9 Worst Case Level Of Service: F[206.0]

Street Name:	Main						I84 Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	0 0	0	0 0 0	1 0		0 0 0	0 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	80 245	0		0 455	60		0 0	0		275	0	115
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00	1.00	1.00
Initial Bse:	80 245	0		0 455	60		0 0	0		275	0	115
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00	1.00	1.00
PHF Adj:	0.93 0.93	0.93		0.93 0.93	0.93		0.93 0.93	0.93		0.93	0.93	0.93
PHF Volume:	86 263	0		0 489	65		0 0	0		296	0	124
Reduct Vol:	0 0	0		0 0	0		0 0	0		0	0	0
Final Vol.:	86 263	0		0 489	65		0 0	0		296	0	124
Critical Gap Module:												
Critical Gp:	4.2 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		6.6	xxxx	6.4
FollowUpTim:	2.3 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		3.6	xxxx	3.4
Capacity Module:												
Cnflict Vol:	554 xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		957	xxxx	263
Potent Cap.:	992 xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		271	xxxx	745
Move Cap.:	992 xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		252	xxxx	745
Volume/Cap:	0.09 xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		1.17	xxxx	0.17
Level Of Service Module:												
2Way95thQ:	0.3 xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx
Control Del:	9.0 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx
LOS by Move:	A *	*	*	*	*	*	*	*		*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	313	xxxxx
SharedQueue:	0.3 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	20.8	xxxxx
Shrd ConDel:	9.0 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	206	xxxxx
Shared LOS:	A *	*	*	*	*	*	*	*		*	F	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx				206.0	
ApproachLOS:	*			*			*				F	

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Front N @ Main

Average Delay (sec/veh): 3.1 Worst Case Level Of Service: D[30.4]

Street Name:	Main						Front N					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0	1 0		1 0 0	1 0		0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	40	375	35	5	435	15	10	0	65	35	0	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	40	375	35	5	435	15	10	0	65	35	0	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	45	426	40	6	494	17	11	0	74	40	0	23
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	45	426	40	6	494	17	11	0	74	40	0	23
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.1	xxxx	xxxxx	7.3	xxxx	6.4	7.3	xxxx	6.4
FollowUpTim:	2.3	xxxx	xxxxx	2.2	xxxx	xxxxx	3.6	xxxx	3.4	3.7	xxxx	3.5
Capacity Module:												
Cnflict Vol:	511	xxxx	xxxxx	466	xxxx	xxxxx	1063	xxxx	503	1088	xxxx	446
Potent Cap.:	1014	xxxx	xxxxx	1085	xxxx	xxxxx	189	xxxx	542	178	xxxx	576
Move Cap.:	1014	xxxx	xxxxx	1085	xxxx	xxxxx	175	xxxx	542	148	xxxx	576
Volume/Cap:	0.04	xxxx	xxxx	0.01	xxxx	xxxx	0.06	xxxx	0.14	0.27	xxxx	0.04
Level Of Service Module:												
2Way95thQ:	0.1	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.7	xxxx	xxxxx	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	423	xxxxx	xxxx	203	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.7	xxxxx	xxxxx	1.2	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	15.6	xxxxx	xxxxx	30.4	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	D	*
ApproachDel:	xxxxxx			xxxxxx			15.6			30.4		
ApproachLOS:	*			*			C			D		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Boardman @ Main

Average Delay (sec/veh): 14.0 Worst Case Level Of Service: F[57.3]

Street Name:	Main						Boardman					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0	1 0		0 1 0	0 1		0 0	1! 0 0		0 0	1! 0 0	
Volume Module:												
Base Vol:	105	145	140	40	190	25	20	15	110	125	20	35
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	105	145	140	40	190	25	20	15	110	125	20	35
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	115	159	154	44	209	27	22	16	121	137	22	38
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	115	159	154	44	209	27	22	16	121	137	22	38
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.1	xxxx	xxxxx	7.2	6.6	6.3	7.1	6.5	6.2
FollowUpTim:	2.3	xxxx	xxxxx	2.2	xxxx	xxxxx	3.6	4.1	3.4	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	236	xxxx	xxxxx	313	xxxx	xxxxx	794	841	209	846	791	236
Potent Cap.:	1291	xxxx	xxxxx	1230	xxxx	xxxxx	301	297	822	282	322	803
Move Cap.:	1291	xxxx	xxxxx	1230	xxxx	xxxxx	245	260	822	208	282	803
Volume/Cap:	0.09	xxxx	xxxx	0.04	xxxx	xxxx	0.09	0.06	0.15	0.66	0.08	0.05
Level Of Service Module:												
2Way95thQ:	0.3	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.1	xxxx	xxxxx	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	531	xxxxx	xxxx	251	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	1.3	xxxxx	xxxxx	5.9	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx	xxxxx	14.7	xxxxx	xxxxx	57.3	xxxxx
Shared LOS:	*	*	*	A	*	*	*	B	*	*	F	*
ApproachDel:	xxxxxx			xxxxxx			14.7			57.3		
ApproachLOS:	*			*			B			F		

Note: Queue reported is the number of cars per lane.

Preliminary Signal Warrants

Introduction

The single most important criterion for preliminary signal warrant analysis is engineering judgment. In the following procedures only the fundamental parameters of volumes and approach lanes are provided.

Background

There are 8 traffic signal warrants found in the Manual on Uniform Traffic Control Devices (MUTCD), Page 4C-1. The signal warrants are:

Warrant 1, Eight-Hour Vehicular Volume.
- Case A – Minimum Vehicular Volume.
- Case B – Interruption of Continuous Traffic.

Warrant 2, Four-Hour Vehicular Volume.
Warrant 3, Peak Hour.
Warrant 4, Pedestrian Volume.
Warrant 5, School Crossing.
Warrant 6, Coordinated Signal System.
Warrant 7, Crash Experience.
Warrant 8, Roadway Network.

OAR 734-020-0460 (1) stipulates that only MUTCD warrant 1 Case A and Case B may be used to project a future need for a traffic signal. (Corrected to reflect numbering used in the Millennium Edition of the MUTCD.) In the Transportation Planning Analysis Unit (TPAU), we are typically projecting traffic into the future and analyzing future years, so we consider warrants 1, Case A and Case B. Case A deals primarily with high volumes on the intersecting minor street. Case B addresses high volumes on the major street and the delays and hazards to vehicles on the minor street trying to either access or cross the major street.

Analysis

In MUTCD warrant 1 the eighth highest hour of an average day is used to determine whether a warrant is met. At the analysis stage in TPAU, Average Daily Traffic (ADT) is used for preliminary signal warrant analysis. We apply a conversion factor of 5.65% to the ADT to reach the eighth highest hour. The conversion factor of 5.65% is acceptable as shown using 1991 to 1994 manual counts and as agreed on by TPAU and Traffic Management Section. To convert MUTCD hourly volumes to ADT volumes, divide the MUTCD volume by the factor .0565, this equals the target ADT volume to meet MUTCD warrant 1.

If the “85 percentile speed of major street traffic exceeds 40 mph in either an urban or rural area, or when the intersection lies within the built-up area of an isolated community having a population of less that 10,000” (MUTCD), reduce the target volume for the warrants to 70 percent of the normal requirements. The warrant volumes, along with the number of lanes, are shown in the preliminary traffic signal warrant analysis sheet on the following page.

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Main Street	**Minor Street:**	I-84 Westbound Ramp
Project:	Boardman IAMP	**City/County:**	Boardman, Morrow
Year:	2026	**Alternative:**	

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
Case B: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

	100 percent of standard warrants
x	70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	6,200	8,800	
	Minor	2	2,500	3,325	Y
Case B	Major	1	9,300	8,800	
	Minor	2	1,250	3,325	N

Analyst and Date: PJO 3/15/07 | Reviewer and Date:

Determining the number of approach lanes and determining the approach volumes to use in the warrant analysis requires knowledge of the involved intersection.

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigation must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Main Street	**Minor Street:**	I-84 Eastbound Ramp
Project:	Boardman IAMP	**City/County:**	Boardman, Morrow
Year:	2026	**Alternative:**	

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
Case B: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

	100 percent of standard warrants
x	70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	6,200	11,200	
	Minor	2	2,500	975	N
Case B	Major	1	6,200	11,200	
	Minor	2	2,500	975	N

Analyst and Date: PJO 3/15/07 | Reviewer and Date:

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigation must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.

Appendix 5
Main Street Land Use Assumptions

Future Land Use/Trip Generation Assumptions:

- Land use assumptions were developed by Winterbrook Planning and reviewed by the City of Boardman and ODOT.
- Trips generation was based on the ITE Trip Generation Manual, 7th Edition.
- Trip reduction (pass by and shared trips) was based on ITE Trip Generation Manual, 7th Edition and was applied to Retail, Fast Food Restaurants, Convenience Mart and Gas Station.
- There were no background through trips added to the network, since the only development in the area would be in Boardman. There is minimal historical growth of traffic volumes on roadways in the area, so there was no additional growth rate applied to existing volumes.

Main Street Trip Distribution:

East N Front "TAZ"

- 70% towards I-84 Ramps (south)
- 25% north
- 5% west

East S Front "TAZ"

- 60% towards I-84 Ramps (north)
- 35% south
- 5% west

West S Front "TAZ"

- 70% towards I-84 Ramps (north)
- 30% south

South Main "TAZ"

- 45% towards I-84 Ramps (north)
- 45% south
- 10% west

South Oregon Trail "TAZ"

- 45% towards I-84 Ramps (north)
- 45% south
- 10% west

South "TAZ"

- 100% towards I-84 Ramps (north)

Traffic was distributed at the ramps so that 45% was directed to the east, 25% was directed to the west and 30% was directed north.

Trip Generation

Main Street IAMP

Table A1: Cumulative Development Raw Trip Generation – Main Street IAMP Area

Land Use	ITE Code	Units (square ft)	Trip Generation				
			Daily	AM In	AM out	PM In	PM Out
Convenience Mart	851	2,000	1,476	67	67	53	51
Fast Food w Drive-Thru	934	3,000	1,488	81	78	54	50
Free Standing Discount Store	815	20,000	1,120	11	5	51	51
East N Front - Subtotal			**4,085**	**160**	**150**	**158**	**152**
Gas Station w/Mart	945	8 pumps	1,302	40	40	54	54
Motel	320	65 rooms	592	15	27	20	18
Sit-Down High Turn Restaurant	932	6,000	763	36	33	40	26
SF Housing	210	120 units	1,148	23	68	76	45
Fast Food w Drive-Thru	934	4	1,984	108	104	72	67
Self Service Car Wash	947	3 stalls		0	0	8	8
Auto Care Center	942	2		4	2	3	3
East S Front - Subtotal			**5,790**	**226**	**274**	**274**	**220**
Motel	320	65 rooms	592	15	27	20	18
Sit-Down High Turn Restaurant	932	6	763	36	33	40	26
East S Front - Subtotal			**1,355**	**51**	**60**	**60**	**43**
Fast Food with Drive-Thru	934	4,000	1,984	108	104	72	67
Bank Drive-In	912	4,000	986	28	22	91	91
Single Tenant Office	715	5,000	58	8	1	1	7
Single Tenant Office	715	5,000	58	8	1	1	7
Medical Clinic	630	10,000	315	18	18	26	26
Single Tenant Office	715	5,000	58	8	1	1	7
Single Tenant Office	715	5,000	58	8	1	1	7
South Main - Subtotal			**3,216**	**186**	**148**	**195**	**213**
Drug Store with Drive Thru	881	20,000	1,763	30	23	84	88
Hardware/Paint Store	816	10,000	513	6	5	29	32
Specialty Retail	812	10,000	452	17	9	21	24
Housing – condos	230	120 units	703	9	44	42	21
South Main - Subtotal			**3,431**	**62**	**80**	**176**	**164**
Housing	210	100 units	957	19	56	64	37
South – Subtotal			**957**	**19**	**56**	**64**	**37**
Subtotal (Main Street IAMP Area)			**18,834**	**1,329**		**1,415**	

Table A1a: Cumulative Development Trip Generation – Main Street IAMP Area

Including Trip Reductions

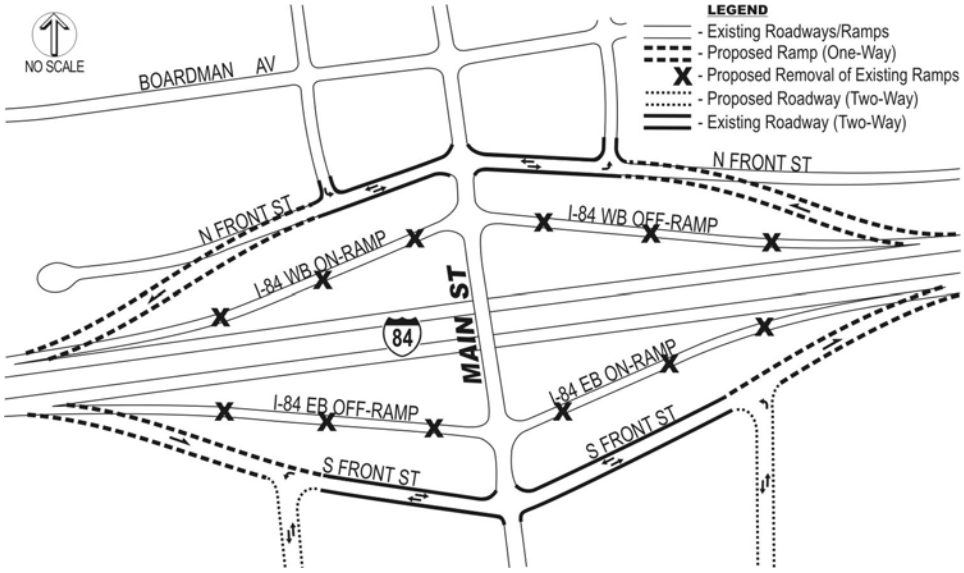
		Trip Generation			
Land Use	**Daily**	**AM In**	**AM out**	**PM In**	**PM Out**
Convenience Mart*	590	27	27	21	21
Fast Food w Drive-Thru**	848	46	45	31	28
Free Standing Discount Store***	728	7	3	33	33
East N Front - Subtotal	**2,167**	**81**	**75**	**85**	**82**
Gas Station w/Mart****	951	29	29	39	39
Motel	592	15	27	20	18
Sit-Down High Turn Restaurant	763	36	33	40	26
SF Housing	1,148	23	68	76	45
Fast Food w Drive-Thru**	1,131	62	59	41	38
Self Service Car Wash****		0	0	6	6
Auto Care Center****		3	2	2	2
East S Front - Subtotal	**4,585**	**167**	**218**	**225**	**174**
Motel	592	15	27	20	18
Sit-Down High Turn Restaurant	763	36	33	40	26
East S Front - Subtotal	**1,355**	**51**	**60**	**60**	**43**
Fast Food with Drive-Thru**	1,131	62	59	41	38
Bank Drive-In	986	28	22	91	91
Single Tenant Office	58	8	1	1	7
Single Tenant Office	58	8	1	1	7
Medical Clinic	315	18	18	26	26
Single Tenant Office	58	8	1	1	7
Single Tenant Office	58	8	1	1	7
South Main - Subtotal	**2,663**	**140**	**103**	**164**	**185**
Drug Store with Drive Thru***	1,146	20	15	55	57
Hardware/Paint Store***	333	4	3	19	21
Specialty Retail***	294	11	6	14	15
Housing – condos	703	9	44	42	21
South Main - Subtotal	**2,776**	**44**	**68**	**129**	**114**
Housing	957	19	56	64	37
South – Subtotal	**957**	**19**	**56**	**64**	**37**
Subtotal – Main Street IAMP	**11,727**	**969**		**1,118**	

* Trip Reduction of 60% (Convenience Store)
** Trip Reduction of 43% (Fast Food)
***Trip Reduction of 35% (Retail)
****Trip Reduction of 27% (gas station)

Appendix 6
Main Street Alternatives

Main Street Alt. 2: Convert Front Street into Freeway Ramps

The second concept would abandon the existing freeway on and off-ramps, and construct new ramps that connect to the existing North Front Street and South Front Street road segments. This concept eliminates the conflicts discussed with Alt. 1 by removing one of the two intersections. The other benefit of this concept is that is negates the need for widening the I-84 overpass bridge. The new ramp terminal intersections would not have restricted sight distance because of the overpass railing, and there could be some provision for left-turn pockets, although it would be less than ODOT standards require.



The negative aspects of this concept are very significant, based on reviews of ODOT and Federal Highway Administration design practices, and it is essentially fatally flawed. The primary reasons that this concept could not be supported by current safety and highway design standards include:

- Transition from interstate to local streets would be unusual, and motorists not familiar with the area could be confused and make poor driving decisions, which could lead to higher crash rates.
- Two-way streets circulation next to one-way off-ramps creates the potential for wrong-way entry onto the Interstate.
- Reduce safety associated with higher conflicting movements between vehicles exiting the freeway, and local circulation to and from the adjoining businesses on Front Street.

Because of these and other issues not listed, this concept was rejected from further consideration for this interchange.

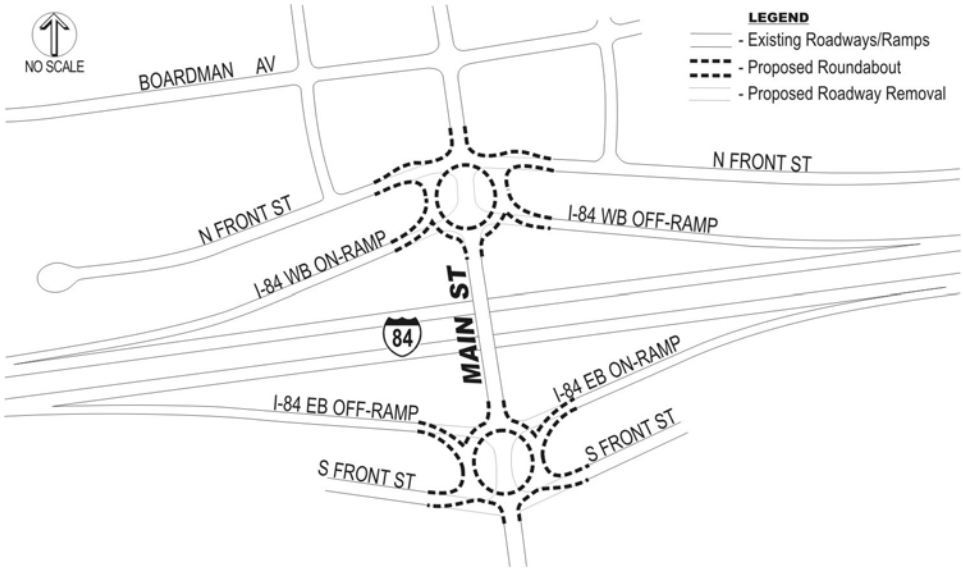
Main Street Alt. 3: Combine Ramp Terminals and Front Street by Roundabouts

The third concept for Main Street would combine the freeway ramp terminals with existing Front Street to form one large intersection on either side of the freeway. This concept would use a

roundabout configuration to reduce conflicts for the six approaching legs to the newly formed intersections.

The value of this concept would be to retain full access on Front Street without a dramatic change to the existing freeway ramp configuration, as was proposed in Alternative 2, above. Combining the intersection partially addresses the vehicle queue issues noted with Alternative 1, and the temporary blockage of traffic accessing Front Street.

The negative aspects of this concept are very significant, for many of the reasons noted for Alternative 2, plus a few others reasons that are unique to roundabout applications. Pedestrian and bicycle travel through the interchange would be significantly more complex, since vehicles are not required to fully stop on the approach legs, except to yield to other vehicles. Typically, crosswalks are set back away from the inner circle of the roundabout to improve visibility of the pedestrian by the approaching motorist. This would lengthen the walking path for pedestrians.



ODOT highway design engineers identified a list of other reasons that roundabouts would not be appropriate at this location, and those include:

- All legs should have near balanced volumes,
- Not more than one level of street functional classification between legs,
- Should be mostly commuter traffic,
- Should not have more than 4 legs and
- Should not have a high volume of truck traffic (interchange would anticipate high trucks).

The second bullet refers to the street functional classification; Main Street is an arterial, and Front Street is a local street, and the freeway off ramps are interstate highways. Mixing these types of street types at one intersection is very unusual, and it could cause uncertainty and confusion for drivers not familiar with the area. For the above reasons, the third alternative was deemed to be flawed, and was rejected from further consideration for the Main Street interchange.

HATTENHAUER DISTRIBUTING CO.

PO Box 1397, 201 West 1st Street, The Dalles, OR 97058

Ph. (541) 296-3515 Fax (541) 296-0040

April 10, 2024

VIA E-MAIL (mclanec@cityofboardman.com)

Carla McLane
Planning Official
City of Boardman
200 City Center Circle
PO Box 229
Boardman, OR 97818

RE: OPPOSITION TO PROPOSED MEDIAN BARRIER CUTTING OFF NORTH-BOUND TRAFFIC ALONG N MAIN STREET FROM ACCESSING OUR PLACE OF BUSINESS

Dear Carla:

As you know, since the early 1980s, my family has owned and operated the gas station and convenience store located at 100 Main St. N. in Boardman. We recently learned the City intends to make roadway changes that will negatively impact the current use of our business location, as we serve the motoring public in regards to both domestic and transient traffic. Traffic using I-84 exit 164 is our main customer base for fuel sales and ancillary convenience store sales. I believe the motoring public appreciates us being there for their needs, including re-fueling, cold drinks, hot food, and available restrooms. The proposed changes to the roadway will drastically deter, if not eliminate, any I-84 traffic from the ability to reach our location. For that reason, we strongly encourage the City to explore other options than what is currently being considered.

Currently, our business has several access points from traffic from I-84 exit 164: an approximately 100' open driveway on Front St; an approximately 40' curbed driveway on Main St.; and an approximately 140' open driveway on Boardman Ave. With the proposed road changes, the first two access points will be eliminated and the third severely hampered by forcing a left turn across a double yellow line and two lanes of traffic. While we are not traffic or civil engineers, we do have a good sense of business, built up over 60 years and 3 generations of knowledge. We feel the City's proposed traffic changes will be detrimental to our business and the many people that count on us.

In addition to the above, we currently have commercial truck fuel business and off-s short-term parking on our property as well. If the City's proposed traffic changes are implemented, this facet of our business will likely be eliminated as well.

Our Boardman operation currently has 23 employees, all of whom are residents of Boardman. With the anticipated decline of our business resulting from these traffic changes, many of these positions could be eliminated.

Our company currently has a fuel contract and supply agreement with Sinclair Oil Corp. In that contract are specific minimum annual gallonage requirements for the Boardman location. Any shortfall on annual gallons can trigger a shortfall penalty. A major disruption to traffic patterns accessing our place of business could definitely have a drastic impact on these gallon requirements. This amount could be significant and in the 10's of thousands of dollars.

As you may know, our Boardman facility recently underwent site improvements, which amounted to just shy of an $1,000,000 investment in the community. Additionally, we had hoped to remodel and expand the existing convenience store to better serve the community and the motoring public that travels along I-84. If these traffic changes are implemented, we will need to rethink such future investments in Boardman. If it is your desire to push us out of business I would like to negotiate the dollar amount I feel would be just compensation.

Considering the above, in order to facilitate a productive conversation that preserves our current business operations, yet still allows the City to modernize the traffic pattern in the area, we propose the City preserve a 40' access driveway from N Main St. to our property. Our property has approximately 200' of frontage along N. Main St., so I believe this can be accomplished. As I previously mentioned in our phone call, my dislike for the changes along Boardman Ave., it was stated that west Boardman Ave. is not a busy or a growing part of town and traffic is light and expected to be so in the future. So I find this contrary to your position that there will be a stacking issue for northbound trafic queuing in the left turn lane at the proposed stop light at the intersection of Boardman Ave. and N Main St.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

Alex Hattenhauer
CEO

FINAL FINDINGS OF FACT
CONDITIONAL USE PERMIT
CUP24-000001

REQUEST: To approve the installation of a HAWK (High-Intensity Activated CrossWalK) signal with related street improvements at the corner of North Main and Boardman Avenue to include conversion of the North Main Street intersection with the NE and NW Front Streets to a right-in/right-out configuration. To determine that the installation is in conformance with the Main Street Interchange Area Management Plan and meets necessary warrants.

APPLICANT/OWNER: City of Boardman
Post Office Box 229
Boardman, Oregon 97818

ZONING OF THE AREA: Commercial (Tourist Commercial Sub District) and Residential

PROPERTY LOCATION: The subject property includes the rights-of-way for both Main Street and Boardman Avenue north of the Main Street Interchange. Adjacent businesses include C&D, Chevron, Sinclair, the Boardman Office Center, and Riverside High School.

I. BACKGROUND: A number of years ago the City of Boardman experienced a loss of life at the subject intersection after which the currently installed Rectangular Rapid Flashing Beacon (RRFB) was installed. During peak pedestrian crossings, predominantly at school departure times, use of the RRFB can create traffic backups along Main Street that can impact queuing on the west bound Interstate 84 off ramp creating potential impediments into the west bound travel lane.

This area is subject to the Boardman Main Street Interchange Area Management Plan (MS IAMP) and any development or street projects within the Management Area must conform to the requirements of the IAMP. In the MS IAMP there are streetlights envisioned at the ramp intersections but not other intersections. About two years ago the City engaged Kittelson & Associates to do an evaluation of the Main Street corridor to accomplish an update to the planning level analysis documented in the 2009 MS IAMP. The purpose was to provide an updated list of improvement projects to support multi-modal circulation improvements along the corridor and at the interchange.

After lengthy discussion with the Oregon Department of Transportation (ODOT) concerning the necessary planning process to authorize the installation of a streetlight it was determined that an amendment to the MS IAMP would not be necessary but signal warrants needed to be identified and no impacts to the interchange could occur. Signal warrants were justified and the streetlight was shown not to impact the interchange in the Kittleson & Associates Main Street corridor assessment. Installation of the center median is also justified to convert NW and NE Front Street to right-in/right-out and for traffic queueing/staging at the signalized intersection.

It should be noted that the MS IAMP does say the following about access to Main Street in the vicinity of the Interchange: "A key element of the IAMP is to the long-range preservation of operational efficiency and safety of the interchange is the management of access to Main

Street. Because access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic and reduce the efficiency of the transportation system. However, reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts." The proposed center median and limiting left hand turns on North Main Street between Front Street and Boardman Avenue affectively achieves the intent of this statement without closing those accesses.

In limiting NE and NW Front Streets to a right-in/right-out configuration the Boardman Avenue and North Main Street intersection allows full turning movements. For comparison the same configuration on South Main Street would mean that Oregon Trail Boulevard will also allow full turning movements.

The street light installation, including street, sidewalk, and parking improvements, has been designed. It is anticipated that the project will go to bid in July 2024 with construction starting in March or April of 2025 and ending in July or August of that same year. The duration of time between the construction bidding process and the start of construction is for the procurement of long-lead time equipment and materials.

This project is identified in the Capital Improvement Plan adopted by the Boardman City Council on April 2 of this year. The City Manager and Planning Official have met with several of the immediately impacted landowners to discuss the project, the safety concerns it is addressing, mitigation of construction impacts, and to express our understanding of how this can create negative impacts to business operations.

After the initial Planning Commission public hearing on April 17 staff did follow up with ODOT to further discuss the impacts of the proposal and their participation in accomplishing the requirements as laid out in the MS IAMP. Based on that conversation and further review of the Kittelson & Associates Main Street Assessment the city is modifying their project in two ways. First the street light infrastructure will be installed but the signal will initially be a High-Intensity Activated CrossWalK, or HAWK and second the median will only affect the Front Street intersection allowing, for now, left turns across Main Street between Front Street and Boardman Avenue. The modification of Front Streets to a right-in/right-out configuration is maintained.

What is a HAWK signal? *It is a device used to assist people with safely crossing busy streets. They work the same as other button-activated signals, either by pushing a button or an automatic sensor, which directs the person walking or biking to wait for the signal to change and traffic to stop allowing them to cross safely. For a driver, the HAWK signal appears differently than other traffic lights. At rest, HAWKs remain dark. Once triggered, it will then go through a series of yellow and red sequences requiring motorists to slow down and stop. After the people walking and biking cross, the HAWK will go dark again, allowing motorists to continue through the intersection.*

Why are they helpful? *HAWK signals provide safer crossing alternatives for people walking and biking than traditional crosswalks especially in mid-block locations with heavy demand. Because the devices are only activated when walkers or bikers are present, people driving experience minimal delays. HAWK signals can also be installed at the intersection of an arterial road with a smaller side street, which would not otherwise warrant a traffic light signalized crossing. This amounts to easier crossing on busy streets for people walking and biking. Data also suggests*

that HAWK signals crate safer crossings, reduce crashes, and increase driver compliance with crosswalk laws.

The city is maintaining the conversion of the Front Street intersection to a right-in/right-out configuration for several reasons outlined here:

1. *The City's Level of Service, or LOS, standard is C which is higher than ODOTs and allows for less congestion.*
2. *Access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic, and reduce the efficiency of the transportation types. Reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts. Reducing Front Street to a right-in-right-out configuration reduces a significant vehicular conflict adjacent to the west bound off-ramp.*
3. *At the time the MS IAMP was adopted the LOS for Main Street and North Front Street was C. Today it is D which, under the MS IAMP, does require action on the part of the city. It should be noted that the LOS for South Front Street is also at a LOS of D. Without action both of those intersections are identified to achieve a LOS of F by 2042.*
4. *The MS IAMP does identify that the City is to work towards two items, the first being development of the local street network both east and west of Main Street and second to limit access at Main Street at both north and south Front Street. The first step of this is to limit those intersections to right turn only.*

For these reasons this request needs to be approved as presented

II. **APPROVAL CRITERIA:** The Boardman Development Code Residential and Commercial use zones both identify in their respective Tables of allowed uses that "transportation projects that are not designated improvements in the Transportation System Plan" are subject to a Conditional Use Permit. While street lights are envisioned in the MS IAMP they are planned for the on- and off-ramps, not other intersections. The applicable criteria are found in Chapter 4.4 Conditional Use Permits at 4.4.400 Criteria, Standards and Conditions of Approval which is in **bold** text with responses in regular text.

4.4.400 Criteria, Standards and Conditions of Approval

The City shall approve, approve with conditions, or deny an application for a conditional use or to enlarge or alter a conditional use based on findings of fact with respect to each of the following standards and criteria:

D. Transportation System Facilities and Improvements

1. City or County facilities and improvements. Construction, reconstruction, or widening of highways, roads, bridges or other transportation facilities that are (1) not designated in the City's adopted Transportation System Plan ("TSP"), or (2) not designed and constructed as part of an approved subdivision or partition, are allowed in all Districts subject to a Conditional Use Permit and satisfaction of all of the following criteria:

a. The project and its design are consistent with the City's adopted TSP, or, if the city has not adopted a TSP, consistent with the State Transportation Planning Rule, OAR 660-012 ("the TPR").

b. The project design is compatible with abutting land uses in regard to noise generation and public safety and is consistent with the applicable zoning and development standards and criteria for the abutting properties.

c. The project design minimizes environmental impacts to identified wetlands, wildlife habitat, air and water quality, cultural resources, and scenic qualities; and a site with

fewer environmental impacts is not reasonably available. The applicant shall document all efforts to obtain a site with fewer environmental impacts, and the reasons alternative sites were not chosen.

d. **The project preserves or improves the safety and function of the facility through access management, traffic calming, or other design features.**
e. **The project includes provisions for bicycle and pedestrian access and circulation consistent with the comprehensive plan, the requirements of this ordinance, and the TSP or TPR.**

The proposed HAWK signal and related improvements are on a city facility and involves the construction of the area in and around the Main Street and Boardman Avenue intersection. The construction will involve the installation of the HAWK signal and its components, improved street base and new pavement in the intersection and along Boardman Avenue to both the east and west, new sidewalk and improved access points, a median along North Main to convert the Front Street intersection into a right-in/right-out only configuration, and new striping throughout the area.

Staff have determined that the HAWK signal is consistent with the MS IAMP as it does conform to the Access Management Plan by:

- Continuing to restrict access to the interchange and interchange ramps and is, in fact, working to eliminate impacts to the interchange ramps from traffic that currently backs up when continual use of the RRFB causes delays of northbound travelers on Main Street.
- Improve safety factors not only within the interchange but also along Main Street and at this intersection in particular.
- Eliminating or reducing turning conflicts along the Main Street corridor at the Front Street intersection.
- Assuring that all current accesses are maintained to allow some level of ingress or egress and improving several accesses with improvements that also support pedestrian utilization.

Staff have also determined that the HAWK signal is warranted based on the following:

- While not within the standard time frame for consideration there has been a pedestrian loss of life at this intersection.
- This intersection is a primary school crossing area for Riverside High School during the arrival, lunch, and departure times. Use of the current RRFB creates backups along Main Street impacting the west bound off ramp queuing and can result in traffic backing up into the west bound travel lane. This is further discussed on page 7 of the Kittelson & Associates analysis that is attached.
- Pedestrian volume outside of school pedestrian usage continues to increase along Main Street.
- Crash data from 2016 through 2020 identified in the Kittelson & Associates report shows that there are a variety of different types of crashes throughout the study corridor.

Abutting land uses are commercial in nature with the exception of the school. The school building is located 1,000 feet or more from the intersection with school green space and recreational space in between. The C&D Drive-In is most affected by the installation of the HAWK signal and design of the project took into consideration their setback distance from the road with a desire to maintain their outdoor seating on the west side of their development. On street parking has been the most effected element through the design process with a number of angle and parallel parking spaces being removed. At least as many, if not more, parking spaces are being constructed resulting in a positive number of parking spaces. The new parking opportunity is being developed along the frontage of the Riverside High School with discussion ongoing to extend the parking further to the east from the current terminus shown on the Schematic Layout.

This project is locationally dependent. It is not specifically being designed to move more traffic, but to move current traffic more efficiently and safely.

Safety is one of the primary reasons for pursuing the street light project based on the loss of life from some years ago along with the reporting of a significant number of near misses with both cars and pedestrians.

Pedestrian, and by extension bicycle, movement and safety will be improved with the HAWK signal allowing for protected crossing times and spacing those crossing times to reduce if not eliminate backups along Main Street that can currently affect the queuing of west bound travelers on the west bound off ramp.

2. **State facilities and improvements. The State Department of Transportation ("ODOT") shall provide a narrative statement with the application demonstrating compliance with all of the criteria and standards in Section 4.4.400.D. 1.b. – e. above. Where applicable, an Environmental Impact Statement or Environmental Assessment may be used to address one or more of these criteria.**

The intersection of Main Street and Boardman Avenue is not a state facility. It is within the Management Area of the MS IAMP which was addressed through significant conversation with ODOT staff about the light, the mechanism to approve the installation of the street light, and will also include conversation with ODOT about management of the light once installed. The above criteria for a state facility have been deemed to not be applicable.

3. **Proposal inconsistent with TSP/TPR. If the City determines that the proposed use or activity or its design is inconsistent with the TSP or TPR, then the applicant shall apply for and obtain a plan and/or zoning amendment prior to or in conjunction with conditional use permit approval. The applicant shall choose one of the following options: a. If the city determination of inconsistency is made prior to a final decision on the conditional use permit application, the applicant shall withdraw the conditional use permit application; or b If the city determination of inconsistency is made prior to a final decision on the conditional use permit application, the applicant shall withdraw the conditional permit application, apply for a plan/zone amendment, and re-apply for a conditional use permit if and when the amendment is approved; or**
    a. **If the city determination of inconsistency is made prior to a final decision on the conditional use permit application, the applicant shall submit a plan/zoning amendment application for joint review and decision with the conditional use permit application, along with a written waiver of the ORS 227.178 120-day period within which to complete all local reviews and appeals once the application is deemed complete; or**
    b. **If the city determination of inconsistency is part of a final decision on the conditional use permit application, the applicant shall submit a new conditional use permit application, along with a plan/zoning amendment application for joint review and decision.**

The city has determined that the installation of the HAWK signal is consistent with the MS IAMP and is therefore consistent with the Transportation Planning Rule. See the discussion under 1. above and the attached Boardman Main Street Circulation Assessment dated March 2024 and prepared by Kittelson & Associates.

4. **Expiration. A Conditional Use Permit for Transportation System Facilities and Improvements shall be void after three (3) years.**

It is the intent of the City to have this project go to bid in July 2024 with construction to start in March or April 2025 and concluding in July or August 2025.

III. LEGAL NOTICE PUBLISHED: March 26 and April 23, 2024
East Oregonian

IV. PROPERTY OWNERS NOTIFIED: March 26, 2024
List on file.

V. AGENCIES NOTIFIED: Teresa Penninger, Rich Lani, David Boyd, and Cheryl Jarvis-Smith, Oregon Department of Transportation; Marty Broadbent and Michael Hughes, Boardman Fire Rescue District; Emily Roberts, Morrow County Health District; Mike Lees and Rolf Prag, City of Boardman.

VI. HEARING DATES: April 17 and May 15, 2024
Boardman City Hall

VII. COMMENTS RECEIVED: The following summarize comments received:

- Letter dated April 10, 2024, from Alex Hattenhauer, Hattenhauer Distributing, in opposition.
- Site Team was held on April 11, 2024, with local utilities, the Fire Marshall, and ODOT staff in attendance. No changes to the proposal emerged from this discussion.
- Public comment was received at the Planning Commission public hearing held on April 17 from Alex Hattenhauer, Greg Miller, Karen Purcell, and Nora Reyna and is summarized in the meeting minutes.

VIII. PLANNING OFFICIAL RECOMMENDATION: The Planning Official recommends that the Planning Commission approve this request as presented affirming that the HAWK signal is consistent with the MS IAMP and is warranted.

16-MAY-2024

Zack Barresse, Chair Date

ATTACHMENTS:
Schematic Layout
Boardman Main Street Circulation Assessment (March 2024)
Boardman Main Street Interchange Area Management Plan (2009)
April 10, 2024, letter in opposition – Alex Hattenhauer, Hattenhauer Distributing

TBD
TOMASI BRAGAR DUBAY

Jennifer M. Bragar
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June 6, 2024

BY UPLOAD TO CITIZEN PORTAL

City Council of the City of Boardman
c/o Mike Lees
200 City Center Circle
P.O. Box 229
Boardman, OR 97818

Re: Appeal of Planning Commission's Decision on File Number CUP24-000001

Dear Mayor Keefer and Council Members:

This office represents Hattenhauer Distributing Co. ("Appellant" or "Hattenhauer"), the owner of the Sinclair gas station located at 100 North Main Street, Boardman, Oregon 97818. Hattenhauer's mailing address is PO Box 1397, The Dalles, OR 97058. This letter is submitted in support of Hattenhauer's appeal application for the above-referenced file and the Planning Commission decision dated May 16, 2024 ("Decision"), with mailed notice sent by the City on May 17, 2024. The application submitted by the City of Boardman (the "Applicant") is referenced as File No. CUP24-000001 and involves rights-of-way for both Main Street and Boardman Avenue north of Main Street Interchange ("subject property") and proposes a conditional use transportation improvement to install a High-Intensity Activated CrossWalk ("HAWK") signal with related street improvements, including a partially contemplated median along Main Street and other related Street Improvements (collectively, the "Project"). Please include this appeal in the record for the above referenced file.

While the Appellant generally agrees with the concept that a HAWK signal should be installed at the corner of North Main Street and the intersection of NW Boardman, the application is not fully thought out, supported, or clear as to its proposal, extent, and impact. The decision of the Planning Commission should be overturned, or the matter continued for a full analysis of impacts and options.

Appellant requests *de novo* review by the City Council because the Planning Commission's findings about the applicable criteria are inadequate, are not supported by substantial evidence, and fail to adequately consider alternatives that reduce impacts to surrounding businesses. The *de novo* review will allow Appellant an opportunity to address design and scope of the Project, rather than suffer adverse impacts to its business resulting from a piecemeal, incomplete application

submittal. The appeal should be reviewed with the purpose to prepare a decision to limit the scope of the application to the HAWK signal and not include the median installation and right-in/right-out at North Main Street and North Front Street at this time for the following reasons, and additional reasons to be raised at the hearing:

- While right-in/right-out at North Front Street may have been identified as part of the solution for traffic control along North Main Street under the 2009 IAMP, the timing for such decision should not occur as part of a piecemeal approach. Rather the traffic signal at N.E. Boardman should be installed and then the level of service at North Front Street should be revisited, prior to installing a median to accomplish right-in/right-out access. Further, ODOT's work on the overpass should occur before the right-in/right-out decision is made.

- The City is exceeding its authority to propose the median as part of the contemplated scope of improvements.

- Full analysis should be done to ensure the City is not creating a stacking issue on Main Street that does not currently exist.

- A consistency finding is required for existing uses and there is no analysis that removal of parking from the C & D Drive-in will be consistent with current parking requirements for that use.

- The proposal is too premature because the Applicant has no authority over the school property for which it proposes to convert to parking, no basis to turn public school property into parking, and there is no finding of consistency with the school use and whether the proposed parking is allowed on school property.

- The Planning Commission decision is tainted by allowing Planning Commissioner Jennifer Leighton to vote and participate in deliberations when she has a financial benefit from the proposed parking on the school property, and a direct interest as her business will be impacted by the proposal.

- Even if a median at North Main Street and North Front Street is approved, the application should not be approved without significant design constraints imposed through this review process to preserve full access to Appellant's property along North Main Street.

///

Appellant will provide additional information during the appeal to augment the issues raised in this appeal. The appeal fee and appeal form have been submitted through the City's portal. Thank you.

Sincerely,

Jennifer M. Bragar

cc: (by e-mail)
client

Morrow County School District

Serving the Families of Boardman, Heppner, and Irrigon in Northeastern Oregon

P.O. Box 100
Heppner, OR 9
http://www.morrow.k12.or.us

Matt Combe, Superintendent
Erin Stocker, Human Resources
Gabriel Hansen, Business Manager
Marie Shimer, Educational Services
Marissa Turner, SPED Coordinator

Phone: 541-676-5705
Fax: 541-676-5742

July 1, 2024

Mayor Keefer and Council Members
Carla McLane, Planning Official
Post Office Box 229
Boardman, Oregon 97818

RE: School District – HAWK signal and related improvements along Boardman Avenue

Mayor Keefer and Council Members:

Please accept this letter as support of the request to install the HAWK signal at the intersection of North Main Street and Boardman Avenue, to convert North Front Streets into a right-in/right-out configuration, and to help improve parking and safety along East Boardman Avenue.

Morrow County School District realizes that pedestrian flows at the North Main Street and Boardman Avenue intersection can be challenging and that the improvement of the technology at that intersection, going from an RRFB pedestrian movement signal to the HAWK signal, will improve traffic flow particularly to the south. As part of the installation the city has reviewed parking availability along Boardman Avenue suggesting angled parking along the north side of Boardman Avenue to serve local businesses and the school. Conversations have led to the project extending that angled parking and sidewalk installation to the east to further benefit the school and community. For these and other safety related reasons the school district, prior to construction, will work with the City of Boardman to dedicate the necessary right-of-way access to support this project.

The City of Boardman and the Morrow County School District, working collaboratively together, will continue to improve Boardman as we work to address the growth that Boardman has been experiencing and will continue to experience in the foreseeable future.

Cordially,

Matt Combe
Superintendent

Morrow County Schools, in partnership with families and communities, provide each student the opportunity to develop values, knowledge, skills and self-confidence to become life-long learners and responsible citizens.

Matt.Combe@morrowsd.org
Erin.Stocker@morrowsd.org
Marie.Shimer@morrowsd.org
Marissa.Turner@morrowsd.org
Gabriel.Hansen@morrowsd.org

TBD
TOMASI BRAGAR DUBAY

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Portland, Oregon 97204
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August 6, 2024

BY HAND DELIVERY

City Council of the City of Boardman
200 City Center Circle
P.O. Box 229
Boardman, OR 97818

Re: Hattenhauer Submittal for Appeal of Planning Commission's Decision on File Number CUP24-000001

Dear Mayor Keefer and Council Members:

As you know, this office represents Hattenhauer Distributing Co. ("Appellant" or "Hattenhauer"), the owner of the Sinclair gas station located at 100 North Main Street, Boardman, Oregon 97818. Hattenhauer's mailing address is PO Box 1397, The Dalles, OR 97058. This letter is submitted in support of Hattenhauer's appeal application for the above-referenced file and the Planning Commission decision dated May 16, 2024 ("Decision"). The application submitted by the City of Boardman (the "Applicant") is referenced as File No. CUP24-000001 and involves rights-of-way for both Main Street and Boardman Avenue north of the Main Street Interchange ("subject property") and proposes a conditional use transportation improvement to install a High-Intensity Activated CrossWalk ("HAWK") signal with related street improvements, including a partially contemplated median along Main Street and other related Street Improvements (collectively, the "Project"). Please include this letter in the record for the above referenced file.

The Appellant generally agrees with the concept that a HAWK signal should be installed at the corner of North Main Street and the intersection of NW Boardman, but only after the Applicant submits a complete application in compliance with the law. The Appellant does not support inclusion of the median installation and right-in/right-out at North Main Street and North Front Street (the "Median") at this time because the full proposal has not been designed or coordinated in a manner to effectively address the 2009 Boardman Main Street Interchange Management Plan ("IAMP"), Capital Improvement Plan ("CIP"), or land use restrictions on the affected property. The application is not fully thought out, supported, or clear as to its proposal, extent, and impact. The decision of the Planning Commission should be overturned, or the matter continued for a full analysis of impacts and options. In all events the Median should be removed from the Project scope.

I. The City Council will exceed its authority approving a Project that is inconsistent with the Transportation System Plan and IAMP.

A. The Project is not currently justified under the IAMP

The reason that the IAMP contained certain triggers for right-in/right-out at N. Main and Front Streets is to fully take into account a traffic signal and improvements to ODOT facilities that would inform the appropriate time to install the Median. Hattenhauer retained Rick Nys, Principal Traffic Engineer of Greenlight Engineering to assess the IAMP and March 2024 Technical Memorandum prepared by Kittelson & Associates (the "Technical Memorandum"). Mr. Nys's analysis is included here as Attachment 1. His full analysis explains that to date the City has failed to address the IAMP adopted triggers for the modifications to the N. Main/Front Street intersection and that, in any event, it is clear that none of the triggers have been met to justify conversion of the intersection to right-in/right-out.

The IAMP triggers for conversion of the intersection of N. Main/Front Streets to right-in/right-out are:

- "Side street level of service drops below LOS E (15-20 years from now)
- Traffic signal installed at the I-84 westbound ramp (10-15 years from now)
- Increase in crashes
- Bridge improvement project constructed (15-20 years from now)
- Recurring public complaints about conflicts and safety at these locations."[1]

Mr. Nys explains that none of these triggers are met:

- The Technical Memorandum does not support the Planning Commission's or staff's conclusion that the Applicant or City Council are compelled to undertake this Project based on level of service ("LOS"). In fact, the Technical Memorandum shows the LOS at the intersection of N. Main/Front Street is LOS C and the City's standard is met.
- No traffic signal is installed or currently proposed at the I-84 westbound ramp/N. Main Street intersection.
- As set forth in the Technical Memorandum, crash numbers are consistently low and do not constitute evidence that there is an increase in crashes at the intersection.
- No bridge improvement project has been constructed or is currently planned.
- The record contains no evidence that there are recurring public complaints about conflicts and safety at this location.

None of the triggers that were adopted and agreed upon as part of the IAMP to restrict turning movements at the intersection are met.[2] Taking this analysis together with the significant

[1] IAMP, p. 36.

[2] The Planning Commission attempts to make other findings regarding the operations at the N. Main Street/Front Street intersection to claim the current configuration causes slowing or stopping of vehicles, significantly degrades

public process in developing the IAMP, there is no justification to restrict access at this time at the N. Main Street/Front Street intersection.

Further, the application lacks evidence of existing operational issues at the N. Main Street/Boardman Avenue NE intersection and provides no engineering analysis of a HAWK signal or evidence that a HAWK signal will resolve operational issues. As Mr. Nys points out, the Applicant has not complied with the Manual on Uniform Traffic Control Devices ("MUTCD"), the national standard for installation of signals contemplated by this Project. Failure to analyze the Project under this standard is possible because the Applicant knows the standard would not be met. See Attachment 1. Until the MUTCD is applied and a traffic signal warrant analysis is done for the proposed HAWK and/or traffic signal, this application cannot be approved.

Additionally, the Technical Memorandum does not provide any substantial evidence or analysis of queuing at the N. Main Street/Boardman Avenue NE intersection. The analysis does not show that a HAWK signal will alleviate this unanalyzed, unquantified queuing. Further, the City staff acknowledged the problem before the Planning Commission at the May 15, 2024 meeting, explaining that the construction of the Median may cause stacking problems that could further exacerbate traffic problems for the City's transportation facilities and the interchange. The unexplored, but potential stacking problem can be avoided if full assessment is made of the impact of the Median, and appropriate amendments to the Transportation System Plan ("TSP"), and IAMP are made pursuant to OAR 660-012-0060, including its subsections (4) and (7). This process would include the public engagement described at OAR 660-012-0120, including equitable outreach as described under OAR 660-012-0125, -0130, and -0135. The proposal is really a disguised amendment to the IAMP without going through the correct land use process.

In point of fact, the City is just beginning its update of the TSP, as staff updated City Council at its July 2, 2024 meeting. Attachment 2, Item 14.E (stating TSP is in the beginning stage of development). Any consideration of changes to the intersection of N. Main and Front Streets should be considered as part of the TSP update, which will reflect current conditions and more realistic assumptions about potential future growth in the City. For example, the IAMP anticipated a city population of just over 5,000 by 2026. However, according to the Portland State University Population Study for 2023-2073, the population in 2020 was only 4,150, and it is not until 2040 that the population is anticipated to reach 5,246. Attachment 3, p. 2.[3] Further, the 2009 IAMP assumed that a total of 340 residential units would be built between 2019-2029. However, the PSU Population Study shows that only 265 units were constructed between 2010-2020, far below the rate expected in the IAMP. Attachment 3, p. 3. This data shows that the 2009 IAMP forecasts that Kittelson assumedly based its Technical Memorandum on (as no updated projection of land uses is provided in the Technical Memorandum, p. 8) do not reflect reality, and any changes contemplated in this application should wait until the TSP is updated. This application should be denied.

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the flow of traffic or reduces the efficiency of the transportation types, but there is no evidence to support those findings, and the IAMP does not list these factors as triggers for the Project. Attachment 1.

[3] Excerpts of the PSU Population Forecast are provided in Attachment 3.

B. The construction of a Median at N. Main Street and Front Street is not included in the CIP.

Attached hereto is the City Council's approval of the CIP for 2024. Attachment 4. Project No. ST 7.0 only funds the signalizing of the intersection at N. Main Street and Boardman Avenue:

> "The project will consist of signalizing the intersection of N. Main Street and Boardman Avenue. A center median on N. Main Street will also be constructed to improve traffic flow and pedestrian safety. The intersection will be reconfigured to accommodate the signal and center median." Attachment 4, p. 51.

The center median referenced is for that specific intersection – N. Main and Boardman, not the Median being contemplated to accomplish right-in/right-out at N. Main and Front Streets. The CIP makes no mention of funds available for a Median extending between N. Main Street and Front Street. Thus, approval of the Median exceeds the City's capital improvement authority.[4]

Consistent with the TSP, IAMP, and CIP, the traffic signal at N.E. Boardman, for which the CIP was adopted, should be installed and then the level of service at North Front Street should be revisited, prior to installing a Median to accomplish right-in/right-out access at the intersection with N. Main Street. Further, ODOT's work on the overpass should occur before the right-in/right-out decision is made. The scope of ODOT's needed improvements are set forth in the 2009 IAMP, and should occur prior to changing the traffic controls that will adversely impact the operations at Sinclair and other businesses on the west side of N. Main Street.

II. The Planning Commission's decision is in error because it does not correctly, completely or adequately address the conditional use criteria.

A. The Planning Commission's generic findings under BDC 4.4.400(D)(1) are not accurate or adequate.

The Planning Commission's decision errs in its adoption of staff's determinations regarding the HAWK signals consistency with the IAMP:

> "Staff have determined that the HAWK signal is consistent with the MS IAMP as it does conform to the Access Management Plan by:
>
> - Continuing to restrict access to the interchange and interchange ramps and is, in fact, working to eliminate impacts to the interchange ramps from traffic that currently back up when continual use of the RRFB causes delays of northbound travelers on Main Street.

[4] The Technical Memorandum includes some effort to estimate cost impacts to the City with its proposed Alternative #1. However, no assessment of the cost to the City of obtaining an easement from Appellant, is discussed. With the inclusion of the median proposed at North Main and North Front Streets, Appellant would contest any attempt to obtain the easement required for this conditional use, increasing costs to the City.

- Improve safety factors not only within the interchange but also along Main Street and at this intersection in particular.
- Eliminating or reducing turning conflicts along the Main Street corridor at the Front Street intersection.
- Assuring that all current accesses are maintained to allow some level of ingress or egress and improving several accesses with improvements that also support pedestrian utilization."

Mr. Nys's analysis describes that staff's determinations about queuing issues are not analyzed or addressed in the Technical Memorandum. As a result the HAWK signal's impact cannot be considered, and nothing in the Technical Memorandum establishes the HAWK signal would mitigate such queuing problem. Attachment 1. Further, there is no evidence that the HAWK signal at N. Main and Boardman Avenue NE would improve safety at the interchange because there is no evidence that the HAWK signal would resolve such safety issue or that the N. Main/N. Front Street intersection is causing such safety issue at the interchange. Attachment 1. Moreover, there is no evidence that the HAWK signal eliminates or reduces turning conflicts along the Main Street corridor because there is no traffic analysis of the HAWK signal. Attachment 1. Finally, even the support for the HAWK signal installation is inadequate as there is no evidence about the operations at the N. Main/Boardman Avenue NE intersection during the arrival, lunch, and departure at the nearby school or that such operations at those times create a queuing problem; or that general pedestrian volumes are continuing to increase at that intersection. Attachment 1.

Further, as described above, the record does not support that the Project preserves or improves the safety and function of N. Main Street at the Front Street intersection since staff has stated that stacking problems may result. Additionally, the design of the Median is not fully disclosed so safety and function cannot be fully assessed, as discussed below.

Thus, based on the foregoing discussion, Attachment 1, and other information provided in this letter, the City cannot make findings that BDC 4.4.400(D)(1)(a), (b), (d)(or (e).

B. <u>The failure of an adequate site plan means this application is premature and prevents Appellant from providing full comment on the conditional use approval criteria.</u>

As applicable to general conditional use criteria at BDC 4.4.400(B) and to the specific requirements under BDC 4.4.400(D), discussed in more detail below, one of the conditional use permit application requirements is a site plan submittal, which should include all of the proposed development including the dimensions of any structures and pedestrian circulation patterns, like the Median. See BDC 4.4.300 and 4.2.500(B)(2). The site plans submitted to date are not accurate or binding according to the City staff's testimony before the Planning Commission because the design of the N. Main and Front Street Median is not included in its final form. As a result, Appellant has no design for which to base its comments and protect its interests. However, based on what has been submitted, the design of the Median will interfere with access to the Sinclair property and have a high likelihood of interference with existing traffic patterns. The decision on this Project should be reversed and denied unless the Median is removed, or the design is refined

on the public record to not interfere with access to the Sinclair property. No approval findings under BDC 4.2.600 are included in the decision as required under BDC 4.4.400(B). All of these problems must be rectified before the City can make a decision on the application. Once more, this application is premature.

Other deficiencies result from a failure to provide an adequate site plan for the Project. The IAMP lists Boardman as a minor collector. 2009 IAMP, p. 12. Under the BDC Table 3.4.100, the Boardman right-of-way must be at least 68 feet in width and have a roadway at least 47 feet. Using the scale on the application materials from the April 17, 2024 Planning Commission packet, Figure 1 (also attached to the Notice of Decision), it appears that Boardman is being designed with about a 60 foot width right-of-way, and less than 47 feet of roadway. There does not seem to be adequate room as presented in the schematic layout to accommodate the required roadway width. Further, maintenance of the north side of Boardman Avenue is not addressed in the decision. However, under BDC 3.4.100(J), maintenance of sidewalks, curbs, and planter strips is the continuing obligation of the adjacent property owner. No portion of the decision addresses maintenance of these same sidewalks, curbs, and planter strips by any of the adjacent owners of property along NE Boardman Avenue.

Further, even if the public parking near the school were viable (see below discussion questioning the ability of the City to accept a dedication of such property) the design is not disclosed in the record and no ADA-accessible parking spaces are designated or depicted with a showing that adequate space is available, or that the parking spaces or stormwater infrastructure is designed to meet Code. BDC 3.3.300(D) and (E).

C. No findings are provided for the general conditional use permit approval criteria.

As stated under BDC 4.4.400(D)(1), the Project may be allowed "[s]ubject to a Conditional Use Permit *and* satisfaction of all of the following criteria…" Thereafter the provision lists criteria in BDC 4.4.400(D)(1)(a-e). However, the first requirement making the Project subject to a Conditional Use Permit means that the general conditional use criteria under BDC 4.4.400(A) also apply. The City must make findings under BDC 4.4.400(A)(1) that the size, dimensions, location, and access are adequate for the proposed use, considering the traffic impacts. As stated in Hattenhauer's appeal letter, the size of the contemplated Median at N. Main and Front Streets is not defined. However, the City staff described that the construction of the Median could lead to more stacking problems along N. Main Street as cars and vehicles line up to turn left. Thus, the required findings have not been made and cannot be made on this record and the application should be denied.

Under BDC 4.4.400(A)(2), the City needs to find that the negative impacts of the proposed use on adjacent properties and the public can be mitigated through application of other Code standards, or other reasonable conditions of approval. Here, the negative impacts to Appellant's property cannot be mitigated because reducing access to its site by construction of a Median at N. Main Street and Front Street will necessarily impede access to the Sinclair gas station from Front Street for vehicles that are exiting I-84. Also, the design of the Median and the Applicant's decision to extend the Median north on Main Street will adversely impact access to the Sinclair gas station off N. Main Street. Moreover, the City staff acknowledged during the Planning Commission hearing

that the decision to make N. Main/Front Streets right-in/right-out with the contemplated Median may lead to stacking problems for the left turn on Main Street into Sinclair, further exacerbating traffic problems instead of solving them. This last point, also raises concerns that the public facilities (i.e. N. Main Street) has adequate capacity to serve the proposal. Such a stacking problem means that the application cannot meet BDC 4.4.400(A)(1) and (3) and should be denied.

D. The Planning Commission's decision does not comply with the specific conditional use criteria for Transportation System Facilities and Improvements and other Code requirements.

Under BDC 4.4.400(D)(1)(b), the Project can only be approved if "the project design is compatible with abutting land uses in regard to noise generation and public safety and is consistent with the applicable zoning and development standards and criteria for abutting properties." Such a consistency finding is required for existing uses. As stated throughout this letter, the Project design is not compatible with Appellant's use of the Sinclair Property and the full design and analysis of the Project has not occurred.

In addition, the record is devoid of findings for two existing uses. First, the proposal is too premature because the Applicant has no authority over the school property. Even if the Morrow County School District is open to dedicating a portion of its property as stated in its July 1, 2024, letter, the Code only allows the City to accept dedications that are consistent with the TSP. BDC 3.4.100(A) and (C). As described above and in Attachment 1, the entire improvement is not in compliance with the TSP. Yet, the application proposes to convert a portion of the school property to public parking. In addition, under BDC 3.3.300(A)(4), schools are only allowed to provide parking at the rate of 1.5 spaces per classroom. So if the dedication cannot be accepted, then there is no authorization for public parking as a school use, or auxiliary parking for C & D Drive-In ("C & D") are permitted in the zone. Further, the school is not an applicant.

Second, the record contains no analysis that removal of parking from the C & D will be consistent with current parking requirements for that use under BDC 2.2.170 and BDC 3.3.300. The staff report to the City Council states that no consistency finding is required relative to the current parking requirements for C & D. As far as Appellant can discern, the claim is that C& D is nonconforming under BDC Ch. 5.2, and so consistency is not required. However, the history of the development of C & D is not at issue, rather, the Project cannot make C &D more non-conforming by removing necessary parking. Thus, findings regarding consistency with the current Code requirements for parking are necessary.

Under BDC 2.2.170(3)(a), all parking areas for the C & D are supposed to be provided so that they must be accessed from alleys or common driveways, placed underground, placed in structures above the ground floor, or in parking areas located behind or to the side of a building. The Code does not contemplate offsite parking that is being proposed as part of the Project (to be located on public school property). Further, under BDC 3.3.300(A)(2), the C & D's minimum parking requirements are one space per four seats or one space per 100-sq. ft. of gross leasable floor area, whichever is less. Nothing in the record quantifies the number of parking spaces that C & D is required to have under the Code and whether the parking requirements will be met onsite

after the Project is built. In order to not make the use more nonconforming under either BDC 5.2.200(A). The Planning Commission's decision cannot be sustained on this record.

III. Review of the application should be sent back to the Planning Commission to ensure a fair public review process.

If the City Council is not willing to deny the Project based on the foregoing, the review of the application should start again at the Planning Commission level. The Planning Commission decision is tainted because two Planning Commissioners did not disclose their conflicts of interest or recuse themselves. ORS 244.120. With respect to C & D and the Planning Commission decision, the parking accommodation proposed at the school as replacement C & D parking is tainted because Planning Commissioner Jennifer Leighton voted and participated in deliberations when she stands to financially benefit from this aspect of the Project. Ms. Leighton did not disclose her conflict of interest or recuse herself. Further, Planning Commissioner Mike Connell also had an undisclosed conflict of interest. His apparent spouse and/or relative Toni Connell is the Utility Clerk for the City of Boardman. The City is the Applicant for the Project. Mr. Connell should have announced his conflict and recused himself from further involvement in the review of the application. As a result of this taint, the City Council should not hear this appeal, but instead start the process over again before the Planning Commission without the participation of the conflicted members. Hattenhauer and the public deserve review of this application through a fair and untainted process.

CONCLUSION

Appellant requests the application be sent back to the Planning Commission or denied for failure to comply with local and state law. Thank you for your attention to this matter.

Sincerely,

Jennifer M. Bragar

Enclosures
cc: (by e-mail)
client

HATTENHAUER DISTRIBUTING CO.
PRESENTATION TO CITY COUNCIL

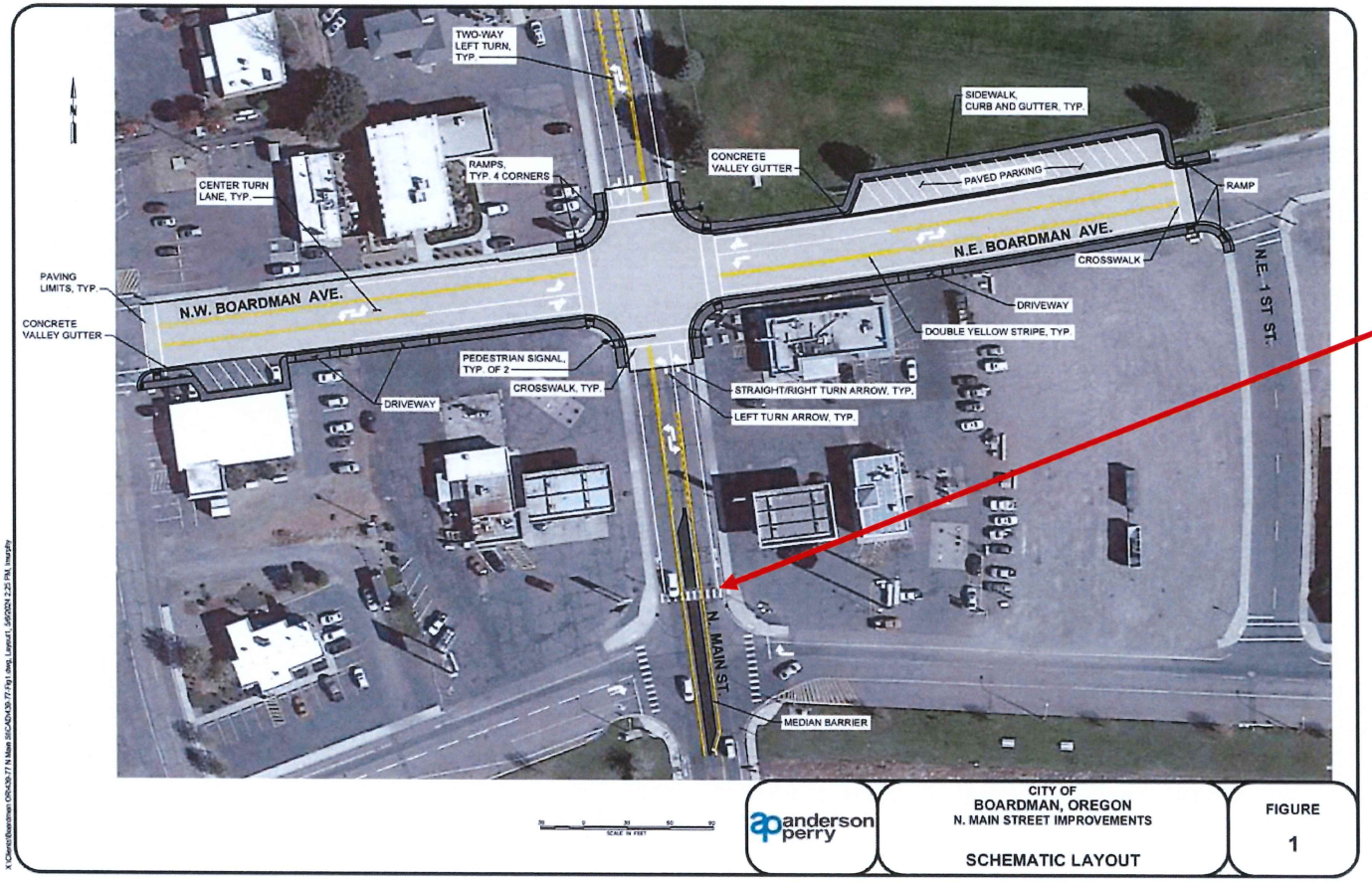
Boardman, Oregon
August 6, 2024

Presented by Jennifer Bragar on behalf of
Hattenhauer Distributing Co.
121 SW Morrison Street, Suite 1850, Portland, OR 97204
jbragar@tomasilegal.com

Appeal of Application of File CUP24-000001

TBD
TOMASI BRAGAR DUBAY

The Project



Proposed Median at N. Main and Front Streets (the "Median")

Significant Legal Deficiencies in the Application

- The application is not fully thought out, supported, or clear as to its proposal, extent, and impact
- City Council will exceed its authority approving a Project that is inconsistent with the Transportation System Plan and IAMP
- The Planning Commission's decision is in error because it does not correctly, completely or adequately address the conditional use criteria
- Review of the application should be sent back to the Planning Commission to ensure a fair public review process

Defects in Transportation Analysis of the Project

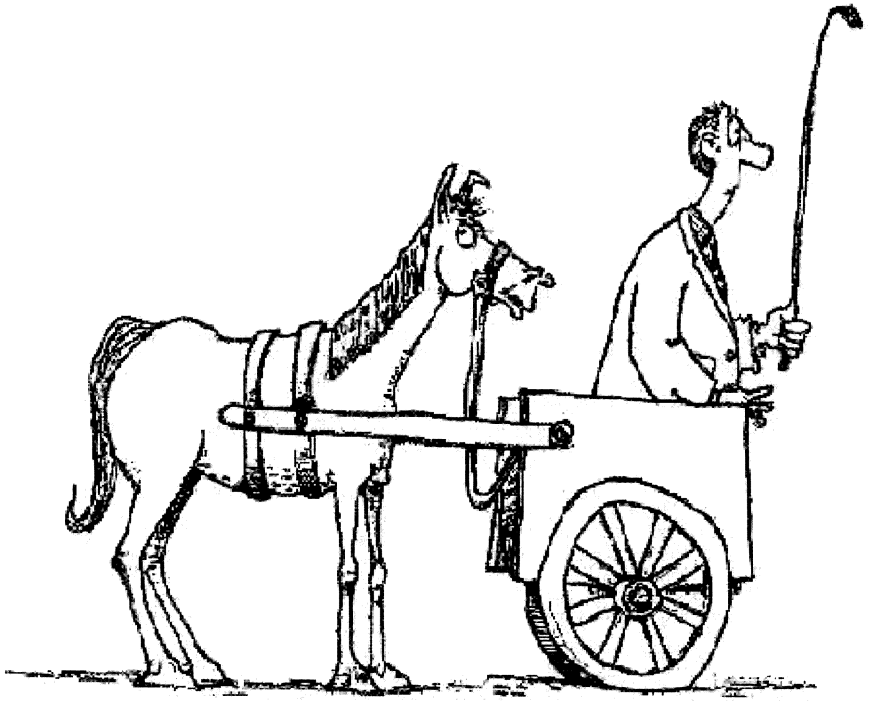
- IAMP triggers for the conversion of N. Main Street/Front Streets to right-in/right-out are not met
- The Applicant has not complied with the Manual on Uniform Traffic Control Devices (the "MUTCD")
- Queuing at N. Main Street and Boardman Avenue NE has not been quantified or adequately analyzed
- City's staff report and Planning Commission decision have incorrect findings as to compliance with applicable Code provisions

The Project has not been reviewed consistent with the Transportation Planning Rule

- Population Growth is not matching the rate anticipated in the 2009 IAMP

  The 2009 IAMP anticipated city population of just over 5,000 by 2026

  In contrast, the PSU Population Study for 2023-2073 shows the city population in 2020 was only 4,150, and it is not until 2040 that the population is anticipated to reach 5,246



Construction of the Median at N. Main/Front Streets is not included in the CIP

City of Boardman, Oregon
Capital Improvements Plan Street Department

ST 7.0

Project Number:	ST 7.0
Project Name:	Boardman Avenue and N. Main Street Intersection
Fund:	Street
Estimated Cost:	$1,000,000
Fiscal Year:	2025-26

Project Description:

The project will consist of signalizing the intersection of N. Main Street and Boardman Avenue. A center median on N. Main Street will also be constructed to improve traffic flow and pedestrian safety. The intersection will be reconfigured to accommodate the signal and center median.

Project Justification:

The improvements have been identified in the Technical Memorandum "Boardman Main Street Circulation Assessment" published by Kittelson & Associates, Inc. This intersection was identified as an intersection that would benefit from becoming signalized and will greatly improve traffic flow for the City's main north-south arterial.

The only intersection discussed is N. Main Street and Boardman Avenue

Conditional Use Criteria Findings are Incorrect, Incomplete, and Inadequate

- Generic findings under BDC 4.4.400(D)(1) are not accurate or adequate
- The failure of an adequate site plan as required under BDC 4.4.300 renders the application premature and prevents full comment on the approval criteria
- No findings are provided for the general conditional use permit approval criteria under BDC 4.4.400(B)
- The decision does not comply with the specific conditional use criteria under BDC 4.4.400(D)(1) and other Code criteria

The Planning Commission Decision is Tainted by Conflicts of Interest

Planning Commissioners Jennifer Leighton and Mike Connell had undisclosed conflicts of interest that tainted the Planning Commission decision.

The application should be sent back to the Planning Commission for a new review without participation by these two commissioners who improperly influenced the decision.

The City Council should not rush this review

- While it may be that a HAWK signal should be installed at the corner of North Main Street and the intersection of NW Boardman, a decision should not be rendered prior to submission of a complete application in compliance with the law and before a full analysis of the impacts and options are disclosed for public comment.

GREENLIGHT ENGINEERING

August 6, 2024

City Council of the City of Boardman
200 City Center Circle
P.O. Box 229
Boardman, OR 97818

RE: Appeal APP24-000002, CUP24-000001 Transportation Impacts

Dear Mayor Keefer and Council Members:

Greenlight Engineering has been asked by Hattenhauer Distributing Co. to evaluate the proposed conditional use transportation improvement to install a High-Intensity Activated CrossWalK ("HAWK") signal and a median at N. Main Street/Front Street in Boardman, Oregon (collectively, the "Project"). I have reviewed the March 2024 Technical Memorandum prepared by Kittelson & Associates (hereafter referred to as the "Technical Memorandum"), the April 2009 Boardman Main Street Interchange Area Management Plan ("IAMP"), the Planning Commission's decision, and the City Council Findings of Fact on Appeal.

Executive Summary

- The application and Planning Commission decision fail to address the IAMP adopted triggers for modifications to the N. Main Street/Front Street intersection. It is clear that none of the triggers for converting the intersection to right-in/right-out operations are met.
- The application lacks evidence of existing operational issues at the N. Main Street/Boardman Avenue NE intersection and provides no engineering analysis of a HAWK signal or evidence that a HAWK signal will resolve the operational issues.

IAMP Triggers for Making Improvements at N. Main Street/Front Street Not Met

The IAMP provides triggers for making planned improvements in the area and access changes to N. Main Street/Front Street, the IAMP notes that "It is important to establish thresholds for limiting the North and South Front Street access at Main Street so that decisions can be made through the land use review process, and as various traffic issues arise or the community reports significant conflicts."

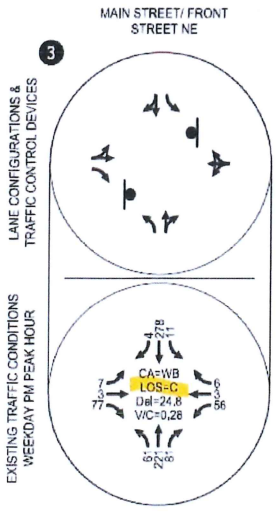
Moreover, the IAMP further states:

> "Below is a description of when the improvements would be expected to be needed...
>
> Main Street & Front Avenue (sic) (North and South)
>
> The traffic volumes at the intersections of Main Street & Front Avenue North and Main Street & Front Avenue South should be monitored as development occurs to determine if certain turning movements should be prohibited...
>
> Triggers for access changes at Front Street North and Front Street South include:
>
> - Side street level of service drops below LOS E (15-20 years from now)
> - Traffic signal installed at the I-84 westbound ramp (10-15 years from now)
> - Increase in crashes
> - Bridge improvement project constructed (15-20 years from now)
> - Recurring public complaints about conflicts and safety at these locations"

In order to appropriately evaluate whether the N. Main Street/Front Street intersection should be converted to right-in/right-out only as part of this conditional use application, the proposed access changes should be evaluated against the adopted IAMP. These triggers were adopted with substantial community involvement. Each of the five triggers are evaluated below.

1. Side Street Level of Service

At the May 15, 2024 Planning Commission meeting, City staff indicated that the N. Main Street/Front Street intersection currently operates at LOS D and the Planning Commission states that "Today it is D which, under the MS IAMP, does require action on the part of the city." LOS D exceeds the City of Boardman's level of service standard of LOS C. The City concludes that they are compelled to take action based on this LOS. However, Figure 1 (see below) of the Technical Memorandum clearly illustrates that this intersection currently operates at LOS C. There is no evidence that this intersection currently operates at LOS D or otherwise fails to meet City of Boardman mobility standards. In fact, the Technical Memorandum states "As shown, the study intersection operations satisfy...City of Boardman mobility targets/standards." There is no evidence that the IAMP adopted trigger of LOS E is met.



Excerpt of Figure 1 from Technical Memorandum

2. I-84 Signal at Westbound Ramp

No traffic signal is installed or currently proposed at the I-84 westbound ramp/N. Main Street intersection. Therefore, another IAMP trigger point has not occurred to justify a median.

3. Increase in Crashes

Table 3.4 of the IAMP reports two crashes at the N. Main Street/Front Street intersection from 2000-2004. The Technical Memorandum reports that there was one crash at the N. Main Street/Front Street intersection from 2016-2020. Appendix A of this report illustrates that there were only two reported crashes at the intersection from 2013-2022. These numbers are consistently low and do not constitute evidence that there is an increase in crashes at the intersection.

4. Bridge Improvement Project

There is no bridge improvement project that has been constructed or is currently planned.

5. Recurring Public Complaints

There is no evidence that there are "Recurring public complaints about conflicts and safety at these location." Given that the intersection continues to operate adequately at LOS C, significantly better than the trigger of LOS E and there are very few reported crashes at this intersection, this is unsurprising.

None of the triggers that were adopted and agreed upon as part of the IAMP to restrict turning movements at the intersection are met. Taking this analysis together with the significant public

process in developing the IAMP, it does not appear that it is warranted to restrict access at this time at the N. Main Street/Front Street intersection.

No Engineering Study for HAWK Signal or Traffic Signal

The Manual on Uniform Traffic Control Devices ("MUTCD") is the national standard for traffic control devices. The 2009 MUTCD is adopted in Oregon under OAR 734-020-0005. The City of Boardman is required to comply with the MUTCD.

The 2009 MUTCD addresses the analysis of potential pedestrian hybrid beacons, of which HAWK signals are a possible tool:

> "If a traffic control signal is not justified under the signal warrants of Chapter 4C and if gaps in traffic are not adequate to permit pedestrians to cross, or if the speed for vehicles approaching on the major street is too high to permit pedestrians to cross, or if pedestrian delay is excessive, the need for a pedestrian hybrid beacon should be considered on the basis of an engineering study that considers major-street volumes, speeds, widths, and gaps in conjunction with pedestrian volumes, walking speeds, and delay...
>
> For a major street where the posted or statutory speed limit or the 85th-percentile speed is 35 mph or less, the need for a pedestrian hybrid beacon should be considered if the engineering study finds that the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding total of all pedestrians crossing the major street for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4F-1 for the length of the crosswalk."

The Technical Memorandum fails to address the need for a HAWK signal at the N. Main Street/Boardman Avenue NE intersection. It does not appear there is an engineering study that supports the City's decision to install a HAWK signal.

It does not appear that the criteria of Figure 4F-1 of the MUTCD is met based on the evidence submitted as part of the Technical Memorandum as illustrated below. The red dot illustrates the intersection's pedestrian crossing and vehicular traffic volumes per the Technical Memorandum along with the MUTCD guidelines. The north leg of the N. Main Street crosswalk is approximately 50 feet wide.

The Technical Memorandum fails to provide an engineering study that supports the installation of a HAWK at this intersection, which may present a potential legal liability for the City as the installation may not be based on standard MUTCD procedures. While Hattenhauer Distributing Co. may not oppose the installation of the HAWK signal, the City should still make an informed decision consistent with best practices prior to its installation.

Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways

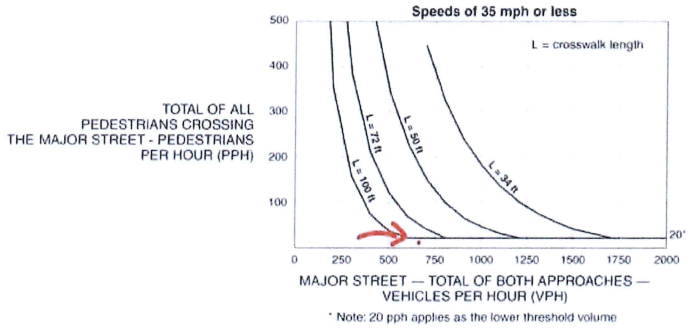


Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways

The City previously proposed a full traffic (not a HAWK signal) based on the Technical Memorandum. However, the Technical Memorandum fails to provide evidence of the traffic volumes that were used in the traffic signal warrant analysis to establish that a traffic signal is warranted. The traffic signal warrant analysis is also based upon a future 2042 year.

There is no evidence that suggests that a full traffic signal or a HAWK signal is warranted at this intersection under existing conditions.

Technical Memorandum Fails to Provide Evidence or Analysis of Queuing

It appears that the primary purpose of modifying the N. Main Street/Boardman Avenue NE intersection is to mitigate queues that are generated from pedestrians crossing in the crosswalk with the rectangular rapid flashing beacon ("RRFB"). The Technical Memorandum refers to:

> "periods of occassional (sic) vehicle queue spillback generated by a pedestrian crossing beacon at the Boardman Avenue intersection...While students typically crossed in groups, there were instances where repeated back-to-back activations of the RRFB led to the formation of northbound vehicle queues on N Main Street. In some instances, particularly when there were multiple trucks involved, these vehicle queues were observed backing up to and beyond the I-84 WB Ramp Terminal intersection...Other peak activation periods of the RRFB occurred in the 6:45-7:45 AM time period and 2:45-3:34 PM time period, however the number of pedestrians were observed to be measurably lower, more spread out, and less likely to generate significant vehicle queues along N Main Street."

The Technical Memorandum provides a traffic count that illustrates low pedestrian crossing volumes of N. Main Street at Boardman Avenue NE that would not likely create the reported queuing issue. It does not appear that traffic counts were collected and they certainly were not provided for these reported peak activation periods.

The Technical Memorandum fails to quantify the existing queuing or provide traffic analysis that illustrates the reported queuing issues. There is no analysis of the RRFB operations for queuing. It is unclear how frequently these issues exist.

The Technical Memorandum suggests a traffic signal be installed at the intersection. The existing RRFB wasn't analyzed for queuing and the proposed HAWK signal wasn't analyzed for queuing. In fact, there is no evidence of any analysis for a HAWK signal at all. There is no evidence that operations at the intersection will improve with a HAWK signal.

It is unusual to make conclusions about traffic operations without first analyzing the existing conditions and the impacts of proposed solutions.

Evaluation of Planning Commission Decision

The Planning Commission decision states that "Installation of the center median is also justified to convert NW and NE Front Street to right-in/right-out and for traffic queueing/staging at the signalized intersection." It is not clear how the Planning Commission determined that the installation of the median was justified given that the Technical Memorandum does not provide evidence that the center median is needed to address traffic queuing/staging at the signalized intersection of N. Main Street/Boardman Avenue NE.

The Planning Commission decision further states:

> "It should be noted that the MS IAMP does say the following about access to Main Street in the vicinity of the Interchange: 'A key element of the IAMP is to the long-range preservation of operational efficiency and safety of the interchange if the management of access to Main Street. Because access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic and reduce the efficiency of the transportation system. However, reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts.' The proposed center median and limiting left hand turns on North Main Street between Front Street and Boardman Avenue affectively (sic) achieves the intent of this statement without closing those accesses."

As noted above, the IAMP provides certain triggers that should be met before access restrictions are implemented. None of those triggers are referenced in the Planning Commission's decision and none of those triggers are met.

There is no evidence that the intersection of N. Main Street/Front Street is "frequently the cause[s] of slowing or stopping vehicles...significantly degrade(s) the flow of traffic and reduce(s) the efficiency of the transportation system" nor that any of the IAMP adopted triggers are met.

The Planning Commission's decision further states:

> "The city is maintaining the conversion of the Front Street intersection to a right-in/right-out configuration for several reasons outlined here:

1. The City's Level of Service, or LOS, standard is C which is higher than ODOTs and allows for less congestion.
2. Access points introduce a number of potential conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic, and reduce the efficiency of the transportation types. Reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts. Reducing Front Street to a right-in-right-out configuration reduces a significant vehicular conflict adjacent to the west bound off-ramp.
3. At the time the MS IAMP was adopted the LOS for Main Street and North Front Street was C. Today it is D which, under the MS IAMP, does require action on the part of the city. It should be noted that the LOS for South Front Street is also at LOS of D. Without action both of those intersections are identified to achieve a LOS of F by 2042.
4. The MS IAMP does identify that the City is to work towards two items, the first being development of the local street network both east and west of Main Street and second to limit access at Main Street at both north and south Front Street. The first step of this is to limit those intersections to right turn only."

Notably, the Planning Commission's decision again fails to reference the adopted IAMP triggers for modifications to the N. Main Street/Front Street intersection. However, problems associated with each of the above Planning Commission's determinations for converting to right-in/right-out operation are addressed below.

1. LOS Standard

The City's LOS standard is C and while the City has concluded that the intersection operates at LOS D, the Technical Memorandum is clear that the intersections operate at LOS C under existing conditions. Nonetheless, the trigger for conversion per the IAMP is LOS E and that trigger is not met.

2. Access Point Causes Conflicts

The Technical Memorandum provides no evidence that the operations at the Main Street/Front Street cause slowing or stopping of vehicles, significantly degrades the flow of traffic or reduces the efficiency of the transportation types. Regardless, none of these situations are adopted as a trigger as part of the adopted IAMP.

3. LOS of Intersection

The Planning Commission Decision notes that "At the time the MS IAMP was adopted the LOS for Main Street and North Front Street was C. Today it is D which, under the MS IAMP, does require action on the part of the city...Without action both of those intersections are identified to achieve a LOS of F by 2042."

However, the intersection continues to operate at LOS C per the Technical Memorandum. Per the IAMP, no action is triggered until the intersection operates at LOS E. There is no action required per the IAMP.

4. City Should Work Towards Action

The Planning Commission Decision states that the City should be working to "limit those intersections to right turn only." However, none of the adopted triggers of the IAMP are met.

The Planning Commission Decision states:

> "Staff have determined that the HAWK signal is consistent with the MS IAMP as it does conform to the Access Management Plan by:
>
> - Continuing to restrict access to the interchange and interchange ramps and is, in fact, working to eliminate impacts to the interchange ramps from traffic that currently back up when continual use of the RRFB causes delays of northbound travelers on Main Street.
> - Improve safety factors not only within the interchange but also along Main Street and at this intersection in particular.
> - Eliminating or reducing turning conflicts along the Main Street corridor at the Front Street intersection.
> - Assuring that all current accesses are maintained to allow some level of ingress or egress and improving several accesses with improvements that also support pedestrian utilization."

Three of the Planning Commission's determinations that a HAWK signal is consistent with the IAMP are addressed below.

1. Restricting Access

It is unclear how the HAWK signal would "restrict access" although the Technical Memorandum and Planning Commission decision reference queuing impacts. As noted earlier, the Technical Memorandum fails to provide substantial evidence of queuing issues or any analysis that establishes that a queuing issues exists or how a HAWK signal would mitigate this issue. The Technical Memorandum fails to provide any analysis of a HAWK signal. The Technical Memorandum fails to provide evidence of pedestrian counts that may result in queuing issues.

2. Improves Safety

There is no evidence that the HAWK signal would improve safety at the intersection as the HAWK was not even a consideration of the Technical Memorandum. There is also not substantial evidence that there is a safety issue at the interchange caused by the current operations at N. Main Street/Boardman Avenue NE intersection.

3. Reducing Conflicts/Maintaining Some Access at the Front Street Intersection

There is not substantial evidence that the HAWK signal at N. Main Street/Boardman Avenue NE eliminates or reduces turning conflicts along the Main Street corridor at the Front Street intersection. There is no traffic analysis of a HAWK signal.

There is no apparent connection with the HAWK signal in "assuring that all current accesses are maintained to allow some level of ingress or egress and improving several accesses with improvements that also support pedestrian utilization."

The Planning Commission further states:

> "Staff have also determined that the HAWK signal is warranted based on the following:
>
> - While not within the standard time frame for consideration there has been a pedestrian loss of life at this intersection.
> - This intersection is a primary school crossing area for Riverside High School during the arrival, lunch and departure times. Use of the current RRFB creates backs along Main Street impacting the west bound off ramp queuing and can result in traffic backing up into the west bound travel lane. This is further discussed on page 7 of the Kittelson & Associates analysis that is attached.
> - Pedestrian volume outside of school pedestrian usage continues to increase along Main Street.
> - Crash data from 2016 through 2020 identified in the Kittelson & Associates report shows that there are a variety of different types of crashes throughout the study corridor."

Two of the Planning Commission's determinations that a HAWK signal is warranted are addressed below.

1. Queuing and RRFB

The Technical Memorandum fails to provide substantial evidence of the existing operations of the N. Main Street/Boardman Avenue NE intersection during the arrival, lunch and departure times at the intersection nor the queuing created by the intersection. The Technical Memorandum doesn't even consider a HAWK signal. There is no traffic analysis that illustrates there is a problem at the intersection nor how a HAWK signal will operate at the intersection and whether the HAWK will mitigate the reported conditions.

2. Pedestrian Volumes Increasing

There is no evidence that "Pedestrian volume outside of school pedestrian usage continues to increase along Main Street."

Additionally, from a technical perspective, it is evident that the N. Main Street/Boardman Avenue NE intersection does not likely meet the guidelines of the MUTCD for installation of a HAWK signal. Again, it appears that no engineering analysis has been completed in support of the proposed HAWK signal.

Evaluation of City Council Findings of Fact on Appeal

For the most part, the City Council's Findings of Fact on Appeal report adopts the findings of the Planning Commission. However, the report also addresses items of the appeal in section "III: Issues Raised on Appeal" of the report. An evaluation of three of those issues is provided below:

The City Council's Findings of Fact state:

> "The City of Boardman secured the Boardman Main Street Circulation Assessment to evaluate the various needs along Main Street and the current Level of Service (LOS) identified for the Front Streets is at D which based on the Main Street Interchange Area Management Plan (IAMP) requires action by the city once a LOS of C is reached...One of the primary reasons for evaluating these intersections is the conflict between pedestrians and vehicles at the Front Street intersection as well as the Boardman Avenue intersection. Use of the currently installed RRFB causes backup and delay issues along both Main Street to the south and Boardman Avenue to the east. Replacing the RRFB with a HAWK Signal should allow for smoother interaction between vehicle travel and pedestrian crossing, particularly at the Boardman Avenue intersection..."

As previously established in this report, there is no evidence that the N. Main Street/Front Street currently operates at LOS D. In fact, the Technical Memorandum clearly illustrates that the intersection operates at an acceptable LOS C. Even so, the IAMP does not require any action at LOS D. One of the triggers for taking action per the IAMP would be if the intersection was operating at LOS E, which it is not.

The IAMP does not reference pedestrian conflicts at the N. Main Street/Front Street intersection as a trigger for modifications.

There is not substantial evidence that the RRFB causes backup and delay issues along Main Street and Boardman Avenue. The traffic analysis prepared for the intersections illustrates acceptable delays.

There is no evidence that replacing the RRFB with a HAWK signal would allow for "smoother interaction between vehicle travel and pedestrian crossing. As previously referenced, there is no traffic analysis or engineering study that includes the use of a HAWK signal.
The City Council Findings of Fact state that "The median is defined in the MS IAMP as a solution to be implemented when certain conditions have been met, which is the case." The IAMP does provide triggers for the median, but as previously addressed herein, none of the conditions have been met to trigger a median at N. Main Street/Front Street intersection.

The City Council Findings of Fact state that "As discussed previously in these Findings of Fact there is already a stacking issue on Main Street that the upgrade from the RRFB to the HAWK signal should mitigate reducing the stacking that currently occurs. This will be achieved as the HAWK signal uses more advanced logic to balance the needs of the pedestrian crossing with motor vehicle needs."

The application provides no substantial evidence of a stacking issue generated at the N. Main Street/Boardman Avenue intersection. The Technical Memorandum provides no traffic analysis that illustrates stacking issues. The application provides no evidence of any analysis involving a HAWK signal and does not provide evidence that the HAWK signal will achieve reduction of a stacking issue.

Approval Criteria & Conclusion

To approve this application, the City must find that the application satisfies Section 4.4.400 of the City of Boardman Development Code:

1. "City or County facilities and improvements. Construction, reconstruction, or widening of highways, roads, bridges or other transportation facilities that are (1) not designated in the City's adopted Transportation System Plan ("TSP"), or (2) not designed and constructed as part of an approved subdivision or partition, are allowed in all Districts subject to a Conditional Use Permit and satisfaction of all of the following criteria:

    a. The project and its design are consistent with the City's adopted TSP, or, if the city has not adopted a TSP, consistent with the State Transportation Planning Rule, OAR 660-012 ("the TPR")...

3. Proposal inconsistent with TSP/TPR. If the City determines that the proposed use or activity or its design is inconsistent with the TSP or TPR, then the applicant shall apply for and obtain a plan and/or zoning amendment prior to or in conjunction with conditional use permit approval..."

In reviewing this criteria, the Planning Commission decision states that "The city has determined that the installation of the HAWK signal is consistent with the MS IAMP and is therefore consistent with the Transportation Planning Rule...See the discussion...above and the attached Boardman Main Street Circulation Assessment [Technical Memorandum]."

As discussed previously, the Technical Memorandum doesn't contemplate a HAWK signal at all. There is no analysis that supports the installation of a HAWK signal.

Logically, if the Project is not consistent with the IAMP, then it cannot be consistent with the TSP. The Planning Commission's decision fails to conclude that the remainder of the proposed Project is consistent with the IAMP.

It is clear based on the analysis above that the Project is not consistent with the IAMP as the Planning Commission's Decision ignores the adopted triggers for implementation of the access restrictions at N. Main Street/Front Avenue. There is no evidence that any of the adopted triggers have been met.

Therefore, the application cannot be approved.

Should you have any questions, feel free to contact me at rick@greenlightengineering.com or 503-317-4559.

Sincerely,

Rick Nys, P.E.
Principal Traffic Engineer

RENEWS: 12/31/2024

CITY COUNCIL MEETING

July 02, 2024 at 7:00 PM

Boardman City Hall Council Chambers

AGENDA

1. **CALL TO ORDER**
2. **FLAG SALUTE**
3. **ROLL CALL/EXCUSED ABSENCES**
4. **APPROVAL OF MINUTES**
   - A. City Council Meeting Minutes, June 4, 2024
5. **FINANCIAL REPORT**
   - **A.** May 2024 Financial Report - Final
   - **B.** June 2024 Financial Report - Preliminary
6. **FORMAL PROCEEDINGS**
   - A. Public Hearing - Surplus Property
7. **INTRODUCTIONS**
   - **A.** New Positions and Employees:

     Toni Connell - Office Administrator

     Luis Campos - Public Works Lead

     Luis Flores - Maintenance/Mechanic

     Jose Ponce - Public Works Worker

     Humberto Sanchez - Public Works Worker
8. **PUBLIC COMMENT**
   - **A.** Prearranged Presentation - Premium Tire & Lube
   - **B.** Prearranged Presentation - Boardman Parks & Recreation District - George Shimer
9. **ACTION ITEMS - ORDINANCES**
10. **ACTION ITEMS - RESOLUTIONS**
    - A. Resolution 16-2024 Surplus Property
11. **ACTION ITEMS - OTHER BUSINESS**
    - **A.** Missing Middle Housing Fund
    - **B.** Premium Tire & Lube
    - **C.** Boardman Parks and Recreation District
12. **OTHER PUBLIC COMMENT**

    INVITATION FOR PUBLIC COMMENT – The mayor will announce that any interested audience members are invited to provide comments. Anyone may speak on any topic other

than: a matter in litigation, a quasi-judicial land use matter; or a matter scheduled for public hearing at some future date. The mayor may limit comments to 3 minutes per person for a total of 30 minutes. Please complete a request to speak card prior to the meeting. Speakers may not yield their time to others.

A. Report Only - May Boardman Chamber/BCDA Report

13. DOCUMENT SIGNATURES

14. REPORTS, CORRESPONDENCE, AND DISCUSSION

A. Police Report

B. Building Department Report

C. Public Works Department Report

D. Committee Reports

E. City Manager

F. Councilors

G. Mayor

15. EXECUTIVE SESSION

A. Real Estate ORS 192.660 (2)(e)

16. ACTION ITEMS - OTHER BUSINESS

A. Decision from Executive Session

17. ADJOURNMENT

Zoom Meeting Link: https://us02web.zoom.us/j/2860039400?omn=89202237716

This meeting is being conducted with public access in-person and virtually in accordance with Oregon Public Meeting Law. If remote access to this meeting experiences technical difficulties or is disconnected and there continues to be a quorum of the council present, the meeting will continue.

The meeting location is accessible to persons with disabilities. Individuals needing special accommodations such as sign language, foreign language interpreters or equipment for the hearing impaired must request such services at least 48 hours prior to the meeting. To make your request, please contact a city clerk at 541-481-9252 (voice), or by e-mail at city.clerk@cityofboardman.com.

City of Boardman OR

CAPITAL IMPROVEMENT PROJECTS
2024-25

	PROGRESS
General	
BPA Greenspace	Obtaining BPA final approval
Surplus Old City Shop	Need council resolution
Planning	
Economic Opportunity Analysis	Obtaining quotes and selection
Transportation System Plan	In beginning stage of development
Parks Master Plan	Obtaining quotes and selection
Development Code	Obtaining quotes and selection
Municipal Code	In house project
Housing Need Analysis	Waiting for state final requirements
Public Works	
Maintenance Shop	Site design
Streets/Sidewalk	
SE Front St	Construction underway
Wilson & Faler Sidewalk	Going out for bid
S Main	Developing scope
Boardman Ave & N Main	In approval process
Water/Wastewater	
Bio Solids Removal	Summer project
Headworks Screen & Septage Receiving	Ordered headworks
NW Columbia Ave	Construction underway

Coordinated Population Forecast

2023 Through 2073

Morrow County

County UGB Coordinated Forecasts

June 25, 2023

Portland State
Population Research Center

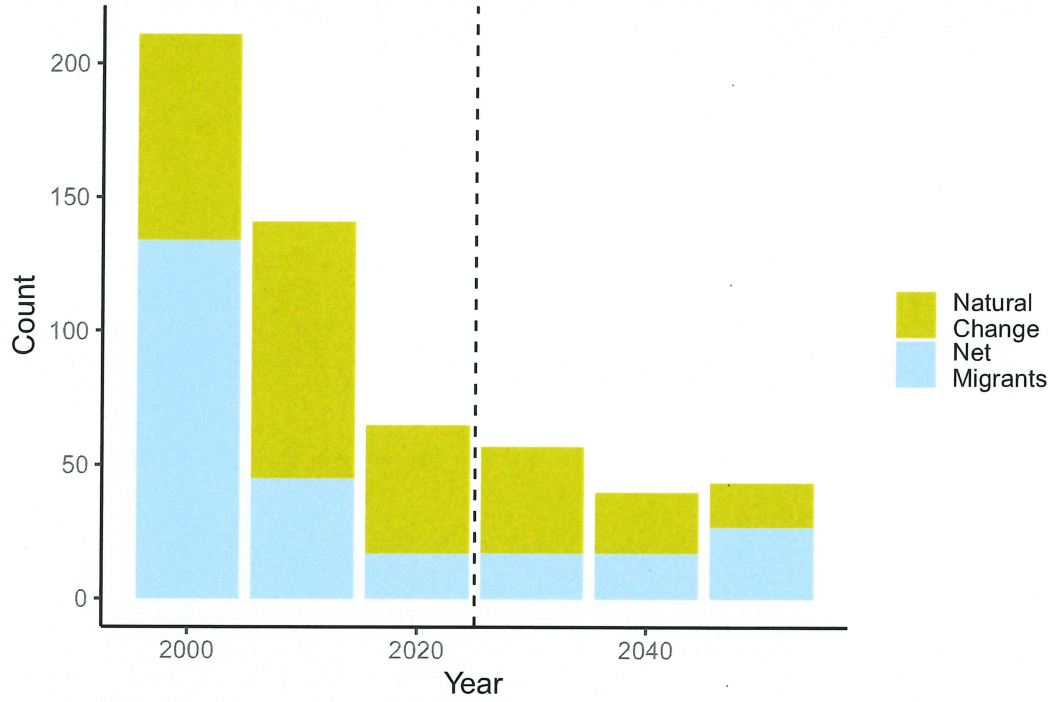


Figure 8: Forecast of county population chnage by natural change and net migration. Natural change refers to the balance of births and deaths which occur in any given year.

4.7 Sub-Area Population

Sub-area populations within and outside the urban growth boundaries (UGBs) are forecasted using the housing unit method, and then adjusted to be consistent with the county level forecast. The UGBs in Morrow County have historically had different trajectories, and we anticipate that these trajectories will also differ in the near future. Boardman is anticipated to continue to be the fastest growing UGB within the county, however, Irrigon and Ione are expected to continue to grow in population size as well. Housing unit and population statistics for city areas of UGBs and maps defining city and UGB boundaries may be found in Appendix C and D.

UGB	Estimate: 1990	Estimate: 2020	Forecast: 2040	Forecast: 2070
County Wide	**7,618**	**12,186**	**13,317**	**14,981**
Boardman	1,630	4,150	5,246	6,521
Heppner	1,499	1,273	1,169	978
Ione	270	338	375	405
Irrigon	894	2,236	2,503	2,963
Lexington	291	250	262	262
Unincorporated	3,040	3,939	3,763	3,853

Table 2: UGB population estimates and projections. 1990 and 2020 are derived from population estimates while 2040 and 2070 are derived from population forecasts.

Portland State
Population Research Center

8 Appendix C: City level characteristics

City	Metric	2000	2010	2020
Boardman	Pop 65+	5.32%	5.84%	
Boardman	Housing Units	947	1,017	1,282
Boardman	Housing Occ	90.07%	94.79%	90.64%
Boardman	PPH	3.33	3.34	3.29
Boardman	Median Income	$56,405	$54,756	$66,359
Boardman	Employment Rate	66.67%	74.69%	67.36%
Heppner	Pop 65+	20.29%	21.53%	
Heppner	Housing Units	660	647	608
Heppner	Housing Occ	88.33%	86.40%	87.66%
Heppner	PPH	2.36	2.30	2.20
Heppner	Median Income	$58,717	$41,851	$45,385
Heppner	Employment Rate	59.74%	55.32%	48.25%
Ione	Pop 65+	15.89%	14.59%	
Ione	Housing Units	142	154	147
Ione	Housing Occ	89.44%	85.71%	90.48%
Ione	PPH	2.53	2.49	2.53
Ione	Median Income	$65,884	$71,700	$76,373
Ione	Employment Rate	59.07%	68.48%	44.35%
Irrigon	Pop 65+	9.40%	11.23%	
Irrigon	Housing Units	609	640	691
Irrigon	Housing Occ	92.78%	94.06%	96.09%
Irrigon	PPH	3.01	3.03	3.03
Irrigon	Median Income	$62,895	$67,533	$69,527
Irrigon	Employment Rate	67.22%	67.26%	63.38%
Lexington	Pop 65+	15.97%	17.65%	
Lexington	Housing Units	111	101	104
Lexington	Housing Occ	91.89%	93.07%	85.58%
Lexington	PPH	2.58	2.53	2.67
Lexington	Median Income	$75,766	$58,157	$39,826
Lexington	Employment Rate	57.40%	59.22%	45.71%

Table 7: City population statistics. All statistics derived from US Census and American Community Survey.

CITY COUNCIL MEETING

April 02, 2024 at 7:00 PM

Boardman City Hall Council Chambers

AGENDA

1. **CALL TO ORDER**
2. **FLAG SALUTE**
3. **ROLL CALL/EXCUSED ABSENCES**
4. **APPROVAL OF MINUTES**
   - A. City Council Workshop Minutes - March 5, 2024
   - B. City Council Meeting Minutes - March 5, 2024
5. **FINANCIAL REPORT**
6. **FORMAL PROCEEDINGS**
   - A. Public Hearing - Naming Unity Loop in the Malhi Manufactured Home Park
7. **PUBLIC COMMENT**
   - **A.** Prearranged Presentation - Morrow County Schools, Boardman
   - **B.** Prearranged Presentation - Motto Winner
   - **C.** Prearranged Presentation - The Loop Transportation
   - **D.** Other Public Comment
8. **ACTION ITEMS - ORDINANCES**
   - A. ORDINANCE 3-2024 - Naming Unity Loop in the Malhi Manufactured Home Park
9. **ACTION ITEMS - RESOLUTIONS**
   - A. RESOLUTION 8-2024 - Surplus Property Declaration - 2016 Ford Interceptors
   - B. RESOLUTION 9-2024 - CREZ III Boundary Expansion
10. **ACTION ITEMS - OTHER BUSINESS**
    - A. Planning Commission Vacancy
    - B. Capital Improvement Plan
    - C. Letter of Support - Broadband Deployment Program
11. **DOCUMENT SIGNATURES**
12. **REPORTS, CORRESPONDENCE, AND DISCUSSION**
    - A. Police Report
    - B. Building Department Report
    - C. Public Works Department Report

D. Planning Department
E. Committee Reports
F. City Manager
G. Councilors
H. Mayor

13. ADJOURNMENT

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CAPITAL IMPROVEMENTS PLAN

FOR

CITY OF BOARDMAN, OREGON

March 2024

ANDERSON PERRY & ASSOCIATES, INC.

La Grande, Redmond, Hermiston, and Enterprise, Oregon

Walla Walla, Washington

Job No. 439-80

Table of Contents

Introduction

This Capital Improvements Plan (CIP) provides the framework for implementing the City of Boardman's facility and infrastructure asset-based improvement process over a five-year period starting in fiscal year 2023-24. The CIP outlines cost estimates for projects that require significant capital investment and are essential for safeguarding the City's financial health, while providing continued delivery of services to citizens and businesses.

The CIP is anticipated to continue to be reviewed and updated periodically (at least every two years) to accommodate community needs and changes in financial resources. The CIP includes a list of the City's capital improvements projects, prioritizes the projects (subject to periodic review), and schedules the projects for funding and construction.

The CIP is a tool to be used in the development of responsible and progressive financial planning goals. The CIP complies with the City's financial policies. City policies and the CIP form the basis for making annual capital budget decisions and support the City's continued commitment to sound, long-range financial planning and direction.

The CIP identifies budgets and fiscal years for several types of capital projects. Capital improvements projects will be coordinated with the annual budget process to maintain full utilization of available resources. For each capital improvements project, the CIP provides a variety of information, including a project description, the service needs to be addressed, a proposed timetable, and proposed funding sources.

Generally, capital improvements projects will be prioritized with the most urgent projects first. In some instances, projects have been scheduled to coincide with an urgently needed project of another department to maximize effort, saving overall cost and/or maintaining the integrity of previously made investments. Ongoing operating costs are not included in the CIP.

Development of the CIP is a collaborative effort between the City's leadership team and departments to identify projects via specific master plans and other planning tools. Major capital improvements projects require City Council interaction during the development and funding stages.

Department Area Descriptions

This CIP is divided into the following sections:

- General
- Planning Department
- Water Department
- Wastewater Department
- Street Department
- General Appendix
- Planning Department Appendix
- Water Department Appendix
- Wastewater Department Appendix
- Street Department Appendix

Project Types

Projects generally fall within the primary categories identified below:

- System Repairs and Replacements - Projects needed to maintain existing infrastructure, typically needed to ensure reliable service.
- System Improvements - Projects designed to increase the functionality, efficiency, and/or capability of the infrastructure.
- Capacity-increasing Projects to Meet Population and Commercial Business Growth.
- Redevelopment and Community Enhancement - Projects created for urban renewal, overall community or neighborhood livability, and safety enhancement.
- Guidance and Regulatory Systems - Amendment of land use or other long-range planning documents to facilitate development of residential, commercial, and industrial land to help ensure water, wastewater, and transportation systems are adequate.

Department Goals

- Provide quality management of the CIP.
- Provide meaningful input for the City Council to make fiscally responsible decisions.
- Update the City Council on program implementation.
- Ensure timely information is provided to the Finance Department and City Council for cost differences.
- Provide timely project starts and completions.

What Projects Are in the Capital Improvements Plan

Capital assets are defined as tangible and intangible assets acquired for use in operations that will benefit more than a single fiscal period. This CIP presents capital improvements and capital outlay. Capital improvements are expansions of, or improvements to, the City's physical facilities, such as buildings, land, and infrastructure, including roads, bridges, sidewalks, and utility systems. Capital outlay is generally used for equipment, vehicles, and technologies. The City's capitalization threshold has a minimum value of $5,000 and a life expectancy of at least three years. Projects costing less than $5,000 are not considered capital and are funded through operating budgets. Land use and other planning processes are also incorporated into this CIP to help ensure adequate funding for this important work is available going forward.

Projects in the CIP can include:

- Construction costs (i.e., labor, materials, and contractors involved in completing a project).
- Acquisition of land or structures.
- Engineering or architectural services, professional studies, or other administrative costs.
- Costs associated with the development or amendment of land use or other long-range planning documents.
- Expenses for City equipment, vehicles, and technologies.
- Expenses for expanding City facilities.

Funding Overview

Implementation of the CIP relies on a variety of potential funding sources. These include utility rate charges, tax increment revenues, user fees, general fund revenues, grants, and system development charges. Most of the funding scenarios may be somewhat complex and interwoven based on project goals, anticipated construction elements, and project timelines. The accounting of infrastructure income prohibits the transfer of funds between some departments. For example, street income can only be utilized for repair and maintenance or capital improvements associated with the Street Department.

Capital improvement cost estimates are created and/or updated based on discussions with City staff and vendors and current bid results of other recent construction projects in the area. Each project estimate includes a 4.0 percent per year inflation rate anticipated to cover escalating project costs realized each year. This percentage is based on inflation rates that vary based on the economy, and it is anticipated that rates will vary from those estimated. Estimates include planning fees, if any, design engineering fees, construction costs, and anticipated construction engineering service fees (i.e., bidding assistance, project observations technical assistance, construction surveying, etc.).

Each of the four department sections, as well as the general section, contain figures that show project priority with an estimated cost for the next five-year period.

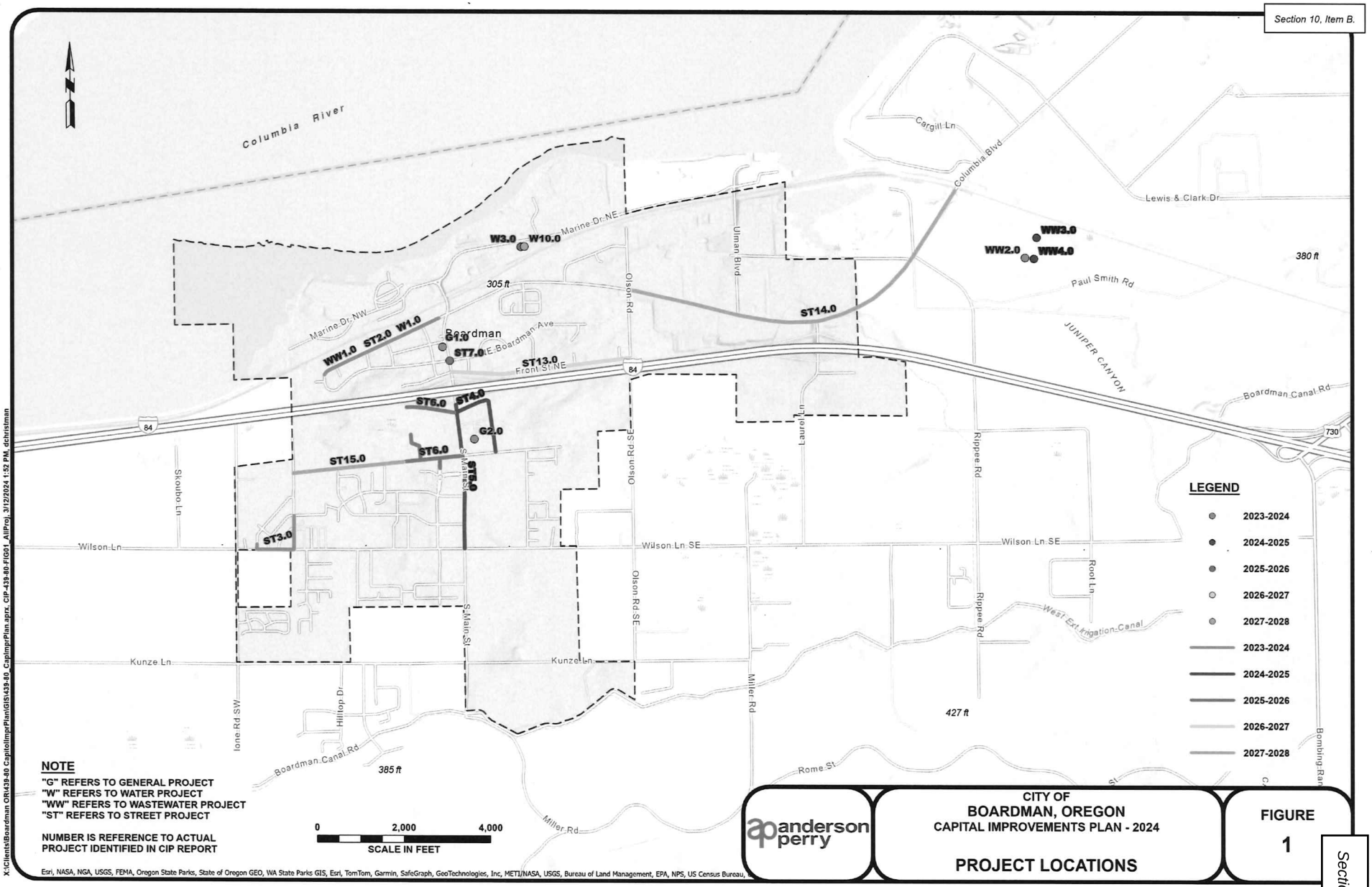
The CIP is not a financing document. Rather, the CIP is a planning document that places projects in the annual budget whereby funds are appropriated for them by the City Council. Prior to actual project work, refined scopes of work, construction cost estimates, and associated design fees will be presented to the City Council for final approval to expend funds.

Project Overview

Projects across the City that entail infrastructure improvements for the Water, Wastewater, Street, and Community Development and Planning Departments, as well as the General section, are identified in this CIP. The projects within these departments are identified on Figure 1, and the associated labels are referenced to project summaries included in each of the five department sections.

Additional projects within each of the five departments that are currently prioritized outside of the five-year CIP window due to funding limitations have been identified. These projects are included in the appendices for inclusion in future CIP updates.

Completed CIP projects within each of the five departments are shown in the appendices for reference.



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anderson perry

CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN - 2024

PROJECT LOCATIONS

FIGURE
1

General

The City of Boardman has projects that need to be planned, but will not be planned by the planning, water, wastewater, or street departments. The general fund covers all projects not planned by the planning, water, wastewater, and street departments. Table 1 provides an overview of the proposed general projects, anticipated financial expenditures, and the proposed fiscal year of each improvement. Figure 2 shows the physical locations of the proposed general improvements throughout the City.

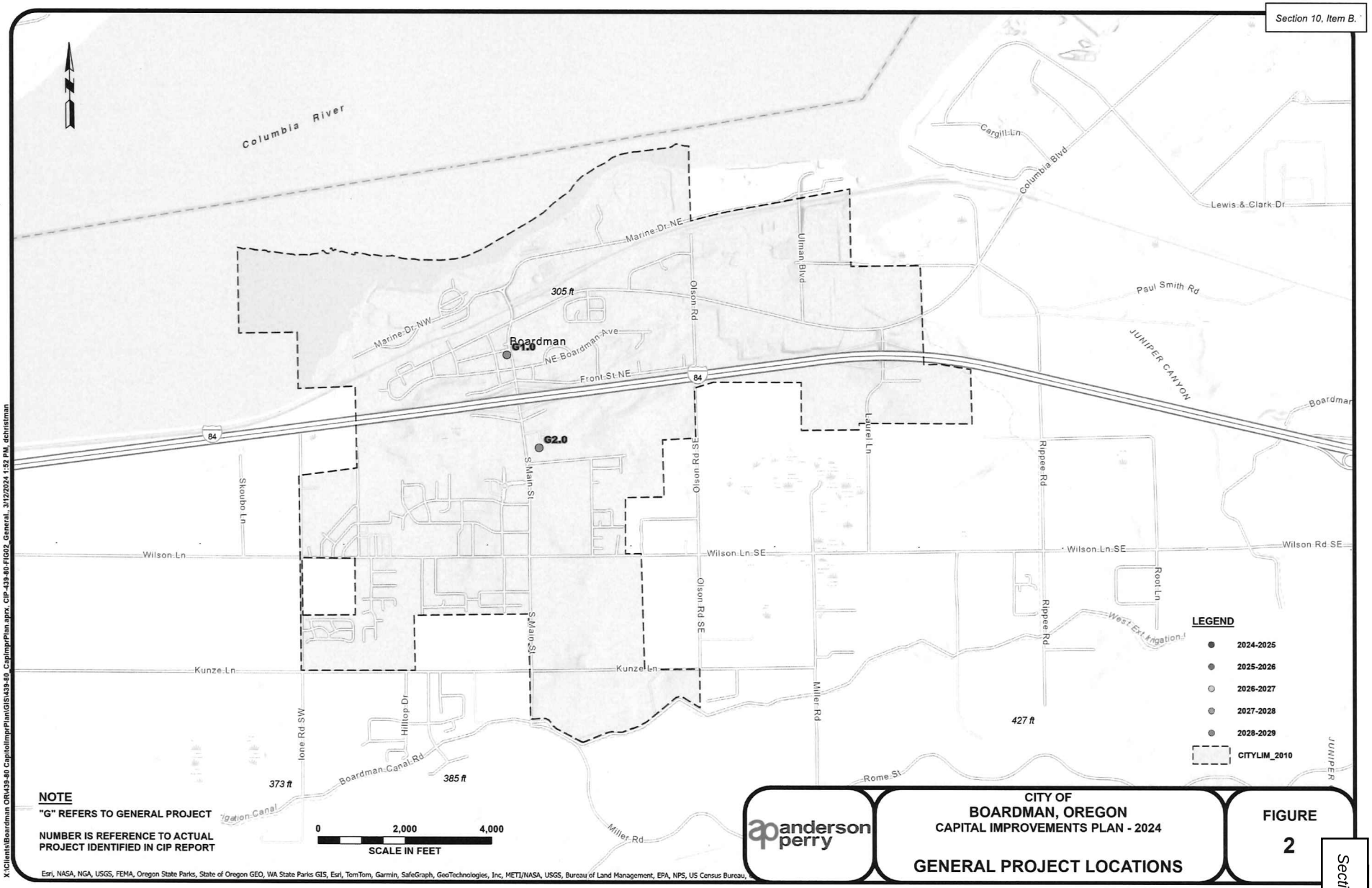
City of Boardman, Oregon
Capital Improvements Plan
Future Value - General Project Summary

Project No.	Project	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
	General Projects					
G 1.0	Surplus Old City Shop	$ -	$ -	$ 50,000	$ -	$ -
G 2.0	Bonneville Power Administration Greenspace	$ -	$ 440,000	$ -	$ -	$ -
	General Total	$ -	$ 440,000	$ 50,000	$ -	$ -

anderson perry

CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN
FUTURE VALUE - GENERAL
PROJECT SUMMARY

TABLE
1



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CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN - 2024

GENERAL PROJECT LOCATIONS

FIGURE
2

Project Number:	G 1.0
Project Name:	Surplus Old City Shop
Fund:	General
Estimated Cost:	$50,000
Fiscal Year:	2025-26

Project Description:

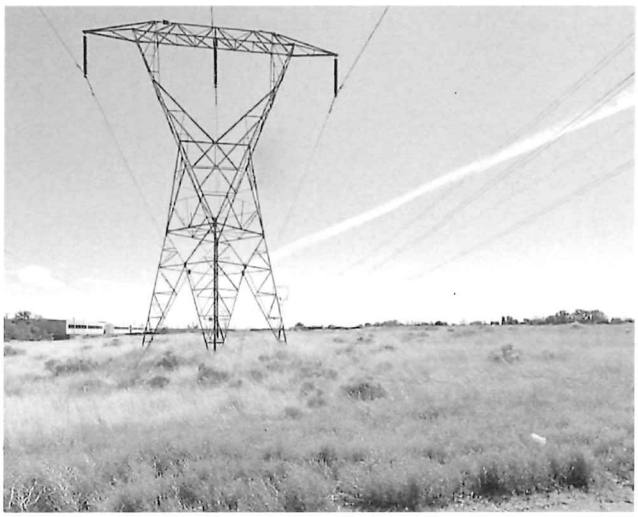
The project will include decommissioning the infrastructure associated with the old City Shop such as the groundwater well, backup generator, etc., so the City can sell the property.

Project Justification:

The City desires to sell the property so it can be developed.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
G 1.0	General Fund	$50,000	2025-26
	Total	$50,000	



Project Number:	G 2.0
Project Name:	Bonneville Power Administration Greenspace
Fund:	General
Estimated Cost:	$440,000
Fiscal Year:	2024-25

Project Description:

The City will acquire approximately 28 acres for a net cost of $290,000 around the Bonneville Power Administration (BPA) right-of-way (ROW). The project will develop the BPA ROW into usable space for public use. The project will include walking paths, sidewalks, grass areas, and public restrooms. Project will be funded by the Central Urban Renewal Area (CURA).

Project Justification:

The City of Boardman is dissected by the BPA ROW. This space is generally unusable as allowed uses around the ROW are minimal. Constructing greenspaces around the ROW are an allowed use of the space. The greenspace will beautify the area and bring recreation, both providing benefit to the community.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
G 2.0	CURA Funds	$440,000	2024-25
	Total	$440,000	

Community Development and Planning

The City of Boardman's Community Development and Planning Department (CDPD) is responsible for assisting citizens and developers by applying the adopted City codes for proposed developments. The CDPD has identified the long-range planning work needed to update and upgrade the City of Boardman planning program.

Projects included in the Capital Improvements Plan are anticipated to be completed by subconsultants. Therefore, updates to planning documents that will be completed by the CDPD are not included.

Table 2 provides an overview of the proposed CDPD projects, anticipated financial expenditures, and the proposed fiscal year of each project.

City of Boardman, Oregon
Capital Improvements Plan
Future Value - Community Development and Planning Project Summary

Project No.	Project	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
	Planning Projects					
P 1.0	Comprehensive Plan					
P 1.1	Housing Needs Analysis	$ 20,000	$ 20,000	$ -	$ -	$ -
P 1.2	Economic Opportunity Analysis	$ -	$ 50,000	$ -	$ -	$ -
P 1.3	Parks Master Plan	$ -	$ 40,000	$ -	$ -	$ -
P 2.0	Boardman Development Code Update	$ -	$ 50,000	$ 100,000	$ -	$ -
P 3.0	Boardman Municipal Code Update	$ -	$ -	$ 25,000	$ -	$ -
	Planning Total	$ 20,000	$ 160,000	$ 125,000	$ -	$ -

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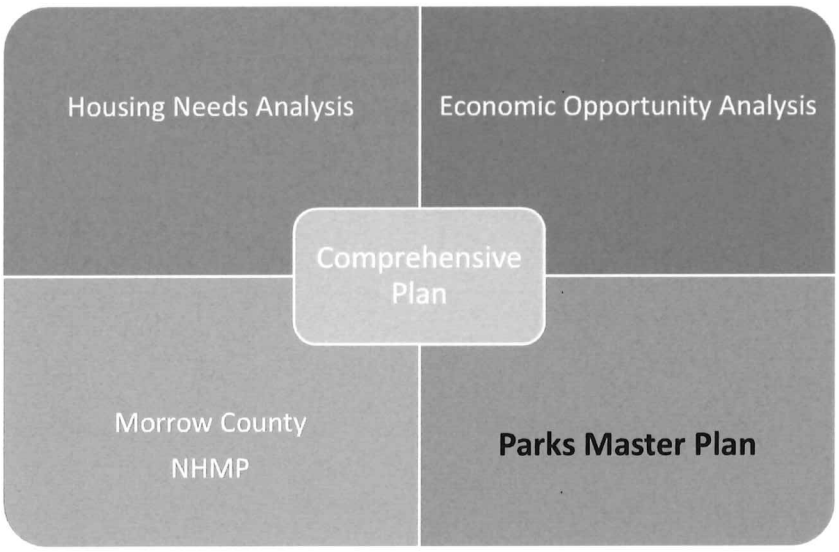
CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN

FUTURE VALUE - COMMUNITY DEVELOPMENT AND PLANNING PROJECT SUMMARY

TABLE 2



P 1.3

Project Number:	P 1.3
Project Name:	Parks Master Plan
Fund:	Planning
Estimated Cost:	$40,000
Fiscal Year:	2024-25

Project Description:

This includes a collaborative effort between the City of Boardman and the Boardman Parks & Recreation District to develop a Parks Master Plan for the City.

Project Justification:

Parks Master Plans are written for new and existing parks and present a balance of recreation opportunities with resource protection while guiding future park development and community engagement.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
P 1.3	Planning Fund	$40,000	2024-25
	Total	$40,000	

Boardman Development Code Update

Project Number:	P 2.0
Project Name:	Boardman Development Code Update
Fund:	Planning
Estimated Cost:	$150,000
Fiscal Year:	2024-25 to 2025-26

Project Description:

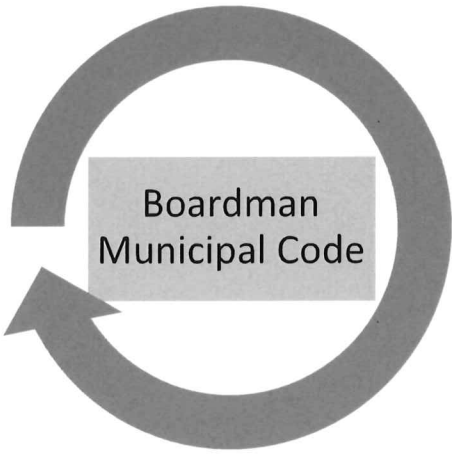
Update the Boardman Development Code, which was last adopted in 2002.

Project Justification:

The Boardman Development Code needs to be updated to be consistent with current Oregon State law and to form the basis for the other planning document updates.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
P 2.0	Planning Fund	$50,000	2024-25
P 2.0	Planning Fund	$100,000	2025-26
	Total	$150,000	



Project Number:	P 3.0
Project Name:	Boardman Municipal Code Update
Fund:	Planning
Estimated Cost:	$25,000
Fiscal Year:	2025-26

Project Description:

Update the Boardman Municipal Code.

Project Justification:

The Boardman Municipal Code needs to be updated to adopt new codes related to business licenses and the City's current Code Enforcement program including animal control. There will be other updates to the Municipal Code for consistency with the Development Code updates.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
P 3.0	Planning Fund	$25,000	2025-26
	Total	$25,000	

Water Department

The City of Boardman completed a Water System Master Plan (WSMP) in September 2015 that presents a detailed description and evaluation of the City's water system. In general, the City's water system consists of:

- Water Reservoirs 3
- Total Water Storage 725,000 gallons
- Miles of Pipe Approximately 17.5 miles
- Water Wells 3
- Booster Pump Stations 1

The City supplies water to residential, commercial, and industrial water users within its service area. The proposed projects in the Capital Improvements Plan may include "increased-capacity" projects, "replacement/ renewal" projects, and equipment upgrades. The proposed improvements have been programmed based on facility needs, the urgency of proposed upgrades, and anticipated funding availability.

Table 3 provides an overview of the proposed water system projects, anticipated financial expenditures, and the proposed fiscal year of each improvement. Figure 3 shows the physical locations of the proposed water system improvements throughout the City.

The capital improvements list for the Water Department provided herein is based on replacement/renewal/ repair projects completed and the City's WSMP prepared in 2015. Projects within the Water Department include distribution system improvements, reservoir modifications/construction, and improvements planned to improve system reliability.

City of Boardman, Oregon
Capital Improvements Plan
Future Value - Water Project Summary

Project No.	Project	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
	Water Projects					
W 1.0	Columbia Avenue N.W. Improvements	$ 400,000	$ -	$ -	$ -	$ -
W 2.0	South Boardman Water System Feasibility Study	$ 50,000	$ -	$ -	$ -	$ -
W 3.0	300,000-gallon Reservoir Recoating	$ -	$ -	$ 350,000	$ -	$ -
W 4.0	Water System Master Plan Update	$ -	$ -	$ 70,000	$ -	$ -
W 5.0	Maintenance and Storage Shop	$ -	$ -	$ 120,000	$ -	$ -
W 6.0	Loader	$ -	$ -	$ 70,000	$ -	$ -
W 7.0	Vac Truck	$ -	$ -	$ 175,000	$ -	$ -
W 8.0	Ten-yard Dump Truck	$ -	$ -	$ 20,000	$ -	$ -
W 9.0	Water Management and Conservation Plan Update	$ -	$ -	$ -	$ 40,000	$ -
W 10.0	Decommission Old Water Booster Pump Station	$ -	$ -	$ -	$ -	$ 20,000
	Water Total	$ 450,000	$ -	$ 805,000	$ 40,000	$ 20,000

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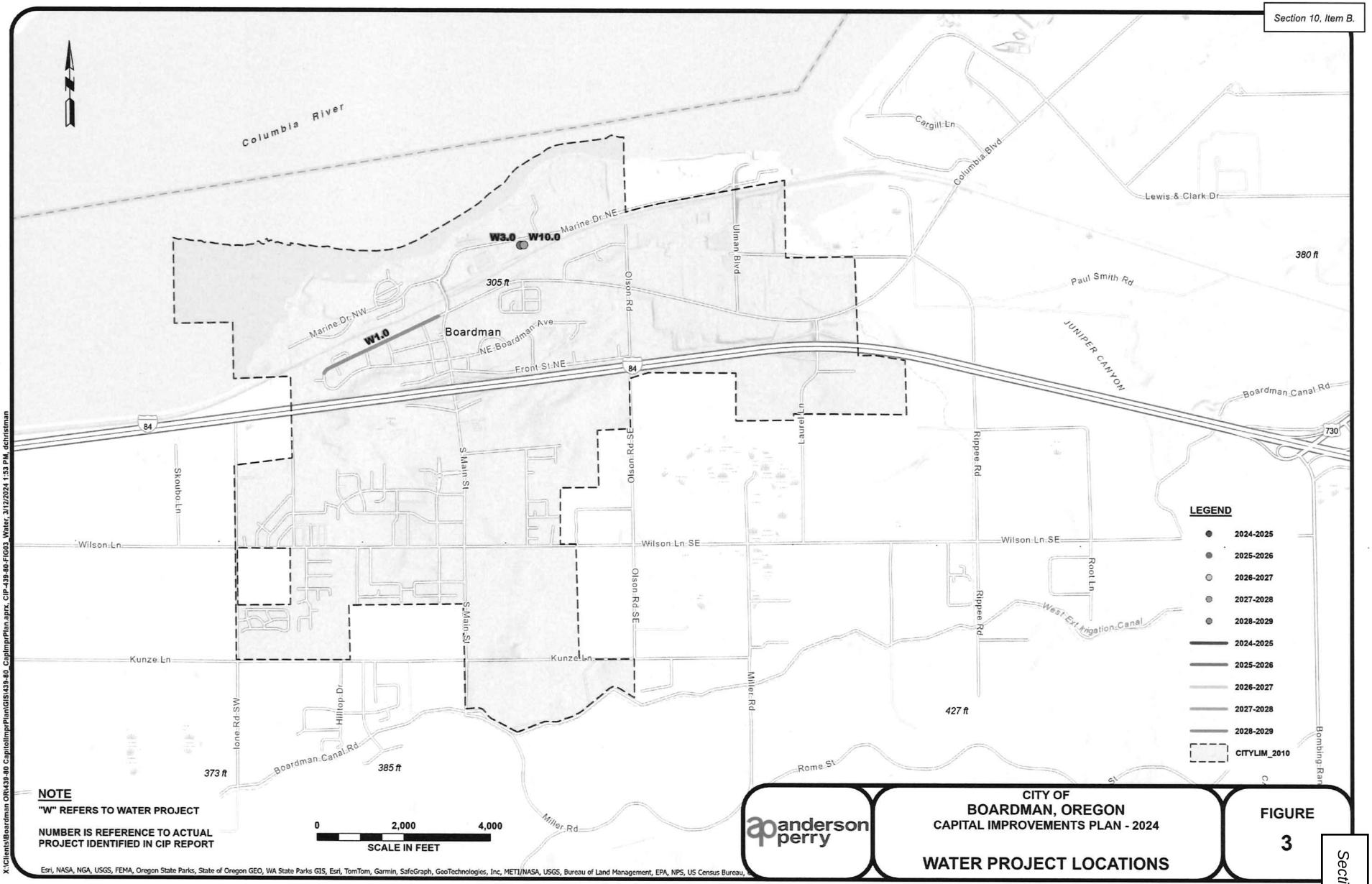
CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN
FUTURE VALUE - WATER PROJECT SUMMARY

TABLE 3



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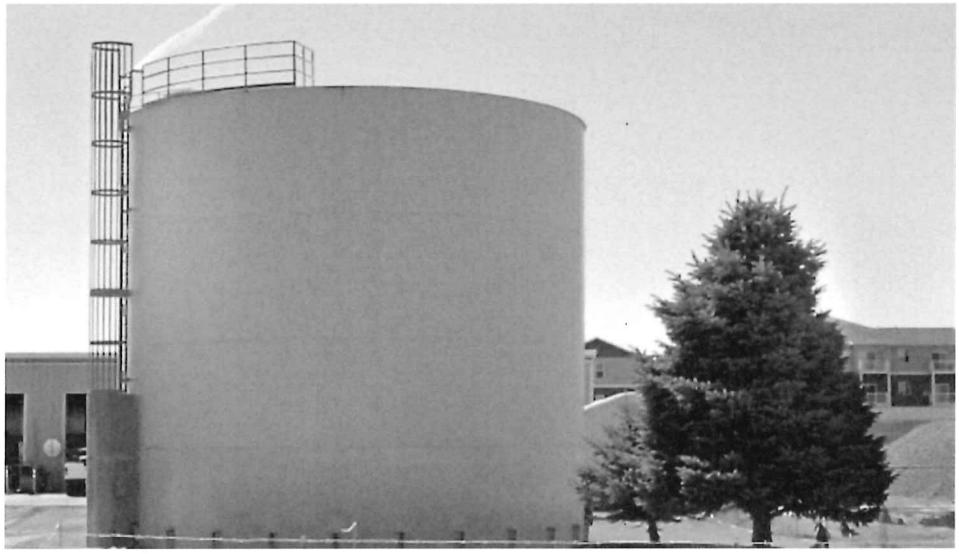
CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN - 2024

WATER PROJECT LOCATIONS

FIGURE
3

W 3.0



Project Number:	W 3.0
Project Name:	300,000-gallon Reservoir Recoating
Fund:	Water
Estimated Cost:	$350,000
Fiscal Year:	2025-26

Project Description:

The project will include painting the welded steel reservoir interior and exterior surfaces. The reservoir will be drained and sandblasted to remove compromised coatings and rust. The reservoir will be coated with industry standard coatings and the cathodic protection system will be upgraded.

Project Justification:

The welded steel reservoir was constructed in 2001 with an inspection completed in approximately 2018. The inspection revealed coatings failure and rusting. Recoating of the welded steel reservoir and upgrading the cathodic protection system is needed to prolong the City's investments and are common practice considering the age of the reservoir.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 3.0	Water Fund	$350,000	2025-26
	Total	$350,000	

Project Number:	W 4.0
Project Name:	Water System Master Plan Update
Fund:	Water
Estimated Cost:	$70,000
Fiscal Year:	2025-26

Project Description:

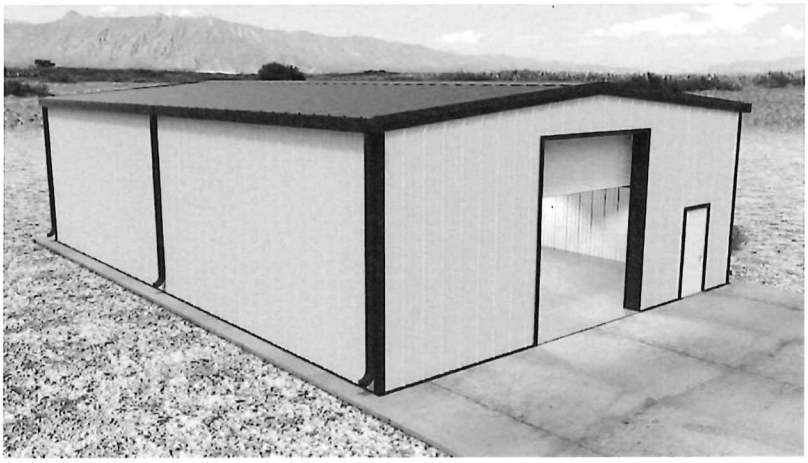
Updating the City's current Water System Master Plan (WSMP) will include analyzing the City's water system and providing suggestions for improvements to increase, or meet, capacity and distribution requirements.

Project Justification:

The City's WSMP needs to be updated every ten years to maintain regulatory compliance. Since the WSMP was adopted in 2015, an update will be needed within the five-year scope of this Capital Improvements Plan. The WSMP will help the City identify areas of the water system that need improvements and help ensure the City will meet distribution and capacity needs for the future.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 4.0	Water Fund	$70,000	2025-26
	Total	$70,000	



Project Number:	W 5.0, WW 6.0, ST 8.0
Project Name:	Maintenance and Storage Shop
Fund:	Water, Wastewater, Street
Estimated Cost:	$120,000
Fiscal Year:	2025-26

Project Description:

Construct a maintenance and storage shop to support the Public Works Department.

Project Justification:

As the City of Boardman grows, so does the Public Works Department. There is a need to provide additional vehicle/equipment storage in conditioned space.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 5.0	Water Fund	$120,000	2025-26
WW 6.0	Wastewater Fund	$110,000	2025-26
ST 8.0	Street Fund	$120,000	2025-26
	Total	$350,000	

Project Number:	W 6.0, WW 7.0, ST 10.0
Project Name:	Loader
Fund:	Water, Wastewater, Street
Estimated Cost:	$70,000
Fiscal Year:	2025-26

Project Description:

Purchase a loader for Public Works use.

Project Justification:

Public Works needs a loader to be more efficient in daily operations.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 6.0	Water Fund	$70,000	2025-26
WW 7.0	Wastewater Fund	$60,000	2025-26
ST 10.0	Street Fund	$70,000	2025-26
	Total	$200,000	

W 7.0

Project Number:	W 7.0, WW 8.0, ST 11.0
Project Name:	Vac Truck
Fund:	Water, Wastewater, Street
Estimated Cost:	$175,000
Fiscal Year:	2025-26

Project Description:

Purchase a new vac truck for Public Works use.

Project Justification:

The existing vac truck has surpassed its service life and needs to be replaced.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 7.0	Water Fund	$175,000	2025-26
WW 8.0	Wastewater Fund	$175,500	2025-26
ST 11.0	Street Fund	$150,000	2025-26
	Total	$500,000	

W 8.0

Project Number:	W 8.0, WW 9.0, ST 12.0
Project Name:	Ten-yard Dump Truck
Fund:	Water, Wastewater, Street
Estimated Cost:	$20,000
Fiscal Year:	2025-26

Project Description:

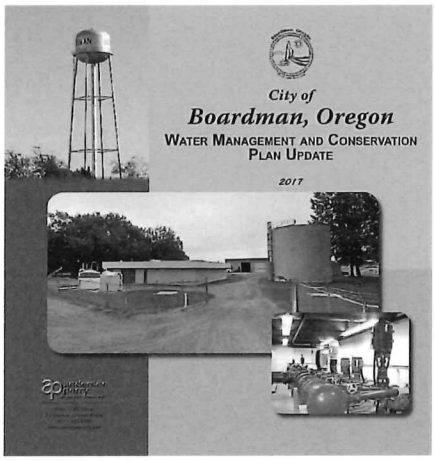
Purchase a ten-yard dump truck for Public Works use.

Project Justification:

Public Works needs a ten-yard dump truck to be more efficient in daily operations.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 8.0	Water Fund	$20,000	2025-26
WW 9.0	Wastewater Fund	$40,000	2025-26
ST 12.0	Street Fund	$40,000	2025-26
	Total	$100,000	



Project Number:	W 9.0
Project Name:	Water Management and Conservation Plan Update
Fund:	Water
Estimated Cost:	$40,000
Fiscal Year:	2026-27

Project Description:

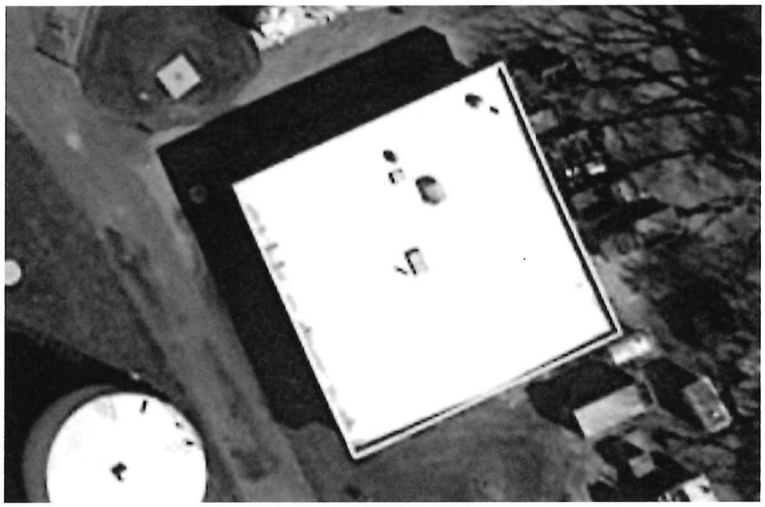
Updating the City's current Water Management and Conservation Plan (WMCP) will require analyzing the City's water system. After an analysis is finished, the WMCP will discuss how the City is managing and conserving water as well as permit requirements.

Project Justification:

The City's WMCP is required to be updated every ten years to maintain regulatory compliance. Since the last update to the WMCP was in 2017, an update will be needed within the five-year scope of this Capital Improvements Plan. The WMCP will help the City identify areas of the water system that need improvements. This will help the City meet distribution and capacity needs for the future.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 9.0	Water Fund	$40,000	2026-27
	Total	$40,000	



Project Number:	W 10.0
Project Name:	Decommission Old Water Booster Pump Station
Fund:	Water
Estimated Cost:	$20,000
Fiscal Year:	2027-28

Project Description:

Decommission the old water booster pump station.

Project Justification:

After construction of the new water booster pump station, the City's old booster pump station is redundant. The building structure and equipment enclosed is past its service life, and it is not feasible or reasonable to restore a redundant booster pump station.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 10.0	Water Fund	$20,000	2027-28
	Total	$20,000	

Wastewater Department

The City of Boardman completed a Wastewater Facilities Plan in 2021 that presents a detailed description and evaluation of the City's wastewater system. In general, the City's wastewater system consists of:

- Miles of Pipe — Approximately 28
- Manhole Structures — Approximately 417
- Cleanouts — 30
- Recycled Water Discharge Point — The City's land application site (Circle 52)
- Sanitary Lift Stations — Seven

The proposed projects included in the Capital Improvements Plan are based on "increased-capacity" projects where upgrades are required to accommodate growth and "replacement" projects for collection system components that have deteriorated past the reasonable point of repair. When upgrading a system component, the project is sized to accommodate growth, reduce infiltration and inflow of stormwater and groundwater into the system, and to repair identified deficiencies in older collection system components.

Table 4 provides an overview of the proposed sewer system projects, anticipated financial expenditures, and the proposed fiscal year of each improvement. Figure 4 provides maps showing the physical locations of the proposed sewer system improvements throughout the City.

City of Boardman, Oregon
Capital Improvements Plan
Future Value - Wastewater Project Summary

Project No.	Project	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
	Wastewater Projects					
WW 1.0	Columbia Avenue N.W. Improvements	$ 400,000	$ -	$ -	$ -	$ -
WW 2.0	Headworks Screen and Septage Receiving Station	$ 50,000	$ 1,000,000	$ -	$ -	$ -
WW 3.0	Lagoon 1 Biosolids Removal	$ -	$ 1,250,000	$ -	$ -	$ -
WW 4.0	Replace On-Site Sodium Hypochlorite System	$ -	$ 200,000	$ -	$ -	$ -
WW 5.0	Collection System Study	$ -	$ -	$ 80,000	$ -	$ -
WW 6.0	Maintenance and Storage Shop	$ -	$ -	$ 110,000	$ -	$ -
WW 7.0	Loader	$ -	$ -	$ 60,000	$ -	$ -
WW 8.0	Vac Truck	$ -	$ -	$ 175,000	$ -	$ -
WW 9.0	Ten-yard Dump Truck	$ -	$ -	$ 40,000	$ -	$ -
	Wastewater Total	$ 450,000	$ 2,450,000	$ 465,000	$ -	$ -

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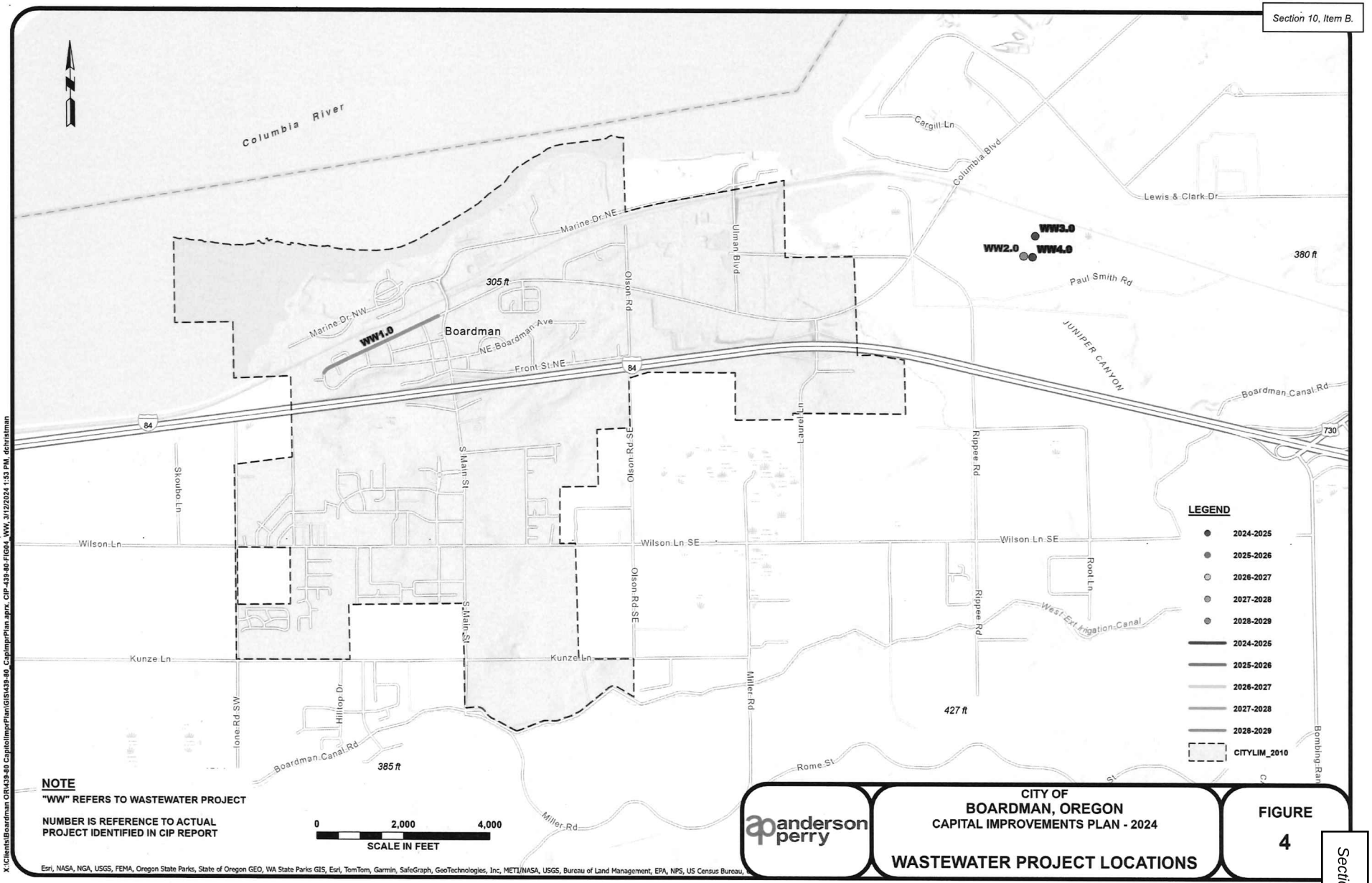
CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN
FUTURE VALUE - WASTEWATER
PROJECT SUMMARY

TABLE
4



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CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN - 2024

WASTEWATER PROJECT LOCATIONS

FIGURE
4

Project Number:	W 1.0, WW 1.0, ST 2.0
Project Name:	Columbia Avenue N.W. Improvements
Fund:	Water, Wastewater, Street
Estimated Cost:	$400,000
Fiscal Year:	2023-24

Project Description:

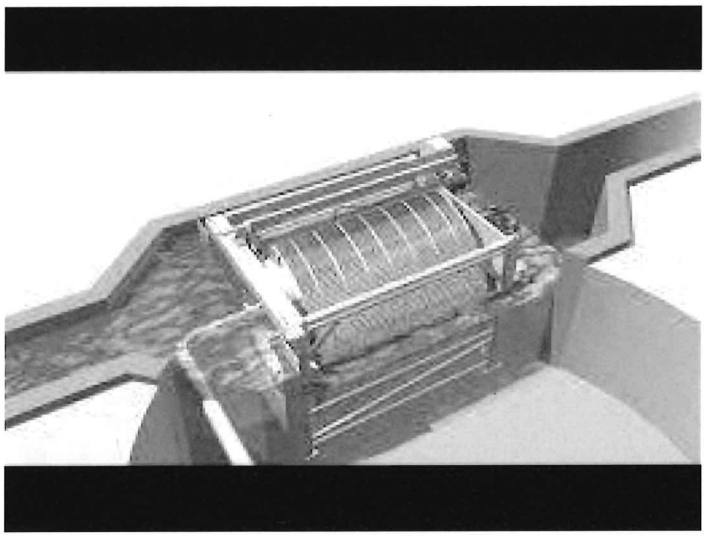
The City intends to replace the two parallel 8-inch concrete sewer lines along Columbia Avenue N.W. with one 15-inch polyvinyl chloride (PVC) sewer line. The project will include reinstating sewer service to residences, installing new manholes, and all work required to replace the sewer lines.

Project Justification:

In 2022, the City performed a closed-circuit television inspection of the sewer lines along this stretch of road. The inspection identified deficiencies, including root intrusions, pipe sags, and failed joints, and revealed that both sewer lines were reaching capacity during high demand periods. Replacing the existing concrete sewer lines with a single PVC line will ensure capacity requirements for the area are met.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 1.0	Water Fund	$400,000	2023-24
WW 1.0	Wastewater Fund	$400,000	2023-24
ST 2.0	Street Fund	$500,000	2023-24
	Total	$1,300,000	



Project Number:	WW 2.0
Project Name:	Headworks Screen and Septage Receiving Station
Fund:	Wastewater
Estimated Cost:	$1,050,000
Fiscal Year:	2023-24 to 2024-25

Project Description:

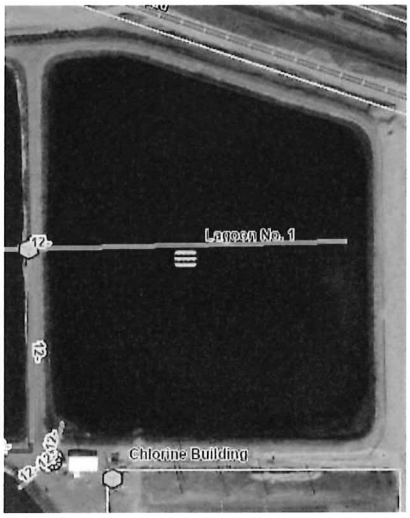
Construct a new headworks and septage receiving station.

Project Justification:

The City's lagoon system operates without a headworks screen allowing garbage to accumulate in the lagoon system. The project will involve installation of a new headworks screen to help remove garbage from wastewater influent and the installation of a septage receiving station to accept hauled waste.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
WW 2.0	Wastewater Fund	$50,000	2023-24
WW 2.0	Wastewater Fund	$1,000,000	2024-25
	Total	$1,050,000	



Project Number:	WW 3.0
Project Name:	Lagoon 1 Biosolids Removal
Fund:	Wastewater
Estimated Cost:	$1,250,000
Fiscal Year:	2024-25

Project Description:

The project will include draining Lagoon 1 at the wastewater treatment facility (WWTF). After the lagoon is drained, the biosolids will take approximately one to two years to dry. Once the biosolids have dried, work can begin to remove the biosolids, which will restore Lagoon 1 to its original depth. Since the WWTF does not currently have a headworks screen, the biosolids removed will contain inorganics and will need to be disposed of at the landfill.

Project Justification:

Increasing the depth of Lagoon 1 via biosolids removal will increase the overall capacity of the City's WWTF. Increasing the capacity of the WWTF will allow the City to accept more wastewater as the City grows. By removing biosolids from Lagoon 1, the overall efficiency of the WWTF will be improved, ensuring the City has reliable wastewater treatment for years to come.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
WW 3.0	Wastewater Fund	$1,250,000	2024-25
	Total	$1,250,000	

Project Number:	WW 4.0
Project Name:	Replace On-Site Sodium Hypochlorite System
Fund:	Wastewater
Estimated Cost:	$200,000
Fiscal Year:	2024-25

Project Description:

Replace the on-site sodium hypochlorite system.

Project Justification:

The existing on-site sodium hypochlorite system used for disinfecting recycled water land applied at Circle 52 has surpassed its service life and needs replaced.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
WW 4.0	Wastewater Fund	$200,000	2024-25
	Total	$200,000	

Project Number:	WW 5.0
Project Name:	Collection System Study
Fund:	Wastewater
Estimated Cost:	$80,000
Fiscal Year:	2025-26

Project Description:

Develop a Collection System Study.

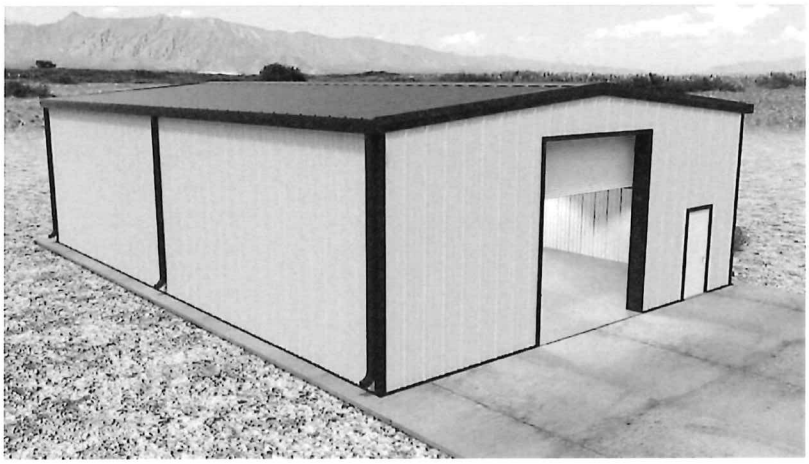
Project Justification:

The Collection System Study will be developed for a 20-year planning period and will include design criteria and service goals for the planning period, identifying present and anticipated future system deficiencies, and evaluating future collection system needs. A system improvements implementation program will be developed to be incorporated in the Capital Improvements Plan.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
WW 5.0	Wastewater Fund	$80,000	2025-26
	Total	$80,000	

WW 6.0



Project Number:	W 5.0, WW 6.0, ST 8.0
Project Name:	Maintenance and Storage Shop
Fund:	Water, Wastewater, Street
Estimated Cost:	$110,000
Fiscal Year:	2025-26

Project Description:

Construct a maintenance and storage shop to support the Public Works Department.

Project Justification:

As the City of Boardman grows, so does the Public Works Department. There is a need to provide additional vehicle/equipment storage in conditioned space.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 5.0	Water Fund	$120,000	2025-26
WW 6.0	Wastewater Fund	$110,000	2025-26
ST 8.0	Street Fund	$120,000	2025-26
	Total	$350,000	

Project Number:	W 6.0, WW 7.0, ST 10.0
Project Name:	Loader
Fund:	Wastewater
Estimated Cost:	$60,000
Fiscal Year:	2025-26

Project Description:

Purchase a loader for Public Works use.

Project Justification:

Public Works needs a loader to be more efficient in daily operations.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 6.0	Water Fund	$70,000	2025-26
WW 8.0	Wastewater Fund	$60,000	2025-26
ST 10.0	Street Fund	$70,000	2025-26
	Total	$200,000	

WW 8.0

Project Number:	W 7.0, WW 8.0, ST 11.0
Project Name:	Vac Truck
Fund:	Water, Wastewater, Street
Estimated Cost:	$175,000
Fiscal Year:	2025-26

Project Description:

Purchase a new vac truck for Public Works use.

Project Justification:

The existing vac truck has surpassed its service life and needs to be replaced.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 7.0	Water Fund	$175,000	2025-26
WW 8.0	Wastewater Fund	$175,000	2025-26
ST 11.0	Street Fund	$150,000	2025-26
	Total	$500,000	

WW 9.0

Project Number:	W 8.0, WW 9.0, ST 12.0
Project Name:	Ten-yard Dump Truck
Fund:	Water, Wastewater, Street
Estimated Cost:	$40,000
Fiscal Year:	2025-26

Project Description:

Purchase a ten-yard dump truck for Public Works use.

Project Justification:

Public Works needs a ten-yard dump truck to be more efficient in daily operations.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 8.0	Water Fund	$20,000	2025-26
WW 9.0	Wastewater Fund	$40,000	2025-26
ST 12.0	Street Fund	$40,000	2025-26
	Total	$100,000	

Street Department

The capital improvements list for the City of Boardman Street Department is based on knowledge of the system provided by the Street Department staff. In general, the City's street system consists of:

- Roadway Centerline Miles — Approximately 19
- Traffic Signals — 0

The Capital Improvements Plan projects identified by the Street Department include street rehabilitation, street beautification, street widening, intersection safety improvements, pedestrian improvements, and new streets.

Table 5 provides an overview of the proposed street system projects, anticipated financial expenditures, and the proposed fiscal year of each improvement. Figure 5 shows the physical locations of the proposed system improvements throughout the City.

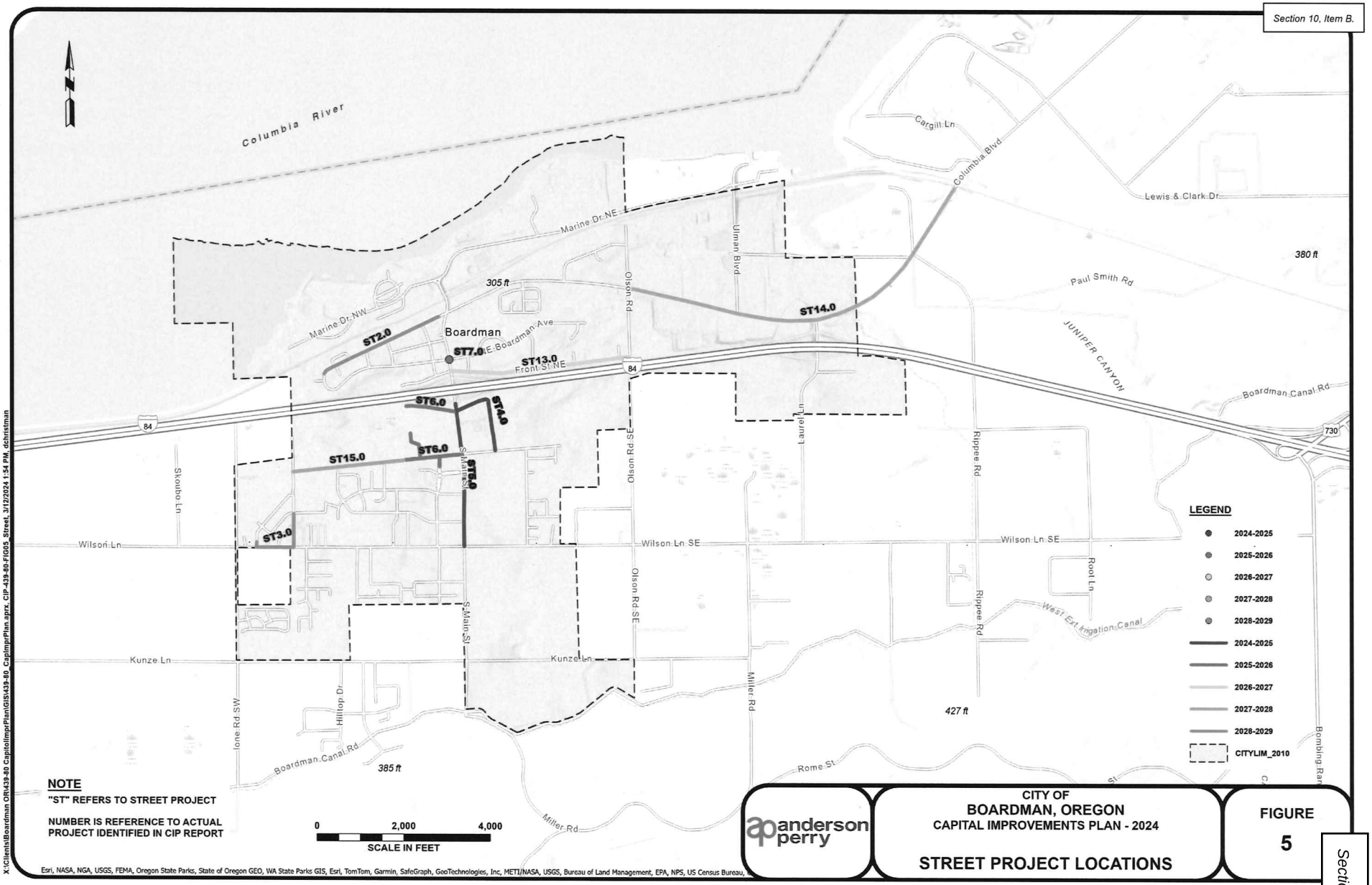
City of Boardman, Oregon
Capital Improvements Plan
Future Value - Street Project Summary

Project No.	Project	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
	Street Projects					
ST 1.0	Pavement Evaluation Study	$ 10,000	$ -	$ -	$ -	$ -
ST 2.0	Columbia Avenue N.W. Improvements	$ 500,000	$ -	$ -	$ -	$ -
ST 3.0	Wilson Lane and Faler Road Sidewalk Improvements	$ 400,000	$ -	$ -	$ -	$ -
ST 4.0	S.E. Front Street and S.E. 1st Street Improvements	$ -	$ 1,500,000	$ -	$ -	$ -
ST 5.0	S. Main Street	$ -	$ 1,250,000	$ 1,250,000	$ -	$ -
ST 6.0	S.W. Loop Road Improvements	$ -	$ -	$ 2,130,000	$ -	$ -
ST 7.0	Boardman Avenue and N. Main Street Intersection	$ -	$ -	$ 1,000,000	$ -	$ -
ST 8.0	Maintenance and Storage Shop	$ -	$ -	$ 120,000	$ -	$ -
ST 9.0	Sand Shed	$ -	$ -	$ 200,000	$ -	$ -
ST 10.0	Loader	$ -	$ -	$ 70,000	$ -	$ -
ST 11.0	Vac Truck	$ -	$ -	$ 150,000	$ -	$ -
ST 12.0	Ten-yard Dump Truck	$ -	$ -	$ 40,000	$ -	$ -
ST 13.0	N.E. Front Street	$ -	$ -	$ -	$ 2,950,000	$ -
ST 14.0	N.E. Columbia Avenue: Olson Road to Union Pacific Railroad Overpass	$ -	$ -	$ -	$ -	$ 3,200,000
ST 15.0	Oregon Trail Boulevard to Faler Road S.W.	$ -	$ -	$ -	$ -	$ 2,300,900
	Street Total	$ 910,000	$ 2,750,000	$ 4,960,000	$ 2,950,000	$ 5,500,900

anderson perry

CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN
FUTURE VALUE - STREET
PROJECT SUMMARY

TABLE
5



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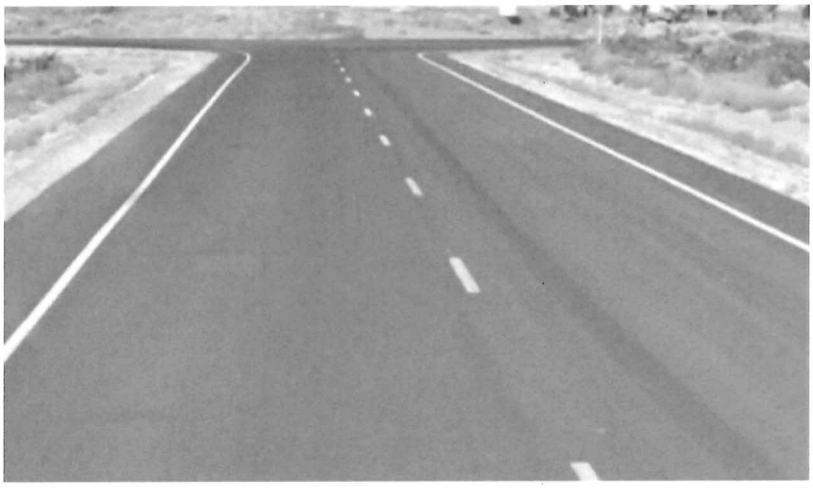
CITY OF
BOARDMAN, OREGON
CAPITAL IMPROVEMENTS PLAN - 2024

STREET PROJECT LOCATIONS

FIGURE 5



Project Number:	ST 1.0
Project Name:	Pavement Evaluation Study
Fund:	Street
Estimated Cost:	$10,000
Fiscal Year:	2023-24

Project Description:

The purpose of the Pavement Evaluation Study is to document the existing condition of paved streets within the City, to develop recommended maintenance practices and options, and to serve as a guide for maintaining and improving street conditions.

Project Justification:

The City does not currently have a set plan for road maintenance, and generally repairs roads when they are in poor condition or other work is in progress, such as during water and sewer projects. Without adequate planning and funding, streets receive limited maintenance and deteriorate. Implementation of the pavement maintenance recommendations outlined in the Pavement Evaluation Study will help to produce a high-quality, reliable street network that will meet the City's needs for the foreseeable future.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 1.0	Street Fund	$10,000	2023-24
	Total	$10,000	

Project Number:	W 1.0, WW 1.0, ST 2.0
Project Name:	Columbia Avenue N.W. Improvements
Fund:	Water, Wastewater, Street
Estimated Cost:	$500,000
Fiscal Year:	2023-24

Project Description:

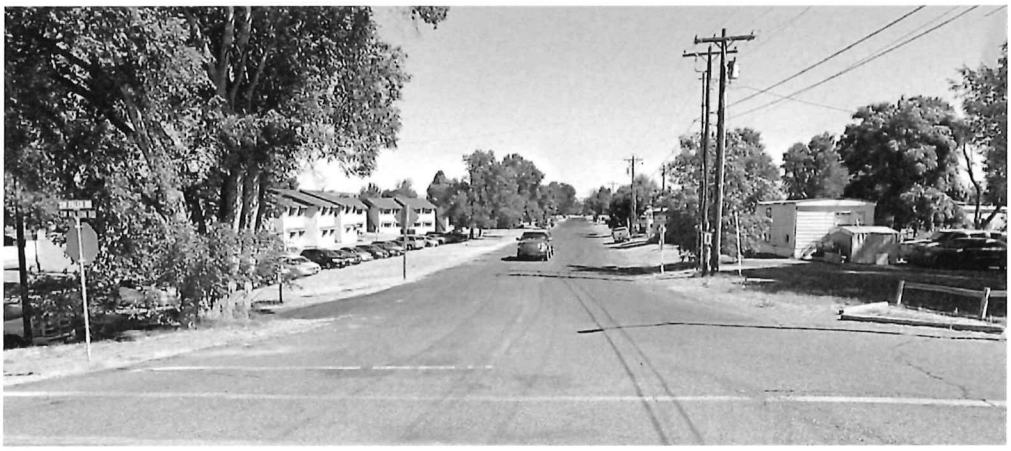
The project will include the reconstruction of Columbia Avenue N.W. from N. Main Street to approximately 350 feet southwest of N.W. Allen Court. The project will reconstruct the roadway after the completion of water and sewer line improvements and will include storm drainage improvements. Work will restore centerline stripes and adjust all roadway monumentation, manholes, catch basins, and existing valve boxes.

Project Justification:

New water and sewer lines will be installed, requiring roadwork for this stretch of road. Currently, the road has sections of very good, fair, and poor conditions. Conditions for fair and poor include poor ride quality, cracking, trench settlement, drainage problems, potholes, and obvious structural deficiencies. Roadway improvements are required to prevent premature roadway failure and ensure the roadway is functional for the community and area.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 1.0	Water Fund	$400,000	2023-24
WW 1.0	Wastewater Fund	$400,000	2023-24
ST 2.0	Street Fund	$500,000	2023-24
	Total	$1,300,000	



Project Number:	ST 3.0
Project Name:	Wilson Lane and Faler Road Sidewalk Improvements
Fund:	Street
Estimated Cost:	$400,000
Fiscal Year:	2023-24

Project Description:

The City wishes to construct concrete sidewalk, curb and gutter, and storm drainage improvements along Wilson Lane between Faler Road and Mt. Adams Avenue and along Faler Road between Wilson Lane and Mt. Hood Avenue. The project will include Americans with Disabilities Act (ADA) curb ramps and concrete driveway approaches.

Project Justification:

Currently, this stretch of road does not have adequate pedestrian accessibility or storm drainage. Constructing sidewalk, curb and gutter, ADA curb ramps, and other storm drainage improvements will provide adequate pedestrian accessibility and storm drainage to the area.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 3.0	Street Fund	$400,000	2023-24
	Total	$400,000	

Project Number:	ST 4.0
Project Name:	S.E. Front Street and S.E. 1st Street Improvements
Fund:	Street
Estimated Cost:	$1,500,000
Fiscal Year:	2024-25

Project Description:

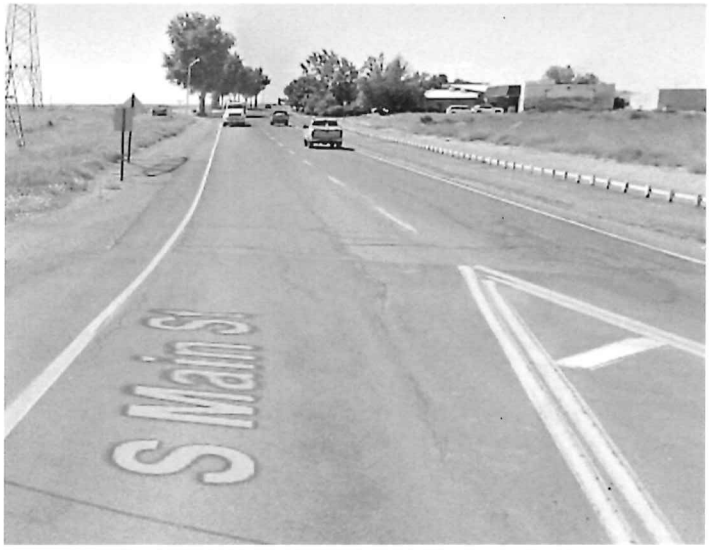
The project will include the reconstruction of S.E. Front Street and the construction of S.E. 1st Street between S.E. Front Street and Oregon Trail Boulevard. Work for the project will include approximately 7,290 square yards of roadway, 10,200 square feet of sidewalk, 2,210 linear feet of curb and gutter, storm drainage improvements, and parking improvements.

Project Justification:

S.E. Front Street needs to be reconstructed due to the poor condition of the road. This road has areas of instability with poor ride quality; extensive transverse, longitudinal, and alligator cracking with trench settlement and/or potholes; drainage problems; and obvious evidence of structural deficiencies. The construction of S.E. 1st Street will create a road section that supports increased traffic volumes from future development in the area.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 4.0	Street Fund	$1,500,000	2024-25
	Total	$1,500,000	



Project Number:	ST 5.0
Project Name:	S. Main Street
Fund:	Street
Estimated Cost:	$2,500,000
Fiscal Year:	2024-25 to 2025-26

Project Description:

The project will include a complete road reconstruction, include demolition of the existing asphalt concrete road surface, concrete curbs, and asphalt concrete pedestrian path. After the demolition of existing surfaces and structures, construction of a new asphalt concrete road surface, curb and gutter, Americans with Disabilities Act curb ramps, center concrete median, and concrete sidewalk will be accomplished. Additionally, decorative streetlights will be installed, and storm drainage improvements will be made.

Project Justification:

This road is identified in the City's Main Street Downtown Development Plan as the main north-south arterial for the City and is considered the "downtown" portion of the City. Improvements to this stretch of road will ensure future traffic and pedestrian demands will be met and will accommodate future development of the area.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 5.0	Street Fund	$1,250,000	2024-25
ST 5.0	Street Fund	$1,250,000	2025-26
	Total	$2,500,000	

Project Number:	ST 6.0
Project Name:	S.W. Loop Road Improvements
Fund:	Street
Estimated Cost:	$2,130,000
Fiscal Year:	2025-26

Project Description:

The project will be an extension of approximately 1,200 feet of Oregon Trail Boulevard to the west. The project will include curb and gutter, concrete sidewalk, Americans with Disabilities Act (ADA) curb ramps, storm drainage systems, and street lighting. ADA curb ramps will be developed to meet current ADA standards. All aspects of the project will be constructed according to City standards.

Project Justification:

Extending Oregon Trail Boulevard is identified in the City's 2009 Main Street Interchange Area Management Plan. Extending this road can strengthen east-west as well as north-south connectivity. This section of road will also provide access to future development in the area.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 6.0	Street Fund	$2,130,000	2025-26
	Total	$2,130,000	

Project Number:	ST 7.0
Project Name:	Boardman Avenue and N. Main Street Intersection
Fund:	Street
Estimated Cost:	$1,000,000
Fiscal Year:	2025-26

Project Description:

The project will consist of signalizing the intersection of N. Main Street and Boardman Avenue. A center median on N. Main Street will also be constructed to improve traffic flow and pedestrian safety. The intersection will be reconfigured to accommodate the signal and center median.

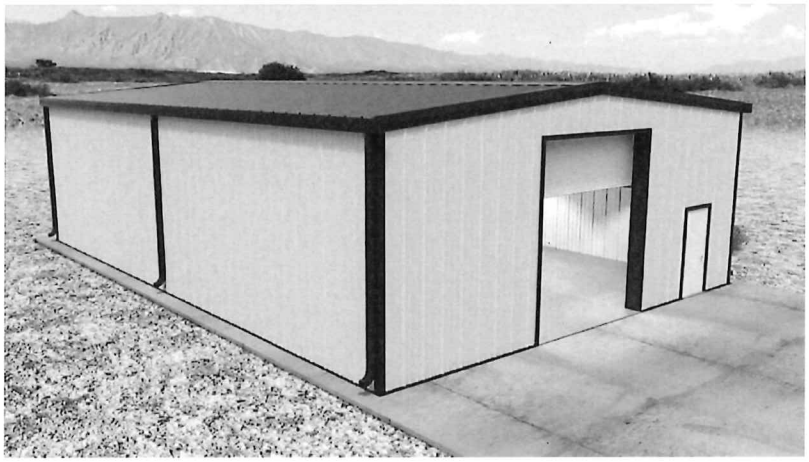
Project Justification:

The improvements have been identified in the Technical Memorandum "Boardman Main Street Circulation Assessment" published by Kittelson & Associates, Inc. This intersection was identified as an intersection that would benefit from becoming signalized and will greatly improve traffic flow for the City's main north-south arterial.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 7.0	Street Fund	$1,000,000	2025-26
	Total	$1,000,000	

ST 8.0



Project Number:	W 5.0, WW 6.0, ST 8.0
Project Name:	Maintenance and Storage Shop
Fund:	Water, Wastewater, Street
Estimated Cost:	$120,000
Fiscal Year:	2025-26

Project Description:

Construct a maintenance and storage shop to support the Public Works Department.

Project Justification:

As the City of Boardman grows, so does the Public Works Department. There is a need to provide additional vehicle/equipment storage in conditioned space.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 5.0	Water Fund	$120,000	2025-26
WW 6.0	Wastewater Fund	$110,000	2025-26
ST 8.0	Street Fund	$120,000	2025-26
	Total	$350,000	

Project Number:	ST 9.0
Project Name:	Sand Shed
Fund:	Street
Estimated Cost:	$200,000
Fiscal Year:	2025-26

Project Description:

Construct a sand shed to store material for the City.

Project Justification:

The City's current sand storage uses tarps to keep sand free of moisture. The tarps often catch wind, allowing the sand to become saturated and causes a safety hazard for staff. Constructing a sand shed will eliminate the use of tarps, therefore increasing the safety of City staff and keeping the sand dry.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 9.0	Street Fund	$200,000	2025-26
	Total	$200,000	

Project Number:	W 6.0, WW 7.0, ST 10.0
Project Name:	Loader
Fund:	Water, Wastewater, Street
Estimated Cost:	$70,000
Fiscal Year:	2025-26

Project Description:

Purchase a loader for Public Works use.

Project Justification:

Public Works needs a loader to be more efficient in daily operations.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 6.0	Water Fund	$70,000	2025-26
WW 8.0	Wastewater Fund	$60,000	2025-26
ST 10.0	Street Fund	$70,000	2025-26
	Total	$200,000	

Project Number:	W 7.0, WW 8.0, ST 11.0
Project Name:	Vac Truck
Fund:	Water, Wastewater, Street
Estimated Cost:	$150,000
Fiscal Year:	2025-26

Project Description:

Purchase a new vac truck for Public Works use.

Project Justification:

The existing vac truck has surpassed its service life and needs to be replaced.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 7.0	Water Fund	$175,000	2025-26
WW 8.0	Wastewater Fund	$175,000	2025-26
ST 11.0	Street Fund	$150,000	2025-26
	Total	$100,000	

ST 12.0

Project Number:	W 8.0, WW 9.0, ST 12.0
Project Name:	Ten-yard Dump Truck
Fund:	Water, Wastewater, Street
Estimated Cost:	$40,000
Fiscal Year:	2025-26

Project Description:

Purchase a ten-yard dump truck for Public Works use.

Project Justification:

Public Works needs a ten-yard dump truck to be more efficient in daily operations.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
W 8.0	Water Fund	$20,000	2025-26
WW 9.0	Wastewater Fund	$40,000	2025-26
ST 12.0	Street Fund	$40,000	2025-26
	Total	$100,000	

Project Number:	ST 13.0
Project Name:	N.E. Front Street
Fund:	Street
Estimated Cost:	$2,950,000
Fiscal Year:	2026-27

Project Description:

The project will include the reconstruction of N.E. Front Street from N. Main Street to Olson Road. The project consists of rebuilding N.E. Front Street, which includes the construction of curb and gutter, concrete sidewalk, and Americans with Disabilities Act (ADA) curb ramps. The project also includes storm drainage improvements and new street lighting. ADA curb ramps will be developed to meet current ADA standards. All other aspects of the project will be constructed according to City standards.

Project Justification:

N.E. Front Street needs to be reconstructed due to the road's poor condition. This road has areas of instability with poor ride quality; extensive transverse, longitudinal, and alligator cracking with trench settlement and/or potholes; drainage problems; and obvious evidence of structural deficiencies. Reconstruction of this road will ensure the roadway is functional for the community and area. Along with ADA curb ramps, sidewalk improvements will benefit the public by allowing greater mobility to the area for future development.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 13.0	Street Fund	$2,950,000	2026-27
	Total	$2,950,000	

Project Number:	ST 14.0
Project Name:	N.E. Columbia Avenue: Olson Road to Union Pacific Railroad Overpass
Fund:	Street
Estimated Cost:	$3,200,000
Fiscal Year:	2027-28

Project Description:

The project will consist of an overlay for the entire length of N.E. Columbia Avenue, ranging from Olson Road to the Union Pacific Railroad overpass to the northeast. The project includes removing cold plane pavement, adjusting utility covers and valve boxes to grade, and permanent pavement markings and striping.

Project Justification:

The condition of this stretch of road has been rated as fair quality and contains cracking, deformations, drainage problems, and structural deficiencies. Generally, this road provides a stable, fair ride, but improvements will ensure a safe and comfortable road for all to use. Improvements will also ensure that this stretch of road will be functional for use for the foreseeable future.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 14.0	Street Fund	$3,200,000	2027-28
	Total	$3,200,000	

Project Number:	ST 15.0
Project Name:	Oregon Trail Boulevard to Faler Road S.W.
Fund:	Street
Estimated Cost:	$2,300,900
Fiscal Year:	2027-28

Project Description:

The project will be an extension of approximately 2,800 feet of Oregon Trail Boulevard to the west following the completion of the extension of Oregon Trail Boulevard to S.W. 1st Street. The project will include curb and gutter, concrete sidewalk, Americans with Disabilities Act (ADA) curb ramps, storm drainage systems, and street lighting. ADA curb ramps will be developed to meet current ADA standards. All aspects of the project will be constructed according to City standards.

Project Justification:

Extending Oregon Trail Boulevard is identified in the City's 2009 Main Street Interchange Area Management Plan. Extending this road can strengthen east-west as well as north-south connectivity. This section of road will also provide access to future development in the area.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 15.0	Street Fund	$2,300,900	2027-28
	Total	$2,300,900	

General Appendix

Projects in the "General Appendix" are either completed or are proposed projects that are not included in the five-year Capital Improvements Plan (CIP) planning period. Any dates included with the projects in the "General Appendix" section have not been approved by the City Council. These projects should be considered as supported by the City Council, pending adequate funding. Projects included in this list should be the first to be considered during updates to the five-year CIP, as well as for potential grant funding opportunities if they arise and do not compete for grant funds with projects listed in the current five-year CIP.

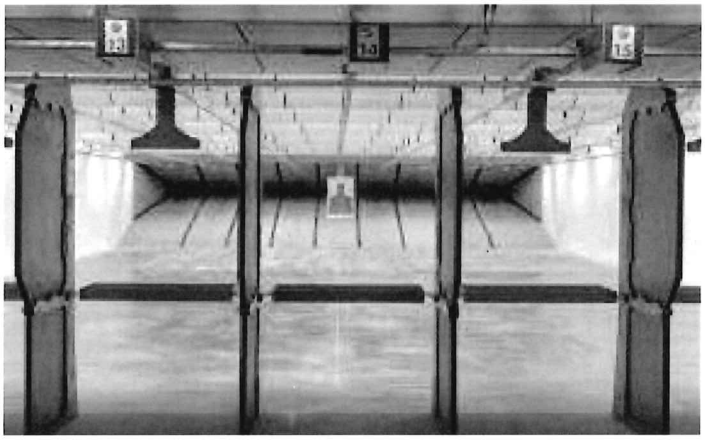
PROPOSED GENERAL CAPITAL IMPROVEMENT PROJECTS

Project No.*	Project Name	Cost Estimate
G 3.0	Indoor Shooting Range	$2,500,000
G 4.0	City Hall Expansion - Police Department	$3,000,000

**Project numbers have no implication to priority.*

COMPLETED GENERAL CAPITAL IMPROVEMENT PROJECTS

Project No.	Project Name	Fiscal Year Completed



Project Number:	G 3.0
Project Name:	Indoor Shooting Range
Fund:	General
Estimated Cost:	$2,500,000
Fiscal Year:	2027-28

Project Description:

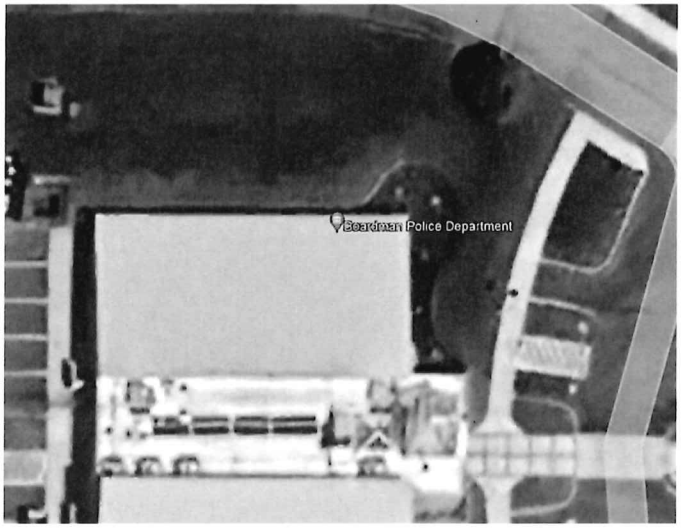
Construct an indoor shooting range.

Project Justification:

The City's old shooting range was demolished and is now the location of the new wastewater storage lagoon. The City desires to construct a new indoor shooting range for training purposes and for public use.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
G 3.0	General Fund	$2,500,000	2027-28
	Total	$2,500,000	



Project Number:	G 4.0
Project Name:	City Hall Expansion - Police Department
Fund:	General
Estimated Cost:	$3,000,000
Fiscal Year:	2027-28

Project Description:

Expand City Hall to facilitate the growing Police Department.

Project Justification:

The Police Department has nearly reached space capacity. The proposed expansion to City Hall would provide additional office and storage space to accommodate growth and support operations.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
G 4.0	General Fund	$3,000,000	2027-28
	Total	$3,000,000	

Community Development and Planning Department Appendix

Projects in the "Community Development and Planning Department Appendix" are either completed or are proposed projects that are not included in the five-year Capital Improvements Plan (CIP) planning period. Any dates included with the projects in the "Community Development and Planning Department Appendix" section have not been approved by the City Council. These projects should be considered as supported by the City Council, pending adequate funding. Projects included in this list should be the first to be considered during updates to the five-year CIP, as well as for potential grant funding opportunities if they arise and do not compete for grant funds with projects listed in the current five-year CIP.

PROPOSED COMMUNITY DEVELOPMENT AND PLANNING CAPITAL IMPROVEMENT PROJECTS

Project No.*	Project Name	Cost Estimate

**Project numbers have no implication to priority.*

COMPLETED COMMUNITY DEVELOPMENT AND PLANNING CAPITAL IMPROVEMENT PROJECTS

Project No.	Project Name	Fiscal Year Completed

Water Department Appendix

Projects in the "Water Department Appendix" are either completed or are proposed projects that are not included in the five-year Capital Improvements Plan (CIP) planning period. Any dates included with the projects in the "Water Department Appendix" section have not been approved by the City Council. These projects should be considered as supported by the City Council, pending adequate funding. Projects included in this list should be the first to be considered during updates to the five-year CIP, as well as for potential grant funding opportunities if they arise and do not compete for grant funds with projects listed in the current five-year CIP.

PROPOSED WATER CAPITAL IMPROVEMENT PROJECTS

Project No.*	Project Name	Cost Estimate

**Project numbers have no implication to priority.*

COMPLETED WATER CAPITAL IMPROVEMENT PROJECTS

Project No.	Project Name	Fiscal Year Completed

Wastewater Department Appendix

Projects in the "Wastewater Department Appendix" are either completed or are proposed projects that are not included in the five-year Capital Improvements Plan (CIP) planning period. Any dates included with the projects in the "Wastewater Department Appendix" section have not been approved by the City Council. These projects should be considered as supported by the City Council, pending adequate funding. Projects included in this list should be the first to be considered during updates to the five-year CIP, as well as for potential grant funding opportunities if they arise and do not compete for grant funds with projects listed in the current five-year CIP.

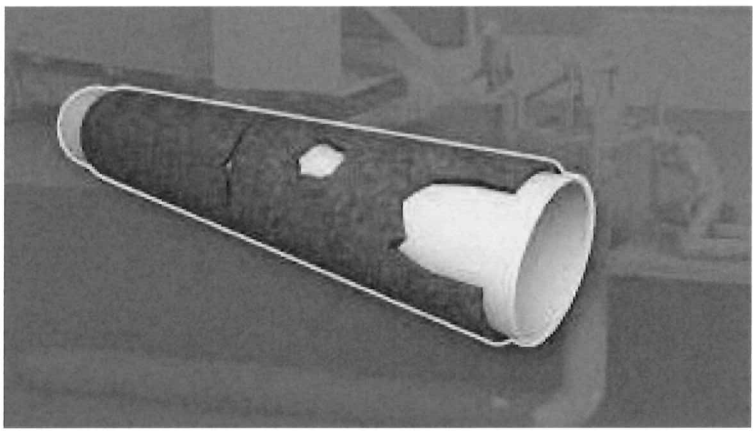
PROPOSED WASTEWATER CAPITAL IMPROVEMENT PROJECTS

Project No.*	Project Name	Cost Estimate
WW 10.0	Annual Collection System Repair Project	$100,000/year

**Project numbers have no implication to priority.*

COMPLETED WASTEWATER CAPITAL IMPROVEMENT PROJECTS

Project No.	Project Name	Fiscal Year Completed



Project Number:	WW 10.0
Project Name:	Annual Collection System Repair Project
Fund:	Wastewater
Estimated Cost:	$100,000 per year
Fiscal Year:	2026-27 to TBD

Project Description:

Annual maintenance project for the collection system.

Project Justification:

The Collection System Study is anticipated to identify deficiencies in the collection system that need to be repaired. Therefore, budgeting for future collection system repairs is recommended.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
WW 10.0	Wastewater Fund	$100,000 per year	2026-27
	Total Annual Cost	$100,000 per year	

Street Department Appendix

Projects in the "Street Department Appendix" are either completed or are proposed projects that are not included in the five-year Capital Improvements Plan (CIP) planning period. Any dates included with the projects in the "Street Department Appendix" section have not been approved by the City Council. These projects should be considered as supported by the City Council, pending adequate funding. Projects included in this list should be the first to be considered during updates to the five-year CIP, as well as for potential grant funding opportunities if they arise and do not compete for grant funds with projects listed in the current five-year CIP.

PROPOSED STREET CAPITAL IMPROVEMENT PROJECTS

Project No.*	Project Name	Cost Estimate
ST 16.0	Annual Sidewalk Improvements	$400,000/year
ST 17.0	Annual Road Projects	$1,000,000/year

**Project numbers have no implication to priority.*

COMPLETED STREET CAPITAL IMPROVEMENT PROJECTS

Project No.	Project Name	Fiscal Year Completed

Project Number:	ST 16.0
Project Name:	Annual Sidewalk Improvements
Fund:	Street
Estimated Cost:	$400,000 per year
Fiscal Year:	2024-25 to TBD

Project Description:

The project is a multi-year program to improve sidewalks around the City. The City will allocate $400,000 per year for the purpose of improving sidewalks. Improvements include Americans with Disabilities Act (ADA) curb ramps, concrete sidewalk, concrete curb and gutter, and other improvements important to improving pedestrian safety and mobility around the City. City staff will identify portions of the City in need of sidewalk improvements.

Project Justification:

Portions of the City are missing essential elements to pedestrian safety and mobility. Likewise, it is important the City complies with the ADA and updates curb ramps at locations that are noncompliant.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 16.0	Street Fund	$400,000 per year	2024-25
	Total Annual Cost	$400,000 per year	

Project Number:	ST 17.0
Project Name:	Annual Road Projects
Fund:	Street
Estimated Cost:	$1,000,000 per year
Fiscal Year:	Annual

Project Description:

The City will conduct an annual road maintenance project based on the recommendations in the Pavement Evaluation Study. If a road project has been planned, such as Columbia Ave N.W. Improvements (ST 2.0) or S.E. Front Street (ST 1.0), those projects will be considered the annual road project for the year. After all planned projects have been completed, the City will plan a road project based on the recommendations made in the Pavement Evaluation Study.

Project Justification:

Implementation of the pavement maintenance recommendations outlined in the Pavement Evaluation Study will help provide the City with a high-quality, reliable street network that will meet the City's needs for many years to come.

Funding Data:

Project No.	Fund Name	Amount	Fiscal Year
ST 17.0	Street Fund	$1,000,000 per year	Annual
	Total Annual Cost	$1,000,000 per year	

Brandon Hammond

From: Leslie Pierson <lesliepierson@windermere.com>
Sent: Friday, August 9, 2024 3:25 PM
To: Brandon Hammond
Subject: Main Street Improvements

Good afternoon, Brandon.

I'm writing to express concerns with traffic and safety issues along Main St in Boardman, specifically between Oregon Trail and Boardman Ave. I've witnessed many near-accidents in this area and a few crashes over the years.

The traffic congestion in this area seems to be worsening, most especially in the evening hours between 3:30-5:30 pm, and when traffic from the I-84 offramps dart in front of others to cross traffic (I feel visibility is very low in these locations).

When leaving the Windermere office and heading south on Main, it's become difficult to make a left/east turn onto NE Front St as traffic bottlenecks on the I-84 offramps, or traffic fills the center lanes when making turns. I used to travel this route to pick up my children at Families First Child Care Center about 4 days a week. The trip in reverse became so hazardous (making a left/south turn from NE Front), I opted for the safer and longer route from daycare to Columbia Ave and around to make that left/south turn onto Main St.

This area also becomes very congested when Riverside is in session and students need to cross the crosswalk at Boardman Ave, not to mention the cars overflowing from Banner Bank on Friday evenings.

This all raises many concerns for the pedestrians and cyclists traveling north/south on Main St as well.

Considering these observations, I'd provide my support for improvements that increase safety along this busy corridor. Please contact me with any questions.

Thank you,

LESLIE PIERSON
Licensed Realtor® in OR

WINDERMERE GROUP ONE

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August 14, 2024

BY EMAIL

City Council of the City of Boardman
c/o Carla McLane
200 City Center Circle
P.O. Box 229
Boardman, OR 97818

Re: Hattenhauer Open Record Submittal for Appeal of Planning Commission's Decision on File Number CUP24-000001

Dear Mayor Keefer and Council Members:

As you know, this office represents Hattenhauer Distributing Co. ("Appellant" or "Hattenhauer"), the owner of the Sinclair gas station located at 100 North Main Street, Boardman, Oregon 97818. Hattenhauer's mailing address is PO Box 1397, The Dalles, OR 97058. This letter is submitted in support of Hattenhauer's appeal application for the above-referenced file and the Planning Commission decision dated May 16, 2024 ("Decision").[1] Please include this letter in the record for the above referenced file.

I. The IAMP triggers should govern whether the median at North Main and Front Streets should be constructed now.

As Hattenhauer and its transportation expert testified at the August 6, 2024 hearing, the IAMP contains several triggers that must be considered prior to changing the traffic controls at North Main and Front Streets with inclusion of the proposed median (the "Median"). Namely, ODOT should upgrade the highway off ramp intersections before the Median is contemplated. These upgrades include both the installation of a traffic signal at the I-84 westbound ramp and the anticipated bridge project. Until those ODOT improvements are made, it is unclear whether a Median would work in conjunction with those efforts or is needed prior to either those ODOT improvements, or the installation of a full traffic signal at N. Main and Boardman.

Significantly, the single public comment received by the City Council at the hearing was from a woman describing conflicts that arise out of the stacking problem on the I-84 off ramp.

[1] Capitalized terms not defined in this letter have the same definition as used in our August 6, 2024 letter.

These dangerous situations will not be alleviated by the installation of Median, as there is no reason that people would stop using the shoulder of the off ramp to break the law. This is an ODOT problem that needs resolution, and/or an enforcement matter. More to the point, the intersection of N. Main and Front Street remains at LOS C as compared to when the IAMP was prepared. Attachment 1.

Additionally, the HAWK signal should be installed and allowed to work, consistent with the full analysis that is currently lacking and discussed in Hattenhauer's August 6 testimony, before the City installs a Median. Once more, Hattenhauer reiterates that there is no evidence in the record that the HAWK and Median either individually or collectively, will not have negative impacts on the highway off ramp.

A few comments were made to the City Council from staff regarding general safety concerns. As described in Greenlight Engineering's responsive letter attached here as Attachment 1, Mr. Nys points out that the actual data available to the City Council remains unchanged from the passage of the IAMP. The observed crashes have actually decreased over time at N. Main and Front Streets. Attachment 1. Staff tries to overcome this hard data by complaining that crash reports are unreliable and the "near misses" justify the project. However, the decision not to report crashes has been the same as when the IAMP was prepared, as reporting requirements in Oregon are not always mandatory. The IAMP was based on hard data after serious consideration, and it was included in the Transportation System Plan. Attachment 2.[2] As staff recalled at the August 6, 2024 hearing, the IAMP was adopted after considerable testimony and public engagement. The triggers for right-in/right-out controls at the intersection of N. Main and Front Streets cannot be ignored or based on a feeling about safety, when the Level of Service functionality, and the crash data do not support an overriding public safety concern.

Recall, the rectangular rapid flashing beacon ("RRFB") was installed to protect student safety, and the HAWK signal will address those same safety issues, ostensibly making the traffic flow better for both pedestrians and vehicles. The installation of the Median is a piecemeal approach to solving a problem that is not in need of a solution without consideration of the full set of IAMP triggers.

While staff made reference to the pedestrian death in 2013, the reference suggests, without any facts related to the accident, that such occurrence justifies the Median. However, the Median would have had no impact on the facts of that accident. The accident occurred on Main Street, at 8:30 pm on September 20, 2013. Attachment 3. Sunset on September 20, 2013 was at 7:00 pm. Attachment 4. Hattenhauer employees familiar with the situation, recall that Mr. Prado-Reyes was wearing dark clothes on a dark evening and that lighting was part of the problem. As a result of Mr. Prado-Reyes' unfortunate passing, the City installed street lighting to increase visibility. Again, a Median was not going to resolve the tragedy that occurred in 2013.

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[2] Attachment 2 is the staff report adopting the IAMP.

II. The Median should not be installed until it is fully analyzed and reviewed during the City's TSP Update.

The Median portion of the Project should not be included at this time. The unintended consequences of the Median have not been fully thought out or assessed. As stated in Hattenhauer's August 6, 2024 testimony, the impacts to adjacent properties, including Appellant's Sinclair property have not been considered, assessed or acknowledged. Further, other adjacent and nearby properties will be adversely impacted. For example, Hattenhauer was contacted by the owner of Café Cultura, another local business that operates on the west side of N. Main Street near Sinclair that will be adversely affected by installation of the Median. The Café Cultura owner had never been contacted by the City with notice of this Project, yet her drive-through traffic will be limited by the proposal. She is exactly the type of business owner, one that opened well after preparation of the IAMP, whose voice should have been heard with advance notice of this Project and whose voice should be heard during the TSP update. Significantly, the Café Cultura website notes that the business is Hispanic and woman owned, and the Transportation Planning Rule (OAR Ch. 660-012), now specifically speaks to considering equitable outcomes for such business owners. Further, if the Median is extended in the future, Main Street traffic will be kicked north through residential neighborhoods. As Hattenhauer has emphasized, the full and complete assessment of the Median should occur during the TSP update so that full reconsideration of the traffic control approach can be reviewed in the context of the modern plans for Boardman. During the TSP update, full public engagement will occur.

While staff said, in response to our testimony about the lack of communication with Sinclair about these improvements while Hattenhauer upgraded its facility, that staff did in fact reach out to area businesses about this Project, such outreach only occurred after local business owners started to attend the Planning Commission hearings on the Project. No advance notice was given to Hattenhauer, despite the $1 million in site improvements it just undertook (and the Mayor's statement that this Project has been contemplated by the City for three years). This is yet another reason why the TSP update process is the right way to approach a modern plan for N. Main Street, which would allow all stakeholders an opportunity to review the big picture plan for the entire area. Until then, the HAWK and Median are not consistent with the TSP and IAMP because a HAWK was never contemplated, and as discussed above, the Median is not yet triggered under the IAMP.

Further, the City Council is receiving conflicting information. The City staff says that the full signal at N. Main and NE Boardman would occur in the next one to five years. However, the Kittelson Technical Memorandum states that the same traffic signal is not likely needed for approximately 15 years. The staff should not be considered reliable as to the timing for the full improvement when the City's experts have determined a longer horizon for placement of the signal. The disparity in information in this record does not justify the City spending millions of dollars in funding to install electrical connections for a signal that may become outdated in the next 15 years. Further, the City Attorney said that the Median does not need to be included in the CIP because the CIP is used to assess system development charges ("SDCs"). So now, the City Attorney is promoting a package on the taxpayer's dime, to install a Median that is going to adversely impact area businesses. This is inconsistent with the conditions of approval for the IAMP, which required

a funding plan. Attachment 2. The City has not identified the funding source for the HAWK signal or Median, which are not included in the CIP. Again, both the TSP and CIP should be updated so that a full look at impacts from the project, including on the taxpayer are considered.

CONCLUSION

Appellant requests the application be denied for failure to comply with local and state law; or, at a minimum, that approval be delayed until the City complies with state and local laws as to the HAWK and removal of the Median from the Project scope. Thank you for your attention to this matter.

Sincerely,

Jennifer M. Bragar

Enclosures
cc: (by e-mail)
client

GREENLIGHT ENGINEERING

August 14, 2024

City Council of the City of Boardman
200 City Center Circle
P.O. Box 229
Boardman, OR 97818

RE: CUP24-000001/Appeal APP24-000002 – Open Record Testimony

Dear Mayor Keefer and Council Members:

This memorandum responds to staff and public testimony given at the August 6, 2024 City Council meeting.

Testimony Regarding "Near Misses"

At the City Council hearing, City police urged City Council to focus on public safety in making their decision. While public safety is an important consideration, if the application does not comply with the city's Transportation System Plan, then the city cannot approve the application.

In the discussion of public safety, staff provided testimony about recent "near misses" at study intersections. There was notably no testimony about previous "near miss" activity near the time the IAMP was adopted and only recent "near miss" observations.

In comparing previous crash data from the IAMP to the current crash data from the Technical Memorandum, the observed crash rates have actually decreased over time at N. Main Street/Front Avenue (from 0.17 crashes per million entering vehicles to 0.07) and N. Main Street/Boardman Avenue (from 0.20 to 0.09). All illustrate very low crash rates. As presented in my August 6, 2024 report, the number of crashes per year have decreased at the N. Main Street/Front Avenue intersection in the last 15 years.

There was testimony that there are more crashes at intersections than reported. While not all crashes are reported due to reporting requirements in Oregon, this has been the case at the time data was compiled for the IAMP and it remains true today. If safety was deteriorating, it would likely be exhibited by increasing reported crashes and not likely in decreasing reported crashes.

Data does not support a conclusion that N. Main Street/Front Street and N. Main Street/Boardman Avenue are becoming less safe or that safety improvements are needed. Importantly, the city has provided no evidence that the installation of a HAWK signal at N. Main Street/Boardman Avenue generates the need to modify the N. Main Street/Front Street intersection. The city has provided no evidence that the operations at N. Main Street/Front Street intersection negatively affects the remainder of the transportation network such that action must be taken.

The city went to great expense to develop and agree with the community when the N. Main Street/Front Street intersection would be modified via the adopted IAMP to create triggers. Thus far, the application and city's review of the application have ignored the adopted IAMP triggers. As previously established, none of the triggers are met.

Testimony Regarding Increasing Congestion

There was testimony that there is increasing congestion at N. Main Street/Front Avenue. The IAMP illustrates that in 2009 that the N. Main Street/Front Street intersection operated as LOS C in the weekday PM peak hour and the Technical Memorandum illustrates that 15 years later, the intersection still operates at LOS C, both acceptable per the city performance standards and operating far better than the IAMP adopted trigger of "below LOS E." There is certainly no level of service based criteria under which to modify the N. Main Street/Front Avenue intersection.

Given that none of the triggers of the IAMP are met and there is no evidence that the construction of a HAWK signal creates the need to modify the N. Main Street/Front Avenue intersection, it is unclear why the city is considering modifications to the intersection at this time.

Should you have any questions, feel free to contact me at rick@greenlightengineering.com or 503-317-4559.

Sincerely,

Rick Nys, P.E.
Principal Traffic Engineer

City of Boardman
Main Street Interchange Area Management Plan
City Council Public Hearing
September 15, 2009

IAMP ADOPTION SUMMARY

(Adapted from CC/PC Joint Work Session of July 22, 2009)

The City of Boardman is proposing to adopt the Main Street Interchange Area Management Plan (June 2009 Draft). The purpose of the Interchange Area Management Plan, or "IAMP," is to identify long-term circulation and access improvements to preserve the capacity and function of the interchange. The draft plan projects how growth is expected to change transportation conditions over the next 20 years and recommends transportation solutions to meet the needs of the community over this time horizon. To this end, the IAMP includes recommendations that enhance the reliability, safety and efficiency of the local transportation system in and around the interchange.

As part of the upcoming adoption process, the City will be considering amendments to the Development Code that implement the IAMP. Proposed Development Code amendments address access management, transportation analysis, and circulation and local street connectivity that may be required when parcels in the vicinity of the interchange develop or redevelop.

The following points summarize the City's actions in adopting the IAMP and the implications for future development in the vicinity of the interchange.

- **The City will legislatively amend the Transportation System Plan to incorporate the IAMP in the City's adopted long-range plan.**
    - The IAMP identifies a local street network, access management, and specific roadway and interchange improvements that will ensure that the transportation system around the interchange operates efficiently and safely.
    - Planning for an efficient local street system in advance of full build-out of development around the interchange will ensure that a logical and efficient network will be available to provide access to existing and future businesses.
    - Adopting the IAMP's list of needed transportation improvements prioritizes these projects locally, is a required action before the City can seek state funding, and will ensure that proportional private investment in the system, as part of future development, will be strategically allocated.

- **To implement the IAMP, the City will amend the Zoning Map to include an overlay district and will amend the Development Code to include a chapter devoted to land use, development, and redevelopment requirements within the district.**

    - The proposed IAMP Overlay District does not change the underlying zoning of property in the defined management area.

    - Development proposals for any parcel that is wholly or partially within the IAMP Overlay District boundary, as shown on the City's Zoning Map, will be reviewed pursuant to the new IAMP-related Development Code requirements.

    - In large part, the proposed IAMP Overlay District Overlay Zone chapter refines and clarifies existing city requirements, as they pertain to development within the overlay, and does not represent extra requirements; in many instances the IAMP reduces the requirements for commercial development traffic impact analyses.

- **The IAMP is a long-range plan with a 20-year planning horizon; the City's adoption of the IAMP will not result in immediate changes in the vicinity of the interchange, but rather will set the parameters for future development over time.**

    - Based on an annual growth rate of 2.5% and related development assumptions, no short-range (0-5 years) transportation improvements will be necessary in the vicinity of the interchange.

    - Medium- (5-10 years) and long-range (10 – 20 years) improvements identified in the IAMP will be triggered by system failures (such as the level of service drops below standards or an unacceptable increase in crashes) and will be implemented as money becomes available and/or property (re)develops.

    - Access management is key to safe and efficient traffic circulation near the interchange, **but under no circumstances will existing accesses be closed without a reasonable alternate access first being available.**

CITY of BOARDMAN
Community Development
STAFF REPORT

DATE: September 8, 2009

TO: Boardman City Council

FROM: Barry C. Beyeler, Community Development Director

SUBJECT: Post Acknowledgement Plan Amendment 01-2009 – Boardman Main Street Interchange Area Management Plan

HISTORY

The City of Boardman, through the Transportation Growth Management (TGM) Grant Program administered jointly by the Oregon Department of Land Conservation and Development (DLCD) and the Oregon Department of Transportation (ODOT), initiated an Interchange Area Management Plan (IAMP) study to establish an IAMP for the Interstate 84 interchanges within the City of Boardman. The previous public hearings on the IAMP in 2007 did not produce an approved IAMP. Then Mayor Ed Glenn appointed a Steering Committee, comprised of affected land owners and three City Councilors, to work collaboratively with ODOT to find solutions to the issues which posed barriers to approval of the IAMP. The appointed Steering Committee held numerous meetings with representatives of ODOT to work out these issues. As a result of the work of the Steering Committee, the City elected to remove the Port of Morrow interchange from the original plan and continued with planning for the Main Street interchange only. The City received additional funding, through ODOT and the TGM Program, to complete the revisions sought by the Steering Committee and to draft implementation language within the Boardman Development Code.

The Steering Committee and ODOT produced a Revised Final DRAFT Report of the Boardman Main Street IAMP in late April of 2009 and have finalized draft language for the Boardman Development Code to implement of the current version IAMP. There have been several public meetings held, concerning the changes to the report and the IAMP implementation language, an open house to explain the changes to affected landowners and citizens, and a joint Planning Commission and City Council workshop on the changes made to the Interchange Area Management Plan and the associated implementation language. The IAMP and draft code language is now at the Planning Commission public hearing stage in the Post Acknowledgement Plan Amendment process. The Planning Commission will gather testimony from the public on the approval and implementation of the IAMP and will forward a recommendation on to City Council for their consideration at a hearing scheduled for September 15, 2009.

APPLICANT'S PROPOSAL

The City of Boardman is the applicant in this proposal. The proposal is to legislatively amend the Transportation System Plan to incorporate the IAMP in the City's adopted long-range plan. The IAMP identifies a local street network, access management, and specific roadway and interchange improvements that, upon adoption, will become the long range transportation plan for the area identified as the Interchange Area Management Plan Overlay District (Figure 3.1). **Figure 3.1 is included as Attachment "A" The proposed zoning map changes indicating the Overlay District are attached as Attachment "A-1"**

The proposal includes actions to implement the IAMP, including establishing an Interchange Area Management Plan (IAMP) Overlay District on the City's Comprehensive Plan and Zoning Map. Associated changes to the Boardman Development Code will apply to the properties within the boundaries of the Interchange Area Management Plan, to implement the provisions of the Final Report for the Boardman Main Street Interchange Area Management Plan.

The City will establish an overlay district by addition of Chapter 2.5 – Interchange Area Management Plan Overlay District, which identifies the requirements of development approval within the district, including transportation impact review. The overlay district does not change the underlying zoning, and therefore does not change the allowable uses, of the properties within the district. **Chapter 2.5 is included as Attachment "B".**

The City will amend language Boardman Development Code Chapter 3.1 – Access and Circulation, to include cross references to Chapter 2.5 - Interchange Area Management Plan Overlay District and to indicate access requirements in the Overlay District. **Chapter 3.1 is included as Attachment "C".**

The City will amend Boardman Development Code 4.10 – Traffic Impact Study to include cross reference to the requirements of Development Code Chapter 2.5 and 3.1 and to clarify traffic impact review and traffic study requirements. **Chapter 4.10 is Included as Attachment "D".**

The City will adopt the amendments to Chapter 5 of the April 2009 Final Report of the Boardman Main Street Interchange Area Management Plan. **Amendments to Chapter 5 are included as Attachment "E", Figure 5.5 as Attachment "E-1" and Figure 5.6 as Attachment "E-2"..**

The Boardman Main Street IAMP Findings of Compliance: State Policies and Requirements is **included as Attachment "F".**

With language changes to the Boardman Development Code and amendments to Chapter 5 of the Boardman Main Street Interchange Area Management Plan (IAMP), which include figures 5.5 and 5.6, the implementation for the approval of the provisions contained within the IAMP can be approved and adopted by the City Council. Should the City Council adopt the IAMP, with noted amendments, and Development Code amendments the Oregon Transportation Commission (OTC) will begin review and the adoption process for the Main Street IAMP as an official part of the Oregon Highway Plan. The OTC, should they not approve

and adopt the Main Street IAMP, will remand the issue back to the City with noted necessary corrections for OTC approval.

OVERVIEW OF EXISTING CONDITIONS

The Boardman Main Street Overpass, I-84 Exit 164, is of a 1964 design and 1966 construction for freeway overpasses. The overpass is structurally sound and is currently functionally adequate. Although there are publicly identified deficiencies concerning sight lines and distances exiting the freeway off ramps, the interchange still meets ODOT standards for safety and function. The overpass does not have adequate bicycle lanes and must be significantly reconfigured to allow for bicycle lanes and a center turn lane to address future traffic demand projections.

Under existing Development Code requirements and applicable Oregon land use planning requirements, complete traffic impact studies and compliance with the Transportation Planning Rule (Oregon Administrative Rule 660.0012) and Oregon Department of Transportation Access Management Rules (Oregon Administrative Rule 734-051) would be required for approval of developments in the commercial areas adjacent to the Boardman Main Street Overpass.

APPLICABLE COMPREHENSIVE PLAN GOALS OVERVIEW

There are six planning Goals of the Boardman Comprehensive Plan directly applicable in this application. They are; Goal 1 Citizen Involvement; Goal 2: Housing; Goal 9: Economic Needs; Goal 10 Housing; Goal 11: Public Facilities; and Goal 12 Transportation.

CHAPTER 1: CITIZEN INVOLVEMENT: Notification of all potential affected property owners has been accomplished by notice letters to each property, posting of the property and publication in the East Oregonian daily newspaper. In addition the City has the notice available on the city's website at www.cityofboardman.com along with the staff report for the applicant's request.

CHAPTER 1 – CITIZEN INVOLVEMENT COMPREHENSIVE PLAN POLICIES:

1. Provide for change in Comprehensive Plan relative to new or unanticipated developments, major change in community, change in Council or Planning Commission policy, and through regular review and re-evaluation.

2. Consistency must be maintained between the Comprehensive Plan and Development Code and other supplemental ordinances and policies in order to maintain the integrity of the planning effort.

3. The City should endeavor to adhere to the spirit of the Land Conservation and Development Commission in its planning activities.

4. The Planning Commission is officially designated as the Citizen Involvement Committee.

5. The City completed a Community Visioning workshop in 1997 to gain understanding of the current needs and concerns of the community.

The request is consistent with policies 1-4 of Goal 1 Citizen Involvement polices of the Boardman Comprehensive Plan. Adoption of the Main Street IAMP, which will become an element of the City's Transportation System Plan, will amend the City's Comprehensive Plan. Consistent with Policy #1, the IAMP has been developed to respond to the City's long-range development needs. As demonstrated in findings elsewhere within this report, the development of the Main Street IAMP is consistent with State transportation goals and policies and the adoption of the plan is consistent with LCDC's Goals (**included as Attachment "F"**). Policy #5 is not related to the proposed action; however, additional citizen input was gathered through the Interchange Area Management Plan process, as such policy #5 this action is consistent with policy #5.

CHAPTER 2: LAND USE PLANNING: The directly related policies of this proposed action are policies #3, #4, #5 and #6. These policies are to coordinate the land use planning efforts of the city and to meet the overall Comprehensive Plan Policies and Goals.

CHAPTER 2 – LAND USE PLANNING COMPREHENSIVE PLAN POLICIES:

1. *The City completed a Buildable Lands Analysis in 1997 which reflected that the City has ample land within its Urban Growth Boundary to meet commercial and housing needs of the City for the next 20 years.*
2. *The City encourages the development of infill and redevelopment of existing land in order to balance the need to expand the Urban Growth Boundary (UGB).*
3. *The City has adopted the City of Boardman Development Code, a unified zoning and subdivision land use code to facilitate the development process and implement the land use goals of the City as outlined in the Comprehensive Plan.*
4. *The City recognizes that the location of a City Center is important to the development of the City of Boardman.*
5. *The City has adopted language in the Development Code as Chapter 2.2.190 that will assist in the implementation of a City Center in Boardman.*
6. *The development of the City Center will use the Downtown Plan completed in 2000 as a resource document when guiding future development within the City of Boardman.*
7. *The City will continue to work with Morrow County to maintain a consistent and coordinated plan for management of the Urban Growth Boundary (UGB) and the Urban Growth Area (UGA).*
8. *The City will continue to work with the Port of Morrow to encourage development of industrial lands within the Urban Growth Boundary.*

This proposal is consistent with policies #1 and #2 but not directly related to the proposal. The proposal is consistent with policies #3 - #6 as it directly addresses policies concerning the downtown plan and areas around the freeway interchange by provision of transportation connectivity planning and protection of the existing system function until improvements are necessary. As this proposal does not include industrial lands or areas outside of the city limits of the city policies #7 and #8.

CHAPTER 9: ECONOMIC NEEDS: The directly related policies in Goal 9 – Economic Needs are #1, #2, and #4. Polices #3 and #5 are related to industrial lands which this proposal does not address directly.

CHAPTER 9 – ECONOMIC NEEDS COMPREHENSIVE PLAN POLICIES:

1. *Advance the position of Boardman as a regional center for industry, power generation, commerce, recreation, and culture.*
2. *Encourage tourist commercial activity near Interstate 84.*
3. *Allow for the creation of industrial park development with adequate off-street parking, landscaping, and site screening.*
4. *Promote cooperation among the city, the Port of Morrow, and other interested parties to facilitate the most effective uses of public facilities serving the planning area.*
5. *As resources permit, review the City's supply industrial land to monitor supply and demand.*

Adoption of this proposal directly addresses policy #1, #2 and #4 in it provides a plan to address the transportation needs and connectivity for the commercial areas in an effective manner, providing for future commercial growth while meeting transportation demands. Policies #3 and #5 are unrelated in they deal with industrial lands issues which are not related to the IAMP proposal.

CHAPTER 10: HOUSING: Goal 10 policies, although not directly related to the adoption of the April 2009 Boardman Main Street Interchange Area Management Plan, do influence the overall functional operation of the interchange area through traffic counts from housing projects adding to overall traffic at the interchange.

CHAPTER 10 – HOUSING COMPREHENSIVE PLAN POLICIES

1. *The City shall provide a variety of living environments to meet regional housing needs for those of different family size and income.*
2. *The City, recognizing the financial difficulties of a segment of the City's population in providing themselves safe, sanitary and healthful shelter, shall work cooperatively with the private sector to seek state and federal aid where desirable to assist persons to obtain suitable housing.*
3. *Encourage new development concepts to meet changing housing demands and to provide self-contained recreation facilities.*
4. *Locate high-density multiple-family developments in areas to offer a buffer between single-family residential and commercial or industrial uses, close to schools and shopping, and with quick access to arterial streets.*
5. *Encourage planned unit developments while maintaining an overall low-density profile by incorporation of more open space in the development.*
6. *Promote energy efficient programs.*
7. *Provide infill opportunities for attached rowhouse development, duplex and triplex development in residential neighborhoods.*
8. *The City shall promote where possible, the evolution of safe and aesthetically pleasing residential neighborhoods that are efficiently integrated with business and commercial property, schools, parks, public facilities and other urban development.*
9. *The City shall give consideration to development of alternative residential construction both in form and layout for such reasons as aesthetics, energy conservation, reduced development costs and provision of open space.*

10. *Encourage through provisions in the City's Development Code, the opportunity to develop mixed use Development (commercial and higher density residential) to provide affordable housing options for all residents of Boardman.*
11. *The City shall encourage residential development within city limits in areas which are appropriate for urban development.*
12. *Work with federal and State agencies to establish funding for low to moderate income housing projects within Boardman.*
13. *Given recent growth trends, it will be important for the City and Morrow County staff to monitor the supply of buildable land and, if necessary, revise future housing need and land supply projections.*

Although these policies are not directly related to the Interchange Area Management Plan, housing uses do add to the traffic totals at the Main Street interchange. The IAMP accounts for overall existing and future trips from all types of land uses at the interchange by identifying triggers for improvements as traffic demand warrants them. The triggers are based on overall traffic demand in the interchange area and will be tracked through a system of traffic generation reports from commercial development and by review of projected trip generation based on the ITE Traffic Generation Manual for proposed residential developments outside of the IAMP boundaries. This proposal is consistent with the policies of Goal 10 - Housing.

It should be noted there are approximately 27 acres of "Manufactured Home Park Sub-district" zoned property within the IAMP boundaries. This acreage was calculated in the IAMP traffic projections as "commercial" zoning. This provides a worse case scenario in terms of traffic generation; however, the current zoning does not change with the adoption of the IAMP, even though the property owner has expressed a desire to change this zone in the future and the city supports this desire. A future zone change for this parcel will require a separate land use action and the replacement of residential acreage to meet the 20-year needs for the Manufactured Home Park Sub-District zone prior to any change of zone being finalized.

CHAPTER 11: PUBLIC FACILITIES: Policies #1, #2, #3, #5, #6, #8, #9, #11, #12, #13, #14, #16, and #20 are directly or indirectly related to transportation. The provisions of these policies are met; however, several actions will be required in the near future to ensure that funding is available for the improvements identified in the IAMP. Most of these changes will be related to current efforts being undertaken by the City concerning reconfiguration of the Capital Improvement Plan (CIP) projects list. This reconfiguration of the CIP includes numerous projects which are not currently contained in the Public Facilities Plan, mostly through the addition of projects associated with the IAMP and overall transportation circulation connectivity. The completion of the CIP is an essential element to accurately work out the funding mechanisms to be used for funding improvements associated with the IAMP. The City Council has provided guidelines for the addition of several options to fund transportation improvements, which include systems development charges (SDC's), local improvement districts (LID's), general fund transfers, exactions at the time of development, portions of the transient room tax devoted to transportation, and others to adequately fund future roadway improvements to facilitate the IAMP and overall network connectivity. The city will need to complete this work within a 12 -18 month period to adequately fund all the identified projects in the IAMP. There are currently 109 projects in the CIP of which approximately 35% currently have accurate cost estimates. When these changes are accomplished an additional Post Acknowledgement Plan Amendment to make the required changes to the Public Facilities Plan, the Capital Improvement Plan and the Comprehensive Plan will need to be accomplished.

CHAPTER 11 – PUBLIC FACILITIES COMPREHENSIVE PLAN POLICIES

1. The City shall assure urban services (water, sewer and storm drainage services and transportation infrastructure) to residential, commercial and industrial lands within the City's Urban Growth Area as these lands are urbanized.

2. To minimize the cost of providing public services and infrastructure, the City shall discourage inefficient development without adequate public services and promote efficient use of urban and urbanizable land within the City's urban growth boundary, including requiring all urban development to be served by full urban services.

3. The City shall support development that is compatible with the City's ability to provide adequate public facilities and services.

4. The City shall assure there are adequate sites for solid waste disposal and solid waste collection for the City and Urban Growth Boundary. The service may be provided by private contractors or public entities.

5. The City shall promote coordination among the City, Port of Morrow, and other interested parties to facilitate the most effective uses of public facilities serving the planning area.

6. The City shall prioritize development of land serviced by utilities and require the extension of water, sewer and storm drainage facilities for all urban level development within the UGB.

7. The City shall coordinate provision of public services with annexation of land outside the City limits.

8. The City shall adopt long range master plans for its water, sewer, storm drainage and transportation systems and review and/or update them periodically.

9. The City shall adopt and periodically update the City's Public Facilities Plan for development of public services and facilities in conformance with the policies of the Comprehensive Plan. Significant changes in projected capacity of public facilities required by proposed new development to be served by the City may necessitate update of the Public Facilities Plan.

10. The City shall comply with state and federal regulations for utility systems.

11. The City shall establish and maintain a range of funding mechanisms for building new water, sewer, storm drainage and transportation infrastructure and maintaining existing infrastructure.

12. The City shall monitor the condition of water, sewer, storm drainage and transportation infrastructure and finance regular maintenance of these facilities.

13. The City shall utilize its adopted System Development Charges (SDCs) to finance new water and wastewater infrastructure as allowed by state law, and adjust SDCs to keep them up to date with current costs.

14. The City shall establish and maintain utility rates and user fees that equitably allocate costs for operations and maintenance to users.

15. The City shall maintain an eight (8) year supply of commercial and industrial land that is serviceable by water, sewer, storm drainage and transportation infrastructure.

16. The City will periodically amend the Comprehensive Plan list of public facility projects when implementing plans or agreements are updated.

17. The City shall protect its water supply and enhance groundwater quality and quantity of the City's drinking water supplies by:

- *Establishing wellhead protection measures;*
- *Working with landowners and managers for protection of water sources; and*
- *Adhering to applicable permitting requirements when approving new residential, commercial and industrial development and when constructing new water, sewer, storm drainage transportation infrastructure.*

18. The City shall plan for and establish standards for storm drainage detention and management facilities for management of urban storm runoff as an environmental service, rather than flood control, during periods of heavy rain. In doing so, where feasible, the City will encourage natural storm drainage management techniques, such as modified bio-swales, landscaping, retention ponds and natural drainage ways.

19. The City shall take steps to minimize adverse impacts from construction and other sources of erosion and sedimentation on natural drainage ways and storm drainage facilities.

20. In order to allow for safe, orderly and coordinated development, the City shall adopt utility and transportation design standards and construction specifications as part of its development code.

21. The City will continue to work with the Boardman Rural Fire Protection District in their provision of fire protection services for the City.

22. The City is working (as of 2003) with the Oregon Water Resources Department to complete and obtain approval for, a Water Management and Conservation Plan, pursuant to OAR 690-86. Should the approved Plan include system improvement projects, the Capital Improvements Project list will be updated to reflect these additional projects.

The general provisions of Goal 11 policies are met with this proposed Interchange Area Management Plan. The necessary actions noted above concerning funding mechanisms are currently being pursued for completion. The recommendation is for the City to commit the capital outlay necessary for establishment of SDC's, LID's and other funding mechanisms to ensure that the transportation improvements of the IAMP are available to sustain future growth and development.

CHAPTER 12: TRANSPORTATION:

CHAPTER 12 – TRANSPORTATION COMPREHENSIVE PLAN POLICIES:

1. *The Transportation System Plan is an element of the Boardman Comprehensive Plan (as a Technical Appendix).*
2. *The City of Boardman shall protect the function of existing and planned roadways as identified in the Transportation System Plan.*

3. *The City of Boardman shall include a consideration of land use impacts on existing or planned transportation facilities in all land use decisions.*
4. *The City of Boardman will plan and develop a network of streets, accessways and other improvements, including bikeways, sidewalks, and safe street crossings to promote safe and convenient bicycle and pedestrian circulation within the community.*
5. *Several large properties in the southern portion of Boardman that are categorized in the North Morrow County TGM Project Community Visioning Analysis of Buildable Lands and Housing Needs as having potential for infill have limited access, posing potential problems for future development. In addition, other areas, such as the one south of Kunze Road, are served by unpaved roads that are in very poor condition. A well connected street pattern will be essential for efficient future urban development in these areas both to provide the opportunity for development at more urban densities and to make it possible to travel easily between and among different parts of the community. The City has developed a local street plan, as part of the Transportation System Plan and require development to improve local streets to city standards.*

The approval and adoption of the Boardman Main Street Interchange Area Management Plan is consistent will all of the transportation policies of the Comprehensive Plan. Adoption of the Main Street IAMP will become an element of the City's Transportation System Plan, thereby amending the City's Comprehensive Plan. The IAMP includes a planned local street system south of the Main Street interchanges and other transportation improvements that were developed in response to projected traffic from planned land uses. Bicycle and pedestrian improvements are part of the preferred interchange alternative, including the long-range reconstruction and expansion of the Main Street overpass to accommodate a center left turn lane, bicycle lanes and wider sidewalks.

TRANSPORTATION SYSTEM PLAN POLICIES

The Transportation System Plan (TSP) Policies, contained in Section 7 of the Boardman Transportation System Plan, associated with this proposed Interchange Area Management Plan (IAMP) are as follows; policies of approval process, policies for protection of transportation facilities, policies for coordinated review, and policies for pedestrian and bicycle circulation. Each of these categories has several policies and directives to accomplish the goals of the Transportation System Plan.

POLICIES FOR APPROVAL PROCESS:

- *The Transportation System Plan is an element of the Boardman Comprehensive Plan. It identifies the general location of transportation improvements. Changes in the specific alignment of proposed public road and highway projects that shall be permitted without plan amendment if the new alignment falls within a transportation corridor identified in the Transportation System Plan.*

- *Operation, maintenance, repair, and preservation of existing transportation facilities shall be allowed without land use review, except where specifically regulated.*

- *Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, for improvements designated in the Transportation System Plan, the classification of the roadway and approved road standards shall be allowed without land use review.*

- *Changes in the frequency of transit, rail and airport services that are consistent with the Transportation System Plan shall be allowed without land use review.*

- *For State projects that require an Environmental Impact Study (EIS) or Environmental Assessment (EA), the draft EIS or EA shall serve as the documentation for local land use review, if local review is required.*

Review of this proposal indicates all of the policies for the approval process are met and will be enhanced by the adoption of this Interchange Area Management Plan by the City of Boardman and the Oregon Transportation Commission.

POLICIES FOR PROTECTING EXISTING AND FUTURE OPERATION OF FACILITIES

- *The City of Boardman shall protect the function of existing and planned roadways as identified in the Transportation System Plan.*

- *The City of Boardman shall include a consideration of their impact on existing or planned transportation facilities in all land use decisions.*

- *The City of Boardman shall protect the function of existing or planned roadways or roadway corridors through the application of appropriate land use regulations.*

- *The City of Boardman shall consider the potential to establish or maintain accessways, paths, or trails prior to the vacation of any public easement or right-of-way.*

- *The City of Boardman shall preserve right-of-way for planned transportation facilities through exactions, voluntary dedication, or setbacks.*

The Interchange Area Management Plan is specifically designed to address the policies of protection of existing and future operation of the transportation infrastructure in the vicinity of the Main Street interchange. The IAMP identifies necessary transportation projects and actions to meet the needs of planned land uses within the area, including an enhanced local street network and access management measures to improve safety and operations of the interchange facility and I-84. The steps necessary to implement the improvements, and the "triggers" at which point the traffic demand requires the improvements, are identified in the plan. Upon adoption by the City of Boardman and the Oregon Transportation Commission, the projects and actions in the IAMP will become the blueprint for incremental steps to attain protection of the existing system and enhancement of the future transportation system. All of the City's TSP policies are met in this Interchange Area Management Plan.

POLICIES FOR COORDINATED REVIEW

- *The City of Boardman shall coordinate with the Department of Transportation to implement the highway improvements listed in the Statewide Transportation Improvement Program (STIP) that are consistent with the Transportation System Plan and comprehensive plan.*

- *The City of Boardman shall consider the findings of ODOT's draft Environmental Impact Statements and Environmental Assessments as integral parts of the land use decision-making procedures. Other actions*

required, such as a goal exception or plan amendment, will be combined with review of the draft EA or EIS and land use approval process.

Existing language in the Boardman Development Code provide for the required coordination of traffic reviews by the Department of Transportation. Proposed changes in the language to the Boardman Development Code enhance the notification and coordination between the City of Boardman and Department of Transportation in the review of land use and development proposals within the IAMP Overlay District. Additionally, changes to the language also clarify when updates to the IAMP are necessary.

POLICIES FOR PEDESTRIAN AND BICYCLE CIRCULATION AND ACCESS

- *It is the policy of the City of Boardman to plan and develop a network of streets, accessways, and other improvements, including bikeways, sidewalks, and safe street crossings to promote safe and convenient bicycle and pedestrian circulation within the community.*

- *The City of Boardman shall require streets and accessways where appropriate to provide direct and convenient access to major activity centers, including downtown, schools, shopping areas, and community centers.*

- *In areas of new development the City of Boardman shall investigate the existing and future opportunities for bicycle and pedestrian accessways. Many existing accessways such as user trails established by school children distinguish areas of need and should be incorporated into the transportation system.*

- *Bikeways shall be included on all new arterials and collectors within the Urban Growth Boundary except on limited access freeways.*

- *Retrofitting existing arterials and collectors with bike lanes shall proceed on a prioritized schedule as appropriate and practical (i.e., bike lanes may not be appropriate in downtown core areas where it would require the removal of parking).*

- *Sidewalks shall be included on all new streets within the Urban Growth Boundary except on limited access freeways.*

- *Retrofitting existing streets with sidewalks shall proceed on a prioritized schedule.*

- *Priority shall be given to developing accessways to major activity centers within the Urban Growth Boundary, such as the downtown commercial center, schools, and community centers.*

- *Bikeways and pedestrian accessways shall connect to local and regional travel routes.*

- *Bikeways and pedestrian accessways shall be designed and constructed to minimize potential conflicts between transportation modes. Design and construction of such facilities shall follow the guidelines established by the Oregon Bicycle and Pedestrian Plan.*

- *Maintenance and repair of existing bikeways and pedestrian accessways (including sidewalks) shall be given equal priority to the maintenance and repair of motor vehicle facilities.*

- *Bicycle parking facilities shall be provided at all new residential multifamily developments of four units or more, commercial, industrial, recreational, and institutional facilities.*

- *A citizens advisory committee shall be established to protect and promote bicycle and pedestrian transportation within the Urban Growth Boundary.*

Existing pedestrian and bicycle circulation and access was evaluated as part of the IAMP planning process and future improvements are part of the preferred interchange alternative. All incremental improvements along with the connective roadways identified in the IAMP are to include provisions for pedestrian and bicycle travel routes. The provisions of pedestrian and bicycle circulation and access polices are met with this proposal.

APPLICABLE STATE GOALS, POLICIES AND RULES

The City is proposing to adopt the Boardman Main Street Interchange Area Management Plan (IAMP) as an element of the City of Boardman Transportation System Plan, thereby amending the state-acknowledged City of Boardman Comprehensive Plan. Findings have been made to demonstrate that the adoption of the Boardman Main Street IAMP is consistent with LCDC's Goals. In addition, an IAMP must be consistent with applicable State transportation goals and policies. Findings of compatibility with the Oregon Transportation Plan and the Oregon Highway Plan, as well as the Administrative Rules that govern transportation planning, will be part of the basis for IAMP approval.

Pertinent State goals and policies for interchange planning are found in Attachment "E" and include findings addressing:

- Statewide Planning Goals
- OAR 660 Division 12 Transportation Planning Rule (TPR)
- OAR 731-015-0065 Coordination Procedures for Adopting Final Facility Plans
- OAR 734, Division 51. Highway Approaches, Access Control, Spacing Standards and Medians

CONDITIONS OF APPROVAL FOR CONSIDERATION

The following list of items includes possible conditions to be considered by the Planning Commission in their deliberations on the April 2009 Final Report for Boardman Main Street Interchange Area Management Plan.

1) Complete within 12 months the necessary changes to the Public Facilities Plan, Capital Improvement Plan and Chapter 11 of the Boardman Comprehensive Plan to solidify the funding mechanisms necessary to implement the IAMP.

2) Establish transportation funding mechanisms, including transportation systems development charges, consistent with the consensus of the Council developed at the City Council Workshop on Transportation Funding held September 20, 2008.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The Boardman Main Street Interchange Area Management Plan has been open to public input and has been thoughtfully crafted by the consultants, the Boardman Steering Committee,

the Oregon Department of Transportation, the Oregon Department of Land Conservation and Development and Boardman staff. The IAMP provides a blueprint to assuring transportation improvements are accomplished commensurate with traffic demand created by development.

Staff recommends, and the Planning Commission recommends the City Council approve the April, 2009, Final Report for the Boardman Main Street Interchange Area Management Plan, including the amendments to Chapter 5 of the IAMP (see Attachment "E") and revised Figures 5.5 and 5.6, and the implementation measures included in the associated code amendments (see Attachments "B," "C," and "D"),. The Planning Commission further recommends the Boardman City Council to adopt the plan through an implementing ordinance which includes the following conditions:

1) Complete within 12 months the necessary changes to the Public Facilities Plan, Capital Improvement Plan and Chapter 11 of the Boardman Comprehensive Plan to solidify the funding mechanisms necessary to implement the IAMP.

2) Establish transportation funding mechanisms, including transportation systems development charges, consistent with the consensus of the Council developed at the City Council Workshop on Transportation Funding held September 20, 2008.

Pedestrian dies in Boardman

East Oregonian Sep 23, 2013 Updated Dec 13, 2018 0

BOARDMAN — A pedestrian hit by a motor vehicle Friday night in Boardman died of his injuries after arriving at the hospital.

Filemon Prado-Reyes of Boardman was crossing Main Street when he was struck by a car at approximately 8:30 p.m. Sept. 20.

Boardman police chief Richard Stokoe said the incident is still under investigation and crash reconstructionists have not yet determined whether Prado-Reyes was in a crosswalk when he was hit. No arrests have been made in connection with the incident.

Stokoe said Prado-Reyes was transported to Good Shepherd Medical Center in Hermiston and later succumbed to his injuries.

September 2013

Boardman, Oregon, USA

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Sunrise: 6:19am Sunset: 7:38pm	2 Sunrise: 6:21am Sunset: 7:36pm	3 Sunrise: 6:22am Sunset: 7:35pm	4 Sunrise: 6:23am Sunset: 7:33pm	5 Sunrise: 6:24am Sunset: 7:31pm	6 Sunrise: 6:26am Sunset: 7:29pm	7 Sunrise: 6:27am Sunset: 7:27pm
8 Sunrise: 6:28am Sunset: 7:25pm	9 Sunrise: 6:29am Sunset: 7:23pm	10 Sunrise: 6:31am Sunset: 7:21pm	11 Sunrise: 6:32am Sunset: 7:19pm	12 Sunrise: 6:33am Sunset: 7:17pm	13 Sunrise: 6:34am Sunset: 7:15pm	14 Sunrise: 6:36am Sunset: 7:13pm
15 Sunrise: 6:37am Sunset: 7:12pm	16 Sunrise: 6:38am Sunset: 7:10pm	17 Sunrise: 6:39am Sunset: 7:08pm	18 Sunrise: 6:41am Sunset: 7:06pm	19 Sunrise: 6:42am Sunset: 7:04pm	20 Sunrise: 6:43am Sunset: 7:02pm	21 Sunrise: 6:44am Sunset: 7:00pm
22 Sunrise: 6:45am Sunset: 6:58pm	23 Sunrise: 6:47am Sunset: 6:56pm	24 Sunrise: 6:48am Sunset: 6:54pm	25 Sunrise: 6:49am Sunset: 6:52pm	26 Sunrise: 6:51am Sunset: 6:50pm	27 Sunrise: 6:52am Sunset: 6:48pm	28 Sunrise: 6:53am Sunset: 6:46pm
29 Sunrise: 6:54am Sunset: 6:44pm	30 Sunrise: 6:56am Sunset: 6:42pm					

Sun Calendar - An iPhone/iPad app by the developer of this site.

Pacific Daylight Time (PDT) for the entire month.
Courtesy www.SunriseSunset.com

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Chamber / BCDA July 2024 Report

Boardman Chamber Membership Updates

- We currently have 251 members for June 2024 including 1 new member.
    - Allied DCS

Boardman Chamber of Commerce Events

- **Boardman's End of Summer Celebration** will take place on Friday, August 23, 2024. The End of Summer Fireworks celebration is set to be an exciting event, once again in collaboration with Boardman's First Responders. Highlights will include a bouncy house and the return of the popular dunk tank. For both the community and the first responders. FREE pulled pork sandwiches from GG's Smokehouse Catering available from 6:00 pm to 7:30 pm.

- **Our next Chamber talk** will be on Thursday, September 5, 2024, and it will feature 2 guests from Taylor Pumpkin Patch, Joe Taylor & Emily Taylor. Taylor Pumpkin Patch will show you 20 varieties of pumpkins at their local patch, perfect for all ages! Dive into their fun activities like the corn pit, apple sling shots, fire pits, straw pyramid, corn maze, a thrilling new zip line, and of course, their legendary pumpkin cannon!

- **The 3rd Quarter Luncheon will be Wednesday, September 18, 2024:** Express Employment Professionals will serve as the title sponsor for our next upcoming luncheon. After the Express Employment presentation, we will have a round table discussion. We look forward to having all of you attend our luncheon and learn more about your business. Registration for the event is available on the Boardman Chamber of Commerce website. The luncheon will be catered by the Boardman Senior Center.

Past Chamber Events:

- **Boardman's 4th of July Celebration:** The Boardman Chamber of Commerce extends a heartfelt thank you to our Community Sponsors, music line-ups, vendors, and volunteers for making this year's 4th of July Celebration truly spectacular! The day was flawless, culminating in a beautiful evening and a stunning firework display that drew a huge crowd. We hope everyone who joined the parade and visited the Boardman Marina had a fantastic time. To relive the highlights of this incredible event, check out the professional video we've shared on the Boardman Chamber's Facebook, Instagram, Twitter, LinkedIn, and YouTube pages. https://youtu.be/SoqQ4zQUW6s?si=kQ2Vg7eemfI2nF6c

- **The Pro Bass Fishing Tournament**, held from July 26, 2024 - June 28, 2024, was a tremendous success! A big thank you to all the pro fishermen who participated in the Bam Pro Tour's 3rd stop on the Columbia River in Boardman, OR. Congratulations to Conrad Demecs Fishing/Fishing Guide for taking 1st place! The event featured Infiernito JH and Mary's Tacos, adding to the festive atmosphere. Bass Angler Magazine truly made an impact on Boardman, and we can't wait to see what next year brings! A total of 34 teams gathered at the Boardman Marina for this three-day tournament, which ran from 5:00 am to evening each day. Heather Baumgartner hosted a Facebook Live during the weigh-ins after 3:00 pm. With such a great turnout and exciting competition, we look forward to sponsoring the next event!

- **Chamber Talk w/ Torrie on Thursday, June 6, 2024, at 12:00 pm:** We had our 19th Edition of Chamber Talk with special guest Kalie Davis and Paul Butler with AWS. We had a great discussion on the opportunities that they provide our community. Spotlighting their Change-X grant that supports community groups who are wanting to make a difference. To see the video, please visit our YouTube page under the Chamber Talk playlist.

Member Events

- **Boardman Farmers Market:** The Boardman Farmers Market is well under its way, look forward to savoring the flavors of local goodness. Market Season kicked off on Monday, June 3, 2024! Join them every Monday until September 2, 2024, for a vibrant celebration of fresh produce and community spirit.
- **Boardman Park Recreation District:**
    - Check out the Boardman Pool and Recreation Center Facebook page for their updated Summer Pool Hours.
    - Water Aerobics are now being offered on Fridays from 8:00 am to 9:00 am. starting August 2, 2024.
- **Desert Lanes Family Fun Center:** Desert Lanes has their Fall & Winter League schedule for 2024 and 2025 on their Facebook page.

- **Columbia River Health:** Is holding a National Health Center Week event on August 2024 - August 10, 2024. On August 8, 2024, from 12:00 pm to 2:00 pm they will be hosting a Community BBQ. This is a Free event for the Boardman Community with food, drinks, games, and more.
- **Café Cultura:** Is holding its Cultura Fest on Saturday, September 14, 2024. It will be a community event celebrating the Hispanic culture. There will be local vendors selling their delicious food and crafts. Don't miss out on this fantastic opportunity to connect with the community.

To find more information on events and information, please follow our social media platforms, website, and YouTube.

Boardman Community Development Association

The BCDA Board is pleased to continue supporting various initiatives in Recreation, Education, Beautification, and Community projects.

Our next major endeavor is the construction of a new play structure at the SAGE Center. With a $250,000 investment, this project will accommodate the increasing number of students participating in our year-round educational programs and benefit the wider community. We are excited to share the progress of this project with the community. We are thankful for the additional support from Threemile Canyon Farms in the value of $50,000 to this project.

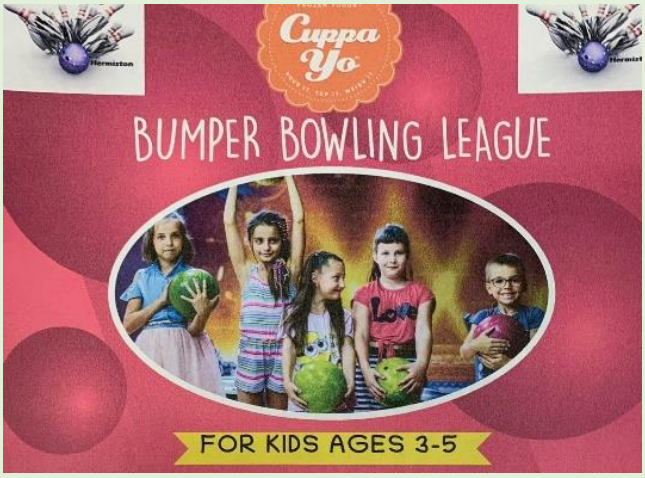
Additionally, we are maintaining our Home Buyers Incentive program, with an investment of $250,000 to encourage new residents to settle in Boardman. We currently have spent $140,000 in housing grants for 2024.

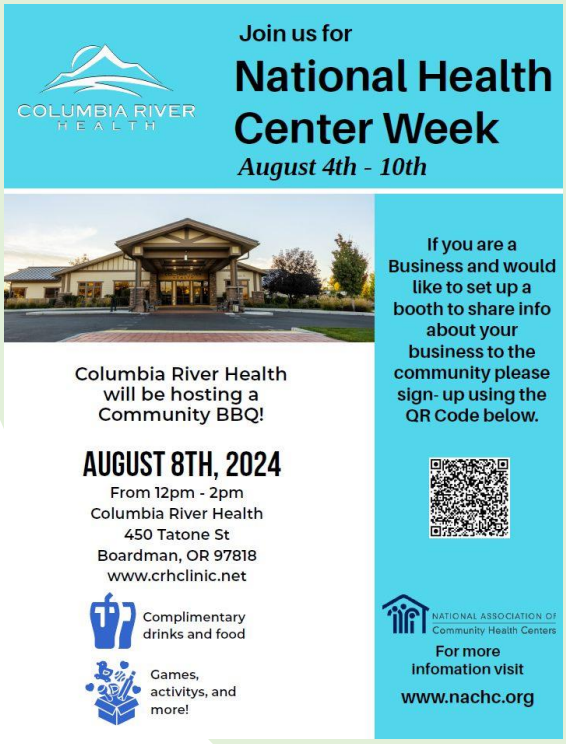
BCDA remains committed to making Boardman a wonderful place to live, work, and play.

Should you have any inquiries, please don't hesitate to reach out to me at 541-571-2394 or via email at torrie@boardmanchamber.org at your convenience.

For further details, please visit www.boardmanchamber.org or contact our office directly at 541-481-3014. We're here to assist you!

Upcoming Events





TRT 2ND Quarter Report

APRIL – JUNE 2024

BOARDMAN CHAMBER OF COMMERCE
PO BOX 1 | 101 OLSON RD
BOARDMAN, OR 97818
51-481-3014

Boardman Chamber of Commerce
TRT 2ND Quarter Report
April – June 2024

Quarter Numbers: Throughout this quarter, our Chamber of Commerce warmly welcomed four new members, enriching our community with diverse perspectives, and fostering dynamic opportunities for collaboration and growth.

- Unity Partners, LLC
- Eastern Oregon University
- Boardman Bean Roasters
- Allied DCS

As of June 30, 2024, our Chamber has a membership of 251 members, a testament to our commitment to expansion and engagement, underscored by amplified outreach initiatives such as our ever growing and changing social media presence and the impactful Member Spotlight feature on Chamber Talk with Torrie.

Amidst this growth, we continue to manage of four email accounts, which on average influx of 40-50 emails per account daily, while escalating phone communications reflect our concerted efforts to foster deeper connections with our members, facilitating updates to member information and advocating for enhanced memberships to unlock greater visibility across our social media platforms and website.

Communications to Members: We prioritize ongoing communication with our members to ensure they stay informed about community events and opportunities through regular mass email distributions. Our Members Information Center (MIC) page serves as a dynamic resource, empowering members to enhance their membership value by effortlessly sharing representatives' details, job postings, news updates, and crucial business notifications. Educating and reminding our members of the many benefits available to them remains a cornerstone of our commitment, as we continually strive to deliver unparalleled value and support their growth within our chamber community.

Constant Contact Emailing Program: Our subscriber base currently stands at 1,200, with 30 recent additions over the past couple of months. Out of the 5,044 emails sent to our members, 1,933 have been opened, representing a 93% engagement rate on desktop and 7% on mobile devices. Impressively, there have been 2,424 direct clicks from these emails, with 97% originating from desktop and 3% from mobile platforms, showcasing our effective outreach strategies across multiple channels.

Brochure/Marketing Material: In collaboration with Lunar Cow, we are in the final stages of editing a comprehensive Visitor's Guide aimed at enhancing community engagement and tourism outreach. This guide will include a Printed Guide, expected to reach 10,000

Boardman Chamber of Commerce
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readers, and an Online Go Guide to expand digital reach. An Online Map feature will strategically position businesses, making navigation easy for potential customers.
We consistently share information through our newsletter, website, and social media platforms, keeping our community informed and engaged. We hope to have the Visitor's Guide out in print soon.

Bi-Monthly E-Newsletter: This e-newsletter is a vital communication tool, reaching over 1,200 recipients and facilitating seamless interaction between Chamber members and community stakeholders. It ensures everyone stays informed about upcoming events, opportunities, and Chamber updates. Our commitment to inclusivity encourages members to contribute to these communications, fostering a collaborative platform for event sharing and promotion. Additionally, we proactively scout for member events in the upcoming month to ensure comprehensive coverage in our newsletter, maximizing exposure and engagement within our vibrant community.

NM Times /EO Newspapers/Radio: We are committed to distributing information about member activities and Chamber events through various channels to ensure widespread accessibility and engagement. Recognizing the importance of diverse communication avenues, we strive to employ multiple methods to effectively reach and engage our community, thereby enhancing visibility and fostering stronger connections.

Expanding Connectivity: Our Array of Chamber Social Media Platforms:

- Facebook: With 3,035 followers, including 72 new additions, our page reached an impressive 167,024 people, and attracting 8,881 page visits.
- Instagram: Garnering 606 followers, with 20 recent additions, our Instagram account reached 738 individuals and experienced 142 profile visits.
- Twitter: Engaging with our 112 followers, including 5 new connections, we earned 790 impressions on our tweets.
- LinkedIn: Our LinkedIn presence, now with 319 followers, including 8 new ones, saw significant engagement. Throughout April to June, our posts helped amplify our reach and engagement within the professional community.

Training/Conferences: I have actively participated in numerous Economic Development Association conferences at both state and national levels, dedicated to enhancing my knowledge of strategies aimed at fostering the advancement of Boardman. These engagements have provided invaluable insights into identifying potential investors

seeking new development opportunities and have equipped me to effectively facilitate the dissemination of pertinent information back to the Boardman community.

Chamber and Partner Events

Chamber Talk w/ Torrie featuring Boardman Park and Recreation: The Boardman Park & Recreation District (BPRD) is a local government agency dedicated to providing safe and enjoyable recreational experiences. Whether it's fishing, playing sports, walking along the mighty Columbia River, camping under old trees, or participating in community events, BPRD offers something for everyone. Their diligent staff ensures that parks and facilities are maintained to the highest standards. BPRD is continually evolving to create a new legacy, ensuring future generations can enjoy the beauty and amenities of their parks. For further insights, explore the full conversation on Chamber Talk with Torrie, available on the Boardman Chamber of Commerce YouTube Channel, starting April 1, 2024.

Jurassic Flas Carp Clave hosted by The SAGE Center: We proudly extended our support to the SAGE Center by actively participating in one of their engaging events. House of Fly and Fly Project hosted the Inaugural Jurassic Flats Carp Clave on Saturday, April 20, 2024, at the Sage Center in Boardman, OR. Attendees learned about flats fishing in the Northwest from the industry's leading anglers, professional tiers, and top brands. The event featured insightful presentations on fishing tactics for Columbia's carp flats from 9 AM to 3 PM, with a lunch break at noon. Following the presentations, participants spent the afternoon cruising the nearby carp flats, gaining hands-on experience and valuable knowledge from the experts. The event was a fantastic opportunity to master carp fishing and connect with the fishing community.

Ryan Neal Invitational Golf Tournament: The Ryan Neal Invitational Golf Tournament, held on April 26-27, 2024, was a tremendous success, raising over $14,000 for scholarships benefiting RHS Jr/Sr High School graduates. A huge thank you goes out to all the sponsors and businesses that generously donated raffle baskets. Gary & Kathy Neal and their family were incredibly grateful to everyone who attended and supported the event. Capturing the memorable moments, photos and videos were expertly produced by Mario Sepulveda Films.

Chamber Talk w/ Torrie featuring Direct Line IT, LLC: Direct Line IT specializes in top-tier cybersecurity and IT services, fortifying businesses' digital infrastructure with personalized, cutting-edge solutions. Their experienced professionals provide comprehensive services, including cybersecurity assessments, managed IT services, cloud computing, and data recovery. They build strong client relationships, empowering

businesses with the latest trends and best practices to ensure success. Discover how Direct Line IT can transform your business by watching Chamber Talk with Torrie on the Boardman Chamber of Commerce YouTube Channel, starting May 1, 2024.

Chamber Talk w/ Torrie featuring Harvest Town Foods: The local full-service grocery store for Boardman and the surrounding community offers an enhanced shopping experience with its user-friendly store app and coupon program, newly updated produce cases, and a recently completed floor project, ensuring a fresh and convenient environment for all customers. For further insights into this discussion, explore the full conversation on Chamber Talk with Torrie, available on the Boardman Chamber of Commerce YouTube Channel, starting June 1, 2024.

The 2nd Quarter Luncheon was June 18, 2024: The 2nd Quarter Chamber Luncheon took place on June 18, 2024, with Unity Partners, LLC serving as the Title Sponsor. Renowned as craftsmen of transformation, Unity Partners, LLC excels in reshaping landscapes into vibrant living and commercial spaces through expert land acquisition, management, and innovative design. Attendees were also treated to a presentation by The Loop, which provided exciting updates on their website and routes. The event featured delicious catering by Macario's Mexican Restaurant, adding a delightful culinary touch to the informative and engaging luncheon.

Bass Angler Magazine Pro-Am Fishing Tournament: The Bass Angler Magazine Pro-Am Fishing Tournament was held from June 28, 2024, through June 30, 2024, attracting bass anglers from around the region as they fish our local Columbia River. Each morning at 5:00 AM, our own Heather Baumgartner performed the National Anthem and hosted engaging Facebook live videos covering the event. Attendees enjoyed delicious food from a local taco wagon from the Desert View Food Park on Friday and Saturday. The community turned out to watch the anglers weigh their catches each day. Bass Angler Magazine will return from July 25, 2024, through July 28, 2024, for their pro tournament, where pro bass anglers will be available for community questions on the evening of July 25, 2024.

Chamber Representation: Engaging in Community Meetings for Enhanced Visibility

- City Council / BCDA Monthly Meetings / Port Commissioners: During these meetings, I provide comprehensive updates on Chamber events, member initiatives, and the ongoing efforts of the Boardman Community Development Association (BCDA), with a

Boardman Chamber of Commerce
TRT 2ND Quarter Report
April – June 2024

strategic emphasis on advancing economic development initiatives within our vibrant community.

- Morrow County Commissioners: By actively participating in these gatherings, I stay abreast of the latest developments within our community and county, enabling me to contribute meaningfully to the economic advancement of Boardman and remain informed about pertinent matters across Morrow County.
- Morrow County Planning Commission: Attending the Commissioners meeting allows me to gain invaluable insights into the happenings within Morrow County, fostering a deep understanding of local dynamics and facilitating informed decision-making for the betterment of our community.
- EOVA: These meetings hold significant importance for our region, serving as a crucial platform to spotlight our community events and initiatives across the vast Eastern Oregon Rugged County region, ensuring widespread visibility and engagement.

Thank you for your time. Your engagement and support are greatly appreciated.

Kindly,
Torrie Griggs

CITY OF BOARDMAN
RESOLUTION 23-2024

A RESOLUTION ESTABLISHING AN INTEREST-BEARING ESCROW ACCOUNT FOR CULBERT CONSTRUCTION, INC. FOR WORK ON SE FRONT STREET AND SE 1ST STREET IMPROVEMENTS

WHEREAS, Oregon House Bill 2145 was enacted in 2019 and became effective on January 1, 2020, requires that both public and private contracts, in excess of $500,000 for infrastructure or construction, place the withheld retainages into an interest-bearing escrow account; and,

WHEREAS, the City of Boardman, in compliance with ORS 701.420, will cap amounts retained at 5%, payment of interest as required by the statute, and comply with the timelines for payment established in the statute; and,

WHEREAS, interest paid on the amounts withheld as retainage on contracts will be capped at 1% per month; and,

WHEREAS, Culbert Construction, Inc. has been awarded as the contractor for the SE Front Street and SE 1st Street Improvements-2024 project and the amount of the contract has been negotiated at the amount of $1,329,495.61; and

WHEREAS, the estimated date of substantial completion for this project has been set at August 30, 2024, and the date ready for final payment at 30 days after.

NOW, THEREFORE, BE IT RESOLVED that the City of Boardman, will open an interest-bearing escrow account with the Bank of Eastern Oregon in which they will place the withheld retainage amounts and interest pertinent to the project listed.

DATED this 3rd day of September 2024.

CITY OF BOARDMAN

Mayor – Paul Keefer	Council President – Heather Baumgartner
Councilor – Karen Pettigrew	Councilor – Richard Rockwell
Councilor – Brenda Profitt	Councilor – Cristina Cuevas
Councilor – Ethan Salata	

ATTEST:

City Clerk – Amanda Mickles

CITY OF BOARDMAN
RESOLUTION NO. 24-2024

A RESOLUTION APPROVING A POWER LINE EASEMENT, AN ACCESS ROAD EASEMENT, AND A TEMPORARY CONSTRUCTION EASEMENT AND AUTHORIZING THE CITY MANAGER TO SIGN ON BEHALF OF THE CITY OF BOARDMAN

WHEREAS, the City of Boardman owns certain property east of the City of Boardman; and

WHEREAS, Idaho Power is seeking to construct a 500 kV transmission line with a small portion of that line crossing certain property owned by the City of Boardman; and

WHEREAS, the City of Boardman has worked in good faith with Idaho Power and has approved access to the subject property for various studies and evaluations; and

WHEREAS, the City of Boardman has received a previous payment for these easements and more current information has increased the easement areas and the respective payment.

NOW, THEREFORE BE IT RESOLVED, that the City of Boardman enters into easement agreements with Idaho Power for the city owned property east of town as identified in the easement agreements and the City Council authorizes the City Manager to sign on the City's behalf.

Dated this 3RD day, September 2024.

CITY OF BOARDMAN

_____
Mayor – Paul Keefer

_____
Council President – Heather Baumgartner

_____
Councilor – Cristina Cuevas

_____
Councilor – Karen Pettigrew

_____
Councilor – Brenda Profitt

_____
Councilor – Ethan Salata

_____
Councilor – Richard Rockwell

ATTEST:

_____
Amanda Mickles – City Clerk

Recording Requested by
and after Recording Return to:

Idaho Power Company
Corporate Real Estate
P.O. Box 70
Boise, ID 83707

Access Road Easement

City of Boardman, a Municipal Corporation, Grantor, docs herby grant and convey to IDAHO POWER COMPANY, a corporation, with its principal office located at 1221 West Idaho Street, Boise, Idaho, its licensees, successors, and assigns (including its future Boardman to Hemingway Power Line project partners), Grantee, for One Dollar and other valuable considerations, receipt of which is hereby acknowledged, a nonexclusive perpetual access road easement ("Easement") over and across the following premises, belonging to the said Grantors in Morrow County, State of Oregon in the following location ("Easement Area"):

See Attached Exhibit “B”

The Easement Area is located within Grantor's larger parcel of land described on the attached Exhibit “C”.

Grantee and its contractors shall have the right to use the Easement Area for the construction, operation, and maintenance of an access road not to exceed 20 feet in road surface width ("Access Road"), to provide access to Grantee's Boardman-to-Hemingway power line and related facilities ("Power Line"), including the right to enter and clear the Easement Area of timber and brush; the right to grade, level, cut, fill, drain, build, gravel, surface, maintain, repair and rebuild the Access Road, including such culverts, bridges, turnouts, retaining walls, erosion control measures or other appurtenant structures as may be necessary for Grantee's construction and use of the Access Road.

Grantee's use of the Access Road will be primarily for vehicular travel, including Grantee's heavy utility vehicles, to provide access for Grantee's construction, operation, and maintenance of the Power Line. Grantee will maintain the Access Road in suitable condition for Grantee's use, including repairing any material damage to the Access Road by Grantee, but Grantee is not obligated to maintain the Access Road for any other use.

The Grantor reserves the right of ingress and egress over and across the Access Road, said right to be exercised in a manner that will not interfere with the use of the Access Road by Grantee. Grantor may erect or maintain fences across the Access Road, which may be kept locked, provided that Grantee is also permitted to install its own lock thereon.

Grantee shall enter upon the Easement Area at its sole risk and hazard. Grantee and its successors and assigns individually release Grantor from any claims relating to the condition of the Easement Area and the entry upon the Easement Area by Grantee, its agents, servants, contractors, and other such parties associated with Grantee.

Grantee accepts the Easement Area and all aspects thereof in "AS IS," "WHERE IS" condition, without warranties, either express or implied, "WITH ALL FAULTS," including but not limited to both latent and patent defects, and the existence of hazardous materials, if any. GRANTEE hereby waives all warranties, express or implied, regarding the title, condition and use of the Easement Area, including, but not limited to any warranty of merchantability or fitness for a particular purpose.

Grantee shall defend, indemnify and hold the Grantor harmless for, from, and against any and all claims, actions and demands against, any and all losses, damages, liens, liabilities, obligations, and costs (including reasonable attorney fees) incurred or sustained by Grantor, arising out of Grantee's (including Grantee's agents, servants, employees, consultants, contractors, and subcontractors, or other personnel) entry onto Grantor's Property or use or exercise of the easement of any kind, except for claims, actions, demands, losses, damages, liabilities, obligations, or costs arising out of the negligence or willful misconduct of the Grantor. The defense of Grantor shall be by an experienced attorney acting reasonably and in good faith, who is skilled in the defense of the claims threatened.

Grantee shall obtain and maintain the following insurance coverages: (i) comprehensive general liability insurance, including contractual liability coverage, to include Grantor as an additional insured and providing coverage with a combined bodily i1tjury, death, and property damage limit of Two Million and 00/100 Dollars ($2,000,000.00) per occurrence; (ii) all workers' compensation and employers' liability insurance required under applicable Workers' Compensation Acts and/or applicable law in addition to maintaining employers' liability instance in the amount of One Million and 00/100 Dollars ($1,000,000.00); and (iii) automobile liability insurance in the amount of One Million and 00/100 Dollars ($1,000,000.00). Grantee shall provide Grantor with a certificate of instance, which certificate shall provide that should any of the above-described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Grantee shall not permit or suffer any liens to be filed against Grantor's real property arising out of work performed or materials delivered in connection with work performed pursuant to this easement agreement and, without limitation of the other provisions of this easement agreement, shall promptly discharge or bond over (in accordance with applicable law) any liens so filed so as to remove same as an encumbrance against the real property.

Grantee shall promptly repair any damage to Grantor's Property and any improvements located thereon caused by Grantee and/or Grantee's agents, servants, employees, consultants, contractors, and subcontractors, and will restore the Grantor's Property and the improvements thereon to the substantially the same condition as they existed prior to Grantee's entry onto Grantor's Property.

A party shall be in default under the terms of these easements, covenants, and agreements if the party fails to cure a breach of any term of this agreement within thirty (30) days after written notice (in accordance with the notice provisions below) specifying the default or breach with reasonable particularity. If the breach or default is one which cannot be cured within the specified deadline, the breaching or defaulting party shall not be in default or breach provided he moves with all due diligence and speed to promptly and adequately remedy the breach and default and cures the breach or default within ninety (90) days of written notice.

Upon a default under this agreement, the non-defaulting party shall be entitled to seek any and all remedies available to it under this Agreement and Oregon law and equity. The remedies the parties may seek against each other shall include but not be limited to injunctions to stop breaches or defaults under this instrument, injuries, damages and interferences.

All notices, approvals, consents, requests, or demands required or permitted to be given or served by either party to this Easement will be in writing (unless otherwise expressly required), properly addressed to the addresses set fo1th below, and will be delivered: (a) by depositing with the United States Postal Service, postage prepaid, by registered or certified mail, return receipt requested, or (b) by a nationally recognized overnight delivery service providing proof of delivery. Notices will be effective (i) in the case of registered or certified mail, on the date that is the earlier of (x) the date receipt is acknowledged on the return receipt for such notice, or (y) the date that is five (5) business days after the date of posting by the United States Post Office, and (ii) if by nationally recognized overnight delivery service providing proof of delivery, one (1) business day after the deposit of the notice with all delivery charges prepaid. Either party may by written notice change its address for all subsequent notices.

GRANTOR:	GRANTEE:
City of Boardman Mailing Address: PO Box 229 Physical Address: 200 City Center Drive Boardman, OR 97818	Idaho Power Company Mailing Address: PO Box 70 Physical Address: 1221 West Idaho Street Boise, ID 83707

In any litigation arising out of this instrument, or to enforce any term or condition of this instrument, the prevailing party shall recover from the other party, his reasonable attorney's fees, costs and expenses at trial, in arbitration and on appeal, plus arbitration fees.

This writing expresses the full and complete terms and conditions of the easements, covenants and agreements. There are no other agreements or understandings concerning these easements, covenants and agreements of any nature--written, oral or otherwise.

The failure of a party to insist upon strict or timely performance shall not be a waiver or relinquishment of any right, but that right shall remain in full force and effect.

The terms of these easements, covenants and agreements may not be modified except by a written agreement signed by both parties and duly recorded in the official records of the county in which the easement is located.

[signatures appear on following page]

Executed and delivered this _____ day of _____, 2024.

Grantor: City of Boardman, a Municipal Corporation

Grantor's Representative
Signature: _____
Printed Name: _____
Title: _____

Notary Acknowledgment

State of: _____)
)ss
County of: _____)

I, _____, (*Notary's Name*) a notary public, do hereby certify that on this _____ day of _____, 2024, personally appeared before me _____ (*Individual's Name),* who, being by me first duly sworn, declared that he/she is the _____ *(Title)* of the City of Boardman, a Municipal Corporation *(Grantor)*, duly authorized to sign this document, and that he/she signed the document, and acknowledged to me that he/she executed the same as the free act and deed on behalf of said Grantor.

(Notarial Seal)

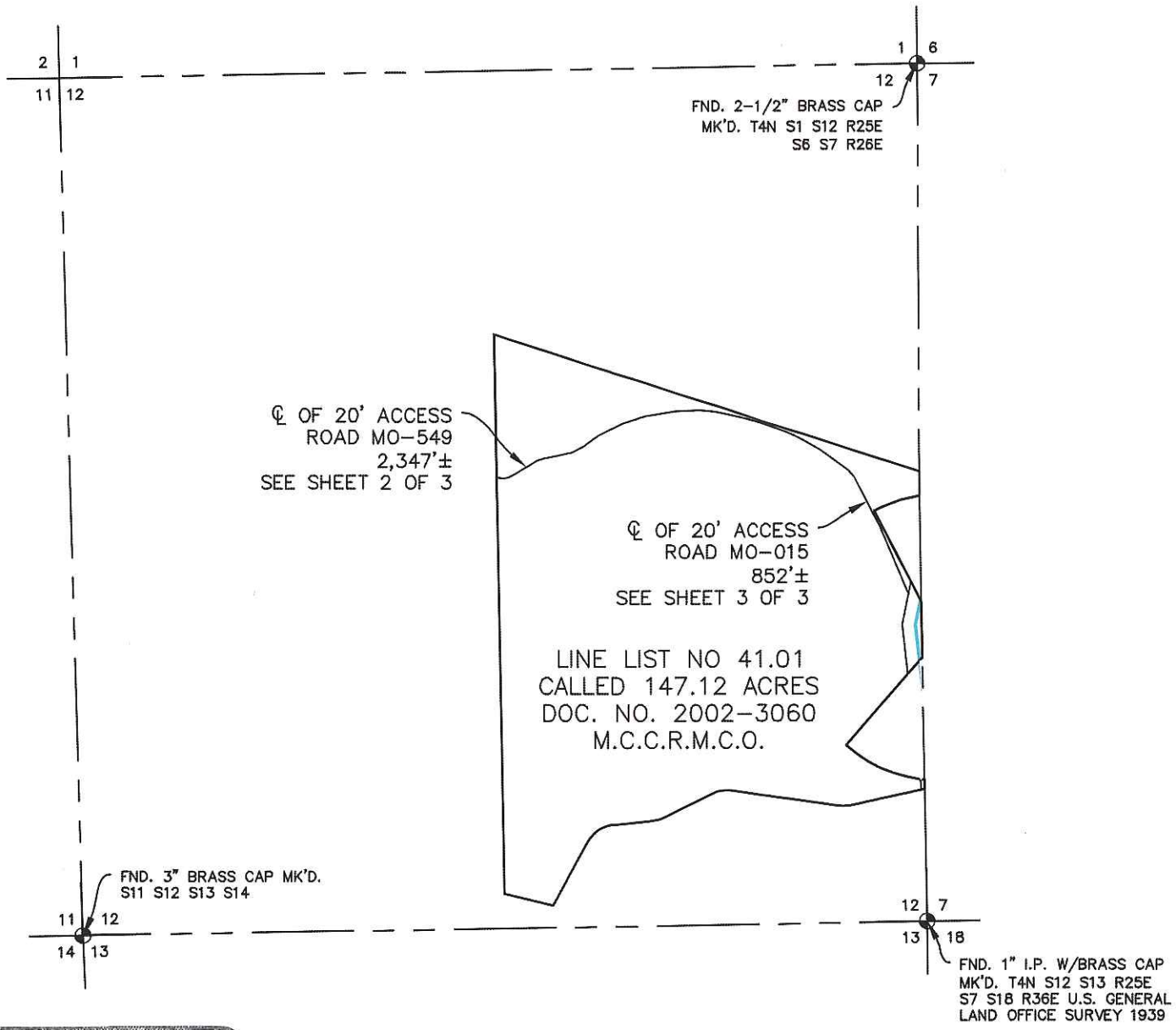
_____
NOTARY PUBLIC
Residing at: _____
Expires: _____

ACCESS ROAD EASEMENT		
ACCESS ROAD TOTAL LENGTH	3,199'±	1.5 ACRES

EXHIBIT "B"

MORROW COUNTY, OREGON
SECTION 12, T4N, R25E
WILLAMETTE MERIDIAN

0' SCALE: 1" = 1,000'



SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

OREGON
OCTOBER 9, 2011
ROBERT E. HOOD
83356

Robt E Hood

ROBERT E. HOOD, OREGON P.L.S. NO. 83356
hbk ENGINEERING, LLC
214 EXPO CIRCLE, SUITE 1, WEST MONROE, LA. 71292
PHONE NO. 318-606-6400

2/23/24
DATE

NOTES

1. ALL BEARINGS SHOWN HEREON ARE GRID, BASED UPON THE OREGON PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83), AS DERIVED FROM A GLOBAL POSITIONING SYSTEM (GPS) SURVEY.
2. THIS EXHIBIT IS NOT A MONUMENTED BOUNDARY SURVEY.

ACCESS ROAD INDEX MAP

EXPIRATION DATE: 6/30/25

IDAHO POWER
An IDACORP Company

DRAWN:	JAD	DATE: 01/30/24
CHECKED:	CEH	DATE: 02/02/24
APP'D:	REH	DATE: 02/02/24
SCALE: AS SHOWN		SHEET 1 OF 3

REV.	DATE	DESC.

JOB NO. A23-0900.000
CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS
hbk ENGINEERING
A QUANTA SERVICES COMPANY

214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

ACCESS ROAD LOCATION

TWO (2) ACCESS ROAD EASEMENTS

LINE LIST NO. 41.01

DRAWING NO.
OR-MO-CO-LL-41.01-AR

REV
482

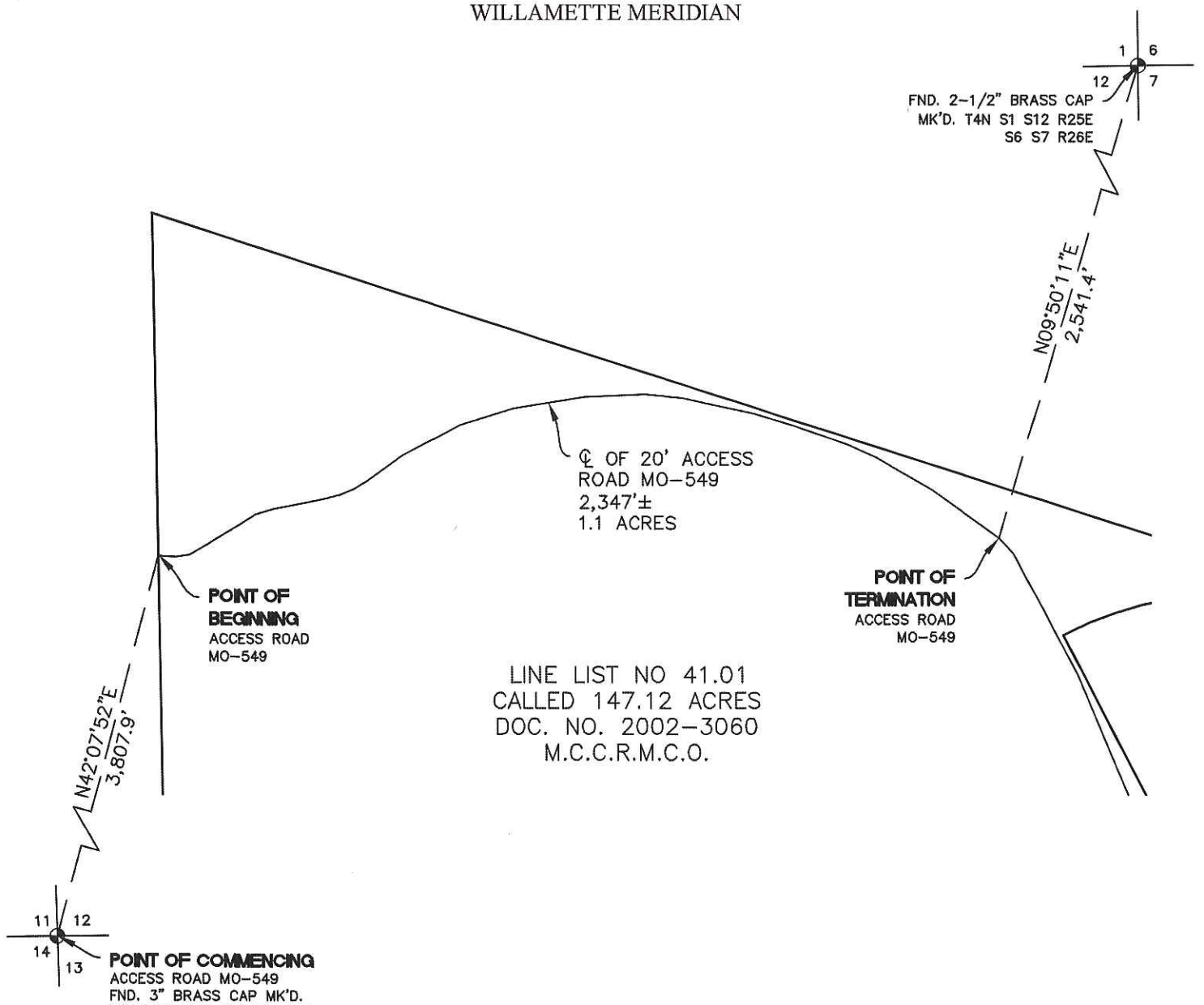
M:\000-B2H\MAPPING\PRELIMINARY\PLATS\DWG\OR-MO-CO-LL-41.01-AR.DWG 2/23/2024 3:18 PM

ACCESS ROAD EASEMENT		
ACCESS ROAD TOTAL LENGTH	2,347'±	1.1 ACRES

EXHIBIT "B" cont'd

MORROW COUNTY, OREGON
SECTION 12, T4N, R25E
WILLAMETTE MERIDIAN

0' SCALE: 1" = 400'



SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

Robert E Hood

2/23/24
DATE

ROBERT E. HOOD, OREGON P.L.S. NO. 83356
hbk ENGINEERING, LLC
214 EXPO CIRCLE, SUITE 1, WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

OREGON
JULY 29, 2011
ROBERT E. HOOD
83356
EXPIRATION DATE: 6/30/25

NOTES

1. ALL BEARINGS SHOWN HEREON ARE GRID, BASED UPON THE OREGON PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83), AS DERIVED FROM A GLOBAL POSITIONING SYSTEM (GPS) SURVEY.
2. THIS EXHIBIT IS NOT A MONUMENTED BOUNDARY SURVEY.

ACCESS ROAD MO-549

IDAHO POWER
An IDACORP Company

DRAWN:	JAD	DATE: 01/30/24
CHECKED:	CEH	DATE: 02/02/24
APP'D:	REH	DATE: 02/02/24
SCALE: AS SHOWN		SHEET 2 OF 3

REV.	DATE	DESC.

JOB NO. A23-0900.000
CLIENT JOB NO.

ACCESS ROAD LOCATION

TWO (2) ACCESS ROAD EASEMENTS

LINE LIST NO. 41.01

DRAWING NO. OR-MO-CO-LL-41.01-AR

REV. 483

UTILITY INFRASTRUCTURE SOLUTIONS
hbk ENGINEERING
A QUANTA SERVICES COMPANY
214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

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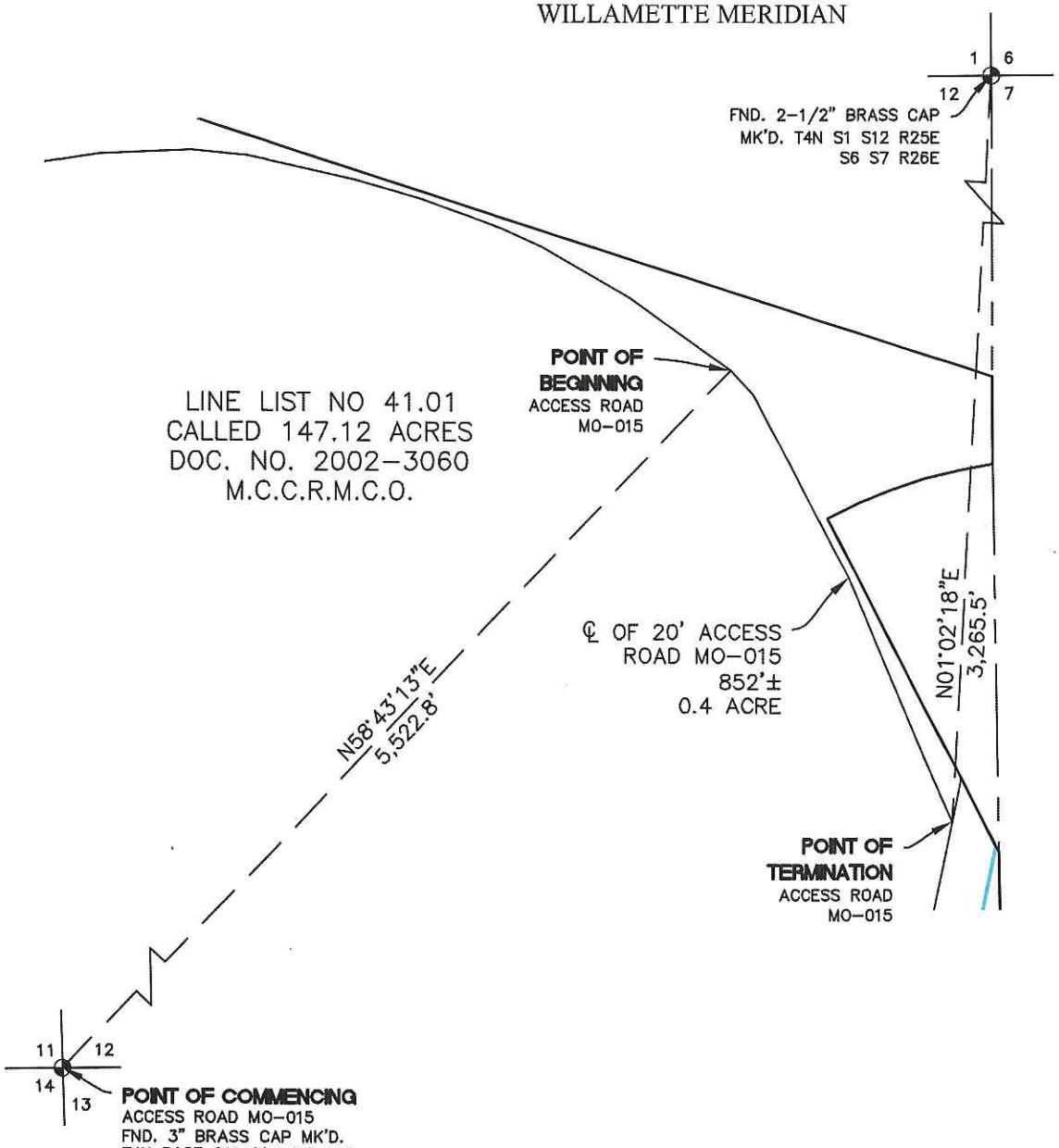
ACCESS ROAD EASEMENT		
ACCESS ROAD TOTAL LENGTH	852'±	0.4 ACRE

EXHIBIT "B" cont'd

MORROW COUNTY, OREGON
SECTION 12, T4N, R25E
WILLAMETTE MERIDIAN

0' SCALE: 1" = 300'



SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON JULY 10, 2011
ROBERT E. HOOD
83356

Robert E Hood — 2/23/24
DATE

ROBERT E. HOOD, OREGON P.L.S. NO. 83356
hbk ENGINEERING, LLC
214 EXPO CIRCLE SUITE 1, WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

NOTES

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2. THIS EXHIBIT IS NOT A MONUMENTED BOUNDARY SURVEY.

ACCESS ROAD MO-015

EXPIRATION DATE 06/30/25

IDAHO POWER®
An IDACORP Company

DRAWN:	JAD	DATE: 01/30/24	
CHECKED:	CEH	DATE: 02/02/24	
APP'D:	REH	DATE: 02/02/24	
SCALE: AS SHOWN		SHEET 3 OF 3	

REV.	DATE	DESC.

JOB NO. A23-0900.000
CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS
hbk ENGINEERING
A QUANTA SERVICES COMPANY

214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

ACCESS ROAD LOCATION

TWO (2) ACCESS ROAD EASEMENTS

LINE LIST NO. 41.01

DRAWING NO. OR-MO-CO-LL-41.01-AR

REV. 484

M:\OGO-B2H\MAPPING\PRELIMINARY\PLATS\DWG\OR-MO-CO-LL-41.01-AR.DWG 2/23/2024 3:19 PM

Tract 41.01

Township 4 North, Range 25 E.W.M

Section 12:

COMMENCING at the Southeast comer of Section 12, of Township 4 North, Range 25 East of the Willamette Meridian in Morrow County;

Thence North 1° 36' 46" West along the East line of said Section 12, a distance of 756.32 feet to the North right of way line of the West Extension Irrigation District Canal and True Point of **Beginning** of this description;

Thence continuing North 01° 36' 46" West along the East line of said Section 12, a distance of 52.05 feet the outer edge of an irrigation circle with a radius of 881.67 feet;

Thence Northwesterly along the perimeter of said 881.67 foot circle a distance of 595.32 feet through an arc of 38°41'13" of which the cord of said arc bears North 67° 49' 18" West ·a distance of 583.07 feet;

Thence North 41° 14' 20" East, a distance of 787.52 feet to the intersection of the East Section line of said Section 12;

Thence North 1° 36' 46" West along said East line of Section 12 a distance of 202.22 feet; thence North 27° 17' 15" West a distance of 733.88 feet to the perimeter of a 881.67 foot circle;

Thence Northeasterly along the arc of said 881.67-foot circle a distance of 331.00 feet through an arc of 21° 30' 36" whos chord bears North 72° 46' 11" East and a distance of 328.32 feet to the intersection of the East line of said Section 12;

Thence along the East line of said Section 12 North 1° 36' 46" West a distance of 132.88 feet to the South right of way line of the Union Pacific Railroad mainline;

Thence North 72° 08' 58" West along said South right of way line of the Union Pacific Railroad a distance of 2790.73 feet to North-South center line of said Section 12;

Thence South 1° 38' 29" East along the said North-South centerline of Section 12, a distance of 3454.68 feet to the North Right of way of Interstate Highway No 84;

Thence South 77° 06' 26" East along the North right of way of Interstate No. 84 a distance of 290.98 feet to the intersection with the North -right of way of the West Extension Irrigation District Canal; thence Northeasterly along the North right of way of the West Extension Irrigation District Canal to the Point of Beginning of this description. Said parcel containing 147.12 Acres.

IDAHO POWER
An IDACORP Company

Recording Requested by
and after Recording Return to:

Idaho Power Company
Corporate Real Estate
P.O. Box 70
Boise, ID 83707

POWER LINE EASEMENT

City of Boardman, a Municipal Corporation, Grantor, docs herby grant and convey to IDAHO POWER COMPANY, a corporation, with its principal office located at 1221 West Idaho Street, Boise, Idaho, its licensees, successors, and assigns (including its future power line project partners), Grantee, for One Dollar and other valuable considerations, receipt of which is hereby acknowledged, a right-of-way and nonexclusive easement for the erection and continued operation, maintenance, repair, alteration (including, but not limited to, voltage or capacity upgrades and additional power poles or towers), inspection and replacement of overhead and/or underground electrical transmission, distribution, and communications lines and circuits of the Grantee, attached to towers, poles, props, guys, or other supports, together with crossarms and other attachments and incidental equipment thereon, and appurtenances, with the right to permit the attachment of the wires and fixtures of other companies or parties, over, under, on, and across the following premises, belonging to the said Grantors in Morrow County, State of Oregon in the following location:

See Attached Exhibit "A"

Together with all rights of ingress and egress necessary for the full and complete use, occupation, and enjoyment of the easement hereby granted, and all rights and privileges incident thereto, including the right from time to time to cut, trim, and remove trees, brush, overhanging branches, and other vegetation and obstructions which may injure or interfere with the Grantee's use, occupation, or enjoyment of this easement and the operation, maintenance, and repair of Grantee's electrical system or result in the violation of any state, local, or federal law or regulation or the National Electrical Safety Code as the same now exists or may hereafter be amended. All such interfering vegetation within the Easement Area shall become the property of Grantee and may be disposed of by Grantee in any manner it deems suitable.

At no time shall Grantor(s) or Grantor's heirs, successors or assigns erect or place any building, structure, or store flammable material of any kind within the boundaries of said right-of-way, nor shall they bring or permit to be brought any equipment or vehicles or material of any kind within the boundaries of the said right-of-way that exceed 15 feet in height. Grantor shall not alter the grade or elevation of the land within the right-of-way existing on the date hereof through excavations, grading, installation of berms or other activities without the prior written approval of Grantee.

Grantee will have the right to grade and gravel within the easement area as needed for access ways and for power pole and tower locations, and the right to clear and keep clear the Easement Area from all fire/electrical hazards, safety hazards, unauthorized structures. Grantee will further have the right to trim or cut down and to remove "Danger Trees" located on land adjacent to the Easement Area. A Danger Tree is any growing or dead tree, or snag, whether stable or unstable, which in the opinion of Grantee could

interfere with the safe operation and maintenance of the Transmission Facilities. Title to Danger Trees shall vest in Grantee and the compensation paid for conveying this Easement Agreement is accepted as full compensation for all present and future Danger Trees.

It is the intention of Grantee to allow Grantor a reasonable right to use and have access to and across the Easement Area, when and where such use does not interfere with the rights of Grantee. Certain uses, however, are prohibited unless Grantor obtains prior written permission from Grantee, which will not be unreasonably withheld. If Grantor proceeds without prior written permission to conduct a prohibited use, Grantee shall have the right to take any action deemed appropriate to address such use. The following are examples of uses prohibited within the Easement Area unless prior written permission is obtained from Grantee. The examples provided below are not intended as an all-inclusive list of prohibited uses.

a. Grantor shall not erect structures. By way of example, prohibited structures shall include, but are not limited to buildings, mobile homes, signs, light standards, fences, storage tanks, storage sheds, propane tanks, fueling stations, septic systems, swimming pools, tennis courts, or similar facilities.
b. Grantor shall not drill wells or conduct mining operations.
c. Grantor shall not appreciably change the grade of the land, normal farming practices excluded.
d. Grantor shall not construct roads in the Easement Area.

Subject to the foregoing limitations, said right-of-way may be used by Grantor(s) for roads, agricultural crops, and other purposes not inconsistent with this easement. Said uses shall not interfere with any existing or future electrical lines of the Grantee, or result in the violation of any state, local, or federal law or regulation or the National Electrical Safety Code as same now exists or may hereafter be amended.

Grantee shall enter upon the Easement Area at its sole risk and hazard. Grantee and its successors and assigns individually release Grantor from any claims relating to the condition of the Easement Area and the entry upon the Easement Area by Grantee, its agents, servants, contractors, and other such parties associated with Grantee.

Grantee accepts the Easement Area and all aspects thereof in "AS IS," "WHERE IS" condition, without warranties, either express or implied, "WITH ALL FAULTS," including but not limited to both latent and patent defects, and the existence of hazardous materials, if any. GRANTEE hereby waives all warranties, express or implied, regarding the title, condition and use of the Easement Area, including, but not limited to any warranty of merchantability or fitness for a particular purpose.

Grantee shall defend, indemnify and hold the Grantor harmless for, from, and against any and all claims, actions and demands against, any and all losses, damages, liens, liabilities, obligations, and costs (including reasonable attorney fees) incurred or sustained by Grantor, arising out of Grantee's (including Grantee's agents, servants, employees, consultants, contractors, and subcontractors, or other personnel) entry onto Grantor's Property or use or exercise of the easement of any kind, except for claims, actions, demands, losses, damages, liabilities, obligations, or costs arising out of the negligence or willful misconduct of the Grantor. The defense of Grantor shall be by an experienced attorney acting reasonably and in good faith, who is skilled in the defense of the claims threatened.

Grantee shall obtain and maintain the following insurance coverages: (i) comprehensive general liability insurance, including contractual liability coverage, to include Grantor as an additional insured and providing coverage with a combined bodily injury, death, and property damage limit of Two Million and 00/100 Dollars ($2,000,000.00) per occurrence; (ii) all workers' compensation and employers' liability insurance required under applicable Workers' Compensation Acts and/or applicable law in addition to maintaining employers' liability insurance in the amount of One Million and 00/100 Dollars

($1,000,000.00); and (iii) automobile liability insurance in the amount of One Million and 00/100 Dollars ($1,000,000.00). Grantee shall provide Grantor with a certificate of insurance, which certificate shall provide that should any of the above-described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Grantee shall not permit or suffer any liens to be filed against Grantor's real property arising out of work performed or materials delivered in connection with work performed pursuant to this easement agreement and, without limitation of the other provisions of this easement agreement, shall promptly discharge or bond over (in accordance with applicable law) any liens so filed so as to remove same as an encumbrance against the real property.

Grantee shall promptly repair any damage to Grantor's Property and any improvements located thereon caused by Grantee and/or Grantee's agents, servants, employees, consultants, contractors, and subcontractors, and will restore the Grantor's Property and the improvements thereon to the substantially the same condition as they existed prior to Grantee's entry onto Grantor's Property.

A party shall be in default under the terms of these easements, covenants, and agreements if the party fails to cure a breach of any term of this agreement within thirty (30) days after written notice (in accordance with the notice provisions below) specifying the default or breach with reasonable particularity. If the breach or default is one which cannot be cured within the specified deadline, the breaching or defaulting party shall not be in default or breach provided he moves with all due diligence and speed to promptly and adequately remedy the breach and default and cures the breach or default within ninety (90) days of written notice.

Upon a default under this agreement, the non-defaulting party shall be entitled to seek any and all remedies available to it under this Agreement and Oregon law and equity. The remedies the parties may seek against each other shall include but not be limited to injunctions to stop breaches or defaults under this instrument, injuries, damages and interferences.

All notices, approvals, consents, requests, or demands required or permitted to be given or served by either party to this Easement will be in writing (unless otherwise expressly required), properly addressed to the addresses set forth below, and will be delivered: (a) by depositing with the United States Postal Service, postage prepaid, by registered or certified mail, return receipt requested, or (b) by a nationally recognized overnight delivery service providing proof of delivery. Notices will be effective (i) in the case of registered or certified mail, on the date that is the earlier of (x) the date receipt is acknowledged on the return receipt for such notice, or (y) the date that is five (5) business days after the date of posting by the United States Post Office, and (ii) if by nationally recognized overnight delivery service providing proof of delivery, one (1) business day after the deposit of the notice with all delivery charges prepaid. Either party may by written notice change its address for all subsequent notices.

GRANTOR:	GRANTEE:
City of Boardman Mailing Address: PO Box 229 Physical Address: 200 City Center Drive Boardman, OR 97818	Idaho Power Company Mailing Address: PO Box 70 Physical Address: 1221 West Idaho Street Boise, ID 83707

In any litigation arising out of this instrument, or to enforce any term or condition of this instrument, the prevailing party shall recover from the other party, his reasonable attorney's fees, costs and expenses at trial, in arbitration and on appeal, plus arbitration fees.

This writing expresses the full and complete terms and conditions of the easements, covenants and agreements. There are no other agreements or understandings concerning these easements, covenants and agreements of any nature--written, oral or otherwise.

The failure of a party to insist upon strict or timely performance shall not be a waiver or relinquishment of any right, but that right shall remain in full force and effect.

The terms of these easements, covenants and agreements may not be modified except by a written agreement signed by both parties and duly recorded in the official records of the county in which the easement is located.

Grantor warrants title to the rights granted herein. Grantor further covenants that Grantor is the sole owner of the property over which this easement is granted, that Grantor has the lawful right to convey this easement interest, and that the property is free and clear of encumbrances, except as agreed to by Grantee.

Limited use or non-use of the rights granted under this Easement Agreement shall not prevent later use to the full extent conveyed.

[signatures appear on following page]

Executed and delivered this _____ day of _____, 2024.

Grantor: City of Boardman, a Municipal Corporation

Grantor's Representative
Signature: _____
Printed Name: _____
Title: _____

Notary Acknowledgment

State of: _____)
)ss
County of: _____)

I, _____, (*Notary's Name*) a notary public, do hereby certify that on this _____ day of _____, 2024, personally appeared before me _____ (*Individual's Name),* who, being by me first duly sworn, declared that he/she is the _____ *(Title)* of the City of Boardman, a Municipal Corporation *(Grantor)*, duly authorized to sign this document, and that he/she signed the document, and acknowledged to me that he/she executed the same as the free act and deed on behalf of said Grantor.

(Notarial Seal)

_____
NOTARY PUBLIC
Residing at: _____
Expires: _____

EXHIBIT "A"

CENTER LINE DESCRIPTION OF A
PERPETUAL ONE HUNDRED SIXTY (160) FEET WIDE
POWER LINE EASEMENT AND RIGHT OF WAY
AND A METES AND BOUNDS DESCRIPTION
OF A PORTION OF THE POWER LINE EASEMENT

CENTER LINE DESCRIPTION OF A PERPETUAL ONE HUNDRED SIXTY (160) FEET WIDE POWER LINE EASEMENT AND RIGHT OF WAY AND A METES AND BOUNDS DESCRIPTION OF A PORTION OF THE SAID POWER LINE EASEMENT, SITUATED IN SECTION 12, TOWNSHIP 4 NORTH RANGE 25 EAST OF THE WILLAMETTE MERIDIAN, MORROW COUNTY, OREGON AND BEING UPON, OVER, THROUGH AND ACROSS A PORTION OF THAT CERTAIN PARCEL OF LAND CALLED 147.12 ACRES TRACT OF LAND, AS DESCRIBED BY DOCUMENT NO. 2002-3060 RECORDED IN THE MORROW COUNTY CLERK RECORDS OF MORROW COUNTY, OREGON, (M.C.C.R.M.C.O.) SAID ONE HUNDRED SIXTY (160) FEET WIDE EASEMENT BEING SITUATED EIGHTY (80) FEET EACH SIDE OF THE HEREIN DESCRIBED CENTER LINE, SAID CENTER LINE AND SAID METES AND BOUNDS PORTION BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: WITH ALL BEARINGS HEREIN BEING GRID, BASED UPON THE OREGON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, INTERNATIONAL FOOT, NORTH AMERICAN DATUM OF 1983 (NAD 83), AS DERIVED FROM A GLOBAL POSITIONING SYSTEM (GPS) SURVEY, PERFORMED BY hbk ENGINEERING IN OCTOBER OF 2023;

POWER LINE EASEMENT

COMMENCING at a 2 ½ inch brass cap marked T4N S1 S12 R25E S6 S7 R26E, found marking the northeast corner of said Section 12;

THENCE South 00° 14' 45" East, across a portion of said Section 12, a distance of 3,305.9 feet to a point in a northeasterly line of the above referenced tract of land, said point being the **POINT OF BEGINNING** of the herein described power line easement;

THENCE South 11° 22' 54" West, across a portion of the above referenced tract of land, a distance of 157.6 feet to a point;

THENCE South 06° 29' 00" East, continuing across a portion of the above referenced tract of land, a distance of 220.8 feet to a point in a southeasterly line of the above referenced tract of land, said point being the POINT OF TERMINATION of a portion of the herein described power line easement, from which a 1 inch iron pipe with a brass cap marked T4N S12 S13 R25E S7 S18 R26E 1939 U.S. General Land Office Survey, found marking the southeast corner of said Section 12 bears, South 01° 35' 28" East, a distance of 1,605.7 feet, said power line easement having a length of 378.4 feet or 22.93 rods and containing 1.1 acres of land, more or less, lengthening or shortening the side lines thereof to intersect the property lines.

POWER LINE EASEMENT CONT. (METES AND BOUNDS)

COMMENCING at a 1 inch iron pipe with a brass cap marked T4N S12 S13 R25E S7 S18 R26E 1939 U.S. General Land Office Survey found marking the southeast corner of said Section 12;

THENCE North 00° 57' 56" West, along the east line of said Section 12, a distance of 816.9 feet to a point on the most southeasterly line of said parcel, and the **POINT OF BEGINNING** of the herein described power line easement;

THENCE South 77° 54' 59" West, along a southeasterly line of the above referenced tract of land, a distance of 21.7 feet to a point;

THENCE North 06° 29' 01" West, across a portion of the above referenced tract of land, a distance of 61.0 feet to a point in a southeasterly line of the above referenced tract of land;

THENCE South 82° 42' 33" East, along the said southeasterly line, a distance of 27.4 feet to a point in the east line of said Section 12;

THENCE South 00° 57' 56" East, along the said east line, a distance of 52.6 feet to the POINT OF BEGINNING, said power line easement and containing 1,371.1 square feet of land, more or less.

Power Line Easement combined for a total of 1.1 acres of land.

SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

Robt E Hood — 2/23/24

ROBERT E. HOOD, OREGON P.L.S. NO. 83356 — DATE

hbk ENGINEERING, LLC
214 EXPO CIRCLE SUITE 1 WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

OREGON — ROBERT E. HOOD — 83356 — EXPIRATION DATE: 6/30/25

LEGAL DESCRIPTION

IDAHO POWER
An IDACORP Company

DRAWN: JAD	DATE: 01/29/24	
CHECKED: CEH	DATE: 02/02/24	
APP'D: REH	DATE: 02/02/24	
SCALE: AS SHOWN	SHEET 1 OF 5	

REV.	DATE	DESC.

JOB NO. A23-0900.000
CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS hbk ENGINEERING
A QUANTA SERVICES COMPANY
214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

EASEMENT PLAT

PERMANENT EASEMENT & RIGHT OF WAY

LINE LIST NO. 41.01

DRAWING NO. OR-MO-CO-LL-41.01

REV. 491

M:\000-B2H\MAPPING\PRELIMINARY\PLATS\DWG\OR-MO-CO-LL-41.01.DWG 2/23/2024 3:13 PM

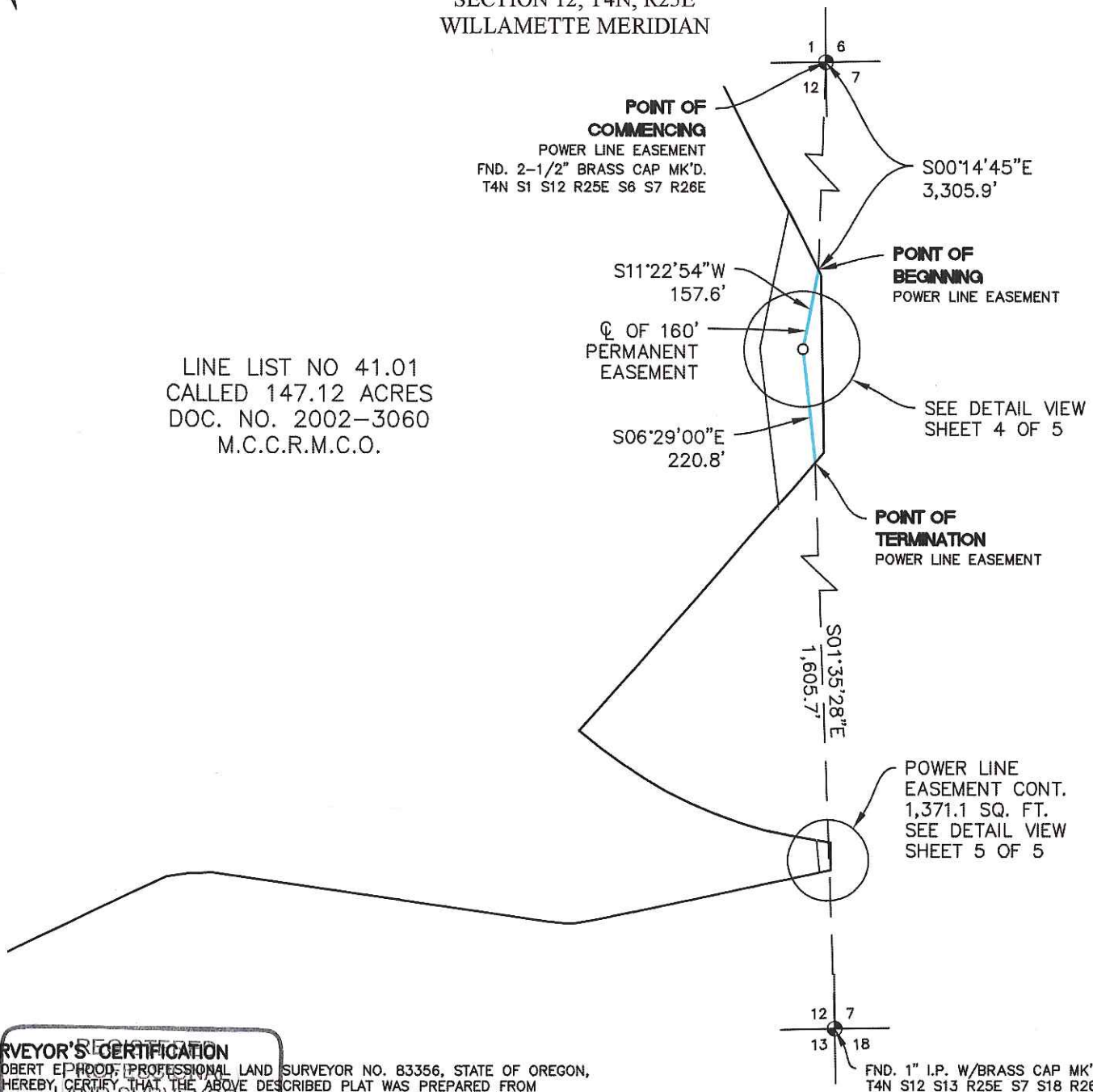
EASEMENT TABLE		
CENTERLINE LENGTH	378.4'	22.93 RODS
PERMANENT ROW	1.1 ACRES	

EXHIBIT "A" cont'd

MORROW COUNTY, OREGON

SECTION 12, T4N, R25E
WILLAMETTE MERIDIAN

0' SCALE: 1" = 300'



LINE LIST NO 41.01
CALLED 147.12 ACRES
DOC. NO. 2002-3060
M.C.C.R.M.C.O.

SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
NOVEMBER 9, 2011
ROBERT E. HOOD
83356

Robert E Hood
ROBERT E. HOOD, OREGON P.L.S. NO. 83356
hbk ENGINEERING, LLC
214 EXPO CIRCLE, SUITE 1, WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

2/23/24
DATE

FOR LEGEND AND NOTES, SEE SHEET 3 OF 4

PLAT

EXPIRATION DATE 12/31/25

IDAHO POWER
An IDACORP Company

DRAWN: JAD	DATE: 01/29/24	
CHECKED: CEH	DATE: 02/02/24	
APP'D: REH	DATE: 02/02/24	
SCALE: AS SHOWN	SHEET 2 OF 5	

REV.	DATE	DESC.

JOB NO. A23-0900.000
CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS
hbk ENGINEERING
A QUANTA SERVICES COMPANY
214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

EASEMENT PLAT

PERMANENT EASEMENT & RIGHT OF WAY

LINE LIST NO. 41.01

DRAWING NO.
OR-MO-CO-LL-41.01

REV.
492

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EXHIBIT "A" cont'd
MORROW COUNTY, OREGON
SECTION 12, T4N, R25E
WILLAMETTE MERIDIAN

LEGEND

⊕	MONUMENT
O	CENTER LINE P.I.
℄	CENTER LINE
ℙ	PROPERTY LINE
I.P.	IRON PIPE
I.R.	IRON ROD
ALUM.	ALUMINUM
MK'D.	MARKED
W/	WITH
SEC.	SECTION
T4N	TOWNSHIP 4 NORTH
R25E	RANGE 25 EAST
DOC. NO.	DOCUMENT NO.
FND.	FOUND
T.C.E.	TEMPORARY CONSTRUCTION EASEMENT
P.E.R.W.	PERMANENT EASEMENT RIGHT OF WAY
M.C.C.R.M.C.O.	MORROW COUNTY CLERK RECORDS OF MORROW COUNTY, OREGON

NOTES

1. THE OWNERSHIP AND ALL EASEMENTS OF RECORD AFFECTING THIS TRACT AS REFLECTED UPON TITLE REPORT FROM AMERITITLE, FILE NO. 245770AM DATED MARCH 13, 2023, ARE SHOWN HEREON.
2. ALL BEARINGS AND DISTANCES SHOWN HEREON ARE GRID, BASED UPON THE OREGON PLANE COORDINATE SYSTEM, NORTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83), AS DERIVED FROM A GLOBAL POSITIONING SYSTEM (GPS) SURVEY, PERFORMED BY hbk ENGINEERING, LLC. IN OCTOBER, 2023.
3. SEE SHEET 1 OF 5 FOR LEGAL DESCRIPTION.
4. IF THIS PLAT AND ACCOMPANIED LEGAL DESCRIPTION ARE NOT SEALED WITH THE RAISED EMBOSSING SEAL OF THE UNDERSIGNED SURVEYOR, IT SHOULD BE CONSIDERED AS A COPY AND NOT AN ORIGINAL.

SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

REGISTERED PROFESSIONAL LAND SURVEYOR OREGON OCTOBER 6, 2011 ROBERT E. HOOD 83356

ROBERT E. HOOD, OREGON P.L.S. NO. 83356 — DATE 2/23/24
hbk ENGINEERING, LLC
214 EXPO CIRCLE, SUITE 1, WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

LEGEND & NOTES

EXPIRATION DATE 6/30/25

IDAHO POWER®
An IDACORP Company

DRAWN:	JAD	DATE: 01/29/24	
CHECKED:	CEH	DATE: 02/02/24	
APP'D:	REH	DATE: 02/02/24	
SCALE: AS SHOWN		SHEET 3 OF 5	

REV.	DATE	DESC.

JOB NO. A23-0900.000
CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS hbk ENGINEERING
A QUANTA SERVICES COMPANY

214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

EASEMENT PLAT
PERMANENT EASEMENT & RIGHT OF WAY

LINE LIST NO. 41.01

DRAWING NO. OR-MO-CO-LL-41.01

REV. 493

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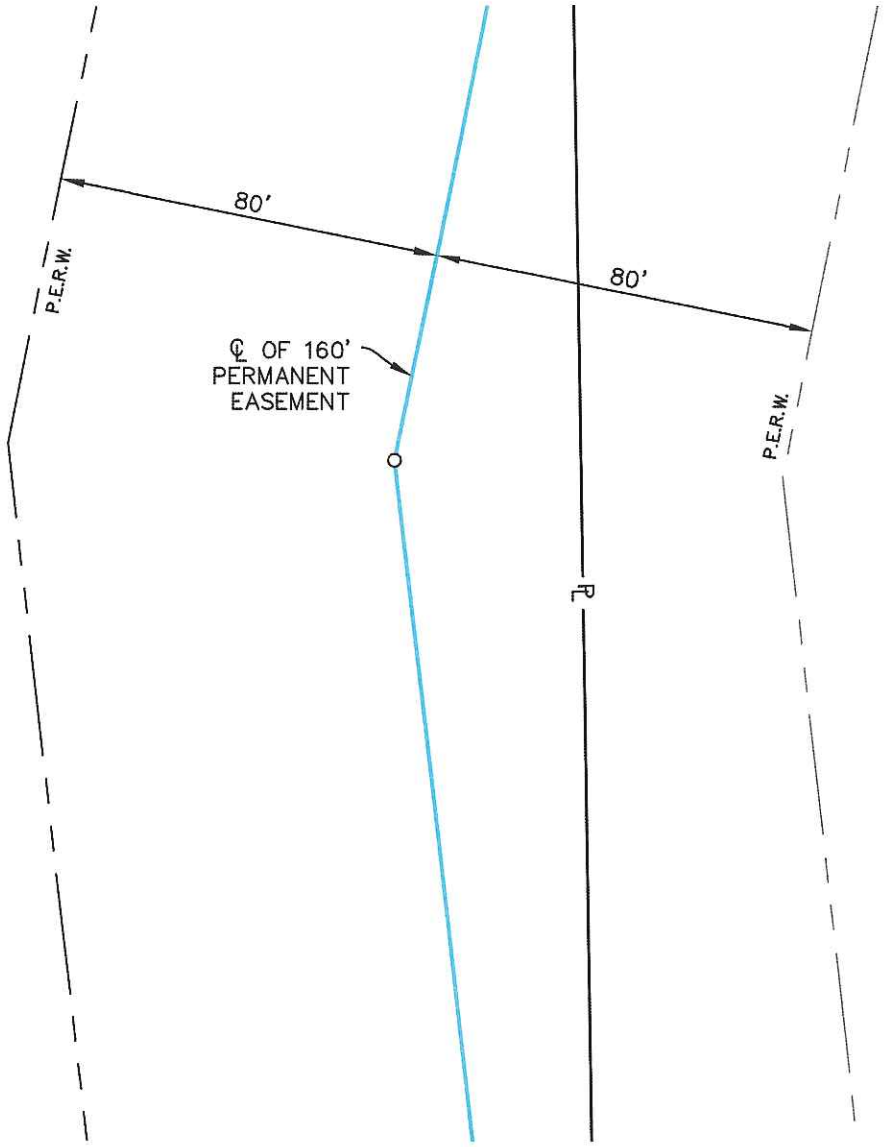
EXHIBIT "A" cont'd
MORROW COUNTY, OREGON
SECTION 12, T4N, R25E
WILLAMETTE MERIDIAN

0' SCALE: 1" = 40'



SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

OREGON JULY 29, 2011 ROBERT E. HOOD 83356

Robert E. Hood — 2/23/24

ROBERT E. HOOD, OREGON P.L.S. NO. 83356 — DATE
hbk ENGINEERING, LLC
214 EXPO CIRCLE SUITE 1, WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

DETAILS

IDAHO POWER — An IDACORP Company

EXPIRATION DATE: 12/31/2025

DRAWN: JAD	DATE: 01/29/24
CHECKED: CEH	DATE: 02/02/24
APP'D: REH	DATE: 02/02/24
SCALE: AS SHOWN	SHEET 4 OF 5

REV.	DATE	DESC.

JOB NO. A23-0900.000
CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS hbk ENGINEERING
A QUANTA SERVICES COMPANY
214 EXPO CIRCLE SUITE 1 WEST MONROE, LA 71292 318.600.6400

EASEMENT PLAT
PERMANENT EASEMENT & RIGHT OF WAY

LINE LIST NO. 41.01

DRAWING NO. OR-MO-CO-LL-41.01

REV. 494

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EASEMENT TABLE		
CENTERLINE LENGTH	0'	0 RODS
PERMANENT ROW	1,371.1 SQ. FT.	

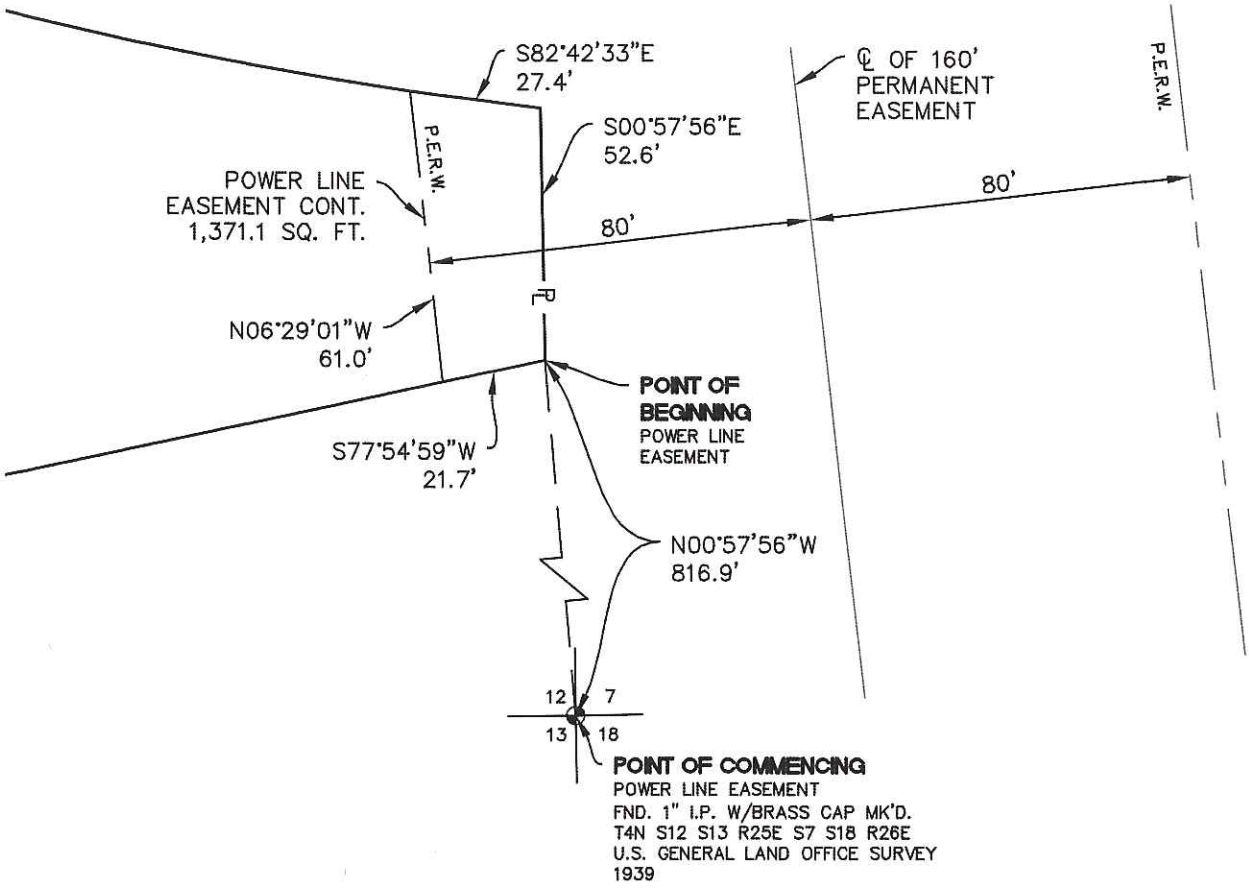
EXHIBIT "A" cont'd

MORROW COUNTY, OREGON

SECTION 12, T4N, R25E

WILLAMETTE MERIDIAN

0' SCALE: 1" = 40'



SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

OREGON
JULY 10, 2011
ROBERT E. HOOD
83356

2/23/24

ROBERT E. HOOD, OREGON P.L.S. NO. 83356 — DATE

hbk ENGINEERING, LLC
214 EXPO CIRCLE, SUITE 1, WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

DETAILS

EXPIRATION DATE 12/31/25

IDAHO POWER
An IDACORP Company

DRAWN:	JAD	DATE: 01/29/24	
CHECKED:	CEH	DATE: 02/02/24	
APP'D:	REH	DATE: 02/02/24	
SCALE: AS SHOWN		SHEET 5 OF 5	

REV.	DATE	DESC.

JOB NO. A23-0900.000

CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS
hbk ENGINEERING
A QUANTA SERVICES COMPANY

214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

EASEMENT PLAT

PERMANENT EASEMENT & RIGHT OF WAY

LINE LIST NO. 41.01

DRAWING NO. OR-MO-CO-LL-41.01

REV. 495

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Recording Requested by
and after Recording Return to:

Idaho Power Company
Corporate Real Estate
P.O. Box 70
Boise, ID 83707

Temporary Construction Easement

City of Boardman, a Municipal Corporation, Grantor, docs herby grant and convey to IDAHO POWER COMPANY, a corporation, with its principal office located at 1221 West Idaho Street, Boise, Idaho, its licensees, successors, and assigns (including its future Boardman to Hemingway Power Line project partners), Grantee, for One Dollar and other valuable considerations, receipt of which is hereby acknowledged, a temporary construction easement ("Easement") over and across the following premises, belonging to the said Grantors in Morrow County, State of Oregon in the following location ("Easement Area"):

See Attached Exhibit “D”

The Easement Area is located within Grantor's larger parcel of land described on the attached Exhibit “E”.

Grantee is authorized to use the Easement Area as a construction staging area for Grantee's Boardman-to-Hemingway Power Line construction project, including the transp01tation and storage of large utility construction vehicles, equipment, and materials upon the Easement Area; the clearing, grading and graveling of the Easement Area as necessary for Grantee's staging area operations; the excavation and piling of soil on the Easement Area; the installation of temporary fences and gates on the Easement Area; and other related uses of the Easement Area as a construction staging area.

The term of this Easement shall run through October 31, 2026, or such earlier time as Grantee provides written notice to Grantor of Grantee's termination of this Easement ("Term"). At the end of the Term, Grantee will repair any material damage it has caused to the Easement Area and remove all vehicles, equipment, materials, fences, gates and other improvements it has placed on the Easement Area.

Grantee shall enter upon the Easement Area at its sole risk and hazard. Grantee and its successors and assigns individually release Grantor from any claims relating to the condition of the Easement Area and the entry upon the Easement Area by Grantee, its agents, servants, contractors, and other such patties associated with Grantee.

Grantee accepts the Easement Area and all aspects thereof in "AS IS," "WHERE IS" condition, without warranties, either express or implied, "WITH ALL FAULTS," including but not limited to both latent and patent defects, and the existence of hazardous materials, if any. GRANTEE hereby waives all warranties, express or implied, regarding the title, condition and use of the Easement Area, including, but not limited to any warranty of merchantability or fitness for a particular purpose.

The Temporary Construction Easement will terminate upon the completion of Grantee's construction activities described above for the Boardman to Hemingway Power Line project. Such termination will be

self-operative without the requirement of a written release; provided, however, after such termination, upon written request by Grantor, Grantee shall execute and deliver to Grantor an instrument, provided by Grantor, which shall memorialize the termination of the Temporary Construction Easement for recording in the official records of Morrow County, Oregon. In all events, this Temporary Construction Easement and all rights granted hereunder shall terminate no later than December 31, 2026. Upon termination of the Temporary Construction Easement, Grantee will promptly repair any damage it and/or Grantee's agents, servants, employees, consultants, contractors, and subcontractors have caused to the Easement Area and restore the Grantor's Property and the improvements thereon to the substantially the same condition as they existed prior to Grantee's entry onto Grantor's Property. Further, Grantee shall promptly remove all vehicles, equipment, materials, fences, gates and other improvements it has placed on the Easement Area. Grantee will not be required to remove gravel placed on the surface of the Easement Area.

Grantee shall defend, indemnify and hold the Grantor harmless for, from, and against any and all claims, actions and demands against, any and all losses, damages, liens, liabilities, obligations, and costs (including reasonable attorney fees) incurred or sustained by Grantor, arising out of Grantee's (including Grantee's agents, servants, employees, consultants, contractors, and subcontractors, or other personnel) entry onto Grantor's Property or use or exercise of the easement of any kind, except for claims, actions, demands, losses, damages, liabilities, obligations, or costs arising out of the negligence or willful misconduct of the Grantor. The defense of Grantor shall be by an experienced attorney acting reasonably and in good faith, who is skilled in the defense of the claims threatened.

Grantee shall obtain and maintain the following insurance coverages: (i) comprehensive general liability insurance, including contractual liability coverage, to include Grantor as an additional insured and providing coverage with a combined bodily i1tjury, death, and property damage limit of Two Million and 00/100 Dollars ($2,000,000.00) per occurrence; (ii) all workers' compensation and employers' liability insurance required under applicable Workers' Compensation Acts and/or applicable law in addition to maintaining employers' liability instance in the amount of One Million and 00/100 Dollars ($1,000,000.00); and (iii) automobile liability insurance in the amount of One Million and 00/100 Dollars ($1,000,000.00). Grantee shall provide Grantor with a certificate of instance, which certificate shall provide that should any of the above-described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Grantee shall not permit or suffer any liens to be filed against Grantor's real property arising out of work performed or materials delivered in connection with work performed pursuant to this easement agreement and, without limitation of the other provisions of this easement agreement, shall promptly discharge or bond over (in accordance with applicable law) any liens so filed so as to remove same as an encumbrance against the real property.

Grantee shall promptly repair any damage to Grantor's Property and any improvements located thereon caused by Grantee and/or Grantee's agents, servants, employees, consultants, contractors, and subcontractors, and will restore the Grantor's Property and the improvements thereon to the substantially the same condition as they existed prior to Grantee's entry onto Grantor's Property.

A party shall be in default under the terms of these easements, covenants, and agreements if the party fails to cure a breach of any term of this agreement within thirty (30) days after written notice (in accordance with the notice provisions below) specifying the default or breach with reasonable particularity. If the breach or default is one which cannot be cured within the specified deadline, the breaching or defaulting party shall not be in default or breach provided he moves with all due diligence and speed to promptly and adequately remedy the breach and default and cures the breach or default within ninety (90) days of written notice.

Upon a default under this agreement, the non-defaulting party shall be entitled to seek any and all remedies available to it under this Agreement and Oregon law and equity. The remedies the parties may seek against each other shall include but not be limited to injunctions to stop breaches or defaults under this instrument, injuries, damages and interferences.

All notices, approvals, consents, requests, or demands required or permitted to be given or served by either party to this Easement will be in writing (unless otherwise expressly required), properly addressed to the addresses set fo1th below, and will be delivered: (a) by depositing with the United States Postal Service, postage prepaid, by registered or certified mail, return receipt requested, or (b) by a nationally recognized overnight delivery service providing proof of delivery. Notices will be effective (i) in the case of registered or certified mail, on the date that is the earlier of (x) the date receipt is acknowledged on the return receipt for such notice, or (y) the date that is five (5) business days after the date of posting by the United States Post Office, and (ii) if by nationally recognized overnight delivery service providing proof of delivery, one (1) business day after the deposit of the notice with all delivery charges prepaid. Either party may by written notice change its address for all subsequent notices.

GRANTOR:	GRANTEE:
City of Boardman Mailing Address: PO Box 229 Physical Address: 200 City Center Drive Boardman, OR 97818	Idaho Power Company Mailing Address: PO Box 70 Physical Address: 1221 West Idaho Street Boise, ID 83707

In any litigation arising out of this instrument, or to enforce any term or condition of this instrument, the prevailing party shall recover from the other party, his reasonable attorney's fees, costs and expenses at trial, in arbitration and on appeal, plus arbitration fees.

This writing expresses the full and complete terms and conditions of the easements, covenants and agreements. There are no other agreements or understandings concerning these easements, covenants and agreements of any nature--written, oral or otherwise.

The failure of a party to insist upon strict or timely performance shall not be a waiver or relinquishment of any right, but that right shall remain in full force and effect.

The terms of these easements, covenants and agreements may not be modified except by a written agreement signed by both parties and duly recorded in the official records of the county in which the easement is located.

[signatures appear on following page]

Executed and delivered this _____ day of _____, 2024.

Grantor: City of Boardman, a Municipal Corporation

Grantor's Representative
Signature: _____
Printed Name: _____
Title: _____

Notary Acknowledgment

State of: _____)
)ss
County of: _____)

I, _____, (*Notary's Name*) a notary public, do hereby certify that on this _____ day of _____, 2024, personally appeared before me _____ (*Individual's Name),* who, being by me first duly sworn, declared that he/she is the _____ *(Title)* of the City of Boardman, a Municipal Corporation *(Grantor)*, duly authorized to sign this document, and that he/she signed the document, and acknowledged to me that he/she executed the same as the free act and deed on behalf of said Grantor.

(Notarial Seal)

_____
NOTARY PUBLIC
Residing at: _____
Expires: _____

EXHIBIT "D"

METES AND BOUNDS DESCRIPTION
OF TWO (2) TEMPORARY CONSTRUCTION EASEMENTS

METES AND BOUNDS DESCRIPTION OF TWO (2) TEMPORARY CONSTRUCTION EASEMENTS (T.C.E.) SITUATED IN SECTION 12, TOWNSHIP 4 NORTH, RANGE 25 EAST OF THE WILLAMETTE MERIDIAN MORROW COUNTY, OREGON AND BEING UPON, OVER, THROUGH AND ACROSS A PORTION OF THAT CERTAIN CALLED 147.12 ACRES TRACT OF LAND, AS DESCRIBED IN DOCUMENT NO. 2002-3060 OF THE MORROW COUNTY CLERKS RECORDS OF MORROW COUNTY, OREGON (M.C.C.R.M.C.O.) AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS, WITH ALL BEARINGS HEREIN BEING GRID, BASED UPON THE OREGON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, INTERNATIONAL FOOT, NORTH AMERICAN DATUM OF 1983 (NAD 83), AS DERIVED FROM A GLOBAL POSITIONING SURVEY (GPS) SURVEY, PERFORMED BY hbk ENGINEERING COMPANY IN NOVEMBER OF 2023;

TEMPORARY CONSTRUCTION EASEMENT (T.C.E.) NO. 1

COMMENCING at a 2 ½ inch brass cap marked T4N S1 S12 R25E S6 S7 R26E, found marking the northeast corner of said Section 12;

THENCE South 00° 10' 26" East, across a portion of said Section 12, a distance of 2,601.5 feet to a point on the east line of said parcel and **POINT OF BEGINNING** of the herein described TCE No.1;

THENCE South 00° 10' 26" East, along said east line of the above referenced tract of land, a distance of 37.7 feet to a point;

THENCE South 00° 57' 56" East, continuing along the said east line, a distance of 21.5 feet to the point of curvature of a curve to the left, said point being the southern most northeast corner of said parcel of the herein described T.C.E. No. 1;

THENCE southwesterly, along the northeasterly line being a curve to the left, said curve having an arc length of 244.7 feet, a delta angle of 15° 54′ 09″, and a radius of 881.67 feet to the southwest corner of the herein described T.C.E. No. 1;

THENCE North 06° 29' 00" West, along the west line of the said T.C.E. No. 1, a distance of 102.1 feet to the northwest corner of the herein described T.C.E. No. 1;

THENCE North 83° 31' 00" East, along the north line of the said T.C.E. No.1, a distance of 246.3 feet to the POINT OF BEGINNING of the said T.C.E. No. 1 and containing 0.4 acre of land, more or less.

REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEYOR'S CERTIFICATION
I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

Robert E Hood — 4/23/24
ROBERT E. HOOD, OREGON P.L.S. NO. 83356 — DATE
hbk ENGINEERING, LLC
214 EXPO CIRCLE, SUITE 1, WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

OREGON NOVEMBER 2011 ROBERT E. HOOD 83356

LEGAL DESCRIPTION

IDAHO POWER
An IDACORP Company

DRAWN: JAD	DATE: 01/30/24	
CHECKED: CEH	DATE: 02/02/24	
APP'D: REH	DATE: 02/02/24	
SCALE: AS SHOWN	SHEET 1 OF 4	

REV.	DATE	DESC.
1	02/17/24	REVISED DOCUMENT

JOB NO. A23-0900.000
CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS hbk ENGINEERING
A QUANTA SERVICES COMPANY
214 EXPO CIRCLE SUITE 1 WEST MONROE, LA 71292 318.600.6400

EASEMENT PLAT
TWO (2) TEMPORARY CONSTRUCTION EASEMENTS
LINE LIST 41.01

DRAWING NO. OR-MO-CO-LL-41.01-TCE
REV. 500

M:\000-B2H\MAPPING\PRELIMINARY\PLATS\DWG\OR-MO-CO-LL-41.01-TCE.DWG 2/23/2024 3:16 PM

EXHIBIT "D" cont'd

TEMPORARY CONSTRUCTION EASEMENT (T.C.E.) NO. 2

COMMENCING at a 2 ½ inch brass cap marked T4N S1 S12 R25E S6 S7 R26E, found marking the northeast corner of said Section 12;

THENCE South 04° 09' 47" West, across a portion of said Section 12, a distance of 2,880.5 feet to a point in the northeasterly line of the above referenced tract of land, said point being the **POINT OF BEGINNING** of the herein described T.C.E. No. 2;

THENCE South 27° 17' 01" East, along the said northeasterly line, a distance of 359.1 feet to a point in the west line of a one hundred sixty (160) feet wide power line easement;

THENCE South 11° 20' 51" West, along the said west line, a distance of 269.5 feet to a point;

THENCE South 06° 24' 50" East, continuing along the said west line, a distance of 306.8 feet to a point in a southeasterly line of the above referenced tract of land;

THENCE South 41° 14' 34" West, along the said southwesterly line, a distance of 188.3 feet to a point;

THENCE North 11° 22' 54" East, across a portion of the above referenced tract of land, a distance of 442.2 feet to a point;

THENCE South 83° 31' 00" West, continuing across a portion of the above referenced tract of land, a distance of 40.9 feet to a point;

THENCE North 06° 29' 00" West, continuing across a portion of the above referenced tract of land, a distance of 604.8 feet to the POINT OF BEGINNING of the said T.C.E. No. 2 and containing 1.5 acres of land, more or less.

Temporary Construction Easements Nos. 1-2 containing a total of 1.9 acres of land, more or less.

SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

Robert E Hood — 2/23/24

ROBERT E. HOOD, OREGON P.L.S. NO. 83356 — DATE

hbk ENGINEERING, LLC
214 EXPO CIRCLE, SUITE 1, WEST MONROE, LA. 71292
PHONE NO. 318-605-6400

OREGON — 83356 — EXPIRATION DATE: 12/31/25

LEGAL DESCRIPTION

IDAHO POWER — An IDACORP Company

DRAWN: JAD	DATE: 01/30/24	
CHECKED: CEH	DATE: 02/02/24	
APP'D: REH	DATE: 02/02/24	
SCALE: AS SHOWN	SHEET 2 OF 4	

REV.	DATE	DESC.
1	02/17/24	REVISED DOCUMENT

JOB NO. A23-0900.000
CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS — hbk ENGINEERING — A QUANTA SERVICES COMPANY
214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

EASEMENT PLAT

TWO (2) TEMPORARY CONSTRUCTION EASEMENTS

LINE LIST 41.01

DRAWING NO. OR-MO-CO-LL-41.01-TCE

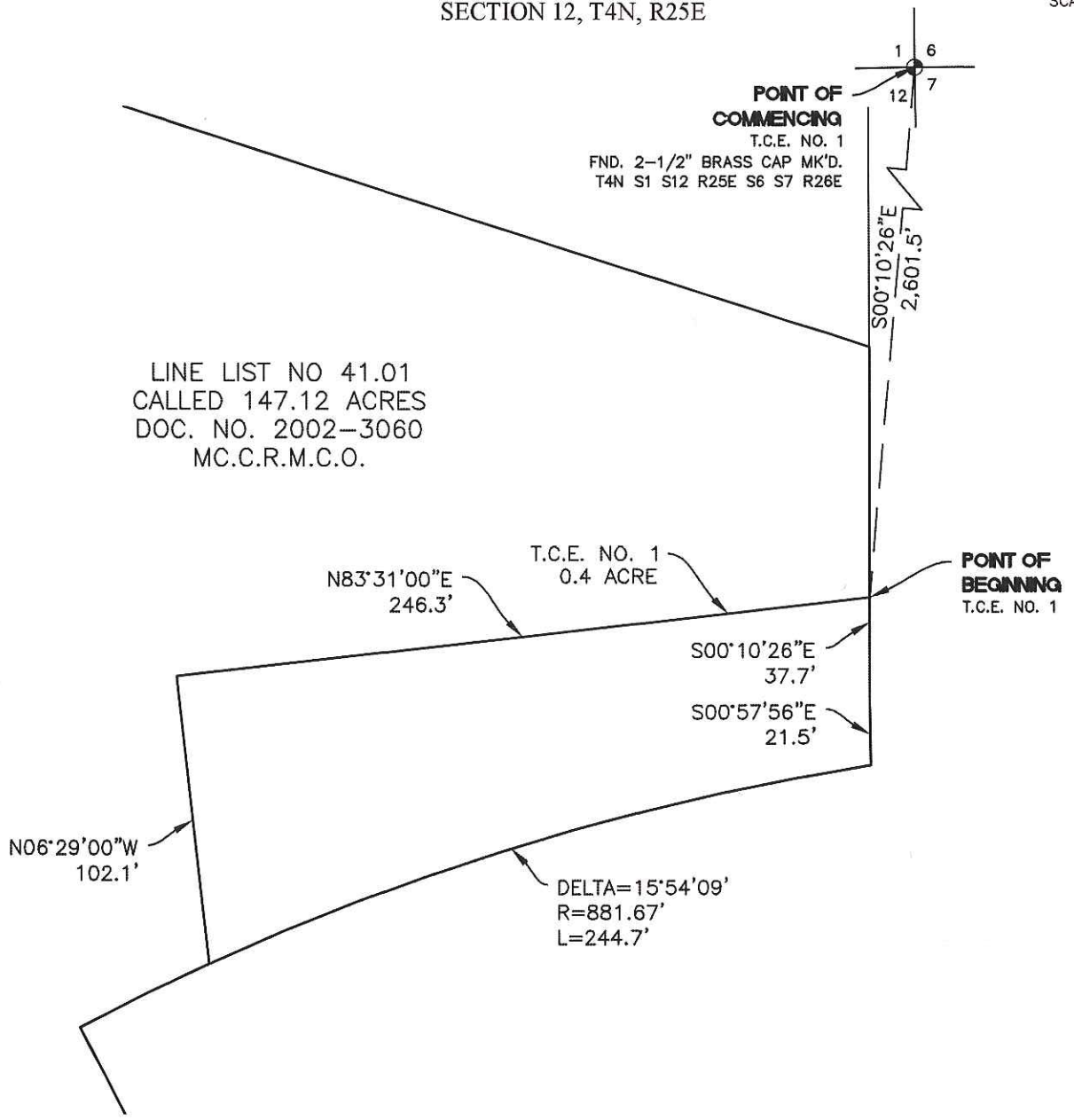
REV. 501

M:\000-B2H\MAPPING\PRELIMINARY\PLATS\DWG\OR-MO-CO-LL-41.01-TCE.DWG 2/23/2024 3:16 PM

EASEMENT TABLE	
T.C.E. NO. 1	0.4 ACRE

EXHIBIT "D" cont'd
MORROW COUNTY, OREGON
SECTION 12, T4N, R25E

0' SCALE: 1" = 60'



SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

REGISTERED PROFESSIONAL LAND SURVEYOR

Robert E. Hood

ROBERT E. HOOD, OREGON P.L.S. NO. 83356
hbk ENGINEERING, LLC
214 EXPO CIRCLE SUITE 1 WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

OREGON
JULY 27, 2011
ROBERT E. HOOD
83356
EXPIRATION DATE: 6/30/25

2/23/24
DATE

TEMPORARY CONSTRUCTION EASEMENT

IDAHO POWER
An IDACORP Company

DRAWN:	JAD	DATE: 01/30/24
CHECKED:	CEH	DATE: 02/02/24
APP'D:	REH	DATE: 02/02/24
SCALE: AS SHOWN		SHEET 3 OF 4

REV.	DATE	DESC.
1	02/17/24	REVISED DOCUMENT

JOB NO. A23-0900.000
CLIENT JOB NO.

EASEMENT PLAT

TWO (2) TEMPORARY CONSTRUCTION EASEMENTS

LINE LIST 41.01

DRAWING NO. OR-MO-CO-LL-41.01-TCE

REV. 502

UTILITY INFRASTRUCTURE SOLUTIONS
hbk ENGINEERING
A QUANTA SERVICES COMPANY
214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

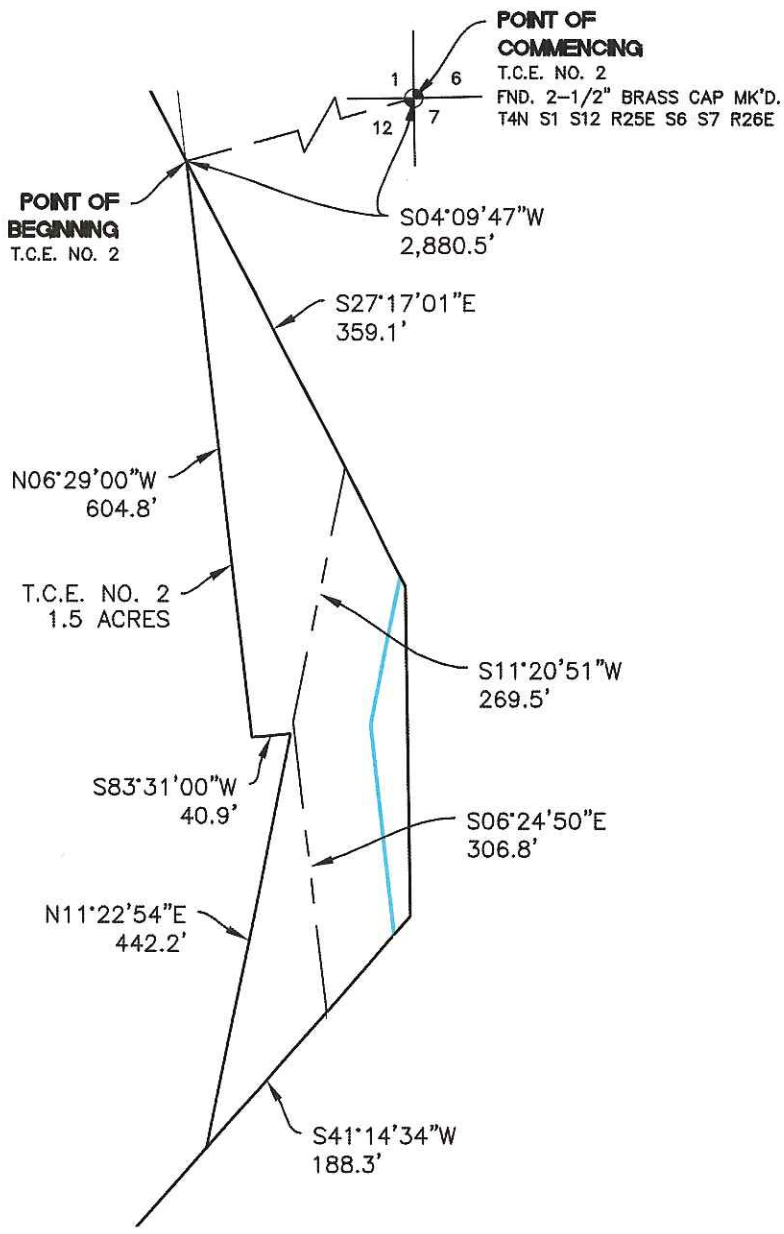
M:\000-B2IA\MAPPING\PRELIMINARY\PLATS\DWGS\OR-MO-CO-LL-41.01-TCE.DWG 2/23/2024 3:16 PM

N

EASEMENT TABLE	
T.C.E. NO. 2	1.5 ACRES

EXHIBIT "D" cont'd
MORROW COUNTY, OREGON
SECTION 12, T4N, R25E

0' SCALE: 1" = 2,000'



LINE LIST NO 41.01
CALLED 147.12 ACRES
DOC. NO. 2002-3060
M.C.C.R.M.C.O.

SURVEYOR'S CERTIFICATION

I, ROBERT E. HOOD, PROFESSIONAL LAND SURVEYOR NO. 83356, STATE OF OREGON, DO HEREBY CERTIFY THAT THE ABOVE DESCRIBED PLAT WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECT SUPERVISION.

Robert E. Hood

ROBERT E. HOOD, OREGON P.L.S. NO. 83356
hbk ENGINEERING, LLC
214 EXPO CIRCLE, SUITE 211 WEST MONROE, LA. 71292
PHONE NO. 318-600-6400

2/23/24
DATE

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JULY 10, 2011
ROBERT E. HOOD
83356

EXPIRATION DATE: 6/30/25

TEMPORARY CONSTRUCTION EASEMENT

IDAHO POWER
An IDACORP Company

DRAWN: JAD		DATE: 01/30/24
CHECKED: CEH		DATE: 02/02/24
APP'D: REH		DATE: 02/02/24
SCALE: AS SHOWN		SHEET 4 OF 4

REV.	DATE	DESC.
1	02/17/24	REVISED DOCUMENT

JOB NO. A23-0900.000
CLIENT JOB NO.

UTILITY INFRASTRUCTURE SOLUTIONS
hbk ENGINEERING
A QUANTA SERVICES COMPANY

214 EXPO CIRCLE
SUITE 1
WEST MONROE, LA
71292
318.600.6400

EASEMENT PLAT
TWO (2) TEMPORARY CONSTRUCTION EASEMENTS

LINE LIST 41.01

DRAWING NO.
OR-MO-CO-LL-41.01-TCE

REV.
503

M:\000-B2en\MAPPING\PRELIMINARY\PLATS\DWG\OR-MO-CO-LL-41.01-TCE.DWG 2/23/2024 3:16 PM

Tract 41.01

Township 4 North, Range 25 E.W.M

Section 12:

COMMENCING at the Southeast comer of Section 12, of Township 4 North, Range 25 East of the Willamette Meridian in Morrow County;

Thence North 1° 36' 46" West along the East line of said Section 12, a distance of 756.32 feet to the North right of way line of the West Extension Irrigation District Canal and True Point of **Beginning** of this description;

Thence continuing North 01° 36' 46" West along the East line of said Section 12, a distance of 52.05 feet the outer edge of an irrigation circle with a radius of 881.67 feet;

Thence Northwesterly along the perimeter of said 881.67 foot circle a distance of 595.32 feet through an arc of 38°41'13" of which the cord of said arc bears North 67° 49' 18" West ·a distance of 583.07 feet;

Thence North 41° 14' 20" East, a distance of 787.52 feet to the intersection of the East Section line of said Section 12;

Thence North 1° 36' 46" West along said East line of Section 12 a distance of 202.22 feet; thence North 27° 17' 15" West a distance of 733.88 feet to the perimeter of a 881.67 foot circle;

Thence Northeasterly along the arc of said 881.67-foot circle a distance of 331.00 feet through an arc of 21° 30' 36" whos chord bears North 72° 46' 11" East and a distance of 328.32 feet to the intersection of the East line of said Section 12;

Thence along the East line of said Section 12 North 1° 36' 46" West a distance of 132.88 feet to the South right of way line of the Union Pacific Railroad mainline;

Thence North 72° 08' 58" West along said South right of way line of the Union Pacific Railroad a distance of 2790.73 feet to North-South center line of said Section 12;

Thence South 1° 38' 29" East along the said North-South centerline of Section 12, a distance of 3454.68 feet to the North Right of way of Interstate Highway No 84;

Thence South 77° 06' 26" East along the North right of way of Interstate No. 84 a distance of 290.98 feet to the intersection with the North -right of way of the West Extension Irrigation District Canal; thence Northeasterly along the North right of way of the West Extension Irrigation District Canal to the Point of Beginning of this description. Said parcel containing 147.12 Acres.

September 3, 2024

Banner Bank
PO Box 218
10 South First Ave.
Walla Walla, WA 99362

RE: UPDATE CREDIT CARD ACCOUNT ADMINISTRATORS
CITY OF BOARDMAN - 00001789

To whom it may concern;

The City Council of the City of Boardman is requesting for the credit card account (00001789) administrators to be updated. Please remove all previous administrators and add the following individuals.

Brandon Hammond
City Manager
hammondb@cityofboardman.com

Marta Barajas
Finance Director
barajasm@cityofboardman.com

Amanda Mickles
City Clerk
micklesa@cityofboardman.com

The phone number and mailing address for all three administrators is the same as the City's.

PO Box 229
Boardman, OR 97818
(541) 481-9252

We appreciate your prompt assistance with this matter.

Sincerely,

Paul Keefer
Mayor

MEMORANDUM

To: Mayor Keefer and City Council
From: Carla McLane, Planning Official
Date: August 27, 2024
RE: Transportation System Plan (TSP) Update
Appointment of the Public Advisory Committee (PAC)

It has taken some time to get to this point, but the update of the Boardman TSP is taking off. One of the first tasks for the City to accomplish is the appointment of a PAC. Staff have identified the following individuals from a variety of organizations to serve in this important role. Many of these positions are required by the Oregon Department of Transportation who is funding this project, others were identified by the City through the funding and scoping process.

I need to note two items with the list below. We would like to ask a City Councilor to serve on this and are hoping that one of you will self-nominate as part of this Action Item. Second the appointment of Patty Perry representing the CTUIR will be a focused appointment as their primary interest in this planning effort is Transit. We have agreed to reach out to them on that topic to be sure they are available to participate and comment on appropriate items or actions.

The requested action is to appoint this slate of individuals to the TSP PAC. Thanks much.

NAME	ORGANIZATION
TBD	Boardman City Council
David Jones	Boardman Planning Commission
Marci Rodelo	Business Owner
Dave Boor	Rural Residential Neighborhood
Stephen Fuss	Bike/Ped Advocate
Reyna Pacheco	Transportation Disadvantaged
Jacob Cain	Local Freight Industry
Torrie Griggs	Chamber of Commerce
Gabe Hansen	Morrow County School District
George Shimer	Boardman Parks and Rec District
Patty Perry	CTUIR
Carla McLane	Boardman Planning Official
Rolf Prag	Boardman Public Works Director
Mike Lees	Boardman City Engineer/AP
Daisy Goebel	MC Principal Planner
Eric Imes	MC Public Works Director
Benjamin Tucker	MC Public Transit
Dawn Hert	DLCD
Devin Hearing	ODOT Region 4
Dejan Dudich	ODOT TPAU
Angie Jones	ODOT Region Transit Coordinator
Marlo Stanton	ODOT Region Traffic Engineer

City of Boardman

200 City Center Circle
P.O. Box 229
Boardman, OR 97818
Phone: (541) 481-9252
Fax: (541) 481-3244
TTY Relay 711
www.cityofboardman.com

MEMORANDUM

To: Mayor Keefer and City Council
From: Carla McLane, Planning Official
Date: August 27, 2024
RE: Boardman Municipal Code 2.16
Planning Commission Regulations

The action before you is to approve an update to the Boardman Municipal Code related to the organization and function of the Planning Commission. Some questions came up earlier this year concerning when the Planning Commission meets which led to the changes before you. This was reviewed by the City Council in a previous work session.

The request before you is to approve the changes as presented. Thanks for your consideration of this request.

Chapter 2.16 PLANNING COMMISSION

Sections:

2.16.010 Established.

There is reestablished a city planning commission for the city.

(Prior code § 1-3.1)

2.16.020 Members.

The commission shall consist of seven members to be appointed by the council ~~and the mayor and city engineer as ex-officio nonvoting members~~. Commission members shall receive no compensation. Individual positions on the commission are not geographically designated. The members presently serving shall continue until the expiration of their regular term.

(Ord. 4-2004 § A: prior code § 1-3.2)

2.16.030 Terms of office.

A. The terms of the seven appointed members of the commission shall expire as follows:

1. Position 1 expires December 31, 2004;
2. Position 2 expires December 31, 2004;
3. Position 3 expires December 31, 2004;
4. Position 4 expires December 31, 2005;
5. Position 5 expires December 31, 2005;
6. Position 6 expires December 31, 2006;
7. Position 7 expires December 31, 2006.

B. Successors shall hold office for three years, commencing on January 1st following expiration of the previous term. Any vacancy shall be filled by the council for the unexpired portion of the term.

(Ord. 4-2004 § B: prior code § 1-3.3)

2.16.040 Election of officers.

The commission, at its first meeting each year, shall elect a ~~president~~ chair and vice-~~president~~chair, who shall be members appointed by the ~~mayor~~ council and who shall hold office during that year at the pleasure of the commission.

(Prior code § 1-3.4)

~~2.16.050 Election of secretary.~~

~~The commission shall elect a secretary who need not be a member of the commission. The secretary shall keep an accurate record of all commission proceedings. The commission shall on the first day of October of each year make and file a report of all its transactions with the city council.~~

(Prior code § 1-3.5)

2.16.060 Quorum—Rules and regulations—Meeting times.

A majority of the voting members of the commission shall constitute a quorum. The commission may make and alter rules and regulations for its ~~government~~ governance and procedures consistent with laws of this state and with the city charter and ordinances. It shall meet at least once a month as needed, at such times and places as may be fixed by the commission. ~~Special meetings may be called at any time by the president or by five members by written notice served upon each member of the commission at least three hours before the time specified for the proposed meeting.~~

(Prior code § 1-3.6)

2.16.070 Removal of members.

~~Members of the commission may be removed by the city council subsequent to a hearing for misconduct or nonperformance of duty.~~ A commission member may be removed following a hearing before the city council for good cause. Good cause shall include absence from three (3) consecutive meetings or fifty percent (50%) of meetings in any six (6) month period, failure to divulge a conflict or bias or other action or deed not deemed to reflect the best interest of the community.

(Prior code § 1-3.7)

2.16.080 Membership restrictions.

Not fewer than six of the commission shall reside within the city limits of the city of Boardman. No more than two voting members shall be engaged in the buying, selling or developing of real estate for profit as individuals, or be members of any partnership, or officers or employees of any corporation, that is engaged principally therein. No more than two voting members shall be engaged in the same kind of business, trade, profession or occupation.

(Ord. 4-2004 § C: prior code § 1-3.8)

2.16.090 Employment of staff.

The commission may employ consulting advice on municipal problems, a ~~secretary and such clerks~~planner or planning department as may be necessary~~;~~, and pay for their services, and for such other expenses as the commission may lawfully incur, including the necessary disbursements incurred by its members in the performance of their duties as members of the commission, out of funds at the disposal of the commission, as authorized by the city council. ~~The commission may set reasonable charges and fees for services to defray its expenses.~~

(Prior code § 1-3.9)

2.16.100 Powers of the commission.

The commission shall have all the powers which are now or hereafter granted to it by ordinances of this city or by general laws of the state of Oregon. ~~The commission shall control the subdivision of land and may make recommendations to the city council, to public officials and to individuals regarding land use; location of thoroughfares, public buildings, parks and other public facilities; and, regarding any other matter relating to the planning and development of the city and the surrounding area.~~ The commission may make studies, hold hearings and prepare reports and recommendations on its own initiative or at the request of the city council. The commission may recommend the city council enter into planning agreements with other public planning authorities. The commission shall make, or cause to be made, all studies which may be necessary to determine the feasibility and costs for any land use program which may be proposed to the commission or for programs related to land use planning which the commission on its own motion may choose to study or participate in. Said programs are without limit as to their origin or nature, that is, they may arise locally, or they may be programs arising from county, state, or federal planning groups or from projects proposed to the city for its participation with county, state, or federal groups or authorities. It is expected that the commission's activities will involve the Comprehensive Plan, Development Code, Transportation System Plan, and other plans or programs related to land use planning.

(Prior code § 1-3.10)

2.16.110 Recommendations in writing.

All recommendations and suggestions made to the city council by the commission shall be in writing.

(Prior code § 1-3.11)

2.16.120 Expenditure restrictions.

The commission shall have no authority to make expenditures on behalf of the city, or to obligate the city for the payment of any sums of money, except as provided in this chapter, and then only after the city council shall have first authorized such expenditures by appropriate ordinance (or resolution), which ordinance (or resolution) shall provide the administrative method by which such funds shall be drawn and expended.

(Prior code § 1-3.12)

Chapter 2.16 PLANNING COMMISSION

Sections:

2.16.010 Established.

There is reestablished a city planning commission for the city.

(Prior code § 1-3.1)

2.16.020 Members.

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7. Position 7 expires December 31, 2006.

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(Ord. 4-2004 § B: prior code § 1-3.3)

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(Prior code § 1-3.4)

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A majority of the voting members of the commission shall constitute a quorum. The commission may make and alter rules and regulations for its governance and procedures consistent with laws of this state and with the city charter and ordinances. It shall meet at least once a month as needed, at such times and places as may be fixed by the commission.

(Prior code § 1-3.6)

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A commission member may be removed following a hearing before the city council for good cause. Good cause shall include absence from three (3) consecutive meetings or fifty percent (50%) of meetings in any six (6) month period, failure to divulge a conflict or bias or other action or deed not deemed to reflect the best interest of the community.

(Prior code § 1-3.7)

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(Ord. 4-2004 § C: prior code § 1-3.8)

2.16.090 Employment of staff.

The commission may employ consulting advice on municipal problems, a planner or planning department as may be necessary, and pay for their services, and for such other expenses as the commission may lawfully incur, including the necessary disbursements incurred by its members in the performance of their duties as members of the commission, out of funds at the disposal of the commission, as authorized by the city council.

(Prior code § 1-3.9)

2.16.100 Powers of the commission.

The commission shall have all the powers which are now or hereafter granted to it by ordinances of this city or by general laws of the state of Oregon. The commission may make studies, hold hearings and prepare reports and recommendations on its own initiative or at the request of the city council. The commission may recommend the city council enter into planning agreements with other public planning authorities. The commission shall make, or cause to be made, all studies which may be necessary to determine the feasibility and costs for any land use program which may be proposed to the commission or for programs related to land use planning which the commission on its own motion may choose to study or participate in. Said programs are without limit as to their origin or nature, that is, they may arise locally, or they may be programs arising from county, state, or federal planning groups or from projects proposed to the city for its participation with county, state, or federal groups or authorities. It is expected that the commission's activities will involve the Comprehensive Plan, Development Code, Transportation System Plan, and other plans or programs related to land use planning.

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(Prior code § 1-3.11)

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(Prior code § 1-3.12)

CITY OF BOARDMAN

EMERGENCY & EVACUATION PLAN

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INTRODUCTION TO EMERGENCY PLAN

Boardman, like most communities across America, is continually exposed to the possibility of floods, extreme weather conditions, earthquakes, hazardous materials incidents, fires, transportation accidents, civil disturbances, utility failures, and other disastrous events that can disrupt and threaten the people, property, economy and well- being of the community.

Government at all levels has the responsibility to prepare for unforeseen emergencies in order to protect the health and safety of the citizens and prevent loss of life and property during emergencies. Local government is the first line of defense against threats to the community and has responsibility to develop and maintain the ability to take immediate protective actions within limits of resources and provide for sustained emergency activities through leadership and coordination of other available resources. This Emergency Plan describes the policies and guidelines that the City of Boardman has adopted to minimize the harmful effects from emergency events.

Emergency management is divided into four phases: MITIGATION, PREPAREDNESS, RESPONSE, and RECOVERY.

MITIGATION - Includes those actions taken to eliminate a hazard or to reduce the potential for damage should a disaster occur. Such actions include building codes, special identification, and routing requirements for the movement of hazardous materials and land use and zoning requirements.

PREPAREDNESS- Includes actions taken to plan, equip, and train citizens and local government to respond to emergencies arising from hazards, which cannot be eliminated through mitigation. This may include preparation of emergency operations plans, guidelines, and exercises to test them. It may also include training in evacuation procedures, home fire safety and/or purchasing of equipment and supplies needed to respond to the emergency.

RESPONSE- Includes actions taken to save lives and protect property during an emergency. This may include search and rescue, fire suppression, evacuation and/or providing food and shelter. It may also include such behind the scenes activities as activating emergency plans and opening/staffing Emergency Operations Centers.

RECOVERY- Includes those processes that seek to restore vital services to the community and provide for the basic needs of the public. This could include reconstruction of roads and public facilities, securing financial aid for disaster victims and review and critique of response activities.

All departments of the City of Boardman have responsibilities in all phases of emergency management. The responsibilities of mitigation and preparedness are addressed in departmental policies, procedures, and/or operational guidelines whereas this Emergency Plan focuses primarily on Emergency Response and short-term recovery activities.

Emergency response and recovery in Boardman is based upon four fundamental principles:

- **The City of Boardman is responsible for emergency management and will lead and coordinate all resources and activities to control emergency incidents occurring in the City.** All county, state or federal resources; aid from other cities; private equipment or manpower; and/or volunteer agencies brought into an emergency control effort will be coordinated and directed by the City.

- **The City of Boardman has incorporated the National Incident Management System (NIMS) into this Plan.** To the extent that an evolving emergency creates the need for

cooperative/coordinated response from multiple disciplines and levels of government, as well as private sector and non-governmental organizations, the City of Boardman will operate within the guidance provided by NIMS.

- **The Incident Command System (ICS) will be used by the City of Boardman to systematically organize all resources and direct them towards the most effective fulfillment of the overall objectives.** The ICS is a nationally recognized emergency management structure that is used by nearly all emergency management agencies in the United States.

- **All City employees may be assigned to tasks that support the control of emergencies.** Day to day job assignments may be suspended so that all of the City's resources can be focused on minimizing the effects of the emergency. Emergency task assignments will parallel an employee's day-to-day job tasks as much as possible in recognition that people cannot be expected to safely and effectively perform tasks that are unfamiliar to them. The tasks will resemble day-to-day tasks; only the objectives will be different. For example: where on a normal day a clerk may be processing payroll and answering the telephone, during an emergency he/she may be helping earthquake victims fill out loan applications and assisting relief agencies process requests for assistance.

This plan stresses the extraordinary emergency response functions applicable to all emergencies or disasters, while recognizing the unique aspects of specific types of emergencies or disasters. The plan is based upon the fact that there are basic response functions that are necessary to manage any emergency regardless of type or magnitude.

Prepared by:
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City of Boardman Chief of Police
October 2023

SECTION 1
GENERAL PROVISIONS

1-1 AUTHORITY

This Emergency Operations Plan is issued in accordance with and under the provisions of Oregon Revised Statute (ORS) Chapter 401 and the Charter of the City of Boardman.

1-2 SCOPE

This plan describes the roles and responsibilities of emergency responders within the City of Boardman. It identifies who will be in charge of an incident. It provides guidelines for coordinating emergency services. It also describes how the City of Boardman will coordinate with adjacent jurisdictions, state agencies, federal agencies, industry, and volunteer organizations.

This plan is considered a guide for managing all types of large-scale emergencies/disasters in Boardman:

A. Weather emergencies (wind, snow/ice, and flood)
B. Hazardous Materials Incidents
C. Rail, air or highway accidents
D. Fires and Conflagrations
E. Civil Disturbances
F. Utility Failure
G. Earthquakes

1-3 CONTINUITY OF GOVERNMENT

To ensure the orderly continuation of leadership in an emergency, the following order of responsibility for maintaining government is established:

A. City Manager or City Council designee
B. Police Chief
C. Director of Public Works
D. Fire Chief

1-4 RELATIONSHIP TO OTHER PLANS

The City of Boardman recognizes Morrow County's Emergency Operations Plan, the Oregon State Emergency Operations Plan and the federal government's emergency response system as described in the National Response Plan. The City of Boardman incorporates these plans by reference into this Emergency Operations Plan.

This plan is also in coordination with local emergency/disaster plans of the American Red Cross, Good Shepard Hospital and local major industries.

1-5 EXERCISE/TRAINING

Exercises are a way to check procedures and coordination with other agencies before problems occur in an actual emergency. Exercises consist of the performance of duties, tasks, or operations in a manner similar to the way they would be performed in a real emergency.

The goal of exercising/training is to improve operational readiness by testing the skills and the application of techniques, policies and guidelines relating to this plan.

The Fire Chief is responsible for planning, scheduling, and conducting training for City employees at least once every two years.

SECTION 2
OPERATIONS

2-1 CONCEPT OF OPERATIONS

It is the responsibility of the City of Boardman to safeguard life and property by making maximum use of available manpower and all resources, public and private to minimize the effects of an emergency.

The City, through this Emergency Operations Plan, establishes a structured emergency response system based upon the premise that the Public Works, Police or Fire Department(s) will have primary operational responsibility for any emergency according to the anticipated level of department involvement in a given type of incident (see Assignment of Primary Operational Control)

As the magnitude of an emergency increases, other City Departments will be brought into the operations in support of the lead department as needed. This plan is based on the concept that the emergency functions for the various departments involved in emergency management will generally parallel their normal day-to-day functions. Day-to-day functions that do not contribute directly to the emergency operations may be suspended for the duration of the emergency. The efforts that would normally be required for those functions will be redirected to the accomplishment of emergency tasks.

Emergencies may be of such magnitude and severity that assistance from volunteer organizations including, but not limited to; the private sector, county, state, and/or federal agencies is required. The City will utilize all available local resources prior to requesting aid from the county, state, or federal government. If the City determines that the resources of the City are not sufficient to meet the emergency, the City may declare a state of emergency to exist, and coordinate the use of resources from volunteer organizations, the private sector, and other governmental agencies. The City will maintain continuous leadership and command of all response and recovery operations unless specifically relinquished by the City.

2-2 PRIMARY OPERATIONAL CONTROL

Primary operational control means the department in charge of tactical operations in the field. The Director of the department with primary operational control is the Incident Commander, and as such has full and complete authority and responsibility second only to the City Manager. The department assigned primary operational control of specific emergencies and critical support functions are as follows:

EMERGENCY	PRIMARY OPERATIONAL CONTROL
Weather Emergency	Public Works
Hazardous Materials Incident	Fire Dept.
Rail, Air, or Highway Accident	Fire Dept.
Fire or Conflagration	Fire Dept.
Civil Disturbance	Police Dept.
Utility Failure	Public Works
Earthquake	Public Works

SUPPORT FUNCTIONS	SUPPORT RESPONSIBILITIES
Communications and Alerting	Police Dept.
Water Supply	Public Works
Human Resources	City Administration
Public Information Officer	City Administration

Documentation.....Engineering
Purchasing.....Finance Dept.
Legal.....City Attorney
Emergency Operations Center..... City Administration
Evacuation ..... Police Dept.
Traffic & Crowd Control..... Police Dept.
Volunteer Coordinator/Control ..... City Administration

2-3 APPLICATION OF PLAN - NOTIFICATION PROCEDURES

To ensure that the city responds appropriately to all types of emergencies, the status of those emergencies or potential emergencies and the levels of those emergencies, along with action to be taken during each level are listed below.

A. LEVEL ONE: POTENTIAL EMERGENCY

At this level, there is a strong potential that the department attempting to control the emergency will exhaust its resources before bringing the emergency under control.

ACTION TO BE TAKEN: The IC will direct the Communications Center to alert the EOC Staff (City Manager, Police Chief, Fire Chief and Public Works Director), or their designees of a possible emergency.

B. LEVEL TWO: ACTUAL EMERGENCY OCCURRING

At this level, the responsible department has determined that the emergency has progressed beyond its capability to control with given resources. At this level, the department with primary operational control requires the assistance of other City personnel, equipment, and/or materials. Outside agencies, industry, and/or volunteer groups may become involved in controlling the emergency upon request and under the direction of the Incident Commander.

ACTION TO BE TAKEN: The IC will direct the Communications Center to alert EOC Staff (City Manager, Police Chief, Fire Chief and Public Works Director) of an emergency in progress. They are to notify key personnel within their departments of the situation. They should be directed to report to the Incident Field Command Post, or if activated, the Emergency Operations Center. Other department heads will be alerted and activated as needed.

The Public Works, Police or Fire Department. will have overall responsibility for any emergency progressing to Level Two. The City Manager may assume the duties of overall Incident Command, if in his judgment; emergency management will be enhanced by this action. Operational control of an incident scene will remain with the responsible department. All other City departments will function in support roles to the lead department, as needed.

C. LEVEL THREE: DECLARE STATE OF EMERGENCY

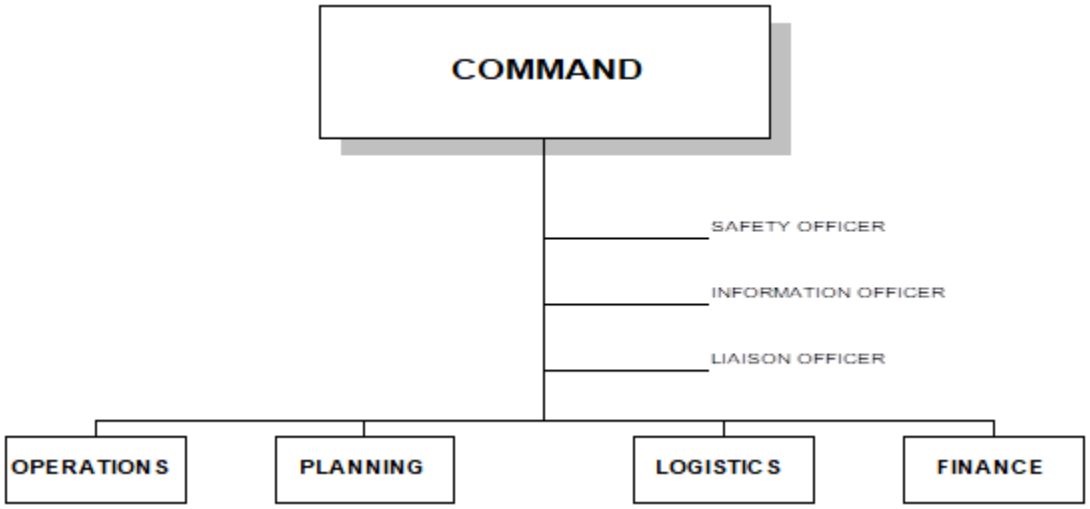
At this level, the emergency is of such magnitude that county, state, and/or federal assistance is required. Local resources, including mutual assistance response is insufficient to cope with the situation. The incident requires response from all levels of government to save lives and protect the property of a large portion of the population.

ACTION TO BE TAKEN: At this point, the normal resources of the City are not sufficient to control the emergency effectively. The City Manager will declare a provisional state of emergency to exist until the Mayor and City Council can convene and confirm the declaration.

The City Manager assumes responsibility of Incident Commander, establishing a Unified Command structure consisting of City staff and representatives from outside agencies, industry, and/or volunteer organizations as needed.

Due to the potential complexity of any Level Three Emergency, including the need to coordinate/cooperate with multiple governmental, non-governmental and private sector organizations, the IC/City Manager will require EOC staff to relocate to the Boardman Rural Fire EOC, located at 911 Tatone Ave.

2-4 INCIDENT COMMAND



The City of Boardman uses the National Inter-Agency Incident Management System - Incident Command System (NIIMS - ICS) for management and control of resources.

It is the policy of the City of Boardman to establish the appropriate level of the Incident Command System on all emergency operations.

As provided in the National Incident Management System (NIMS), the City of Boardman will consider the need to incorporate in "Intelligence" function within its ICS system. The Intelligence function will either function as the Intelligence Officer as part of the Command Staff, as an Intelligence Unit as part of the Planning Section or as the Intelligence Section, part of the General Staff. The placement of this function within the Command and General Staff will be determined by the needs and complexity of the incident.

Incident Command of an emergency in Boardman, which involves assistance from county, state, and/or federal agencies, will remain with the City of Boardman until emergency operations, including stabilization and control activities are completed unless:

A. The local resources are overwhelmed, and the incident commander requests one of the other on-scene agency heads to assume control.

B. The incident occurs in areas of federal jurisdiction, in which case the federal government may assume incident command.

C. If necessary, Oregon statute grants the Governor authority to assume command of emergency operations (ORS 469.671 and ORS 401.115)

2-5 EMERGENCY OPERATIONS CENTER (EOC)

The City of Boardman's City Hall is designated as the EOC. The Administration section (Offices of

City Manager, Personnel, and reception) will be used for the Command Staff. City Council Chambers, City Conference Room will be reserved for public information and news media. According to the extent and duration of the emergency, other portions of the City Hall complex can be used as needed to support the emergency operations center. For example, the Field House can be used for assembly of family members of victims; the RHS gymnasium can be set up for temporary housing/sheltering - especially for EOC staff; the Finance office could serve as a rumor control center; Sam Boardman gymnasium could be designated as office space for FEMA, Red Cross, etc.

During Level Two incidents, there may be a need for coordination of activities/resources in support of, or as a result of the incident (e.g. sheltering/housing evacuees, acquiring heavy equipment); therefore, the City Manager or his/her designee, will assume command of the incident and activate the Emergency Operations Center. The Incident Commander and his/her staff will meet at the Emergency Operations Center (EOC) to coordinate off-scene support to on-scene operations.

During Level Three incidents, there may be a need to coordinate all of the above, as well as incorporate and manage multiple governmental, non-governmental and private sector organizations, the Incident Commander/City Manager shall cause ***the EOC staff to relocate to the Boardman Rural Fire EOC, located at 911 Tatone.***

Command of on-scene operations will remain with the Department with primary operational control.

When activated, the EOC, whether at City Hall or the *Boardman Rural Fire* EOC, shall be staffed, at a minimum, by the following:

A. City Manager or designee
B. Fire/Ambulance representative (Fire Chief or designee)
C. Police representative (Police Chief or designee)
D. Public Works representative (Director or designee)
E. Public Information Officer appointed by City Manager

Representatives of county, state, or federal agencies; or industry; or volunteer organizations or others involved in emergency operations may be included in the EOC staff as part of the Unified Command Staff or in support functions.

2-6 HOUSING, SHELTER AND FOOD

Housing, shelter, and food for displaced people during an emergency are provided by the American Red Cross (ARC). Shelters will be opened and managed by the ARC. The Incident Commander will appoint a Liaison between the City and ARC Shelters.

Besides sheltering and feeding, the Red Cross can perform a variety of other valuable emergency services, including other support for disaster victims, coordination of other volunteer agencies, assistance to local governments in damage assessment and dislocated welfare inquiries to help out of town families locate their family members.
The local Red Cross has purchase agreements with many restaurants; these may be used to provide sack lunches, etc.

For incidents of short duration, the Red Cross may be able to furnish coffee and snacks to on-scene emergency workers.

2-7 PUBLIC INFORMATION

Experience has shown that an informed community can assist local government in expedient response to emergencies. It is also true that a disaster organization, which is not a center of information, will find it difficult to remain a center of control. Orchestrating a response from the

entire community can best be accomplished by establishing a procedure, which provides complete and accurate information before, during and after an emergency. In addition, effective public information can enhance respect and understanding of local government, as well as aid in response to emergencies.

It is the City's desire to provide complete information to the media as rapidly as possible. To assure accurate and complete information is released, the news media and public should be referred to the Information Officer. The Incident Commander is the Information Officer until that function is assigned to a specific person, which should occur early during a major incident.

During routine operations, public information concerning the activities of specific Departments, such as Police or Fire, is the responsibility of the Police Chief or Fire Chief. This section of the Emergency Plan is intended to be placed in effect when the EOC is activated, or when the City determines that the interests of the City and the public are better served by its implementation.

During an emergency that involves the activation of the Emergency Operation Plan, the City Manager, or his/her designee, will serve as the Information Officer for the City. The overall Incident Commander (City Manager) will coordinate the dissemination of information about the incident, via the Information Officer. The Information Officer will speak on behalf of the City regarding the incident. All inquiries concerning the incident are to be referred to the Information Officer.

MEDIA BRIEFING FACILITIES - The following areas have been designated for media briefings during emergencies:

- City Hall Council Chambers - Media Briefing
- City Hall Conference Room - Information Officer conference room
- Community Conference Room - Media Work Room
- *Boardman Rural Fire* EOC (Level Three event)

RUMOR CONTROL - The Information Officer is responsible for rumor control. He/she may establish a "Rumor Control" group as part of the public information staff within the EOC. Under the direction of the Public Information Officer, the Rumor Control staff will receive inquiries and requests for non-emergency assistance from the public.

Rumor Control numbers should be publicized in the media with the objective of: to reduce the number of non-emergency calls to 911 and to the EOC general staff; to aid in information gathering; and to offer the public a means of getting information about the incident, rather than potentially harmful rumors.

2-8 ALERT AND WARNING

The City of Boardman has developed an alert and warning system that utilizes:

- Local Emergency Alert System (EAS)
- Police and Fire mobile PA (public address) systems
- Door to door contact.

Upon evaluation of the emergency condition, the Incident Commander will decide if there is a need for immediate citywide alert.
If the emergency is localized, City resources will alert the public in the area via mobile PA systems, door-to-door contact.

If there is an immediate citywide public safety threat, the Emergency Alert System (EAS), will be activated.

A. EMERGENCY ALERT SYSTEM (EAS)

The Emergency Alert System (EAS) consists of a designated local radio broadcast station with special equipment to provide emergency alert and warning information and instructions to the public. KUMA is designated as the local EAS broadcast station.

This system can be utilized by contacting KUMA with the alert information. Only designated City officials are authorized to initiate EAS activation. In Boardman, the designated officials are the City Manager, Fire Chief, Police Chief and Public Works Director. Designated officials will provide preliminary public safety information and instructions to the EAS radio station for immediate broadcast.

PROCEDURES TO ACTIVATE THE EMERGENCY ALERT SYSTEM (EAS)

1. Designated Officials will contact the Local Primary Broadcaster (KUMA) and activate the Emergency Alert System using whatever method is available.
2. Designated Officials will limit their messages to two minutes, the recording time limit of EAS digital equipment.
3. KUMA will authenticate the EAS activation by calling the Morrow County 911 Dispatch Center, so make sure they are aware of the situation.

The entire Emergency Alert System plan for Morrow EAS Local Area as prepared by the Local Emergency Communications Committee is hereby incorporated into this Emergency Plan

B. MOBILE PUBLIC ADDRESS (PA) SYSTEMS

Most Police and Fire/Ambulance vehicles are equipped with mobile public address systems that may be used for alert and warning.

Direction of these Alert and Warning resources shall be the responsibility of the Incident Commander through the on-scene Police Commander.

Unless there is a need for immediate evacuation, the usual message will be to advise the public to tune in to the EAS radio station for information and instructions.

C. DOOR-TO-DOOR ALERT

Door to door alert may be necessary in the event of a rapidly emerging emergency incident that poses a clear threat to public safety. Residents will be directed to stay in place and tune to the EAS station for more information; or to evacuate to a temporary shelter depending upon the weather, and the expected duration of the emergency.

Direction of this activity shall be the responsibility of the Incident Commander through appropriate and available City resources.

SECTION 3
RESPONSIBILITIES AND TASKS

The following is a list of those task assignments each City department is responsible for carrying out in the event of an emergency/disaster in Boardman. The task assignments are written in broad general terms. Details are left up to individual department heads to be included in their own internal plans and procedures.

3-1 CITY COUNCIL

1. Assume ultimate responsibility to the citizens of Boardman for the state of emergency preparedness and the capability of the city to cope with and recover from an emergency.
2. Declare an official state of emergency to clear the way for state/federal assistance. The City Manager may declare a state of emergency, but the decision to do so must be confirmed by City Council within 5 days.
3. Authorize major expenditures if needed to deal with an emergency.
4. Keep abreast of an emergency and maintain contact with their constituents.

3-2 CITY MANAGER

1. Assume overall responsibility for the City's state of emergency preparedness and capability to cope with and recover from an emergency.
2. If it should be determined that the normal functions of the City are not sufficient to meet the emergency effectively, the City Manager may declare a provisional state of emergency to exist until the Mayor and City Council can confirm the emergency declaration within 5 days.
3. Assure that local government officials are kept current on emergency operations.
4. Activate the EOC and assume primary operational control of it.
5. May assume overall control of emergency operations through the appropriate director with primary operational control.
6. Activate the information office and assign an information officer.
7. Initiate formal requests for county, state or federal assistance and coordinate the use of these resources.
8. Approve initial damage assessments and revisions to it.
9. Monitor the entire incident by situation reports and data coming into the EOC. Visit the various sectors of the incident as desired and deemed necessary.
10. Provide clerical personnel and aides as needed to staff the EOC.
11. Terminate the emergency.

3-3 CITY ATTORNEY

1. Prepare standby emergency legislation and proclamations.
2. Provide legal counsel to city officials
3. Provide assistance in negotiating contracts for emergency services.
4. Prepare damage claims.

3-4 FINANCE DEPARTMENT

1. Provide financial statistics as may be required.
2. Authorize emergency purchases as required.
3. Protect major data files by whatever means necessary.
4. Provide personnel for assistance in other emergency duties if required.

3-5 ADMINISTRATION/PERSONNEL

1. Recruit or transfer personnel for emergency employment.
2. Establish and operate a registration point for unassigned volunteer workers by skills and qualifications.
3. Coordinate with Finance Dept. as needed to provide payroll and other employee materials.

3-6 FIRE/AMBULANCE DEPARTMENT

1. Assume primary operational control of fires/conflagrations; hazardous materials incidents; and transportation accidents (rail, air, and highway).
2. Respond to EOC or command post when alerted of an implementation of the Emergency Plan.
3. Provide emergency medical services and ambulance transportation.
4. Implement mutual aid agreements and/or State of Oregon Conflagration Act as may be necessary to bring in fire/rescue manpower and equipment.
5. Assist in initial assessment as to the number of dead and/or injured.
6. Assist police in evacuation.
7. Transport injured to hospital and assist with handling the dead.
8. Assure that fire suppression, rescue and emergency medical services are provided for unaffected areas of City.
9. Provide back-up equipment for pumping water.

3-7 POLICE DEPARTMENT/COMMUNICATIONS

1. Assume primary operational control of civil disturbances.
2. Primary functional operational control of evacuations and traffic/crowd control; alerting and notifications; and emergency communications systems.
3. Respond to EOC or command post when alerted of an implementation of the Emergency Plan.
4. Secure the emergency site.
5. Prescribe evacuation routes to follow.
6. Notify Red Cross to open shelters.
7. Assist in search and rescue operations.
8. Prevent looting and pilfering.

3-8 PUBLIC WORKS DEPARTMENT

1. Assume primary operational control of floods, weather emergencies (snow, ice, wind) and earthquakes.
2. Transport and erect barricades at the request of the police.
3. Clear streets and remove debris.
4. Perform damage assessment of streets, bridges, and waterways. Including condemnation and posting of unsafe structures.
5. Provide for emergency water supply and sewage disposal.
6. Coordinate with local contractors to obtain additional equipment and operators.
7. Provide emergency lighting.
8. Conduct snow/ice removal operations.
9. Provide heavy equipment and operators as required.
10. Provide diking materials as required.
11. Provide engineering services.
12. Respond to the EOC or command post when alerted of an implementation of the Emergency Plan
13. Coordinate emergency repairs and fuel supplies for apparatus and equipment in use during the emergency.
14. Maintain liaison with all utility providers to assure that these services are continued.

3-9 PLANNING/BUILDING CODES DEPARTMENT

1. Set up emergency operations status boards and maps in the EOC and plot data on them.
2. Assist in damage assessment.
3. Furnish population data, charts and development plans as needed.
4. Serve as city photographer and record incidents on film.
5. Inspect buildings for structural, electrical, gas plumbing and mechanical damage before

permitting re-occupancy.

6. Conduct necessary inspections to assure the integrity of structures following an incident and that there is no danger of additional damage.
7. Establish and maintain contact with local building, electrical, plumbing, and mechanical contractors to obtain their services when required.

3-10 ALL CITY DEPARTMENTS

Those departments not assigned a specific disaster function under this plan will make their personnel, equipment and facilities available for emergency assignments as directed by the City Manager or his designee.

All City Departments have the following common tasks:

A. BEFORE AN EMERGENCY

1. Alert personnel of an emergency
2. Provide protection for personnel and property.
3. Establish and maintain lines of succession so there will always be someone in charge of the department.
5. Maintain alert roster of department personnel.
6. Maintain inventory and sources of supply for emergency equipment and supplies.
7. Maintain a roster of contacts for outside assistance.
8. Conduct personnel emergency training and familiarize all personnel with emergency duties.
9. Plan, prepare, maintain, and implement internal departmental emergency operating procedures.

B. DURING AN EMERGENCY

1. Provide food, appropriate clothing, supplies, equipment, and facilities for emergency workers.
2. Rotate emergency workers to avoid fatigue.
3. Perform specific tasks assigned by proper authority.
4. Document all activities, especially costs and expenditures in connection with emergency operations.

SECTION 4
HAZARDOUS MATERIALS EMERGENCY RESPONSE PLAN

4-1 PURPOSE

This Section of the City of Boardman Emergency Operations Plan describes in detail how the City of Boardman will respond to and operate during emergencies involving hazardous materials.

This plan is specifically intended to satisfy the planning requirements of the Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III. It is in conformance with Annex O of the Oregon State Emergency Operations Plan and with the Hazardous Materials Annex of Morrow County's Emergency Operations Plan.

4-2 GENERAL

A. Hazardous Materials (Haz-Mat) means any substance, element compound, mixture, or solution which, when spilled or released into the air or into, or on, any land or waters, may present a danger to the health, safety, or welfare of the public, or to the environment.
B. A Haz-Mat incident is any fire spill, leak, release, or potential problem involving hazardous materials.
C. This plan is intended to establish an organizational structure and operational procedures for the most practical utilization of the resources of the City in the event of a Haz-Mat incident in the City.
D. If a Haz-Mat incident is of such magnitude to require action beyond the capabilities of local resources, the structure and procedures provided in this plan will be blended with the Emergency Operations Plan.

4-3 APPLICATION

The procedures detailed in this plan should be implemented for any Haz-Mat incident occurring in the city. A Haz-Mat incident is any fire, spill, leak release, or potential problem involving flammable liquids, flammable gas, toxic chemicals, compressed gas, radioactive material, or unidentified substance.

EXAMPLES

A. Bulk Fuel - Any incident involving or threatening to involve bulk storage or transport of hydrocarbon fuels (gasoline, diesel, etc.), but does not include automobiles, pick-ups, small trucks, etc., unless requested by the Incident Commander.
B. Natural Gas - Any incident of leaking natural gas in residential, commercial, industrial, or institutional occupancies, but does not include outside leaks/odors unless requested by the Incident Commander.
C. Liquefied Petroleum Gas (LPG) - Any incident of leak, spill or fire involving LPG in transport, storage, or dispensing.
D. Incidents involving compressed gases.
E. Any incident involving a highway truck or trailer; railroad boxcar or container car where the contents are unknown.
F. Any leak, spill, fire, or potential situation involving any substance or material placarded by DOT or other regulating agency as being a hazardous material.

4-4 LEVELS OF EMERGENCIES

A. **MINOR INCIDENT** - A fire, spill, release, or a potential fire, spill or release involving hazardous materials. Most minor incidents will be handled by the initial emergency responders.

EXAMPLES

1. Mechanical breakdown of a vehicle carrying high-level radioactive shipment, Class A explosives or highly toxic materials requiring it to be parked at one location for

a long period.
2. Fire at a facility storing or utilizing hazardous materials where the materials are not initially involved in the fire.
3. Abandoned drums discovered, with no release or small spill.
4. Vehicle or fixed site incident with a small spill or release of hazardous materials.
5. Vehicle accident with potential release of Haz-Mat.
6. Fire or explosion involving small quantities of Haz-Mat.

B. **MEDIUM INCIDENT** - An incident resulting in a localized release of hazardous materials (e.g., within several hundred feet). The health and safety of people and emergency responders in the immediate area may be threatened if protective actions are not taken. A probable environmental impact exists. It may require notification and response of more than initial response teams and/or other agencies. It may result in implementation of Emergency Operations Plan.

EXAMPLES
1. Accident involving transport of hazardous materials, which results in release of substance to air, ground, or water in amounts sufficient to pose threat to public health or the environment.
2. Package or container containing radioactive materials crushed or damaged during handling.
3. A fire or explosion at a facility which utilizes Haz-Mat.
4. An incident which results in a significant amount of uncontrolled radioactive material.
5. Discovery of abandoned oil or hazardous materials being released to the environment and posing a threat to public health or the environment.

C. **MAJOR INCIDENT** - An incident resulting in a spill or release of Haz-Mat, which requires evacuation, or sheltering of nearby residents, businesses, or which causes a serious environmental threat. It will probably involve activation of the Emergency Operations Plan and the Emergency Operations Center.

1. Truck, rail or fire incident with radiological contaminated smoke or toxic fumes.
2. Radioactive material directly involved in fire or explosion at a fixed facility, resulting in spread of material, or significant accidental exposure to radiation.
3. A fixed facility or transport incident resulting in a major release of toxic fumes to air or hazardous materials to public waters used for drinking water or important to fish and wildlife or other beneficial uses; or, resulting in serious public health and/or environmental impacts.

4-5 EMERGENCY RESPONSE SYSTEM

OVERVIEW: Hazardous materials incidents are reported to 911 Emergency Dispatch Center located in the Morrow County Sheriff's Office, Heppner, OR. The senior fire officer becomes the Incident Commander and establishes the first level of the Incident Command System. All Boardman Fire Dept. personnel are trained to the "First Responder Operations Level," who may only respond to releases or potential releases of hazardous substances for protecting nearby persons, property, or the environment from the effects of the release. Their objectives are to identify the material; secure the scene; establish perimeters of unprotected entry; and call for technical help. If the incident requires entry for stabilization, they will request assistance of the State's Regional Haz-Mat Response Team - one is located at Hermiston. Once the incident is stabilized, the incident is turned over to either the DEQ or the firm responsible for the hazardous material for clean-up.

A. NOTIFICATIONS

1. Notification of initial emergency response is through 911.
2. According to the determination of Incident Commander, Dispatch Center will initiate notifications as outlined in Emergency Operations Plan as scope of incident demands.
3. Incident Commander will direct dispatch center to notify the responsible party (e.g., PGE, UPRR, etc.)
4. If site entry is required, or for other on-scene technical assistance, IC may request a response of the State Fire Marshal=s Regional Haz-Mat Team to the incident. Calls may be made directly to the Office of the State Fire Marshal at 503-278-2473, or to OERS (Oregon Emergency Response System) 1-800-452-0311. As a practical matter, it is advisable to notify Hermiston Fire, who is the local Regional Haz-Mat Response Team, as quickly as possible so they can begin mobilizing.
4. Depending upon the quantity and type of release, IC will direct dispatch center to notify local DEQ office through OARS, 1-800-452-0311. Depending on the type of incident the OERS operator will notify the appropriate lead state agency and others, as necessary.
5. Some spills, depending on quantity and type of material released, also require the spiller to notify federal agencies. Notification shall be through the National Response Center (NRC) 1-800-424-8802

B. INCIDENT MANAGEMENT

1. EMERGENCY RESPONSE
   a. The Fire Dept. is assigned primary operational control of hazardous materials incidents in Boardman.
   b. The Boardman Police Dept., Public Works Dept. and City Manager's Office will provide support to the Fire Dept. during the emergency phase of an incident.
   c. State agencies will provide technical support to the City during emergency operations on request and under the direction of the City.
   d. State or federal agencies will assume the lead role for directing clean-up and site restoration on request of the city.
   e. Private industry is responsible for reporting incidents; assisting emergency responders in control of incidents; performing clean-up or hiring a clean-up contractor and disposing of spilled materials.
   f. Volunteer organizations, hospitals, clinics, funeral homes, schools and other private or public agencies will be requested by the city as needed.

C. INCIDENT COMMAND

1. The Incident Command System as described in the Emergency Operations Plan will be established by the first arriving Fire Dept. Officer.
2. The Fire Dept. will retain command throughout most Haz-Mat incidents, except the City Manager may assume overall Incident Command from the Fire Dept. when more than one department or outside agency is involved in the incident. When this occurs, the City Manager usually will activate the Emergency Operations Center.
3. Incident Command will remain with the City of Boardman during all phases of emergency operations unless the Incident Commander requests one of the other on-scene representatives to assume command.

D. CLEAN-UP AND RESTORATION

Once the emergency is terminated, the Incident Commander should turn clean-up and restoration activities over to the appropriate state agency. The City may retain control of the incident during clean-up and restoration according to the situation. Clean-up and

restoration activities include:

Compliance with clean-up standards
Restoration of environment and site
Investigate cause
Assessment of damage
Enforcement actions
Cost recovery

E. EMERGENCY OPERATIONS CENTER (EOC)

The EOC will be activated by the City Manager when there is a significant need for coordinating off-scene support and resources for on-scene operations.

During major incidents, the Incident Commander will coordinate with the state EOC in Salem.

4-6 TECHNICAL ASSISTANCE

Technical assistance on hazardous materials is available locally from representatives of local industries and/or businesses. For example: Morrow County Grain Growers can provide expertise on agricultural chemicals, UPRR could describe the construction of tank cars, etc.

A. 24- hour technical assistance from state agencies is available through OERS at 1-800-452-0311 (refer to Annex O). The lead state agencies during the initial phases of a chemically hazardous materials incident are:
   1. STATE FIRE MARSHAL
      a.) Community Right to Know Hazardous Materials Reporting Program - For guidance and information on the presence and quantities at fixed sites, characteristics of, hazards to property and the public, and the controls needed for hazardous materials.
      b.) Regional Hazardous Materials Teams - SFM contracts with about 10 teams around Oregon operating from Fire Depts. OSFM provides Haz-Mat equipment and training, and in return, Fire Dept. Haz-Mat Team agrees to respond to other jurisdictions to provide technical assistance. SFM authorizes the response, so calls must go to the state directly.
   2. DEQ - For clean-up and restoration following the initial phase of an emergency chemically hazardous materials response. During initial phases can also provide with the OSFM information on chemical characteristics, environmental effects, control, clean-up and disposal of hazardous materials.
   3. STATE HEALTH DEPT. - For all incidents involving radioactive materials other than transportation incidents and for all communicable disease agents.
   4. OREGON DEPT. OF ENERGY - For radioactive materials transportation incidents.

B. Other state resources for technical assistance are:
   1. 24-hour toxicological information and medical treatment advice is available from the POISON CONTROL CENTER at 1-800-452-7165.
   2. Hazardous substance survey information is available from the STATE FIRE MARSHAL at 503-378-2885.
   3. THE PESTICIDE ANALYTICAL RESPONSE CENTER (PARC) at 503-378-3793 provides information on pesticide related health concerns (not treatment related) and environmental exposure from drift or contaminated water.
   4. THE OREGON DEPT. OF TRANSPORTATION (ODOT) for information on motor carrier and rail shipments of hazardous materials at 503-378-6204, or OERS after hours.

C. Technical Assistance by Federal specialists:
   1. For incidents involving radioactive materials, response teams may be dispatched

from the US Dept. of Energy, Richland Operations, or from adjacent states. The Oregon DOE or Health Division will activate this help.

2. For public health information, the Agency for Toxic Substances and Disease Registry provides 24-hour service at 1-404-452-4100.

D. Technical assistance for certain types of hazardous materials incidents is available from industry:

1. CHEMTREC, an off-scene 24-hour information service operated by the Chemical Manufacturers Association Chemical Transportation Emergency Center. 1-800-424-9300. CHEMTREC can supply chemical and safety data as well as contacts to product manufacturers. It can activate a number of industry-based response actions including:

(a) The CHLOREP team for chlorine incidents, which is currently fielded by the Pennwalt Corp in Portland.

(b) CHEMNET - An industry wide mutual aid program activated by the shipper.

(d) Response teams for Pesticides, Hydrogen Cyanide, Hydrogen Fluoride, Phosphorus, and Liquefied Petroleum Gas.

2. The Association of American Railroad's Bureau of Explosives for incidents involving the railroads. 1-800-826-4662 (24 hours)

4-7 VOLUNTEER SERVICES

A. American Red Cross - can offer emergency relief in the form of food, shelter, and clothing.

B. Salvation Army - can provide emergency food, shelter, and clothing.

C. Amateur Radio Emergency Service - can provide radio communications through a network of amateur radio operators.

4-8 COORDINATION OF PUBLIC INFORMATION

The news media can provide an important public service by distributing information about the nature of an incident. Successful emergency operations require accurate and timely public information. Public information will be coordinated between on-scene and off-scene operations. An Information Officer will be designated by the Incident Commander to issue information about the incident. The Information Officer will issue information provided by the Incident Commander and in coordination with the lead state agency information representatives. The lead state agency will see to it that the IO has accurate public health information. The lead state agency will issue information in coordination with the IO.

4-9 RESPONSIBILITIES OF CITY DEPARTMENTS

A. FIRE/AMBULANCE DEPT.

1. Provide on-scene command using the Incident Command System.
2. Assume primary control of rescue, fire suppression and containment operations.
3. Assume primary control of first aid and emergency medical operations.
4. Activate notifications and request technical assistance.
5. Assist with radiological monitoring and decontamination.

B. POLICE DEPARTMENT

1. Coordinate activities with Incident Commander.
2. Provide crowd and traffic control.
3. Direct evacuation procedures.

C. PUBLIC WORKS DEPARTMENT

1. Coordinate activities with Incident Commander.
2. As requested by the Incident Commander, provide and place material to dike, block, or absorb spilled material to stop or limit its run-off.
3. Facilitate repair and restoration of roadways, bridges, and vital facilities.
4. Initiate debris clearance as needed.

5. Assist with utility restoration and road closures, blockades and/or detours as needed.

4-10 HAZARDS ASSESSMENT

Hazardous Material (HAZ-MAT) means any element, compound, mixture, solution, or substance, which, when spilled or released into the air, or into, or on, any land, or waters, may present a substantial danger to the health, safety, or welfare of the public or to the environment.

Although Boardman does not have a concentration of industries using large quantities of hazardous materials, there are many users of common dangerous materials typical of a City this size. For example: there are large volumes of gasoline, diesel, propane, and similar, common, but potentially dangerous materials stored, dispensed and transported on a daily basis. In addition, because of the large agricultural industry, there are extensive agricultural chemicals used, stored and transported.

While the characteristics of Boardman seem to keep the City at a relatively low risk from Haz-Mat incidents, its location on a major east-west interstate freeway and a main east-west railroad line significantly increases the risk.

A. FIXED SITE FACILITIES

The City of Boardman relies on the State Fire Marshal's hazardous substance survey as its major source of identification of facilities that manufacture, generate, use, store or dispose of hazardous materials.

This reference is supplemented by regular on-site surveys and fire safety inspection by fire department employees.

This information is maintained by the Fire Dept. and compiled into pre-incident emergency response plans for immediate use by emergency responders.

B. HAZARDOUS MATERIALS TRANSPORTED IN BOARDMAN

1. **INTRA-CITY VEHICLE TRANSPORTATION** - There are many common hazardous materials such as gasoline, propane and agricultural chemicals transported on the arterial streets of Boardman on a daily basis. Although there is no recent history of transportation accidents resulting in significant releases of these materials in Boardman, the risk is considered ever present.

   The arterials most frequently used by vehicles transporting hazardous materials within the City are Main and Columbia.

   An accident with a release of Haz-Mat in most any section of these arterials can expose schools, retail, office apartments, motels, residential or combinations of virtually any type of occupancy found in Boardman.

2. **INTERSTATE FREEWAY VEHICLE TRANSPORTATION -** Interstate 84 literally bi-sects Boardman, however, there is relatively little exposure to high value or dense population, except for a small section near the 164 Exit.

   From surveys conducted by the State Highway Dept., there are between 50 and 100 Haz-Mat shipments transported on I-84 through Boardman each day. The most common commodities were gasoline, paint, diesel, and corrosives.

3. **RAILROAD TRANSPORTATION** - The Union Pacific Railroad main line passes through Boardman in a generally east-west direction paralleling the Columbia

River. Characteristically, most of Boardman's industrial and manufacturing facilities are built close to the railroad line creating a nearly unbroken chain of exposures the full length of the line as it passes through Boardman. These are direct exposures; if a one-half mile radius is used as the exposure/evacuation area, a majority of Boardman is exposed.

The UPRR maintains records on the volume and types of commodities transported over its line and provides an annual report of hazardous materials passing through each jurisdiction. In calendar year 1996, UPRR reported between 8,000 and 77,000 loads of hazardous materials were shipped over the rails. The method of reporting produces the wide difference between high and low volume - i.e., they report in quantities of 1 to 50 loads; 51 to 500 loads; 501 to 1000; and 1001 to 10,000. The actual shipments through Boardman are estimated at around 25,000 annually. LPG, Chlorine, Anhydrous Ammonia, Ammonium Nitrate, Phosphoric Acid, and Sodium Hydroxide are the most frequent shipment with at least 500 loads annually of each material.

Boardman is not a major destination for UPRR hazardous materials loads, so there are relatively few switching operations to compound the probability of accidents within the City.

Historically there have been very few accidents where derailments resulted and there have been no major incidents in Boardman. The UPRR has a good record and reputation for maintaining their trains and tracks in a safe condition, a major contributor to train wrecks in the nation.

However, there are several grade crossings for traffic inside the City, creating a great probability of an accident where derailments and consequent hazardous materials release could result.

The large volume of hazardous materials being transported through Boardman by train and extensive exposure along the rail line represents the greatest threat to the City of an accident where hazardous materials could become a serious emergency.

4. NATURAL GAS PIPELINES - PGE Natural Gas has an extensive underground network of natural gas pipelines throughout the City. They are fed from a main 30" line traveling north south located on the west side of Boardman. This main line does not pass near any significant built on portion of the City and would not present a severe problem in the event of a rupture.

Probably the greatest risk from natural gas would be in the aftermath of a severe earthquake where numerous lines are broken, causing or contributing to fires at several locations.

INTRODUCTION TO EVACUATION PLAN

WHY HAVE AN EMERGENCY EVACUATION PLAN?

During certain emergency conditions, it may be necessary to evacuate a building. Examples of such occasions include smoke/fire, gas leak, bomb threat. Pre-planning and rehearsal are effective ways to ensure that building occupants recognize the evacuation alarm and know how to respond. Practicing an evacuation during a non-emergency drill provides training that will be valuable in an emergency situation.

EVACUATION DRILL POLICY

1. Evacuation drills shall be conducted at least twice a calendar year at unexpected times and under varying conditions to simulate the unusual conditions that occur should an evacuation be necessary. These drills may be obstructed, (having various means of exit made temporarily unavailable) in order to familiarize occupants with secondary routes of evacuation.
2. Evacuation drills will be scheduled by the Evacuation Coordinator (See Page 5)
3. Evacuation drills shall involve all occupants. Everyone shall leave the building when the fire alarm sounds. This MAY not include the proctor putting on the drill. It may be advisable to notify anyone needing special assistance prior to planned evacuation drills.
4. In the conduct of drills, emphasis shall be placed upon orderly evacuation under proper discipline rather than upon speed.

EMERGENCY REPORTING PROCEDURE

If the need for an Evacuation is discovered:

1. Activate manual fire alarm pull station if possible.
2. If you are not in immediate danger, notify the Emergency Operator (From land line 9-1-1) and provide:
   - Your Name
   - Size and Type of Emergency
   - Where emergency is located in Building if known
   - Any additional information requested by the Operator.
3. If you are trained in the proper use of portable fire extinguishers and are not in immediate danger, you may attempt to fight the fire. Do not place yourself or others in unnecessary danger. Training is available through the Boardman Fire Protection Department.

If you are TRAPPED in the building and cannot find an escape route:

Call the Emergency Operator (From landline 9-1-1) and give your exact location in the building.

EMERGENCY PHONE NUMBERS

Emergency Operator (All life-threatening Emergencies)	9-1-1
Morrow County Sheriff's Office (Non- Emergency)	541-676-5317
Boardman Ambulance (Non- Emergency)	541-481-2202
Boardman Fire Department (Non-Emergency)	541-481-3473

CONTACT PERSONNEL

Brandon Hammond	City Manger	541-303-5557
Rolf Prag	Public Works Director	541-314-2507
Rick Stokoe	Chief of Police	541-212-5523

EVACUATION COORDINATOR/ALTERNATE RESPONSIBILITIES

1. The Evacuation Coordinator is the Public Works Director, and the Alternate Evacuation Coordinator is the Chief of Police, or as designated by the Evacuation Coordinator or the Alternate Evacuation Coordinator.
2. Serve as a liaison with emergency responders (e.g., fire department, BPD, Ambulance, Environmental Health & Safety, UEC).
3. Meet responders upon their arrival and convey specific information about hazards in the building, access, locations of persons with special needs, etc.
4. Keep Evacuation Plan, Contact Persons and Numbers and Floor Diagrams up to date.
5. Conduct and/or assist in Fire Drills.
6. Assign area to assemble after evacuation.
7. Assist in training and/or scheduling of training the building occupants in emergency procedures.
8. Ensure that employees evacuate the building in a safe manner.
9. Know locations of and how to use all fire protection equipment.
10. Ensure that occupants (including new employees) are familiar with evacuation procedures.
11. Be aware of building occupants with special needs who may need assistance during an evacuation (e.g., hearing- or sight-impaired, on crutches, in a wheelchair).
12. To ensure that occupants are aware of an emergency and the need to evacuate.
13. Call 9-1-1 and/or pull the fire alarm whenever a situation could pose immediate danger to people, property, or processes in the building.
14. Assist in the evacuation process as indicated in the Evacuation Procedure.
15. Routinely inspect for fire hazards.
16. Know locations of and how to use all fire protection equipment.

EVACUATION PROCEDURE

1. Notify the Morrow County Dispatch Operator (From land line 9-9-1-1) if you have information related to the emergency. Be ready to provide:
   Your Name
   Fire Location (Boardman City Hall – 200 City Center Circle)
   Type of Emergency (Fire, Smoke, etc.)
   Any additional information requested by the Operator.
2. Alert all occupants in the building. Check remote areas such as restrooms and storerooms and close doors, if possible, on your way out. Maintain orderly evacuation of occupants.
3. Ensure that all personnel with special needs are alerted and that someone is assisting with their evacuation.
4. If the emergency is located and you are not in immediate danger:
   a. You may attempt to determine which smoke detector or pull station was activated.
   b. If you are trained in the proper use of portable fire extinguishers, you may attempt to fight or contain a fire. Do not place yourself or others in unnecessary danger.
5. Evacuate the building and report pertinent information to the Evacuation Coordinator (e.g., evacuation status, location of persons with special needs, type, and location of emergency).
6. Proceed to your Area of Assembly until further notice from the Evacuation Coordinator.
   a. For front door evacuation the Area of Assembly is the flag poles median
   b. For rear door evacuation the Area of Assembly is the Senior Center parking lot.
7. Do not allow personnel to re-enter the building until you have been notified to do so. Emergency personnel often silence the alarm in order to communicate with each other. Silencing the alarm is NOT a signal for personnel to re-enter.

EVACUATION PROCEDURES FOR INDIVIDUALS WITH A DISABILITY

Evacuation Procedures for Individuals with a Disability

Persons with a disability or medical condition may not be able to evacuate without special assistance. Employees should inform the Evacuation Coordinator of any special needs that may be necessary during an emergency situation using the Emergency Evacuation Special Needs Notification. The Evacuation Coordinator will communicate the special needs with emergency personnel as appropriate.

The Evacuation Coordinator should ensure that individuals with disabilities are provided with assistance during an emergency situation.

Disability Guidelines

Prior planning and practicing of emergency evacuation routes are important to ensure a safe evacuation.

Blindness or Visual Impairment

Give verbal instructions to advise about safest route or direction using compass directions, estimated distances, and directional terms. DO NOT grasp a visually impaired person's arm. Ask if he or she would like to hold onto your arm as you exit, especially if there is debris or a crowd. Give other verbal instructions or information (i.e. elevators cannot be used).

Deafness or Hearing Loss

Get the attention of a person with a hearing disability by touch and eye contact. Clearly state the problem. Gestures and pointing are helpful but be prepared to write a brief statement if the person does not seem to understand. Offer visual instructions to recommend the safest route or direction by pointing toward exits.

Mobility Impairment

It may be necessary to help clear the exit route of debris (if possible) so that the person with a disability can move out or to a safer area. If people with mobility impairments cannot exit, they should move to a safer area to wait for assistance from first responders. Notify police or fire personnel immediately about any people remaining in the building and their locations. Public Safety, police, or fire personnel decide whether people are safe where they are, and will evacuate them as necessary.

If people are in immediate danger and cannot be moved to a safer area to wait for assistance, it may be necessary to evacuate them using an evacuation chair or a carry technique. In an emergency, you should contact the public safety personnel to where the individual can be found.

Evacuating Persons with wheelchairs

Always ASK people with disabilities how you can help BEFORE attempting any rescue technique or giving assistance. Ask how they can best be assisted or moved, and if there are any special considerations or items that need to come with them. Discuss with the user of the wheelchair how to lift the user and the wheelchair either together or separately. When circumstances necessitate separating the user and the wheelchair, keep the period of separation to a minimum.

Some parts of a wheelchair are safe to lift from, others will come off when lifted. Always ask the user to confirm where it is safe to lift. Also, ask the user what else about his or her wheelchair you should know in order to lift it safely. Wheelchairs with four wheels (not three-wheeled scooters) usually have handbrakes on each side of the chair. When the wheelchair is to remain stationary, set both brakes.

When the lifting is complete, follow the instructions of the chair's user and restore the manual or motorized wheelchair to full operation; then direct the user to a safe area.

Evacuating a person with a disability or injury yourself is the last resort. Consider your options and the risks of injuring yourself and others in an evacuation attempt. Do not make an emergency situation

worse. Evacuation is difficult and uncomfortable for both the rescuers and people being assisted. Some people have conditions that can be aggravated or triggered if they are moved incorrectly. Remember that environmental conditions (smoke, debris, loss of electricity) will complicate evacuation efforts.

Proper lifting techniques (e.g., bending the knees, keeping the back straight, holding the person close before lifting, and using leg muscles to lift) should be used to avoid injury to rescuer's backs. Ask permission of the evacuee if an evacuation chair or similar device is being considered as an aid in an evacuation. When using such devices, make sure the person is secured properly.

Evacuation Options during an Emergency

Horizontal Evacuation

Move away from the area of imminent danger to a safe distance.

Stay in Place

Unless danger is imminent, remain in a room with an exterior window and a telephone closing the door if possible. Dial 9-9-1-1 from land line (if this hasn't been done). The operator will give emergency personnel the location of the disabled person who needs evacuation assistance. If phone lines fail, the disabled person can signal from the window by waving a cloth or other visible object.

Area of Refuge

If the person with a disability cannot get far away from the danger using the Horizontal Evacuation, then that person should seek an area of refuge away from danger. Such an area should have the following if possible: 1) telephone communication, 2) a sprinkler system, 3) fire-rated doors, walls, or ceilings if available.

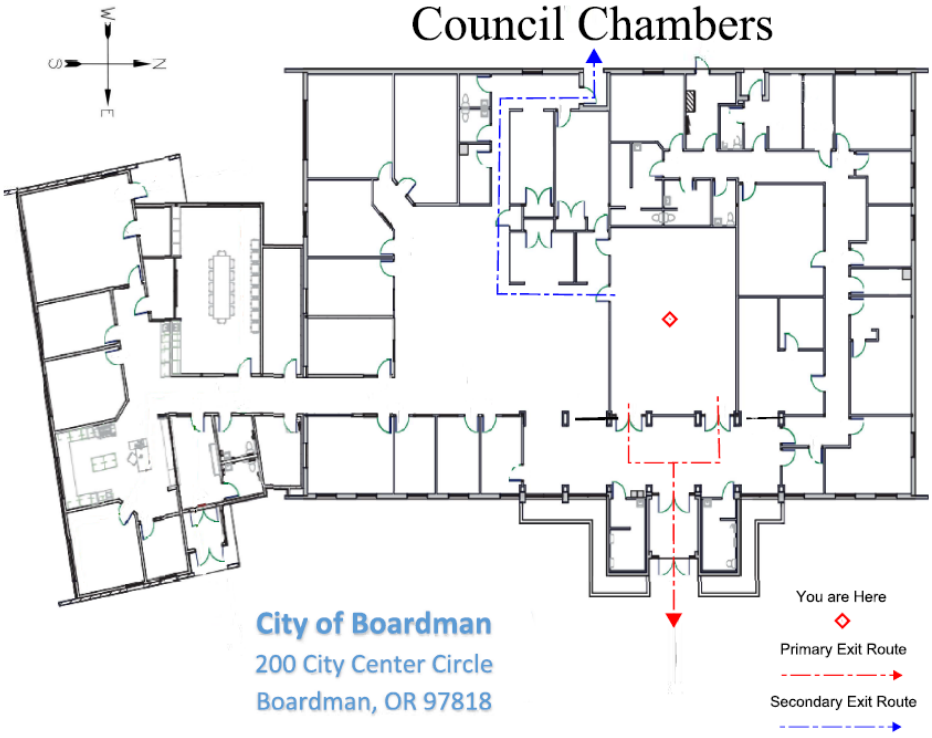
OCCUPANT RESPONSIBILITIES

1. You are responsible for your own safety! Stay Calm - avoid panic and confusion.
2. Know the locations and operation of fire extinguishers.
3. Know how to report an emergency (from land line 9-9-1-1).
4. When the fire alarm sounds, make sure other personnel in your immediate area are aware of the alarm.
5. Inform visitors of pertinent information about evacuation procedures.
6. Close but DO NOT LOCK doors as you leave. Items requiring security may be placed in a locking file cabinet or desk drawer on the way out. Turn off unnecessary equipment, if possible.
7. Know the locations of primary and alternate exits. During an emergency, walk to the nearest exit and evacuate the building.
8. Go to your assigned area of assembly outside the building and wait there. Do not leave the area unless you are told to do so.
9. (Round Median where Flag poles are at in front door evacuation and the Senior Center for rear door evacuation.)
10. Do not re-enter the building until you have been notified to do so. Emergency personnel often silence the alarm in order to communicate with each other. Silencing the alarm is NOT a signal for occupants to re-enter.

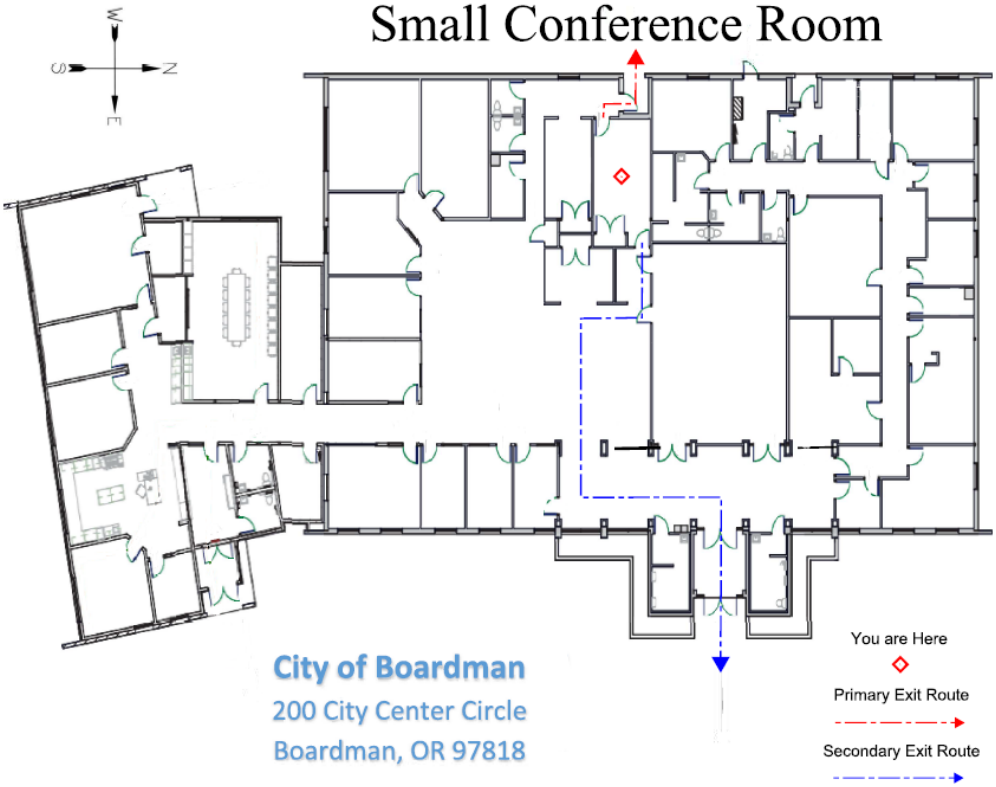
EVACUATION ROUTES NEXT ___ PAGES

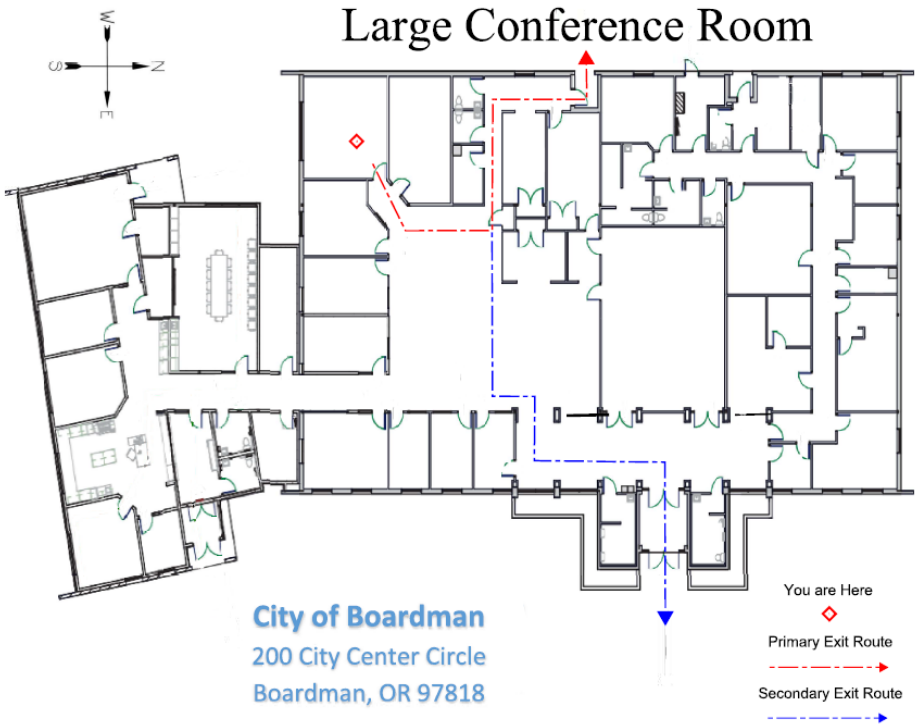
CITY HALL

Council Chambers

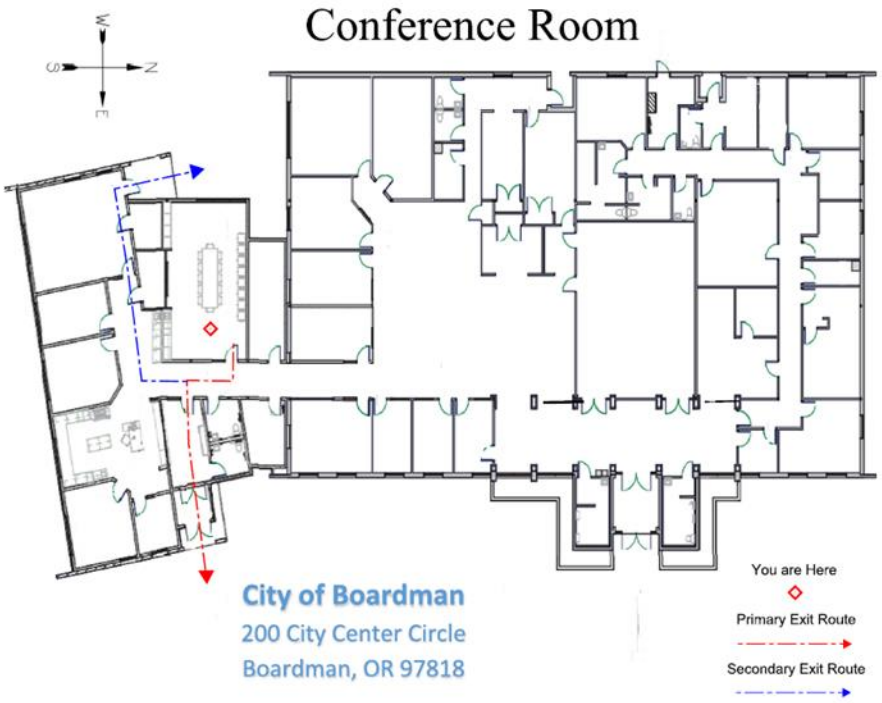


Small Conference Room

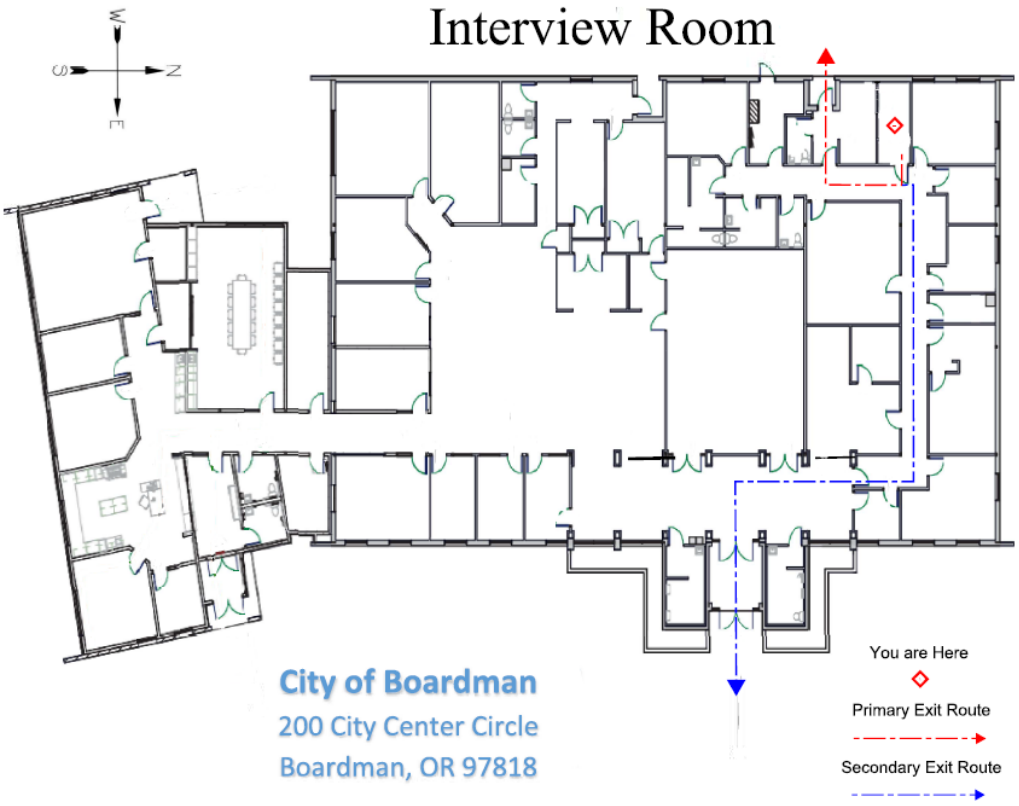


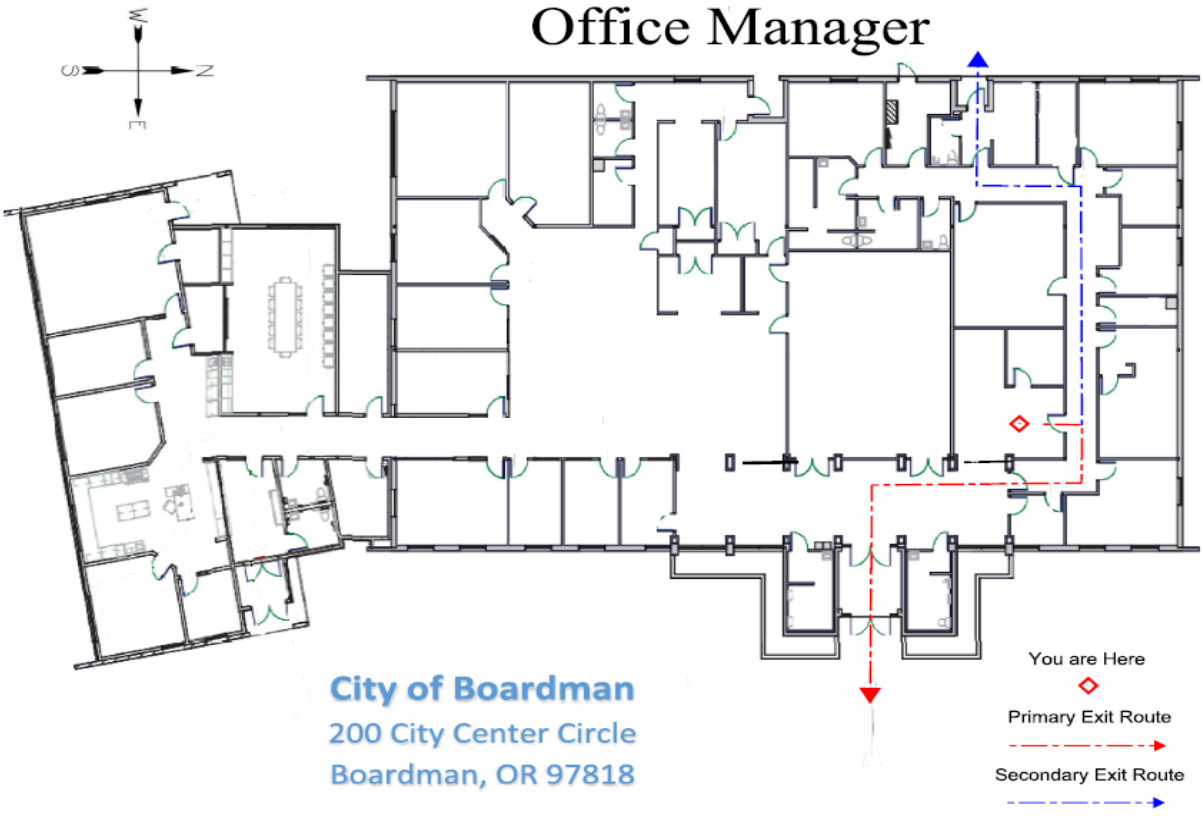


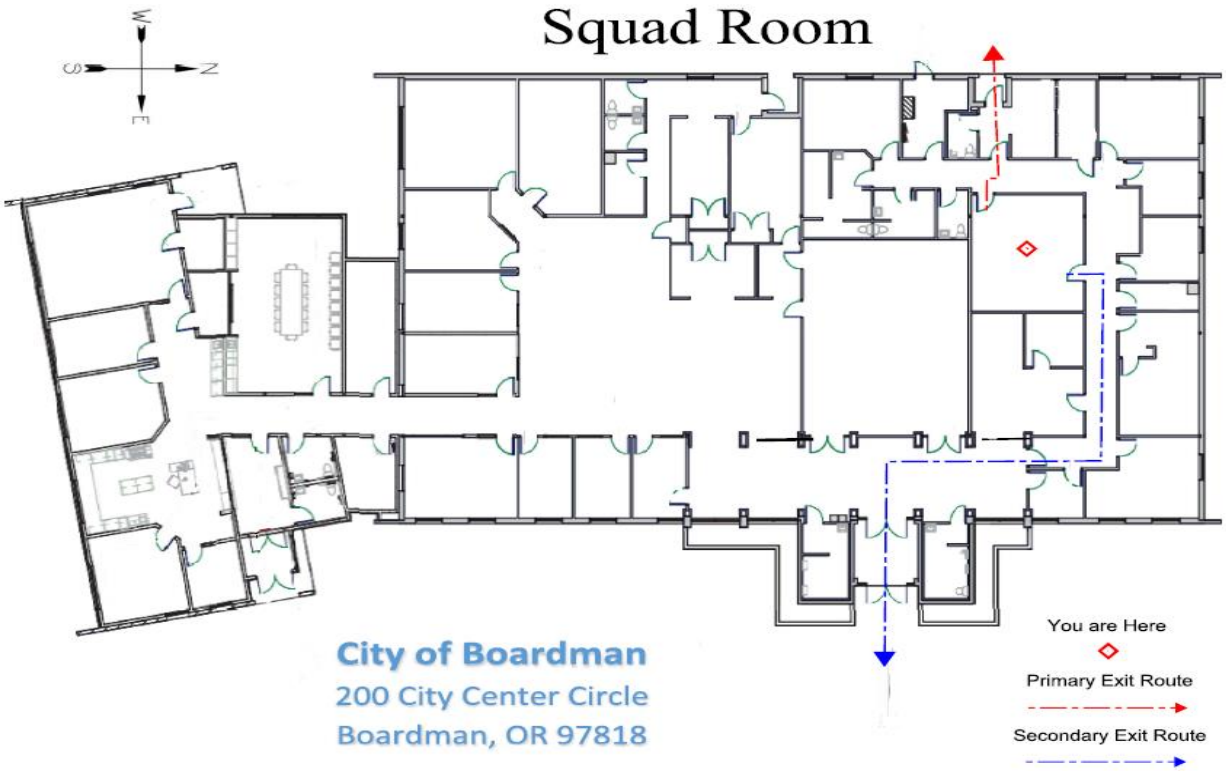
COMMUNITY DEVELOPMENT



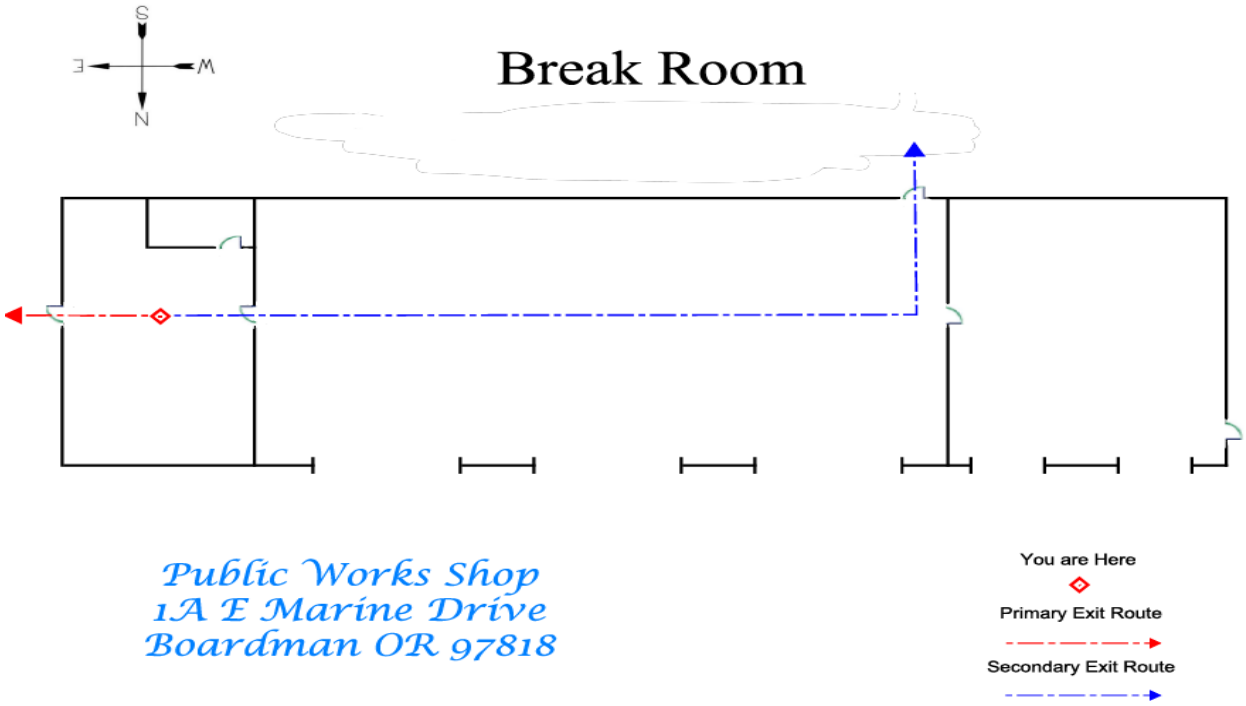
POLICE DEPARTMENT







PUBLIC WORKS SHOP



MEDICAL EMERGENCIES

First aid kits are located at:

City Hall
Community Development
Police Department
Wastewater Building
Water Building
Public Works Shop
All City Vehicles

BASIC EMPLOYEE EMERGENCY MEDICAL RESPONSE

1. Call medical emergency phone 9-1-1.
2. Provide the following information:
   Nature of medical emergency,
   Location of the emergency (address, building, room number)
   Your name and phone number from which you are calling.
3. Do not move the victim unless absolutely necessary.
4. Employees who are trained in CPR and First Aid can provide the required assistance prior to the arrival of the professional medical help:

If personnel trained in First Aid are not available, as a minimum, attempt to provide the following assistance:

1. Stop the bleeding with firm pressure on the wounds (note: avoid contact with blood or other bodily fluids).
2. Clear the air passages using the Heimlich Maneuver in case of choking.

In case of rendering assistance to personnel exposed to hazardous materials, consult the Material Safety Data Sheet (MSDS) and wear the appropriate personal protective equipment. Attempt first aid ONLY if trained and qualified.

City Of Boardman
Evacuation Drill Report

Building Name: _____ Building Number: _____

Time Evacuation Started: _____ Ended: _____ Total Time: _____

Type of Drill: Obstructed ☐ Unobstructed ☐

Number of Participants (approximately): _____

	Yes	No
♦ Did occupants immediately begin to evacuate the building when alarm sounded?	☐	☐
♦ Did building staff check restrooms and confined areas?	☐	☐
♦ Was building staff aware of handicapped person(s) and provide assistance?	☐	☐
♦ Were doors closed to contain smoke/fire?	☐	☐
♦ Did everyone evacuate the building?	☐	☐
♦ Did everyone remain outside the building and wait for further instructions?	☐	☐
♦ Are the building staff knowledgeable in their assigned duties?	☐	☐
♦ Was the drill conducted in an orderly manner?	☐	☐

Drill Rating: Excellent ☐ Good ☐ Poor ☐

Comments:

Observed/Rated By: _____

Building Proctor/Person in Charge: _____

Date of Drill: _____

CITY OF BOARDMAN

OCCUPATIONAL SAFETY AND HEALTH MANUAL

2024

Updated July 30, 2024

Table of Contents

INTRODUCTION

Management Commitment to Health and Safety

The safety and health of our employees is very important to the City of Boardman. No employee will be required to do a job that he or she considers unsafe. The City of Boardman will comply with all applicable Oregon OSHA workplace safety and health requirements and maintain occupational safety and health standards that equal or exceed those best practices.

The City of Boardman has established a safety committee, consisting of management and labor representatives, whose responsibility will be identifying hazards and unsafe work practices, removing obstacles to preventing accidents, and helping evaluate our efforts to achieve an accident and injury-free workplace.

We will strive to achieve the goal of zero accidents and injuries. In doing so, City of Boardman pledges to do the following:

1. Recognize that management and employees share responsibility for a safe and healthy workplace. This is documented in our Health and Safety Manual, under the safety responsibility section.
2. We support City of Boardman Safety Committee by encouraging employee participation, considering all employee suggestions for achieving a safer, healthier workplace and regularly reviewing City of Boardman safety and health program. This is documented in our safety committee meeting notes.
3. Supervisors are responsible for training workers in safe work practices at hire and as policies, processes or equipment changes. Supervisors are held accountable by Brandon Hammond, City Manager. This is documented in end of year performance reviews, completed annually.
4. Manager/supervisors will enforce City of Boardman safety rules and ensure that employees follow safe practices. If work rules or practices are not adhered to, the manager or supervisor will follow the employee handbook/ collective bargaining agreement when taking any corrective measures. Supervisors evaluate on a case-by-case basis. Any discipline will be documented in the employee's personnel files located in Human Resources.
5. Provide mechanical and physical safeguards wherever they are necessary. Provide employees with necessary protective equipment and train them to use and care for it properly. Documentation of necessary personal protective equipment (PPE Evaluation) is located in the Health and Safety Manual.
6. Conduct routine safety and health inspections to find and eliminate unsafe working conditions, identify health and safety hazards, and comply with all applicable Oregon OSHA safety and health requirements. The safety committee will conduct quarterly worksite inspections. Employees can also make suggestions to the supervisor or safety committee. This is documented in our safety minutes and the results are maintained by the safety committee.
7. Investigate accidents to determine the cause and to prevent similar accidents from occurring in the future. Accident investigations are conducted by the immediate supervisor and reviewed by the safety committee. Any suggestions that are made are documented in safety minutes and maintained by the safety committee in the accident report form.

8. Evaluate workplace design, layout and operations utilizing an ergonomic approach. We have trained ergonomic responders who evaluate new employee workstations upon hire and if there are concerns as needed. If the on-site responder is unable to resolve the concern, we will contact our CIS Risk Management Consultant for assistance. This documentation is located in the CIS Learning Center.
9. Remind employees that they are expected to participate in safety and health program activities including immediately reporting hazards, unsafe work practices and accidents to supervisors or a safety committee representative, wearing required personal protective equipment, and participating in supporting safety committee activities. This is encouraged and documented through the CIS Learning Center.
10. Conduct an annual evaluation of the company's loss prevention goals and activities based on entity or department specific concerns and current entity needs. The annual evaluation will be conducted by the safety committee and reviewed by the City Manager. This is documented in the safety committee minutes.
11. Ensure that employees can report hazards and injuries in an environment free from retaliation or harassment. (See employee handbook for policy on "Protection against Retaliation")
12. CIS provides our Workers' Compensation coverage. They have risk management and safety services, as well as access to industrial hygiene services that our entity may utilize.

CIS Risk Management Consultant is Lisa Masters and can be reached at 503-763-3859

City of Boardman's designated Safety Officer/Risk Manager is Brandon Hammond
Located in Boardman City Hall and can be contacted at: 541-481-9252

SAFETY RESPONSIBILITIES

Safety Responsibilities

Most public employees are covered under OR-OSHA Division 2, the General Industry Standard. This health and safety manual complies with the requirements of the OR-OSHA Division 2 standard. Link to OR-OSHA's Division 2 Standard

1. Employees or contractors who are engaged in construction work including demolition, blasting and use of explosives, and power transmission distribution and maintenance work. These employees will need to comply with the OR-OSHA Division 3, Construction Standard. Link to OR-OSHA Division 3 Construction Standards
2. Link to OR-OSHA Construction Info and Resources
3. Employees who conduct ocean and navigable waterway rescues. These employees need to comply with the OSHA Division 5 Maritime Activities Standard (29 CFR 1915, 1917, and 1918) and applicable Coast Guard regulations. Link to OR-OSHA Division 5 Regulations
4. Employees who are responsible for operation and maintenance of electric power generation, control, transformation, transmission, distribution lines and equipment. These employees are required to comply with the OR-OSHA Electric Power Generation, Transmission and Distribution Standard, Chapter 437, Division 2 Subdivision RR. This includes those employees who conduct line-clearance tree-trimming operations. Division 2, Subdivision RR
5. Employees who perform work in underground mines, sand and gravel pits, including the rock crusher if it is in or near the pit are required to comply with MSHA regulations and are subject to inspection by MSHA compliance inspectors. (Portable rock crushers that are not connected to a sand or gravel pit will be subject to OR-OSHA compliance inspections). Link to MSHA Regulations

Program Directive Outlining MSHA vs. OR-OSHA Jurisdiction

Management Commitment

Management and supervisory personnel are accountable for the safety of employees working under their supervision and will be expected to conduct operations in a safe manner at all times. Management has the overall responsibility for the establishment, implementation, administration, and governance of the City of Boardman entire safety program. Management staff responsibilities include:

1. Ensuring that safety and health regulations are observed.
2. Developing and implementing the safety program.
3. Assisting in preparation and revision of safety policies and implementation of the safety rules.
4. Monitoring and auditing each department or facility for safety and health hazards.
5. Establishing or approving procedures for hazardous operations.
6. Monitoring and auditing the operation for safety and health hazards.
7. Overseeing the investigation of all accidents, reporting near misses or hazardous conditions, and assuring that appropriate steps for corrective action are implemented in a

timely manner. In the event of an accident, conducting a complete and thorough investigation before leaving work for the day.
8. Reviewing and approving the safety aspects of any facility layout, design, and alteration.
9. Maintaining weekly contact with any worker who is away from work due to a work-related injury or illness and documenting the contact in a written record.
10. Completing the safety orientation of new employees and conducting mandatory safety meetings and training.
11. Recommending safety procedures and practices.
12. Maintaining the OR-OSHA injury and illness logs and complying with state and federal injury reporting requirements.
13. Retaining exposure and medical monitoring records.
14. Managing our workers' compensation program.
15. Assisting supervisors with safety performance issues if requested, or in the event of a specific trend of injury types or sources.

Employees' Responsibilities

Employees' role in safety is critical. Employees are responsible for following proper safety and health practices. It is important that everyone reports unsafe conditions to their supervisor and the Safety Committee so that the condition or facility can be corrected. Safe work practices are for all our employees' benefit.
Employees are responsible for:
1. Carrying out each task using every required and reasonable precaution to protect themselves and co-workers from injury.
2. Being alert to and reporting any unsafe conditions or practices observed to the immediate supervisor.
3. Immediately reporting all injuries to their supervisors.
4. Being familiar with and abiding by the safety policies.

Safety Committee Responsibilities

The Safety Committee's responsibility is to advise management on safety related issues in the workplace and to provide leadership in protecting the safety and health of all employees. The Safety Committee plays an essential role in the overall safety effort and serves as the primary means of communicating and exchanging information on safety issues. Safety Committee responsibilities include:
1. Recommending programs for the safety and health of employees.
2. Monitoring the programs and work procedures designed for employee safety and health.
3. Considering individual employee concerns and suggestions regarding safety and health, communicating with the management team regarding concerns and suggestions, and reporting to the individual employee in a timely manner.
4. Reviewing employee safety input forms and recommending appropriate corrective action in writing.
5. Promoting programs to improve the safety, health, training, and awareness of all employees.
6. Participating in the investigation of safety hazards as needed.
7. Providing a means for employees to work together on identifying hazards and developing acceptable solutions to safety problems.
8. Safety Committees meet monthly and will provide reports to the management team(s).

Though the Safety Committee's role is advisory, all reasonable means will be taken by the management to address the concerns of the committee. The Safety Committee Charter is defined in detail in Chapter 6.

Safety Committee Chair Responsibilities

1. Presenting to the management team(s) safety policies to meet OR-OSHA compliance.
2. Assisting the Safety Committee with the implementation of all safety policies and procedures.
3. Evaluating safety performance issues upon request or if specific injury trends are identified.
4. Working with the Safety Committee to develop or recommend safety-training programs.
5. Developing and or maintaining educational and instructional materials.
6. Developing safety committee meeting agendas and leading the safety committee meetings.

Safety Communication Network

As reflected in the management commitment statement, maintaining a safe place of employment requires a cooperative effort on the part of each employee. Essential for such cooperation is a communication system capable of conveying safety information. The following outlines our communication network:

1. Written communications (either on paper, via email or the entity's intranet), to be available to the employees in each department, regarding major and/or complex issues.
2. Safety Committee meetings should be held as needed but at least every month unless all employee safety meetings are held. These meetings will have a standard agenda that shall be revised as appropriate, and participants will report on various safety/health related issues. The agenda for Safety Committee meetings should include (but are not limited to):
    a. Review of old business from prior safety committee meetings.
    b. Review of applicable regulatory issues.
    c. Status of current safety issues.
    d. Review of accidents that have occurred and corrective actions taken. This includes a discussion of any trends or near-miss reports.
    e. Discussion of any major process and operational changes that may affect safety or environmental pro- grams or result in additional planning.
    f. Each department representative or the supervisor will report on the status of on-going safety training and any assistance needed.
    g. Review of walkthrough reports and corrective actions taken.
3. Getting safety input from individual employees can be accomplished through a variety of avenues including:
    a. Addressing the issue with the immediate supervisor.
    b. Reviewing with any level of management, via our open-door policy.
    c. Submitting a written safety recommendation.
    d. Reviewing with a safety committee representative.

Disciplinary Actions For Unsafe Practices

Employees are expected to act in accordance with all appropriate codes, laws, regulations, and policies, regardless of whether they are set by the City of Boardman or outside regulatory or legislative bodies. Violation of any safety, health, security or policy, rule or procedure will result in potential discipline or termination of employment. (Contact CIS Pre-Loss for assistance with disciplinary actions.)

Note: Always get HR and legal advice before taking any disciplinary action. CIS pre-loss legal services are available to members with general liability / workers. With the exception of employees subject to a collective bargaining agreement or contract of employment, City of Boardman remains free to terminate the employment relationship at any time, with or without cause or notice. For employees subject to a collective bargaining agreement or contract of employment, please refer to those agreements or contracts prior to acting.

[Use on official letterhead]

Date
To: [Employee]
From: [Supervisor]
Subject: Written Warning

You are being issued this Written Warning pursuant to Article __ of the Personnel Policy Manual for a violation of City policy and for unsatisfactory job performance.

1. Section 3.1.3 of the Personnel Policy Manual states: "Employees shall be courteous, efficient and helpful to every- one in their work and shall do the best job possible on every assignment." It was reported to me that you [Describe what happened, using the five "w"s.]
2. Supervisors are expected to know and enforce the policies contained in the Personnel Policy Manual, and at a minimum, not take actions that are contrary to the policies. See also Policy 3.4.2 ("It shall be the duty of all City employees to comply with and assist in carrying into effect the provisions of the City's personnel rules and regulations.") Based on my investigation and reports I received; I have concluded that you [describe what the employee did wrong]. This is contrary to the policy, and contrary to the performance expected of a supervisor and [insert title].

This is your opportunity to correct these performance issues and behavior. You will be expected to abide by Section 3.1.3 on a going forward basis and to familiarize yourself with the policies in the Personnel Policy Manual. Failure to adhere to the conditions of this Written Warning, or any of the City's Personnel Policy Manual policies, will result in more serious corrective action, up to and including discharge.

By signing below, I acknowledge receipt of this memorandum on the date listed above, and I acknowledge that a copy of this memorandum will be placed in my personnel file. I further acknowledge that if I wish to respond to anything written in this memorandum, I am welcome to do so in writing, which will also be placed in my personnel file.

Employee Signature

SELF-INSURED LOSS PREVENTION PROGRAM

Self-insured Loss Prevention Program

OR-OSHA requires specific Loss Prevention Activities to be performed by group self-insured employers. As a member of CIS workers' compensation trust, City of Boardman is considered a self-insured employer and must comply with the specific OR-OSHA self-insured employer rules. This includes a written plan and specific activities.
OAR 437-001-1050 & 1060: http://osha.oregon.gov/OSHARules/div1/437-001-1050-1060.pdf

Written Occupational Health and Safety Loss Prevention Program

The program's function is to address the loss prevention effort and inform management and employees of the availability and process for requesting loss prevention services.

Self-Insured OR-OSHA Required Loss Prevention Elements

The following elements are required by OR-OSHA for each self-insured group and self-insured employer. The overall operation of our safety program and recordkeeping will meet these elements.

1. Management commitment to health and safety.

Method of compliance: The statement of commitment is primarily our Safety Manual, but commitment is also shown by our responsiveness to the Safety Committee's concerns and recommendations.
Recordkeeping: The Safety Manual and written responses to Safety Committee concerns and recommendations are maintained by the administration.

2. Accountability system for employers and employees.

Method of compliance: Each employee's job performance includes review of safety behavior and activities.
Recordkeeping: Human Resources retain employee performance records and any record of discipline for safety issues.

3. Training practices and follow-up.

Method of compliance: Training is the responsibility of the department supervisor(s). We have developed a schedule for training and have identified the specific training needs.
Recordkeeping: The record of training is maintained by the department supervisor and/or Human Resources.

4. A system for hazard assessment and control.

Method of compliance: The Safety Committee's quarterly inspections and supervisor's routine review of their work activities at the various locations will serve to ensure that we have appropriate auditing. OR-OSHA expects that the quarterly inspection assesses all the employer's locations/operations. In addition, our CIS Risk Consultant conducts periodic inspections at our facility.
Recordkeeping: The primary records of the inspection and audit services will be maintained by

the administration. The Safety Committee will make a record of each quarterly inspection. This will be placed in the Safety Committee Inspection file. Any written inspection report done by a supervisor (i.e. lock out tag out annual inspection) will be kept in the supervisor's/department's safety file.

5. A system for investigating all recordable occupational injuries and illnesses that includes corrective action and written findings.

Method of compliance: Management and/or the super- visors are responsible for completing accident investigations. The Safety Committee also reviews and comments on the accident investigations and they may participate in some of the investigations.
Recordkeeping: The primary accident investigation records maintained by administration.

6. A system for evaluating, obtaining and maintaining personal protective equipment (PPE).

Method of compliance: Each supervisor has an overall responsibility for ensuring the selection and purchase of appropriate PPE, and that the PPE is properly used and maintained. The Safety Committee and others conducting daily, or quarterly inspections will review the PPE program's adequacy. Section 13 provides a PPE policy, selection, maintenance, and training information.
Recordkeeping: The primary records for PPE inspection are maintained by the department supervisors.

7. On-site routine industrial hygiene and safety evaluations to detect physical and chemical hazards of the workplace, and the implementation of engineering or administrative controls.

Method of compliance: Basic occupational safety and health inspections are done by the Safety Committee and supervisors. More technical assistance is provided by our CIS Risk Management Consultants, OR-OSHA consultants and private safety and industrial hygiene consultants.
Recordkeeping: The primary records of the inspection and audit services will be maintained by the managers, supervisors and Safety Committee.

8. Evaluation of workplace design, layout and operation, and assistance with job site modifications utilizing an ergonomic approach.

Method of compliance: Basic ergonomic inspections are done by the Safety Committee. More technical assistance is provided by our CIS Risk Management Consultants, OR-OSHA consultants and private consultants.
Recordkeeping: The primary records of the ergonomic survey and findings will be maintained by the supervisor or manager of the group or department receiving the evaluation.

9. Employee involvement in health and safety efforts.

Method of compliance: This is a primary concern for management and the Safety Committee. Routine meetings or staff meetings are the primary focus for employee involvement. Safety is a daily activity, and our employees are expected to perform their work as instructed for their own and coworker's safety. Additionally, use of employee safety suggestion forms, hazard reporting forms, as well as encouraging employee input and feedback on matters presented to the safety committee are other ways to involve employees in the safety effort. Lastly, ensuring that safety committee members rotate every few years allows other employees the opportunity to participate in the safety committee.
Recordkeeping: The primary records of employee involvement are found in the supervisor's safety inspection records, minutes of staff meetings, in Safety Committee minutes, employee

safety suggestion forms, and hazard reporting forms.

10. An annual evaluation of the employer's loss prevention activities based on the location's current needs.

Method of compliance: An annual report will be prepared in January or June of each year for the previous year's activities. The report will be prepared by the management staff, the Safety Committee, department managers and/or supervisors. The reports will provide feedback on the entity's loss prevention activities, policies, and procedures on areas of improvement or change.
Recordkeeping: The annual reports will be maintained by the Administration and available to the Safety Committee and OR-OSHA upon request.

Appendix 2: Employee Training Materials
Each employee must be trained in the Emergency Action and Fire Protection Plan when hired and every year thereafter. Additional training may also be needed whenever the employee's responsibilities change and whenever the plan is changed.

Emergency Response Training Overview:
The location and use of fire extinguishers. This includes the following information on types, stages of fires, and reactions to fires and emergencies:

1. In order to have a fire, three components are needed (see fire triangle): fuel (paper, wood, oil, grease, etc.), oxygen (air) and heat (source of ignition). Take away any one of these and your chances of a fire are eliminated.
2. Review the class of fire extinguishers and method of use.
3. Discussion on the dangers of:
    a. Becoming disoriented in the panic of a fire.
    b. The use of the fire hose as an escape aid.
    c. Going onto a roof, or into a basement to fight a fire.
    d. Exploding chemical containers such as acetylene, oxygen, propane, barrels.

Limit our staff firefighting to incipient fires. Employees will only be trained to use an extinguisher or in some cases smaller fire hoses to put out an incipient fire. Employees are not trained in structural firefighting.

Every training session will emphasize employee safety and prevention of emergencies and fires. Employees are trained in the use of fire extinguishers at the time of hire and annually thereafter. Basic training on fire extinguishers should include the following information:

Extinguishing agent training:

1. Class A Fires: Ordinary combustible fire
2. Class B Fires: Flammable liquid and gas fires
3. Class C Fires: Electrical fires; usually Class A or B fires involving energized electrical wiring and equipment
4. Class D Fires: Combustible metals

Employees with specific fire duty assignments will receive special training on their responsibilities.

1. The location of fire exits and emergency evacuation routes, which should also be

noted on building evacuation maps posted in throughout the buildings.
2. Rescue and medical duties.
3. Procedures to follow should a facility evacuation be needed including:
   a. Evacuation routes.
   b. Method for reporting to the Emergency Coordinator after an evacuation
   c. Means of reporting fires and other emergencies

Each supervisor will ensure that his/her employees receive the proper training and will keep a record of the training.

RECORD KEEPING

http://osha.oregon.gov/OSHARules/div1/437-001-0700.pdf
http://osha.oregon.gov/OSHARules/div1/437-001-0704-0742.pdf

The OR-OSHA recordkeeping rules/regulations require that many different types of records be retained. This safety manual has been written so that the [Company] and/or department initiating the records are required to keep a copy and forward a copy to the department head or HR as the primary "keeper of records".

All work-related fatalities, injuries, and illnesses will be immediately recorded and reported on an accident/incident reporting form. If the employee misses time from work or seeks medical treatment from a physician, a DCBS Form 801 must be completed within five calendar days (or preferably sooner) from the time the fatality, injury, or illness occurred and submitted to CIS utilizing the online 801 claims form. Supporting information (accident/incident reporting form and accident investigation report) will be submitted to CIS along with the 801 claims form. The 801 claims form can be found at https://www.cisoregon.org/ClaimSubmission

OAR 437-001-0704 requires an employer to report any work-related incident that results in the death (fatality) of any employee or the inpatient hospitalization of three or more employees (catastrophe) to Oregon OSHA within 8 hours of the incident or employer knowledge. This includes heart attacks and motor vehicle accidents. Fatalities and catastrophes must be reported if they occur within 30 days of the incident that lead to the work-related incident that results in an in-patient hospitalization, death or multiple hospitalizations of employees, loss of an eye, or amputation or avulsion includes bone or cartilage loss, to Oregon OSHA within 24 hours of the incident or employer knowledge. These events only need to be reported when they occur within 24 hours of the event that caused the hospitalization, amputation/avulsion, or eye loss.

Injuries or illnesses are work-related if an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness. These incidents can result in one or more of the following:

1. Death
2. Days away from work
3. Transfer to another job
4. Medical treatment beyond first aid
5. Loss of consciousness
6. Diagnosis of a significant injury or illness

Recordable injuries and illnesses must be reported on an OSHA 300 Log. To determine which injuries and illnesses must be reported on the OSHA 300 Log, see the instructions and OSHA 300 log at http://osha.oregon.gov/OSHAPubs/3353.pdf.

Hearing loss is recorded on the OSHA 300 and 300A Logs when an annual audiometric test reveals a Standard Threshold Shift (STS) in either or both ears of 10 decibels (dBa) from the previous year's audiometric test.

Needle stick and sharps injuries must be tracked on a Needle Stick Log. These injuries that are

diagnosed later as an infectious blood borne disease must be updated on the 300 Log to reflect the new status or classification.

In addition, health care employers as defined in ORS 654.001 to 654.295 must record assaults against employees on the Health Care Assault Log. If the incident results in a serious injury or fatality, it must be immediately reported to OR-OSHA, and recorded on the OSHA 300 Log. A copy of the Health Care Assault Log can be found on the OR-OSHA website at http://osha.oregon.gov/Pages/topics/recordkeeping-and-reporting.aspx as well as the instructions for completing the log.

At the end of the year, management will review the OSHA 300 Log to verify its accuracy, summarize the 300 Log information onto the 300A summary form, and certify the summary. This information will then be posted for three months, from February 1st to April 30th. These records will be kept for five years following the calendar year covered by them.

Employers who have 250 employees or more at any one location, or is the employer has 20 to 250 employees and are listed in Table 8 in the recordkeeping regulations below, they are required to submit their 300 Log, 300A and 801 claims information via electronic submission to Federal OSHA. See information in (24) Electronic Submission of injury and illness records to OSHA http://osha.oregon.gov/OSHARules/div1/437-001-0700.pdf

WRITTEN PROGRAM REQUIREMENTS

This list includes all Oregon OSHA rules that have requirements for programs (generally applies for employers with 10 or more employees).

*A paragraph mark (¶) in the first column indicates that at least one of the program-related requirements must be in writing.

*	Division	Subdivision	Rule #	Rule Description
¶	1		437-001-1035	Loss prevention services
¶	1		437-001-1040	Required loss prevention services
¶	1		437-001-1055	Self-insured and group self-insured employer loss prevention programs
	1		437-001-1060	Self-insured and group self-insured employer loss prevention effort
¶	2	E	437-002-0042	Emergency action plan
¶	2	E	437-002-0043	Fire prevention plan
¶	2	F	1910.66	Powered platforms for building maintenance
	2	G	1910.94	Ventilation
¶	2	G	1910.95	Occupational noise exposure
¶	2	H	1910.109	Explosives and blasting agents
¶	2	H	1910.119	Process safety management of highly hazardous chemicals
¶	2	H	1910.120	Hazardous waste operations and emergency response
	2	H	437-002-0118	Oregon rules for reinforced plastics manufacturing
¶	2	I	1910.134	Respiratory protection
¶	2	J	1910.147	The control of hazardous energy (lockout/tag out)
	2	J	437-002-0141	Additional Oregon sanitation requirements
¶	2	J	437-002-0146	Confined spaces
	2	K	437-002-0161	Medical services and first aid
¶	2	L	437-002-0182	Oregon rules for firefighters
	2	L	437-002-0187	Portable fire extinguishers
	2	N	1910.177	Servicing multi-piece and single-piece rim wheels
¶	2	N	1910.178	Powered industrial trucks
¶	2	N	1910.179	Overhead and gantry cranes
	2	N	1910.181	Derricks
¶	2	O	1910.217	Mechanical power presses
¶	2	O	437-002-0256	Stationary compactors, self-contained compactors and balers
¶	2	R	1910.272	Grain handling facilities
	2	R	437-002-0310	Work procedures
¶	2	RR	437-002-2302 1910.304	Hazardous energy control procedures
¶	2	S		Wiring design and protection
¶	2	Z	1910.1001	Asbestos
¶	2	Z	1910.1003	13 carcinogens
¶	2	Z	1910.1004	Alpha-napthlamine
¶	2	Z	1910.1006	Methyl chloromethyl ether
¶	2	Z	1910.1007	3,3'-dichlorobenzidine
¶	2	Z	1910.1008	Bis-chloromethyl ether
¶	2	Z	1910.1009	Beta-naphthylamine
¶	2	Z	1910.1010	Benzidine
¶	2	Z	1910.1011	4-aminodiphenyl
¶	2	Z	1910.1012	Ethyleneimine

*	Division	Subdivision	Rule #	Rule Description
¶	2	Z	1910.1013	Beta-Propiolactone
¶	2	Z	1910.1014	2-acetylaminofluorene
¶	2	Z	1910.1015	4-dimethylaminoazobenzene
¶	2	Z	1910.1016	N-nitrosodimethylamine
¶	2	Z	1910.1017	Vinyl chloride
¶	2	Z	1910.1018	Inorganic arsenic
¶	2	Z	1910.1025	Lead
¶	2	Z	1910.1027	Cadmium
¶	2	Z	1910.1028	Benzene
¶	2	Z	1910.1029	Coke oven emissions
¶	2	Z	1910.1043	Cotton dust
¶	2	Z	1910.1044	1,2-dibromo-3-chloropropane
¶	2	Z	1910.1045	Acrylonitrile
¶	2	Z	1910.1047	Ethylene oxide
¶	2	Z	1910.1048	Formaldehyde
¶	2	Z	1910.1050	Methylenedianiline
¶	2	Z	1910.1051	1,3 butadiene
¶	2	Z	1910.1052	Methylene chloride
¶	2	Z	1910.1200	Hazard communication
¶	2	Z	437-002-0364	MOCA (4,4'-Methylene BIS (2-Chloro-Aniline)
	2	Z	437-002-0373	Oregon rules for Thiram
¶	2	Z	437-002-1025	Lead respiratory protection program
¶	2	Z	437-002-1027	Cadmium
¶	2	Z	437-002-1028	Benzene
¶	2	Z	437-002-1029	Coke oven emissions respiratory protection program
	2	Z	437-002-1044	1,2-Dibromo-3-Chloropropane respiratory protection program
	2	Z	437-002-1045	Acrylonitrile respiratory protection program
	2	Z	437-002-1047	Ethylene Oxide respiratory protection program
	2	Z	437-002-1050	Methylenedianiline respiratory protection program
	2	Z	437-002-1051	1,3-Butadiene respiratory protection program
	2	Z		Methylene Chloride respiratory protection program
	3	C	437-002-1052 1926.20	General safety and health provisions
	3	C	1926.24	Fire protection and prevention
	3	D	1926.59	Hazard communication
¶	3	D	1926.60	Methylenedianiline (MDA)
¶	3	D		Lead
	3	D	1926.62 437-003-0062	Lead Respiratory Protection Program
	3	C	437-003-0920	Project plans

*	Division	Subdivision	Rule #	Rule Description
	3	D	437-003-3060	Methylenedianiline respiratory protection program
	3	F		Fire protection
¶	3	K	1926.150 437-003-0404	Branch circuits
¶	3	M	437-003-0503	Training requirements
	3	R	1926.761	Training
	3	X	1926.1060	Training requirements
¶	3	Z	1926.1101	Asbestos
¶	3	Z	1926.1126	Chromium (VI)
¶	3	Z	1926.1127	Cadmium
¶	3	Z	1926.1152	Methylene Chloride
	3	Z	437-003-1101	Asbestos respiratory protection program
¶	3	CC		Operator qualification and certification
¶	3	CC	1926.1427 437-003-0081	Crane Operator Safety Training Requirements
	4	C	437-004-0251	Safety committees and safety meetings
	4	G	437-004-0630	Noise exposure
¶	4	I	437-004-1041	Respiratory protection
¶	4	J	437-004-1275	The control of hazardous energy (lockout/tag out)
¶	4	N	437-004-1700	Forklifts and other powered industrial trucks
¶	4	W	170.104	Exemptions, workers
¶	4	W	170.130	Pesticide safety training for workers
¶	4	W	170.204	Exemptions, pesticide handlers
¶	4	W	170.230	Pesticide safety training for handlers
¶	4	W	170.240	Personal protective equipment
	4	Z	437-004-9720	Thiram
¶	4	Z	437-004-9800	Hazard communication
¶	7	B	437-007-0100	Safety and health program
	7	B	437-007-0110	Supervisory responsibilities
¶	7	B	437-007-0145	Annual program evaluation
¶	7	B	437-007-0105	Management commitment
¶	7	N	437-007-1305	General requirements

Table of Required Records

The following chart shows what records must be maintained under the General Industry Standards. The Construction Standards have additional records that include these listed.

** Chemical Substances Specific Standards include acrylonitrile, asbestos, anhydrous ammonia, arsenic, benzene, carcinogens, ethylene oxide, formaldehyde, lead, inyl chloride, DBCP, cadmium.*

*** Crane Regulation 1910.179-.182 requires daily visual inspections and CIS recommends daily inspections should be recorded*

Record/Plan	Overall Plan	Written Type of Record		Retention Time
		Training	Inspection	
1. Injury Records 437-001-700 a. Form 300 b. Form 801 c. Form 300A d. Accident Investigation 437-001-0760(3) *In addition, health care employers as defined in ORS 654.001 to 654.295 must record assaults against employees on the Health Care Assault Log. See OAR 437-001-0706.	 x (complete w/in 7 days) x (complete w/in 7 days) x (post February - April) x each time loss accident		 x	 5 years 5 years 5 years 5 years
2. Employee Exposure 1910.20(d)		x		30 yrs + emp
3. Bloodborne Pathogens 1910.1030(c)(1)	x	x	x (incident investigation)	30 yrs + emp
4. Medical Plan & Records 1910.20(d) & 1910.151 & 437-02-161(4)	x			30 yrs + emp
5. Emergency Plan 1910.38(a)(2)	x			Not specified
6. Fall Protection 1926.502(k)	x	x	x	Not specified

Record/Plan	Overall Plan	Written Type of Record		Retention Time
		Training	Inspection	
7. Fire Plan 1910.38(b)(2)	x			Not specified
8. Specific Chemical Subs. (minimum requirements)* a. Exposure Record b. Medical Exams c. Resp. Fit Testing (in some cases) Example: Formaldehyde 1910.1048(m)(5)			 x x x	 30 yrs. 30 yrs + emp most current
9. Asbestos Plan 1910.1001 1926.1101(k)	x	x	x	Current + 30 yrs
10. Hazard Communication 1910.1200(e) a. Written Plan b. MSDS or list c. Employee Training	x	 x	 x	 Need current 30 yrs + emp not specified
11. Lockout/Tag out a. Written Procedures b. Periodic Audit c. Employee Training 1910.147(c)(4)		 x	x (annually)	 Not specified Not specified Not specified

Record/Plan	Overall Plan	Written Type of Record		Retention Time
		Training	Inspection	
12. Hazardous Materials a. Written Plan b. Employee Training 1910.120(p)(8)(ii)	x	x (annually)		Current plan Current plan
13. Laboratories 1910.1450(e)	x	x	x annual review	30 yrs + emp.
14. Noise & Hearing Cons. a. Employee Exposure b. Audiogram c. Calibration Data 1910.95(c)			x x x	2 yrs 5 yrs + emp. Current levels
15. Personal Protective Equipment 1910.132(d)	x	x	x	Not specified
16. Respirators a. Written Program b. Inspection Maintenance c. Emergency Use Resp. 1910.134(b)(1)	x		Monthly	Not specified Not specified
17. Safety Committees 437-001-0765	x	x	x (minutes)	3 yrs

Record/Plan	Overall Plan	Written Type of Record		Retention Time
		Training	Inspection	
12. Hazardous Materials a. Written Plan b. Employee Training 1910.120(p)(8)(ii)	x	x (annually)		Current plan Current plan
13. Laboratories 1910.1450(e)	x	x	x annual review	30 yrs + emp.
14. Noise & Hearing Cons. a. Employee Exposure b. Audiogram c. Calibration Data 1910.95(c)			x x x	2 yrs 5 yrs + emp. Current levels
15. Personal Protective Equipment 1910.132(d)	x	x	x	Not specified
16. Respirators a. Written Program b. Inspection Maintenance c. Emergency Use Resp. 1910.134(b)(1)	x		Monthly	Not specified Not specified
17. Safety Committees 437-001-0765	x	x	x (minutes)	3 yrs

Record/Plan	Overall Plan	Written Type of Record		Retention Time
		Training	Inspection	
25. Lead Plan Gen. Industry 1910.1025(e)(3) and 1926.62 (maintenance or removal of lead painted or containing building materials)	x	x	x	Current + 30 yrs
26. Hexavalent Chrome Plan Gen. Industry 1910.1026	x	x	x	Current + 30 yrs
27. General Instruction Supervision & Training 437-001-0760(1)	x	x		Not specified

SAFETY AND HEALTH TRAINING PROGRAM

Safety And Health Training Program

A major component of this safety program is employee training. Training efforts will be directed at developing each employee's knowledge, skills, and understanding to allow them to work safely. Training will be provided through various means; however, the primary instruction will be given by their direct supervisor.

New Employee Orientation

All new employees will participate in a "New Employee Orientation Program." Such training is conducted in a two-phase approach:

1. The new worker will receive general information on Entity culture policies and benefits from the HR representative.
2. Department-related rules and information will be given by the supervisor of the department. Training will include a general understanding of all related safety programs and policies.
3. Facility and job specific training will be given by the employee's immediate supervisor or lead worker before the employee will be allowed to begin actual work, and the training will be documented in the employee or department's training file.

Training Requirement Matrix

The safety manual and training matrix listed below identifiesthe possible training requirements for employees.

1. Some subjects are mandatory in nature, with OR-OSHA requiring their annual review:
    a. Emergency Action, Fire Prevention Plan and First Aid (Chapter 7)
    b. Emergency Action, Fire Prevention Plan and First Aid (Chapter 7)
    c. Hazard Communication Program (Chapter 10)
    d. Hazardous Energy Control - Lockout/Tag out (Chapter 11)
    e. Noise Exposure and Hearing Conservation Program (Chapter 12)
    f. Personal Protective Equipment (Chapter 13)
    g. Respiratory Protection Program (Chapters 14)
    h. Asbestos Maintenance Program (Chapter 17)
2. Other subject areas are deemed mandatory only for selectedoperations, or when employees change, such as:
    a. Confined Space Entry
    b. Hazardous Energy Control - Lockout/Tag out
    c. Blood borne Pathogen Training
    d. Hazardous Materials - Waste Handling
    e. Welding Safety
    f. Safety Committee Training
    g. Forklift Operations

The following document is an employee-training checklist used to track training needs and training dates.

OR-OSHA Basic General Industry Training Requirements

* Specific chemical substance standards include acrylonitrile, asbestos, anhydrous ammonia, arsenic, benzene, cadmium, carcinogens, ethylene oxide, formaldehyde, lead, methylene chloride, vinyl chloride, DBCP, Pesticides.

NOTE: *This listing did not include a variety of the posting records and does not include all references to competent or qualified employees. Further, there are additional occupational health rules such as asbestos, which require trained employees but were not listed separately.*

Program	Training Frequency			Written Program
	Initial	Annual	Retraining Required	
General Duty to Train	X		If program/hazards change	no
Accident Signs	X		If signs change	no
Crane Operator	X		Construction - 3 yrs General if changes or problems	yes
Electrical	X		Job duties change	no
Emergency Medical Plan	X		If plan changes - update	yes
Emergency/Fire Prevention	X		If plan changes - update	yes
Fall Protection (construction related)	X		If plan/equipment change or inadequacies found	yes
Fire Extinguishing System	X	X		no
First Aid/CPR	X		1-3 years	no
Forklift Operator	X		Every 3 yrs classroom & practical	yes
Lockout	X		If plan changes or problems noted	yes
Mech. Power Press	X		Initial must remain competent	no
Power Platforms	X		Initial must remain competent	no
Pressure Vessels	Competent person required			no
Safety Committee	X		New members annual	yes
Welding	X		Initial must remain competent	no

Program	Training Frequency			Written Program
	Initial	Annual	Retraining Required	
Occupational Health				
Access to Exposure & Medical Records	X	X		no
Asbestos (awareness) Note: Extensive training for actual abatement or renovation)	X	X		yes plan & notification
Blood borne Pathogens	X	X	When plan changes	yes
Confined Space	X		If plan changes/annual for rescue staff	yes
Chemicals *	X		If over action level	yes for some
Hazard Communication	X		If new chemicals are used	yes
HazMat'ls Response 5 levels 4 to 40 hours	X	X	Annual refresher is 8 hours	Yes
Hexavalent Chromium (employees who have the potential of being exposed above the action level)	X		Posting	yes
Laboratories	X		If plan changes/chemicals	yes
Lead (awareness) (note: extensive training for actual abatement and renovation)	X	X	Posting	yes
Noise	X	X		no
Personal Protective Equipment	X		If there are changes or problems noted	yes
Process Safety	X	X	Training certificate required	yes
Respirators	X	X	Or when changes or problems noted	yes

For additional resources, see Sample HR Check-Off List in the H2R Toolbox

Office/Administrative Staff Additions:
Place Under Safety Orientation

Overview of General Safety Policy Access to Medical & Exposure Records
Accident Reporting and InvestigationRole of the Safety Committee
Emergency Response & Medical Plans
Fire Prevention/Fire Extinguisher TrainingUse of Personal Protective Equipment
General Safety Hazards related to tools, Machines, electrical, etc.
Hazardous Communication/Global Harmonization/Container Labeling
Proper Lifting Techniques
Accident Prevention (Discuss types of injuries common tooffice/administration)
Driving Safety
Will this employee be a first aid responder? ☐ Yes ☐ No
If yes, Blood borne Pathogens _____

Law Enforcement Staff Additions:
Place Under Safety Orientation

Overview of General Safety Policy
Access to Medical & Exposure Records
Accident Reporting and Investigation
Role of the Safety Committee
Emergency Response & Medical Plans
Fire Prevention/Fire Extinguisher Training
Use of Personal Protective Equipment
General Safety Hazards related to tools, Machines, electrical, etc.
Hazardous Communication/Global Harmonization/Container Labeling
Proper Lifting Techniques
Accident Prevention (Discuss types of injuries common to office/ administration)
Driving Safety
Will this employee be a first aid responder? ☐ Yes ☐ No
If yes, Blood borne Pathogens _____
Hearing Conservation/Hearing Protection Use
Visibility Clothing
Flagging Safety/Traffic Control
First Aid/ CPR
Defensive Driving
Police Academy Training

Public Works Staff Additions:
Place Under Safety Orientation

Overview of General Safety Policy
Access to Medical & Exposure Records
Accident Reporting and Investigation
Role of the Safety Committee
Emergency Response & Medical Plans
Fire Extinguisher Training
Use of Personal Protective Equipment
General Safety Hazards related to tools, machines, electrical, etc.
Plant Operation and Process Hazard
Hazardous Communication/Global Harmonization/Container Labeling
Proper Lifting Techniques
Accident Prevention (Discuss types of injuries common to Public Works)
Driving Safety
Hearing Conservation/Hearing Protection Use Visibility/Protective Clothing
Flagging Safety/Traffic Control First Aid/ CPR
Footwear Requirements Lab Chemical Safety
Transportation and Storage of Compressed Gas/Air

Lockout/Tag out: Will the employee be authorized? ☐ Yes ☐ No
If yes, training and assignment of locks are required.

Crane & Forklift Training: Will the employee be authorized?☐ Yes ☐ No
Additional training and demonstration of skills on equipment required.

Confined Space Entry: Will the employee be authorized? ☐ Yes ☐ No
Additional training for specific entry role(s) required.

Respiratory Protection: Will the employee be assigned a respirator? ☐ Yes ☐ No
Medical clearance, training and fit test will be required. If respirator use if voluntary, provide information in 1910.134 Appendix D.

HAZMAT Training for selected staff: Will the employee be a hazmat team member?
☐ Yes ☐ No

Develop additional info for Fire Department, Streets/Roads, Code Enforcement, Planning, Assessors…

ACCIDENT INVESTIGATION PROCEDURES

Accident Investigation Procedures
OAR 437-001-0760 Investigations of Injuries:
http://osha.oregon.gov/OSHARules/div1/437-001-0760.pdf

The foremost goal is to prevent and eliminate workplace accidents/illnesses. However, should they occur, management will thoroughly investigate to determine the cause(s) and appropriate corrective action to be taken to prevent future recurrence.

Focus is not simply on unsafe acts or conditions that may have led to the accident, but also on why the unsafe acts or conditions were present. From this perspective, we are better able to identify any changes that are necessary.

Every employee's work-related lost time injury is investigated to determine the means that should be taken to prevent recurrence. We will promptly install any safeguard or take any corrective measure indicated or found advisable.

The Safety Committee will establish procedures for investigating all safety-related incidents including injury, illness, and deaths. Management will delegate who will conduct these accident investigations.

OAR 437-001-0052 Reporting an Occupational Fatality, Catastrophe, or Accident:
http://osha.oregon.gov/OSHARules/div1/437-001-0704-0742.pdf

We are responsible to notify OR-OSHA within 8 hours of a workplace fatality or catastrophe, and within 24 hours of an injury resulting in overnight or longer hospital admission.

Definitions
Accident: An unplanned event that results in personal injury or property damage.

Catastrophe: An accident in which two or more employees are fatally injured or five or more employees are admitted to a hospital or equivalent medical facility.

First Aid: Any one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care. Such treatment and observation are considered first aid even though provided by a physician or registered professional person.

Lost Workday Case: An injury, which involves days away from work or days of restricted work activity, or both.

Medical Treatment: Includes treatment of injuries administered by physicians, registered professional persons, or lay per- sons (i.e., non-medical personnel). Medical treatment does not include first aid treatment (see above) even though provided by a physician or registered professional personnel.

Near miss: Any unplanned event, which could potentially have resulted in personal injury or property damage but based upon "good fortune", did not.

Occupational Illness: Any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases, which may be caused by inhalation, absorption, ingestion, or direct contact.

Recordable Case: All work-related deaths, illnesses, and those work-related injuries, which result in loss of consciousness, restriction of work motion, transfer to another job, or require medical treatment beyond first aid.

General Responsibilities

Management: It is the direct responsibility of department heads or managers to ensure that all reported injuries, illnesses, near misses, or reports of property damage, are promptly investigated as to cause and that any necessary corrective measures are implemented to reduce the likelihood of recurrence.

Immediate Supervisor: It is the responsibility of the super- visor or group leader to promptly perform the initial accident investigation of all reported injuries, illnesses, near misses, or reports of property damage, and arrive at recommendations to reduce recurrence.

Management Team: The Management Team shall be involved in the investigation of all seriously disabling claims, fatalities, and catastrophes.

Safety Committee: The Safety Committee will review all written accident investigation reports, and associated recommendations, and provide additional insight as to methods which might assist in reducing the incidence of recurrence.

Employee: The employees are responsible for immediately reporting to their supervisor any injury, illness, near miss, or any accident involving property damage, sustained in the scope of their employment.

Accident Investigation Procedure

Accident Reporting: Personal Injury

If an employee is injured, suffers an occupational illness, or near miss, the following reporting procedures shall be carried out:

1. The incident and/or condition will be immediately reported to the worker's supervisor who will complete the Employee Accident/Incident Report, regardless of the severity of the injury.
2. All injuries regardless of how insignificant they initially may appear must be immediately reported to the super- visor. An Employee Accident/Incident Report must be completed by the supervisor and employee by the end of the shift.
3. The supervisor must review the Employee Accident/Incident Report submitted by the employee and sign where indicated. The supervisor must ensure immediate transmittal of the report to the Administration and the Safety Manager for safety committee review.
4. Any time that the work-related condition should necessitate the services of a medical

provider, the employee is required to contact their supervisor and complete a Workers' Compensation Claim Form 801. The 801 must be filed with Administration within five days of the accident (but preferably within 24 hours). A copy of the Employee Accident/ Incident Report should accompany the 801 claims form to Administration and also be filed to CIS (workers' compensation carrier) within that five-day time period, but preferably within 24 hours.

5. The 801 claims form can be completed online at the CIS website at https://www.cisoregon.org/ClaimSubmission. Completing the 801 claims form online helps speed the processing of the claims form by immediately creating a claim number and assigning a claims examiner to review the information.
6. The Administration or designee is required to report all workplace fatalities and catastrophes to OR-OSHA within eight hours of knowledge at OR-OSHA's central office (800-922-2689 or 503-378-3272).
    a. OR-OSHA requires that employers and their representatives not disturb the scene of a fatality or catastrophe other than to conduct the rescue of an injured person until authorized by the OR-OSHA Manager (or designee) or directed by a recognized law enforcement agency to do so.
    b. Further, all employee injuries resulting in overnight hospitalization or multiple employees being hospitalized also require notice to OR-OSHA within 24 hours of knowledge. Such notice will again be accomplished by the Administration's office or (designee).

    Note: *The purpose of such reporting is to provide OR-OSHA with the opportunity to conduct an independent investigation, should they so choose. This form of reporting applies only to injuries requiring immediate hospitalization and not conditions that result in hospitalization weeks or months later.*

Accident Reporting: Vehicular Accidents

In the event that a vehicle is involved in a traffic accident, the driver will immediately call 9-1-1 and notify his/her supervisor. No vehicle will be moved from the scene until law enforcement arrives or photographs are taken, unless a greater hazard would be created by failure to remove the vehicle(s) from the scene.

The following procedures apply:

1. All drivers should notify the Local Law Enforcement Agency (9-1-1) of any of the following accidents:
    a. Collision with any object or person involving an entity owned or leased vehicle, or other vehicles being used on official business.
    b. Any event where damage results to a vehicle being operated by an employee while on business, whether being driven or parked.
    c. Any involvement in an accident where damage claims may be made against our organization, even though your vehicle had no contact with other objects or vehicle.
    d. Damage or loss to one of our owned or leased vehicles or contents due to fire or theft.
2. In all instances where:
    a. The damage is determined to be in excess of $1500; or
    b. Damage to any vehicle over $1,500, and any vehicle is towed from the scene as a result of damages from this accident; or
    c. Injury or death resulted from this accident; or

d. Damages to any one person's property other than a vehicle involved in this accident are over $1,500, the driver shall complete a "State of Oregon Vehicle Accident Report" (Form 735-32). https://www.oregon.gov/ODOT/DMV/pages/driverid/accidentreport.aspx

Investigation

1. Upon notice of an accident, injury, illness, near-miss, or nonwork-related physical complaint, the supervisor will ensure that the accident investigation procedure is implemented in a timely fashion. (Use the Accident Investigation Form.)
2. The supervisor will complete the accident investigation based on the facts surrounding the incident, including any nonwork-related issues or off-the-job exposure or events that might have contributed to the incident as well as work related issues.
3. The supervisor will ensure that all the facts are presented in the investigation report, including the statements of any witnesses to the accident/incident. The purpose of the accident investigation is to determine the root cause of the accident (not the surface causes) that led to the accident occurring. This information will be included in the accident investigation report, including any recommendations that the supervisor has to remove the hazard associated with the accident or address any administrative or engineering measures that can be implemented to ensure similar accidents do not happen in the future.
4. After the report is adequately completed, the supervisor's report will be attached to the Employee Accident/Incident Report and submitted to the Safety Committee. A copy of the accident investigation form will be maintained in the supervisor's investigation file.
    a. The supervisor will further ensure that the necessary corrective action is taken through the completion of a work order, purchase order, etc., where appropriate.
    b. Alternatively, the supervisor may, at their discretion, request a follow-up investigation due to shortcomings associated with the original effort, complexity of the issues, recurrent nature of the problem, etc. Such a follow up investigation shall be completed by the supervisor or Safety Committee.
    c. In those instances, in which the Safety Committee con- ducts an investigation, the results will be submitted to the supervisor in a written narrative format, inclusive of all factual information gathered and specific recommendations for remedy in a timely fashion.
5. All fatalities, catastrophes, cases of serious disabling injury, multiple injury victims, or any instance in which the circumstances surrounding the event are suggestive of potential entity involvement, the supervisor will provide timely notice to the Safety Committee who will become involved if appropriate, in the investigation process.
6. In any instance where the supervisor deems appropriate, they will encourage the involvement of at least one member of the Safety Committee in the accident investigation process.

Posting Requirements

1. All required posting will be on the employee bulletin boards at each of the Department offices.
2. Injury and Illness Summary Report on the OSHA 300A are posted from February 1st to April 30th.
3. Any OR-OSHA employee complaint, citation or variance will be posted for at least 60 days or until they become a final order or are corrected.
4. The Oregon Safe Employment Act "It's the Law" poster shall be continuously posted.

5. Workers' Compensation Insurance Notice of Compliance

Notice: This manual is not intended to outline every specific rule requirement that may apply to our operations but is to establish the basic safety rules and procedures. For a specific rule question, please refer to the various Safety Regulations.

City of Boardman
Employee Accident/Incident Report

All overnight hospitalizations must be reported to OR-OSHA within 24 hours. Any fatality or catastrophes involving three or more hospitalizations must be reported within 8 hours. Contact OR-OSHA at (800) 922-2689.

PLEASE COMPLETE ALL OF THE FOLLOWING INFORMATION:

Employee Name: _____ Incident RPT #: _____

Dept.: _____ Job Title: _____

To Be Completed by Employee:
(Attach second page if more space is required)

When did the Incident Occur? Date: _____ Time: _____am/pm

Accident/Incident Location: _____

When was the incident reported? Date: _____ To Whom: _____

Witnesses Information:
Witness #1 (Name, Phone): _____
Witness #2 (Name, Phone): _____

List all Parts of the Body Affected: _____ Left side☐ Right side ☐

Type of Injury/Illness/Exposure: (i.e. strain, cut): _____

What were you doing just before the Incident occurred?
_____
_____

Describe what happened (include sequence of events; equipment, materials, and substances being used; and environment – PLEASE BE SPECIFIC):
_____
_____
_____

Was the incident caused by defective equipment, another person, or during training? Yes No
If yes, equipment info, name of person (suspect) or instructor name: _____

Reporting information (If known and applicable): Vehicle #: _____ Case#: _____

Have you injured this part(s) of your body previously or is there any pre-existing condition that could affect the injury?
Yes No (if yes, please explain): _____
_____
_____

What do you think can be done to prevent this Incident from reoccurring? _____
_____
_____

If seeking medical attention or unable to return-to-work, complete form 801 (Report of Job or Illness for Workers' Compensation Claim).

Employee's Signature: _____ Date: _____

Distribution of Copies: Original: Entity Contact within 24 hrs. 1st copy: Employee 2nd copy: Supervisor 3rd Copy: Safety Committee

To Be Completed by Employee's Site Supervisor:

What was the Root Cause of this Incident?
__ Lack of Training __ Supervision __ Rule Enforcement __ Maintenance __Other

What was the Surface Cause of this Incident?
__ Unguarded Machine __ Broken Tools __ Defective PPE __ Horseplay __ Fails to Enforce __ Other

Did the worker report the incident within 24 hours? Yes No

Supervisor Review of Incident and Findings:
_____
_____
_____

What could have been done, or should be done, to prevent this accident/incident?
_____
_____
_____
_____

Site Supervisor's Signature: _____ Date: _____

Department Head Signature: _____ Date: _____

Safety Committee Evaluation of Accident/Incident:

Corrective Action Needed:
_____
_____

Committee Recommendations:
_____
_____
_____

Estimated cost: $ _____

Safety Committee Chair Signature: _____ Date: _____

Administrator Signature of Approval: _____Date: _____

Comments:
_____
_____

Safety Committee Follow-up:

Corrective Action Assigned To (if applicable): _____

Date Completed: _____

Accident Investigation Checklist

When you are informed of an accident, you must investigate. This checklist outlines the basic steps to follow. Remember, Accident Investigation is "fact-finding" not "fault-finding."

☐ Determine if any employees require medical attention.
- a. Administer first aid, if required, and/or
- b. Call 9-1-1 for emergency response

☐ Assure that hazard or danger is abated. Examples:
- a. For gas leak/fumes, evacuate, call for appropriate service.
- b. Rope/cordon/cone off dangerous areas (spills, holes, etc.)
- c. Fire is put out.

☐ Secure and document the scene (see Accident Investigator's Kit Appendix 3).
- a. Take pictures or video.
- b. Preserve area until investigation is complete, if possible
- c. Diagram scene, take measurements as needed (see Sketching Techniques, Appendix 4)
- d. Document the location of:
  - · Victim
  - · Witnesses
  - · Machinery
  - · Energy sources
  - · Hazardous materials

☐ **Determine who was involved or has relevant information and take statements** (see Interviewing Techniques & Skills Appendix 5). **Could include:**
- a. Injured worker
- b. Eyewitnesses
- c. Co-workers
- d. Management
- e. Police/First Responders

☐ **Evaluate Causal factors (see Surface and Root Causes Appendix 6):**
- a. People
- b. Equipment
- c. Material
- d. Environment

☐ **Prepare Report** (see Accident Investigation Report Appendix 2). Identify, at a minimum:
- e. What happened.
- f. What should have happened.
- g. What can be done to prevent another accident:
  - · Change in policies, procedures or practices
  - · Equipment repair
  - · New or remedial training
  - · PPE
  - · Discipline
  - · Management involvement
- h. Make recommendations.

Reminder: *As the Manager, the responsibility for correction of unsafe work practices and conditions lies with YOU.*

SAFETY COMMITTEE AND SAFETY MEETINGS

Safety Committee and Safety Meetings

http://osha.oregon.gov/OSHARules/div1/437-001-0765.pdf

The purpose of Safety Committees and Safety Meetings is to bring workers and management together in a non-adversarial, cooperative effort to promote safety and health. Safety Committees and safety meetings will assist you in making continuous improvements to your safety and health programs.

It is our policy at the City of Boardman for the Safety Committee and Safety Meetings to communicate and evaluate safety and health issues to protect the safety and health of all of our employees. Injuries and property loss from accidents are needless, costly, and preventable. Therefore, we must adhere to fundamental safety concepts that will help prevent injury and loss due to recognized hazards.

General Responsibilities

1. Overall Management: The overall management is responsible for preventing accidents and injuries. Our management provides direction and full support for all safety procedures, job training and hazard elimination practices.
2. Supervisors: Supervisors are directly responsible for jobtraining of their workers. Job training will include proper procedures, work practices and safe methods to carry out jobs. Supervisors must enforce our safety rules and take immediate corrective action to eliminate hazardousconditions.
3. Safety Committee: The Safety Committee's responsibility is to advise management on safety and health issues, safe work practices, and to provide leadership in protectingthe safety and health of all employees. The Safety Committee plays an important role as the prime forum for communication and exchange of information on all safety issues.
    a. The committee is charged with the responsibility to define problems and obstacles for loss prevention; identify hazards and suggest corrective actions; help identify employee safety training needs, and to developaccident investigation procedures.
    b. The Safety Committee will be kept fully informed on health and safety issues throughout our organization inorder to constantly review the effectiveness of the safety and health program.
    c. All personnel are expected to cooperate in all aspects regarding safety and health issues. Some of the fundamental safety concepts are:
        i. Accidents must be reported immediately to thesupervisor, on the same day they occur.
        ii. Required personal protective equipment will beworn by all employees. There are no exceptions.
        iii. Machines or equipment without adequate guarding, or in questionable condition, will not be used. Report hazardous equipment to the supervisor.
        iv. Hazardous conditions, or other safety concerns,are to be reported to the supervisor immediately.

The Safety Committee's Goals and Duties

The following obligations have been assigned to the Safety Committees in compliance with Oregon Administrative Rule 437-001-0765:

1. Work with management to establish, amend, or adopt accident investigation procedures that will identify and correct hazards.
2. The committee, or its members, will not interfere with the work of staff and they will not disturb the affairs of any department, or challenge supervisor authority.
3. Have a system that allows employees an opportunity to report hazards, as well as safety and health related suggestions.
4. Establish procedures for reviewing inspection reports and for making recommendations to management.
5. Evaluate all accident and incident investigations and make recommendations for ways to prevent similar events from occurring.
6. Make Safety Committee meeting minutes available for all employees to review.
7. Evaluate management's accountability system for safety and health and recommend improvements. Examples include use of incentives, discipline, and evaluating success in controlling safety and health hazards.

Safety Committee Responsibility and Authority

1. The Safety Committee does not make policy, but it is responsible for recommendations to Management on employee safety and health issues. The supervisor will consider each recommendation and notify the Safety Committee what action will be taken, why, and when by the next scheduled safety meeting. (See Appendix 3, page 47
2. The committee, or its members, will not interfere with the work of staff and they will not disturb the affairs of any department, or challenge supervisor authority.

Committee Membership

1. The committee will be composed of an equal number of employer-selected members and employee-elected or volunteer members. If both parties agree, the committee may have more employee-elected or volunteer members. Safety Committee members can be volunteers, or elected by their peers, and represent the various departments in our organization.
   Note: If you have 20 or fewer employees, your committee needs at least 2 members. If you have more than 20 employees, your committee needs at least 4 members. However, it is generally recommended that there is a member from each functional area or department represented on the safety committee.
2. Employee members must represent major activities of our operations.
3. Management representatives should have authority to make decisions regarding unsafe acts and hazards identified by committee members.
4. Safety Committee participation will be used to provide positive reinforcement to those who take the extra effort to make our facilities a safe environment, thus making committee participation a valued activity.
5. 5. Employees shall be encouraged to submit safety recommendations, concerns, etc. to their Safety Committee representative.

Safety Committee Organization and Operational Procedures

A centralized Safety Committee must make certain that the committee membership represents the safety and health concerns of all locations. Per OR-OSHA requirements, fire departments are

required to have their own safety committee, but it is recommended that it have a representative that reports to the central safety committee as well.

Basic Operations

1. The Safety Committee will meet monthly on entity time.
2. The committee will have a chairperson elected by the committee members, and this person will serve as the chairperson for one to two years.
3. Employee representatives attending Safety Committee meetings required by OAR 437-001-0765 or participating in Safety Committee training or instruction shall be compensated at their regular rate of pay.
4. Employee representatives will serve a continuous term of at least one (1) year.
5. Safety Committee members will receive training in Safety Committee operations, the principles of accident/incident investigations for use in evaluating those events, and hazard identification.
6. Safety Committee Member duties:
    a. Be active in completing assignments given by the chairperson, as well as acting as an area representative in matters pertaining to health and safety.
    b. Observe how the safety and health policies are enforced in the work environment.
    c. Advise supervisors about situations which could lead to injury or illness.
    d. Recommend safeguards and warn of potential hazards.
    e. Be open to education and training.
    f. Conduct quarterly workplace inspections.

Meeting Conduct

The meeting shall be conducted following a prescribed format:

1. The committee shall hold regular meetings at least once a month, except in those months in which the mandatory quarterly safety inspections are made. Quarterly inspections can be substituted for the monthly meeting in the month the inspection is made.
2. Committee Written Records:
    a. Minutes will be kept for each meeting and will be maintained for three years for inspection by OR-OSHA. The records will be kept in the [location of minutes]. The minutes for each meeting should include the following:
        i. A record of who attended the meeting.
        ii. Meeting date and time.
        iii. All safety and health issues discussed, including tools, equipment, work environment, and work practice hazards.
        iv. Recommendations for corrective action and a reasonable date by which management agrees to respond.
        v. Person responsible for follow-up on any recommended corrective actions.
        vi. All reports, evaluations, and recommendations made by the committee.
        vii. Copies of the meeting minutes will be given to all committee members, the Supervisor, and additionally made available to all employees through posting on the appropriate bulletin boards.

Conducting Inspections

1. The committee will have established procedures for workplace inspections, which will be conducted by a Safety Committee team in order to assist in locating and identifying safety and health hazards.

2. The inspection team shall include management as well as employee representatives.
3. Any safety deficiencies identified will be made known to the supervisor so that corrective action may be taken.
4. Inspections will be completed on a quarterly basis for all primary fixed locations.
5. The committee will additionally implement procedures for the review of all safety inspections and means of making appropriate recommendations to the supervisor or managers as to how to eliminate hazards and unsafe work practices in the workplace.
6. A written record of all such inspections, related recommendations and the Management's response will be maintained by the committee as a part of its normal recording procedures.

Accident Investigations

1. The Safety Committee shall work with management to establish procedures for the investigation and review of all safety-related incidents including injury, illness, and deaths. (See Chapter 2 of the Safety Manual)
2. Accident investigations done by management will be reviewed as part of the monthly safety meetings. The committee will evaluate all injuries/illnesses and "near-miss" accidents reported to the supervisor and/or committee and any related investigations completed.
3. If upon review, the committee feels additional information is required, they may send representatives to the accident site to ensure that the actual root cause of the event has been identified.
4. The committee, upon such review, will make recommendations to the supervisor as appropriate for the purpose of preventing recurrence of such events.
5. At least annually the committee will review and provide comment as it relates to:
    a. The injury and illness statistical analysis.
    b. Our overall safety program – which includes policies, procedures, and training.
    c. Management's accountability system for safety and health.

Safety Committee Training

6. Members of the Safety Committee will receive required periodic training as relates to the following areas:
    a. The function and duties of the Safety Committee.
    b. Hazard identification in the workplace.
    c. The principles regarding effective accident investigation.
7. A written record of the training needs to be maintained.
8. The Supervisor or Department managers will ensure that training is provided.

Effective Safety Committee Operation

Only the planning and effective joint leadership of management and staff who are on the Safety Committee can build a program which lasts. The Safety Committee will be constructive, providing guidance and leadership in matters pertaining to the overall health and safety of our organization.

Safety Meetings

An employer who has 10 or fewer employees can hold Safety Meetings in lieu of having a Safety Committee.

1. Attendance:
    a. Include all available employees.
    b. Include at least one employer representative authorized to ensure correction of safety and health issues.

   c. Be held on company time and attendees will be paid at their regular rate of pay.
   d. Meetings will be held at least monthly.
2. Safety meetings will discuss:
   a. Safety and health issues.
   b. Accident investigation causes and the suggested corrective measures.
3. Meeting Minutes:
   a. A written record of each meeting will be documented, made available to all employees, and kept for three years that includes the following:
      i. Hazards related to tools, equipment, work environment and unsafe work practices identified and discussed during the meeting.
      ii. The date and time of the meeting.
      iii. The names of attending employees.

Safety Committee Forms

1. Safety Committee Standard Minutes Form
2. Hazard Report Form
3. Safety Committee Inspection Form

Safety Committee Minutes

Meeting was opened by _____, Chairperson,
On _____ with the following members present:

Name	Work Title	Department

1._____

2. _____

3. _____

4. _____

5. _____

6. _____

Minutes/Dates
Minutes were adopted as written or changed per the Safety Committee amendments.
The chairperson read the minutes of the previous meeting, which were adopted as read or changed per the committee amendments.

Business Items	Action Completed

Old Business

- Item:
- Item:
- Item:

Note: for additional old business use back of the page

New Business

- Item:
- Item:
- Item:

Note: for additional new business use back of the page

Accident Reports:

Safety Committee Minutes, Page 2, Date: _____

Business Items Action Completed

Old Business

- Item:
- Item:
- Item:
- Item:
- Item:
- Item:

New Business

- Item:
- Item:
- Item:
- Item:
- Item:
- Item:

Accident Reports:

Additional Comments:

Hazard Notification Report Form

Person Initiating the Report: _____ Date: _____

Equipment/Operation system involved:

_____
_____
_____
_____
_____

Description of hazard and/or accident which might result:

_____
_____
_____
_____
_____

Conditions which might contribute to the hazard or accident:

_____
_____
_____
_____
_____

Possible Means to Control Hazard or Accident Potential:

_____
_____
_____
_____
_____

Report Given to: _____Date: _____

Action Taken:

_____
_____
_____
_____
_____

Reviewed by Supervisor / Manager: _____ Date: _____

Reviewed by Reporting Employee: _____ Date: _____

Safety Committee Inspection Form

Location: _____ Date: _____

Inspection Team:

1. _____ 3. _____

2. _____ 4. _____

The following items were noted during Safety Committee inspection walk through of our facilities:

1. **Hazard /OR-OSHA Rule Violation Issue:**

_____

_____

Committee Recommendation:

_____

_____

Management Response/Planned Action:

_____

_____

Completion Date: _____

2. **Hazard /OR-OSHA Rule Violation Issue:**

_____

_____

Committee Recommendation:

_____

_____

Management Response/Planned Action:

_____

_____

Completion Date: _____

Safety Committee Inspection Form, Page 2 Date: _____

3. **Hazard /OR-OSHA Rule Violation Issue:**

_____

_____

Committee Recommendation:

_____

_____

Management Response/Planned Action:

_____

_____

Completion Date: _____

4. **Hazard /OR-OSHA Rule Violation Issue:**

_____

_____

Committee Recommendation:

_____

_____

Management Response/Planned Action:

_____

_____

Completion Date: _____

5. **Hazard /OR-OSHA Rule Violation Issue:**

_____

_____

Committee Recommendation:

_____

_____

Management Response/Planned Action:

_____

_____

Completion Date: _____

EMERGENCY ACTION, FIRE PREVENTION PLAN, AND FIRST AID

Emergency Action, Fire Prevention Plan, and First Aid
http://osha.oregon.gov/OSHARules/div2/div2L.pdf
http://osha.oregon.gov/OSHARules/div2/div2E.pdf
http://osha.oregon.gov/OSHARules/div3/div3C.pdf
http://osha.oregon.gov/OSHARules/div2/div2K.pdf

We have adopted this Emergency Action and Fire Prevention Plan to assist in preventing an emergency from occurring and if one should occur, to minimize the impact on our staff, our property and equipment and the public using our facilities. This plan is supported by maps that are posted in each of our buildings. Our main responder in all emergencies is the local Fire Department or other local Emergency Responder (i.e. Coast Guard, See Appendix 1 Listing Emergency Response Personnel, page 7.9).

Definitions
The following are OR-OSHA definitions that are key to understanding the legal requirements for this plan.

Emergency Action Plan: A plan for a workplace describing what procedures the employer and employees must take to ensure employee safety from fire or other emergencies.

Emergency Escape Route: The route that employees are directed to follow in the event they are required to evacuate the workplace or seek a designated refuge area.

Exit Access: A means of egress, which leads to an entrance or exit.

Exit: A means of egress that leads employees out of the building.

Fire Inspection: A visual check of fire protection systems and equipment to ensure that they are in place, charged, and ready for use in the event of fire.

Fire Protection System: This includes fire extinguishers and automatic fire sprinkler systems.

Incipient Stage Fire: A fire, which is in the initial or beginning stage and can be controlled or extinguished by portable fire extinguishers without the need for protective clothing or breathing apparatus.

Maintenance: The performance of services on fire protection equipment and systems to assure that they will perform as expected in the event of a fire. Maintenance differs from inspection in that maintenance requires the checking of internal fittings and devices.

Responsibilities
(See Appendix 1 Listing Emergency Response Personnel, page 57)

1. Management: Management is responsible for ensuring that all employees are trained and informed about this Emergency Action Plan. Employees will be updated when the plan

changes. Management will ensure that the proper safeguards and fire protection systems are maintained.

2. Supervisor: The supervisor plays a critical role in ensuring that all appropriate outside responders are notified. The supervisor will implement the call outs for emergency notification and to outside responders if employees have not already made the 911 call.
3. Emergency Coordinator: The Emergency Coordinator is appointed by the supervisor. The Emergency Coordinator's responsibilities include:
    a. Assessing the situation and determining if the Emergency Action Plan should be implemented.
    b. Directing the evacuation of personnel.
    c. Making sure that Management has been notified to ensure that appropriate outside emergency services have been notified.
    d. Directing the shutdown of operations when necessary.
    e. Accounting for personnel involved in the incident including outside contractors and visitors to our facilities.

    Note: The coordinators are not to enter a situation with uncontrolled emergency. These employees will be trained as to the limitations of their role.
4. Fire Protection System Maintenance: This individual ensures that all the fire protection systems are maintained and tested as required by OR-OSHA regulations and as outlined by the insurance representatives.
5. All Employees are to follow this plan for preventing emergencies and conform to the plan's evacuation and emergency notification as outlined in the plan. All employees are encouraged to bring up any questions or suggestion on how to improve the plan with their supervisor.

Potential Emergencies

The following are the main type of potential emergencies at our facilities:

1. Fire
2. Chemical Spills or Releases
3. Medical Emergency due to an accident or illness
4. Bomb Threat
5. Workplace Violence
6. Terrorism that would be covered by Homeland Security requirements.
7. Environmental Emergency: Windstorm, Flood, Earthquake, Tsunami, Tornado, Snowstorms

Overall Policy

1. All losses including fire, explosion, windstorm, flood damage, electrical, etc. shall be reported to the supervisors or managers. Report any incident which results in the operation of fire extinguishers even though there may not be an actual loss sustained.
2. Selected employees shall receive fire extinguisher training and the training will be updated once a year (if employees are required to extinguish the fire in the incipient stages).

General Procedures: Fire and Other Significant Chemical Releases

1. Emergency escapes procedures and emergency escape route assignments.
    The types of immediate actions are based on the nature of the emergency.
    a. For incipient fires, immediately implement fire control action and clear all non-essential personnel and public from the area.

b. For chemical spills, our responders will initiate a defensive action to contain the spill from migrating. Depending on the nature of the chemical and extent of the spill, the immediate employees may clean-up the spill or call in the Fire Department or HAZMAT contractor.
c. No employee is to perform hazardous chemical clean-up duties that he/she is not trained in nor has the appropriate personal protective equipment.
d. Use the nearest exit which will take personnel away from the fire.
e. For an ***immediate total site emergency evacuation*** employees and public are to all leave by using the nearest exit doors and assemble in the areas shown on building evacuation maps that are posted at the main exits on each floor of the buildings.
f. For a ***non-immediate controlled evacuation***, (e.g. advance notice of a flood condition) employees and the public will be given instructions by the supervisor on how to proceed. For ***localized evacuations*** (only one ***building***) the notification message will be given, and everyone will move into the pre-planned sites as described next.
g. Report to the Emergency Coordinator and wait for further instructions during emergency evacuation.
h. Maps outlining places of refuge will be posted in each building at the exit doors.
i. Maps of the building, including chemical and explosive materials, have been provided to emergency services so that they are aware of the layout of the facility and any hazards inside.

2. Procedures to be followed by employees who remain to perform critical operations before they evacuate.
    a. Supervisors and trained personnel are responsible for ensuring that critical operations are shut down before they evacuate (if it can be done without harm to the individual). Those operations could include the following depending on the emergency:
        i. Isolating power to equipment which is on fire or related to the emergency. Employees expected to terminate power in emergency affected areas will be trained in how to shut off electrical power, especially during a fire or flood.
        ii. If there is a motor fire, the motor should be turned off. ***Never spray water on live electrical connections or motors. (Electrical shock hazard*** will occur.)
3. Procedures to account for all employees after emergency evacuation.
    a. The Emergency Coordinator and/or supervisors will account for the employees or public in their work areas. If a person is missing, the information will be communicated to the outside emergency responders. Our employees are not to re-enter any facility that has been evacuated due to an emergency, as we do not have the proper equipment or training.
    b. The Emergency Coordinators will designate someone to direct the fire department to the fire and show them where the water hook-up is located.
    c. No one is to leave the evacuation area site unless instructed by the person in charge.
4. The preferred means of reporting fires and other emergencies:
    Calling 911 will get immediate emergency services.
    (See Appendix 1 for basic response and call list, page 57)

Fire Protection Plan

The following procedures are additional policy issues that relate directly to fire protection and fire response actions.

Fire Extinguishers

1. Access to, or visibility of, the fire extinguisher should not be obstructed. If the visibility is obstructed, a "fire extinguisher" sign should be mounted in plain view so that employees or citizens can see their location.
2. It is recommended that the fire extinguisher location be shown on the evacuation maps.
3. The operating instructions of the fire extinguisher name- plate should be legible and facing outwards.
4. Fire extinguishers should be visually inspected monthly to ensure they are fully charged and in their designated locations. The locations will be clearly marked.
5. They should be accessible and in operable condition at all times.
6. Ensure that the fire extinguisher is fully charged (indicator pointing to the green).
7. Ensure that the locking pin is intact, and the tamper seal is unbroken.
8. All fire extinguishers should be mounted on the wall or secured in a vehicle/equipment.
9. If the service tag shows that the licensed fire extinguisher maintenance contractor has not inspected and serviced the fire extinguisher in the past 12 months, notify your supervisor/manager.

The overall fire protection system is managed by the supervisor, who hires a fire extinguisher contractor to perform the following activities:

1. Full annual maintenance check on each extinguisher that includes:
    a. Inspecting and/or testing external and internal parts, checking the quantity and quality of the contents and assuring operational capability.
    b. A qualified person must do the maintenance check. Persons deemed qualified by the Oregon Office of State Fire Marshal or local fire authorities will do the annual maintenance checks.
    c. Keep a record of the maintenance check until a new check record replaces it. This record will be available to OR-OSHA on request.
    d. Replacement extinguishers will be provided, or some other method of coverage will be used for the affected area while extinguishers are out of service for the maintenance check.
    e. The inspection date and the initials of the person performing this inspection will be recorded on a tag attached to the extinguisher.
2. Any extinguisher that is not fully operable will be removed and replaced.
3. Internal examinations of fire extinguishers will be done at intervals not longer than the requirements set in Table 2 of the OR-OSHA Standard 437-002-0187 Portable Fire
4. Extinguishers or when the extinguished shows corrosion or physical damage. Stored pressure dry chemical extinguishers require a 12-year hydrostatic test and are subject to maintenance every 6 years. Most other types of fire extinguishers are hydro tested every 5 years.
5. Non-rechargeable extinguishers are good for 12 years from the date of manufacture and then will be taken out of service.
6. Proper maintenance of equipment and systems installed on heat-producing equipment to prevent accidental ignition of combustible materials in accordance with established procedures.

Selection of Portable Fire Extinguishers
Portable extinguishers have been selected on the basis of the classes of anticipated fires as follows:

1. **Class A Fire:** Ordinary combustible materials (paper, wood, cloth, some rubber and plastics).
2. **Class B Fire:** Flammable or combustible liquids and gases, greases and similar materials and some rubber and plastics.
3. **Class C Fire:** Energized electrical equipment where the safety of the employee requires use of electrically non-conductive extinguishing media such as carbon dioxide or dry chemical.

   Note: Multipurpose, dry chemical extinguishers designated ABC are approved for use on Class A, B, and C fires.
4. **Class D Fire:** Combustible metals

Distribution of Portable Fire Extinguishers
The proper distribution of portable fire extinguishers depends on three criteria:

1. How far an employee must travel to the extinguisher.
2. How large an area is to be protected per extinguisher.
3. How the hazard has been classed (A, B, C or D).
4. Our policy on the distribution and sizes of portable fire extinguishers is:
   a. Fire extinguishers will be distributed in sufficient locations so that the actual travel distance employees must walk to reach an extinguisher (i.e., around partitions, through doorways and aisle ways) is not greater than 50 feet. Exception: For areas where there is a potential for a fire involving combustible cooking material (class K fires), fire extinguishers will be within 30 feet.
   b. Distribution: extinguishers are located at all major door entrances and exits in each of our facilities.
   c. See posted maps outlining locations.

Fire Exits
All fire exits will be visibly marked with signs and kept accessible at all times.

1. All fire exits will be unlocked from the inside to allow for a quick exit. No deadbolts or locks that cannot be unlocked by turning the handle or pushing on a panic bar can be present on exit doors.
2. All non-exits which could be mistaken for an exit will be marked with a sign stating "Not an Exit" to reduce confusion should an evacuation be needed.

Welding Safety System
Maintenance personnel are responsible for conducting welding in a safe manner and ensure that combustibles in the welding area are removed or protected. The staff is required to:

1. Assign a Fire Watch for hazardous areas due to wood dust, combustible materials or debris.
2. Wet area down prior to welding with hoses if the structure or area contains combustible materials.
3. Keep a fire hose or extinguisher in the immediate area.

Outside contractors are expected to follow Fire Watch procedures. The Project Manager in charge of any outside contractor operations will ensure that the contractors are informed and equipped to handle necessary Fire Watch and site preparation.

First Aid for Medical Emergencies

First-aid trained personnel are not required at every place of employment. Our Emergency Medical Plan must identify either the use of a qualified first-aid person on site, or use of an outside service. If an outside service is considered, the plan must include the identity of the service, and the methods used to access it. Employers must be able to identify the location of the nearest emergency response provider and the expected response time of that system. If local outside services are not available, or response times are not considered satisfactory, a qualified first-aid person(s) must be available.

1. Emergency Number Posting. The emergency telephone number – 911 shall be posted next to every plant phone. The names of first aid/CPR trained personnel are to be posted on the lunchroom or other bulletin boards or on the first-aid kits.
2. First-Aid Supplies. First-aid supplies will be in proximity to all employees. The supplies will be located in labeled safety supply/first-aid cabinets at the following areas in our facilities (location will also be shown on our evacuation maps).

   The first-aid supplies will be monitored by the department supervisors or Safety Committee. Supplies will be replenished on a regular basis (i.e. monthly, quarterly, etc.) The eye wash solution must be current, and any expired solution should be thrown away and replaced. (Please note that when a building is plumbed, a plumbed eye wash is required).
3. General Equipment Available for Blood borne Pathogens. The supervisor will ensure that employees required to respond or provide CPR and first aid are provided appropriate personal protective equipment. This includes:
   a. Two pairs of disposable latex gloves
   b. Disposable safety goggles
   c. Disposable micro shield with one-way valves for use in giving CPR.
4. Sharps containers will be located in the appropriate locations within our facilities. Sharps containers will be properly disposed of immediately when they are full and will be replaced with new containers immediately.
5. Blood spill kits will be provided to clean up large blood or body fluid spills.

Basic Employee Emergency Action Response

Emergency escape procedures and emergency escape route assignments (including but not limited to maps outlining exits, location of fire emergency pull down stations, first aid kits, and fire extinguishers) will be posted in work areas.

1. During emergency evacuations, employees will:
   a. Use the nearest exit that will take you away from the fire, or chemical leak/release.
   b. Move to the refuge area outlined on the evacuation maps for your work area in the event of a fire/chemical or other emergencies.
   c. In a chemical gas emergency, move up wind of the leak.
   d. Report to the Emergency Coordinator and wait for further instructions.
   e. No employee is to leave the grounds until cleared by the Emergency Coordinator.
2. Upon discovering a fire that is not readily controllable with the materials and equipment at hand, the employee must call 911.
3. Upon discovering an incipient (small) fire, the employee should use the fire extinguisher and notify the supervisor.
   a. The procedure is:
   b. Use a fire extinguisher and alert fellow employees.

c. Immediately notify the Emergency Coordinators through the call list.
d. Provide the following information:
    i. Location of emergency—be as specific as possible
    ii. Type and severity of the fire, chemical release, medical emergency or other.
    iii. If electrical equipment is threatened
    iv. Actions currently being taken, if any.

4. Upon discovering a chemical spill:
    a. Immediately notify the Emergency Coordinators through the call list. If emergency, call 911 (or 9-911 if dialing 9 is required to reach an outside line) for Fire Department and Hazmat Team response.
    b. If trained in the Spill Control plan, immediately begin procedures to contain and control the release.
    c. If significant release, immediately evacuate the area.
5. Medical Emergency
    a. Immediately notify the designated first aid personnel (supervisors) through the call list.
        i. Call 911 (or 9-911 if dialing 9 is required to reach an outside line) emergency as to the need for emergency medical treatment.
        ii. Other emergency number: 541-676-5317
    b. The supervisor appoints Emergency Coordinators.
    c. For further information or explanation of duties under the plan or copy of the plan, contact your supervisor.

LISTING EMERGENCY RESPONSE PROCEEDURES AND PERSONNEL

FIRE & MEDICAL EMERGENCIES	911
CHEMICAL SPILL OR CONFINED SPACE RESCUE	911

MANAGEMENT PHONE NUMBERS:

Name	Cell Phone
Brandon Hammond, City Manager	541-303-5557
Richard Stokoe, Chief of Police	541-212-5523
Rolf Prag, Public Works Director	541-314-2507

BLOOD BORNE PATHOGEN EXOPOSURE CONTROL PLAN

Bloodborne Pathogen Exposure Control Plan

29 CFR 1910.1030 OR-OSHA blood borne Pathogens Standard OAR 437 Division 2, Subdivision Z
http://osha.oregon.gov/OSHARules/div2/div2Z-1030-blood-borne.pdf
This Blood borne Pathogen Exposure Control Plan covers all our staff with potential blood or body fluid exposure. The Plan Coordinator is the supervisor, assigned to see that this plan is followed, reviewed, and updated annually.

The training required by the Blood borne Pathogen Plan will be arranged or coordinated through your supervisor. The training will occur at the time of initial assignment and annually thereafter for all covered staff.

This Blood borne Pathogen program describes the essential elements needed to protect our employees who might, in the expected course of fulfilling their everyday staff responsibilities, come in contact with human blood or body fluids.

It is our policy that all our employees will be trained in our Blood borne Pathogen Program. There will be an annual refresher-training program.

This Exposure Control Plan includes the following topics:

1. Universal Precautions (Engineering Control Methods)
2. Work Practices: Handwashing techniques.
3. Personal Protective Equipment: Selection & Limitations
4. Housekeeping & Methods of Decontamination
5. Infective Waste Handling/Disposal Procedures
6. Hepatitis B Virus Vaccinations: Medical Surveillance
7. Hepatitis C Virus
8. Post Exposure Evaluation & Follow-up
9. Recordkeeping
10. Employee Training

Exposure Determination

1. The OR-OSHA Bloodborne Pathogen standard applies to all employees whose routine job duties may result in potential exposure to human blood or other potentially infectious body fluids (OPIMs). OR-OSHA defines occupational exposure as meaning anticipated skin, eye, mucous membrane, or piercing of the skin contact with blood or other potentially infectious materials that may result from the performance of an employee's routine job duties.
2. **Note:** Employees who perform first aid as a "Good Samaritan Act" and not as an assigned responsibility will be provided training, and first aid kits are available in designated areas. These employees, however, will not be part of the pre-exposure Hepatitis B vaccinations. Any workplace exposure incident will be treated as listed in this plan's medical response section.
3. General "self-help" first aid kits and supplies are found in various locations in our facilities and buildings. These kits provide basic first aid supplies but are not indicated for use by

designated first aid provider. Those designated first aid providers will have specially assigned first aid kits, which include basic barrier protection.

Definitions

Bloodborne Pathogens: Any pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Hepatitis B and C VIRUS (HBV and HCV): Diseases spread through sexual contact, blood transfusions, contaminated needles, and contact with body fluids on non-intact skin and mucous membranes. (Viral infection of the liver.)

Human Immunodeficiency Virus (HIV): The virus that can cause Acquired Immune Deficiency Syndrome (AIDS) and is spread in the same manner as HBV or HCV.

Exposure Incident: A specific eye, mouth, other mucous membrane, non-intact skin, or skin piercing contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

Engineering Controls: Controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace.

Needleless systems: A device that does not use needles for:

1. The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established.
2. The administration of medication or fluids
3. Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

Universal Precautions: A set of protocols that are recommended by the Center for Disease Control and Prevention and now required by OR-OSHA to prevent skin and mucous membrane exposure when potential contact with blood or body fluids are anticipated.

Overall Responsibilities

The following exposure control plan has been developed in compliance with the OR-OSHA standard. Our plan is designed to minimize or eliminate our employees' exposure to blood borne pathogens.

1. A copy of this plan is in the Safety Manual and will be on file in the supervisor's office.
2. All new employees will read this plan at the time of their initial safety orientation and may have a copy if he/she wishes.
3. All employees will use "universal precautions" to prevent contact with blood and other potentially infectious body fluids. Where it is difficult to differentiate between body fluid types, all such body fluids shall be considered potentially infectious materials.
4. The supervisor will be responsible to:
    a. Coordinate and provide resources to ensure that employee training is provided and documented.
    b. Maintain a list of affected employees in a confidential and locked file.

c. Coordinate and provide resources to ensure Hepatitis B vaccinations are offered and records are maintained.
d. Coordinate with the supervisor exposure incident investigations and appropriate medical treatment and follow-up for hepatitis and HIV seroconversion. Confidential and locked records will be maintained by the Human Resource Department.
e. The supervisors will ensure that appropriate equipment is provided to employees to protect against contact with blood or other infectious body fluids, which includes:
    i. Personal protective equipment required for protecting employees from blood or other infectious body fluids when performing their routine duties.
    ii. Placement of first aid kits, including infection control materials in all vehicles.
    iii. Appropriate personal protective equipment for use during accident investigation when blood may be present.

Methods of Compliance
Universal Precautions: Any employee providing help to anyone who is injured or has blood or body fluids on them must use Universal Precautions. Universal Precautions are a set of protocols that are recommended by the Center for Disease Control and Prevention and now required by OR-OSHA to prevent skin and mucous membrane exposure when potential contact with blood or body fluids is anticipated.

The protocols are based on three basic premises:
1. Treat all blood or body fluids as potentially infectious.
2. Protective barriers must be used which reduces the risk of exposure.
3. The barriers only supplement existing infection control measures such as hand washing.

Universal Precautions specifically include:
1. Gloves must be worn when touching blood or body fluids or non-intact skin.
2. Gloves must also be worn when handling items or surfaces obviously soiled with blood or body fluids.
3. Bandage any cut, wound or break in the skin with water- tight bandages to prevent contact with blood or body fluids.
4. Wash hands thoroughly with soap and water for at least 10-20 seconds after contact with blood or body fluid or handling contaminated articles. This procedure should be done even after wearing gloves.
5. Employees shall use a CPR face shield with a one-way flow valve when performing CPR.

The following procedures need to be used when washing hands/body as part of our Universal Precaution measures:
1. Remove gloves after first washing with soap and water. Washing only helps reduce the risk of contracting blood/ body fluids when removing the gloves. (Disposable gloves are not being washed for re-use.)
2. Pull gloves from skin using the outer top part of glove so the other glove does not contact the skin. To pull off the glove with the other ungloved hand place your fingers at the top interior of the glove and pull off the glove.
3. Wash hands after removal of gloves or whenever you have contact with body fluids. If water is not immediately available, then alcohol or antiseptic towelettes may be used.

4. Use soap and warm water (hot water removes oil from the skin). The hands and forearms should be washed.
5. Rub your hands vigorously in a circular motion and rinse under running water. This aids in the mechanical removal of bacteria.
6. Wash all surfaces, including the back of hands, wrists, between fingers, under fingernails. Your hands should be washed well for 10 to 20 seconds.
7. Rinse well.
8. Dry hands with paper towel.
9. Turn off the water using a paper towel instead of bare hands. Disinfect the water faucet with bleach solution and towel.
10. Full showering should be done as soon as possible if body contamination occurred. **Note:** Frequent hand washing destroys the natural oils and causes drying and cracking of the skin. Keeping the skin intact helps to prevent the invasion of bacteria and possible secondary infections. Hand lotion should be applied.
11. If you have open cuts or wounds, you should be wearing waterproof bandages.

Engineering and Work Practice Controls will be used to eliminate or minimize employee exposure. Where occupational exposure remains after institution of these controls, personal protective equipment will also be used.

1. The supervisor will identify, evaluate, and select engineering and work practice controls including safer medical devices on an annual basis. This evaluation will involve non-managerial front-line employees who are responsible for direct patient care. An evaluation will be conducted at each facility that involves direct patient care.
2. After a device is evaluated and selected, management will make a decision on implementing that device.
3. If a device is not purchased because of employee or employer concerns, those concerns will be documented by the supervisor. However, if the employer does not purchase a device that had employee support, the employer must also document the employee support as well as the justification for not purchasing that device.
4. If a device is purchased without the consent of the employees who evaluated it, the employer must document the employees' concerns as well as the employers' justification for purchasing that device.
5. All documentation required will be kept as part of this writ- ten Exposure Control Plan.

Personal Protective Equipment

General Equipment Available

The supervisor or your supervisor will ensure that employees are provided appropriate personal protective equipment. This includes:

1. First aid kits designated for authorized first aid providers will include at least:
    a. Two pairs of disposable latex gloves (more for police, fire, EMT's who are exposed to bloodborne pathogens on a regular basis)
    b. Disposable safety goggles
    c. Disposable CPR face shield with one-way flow valves for use in giving CPR.
2. Sharps containers will be in the appropriate locations within our facilities. Sharps containers shall be discarded immediately when they are full and will be replaced with new containers immediately.

3. The sharps containers are to be maintained in upright position, closeable, puncture resistant, leak proof on the sides and bottom, and clearly labeled "Biohazard" or red in color.
4. When picking up sharps (such as hypodermic needles) and broken contaminated glass, employees need to wear latex gloves and use tongs, rather than their fingers. Contaminated needles must not be broken, bent, recapped, or removed.

Limitations of Personal Protective Equipment

1. **Gloves:** Gloves can be torn or punctured. Gloves should be changed after contact. Disposable gloves should not be washed or disinfected for reuse. They also should not be used when visibly soiled, punctured, or when their ability to function as a barrier is compromised. Hands should be washed as soon as possible after removing gloves. If water is not available, then disposable disinfecting hand washing wipes should be used.
2. **Face/Eye Protection:** These items also need to be clean and maintained in good repair. They should be discarded if they do not function as indicated by the manufacturer's use and maintenance documentation.

Location of Personal Protective Equipment

Proper PPE is located in the first aid kits that are in each department.
Other locations as listed:
1. Public Works Shop – new supply above office in storeroom
2. Public Works Vehicles
3. Water Building

PPE needs to be maintained, cleaned, and kept in sanitary condition.

Housekeeping Requirements

1. The Hepatitis virus can survive for at least a week in a dried state at room temperature on work surfaces. HIV survival is less: 24 to 48 hours. As a result, it is important to ensure proper cleaning of all materials or surfaces contaminated with blood or body fluids.
2. Cleaning up blood or body fluids will be done as soon as possible. The chemical products use instructions need to be followed for proper dilution and application methods.
3. If the commercial disinfectants are not available, fresh bleach solution can be made and is effective. Approximately 13 ounces of bleach per one gallon of water) is effective. The bleach solution must be made fresh each day and kept in a shaded area (as sunlight breaks down the effectiveness of the bleach).
2. Employees will ensure that all garments penetrated by blood or body fluids are removed immediately or as soon as possible.
3. Contaminated laundry will be placed and transported in bags that are labeled or color-coded biohazard symbols. Whenever the laundry is wet and may soak through or leak from the container, it shall be placed and transported in leak proof red biohazard labeled bags.
4. Costs for laundering and cleaning of employee clothing or uniforms contaminated during work performance will be paid by our organization.

Cleaning and disposing of PPE

1. Disposable latex or vinyl gloves or clothes should be dis- posed of in the regular trash after use and cleaning unless soaked with blood or OPIM. If the latter, dispose in a bio-hazards container.
2. Goggles (that are not disposable) should be cleaned with soap and water and then wiped down with bleach solution, alcohol or other germicides if contaminated with blood or OPIM.
3. Puncture resistant gloves that become soiled will need to be disposed of, unless they are coated with a plastic material that is cleanable or are of washable leather.

Biohazard Waste Handling/Disposal Procedures

1. A biohazard waste which requires special handling and disposal is defined as "any liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other infectious materials and are capable of releasing these materials during handling; will be disposed of immediately in the proper containers."
2. The biohazard containers or bags must be able to contain all contents and prevent leakage of fluids during handling, storage, transport, or shipping.
3. Blood and other body fluids can be disposed of down the sanitary sewer in Oregon.
5. Though we do not expect to encounter any syringes (sharps), if they are found the following procedure must be followed. Sharps, including blood contaminated utility knives or broken pop bottles that are found will be disposed of in a closeable, puncture resistant, disposable container that is labeled and color coded as biohazard (red).
6. Procedures for picking-up sharps:
    a) Have sharps container ready.
    b) Use latex gloves or vinyl gloves.
    c) Use mechanical equipment (pliers, shovels, tongs, or dustpans) to pick up contaminated sharps, utility knives or scissors.
    d) Dispose of needle in sharps container.
7. When transporting containers of contaminated sharps and other regulated wastes from the use area, the containers will be closed to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.
8. The method of removing "contaminated waste" containers will include:
    a) Refer to definition of Biohazard waste, listed above.
    b) Sealing the sharp containers and any Biohazard bags (red bags) containing infectious waste materials.
    c) The containers or bags will be picked up when they are full by calling our local waste management company.
    d) The containers will be handled separately from the routine waste disposal system.

Hepatitis B Virus (HBV) Vaccination

1. All employees listed under the Exposure Determination are eligible to obtain the vaccination series at no cost and during normal working hours.
2. First Aid providers, as incidental to the employee's job duties, are not required to be provided HBV pre-vaccinations. Our operations will currently not provide the vaccinations unless there is a workplace exposure incident. If the employee declines to be vaccinated after an incident, a declaration declining will need to be signed.

3. The employees being offered pre-vaccinations series will go through their supervisor within 10 working days of initial assignment. An exception will be made if the employee can provide documentation of having previously received the complete hepatitis B vaccination series, and antibody testing shows that the employees is immune, or the vaccine is not allowed for medical reasons.
4. Employees will incur no cost for the medical evaluations, medical procedures including the hepatitis B vaccination series and post exposure follow-up or laboratory tests. All the procedures will follow the U.S. Public Health Service recommendations and under the supervisor of a licensed physician.
5. Employees who decline the hepatitis B vaccination offered them will sign the required waiver indicating their refusal. At any time, the employee may change his/her mind and the vaccination series will be offered. (See APPENDIX 2).
6. If a routine booster of hepatitis B vaccine is recommended by the U.S. Public Health Service at a future date, such booster will be made available to all affected employees.
7. Any employee who has a workplace exposure is covered by the incident and medical surveillance provisions of this plan and if they have not previously taken the HBV vaccination will be urged to be vaccinated immediately.

Exposure Incident Evaluation and Follow Up

Any employee who has an exposure incident (they are exposed to blood or body fluids) will immediately notify their supervisor, who will refer the employee to their private physician or to our local health care facility for a complete medical evaluation and follow up. (See APPENDIX 1, 68).

1. The supervisor will provide the treating physician or healthcare facility with:
    b. A copy of the Bloodborne Pathogens rule.
    c. A copy of the Bloodborne Pathogen Exposure
    d. Incident/Accident Report.
    e. Any medical records on the exposed employee regarding HBV vaccine status.
2. The health care provider will provide the employee with a written opinion of the evaluation. (See APPENDIX 2).

Post Exposure Investigation

As part of the follow-up on an "exposure incident" the Safety Committee will conduct a confidential investigation (keeping all personal health information confidential).

1. It is critical to remember that an exposure incident is an unprotected exposure to blood or other body fluids including a skin exposure involving contact with blood, especially when the exposed skin is chapped, scraped, or afflicted with dermatitis, or a needle/sharp exposure to blood or body fluids during the course of their work.
2. Additionally, exposure to the eyes or mouth is also considered an exposure incident.
3. Small splashes of blood on intact skin are not usually classed as an exposure incident.

The following steps are to be taken as part of the post exposure.
Investigation:

1. Report the incident/accident immediately to your supervisor, who will begin the process of investigating the incident and scheduling a confidential medical evaluation and follow-up activities for the employee.
2. The supervisor and employee will ensure that the circumstances of exposure are recorded and investigated. The enclosed Exposure Incident Form (APPENDIX 1) will be used to ensure that relevant information including the routes of exposure, the activity in

which the employee was engaged at the time of exposure, and the extent to which appropriate work practices and protective equipment were used and a description of the source exposure will be recorded.

3. Treatment will be sought as soon as practical but at least within 24 hours of the incident.
   a. Treatment involves information, if possible, about the source person and employee's medical condition and vaccination status.
   b. Once an exposure has occurred, a blood sample will be drawn after consent is obtained from the source.
4. Individual unless identification is infeasible. The blood will be tested for Hepatitis B and antibody to HIV as soon as feasible. The arrangement to obtain consent and testing will be performed by the Human Resource Department in conjunction with hospital, coroner or treating Physician. (The physician or clinic will provide the consent form.)
   a. Results of the source individual's testing will be made available to the exposed employee, and the employee will be informed of applicable laws and regulations concerning disclosure of the identity of the infectious status of the source individual. This will be done by the health care professional treating the employee.
   b. An exposed employee's blood will be collected as soon as feasible and tested after consent is obtained. If base- line blood is drawn, but the employee does not consent for HIV serologic testing, the sample will be preserved for at least 90 days. If within 90 days of the exposure incident, the employee elects to have the sample tested, such testing will be done as soon as feasible. Additional HIV follow-up testing will be offered based on the USPHS recommended schedule. Currently that includes a 6-week, 12 week and 6-month HIV test.

Recordkeeping

Medical Records will be established and maintained for each employee with occupational exposure.

The Human Resource Department will maintain the current employee medical records during length of employment. We will keep the records after employment for a minimum of 30 years. The record will be confidential and will contain the following information:

1. Name and social security number.
2. Copy of employee's vaccination status and any medical records that are relative to employee's ability to receive the vaccination.
3. Copy of the results of examinations, medical testing, and follow up procedures as the result of a post-exposure incident medical treatment.
4. Copy of medical professional's written opinion. A copy of the information provided to the medical professional.

Sharps Injury Log

The employer will establish and maintain a sharps injury log for the recording of percutaneous injuries from contaminated sharps. The information in the sharp's injury log will be recorded and maintained in such a manner as to protect the confidentiality of the injured employee. The sharps injury log shall contain, at a minimum:

1. The type and brand of device involved in the incident.
2. The department or work area where the exposure incident occurred.
3. An explanation of how the incident occurred.

Training Records
The Human Resource Department and Supervisor will maintain the training records for minimum of 3 years. This includes:

1. Dates of the training sessions.
2. Contents or summary of the training.
3. Names and qualifications of the people conducting the training.
4. The names and job titles of all people attending training sessions.

Training and Communication
The following lists the topics required to be covered in the annual Bloodborne Pathogen Program initial and annual training.

1. An accessible copy of the bloodborne standard and an explanation of its contents.
2. A general explanation of the epidemiology and symptoms of bloodborne diseases.
3. An explanation of the modes of transmission of bloodborne pathogens.
4. An explanation of the exposure control plan and how the employee can obtain a copy of the written plan.
5. An explanation of the appropriate methods of recognizing tasks and other activities that may involve exposure to blood or other potentially infectious materials.
6. An explanation on the use and limitation of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment.
7. Information on the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment.
8. An explanation of the basis for selection of personal protective equipment.
9. Information on the hepatitis B vaccine, including information on its effectiveness, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
10. Information on the appropriate actions to take and people to contact in an emergency involving blood or other potentially infectious materials.
11. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and medical follow-up that will be made available.
12. Information on the post-exposure evaluation and follow-up is required to be provided for the firefighter following an exposure incident.
13. An explanation of the signs and labels and /or color coding for biohazardous material.
14. An opportunity for interactive questions and answers with the training instructor. The training program will be given initially and annually or all staff who may have blood or infectious body fluid contact.

The training is to be documented and a written record kept in the employee's training file for at least 3 years. Each employee is provided access to all the training materials including video tape program and instructor's background information.

Bloodborne Pathogen Exposure Incident/Accident Report

- Immediate supervisor should complete this form promptly with employee input.
- Please print clearly and forward to the Supervisor

Employee: _____ Supervisor:_____
Date of Incident/Accident_____ Time of Incident/Accident: _____
Incident/Accident Location and case number (if applicable) _____

Describe the incident fully (route of exposure, circumstances, describe type of controls in place at time of incident including engineering controls and personal protective equipment worn, identify unsafe conditions and/or actions, relevant police reports). _____
_____
_____
_____
_____
_____

Describe employee's injury (part of the body/type of injury): _____
_____

Describe first aid/medical treatment (when and by whom): _____
_____

When was the accident reported: _____ To whom? _____
If not immediately reported, WHY? _____
List Names of Witnesses: _____
_____

Is the source individual known? Yes__ No___ If so please provide name/address so that consent for blood testing can be obtained.
Name: _____Address: _____

What corrective action was taken or is planned, to prevent similar accidents from occurring in the future?_____
_____

Referral to medical evaluator has been done. Yes___ No___ Date of referral_____
If not explain: _____
_____

Note: The Oregon health division "source consent" form will be sent to the source or his/her medical provider to attempt to obtain permission for source HIV/HBV blood testing. **The medical evaluator has been informed as to our policy and the OR-OSHA rules. All medical data is confidential.**

Name of investigator: _____
Title: _____ Date: _____

Additional Comments _____
_____
_____

Healthcare Professionals Written Opinion for Post-Exposure Evaluation and Follow-up

DIRECTIONS: This form needs to be filled out by the healthcare professional following an exposure incident and returned to the employer. The employer will maintain a copy of this form PLUS give the exposed employee a copy within 15 days.

The employee has been informed of the results of the evaluation. Yes: · No: ·

The employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment. Yes: · No: ·

Healthcare Provider's Signature: _____ Date: _____

The blood or body-fluid source individual will be asked to consent to having their blood collected and tested for HBV and HIV. For our clients under 18 years of age, if they are the **source individual, their legal guardian will be asked to give consent for testing. The following information must be recorded:**

Name: _____

Blood Taken: Yes: · No: · Date taken: _____

Written/Oral Consent Given For: HBV Testing: Yes: · No: ·
HIV Testing: Yes: · No: ·

Results Made Available to The Employee: Yes: · No: · Date Made Available: _____

Name of Medical Center: _____
Name of Treating Physician: _____

Employee Declaration Declining Hepatitis B Vaccination

Employee Declaration Declining the Hepatitis B Vaccination

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want **to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.**

Employee Signature: _____ Date: _____

Supervisor: _____

Department Manager: _____

CONFINED SPACE ENTRY PLAN

1 Purpose

This procedure provides the process for safely entering or working in confined spaces.

1.1 Scope

1.1.1 This procedure addresses confined space entry according to OR-OSHA Oregon Administrative Rule Division 2, Subdivision J, 1910.146, Confined Spaces

2 Responsibilities

2.1 Site Personnel

2.1.1 Maintains awareness that confined spaces exist, how these spaces are identified, and that there is a restricted process to enter the confined spaces safely.

2.1.2 Ensures they and their coworkers only enter confined spaces under the requirements of this procedure.

2.2 Authorized Entrant

2.2.1 Understands the potential hazards faced during entry, as well as the signs, symptoms, and consequences of exposure to those hazards.

2.2.2 Maintains communication with Attendant so Attendant can monitor the Authorized Entrant's status and alert Authorized Entrant of the need to evacuate the space if necessary.

2.2.3 Alerts the Attendant whenever the Authorized Entrant detects a dangerous or hazardous condition or warning sign or symptom of exposure to a dangerous situation.

2.2.4 Exits from the confined space as quickly as possible whenever they:

2.2.4.1 Receive an order to evacuate from the Attendant or the Entry Supervisor, or

2.2.4.2 Recognize any warning sign or symptom of exposure to hazards of the confined space, or

2.2.4.3 Detect a dangerous or hazardous condition, or

2.2.4.4 Hear an evacuation alarm.

2.3 Attendant

2.3.1 Knows the hazards that may be faced during entry, including information on the type of hazard, as well as the signs, symptoms, and consequences of exposure to those hazards.

2.3.2 Fulfills Attendant duties, including:

2.3.2.1 Ensures continuous air monitoring is performed when required.

2.3.2.2 Controls access, including maintaining the "Confined Space Entry Roster" (F04), and addressing unauthorized persons.

2.3.2.3 Orders evacuation, if needed.

2.3.2.4 Conducts or summons rescue when needed.

2.4 Entry Supervisor

2.4.1 Knows the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards

2.4.2 Understands the means and methods to control and/or eliminate the hazards of the confined space.

2.4.3 Verifies that the appropriate information has been placed on the permit, that all tests specified by the permit have been conducted, that all procedures, precautions, and equipment specified by the permit are in place, and that all hazards of the confined space have been controlled or eliminated before endorsing the permit and allowing entry to begin.
2.4.4 Informs Authorized Entrants and Attendants of the hazards and conditions associated with the space and the methods used to eliminate and/or control those hazards.
2.4.5 Remains available when Authorized Entrants are in the space to respond to the confined space and maintains an awareness of all activities inside the confined space.
2.4.6 Terminates the entry and closes the permit as required by this procedure.
2.4.7 Verifies that rescue services are available, when required, and that the means for summoning them are operable.
2.4.8 Removes unauthorized individuals who enter or who attempt to enter the confined space during entry operations.
2.4.9 Reevaluates the conditions within space whenever responsibility for a confined space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space.
2.4.10 Reviews the confined space entry documents for accuracy
2.4.11 Verifies all terms specified by the entry documents are complete.
2.4.12 Signs the entry documents and allows entry to begin.
2.4.13 Verifies all field-posted documents have been returned when permit released.

2.5 Management/Public Works Director
2.5.1 Ensures personnel and contractors at the site are trained to comply with the confined space entry procedure.
2.5.2 Ensures periodic review of confined space process.
2.5.3 Ensures the workplace is surveyed to identify confined spaces and creates and maintains an accurate "Site Listing of Confined Spaces" using the "Confined Space List Template" (F07).
2.5.4 Ensure all confined spaces are marked with labels, signs, or tags, as appropriate to identify confined spaces.
2.5.5 Ensures entry to all confined spaces is restricted by means of barriers and/or entry closures.
2.5.6 Retains the original "Confined Space Entry Permit" (F03), "Alternate Entry" form (F02), and associated "Confined Space Evaluation Form" (F01), and other forms used for at least one year.

2.6 Document Owner
2.6.1 Assigns resources to implement the procedure.
2.6.2 Maintains the procedure and coordinates revisions with Site Management and Program Owner
2.6.3 Updates the procedure to reflect protocol changes.
2.6.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.
2.6.5 Obtains confined space entry documents annually for review.

2.7 Program Owner
2.7.1 Assigns resources to manage the program.

2.7.2 Oversees and reviews program to ensure the program is compliant and effective.

3 Definitions and Acronyms

3.1 Definitions

3.1.1 Acceptable Entry Conditions: Conditions that must exist in a confined space to allow entry and ensure that employees can safely enter into and work within the space.

3.1.2 Alternate Entry: An alternative process, defined within this procedure, for entering a confined space under very specific conditions.

3.1.3 Attendant: A designated individual stationed outside one or more permit-required confined spaces who monitors Authorized Entrants and performs all Attendant's duties assigned in the confined space program.

3.1.4 Authorized Entrant: An employee who is authorized by the Entry Supervisor to enter a confined space, as noted in the "Confined Space Entry Roster" (F04).

3.1.5 Configuration Hazard: Has an internal configuration such that an Entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section.

3.1.6 Confined Space: A space that:

3.1.6.1 Is large enough and so configured that an employee can fully enter and perform assigned work.

3.1.6.2 Has limited or restricted means for entry or exit (for example: tanks, vessels, ventilation or exhaust ducts, vaults, pits, and trenches are spaces that may have limited means of entry).

3.1.6.3 Is not designated for continuous employee occupancy under normal operating conditions.

3.1.7 Emergency: Any occurrence (including any failure of hazard control or monitoring equipment) or event, internal or external to the confined space that could endanger entrants.

3.1.8 Engulfment: The surrounding and effective capture of a person by a liquid or finely divided (flowable solid) substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction or crushing

3.1.9 Entry: The action by which any part of an employee's body breaks the plane of an opening into a confined space. Entry (or entry operations) also refers to the period during which an employee occupies a confined space.

3.1.10 Entry Supervisor: A person responsible for determining if acceptable entry conditions are present at a confined space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required.

3.1.11 Hazard: A physical hazard or hazardous atmosphere.

3.1.12 Hazardous Atmosphere: An atmosphere that may expose employees to a risk of death, incapacitation, and impairment of ability to self-rescue (that is – escape unaided from a confined space), injury, or acute illness from one or more of the following causes:

3.1.12.1 A flammable gas, vapor, or mist in excess of 10% of its Lower Explosive Limit (LEL).

3.1.12.2 Airborne combustible dust at a concentration that meets or exceeds its LEL
3.1.12.3 An atmospheric oxygen concentration below 19.5% or above 23.5%.
3.1.12.4 Atmospheric concentration of any substance for which an employee exposure would exceed the Permissible Exposure Limit (PEL).
3.1.12.5 Any atmospheric condition recognized as immediately dangerous to life or health.

3.1.13 Isolation: The process by which a confined space is removed from service and completely protected against the release of energy and material into the space. Control of the release of energy and material into the space is accomplished by means of a lockout/tagout.

3.1.14 Permit-Required Confined Space (PRCS): A confined space that has one or more of the following characteristics:
3.1.14.1 Contains or has the potential to contain a hazardous atmosphere.
3.1.14.2 Contains a material that has the potential for engulfing an Entrant
3.1.14.3 Has a configuration hazard
3.1.14.4 Contains any other recognized serious safety or health hazard.

3.1.15 Physical Hazard: An existing or potential hazard that can cause death or serious physical harm in or near a confined space, or a hazard that has a reasonable probability of occurring in or near a confined space, and includes, but is not limited to:
3.1.15.1 Explosives; mechanical, electrical, hydraulic, and pneumatic energy; radiation; temperature extremes; engulfment; noise; and entrapment such as inwardly converging surfaces; and
3.1.15.2 Chemicals that can cause death or serious physical harm through skin or eye contact (rather than through inhalation).

3.1.16 Ventilation: Controlling an actual or potentially hazardous atmosphere using either powered equipment, such as fans and blowers, or reliable natural air flow, or a combination of the two, to reduce an otherwise hazardous atmosphere below the level that makes it a hazardous atmosphere. Ventilation is a method of hazard control, not hazard elimination.

3.2 Acronyms

3.2.1 CSEP: Confined Space Entry Permit (F03)
3.2.2 LEL: Lower Explosive Limit (aka LFL, lower flammable limit)
3.2.3 LOTO: Lockout/Tagout
3.2.4 IDLH: Immediately Dangerous to Life or Health
3.2.5 PEL: Permissible Exposure Limit
3.2.6 PRCS: Permit Required Confined Space

4 Precautions and Limitations

4.1 Precautions

4.1.1 OSHA requires:
4.1.1.1 All employees shall be trained to acquire knowledge, and skills necessary for the safe performance of the duties prior to confined space work.

4.1.1.2 Training shall establish employee proficiency in the duties required by confined space work
4.1.1.3 Employer shall certify that required training has been accomplished
4.1.1.4 Training whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained

4.2 Limitations
4.2.1 None

5 Procedure

5.1 Prerequisite Actions
5.1.1 Train Authorized Entrants, Attendants, Entry Supervisors, CSEP, and rescue teams if applicable so they acquire the understanding, knowledge, and skills necessary to safely perform their duties and assigned responsibilities
5.1.2 During orientation/onboarding training, make persons aware that confined spaces exist, how these spaces are identified, and that there is a process to enter confined spaces safely.
5.1.3 Provide additional training when:
5.1.3.1 There are changes to the written confined space program.
5.1.3.2 A review of a confined space entry permit identifies problems with an entry.
5.1.3.3 When there is a deviation from established procedures or an employee's knowledge of the procedures is inadequate.
5.1.4 Survey the workplace to identify confined spaces.
5.1.4.1 Identify spaces meeting the definition of confined space and identify hazards that can be anticipated to exist in each confined space.
5.1.4.2 Add details to "Confined Space List" (F07) for each identified space
5.1.4.3 Maintain the "Confined Space List" (F07) up to date of all identified confined spaces.
5.1.4.4 Use labels, signs, or tags to identify all confined spaces
5.1.4.5 Restrict entry to all confined spaces by means of barriers and/or entry closures.

5.2 Procedure
5.2.1 Identify if work is to be performed within a confined space by filling out Part 1 of the "Confined Space Entry Evaluation" (F01).
5.2.2 If the evaluation performed in Part 1 indicates that the space is not a confined space, the space may be entered (without using this procedure) to perform work after all hazards of the space have been addressed and any other requirements have been met.
5.2.3 If the evaluation performed in Part 1 indicates that the space is a confined space, evaluate the confined space for hazards and document the hazards in Part 2 as follows.
5.2.3.1 Perform initial atmospheric testing of the space:
- Eliminate any conditions that make removal of the entrance cover unsafe prior to removal of the entrance cover for testing.
- Obtain approval for and/or notify Entry Supervisor prior to performing initial atmospheric testing.

- Establish guarding, barricades, or other means to prevent unauthorized entry into the space.
- Establish guarding to protect against falls into the opening and to protect confined space Authorized Entrants from falling objects if they will be working below an entrance or other Authorized Entrants.
- Open the confined space.
- Perform the initial atmospheric sampling/analysis without forced-air ventilation. If the space is large, and workers will be spread out inside the space, test the atmosphere in each area where workers will be located.
- **NOTE**: Atmospheric testing shall include Oxygen (O2), explosive (LEL), carbon monoxide (CO), and hydrogen sulfide (H2S)
- **NOTE**: If atmospheric readings are taken in more than one location, the "Confined Space Air Sampling Results" (F05) should be used to record the additional readings and this form shall be kept with the "Confined Space Entry Evaluation" (F01) and considered part of the form.
- Document test results on the "Confined Space Entry Evaluation" (F01). Determine if a hazardous atmosphere is detected.

5.2.3.2 Identify any known hazards or potential hazards by:

- Reviewing the Hazards column for the confined space on the "Confined Space List Template" (F07).
- Reviewing any information available from previous entries into the confined space.
- Evaluating the work to be performed in the space to identify hazards that may be introduced during entry.

5.2.3.3 Determine acceptable entry conditions, including any necessary means of controlling or eliminating hazards

5.2.4 Using the results from Part 2, fill out the last section of the form to indicate if entry into the space will be made under an alternate entry process or if a CSEP is required. The confined space **Entry Supervisor** shall sign the "Confined Space Entry Evaluation" (F01) and fill in the time and date.

5.2.5 If the confined space will be entered:

5.2.5.1 Using a "Confined Space Entry Permit" (F03), continue with step 5.2 6;

5.2.5.2 Using the "Alternate Entry" (F02) with forced-air ventilation, skip to step 5.2.7;

5.2.5.3 Using the "Alternate Entry" (F02) without forced-air ventilation, skip to step 5.2.8.

5.2.6 If conducting a permit entry:

5.2.6.1 The "Confined Space Entry Evaluation" (F01) must be kept with the "Confined Space Entry Permit" (F03).

5.2.6.2 Enter the required information about the confined space entry into a "Confined Space Entry Log" (F06).

5.2.6.3 Establish the required rescue equipment and system of rescue documented on the permit

5.2.6.4 Post the "Confined Space Entry Evaluation" (F01), the "Confined Space Entry Permit" (F03), and a blank "Confined Space Sampling Results" (F05) at the entrance to the confined space.

5.2.6.5 Maintain guarding, barricades or other means at all times to prevent unauthorized entry into the permit-required confined space.

5.2.6.6 Conduct a documented job briefing with the Entry Supervisor, Authorized Entrants, Attendants and any other personnel for entry under a CSEP.

5.2.6.7 Ensure a knowledgeable Attendant is stationed outside the confined space at all times when Authorized Entrants are inside. The Attendant shall perform the following duties:

A. Monitor activities inside and outside the space to determine if it is safe for Authorized Entrants to remain in the space, and orders the Authorized Entrants to evacuate the confined space immediately under any of the following conditions:
   1) The air monitor alarms
   2) A dangerous or hazardous condition is detected either inside or outside the confined space that could endanger the Authorized Entrants or the Attendant
   3) Behavioral symptoms of hazard exposure are observed in an Authorized Entrant
   4) Attendant for any reason is unable to safely perform required duties and cannot immediately be relieved by another trained Attendant
   5) An Authorized Entrant becomes ill
   6) A general site evacuation alarm
   7) An emergency situation in another permit entry confined space that requires emergency action

B. Remain outside the confined space while Authorized Entrants are inside the space until relieved by another Attendant

C. Recognize possible behavioral effects of hazard exposure in Authorized Entrants.

D. Use the "Confined Space Entry Roster" (F04) to keep an accurate record of all Authorized Entrants inside the space and the times each Authorized Entrant enters and leaves the space

E. Maintain communication with Authorized Entrants as necessary to monitor authorized Entrant's status and to alert Authorized Entrant of the need to evacuate the space.

NOTE: For some entries, the Attendant may provide rescue if they are trained and capable of using non-entry retrieval systems.

F. Effect rescue as needed, either by performing non-entry rescue or summoning a rescue team. Summon rescue and other emergency services as soon it has been determined that Authorized Entrants may need assistance to escape from confined space hazards.

G. Take the following actions when unauthorized persons approach or enter a confined space while entry is underway:

1) Warn the unauthorized persons that they must stay away from the confined space.
2) Advise the unauthorized persons that they must exit immediately if they have entered the confined space.
3) Inform the Authorized Entrants and the Entry Supervisor if unauthorized persons have entered the confined space
4) The Attendant has the authority to remove unauthorized individuals who enter or who attempt to enter the confined space during entry operations, provided the Attendant does not enter the space.

5.2.6.8 Authorized Entrants shall ensure their names are recorded on the "Confined Space Entry Roster" (F04) and that the times they enter and exit the confined space are recorded on the form in real time.
Caution: Do Not Enter a Confined Space if:
- Atmospheric testing indicates unsafe conditions.
- Abnormal conditions have been identified
- There is a bad or unfamiliar odor or other evidence of atmospheric hazards

5.2.6.9 If forced-air ventilation is being used to control atmospheric hazards during the permit entry:
A. Use continuous atmospheric monitoring while Authorized Entrants are inside the permit entry space
B. Eliminate any detectable hazardous atmosphere before entering
C. Supply air for forced-air ventilation from a clean source
D. Direct forced air ventilation to the immediate work area and continue until all employees have left the space
E. Exit the space if forced-air ventilation is lost
NOTE: Consider using a dedicated power circuit for ventilation fans to minimize accidental loss of power

5.2.7 If conducting an entry using the alternate entry form and forced-air ventilation is being used to control atmospheric hazards:

NOTE: If the atmosphere cannot be made safe for entry without entering the space, treat the space as a permit-required confined space and enter only after all requirements for a permit entry have been completed.

NOTE: Enter the space under alternate entry procedures only after all physical hazards have been eliminated and all atmospheric hazards have been eliminated or controlled. Maintain forced-air ventilation continuously while workers are inside the space. If possible, continue ventilation during breaks and lunch periods.

NOTE: Consider using a dedicated power circuit for ventilation fans to minimize accidental loss of power

5.2.7.1 The "Confined Space Entry Evaluation" (F01) must be kept with the "Alternate Entry" (F02).
5.2.7.2 Enter the required information about the confined space entry into a "Confined Space Entry Log" (F06).
5.2.7.3 Fill out sections 1–4 of the "Alternate Entry" (F02). Check Mechanical Ventilation in section 4.
5.2.7.4 Choose continuous air monitoring in section 5.
5.2.7.5 Fill in any additional safety requirements in section 6
5.2.7.6 Obtain the signature approval of the Entry Supervisor

5.2.7.7 Post the "Confined Space Entry Evaluation" (F01), the "Alternate Entry" (F02), and a blank "Confined Space Air Sampling Results" (F05) at the entrance to the confined space.

5.2.7.8 Eliminate any detectable hazardous atmosphere by supplying forced-air ventilation from a clean source. Direct the ventilation to the immediate area where workers will be located.

5.2.7.9 Conduct a documented job briefing as needed with the entrants and any other personnel.

5.2.7.10 Use continuous atmospheric monitoring while Authorized Entrants are inside the space. The results of the atmospheric monitoring shall be recorded on the "Air Sampling Results Log" (F05) posted at the confined space:

- Within 15 minutes before first entry into the space
- Before entering the space after breaks and lunch periods
- At least every two hours while Authorized Entrants are inside the space.

5.2.8 If conducting an entry using the "Alternate Entry" (F02) without forced air:

5.2.8.1 The "Confined Space Entry Evaluation" (F01) must be kept with the "Alternate Entry" (F02).

5.2.8.2 Enter the required information about the confined space entry into a "Confined Space Entry Log" (F06).

5.2.8.3 Fill out sections 1-4 of the "Alternate Entry" (F02)

5.2.8.4 Choose the desired air monitoring interval in section 5.

5.2.8.5 Fill in any additional safety requirements in section 6

5.2.8.6 Obtain the signature approval of the Entry Supervisor

5.2.8.7 Maintain these forms at a designated location: the "Confined Space Entry Evaluation" (F01), the "Alternate Entry" (F02), and a blank "Confined Space Air Sampling Results" (F05) at the entrance to the confined space.

NOTE: Prior to entering the confined space, all entrants shall examine the "Alternate Entry" (F02), section 5 to identify the required interval for testing the confined space atmosphere. Each entrant shall then check the "Confined Space Air Sampling Results" (F05) to verify that the required testing has been performed and that the atmosphere is safe for entry.

5.2.8.8 Do not enter a confined space if:

- Atmospheric testing has not been performed as required on the "Alternate Entry" (F02), section 5
- Atmospheric testing indicates unsafe conditions
- Abnormal conditions have been identified
- There is a bad or unfamiliar odor or other evidence of atmospheric hazards

5.2.8.9 Conduct a documented job briefing as needed with the entrants, and any other personnel

5.2.8.10 Sample the atmosphere per the monitoring requirements on the "Alternate Entry" (F02), section 5. Record the sample results on the "Confined Space Air Sampling Results" (F05) posted at the entrance5.2.8.11 If there is a bad odor in the confined space or a gas monitor alarm is triggered, do the following:

- Exit the space if you have already entered.

- Ensure the gas monitor is functioning properly
- If ventilation is needed to remove a bad or unfamiliar odor or to obtain an acceptable reading, ventilate the space with fresh air for a minimum of five minutes.
- Do not enter unless odors have been eliminated, and gas monitor readings are acceptable

5.2.9 When work is complete:

5.2.9.1 Remove all paperwork posted at the confined space and return it to the Entry Supervisor

5.2.9.2 Complete all documentation on the original "Confined Space Entry Permit" (F03) or "Alternate Entry" (F02)

A. Obtain signatures for closeout

B. Document any conditions that required evacuation and any problems encountered regarding maintaining acceptable entry conditions.

5.2.10 Maintain the Listing of Confined Spaces

5.2.10.1 Update any required changes to the "Site Listing of Confined Spaces" (F07), including:

- New spaces that meet the definition of confined space
- Hazards that can be anticipated to exist in each confined space
- Confined spaces that have been eliminated

5.3 Acceptance Criteria

5.3.1 Work is performed according to the CSEP or Alternate Entry process forms

5.3.2 Upon completion of work, retain completed CSEP or Alternate Entry process forms at an appropriate worksite location for a period of one year for the purpose of review.

5.4 Post-Performance Activity

5.4.1 At least once a year the Confined Space program should be reviewed for compliance and to address any changes in regulations or work site conditions.

6 References

6.1 Industry Standards or Codes

6.1.1 OSHA 1910.146 Permit Required Confined Spaces

6.1.2 Oregon Administrative Rule (OAR) 437-002-0146, Confined Spaces

6.2 City of Boardman

6.2.1 Occupational Safety and Health Manual 2017 Revision

A. 9. Confined Space Entry Plan: 9.1 – 9.28.

7 Forms

7.1 Forms

7.1.1 F01: Confined Space Entry Evaluation

7.1.2 F02: Alternate Entry

7.1.3 F03: Confined Space Entry Permit7.1.4 F04: Confined Space Entry Roster

7.1.5 F05: Confined Space Air Sampling Results

7.1.6 F06: Confined Space Entry Log

7.1.7 F07: Confined Space List Template

8 Appendix

None

	City of Boardman	F01 Form	
	Confined Space Evaluation Form		
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Use this form to determine if work is to be performed inside a confined space (Part 1), and if space qualifies as a PRCS, or if an alternate entry process may be used for entry (Part 2)

Name of Space to Be Entered:

Purpose of Entry:

PART 1

Determine if Confined Space Criteria A or Criteria B Apply

A. Is space listed as a **confined space** on the Site Listing of Confined Spaces? ☐ Yes ☐ No

– OR –

B. Is the answer YES to ALL of the following three (3) criteria?

- Space is large enough to fully enter and perform work? ☐ Yes ☐ No
- There is limited means of entry and exit that hinders the ability to escape? ☐ Yes ☐ No
- The space is **NOT** designed for continuous occupancy and is unsuitable for occupancy under normal operating conditions without safety and health considerations? ☐ Yes ☐ No

Based on the results above, check one of the two boxes below:

☐ **Neither Criteria A nor Criteria B apply.** Space is NOT a regulated **confined space**. **Confined space** rules do not apply. You can enter the space after addressing any safety and health **hazards**.

☐ **Criteria A or B apply. Space IS a regulated confined space.** Proceed to **Part 2** below to determine if **entry** will be made under permit or by **alternate entry** method.

PART 2

Initial atmospheric testing	Oxygen (19.5–23.5%)	%
Sampled by:	Explosive (LEL <10%)	%
Date/Time:	Carbon monoxide (<25 ppm)	PPM
	Hydrogen sulfide (<10 ppm)	PPM
Monitor ID:	Sulfur dioxide (<2 ppm)	PPM

Permit-required/alternate entry criteria (See procedure for definitions):

1. Is there an **engulfment hazard**? (Trapped or buried?) ☐ Yes ☐ No
2. Is there a **configuration hazard**? (Trapped or asphyxiated?) ☐ Yes ☐ No
3. Is there or could the space have a **hazardous atmosphere**? ☐ Yes ☐ No
4. Are there other recognized safety or health **hazards**? ☐ Yes ☐ No

If the answer to ALL of the four (4) above is No, Entry may be made by **Alternate Entry Process (F02)**

If the answer to ANY of the four (4) above is YES:

5. Can **atmospheric hazards** be controlled or eliminated? ☐ Yes ☐ No
6. Can all **physical hazards** be eliminated? ☐ Yes ☐ No

If the answer to BOTH 5 and 6 above is YES: Entry may be made by **Alternate Entry Process (F02)**.

If the answer to EITHER 5 or 6 is NO: Entry may only be made under a **Confined Space Entry Permit (F03).**

Based on the Results of Part 2 Above:

☐ **Entry Allowed Using Alternate Entry (F02)** (one of the conditions checked below must apply)

- ☐ No **physical hazards** or **hazardous atmospheres** were identified
- ☐ All **physical hazards** are eliminated, AND **hazardous atmospheres** are controlled or eliminated

☐ **Entry allowed only under a Confined Space Entry Permit (F03).**

Job Briefing Required.

Entry Supervisor Signature: **Time/Date:**

	City of Boardman	F02 Form	
	Alternate Entry		
Procedure #: PW003	Effective Date: 11-7-2023	Rev. 0	Page 18 of 23

Copies of the approved form must be labeled "Copy" and posted at entry points with an attached copy of the completed "Confined Space Entry Evaluation" (F01). Original forms must be retained for at least 12 months

Number of Copies: _____

1. Confined Space Description/Location	**Permit #**
2. Purpose of Entry:	
3. Date:	**Expiration Date:**
4. Hazard Isolation Measures and Acceptable Entry Conditions	
LOTO # ☐ N/A	**Hot Work Permit #** ☐ N/A
purge, flush or drain? ☐ Yes ☐ No ☐ N/A	**Secure Area?** ☐ Yes ☐ No ☐ N/A
Ventilation: ☐ Natural ☐ Mechanical	**Non Sparking Tools?** ☐ Yes ☐ No ☐ N/A
NOTE: If necessary, initial entry under a Confined Space Entry Permit may be required to verify conditions are acceptable for Alternate Entry.	
5. Air Monitoring Requirements (select one): ☐ Continuous (required if ventilation is being used to control atmosphere hazard) ☐ Daily ☐ Start of shift ☐ Prior to each entry ☐ Other frequency	
6. Other safety precautions:	
7. Approval	
Entry Supervisor:	**Date:**
8. Work Completed and ALL Primary Point of Entry Forms have been returned	
Entry Supervisor:	**Date:**
Did conditions in the space require evacuation during entry or work in space? ☐ Yes ☐ No	
If Yes, describe:	

	City of Boardman	F03 Form
	Confined Space Entry Permit	

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1.Confined Space Description	Permit #
2. Purpose of Entry:	
3. Permit Start Date/Time:	4.Permit Expires date/Time:

5. Hazard Isolation Measures and Acceptable Entry Conditions	
LOTO # ☐ N/A	Hot Work Permit # ☐ N/A
purge, flush or drain? ☐ Yes ☐ No ☐ N/A	Secure Area? ☐ Yes ☐ No ☐ N/A
Ventilation: ☐ Natural ☐ Mechanical	Non Sparking Tools? ☐ Yes ☐ No ☐ N/A
Other safety precautions to be used if applicable:	
Entry Team Communication Method: ☐ Radio ☐ Phone ☐ Line of Sight	

6. Rescue Plan: Brief description: or ☐ See attached Rescue Plan

☐ Fall Arrest Harness ☐ Lifeline ☐ Tripod ☐ Haul mechanism

Description of Rescue/Emergency Service:

Contact Method: ☐ Radio ☐ Phone ☐ Other:

7. Air Monitoring Requirements (select one):

☐ Continuous (required if ventilation is being used to control atmosphere hazard)

☐ Daily ☐ Start of shift ☐ Prior to each entry ☐ Other frequency

8. List Authorized Entrants and Attendants:

Authorized Entrants		Attendants

9. Entry Supervisor—Print name(s), list all entry supervisors for the entry:		
10.Approval: Entry Supervisor:		Date:

11. Work Completed and ALL Primary Point of Entry Forms have been returned

Entry Supervisor:	Date:

Did conditions in the space require evacuation during entry or work in space? ☐ Yes ☐ No

If Yes, describe:

Copies of the approved form must be labeled "Copy" and posted at entry points with an attached copy of the completed "Confined Space Entry Evaluation" (F01). Original forms must be retained for at least 12 months.

Number of Copies: _____

	City of Boardman	F04 Form	
	Confined Space Entry Roster		
Procedure #: PW003	Effective Date: 11-7-2023	Rev. 0	Page 20 of 23

Permit #_____

Entrant (worker)	IN Date/Time/Initial	Out Date/Time/Initial
	/ /	/ /
	/ /	/ /
	/ /	/ /
	/ /	/ /
	/ /	/ /
	/ /	/ /
	/ /	/ /
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	City of Boardman	F05 Form	
	Air Sampling Results Log		
Procedure #: PW003	Effective Date: 11-7-2023	Rev. 0	Page 21 of 23

Permit #

Date/Time	Sampled By Initials	O2 (%) 19.5 – 23.5	Combustible Gas (% LEL) <10% LEL	CO <25 ppm	H2S <10 ppm	SO2 <2 ppm	Monitor ID

	City of Boardman	F06 Form	
	Confined Entry Log		
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Permit #	Space Entered	Date Open	Date Closed	Review Date & Initials

	City of Boardman	F07 Form	
	Confined Space List		
Procedure #: PW003	Effective Date: 11-7-2023	Rev. 0	Page 23 of 23

Confined Space	No.	Entry Locations	Potential Hazards

HAZARD COMMUNICATION PROGRAM AND CHEMICAL HAZARDS

(This chapter does not cover the requirements of OAR 437: Division 2 and 29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals. Water treatment facilities will need to comply with this standard if they are using 1500 pounds or more of chlorine.)

*The Hazard Communication Program is an integral part of our employee safety and health awareness program. We have adopted chemical hazard control programs to ensure our compliance with various state and federal hazardous material regulations** and the safety of our employees.*
*** For more information, please refer to Oregon OSHA's and Federal OSHA standards pertaining to Hazard communication and pipe labeling listed below:*

Oregon OSHA's Hazard Communication Rule Division 2/Z, 1910.1200

Oregon OSHA Rules for Pipe Labeling

The purpose of this program is to provide information about chemical hazards and the control of hazards via our comprehensive Hazard Communication Program, which includes container labeling, Safety Data Sheets (SDS) and employee training. The goal of the program is to eliminate the possibility of illnesses and injuries caused by exposure to chemicals.

This written program will be available at:

Facility Location	Contact Person

The program is available for review by any employee, outside contractors, or the Oregon OSHA compliance staff during an inspection.

Definitions

Hazardous Chemical: Any chemical which is a physical hazard or a health hazard (potential injury or disease agent). HCS defines a hazardous chemical as any chemical that is classified as a physical hazard, a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or a

hazard not otherwise classified.

Hazard warning (label): Any words, pictures, symbols, or combination appearing on a label or other appropriate form of warning to convey the hazards of the chemical in the container.

Health Hazards (chemicals): Chemicals are health hazardswhen they are classified as posing one of the following hazardous effects: acute toxicity (any route of exposure), aspiration toxicity, carcinogenicity, germ cell mutagenicity, reproductive toxicity, respiratory or skin sensitizations, serious eye damage or eye irritation, skin corrosion or irritation, or specific toxic organ toxicity (singe or repeated exposure). Can range from acute to chronic.

Physical Hazards (chemicals): Chemicals are physical hazards when they are classified as posing one of these hazardous effects: corrosion to metals, explosive, flammable (includes aerosols, gases, liquids, and solids), pressurized gases, organic peroxides, oxidizers (includes gases, liquids, and solids), pyrophoric (includes liquids and solids), self-heating substances, self-reactive substances, and substances that emit flammable gases in contact with water.

Safety Data Sheet (SDS): Formerly known as a material safety data sheet (MSDS). Written or printed material concerning a hazardous chemical which is prepared in accordance with Oregon OSHA rule Division 2/z, 1910.1200. Identify hazardous properties of chemicals that may pose a health or physical hazard. Provide appropriate information on appropriate personal protective equipment and first aid treatment is exposed to the chemical.

General responsibilities

Management: It is the management's overall responsibility to see that hazardous materials are handled safely and that employees are trained in the physical and health hazards associated with the chemicals.

Supervisor and/or Department Manager: The supervisor and the Department managers will work together to ensureemployee training, appropriate container labeling, availability of the SDS, maintenance of the chemical inventory, and information is provided to outside contractors. The supervisor will see that the initial Hazard Communication orientation for all new employees, volunteers, and temporary employees is given.

Supervisor: Each supervisor is responsible for maintainingSDSs for their work areas. The supervisor will ensure that alltheir employees are trained in specific chemical hazards and necessary precautions. They are also responsible for seeing that secondary containers are labeled.

Staff who order chemical products: Staff who order chemical products are to ensure that original containers have legible labels and that SDS have been received when that product is delivered.

All Employees: All Employees are responsible for reading the labels and SDS for products they use. They are also required to attend our hazard communication training and properly handle chemicals per the labels, SDS and training. Employees generating secondary containers are responsible for labeling the containersor see that they are using properly labeled containers.

Container Labeling

Primary Container Labeling: (Chemical container asreceived by manufacturer)

In 2012, Oregon OSHA revised the Hazard Communication Standard (HCS) to be consistent with the United Nation' Globally Harmonized System (GHS). This required a standardized approach to label elements and calling MSDS sheets by theterm safety data sheets (SDS). As of June 1, 2015, all chemical manufacturers, importers, distributors, and employers were required to use the GHS labeling, which includes the following items:

- Pictograms
- Signal words
- Hazard and precautionary statements
- Product identifier
- Supplier identification information including name, address and telephone number

CHEMICAL X

DANGER

HAZARD STATEMENTS:

- Fatal if swallowed.
- Causes severe skin burns and eye damage.

PRECATIONARY STATEMENTS:

- Wear protective gloves.
- Wear face protection.
- Do not eat, drink, or smoke when using this product.
- Wash hands thoroughly after use.
- Store in a sealed container.
- **IF ON SKIN:** Rinse immediately with cool water.
- **IF IN EYES:** Rinse thoroughly with water and seek medicalattention.
- **IF SWALLOWED:** Do not induce vomiting. Seek medicalattention.

Dispose of contents container in accordance with local regulations.
Chemical X Manufacturing, 1234 Over There St., 123-555-5555
See the SDS for more information.

No container of hazardous chemicals will be released for use until the label information is verified by department staff whoordered the product and an SDS is onsite**.** SDS sheets will be readily available for employees during each work shift when they are in their work areas.
All employees are to be aware that the chemical label must be maintained on the chemical

container and will notify their supervisor or environmental services/safety representatives if any unlabeled container(s) are discovered in their work area.

Secondary Container Labeling:
(Containers that hold transferred hazardous materials from the original to a secondary use container are required to be labeled)
The employee in charge of the transfer of the chemical into the secondary container from its primary container must ensure that a hazard warning label is placed on the container. Portable containers which only one employee uses and is transferring chemicals to be completely used during his or her shift (immediate use) are not required to be labeled. But if more than one employee uses the containers or material is stored over to the next shift, it must be labeled. The hazard warnings must be legible, in English and prominently displayed. This includes labeling the product name and hazard warning. If a label becomes torn or not legible, the employee using the product must relabel it. Permanent marking pens should be used to label the secondary containers.
Each secondary container must be marked with either of the following items:

- All information specified for the labels on shipped containers
- The product identifier/words, pictures, symbols, or a com- bination that provide at least the general information about the hazards of the chemicals.

Department of Transportation Placards Requirements
Vehicles that are transporting hazardous materials are required to have Oregon Department of Transportation placards. The exceptions for public sector entities include people responsible for determining whether or not placarding is required on a vehicle should have a good understanding of the Department of Transportation placarding regulations.

Safety Data Sheets (SDS)
As of June 1, 2015, the Hazard Communication Standard requires that all safety data sheets be in a uniform format and includes the following:

1. Identification including the product identifier; manufacturer or distributor name, address, phone number, and emergency phone number; recommended use; and restrictions on use.
2. Hazard identification which includes all the chemical hazards and required label elements.
3. Composition / information on ingredients, including any information on chemical ingredients or trade secret claims.
4. Firefighting measures (including the most suitable fire extinguisher to use, equipment and chemical hazards from fire).
5. Accidental release measures (i.e. emergency procedures, proper protective equipment, and proper methods of cleanup/containment).
6. Handling and storage lists precautions for safe handling and storage, including chemical incompatibilities.
7. Exposure controls/personal protection lists OSHA's permissible exposure limits (PELs), American Council of Governmental Industrial Hygienists' threshold limit values (TLVs), appropriate engineering controls, and personal protective equipment (PPE).

8. Physical and chemical properties list the chemicals characteristics.
9. Stability and reactivity list chemical stability and possibility of hazardous reactions.
10. Ecological information*
11. Disposal considerations*
12. Transport information*
13. Regulatory information*

**OSHA does not enforce sections marked with the asterisk because this information is regulated by other agencies.*

Chemical manufacturers and importers are required by these rules to develop a SDS for each hazardous chemical product. The SDS contains detailed information about the health and physical hazards associated with the product. It is the responsibility of the individual ordering or purchasing the chemical to ensure that they receive an SDS with the shipment of new chemicals or provide the SDS where there has been a change. To ensure that we receive the SDS, the following notification should be added to all chemical purchase orders:
Safety Data Sheets will be sent to VelocityEHS for each new chemical product purchased and an updated SDS will be sent when the manufacturers or importers change the SDS.

If SDS is not given to receiving, then receiving will notify the individual who ordered the chemical and the product will not be released for use until the SDS is available. When SDSs are received by the various departments they are to be forwarded to the VelocityEHS for copying, distribution and inclusion in the SDS binders and on the inventory list. SDSs are available to all our employees for review during each work shift. If SDSs are not available or new chemicals in use do not have SDSs, immediately contact your **supervisor**.

A list of Hazardous Chemicals must be kept as part of the SDS index: table of contents. The lists (index) will be updated as new chemicals are purchased. The Supervisor is responsible for maintaining the current inventory list of chemicals. Lists of chemicals and SDS are stored electronically at https://chemmanagement.ehs.com/9/d7881a84-5f22-4dd7-b231-d830eeb01a85/ebinder

There must be a way that staff can access these electronically stored chemical lists and SDS at any time, otherwise hard copies should be maintained and stored in a visible and easy to find location. If SDS are kept electronically or accessed on the Internet, a backup copy or system must be in place in case the primary system becomes inoperable (i.e. power loss, network outage, computer crash, etc.). That way the information can still be accessed by the employees.

Employee Training and Information

A key component of this program is training employees in the hazardous chemicals which they may come in contact with. Our training program is done in two parts.

The initial orientation is done by the Department Supervisor. The training will include the location and availability of our written hazard communication program, as well as how to read labels and review an SDS to obtain appropriate hazard information.

The employee's supervisor will review the specific chemicals, hazards and precautions needed in the employee's work area. The training program will cover the following elements:

1. The details of the hazard communication program, including:

a. The location of the hazard communication programand SDS sheets.
b. An explanation of the labels on shipped containers youreceive.
c. Labeling system used on in-house containers andpiping systems.
d. Information presented on SDS sheets, including theorder of the information.

How to obtain and use the SDS information.

1. Review of the chemicals present in the workplace.
2. Any operation in their work area where chemical hazardsare used.
3. Physical and health effects of hazardous chemicals.
4. Methods and observation techniques used to determine the presence or release of hazardous chemicals in the workarea.
5. How to lessen or prevent exposure to these hazardous chemicals through usage of engineering control/work practices and personal protective equipment.
6. Steps we have taken to lessen or prevent exposure to hazardous chemicals.
7. Emergency procedures to if our employees are exposed tothese hazardous chemicals.
8. Extent necessary to protect them in the event of a spill orleak of a hazardous chemical.

It is critically important that all employees understand the training. If you have any additional questions, please contact your supervisor. Each employee will fill out a training verification form which asks the employee if he or she understood thetraining.

When new chemicals are introduced, supervisors will review the above items as they relate to the work area. Some employees may also require additional training depending upon theirjob tasks. Employees who are involved with process safety chemicals, e.g. 1500 pounds of chlorine, and employees who are involved with hazardous waste operations and emergency response will need to have 4 to 8 hours of hazardous material training. **

***Please refer to the Federal OSHA 29 CFR 1910.119 ProcessSafety Management of Highly Hazardous Chemicals and 1910.120 Hazardous Waste Operations and Emergency Response for the additional training requirements.*

Hazardous Non-RoutineTasks

Periodically, employees are required to perform hazardous non-routine tasks. Prior to starting work on such projects, eachaffected employee will review information about hazards to which they may be exposed to during such an activity. This will bethe responsibility of each supervisor.

The training information will include but not limited to:

1. Specific chemical hazards.
2. Protective equipment and safety measures which must beutilized should accidental exposure occur.
3. Measures that have been taken to lessen the hazards include ventilation, respirators, presence of anotheremployees and emergency procedures.
4. The SDS for employees to review.

Hazardous Substances in Pipes

Oregon OSHA Rules for Pipe Labeling

All hazardous materials carried in piping systems are required to be labeled under Division 2/Z, OAR 437- 002- 0378 Oregon Rules for Pipe Labeling.

Pipes and piping systems that contain hazardous substances (any health or physical hazardous agent) or transport sub- stances in hazardous state will be labeled. The pipes must be colored coded or have lettered labels. The label will give the name of the contents in full or abbreviated form. The labels maybe posted in the area of the pipe/piping systems. The labeling will be applied, at a minimum, at the beginning and end of continuous pipe runs. A complete hazard label is not required on pipes. If the pipe is above or below the normal line of vision, the label must be applied above or below the horizontal center line of the pipe so that employees can it.

Pipes Insulated with Asbestos-Containing Material

Pipes that are insulated or contain asbestos materials/products must be labeled with such language as "Danger, contains asbestos fibers. May cause cancer. Causes damage to lungs. Do not breathe dust. Avoid creating dust."

Warning labels must be applied every 75 feet on continuous pipe runs. As mentioned above, if the pipe is above or below the line of sight, the label must be applied above or below the horizontal center line of the pipe so that the employees can seethem.

Informing Contractors

Our organization occasionally uses outside contractors for some projects, as a result, we must inform the contractor of anychemical hazards his/her employees may be exposed to. The following methods will be used to inform outside contractors ofthe potential chemical hazards in their work areas:

To ensure that outside contractors work safely in our plant, it is the responsibility of the supervisor to ensure that we providethe required chemical information:

1. Hazardous chemicals to which they may be exposed towhile on the job site.
2. Precautions the employees may take to lessen the possibility of exposure.
3. Location of SDS for chemicals they may potentially beexposed to.

If additional information is needed, the safety manager shouldbe contacted for assistance.

Chemical Hazards Requiring Additional Compliance Issues

There are potential chemical exposures that have additional
OR-OSHA requirements that our employees may be exposed to.(Examples: Hexavalent chromium, lead, asbestos, silica, vinyl chloride, cadmium, benzene etc.) If there are job tasks that have potential exposures to these chemicals, the following will be conducted.

1. Exposure monitoring is representative of employee exposures.
2. Recordkeeping: maintain all exposure monitoring records.
3. If exposures exceed the OR-OSHA exposure limits, we willimplement all required protective measures in compliancewith the applicable OR-OSHA standard. This may include:
    a. Written Compliance Plan
    b. Personal Protective Equipment
    c. Engineering Controls
    d. Medical Monitoring
    e. Employee Training

Chemical List

*(Alphabetically sorted for quick reference)***

Name of Chemical	Location Used	SDS

***Chemical SDS and inventory index/table of content sheets of chemicals currently in use will be maintained and stored at each facility. Inventories will be performed yearly and the SDS for any chemical no longer in use will be removed from the binder and stored for a minimum of 30 years. You can either keep the SDS or keep another record that includes the chemical's identity and where/when it was used in the workplace. For more information about these recordkeeping requirements, please see Division 2/Z, 1910.1020 Access to Employee Exposure and Medical Records.*

Examples of Pictograms

Health Hazard
- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity

Flame
- Flammables
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Self-Reactives
- Organic Peroxides

Exclamation Mark
- Irritant (skin and eye)
- Skin Sensitizer
- Acute Toxicity
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (Non-Mandatory)

Gas Cylinder
- Gases Under Pressure

Corrosion
- Skin Corrosion/Burns
- Eye Damage
- Corrosive to Metal

Exploding Bomb
- Explosives
- Self-Reactives
- Organic Peroxides

Flame Over Circle
- Oxidizers

Environment (Non-Mandatory)
- Aquatic Toxicity

Skull and Crossbones
- Acute Toxicity
- (Fatal or Toxic)

Health Hazard

Carcinogens: A chemical substance or mixture that can cause cancer.
Respiratory Sensitizer: A chemical that if inhaled may lead to an allergic-type reaction of the lungs (respiratory system) if inhaled again.
Reproductive Toxicity: Harmful effects to sexual function and fertility in adult males and females, or on development of the offspring.
Target Organ Toxicity (Single exposure): The significant health effects that can impair the function of a specific target organ (for example, the eyes or the kidneys) caused by a single exposure to a chemical. Toxic effects may be reversible or irreversible, immediate or delayed.
Target Organ Toxicity (Repeated exposure): The significant health effects that can impair function of a specific target organ (for example, the eyes or the kidneys) caused by repeated exposure to a substance or mixture. Toxic effects may be reversible or irreversible, immediate or delayed.
Mutagenicity: Chemical exposure causing permanent changes in the amount or structure of the genetic material in a cell.
Aspiration Toxicity: The harmful effect of a liquid or solid chemical when it enters the oral or nasal cavity directly by being breathed in or indirectly entering the respiratory system as a result of vomiting.

Flame

Flammable Gases: A gas that forms a flammable mixture with air at ambient temperature and pressure.
Flammable Aerosols: A chemical in a non-refillable container with a gas compressed, liquefied, or dissolved under pressure and fitted with a release device allowing the con- tents to be ejected as particles in suspension in a gas, or in another form; and meeting flammability test criteria.
Self-Reactive: Thermally unstable liquid or solid chemicals likely to undergo decomposition: even without interaction with air. These chemicals that are likely to undergo a stronger exothermic decomposition are classified under explosives.
Pyrophoric Liquids: A liquid chemical that, even in small quantities, is likely to ignite within five minutes after coming into contact with air.
Pyrophoric Solids: A solid chemical that even in small quantities is likely to ignite within five minutes after coming into contact with air.
Self-Heating: A solid or liquid chemical (other than a pyrophoric liquid or solid) that, without energy supply, is likely to react with air and generate heat. Differs from a pyrophoric liquid or solid because it will ignite only when in large amounts and after long periods of time (hours or days).
Emits Flammable Gas: Solid or liquid chemicals that, when in contact with water, emit flammable gases or that, by interaction with water, are likely to ignite spontaneously or to give off flammable gases in dangerous quantities.
Organic Peroxides: A carbon-containing compound having two oxygen atoms joined together (-O-O-) called a "peroxy" group. Organic peroxides can be severe fire and explosion hazards.

Exclamation Mark

Irritant (Skin or Eyes): Reversible damage to the skin or eyes following exposure to a chemical substance.
Dermal Sensitizer: An allergic-type reaction of skin tissue after repeated exposure to a chemical substance.
Acute Toxicity (Harmful): Harmful, health effects that occur soon after a single oral or dermal exposure to a chemical substance; or multiple doses given within 24 hours; or an inhalation exposure of four hours.
Narcotic Effects: Depression of the central nervous system, exhibited as sleepiness, reduced alertness, loss of reflexes, lack of coordination, and dizziness caused by chemical exposure. Can also be shown as severe headache or nausea and can lead to irritability, fatigue, and worsen memory, perception, and reaction time.
Respiratory Tract Irritants: Chemical exposure effects, characterized by localized redness, swelling, and fluid build-up that weakens respiratory function with symptoms such as cough, pain, choking, and difficulty breathing.

Gas Cylinder

Gas Under Pressure: Gases in a container at a pressure of 29 psi (gauge) or more, are liquefied, or are liquefied and refrigerated.

Corrosion

Corrosive (destructive) to skin or eyes: Irreversible damage to the skin or eyes, including visible, localized death (necrosis) of skin tissue, burns, or serious eye damage following exposure to a chemical substance.

Corrosives: A chemical that will by chemical action materially damage or destroy metals.

Exploding Bomb

Self-Reactive: Thermally unstable liquid or solid chemicals likely to undergo a strongly exothermic decomposition even without participation of oxygen (air). This definition excludes chemicals classified under this section as explosives, organic peroxides, oxidizing liquids, or oxidizing solids.

Organic Peroxides: Any organic (carbon-containing) compound having two oxygen atoms joined together (-O-O-) called a "peroxy" group, where one or both hydrogen atoms have been replaced by organic radicals (with an unpaired electron). Organic peroxides are thermally unstable chemicals, which may undergo exothermic self-accelerating decomposition. In addition, they are likely to have one or more of the following properties:

- Likely to explode
- Burn intensely
- Be sensitive to impact or friction
- React dangerously with other substances

Flame Over Circle
Oxidizers
Explosives: A solid or liquid chemical that is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic chemicals are included even when they do not evolve gases.
Oxidizer: A substance that readily yields oxygen to cause or intensify the combustion of organic material. Includes gases, liquids, and solids.
Acute Toxicity (Severe or Fatal): Severe, harmful health effects (that may include death) occurring soon after a single oral, dermal, or inhalation exposure to a chemical substance, or multiple exposures within a 24-hour period.

HAZARDOUS ENERGY ISOLATION—LOCK OUT TAG

1 Purpose

This program addresses equipment and system isolation, using a Lockout/Tagout (LOTO) process, to ensure the safety of all workers who service and maintain City of Boardman systems and equipment. The LOTO program consists of this document and all associated forms, LOTO templates and Hazardous Energy Removal Verification (HERV) requirements used

1.1 Scope

None

2 Responsibilities

2.1 Site Personnel

- 2.1.1 Understands the importance of isolating hazardous energy and complies with this LOTO procedure.
- 2.1.2 Does not start or operate locked/tagged out equipment or introduce hazardous energy into the LOTO boundary.
- 2.1.3 Completes LOTO awareness training.

2.2 Group Worker

- 2.2.1 Recognizes the applicable hazardous energy sources in the workplace and the typical means and methods of isolating and/or controlling the energy.
- 2.2.2 Obtains permission from the Lead Worker (LW) to work under the applicable Group Safe Work Permit (GSWP)
- 2.2.3 Understands the LOTO boundary and ensures their work remains within the LOTO boundary.
- 2.2.4 Applies their personal lock to the applicable LOTO lockbox prior to beginning work.
- 2.2.5 Participates in any associated Job Briefings
- 2.2.6 Informs LW when work is complete, or when leaving site without the intention of returning, and removes their personal lock.
- 2.2.7 Completes LOTO training

2.3 Lead Worker (LW)

- 2.3.1 Assures the GSWP provides a safe and adequate boundary and verifies HERV is adequate and was completed for the identified scope of work.
- 2.3.2 Performs a Job Briefing with Group Worker(s).
- 2.3.3 Conveys LOTO boundaries to Group Worker(s).
- 2.3.4 Maintains the GSWP, including Group Worker list on the "Group Safe Work Permit (GSWP)" (F03).
- 2.3.5 Works or directs work within the GSWP boundary.
- 2.3.6 Verifies, prior to closing the GSWP, that the scope of work is complete, and Group Workers have been checked off GSWP.
- 2.3.7 Requests change of status, if needed.
- 2.3.8 Notifies Group Workers of change of status.
- 2.3.9 Completes LOTO training

2.4 LOTO Approver (LA)

- 2.4.1 Verifies that equipment can be isolated for work.
- 2.4.2 Provides coordination when multiple crews or work groups are working simultaneously on equipment and systems that require LOTOs

2.4.3 Determines LOTO boundary and develops HERV requirements that are safe and adequate.
2.4.4 Informs LOTO Installer of HERV requirements.
2.4.5 Ensures personnel working under a LOTO have been trained per this procedure.
2.4.6 Authorizes and approves all LOTO forms
2.4.7 Ensures all personal locks are removed prior to approving removal of tags and equipment locks, and release of LOTO
2.4.8 Authorizes LOTO release
2.4.9 Maintains the "LOTO Log" (F01).

2.5 LOTO Installer (LI)
2.5.1 Positions energy-isolating devices and installs equipment locks and danger tags.
2.5.2 Initials danger tags during installation.
2.5.3 Conducts HERV or verifies HERV was completed by a qualified individual and installs HERV tags.
2.5.4 Documents the installation on the "LOTO Form" (F05) and "LOTO Isolation List" (F06).
2.5.5 Removes locks and danger tags and restores energy-isolating devices to required positions.
2.5.6 Returns equipment locks and tags to the LOTO Approver and initials for removal on "LOTO Isolation List" (F06).

2.6 LOTO Verifier (LV)
2.6.1 Verifies isolation position, danger tag, and equipment lock placement, independently from the LOTO Installer.
2.6.2 Initials danger tags after verification of correct installation.
2.6.3 Verifies personal lock placement and isolation position on individual LOTOs.
2.6.4 Documents verification on "LOTO Isolation List" (F06) and "LOTO Form" (F05).

2.7 Management/Public Works Director
2.7.1 Ensures personnel and contractors are trained and comply with the LOTO program.
2.7.2 Provides all required locks, lockboxes, tags, or other hardware for isolating, securing, or blocking of machines or equipment from energy sources
2.7.3 Ensures that energy-isolating devices on all equipment undergoing major repairs, renovations, modifications, or replacement include provisions for lockout devices.

2.8 Document Owner
2.8.1 Assigns resources to implement the procedure.
2.8.2 Maintains the procedure and coordinates revisions with Management and Program Owner
2.8.3 Updates the procedure to reflect protocol changes.
2.8.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.
2.8.5 Ensures annual review of LOTO program and LOTO templates is completed.

2.9 Program Owner

2.9.1 Assigns resources to manage the program.
2.9.2 Oversees and reviews program to ensure the program is compliant and effective.

3 Definitions and Acronyms

3.1 Definitions

3.1.1 Affected Person: A worker who
- A. Operates or uses machines or equipment that have service or maintenance performed under LOTO or works in an area where servicing or maintenance is performed.
- B. An affected person must become an Authorized Worker when their duties include performing service or maintenance on machines or equipment.

3.1.2 Authorized Worker: A person who locks out or tags out machines or equipment or performs service or maintenance on machines or equipment under a LOTO. To be an Authorized Worker you must receive applicable training on this procedure.

3.1.3 Boundary Expansion:
- A. Emergent or unplanned work: Boundary expansion isolation points were not part of the original approved template.
- B. Pre-planned work: boundary expansion isolation points were part of the original approved template.

3.1.4 Cascading Lockbox: A lockbox that uses an existing lockbox as an isolation point. Potential uses may be to connect jobs through lockboxes; to ensure the release of one job or piece of equipment before another; to expand boundaries of an existing LOTO.

3.1.5 Change of Status: The documented change of the LOTO isolation points after the LOTO has been issued by the LOTO Approver (LA). changes of status include the following:
- A. LOTO boundary expansion
- B. Temporary energization of equipment in order to conduct testing within the boundaries of a LOTO
- C. Adding or releasing grounds on an issued LOTO

3.1.6 Confined Space Lock: See Lock.

3.1.7 Danger Tag: See Tag

3.1.8 Energy-Isolating Device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:
- A. An electrical circuit breaker
- B. A disconnect switch
- C. Removed fuse or lifted lead
- D. Valves, excluding check and relief valves

3.1.9 Equipment Lock: See Lock.

3.1.10 Exclusive Control: LOTO does not apply to servicing or maintaining cord and plug-connected electrical equipment when the equipment is unplugged from its energy source and the plug is under the exclusive control of the Authorized Worker performing the service and/or maintenance activity. "Under the exclusive control" refers to instances where the plug is physically in the possession of the Authorized Worker, or

within arm's reach and in the line of sight of the employee to prevent re-energizing equipment during servicing or maintenance.

3.1.11 Full-Employee Protection: When an energy-isolating device cannot be locked, full-employee protection includes one or more of the following, as appropriate:

A. At least one additional energy-isolation device with a tag affixed to it.

B. At least one additional safety measure that will provide the equivalent safety available from the use of a lock.

1. There are many acceptable "additional measures", including, but not limited to: the removal of an isolating circuit element; blocking of a control switch; opening an extra disconnecting device; or the removal of a valve handle.

3.1.12 Ground Tag: See Tag

3.1.13 Group Safe Work Permit (GSWP): "Group Safe Work Permit" (F03) that:

A. Authorizes hanging any personal locks on a lockbox.

B. Records approvals to perform a specific scope of work.

C. Lists specific danger tag numbers and HERV for a given purpose or scope of work on a LOTO.

D. Lists workers covered for a given purpose or a scope of work on a LOTO.

3.1.14 Group Worker: An Authorized Worker working under the direction of a Lead Worker within an established LOTO boundary

3.1.15 Hazardous Energy: Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal, radiological, or other sources that can be hazardous to workers.

3.1.16 Hazardous Energy Removal Verification (HERV): Actions taken to verify and document hazardous energy has been eliminated or reduced to a non-hazardous state for the task being performed. There are many possible tests including:

A. Test start

B. Gauge or digital control indications

C. Opening drains or vents

D. Visual indications

E. Using electrical test equipment to verify no voltage etc.

3.1.17 HERV Tag: See Tag.

3.1.18 Individual LOTO: A double-verified LOTO, using five or less isolation points that are secured with personal locks and recorded on an "Individual Safe Work Permit (ISWP)" (F04). An individual LOTO cannot be used to expand the boundaries of an existing group or individual LOTO.

3.1.19 Individual Safe Work Permit (ISWP): (F04) that:

A. Authorizes hanging any personal locks on isolation points for an individual LOTO.

B. Records approvals to perform a specific scope of work.

C. Indicates individual LOTO isolation points and HERV for individual LOTO.

3.1.20 LA Lock: see lock

3.1.21 Lead Worker (LW): An Authorized Worker who is responsible for directing work within the established LOTO boundary.

3.1.22 Lock: Locks defined below shall only be used in the hazardous energy isolation program and cannot be used for any other purpose.
- A. Confined Space Lock: An orange lock that is informative only and indicates a confined space permit is active on the LOTO.
- B. Equipment lock: Serial numbered locks that are red in color and are fastened to energy-isolating devices to indicate that the energy-isolating devices and the equipment being controlled may not be operated until the lock is removed. Any duplicate keys will be controlled by Site Management.
- C. Ground Lock: A yellow lock that is informative only and indicates grounds have been installed on the LOTO.
- D. LA Lock: A black lock that secures a lockbox. This lock is issued by the LOTO Approver who controls the key. This is the first lock on and the last lock off
- E. Personal Lock: A lock that is attached to a lockbox for each Authorized Worker working under a LOTO. Personal locks may be used as an equipment lock when using an Individual LOTO. The Personal Lock must be identifiable to the individual. Locks for personnel are typically blue in color, but may be any color other than red, orange, yellow, purple, or black.
- F. Remote Lockbox Lock: An individually keyed purple lock that enables the use of a remote lockbox on a LOTO.

3.1.23 Lockbox: A box used to secure keys to equipment locks through the application of LOTO, personal, ground, confined Space Locks, and remote lockbox locks.

3.1.24 Lockout/Tagout (LOTO): A mandatory, systematic process for isolating, controlling, and eliminating hazardous energy prior to working on equipment.

3.1.25 Lockset: A set of two or more locks that are keyed alike.

3.1.26 LOTO Approver (LA): An Authorized Worker who is designated by Site Management to perform responsibilities outlined in Section 2.4.

3.1.27 LOTO Boundary: A boundary that begins at the point where hazardous energy sources are isolated and danger tags and/or locks are hung, encompassing the equipment and/or area in which the energy sources have been controlled and/or eliminated.

3.1.28 LOTO Installer (LI): An Authorized Worker who is designated by Site Management to perform responsibilities outlined in Section 2.5.

3.1.29 LOTO Verifier (LV): An Authorized Worker who is designated by Site Management to perform responsibilities outlined in Section 2.6. For each LOTO, the LOTO Installer and LOTO Verifier are separate individuals.

3.1.30 LOTO Template: An independently verified list of specific isolation points required to safely allow work on equipment or systems identified in a scope of work.
- A. Approved LOTO Template: A LOTO template is approved when two (2) qualified individuals independently review and agree with the "LOTO Isolation List" (F06).

3.1.31 Personal Lock: See Lock.

3.1.32 Personal Tag: See Tag.

3.1.33 Remote Lockbox: A lockbox that is used to accommodate work groups in a remote location.

3.1.34 Tag: Labels serving the following specific purposes:

NOTE: All tags must be capable of withstanding the environment to which they are exposed. When used without locks, tags shall be attached with a device capable of resisting a 50-pound force and withstanding the environment to which they are exposed.

A. Danger tag: A red tag that is fastened to an energy-Isolating device to indicate that the energy-isolating device may not be operated until the tag is removed.

B. Ground Tag: A red and yellow tag that is attached to a ground and used for the purpose of identifying grounds hung in association with a LOTO.

C. HERV Tag: An optional green tag that may be fastened to an energy-isolating device and indicates that HERV has been completed. HERV tags are useful when HERV cannot be completed after the energy isolation point has been positioned, and there is the possibility of an overlapping LOTO.

D. Personal Tag: A tag that can be attached to a personal lock for the purpose of identifying the Authorized Worker to whom the lock belongs if the lock does not have any other means of identifying the lock's owner.

3.1.35 Testing Protocol: A process to allow the temporary removal of lockout or tagout devices to allow temporary energization of the machine or equipment isolated by a LOTO for the purpose of testing or positioning the machine, equipment, or component.

3.2 Acronyms

3.2.1 CSP: Confined Space Permit
3.2.2 GSWP: Group Safe Work Permit
3.2.3 GW: Group Worker
3.2.4 HERV: Hazardous Energy Removal Verification
3.2.5 ISWP: Individual Safe Work Permit
3.2.6 LA: LOTO Approver
3.2.7 LI: LOTO Installer
3.2.8 LOTO: Lockout/Tagout
3.2.9 LV: LOTO Verifier
3.2.10 LW: Lead Worker
3.2.11 OAR: Oregon Administrative Rules
3.2.12 OR-OSHA: Oregon Occupational Safety and Health Administration

4 Precautions and Limitations

4.1 Precautions

4.1.1 Push buttons, selector switches and other control circuit type devices cannot be used as stand-alone energy-isolating devices. They can be used as an additional safety measure in conjunction with a locked-out/tagged-out breaker, disconnect, fuse, etc.

4.1.2 Individual Safe Work Permits (ISWP) are not allowed for any work requiring grounds or confined space permits.

4.1.3 Every Authorized Worker participating in LOTO must be informed of their right to verify the effectiveness of the lockout measures, and every

Authorized Worker must be allowed to personally verify, if they so choose, that hazardous energy sources have been effectively isolated.

A. An Authorized Worker who opts to verify the effectiveness of the isolation measures can perform this verification simultaneously with installation of LOTO or after the LOTO Approver verifies the accomplishment of energy isolation and after the Authorized Worker affixes their personal lockout to the LOTO lockbox
B. These steps must be taken before an Authorized Worker performs servicing/maintenance activities

4.2 Limitations

4.2.1 For each LOTO, the LOTO Installer and LOTO Verifier cannot be the same person

4.2.2 For each GSWP, the Lead Worker and the LOTO Approver cannot be the same person.

4.2.3 LOTO applies to all types of energy including:

A. Electrical
B. Mechanical (both potential and kinetic energy, e.g., springs, reels, stored tension, moving objects, etc.)
C. Hydraulic (pressure)
D. Pneumatic (pressure)
E. Chemical
F. Thermal (heat)
G. Radiation
H. Other (any release of energy that can harm workers)

4.2.4 LOTO is intended for personnel protection. It shall not be used for equipment protection.

4.2.5 LOTO is NOT required for the following items:

A. Rolling stock and vehicles.
B. Electrical equipment and tools that can be unplugged and under exclusive control.
C. Minor servicing activities, which take place during normal production operations, are not required by this procedure if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection (for example: cleaning or replacing filters, cleaning duplex strainers, replacing pressure gauges, hose fittings etc.).

4.2.6 If Site Personnel are not required to remove or bypass a guard or other safety device, and the work does not extend beyond the end of the shift that it starts on, LOTO will not be required for the following items:

A. Calibrating pressure, level, flow, and temperature instrumentation.
B. Calibrating, testing, or troubleshooting instrument loops (pneumatic/electronic), including AC and DC power supplies to the instruments.
C. Working on instruments where the process flow stream is isolated by a thermo-well.
D. Changing out gas bottles.
E. Limit and torque switch adjustments.
F. Electric circuits under 50 volts AC or DC.

G. Activities addressed in the Electrical Safety Procedure
   1. Changing fuses in systems with less than 300 volts.
   2. Opening electrical panels.
   3. Lifting/landing of leads for troubleshooting or maintenance.
   4. Taking voltage or current readings for equipment troubleshooting or monitoring
   5. Lifting/landing leads and thermal overload removal/replacement using approved instructions.
   6. Station battery testing.

H. Changing light bulbs.

I. Pneumatic actuator work in which the local air isolation is controlled with an isolation valve within reach of the worker.

J. Replacing handwheels on manual valves.

K. Adjusting packing glands on in-service pumps and valves so long as machine guarding remains in place.

L. Cleaning/replacing ventilation filters where the worker is not exposed to rotating machinery.

M. Connecting and disconnecting hoses to equipment and wash down hoses

N. Air, water, and oil (under the 120 Under Direct Control Rule) if:
   1. The substance doesn't present a health hazard and is below 120°F and 120 PSI.
   2. The air, water or oil isolations are under direct control of a valve, in line of sight, and close enough to intervene should someone attempt to manipulate an isolation boundary.

5 Procedure

5.1 Prerequisite Actions

5.1.1 Management will provide training to ensure that the purpose and function of the hazardous energy isolation program are understood by personnel and that personnel have the knowledge and skills required for the safe application, usage, and removal of energy controls. The training will include the following:

A. Each Authorized Worker must receive training in the recognition of applicable hazardous energy sources, the type and magnitude of energy available in the workplace, and in the methods and means necessary for energy isolation and control.

B. Each affected person must be instructed in the purpose and use of the energy isolation procedure

5.1.2 Obtain authorization prior to taking equipment out of service.

5.1.3 When an energy-isolating device does not have a lockable feature and can only be tagged out, full-employee protection must be used.

5.1.4 Development of LOTO templates

A. LOTO Approver reviews the scope of work to identify the presence, potential release, and control of hazardous energy. Review includes the work area limits, the equipment and isolation points to be locked/tagged and the lock/tag locations

B. LOTO Approver creates a LOTO template that lists isolation points that provide an adequate boundary for the scope of work.

C. LOTO templates shall be reviewed for approval by a second LOTO Approver. Review and approval shall be done using system descriptions, operating instructions, piping, and instrument diagrams (P&IDs), electrical schematics, system walkdowns etc.

D. To remain as approved templates, LOTO templates shall be reviewed and approved annually. Use of approved templates provides the initial review of the boundary for the scope of work.

5.2 Procedure

5.2.1 Request LOTO

A. Authorized workers may request a LOTO either in writing, verbally, digitally to a LOTO Approver

B. Determine if an approved LOTO template is available:

1. The LOTO Approver will research if an approved LOTO template is available for the scope of work.
2. If a LOTO template is available, the LOTO Approver creates the LOTO and enters the LOTO template number on the "LOTO Form" (F05), indicating an approved template has been used.
3. If an approved LOTO template is not available, the LOTO Approver creates one, using steps in Section 5.1.4, and enters the LOTO template number on the "LOTO Form" (F05), indicating an approved template has been used.

5.2.2 Create LOTO

A. Use "LOTO Form" (F05) and "LOTO Isolation List" (F06) to generate a LOTO to document the process and establish controls

NOTE: The LOTO Approver will specify the isolation points on the "LOTO Isolation List" (F06) in the order of intended installation and removal.

B. The LOTO Approver documents HERV energy sources, methods of HERV, and locations of tests in the Hazardous Energy Removal Verification table on "LOTO Form" (F05).

NOTE: If no lockable points are included in the LOTO, the LOTO procedure will be completed with the exception of using equipment locks. There will be no equipment lock key(s) in the lockbox.

C. LOTO Approver Prepares Tags, Locks and Lockbox

1. Identify locks or lockset for use with the LOTO.
2. Create danger tags for each isolation point.

NOTE: An optional "Tag 0" can be created on the "LOTO Isolation List" (F06) to place on the lockbox for easier identification.

3. If using a lockset, record the lockset number on "LOTO Form" (F05).

D. When creating a LOTO using a cascading lockbox:

1. Note a cascading lockbox LOTO in the "Special requirements or remarks" section of "LOTO Form" (F05)
2. Include the primary LOTO and lockbox number in the "Special requirements or remarks" section of "LOTO Form" (F05).
3. List the primary LOTO and lockbox number on the "LOTO Isolation List" (F06) for the cascading LOTO. List the position for the equipment lock as "locked".

5.2.3 Install LOTO

A. The LOTO Approver provides the HERV requirements to the LOTO Installer.

B. The LOTO Approver provides the LOTO Installer with the "LOTO Isolation List" (F06).

NOTE: A verified copy of the "LOTO Isolation List" (F06) can be used in the "field" to conduct the LOTO installation steps. The LI and LV will initial the main copy of the "LOTO Isolation List" (F06) to officially document completion.

C. Using the "LOTO Isolation List" (F06), in the order indicated, the LOTO Installer:

1. Positions energy-isolating devices to positions identified on the "LOTO Isolation List" (F06).
2. Completes or verifies completion of HERV.
3. Hangs HERV tags, if being used.
4. Records or verifies the equipment lock number on the "LOTO Isolation List" (F06).
5. Verifies the isolation point label, danger tag and equipment lock number against each other and the "LOTO Isolation List" (F06).
6. Hangs an equipment lock and/or a danger tag on the isolation points. Danger tags shall be attached with a lock, through the tag grommet when possible.
7. Hangs danger tags without locks, using full-employee protection, if a lockable point is not available.
8. Initials danger tags when installation is complete.
9. Initials the "LOTO Isolation List" (F06) in the "Installed & Tagged (LI)" column, for each point indicating that installation is complete.

D. The LOTO Installer prints name on the "LOTO Form" (F05) and includes the date and time.

E. The LOTO Installer documents test results and LI prints name in the Hazardous Energy Removal Verification table on "LOTO Form" (F05) or "HERV Addendum" (F10).

F. The LOTO Installer transfers possession of equipment lock key(s) to the LOTO Approver to be placed in the lockbox.

G. A LOTO Verifier uses the "LOTO Isolation List" (F06) to verify the correct isolation point, position, danger tag and equipment lock number.

H. The LOTO Verifier initials danger tags following verification.

I. The LOTO Verifier initials for each isolation point in the "Verified Installed (LV)" column on the "LOTO Isolation List" (F06) and prints name, date, and time on "LOTO Form" (F05) documenting that verification is complete

NOTE: Any inaccuracies found in the LOTO will be reported immediately to the LOTO Approver before being corrected.

J. The LOTO Approver verifies all keys associated with equipment locks are secured in the lockbox prior to hanging the LA Lock.

K. The LOTO Approver hangs the LA Lock on lockbox, and then initials the "LA lock installed by" line on the "LOTO Form" (F05).

L. The LOTO Approver verifies all documentation is complete and issues the LOTO by printing their name and recording date and time on the "LOTO Form" (F05). The key for the LA Lock on an issued LOTO shall be kept under the control of the LOTO Approver.

5.2.4 Safe Work Permit Process

A. The LOTO Approver and the Lead Worker will discuss the scope of work, and identify boundary, HERV, and grounding requirements to determine whether an individual or group safe work permit is required.
   1. If an adequate, issued LOTO exists, go to Section 5.2.5, GSWP for Group LOTO.
   2. If an issued LOTO does not cover the requirements for the scope of work, and there are 5 or less isolation points and only one person will be working, and there are no grounding requirements, and there are no confined spaces, go to Section 5.2.7, ISWP for Individual LOTO.
   3. If an issued LOTO does not cover the requirements for the scope of work, go to Section 5.2.1.B, LOTO template. Once the LOTO is created and installed, proceed to Section 5.2.5, GSWP for Group LOTO

5.2.5 GSWP for Group LOTO

A. The Lead Worker and LOTO Approver will work together to create a "Group Safe Work Permit (GSWP)" (F03), that includes the following information:
   1. A description of the equipment to be worked on.
   2. The purpose or scope of the work.
   3. The Lead Worker's name.

B. The LOTO Approver will request authorization to work on the equipment from management

C. Enter the LOTO number that covers the scope of work on the "LOTO number" line and enter the associated lockbox number on the "Lockbox number" line.

D. Document specific danger tag numbers required for scope of work on the GSWP.

E. If Confined Space Permits (CSP) are required for this work, check the "Confined Space Permit Required" checkbox, and place the confined space lock on the lockbox

F. If grounds are required for this work, check the "Grounds Required" checkbox.

G. If the Lead Worker is not qualified on the system defined in the scope of work, a second LOTO Approver shall review that the boundary is adequate and document that this review was completed on the GSWP.

H. The LOTO Approver documents hazardous energy Sources on the GSWP.

I. The LOTO Approver reviews the applicable "LOTO Form" (F05) and "HERV Addendum" (F10) to verify HERV is adequate. If additional HERV is required, a qualified worker shall complete HERV and document on the "HERV Addendum" (F10).

J. The LOTO Approver documents that adequate HERV is completed by printing their name in the "Adequate HERV completed on LOTO" box on the GSWP.
K. The Lead Worker accepts the GSWP by printing name in the "Permit Accepted LW (print)" box. By accepting the permit, the Lead Worker is indicating that a second review of boundary was completed.
L. The LOTO Approver approves GSWP by printing name in "Permit Issued LA (print)" box
M. If using a remote lockbox see Section 3.2.6. If not using a remote lockbox, the Lead Worker will now put their lock on the lockbox.
N. The LOTO Approver updates the "Safe Work Permit Log" (F02) for the LOTO.
O. The Lead Worker is responsible for ensuring all workers covered by a GSWP are legibly documented on the permit.
P. The Lead Worker is responsible for maintaining the GSWP.
Q. Group Workers identified on GSWP may now hang personal locks on the associated lockbox for the identified LOTO.
R. Work can now begin.
S. When work is complete:
    1. Group Workers check the "off" box on the GSWP. If not working on any other GSWPs under the LOTO, Group Workers remove personal locks from the applicable lockbox.
    2. The Lead Worker will clear the machine or equipment of tools and ensure scope of work is complete prior to closing out GSWP.
    3. The Lead Worker will ensure all Group Workers listed on the GSWP have removed personal locks and have checked the "off" box on the GSWP.
    4. The Lead Worker will print name in the "Permit Closed LW (print)" box on the GSWP and remove their personal lock from the lockbox.
    5. The LOTO Approver will review the GSWP and ensure all documentation is complete.
    6. The LOTO Approver will print name in the GSWP "Permit Closed LA (print)" box.
    7. The LOTO Approver will GSWP "Permit Closed LA (print)" box.
    8. The LOTO Approver will archive GSWP as required by Management.

5.2.6 Remote Lockbox

NOTE: The following process requires a remote lockbox lock to be used.
NOTE: If using a remote lockbox, the Lead Worker and Group Workers must be locked onto the designated remote lockbox and documented on the associated GSWP.

A. After following the process in sections 3.2.5.A – 3.2.5.M for accepting a GSWP, the following process can be followed to use a remote lockbox
    1. The LOTO Approver will check the "Remote Lockbox Utilized Yes" checkbox on the GSWP.

2. The LOTO Approver will place a remote lockbox lock on the associated LOTO lockbox.
3. The LOTO Approver places the key to the remote lockbox lock inside the remote lockbox designated on the GSWP and secures the remote lockbox with an LA Lock
4. The LOTO Approver documents the remote lockbox and remote lockbox lock numbers on the GSWP and prints their name on the installed by line.
5. The Lead Worker verifies the remote lockbox lock, and LA Lock are installed correctly according to the GSWP and prints their name on the verified by line.
6. The Lead Worker can now place their personal lock on the designated remote lockbox.

NOTE: The Lead Worker is responsible for ensuring all workers covered by the GSWP are legibly documented on the permit.

NOTE: The Lead Worker is responsible for maintaining the GSWP along with the remote lockbox

7. Group Workers identified on the GSWP may now hang personal locks on the associated remote lockbox.

B. Work can now begin

C. When work is complete:

1. Group Workers check the "off" box on the GSWP. If not working on any other GSWPs using the same remote lockbox, Group Workers remove their personal locks from the applicable remote lockbox
2. The Lead Worker will clear the machine or equipment of tools and ensure the scope of work is complete prior to closing out the GSWP.
3. The Lead Worker will ensure all Group Workers listed on the GSWP have removed personal locks and have checked the "off" box on the GSWP.
4. The Lead Worker will print name in the "Permit Closed LW (print)" box on the GSWP. The Lead Worker can now remove their personal lock from the applicable remote lockbox.
5. The LOTO Approver will review the GSWP and ensure all documentation is complete.
6. The LOTO Approver can now remove the LA Lock from the applicable remote lockbox, retrieve the key to the remote lockbox lock, and then remove the remote lockbox lock from the LOTO lockbox.
7. The LOTO Approver will print name on the "Remote lockbox lock/LA lock removed by LA (print):" line of the GSWP.
8. The LOTO Approver will print name in the GSWP "Permit Closed LA (print)" box
9. The LOTO Approver will archive GSWP as required by Management.

5.2.7 ISWP for Individual LOTO

A. The Lead Worker and LOTO Approver work together to create a "Individual Safe Work Permit (ISWP)" (F04), that includes the following information:
   1. A description of the equipment to be worked on.
   2. The purpose or scope of the work.
   3. The Lead Worker's name.
B. The LOTO Approver requests authorization to work on the equipment from management
C. Determine if an approved LOTO template is available:
   1. The LOTO Approver research if an approved LOTO template is available for the scope of work.
      a. If an approved LOTO template is not available, create one using steps in Section 3.1.5, Development of LOTO Templates
      b. Document the LOTO template number on the ISWP.
D. LOTO Approver documents boundary isolation points and positions on the ISWP.
E. LOTO Approver documents HERV energy sources, methods of HERV, and locations of tests in the Hazardous Energy Removal Verification table on the ISWP.
F. After the isolation device has been positioned as indicated on the ISWP, the Lead Worker hangs personal locks or equipment locks
G. The Lead Worker initials the "Installed and Locked" column on the ISWP.
H. The Lead Worker completes or verifies completion of HERV, documents test results, and prints name in the table on the ISWP.
I. The LOTO Verifier uses the ISWP to verify each isolation point, position, and personal lock installation and initials the "Verified (LV)" column on the ISWP and prints their name on the "Verified Installed (print)" line. The LOTO Verifier and LOTO Approver can be the same person.
J. The Lead Worker prints name in the "Permit Accepted LW (print)" box on the ISWP.
K. The LOTO Approver prints name in the "Permit Issued LA (print)" box, issuing the individual LOTO.
L. Work can now begin.
M. If testing is required, the Lead Worker will perform the following:
   1. The LOTO Approver and Lead Worker will determine if the equipment can safely be energized for testing and, if so, which isolation points will need to be unlocked/untagged.
   2. The LOTO Approver will check the box on the ISWP indicating the "LOTO Change of Status" (F08) is required.
   3. The LOTO Approver will document the test and the isolation points affected on the "LOTO Change of Status" (F08).
   4. The Lead Worker and the LOTO Approver initial the "LOTO Change of Status" (F08) for the request and approval of the test.
   5. The Lead Worker will notify affected people that a test is needed.

6. The Lead Worker makes the change in accordance with the "LOTO Change of Status" (F08).
7. The LOTO Verifier will verify that changes are correct based on the "LOTO Change of Status" (F08).
8. Testing will be coordinated by the Lead Worker.

N. X Following the completion of testing:
1. The Lead Worker will return to the LOTO Approver and notify that testing is complete.
2. The Lead Worker will restore or release the ISWP.

O. If ISWP will be restored:
1. The Lead Worker will document the request and the isolation points being restored on the "LOTO Change of Status" (F08) and both the LOTO Approver and Lead Worker will initial the form.
2. The LOTO Approver will discuss the HERV and grounding requirements (if needed) with the Lead Worker
3. Using the "LOTO Change of Status" (F08) the Lead Worker will reposition isolation points and hang personal locks.
4. The Lead Worker will initial the "LOTO Change of Status" (F08) in the "Complete (LI) initial" column for the isolation points tested and restored.
5. Using the "LOTO Change of Status" (F08), the LOTO Verifier will verify the correct isolation point, position, and personal lock number.
6. The LOTO Verifier will initial the "LOTO Change of Status" (F08) in the "Verified (LV) initial" column, indicating that they verified each isolation point.
7. The Lead Worker can continue work under ISWP.
8. When work is complete, the Lead Worker shall inspect the work area to ensure that nonessential items have been removed and that machine or equipment components are operationally intact.
    a. The Lead Worker removes all personal locks and initials the "Unlocked (LW)" column on the ISWP.
    b. If qualified, the Lead Worker can restore and verify the isolation positions while removing locks and initials the "Verified Restored (LV)" column on the ISWP.
    c. Isolation points must be restored in the order identified on the ISWP.
9. The Lead Worker shall ensure affected persons have been notified that the lockout or tagout devices have been removed
10. The Lead Worker prints name in the "Permit Closed LW (print)" box on the ISWP.
11. If restoration has not been verified, a LOTO Verifier uses the ISWP to restore isolation points to the required positions and initials the "Verified Restored (LV)" column on the ISWP.

12. The LOTO Approver reviews the ISWP and ensures all names and initials are present.
13. The LOTO Approver prints name in the "Permit Closed LA (print)" box on the ISWP.
14. The LOTO Approver archives the ISWP as required by Management.

5.2.8 Release LOTO

A. The LOTO Approver
1. Confirms all GSWPs are closed prior to releasing LOTO.
2. Confirms all confined spaces associated with the LOTO are closed out and confined space locks are removed.
3. Confirms all grounds, ground tags, and ground locks associated with the LOTO are removed using the "LOTO Grounds List" (F07).
4. Verifies that only the LA Lock is on the lockbox.
5. Removes the LA Lock from the lockbox. and initials the "LA Lock removed by" line on the "LOTO Form" (F05).
6. Prints name on the "LOTO Protection Release" line on the "LOTO Form" (F05).

B. The LOTO Installer:
1. Picks up the equipment locks and danger tags in the required restoration order using "LOTO Isolation List" (F06).

NOTE: The restoration order will be reverse of the LOTO installation order unless otherwise specified on the "LOTO Isolation List" (F06).

2. Returns all equipment locks and danger tags to the LOTO Approver, after the equipment locks and danger tags are picked up and the isolation points are restored to the indicated position.
3. Initials the original "LOTO Isolation List" (F06) in the "Lock & tag Removed (LI)" column for each isolation position restored.

C. The LOTO Approver
1. Inventories all equipment locks and danger tags and ensures they are all present.
2. Reviews all LOTO forms and ensures all documentation is complete.
3. Prints their name on the "LOTO Closed" line of the "LOTO Form" (F05).
4. Records "Closed date" in the "LOTO Log" (F01).
5. Archives LOTO documents and GSWPs as required by Management.

5.2.9 Grounds

NOTE: Grounds are not considered part of the hazardous energy isolation boundary. They are an additional measure for worker protection. Grounds can be added or removed during an active LOTO with approval from the LOTO Approver and affected Lead Workers.

A. Adding Grounds to a LOTO
1. Grounds shall only be installed by an electrically qualified worker, at the direction of the LOTO Approver

2. To install grounds for a GSWP, the electrically qualified worker will create a GSWP specifically for installing and removing grounds.
3. The electrically qualified worker installing the grounds will be listed as Lead Worker or a Group Worker on the grounds GSWP.

NOTE: If the work requiring grounds is expected to be completed during a single shift, and if the Lead Worker for the GSWP will be the Lead Worker for grounds installation, then a common GSWP for grounds install/removal and the work tasks may be utilized with LA approval.

4. The electrically qualified worker who is installing the grounds will place their personal lock on the lockbox providing protection for the task.
5. After the grounds are installed:
   a. A qualified worker will attach a ground tag directly to the ground cable(s) with a zip-tie and initial the tag.
   b. Another qualified worker will verify the grounds installation. If the qualified worker is required to enter the LOTO boundary to verify the grounds installation, then they will add their name to the grounds GSWP and place their personal lock on the lockbox. They will verify the grounds are properly installed and initial the ground tag(s).
   c. For each LOTO listing the set of grounds, the LOTO Approver or designee will install a grounds lock on the associated lockbox(es).
   d. The key for each grounds lock will be controlled by the LOTO Approver

NOTE: Each defined set of grounds requires one lock on the lockbox

B. Removing Grounds

1. Grounds shall only be released by an electrically qualified worker, at the direction of the LOTO Approver
2. The LOTO Approver will review the "LOTO Grounds List" (F07) and all open, associated GSWPs prior to granting permission to remove grounds.
3. The electrically qualified worker who is removing the grounds will be listed as a Lead Worker or a Group Worker on a GSWP.
4. The electrically qualified worker who is removing the grounds will place their personal lock on the lockbox providing protection for the task.
5. For grounds used on multiple LOTOs, the qualified workers will only remove the ground tag associated with the LOTO being released.
6. If there are no other LOTOs associated with the grounds, an electrically qualified worker will remove the grounds.
7. The grounds remover will return ground tag(s) to LOTO Approver and initial for removal on the "LOTO Grounds List" (F07).

8. The LOTO Approver will review the "LOTO Grounds List" (F07). The LOTO Approver can now remove the ground lock(s) from the lockbox(es).

5.2.10 Confined Space Indication

A. When a Confined Space Entry Permit is associated with a LOTO, a confined space lock will be applied to the corresponding lockbox by the LOTO Approver

B. Confined space locks are removed by the LOTO Approver after all associated confined space permits are closed.

5.2.11 Testing Protocol

A. Any Lead Worker with an active GSWP can request a test.

B. The LOTO Approver and Lead Worker will determine if the equipment can safely be energized for testing and, if so, which isolation points will need to be unlocked/untagged.

C. The LOTO Approver will check the box on the "LOTO Form" (F05) indicating the "LOTO Change of Status" (F08) is required.

D. The LOTO Approver will document the test and the isolation points affected on the "LOTO Change of Status" (F08).

E. The Lead Worker and the LOTO Approver initial the "LOTO Change of Status" (F08) for the request and approval of the test.

F. The LOTO Approver will notify all affected Lead Workers that a test is needed.

G. The Lead Worker will notify affected people that a test is needed.

H. The Lead Worker will clear the machine or equipment of personnel and tools to ensure the equipment being tested is in a condition that is safe for testing.

I. All confined space entries associated with the LOTO will be evaluated and suspended, if necessary, during testing.

J. All grounds affected by testing will be removed and documented on the "LOTO Change of Status" (F08).

K. The Lead Worker will have all Group Workers remove personal locks from the lockbox

L. The LOTO Approver will verify that only the LA Lock is on the lockbox.

M. The LOTO Approver will provide the LOTO Installer with a "Test Tag List" (F12) which lists the isolation points that require lockout/tagout device removal for testing.

N. The LOTO Approver will remove the operations lock from the lockbox and provide the necessary equipment lock key(s) to the LOTO Installer.

O. The LOTO Installer conducts the change in accordance with the "LOTO Change of Status" (F08) and "Test Tag List" (F12)

P. The Lead Worker will inform affected persons that the lock/tags have been removed.

Q. The LOTO Installer returns equipment locks, keys, and danger tags to LOTO Approver prior to testing and initials the "LOTO Change of Status" (F08) and "Test Tag List" (F12)

R. The LOTO Verifier will verify that changes are correct based on the "LOTO Change of Status" (F08) and "Test Tag List" (F12) and initial forms
S. The LOTO Approver will place equipment keys into the lockbox and install the LA Lock
T. Testing will be coordinated by the Lead Worker.

NOTE: The Lead Worker and Group Worker(s) may be required to hang personal locks on the lockbox containing remaining equipment lock keys to safely perform the test.

U. Following the completion of testing:
    1. The Lead Worker will return to the LOTO Approver and notify that testing is complete.
    2. The Lead Worker will request full LOTO restoration or GSWP release from the LOTO Approver.
V. If LOTO will be restored:
    1. The LOTO Approver will document the request and the isolation points being restored on the "LOTO Change of Status" (F08) and both the LOTO Approver and Lead Worker will initial the form.
    2. The LOTO Approver will reissue equipment locks and danger tags for the tested isolation points.
    3. The LOTO Approver will discuss the HERV and grounding requirements (if needed) with the LOTO Installer.
    4. The LOTO Installer will verify the isolation point danger tag and equipment lock number against each other on the "LOTO Change of Status" (F08) and "Test Tag List" (F12)
    5. Using the "Test Tag List" (F12) as directed by the LOTO Approver, the LOTO Installer will reposition isolation points and hang equipment locks and/or danger tags.
    6. The LOTO Installer will give initial danger tags when installation is complete.
    7. The LOTO Installer will verify completion of HERV on the items identified by the LOTO Approver, re-hang HERV tags, if needed, and document on the "HERV Addendum" (F10).
    8. The LOTO Installer will initial the "LOTO Change of Status" (F08) and the "Test Tag List" (F12) for the isolation points restored.
    9. Using the "Test Tag List" (F12), the LOTO Verifier will verify the correct isolation point, position, danger tag and equipment lock number and initial for each item.
    10. The LOTO Verifier initials danger tags upon verification.
    11. The LOTO Verifier will initial the "LOTO Change of Status" (F08) indicating that they verified each isolation point.
    12. The equipment lock key(s) will be returned to the lockbox
    13. The LA Lock will be re-installed by the LOTO Approver
    14. Any grounds that were removed prior to testing will be reinstalled and documented on the "LOTO Change of Status" (F08) at this time.
    15. Before restoration, confined spaces will be reevaluated as needed per Confined Space Entry Procedure. Confined

space permits that were released prior to testing can be reissued.

16. The Lead Worker will inform the Group Workers that they can apply personal locks to the lockbox and begin work again.

5.2.12 Boundary Expansion

WARNING Reduction of identified isolation boundaries is not permitted after the LOTO has been issued.

NOTE: Refer to Section 3.1.3 for definition of unplanned and pre-planned work.

A. For emergent or unplanned work: boundary expansion can be handled by utilizing cascading lockboxes with a new GSWP and LOTO.

B. For pre-planned work: boundary expansion can be handled by adding isolation points to the existing LOTO using "LOTO Change of Status" (F08) or adding an additional LOTO with cascading lockboxes.

5.2.13 Absentee Notification

A. If a worker loses their personal key, or is absent when a LOTO must be released, or is absent during a change of status, Management initiates a "LOTO Absentee Notification" (F09)

B. If a personal lock must be removed without use of the key

1. Management contacts absentee and obtains verbal authorization to remove personal lock.
2. If absentee cannot be reached, Management may authorize a LOTO release or change of status after the equipment and/or area within the LOTO boundary has been inspected to verify the absentee is not present.

C. Management must notify the absentee of the change of status or LOTO release upon return to the site and prior to resuming work.

5.3 Acceptance Criteria

5.3.1 Work is performed according to LOTO, ISWP, and GSWP process forms

5.3.2 Upon completion of work, retain completed forms at an appropriate worksite location for a period of one year for the purpose of review

5.4 Post-Performance Activity

5.4.1 At least once a year the Hazardous Energy Isolation: LOTO program should be reviewed for compliance and to address any changes in regulations or work site conditions (OR-OSHA Requirement)

5.4.2 Annually review and approve the LOTO Isolation List Templates

6 References

6.1 Industry Standards or Codes

6.1.1 Institute of Electrical and Electronics Engineers, Inc. (IEEE), National Electrical Safety Code, C2, 2012

6.1.2 Oregon Occupational Safety and Health Administration (OR-OSHA), Oregon Administrative Rules (OAR)

A. Fact Sheet, The Control of Hazardous Energy, 2002.

B. Subdivision J, General Environmental Controls, 29 CFR 1910.147 The control of Hazardous Energy (lockout/LOTO).

C. Grounding for the Protection of Employees, OAR 437-002-2313

6.2 City of Boardman
6.2.1 Occupational Safety and Health Manual 2017 Revision
A. 11 Control of Hazardous Energy-Lockout Tagout: 11.1 - 11.16

7 Forms

7.1 Forms
7.1.1 F01: LOTO Log
7.1.2 F02: Group Safe Work Permit Log
7.1.3 F03: Group Safe Work Permit (GSWP)
7.1.4 F04: Individual Safe Work Permit (ISWP)
7.1.5 F05: LOTO Form
7.1.6 F06: LOTO Isolation List
7.1.7 F07: LOTO Grounds List
7.1.8 F08: LOTO Change of Status
7.1.9 F09: Absentee Notification
7.1.10 F10: HERV Addendum
7.1.11 F11: LOTO Isolation List Template
7.1.12 F12: Test Tag List

8 Appendix

NONE

LOTO Log – Form F01

LOTO Number	Equipment Isolated	Issued Date	Closed Date	Reviewed & Closed By

Group Safe Work Permit Log – Form F02

LOTO number: _____ Lockbox number: _____
Equipment: _____
Purpose/Scope: _____

Lead Worker Name	Safe Work Permit Number	Closed
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐

Group Safe Work Permit (GSWP) – Form F03

Safe Work Permit number:_____

Equipment:_____

Purpose/Scope:_____

_____

Lead Worker: _____

LOTO Number: _____

Lockbox number: _____

Danger Tag number (s): _____

☐ **Confined Space Permit Required** ☐ **Grounds Required**

If Lead Worker is not qualified on the system, secondary review of boundaries for scope of work performed by: Second LA (print): _____

Hazardous Energy Sources: _____

_____

_____

HERV completed on LOTO:
LA (print): _____

Permit Accepted **LW (print):**	**Permit Issued** **LA (print):**
Permit Closed **LW (print):**	**Permit Closed** **LA (print):**

Remote Lockbox Utilized: Yes ☐ Remote Lockbox #_____**Remote Lockbox Lock #**_____
Remote lockbox lock/LA Lock installed by LA (print): _____
Verified Installed by LW (print): _____
Remote lockbox lock/LA Lock removed by LA (print): _____

Group Worker List (Print Legibly)

☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF

Group Safe Work Permit (GSWP) – Form F03

Group Worker Addendum Sheet
Safe Work Permit number:_____
Equipment:_____

Group Worker List (Print Legibly)

☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
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☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF
☐ OFF	☐ OFF

Individual Safe Work Permit (ISWP) – Form F04

LOTO number: _____
Equipment: _____

Purpose/Scope: _____

Lead Worker: _____

LOTO Template number: _____LOTO Change of Status (F08) required? ☐ Yes ☐ No

Individual LOTO with (5) or less isolations – complete section below Verified Installed (print): _____

Install Order	Equipment or location	Position	Installed and locked (LW)	Verified (LV)	Unlocked (LW)	Verified Restored	Restore order

Hazardous Energy Removal Verification

1. OBSERVED VENTED OR DRAINED 2. METER SHOWS VOLTAGE NOT PRESENT 3. MONITOR SHOWS GAS AT ACCEPTABLE LEVEL 4. GAUGES SHOW SYSTEM FREE OF PRESSURE 5. COOLED SUFFICIENTLY FOR WORK	6. ATTEMPT TO START 7. MECHANICALLY SECURED 8. Control/HMI INDICATIONS 9. ELECTRICAL AIR GAP 10. OTHER (DESCRIBE): _____

Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	VERIFIED BY:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	VERIFIED BY:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	VERIFIED BY:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	VERIFIED BY:

Permit Accepted LW (print):	Permit Issued LA (print):
Permit Closed LW (print):	Permit Closed LA (print):

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LOTO Form – Form F05

LOTO number: _____

Equipment: _____

Purpose/Scope: _____

Lockbox number: _____ Lockset number: _____

Special requirements or remarks: _____

_____

_____

LOTO Template number: _____

LOTO Installation

LI (print): _____ Date/Time complete: _____

LOTO Verification

LV (print): _____ Date/Time complete: _____

Hazardous Energy Removal Verification

1. OBSERVED VENTED OR DRAINED 2. METER SHOWS VOLTAGE NOT PRESENT 3. MONITOR SHOWS GAS AT ACCEPTABLE LEVEL 4. GAUGES SHOW SYSTEM FREE OF PRESSURE 5. COOLED SUFFICIENTLY FOR WORK	6. ATTEMPT TO START 7. MECHANICALLY SECURED 8. Control/HMI INDICATIONS 9. ELECTRICAL AIR GAP 10. OTHER (DESCRIBE): _____

Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:

☐ HERV Addendum (F10) required ☐ LOTO Grounds List (F07) required

LA Lock installed by: _____
LOTO Protection Issued
LA (print): _____ Date/Time: _____

☐ Change of Status Form (F08) required

LA Lock removed by: _____
LOTO Protection Release
LA (print): _____ Date/Time: _____
LOTO Closed
LA (print): _____ Date/Time: _____

LOTO Isolation List – Form F06

LOTO number: _____

Tag No.	Lock No.	Isolation point	Position	Installed & Tagged (LI)	Verified Installed (LV)	Restore Order	Lock/Tag Removed (LI)

Lockbox number: _____ Lockset number: _____

LOTO Grounds List – Form F07

SWP number: _____

LOTO number: _____Lockbox number: _____

Installed by (print): _____Verified by (print): _____

Tag No.	Equipment or location	Position	Installed & Tagged (initial)	Verified Installed (initial)	Ground/Tag Removed (initial)

LOTO Change of Status List – Form F08

LOTO number: _____Lockbox number: _____

Equipment: _____

Date	Time	Change	Requestor (LW) initial	Approver (LA) initial	Complete (LI) initial	Verified (LV) initial

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LOTO Absentee Notification – Form F09

LOTO number: _____

Equipment: _____ LOTO Type: ☐ Individual ☐ Group

Purpose/Scope: _____

Lockbox number: _____ Safe Work Permit number: _____

☐ Absentee: _____ ☐ Lost Personal Lock Key: _____

Reason for notification: _____

_____

_____

_____

	Signatures & Printed Name	Time/Date
Absentee Notified by:		
LOTO Boundary Inspected by:		
Safe Work Permit Closed by:		
Management Approval:		
Management Notified of Lost Key by:		
Absentee Notified on Return to Work by:		

NOTE:

If an AW is absent when a LOTO is released or its status changed, Management will obtain verbal authorization by telephone from the individual prior to making the change and initiate this form. If unable to contact absentee, Management will perform an inspection within the boundary of the LOTO to verify the absentee is clear and verify they are off site. After absent person notified or verified not on site, management will then authorize the release of or the change status and complete this form. Lost personal lock keys will be reported to Management immediately and documented on this form.

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LA = LOTO Approver LI = LOTO Installer LV = LOTO Verifier LW = Lead Worker, GW= Group Worker

Hazardous Energy Removal Verification Addendum – Form F10

LOTO number: _____

Lockbox number: _____

1. OBSERVED VENTED OR DRAINED 2. METER SHOWS VOLTAGE NOT PRESENT 3. MONITOR SHOWS GAS AT ACCEPTABLE LEVEL 4. GAUGES SHOW SYSTEM FREE OF PRESSURE 5. COOLED SUFFICIENTLY FOR WORK	6. ATTEMPT TO START 7. MECHANICALLY SECURED 8. Control/HMI INDICATIONS 9. ELECTRICAL AIR GAP 10. OTHER (DESCRIBE): _____

Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:

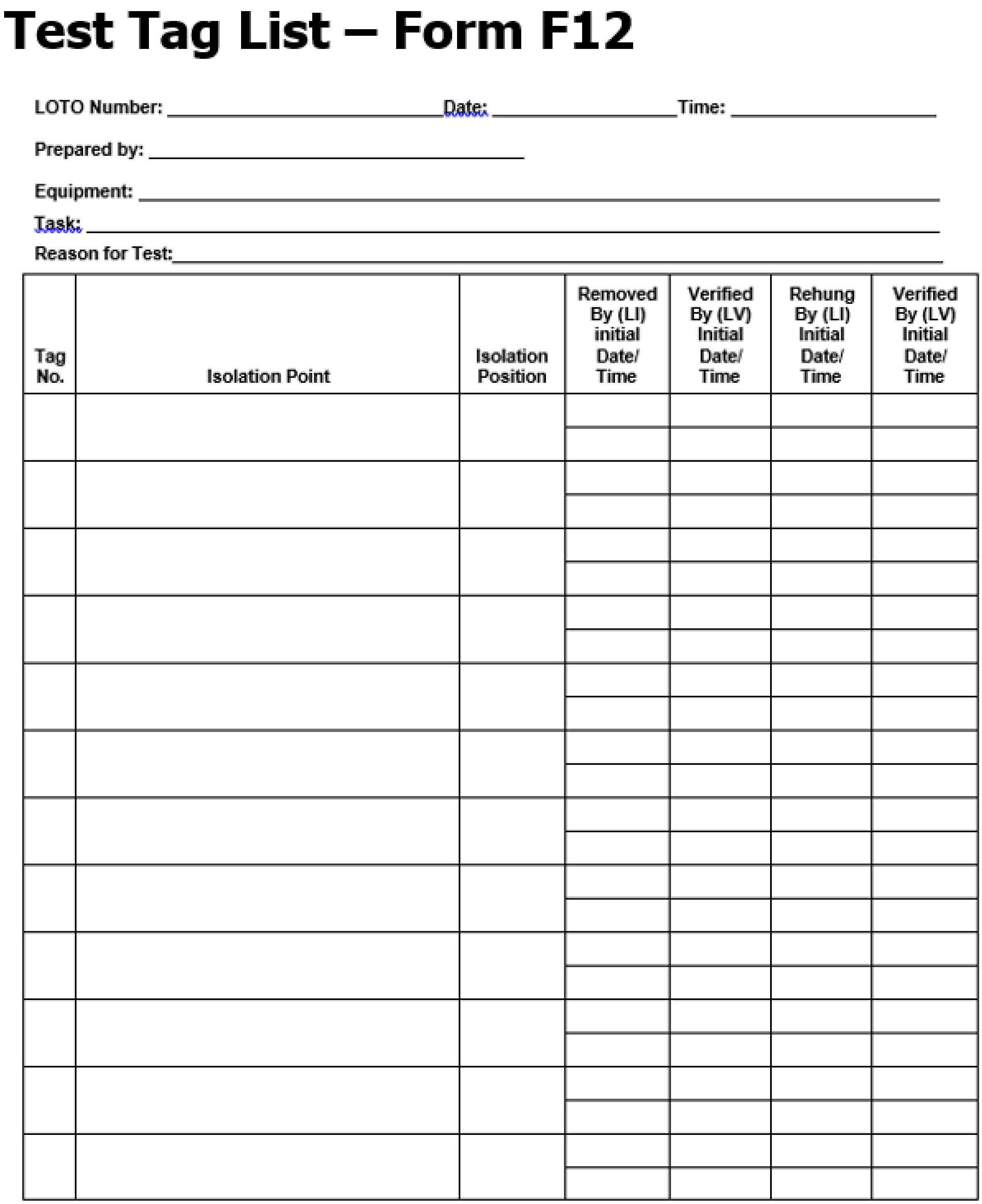
LOTO Isolation List Template – Form F11

LOTO Template No. _____ Date: _____

LOTO Template Name: _____

1st LA Approver: _____ 2nd LA Approver: _____

Tag No.	Lock No.	Isolation point	Position	Installed & Tagged (LI)	Verified Installed (LV)	Restore Order	Lock/Tag Removed (LI)



Test Tag List – Form F12

LOTO Number: ____________________ Date: ______________ Time: ______________

Prepared by: ____________________________

Equipment: ____

Task: ____

Reason for Test: ____

Tag No.	Isolation Point	Isolation Position	Removed By (LI) initial Date/ Time	Verified By (LV) Initial Date/ Time	Rehung By (LI) Initial Date/ Time	Verified By (LV) Initial Date/ Time

NOISE EXPOSURE AND HEARING CONSERVATION

Division 2 (29 CFR 1910), Subdivision G

We have adopted this Noise Exposure and Hearing Conservation program to protect our employees from hearing loss and ensure compliance with the Oregon OSHA Noise regulations. The regulations require that each employer implement a hearing conservation program if an employee's noise exposure levels exceed 85 decibels (dBA) for a time weighted average of 8 hours.

We have completed noise testing of our workplace and have identified the following positions that are affected and that must comply with the hearing conservation program.

1. Law Enforcement
2. Public Works (working around pumps, law maintenance equipment, chain saws, etc.)
3. Maintenance staff

Current noise level survey reports are contained in this chapter of the Safety Manual and are used to ensure that noise exposed employees are part of the hearing conservation program.

There are two different instruments that can measure the sound levels in the work environment. They are listed below:

Noise Dosimeter: A device worn by a worker that measures the sound levels over a period of time to determine the noise exposure. It is a form of personal monitoring as it measures sound levels near individual workers.

Sound Level Meter: An instrument that uses a microphone, amplifier, and output meter to measure instantaneous sound pressure levels. Sound level meters are usually used to do area monitoring, which is exposure monitoring that measures sound levels at various locations in the workplace, usually at a single point of time.

General Responsibilities

Management: It is the responsibility of management to see that noise controls are implemented and maintained, and that all employees at noise exposures in excess of 85 dBA time- weighted average are part of an effective hearing conservation program. This includes auditing the on-going program and training employees in the hazards of noise and required controls.

Supervisor: It is the responsibility of the supervisor to ensure that representative noise surveys are conducted. The super- visor also maintains records of employee training and audits the overall program. In addition, he/she is responsible for the following tasks:

1. Overseeing the program and ensuring that employees are following the Oregon OSHA standards and that employees' hearing is being protected.
2. Assuring that employee medical records and all past employee records per the Oregon OSHA standard are maintained by the Administration or HR.
3. Assuring that their employees wear hearing protection, have annual hearing tests, and are part of the annual hearing conservation training.

All Employees Covered by a Hearing Conservation

Program: All employees that have been identified to be covered under our hearing conservation program are responsible for wearing appropriate hearing protection, taking an active part in the annual training and getting annual hearing tests.

All Other Noise Exposed Employees: All other employees not covered under our hearing conservation program that are exposed to noise are responsible for wearing their hearing protection in noisy work locations or when using noisy equipment.

Procedures

Noise Level Surveys

Noise level surveys are required to be done on work operations that have potentially high noise levels (85 dBA and above). The noise measurements will be included in the Safety Manual. Additional noise surveys are required when additional equipment is purchased, or processes are implemented which could result in higher noise levels. Additionally, periodic noise level surveys must be completed to re-verify the test results.

Assistance with noise monitoring can be obtained through our CIS (our insurance pool), Oregon OSHA Industrial Hygiene Consultants, or through outside consultants. Noise level surveys will be kept on file in each employee's file. Each employee exposed to noise at or above the 85 dBA average is to be informed of the results. Hearing protection is required to be worn during the operation of equipment or processes that exceed 85 dBA noise levels as a time weighted average exposure. The hearing protection (ear barrier plugs, muffs, and foam plugs) is available in each department where it's use it required. The use and availability of the hearing protection will be pointed out to each new employee during their initial safety orientation. Employees required to wear hearing protection will be informed by their supervisor.

Employees will be trained in how to properly fit the hearing protectors by their supervisor or with assistance from outside safety/health consultants. If anyone has problems with the devices, please contact your supervisor. Employees will be provided with at least **two styles** of protection (plugs or muffs) to try on in order to determine which device would be best for them. All the devices provided will be evaluated to determine if they provide adequate noise attenuation for the noise exposure levels.

Each employee will be responsible for the maintenance of his/her assigned hearing protective devices. Disposable plugs will be discarded at the end of shift or when they become excessively soiled.

Inserts or barriers will be checked prior to each use for any defects. If barriers are used, the head band needs to be checked to ensure that it is tight and the insert is not torn, disfigured or does not properly seal. New devices will be obtained and used. Follow manufacturer's recommendations on maintenance.

Audiometric (Hearing) Testing

New employees assigned to a noise area (where the time weighted exposure to noise is above 85 dBA) will be given a baseline hearing test and then will be tested annually thereafter. The tests require that the employee not be in an occupational noise area for 14 hours prior to the

test or wear hearing protection during this time. This test will be the reference for further tests to determine if hearing levels change.

The hearing test will be given by contract certified audiometrictechnicians. Hearing tests showing a significant hearing loss
are reviewed by a certified audiologist or equivalent. Baseline orinitial tests may be given to new employees at the time of hire even if they are not working in a noisy area.

Significant threshold shift (STS) criterion hearing loss is a change in hearing threshold relative to the baseline audiogramof an average of 10 dB or more in 2000, 3000, and 4000 hertz(Hz) in either ear. The employee may be re-tested within 30 days and consider the results of the retest to determine if a permanent shift has occurred.

Employees will be informed if their tests show significant changes in their hearing levels based on Oregon OSHA standards by written letter and follow-up by the employee's supervisoronce notified of that change by our contract audiologists.

In all cases of hearing loss, the employee will be re-instructed on how to properly wear hearing protection. The supervisor will follow-up on all hearing tests that show a reduction in the employees hearing from the baseline. (See Appendix 1, page 131)

Contract audiologists will determine if additional tests areneeded and the status of the employee's hearing.

EmployeeTraining

New employees will receive Hearing Conservation Training at initial assignment to a noise area that falls within the hearing conservation program guidelines. The training will be repeated annually for these employees. The specific training materials are provided in this manual and are to be a guideline for super-visors and/or safety committee representatives to use.

A copy of the training materials will be available to our employees by contacting his/her supervisor or safety committee member. A copy of the Oregon OSHA Noise & Hearing Conservation Rules will be posted on the safety bulletin boardat each of our locations where employees are potentially exposed to hazardous noise levels.

Noise Engineering Controls

The supervisor is responsible to determine if there are feasible engineering controls that could reduce noise levels to below 90dBA as a time-weighted 8-hour average.

In some cases, there may be records of noise control studies done on pieces of equipment or processes. These records should bekept showing compliance with Oregon OSHA's noise engineering control standard. The records should be maintained forthe duration the equipment or process is in use.

Recordkeeping

Records must be maintained for the various elements of the program. Noise exposure measurement records must be kept for 2 years and maintain records of the audiometric testing results for the duration of the affected employee's employment. The audiometric testing records must include the employee's name and job classification, date of test, the examiner's name, the date of the last acoustic or exhaustive calibration, the measurements of the background sound

pressure levels in the audiometric testing room, and the employee's most recent exposure measurement.

Maintain exposure measurements for at least two years and keep the training records for each employee for the duration of employment and then forward all records to HR.

Hearing loss is recorded on the OSHA 300 Log when an annual audiogram reveals a Standard Threshold Shift (STS) in either or both ears and the hearing level in the same ear is 25 decibels (dBA) above audiometric zero. Employees must be informed in writing within 21 days of the determination of permanent hearing shift. Then the test results will either be accepted, or a retest will be employee within 30 days.

Human Resources is assigned responsibility for maintaining the OSHA 300 and 300A Injury and Illness Log.

Sound Level Measurements

The following pieces of equipment were measured and found to produce high levels of noise:

Equipment	Sound Level	Allowable Time of Exposure	Date Measurements Were Taken

Hearing Conservation Forms

A. Appendix 1: Employee Notification of a Hearing Threshold Shift & Formal Notification Letter, page 12.6
B. Appendix 2: Noise Compliance Checklist, page 12.8
C. Appendix 3: Hearing Conservation and Noise Test Results, page 12.11

Employee Hearing Test Notification Form

Employee Name:	Date of Hearing Test Notification:
The annual audiogram taken on (Date)_____shows a hearing level change greater than Oregon OSHA's permitted level as compared to the baseline. Your audiogram was reviewed by a certified audiologist, who provided us with a report. You have also received notification of the shift by the supervisor. Because of the change in hearing, we need to ensure that you are wearing proper hearing protection, you are trained how to fit the protection, and understand the potential effects of noise on your hearing.	
Refitting of Hearing Protection:	
Type of Hearing Protector:	Training on How to Don/Insert Hearing Protection? ☐ Yes ☐ No ☐ Follow the Manufacturer's Recommended Procedures
Basic Noise Training Review The following issues were reviewed with the employee regarding noise exposure in their work area.	
☐ Overexposure to noise can cause noise-induced hearing loss (which can be permanent). ☐ Effect of noise damage to the inner ear nerve cells. ☐ Hearing protection is required to protect your hearing. ☐ Hearing loss due to noise is cumulative (including on and off the job exposure) ☐ Hearing loss is not evident to you during the early stages of hearing damage ☐ A person generally hears better in a noisy environment with hearing protection ☐ Noise exposure increases general fatigue, and in some cases, blood pressure during the noise exposure.	
Supervisor (who reviewed information):	Date:
Employee Signature:	Date:

Employee Notification Letter Regarding Significant Threshold Change in Hearing

The following letter will be sent to employees who have been identified by the contract audiologist as having a significant threshold shift on his/her annual audiogram as compared to the baseline test. We have 21 days to notify the employee of the change once we receive notification. The supervisor will be notified of the change by the manager or HR so the employee's supervisor can ensure proper follow-up training.

Follow-up will be done by the supervisor or other representative.

There are two formats for the notification letter.

1. The first format in which the employee has a significant threshold shift, but no further medical evaluation is recommended by the audiologist reviewer.
2. The second format in which the professional reviewer recommends that the employee have further medical follow-up. If the reviewer makes this type of recommendation, we are responsible to notify the person and pay the employee's medical expenses for the referral.

Format 1
Significant Threshold Shift but *No* Additional Medical Testing Recommended

During the month of_____, your hearing was tested by a certified audiometric technician. Your hearing test was reviewed as standard procedure by_____, Audiologist. _____ has notified the entity that your hearing threshold has decreased in comparison to the original baseline test.

At this point, the audiologist has recommended that we ensure you are properly wearing hearing protaction during all exposures to noise. We recommend you wear protection even off the job if you are exposed to high noise levels. The audiologist has not recommended further testing at this point.

You will be refitted and retrained in how to wear hearing protection by your supervisor. A different type of hearing protection with a greater noise reduction rating (NRR) may also be needed. This is a policy of our organization and required by Oregon OSHA.

Format 2
Significant Threshold Shift *and* Additional Medical Testing Recommended

During the month of_____, your hearing was tested by a certified audiometric technician. Your hearing test was reviewed as standard procedure by_____, Audiologist. _____has notified us that your hearing threshold has decreased in comparison to the original baseline test.

The audiologist has recommended that unless you are currently under the care of an audiologist or otolaryngologist (ear specialist), that you need further medical evaluation. Our organization will cover the expense of the referral to an audiologist for follow-up based on the audiologist's referral. HR can assistyou with making an appointment with Dr.____.

Please contact HR for assistance.

You will also be refitted and retrained in how to wear hearing protection. A different type of protection with greater protection may also be needed.

Noise Compliance Checklist

The following checklist can be used by management and safety committee members when conducting an overall audit on noise and hearing conservation programs. A second checklist titled "Checklist for Determining Validity of Audiometric Tests" will also be used when evaluating the audiogram tests forcompliance with Oregon OSHA. This checklist is based on the Oregon OSHA standards.

Compliance is explained on the back of the checklist. Recommendations for corrections should also be made.

A. Noise Exposure Monitoring Compliance	Yes	No
1. Current noise exposure levels are available for all work positions that may be over 85 dBA as an 8 hour time-weighted average.		
2. The noise readings were conducted with a calibrated instrument.		
3. Noise measurement are retained and will be available to employees and Oregon OSHA compliance inspectors.		
4. The noise readings are noted on the employee's audiogram record.		
5. Employees are notified of the noise exposure level results.		
6. Employee representatives were allowed to observe noise exposure monitoring procedures.		
B. Noise Control Measures & Hearing Protection Compliance	**Yes**	**No**
1. All feasible noise controls have been implemented for employees whose noise exposures exceed 90 dBA.		
2. Records of noise control measures are maintained and will be available for an Oregon OSHA compliance inspector.		
3. All employees whose noise exposure exceeds 90 dBA or 85 dBA TWA with hearing loss are wearing hearing protection.		
4. Employees were trained and fitted in hearing protectors.		
5. Employees were offered a variety of suitable protections to choose from.		
6. Hearing protection attenuation was calculated and provides adequate protection for the employee's noise exposure (at least to less than 85 dBA TWA).		
7. Employees are wearing protection per manufacturer's requirements.		
C. Hearing Conservation Program Compliance	**Yes**	**No**
1. All employees whose exposure exceeds 85 dBA TWA are part of the Hearing Conservation Program. (Includes hearing tests, noise protection, and annual employee training).		
2. Only audiometric technicians or audiologists, or physicians meeting state certification requirements are conducting the hearing tests.		
3. Baseline audiograms are obtained within 180 days of assignment to noise areas over 85 dBA.		
4. The Baseline audiogram is taken with the employee away from workplace noise for 14 hours.		
5. The employees are receiving annual audiograms which are compared to the baseline audiogram.		
6. The audiograms are taken with audiometers that are properly calibrated:		
▪ Functional before use test		
▪ Annual calibration		
▪ Exhaustive calibration every 2 years		
7. All significant threshold shift audiograms are evaluated by an audiologist, otolaryngologist, or a qualified physician.		
8. Recommendations of professional reviewer were implemented.		

9. Proper follow-up is done for all employees showing a significant threshold shift.		
▪ Employee is notified of the change within 21 calendar days		
▪ Employee is retrained and refitted in hearing protection		
▪ Employee is referred for medical attention as necessary		
▪ The STS is recorded on the OSHA 300 Injury/Illness log		
D. Employee Training Program **Compliance**	**Yes**	**No**
1. All employees with noise exposures equal to or greater than TWA of 85 dBA have received initial and annual noise training.		
2. Training covers the following topics		
▪ Effects of noise on hearing		
▪ Hearing protector use, maintenance, advantages/disadvantages		
▪ Purpose of hearing testing		
D. Access to Information **Compliance**	**Yes**	**No**
1. The noise standard is posted and copies are available to employees or their representatives.		
2. Training and educational materials are available to an Oregon OSHA Compliance inspector.		
F. Recordkeeping **Compliance**	**Yes**	**No**
1. Noise exposure monitoring records are maintained and available.		
2. Audiometric test record must have the following:		
▪ Audiogram		
▪ Name & job classification of the employee		
▪ Date of audiogram		
▪ Examiner's name and certification number		
▪ Date of last acoustic or exhaustive calibration		
▪ Employee's most recent noise exposure assessment		
3. Sound readings as octave band levels in test room are available.		

Employee Hearing Conservation & Noise Test

Employee Name		
Date	Initial Training Date	Annual Refresher Date

Question	True	False
1. Hearing protection is only required at the shop.		
2. Oregon OSHA requires that hearing protection be worn when employees' noise exposure exceeds 85 dBA for an eight hour average.		
3. The best way to determine noise exposure levels is to measure using a noise dosimeter (meter that integrates the noise levels).		
4. We are able to hear sound when the sound waves enter the ear and are transmitted through the middle ear into the inner ear (which transfers the noise as an electrical signal to our brain that interprets the sound).		
5. Prolonged exposure to excessive noise levels can cause a noise-induced hearing loss.		
6. When you are exposed to excessive noise levels, the first effect is usually a temporary hearing loss.		
7. Noise-induced hearing loss involves damage to the inner ear.		
8. Early noise-induced hearing loss normally is not detected by an individual, since it occurs above the speech range. By the time an individual is aware of a hearing loss, the amount of loss may be significant.		
9. Muffs provide the highest level of protection as compared to foam plugs.		
10. There are no disadvantages in using foam plugs.		
11. The reduction of noise by hearing protectors is called attenuation.		
12. Earplugs including foam plugs must fit tightly to provide a good seal.		
13. The reason we are generally not using earmuffs is because safety glasses interfere with the proper fitting of the muff over the ear.		
14. When hearing protectors are initially worn, it may take a short time to adjust to the new sounds.		
15. The primary type of hearing protectors we use are disposable, however, they can be reused, especially during the day as long as they are clean.		
16. Audiometric testing can protect your hearing.		
17. Audiometric testing is a means of determining your hearing ability.		
18. The accepted normal range of hearing is between 0 and 25 decibels.		
19. The audiometric test will show the amount of hearing loss. The higher the decibel reading, the greater the hearing loss.		

PERSONAL PROTECTIVE EQUIPMENT

Division 2, Subdivision I

We have adopted this Personal Protective Equipment (PPE) policy and procedures to ensure that when hazards cannot be fully controlled with engineering or process controls, that employees use appropriate personal protection. This chapter is also to assist in ensuring compliance with Oregon OSHA standards.

Our policy includes that appropriate training on the use and maintenance of PPE be provided by or arranged for by the supervisor. Employees are required to wear proper personal protective equipment. The PPE provided will be used as out- lined by specific job procedures and maintained in a sanitary and reliable condition. If employees provide their own protective equipment, it is still our responsibility to assure its adequacy, including proper maintenance and sanitation of the equipment.

The selection of PPE will be made by our management staff and will be designed to match the hazard and allow employees to safely conduct their job tasks. The PPE is designed to protect the worker from injury or harm. However, it is not designed to prevent the occurrence of an incident which might cause harm
or injury, AND as a result, it is our policy to ensure that working conditions are safe and PPE is used as a back-up for additional protection.

Definitions

Personal Protective Equipment: Equipment worn by the employee to prevent injury or occupational illness wherever hazards from processes or equipment cannot be contained or eliminated at their source.

Mandatory Respirator Use (based on Oregon OSHA standards): Respirators are required to be provided and worn when it is necessary to protect the health of an employee due to overexposure to air contaminates.

National Institute of Occupational Safety and Health (NIOSH) Approved Respirators: NIOSH has established specific respirator approval standards that manufacturers must meet. Employers must select only NIOSH approved respirators based on the type of contaminant hazard.

This chapter reviews basic requirements for personal protective equipment including:

1. Head protection 437-002-0134(9)
2. Hearing and ear protection 29 CFR1910.95
3. Eye and face protection 437-002-0134(8)
4. Hand protection 437-002-0134 (12)
5. Foot protection 437-002-0134(10)
6. Fall protection 437-002-0134(5)
7. Torso Protection 437-002-0134(6)(7) 437-002-0144(2)
8. Leg Protection 437-002-0134(11)
9. Respiratory Protection 437-002-0382 29 CFR 1910.134

Procedures
Written certificates outlining work operations/jobs that require specific PPE are provided in Appendix 1, at the end of the PPE section. The certificate also provides basic description of the types of PPE that must be selected.

Respiratory Protection is covered separately in Chapter 14.

General Responsibilities
Management: It is the responsibility of entity management to ensure that PPE evaluations have been completed for jobs/tasks that would potentially require or have hazards that require PPE. Additionally, management must ensure that proper PPE is made available in types and sizes to fit employees.

Supervisor: It is the responsibility of the supervisor to see that employees are trained in the use of personal protective equipment and are instructed on what is required for their work duties. Supervisors are responsible for completing and/or updating the PPE written certificates in Appendix 1, page 13.6. Direct supervisors will be responsible for ensuring all PPE is worn when the PPE Assessment indicates that PPE is necessary.

All Employees: Employees must follow all safety procedures as outlined in this chapter by Oregon OSHA rules and manufacturer's recommendations in regard to personal protective equipment. Employees are required to inspect their equipment daily/prior to use and ensure that the equipment is functional. Any problems with the equipment will be reported to the supervisor.

Safety Committee: The Safety Committee will include a review of personal protective equipment in their quarterly inspection activities.
Head Protection: OAR 437-002-0134(9)

Hard hats are to be used to protect the head from flying objects, impact, and electrical shock. Hard hats used at our work operations will meet ANSI standards for the job task.

Hard hats shall be used in the following jobs:

1. While working around construction or maintenance field projects or equipment.
2. While working outside and around heavy equipment.
3. Working inside a confined space below ground.
4. In addition, hard hats will be used by all employees when overhead hazards are present. This includes when working under floor openings or walkways, in areas with low ceilings, or in areas with protruding objects.

Hearing Protection: *(See Chapter 12 for overall instruction about hearing conservation and protection)*

Earmuffs and earplugs are used to protect against hazardous noise levels when noise exposure levels cannot be adequately controlled by various engineering controls.

Hearing protective devices are located at:

1. Supervisor's Office
2. Tool Room

If earmuffs are worn, the temple bars of glasses will interfere with the seal of the earpiece. As a

result, ear plugs should beworn by those required to wear safety glasses or glasses withcorrective lenses.

Eye & Face Protection: OAR 437-002-0134(8)

Eye and face protection is to be worn where there is a reasonable probability of injury to the eyes and face from flyingobjects, glare, harmful liquids, or injurious light, such as arcwelding flash.

Eye protection needs to meet the following criteria:

1. Provide adequate protection against the particular hazardsfor which they are designed.
2. Provide reasonable comfort and not unduly interfere withthe movements of the wearer.
3. Be durable.
4. Be capable of being cleaned easily.
5. Be stored in clean containers or packaging and kept in good repair.
6. The specific type of eye and face protection needed depends on the type of hazard.
7. Particle hazards from grinding/chipping require safety glasses with side shields.
8. Face protection is worn when liquid splashes or significantparticle matter could impact the face and cause injury.
9. Liquid splash hazards require chemical splash goggles orsafety glasses with a face shield.
10. Gas welding requires welding goggles.
11. Safety glasses must be worn when an eye hazard exists.

Hand Protection: OAR 437-002-0134(12)(13)

Hand protection is worn to protect the hands from sharp wood/thorns, poison oak, and mechanical injury due to friction, heat, shearing/cutting actions, and for protection against chemicals.

Chemical protective gloves are selected based on the type of rubber/plastic material which affords proper protection againstspecific chemicals used. The selection will be made by the supervisor.

Chemical protective gloves will be worn when there is skin con-tact with the following chemicals:

1. Solvents
2. Corrosives
3. Chemical spill clean-up
4. Mechanical protective gloves will be worn when employees are exposed to wood slivers, friction, sharp metal edges, hotor cold materials, and moving heavy objects. Gloves will be available by job task or in the use areas.

Foot Protection: OAR 437-002-0134(10)

Special foot protection is necessary when there is a potential forfoot injury, or slipping, or when the feet become wet due to the work environment. Your supervisor will work with employees who may have job assignments with special footwear.

The following footwear is expected to be worn:

1. Leather work boot when working on or around equipment. Safety steel toes when there is a hazard from dropping heavy objects.
2. Rubber boots when exposed to wet conditions.

The shoe policy will be periodically reviewed by the Safety Committee to ensure that appropriate footwear is used, preventing foot injuries.

Fall Protection: http://www.oshatrain.org/courses/ pdf/2824.pdf OAR 437-002-0134(5) & 29 CFR 1926.502(d) 437-003-0502

When it is not feasible to use physical barriers to protect employees from falls, personal protective equipment (PPE) will be used.

PPE will be chosen based on the following:

1. Intended use of PPE (stopping fall as opposed to retrieval from a confined space: see Chapter 5 Confined Spaces).
2. Fall arresting forces on the body
3. Distance of potential fall.
4. Impact on the body from the PPE during a sudden stop.

Type II chest harnesses will be worn for rescue purposes only and in no case are used to stop a vertical fall.

When a worker(s) enters a confined space, a helper wearing the same PPE will be stationed at the entrance to the confined space and will monitor those inside for the duration of the project (see Chapter 4).

Personal retrieval systems for rescue from below-ground level tanks or confined spaces.

1. Authorized personnel will ensure the use of a lifeline attached to a manual or power operated winch with a steel cable retracting lifeline. Alternatively, a block and tackle or ratchet winch can provide the lifting mechanism with limited human effort after the victim has been hooked up, pro-vided a lock or overspeed mechanism is incorporated. An anchorage point, such as that provided by a seven or ten- foot tripod, should be available before work commences.
2. Full body harnesses, yokes, and wristlets will be used when retrieval is through narrow openings.
3. Strength Requirements. All components of the fall protection will meet the strength requirements of American National Standard A10.14-1991.

Note: *These strength requirements are based on one worker use. If multiple workers are tied off to a single lifeline, the strength requirement must be increased by the number of workers affected (i.e., two workers, one lifeline, minimum breaking strength must be 10,800 pounds at the center of line; three workers, one lifeline, minimum breaking strength must be 16,200 pounds, and so forth).*

4. When tied off while working on suspended scaffolding, each worker must use a separate line which is not connected to the scaffold.
5. Hardware for body belts/harnesses and lanyards must be drop-forged, corrosion resistant with smooth edges, and a minimum of 5,000-pound breaking strength without cracks or

breaks.

6. Knots will not be used in components of a fall protection system since a knot will reduce the strength by at least 50%.
7. Lanyards will be kept as short as possible and in no case will they exceed six feet to minimize the possibility for any length ofa free fall.
8. Wire rope or rope-covered wire lanyards will not be used whereimpact loads are anticipated or where there is an electrical hazard.
9. Belts and lanyards that have been subjected to impact loading must be removed from service and destroyed or returned to themanufacturer for recertification.
10. Rope lanyards will not be stored in work pouches where theymay be subject to deterioration.
11. Where there is exposure to abrasion, spun nylon rather than filament nylon will be used.
12. Only safety belts/harnesses with locking snaps will be used to prevent "rollout" or disengagement. All hardware will be compatible with the locking snap.
13. Only shock-absorbing lanyards will be used to reduce the fall arresting impact on the wearer.
14. Tongue-type buckles shall be used in lieu of friction buckles since friction buckles may lose the ability to stop detachment ifcontaminated with grease or oil.

Inspection and Recordkeeping

The user will inspect the fall protection prior to each use.

1. A trained and competent person will inspect all componentsof the protection device at least once every six months. The dates of this biannual inspection will be recorded on a permanent tag attached to the harness.
2. Every five years, the fall protection system will be returnedto the manufacturer for recertification.
3. Any defective body belt/harness or lifeline will be destroyed or returned to the manufacturer before use.
4. Any unit subjected to impact loading will be immediatelyremoved from service and destroyed or sent to the manufacturer for recertification.

Road Worksite Protection

All employees working around traffic will wear brightly coloredvests or clothing with reflective striping to ensure that they arevisible to traffic. This primarily includes road department, law enforcement and fire department staff. There may be other positions that may be required to wear this type of clothing as well. Any staff working around traffic and/or who will be involved in flagging or traffic control activities will be requiredto complete a flagging / traffic control school prior to being assigned to their duties. It is very important that appropriate notification distance is maintained prior to the work zonein order to protect the employees working in the area. These notification distances will be discussed in the flagging/trafficcontrol school.

Personal Protective Equipment Hazard Assessment

Use this sample form to identify hazards and to certify (document in writing) that you completed the assessment. Keep it on file in your workplace.

Survey your workplace as often as necessary to identify safety and health hazards that require personal protective equipment.

General information		
Department:	Location:	
Jobs included in the assessment:		
Person performing assessment:	Assessment date:	
Hazard assessment certification		
I certify that I performed this hazard assessment on the date indicated. Signed: :		
Printed name	Date:	
PPE Required?		
From the attached assessment worksheets	**Yes**	**No**
• Fall protection		
• Torso protection		
• Eye and face protection		
• Head protection		
• Foot protection		
• Leg protection		
• Hand protection		
• Hearing protection		
• Respiratory protection		

Fall Protection

- All employees must be protected from fall hazards when working on unguarded surfaces more than 4 feet above a lower level or at any height above dangerous equipment.
- Fall protection systems must be provided, installed, and used according to the criteria in OAR 437,Division 2, Sections D, F, and I and construction is OA R437, Division 2, Section M.

Department:	Location:
Jobs included in the assessment:	
Potential hazards: • Unguarded surfaces more than 10 feet above a lower level or any height above dangerous equipment	**Likelihood of injury without PPE** • High • Medium • Low
Severity of a potential injury without PPE • Minor first aid required • Serious, not life threatening • IDLH: life threatening	**PPE required** • Personal fall arrest system • Personal fall restraint system • None required

Torso protection

- Clothing must be worn which is appropriate to the work performed and conditions encountered. Appropriate high temperature protective clothing must be worn by workers who are exposed to molten metals or other substances that can cause burns.
- Loose sleeves, ties, lapels, cuffs, or other loose clothing must not be worn near moving machinery. Clothing saturated or impregnated with flammable liquids, corrosive or toxic substances, irritants, or oxidizing agents must be removed immediately and not worn again until properly cleaned.
- Rings, wristwatches, earrings, bracelets, and other jewelry which might contact power driven machinery or electric circuitry, must not be worn.

Department:	Location:
Jobs included in the assessment:	
Potential hazards • Extreme temperatures • Hot splashes from molten metal and other hot liquids • Impacts from tools, machinery, and materials • Hazardous chemicals • Ionizing radiation	**Likelihood of injury without PPE** • High • Medium • Low
Severity of a potential injury without PPE • Minor first aid required • Serious, not life threatening • IDLH: life threatening	**PPE required** • Chemical resistant coveralls • Cut-resistant sleeves, wristlets • Flame-resistant jacket/ pants • High visibility garment • Insulated jacket, hood • Lab coat or apron/ sleeves • Long sleeves/ apron/ coat • Static control coats/ coveralls • None required

Eye and Face Protection

- Employees must use appropriate eye or face protection when exposed to flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.
- Eye protection must have side protection when there is a hazard from flying objects. Detachable side protector meetings are acceptable.
- Employees who wear prescription lenses must wear eye protection that fits over the lenses without disturbing the proper position of the prescription lenses, or ANSI-approved prescription lenses with side shields.
- Employees who are exposed to potentially injurious light radiation must use filter lenses that have a shade number appropriate for the work being performed.
- Employees whose work exposes them to laser beams must wear laser safety goggles that protect the wavelength of the laser.

Department:	Location:
Jobs included in the assessment:	
Severity of a potential injury without PPE ☐ Minor first aid required ☐ Serious, not life threatening ☐ IDLH: life threatening	**Likelihood of injury without PPE** ☐ High ☐ Medium ☐ Low
Potential hazards ☐ Dust, dirt, metal, or wood chips from chipping, grinding, sawing, hammering, and from power tools ☐ Chemical splashes from corrosive substances, hot liquids, and solvents ☐ Objects such as tree limbs, chains, tools, and ropes that swing into the eyes or face ☐ Radiant energy from welding and harmful rays from lasers or other radiant light	**PPE required** ☐ Chemical goggles/face shield ☐ Chemical splash goggles ☐ Glasses/goggles w/face shield ☐ Glasses/goggles w/face shield ☐ Impact goggles ☐ Leather welding hood ☐ Safety glasses w/side shields ☐ Safety goggles w/face shield ☐ Welding goggles ☐ Welding helmet/shield w/ safety glasses and side shields ☐ None required

Head protection

- Employees must wear hardhats when they work where there is a potential for head injuries from falling or flying objects.
- Employees must use hard hats designed to reduce electrical shock hazards when they're working near exposed electrical conductors that could contact their heads.
- Employees who are exposed to power-driven machinery or to sources of ignition must wear caps orother head covering that completely covers their hair.

Department:	Location:
Jobs included in the assessment:	
Potential hazards ☐ Overhead objects that could fall ☐ Exposed pipes or beams (less than 6.5 feet overhead) ☐ Energized electrical equipment	**Likelihood of injury without PPE** ☐ High ☐ Medium ☐ Low
Severity of a potential injury without PPE ☐ Minor first aid required ☐ Serious, not life threatening ☐ IDLH: life threatening	**PPE required** ☐ Head protection that meets ANSI Z89.1 requirements: ☐ Impact Type I ☐ Impact Type II ☐ Electrical Class G (general) ☐ Electrical Class E (electrical) ☐ Electrical Class C (conductive) ☐ None required

Foot protection

Employees must wear protective footwear when they work where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, or electrical hazards.

Department:	Location:
Jobs included in the assessment:	
Potential hazards ☐ Heavy objects such as barrels or tools that might roll onto or fall on a worker's feet ☐ Sharp objects such as nails or spikes that could pierce the soles or uppers of ordinary shoes ☐ Molten metal ☐ Hot, wet, or slippery surfaces ☐ Energized electrical equipment	**Likelihood of injury without PPE** ☐ High ☐ Medium ☐ Low
Severity of a potential injury without PPE ☐ Minor first aid required ☐ Serious, not life threatening ☐ IDLH: life threatening	**PPE required** ☐ Steel toe safety shoes ☐ Leather boots or safety shoes w/metatarsal guards ☐ Slip resistant soles ☐ Puncture resistant soles ☐ Chemical resistant boots/covers ☐ Rubber boots/closed top shoes ☐ Insulated boots or shoes ☐ None required

Leg protection

- Workers exposed to hot substances or dangerous chemical spills must wear leggings or high boots made of leather, rubber, or other suitable material.
- Workers who use chain saws must wear chaps or leg protectors that cover the leg from the upper thigh to midcalf. Leg protectors must be made from material that resists cuts from the chain saw.

Department:	Location:
Jobs included in the assessment:	
Potential hazards ☐ Hot substances ☐ Dangerous chemicals ☐ Cuts from chain saws	**Likelihood of injury without PPE** ☐ High ☐ Medium ☐ Low
Severity of a potential injury without PPE ☐ Minor first aid required ☐ Serious, not life threatening ☐ IDLH: life threatening	**PPE required** ☐ Leggings or boots: penetration resistant ☐ Leggings or boots: chemical resistant ☐ Leggings or boots: molten metal resistant ☐ Chaps or leg protectors: resists cuts from chain saws ☐ None required

Hand protection

- Employees must use appropriate hand protection when their hands are exposed to harmful sub- stances; severe cuts or lacerations; abrasions; punctures; chemical burns; thermal burns; and extreme temperatures.
- Employers must base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task, conditions present, duration of use, and the hazards identified.
- Employees must not wear gloves when their hands could be caught in moving parts.

Department:	Location:
Jobs included in the assessment:	
Potential hazards ☐ Harmful or hazardous temperatures ☐ Chemicals that can be absorbed into the skin or cause burns ☐ Energized electrical equipment ☐ Mechanical equipment that can cause bruises, abrasions, cuts, punctures, fractures, or amputations	**Likelihood of injury without PPE** ☐ High ☐ Medium ☐ Low
Severity of a potential injury without PPE ☐ Minor first aid required ☐ Serious, not life threatening ☐ IDLH: life threatening	**PPE required** ☐ Leather/cut resistant gloves ☐ General-purpose work gloves ☐ Chemical resistant gloves ☐ Insulated gloves ☐ Heat/flame resistant gloves ☐ Latex or nitrile gloves ☐ Electrician's insulated rubber gloves; ☐ Cotton, leather, or anti-vibration gloves ☐ None required

Hearing protection

- Hearing protectors (plugs or muffs) must be worn by workers exposed to an 8-hour time-weighted average of 85 decibels or greater.

Department:	Location:
Jobs included in the assessment:	
Potential hazards ☐ Harmful or hazardous temperatures ☐ Chemicals that can be absorbed into the skin or cause burns ☐ Energized electrical equipment ☐ Mechanical equipment that can cause bruises, abrasions, cuts, punctures, fractures, or amputations	**Likelihood of injury without PPE** ☐ High ☐ Medium ☐ Low
Severity of a potential injury without PPE ☐ Minor first aid required ☐ Serious, not life threatening ☐ IDLH: life threatening	**PPE required** ☐ Leather/cut resistant gloves ☐ General-purpose work gloves ☐ Chemical resistant gloves ☐ Insulated gloves ☐ Heat/flame resistant gloves ☐ Latex or nitrile gloves ☐ Electrician's insulated rubber gloves; ☐ Cotton, leather, or anti-vibration gloves ☐ None required

Respiratory protection

Appropriate respirators are required when workers are exposed above permissible exposure limits(PEL) for specific air contaminates.

Department:	Location:
Jobs included in the assessment:	
Potential hazards ☐ Nuisance dust/mist ☐ Welding fumes ☐ Asbestos ☐ Pesticides ☐ Isocyanates ☐ Paint spray ☐ Organic vapors ☐ Acid gases ☐ Oxygen deficient/ toxic or IDLH atmosphere	**Likelihood of injury without PPE** ☐ High ☐ Medium ☐ Low
Severity of a potential injury without PPE ☐ Minor first aid required ☐ Serious, not life threatening ☐ IDLH: life threatening	**PPE required** **Air-purifying respirators** ☐ Filtering face piece (dust mask) ☐ Particulate-removing respirator ☐ Gas-and-vapor-removing respirator ☐ Combination aerosol filter/gas or vapor-removing respirator ☐ Powered air-purifying respirator **Atmosphere-supplying respirators** ☐ Supplied-air respirator ☐ Self-contained breathing apparatus (SCBA) ☐ Combination self-contained breathing apparatus and air-line respirator ☐ Combination air-purifying and atmosphere-supplying respirators ☐ None required

PPE ASSESSMENT CRITERIA

Eye & Face Protection
OAR 437-002-0134 (8)

Impact
Flying fragments, objects, chips, particles or dirt from work operations (i.e. chipping, grinding, machining, masonry work, woodworking, sawing, drilling, chiseling, powered fastening, riveting, and sanding.
Type Of Protection: Safety glasses with side shield protection, splash goggles, sand blasting helmet. For severe exposure add the use of face shield.

Heat
Hot sparks, splashes from molten material, high temperature exposure (i.e. furnace operations, pouring, casting, hot dipping, and welding.
Type Of Protection: Face shields, goggles, or safety glasses with side protection. For severe exposure add the use of face shield.

Chemicals
Splash or irritating mists (i.e. acid and chemical handling: transferring, degreasing)

Type Of Protection: Chemical splash goggles. For severe exposure add the use of face shield.

Dust
Nuisance dust: irritation of the eyes (i.e. woodworking, buffing, general dusty conditions that can cause eye irritation.)
Type Of Protection: Goggles, safety glasses with side shields, sand blasting helmets.

Light and/or Radiation (optical damage)
such as UV or IR light (see Table 2-I 1 Filter Lenses for Protection Against Radiant Energy in OAR 437, Division 2, Subdivision I)

Welding: Arc
Type Of Protection: Welding helmets or welding shields: typical minimum protective shades 7-11

Welding: Plasma Arc Welding
Type Of Protection: Welding helmets or welding shields: typical minimum protective shades 6-11

Welding: Gas
Type Of Protection: Welding goggles or welding shields: typical minimum protective shades 4-6

Cutting, torch brazing, torch soldering
Type Of Protection: Welding glasses or welding shields typical minimum protective shades 2-5

Glare
Type Of Protection: Glasses with shaded or special purpose lenses

Head Protection

OAR 437-002-0134 **(9)**

Head protection must comply with any of the following consensus standards:

- *ANSI Z89.1-2009, American National Standard for Industrial Head Protection, which is incorporated by reference in 1910.6; or*
- *ANSI Z89.1-2003, American National Standard for Industrial Head Protection, which is incorporated by reference in 1910.6; or*
- *ANSI Z89.1-1997, American National Standard for IndustrialHead Protection, which is incorporated by reference in 1910.6.*

Impact and penetration hazards caused by falling objects

Electrical shock and burn hazard

Type Of Protection: Head protection that meets ANSI Z89.1 requirements:

- Impact Type I
- Impact Type II
- Electrical Class G (general)
- Electrical Class E (electrical)
- Electrical Class C (conductive)

Foot Protection

OAR 437-002-0134 (10)

Protective footwear must comply with any of the following consenses standards:

- ASTM F-2412-2005, Standard Test Methods for FootProtection, and ASTM F-2413-2005, Standard Specification for Performance Requirements for ProtectiveFootwear, which are incorporated by reference in 1910.6; or
- ANSI Z41-1999, American National Standard for Personal Protection: Protective Footwear, which is incorporated byreference in 1910.6; or
- ANSI Z41-1991, American National Standard for Personal Protection: Protective Footwear, which is incorporated byreference in §1910.6

1. Impact and Compression: Safety shoes or boots with impactprotection are required for carrying or handling materials such as packages, parts or heavy tools, which could be dropped and for other activities where objects might fall onto the feet.
2. Puncture protection is needed where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal, etc.could be stepped on by employees, causing a foot injury.
3. Electrical: If there are electrical hazards from live wires, then boots rated for protection against electrical hazardsare needed.

Electrical Protection

OAR 437-002-0134 (1910.137)

This is special protection for working on or near exposed energized conductors or systems. Only qualified electrical workers are permitted. The type of equipment includes non-conductive head protection, insulated tools or handling equipment, fuse handling equipment insulated for circuit

voltage, nonconductive ropes and handlines, protective shields/barriers or insulating blankets, matting, covers, line hose, gloves, and sleeves made of rubber. The specific criteria and approvals are provided in the rules that must be followed.

Hand Protection

OAR 437-002-134 ***(12)***

Gloves may be needed for the prevention of cuts, abrasions, burns, and skin contact with chemicals that can cause local or systemic effects following skin exposure. Selection of the glove material and style depend on type of contact, duration of exposure, and type of material. Glove selection charts that are published by glove manufacturers and technical bulletins will be used. The selection of appropriate hand protection will be based on evaluating characteristics of the hand protection based on the task to be performed, the type of conditions that are present, the duration of the use of the protection, and any potential hazards that have been identified. Gloves will not be worn by employees who are exposed to equipment or tools with rotating or moving parts in which the gloves could be caught up in.

Respiratory Protection Program

OAR 437, Division 2, Subdivision I (1910.134)

This written program establishes policies and procedures for the effective use of respirators to protect our employees from airborne contamination exposures. These procedures aremandatory.

Definitions

Air purifying: Air purifying respirators use chemical or mechanical filter cartridges to clean the contaminated air beforeit is breathed in by the wearer.

Atmosphere supplying: Atmosphere supplying respirators provides the wearer with uncontaminated breathing air and includes supplied air respirators (SARs) and self-contained breathing apparatus (SCBA).

Assigned protection factor (APF): The workplace level ofrespiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program.

Canister or cartridge: A container worn on the respirator which contains a filter, sorbent or catalyst or a combination which removes specific contaminants from the air drawnthrough it.

End of Service Life Indicator (ESLI): System that warnsthe user of the respirator that the end of adequate respiratory protection is approaching (i.e. sorbent is approaching saturation and is no longer effective).

Facepiece: The main part of the respirator which fits tightly on the face and includes the headband, exhalation and inhalation valves and connection place for the canister or cartridges.

Filtering Facepiece: Dust mask typically where the entirefacepiece is composed of a filtering medium.

Demand Respirator: Atmosphere supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

High efficiency particulate air filter (HEPA): A type of filter that removes from the breathing air, 99.97% or more particles 0.3 micrometers in diameter or larger.

Maximum use concentration (MUC): The maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wear-ing a respirator and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance.

Note: *The MUC can be determined mathematically by multi- plying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit. When no OSHA exposure limit is available for a hazardous substance, an employer must determine an MUC based on relevant available information and informed professional judgment.*

NIOSH: The National Institute of Occupational Safety and Health is a Federal Agency who conducts research and tests certain types of safety equipment, including respirators.

General Responsibilities

Supervisor: It is the direct responsibility of the supervisor to ensure the respiratory protection program is implemented and that all employees are trained in the use of respiratory protection. In addition, the supervisor is also responsible for the following things:

1. Ensuring that appropriate respirators are chosen for use in the workplace.
2. Ensuring that medical evaluations are conducted to identify if employees are medically able to wear respirators in the workplace.
3. Conducting fit testing for tight fitting respirators.
4. Ensuring employees are trained in the use of respiratory protection.
5. Conducting employee training on the use respiratory hazards that employees are potentially exposed to, what respirators would be used based on the hazard, the proper use of respirators (including how to put them on and take them off, their limitations, how to maintain them, and when to replace them.)
6. Maintaining written records on the monthly inspection of emergency use respirators.
7. Maintaining the respiratory protection written program and annual evaluations of the program.

Employees: Employees must follow all safety procedures as outlined in this program, Oregon-OSHA rules, and manufacturer's recommendations regarding respiratory protection. Employees are required to inspect their equipment prior to
use each day to ensure that the equipment is functional. Any problems found with the equipment need to be reported to your supervisor. Employees who are required to use tight fitting respirators are responsible for completing a medical questionnaire and examination to ensure they can use a respirator. Additionally, the employee will be fit tested prior
to the use of the respirator, whenever a different respirator facepiece is used, and at least annually. Fit testing will also need to be repeated should the employee's physical condition change that could alter or affect the respirator fit. This would include changes in weight or facial hair, facial scarring, dental changes, etc.

Selection of Respirators

Types of respirators: The following table outlines the respirator selection process.

Work Condition	Assigned Employees	Contaminant	Type of Respirator
Non-Mandatory Respirator Selection (see information in Appendix D in Oregon OSHA Respiratory Protection Act Standard Regulations under 1910.134)			

1. Only the National Institute of Occupational Safety and Health (NIOSH) approved respirators have been selected for usage. These respirators have been chosen based on thetype of hazard, needed level of protection and maximum use concentrations. Different sizes and styles of respiratorsare
2. The specific selection will be based on the fit testing protocols to determine the best style for each employee to ensureproper fit and comfort.

Protection Factors

We will use the assigned protection factors listed in Table 1 of the Oregon OSHA Respiratory Protection Standard to select a respirator that meets or exceeds the required level of employee protection. When using a combination respirator (e.g., airline respirators with an air-purifying filter), employers must ensure that the assigned protection factor is appropriate to the mode of operation in which the respirator is being used.

1. Dust masks are filtering face pieces andare the same as a half-face piece respirator which are approved for 10 times the limits.
2. The use life of each respirator or cartridge will vary depending on the job, duties and actual time in use. Each respirator will have some limitations; thus, the manufacturer's instructions and recommendations must be reviewed. Air purifying respirators (disposable dust mask, half or fullfacepiece cartridge respirators) cannot be used in confined spaces where the environment may have less than 19.5% oxygen.

Lifespan of a Respirator

The use life of each respirator or cartridge will vary depending on the job, duties and actual time in use. Each respirator will have some limitations; thus, the manufacturer's instructions and recommendations must be referred to. Air purifying respirators (disposable mask, half face piece cartridge respirators) cannot be used in confined spaces where the environment may have less than 19.5% oxygen or in hazardous chemical operations when the exposure levels are unknown.

Self-Contained Breathing Apparatus(SCBAs):

In the following operations, respirators are for use during animmediately dangerous situation to life and health (IDLH). SCBAs are for use during the following operations:

1. Firefighters in firefighting situations and exercises
2. Public Works Sewer and Water Treatment Changeout of Chlorine Gas Tanks
3. Entering confined spaces where oxygen levels are low or toxic gas levels are high for rescue purposes

When entering IDLH environments, SCBA air tanks must be atleast 90% full prior to entry. SCBA air tanks should be refilled according to the maximum time use as specified on the tank, orwhen the low air alarm sounds.

Chemical Canister/Cartridge Respirators

These respirators are vapor and gas-removing, using a cartridgeattached to the face piece containing chemicals to trap or react with specific vapors or gases, which remove it from the air breathed.

The specific use time will be provided to each chemical cartridge user based on a concentration mathematical model calculations of estimated use time and chemical concentrations. This information will be specific to a job or operation. Your super- visor will provide specific information but a general policy on use time of respirators is to replace the respirator or cartridge when:

Concentration mathematical model provides recommended end of service time.

1. An odor or taste is detected.
2. It becomes hard to breathe through.
3. The cartridge or respirator is damaged.

HEPA Cartridge: The HEPA cartridges should be changedwhenever the operator notes any additional breathing resistance.

Non-mandatory Dust Mask: Dust masks should be changed whenever the operator notes any additional breathingresistance.

There are several limitations in the use of chemical cartridge respirators, which are important to understand.

1. They do not supply oxygen and thus cannot be worn in oxygen deficient atmospheres.
2. Respirators are designed for protection against specificgases or vapors. Thus, users must take care that the propercartridge is selected.
3. Cartridges can only be used for protection against contaminants with good warning properties (smell, taste, andirritation).
4. The cartridges are not approved for high concentrations ofthe contaminant.

5. Respirators must be protected from the atmosphere while in storage because they tend to pick up water vapor from the air which reduces the service life.

Respirators for Particulate Exposures

Filter Notation

The service life of filters in all three of the approval categories of filter efficiency degradation (N, R, and P-series) is limited by hygiene, damage, and breathing resistance.
All filters should be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance (e.g. causing discomfort to the wearer).

R (for Resistant to oil) and P (for oil Proof) series filters can be used for protection against oil or non-oil aerosols. N (for Not resistant to oil) series filter should be used only for non-oil aerosols.

Filter Efficiencies

Each of the filter series (N, R and P) have three filter efficiencies that can be selected. These are based on how efficient the filter is with particles down to 0.3 microns. They can be 95%, 99%, and 99.97% (labeled 100% and commonly called HEPA filters).
For general wood dust and dust exposures 95% is effective. For paint spray mists, the 99% filter chemical cartridge is effective. For highly toxic dusts such as asbestos, lead, and silica, 99.97% (HEPA) filters are to be used. Dust masks also are available in each of these filter types and efficiencies.

Approval Notation

Each respirator container for particle exposure protection now has a TC (testing & certification) number. The label will be TC-84A-00X. The 84A notes that this is a particulate filter that does not have any approval for use in atmospheres containing less than 19.5% oxygen. Additional limitations are provided on the label that the user needs to understand

Filter Replacement Time

If the environment has high dust exposure (loading 200 mg) through the day's use, then all the filters need to be replaced after 8 hours or less usage.

If the R-series are used with oil exposures, they need to be replaced after 8 hours of service time. P-series is limited only by hygiene damage, and breathing resistance if the exposures are not high.

Summary Of Major Limitations

1. Mechanical filters do not provide oxygen, so they must not be used in oxygen-deficient atmospheres.
2. They provide no protection against gases or vapors.
3. There is a pressure drop through the filter medium; therefore, there is some breathing resistance.

Use and Availability of Respirators

1. Employees that are required to wear respirators will wear an approved respirator selected for the task exposure hazard. The respirator needs to be properly always fitted while in use.
2. Employees required to wear a respirator will be provided with a respirator issued by the supervisor with proper replacement parts, cartridges and filters, and cleaning materials as appropriate. The supervisor is responsible for ensuring that employees are provided respirators that are required by this policy.
3. The disposable respirators (dust masks) are available from the parts room or from the supervisor. These are to be used for low level dust exposures and are non-mandatory (voluntary). Employees need approval to use these respirators to ensure that they have received proper training and understand the maintenance and use of the dust mask, as well as the limitations.

Medical Evaluations for Respirator Use

Purpose of Medical Evaluations

1. Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. Therefore, medical evaluations are required for all employees who wear a respirator. These medical evaluations determine the employee's ability to use a respirator before they are fit tested or used on the job.
2. Oregon OSHA applies this standard if the air contamination level or conditions could result in overexposures to the permissible exposure limit or if the worker voluntarily wears the respirator. The voluntary use of dust mask does not require a medical evaluation, but it does require that basic information about the respirator be provided. See Appendix 6, page 184, for the Voluntary User Information.
3. The follow-up medical examination will include any medical tests, consultations, or diagnostic procedures that the physician deems necessary to make a final determination, which will be provided at no cost to the employee.

Medical Certification

Medical certification of an employee is required for respirator use. The purpose of a medical evaluation is twofold:

1. To determine if an individual is medically fit to wear a respirator.
2. To determine if an individual needs work restrictions, given the job that he or she is required to do.

Note: *Job descriptions or job analysis evaluations need to be available to the physician or licensed healthcare professional (LHCP) doing the evaluation.*

Administration of the Medical Questionnaire and Examinations

The medical questionnaire and examinations will be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. Employees will have the opportunity to discuss the questionnaire and examination results with the physician or LHCP. A sample respirator medical evaluation questionnaire can be found in Appendix C of the Oregon OSHA Respiratory Standard (1910.134). See http://osha.oregon.gov/OSHARules/div2/div2I.pdf

Additional Medical Evaluations

Additional medical evaluations will be provided under the following conditions:

1. An employee reports medical signs or symptoms that arerelated to their ability to use a respirator.
2. A physician, manager, or HR representative will inform thesupervisor that an employee needs to be re-evaluated.
3. Information from the respiratory protection program, including observations made during fit testing and pro-gram evaluation, that indicates a need for employee
4. re-evaluation.
5. A change occurs in workplace conditions that may result in a substantial increase in the physiological burden placed onan employee.

Retention of Medical Records

Preservation of medical records is required to be followed per Oregon OSHA's rule covering employees' access to medical records OAR 437, Division 2, Subdivision Z (1910.1020), which requires that the records be retained at least for the duration of employment plus 30 years. Employee exposure records must beretained for at least 30 years. The medical records can be kept by the evaluating physician and the medical clearance form is kept in a confidential medical file, if the employee signs the medical release form. If an employee works for one year or less, the rules allow an employer to give the employee his/her records and not retain them. If they are not given to the employee, then the 30-yearretention time is in effect per the OR-OSHA requirements.

Training of Employees

Each ***mandatory respirator wearer*** will receive initial training prior to being assigned work that requires use of a respirator and will receive annual training thereafter.

Each ***non-mandatory respirator wearer*** will receive information about the respirator in terms of protection limits, how to wear it and when to dispose of the mask or change cartridges. The non-mandatory respiratory users will also be pro- vided the basic information on respirators found in Appendix Dof the Oregon OSHA respiratory protection standard.

Training for Mandatory Respirator Users

The mandatory respirator protection training includes thefollowing training topics:

1. Contents of the written program and where it is located.
2. Respiratory hazards to which the employees are potentiallyexposed to.
3. Why the respirator is necessary and how improper fit,usage, or maintenance can compromise the protectiveeffect of the respirator.
4. How to put on and take off the respirator.
5. Respirator use and limitations.
6. Cleaning, maintenance, and storage.
7. How to recognize medical signs and symptoms that limiteffective use of a respirator.
8. How to inspect a respirator.
9. Field fit tests (positive and negative pressure tests).

The supervisor will keep the training records. Each user mustunderstand and apply the contents of this respirator programto the daily use, care and storage of the equipment. Written training

materials are available from the supervisor.

Fitting Of Respirators

Respirator fit is extremely important. Respirator fit testing is used to test how well the tight-fitting respirator facepiece seals against the face. If there is not a good face-to-facepiece seal, the contaminants may pass around the facepiece and be breathed into the lungs.

It is important to realize that not everyone can wear a respirator. OR-OSHA specifically states that you should not wear arespirator if:

1. You wear glasses that break the skin to mask seal (inserts are available).
2. You have facial hair passing between the sealing surface of the respirator and the face.
3. You are unable to get an adequate fit on a respirator.
4. Your physician finds you medically unable to wear the respirator.

Respirator fit testing may be done using two basic methods: qualitative or quantitative. Most employers use qualitative methods since quantitative procedures may be expensive andrequire complicated equipment. Currently only certain rules require quantitative fit testing. These include lead and asbestos
regulations once levels reach a certain exposure level.

Positive and Negative Pressure Tests

Each time a respirator is put on, and prior to the qualitative fittesting procedures, the wearer should conduct a positive and a negative pressure test to ensure that the respirator is seated correctly against the face.

The negative pressure test is performed on any respirator with atight-fitting facepiece. For cartridge respirators, the test con- sists of covering the air inlet lightly and inhaling lightly, then holding the breath for a few seconds. The common leak areas are around the nose and chin.

The positive pressure test is performed on respirators with tight-fitting facepieces and both inhalation and exhalation valves. It is done by blocking the exhalation valve and exhalinglightly. Again, air leakage can be felt if a leak is evident.

If such leaks are found, the respirator should be adjusted and retested. If a fit cannot be achieved, then a different size or stylefacepiece needs to be fitted.

Fitting of SCBA Respirators

Fit testing of air supplying respirators will be done using the same qualitative fit test protocols as used for the air purifying respirators. SCBA facepieces used for fit testing will have cartridge sampling adapters so the facepiece can be worn andtested in the negative pressure mode.

Qualitative Fit Test Methods

Qualitative Fit Testing is done with test agents. This test protocol will be used for all types of respirators.

1. Banana Oil (isoamyl acetate) Test:

Air purifying respirators must be equipped with organic vapor or pesticide cartridges for this test. The test chemicalsmells like ripe bananas. The test consists of administeringthe chemical and

having the respirator wearer determine whether he/she can smell the odor of bananas.

The banana oil test has certain disadvantages. Some individuals cannot smell the banana oil, so you need to test the individual after you have performed the fit test to ensure that they can indeed detect the odor. Also, if an individual smells higher concentrations of the banana oil, they can develop odor fatigue and upon immediate retesting, maynot be able to detect the material.

2. Irritant Smoke Test:

Smoke tubes (stannic oxychloride smoke tubes) used to testventilation systems can also be used as an effective chemicalto test a respirator wearer's fit. This test can be used for halfor full-face air purifying respirators. The respirators must be equipped with high efficiency (HEPA) cartridge filters before starting the test.

Since the chemical used to produce the smoke is irritating to the eyes and mucous membranes, additional care mustbe taken in conducting this type of fit test. Smoke tubes areavailable from safety equipment supply stores.

Prior To Fit-Testing, An Employee Must Pass the Medical Evaluation. Employees not capable of wearing a negative pressure respirator will not be assigned job tasksrequiring respirator use.

Proper fitting of respirators is essential if employees are to receive the necessary protection from airborne contamination hazards. Air which passes around the facepiece of therespirator, rather than through it, is not being filtered. To ensure that a good face seal can be achieved, the respirator needs to be carefully fitted.

3. The following protocol will be followed to fit the initial wearer and then to be used each timethe respirator is used:

- The respirator straps must be worn in the correct place.
- Adjust the headband until they are tight yet comfortable.
- To adjust the facepiece properly, simply position the chin firmly in the chin cup and manually shift the facepiece untilthe most comfortable position is located. Make the final adjustments on the headbands and do not break the nose seal.
- A positive and negative pressure test needs to be performed every time a respirator is worn.
- The negative pressure test is performed on a half or full-facepiece respirator designed for filters or chemical cartridges. The test consists of covering the air inlet lightly and inhaling slightly. If a leak exists, the air can be felt as it enters. The common leak areas are around the nose and chin.
- The positive pressure test is performed by blocking the exhalation valve and exhaling lightly. Again, air leakage can be felt if a leak is evident. If such leaks are found, the respirator is to be adjusted and retested.
- If a fit cannot be achieved, then a different size or stylefacepiece needs to be fitted.

Maintenance of Respirators

Respirators are to be cleaned after each day's use with alcoholpreps and placed dry in a clean container or plastic bag for storage. More thorough cleaning is needed for dirty respirators or those shared which involves performing the following procedure:

1. Remove the cartridges or filters from the facepiece. The filters and cartridges must not be washed. All cartridges will be replaced during the weekly cleaning for respirators used

infrequently throughout the week. Respirators used in environments with high concentrations of air contaminantsmay need to have the cartridge changed daily or more frequently.

2. Immerse the respirator face piece in a warm water solutionof commercial disinfectant liquid. The respirator should bescrubbed gently with a cloth or soft brush. Make sure that all foreign material is removed from all the surfaces of the rubber exhalation valve, plastic exhalation valve seats and face seal.

Note: *The inhalation, exhalation valves, and valve cover will be replaced during the quarterly cleaning.*

3. After washing and disinfecting the respirator, rinse in clean warm water and allow the respirator to air dry beforestoring.
4. After the respirator is dry, store it in a clean container. Respirators should not be stored where chemicals are used or stored. Respirators should not be hung from nails on the walls or in chemical storage areas. The respirators must be stored in a normal position (which means that they should not be stretched or stored under objects which could cause the facepiece to become warped).
5. Any respirator malfunction will be reported to your super- visor, who will evaluate the problem and ensure that properreplacement parts or a new respirator is supplied to the employee.

Respirator Inspection

Each person assigned a respirator will be responsible for maintaining the equipment and routinely inspect the respirator beforeand after use for worn or dirty parts. ***Worn Parts Will Be Replaced Immediately.***

The inspection will include:

Air-purifying Respirators:

Check facepiece for:

1. Dirt
2. Cracks
3. Tears
4. Holes
5. Distortion

Check head straps for:

1. Breaks
2. Tears
3. Loss of elasticity
4. Broken buckles or attachments

SCBA's and Airline Systems:

SCBA's and airline systems used routinely are to be checked after each use. Those used for emergencies or infrequently need to be checked monthly. The checks are to assure that the equipment is kept clean and in proper working condition. The respirator inspection will include an evaluation of:

1. Tightness of the connections.

2. Condition of the facepiece.
3. Condition of the headbands.
4. Condition of the cartridges or tank pressure.
5. Condition of the valves.
6. Pliability and cleanliness of the facepiece material.

Respirator Program Evaluation

It is important that both the respirator wearer and our man-agers evaluate respirator use and program effectiveness. It iscritical that the appropriate respirator be worn correctly.

If an employee notices any of the following, they are to immediately leave the area and replace the respirator if:

1. Breathing becomes difficult.
2. Dizziness or other distress occurs (see your supervisorimmediately).
3. You sense irritation, smell or taste contaminants.
4. The respirator becomes damaged.

The overall program will be evaluated by the supervisor. This will involve:

1. Conducting evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.
2. Regularly consulting employees are required to use respirators to assess the employee's views on program effectiveness and to identify any problems.
3. Program evaluation forms are in Appendix 2, page 14.17.
4. Factors to be assessed include, but are not limited to:
    a. Respirator fit.
    b. Appropriate respirator selection for the hazards.
    c. Proper respirator use.
    d. Proper respirator maintenance and inspections.

The supervisor will evaluate the program as needed to determine the overall effectiveness of the program and needed updates. If deficiencies are found, then additional employee training will be given, and more frequent evaluations will be made. An evaluation checklist is found in Appendix 5, page 14.26.

RESPIRATORY PROTECTION PROGRAM

Respiratory Protection Program Action Plan Summary and Forms

This chart describes the respiratory program's responsibilities and identifies appropriate forms to be used as part of the respiratory protection program and evaluation.

Action	Responsibility	Form
1. Employee is assigned mandatory respirator use job functions and wears full or ½ face piece respirator.	Supervisor	Oregon OSHA medical questionnaire for medical evaluation.
2. The questionnaire is forwarded to the contract medical evaluator by the employee.	Employee sends questionnaire and based on evaluation, schedules a medical exam for the employee.	Sends appointment memo to employee regarding scheduled medical evaluation (in house memo or email).
3. Medical evaluation and medical clearance.	Supervisor receives medical clearance and schedules fitting and fit testing with employee.	Fit-Test Record (may be done by supplier or outside consultant).
4. Employee completes Respirator Training.	Supervisor provides or schedules training.	Respirator Training Record.
5. Respirator program evaluation.	Supervisor periodically evaluates respirator conditions, use, and employee's understanding of program.	Respirator program periodic checklist.
6. Tracking employee for annual retraining and fit testing. Follows up on medical evaluation retest requirements per LHCP.	Manager	Maintains a data log to ensure that employees are re-fit and trained annually. Proper follow-up on medical evaluations.

Appendices

Appendix 1: Emergency Use Monthly Inspection Record

Appendix 2: Respiratory Protection Program Evaluation

Appendix 3: Oregon OSHA Respirator Medical Evaluation

Questionnaire (Mandatory)

Appendix 3.1: Medical Clearance Request for Respirator User

Appendix 4: Respirator Assignment & Fit Record

Appendix 5: Respirator Program Periodic Checklist

Appendix 6: Voluntary Respiratory User Information

Emergency Use Monthly Inspection Record

Type of Emergency:	Location:
Employee(s) Involved:	Duration:
Date of Inspection:	Inspector:
Type of Respirator Worn:	
Cleanliness Of The Equipment:	
Condition Of The Equipment	
Facepiece:	Harness assembly:
Inhalation valve:	Hose Assembly:
Exhalation valve:	Gaskets:
Headbands:	Regulator Condition:
Cartridge holder or Tank Pressure:	Other defects:

Respiratory Protection Program Evaluation

A. Program Administration						
☐Yes	☐No	Is there a written policy which assigns program responsibility, accountability, and authority?				
☐Yes	☐No	Is overall program responsibility given to one person who is knowledgeable and can coordinate all aspects of the program?				
☐Yes	☐No	Can feasible engineering controls or work practices eliminate the need for respirators?				
☐Yes	☐No	Are there written procedures/statements covering the various aspects of the respirator program, including:				
☐Yes	☐No	designation of authority and responsibility	☐Yes	☐No	fitting	
☐Yes	☐No	respirator selection	☐Yes	☐No	training	
☐Yes	☐No	purchase of approved equipment	☐Yes	☐No	maintenance, storage, and repair	
☐Yes	☐No	medical aspects of respirator usage	☐Yes	☐No	inspection	
☐Yes	☐No	issuance of equipment	☐Yes	☐No	use under special conditions	
☐Yes	☐No	when and where respirators are required				
B. Program Operation						
1. Respiratory protective equipment selection:						
☐Yes	☐No	Have work area conditions and worker exposures been properly evaluated?				
☐Yes	☐No	Are respirators selected on the basis of hazards to which the workers are exposed?				
☐Yes	☐No	Are selections made by persons knowledgeable of proper selection procedures?				
☐Yes	☐No	Are only NIOSH approved respirators purchased and used?				
☐Yes	☐No	Do the respirators provide adequate protection for the specific hazard in the concentration found?				
☐Yes	☐No	Has a medical evaluation of the prospective user been made to determine physical and psychological fitness to wear the selected respirator?				
☐Yes	☐No	Where practical, have respirators been issued to single users?				
2. Respiratory protective equipment fitting:						
☐Yes	☐No	Are the users given the opportunity to try on several respirators to determine the one with the best fit?				
☐Yes	☐No	Is the fit test done before the wearer begins using the respirator in the work area, both on initial assignment and on a daily basis (positive and negative pressure tests)?				
☐Yes	☐No	Are users who wear glasses properly fitted?				
☐Yes	☐No	Is the facepiece-to-face seal tested using one of the methods described earlier?				
☐Yes	☐No	Are workers prohibited from entering contaminated work areas when they have facial hair or other characteristics which prohibit the use of tight-fitting facepieces?				
3. Respirator use in the work area:						
☐Yes	☐No	Are respirators being worn correctly?				
☐Yes	☐No	Are workers keeping respirators on all the time while in the work area?				

4. Maintenance of respiratory protective equipment:		
☐ Yes	☐ No	Are respirators cleaned and sanitized after each use (when different people use the same device) or as frequently as necessary (for devices issued to individual users)?
☐ Yes	☐ No	Are respirators stored in a way that will protect them from dust, sunlight, heat, and chemicals?
☐ Yes	☐ No	Is storage in lockers, tool boxes, or work areas permitted only if the respirator is in a carton, carrying case, or closed container?
☐ Yes	☐ No	Are respirators inspected before and after each use, and after cleanup?
☐ Yes	☐ No	Are individuals instructed on inspection methods?
☐ Yes	☐ No	Are cartridges and filters changed on a regular basis?
☐ Yes	☐ No	Are respirators designated as "Emergency Use" inspected at least monthly (in addition to after each use). Is a record kept of monthly "Emergency Use" inspections?
☐ Yes	☐ No	Are replacement parts the same brand as the respirator?
☐ Yes	☐ No	Are repairs made by manufacturers or manufacturer-trained individuals?
5. Special use conditions (if applicable):		
☐ Yes	☐ No	Is there a procedure for respirator use in atmospheres immediately dangerous to life and health?
☐ Yes	☐ No	Is there a procedure for confined space entry?
6. Training:		
☐ Yes	☐ No	Are users trained in proper respirator use, cleaning, and inspection?
☐ Yes	☐ No	Are employees trained in the health effects of each respiratory hazard present in their work environments?
☐ Yes	☐ No	Are users evaluated, using competency-based evaluation, before and after training?
Overall Comments:		

Oregon OSHA Respirator Medical Evaluation Questionnaire(Mandatory)
This questionnaire is found as Appendix C TO 1910.134:

OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

To the employer: Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee: **If you are unable to read or need this information in another language (or readto you by an interpreter), please let your supervisor know.

Your employer must allow you to answer this questionnaire during normal working hours, or at a timeand place that is convenient to you. To maintain your confidentiality, your employer or Manager mustnot look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A: Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).			
1. Today's date:	2. Your name:		
3. Your age (to nearest year):	4. Sex: ☐ Male ☐ Female	5. Your height: _____ ft._____ in.	6. Your weight: _____ lbs.
7. Your job title:			
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): ( )			9. The best time to phone you at this number:
10. Has your employer told you how to contact the health care professional who will review this questionnaire: ☐ Yes ☐ No			
11. Check the type of respirator you will use (you can check more than one category): ☐ a. N, R, or P disposable respirator (filter-mask, non-cartridge type only). ☐ b. Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).			
12. Have you worn a respirator (circle one): ☐ Yes ☐ No If "yes," what type(s):			
Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").			
1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: ☐ Yes ☐ No			
2. Have you ever had any of the following conditions? ☐ Yes ☐ No a. Seizures (fits): ☐ Yes ☐ No b. Diabetes (sugar disease): ☐ Yes ☐ No c. Allergic reactions that interfere with your breathing: ☐ Yes ☐ No d. Claustrophobia (fear of closed-in places): ☐ Yes ☐ No e. Trouble smelling odors:			

Part A. Section 2. continued

3. Have you ever had any of the following pulmonary or lung problems?

- ☐ Yes ☐ No a. Asbestosis
- ☐ Yes ☐ No b. Asthma
- ☐ Yes ☐ No c. Chronic bronchitis
- ☐ Yes ☐ No d. Emphysema
- ☐ Yes ☐ No e. Pneumonia
- ☐ Yes ☐ No f. Tuberculosis
- ☐ Yes ☐ No g. Silicosis
- ☐ Yes ☐ No h. Pneumothorax (collapsed lung)
- ☐ Yes ☐ No i. Lung cancer
- ☐ Yes ☐ No j. Broken ribs
- ☐ Yes ☐ No k. Any chest injuries or surgeries
- ☐ Yes ☐ No l. Any other lung problem that you've been told about:

4. Do you currently have any of the following symptoms of pulmonary or lung illness?

- ☐ Yes ☐ No a. Shortness of breath
- ☐ Yes ☐ No b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline
- ☐ Yes ☐ No c. Shortness of breath when walking with other people at an ordinary pace on level ground
- ☐ Yes ☐ No d. Have to stop for breath when walking at your own pace on level ground
- ☐ Yes ☐ No e. Shortness of breath when washing or dressing yourself
- ☐ Yes ☐ No f. Shortness of breath that interferes with your job
- ☐ Yes ☐ No g. Coughing that produces phlegm (thick sputum)
- ☐ Yes ☐ No h. Coughing that wakes you early in the morning
- ☐ Yes ☐ No i. Coughing that occurs mostly when you are lying down
- ☐ Yes ☐ No j. Coughing up blood in the last month
- ☐ Yes ☐ No k. Wheezing
- ☐ Yes ☐ No l. Wheezing that interferes with your job
- ☐ Yes ☐ No m. Chest pain when you breathe deeply
- ☐ Yes ☐ No n. Any other symptoms that you think may be related to lung problems:

5. Have you ever had any of the following cardiovascular or heart problems?

- ☐ Yes ☐ No a. Heart attack
- ☐ Yes ☐ No b. Stroke
- ☐ Yes ☐ No c. Angina
- ☐ Yes ☐ No d. Heart failure
- ☐ Yes ☐ No e. Swelling in your legs or feet (not caused by walking)
- ☐ Yes ☐ No f. Heart arrhythmia (heart beating irregularly)
- ☐ Yes ☐ No g. High blood pressure
- ☐ Yes ☐ No h. Any other heart problem that you've been told about:

Part A. Section 2. continued

6. Have you ever had any of the following cardiovascular or heart symptoms?

☐ Yes ☐ No a. Frequent pain or tightness in your chest
☐ Yes ☐ No b. Pain or tightness in your chest during physical activity
☐ Yes ☐ No c. Pain or tightness in your chest that interferes with your job
☐ Yes ☐ No d. In the past two years, have you noticed your heart skipping or missing a beat
☐ Yes ☐ No e. Heartburn or indigestion that is not related to eating
☐ Yes ☐ No f. Any other symptoms that you think may be related to heart or circulation problems

7. Do you currently take medication for any of the following problems?

a. Breathing or lung problems
☐ Yes ☐ No b. Heart trouble
☐ Yes ☐ No c. Blood pressure
☐ Yes ☐ No d. Seizures (fits)

8. Have you ever used a respirator?

☐ Yes ☐ No

(If no, skip a-e and move on to question 9.) If yes, have you ever had any of the following problems?

☐ Yes ☐ No a. Eye irritation:
☐ Yes ☐ No b. Skin allergies or rashes:
☐ Yes ☐ No c. Anxiety:
☐ Yes ☐ No d. General weakness or fatigue:
☐ Yes ☐ No e. Any other problem that interferes with your use of a respirator:

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: ☐ Yes ☐ No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-face piece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): ☐ Yes ☐ No

11. Do you currently have any of the following vision problems?

☐ Yes ☐ No a. Wear contact lenses
☐ Yes ☐ No b. Wear glasses
☐ Yes ☐ No c. Color blind
☐ Yes ☐ No d. Any other eye or vision problem:

12. Have you ever had an injury to your ears, including a broken ear drum: ☐ Yes ☐ No

13. Do you currently have any of the following hearing problems?

☐ Yes ☐ No a. Difficulty hearing
☐ Yes ☐ No b. Wear a hearing aid
☐ Yes ☐ No c. Any other hearing difficulties or ear problems

14. Have you ever had a back injury: ☐ Yes ☐ No

Part A. Section 2. continued

15. Do you currently have any of the following musculoskeletal problems?

- ☐ Yes ☐ No a. Weakness in either of your arms, hands, legs, or feet
- ☐ Yes ☐ No b. Back pain
- ☐ Yes ☐ No c. Difficulty fully moving your arms and legs
- ☐ Yes ☐ No d. Pain or stiffness when you lean forward or backward at the waist
- ☐ Yes ☐ No e. Difficulty fully moving your head up or down
- ☐ Yes ☐ No f. Difficulty fully moving your head side to side
- ☐ Yes ☐ No g. Difficulty bending at your knees
- ☐ Yes ☐ No h. Difficulty squatting to the ground
- ☐ Yes ☐ No i. Climbing a flight of stairs or a ladder carrying more than 25 lbs
- ☐ Yes ☐ No j. Any other muscle or skeletal problem that interferes with using a respirator:

Part B. Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen:
   ☐ Yes ☐ No
   If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: ☐ Yes ☐ No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: ☐ Yes ☐ No

   If "yes," name the chemicals if you know them: _____

3. Have you ever worked with any of the materials, or under any of the conditions, listed below?

- ☐ Yes ☐ No Asbestos:
- ☐ Yes ☐ No Silica (e.g., in sandblasting)
- ☐ Yes ☐ No Tungsten/cobalt (e.g., grinding or welding this material
- ☐ Yes ☐ No Beryllium
- ☐ Yes ☐ No Aluminum
- ☐ Yes ☐ No Coal (for example, mining)
- ☐ Yes ☐ No Iron
- ☐ Yes ☐ No Tin
- ☐ Yes ☐ No Dusty environments
- ☐ Yes ☐ No Any other hazardous exposures: If "yes," describe these exposures: _____

4. List any second jobs or side businesses you have:

5. List your previous occupations:

6. List your current and previous hobbies:

7. Have you been in the military services? ☐ Yes ☐ No
   If "yes," were you exposed to biological or chemical agents (either in training or combat):

Part B. continued

8. Have you ever worked on a HAZMAT team? ☐ Yes ☐ No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): ☐ Yes ☐ No

If "yes," name the medications if you know them: _____

10. Will you be using any of the following items with your respirator(s)?

☐ Yes ☐ No a. HEPA Filters
☐ Yes ☐ No b. Canisters (for example, gas masks)
☐ Yes ☐ No c. Cartridges:

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?

☐ Yes ☐ No a. Escape only (no rescue)
☐ Yes ☐ No b. Emergency rescue only
☐ Yes ☐ No c. Less than 5 hours per week
☐ Yes ☐ No d. Less than 2 hours per day
☐ Yes ☐ No e. 2 to 4 hours per day
☐ Yes ☐ No f. Over 4 hours per day

12. During the period you are using the respirator(s), is your work effort:

☐ Yes ☐ No a. Light (less than 200 kcal per hour)

If "yes," how long does this period last during the average shift:____ hrs._____mins.

Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

☐ Yes ☐ No b. Moderate (200 to 350 kcal per hour)

If "yes," how long does this period last during the average shift:____ hrs._____ mins.

Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring moderate load (about 35 lbs.) at trunk level; walking on a level surface about2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

☐ Yes ☐ No c. Heavy (above 350 kcal per hour)

If "yes," how long does this period last during the average shift:_____hrs._____mins.

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: ☐ Yes ☐ No

If "yes," describe this protective clothing and/or equipment: _____

14. Will you be working under hot conditions (temperature exceeding 77° F): ☐ Yes ☐ No

15. Will you be working under humid conditions: ☐ Yes ☐ No

Part B. continued

16. Describe the work you'll be doing while you're using your respirator(s):

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

a. Name of the first toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift _____

b. Name of the second toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

c. Name of the third toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

d. The name of any other toxic substances that you'll be exposed to while using your respirator: _____

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, and security):

Medical Clearance Request for Respirator User

Employee (Print)		Soc. Sec. Number	Date Of Birth
Facility/Dept	Manager		Phone

Check Respirator(s) To Be Used:

- ☐ Disposable Face Mask
- ☐ Air-Purifying Half Face
- ☐ Air-Purifying Full Face
- ☐ Atmosphere Supply Respirator
- ☐ Self-Contained Breathing Apparatus

Nature of Air Contaminant:

Level of Work Effort Associated with Respirator Usage

☐ Light ☐ Moderate ☐ Heavy

Length of Time of Anticipated Effort in Hours:

Special Work Considerations (i.e. high places, temperature, hazardous material, hazardous process, protective clothing, etc.

Agency Representative

Physician's Evaluation

☐ No restrictions on respirator use ☐ Some specific use restrictions ☐ No respirator use permitted

Explanation:

Examining Physician	Date

Respirator Assignment & Fit Record

Employee Name:		
Department/Operation for which respirator is used:		
Chemical Exposure:		
How often and what duration of time is respirator use needed?		
Date respirator issued:	Type & Size of respirator issued:	Respirator cartridges supplied:
Fit Testing:		
Date	Positive/Negative Fit Test	Qualitative Fit Test

Employee Instructioned On The Following: ☐ Donning and Doffing Methods ☐ Cleaning ☐ Maintenance	I understand that if any of the issues below become a problem and require my exit from the area, I will seek assistance from my supervisor: ☐ Breathing becomes difficult ☐ Dizziness or other distress ☐ Sense irritation, smell or taste contaminants ☐ Respirator becomes damaged

I understand that a respirator must fit properly to be effective. I have had my respirator tested for face-to-facepiece seal. I have worn a respirator informally to familiarize myself with it, and have then worn it in a testing atmosphere.

I have received instruction and observed practice in wearing a respirator. I know how to adjust it and determine if it is fitting properly. I am aware that I am in violation of safety rules if I wear the respirator with a beard, sideburns, or skullcap. I also understand that proper seal cannot be accomplished over the temples of eyeglasses.

I understand that I am responsible for the daily maintenance, as well as the proper cleaning and storage of the respirator supplied to me.

Employee Signature	Date
Program Supervisor's Signature	Date

Respirator Program Periodic Checklist

The following checklist is to aid the Supervisor/Manager in conducting periodic evaluations of the respiratory protection program's effectiveness.

Auditor:				Date:
Program Administration				
Y	N	Is the written policy current and does it outline program responsibility, accountability, and authority?		
Y	N	Is overall program responsibility given to one person who is knowledgeable and can coordinate all aspects of the program? If yes, who? _____		
Y	N	Can feasible engineering controls or work practices eliminate the need for respirators?		
Y	N	Are there written procedures/statements covering the various aspects of the respirator program, including:		
		Y	N	designation of authority and responsibility
		Y	N	respirator selection
		Y	N	purchase of approved equipment
		Y	N	medical aspects of respirator usage
		Y	N	issuance of equipment
		Y	N	fit testing
		Y	N	training
		Y	N	maintenance, storage, and repair
		Y	N	inspection
		Y	N	use under special conditions
		Y	N	when and where respirators are required
Program Operation Respiratory protective equipment selection:				
Y	N	Have work area conditions and worker exposures been properly evaluated?		
Y	N	Are respirators selected on the basis of hazards to which the workers are exposed?		
Y	N	Are selections made by persons knowledgeable of proper selection procedures?		
Y	N	Are only NIOSH approved respirators purchased and used?		
Y	N	Do the respirators provide adequate protection for the specific hazard in the concentration found?		
Y	N	Has a medical evaluation of the prospective user been made to determine physical and psychological fitness to wear the selected respirator?		
Y	N	Where practical, have respirators been issued to single users?		

Respiratory protective equipment fitting:		
Y	N	Are the users given the opportunity to try on several respirators to determine the one with the best fit?
Y	N	Is fit testing completed before the wearer begins using the respirator in the work area, both on initial assignment, and on a daily basis (positive and negative pressure tests)?
Y	N	Are users who wear glassed properly fitted?
Y	N	Is the facepiece-to-face seal tested using one of the methods described earlier?
Y	N	Are workers prohibited from entering contaminated work areas when they have facial hair or other characteristics which prohibit the use of tight-fitting face pieces?
Respirator use in the work area:		
Y	N	Are respirators being worn correctly?
Y	N	Are workers keeping respirators on at all times while in the work area?
Maintenance of respiratory protective equipment:		
Y	N	Are respirators cleaned and sanitized after each use (when different people use the same device) or as frequently as necessary (for devices issued to individual users)?
Y	N	Are respirators stored to protect them from dust, sunlight, heat, and chemicals?
Y	N	Is storage in lockers, tool boxes, or work areas permitted only if the respirator is in a carton, carrying case, or closed container?
Y	N	Are respirators inspected before and after each use, and after cleanup?
Y	N	Are individuals instructed in inspection methods?
Y	N	Are cartridges and filters changed on a regular basis?
Y	N	Are respirators designated as "Emergency Use" inspected at least monthly (in addition to after each use), and is a record kept of such inspections?
Y	N	Are replacement parts of the same brand as the respirator?
Y	N	Are repairs made by manufacturers or manufacturer-trained persons?
Special use conditions (if applicable):		
Y	N	Is there a procedure for respirator use in atmospheres immediately dangerous to life and health?
Y	N	Is there a procedure for confined space entry?
Training:		
Y	N	Are users trained in proper respirator use, cleaning, and inspection?
Y	N	Are employees trained in the health effects of the respiratory hazard present?
Y	N	Are users evaluated, using competency-based evaluation, before and after training?
Overall Comments And Action Items For Program Improvement:		
Signature:		Date

Respiratory Fit Testing

Employee Name:	Date:
Job Location & Title:	
Respiratory Protection Needed:	
Type of Respirator/Brand/Size:	
Passed Negative /Positive Pressure Fit:	
Qualitative Test Method:	

Test Procedure:

1. Normal Breathing: 1 minute no talking
2. Deep Breathing: 1 minute breath slowly & deeply
3. Turning Head Side to Side: Slowly turns head to extreme left, inhales and exhales, then slowly turns head to extreme right, inhales and exhales.
4. Moving Head Up & Down: Slowly turns head up & down for 1 minute while inhaling in the up position.
5. Talking: Talk slowly and loud enough for tester to hear. Read text or count to 100.
6. Bending Over: Bend over at waist as if to touch the toes. Once. Jogging in place may be substituted if bending is not done.
7. Normal Breathing: 1 minute to finish test.

Employee Passes Test:
Additional Comments:
Name of Tester:

Voluntary Respiratory User Information

Information for employees using respirators when not required under the standard

This information is from the Oregon OSHA standard 1910.134 Appendix D that is to be provided either orally or in writing to employees who request and are permitted the use of voluntary use dust masks. If employee exposure has not been evaluated, the Manager will arrange for evaluation of the exposure to ensure that the respirator use is voluntary. If the exposure exceeds the exposure limits, then the employee must be part of the full respiratory protection program.

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit to provide an additional level of comfort and protection for workers exposed to dusty conditions. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposure to hazards, even if the amount of hazardous substance does not exceed the limits set by Oregon OSHA standards.

To ensure that you understand the basic use you need to understand the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. The dust masks or other filtering facepiece respirators have been chosen from respirators certified for use to protect against the contaminants in our facility. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you. This certification is done by the National Institute for Safety and Occupational Health (NIOSH).
3. Do not wear your respirator in atmospheres containing contaminants which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator. Dust masks are disposable and should be properly disposed of after a day's use.

LEAD COMPLIANCE PLAN

OAR 437, Division 2, Subdivision Z (1910.1025)

Introduction

There are various job operations that may result in lead expo- sures to the Maintenance crews. These job tasks will require complying with the OR-OSHA Lead Regulations. Any questionsabout this program should be directed to the supervisor.

Responsibilities

To ensure compliance activities are carried out and that properrecordkeeping is done, the following outlines the overall responsibilities of the staff regarding lead exposure.

Management: It is the direct responsibility of the facility's management to ensure that the lead compliance program elements are implemented and that employees follow all painting, renovation site and fire range procedures. They are also responsible to ensure that a lead exposure assessment is completed, and specific program elements are carried out, including:

1. Conducting air exposure monitoring during surface preparation or range qualifications where lead bullets are used.
2. Ensuring appropriate personal protective equipment is pro-vided and used.
3. Proper engineering or work practices are implemented andmaintained.
4. Engineering or work practices are implemented andmaintained.
5. Conducting inspection audits to ensure lead complianceplans are implemented and followed.
6. Assisting in the development of lead compliance plans andthe updating/revision of the plans.
7. Ensuring that biological monitoring and medical examinations are done for employees involved in job tasks withexposures at or above the lead action level standard.

Maintenance, Public Works or Facility Supervisor: Itis the direct responsibility of the supervisor to review the leadcompliance plan with the staff, conduct training about the hazards of lead, as well as the safe work practices to be used in lowering potential lead exposures. The supervisor is also responsible for providing safe equipment, instructing staff howto use the equipment and periodically auditing the work sites to ensure safe procedures are followed. The supervisor will alsoidentify all potential lead-based paints. (See APPENDIX 1)

Law Enforcement

Rangemasters or Supervisors:

1. Range masters or Supervisors are responsible for determining exposure or potential exposure to lead from range munitions andrelated activities.
2. If it is determined that there is potential or actual exposureto lead at or above the lead action level, management will be responsible for development of and compliance with the department lead compliance program.
3. Indoor firing ranges should have sufficient mechanical ventilation systems to reduce the exposure to lead and theair should be circulated in such a way through appropriatehigh efficiency filtration systems with a reliable backup filter to ensure that employees are not exposed to lead contaminated air supplies.

Exposure Assessment

1. Initial Air Monitoring: The supervisor will identify specific job tasks with potential lead exposure. These operations will be scheduled for exposure monitoring. Until exposure levels are determined, respirators will be worn.
2. Re-monitoring of the work operations may be done based on the results of initial monitoring and on regularly updated information.
3. Monitoring: The supervisor or range master will inform the employees about the exposure monitoring.

Notification of Results: The supervisor or range master will provide employees with a copy of the sample results or post the result summary for five days in the work area.

If lead exposures exceeding the Permissible Exposure Limit (PEL) of 50 µg/m^3 are found, then the employees will be notified of protective actions that will be required and what those actions will be. The written compliance plan for each project/ activity will be revised or developed if lead overexposures are found. The plan will be available from the Management.

Medical Surveillance Program

1. All employees who may be exposed at or above the action level (30µg/m^3) for any day will be included in the biological monitoring. This is a blood test for lead and zinc protoporphyrin levels. Any employee exposed at or above the action level (30µg/m^3) for 30 days in any consecutive 12 months will be included in the medical surveillance program.
2. Management will identify the medical facility/provider that employees will use for any needed blood testing.
3. The entity will also maintain a list of all employees on medical surveillance and copies of the medical notification reports.
4. Lung Function Testing will be scheduled for all employees on mandatory negative pressure respirators. This procedure will follow Chapter 14 Respiratory Protection Program Procedures. The supervisor will maintain records of employees included in this program and physician notification.
5. The complete medical records will be maintained by the medical facility/provider.

Respirator Fit Testing and Training

1. Respirators will be worn during work activities where lead-containing materials are used until exposure monitoring identifies the airborne levels are below Oregon OSHA threshold levels.
2. The supervisor will provide employee fit testing for employees included in this program.
3. This program will meet Chapter 14 Respiratory Protection Program Standards.
4. Physician responses to the individual respirator questionnaire will be kept in the employee's confidential medical records file located in Human Resources.

Employee Training

1. All employees who work on lead containing materials will receive annual lead training.
2. A roster of employees trained will be maintained.

3. The Supervisor or a training consultant will provideemployee training.

Compliance Plan Development, Implementation, and Audit

1. The supervisor will develop a lead compliance plan for eachjob when exposure is expected to exceed the Permissible Exposure Limit.
2. The plans will be maintained by the supervisor. The plansare available for employee review.
3. The supervisor will conduct inspection audits to ensure thatthe plans are implemented and followed by the employees.

Recordkeeping

1. The supervisor will maintain copies of the compliance plan,employee training records, names of those employees in medical surveillance program, and the current lead monitoring results.
2. All lead records must be kept for at least 40 years.

Signage

Employers are responsible for posting warning signs in work areas where the lead PEL is exceeded. Below is sampleverbiage that should be posted on the signs. The signs are required to be illuminated and readily visible.

DANGER:

LEAD MAY DAMAGE FERTILITYOR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM

DO NOT EAT, DRINK OR SMOKE IN THIS AREA

Clothing/Body Exposure to Lead

1. It is important that any clothing that might possibly be contaminated with lead be removed after the work shift and contained in a bag or container. The clothing should be washed in accordance with applicable local, state or federal regulations to prevent exposure to families (especially children) or lead contaminated water being released into the water supply or water table. Below is some sample language for labels on bags or containers that might be contaminated by lead:

DANGER:

CLOTHING AND EQUIPMENT CONTAMINATED WITH LEAD. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM. DO NOT EAT, DRINK OR SMOKE WHEN HANDLING. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

2. It is also important that law enforcement participating in range qualification exams not eat or drink or smoke while at the firing range. It is important to wash your hands and not participate in these activities until officers are away from the range. It is also advisable that officers change they're into other clothing after lengthy range qualification exams to reduce the potential of lead exposure.
3. Protective clothing may be provided to staff.
4. Wash hands thoroughly prior to eating, drinking, smoking.

List of Test Results: Building Lead Based Paints

Building	Location	Amount of Lead in Paint

List of Test Results: Building Lead Based Paints

Building	Location	Amount of Lead in Paint

Model Lead Compliance Program Plan

Plan Developed By:	Date:
Location/Operation Covered:	
Lead Person And Number Of Employees Impacted:	
Employee Responsibilities/Duties:	
1. List each activity in which lead is emitted: a) b) c)	
2. Type of equipment and/or materials in use:	
3. Describe controls in place & specific means being used to control lead exposures including work practices, Personal Protective Equipment, and the specific schedule for the implementation of all controls:	
Control Measures (List):	

Schedule For Implementation (Lead Compliance Plan Model)
1. Describe the operating procedures and maintenance practices:
2. Report of the technology considered in lowering the exposure levels to be below the PEL:
3. Record air monitoring plan and the data collected (use Lead Monitoring Report Forms for collection of specific sample data): Attach the monitoring data including summaries.
4. Describe any administrative controls in use:
5. Method of job site inspections: a) List names of persons conducting inspections:

Inspection Times and Procedures Include: Review of the site safety compliance plan, activitiesof potentially exposed employees, personnel protective equipment, adequacy of controls, knowledge level of the employees involved.

Note: *Written programs will be established prior to commencement of a job, and revised/updated at least every 6 months to reflect the status of the program.*

LABORATORY SAFETY AND CHEMICAL HYGIENE POLICY AND PROCEDURES

OAR 437, Division 2, Subdivision Z (1910.1450)

The purpose of the laboratory safety and chemical hygiene policy and procedures is to prevent injury to water and wastewater laboratory workers who use chemicals, and to protect others who may be exposed to hazards from the laboratory environment. Some of the most common items used in theselab environments include:

- Chlorine (as sodium hypochlorite and chlorine gas)
- Sulfur Dioxide
- Lime
- Polymer
- Methane
- Methanol
- Ferric Chloride
- Alum
- Ammonia
- Acids (sulfuric, hydrochloric, nitric)
- Bases (ammonium hydroxide, sodium hydroxide, potassium hydroxide, alkaline iodine-sodium aside solution)

Some of the top lab concerns are:

- Lack of fume hoods
- Improper use of fume hoods
- Using concentrated acids needlessly (such as 50 percent hydrochloric acid to rinse glassware for phosphorus testingwhen 10 percent is more than adequate and, in most cases, 1 percent is sufficient)
- Use of mercury thermometers in the lab, especially in TSSovens.
- Old ovens and furnaces lined with crumbly flaking asbestos lining.
- Failure to wear safety glasses (which results in chemicals,acids, reagents and samples)
- Soaking pipettes and phosphorus glassware in acid bathsin an unvented room
- Using hydrochloric acid (HCI) and bleach to clean BODbottles (which when combined created chlorine gas)
- Rinsing glassware with HCI in sinks that are not vented
- Preparing dilute acids in the lab from concentrated sulfuricacid and HCI
- Not having SDS onsite and not understanding the hazardsof handling the chemicals
- Storing acid and bases in the same cabinet (violent reactions can occur if these come in contact with each other)
- Storing reagents (acids, bases, etc.) above eye level (whichincreases chance of dangerous spills into the eyes
- Mouth pipetting (which increases exposure to infectiousbacterial materials or chemicals)
- Encountering biological organisms throughsamples and waste

The Chemical Hygiene Officer (CHO) or laboratory supervisor has overall safety responsibility for maintaining a safe laboratory working environment. The laboratory supervisor has been designated as the CHO, and will ensure:

1. That proper safety procedures are in place to protect his/her laboratory staff.
2. Workers know safety rules and procedures and followthem.

3. Adequate emergency equipment in proper working order isavailable.
4. Training in the use of emergency equipment and safetyprocedures has been provided.
5. Ensuring that SDS sheets are received with any chemicalsthat are ordered or used in the lab.
6. Information on special or unusual hazards and non-routine work has been distributed to the laboratory workers.
7. Routine safety inspections are conducted.
8. An appropriate safety orientation has been given to individuals when they are first assigned to the laboratory.
9. Ensuring that appropriate and operational safety showers and eyewash stations are available for staff.
10. Ensuring that staff are up to date on their immunizations
11. Ensure that a commercial emergency spill clean-up kit is available for staff, which can be used to neutralize acids inthe event of an accidental spill.
12. A copy of this plan has been made available to all labemployees.
13. Prior approval of the Laboratory CHO must be obtained before working with any new chemicals or new procedures. Planning for work with such materials will providefor disposal, spill prevention, and control.
14. An annual review and update of the CHP is required.

Laboratory Personnel General SafetyRules

1. Know the safety rules and procedures that apply to the workbeing done (contained in this document). Determine the potential hazards (i.e. physical, chemical, biological) and appropriate precautions before beginning any new operation (see SDS).
2. Know the location of and how to use the emergency equipment in your area, as well as how to obtain additional
3. help in an emergency and be familiar with emergencyprocedures.
4. Know the types of protective equipment available and usethe proper type for each job.
5. Be alert to unsafe conditions and actions, and call attentionto them so that corrections can be made as soon as possible. Someone else's accident can also be dangerous.
6. Do not consume food or beverages or smoke in areas wherechemicals are being stored.
7. Avoid hazards to the environment by following accepted waste disposal procedures. Chemical reactions may requiretraps or scrubbing devices to prevent the escape of toxic substances.
8. Be certain all chemicals are correctly and clearly labeled.Post warning signs when unusual hazards, such as radiation, chlorine gas, infrared, laser operations, flammable materials, biological hazards, or other special problems exist.
9. Remain out of the area of fire or personal injury unless it isyour responsibility to respond to the emergency. Curious bystanders interfere with rescue and emergency personneland endanger themselves.
10. Avoid distracting or startling any other worker. Practicaljokes or horseplay will not be tolerated at any time.
11. Use equipment only for its designated purposes.
12. Position and clamp reaction apparatus thoughtfully to permit manipulation without the need to move the apparatus until the entire reaction is completed. Combine reagents in appropriate order.
13. Think, act, and encourage safety until it becomes a habit!

Laboratory Health and Hygiene

1. Always wear appropriate eye and face protection.
2. Use protective apparel, including face shields, gloves and other special clothing or footwear as needed. Always wear a lab coat or apron in the lab to protect your skin and clothes.
3. Protective gloves should be worn when handling hot equipment or very cold objects, or when handling liquids or solids which are skin irritants. Protective gloves can also protect staff from constant handwashing that causes cracked skin, which in turn creates suitable environments for chemicals and biohazards to enter the body.
4. Confine long hair and loose clothing when in the laboratory.
5. Do not use mouth suction to pipet chemicals or to start a siphon; a pipet bulb or an aspirator should be used to pro-vide a vacuum.
6. Avoid exposure to gases, vapors, and aerosols. Use appropriate safety equipment whenever such exposure is likely. Most often this can be done by using the fume hood.
7. Wash well before leaving the laboratory area, eating, drinking, or smoking. Avoid the use of solvents for washing the skin (they remove natural protective oils from the skin and can cause irritation and inflammation. In some cases, washing with solvent might facilitate absorption of a toxic chemical).
8. Never eat or smoke in the lab. Never use lab glassware for serving food or drinks.
9. Do not keep your lunch in the refrigerator that is used for sample and chemical storage. Refrigerators with samples should have a biohazard sign on them.
10. Change from working clothes into street clothes before leaving work to prevent carrying chemicals or unsanitary materials into your home.

Laboratory Housekeeping

1. Work areas will be kept clean and free from obstructions. Clean-up should follow the completion of any operation or at the end of each day.
2. Waste should be deposited in appropriate receptacles.
3. Spilled chemicals should be cleaned up immediately and disposed of properly.
4. Unlabeled containers and chemical waste should be dis- posed of promptly. Other materials or chemicals no longer needed should not accumulate in the laboratory.
5. Store flammable liquids, acids, bases and oxidizing agents separate from each other.
6. Ensure that the chemical storage room is properly ventilated and well lit.
7. Store volatile liquids which may escape as a gas away from heat sources, sunlight and electrical switches.
8. Cylinders of gas in storage must be capped and secured with a chain to prevent rolling or tipping. They should also be placed away from any possible source of heat or open flame, such as in an appropriate chlorine room that has adequate fan ventilation system as required, with explosion proof wiring and lights, and appropriate alarms systems to identify leaks.
9. Transfer or transport cylinders of compressed gases on appropriate trussed hand trucks. Never move a cylinder without the valve protection hood in place and never roll a cylinder by its valve.
10. Any time you are moving chemicals, make sure to use appropriate protective gloves, safety shoes and rubber aprons in case of an accidental spill.
11. Floors should be cleaned regularly; accumulated dust, chromatography absorbents, and other assorted chemicals pose respiratory hazards.

12. Access to exits, emergency equipment, emergency showers/eyewash stations, and controls should never be blocked.
13. Equipment and chemicals should be stored properly; clutter should be minimized.
14. Do not store chemicals above eye level.

Shield Use:

1. For any operation having the potential for explosion.
2. Whenever a reaction is attempted for the first time.
3. Whenever a familiar reaction is carried out on a larger than usual scale.
4. Whenever operations are carried out under non-ambient conditions.

Note: Shields must be placed so that all personnel in the area are protected from the hazard.

5. Proper Handling of Glassware
6. Careful handling and storage procedures should be used to avoid damaging glassware. Damaged items should be discarded or repaired.
7. Hand protection should be worn when inserting glass tubing into rubber stoppers or corks or when placing rubber tubing on glass hose connections. Tubing should be held close together to limit movement of glass should a fracture occur.
8. ***Note***: If possible, use plastic or metal connectors.
9. Vacuum-jacketed glass apparatus should be handled with extreme care to prevent implosions. Dewar flasks should be taped or shielded. Only glassware designed for vacuum work should be used.
10. Hand protection will always be worn when picking up broken glass.

Working with Flammable Hazards

1. Do not use an open flame to heat a flammable liquid or to carry out a distillation under reduced pressure.
2. Use an open flame only when necessary and extinguish it when it is no longer needed.
3. Before lighting a flame, remove all flammable substances from the immediate area. Check all containers of flammable materials in the area to ensure that they are tightly closed.
4. Notify other occupants of the laboratory in advance of lighting a flame.
5. Store flammable materials properly (using a flammable storage cabinet when quantities necessitate their use).
6. When volatile flammable materials may be present, use only non-sparking electrical equipment.

Working With Cold Traps and Cryogenic Hazards

1. Always use gloves and a face shield when preparing or using cold baths (severe burns if allowed to contact the skin).
2. Never use liquid nitrogen or liquid air to cool flammable mixtures in the presence of air because oxygen can con- dense from the air, causing an explosion.
3. Always wear dry gloves when handling dry ice. Never lower your head into dry ice chest as carbon dioxide is heavier than air and suffocation can result.

Working Alone and Unattended Operations

1. Generally, avoid working in laboratories alone unless arrangements have been made with co-workers to call in/check in periodically.
2. Never perform experiments or procedures with unknown hazardous materials.

3. For laboratory operations that are carried out overnight, a plan shall be developed to address utility service failure(i.e., electricity, water, inert gas, etc.). See APPENDIX 3.
4. Leave lights on and plan a periodic inspection of the operation with plant personnel.

Note: The CHO has the responsibility to determine whether the work requires special safety precautions.

General Ventilation

1. All hazardous/toxic chemicals identified by OR-OSHA, Subdivision Z., will be used so that quantities of their vapors or dusts do not produce adverse toxic effects from entering the general laboratory atmosphere. Whenever feasible, a hood should be used when working with Subdivision Z chemicals. The established PEL (Permissible ExposureLimit) should not be exceeded.
2. Ventilation hoods should be checked annually to ensure that the airflow is appropriate (approximately 100 to 150 feet per minute) with the hood completely open. Strips of cloth can be hung on the door to continuously indicate thatair is flowing.
3. Operations such as running reactions, heating or evaporating solvent, and transfer of chemicals from one container toanother should be performed in the safest manner possible.
4. Chemical Procurement, Distribution, and Storage
5. Prior to ordering any new chemical/substance, the SDSshould be reviewed for the following:
    a. Potential hazards
    b. Safe handling procedures and methods.
    c. Waste disposal procedures.
    d. Proper personal protective equipment.

Note: This information can be obtained from the label,manufacturer's insert, or the SDS.

6. When turning a requisition into the CHO, the requestor willinform the CHO of any hazards associated with the chemical or substance (i.e., attach SDS to requisition).
7. All chemical/substances will be received in a central location to aid in monitoring the chemical that may eventuallyenter the waste disposal stream. All chemicals identified under OR-OSHA Subdivision Z will be inventoried and quantities (gal., lbs., etc.) of chemical/substance recorded.
8. No container of a chemical or substance will be acceptedunless an SDS accompanies the received order.
    a. Safety Data Sheet (SDS) or satisfactory container labelsmust be written in English and will contain:
        - Chemical Identity
        - Manufacturer's Information
        - Hazardous Ingredients/Identity Information
        - Physical/Chemical Characteristics
        - Fire and Explosion Hazard Data
        - Reactivity Data
        - Health and Hazard Data
        - Precautions of Safe Handling and Use
        - Control Measures
        - Primary Routs of Entry (Inhalation, Absorption,etc.)
        - Emergency and First Aid Procedures

9. If chemicals have been stored beyond their appropriateshelf life or have deteriorated, they will be properly disposed of immediately.
10. Refer to the previous Hazard Communication policy foradditional information on chemical use and appropriatelabeling protocol.

Procedures for Storing Chemicals

1. **Annual audits will be conducted for inspecting:**
    a. Chemicals stored beyond their appropriate shelf life orhave deteriorated.
    b. Containers that have defaced or questionable labels.
    c. Containers that are leaking or have corroded caps.
    d. Containers that have developed any other problemsand should be disposed of in a safe manner.

Note: A first-in, first-out system of stock keeping/Chemical use should be instituted.

2. **General Considerations:**
    a. Every chemical in the laboratory should have a specificuse, definite storage place, and should be returned to that location after each use.
    b. Storage of chemicals on bench tops and hoods isforbidden.
    c. Laboratory refrigerators should be properly labeled as totheir appropriate use (such as for the storage of chemicals only); food must not be placed in them. All containers placed in the refrigerator should be properly labeled (identification of contents and owner, date of acquisition or preparation, and nature of any potentialhazard).
    d. Flammable liquids should not be stored in a laboratoryrefrigerator unless the unit is an approved, explosion-proof, or laboratory-safe type.
    e. Chemicals stored in the laboratory should be inventoried periodically, and at the same time, containers that have illegible labels and chemicals that appear to have deteriorated should be disposed of.
    f. An inventory sheet of chemicals should be kept in frontof the SDS binder and updated annually with the audit.The list should be in an easy to find order (such as alphabetical), and the SDS will be kept in that order foreasy location.
3. **Flammable Liquids:**
    a. Quantities of flammable liquids greater than one litershould be stored in approved containers (portable approved safety cans are one of the safest methods of storing flammable liquids).
    b. Flammable liquids received in large containers should be repackaged into safety cans for distribution to laboratories; such cans must be properly labeled to identifytheir contents.
    c. Large quantities of flammables should be stored in anappropriate flammable cabinet.
    d. Other considerations in the storage of flammable liquids in the laboratory include ensuring that aisles and exits are not blocked in the event of fire; that accidental contact with strong oxidizing agents such as chromic acid, permanganates, chlorates, per chlorates, andperoxides is not possible; and that sources of ignition are excluded.

Note: See Federal OSHA 29 CFR 1910.106, NFPA No.30-45 for further information and requirements.

4. **Toxic Substances:**
    a. Chemicals known to be highly toxic, including those

b. classified as carcinogens, should be stored in ventilated storage areas in unbreakable chemically resistant secondary containers.
c. Only minimum working quantities of toxic materials should be present in the work area. Storage vessels containing such substances should carry a label such as the following:
CAUTION: HIGH CHRONIC TOXICITY OR CANCER SUSPECT
d. Storage areas for substances that have high acute or chronic toxicity should exhibit a sign warning of the hazard, have limited access, and adequately ventilated.
e. A current inventory of toxic materials should be maintained.
f. Adequate ventilation must be maintained for hazardous materials that have a high vapor pressure (mercury and mercaptans).

5. Compressed Gases:

a. Cylinders of compressed gases should be securely strapped or chained to a wall or bench top to prevent them being knocked over accidentally.
b. When they are not in use, it is good practice to keep them capped.
c. Care must be taken to keep compressed gases away from sources of heat or ignition.

Inspections

1. Should be conducted quarterly at the beginning of each calendar year.
2. Will be documented in the lab safety manual.
3. Deficiencies will be corrected immediately and noted on the inspection sheet or Safety Committee minutes.

Maintenance

1. All eye washes and safety showers will be checked and flushed weekly for adequate water flow and to insure cleanliness of the water. OAR 437-002-0161(5)
2. Fire extinguishers will be inspected monthly with date and initials on the back of the tag and serviced annually to insure they are full and operating properly. Ensure that the appropriate fire extinguishers are being used (see next page).
3. Fume hoods and other equipment should be inspected at least monthly to ensure proper operation.

Note: See APPENDIX 2 for inspection procedure and checklist.

First Aid and Emergencies:

OAR 437-002-0161

Anticipated Emergencies:

1. Thermal and chemical burns.
2. Cuts and puncture wounds from glass or metal, including possible chemical contamination.
3. Skin irritation by chemicals.
4. Poisoning by ingestion, inhalation, or skin absorption.
5. Asphyxiation
6. Injuries to the eyes from splashed chemical.

Accident Reporting:

1. Follow lab Emergency Medical Plan. See APPENDIX 3.
2. Notify supervisor or CHO and fill out appropriate forms immediately.

Fires and Explosions:

1. Alert all laboratory personnel and call 9-1-1 for assistance.
2. If authorized and trained in the use of portable fire extinguishers, try to extinguish fire immediately by:
    a. Using correct fire extinguisher.
        i. Class A Fire: ordinary combustible solids such aswood, paper, textiles, and similar materials.
        ii. Class B Fire: diesel fuel, motor oil, paint, grease, volatile flammable solvents.
        iii. Class C Fire: all fires in electrical equipment and in areas here live electricity is present.
        iv. Class D Fire: fires involving sodium, zinc, magnesium, and other elements.
        v. An all-purpose A-B-C chemical type extinguisher can be used to handle more laboratory fire situations.
        vi. Using an inverted beaker or glass to suffocate thefire.
3. Ensure the laboratory is equipped with a fire blanket thatcan be used to smother clothing fires.
4. Avoid entrapment in a fire; always fight a fire from a position accessible to nearest exit.
5. If the fire cannot be controlled by available staff and equipment, the following action should be taken:
    - Call 9-1-1 or pull the fire alarm.
    - Assist injured personnel.
    - Confine the emergency (close hood sashes, door between laboratories, fire doors) to prevent furtherspread of the fire.
    - Evacuate the building to avoid further danger topersonnel.
6. In case of explosion, ***immediately***:
    a. Call 9-1-1 or pull the fire alarm.
    b. Turn off burners and other heating devices, if possible.
    c. Stop reactions in progress.
    d. Assist in treating victims.
    e. Vacate the area until it has been decontaminated.

First Aid:

1. Each laboratory person should be trained in emergency first aid, pulmonary and cardiac resuscitation and AED's ifone is located on the premises.
2. Refresher training should occur as required by your employer's Emergency Medical Plan or every other year.
3. Training records should be documented and retained for a minimum of five years.
4. All trained personnel should carry a valid first aid card.

Medical Consultation and Medical Examinations

1. All employers who work with hazardous chemicals will be given an opportunity to receive medical attention, including any follow-up examinations required, under the following conditions:
    a. Development of signs or symptoms associated with a hazardous chemical to which they may have been exposed.
    b. When exposure monitoring reveals exposure to an Oregon OSHA regulated substance routinely above the action level or PEL.
    c. Whenever an event takes place such as a spill, leak, explosion, or other occurrence resulting in the likelihood of hazardous exposure.
2. All medical examinations or consultations will be by (or under the supervision of) a licensed physician and will be provided without cost or loss of pay at a reasonable time and place.
3. The employer will provide to the physician:
    a. The identity of the hazardous substance and/or the SDS.
    b. Description of the conditions causing the exposure, including quantitative exposure data if available.
    c. Any medical condition which may be revealed might place the employee at increased risk because of exposure to a hazardous substance in the workplace.
    d. A statement that the employee has been informed of the results of the medical examination or consultation and any medical condition that may require further examination or treatment.
    e. The written opinion will not reveal specific findings of diagnosis unrelated to occupational exposure.

Records

1. Accident records must be written and retained.
2. In work with chemicals of moderate, chronic or high acute toxicity, records will indicate amounts of these materials on hand, amounts used, and the names of the workers involved.
3. Medical records or copies thereof shall be retained in accord with state and federal regulations (30 years).

Signs and Labels

1. Emergency telephone numbers to call in the event of fire, accident, flood, or hazardous chemical spill will be posted in the laboratory.
2. Labels on containers of chemicals must contain information on the hazards associated with the use of the chemical. Waste containers are labeled for the type of waste that can be safely deposited.
3. Emergency evacuation maps and signs will be posted to show the locations of safety showers, eyewash stations, exits, and fire extinguishers. Extinguishers are labeled to show the type of fire for which they are intended.
4. Laboratory areas that have special or unusual hazards will be posted with warning signs at the entrance. Standard signs and symbols have been established for many special situations such as radioactive hazards, biological hazards, fire hazards, and laser operations.

Spills and Accidents

1. A written emergency plan is prepared for unexpected events such as fire or explosion. The plan includes procedures for evacuation, shutdown, return, start-up, and drills. See APPENDIX 3.
2. A spill control policy is developed which will include con-sideration of:
    a. **Prevention**: Storage, operating procedures, monitoring, inspection, and personnel training.
    b. **Containment**: Engineering controls on storage facilities and equipment.
    c. **Clean-up**: Countermeasures and training of personnel to help reduce impact of a chemical spill.
    d. **Reporting**: Provisions for internal and external reporting (e.g., to state and federal agencies).
        Note: See APPENDIX 3.
3. All accidents or near accidents will be analyzed and the results of such analyses and recommendations for the prevention of similar occurrences will be distributed to all who might benefit.

Information and Training Program

The laboratory safety training program was developed to assure that all individuals at risk are adequately informed about the work in the laboratory, its risks, and what to do if an accident occurs. Educational activities will be provided for all persons who may be exposed to potential hazards relating to laboratory operations. New employees assigned to the laboratory will be educated about safety procedures and the procedures used in the event of an accident.

1. **Emergency and Personal Protection Training:** Instruction on the proper use of protective apparel and safety equipment, emergency procedures, and first aid will be available to everyone who might need it. Full-time staff will be trained in the proper use of emergency equipment and procedures. Receiving room, storeroom, and stock- room personnel will be knowledgeable about or trained in the handling of hazardous substances. Such training will include the physical handling of containers of chemicals so that they are not dropped, bumped, or subject to crushing by being piled upon one another. Information will be pro- vided about environmental and hazard initiating exposures that must be avoided. Some of the more common items which receiving room, storeroom, and stockroom personnel will be familiar with include the following:
    a. The use of proper material-handling equipment, protective apparel, and safety equipment.
    b. Emergency procedures, including proper clean-up of spills and the disposal of broken containers.
    c. The meanings of the various DOT (Department of Transportation) labels on shipping packages and containers.
    d. The proper methods of material-handling and storage, especially the incompatibility of some common substances; the dangers associated with alphabetical storage; and the sensitivity of some substances to heat, moisture, and other storage hazards.
    e. The special requirements of heat-sensitive materials, including those shipped refrigerated or packed in dry ice.

f. The problems associated with compressed gases, including unique situations such as the construction of an acetylene cylinder.
g. The hazards associated with flammable liquids (especially the danger of their vapors catching fire some distance from the container), explosives and of toxic gases and vapors and oxygen displacement.
h. Substances that react with water, giving rise to hazardous conditions (e.g., alkali metals, burning magnesium, metal hydrides, acid chlorides, phosphates, and carbides).
i. The federal and state regulations governing controlled substances such as radioactive materials, drugs, ethyl alcohol, explosives, needles and syringes.
j. Chemicals that have offensive smells.
k. Packages that exhibit evidence that the inside container has broken and leaked its contents.

2. **Frequency of Training:**
Training and education will be regular, continuing activities. The employer will determine the frequency of refresher information and training.
3. **Literature and Consulting Advice:**
Literature and consulting advice on laboratory safety and on the physical and biological hazards of chemicals will be readily available to those responsible for laboratory operations and those involved. Laboratory workers will be encouraged to read about the potential hazards of the work going on in their laboratory and to know about the availability of various resources that describe safe operating conditions. This literature will be available in a form that is readily accessible both to those responsible for laboratory operations and to laboratory workers themselves.

Waste Disposal Program

Chemicals will be dispensed of so that people, other living organisms, and the environment generally are subjected to minimal harm by the substances used or produced in the laboratory. Both the laboratory workers and the supporting personnel will know and use acceptable disposal methods for various chemicals.

1. **Content:**
The waste disposal program specifies how waste is to be collected, segregated, stored, and transported, and includes consideration of what materials can be incinerated. Transport forms at the institution will be in accordance with DOT regulations. See APPENDIX 3.
2. **Discarding Chemical Stocks:**
Unlabeled containers of chemicals and solutions will undergo prompt disposal. If partially used, they must not be opened.
3. **Frequency of Disposal:**
Waste will be removed from laboratories to a central waste storage area at least once per week and from the central waste storage area at regular intervals.
4. **Method of Disposal:**
   a. Incineration in an environmentally acceptable manner is the most practical disposal method for combustible laboratory waste.
   b. Disposal by recycling or chemical decontamination will be used when possible.
   c. Indiscriminate disposal by pouring waste chemicals down the drain or adding them to mixed refuse for landfill burial is unacceptable.

d. Hoods will not be used as a means of disposal for vola-tile chemicals.

OAR 437, Division 2., Subdivision Z. Air Contaminants

This is a short list abstracted from Subdivision Z that contains the substances that are possibly found in a laboratory that tests water or wastewater. If you have any of these stored or used on site, obtain more information from OR-OSHA:

Acetic Acid
Acetone
Ammonia
Arsenic
Arsine
Barium compounds
Benzene
Bromine
Butane
Butyl alcohols
Cadmium compounds
Calcium carbonate
Calcium hydroxide
Calcium oxide
Calcium sulfate
Carbon dioxide
Chlorine
Chromic acid and chromates
Chromium II and III compounds
Cyanides
Ethanol
Fluorides
Formaldehyde
Hydrogen chloride
Hydrogen peroxide
Hydrogen Sulfide
Iodine
Isobutyl alcohol
Ketone
Lead inorganic compounds
Manganese compounds
Mercury vapor or compounds
Methyl alcohol
Methylene chloride
Nickel compounds
Nitric acid
Nitrous oxide
Oxalic acid
Phenol
Phosphoric acid
Potassium hydroxide
Pyridine
Selenium compounds
silver compounds
Sodium aside
Sodium hydroxide
Starch
Strychnine (Brucine Sulfate)
Sulfuric acid
Sulfur dioxide
Trichloroethylene
Toluene
Xylenes
Zinc compounds

Lab Inspection Checklist

Location:	Inspection Date:

General:

- ☐ Emergency phone numbers are posted.
- ☐ Warning signs are posted.
- ☐ Exits are lighted and clear of obstruction.
- ☐ Work area is free of debris and in good condition.
- ☐ Inventory of all chemicals is maintained and updated annually for review.
- ☐ Food is stored and consumed away from the work area.
- ☐ Hand washing facilities are provided inside the lab.
- ☐ Material Safety Data Sheets are readily available.
- ☐ Labels on chemical containers are legible and firmly secured.
- ☐ Labels identify the degree of hazard.
- ☐ Extension cords are not used in place of permanent wiring.
- ☐ UL listed/FM approved electrical equipment is provided.
- ☐ Electrical cords and equipment are protected against chemicals and temperature.
- ☐ Fume hoods are not used for storage.
- ☐ Personal Protective Equipment is provided and in use.
- ☐ A written Chemical Hygiene Plan is in the lab and available for inspection.
- ☐ Emergency numbers and evacuation procedures are posted in conspicuous locations in the lab.

Storage and Handling:

- ☐ Gas cylinders are properly secured.
- ☐ No leaking containers are present.
- ☐ All chemical containers are properly labeled.
- ☐ Chemicals are stored according to compatibility.
- ☐ Peroxide forming reagents are dated when opened.
- ☐ Peroxide forming reagents are disposed of or tested after expiration date.
- ☐ Flammable and corrosive storage areas are labeled.

Flammables are kept away from sources of heat, ignition, flames, etc.

Corrosive materials are stored low to the ground.

- ☐ A flammable storage cabinet is provided for flammable liquids when required.
- ☐ Carcinogen storage areas are labeled.
- ☐ Chemicals in the open are kept to a minimum.
- ☐ Flammable/Combustible liquids do not exceed NFPA storage limits.

Chemical Waste:

- ☐ Hazardous waste containers are labeled and have closed lids.

Sample Laboratory Emergency Action Plan

Building:	Rm:	Phone Number:
The following people are designated and trained to assist Emergency Responders with information about this lab, including providing a hazardous material inventory, during an emergency		
Name	**Title**	**24 Hour Contact Phone**
	Lab Director	
When the fire alarm sounds, lab workers must EXIT the building, but first:		
1. Turn off all flames and other ignition sources 2. Close all hazardous material containers 3. Close sash on all fume hoods	4. Turn off all electrical equipment 5. Other:	
The following emergency equipment is located in this room:		
☐ Emergency Eyewash ☐ Fire Extinguisher ☐ Spill Kit/Control Equipment ☐ Emergency Shower	☐ Phone ☐ Fire Blanket ☐ Other:	
The following emergency equipment is not located in this room, but can be found at:		
Equipment	**Location**	

If your clothing catches on fire:

1. "STOP, DROP and ROLL" (If someone else is on fire, place them on the ground, and instruct them to roll back and forth.)
2. Cover your face with your hands.
3. Use a fire blanket to help smother the flames.

If there is a hazardous material spill:

1. Determine if this is a "major" or "minor" spill.
2. Assist anyone who may have been contaminated or injured during the spill.
3. Clean up minor spills using appropriate spill control equipment.
4. Call 911 for all major spills. Evacuate the area and do not let anyone enter until Emergency Responders have cleaned up the spill.

If you need to use the emergency shower or eyewash:

Pull the handle to start the water flowing.
Hold your eyes open to get the water under your eyelids.
Remove all contaminated clothing and shoes.
Stay under the water for at least 15 minutes to get all the chemicals off.

The quickest and safest way out of this room during an evacuation is:

If this primary route is not safe, the other way out is:

All lab staff are to meet at this location outside the building after evacuation. Take attendance to ensure that everyone has safely exited:

ASBESTOS MAINTENANCE PROGRAM

OAR 437, Division 2, Subdivision Z (1910.1001)

The purpose of this program is to ensure compliance with Oregon OSHA's Asbestos Standard. We have asbestos containing building materials which require that a basic asbestos program be maintained. The elements of a program include:

1. Inventory of asbestos-containing materials in our facilities.
2. Procedures for periodic examination of asbestos-containing materials to detect deterioration and need for repair or proper removal.
3. Written procedures for handling asbestos materials during maintenance and renovation activities.
4. Procedures for proper asbestos waste disposal.
5. Procedures for dealing with asbestos-related emergencies.
6. General asbestos awareness training will be provided to all maintenance staff who may encounter asbestos or be project managers ensuring that the outside asbestos abatement contractors follow our, Oregon OSHA, and DEQ procedures.

Note: This program does not meet DEQ asbestos worker training certification requirements nor it intended to meet all possible Oregon OSHA Asbestos Requirements.

Procedures for Conducting Asbestos Building Inventories

Testing:

1. Exposed building materials that are likely to contain asbestos will be tested by an outside source. The Supervisor will see that appropriate testing is done. The testing results will be retained by the management for 30 years. Sprayed on ceiling material containing asbestos and pipe insulation will be labeled.
2. Additional sampling will be done prior to removal, demolition, or renovation on all potential asbestos containing materials.
3. While many of our building materials have been tested, not all material may have been. Thus, it is our policy to test any of the following suspect building materials prior to removal.
    a. Pipe Insulation Materials.
    b. Floor Tiles and Mastic (tiles, mastic for molding, mastic for tiles or carpeting).
    c. Sprayed on Asbestos containing ceiling materials.
    d. Asbestos Containing Pipe.
4. Asbestos material inventory results are maintained by facility maintenance and are available for review. The inventories are done individually for each building.
5. Any removal and testing of asbestos containing materials will be done by outside contractors and testing labs who are certified asbestos removal contractors. In order to eliminate employee exposure to asbestos dust and materials, we have chosen to have outside contractors deal with these materials. They will practice appropriate containment procedures, including sealing off the area and separating the work from the HVAC/ ventilation systems.

Inspection Procedures

1. Outside asbestos abatement and inspection contractors who have asbestos certified staff have taken samples and either repaired or properly removed asbestos containing materials.
    a. The maintenance staff is expected to note the condition of asbestos insulation and ceiling materials as part of their routine building maintenance. If upon visual inspection material is cracking, fraying, broken, or damaged they will report this to the Facility Manager.
    b. Custodial staff is to immediately report broken insulated pipes and any broken or friable materials labeled as asbestos to their supervisor immediately.
    c. If necessary, an asbestos abatement/inspection con- tractor's certified supervisor will determine the scale of the work. The work will be done by outside asbestos contractor(s). The asbestos supervisor will discuss interim measures necessary to protect all personnel that may be exposed to the material with management.

Reinspection

Reinspection of all visible asbestos materials will be done by certified asbestos contractors based on frequency noted in the previous inspection report.

Notice to All Building Occupants

Any damage to pipe insulation or other building surfaces and materials is to be reported to Management for review, in relationship to potential asbestos content. All asbestos insulation is labeled. Occupants in buildings with sprayed on asbestos containing ceiling material will be notified by the Management of the Building Manager. The building inventories will be available to all to occupants by contacting Management.

Handling Asbestos Materials During Maintenance and Renovation Activities

Asbestos containing materials improperly handled can cause employee exposures to asbestos fibers and lead to building and surface contamination. **It is our policy that asbestos containing materials will only be handled or removed by certified asbestos contractors with proper equipment, training, and controls.**

1. **Asbestos Cement Pipe Work:** Jobs that entail removal of less than three square feet or three linear feet of asbestos-containing material (where the removal of asbestos is not the primary objective and methods of removal are complying). The work does not have to be performed by certified asbestos abatement workers. Employees who work on asbestos cement pipe must strictly follow the Department of Environmental Quality Standards on cutting or tapping the pipe. Power tools cannot be used to cut A-C pipes.

Control Measures Used to Preclude Exposure & Appropriate Work Practices

1. We will hire contractors who use approved asbestos abatement methods. Projects may include either small scale or large-scale removal. Examples of **Class II to IV** projects include:
    a. Pipe repair.
    b. Valve replacement.
    c. Installing electrical conduits.

d. Installing or removing drywall, roofing and other general building maintenance.
e. Renovation which is small scale.
f. Removal of asbestos containing insulation on pipes using a glove bag.
g. Removal of small quantities of asbestos containing insulation on beams or above ceilings.

2. Safe Methods for Removal
    a. The methods of removal need to involve one or a combination of the following practices and engineering controls which can reduce employee exposure to below the action level of 0.1 fiber/cubic centimeter.
        i. Wet method (asbestos containing pipes)
        ii. Glove bag for small, isolated repairs
    b. Maintenance staff ***will not*** use the following procedures when working with or around asbestos containing materials: Drill holes in asbestos material.
    c. Sand asbestos containing floor tiles.
    d. Dust surfaces that may contain asbestos with dry brushes or booms.
    e. Use regular vacuum cleaners to collect asbestos dust or debris.
    f. Remove material without proper respiratory protection and the proper type of clothing.
    g. Damage asbestos containing materials when moving or conducting general maintenance.
    h. Install curtains, drapes, or other dividers into asbestos containing materials.

Certified and Trained Asbestos Personnel

Staff or contractors selected to remove or repair asbestos containing materials will be following the Oregon OSHA rules and Department of Environmental Quality (DEQ) Standards.

Asbestos Waste Disposal

Our staff will follow the OR-OSHA, DEQ, and the available asbestos land fill requirements. Building materials containing asbestos can be legally disposed of using a disposal company to remove the waste bags and transport them to approved Oregon landfills. All asbestos abatement contractors will follow our rules as well as Oregon OSHA and DEQ's.

Potential Asbestos Emergencies

1. Type of Emergencies:
    a. Damage to asbestos containing building materials due to willful activities of the occupants or the public; or maintenance activities resulting in unplanned contact with asbestos materials.
2. Emergency Procedures:
    a. Staff discovering an emergency will notify their super-visor, who will notify the entity's manager.
    b. Seal off area or contain the problem. Proper danger/warning signs and area security will be implemented.
    c. All clean-up, repair or removal will be done by an asbestos abatement contractor who is licensed and can be used on an emergency basis.
    d. All Oregon OSHA and DEQ regulations will be followed and only asbestos certified workers with approved equipment will be allowed to contain and clean-up the emergency.

General Asbestos Awareness Training

What is asbestos?

1. Asbestos is a generic term applied to naturally occurring fibrous hydrated mineral silicates. These minerals are regarded as hydrated because they are formed by their affinity for water.
2. Asbestos has been used widely in building materials and in products that needed to be fireproof. The EPA estimated in 1985 there were 31,000 schools and 733,000 commercial buildings that had asbestos products in them. Asbestos was used because the mineral is:
3. Fire Resistant.
4. May be woven or used to provide strength and consistency to a product.
5. Resistant to chemicals.

In the United States two primary forms of asbestos were widely used:

1. **Amosite**
    a. Resistant to heat and chemicals, and found extensively in pipe insulation, friction materials, roofing and flooring materials.
    b. Characteristically a rigid, brittle fiber which cannot be woven.
    c. Now banned in the U.S. due to the higher cancer health risk associated with amosite.
2. **Chrysotile**
    a. A long, wavy, hair-like fiber that is easily woven. Chrysotile is used in asbestos clothing products and extensively in many forms of insulation.
    b. The shorter mill-end material is now being substituted for amosite applications.

Primary Health Effects

The primary effects from exposure to asbestos are to the respiratory system. Asbestos exposure is also linked to effects on the gastrointestinal system.

1. Particle Size
    a. Asbestos is made up of fibers which are bundles of smaller and smaller fibers called fibrils. When asbestos material is disturbed countless numbers of very small fibrils, microns in size (millionths of a meter), are released into the air. Fibers 75 microns in size will get trapped in the nose and, Fibers 1-5 microns in size are trapped in the bronchioles and lungs.
    b. The actual particle size of the asbestos that is released is important because:
        i. Once a small particle becomes airborne it can remain suspended almost indefinitely, even in a very small environment.
        ii. Particles of this size are carried into the deepest part of the lungs, past the protective mechanisms in the nose, sinuses, and larynx.
        iii. The asbestos fibers are crystalline minerals and are very persistent, which means that the fibers do not degrade in biological tissue. Once breathed deep into the lungs, the fibers may remain there indefinitely.
        iv. The mechanism of damage to tissue appears to be associated with the mechanical irritation caused by the sharp ends of the fibers.

Diseases Associated with Asbestos Exposure

1. **Asbestosis of the lung**: A fibrotic degeneration of the lung is usually associated with chronic exposure to asbestos. The disease restricts the ability of the lungs to expand and causes scarring of the lung tissue. This causes progressive shortness of breath, respiratory

failure, and cardiac decompensation, which is the heart's inability to maintain circulation because of reduced oxygen levels. The disease is progressive even in the absence of continued exposure to asbestos.

2. **Lung Cancer**: Cancers of the lung are seen at higher incidence rates in individuals who have been exposed to asbestos. The incidence rate is 90 times greater for workers who smoked tobacco and were exposed to asbestos than workers only exposed to asbestos.
3. **Mesothelioma of the lung pleura**: A rare form of cancer which is almost entirely related to asbestos exposure. The disease is not curable and individuals with mesothelioma rarely live more than one year after diagnosis. Mesothelioma is not associated with smoking and may occur following exposure to low levels of asbestos and a level of dust exposure defined as a "safe" level for lung cancer risks.
4. **Gastrointestinal Cancers**: Asbestos workers exhibit higher rates of cancers of the stomach, intestines, bowel, and rectum.
5. **Pleural Plaques**: Plaques are seen on the X-Rays of asbestos workers. These are dense strands of collagen (connective tissue proteins) showing as opaque patches on the X-Rays. These plaques can be seen with no disease and do not reflect severity of disease tissue but indicate asbestos exposure.
6. **Asbestos:** There are those who contend that there is no safe limit for exposure to asbestos. The current epidemiological studies, however, do suggest a typical dose-response relationship for most of the asbestos related diseases. Thus, the higher the exposure, the higher the incidence of disease is seen. Studies have also indicated a higher incidence of disease associated with amosite-type asbestos.

Relationship of Smoking and Asbestos Exposure

The 1985 Surgeon General's report on "The Health Consequences of Smoking: Cancer and the Chronic Lung Disease in the Workplace", reports on the research findings about the risk of developing lung cancer and lung diseases among asbestos exposed workers and asbestos exposed workers who smoke. The following conclusions were drawn by the report:

1. Asbestos exposure can increase the risk of developing lung cancer in both cigarette smokers and nonsmokers. The risk of cigarette smoking asbestos workers is greater than the sum of the risks of independent exposure.
    a. The risk of developing lung cancer in asbestos workers increases with the increasing number of cigarettes smoked per day and increasing cumulative asbestos exposure.
    b. The risk of developing lung cancer declines in asbestos workers who stop smoking; however, the risk of developing lung cancer appears to remain significantly elevated even 25 years after cessation of exposure.
    c. Cigarette smoking and asbestos exposure appear to have an independent and additive effect on lung function decline. Nonsmoking asbestos workers have decreased total lung capacities (restrictive disease). Cigarette-smoking asbestos workers develop both restrictive lung disease and chronic obstructive lung disease.
    d. Asbestos exposure is the predominant cause of interstitial fibrosis (asbestosis) in populations with substantial asbestos exposure.
    e. The promotion of smoking cessation should be an intrinsic part of efforts to control asbestos-related death and disability. For workers for whom asbestos

exposure has ceased, the single most important intervention that would alter their future disease risk is thecessation of cigarette smoking.

2. **Latency of Disease to Exposure**
    a. Asbestos related diseases typically develop 30-40 years after the beginning of exposure. Workers whohave been heavily exposed have shown symptoms within 5-10 years, but this is not typical.
3. **Personal Protective Equipment**
    a. Only asbestos abatement contractors who meet the PPE and respiratory protection rules shall be used. Contact theSupervisor for more details on the program requirements.

Medical Surveillance

There is no need for our employees to be part of an asbestos medical surveillance program but there is a requirement that the contractor's ensure that their employees are part of a comprehensive medical program.

Recordkeeping

Exposure Measurements *(records need to include):*

1. Date of measurements.
2. The operation was tested.
3. Sampling and analytical methods used.
4. Number, duration, and results of the samples.
5. Type of protective devices worn.
6. Name, social security number, and exposure of the employees whose exposures are represented.
7. The records need to be maintained for 30 years.
8. Where the records are stored.

Medical Surveillance:

The employer must ensure that the employees' medical records are maintained. The record needsto include:

1. Name and social security number.
2. Copy of the medical exams results.
3. Physician's written opinion.
4. Any employee medical complaints which relate to asbestosexposure.
5. Copy of information supplied to the physician
6. The records need to be maintained for the duration ofemployment plus 30 years.
7. Where and how the records will be securely stored.

Training Records: The training records need to be retained for one year beyond the last date of employment bythat employee. Records are to be made available to Oregon OSHA, affected employees, former employees, and designatedrepresentatives.

ERGONOMICS PROGRAM

Oregon OSHA's Ergonomic Information Page

Self-Insured and Group Self-Insured Loss Prevention Programs

This chapter has been implemented with the goal of strengthening our commitment to occupational injury prevention. The goal of ergonomics is to eliminate or reduce worker exposure to hazards or work conditions which lead to musculoskeletal disorders.

Musculoskeletal disorders are injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs.

Definitions

1. ***Ergonomics***: The science that addresses human performance and well-being in relation to job, tools, equipment, and environment. Two additional terms that are commonly used in conjunction with ergonomics:
2. ***Biomechanics***: The study of movement of body segments (fingers, hands, arms, back) to describe the abilities and limitations of the human body.
3. ***Anthropometry***: The analysis of dimensions and proportions of the human body in relation to workstation design, equipment, furniture and tools.

Ergonomic Assessment: Method used for identifying ergonomic issues in an employee's workstations or work activities.

Musculoskeletal Disorders (MSDs): Injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs. They do not include injuries resulting from slips, trips, falls, or similar accidents. Examples of MSDs include carpal tunnel syndrome, tendonitis, and low back pain.

Responsibilities

Management: It is the direct responsibility of management to ensure that evaluations of workplace design, layout, operation, and assistance with job site modifications utilizing an ergonomic approach are conducted. The primary records of the ergonomic surveys and findings will be maintained by the supervisor or manager of the group or department receiving the evaluation.

Employees: It is the responsibility of the employee to report any discomfort to their supervisor that they feel is being caused or aggravated by their workstation. Employees are also responsible for participating in the job hazard analysis or ergonomic assessments of their workstation to assist with eliminating or reducing hazards and issues that are causing or contributing to their discomfort.

Ergonomic Responder Training

Staff trained in ergonomic assessment are identified as Ergonomic Responders. They are trained to identify basic risk factors and provide recommendations to supervisors on how to improve employee workstations and work environments.

See: https://osha.oregon.gov/OSHAPubs/1863.pdf

citycounty insurance services
cisoregon.org

Workstation Ergonomic Evaluation
For Employee and Ergo Responder

Employee Name:	**Dept.:**	**Position:**	
Employer:	**Location:**	**Employer Contact Person:**	
Ergo Responder Evaluator:	**Phone:**	**Evaluation Date**	
		Employee:	**Ergo Responder:**
Purpose for Evaluation	○ New Hire ○ Workstation Change (New Equip or Duties) ○ Employee Request		

Concerns/Discomfort Experienced	**Percentage of Time by Job Task**			
	Keyboard Used:	0%	Mouse Used:	0%
	Time Writing:	0%	Reading from Copy:	0%
	Using Telephone:	0%	Input Documents:	0%
	10-Key Used	0%	Filing:	0%
	Stapling/Removing:	0%		
	Vision Correction:	0%		

Employee Name: Date:

Chair

Evaluation Points	Possible Solutions	Actions Taken/Date	
		Employee	Ergo Responder
Are shoulders relaxed and elbows approximately angled from 90° to 110° (not stretched forward or bent upward?) ○ Yes ○ No	Install an articulating (height & depth adjustable) keyboard/mouse tray or adjust chair height (if keyboard is on desktop) to achieve appropriate angles.		
Is curve of the lower back supported in chair? ○ Yes ○ No	Adjust or add lumbar support to chair to fit the lower curve of the back.		
Do feet rest firmly on floor or footrest? ○ Yes ○ No	Provide a footrest.		
Are hips and knees at comfortable angles when seated back in chair? ○ Yes ○ No	Adjust chair height, back tension, or tilt to achieve comfort in hips and knees. Sit back in chair to provide full support. Minimize sitting on chair's edge.		
Is there a fist distance of space between front of chair and back of knees when seated back fully? ○ Yes ○ No	If able, adjust seat pan depth. If seat pan is too deep, add a lumbar cushion to the back. If seat pan is too shallow, get a chair with a deeper seat.		
Does user perch toward front of chair? ○ Yes ○ No	Provide a footrest. Raising feet will force users back into the chair backrest.		
Is the seat pan adequately cushioned? ○ Yes ○ No	Add additional seat cushion or purchase new chair.		
Do thighs come in close contact with underside of desk or keyboard tray? ○ Yes ○ No	Remove obstructions that contact thighs, raise desk, or lower chair if able.		

Keyboard and Input Devices

Evaluation Points	Possible Solutions	Actions Taken/Date	
		Employee	Ergo Responder
Is user aligned in front of keyboard? ○ Yes ○ No	Align keyboard directly in front of user.		
Is mouse/input device at same level and close to keyboard? ○ Yes ○ No	Align mouse/input device on same level and as close as possible to minimize arm extension.		
Are wrists straight while keyboarding or using a mouse (not angled or drooping)? ○ Yes ○ No	Flatten keyboard tray angle. If helpful to guide wrists to a flat posture, use a gel-filled wrist/mouse support. Use good technique – float over the keys and use wrist support only during keying breaks. Do not deviate wrists side to side.		
Does mouse/input device fit user's hand? ○ Yes ○ No	Try out different sized/shaped devices.		
Is right hand tired from overuse? ○ Yes ○ No	Train left hand to use input devices.		
Are hard, sharp, or cold edges contacting arms, wrists, or elbows? ○ Yes ○ No	Cushion surfaces. Use wrist/mouse supports to prevent contact with body parts.		

Monitor

Evaluation Points	Possible Solutions	Actions Taken/Date	
		Employee	Ergo Responder
Is monitor an arm's distance away from user? ○ Yes ○ No	Position monitor 20 to 30 inches away from user.		
Is top of monitor screen at or slightly below eye level? ○ Yes ○ No	Position top of monitor no higher than eye level. *Bifocal wearers may need to lower monitor to desktop.*		
Is user aligned in front of monitor? ○ Yes ○ No	Align monitor directly in front of user.		
Are ears positioned over shoulders when looking at monitor (not bent up or down?) ○ Yes ○ No	Position top of monitor no higher than eye level. *Bifocal wearers may need to lower monitor to desktop.*		
Is screen free from any glare? ○ Yes ○ No	Position monitor parallel to windows, decrease overhead lighting, use window shades, tilt screen to a flat position, or use an anti-glare filter to reduce glare.		

General/Accessories

Evaluation Points	Possible Solutions	Actions Taken/Date	
		Employee	Ergo Responder
Is there adequate leg clearance under desk to stretch legs while seated? ○ Yes ○ No	Remove clutter from under desk.		
Are input documents positioned to minimize head movement? ○ Yes ○ No	Use a document holder that is aligned under monitor or is next to and near the same level as monitor.		
Are frequently used work tools within easy reach of user? ○ Yes ○ No	Move frequently used items (phone, calculator, etc.) within easy reach to avoid over-reaching strains.		
Are tasks and postures shifted throughout the workday? ○ Yes ○ No	Alternate tasks and postures as a part of daily work plans. Give hands periodic rest breaks when keyboarding or using the mouse.		
Are head and neck aligned when using the phone? ○ Yes ○ No	Hold receiver upright when using the phone, use speakerphone, or telephone headset. *Determine the need for a telephone headset by user's average call frequency, duration, or whether multiple tasks are being performed while using the phone.*		

Final Recommendations

CRANES, DERRICKS, AND HOIST OPERATIONS

OAR 437, Division 2, Subdivision N

The Crane, Derrick, and Hoist safety policy and procedures aredesigned to protect employees from potential hazards that can

Definitions

Authorized Employee (Designated personnel): Employees who have been designated by management to operate a crane in their work area. They will be trained and super- vised in proper operation and trouble shooting.

Crane: A machine for lifting and lowering a load and moving it horizontally, with the hoisting mechanism an integral part of
the machine. Cranes, whether fixed or mobile, are driven manually or by power.

Derrick: An apparatus consisting of a mast or equivalent, heldat the head by guys or braces (with or without a boom), for use with a hoisting mechanism and operating ropes.

Hoist Motion: The motion of a crane that raises and lowers aload.

Preventive Maintenance: The regularly required maintenance checks (required by Oregon OSHA rules) and recommended manufacturer's preventive maintenance
Overhead crane: A crane with a movable bridge carrying a movable or fixed hoisting mechanism and traveling on an overhead fixed runway structure.

General Responsibilities

Only authorized employees are permitted to use any crane devices. If cranes of 5 tons or greater are used in construction activities, only licensed employees who have proof of certification by an identification card are permitted to operate the crane(s). All employees are required to follow the safeguards inthis chapter.

Manager: It is the responsibility of the department manager toensure that all employees who are permitted to operate a crane are trained and authorized for the equipment he/she is using. The manager is also responsible for ensuring that the required safety audits and preventive maintenance are completed in anappropriate and timely manner.

Authorized Operator: The operator will immediately report to the supervisor any unsafe conditions of equipment and will not use it until it is repaired.

Licensed Construction Crane Operator: The licensed construction crane operator must meet OAR 437-002-0228(2) [*Oregon General Requirements for Cranes* (Division 2: General Occupational Safety and Health Rules)] or 437-03-0081

[*Crane Operator Safety Training Requirements* (Division 3:Construction)] requirements.

Supervisor: The supervisor must include crane safety aspart of their safety audit functions.

Inspections

A crane in an unsafe working condition will not be used under any circumstances. All cranes and hoists will be thoroughly inspected annually by a competent person. Review of the crane's manual should occur during this time. Annual maintenance inspections should be documented as

well as monthly inspections, including results, by the supervisor. Issues should be addressed as soon as possible and prior to the next use of the crane. Cranes that are used around corrosives, water, etc. may need to be inspected more frequently.

The inspections include but are not limited to the following requirements (as required by Oregon OSHA rules):

1. A competent person to inspect all the crane equipment frequently prior to use and - during use to make sure it is in safe operating condition.
2. The frequency of inspections varies from daily to monthly depending on the type of crane and use conditions.
3. The operator will immediately report to the supervisor any unsafe conditions of equipment and will not use the crane again until it is repaired.
4. No unauthorized person will repair any electrical or mechanical lifting equipment.
5. The following inspection schedule will be implemented by the supervisor or a designated "Competent Person(s)" who will upon examination determine if deficiencies constitute a safety hazard**:**

Daily Inspection (no written records required):

1. All functional operating mechanisms which may interfere with the proper operation and for signs of excessive wear.
2. Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.
3. Visual inspection of the hooks for deformation or cracks.
4. Visual inspection of hoist, load attachment chains, and slings for excessive wear, twist, distorted links interfering with proper function or stretch beyond manufacturer's recommendations.

Monthly Inspections:

1. Electrical apparatus, for signs of pitting or any deterioration of controller contactors, limit switches and push button stations.
2. Gasoline, diesel, electric, or other powerplants for improper performance or noncompliance with applicable safety requirements.
3. Load, wind, and other indicators over their full range, for
4. any significant inaccuracies.
5. Operating controls clearly identified
6. Fire extinguisher charged and unused
7. Rated capacity visibly marked on the crane
8. Boom stops on cranes with booms that could fall backwards
9. Load chart clearly visible to the operator
10. Electrically operated cranes effectively grounded
11. Deformed, cracked, or corroded members.
12. Loose bolts or rivets
13. Cracked or worn sheaves and drums
14. Worn, cracked or distorted pins, bearings, shafts, gears, rollers, locking and clamping devices.
15. Excessive wear on brake system parts, linings, pawls, and ratchets.
16. Excessive wear of chain drive sprockets and excessive chain stretch.
17. Visual inspection of the hooks for deformation or cracks.
18. Visual inspection of hoist and load attachment chains, and slings.

19. Detailed findings on an inspection report.
20. Any defects found need to be immediately corrected.
21. A record of all monthly inspections, dates, and results will be kept in the supervisor's office or in the equipment maintenance log.

Annual Inspection

1. A thorough annual inspection of all cranes will be done by a competent person.
2. A record of the annual inspections, dates and results will be kept by the supervisor.

Procedures

1. Cranes, derricks, and hoists will be operated by authorized personnel only in accordance with the manufacturer's specifications and limitations. Any trainee learning to use lifting equipment must be under the direct supervision of an authorized operator.
    a. ***Note***: 5-ton cranes used in construction activities have additional requirements not covered in this section. (See Division 3 Construction.)
2. Operation of Cranes and Derricks requires proper employee training which meets the requirements of 437-002-0228(2) Crane Operator Training Requirements.
3. The employer will establish written procedures for the safe operation of all cranes.
4. The employer will see that employees who operate cranes or derricks are properly trained, have sufficient practical experience, and follow the operating procedures for the safe operation of the crane or derrick.
5. The level of the training and experience determined by the employer as meeting section (2) above will be recorded in writing.
6. The manufacturer's rated load capacity will be conspicuously posted on all cranes and hoists.
7. The limit switch will never be used as an operating control.
8. If the power goes off while an electric crane is being operated, make sure to turn off all switches or operating buttons.
9. Before hoisting work begins, consideration must be given to the fact that stress is greatly increased if the leg of a hoisting chain, cable, or rope is rigged at an angle of less than 90 degrees. Avoid angles of less than 45 degrees. Angles less than 30 degrees will not be permitted.
10. The loads lifted should not exceed the maximum capacity of the crane or hoist and its lifting attachments. Side pull is prohibited. The load must be directly in line with the mast or boom.
11. No person will ride a load or hook.
12. Two or more separately rigged loads will not be hoisted at one time.
13. The person operating the crane is responsible for the load. Receiving signals or instructions will come from one authorized employee only.
14. The operator will always have a clear view of work and equipment.
15. The load will be attached to the crane by slings or by other approved devices.
16. Deformed or defective hooks, rings, or other lifting equipment links will not be used.
17. Hooks will be taken out of service when any of the following conditions exist:
    a. The hook has more than 10° twist from the plane of the unbent hook.
    b. The hook has more than 15% more than normal throat opening.
    c. The hook has cracks.
18. Wire rope cables that appear to be cut, frayed, kinked, or rusted will not be used.
    a. Wire rope will receive emphasis during daily, monthly and annual inspections.

19. Wire rope will be taken out of service when any one of the following conditions exist: In running ropes, 6 randomly distributed broken wires in 1 layer or 3 wires broken in 1 strand in 1 layer.
    a. Wear of 1/3 the original diameter of outside individual wires. Kinking, crushing, bird-caging, or other damage resulting in distortion of the ropes structure.
    b. Evidence of any heat damage from any cause.
    c. Reduction from nominal diameter of more than 1/64" from diameters up to and including 5/16"; 1/32" for diameters 3/8" to and including 1/2"; 3/64" for diameters 9/16" and including 3/4"; 1/16" for diameters 7/8" to 1 1/8" inclusive; 3/32" for diameters 1 1/4" to 1 1/2" inclusive.
20. Standing ropes will be taken out of service if any of the following conditions exist:
    a. More than 2 broken wires in 1 lay in sections beyond end connections or more than one broken wire at an end connection.
    b. Any rigging rope has 1 or more broken wires near an
    c. attached fitting.
21. Corroded, damaged or improperly applied end connections.
22. Knots will not be used to shorten nylon or wire rope slings.
23. Chain links of a hoist will not be secured by a nut and bolt, nails, pins or other means not recommended by the manufacturer.
24. Chain slings lifting equipment should not be subjected to sudden shock by twisting, snapping or jerking into place.
25. The working line of the hoist will not be wrapped around the load.
26. Rope clips will be installed and used according to the safety codes found in 437-002-0228(9)(f)(h): see table below. When used for eye splices, the U-bolt will be applied so that the "U" section is in contact with the dead end of the rope.

Use this table to determine the number and spacing of U-bolt wire clips.

Number And Spacing Of U-Bolt Wire Clips			
	Number of Clips		
Improved Plow Steel Rope Diameter Inches	Drop Forged	Other Material	Minimum Spacing (Inches)
1/2	3	4	3
5/8	3	4	3 3/4
3/4	4	5	4 1/2
7/8	4	5	5 1/4
1	5	6	6
1 1/8	6	6	6 3/4
1 1/4	6	7	7 1/2
1 3/8	7	7	8 1/4
1 1/2	7	8	9

1. Before a load is lifted, it will be inspected for loose parts or objects.
2. The safety latch on the hook of a hoist will be secured in every instance when lifting or moving a load.
3. The operator will see that the load is secure and properly balanced before it is lifted more than a few inches off the ground, floor, or support.

4. The operator will test the brake each time a load is lifted by raising the load a few inches and applying the brake.
5. Care will be taken to see that the equipment with which the load is lifted is not kinked or caught against obstructions while moving the load upward and that the load does not hit any obstructions.
6. Lifting equipment must not drag under a load.
7. The operator must refrain from getting between the load and a solid surface, to avoid being pinned or caught by a falling or moving load.
8. Do not grab the cable as it is being pulled through the sheave wheels.
9. Employees must stand clear of all suspended loads.
10. A loaded crane should never be left over machinery.
11. Suspended loads will not be left unattended.
12. When lowering a load, the operator will proceed carefully, making sure that he/she has always it under safe control.
13. Lifting hooks and fastenings will not be removed until material is at rest in a stable position or safely secured by other fastenings.
14. Before moving a crane on which an empty sling is hanging, the operator must secure the bottom ends of the sling to the block, hook, or sling ring.
15. When moving a crane make sure the hook and/or the load will clear all obstacles.

Crane Operator Inspection Checklist (Fixed Facilities Crane)

Crane:_____Date:_____

Operator:_____Daily Inspection_____Monthly Inspection_____

Complete a visual inspection of conditions listed below. Mark each item with a N (No) if there is no defect or Y (Yes) if a defect is identified.
Communicate to your supervisor if any conditions are found and note the details (use back of form if need more space).

	Condition	Yes	No	If yes, details of identified condition
1	Bearings: Loose, worn			
2	Brakes: shoe wear			
3	Bridge: alignment out of true (indicated by screeching or squealing of wheels)			
4	Bumpers on bridge: loose, missing, improper placement			
5	Collector shoes or bars: worn, pitted loose, broken			
6	Couplings: loose, worn			
7	Drum: rough edges on cable grooves			
8	End stops on trolley: loose, missing improper placement			
9	Gears: lack of lubrication or foreign material in the gear teeth			
10	Guards: bent, broken, lost			
11	Hosting cable: broken wires, kinked or twisted			
12	Hook Block: chipped sheave wheels			
13	Hooks: straightening (note when permanent set of hook is greater than 15% in excess of normal throat opening, the hook will be replaced.)			
14	Lights (if installed) are functional			
15	Limit switch: functioning improperly			
16	Lubrication: overflowing on rails, dirty cups			
17	Mechanical parts (rivets, covers, etc.) loose			
18	Overload relay: frequent tripping of power			
19	Rails (trolley or runway): broken, chipped, cracked			
20	Wheels: worn (indicated by bumpy riding)			
21	Electric control buttons are functioning improperly and/or not clearly marked as to direction of travel			
22	Functional operating mechanism: excessive wear of functional operating mechanisms			
23	Functional operating mechanism: deterioration of parts			
24	Functional operating mechanism: non-compliant hooks			
25	Functional operating mechanism: Hoist and load attachment chain: wires and slings for signs of wear or deterioration			

NOTE: The information on the Crane Inspection Source, Accident Prevention Manual for Industrial Operations, 8th Edition, National Safety Council, 1986.
***Use Reverse For Additional Comments*

CONTRACTOR SAFETY AND HEALTH HAZARD CONTROL NOTIFICATION POLICY

Oregon OSHA regulations require notification of outside contractors regarding safety programs for Hazard Communication, Asbestos, Hazardous Waste, Hazardous Energy Control and Confined Space. In addition to these basic requirements all outside contractors performing work in our buildings or facility will be notified of the basic Emergency Action Plan and safety rules.

Contractors who are hired to perform maintenance work involving the need to control hazardous energy or enter con- fined spaces will be informed of the programs and the associated hazards of which the plant services staff is aware**.** The notification is not designed to take over the contractor's safety responsibilities to his or her employees, but rather to provide appropriate notification under the Oregon OSHA rules.

Appendix 1, page 20.5, provides the contractor notification information including: notification checklists for the over- all safety rules, control of hazardous energy, and confined space entry, asbestos, and hazardous waste. Managers that are responsible for the outside contract will ensure that this
material is provided to the contractor and a signed statement is completed by the contractor. Safety and occupational health questions should be directed to the department/project manager.

Responsibilities

Department or Project Managers: The Department or Project Manager generally has the overall responsibility for construction and electrical contractors. It is the Department or Project Manager's responsibility to review the Safety Manual and obtain signed statements from the contractor representatives. If there is any joint work done between the contractor and our employees, it is the manager's responsibility to see that proper Energy Control Procedures are carried out. The Department or Project Manager is responsible for keeping a contractor's file and if the same contractors are used for an on-going period, the notification will be updated on an annual basis.

1. The contractor file should note the following:
    a. Ensures that they receive our safety policies and any updates.
    b. Specific safety questions are responded to.
    c. Audits the Contractor Notification system.
    d. Assists in ensuring that contractors follow our polices and do not endanger our employees.

The contractor notification process flow:

1. The Department or Project Manager is to determine the scope of contractor work and prepare an adequate contract or purchase order for the services.
2. Select the contractor and provide the scope of work and the applicable chapters of the Safety Manual.
3. The Department or Project Manager reviews the applicable chapters of he Safety Manual. This will ensure that the contractor and employees acknowledge the information and sign the acknowledgment letter.
4. A copy of the acknowledgment letter is provided to the contractor and a copy is retained in the contractor's file.

5. The Department or Project Manager is responsible for conducting periodic follow-up with the contractor representative to ensure the safety of our employees and that the contractor is operating in a safe manner

Specific Program Review

Each applicable Oregon OSHA program must be reviewed by the contractor prior to performing work.

Informing Contractors of Hazard Communication Program

When outside contractors perform work in our facilities, the Department or Project Manager will ensure that the contractors' management representative is informed of any hazardous chemicals and needed controls.

The following methods will be used to inform outside contractors of the potential chemical hazards in their work areas:

1. Hazardous chemicals to which they may be exposed while on the job site.
2. Precautions the employees may take to lessen the possibility of exposure.
3. Location of Safety Data Sheets (SDS) for chemicals to which they are potentially exposed.
4. Temporary Service employees will be trained in the same manner as permanent employees.
5. If additional information is needed, the Department or Project Manager should be contacted for assistance.
6. The contractor will be provided with the applicable chapters of the Safety Manual. The acknowledgment form is to be signed by the Contractor's representative. A copy of the signed checklist is to be kept by the Department or Project Manager and kept as part of the contract file. (See Appendix 1, page 233)
7. If the contractor is bringing in hazardous materials, then the Department or Project Manager will ensure that the contractor has all the pertinent SDS at the job site.

Asbestos Material Notification

When outside contractors perform building renovations or remodeling where asbestos building materials may be present, the department or project manager will ensure that the contractors management representative is informed of the presence of asbestos building materials. This will include ensuring that an assessment is done to determine if an asbestos abatement project must be done first.

The following methods will be used to inform outside contractors of the presence of asbestos containing building materials:

1. The Department or Project Manager will ensure that the contract manager is informed of the planned work.
2. The Department or Project Manager will review the plans with the contractor to determine the scope of the work and assess the potential for contact with asbestos containing materials.
3. If asbestos materials are disturbed or need to be removed, the Department or Project Manager will arrange for a licensed asbestos abatement contractor to perform the work prior to the other contracting operation.
4. The Department or Project Manager will audit the asbestos abatement project work to ensure that the project is done safely and per Oregon OSHA rules.

5. The asbestos abatement contractor will also be provided with the applicable chapters of the Safety Manual and notification of pertinent hazard informational checklists which will be signed by the Contractor's representative. A copy of the signed checklist is to be kept by the Department or Project Manager as part of the contract file. (See Appendix 1, page 233)

Hazardous Waste Notification

When outside contractors perform work involving the removal and disposal of hazardous waste, the Department or Project Manager is responsible for crew and process safety. The procedures used are to meet DEQ/EPA requirements.

The following methods will be used to inform outside contractors of the potential chemical hazards in their work areas:

1. The Department or Project Manager will only contract with licensed Hazardous Waste haulers and dispose of materials only in permitted methods.
2. The Department or Project Manager will ensure that the hazardous waste contractor's employees are trained in the required DEQ and Oregon OSHA programs and are informed as to the materials that are being collected, hauled and disposed of.
3. The Department or Project Manager will ensure that all the proper DEQ/EPA and DOT paperwork is prepared and available for all the parties involved as required.
4. The contractor will be provided with the applicable chapters of the Safety Manual and notification of pertinent hazard information checklists that need to be signed by the Contractor's representative. A copy of the signed checklist is to be kept by the Department or Project Manager and kept as part of the contract file. (See Appendix 1, page 233)

Informing Outside Contractors of the Hazardous Energy Control Program

1. When outside contractors are hired to work on machines and equipment, their activities may require that hazardous energy be controlled. As a result, a copy of our procedures will be given to that contractor and a mutually agreed upon procedure established concerning the lockout/tagout devices that will be used to protect employees and the contractor's workers. This coordination will help to ensure that all our employees know what kind of work is to be performed, where and when it is to be performed, as well as how they are being protected.
2. The Department or Project Manager will identify the energy isolating devices for the contractor, as necessary. The contractor's employees will be responsible for locking out all devices capable of locking or placing an energy control tag on or as near the device as possible.
3. A copy of the contractor notification letter and hazard information will be provided to the contractor and a signed copy returned to our department or Project Manager and kept as part of the contract file. (See Appendix 1, page 233)

Informing Outside Contractors of the Confined Space Plan and Space Hazards

If a contractor is hired to perform confined space entry work, the Department or Project Manager will see that the contractor's management representative is notified of our Confined

Space Policy and the known hazards associated with space. This notification is to ensure that the company complies with rule 1910.146 (c) (8) of the Confined Space regulations and OR-OSHA Confined Space regulations, OAR 437-002-0146. If we contract for confined space entry work as the host employer, the Department or Project Manager is responsible to:

1. Inform the contractor that a permit required space is involved in the work. This includes information about any chemicals in the space per Hazard Communication requirements.
2. Apprise the contractor of the hazards our organization has identified, and any experience employees have had with the space.
3. Apprise the contractor of any precautions our employees have taken for entry into or near spaces where the work will be performed.
4. Coordinate entry operations with the contractor if more than one contractor or if our employees will also be working in or near the same permit spaces.
5. Debrief the contractor to determine precautions and procedures that were followed and any hazards that were present or that developed during entry operations.
6. A copy of the contractor notification letter and hazard information will be provided to the contractor and a signed copy will be returned to our department or Project Manager and kept as part of the contract file. (See Appendix 1, page 233)

Hot Work: Welding Permission System

When outside contractors are hired and their work involves welding, it is the Department or Project Manager's responsibly to see that the contractor uses a hot work permit process to ensure that all fire hazards are controlled. The hot work permit is required to be done by the contractor and made available to our department or Project Manager. The permit will not be required if the welding is done in a welding shop area.

The Department or Project Manager will provide the contractor with the basic form required by our organization. If the contractor has his/her own hot work permit system, it can be used if it is complete and available.

Safety For Contractors

The following document is provided as a sample for outside contractors**.** Pertinent information is to be reviewed by the Department or Project Manager (or designer) and signed statement(s) from the contractor representative are to be obtained. Send or provide a copy of the signed statement to the Department or
Project Manager and retain a copy in the contractor's file.

For contractors who are used regularly, an annual updated copy and review must be completed and documented.

Contractor Safety Notification: Safety Rules for Contractors Working

All contractors and their employees are required to review the Safety Manual**.** The contractor representative is to sign the acknowledgment letter that he/she and their employees have reviewed the appropriate materials. The information that must be reviewed includes:

Basic Safety Rules	Yes	No
Hazardous Material Deliveries	Yes	No
Confined Space Entry	Yes	No
Tools & Personal Protection	Yes	No
Equipment Lockout (Control of Hazardous Energy)	Yes	No
Emergency Action & Fire Prevention	Yes	No
Chemical Hazard Communication	Yes	No
Asbestos Material Removal Program	Yes	No
Hazardous Waste Storage and Disposal Program	Yes	No

Contractor Acknowledge Sign-off Letters:

General Acknowledgment Letter	Yes	No
Confined Space Checklist	Yes	No
Equipment Lockout Checklist	Yes	No
Asbestos Removal Program Checklist	Yes	No
Hazardous Waste Program Checklist	Yes	No
Lead Materials Removal	Yes	No

***Note:** This document does not list all potential or existing hazards or rule compliance issues, but is intended to provide overall safety control issues that contractors and their employees are required to follow. This guide does not anticipate all problems nor identify all possible solutions. Each contractor remains responsible for the safety and health of his/her employees and must be vigilant in identifying and correcting hazards and reporting any problems or accidents/near misses to the Department or Project Manager.*

Contractor General Safety Notification Sign-Off

It is our goal to provide a safe and healthy work environment for employees and ensure proper hazard notification to our contractors. As a result, each contractor has been provided with the applicable chapters of the Safety Manual. The general safety issues have been reviewed with you as the contractor's representative by the Department or Project Manager. This includes a discussion of general safety rules,

a review of the emergency action plan and evacuation plan, lockout/tagout, hazard communication, presence of asbestos or lead containing materials, and confined space entry, as applicable to the project.

The Safety Manual materials must be read and understood by your employees before they begin work at our facility. Additional information will be provided by the Department or Project Managers as needed. Please have all your employees that will be working at our facility read the appropriate material.

Name of Contractor:		Date:
Signature of the Contractor's Representative:		
Additional hazard notification issues are attached as appropriate for:		
1	Emergency Action Plan	
2	Confined Space Information	
3	Specific Lockout/Tagout Procedures	
4	Hazardous Waste Information	
5	Presence of Asbestos Materials	
6	Presence of Lead Building Materials	
7	Presence of Hazardous Chemicals	

Contractor Notification Form

The contractor notification will be done by the Project Manager or Department Manager. If we contract for confined space entry work as the host employer, we are responsible to:

1. Inform the contractor that a permit required space is involved in the work. This includes information about any chemicals in the space per Hazard Communication requirements.
2. Apprise the contractor of the hazards that have been identified and any experience our employees have had with space.
3. Apprise the contractor of any precautions our employees have taken for entry. The contractor must provide our supervisor with a copy of the contractor's confined space program.
4. Coordinate entry operations with the contractor if more than one contractor or if our employees will also be entering the space.
5. Debrief the contractor to determine if any problems were encountered requiring changes in procedures.

Contractor Confined Space Notification Checklist

Project Manager:	Date:
Contractor Representative:	
Location of the Space:	
The following information outlines the basic features and safety control issues we are aware of. There may be other hazards or conditions created by the Contractor.	
Checklist of Safeguards · Hazards and Recommended Safeguards	
Isolation:	
1. Electrical	
2. Mechanical	
3. Other	
Hazardous Work:	
1. Welding/Burning/Open Flame	
2. Electrical Work	
3. Chemicals	
Special Requirements	
1. Lock-outs	
2. Lines Disconnected	
3. Vessel/Tank Purge: Flush & Vent	
4. Ventilation	
5. Secure Area	
6. Lighting	
7. Communication	
8. Fire Extinguishers	
9. Emergency Egress Procedures	
10. Other	
Personal Protective Equipment Needed	
1. Harness & Life Line	
2. Respirator	
3. Eye Protection	
4. Hearing Protection	
5. Protective Clothing	
Atmosphere Tests:	
List type of air testing that would be necessary:	
Copy of the contractor's Energy Control Plan Reviewed? ☐ Yes ☐ No	
Copy of the contractor's Confined Space Entry Policy Reviewed? ☐ Yes ☐ No	

Contractor's Emergency Response Information Needed:

Phone Number of Nearest Telephone:	Location of Nearest Telephone:
Name of First Aid Person	Location of Nearest First Aid Kit:
Emergency Rescue Plan:	
Post Entry Debriefing Notes:	

Contractor Energy Control Notification Checklist

Department or Project Manager:	Date:
Contractor Representative:	Date:
Scope of work requiring energy control:	
Copy of the contractor's energy control plan reviewed? ☐ Yes ☐ No	

Asbestos Abatement Contractor Checklist and Sign-Off Form

The locations of asbestos containing materials have been reviewed by the Contractor's Department or Project Manager and specific scope of the work is enclosed. All asbestos removal will meet DEQ and Oregon OSHA requirements. We may audit the work operations and can require changes to the procedures if the operations do not meet the DEQ or Oregon OSHA requirements.

Oregon OSHA: OAR Division 3 (Construction), Subdivision Z (1926.1101)

DEQ: requires special handling of non-friable asbestos-containing materials. Asbestos Disposal Requirements DEQ: Chapter 340 Division 25 (13)

Contractor Name	Date

Name and Signature of Employee(s) and DEQ Certification Training Number and Date

Employee Name	Employee Signature	DEQ Certification Training Number	Date

Hazardous Materials: Solid Waste Storage and Disposal Contractor Notification Checklist

The locations and types of hazardous materials that will be collected, transported and disposed of have been reviewed. All appropriate generator documents have been provided and hazardous waste determinations have been done. All Oregon OSHA, DEQ/EPA and DOT applicable rules will be followed by the contractor and employees. The Department or Project Manager may audit the contractor's procedures and can require changes if the contractor is not complying with appropriate hazardous materials-waste regulations.

Please provide a list of contractor names that will be on the job and their DEQ, OR-OSHA and DOT Hazardous Materials Training Level.

Name of Contractor	Date	DEQ/OSHA/DOT Hazardous Materials Training Level

Lead Abatement Contractor Notification Checklist

The locations of lead containing materials have been reviewed by the Department or Project Managerand are listed below. The contractor understands that they must follow OR-OSHA Lead Standard requirements in Construction Standard on Lead Abatement OAR 437, Division 3 (Construction), Subdivision D (1926.61). This may include provisions for regulated areas. Disposal of lead containingmaterials will meet Oregon DEQ requirements as applicable.

Please provide a list of contractor names that will be on the job and their DEQ, Oregon OSHA and DOTHazardous Materials Training Level.

Name of Contractor	Date	Lead Abatement Training Level

FORKLIFT SAFETY

OAR 437, Division 2, Subdivision N (1910.178 & 437-002-0227)

This Forklift/Industrial Vehicle Safety Policy is designed to help ensure that our employees are protected from unsafe conditions and operations that potentially can occur in the use of industrial vehicles. In addition, this program is to ensure compliance with Oregon OSHA regulations dealing with the use of industrial vehicles.

Only trained and authorized employees are permitted to drive or operate industrial vehicles. Operators are required to follow procedures in this chapter and manufacturer recommendations on vehicle usage and safety. All vehicles are to be maintained in safe operating conditions.

General Responsibilities

Management: Managers and supervisors are responsible for ensuring that only trained employees are authorized to operate industrial vehicles. Management is required to see that adequate maintenance services are provided and used to ensure safe vehicle operating conditions.

Supervisor: The supervisor is responsible for maintaining training records and/or copies of licenses or certifications which demonstrate employee training. Supervisors will provide employee training and audit operations for compliance with this chapter and Oregon OSHA regulations.

Authorized Operators: Employees who are authorized to operate industrial vehicles must follow all safety procedures as outlined in this chapter, by Oregon OSHA rules and manufacturer's recommendations. Employees are required to complete daily operating safety checks and ensure all unsafe equipment is taken out of service and repaired prior to use. All vehicle operators will immediately report any accidents to their supervisor.

Safety Procedures

Authorized Operators

Authorized Operators will be trained and approved by their supervisor to operate various types of industrial vehicles. The training will consist of:

1. Instruction in proper inspection and safe operating procedures as outlined in this program.
2. A hands-on demonstration by an authorized driver, super-visor or competent outside trainer.
3. A written examination on the inspection and safe operating procedures.
4. This training will occur upon initial assignment, annually, or whenever the supervisor sees a need for reorientation.
5. Only authorized personnel will operate forklift trucks.

Inspections and Fueling

1. Before the start of each shift, at least daily, a visual inspection must be made to assess the forklift's working condition to ensure safe operations. Inspections should occur after each shift if forklifts are used around-the-clock. Inspection items include:

a. Condition of the tires
b. If pneumatic tires, check inflation pressure
c. Warning and safety devices
d. Lights
e. Battery
f. Controls
g. Lift and tilt systems
h. Load-engaging means
i. Chains and cables
j. Limit switches
k. Brakes
l. Steering mechanism
m. Fuel system(s)
n. Additional items, attachments, or special equipment as specified by the user and/or manufacturer

2. If at any time the forklift is found to need repair, defective, or in any way unsafe, it will be taken out of service until it has been restored to safe operating condition. Immediately report any defects to your supervisor and/or maintenance for correction. The vehicle will be out of service until proper repairs can be made.
3. The operator will not operate an unsafe forklift or other industrial vehicles at any time.
4. Operators will not make any repairs or adjustments on any vehicle unless they are trained and authorized personnel.
5. For electric powered vehicles, battery charging will be done only in a well-ventilated area. No smoking or open flame are permitted in battery charging areas.
6. Only authorized personnel will do fueling. Fuel tanks will not be filled when the engine is running. It is important to avoid spillage of fuel. If spillage occurs, ensure fuel is carefully washed away or is evaporated and fuel cap tank replaced before restarting engine.
7. Do not operate the truck if there is a leak in the fuel system until the leak has been fixed.

Determining Load Capacity

1. Operators will not exceed the safe load capacity of a vehicle at any time. Double-tiered loads will not be handled unless the vehicle is designed to accommodate the load.
2. The load capacity is shown on the "Forklift Nameplate".
3. Only stable or safely arranged loads will be handled. Caution will be exercised when handling off-center loads which cannot be centered.
4. The load center is determined by the center of gravity and is defined as the horizontal distance from the load's edge (or the forks or other attachment's vertical face) to the line of action through the load's center of gravity. The line of action is an imaginary vertical line through an object's center of gravity.
5. The center of gravity is the point on an object at which all the object's weight is concentrated. For symmetrical loads, the center of gravity is the middle of the load. A lift truck's center of gravity moves because it has moving parts. The center of gravity moves forward and back as the upright is tilted forward and back. The center of gravity moves up and down as the upright moves up and down. Factors in deter-mining the center of gravity include:
    a. Size of the load
    b. Weight of the load
    c. Shape of the load

   d. Position of the load
   e. Lift height
   f. Amount of tilt
   g. Tire pressure
   h. Dynamic forces created when the truck is moving(acceleration, braking, turning, and operating onuneven surfaces or incline)
6. Operators will not counterweight a forklift to increase lifting capacity. Instead, the load will be broken down or aforklift with a higher rating will be used.

General Operating Safety Rules

1. The operator must always be in control of the forklift steering.
2. No person will ride as a passenger on a forklift or forks oron the load being carried.
3. A forklift will not be used to elevate a platform or pallet with people on it, except work platforms specifically designed for this purpose. Work platforms must have standard guardrails and must be securely fastened to the forks. In addition:
   a. The hydraulic system will be so designed that the lift mechanism will not drop faster than 135 feet per minute in the event of a failure in any part of the system.
   b. An operator will stay in attendance at the forklift whileworkers are on the platform.
   c. The operator will be in the normal operating positionwhile raising or lowering the platform.
   d. The vehicle will not travel from point to point with thework platform elevated at a height greater than 4 feet while workers are on the platform. When necessary, at heights greater than 4 feet, inching may be permitted provided it is done at a very slow speed.
   e. The area between workers on the platform and the mast will be guarded to prevent contact with chains orother shear points.
4. Operators will not put their fingers, arms, or legs betweenthe uprights of the mast, or beyond the contour of the forklift.
5. Operators will look in the direction of travel.
6. Operators must avoid making jerky starts, quick turns, or sudden stops. Travel slowly when turning. Lift trucks can tip over even at very slow speeds. The combination of speedand sharpness of a turn can cause a tip over.
7. A lift truck is less stable when the forks are elevated, with or without a load. In fact, the lift truck will tip overmore easily when empty than when loaded with the load lowered.
8. If the lift truck tips over:
   a. Do not jump off!
   b. Hold firmly to the steering wheel; brace yourfeet and lean forward and away from the point of impact.
   c. The operator will not use reverse as a brake.

Traveling

1. Forklifts will be driven on the right side of the aisle way/roadway.
2. Operators will cross railroad tracks diagonally whenever possible. Parking closer than 8 feet from the center of rail-road tracks is prohibited.
3. All vehicles will be operated at a safe speed with due regard for traffic and conditions. Maximum allowed speeds:
   a. Inside buildings: 5 mph
   b. Outside buildings and not in work areas: 7 mph

    c. On roads outside: 10 mph
4. Operators will slow down on wet and slippery surfaces.
5. Operators will slow down at crosswalks and locations where vision is obstructed.
6. Operators entering a building or nearing a blind corner will make their approach at a reduced speed, sound horn, and proceed carefully. (Exception: blind corners equipped with mirrors providing a full view in all directions.)
7. Operators will give pedestrians the right-of-way always. The right of way will be yielded to ambulances, fire trucks, or other vehicles in emergency situations.
8. Operators will not drive toward any person who is in front of a fixed object or wall.
9. Operators will not overtake and pass another forklift traveling in the same direction at intersections, blind spots, or hazardous locations.
10. No person will stand or walk under elevated forks or any load.
11. Grades will be ascended or descended slowly.
    a. When ascending or descending grades are more than 10 percent, loaded trucks will be driven with the load upgrade.
    b. On all grades, the load and load engaging means will be tilted back if applicable and raised only as far as necessary to clear the road surface.
12. When a forklift is not carrying a load, the operator will travel with the forks low.
13. The load will be carried as low as possible (consistent with safe operations, 2 to 6 inches above the surface).
14. Forks will be placed under the load as far as possible.
15. Generally, do not lift a load with one fork.
16. No load will be moved unless it is safe and secure. To maintain balance, the load should be centered, and the forks properly spaced near the outside edges. Before traveling, the load will be tilted back until it rests securely. A load backrest will be used to prevent spilling of the load.
17. The position for each fork is the same distance from the center of the carriage. Set forks as far apart as possible for maximum support of the load. Center the weight of the load between the forks. Otherwise, the load may fall off the forks when you turn a corner or hit a bump.
18. The operator's view should not be obstructed by the load. In the event of a high and/or wide load, the forklift will be driven backward in low gear.
19. Operators need to watch overhead clearance. All vehicles operated in areas where overhead hazards exist will be equipped with an approved overhead guard.
20. Bridge plates will be properly in place and secured. Wheels of trucks and railroad cars will be blocked to pre-vent movement during loading.
21. Forklift drivers will come to a complete stop before reversing the direction of travel.
22. Unstable loads will be restacked or banded. Use extra care when handling long lengths of pipe, or other materials.
23. Avoid sharp or fast end-swing. Lift trucks are designed to work in relatively small space. Because of this, they can turn sharper than some other vehicles. When the truck is steered by the rear wheels, the rear of the truck moves to the side during a turn. This movement is called "tail swing". An operator must be aware of the tail swing and always check to make sure the tail swing area is clear before turning. Failure to observe the tail swing area when making a turn can cause injury or kill someone.
24. Hazardous materials will not be moved unless they are in approved containers.
25. Compressed gas cylinders will be moved only in special pallets designed for this purpose.
26. When unloading trucks or trailers, the brakes on the vehicle will be set (locked) and the wheels chocked.

27. The flooring of trucks, trailers, and railroad cars will be checked for breaks and weakness. Powered industrial trucks will not be driven onto flooring that is found to be of inadequate strength.
28. Operators will never attempt to turn sideways on an incline. Do not run on an incline to reduce the possibility of a tip over; a lift truck must not be driven across an incline.
29. All vehicles will be equipped with audible warning signals, and where practical, will have spark arrestors.
30. All vehicles operated at night in dark buildings or in poorly lit areas will be equipped with head and taillights.
31. Vehicle flywheels, gears, sprockets, chains, shear points and other exposed parts constituting a hazard to the operator, or other employees will be guarded.
32. Vehicles powered by internal combustion engines will not operate in buildings unless the buildings are adequately ventilated.
33. Vehicles must be safely parked when not in use. The controls will be neutralized, power shut off, brakes set, and the forks left in a down position flat on the surface not obstructing walkways or aisles. These procedures must be used whenever the operator leaves the forklift unattended (i.e. when the driver is 25 feet or more away or the vehicle is out of the operator's view).
34. A forklift will not be left on an incline unless it is safely parked, and the wheels choked or blocked.
35. Forklifts will not be parked or left unattended in aisles, by exits or doors.
36. Stunt driving and horseplay will not be permitted.
37. Elevators will be approached slowly and then entered squarely after the elevator car is properly leveled. Once on the elevator, the controls will be neutralized, power shut off, and the brakes set.
38. Running over loose objects on the roadway surface will be avoided.
39. While negotiating turns, speed will be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel will be turned at a moderate, even rate.

LPG Tank Filling Procedure

1. Industrial trucks (including lift trucks) equipped with permanently mounted fuel containers will be charged outdoors.
2. The dispensing of LP gas into the fuel container of a vehicle will be performed by a competent attendant who will remain at the LP gas dispenser during the entire transfer operation.
3. Engines on vehicles will be turned off while fueling if the fueling operation involves venting to the atmosphere.
4. There will be no smoking on the driveway of the (fueling area), in the dispensing areas or transport truck unloading areas.
5. Signs prohibiting smoking will be posted within sight of the person refueling. Letters on such signs will be not less than 4 inches high. The motors of all vehicles being fueled will be shut off during the fueling operations.

Basic rules for Industrial Truck Use of Liquefied

Petroleum Gas (LPG)

1. When filling forklift tanks, the employee must wear eye,
2. face and hand protection.
3. No more than two LPG containers will be used on an industrial truck for motor fuel purposes.
4. Industrial trucks will not be parked and left unattended in areas of possible excessive heat or sources of ignition.
5. All sources of ignition should be eliminated to the extent possible. Conspicuous signs must be posted in the storage area forbidding smoking.
6. Filling of fuel containers for industrial trucks or motor vehicles from industrial bulk storage containers will be performed not less than 10 feet from the nearest important masonry-walled building or not less than 25 feet from the nearest important building or other construction and, in any event, not less than 25 feet from any building opening.

Container valves and container accessories

1. Valves, fittings, and accessories connected directly to the container (including primary shutoff valves), will have rated working pressure of at least 250 p.s.i.g. and will be of material and design suitable for LP Gas service. Cast iron will not be used.
2. Shutoff valves will be located as close to the container as practicable.

Changing Vehicle Tire Procedures

1. All vehicle tire changes must meet the Federal OSHA standard 29 CFR 1910.177 "Servicing Multi-piece and Single Piece Rim Wheels".
2. Additional tire changing procedures apply to all heavy equipment which include:
    a. The tire will be deflated to 7 pounds pressure or less (both tires, if they are dual wheels) before any other procedure is started to remove the tire and wheel from a piece of heavy equipment.
    b. An air hose extension will be provided so that this hose can be attached to the valve to inflate the tire and extend out from the tire so the person inflating a tire can be off to one side of the tire and not directly over or in front of the tire and wheel as it is inflated.

Inspection Forms and Training Records

(Located on the following pages.)

Forklift Training Checklist Record

Assigned Employee:	
Type of Vehicle	
Supervisor/Instructor	Date:
Part 1: Forklift Safety Policy	
	The "Basic Forklift Safety Policy was reviewed with the employee and the written forklift test part 1 and 2 was given and reviewed.
Part 2: Machine Operator Pre-Shift Checklist	
	The pre-shift vehicle checklist was reviewed and the employee was shown and demonstrated the visual inspection procedures per form (see attached).
Part 3: Driver Skill Demonstration	
The vehicle operation and controls were demonstrated. The employee was observed during operation of the vehicle which included the following driving skill test:	
	Handling of the vehicle including: forward, backwards driving while unloaded.
	Handling the vehicle with a banded or bundled load and rearranging a stack of boxes or other materials on pallet..
	Hauling unbanded material
	Demonstrates the ability to keep the load under control and follows vehicle driving procedures as outlined in the Oregon OSHA rules and basic safety procedures.
	Demonstrates proper method for parking the vehicle.
Observation of Driving Ability:	

Lift Truck Operator Inspection Checklist

Inspection before Operations: Checks with the Engine Stopped

Vehicle Element	Initial if OK, note any concerns
1. Fuel level	
2. Oil level in the engine and hydraulic tank	
3. Coolant levels and condition of the drive belts	
4. Condition of the radiator	
5. Condition of the forks, carriage, chains, upright & overhead guard	
6. Leads from the engine, transmission, hydraulic system & fuel system	
7. Condition of wheels, tires, and air pressure of pneumatic tires	
8. Seat belt latches properly	
9. Seat is secure & latched to the hood	
10. Hood is securely latched.	

Check with the Engine Running

(Note: make sure that the area around the lift truck is clear before starting the engine or making any operational checks).

Vehicle Element	Check if OK, note any problems
1. Check the operation of the horn, gauges and indicator lights	
2. Check the oil level in the powershift transmission or oil clutch system when the engineis running at idle.	
3. Operate the LIFT, TILT, and auxiliary functions to check for correct operations.	
4. Check the operation of manual transmission and clutch.	
5. Check the operation of the powershift transmission, MONOTROL pedal or the direction control lever and accelerator pedal.	
6. Check the operation of the service brakes and parking brakes	
7. Check the operation of the steering system. Driving and direction Changes.	

Forklift & Vehicle Operator Test
Circle The Correct Answer

Part 1: Inspection, Maintenance & Vehicle Care

1. **The operator will make an operational test or check of all parts which are vital to safeoperation:**
   a. Annually
   b. Monthly
   c. At the start of each shift or prior to use for the day
   d. When the maintenance staff has time
2. **Any necessary repairs or adjustments must be made:**
   a. Before the vehicle is put into operation
   b. At the end of the shift
   c. Whenever the vehicle is scheduled for routine maintenance
   d. By maintenance staff when it seems serious
3. **If during operation the driver notices a problem with the vehicle, they should:**
   a. Attempt to make repairs themselves
   b. Take the vehicle out of service immediately and notify his/her supervisor of the malfunction orunsafe condition
   c. Use the vehicle to complete the job and then report it at the end of shift
   d. Not worry about it
4. **The operator's cab area must be kept clear of tools and other materials.**
   a. True
   b. False
5. **When vehicles are being fueled, the motor must be turned off and no smoking allowed in the vicinity.**
   a. True
   b. False
6. **Hands, soles of shoes, steering wheels and control pedals must be kept free ofslippery substances such as oil and grease.**
   a. True
   b. False
7. **Which of the following defects discovered by the operator during a routine checkwould qualify the vehicle to be "taken out of service":**
   a. Missing guard on the mast
   b. Oil leak
   c. Deformed overhead protection
   d. Exposed exhaust pipe
   e. All the above

Part 2: Safe Operation of The Forklift

8. Passenger may be allowed on a forklift if:

a. He or she is the manager

b. He or she only wants to ride a short way

c. Never

9. Forklifts are steered by the:

a. Front wheels

b. Back wheels

10. To keep loads from sliding off the forks, always place the forks under the load as faras possible, at the center of its weight and lift with the mast vertical or slightly tiltedback.

a. True

b. False

11. Forklifts are so stable that bumps, holes and slick spots cannot upset them or causeloads to spill.

a. True

b. False

12. Forklifts are open to allow the driver easy access; therefore, it is permissible to havearms, legs or head outside of the canopy when traveling or operating the vehicle.

a. True

b. False

13. A forklift is considered unattended when:

a. The driver is 25 feet or more away

b. The vehicle is out of view of the operator

c. The supervisors said it is OK

d. Both a & b

14. Whenever the vehicle is unattended, the engine must be shut off, the controls neutralized, the parking brake set, and the forks fully lowered.

a. True

b. False

15. Many forklift accidents have occurred due to:

a. Masts colliding with overhead beams or pipes

b. The operator not watching the direction of travel

c. Traveling with forks in the raised position

d. All the above

16. **When going down inclines, drive in reverse. Drive forward when climbing inclines.**
    a. True
    b. False
17. **Forklifts may be used as heavy-duty jacks.**
    a. True
    b. False
18. **When traveling with a load, it doesn't matter what level the forks are as long as theoperator can see:**
    a. True
    b. False
19. **Loads may be lifted while traveling.**
    a. True
    b. False

Forklift Instructions Answer Sheet

Question	Answer	Explanation
Part I.		
1	c.	Each operator must visually inspect the vehicle for leaks or deformities, missing guards or parts as well as doing an operational check on controls, brakes, horns and other warning devices.
2	a.	No vehicle may be operated until all defects are repaired.
3	b.	Until repaired, any defective vehicle must be removed from service and only authorized personnel allowed to work on forklifts.
4	a. True	Loose articles may interfere with safe operations of the vehicle or may strike the operator or pedestrians should the vehicle stop suddenly or make a sharp turn.
5	a. True	This should be standard operating procedure for all fuels to prevent fire and explosion.
6	a. True	Oily hands and feet may cause the operator to lose control of the vehicle.
7	e.	Chains/sprockets which can be contacted by the operator must be guarded; all leaks must be repaired; canopies must maintain strength integrity to protect the operator from falling objects, hot surfaces which can be contact-ed by the operator must be insulated or guarded.
PART II.		
8	c.	Riders are never permitted on forklifts unless proper seats are provided within the canopy.
9	b.	Because they are steer with the rear wheels, the rear end swings can injure workers on the floor. The operator must always be aware of the rear swing hazard.
10	a. True	The load should be tilted only enough so the load rests against the heel of the forks or the backload rest.
11	b. False	Any of these conditions can cause the vehicle to upset. Surfaces should be leveled and holes filled in. All slick spots should be cleaned up or neutralized.
12	b. False	No part of the body is allowed outside of the canopy when traveling or operating the vehicle.
13	d.	An unattended vehicle occurs when the operator is 25 feet or more away, even if the vehicle is still in sight OR whenever the operator cannot see the vehicle no matter what the distance.
14	a. True	In both instances cited in 6 above, the vehicle must be rendered harmless when "unattended".
15	d.	It is essential that the operator by aware of overhead clearance restrictions, that the direction of travel be watched and that the forks be kept as low as possible at all times when traveling.
16	a. True	In order to keep the load against the heel of the forks, drive in reverse when going down inclines, forward when climbing inclines.
17	b. False	Forklifts, as well as all other equipment, must be used for the purpose they were designed for. Using the vehicle as a heavy-duty jack can easily exceed its capacity.
18	b. False	Loads should be carried close to the ground. Usually 6 inches or just high enough to clear rises and bumps on the driving surface. When they are carried too high, the stability of the truck is affected. There is also the possibility that the load or a part of it can fall on someone. If visibility is the problem, turn around, travel in reverse and face the direction of travel.
19	b. False	Lifting the load while traveling may seem the natural thing to do, but the stability of the truck is affected by this practice. Do not lift the load while traveling.

Forklift Training Certification

The forklift training regulations require that employees be trained and certified with a valid license before they are allowed to drive.

This is to certify that_____has satisfactorily completed a basic lift truck operator training program, which included the following material:

1. Safety Equipment
2. Visual Checks
3. Load Handling Equipment
4. Hydraulic System
5. Fluid Leaks
6. Operational Checks
7. Safe Refueling Procedures
8. Knowing the Truck
9. Handling Loads
10. Safe Driving
11. Parking Your Forklift
12. Staying Alert
13. What to Do in an Emergency
14. Safety Rules

I have had my responsibilities related to the handling, care and safe operation of basic lift truck operation explained to me. I understand that I can be held accountable for any deliberate act or negligence that pertains to my duties in operating a lift truck.

Employee Signature:_____Date:_____

The above employee has passed/not passed the written test. (circle appropriate response)

Instructor Signature:_____Date:_____

The above employee has passed/not passed the driving portion of the forklift testing.

Instructor Signature:_____Date: _____

EXCAVATION SAFETY

OAR 437, Division 3, Subdivision P

Definitions

1. An ***excavation*** is any human-made cut, cavity, trench or depression in an earth surface, formed by earth removal. All excavations five feet or more in depth are required to have a protective system in place to protect employees from injury unless:
    a. The excavation is made entirely in stable rock; or
    b. The excavation is less than five feet in depth and a competent person has examined the ground and determined there is no indication of a potential cave-in.
2. Acceptable protective systems are based on factors such as soil type, water content, excavation depth and width, the nature of the work and nearby activities. These systems include:
    a. *Sloping (Sloping System):* a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.
    b. *Benching (Benching System):* a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels. *Shoring (Shoring System):* a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.
    c. *Shielding (Shielding System):* a structure that is designed to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with §1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."
3. A *competent person* can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them. This person must have specific training in, and be knowledgeable about, soils analysis, the use of protective systems and the requirements of the occupational safety and health rules
    a. At every excavation where employee exposure can be reasonably anticipated, Oregon OSHA requires that we (or our contractor) assign a competent person to conduct a daily inspection of the excavation.
    b. That inspection should include the adjacent areas and protective systems utilized (i.e., shoring, shielding, benching or sloping) for evidence of situations that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres or other hazardous conditions.
    c. An inspection must be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections must also be made after every rainstorm or other hazard-increasing occurrence.

Minimum Requirements for Excavations

1. The estimated location of underground utility installations must be completed before *any* digging or excavation is started.
2. Excavations deeper than 5 feet require cave in protection (shielding, benching or shoring).
3. A Competent Person is required at all excavations.
    a. The competent person is *trained, authorized and responsible* to ensure that the excavation or trench remains stable, the personnel working in the excavation can quickly exit, that the atmosphere is safe, that spoils are placed so they can't shift, that personnel work safely near heavy equipment, and that the work area remains safe until the excavation is backfilled.
    b. Conduct frequent and regular inspections of the job- site, materials and equipment for unsafe or unhealthy conditions or practices.
4. Sloping and benching techniques must be evaluated by the competent person.
5. Trenches or pits 4 feet deep or greater must be tested for atmospheric hazards *before entering to see* if there is potential for these hazards to be present and continuously monitored if there is a chance they could develop. *enter* if there is potential for these hazards to be present and continuously monitored if there is a chance they could develop. *enter* if there is potential for these hazards to be present and continuously monitored if there is a chance they could develop.
6. Any excavation deeper than 20 feet must have cave-in protection designed by a qualified engineer.
7. A safe means of egress will be in trench excavations that are 4 feet or more in depth.

Safety Rules for Excavation Operations

1. Hi-visibility outerwear is required when working around heavy equipment.
2. Means of egress (ladders) must be available to every worker in the space within 25 feet of their work locations. (Place ladders every 25 feet along the length of the excavation).
3. Ladders must be secured and extend 3 feet above the top of the trench.
4. Spoils piles must be set back at least 3 feet from the edge of the trench or excavation. Optimal distance for heavy spoils or equipment is as far back from the edge as the trench is deep.
5. Workers should be aware of these hazards and alert the Competent Person if changes develop**;** exiting the space until hazards can be properly controlled.
6. The Competent Person is responsible for atmospheric testing. See Confined Space Atmospheric Testing Procedure.
7. No work is permitted in a trench or excavation with accumulated or flowing water.
8. Workers must stay back at least 3 feet from the swing zone of heavy equipment.
9. Working below a suspended load is prohibited.
10. Hard hats are required when working near heavy equipment.
11. Using an excavator bucket to lift or lower personnel is prohibited.
12. Be aware of vehicle and equipment exhaust accumulating in trenches and confined spaces. Use continuous monitoring as necessary.
13. When working in or near an excavation, keep alert to changes in conditions including shifting soils, changes in soil appearance or odor, water flowing in, vehicle exhaust, vibration and other conditions that could cause cave-in, atmospheric hazards or other problems to develop.
    Exit immediately and reassess if conditions change while working in an excavation.

14. The water is being removed and kept at a safe level; or a safety harness/lifeline is available and used.
15. Ensure control of loose rock or soil, one of the following methods have been implemented:
    a. Scaling of the face of the excavation has been done to remove any hazardous loose material.
    b. Protective barriers are installed to contain the loose material; or any other effective means is in place and there is no danger from loose materials.

Excavation Equipment

Equipment operators must be specifically trained and authorized before operating excavation equipment. Operators must conduct pre-use and work site inspections. Operators are responsible for ensuring safety in the work area.

Hydro-Excavation (Vac) Trucks

Vac Trucks have additional hazards of high-volume suction hoses, pressure wands, high-pressure air and water, tanks that are confined spaces, hydraulic tip-beds, hoppers and doors. Operators must be trained and authorized on the equipment.

1. Any person working near or operating a Vac Truck must have additional training to recognize and control hazards.
2. Special blocking procedures must be followed when elevating beds, hoppers, tanks or doors to ensure that the equipment (bed or door) does not fall.
3. Tanks and Hoppers on Vac Truck are Confined Spaces. ***Do Not Enter.***
4. Stay clear of the vacuum end of the stinger. Tremendous suction power can cause serious injury.
5. Do not point the pressure nozzle towards any person.
6. Positively stop and lockout vacuum pressure, air and water pressure before servicing or un-jamming equipment.
7. Required PPE includes hardhat, eye protection, hearing protection, steel toe boots, gloves.

Speed Shore

1. Speed Shore shielding must be installed and removed ***from the ground level*** only. See Speed Shore Manual for requirements on installation, inspection and removal.
2. Speed shore must be installed under the direction of a Competent Person and must be inspected daily and peri-odically throughout the work shift.
3. Always install shoring from the top down and remove from the bottom up.
4. Shielding must extend above the ground level and be within 24 inches of the bottom of the trench.
5. Trench protectors must extend 4 feet past side shielding.
6. Structures outside of the trench must be braced or protected from cave in (i.e. poles, buildings, sidewalks).

Water in Excavations

Do not enter a trench or excavation that has accumulated or flowing water.

1. Identify source of water (surface runoff or line break).
2. Shut off source upstream (as close as possible to line break).
3. Pump water out of excavation without entering (Competent Person must monitor this).

4. Divert or capture pumped water and surface water.
5. Brace adjacent structures as needed based on conditions.
6. Inspect and protect the cave before entry.
7. Competent person ensures appropriate shielding or shoring before employees enter.

Trench Emergencies and Rescue

1. If an emergency occurs in an excavation, contact 9-1-1 immediately.
2. Trench rescue can be extremely hazardous because of conditions ranging from unsafe atmosphere to cave-in. Coworkers often become victims of secondary collapse during rescue attempts. Call
3. 9-1-1 right away for emergency help.
4. When calling 9-1-1, be *Specific* about the exact nature of the emergency to mobilize the correct technical rescue resources as quickly as possible.

FALL PROTECTION PROCEDURE

1 Purpose

This procedure establishes requirements for the use of Personal Protective Equipment (PPE) to protect City of Boardman Personnel from injuries from falls to a lower level.

1.1 Scope

1.1.1 This procedure applies to work from elevated areas, whenever there is a potential for workers to accidentally fall to a lower level, including ground levels, floors, ramps, platforms, runways, excavations, pits, tanks, stored material, water, dangerous equipment, and similar elevated surfaces designed or used primarily as a working or walking surface.

1.1.2 This procedure affects all persons on site who may be exposed to the hazards of falling to a lower level when performing their assigned job duties.

1.1.3 This procedure does not address installing guardrails and barricades.

1.2 Precautions

1.2.1 Lanyards shall be a minimum of two-inch nylon or equivalent, with a maximum length to provide for a fall of no greater than six feet unless otherwise rated. The lanyard shall have a nominal breaking strength of not less than 5,000 pounds.

1.2.2 The point of attachment for lifelines shall be capable of supporting a minimum dead weight of 5,000 pounds

1.2.3 When tied off while working on a suspended platform or scaffold, each worker must use a separate line which is not connected to the platform or scaffold.

1.2.4 Personal fall arrest systems shall be rigged so that a worker cannot free fall more than six feet unless using longer rated lanyards, in which case free fall no more than twelve feet or contact with any lower level.

1.2.5 Personal fall restraint systems shall be rigged so that a worker cannot free fall more than two feet.

1.2.6 The minimum strength requirement for fall protection attachment points is 5,000 pounds for each worker secured to that point. If multiple workers are tied off to a single lifeline, the strength requirement must be increased by the number of workers affected (e.g., two workers, one lifeline, minimum breaking strength be 10,000 pounds at the center of line, three workers, one lifeline, minimum breaking strength must be 15,000 pounds, and so forth).

1.2.7 Permanent lifelines must be capable of supporting 5,000 pounds per person at the center of the line.

1.2.8 Hardware for harnesses and lanyards must be drop-forged and corrosion resistant with smooth edges and have a minimum 5,000-pound breaking strength without cracks or breaks.

1.2.9 Knots shall not be used in components of a fall protection system since a knot will reduce the strength by at least 50 percent.

1.2.10 Lanyards shall be kept as short as possible and should not exceed 6 ft. to minimize the length of free fall.

1.2.11 Wire rope or rope-covered wire lanyards shall not be used unless designed and engineered to do so where impact loads are anticipated or where there is an electrical hazard.
1.2.12 Where there is exposure to abrasion, spun nylon rather than filament nylon shall be used.
1.2.13 Only safety harnesses with locking snaps or quick-connect buckles shall be used to prevent roll out or disengagement. All hardware shall be compatible with the locking snap or quick connect.
1.2.14 Tongue-type buckles or quick-connect buckles with a locking means shall be used in lieu of friction buckles since friction buckles may lose the ability to stop detachment if contaminated with grease or oil
1.2.15 Fall protection is required when working in a boom or bucket man lift. While in motion a maximum of two feet or retractable type lanyard shall be used.
1.2.16 Fall protection is required when working from a ladder for activities that may cause a side force or unbalanced condition, when reaching an extended distance is required.
1.2.17 Do not attach retracting line to shock-absorbing lanyards.
1.2.18 Body belts are not allowed.
1.2.19 All harnesses shall have trauma straps attached.

1.3 Limitations
1.3.1 Fall Protection equipment shall meet ANSI/ASSP Z359 code for manufacturing.

2 Responsibilities

2.1 Site Personnel
2.1.1 Uses the proper personal fall arrest systems and personal fall restraint systems effectively when required.
2.1.2 Inspects fall protection equipment before use.
2.1.3 Removes defective fall protection equipment from service and reports it to supervisor.

2.2 Public Works Director
2.2.1 Ensures the need for fall protection is identified and addressed prior to work.
2.2.2 Ensures proper personal fall arrest systems and personal fall restraint systems are available when required.
2.2.3 Ensures personnel are trained for assigned tasks.
2.2.4 Ensures compliance with this procedure.

2.3 Document Owner
2.3.1 Assigns resources to implement the procedure.
2.3.2 Maintains the procedure and coordinates revisions with Management and Program Owner.
2.3.3 Updates the procedure to reflect protocol changes.
2.3.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.

2.4 Program Owner
2.4.1 Assigns resources to manage the program.
2.4.2 Oversees and reviews program to ensure the program is compliant and effective.

3 Procedure

3.1 Prerequisite Actions

3.1.1 Inspect the fall protection equipment for the following prior to each use:

A. Lanyards and lifelines are free of knots.

B. Lanyards no longer than 6 feet. Management/Competent person must approve use of longer lanyards.

C. No apparent corrosion or cracks, breaks, or distortions in the hardware.

D. No dark spots or discoloration on the belt indicating chemical contamination or UV damage

E. No sharp edges on the hardware

F. When bent in a "U", webbing does not show any cracks, frays, broken threads, or light or dark spots.

G. No signs of abrasions or burns.

H. Shock-absorbing lanyard/device shows no signs of elongation or deployment.

I. Ensure the equipment's annual inspection is completed within last 12 months.

3.1.2 Any defective body belt/harnesses or lifelines shall be removed from service and discarded or repaired before use.

3.1.3 Any unit subjected to impact loading shall be immediately removed from service.

3.1.4 Falling Object Protection:

A. When working from heights where individuals below are exposed to falling objects, in addition to head protection use one or more of the following:

a. Toe-boards, screens, or guardrail systems to prevent objects from falling to a lower level.

b. Canopy structures when possible

c. Keep potential falling objects far enough from an edge, hole or opening to prevent falling to a lower level.

d. Establish "Exclusion Zone" when necessary, that prohibits personnel from entering an area into which objects could fall.

B. Use containers such as bags and buckets to transport tools and equipment to and from at-height work zones.

C. Consider the use of tethering tools when other protections do not exist.

3.2 Procedure

3.2.1 A competent person shall evaluate work at the site to identify potential fall protection exposure risks.

3.2.2 As feasible, Personnel and Management shall eliminate personnel exposure to falls to lower levels through work design and job planning.

3.2.3 A qualified person shall identify appropriate physical barriers (e.g., use of covers and guardrails) to install when exposures to falls at certain heights above 4 feet occur on a predictable and regular basis.

3.2.4 Management shall ensure appropriate physical barriers are installed when required.

3.2.5 When physical barriers are neither required nor feasible when working on unguarded surfaces more than 4 feet above a lower level or at any height above dangerous equipment, employees must use a personal fall protection system. (OR-OSHA Program Directive A-197)
- A. Application of this requirement includes cases in which work is done while elevated on vehicles, mobile equipment (excluding personnel lifts), and stacked materials.

3.2.6 Use personal fall restraint systems to prevent falling whenever possible.

3.2.7 Only when a personal fall restraint system is not possible, will a personal fall arrest system be used.
- A. Choose personal fall arrest systems based upon the following:
  - a. Distance of potential fall.
  - b. Fall arresting forces on the body.

3.2.8 Communicate information regarding the fall hazards and fall protection requirements during the job briefing.

3.2.9 Monitor the adequacy of fall protection during the work, adjust as necessary.

3.2.10 Unprotected Sides and Edges Four Feet Above a Lower Level
- A. Guardrails, safety net or personal fall arrest/restraint or positioning systems shall be used.
- B. When work on a low-slope roof is within six feet of the edge use of guardrails, safety net system, fall restraint or personal fall arrest system shall be used.
- C. When work on a low-slope roof is at least 6 feet from the edge but less than fifteen feet, a guard rail, safety net, fall restraint or personal fall arrest system shall be used. If the work is temporary and infrequent then a designated area may be used.
- D. When work on a low-slope roof is performed fifteen feet or more from the roof edge any of the above referenced methods may be used. If the work is temporary and infrequent, Management can implement and enforce a work rule prohibiting workers to go within fifteen feet of the edge without using fall protection.
- E. Walk on the portion of the roof panels where they are attached to the support steel when walking or working on flat building roofs. These locations are identified by panel fasteners.
  NOTE: Workers should never walk on the panel seams as they could separate.
- F. Provide a scaffold, man lift, or other means of safe access if sloping roofs or surfaces require access.

3.3 Acceptance Criteria
None

3.4 Post-Performance Activity

3.4.1 A trained and competent person shall inspect all components of each fall protection device at least once every twelve months. The dates of annual inspections shall be recorded on a permanent tag attached to the devices.

3.4.2 When necessary, fall protection equipment shall be returned to the manufacturer for recertification per manufacturer's recommendation.

3.4.3 Fall protection equipment subjected to impact loading shall be removed from service, inspected, and destroyed if found to be damaged, or returned to the manufacturer for recertification.
3.4.4 Ensure Fall Protection equipment cleaned if needed and properly stored.

4 References

4.1 Industry Standards or Codes
- 4.1.1 American National Standards (ANSI)
  - A. ANSI/ASSE Z359-2012 Fall Protection Code (Z359.0 through Z359.15)
  - B. Fall Protection Systems for Construction and Demolition Operations (ANSI A10.32).
  - C. ANSI/ISEA 121-2018 Objects at Height Standard
- 4.1.2 Oregon Administrative Rules (OAR)
  - A. Division 2, Subdivision D, Walking Working Surfaces.
  - B. Chapter 437, Division 3, Subdivision M, Fall Protection including:
    - a. 437-003-0502
    - b. 1926.500 through 437-003-0503
- 4.1.3 Oregon Occupational Safety and Health Administration (OR-OSHA)
  - A. Publication OR-OSHA (10/17) FS-58, Fall Protection Trigger Heights for General Industry
  - B. Publication OR-OSHA (10/15) FS-64 Fall Protection Trigger Heights for the Construction Industry
  - C. Program Directive A-197, Revised March 21, 2016

4.2 City of Boardman
- 4.2.1 Occupational Safety and Health Manual 2017 Revision
  A. 23. Fall Protection Compliance Manual 23.1 - 23.13.

5 Definitions and Acronyms

5.1 Definitions
- 5.1.1 Anchorage: A point of attachment for lifelines, lanyards, or deceleration devices that is secure and meets loadbearing requirements for personal fall arrests.
- 5.1.2 Arresting Force: Force exerted on a worker when a fall protection system stops the fall. The amount usually expresses the peak force experienced during a fall in lbs.
- 5.1.3 Body Harness: Straps that are secured about a worker in a manner that distributes the arresting forces over at least the thighs, shoulders, and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration device.
- 5.1.4 Competent Person: One who is trained in this procedure and can identify existing and predictable hazards in any personal fall protection system or any component of it, as well as in their application and uses with related equipment, and who has the authority to take prompt corrective measures to eliminate such hazards.
- 5.1.5 Dangerous Equipment: Equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, because of form or function, may be hazardous to workers who fall onto or into such equipment.

5.1.6 Designated Area: A distinct portion of a walking-working surface delineated by a warning line in which workers may perform work without additional fall protection.
5.1.7 Drop Line: A vertical line from a fixed anchorage, independent of the work surface, to which the lanyard is affixed.
5.1.8 Fixed Anchorage: A secure point of attachment, not part of the work surface, for drop lines, lifelines, or lanyards. The fixed anchorage must be capable of supporting a minimum deadweight of 5,000 pounds per person.
5.1.9 Hardware: Buckles, D-rings, snap hooks, and associated hardware used to attach the components of the system together.
5.1.10 Lanyard: A flexible line used to secure a body belt or body harness to a lifeline or directly to a point of anchorage.
5.1.11 Lifeline: A horizontal line between two fixed anchorages, independent of the work surface, to which the lanyard is secured either by tying off or by means of a suitable sliding connection. The lifeline must be capable of supporting a minimum deadweight of 5,000 pounds per person applied at the center of the lifeline.
5.1.12 Maximum Arresting Force: is the largest amount of force that the fall protection system and the person attached to the system will experience as generated by the deceleration device. OSHA limit is 1800lbs of force.
5.1.13 Personal Fall Arrest System: A system used to arrest a worker in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.
5.1.14 Personal Fall Restraint System: A system that is used to keep a wearer at the work level or limit any free fall to a maximum of two feet from the work level. This system consists of a chest or body harness, and anchor, as applicable.
5.1.15 Positioning Device System: A harness and lanyard system rigged to support workers on elevated vertical surfaces, such as a wall or windowsill, allowing them to work with both hands free.
5.1.16 Qualified Person: One who by possession of a recognized degree, certificate, or professional standing, or by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.
5.1.17 Quick-Release/Connect Buckle: A multiple component buckle that can be released with one positive action and whose releasing mechanism is positively locked in normal use.
5.1.18 Roll Out: Disengagement of a snap hook from an attachment point.
5.1.19 Rope Grab: A device that attaches to a lifeline as an anchoring point to provide a means for arresting a fall.
5.1.20 Self-Retracting Device: An automatic tensioning system that pays out and retracts line at a certain speed and locks or brakes when the speed is exceeded.
5.1.21 Snap Hook: A self-closing device with a keeper, latch, or other similar arrangement that will remain closed until manually opened.
5.1.22 Tie Off: When a user wearing personal fall protection equipment connects directly or indirectly to an anchorage. The term also means the condition of an employee being connected to an anchorage.

5.1.23 Total Fall Distance: The maximum vertical distance between a wearer's body harness attachment points before and after the fall is arrested, including lanyard extension and/or deceleration distance.

5.1.24 Trauma Straps: A device attached to the side of the harness typically near the hips of the harness user. It is used to alleviate pressure on the femoral artery and helps to prevent suspension trauma.

5.2 Acronyms

5.2.1 ANSI: American National Standards

5.2.2 HLL: Horizontal Lifeline

5.2.3 OAR: Oregon Administrative Rules

5.2.4 OR-OSHA: Oregon Occupational Safety and Health Administration

5.2.5 PFAS: Personal Fall Arrest System

5.2.6 PPE: Personal Protective Equipment

5.2.7 SRD: Self-Retracting Device

5.2.8 SRL: Self-Retracting Lanyard/Lifeline

5.2.9 VLL: Vertical Lifeline

6 Forms and Appendices

6.1 Forms

6.1.1 Fall Protection Plan. Fall Protection Compliance Manual 23.9

6.1.2 General Fall Protection Wk. Plan. Fall Protection Compliance Manual 23.10-11

6.2 Appendices

6.2.1 A01 & A02

Fall Protection Plan

Job Number:	Job Description:	Crew Size:
Foreman:		Date:
1. Identify all fall hazards in the work area:		
2. Describe the methods of fall arrest or fall restraint to be provided:		
3. Describe the correct procedures for the assembly, maintenance, inspection and disassembly of the fall protection system to be used:		
4. Describe the correct procedure for handling, storing and securing tools and materials:		
5. Describe the method of providing overhead protection for workers who may be in or pass through the area below the work site:		
6. Describe the method for prompt, safe removal of injured workers:		
I (we) certify that I (we) have received proper explanation, instruction and information on the above material. I (we) have been trained in the proper use of all safety equipment being utilized on the referenced job:		
Printed Name:	Signature:	
Printed Name:	Signature:	
Printed Name:	Signature:	
Printed Name:	Signature:	
Printed Name:	Signature:	

General Fall Protection Work Plan

Job Location:	Job Description:

Instructions:
1. Inspect the site prior to the start of the job.
2. Complete this form.
3. Post at worksite where it can be plainly seen along with the summarized plan.

Fall Hazards 6 Feet Or More

- Open Beam/Truss/Frame Work
- Standard Scaffold/Staging
- Equipment Frame
- Beyond Guard Rails
- Roof Edge
- Floor Opening
- Hanging Scaffolds/Staging
- Erection/Disassembly
- Ripe Rack System
- Tank/Vessel/Equipment Tops
- Other Describe: _____

Other Hazards

- Electrical
- Hot Surfaces
- Overhead
- Water
- Foot Traffic
- Below
- Chemical
- Other: Describe: _____

Methods Of Protection To Be Used

- Guardrail
- Harness
- Rope Protection
- Parapet Wall
- Safety Block
- Sling/Runners
- Barrier Structure
- Rope Grab
- RFP w/Boatswain
- Fixed Lanyard
- Life Line
- Safety Net
- Retractable Lanyard
- Warning Line (low pitched roofs/floors only)
- Other Describe: _____

Methods Of Work Area Access

- Portable Ladder
- Roof
- Truss/Beam
- Fixed Ladder
- Manlift
- Framework
- Scaffolding
- Staging
- Suspended Decent
- Other: _____

Methods Of Material/Tool Handling

- Line
- Tool Belt
- Hoist
- Tool Bucket
- Crane
- Designated Lifting Zone
- Material stored at least 10 feet away from edge and no higher than barrier.

Methods Of Securing Lanyards/Lines (Minimum 5,000 Pounds Holding Force)

- Ladder Siderail (secured)
- Structural Workings
- Eye Bolts
- Steel Pipe
- Other: _____

Location Of Anchor Points (Describe)	
Other	
Fall protection equipment inspected prior to use? ☐ Yes ☐ No Equipment inspected by: _____ Name of monitor assigned (leading edge work only): _____ Has the work plan been reviewed in detail with person assigned working below? ☐ Yes ☐ No Barrier tape/tags set up for overhead hazards when people are working below? ☐ Yes ☐ No	
Person Assigned:	
Competent Person:	Date:

WELDING: FIRE & EXPOSURE CONTROL

OAR 437, Division 2, Subdivision Q (Welding, Cutting, and Brazing)

OAR 437, Division 2, Subdivision H (Hazardous Materials) OAR 437, Division 2, Subdivision Z (Chromium)

This welding safety policy is designed to ensure that employees are aware of the hazards associated with welding and to ensure proper fire protection. Welding is a hazardous operation, which must be performed in accordance with safety standards and by qualified trained employees. This chapter is to ensure workplace safety and compliance with Oregon OSHA standards.

Note: *For employers that weld, cut, and grind on Stainless Steel structures for fabrication and/or repair a* ***hexavalent chromium exposure plan*** *may be needed. Initial employee exposure monitoring must be done and if levels exceed the Oregon OSHA standard, a written plan is required. Appendix 2, page 24.7 provides a model hexavalent chromium plan.*

This chapter reviews welding safety procedures. Specific information on the welding hazards is also found in *Chapter 10. Hazard Communication Program*.

Definitions

Approved means listed or approved by a nationally recognized testing laboratory.

Welding and welding operator means any operator of electric or gas welding and cutting equipment.

All other welding terms used in the Oregon OSHA standard are in accordance with American Welding Society: Terms & Definitions A3-0.969.
The following precautions are required to be taken by our employees who perform maintenance welding operations.
Electric arc welders are also responsible to be trained in electrical hazards (See Chapter on Electrical Safety).

Responsibilities

Department Director and supervisors are responsible for ensuring that only trained employees are authorized to weld. Fire watch personnel will be trained in their duties by the Maintenance Supervisors. Management is required to see that adequate maintenance services are provided and used to ensure safe operating conditions and that all Energy Control Procedures (see Chapter on Lockout/Tagout Safety) are followed as they relate to maintenance welding on equipment.

Authorized Operators: Employees who are authorized to perform welding must follow all safety procedures as outlined in this chapter, by Oregon OSHA rules and manufacturer's recommendations. Employees are required to inspect their equipment daily prior to operation to ensure that all safeguards are on the equipment. Any problems are to be reported immediately to the employee's supervisor.

All accidents will be reported immediately to the supervisor.

Personnel Director: Assist in providing employee training and auditing facilities for compliance with this chapter and Oregon OSHA regulations.

Safety Committee: The Safety Committee will include a review of welding safety in their quarterly inspection activities.

Basic Hazard Awareness: Safety in the many processes of welding and cutting requires certain precautions and standardized operating procedures. Welding is associated with five principal hazards. It is the responsibility of the employee supervisor and/or Safety Coordinator to ensure that all welders and fire watch personnel understand these hazards.

1. Electric shock and burns must be guarded against when using welding equipment. The degree of risk depends on the type of welding process. Welders are to be trained in Electrical Safety.
2. Fire Hazards:
    a. Flying sparks are the source of many industrial fires.
    b. In areas where flammable gases, vapors, and dust are present, only a tiny spark is needed to set off a fire or explosion. Flying pieces of molten metal can fall through cracks and openings as small as nail holes and ignite combustibles that are beyond the welder's visual range.
    c. Hot metal that is being welded or cut can cause fires if allowed to contact flammable or combustible material such as drip pans, oily rags or combustible materials.
    d. The torch flame used by the welder is another source of ignition and must be handled carefully. Compressed oxygen gas used in welding is a fire hazard because it supports and intensifies the rate of combustion of other materials
3. Radiant energy hazards in welding include ultraviolet light, infrared light and visible light.
    a. Exposure to the welding arc (ultraviolet rays) may result in very painful irritation of the eyes and skin.
    b. Infrared rays act upon the eyes simply as heat and can cause a burn or irritation of the tissue affected.
    c. The glare of excessive visible radiation can cause headaches, eye fatigue and loss of visual efficiency.
    d. Protective eye wear must be worn during welding to prevent harm to the eyes from light energy
    e. Welding barriers will be used to protect employees working in the same area as welding operations.
4. Inhalation of Welding Fumes: Welding produces airborne exposures to a variety of potentially harmful gases and fumes. Fumes are generated from both the base metal and the wire or rod used in the process. The hazard level from metal fumes depends on the type of metal. In steel welding exposures include iron oxides, chromium, manganese, and nickel. The gases also vary with the type of shield gases used in arc welding, type of rods and fluxes used.
    a. Welding must be performed in a well-ventilated area, either by working outside the building, near an open doorway or in a location with a fan ventilation system.

    Authorized Employees: Welding will be performed by qualified welders only.

Welding operations need to be performed away from flammable materials.

1. If the object to be welded cannot be moved to a safe location, all movable hazardous materials should be moved to a safe location.

2. If this cannot be done, a **Hot Work Permit** will need to be issued by the Supervisor. The permit will describethe welding zone controls such as enclosing in fireproof blankets or other protective shields when materials in nearby areas can be affected by welding arcs, flames, sparks, spatter, slag or heat. (See Appendix 1: Hot WorkPermit).
3. Fire protection equipment should be kept immediately at hand and ready for use. In critical areas, the fire protectionequipment should be staffed while welding operations are being conducted.
4. Care must be taken against allowing mixtures of fuel gasand air to accumulate.
5. Flammable and other potentially hazardous materials should be cleaned from surfaces before welding is started.
   *(**Note**: The very high temperature of the welding air or flame can cause ignition of materials such as grease, oil or surface coating. These materials will also break down under heat to hazardous gases or fumes).*
   a. No welding, cutting or similar work should be under- taken on tanks, barrels, drums or other containers which have been contaminated with flammables unless the contamination is first removed so that there is no possibility of fire, explosion, or emission of toxicvapors. (See Hot Work Permit).
   b. Adequate ventilation should be provided as protectionagainst accumulations of toxic fumes and gases. If such precautions cannot be taken, the welder should wear appropriate respiratory protection (See *PersonalProtective Equipment* and *Respiratory Protection*).
   c. If welding is to be done in enclosed or confined spaces, a specific "confined space" work permit will be requiredto be obtained from the management staff. The permit will detail the specific precautions that are required to

Personal Protective Equipment

The face, body and hands should be covered to prevent burns from splatter, slag, sparks, or hot metal. Flame proof: heat-insulating gloves should be worn during welding operations. Wetor excessively worn gloves should not be used.

1. The eyes and skin should be protected against the glare andradiation from a welding arc or flame.
2. Helpers and attendants should also be provided with eye
3. protection.
4. Other personnel in the vicinity of welding operations should be protected from reflections by suitable shields andbarriers.
5. Respiratory equipment may be necessary if ventilation isnot sufficient. Specific operation requirements should bemade by your supervisor.
6. Gas Cylinders
   Gas cylinders must be handled carefully (breaking the neckfrom a full cylinder can turn the bottle into a missile).
7. Cylinders must be secured to keep them from falling.
8. Acetylene cylinders must always be maintained in an
9. upright position.
10. Oxygen cylinders should be separated from fuel-gas cylinders or other combustible materials by at least 20 feet or bya fire-resistant barrier at least 5 feet high.
11. Oxygen from supply cylinders should be checked to makecertain they are not leaking, especially in enclosed spaces,where it can cause ignition of materials that are not normally highly flammable.

12. Grease and oil should be kept away from and never used to lubricate oxygen cylinder valves or regulators.
13. Do not handle oxygen cylinders with oily hands or gloves.
14. Before connecting an oxygen bottle, first open the valve slightly for an instant, then close and attach an oxygen regulator to the valve. Always stand to one side when opening the valve.
15. Empty gas cylinders should be marked and have their valves closed tightly. Valve protection caps should always be in place on those cylinders designed for caps, except when the cylinder is in use or being connected/disconnected.
    Gas cylinders should be stored out of the direct rays of the sun and away from other sources of heat. Never strike an arc against a gas cylinder. Do not use a hammer or wrench to open cylinder valves. If valves will not open by hand, notify the supplier. Always open the cylinder valve slowly. Do not tamper with cylinder valves or try to repair them. Send the supplier a prompt report of the trouble, including the cylinder serial number, and follow the supplier's instructions. Back flow or flashback preventers will be installed on all oxygen/flammable gas welding and cutting units between the torch or blowpipe and the hoses. Gauges will be maintained in good condition. Cracked or missing glass will be replaced prior to use.

Hot Work Permit Procedures and Instructions

Instructions:

1. This cutting and welding permit may be issued only by a ***supervisor*** and must be used for all cutting and welding done outside of an approved shop.
2. Complete the checklist below before issuing the permit.
3. Display the permit in a highly visible location at the job site.
4. The permit is to be picked up by the supervisor who issued the permit 2 to 4 hours after the work is completed. In the event of a change of shifts, it is the responsibility of the supervisor who issued the permit to notify the supervisor ***on the next shift*** that a permit was issued and will need to be picked up.
5. If you issue a permit late in the work shift and the worksite is down the following shift, notify the next shift supervisor to pick up the permit.
6. If a permit is issued for an unstaffed area of the worksite, notify the next shift supervisor so that he/she can check there more often.
7. All permits are to be handed down in the Safety Office after the final checkup has been completed.

✓	Checklist of required precautions:
	Floor swept clean of combustibles.
	Floor wet down (protections from possible shock are put into place if operating arc welding or cutting equipment).
	Flammable liquids removed; other combustible, if not removed, wet down or protected with fire-resistant tarpaulins or metal shields.
	Explosive atmospheres in area are eliminated.
	All wall and floor openings covered or provide an additional fire watch at the lower level.
	Fire watch will be provided during and for ***at least*** 30 minutes after completion of welding or cutting operations to detect and extinguish possible smoldering fires and during any coffee or lunch breaks.
	Fire watch is supplied with a charged fire hose.
	Fire watch is trained in the use of this equipment.

Job date:	Location:
Nature of job:	
Welder's name:	
Time started:	Time finished:
Fire watch name:	

Hot Work Permit Procedures and Instructions, *page 2*

Final checkup by maintenance: work area and all adjacent areas to which sparks and heat might have spread (i.E. Floors above, below and opposite side of walls) were inspected after the work was completed and found to be fire safe.
Maintenance Person Signature:
Final checkup by supervisor: 2 to 4 hours after work completed
Date & time:
Signature of person responsible:

Cutting: Welding Hot Work Permit

Date:	Location:
Work To Be Done:	
Maintenance:	
Instructions To Fire Watch:	
Fire Watch Names:	

HEXAVALENT CHROMIUM EXPOSURE PLAN

This plan provides the required Oregon OSHA Exposure Assessment Plan OAR 437, Division2, Subdivision Z, Chromium (VI).

http://osha.oregon.gov/OSHARules/div2/div2Z-1026-chromiumVI.pdf

The exposure assessment process is designed to comply with the "performance-oriented option" which permits current sampling data, historical data, and objective data to determine the TWA 8-hour exposure for plants operations.

This plan is also the compliance plan for protection of employees' whose exposure exceeds the action limit and permissible exposure limit.

Key Definitions

Action level means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 µg/m^3) calculated as an 8-hour time-weighted average (TWA).

Employee exposure means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

Permissible exposure limit (PEL). The employer will ensure that no employee is exposed to an airborne concentration of chromium (VI) more than 5 micrograms per cubic meter of air (5 µg/m^3), calculated as an 8-hour time-weighted average (TWA).

Regulated area means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of chromium (VI) exceeds, or can reasonably be expected to exceed, the PEL.

Responsibilities

Department Management must ensure compliance with this program and supervisors are responsible for implementing the program with their employees.

The Safety Manager is responsible to ensure that adequate expo-sure monitoring is conducted, written program for **chromium (VI)** protection are developed and implemented by the affected departments and various records are appropriately maintained.

The following processes result in exposure to Cr (VI) during welding and grinding operations.

Note*: Each employer must arrange for baseline and periodic sampling of employees' exposures during welding, cutting, grinding on stainless steel. The results of monitoring should be included in this plan.*

1. **Employee Job Classes with Cr (VI) Exposures: Fabrication Welders/Grinders.** These employees weld tanks and parts together and make structures for the tanks. The processes involve: gas metal shielded wire arc welding; plasma arc cutting, carbon scarfing, electrode arc welding, and grinding down welds.
2. Compliance Issues
    a. Exposure Determination and On-going Monitoring:
        i. Initial sampling done shows exposures levels the standard.

ii. The follow up sampling will be based on quarterlyto semi-annual monitoring based on Oregon OSHA requirements if the action limit or permissible expo-sure limit is exceeded.

3. **Regulated Area:** If overexposure occurs to employees during welding and grinding operations, then the work area becomes a regulated area**.** Employees working in these areas will be trained and required to wear respiratoryequipment when working with stainless steel. Warning signs are posted at the east personnel door entrance and other appropriate areas.
4. **Methods of Compliance:** Respiratory protection of either N100 or P100 filters are required for exposed personnel in the regulated area. Mechanical ventilation improvements are currently under engineering study. Long term goal is to reduce exposure by engineering methods to less than the action limit.
5. **Respiratory Protection:** For complete respirator pro-gram see *Chapter 14. Respiratory Protection Plan.*
6. **Emergencies:** No emergency release of Cr **(VI)** is possible based on the exposure processes.
7. **Protective work clothing and equipment**:
    a. Welders and grinders are provided coveralls that are part of special laundering process.
    b. Coveralls used in the regulated area are laundered byan outside company that has been informed of the potential Cr (VI) contamination.
    c. No employee will remove contaminated protective clothing or equipment from the workplace except thosewho launder, repair, clean or replace these items.
    d. Removal of chromium from protective clothing or equipment by blowing or shaking into the air or ontoan employee's body is prohibited.
    e. Employees have assigned change room lockers for storing clean street clothing and these facilities pre- vent cross-contamination from protective clothing and equipment
    f. Welding leather coats and other styles of non-flammable clothing are stored in the regulated area welding supply lockers.
    g. Leather gloves will also be stored with welding supplies and leather clothing in regulated area lockers.
8. **Hygiene areas and practices:**
    a. The welders and grinders have wash facilities available at Public Works Shop and City Hall.
    b. Prior to eating, the employees will change out of the work coveralls at either the entrance to regulated areaor on dirty side of the locker room. Employees will wash their face and hands prior to entering the lunchroom.
9. **Eating and Drinking Areas:**
    a. Employees are not permitted to eat or drink in theregulated area.
    b. Welders and grinders will doff protective outer clothing prior to eating and wash face and hands.
10. **Housekeeping:**
    a. All surfaces are maintained as free as practicable of accumulations of Cr (VI).
    b. All spills and releases of Cr (VI) containing material arecleaned up promptly.
    c. Cleaning methods including use of compressed air anddry sweeping of Cr (VI) contaminated dust to remove Cr (VI) from any surface is prohibited.

d. Cleaning equipment is handled in a manner that minimizes the reentry of Cr (VI) into the workplace.
e. Disposal of waste, scrap, debris, and any other materials contaminated with Cr (VI) are collected and disposed of in sealed, impermeable bags or other closed, impermeable containers and these containers are clearly labeled.

11. **Medical Surveillance**: The welders and grinders are part of Cr (VI) medical surveillance program managed by Public Works Director.
    a. The employees are part of the respiratory protection clearance program.
12. **Training**: All welders, grinders and supervisors are partof the Cr (VI) training and information program. The employees will be informed of the quarterly exposure monitoring results and any changes in compliance plan
13. **Recordkeeping**: All exposure records, exposure assessment and related documents are maintained for a mini- mum of 30 years by the main office administration.

ELECTRICAL SAFETY

This Electrical Safety Program was established to provide themaximum protection to our employees whenever they must work around any electrical hazards.

Employees involved in the maintenance, repair, and servicing ofequipment that requires electrical energy or that works around overhead, or underground electrical lines must follow these guidelines.

Note: *Please also refer to the lockout/tagout program whencompleting work on equipment and machinery.*

General Responsibilities

Direct Supervisor: The Direct Supervisor is responsible foroverall policy implementation and working with the Safety Committee and employees. The Direct Supervisor is also responsible for overseeing the completion of periodic audits and an annual policy review. To protect employees from hazards when working with electrical equipment, tools and appliances the Direct Supervisor must:

1. Inspect all electrical equipment to make sure the equipment is safe.
2. Require that all electrical equipment is used for itsapproved or listed purpose.
3. Require that all electrical equipment used or located in wetor damp locations is designed for such use.
4. Identify disconnecting means (see also lockout/tagoutprogram).
5. Maintain electrical fittings, boxes, cabinets and outlets in good condition.
6. Maintain all flexible cords and cables in good condition and use safely.
7. Guard electrical equipment to protect employees fromelectrical hazards.
8. Require that all electrical equipment be effectively grounded.
9. Require that all electrical equipment have overcurrentprotection.

Authorized Employees: Only workers and supervisors whohave received special training to recognize and understand the hazards involved with the tasks to be performedand the type/magnitude of electrical hazards are authorized toimplement the procedure.

Affected Employees: An affected employee is one whose jobrequires him/her to perform maintenance on items powered by electrical energy, or that performs work around areas with overhead and/or underground electrical lines.

Training: A key component of this program is employeetraining. It is the supervisor's responsibility to see that allemployees exposed to electrical hazards are trained to work in them. The authorized employees are to receive additional specialized training as outlined in this program. The training must be documented by the DirectSupervisor.

Inspection of Electrical Equipment

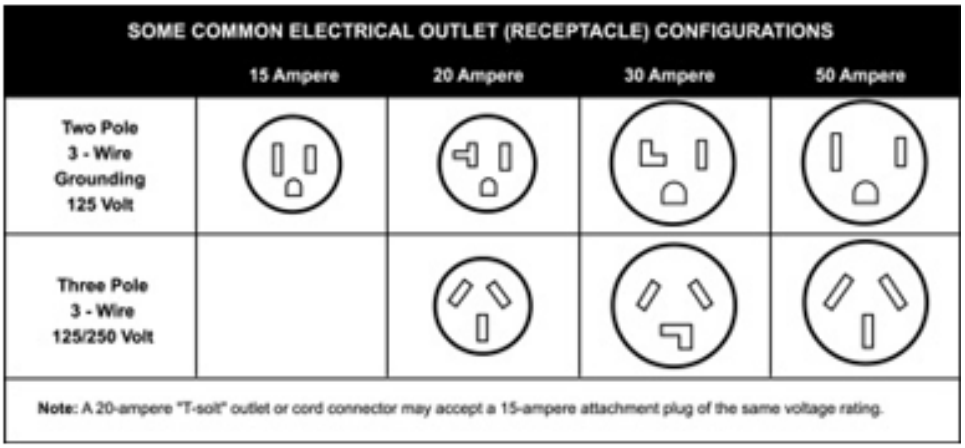
All electrical equipment must be inspected to make sure there are no recognized hazards likely to cause your employees' deathor serious physical harm. Determine the safety of the equipment by using the following list:

1. Approved or listed by a recognized testing laboratory, suchas Underwriters Laboratories (UL) or other certification agency.
2. Approved, or listed as approved, for the purpose it is beingused.

3. Includes strong and durable guards that provide adequate protection, including parts designed to enclose and protectother equipment.
4. Has electrical insulation**.**
5. Won't overheat under the conditions of use.
6. Won't produce arcs during normal use.

Ensuring Electrical Equipment Used for Approved or Listed Purpose
Definitions:
Electrical Outlets: Places on an electric circuit where poweris supplied to equipment through receptacles, sockets and outlets for attachment plugs.
Receptacles: Outlets that accept a plug to supply electricpower to equipment through a cord or cable.

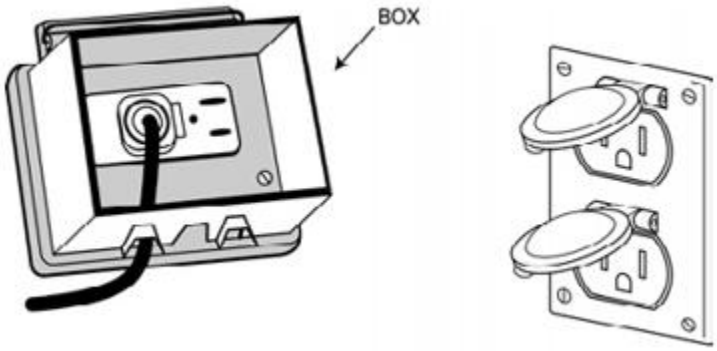
1. Electrical outlets should be rated equal or greater to theelectrical load supplied.
2. The proper mating configuration should exist when connecting the attachment plug to the receptacle.
3. When electrical outlets, cord connectors, and receptacles are joined, they should accept the attachment plug with the same voltage or current rating (see common electricaloutlet configurations below).



Ensure Electrical Equipment Used orLocated in Wet/Damp Locations Is Designed for Such Use

Fixtures and receptacles located in wet or damp locations must be approved for such use. They must be constructedor installed so that water cannot enter or accumulate in wire ways, lamp holders, or other electrical parts.

1. Cabinets, fittings, boxes, and other enclosures in wet or damp locations should be installed to prevent moisture orwater from entering or accumulating inside.
    a. In wet locations, these enclosures must beweatherproof.
    b. Switches, circuit breakers, and switchboards located inwet locations must be in weatherproof enclosures.



Electrical Equipment has Manufacturers Markings

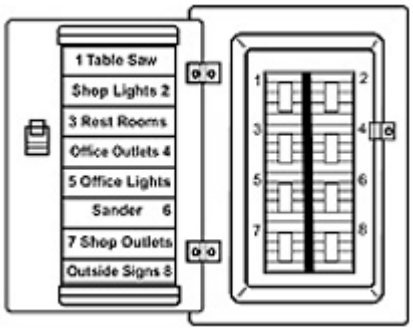
Markings on electrical equipment must be durable andappropriate for the environment. Appropriate markings include:

1. The manufacturers name *or*
2. Trademark *or*
3. The organization responsible for the product *and*
4. Voltage, current, wattage or other ratings as necessary (see illustration below).

Electrical tools and equipment marked to show manufacturer, approvals and power requirements.

Identify Means of Disconnecting

1. The disconnect means (such as on/off switches and circuit breakers) must be marked to show when it's open and closed, and what equipment it controls unless located and arranged so the purpose is obvious.
2. Each service, feeder and branch circuit should be marked at its disconnecting means or overcurrent device to show when the circuit is open/closed, and what circuit it controls (unless located and arranged so the purpose is obvious).
3. Markings on the disconnect should be durable and appropriate to the environment in which the disconnect is located.



Maintain Electrical Fittings, Boxes, Cabinets and Outlets in Good Condition
Openings and Covers

1. When conductors enter boxes, cabinets or fittings, the following must be in place:
    a. The conductor must be protected (i.e. the wires must be protected from abrasions).
    b. Openings where conductors enter should be effectively closed so that the internal wiring is not exposed.
    c. Any unused openings should be covered with blanks to ensure that employees are not exposed to the internal wiring.
2. Provide pull boxes, junction boxes, and fittings with covers approved for the purpose.
3. Each outlet box must have a cover, faceplate, or fixture canopy in completed installations.
4. Covers for outlet boxes with openings for flexible cord pendants must have bushings to protect the cord or have a smooth and well-rounded surface where the cord touches the opening.
5. Metal covers must be grounded.

Areas in front of electrical panels, circuit breaker boxes, and similar equipment which operate at 600 volts or less:

1. Must have sufficient working area at least 30 inches wide for the operation and maintenance of the equipment.
2. Must be kept clear and free of stored materials so that employees can access this equipment for servicing, adjustments or maintenance.
3. Should have at least one access route that is free of obstructions.
4. Have at least 3 feet (36 inches) of working space in front from floor to ceiling (measured from the exposed live part or the enclosure front). Consider installing signage that states

this requirement to ensure that the 3 feet clearing is always maintained (or marking the area with yellow paint).

5. Should have adequate indoor lighting for clear viewing of the area.
6. Have at least 6 feet 3 inches of headroom.
   The table below shows the area you must keep clear depending upon the layout of the electrical equipment:

Conditions*	0-150 Volts to Ground	151-600 To Ground
A	3 ft	3 ft
B	3 ft	3½ ft
C	3 ft	4 ft

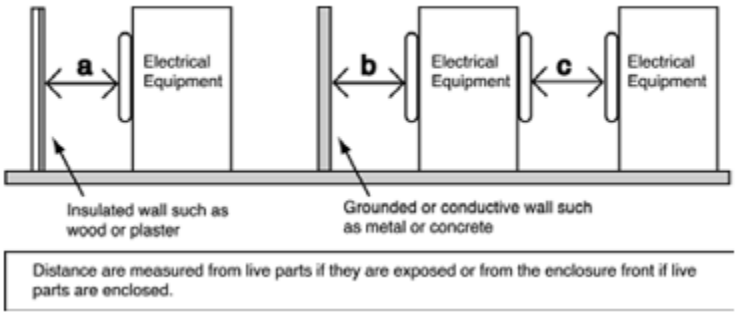
Minimum clear distances may be 0.7 m (2.5 ft) for installations built before April 16, 1981.

*Conditions A, B, and C are as follows:

A = Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by suitable wood or other insulating material. Insulated wire or insulated bus bars operating at not over 300 volts aren't considered live parts.

B = Exposed live parts on one side and grounded parts on the other side.

C = Exposed live parts on both sides of the workspace (not guarded as provided in condition (a) with the operator between the panels).



Maintain All Flexible Cords and Cables in Good Condition & Use Safely

Exemption: Rules do not apply to cords and cables that are an internal part of factory assembled appliances and equipment, like the windings on motors or wiring inside electrical panels.

1. You must perform a visual inspection of all flexible cords and cables on portable cord and plug connected equipment and extension cords before use on each work shift. It is not required that you visually inspect portable cord and plug connected equipment and extension cords that stay connected once in place and aren't exposed to damage until they are moved. Defects and damage to look for include:
   a. Loose parts
   b. Deformed or missing pins

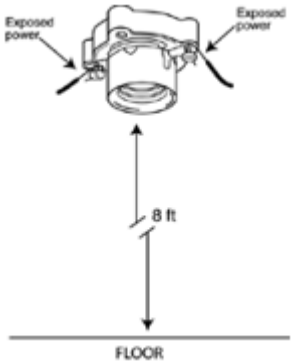
   c. External defects and damage
   d. Damage to the outer covering or insulation
   e. Pinched or crushed covering or insulation that mightindicate internal damage
2. You must remove from service any defective or damagedcord until repaired and tested.
3. Make sure flexible cords and cables are used as described.
   a. Use flexible cords only as follows:
      - Wiring of equipment and appliances
      - Data processing cables approved as a part of the dataprocess system
      - Pendants
      - Wiring for fixtures
      - Connecting portable lamps or appliances to anapproved outlet with an attached plug
      - Connecting stationary equipment that is frequently changed with an attachment plug energized from anapproved outlet
      - Preventing noise or vibration transmission
      - Appliances that have been designed to permit removal for maintenance and repair if the appliance is equipped with an attachment plug energized from anapproved outlet
      - Elevator cables
      - Wiring of cranes and hoists.
4. If additional power supplies are needed, utilize an approvedsurge protector with multiple outlets.
5. Extension cords cannot be plugged into or piggybackedonto other extension cords or surge protectors.
6. If the light on the surge protector is flickering or off, removethe surge protector from service. This flickering or absence of a light indicates that a power surge has gone through the surge protector, and it is no longer working appropriately.
7. Cheater boxes plugged into electrical receptacles are notallowed.
8. Flexible cords cannot be used in the following ways:
      - As a substitute for fixed wiring of a structure
      - To run through holes in walls, ceilings, or floors
      - To run through doorways, windows or similaropenings
      - To attach to building surfaces
      - To conceal behind building walls, ceilings, or floors
      - To raise or lower equipment.
9. Flexible cords and cables will be approved for conditionsof use and location.
10. Do not fasten or hang cords and equipment in any way that could cause damage to the outer jacket or insulationof the cord. Use tension relief devices
11. Insulation on flexible cords and cables must be intact.
12. Flexible cords and electrical cords must be:
   a. Connected to devices and fittings so that any pulling force on the cord is prevented from being transmitted to joints or terminal screws on the plug.
   b. Used only in continuous lengths without splice or tap.
13. Do not plug or unplug equipment or extension cords ofequipment that is energized using wet hands.

Temporary Use of Cords

1. Temporary electrical power (such as extension cords) and lighting installations that operate at 600 volts or less are used only:
    a. During and for remodeling, maintenance, repair or demolition of buildings and similar activities.
    b. For experimental or development work.
    c. For a period not to exceed 90 days for:
        i. Christmas decorative lighting
        ii. Carnivals
        iii. Other similar purposes.
2. Flexible cords and electrical cords used on a temporary basis must be protected from accidental damage by avoiding sharp corners and projections, especially when they pass through doorways and other pinch points.

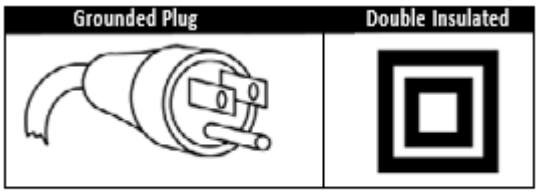
Guard Electrical Equipment to Protect Employees from Electrical Hazards

1. Guard live parts of electrical equipment operating at 50 volts or more against accidental contact by any of the following means:
    a. Approved cabinets or other forms of approved enclosures.
    b. By location in a room, vault or similar enclosure that is accessible only to employees qualified to work on the equipment. Entrances to rooms and other guarded locations containing exposed live parts must be marked with conspicuous warning signs forbidding unqualified persons from entering.
    c. By permanent, substantial partitions or screens so that only employees qualified to work on the equipment will have access within reach of the live parts. Any openings must prevent accidental contact with live parts by employees or objects carried by employees.
    d. By location on a balcony, gallery, or platform that will exclude unqualified personnel.
    e. By being located 8 feet or more above the floor or other working surface.
2. All electrical appliances, fixtures, lamps, rosettes, and receptacles should not have live parts normally exposed to employee contact.
    a. Rosettes and cleat type lamp holders at least 8 feet above the ground may have exposed parts.
3. In locations where electric equipment would be exposed to physical damage, enclosures or guards must be so arranged and of such strength as to prevent such damage.



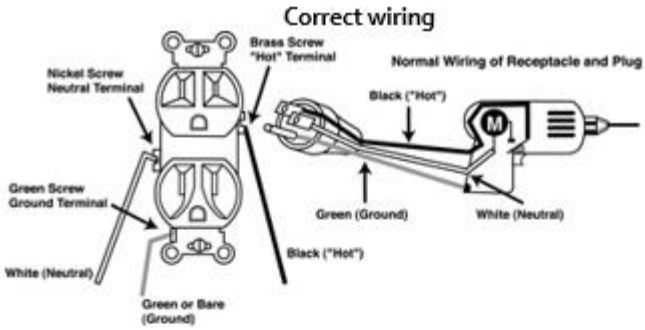
Ensure Electrical Equipment Is Effectively Grounded

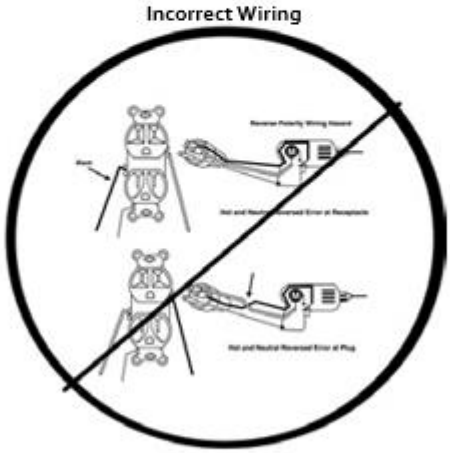
1. The path to the ground from circuits, equipment, and enclosures must be permanent and continuous.
2. Grounding prongs must not be removed from electrical cords and each electrical receptacle must provide a location for a ground prong. Cords without grounding prongs must not be used.
3. Equipment connected by cord and plug must be grounded under these conditions:
    a. Equipment with exposed concurrent carrying metal parts
    b. Cord and plug connected equipment which may become energize
    c. Equipment that operates at over 150 volts to ground
    d. Equipment in hazardous locations.
4. You must ground the following type of equipment:
    a. Hand-held motor-operated tools
    b. Refrigerators
    c. Freezers
    d. Air conditioners
    e. Water fountains or water dispensing machines
    f. Clothes washers and dryers
    g. Electrical aquarium equipment
    h. Hedge clippers
    i. Electric lawn mowers
    j. Electric snow blowers
    k. Web scrubbers
    l. Tools likely to be used in damp or wet locations (i.e. in water or wastewater facilities)
    m. Appliances used by employees standing on the ground, on metal floors or working inside of metal tanks or boilers
    n. Portable hand lamps.
5. Grounding can be achieved by using tools and appliances equipped with an equipment grounding conductor (3 prong plug and grounded electrical system).



Hand held tools and some types of equipment must use a 3-wire plug or the tool label must show the tool as insulated by words or symbol.

1. Exposed metal parts of fixed equipment that don't conductelectricity (but may become energized) must be grounded if the equipment is in a wet or damp location and isn't isolated.
2. Ground wires must be identified and look different than the other conductors (wires).
3. Ground conductors should not be attached to any terminal or lead to reverse polarity of the electrical outlet orreceptacle (see illustrations showing examples of wiring).
4. Grounding terminals or grounding-type devices on receptacles, cords, connectors, or attachments plugs should not be used for purposes other than grounding.





Reverse polarity wiring can cause a faulty tool to start as soon as it is plugged in or not stop when the switch is released. This could cause an injury. An extremely dangerous type of reverse polarity wiring switches the hot and ground wires. This causes the body of the tool or appliance to be "hot". Touching the tool and conductive surface can result in serious or even deadly shock.

Electrical Equipment Has Overcurrent Protection

1. All electrical circuits that are rated at 600 volts or less must have overcurrent protection.
2. Protect conductors and equipment according to their ability to safely conduct electrical equipment.
3. Overcurrent devices should not interrupt the continuity of grounded conductors unless all conductors are opened at the same time, except for motor running overload protection.
    a. Protect employees from electrical arcing or suddenly moving electrical parts by locating fuses and circuit breakers in safe places. If this isn't possible, install shields on fuses and circuit breakers.
4. The following fuses and thermal cutouts should have disconnecting mechanisms:
    a. All cartridge fuses accessible to nonqualified persons
    b. All fuses on circuits over 150 volts to ground
    c. All thermal cutouts on circuits over 150 volts to ground
    d. The disconnecting mechanism must be installed so you can disconnect the fuses or thermal cutouts without disrupting service to equipment and circuits unrelated to those protected by the overcurrent device.
5. Provide easy access to overcurrent devices for each employee or authorized building management personnel.
6. Protect the overcurrent devices by locating them away from easily ignitable material.
    a. They must be placed to avoid exposure to physical damage.
7. Circuit breakers:
    a. Must clearly indicate when they are open (off) and closed (on).
    b. That operate vertically must be installed so the handle is in the "up" position when the break is closed (on).
    c. Used as switches in 120-volt, fluorescent lighting circuit must be approved for that purpose and marked "SWD".
    d. That have arcing or suddenly moving parts should be shielded or located so employees won't get burned or injured by the operation of the circuit breaker.
8. Fuses that have arcing or suddenly moving parts must be shielded or located so employees won't get burned or injured by the operation of the fuses.

Ground-Fault Circuit Interrupters (GFCI)

1. OAR 437-003-0404 requires ground-fault circuit interrupters (GFCIs) on all 125-volt, single-phase, 15-, 20-, and 30-ampere receptacles that are not part of the permanent wiring of a building or structure.
2. If a permanently wired receptacle (not equipped with GFCI protection) is used for temporary power in a construction project, GFCI protection must be provided at the user end.
3. Portable plug-in and cord-type GFCIs are probably the most practical devices for construction workers who use cord sets for temporary power when there is no protection at the source.
4. GFCIs sense imbalances or differences along the electrical circuit and shut it down when needed. For this reason, GFCI can be critical to workers in wet environments. The rule for GFCI does not exempt work with intrinsically safe or double insulated tools.
5. GFCIs must either be built into the overall circuit, as part of the outlet receptacle, or using protected cord sets or GFCI devices.
6. GFCI protection can be anywhere on the circuit if it works effectively to protect the worker. Protection can be for the entire circuit, the outlet receptacle, or the extension cord.

7. For receptacles with more than 125 volts, single-phase, or more than 30-amp capacity, use GFCI or have a program that ensures equipment is grounded: see OAR 437-003-0404(3).
8. There must be a written description of assured equipment: a grounding program at each job site that includes specific procedures.
9. One or more competent people should be designated to run the program. (A competent person can identify hazards and has authority to promptly correct them).
10. Each day, inspect all extension cords and equipment (plug connected) for external defects before using them.
11. Conduct periodic tests of all grounding conductors for continuity and test each receptacle or plug to ensure that the grounding conductor is connected to the right terminal.
12. Testing is required before the first use, before the first use after a repair, before use after any event that could cause damage, and at least every three months (six months for fixed cords sets and receptacles not exposed to damage).
13. Record all tests by identifying each cord, receptacle, or piece of equipment and its test date or test interval. Keep the test record until a new record replaces it using logs, color coding, or other means. These records must be available on the job site.
14. All electrical receptacles located within 6 feet of a water source (i.e. sink) must have a GFCI on the receptacle or the circuit that controls that receptacle.

Working Around Buried Electrical Lines

1. Any time workers are required to start any in ground work like digging or driving objects, OR-OSHA standard OAR 437-003-1926.651(b)(1) requires locating utilities before digging. (for more information see: http://osha. oregon.gov/OSHAPubs/hazard/2993-05.pdf)
2. The primary contractor or facilitator of the work must call the Oregon Utility Notification Center (OUNC) before starting work. In the Portland metro area, the number is (503) 246-6699. In all other areas of Oregon, call (800) 332-2344.
3. OUNC will then come out to locate and mark all utilities in the area where the work will be performed.
4. The contractor or facilitator of the work must ensure that power to any electrical lines in work must be deenergized to ensure employee safety.
5. If a worker contacts an underground line or pipe, the con-tact could be fatal.
6. In addition, the contractor or person responsible for the work is responsible for all repair costs if they did not contact OUNC before starting work.

Working Around Overhead Electrical Lines

1. To protect those working near overhead power lines from accidental contact, the Oregon Legislature passed into law the *High Voltage Overhead Line Safety Act*. See ORS 757.800 and 757.805.
2. The law provides that no work activities take place within 10 feet of a high voltage overhead power lines until the following two requirements are met:
    a. The responsible party must notify the utility operating the line of the intended work activity.
    b. The responsible party and the utility must complete mutually satisfactory precautions for the activity.

3. As soon as you inform your local utility of your intended work activity, the following can occur:
    a. Coordination of work schedules.
    b. Identification of temporary mechanical barriers to prevent contact with the lines.
    c. Temporary de-energizing and grounding of the lines
    d. Temporary raising or moving of the lines.

Personal Protective Equipment

1. Employees must wear appropriate Personal Protective Equipment (PPE) when working around electrical sources. (see PPE standard at General Industry Div. 2 Subdivision I: 1910.137 Electrical Protective Equipment). Electrical protective equipment is subject to regular electrical tests to ensure they are still providing protection to the employee.
2. Electrical protective equipment will be maintained in a safe, reliable condition.
3. Insulating equipment will be inspected for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves will be given an air test, along with the inspection.
4. Insulating equipment will be stored in such a location and in such a manner as to protect it from light, temperature extremes, excessive humidity, ozone, and other injurious substances and conditions.
5. Insulating equipment with any of the following defects may not be used:
    a. A hole, tear, puncture, or cut
    b. Ozone cutting or ozone checking (the cutting action produced by ozone on rubber under mechanical stress into a series of interlacing cracks)
    c. An embedded foreign object
    d. Any io the following texture changes: swelling, softening, hardening, or becoming sticky or inelastic
    e. Any other defect that damages the insulating properties.

LADDER SAFETY

OAR 437, Division 2, Subdivision D

We take portable ladders for granted because they're so easy to use. Yet more workers are injured in falls from ladders than from any other elevated surface, roofs, scaffolds, balconies, even stairs. Why do workers fall from ladders? Most falls happen because workers select the wrong type of ladder for the job, the ladder is set up improperly, or the ladder shifts or slips unexpectedly. Workers also fall when their foot slips, they lose their balance, they overreach, or something knocks the ladder over.

How To Select Your Ladder

Which ladder is the right one for your job? You'll save time, energy and reduce your risk of injury if you select the correct one. Key factors are type and style, length, duty rating, and the material from which the ladder is made. Most portable ladders are either non-self-supporting, such as an extension ladder, or self-supporting, such as a standard stepladder. But there are also combination ladders that convert quickly from a stepladder to an extension ladder. You're likely to find the right size, shape, and type of ladder to accomplish your task within one of these categories.

Extension Ladders (Non-Self-Supporting)

Extension ladders offer the greatest length in a general-purpose ladder. The ladder consists of two or more sections that travel in guides or brackets, allowing adjustable lengths. The sections must be assembled so that the sliding upper section is on top of the lower section. Each section must overlap its adjacent section minimum distance, based on the ladder's overall lengths of the individual sections, measured along the side rails. The table below shows the minimum overlap for two-section ladders up to 60 feet long.

Ladder length	Overlap
Up to 36 feet	3 feet
36 to 48 feet	4 feet
48 to 60 feet	5 feet

Most extension ladders are made of wood, aluminum, or reinforced fiberglass. Wood ladders can't have more than two sections and must not exceed 60 feet. Aluminum and fiberglass ladders can have as many as three sections; however, the overall length must not exceed 72 feet. Individual sections of any extension ladder must not be longer than 30 feet. Extension ladders can be used only by one person at a time.

Is It Necessary To "Tie Off" An Extension Ladder To Prevent It from Slipping?

You don't have to tie off the ladder, but you do have to ensure that the ladder cannot be accidentally moved or displaced. Tying off the top or bottom of a ladder is one way to ensure that it cannot be accidentally moved or displaced.

Standard Stepladders (Self-Supporting)

The standard stepladder has flat steps and a hinged back. It is self-supporting and nonadjustable. Standard stepladders should be used only on surfaces that have a firm, level footing such as floors, platforms, and slabs. They're available in aluminum, wood, or reinforced fiberglass and are intended to support only one worker at a time. Remember not to stand on the top step. Stepladders must have metal spreaders or locking arms and can't be longer than 20 feet, measured along the front edgeof the side rails.

1. **Can I use a standard stepladder like a straight ladder?** Using a standard stepladder in a closed position is not a safe practice because it's more likely to slip on surfaces such as concrete and wood than a straight ladder. Standard stepladders are designed to be used only when the spreader arms are open and locked. If a standard stepladder doesn't meet your needs, choose an appropriatestraight ladder or a combination ladder.

Other Types of Stepladders Include:

1. **Two-way stepladder**: The two-way stepladder is simi- lar to the standard stepladder; however, each side of this ladder has a set of steps. One person can work from either side, or two people can work from the ladder at the same time—one on each side.
2. **Platform ladder**: The platform ladder is a special-purpose ladder that has a large, stable work platform. The ladder's length is determined by the length of the front edge of the side rail from the bottom of the ladder to the base ofthe platform; it can't exceed 20 feet.
3. **Orchard ladder**: The orchard ladder is a special-purposeladder for pruning and harvest work. It has a flared base and a single back leg that offers support on soft, uneven ground. Orchard ladders are intended for use by only one person at a time and can't be longer than 16 feet. Wood, aluminum, and reinforced fiberglass versions are available. A more rigid orchard ladder, the so-called double base version, incorporates a triangular box brace with stub rails attached to the bottom step. The ladder is available in wood or with a combination of wood fiberglass rail and metal step. The maximum length is 16 feet, and it is intended for use by on person. Do not stand on the top step of an orchard ladder.
    a. **Can orchard ladders be used on construction sites?** Yes. In fact, orchard ladders are often safer onuneven or sloped ground than conventional stepladders. An orchard ladder is designed to be used on soilor turf so that each leg slightly penetrates the ground.Orchard ladders should never be used on concrete or hard surfaces. Tripod ladders that have spread braces, also called electrician's ladders, are common on construction sites, too.
4. **Trestle ladder**: A trestle ladder is a self-supporting portable ladder that has two sections hinged at the top, forming equal angles with the base. A variation of the trestle ladder, the extension trestle ladder includes a vertically adjustable single ladder that can be locked in place. (The single extension section must lap at least 3 feet into the base section.) Trestle ladders are used in pairs to support planks or staging. The rungs are not intended to be used as steps. The angle of spread between open front and back legs must be 5½ inches per foot of length. The length can'tbe more than 20 feet, measured along the front edge of theside rails. Rails must be beveled at the top and have metal hinges to prevent spreading. Metal spreaders or locking devices are required to keep the rails in place.
5. **Combination ladders and multipurpose ladders**: These ladders share many of the features of stepladders and extension ladders. Most quickly convert from standard

stepladders to extension ladders, and many can be used in three or more variations- such as a stairway ladder, two-way stepladder, or a self-supporting scaffold base.

Determine The Proper Length

1. **Standard stepladders**: You should be able to reach about 4 feet above the top of the ladder when you're standing two steps down from the top. For example, you should be able to reach an 8-foot ceiling on a 4-foot ladder. Never use the top of a stepladder as a step.
2. **Extension ladders**: The total length of an extension ladder should be 7-10 feet longer than the vertical distanceto the upper contact point on the structure—a wall or roofline, for example. Never stand on the ladder rungs thatextend above a roofline.

Determine The Duty Rating

Manufacturers give ladders duty ratings, based on the maxi- mum weight they can safely support. The worker's weight plusthe weight of any tools and materials that are carried onto the ladder must be less than the duty rating. Before you purchase a ladder consider the maximum weight it will support. Don't subject it to a load greater than its duty rating. Duty ratings for portable ladders:

1. Special duty (IAA) 375 pounds
2. Extra heavy duty (I-A) 300 pounds
3. Heavy duty (I) 250 pounds
4. Medium duty (II) 225 pounds
5. Light duty (III) 200 pounds

Determine The Right Material

1. **Wood**. Wood provides a natural feel and good insulation against heat and cold. However, untreated wood agesquickly; wood ladders need a protective coat of clear varnish to keep the wood from drying and splitting. Also, woodladders are heavy, particularly longer ones.
2. **Aluminum**. Aluminum ladders are lightweight and corrosion resistant. Aluminum will not crack or chip with rough handling; however, aluminum doesn't insulate well againstheat and conducts electricity. Never use aluminum ladders for work near energized electrical lines.
3. **Fiberglass**. Fiberglass is durable, weather resistant, and nonconductive when clean and dry. Unlike wood, fiberglasswon't dry out or split and provides better insulation against heat than aluminum. However, fiberglass ladders are heavier than comparable aluminum or wood ladders and can chip or crack with improper handling.
   Fiberglass ladders must also be handled and maintained with more care than wood ladders. After a few years, the reinforcing fibers in fiberglass rails may become exposed, resulting in a condition known as "fiber bloom." High humidity and exposure to strong sunlight can accelerate the condition. Fiber bloom doesn't affect a ladder's strength,but it will affect the appearance and may cause users mild discomfort if exposed fibers penetrate their skin. Regular washing and waxing with a commercial non-slip paste wax will protect the ladder and reduce the potential for fiber bloom. Periodically coating the ladder with acrylic lacquer or polyurethane also will protect it.

How To Set Up Your Ladder

Setting Up the Ladder

1. Move the ladder near your work. Get help if the ladder is too heavy to handle alone.
2. Lock the spreaders on a stepladder. Secure the lock assembly on extension ladders.
3. Make sure there are no electrical wires overhead.
4. Use traffic cones or other barriers to protect the base of the ladder if vehicles or pedestrians could strike it.
5. Make sure that a non-self-supporting ladder extends at least 3 feet above the top support point for access to a roof or other work level. Do not step on rungs above the upper support.
6. Angle non-self-supporting ladders properly. The length of the side rails from the ladder's base to the top support points (the working length) should be four times the distance from ladder's base to the structure (the set-back distance). Done correctly, this results in a 4:1 set-up angle.

Achieving A 4:1 Set-Up Angle

1. A non-self-supporting ladder should have a set-up angle of about 75 degrees, or a 4:1 ratio of the ladder's working length to set-back distance.
2. Here's how to achieve it: stand at the base of the ladder with your toes touching the rails. Extend your arms straight out in front of you. If the tips of your fingers just touch the rung nearest your shoulder level, the angle of your ladder has a 4:1 ratio.

Five Steps for Setting Up an Extension Ladder

1. The ladder should be closed. Position the ladder with the base section on top of the fly section. Block the bottom of the ladder against the base of the structure.
2. Make sure there is clearance, and no electrical lines are overhead. Carefully "walk" the ladder up until it is vertical. Keep your knees bent slightly and your back straight.
3. Firmly grip the ladder, keep it vertical, and carefully move back from the structure about one quarter of the distance of the ladder's working length. This allows you to place it at the correct angle against the structure.
4. Raise the fly section. After the bottom rung of the fly section clears the bottom rung of the base section, place one foot on the base rung for secure footing.
5. Lean the ladder against the structure. The distance from the base of the ladder to the structure should be one quarter the distance of the ladder's working length. Make sure the ladder extends 3 feet above the top support points for access to a roof or other work level. Both rails should rest firmly and securely against the structure.

How To Work Safely on Your Ladder

1. Wear shoes that have non-slip soles; make sure they are free of mud, oil, or anything else slippery.
2. Climb facing the ladder. Center your body between the rails and keep your hips square to the rungs. Hold the side rails with both hands; you have a better chance of avoiding a fall if a rung or step fails.
3. Hold the ladder with one hand and work with the other hand whenever possible.
4. Attach light, compact tools or materials to the ladder or to yourself.
5. Raise and lower heavy, awkward loads with a hand line or a hoist.
6. Use extreme caution when you're pushing or pulling materials.

How To Inspect Your Ladder

Neglected ladders quickly become unsafe ladders. Step bolts loosen, sockets and other joints work loose, and eventually the ladder becomes unstable. Periodic maintenance extends a ladder's life and saves replacement costs. Maintenance includesregular inspection, repairing damage, and tightening step bolts and other fastenings.

1. Inspect your ladder each time you use it. (A competent person must periodically inspect ladders for defects and after any occurrence that could make them unsafe.)
2. Replace lower steps on wooden ladders when one- fourth of the step surface is worn away. Typically, the center of a step receives the most wear. Mineral abrasive or other skid-resistant material reduces wear.
3. Don't paint wood ladders- paint conceals defects.
4. Clean and lightly lubricate moving parts such as spreader bars, hinges, locks, and pulleys.
5. Inspect and replace damaged or worn components and labels according to the manufacturer's instructions.
6. Inspect the rails of fiberglass ladders for weathering, fiber bloom, and cracks.
7. Keep the ladder away from heat sources and corrosive materials.

How To Store Your Ladder

The best way to extend a ladder's life is proper storage, including the following steps:

1. Use a well-ventilated storage area.
2. Store wood and fiberglass away from excessive moisture, heat, and sunlight.
3. Keep them away from stoves, steam pipes, or radiators.
4. Store non-self-supporting ladders in flat racks or on wall brackets that will prevent them from sagging.
5. Secure them so that they won't tip over if they are struck.
6. Keep material off ladders while they are stored.

How To Transport Your Ladder

1. When carrying a ladder, keep the front end elevated, especially around blind corners, in aisles, and through doorways. You'll reduce the chance of striking another person with the front of the ladder.
2. When transporting a ladder in a truck or a trailer, make sure that it is properly supported parallel to the bed. Pad the support points with soft, nonabrasive material such as rubber or carpeting and tie the ladder securely to eliminatechafing and road shock.

Safe Practices Checklist

1. When portable ladders are used to access an upper landing, the side rails extend at least 3 feet above the upper landing. When this is not possible, the ladder is secured to a rigid support at its top and a grab rail is available to help employees get off the ladder.
2. Ladders are free of oil, grease, and other hazards that could cause slips.
3. Ladders are not loaded beyond the manufacturer's dutyrating.
4. Ladders are used only for the purpose for which they weredesigned.
5. Extension ladders are placed so that the working length ofthe ladder is four times the horizontal distance from the ladder's base to the structure, or a 4:1 ratio.
6. Ladders are used on stable, level surfaces or they aresecured so that they cannot be displaced.
7. Ladders are not used on slippery surfaces unless they aresecured, or they have slip resistant feet.
8. All ladders, except stepladders, have non-slip safety feet.

9. Employees are prohibited from placing ladders on boxes, barrels, and other unstable objects.
10. Ladders used near passageways, doorways, or driveways are protected so that vehicles or pedestrians do not strike them.
11. The area around the top and bottom of a ladder is free from slipping and tripping hazards.
12. The top of a non-self-supporting ladder is placed so that both rails are supported equally.
13. Ladders are not moved, shifted, or extended when they are occupied.
14. Ladders that could contact exposed energized electrical equipment have non-conductive side rails.
15. Portable aluminum ladders have legible signs reading "CAUTION: Do not Use Around Electrical Equipment" or equivalent wording.
16. The top step of a stepladder is not used as a step.
17. Cross bracing on the rear section of a stepladder is not used for climbing unless the ladder is designed for that purpose.
18. Employees are prohibited from using ladders that are missing steps, rungs, cleats, or have broken side rails or other faulty parts.
19. A competent person inspects ladders periodically for defects and after any occurrence that could damage them.
20. Defective ladders are marked as defective or are tagged "Do Not Use" and removed from service until they are repaired.
21. Repaired ladders meet their original design criteria before they are returned to service.
22. Employees face ladders while climbing or descending.
23. Employees use at least one hand to grasp the ladder when they are climbing and descending.
24. Employees do not carry objects or loads that could cause them to lose their balance.
25. Employees who use ladders receive training from a competent person in proper use, placement, and handling.
26. Employees know the hazards associated with ladder use and follow procedures that minimize the hazards.
27. Retraining is provided periodically to ensure that employees maintain their knowledge of proper ladder use, placement, and handling.

Definitions

- **Check:** A lengthwise separation of the wood that occurs across the rings of annual growth.
- **Cleat:** A rectangular ladder crosspiece placed on edge, upon which a person may step while ascending or descending.
- **Competent person:** One who can identify existing and predictable hazards where employees work and who can take prompt corrective measures to eliminate the hazards.
- **Decay:** Disintegration of wood substance due to action of wood-destroying fungi. Also known as dote and rot.
- **Extension ladder:** A non-self-supporting portable ladder that is adjustable in length. It consists of two or more sections in guides or brackets that permit length adjustment. Length is designated by the sum of the lengths of each section, measured along the side rails.
- **Extension trestle:** A self-supporting portable ladder that is adjustable in length, consisting of a trestle ladder base and a vertically adjustable single ladder with means for

locking the ladders together. Length is designated by the length of the trestle ladder base.

- **Fastening:** A device that attaches a ladder to a structure, building, or equipment.
- **Platform ladder:** A self-supporting ladder of fixed size with a
- platform at the working level.
- **Rungs:** Ladder crosspieces on which a person steps when ascending or descending.
- **Sectional ladder:** A non-self-supporting portable ladder, nonadjustable in length, consisting of two or more sections that function as a single ladder. Its length is designated by the overall length of the assembled sections.
- **Single (or straight):** A single section non-self-supporting portable ladder that is nonadjustable in length. Its length is measured along a side rail.
- **Special purpose:** A general-purpose portable ladder with
- modified features for specific uses.
- **Stepladder:** A self-supporting portable ladder, nonadjustable in length that has flat steps and a hinged back. Length is measured along the front edge of a side rail.
- **Steps:** The flat crosspieces of a ladder on which a person steps when ascending or descending.
- **Tread:** The horizontal member of a step.
- **Tread width:** The horizontal distance from front to back of the tread, including nosing.
- **Trestle ladder:** A self-supporting portable ladder, nonadjustable in length that consists of two sections hinged at the top to form equal angles with the base. Length is measured along the front edge of a side rail.

JOBS HAZARD ANALYSIS

Job Hazard Analysis and Control
The following basic principles are to be used during the review of employee job activities. The job hazard analysis is done to identify any hazards or risks that could cause injury or illness to employees.

Recommendations on how to eliminate or reduce the hazards are made based on the extent feasible and may involve an incremental abatement process.

Definitions
Job Hazard Analysis: A tool or process to make a job safe before hazards become accidents. This is done through the identification of hazards associated with a specific job and planned actions to control or eliminate the hazards. It provides a formal systematic method, that when used consistently can provide the basic framework of a proactive safety program.

Hazard: A potential danger which can result in injury or illness.
The following procedure will be followed when performing a Job Hazard Analysis:

1. Employees will be interviewed about whether performing the job poses physical difficulties and if so, which physical work activities or conditions of the job they associate with the difficulties.
2. Employees will be observed performing the job to identify which physical work activities, workplace conditions and risks/hazards are present.
3. Evaluate the job's hazards and risk factors including duration, frequency and magnitude.
4. Identify, assess and implement feasible controls to eliminate or materially reduce job hazards. This includes prioritizing the control of hazards and includes consideration of appropriate controls including administrative, engineering, PPE and work practice controls.
5. Track progress of eliminating or materially reducing job hazards. This process includes consulting with employees about whether the implemented controls have eliminated or materially reduced the hazards.

Types of Controls

1. Any combination of engineering, administrative and/or work practice controls can be used to eliminate or materially reduce hazards.
2. Personal protective equipment may be used to supplement engineering, work practice and administrative controls, but may only be used alone where other controls are not feasible.

Training

1. Training will be provided to department heads/supervisors or responsible staff on how to properly conduct job hazard analysis.

Sample Job Hazard Analysis Form

The Job Hazard Analysis (JHA) provides the basic assessment of safety and health needs for each employee. Information collected during a JHA can be used to develop possible solutions.

FACTORS	ISSUES	RESPONSE
JOB TASKS	Describe a typical day (shift) on your job.	
SAFETY HAZARDS	Hazards encountered?	
	Need for PPE?	
	Need for lifting aid/ergonomic devices?	
	If lifting or force exertion is required, how often?	
PERSONAL PROTECTIVE EQUIPMENT (PPE)	Types of PPE equipment and safety training provided.	
WORK CYCLE	How much time does it take to complete one inspection?	
	How much does that time vary per shift?	
	How long does it take to learn the job?	
	What tasks are the most difficult and why?	
JOB TASK/OPERATION	Description of job and the safety practices involved. Use both on-site audit information, interview information from focus group leaders (supervisors or managers), and any written job descriptions.	
HAZARDS	List the hazards associated with the job process.	
SAFETY PROCEDURES	List the PPE, ergonomic aids, other safety equipment needed.	
TRAINING REQUIREMENTS	List the type of training provided including training required by Oregon OSHA.	

MOBILE EQUIPMENT

1 Purpose

This procedure describes the minimum requirements for safe operation of mobile equipment at the City of Boardman

1.1 Scope
- 1.1.1 The procedure applies to the use of all mobile equipment.

1.2 Precautions
- 1.2.1 Only operate vehicles/equipment in good working conditions. Do not use vehicle/equipment with any safety defects.
- 1.2.2 Verify a line of communication when working in remote locations. If unable to ensure communications, consider using a Signaler.

1.3 Limitations
- 1.3.1 This procedure does not cover the use of mobile cranes or hoists.

2 Responsibilities

2.1 Site Personnel
- 2.1.1 Notifies Management of all mobile equipment risks, deficiencies, and corrective actions.
- 2.1.2 Maintains an awareness of mobile equipment operations in work area and remains clear of mobile equipment blind spots and operating zones.
- 2.1.3 Shares responsibility with mobile operators for establishing right-of-way in operating zone.
- 2.1.4 Adheres to safety rules for mobile equipment posted on equipment labeling and safety rules communicated by the mobile equipment operator.

2.2 Mobile Equipment Operator
- 2.2.1 Completes mobile equipment training for the mobile equipment being o2.2.2 Holds a valid Department of Transportation (DOT) license for equipment being used as applicable.
- 2.2.3 Ensures mobile equipment is operated for a task in which it is intended.
- 2.2.4 Conducts a pre-use inspection of mobile equipment prior to operating.
- 2.2.5 Maintains awareness of mobile equipment instructions, warnings, precautions, rated-load capacity, and load suspension specifications.
- 2.2.6 Follows speed limits, traffic signs, approach boundaries, procedures and permits.
- 2.2.7 Uses, wears, and maintains Personal Protective Equipment (PPE) as required for equipment and conditions.
- 2.2.8 Maintains awareness of Site Personnel working on the ground when operating vehicles/equipment.
- 2.2.9 Shares responsibility with Site Personnel for establishing right-of-way in operating zone.

2.3 Signaler
- 2.3.1 Maintains a clear view of the Mobile Equipment Operator, the equipment and load.
- 2.3.2 Uses hand signal fundamentals to direct the Mobile Equipment Operator.
- 2.3.3 Communicates hazards or potential hazards to personnel in the vicinity prior to performing hand signals.
- 2.3.4 Prevents directing a load over workers.

2.4 Professional Engineer (PE)
- 2.4.1 Certifies modifications to mobile equipment.

2.5 Public Works Director
- 2.5.1 Ensures responsibilities are assigned to individuals or groups for completion
- 2.5.2 Mitigates mobile equipment risks and ensure corrective actions are completed in a timely manner
- 2.5.3 Ensures mobile equipment Preventative Maintenance (PM) is performed and documented, including inspections, servicing, and certifications in accordance with manufacturer's specifications.
- 2.5.4 Ensures Mobile Equipment Operators are trained, competent and authorized to operate mobile equipment.
- 2.5.5 Ensures Site Personnel who directly supervise MEWP operators are properly trained

2.6 Document Owner
- 2.6.1 Assigns resources to implement the procedure.
- 2.6.2 Maintains the procedure and coordinates revisions with Management and Program Owner.
- 2.6.3 Updates the procedure to reflect protocol changes.
- 2.6.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.

2.7 Program Owner
- 2.7.1 Assigns resources to manage the program.
- 2.7.2 Oversees and reviews program to ensure the program is compliant and effective.

3 Procedure

3.1 Prerequisite Actions

3.1.1 Mobile Equipment Operator must maintain a of identified requirements. valid DOT operator's license when required.

- 3.1.2 Mobile Equipment Operator must be trained and hold any certification required to use the specific mobile equipment. Examples: Forklift, Telehandler, MEWPs
- 3.1.3 The manufacturer's operation and maintenance manual must be readily available. All safety rules, operating instructions, and maintenance procedures prescribed by the manufacturer must be followed.
- 3.1.4 The critical safety components of mechanical elevating and rotating equipment must receive a thorough visual inspection and walk around before use on each shift by completing "Pre-Use" inspection logs.
- 3.1.5 DOT required equipment logs must be kept up to date.
- 3.1.6 Obtain Management authorization prior to operating mobile equipment.
- 3.1.7 Train employees who work around mobile equipment on the shared right-of way responsibility between Mobile Equipment Operators and Site Person
- 3.1.8 Forklift operator training must include shared right-of-way responsibility.
- 3.1.9 Management must ensure that Personnel who directly supervise Mobile Elevating Work Platform (MEWP) operators are trained in the following (as defined in ANSI A92.24-2018):
  - A. Proper selection of the correct MEWP for the work to be performed.

B. The rules, regulations and standards that apply to MEWP's, including the provisions for safe use as defined in ANSI A92.22, training and familiarization, and work being performed.
C. Potential hazards associated with use of aerial MEWP's and the means to protect against identified hazards.
D. Knowledge that the manufacturer's operation manuals are an integral part of the MEWP and need to be stored properly in the weather-resistant compartment on the MEWP.

3.1.10 Fire extinguishers are available, inspected, and in good working order.
3.1.11 The horn, indicators, flashing lights, etc., are in operating condition.
3.1.12 Use of cell phones while driving is prohibited
3.1.13 Always follow the three-point contact rule and face toward when climbing up, down, on, and off any piece of mobile equipment.
3.1.14 Adjust mirrors accordingly before operation begins.

3.2 Procedure

3.2.1 General Requirements

A. Only use mobile equipment that is in good working order and is current on its Preventive Maintenance (PM) service. Additional maintenance may be required based on hours of operation or manufacturer recommendations.
B. Any modifications to mobile equipment must be approved and certified by the manufacturer or a Professional Engineer.
C. Mobile equipment with deficiencies or defects will be taken out of service and repaired prior to use.
D. The rated-load chart, operator's manual and attachment manual must be available within the mobile equipment.
E. Maintain loads carried by mobile equipment within the rated-load capacity specified by the manufacturer. Secure loads to prevent movement during transport.
F. Handle loads in a manner that prevents shock loading of mobile equipment.
G. Mobile equipment must be positioned, equipped, protected, and operated so no part comes closer to energized power lines than the minimum approach distance indicated in the following table based on OSHA 1910.269.
H. Control hazardous energy, especially stored energy, if you are working within the reach distance of the equipment.
I. Use seat belts and other installed safety devices during mobile equipment operation.
J. Use a Signaler when operating conditions restrict the Mobile Equipment Operator's visibility:
    a. Maintain eye contact between the Mobile Equipment Operator and the Signaler when mobile equipment is operating.
    b. Only the Signaler may provide hand signals to the Mobile Equipment K. Set outriggers on pads or a surface capable of withstanding their weight.
L. Maintain unattended mobile equipment in a safe non-operating condition, i.e., parked on level ground, controls set to neutral,

power turned off, with the parking gear and emergency brake fully engaged while not in use.

M. Conduct refueling or charging batteries only when:
   a. The motor is turned off.
   b. The hand brake is engaged.
   c. In an open, well-ventilated area.
   d. In an area with a minimum of 25 ft. away from an ignition source.

N. Place the mobile equipment propane tank valves in the closed position when the mobile equipment is not in use.

O. No personnel will be permitted to stand or pass under an elevated portion of mobile equipment.

P. Stand clear while stabilizers are being raised or lowered and while the boom is in operation.

Q. Mobile Equipment Operators must slow down and sound the horn, when equipped, at corners and locations where vision is restricted or obstructed.

R. Site Personnel must always keep at least six feet away from forklifts unless the operator has parked the forklift.

S. Use a load backrest extension, when forklifts or telehandlers are equipped, to minimize the possibility of the load or part of it falling rearward.

T. Do not operate MEWPs in windy conditions beyond manufacturer's recommendations.

U. Obstructed rear view: Never operate mobile equipment if your rear view is obstructed and you could endanger Site Personnel, unless the vehicle:
   a. Has a reverse signal alarm audibled above the surrounding noise.
   b. Is backed up only when a designated employee signals it is safe.

V. Capacity
   a. The rated-load capacity must be conspicuously posted on the equipment and must be kept in a legible condition.
   b. Loads must not exceed the manufacturer's rated capacity.

W. While traveling on public roads, a vehicle must trail behind the equipment with a sign warning of slow-moving, heavy equipment that is dangerous to pass.

X. All loads should be adequately secured during transport.

Y. The hook of a winch truck must be secured (i.e., tied down and not allowed to dangle freely) when traveling.

Z. An employee with a flag must stop all traffic before mobile/heavy equipment travels onto public roads.

AA. Ensure a route survey has been performed before moving the equipment to identify potential hazards (e.g., construction, excavation, waterlogged area, poor ground conditions, overhead power lines, etc.).

3.2.2 Right-of-Way

A. Mobile Equipment Operators and Site Personnel share responsibility for establishing right-of-way
B. Mobile Equipment Operators must establish eye contact with Site Personnel, and Site Personnel must establish eye contact with either the Mobile Equipment Operator or the Signaler.
C. After eye contact has been established, the use of hand signals by everyone will indicate who is being granted right-of-way.

3.2.3 Telehandlers and Forklifts

A. Keep forks in lower position while traveling, whether loaded or unloaded.
B. When ascending or descending grades greater than ten percent (10%), drive the load of telehandlers and forklifts tilted to cancel the grade to prevent load shifting.
C. When telehandlers or forklift is left unattended:
    a. Secure the telehandlers or forklift against unintentional movement by ensuring the mast and forks are fully lowered.
    b. Place the controls in neutral, power is shut off, and brakes are set.
    c. Secure the telehandler or forklift in a safe position.
    d. The wheels must be shocked if the telehandlers or forklift is parked on an incline.
    e. Equipment is considered unattended when the operator is 25 feet or more away from the vehicle or the truck is not in view.
    f. When the operator is dismounted and within 25 feet of the truck still in view, the load engaging means must be fully lowered, transmission in neutral, and the brakes set to prevent movement.
D. When lifting loads ensure the following:
    a. Move forklift squarely into position in front of the load.
    b. Position the forks wide enough apart to maintain load balance.
    c. Position the forks entirely under the load.
    d. Tilt the mast backward slightly to stabilize the load then lift.
E. When lowering loads ensure the following:
    a. Sufficient load-bearing capacity on the rack or storage location.
    b. Move squarely into position in front of the rack or stack where the load is placed.
    c. When ready to place the load, tilt the mast to level, only tilt forward when the load is over the spot where it will be placed.
    d. Lower the forks and back away.
    e. Visually verify that the load is stable.
F. Suspended loads must not be attached by chains or slings over the forks.

3.2.4 Mobile Elevating Work Platforms

A. Inspect the important safety components of mechanical elevating and rotating equipment before each shift.
B. Never leave loads suspended. Stay at the controls while a load is suspended.
C. Erect barrier tape or other warnings to prevent personnel from entering the work area where a MEWP is stationed and operated.
D. When operating a MEWP, occupants must use a harness equipped with a lanyard fastened to the anchor point provided and must be Fall protection user qualified.
E. Close MEWP gates and secure prior to operating.
F. Engage the safety bar when inspecting or performing maintenance on the scissor assembly or boom while MEWP is in an elevated position. Workers must not reach through the scissor or boom assembly without the safety bar being securely positioned.
G. Railings, ladders, scaffolds, or other elevating devices are prohibited on MEWPs.
H. External attachments or overhanging loads are not permitted while operating an aerial or scissor lift.
I. Do not operate a MEWP on surfaces that may affect its stability.
J. MEWPs must not ascend or descend on grades steeper than 20%.
K. Maximum weight carried on a MEWP must not exceed manufacturers' rating.
L. Outriggers, if equipped with equipment, must be firmly set to ensure stability of the unit.
M. Avoid direct contact between the basket and/or supporting boom on MEWP with any energized high-voltage conductors or equipment. Minimum approach distances must be maintained.
N. Personnel must not sit or climb on the edge of the basket or use planks, ladders, or other devices to gain a position, but must stand firmly on the floor of the basket.
O. Clearly visible flashing warning lights must be used to warn the public when operating a MEWP near traffic.
P. Moving a MEWP with the cage or platform partially or fully raised and/or with workers in the cage or platform, must be minimal and limited to the immediate adjacent work area unless the vehicle is specifically designed for such movement.
Q. Operation of MEWP
    a. MEWPs must go through an operating test before use.
    b. The manufacturer's operation and maintenance manual must be readily available. All operating instructions, sequences and maintenance procedures prescribed by the manufacturer must be followed.
    c. When outriggers are used, they must be positioned on pads or another solid surface. Provided wheel chocks can be safely installed, they must be installed before using a MEWP on an incline. If provided, brakes must be set.

3.2.5 Tractor

A. The Powered Take-Off (PTO) switch must be in the "off" position prior to starting the engine.

B. When parking or leaving the tractor unattended, the following safety precautions must be adhered to:
   a. Park the tractor on firm level ground.
   b. Place the transmission in neutral and set the parking brake.
   c. Disengage the PTO and lower any attachment to the ground.
   d. Place all levers, including the auxiliary control levers in neutral.
   e. Shut off engine, remove the ignition key, and secure equipment to prevent unauthorized use.

C. Keep hands, arms, and feet clear of all rotating parts of the tractor attachments while the engine is running.

D. No passengers will be permitted on the tractor.

E. Do not operate on steep slopes. Keep movement on slopes slow and gradual. Watch for uneven terrain.

3.2.6 Attachments

A. Prior to equipping mobile equipment with an attachment, refer to the operator's manual for capacity, range limits and hitch options. Attachments must be designed for and compatible with the specific mobile equipment.

B. Mobile Equipment Operators must inspect quick hitches to ensure they are locked prior to starting work.

3.2.7 Vehicle-Mounted Elevating and Rotating Aerial Devices

A. All operators must receive general training, which includes classroom information about safety topics and hazards related to operating aerial devices. General training also requires an operator to demonstrate hands-on proficiency in actual operation under the direction of a qualified person. General training should be refreshed at 3-year cycles which is consistent with other industry certifications.

B. Familiarization is the second training category. Operators must be familiarized with any unfamiliar units before operating them. A manufacturer's in-service demonstration is not operator training. A typical in-service does not satisfy familiarization requirements and certainly does not fulfill the wider general training requirements.

C. General training is an "every operator, every three years" requirement and familiarization is an "every operator, specific units" requirement. OSHA expects to see documentation that both types of training occurred, and they will certainly expect the training program to meet the ANSI standard.

3.2.8 Schwarze A7000 Street Sweeper

A. Safety Guidelines:
   a. Do not operate the sweeping unit without an exhaust hose in place.
   b. Beware of 'pinch point' when lowering the hopper
   c. Dump hopper on level ground only, truck in neutral, emergency brake applied.
   d. Use safety stops at dump cylinders whenever working under raised hopper.

e. Do not remove guards and no loose clothing or jewelry.
f. Drain water system in freezing conditions

B. Complete pre-use inspection on truck and sweeper equipment.
C. After pre use inspection test operation of sweeping head & gutter brooms
D. Use right side steering when sweeping and never exceed 15mph speed
E. Never travel with hopper in raised position.

3.2.9 John Deere 310G Backhoe

A. Safety Guidelines:
a. To avoid rollovers:
I. Be careful operating on a slope
ii. Avoid sharp turns
iii. Balance loads for even distribution and stability
iv. Carry load close to ground to aid visibility and lower center of gravity.
v. Reduce speed prior to turning or swinging load
vi. Never exceed load capacity
b. To avoid back-over accidents:
I. Look before backing
ii. Keep bystanders clear of machine operating area.
iii. Keep back up alarm in working condition
iv. Use spotter when view is obstructed
c. To avoid rollaway:
I. Park on level ground
ii. Lower all equipment to ground
iii. Engage parking brake
iv. Chock wheels when parked on slope
d. Utilize proper PPE for work performed
B. Complete pre use inspection
C. Check underground utilities prior to digging
D. Watch overhead hazards; electrical & physical
E. No riders

3.2.10 John Deere Z900 Z Trak Mower

A. Safety Guidelines:
a. All drives in neutral and parking brake applier prior to starting.
b. Use caution and slower speeds on hills and slopes.
c. Never operate with discharge deflector raised.
d. Be aware of mower discharge direction
e. Be aware of rocks and debris than can discharged
f. Keep clear of cutting units and
g. Use caution when refueling
h. Watch for low hanging branches and/or objects.
i. Use extreme caution when children are nearby.
j. Use proper PPE including Eye and Hearing Protection

k. Lower folding ROPS temporarily when necessary and don't use seat belt while folded down.

B. Complete a pre use inspection

C. Check area to be mowed for foreign objects and ground stability.

3.2.11 VAC-CON V350LHA/850 Vactor Truck

A. Safety Guidelines:

a. Use proper PPE for tasks performed.
b. Park vehicle near work area and set parking brake.
c. Keep bystanders away from the work area.
d. Do not use the boom to lift anything other than manhole covers, vacuum hose and pipe.
e. Lift manholes cover only high enough to remove it and never suspend it over personnel or leave it suspended.
f. Protect open manhole to prevent falls.
g. Follow flagging requirements when operated on or near public roadways.

B. Water System Safety

a. Do not place any body part in front of handgun, sewer cleaning nozzle or open sewer cleaning hose.
b. Do not direct the water stream towards anyone.
c. Do not pull sewer cleaning hose with truck, only use hydraulic hose reel.
d. Do not increase engine speed above idle to provide 800psi max pressure.
e. Use caution working around open manhole to reduce risk of:
    I. Water spray containing various biological contaminants.
    ii. small rocks or debris being propelled out of manhole.
    iii. Being struck by nozzle that has reversed out of the hole.
    iv. Falling into open manhole
f. Do not override the hose reel IN-OUT control valve
g. In the event of an injury involving a high-pressure water stream the following statement should be provided to the attending physician:
    i. "This person has been involved with high pressure waterjets…please take this into account when making your diagnosis. Unusual infections have been reported with microaerophilic organisms that tolerate low temperatures. The organism may be gram negative pathogens such as are found in sewage. Bacterial swabs and blood cultures may therefore be helpful"
h. Do not operate sewer cleaning hose or handgun when hose is frozen.

C. Boom and Vacuum Safety
   a. Identify material to be vacuumed to determine if grounding cable is required.
   b. Do not use metal nozzle to excavate, use rubber cuff to prevent static spark
   c. Watch overhead hazards when operating the boom
   d. Do not move the truck unless boom in transport position and secured.
   e. Do not vacuum flammable or explosive materials
   f. Do not attach pipes with vacuum system operating.

D. Debris Tank Safety
   a. Watch for overhead hazards before raising debris tank
   b. Do not work under debris tank without safety props installed.
   c. Only raise debris tank on level ground
   d. Check area prior to dumping debris tank
   e. Do not travel with debris tank raised.
   f. Do not stand between open debris tank door and tank without the door prop installed.

E. Complete pre use inspection on vehicle and vacuum system

3.3 Acceptance Criteria
   3.3.1 Completed "Pre-Use" checklists of mobile equipment must be retained for a minimum of one year.
   3.3.2 Equipment logs that are maintained per DOT regulation must be retained for a minimum of three years.
   3.3.3 Maintenance logs for mobile equipment must be maintained for the life of the equipment.

3.4 Post-Performance Activity
   3.4.1 Complete any DOT mandated logs:
   3.4.2 Complete any City of Boardman mandated logs.
   3.4.3 Return vehicle to designated location.
   3.4.4 Clean vehicle.

4 References

4.1 Industry Standards or Codes
   4.1.1 ANSI/SAIA A92.24-2018
   4.1.2 Oregon Occupational Safety and Health Administration (OR-OSHA), Administrative Rules (OAR)

A. Chapter 437, Division 2:
   a. Subdivision F, Powered Platforms
   b. Subdivision N, Material Handling & Storage (includes Commercial & Industrial Trucks)
   c. 0223, Oregon Rules for Commercial and Industrial Vehicles

B. Division 3, Construction:
   a. Subdivision N: Helicopters, Hoists, Elevators and Conveyors
   b. Subdivision O: Motor Vehicles, Mechanized Equipment, and Marine Operations.

5 Definitions and Acronyms

5.1 Definitions

- 5.1.1 Mobile Elevating Work Platform (MEWP): Mobile equipment where a boom is operated from a small tractor like base which moves workers on a platform or bucket above the ground. Also known as a boom lift or man lift.
- 5.1.2 Attachment: Devices used for specific tasks which are attached to mobile equipment, either directly or via a quick hitch.
- 5.1.3 Competent Worker: A person adequately qualified, suitably trained and with enough experience to safely perform work without supervision or with a minimal degree of supervision.
- 5.1.4 Forklift: (aka Powered Industrial Truck) A wheeled mobile vehicle with a lifting mechanism consisting of a mechanical elevating device and normally equipped with a fork carrier.
- 5.1.5 Grade: The slope or incline of the surface where the mobile equipment is intended to be operated on.
- 5.1.6 Load-Bearing Capacity: The maximum weight in kilograms or pounds that a structure is rated to hold or contain.
- 5.1.7 Mast: Vertical supporting structure for the forks on a forklift or telehandler.
- 5.1.8 Mobile Equipment: A self-propelled machine or combination of machines, including a prime mover or a motor vehicle, designed to manipulate or move material or to provide an aerial device for workers excluding cranes and hoists.
- 5.1.9 Outrigger: Device used as a supporting structure to provide stability to mobile equipment
- 5.1.10 Powered Take-Off (PTO): A driveshaft used to provide power to an equipment attachment.
- 5.1.11 Pre-Use Inspection: Inspection of operating components conducted by the Mobile Equipment Operator to ensure mobile equipment is functioning adequately and is ready for use.
- 5.1.12 Professional Engineer (PE): An engineer holding a Professional Engineer (PE) license
- 5.1.13 Quick Hitch: Device to facilitate the efficient attachment and removal of attachments to mobile equipment.
- 5.1.14 Rated-Load Capacity: The maximum load in kilograms or pounds that the mobile equipment is rated to hold, lift, or support.
- 5.1.15 Rated-Load Chart: Information permanently affixed to mobile equipment specifying manufacturer specifications for load capacity and safe operating capacities.
- 5.1.16 Right-of-Way: Mobile Equipment Operators, (e.g., forklifts, back hoes and the like) and Site Personnel (pedestrians) have a shared responsibility for establishing right-of-way in work areas.
- 5.1.17 Shock Loading: Sudden stops or starts performed on mobile equipment.
- 5.1.18 Signaler: A person designated to give hand signals to direct a Mobile Equipment Operator.
- 5.1.19 Stabilizer: A set of hydraulic support arms that rest on the ground that are extended to provide additional stability when lifting.

5.1.20 Telehandler: (aka Powered Industrial Truck) A wheeled, counter-balanced, truck which includes a variable reach lifting mechanism consisting of a telescopic elevating boom and normally equipped with a fork carrier.

5.2 Acronyms

5.2.1 DOT: Department of Transportation

5.2.2 MEWP: Mobile Elevating Work Platform

5.2.3 PM: Preventive Maintenance

5.2.4 PPE: Personal Protective Equipment

5.2.5 PTO: Powered Take-Off

6 Forms and Appendices

6.1 Forms

None

6.2 Appendices

None

TOOLS & EQUIPMENT

1 Purpose

This procedure provides key safety requirements for selected tools and equipment for City of Boardman

1.1 Scope

1.1.1 This procedure includes inspection information and usage guides for the majority of the tools and equipment used by employees to ensure a high degree of protection against incidents

1.1.2 It does not include a discussion of abrasive wheels, pneumatic tools, or powder actuated tools.

2 Responsibilities

2.1 Site Personnel

2.1.1 Ensures proper storage of tools and equipment.

2.1.2 Completes required equipment training and certifications, as applicable, for the equipment being operated.

2.1.3 Conducts personal inspections of tools and equipment for correct parameters.

2.1.4 Inspects tools before use. Takes defective tools out of service and tags them with "Do not use-Defective" or similar marking.

2.1.5 Cleans, inspects, and stores tools and equipment following each use.

2.1.6 Removes guards or methods of guarding only for the purpose of adjustment, oiling, repair, or setting up a new job.

2.1.7 Operates machine with a guard or method of guarding that is in good condition, in working order, in place and operable.

2.1.8 Operates equipment for the task for which it is intended.

2.1.9 Refrains from operating equipment when physically or otherwise unfit.

2.1.10 Maintains operating and equipment logs and status logbooks as appropriate.

2.2 Management/Public Works Director

2.2.1 Provides or coordinates training to employees on tools and equipment used.

2.2.2 Mitigates equipment risks and ensures corrective actions are completed in a timely manner.

2.2.3 Ensures testing is performed on tools and equipment when required.

2.3 Document Owner

2.3.1 Assigns resources to implement the procedure.

2.3.2 Maintains the procedure and coordinates revisions with Management and Program Owner.

2.3.3 Updates the procedure to reflect protocol changes.

2.3.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.

2.4 Program Owner

2.4.1 Assigns resources to manage the program.

2.4.2 Oversees and reviews program to ensure the program is compliant and effective.

3 Definitions and Acronyms

3.1 Definitions

None

3.2 Acronyms

3.2.1 GFCI: Ground-Fault Circuit Interrupter

3.2.2 PPE: Personal Protective Equipment

4 Precautions and Limitations

4.1 Precautions

4.1.1 Do not use wrenches when jaws are sprung to the point that slippage occurs.

4.1.2 Never hold work in your hand when using power tools. Loose work should be clamped to a solid surface to prevent it from moving or being thrown.

4.1.3 Do not use electrical tools without a grounding prong.

4.1.4 Do not use electric cords or hoses for hoisting or lowering tools.

4.1.5 Avoid using tools with mushroomed heads, dull edges, or points.

4.1.6 Use respirators and other appropriate personal protective equipment when working in areas exposed to harmful dusts, fumes, mists, vapors, or gases.

4.1.7 Use spark-resisting hand tools in explosive atmospheres.

4.1.8 Specially fabricated tools or modifications to existing tools shall be designed and used in a manner that does not present additional hazards.

4.1.9 Do not tape damaged tool handles.

4.1.10 Do not use tools with cracked handles.

4.1.11 Compressed air shall not be used for cleaning purposes except when reduced to less than 30 psi and then only with effective chip guarding and Personal Protective Equipment (PPE).

4.2 Limitations

4.2.1 This procedure discusses many of the tools used by City of Boardman employees, but it is not a complete list.

4.2.2 Operate all power tools only within their capability and in accordance with the manufacturer's instructions.

5 Procedure

5.1 Prerequisite Actions

5.1.1 Inspect hand and power tools before use.

5.1.2 Select appropriate tool for the assigned task.

5.1.3 Use appropriate PPE

5.1.3.1 When using tools and equipment, don eye, face, foot, and body protection to control hazards such as falling, flying, abrasive or splashing objects.

5.1.3.2 Use PPE to protect from exposure to impact, cutting and other tissue-damaging movement of equipment or material.

5.1.4 Wooden handles of tools shall be of firm straight grained stock.

5.1.5 Handles of all tools shall be smooth, without sharp edges or splinters, and firmly attached to the tool.

5.1.6 Remove from service and tag any tools that are defective until they can be repaired or replaced.

5.1.7 Place/store tools where they will not create a hazard when not in use.

5.2 Procedure

5.2.1 Hand Tools

5.2.1.1 Inspect hand and power tools daily before use.

5.2.1.2 Use tools suited to the job.

5.2.1.3 Remove defective or broken tools from service. Keep tagged until repaired or discarded.

5.2.1.4 Dress or grind heads of shock tools (such as hammers, sledges, cold chisels, and similar types of tools) as they begin to mushroom or crack.

5.2.1.5 Secure or place tools in a secure position to prevent falling when working at elevated locations.

5.2.1.6 Use heavy leather holsters or equivalent protection for sharp-edged or sharp-pointed hand tools

5.2.1.7 If using insulated hand tools to prevent electrical shock, use them in accordance with the Electrical Safety Procedures

5.2.2 Measuring Tapes and Rulers

5.2.2.1 Use non-metallic measuring tapes and rulers near energized equipment.

5.2.3 Chisels and Bars

5.2.3.1 Use a holding tool or other suitable holding device, when practical, if holding a chisel or bar while another employee strikes it with a hammer.

5.2.4 Axes, Picks and Sledgehammers

5.2.4.1 Carry an axe with head forward by holding the handle next to the axe head. Do not carry any axe or brush hook over your shoulder.

5.2.4.2 On vehicles, store axes and picks with protective sheaths to avoid injuries.

5.2.4.3 Ensure ample space is available to swing axes, picks, or sledgehammers.

5.2.5 Electric Power-Operated Hand Tools

5.2.5.1 Electric power tools shall meet at least one of the following requirements:

A. Be equipped with a three-wire cord, having a ground wire permanently connected to the tool frame, and be grounded at the plug.

B. Be of the double insulated type, having the tool housing separately insulated from the insulated electric component of the tool.

5.2.5.2 Ensure grounding prong is in good shape.

5.2.5.3 Unplug a tool before repairing or making adjustments.

5.2.5.4 Cover or elevate cords passing through work areas or walkways to avoid a tripping hazard.

5.2.5.5 Turn off power and remove tool from service if excessive sparking or smoking in electric motors or other electric equipment is observed

5.2.5.6 Use only approved explosion-proof electrical equipment for hazardous locations where flammable or explosive atmospheres (gases, vapors, and dusts) may exist.

5.2.5.7 Only operate portable electric lighting and tools in damp or wet locations if protected by a ground-fault circuit interrupter (GFCI).
5.2.5.8 Attach a safety line to electric tools with magnetic bases to prevent falling due to a power interruption or other failure of the magnetic base.

5.2.6 Extension Cords
5.2.6.1 Examine frequently for worn insulation, exposed strands of wire, or broken plugs before use.
5.2.6.2 Ensure that the grounding prong is in good shape; and do not use an extension cord without a grounding prong.
5.2.6.3 Remove any damaged extension cords from service and repair or replace as necessary.
5.2.6.4 Only use extension cords that are designed for hard or extra hard usage that have the S, ST or SO designation printed on the cord.
5.2.6.5 Only qualified personnel may repair extension cords.
5.2.6.6 Do not use as a substitute for permanent wiring.
5.2.6.7 Do not hang extension cords across sharp objects.
5.2.6.8 Do not run across aisles where they can be damaged or cause someone to trip unless appropriate precautions are taken.

5.2.7 Portable Fuel-powered Tools
5.2.7.1 Inspect equipment before use and do not use equipment showing evidence of gasoline leaks.
5.2.7.2 Proper PPE shall be worn when using equipment.
5.2.7.3 Stop all fuel powered tools while being refueled or serviced.
A. Let the engine cool before filling the tank.
B. Follow no smoking protocols while the tank is being filled.
5.2.7.4 Handle and store fuel using approved protocols
A. Fuel shall be handled, transported, and stored only in approved containers or locations.
B. Maintain metal-to-metal contact while pouring gasoline from one container to another. (avoid static discharge)
5.2.7.5 Only trained, authorized employees shall repair gasoline-powered equipment.
5.2.7.6 Ensure there is adequate ventilation when using fuel-powered tools in enclosed or confined spaces.

5.2.8 Power Lawn Mowers, Power Trimmers, and Chainsaws
5.2.8.1 Read and follow all safety instructions in the equipment's owner's manual.
5.2.8.2 All power equipment must be equipped with adequate guards; check that all applicable guards are in place and do not use the equipment if missing.
5.2.8.3 Wear appropriate PPE at all times, such as a hard hat, safety glasses with side shields, hearing protection, and proper safety work boots or shoes.
5.2.8.4 Be aware that you could be exposed to poisonous plants (e.g., poison oak) and insects, reptiles or other animals that could cause injury.
5.2.8.5 Prior to adjustments, inspections, or repairs, turn off the mower and allow it to come to a complete stop.

A. When working under a mower deck, disconnect the spark plug wire and remove the ignition key, if so equipped.

5.2.8.6 Operating Power Mowers

A. Inspect the area and remove any foreign objects that may be struck by the mower.
B. Avoid placing your body in front of the discharge opening and do not allow the mower to discharge in a direction hazardous to others.
C. Keep your hands and feet clear of the blade. Never reach under the deck of an operating mower to clear or remove debris. First shut down the equipment and turn off the engine.
D. Mow horizontally across the face of a slope when using a push mower. Mow up and down (vertically) the face of a slope when mowing a slope with a riding mower/tractor. Always follow manufacturer's guidelines while mowing slopes.
E. Do not leave running mowers unattended.

5.2.8.7 Operating Power Trimmers

A. Wear appropriate PPE, including hard hat, safety glasses with side shields, face shield, hearing protection, and appropriate foot protection.
B. When working on electric-powered mowers, trimmers, etc., unplug the power cord first.
C. Remove battery prior to servicing battery powered equipment

5.2.8.8 Operating Gas-powered Chainsaws

A. Only trained operators shall operate chainsaws.
B. Wear protective chaps or other protection sewn/fastened to trousers, protecting legs from the thigh to below the knee. Exception: Chaps do not need to be worn when saw is to be operated outside of a bucket on aerial man-lift equipment.
C. Start and test-operate the power saw engine on the ground.
    a. When starting a saw, be sure your footing is secure.
    b. Start the saw at least 10 feet away from fuel sources, flames, sparks, or ignition sources.
D. Keep both hands firmly on the saw when in use, one on the handlebar, the other on the pistol grip.
E. Avoid using a chainsaw above shoulder level. Never cut directly overhead.
F. Do not remove or disable chainsaw kickback devices.
G. Each power saw must return to idle automatically and the clutch must not engage the chain at idle. If the saw is malfunctioning, stop at once.
H. Always approach a chainsaw operator from the front.
I. When working aloft or in trees:

a. Never raise or lower a chainsaw from/to the ground with the engine running.
b. Use a separate line to support power saws weighing more than 15 pounds except when no supporting limb is available, such as during topping or removal operations.
c. Maintain proper clearances from energized lines at all times.

J. Do not leave idling saws unattended. When carrying a saw beyond a few steps, turn the engine off and carry it with the blade to the rear.
K. Make sure the chain guard is attached when the saw is not in use.
L. Turn off power and allow cooling before cleaning, refueling, adjusting, or repairing a saw or motor, unless manufacturer's procedures require otherwise. (Some minor adjustments can only be made when the engine is running.)
M. Chainsaws shall be regularly inspected to ensure they are clean, sharp, and properly tensioned.
N. Use an approved safety container with flame arrestor to store fuel for chainsaws.
O. After refueling, wipe down the saw before starting, and make sure the cap is in good repair and properly replaced.

5.2.9 Hydraulic-power Tools

5.2.9.1 The fluid used in hydraulic-powered tools shall be fire-resistant fluids approved under Schedule 30 of the U.S. Bureau of Mines, Department of the Interior, and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed.

5.2.10 Jacking Devices or Support Stands

5.2.10.1 The manufacturer's rated capacity shall be legibly marked on all jacks."
5.2.10.2 Ensure the manufacturer's rated capacity is not exceeded.
5.2.10.3 All hydraulic jacks shall have a positive stop to prevent over-travel.
5.2.10.4 After the load has been raised, it shall be cribbed, blocked, or otherwise secured.
5.2.10.5 Block the base of the jack in the absence of a firm foundation. Place the block between the cap and the load if there is a possibility of slippage of the cap.
5.2.10.6 If provided, use a stop indicator to determine the limit of travel. The indicated limit shall not be exceeded.
5.2.10.7 Inspect jacks prior to use and while in use.
5.2.10.8 Inspect immediately any jack subjected to an abnormal load or shock.

5.2.11 Portable Heating Equipment (Kerosene, Propane, Electric)

5.2.11.1 Use any fossil fuel-burning portable heating equipment in a well-ventilated area
5.2.11.2 Kerosene: When filling the fuel tanks of kerosene equipment, ensure the flame is completely extinguished and ensure the fuel being added is kerosene.

5.2.11.3 Propane: Make sure all fittings are tight and do not leak before lighting the equipment.

5.2.11.4 Electric: Check electrical cords for wear to ensure they are in safe condition. Ensure you are plugging equipment into the proper voltage source.

5.2.12 Portable and Vehicle-mounted Generators

5.2.12.1 Portable and vehicle-mounted generators used to supply cord- and plug equipment shall meet the following requirements:

A. The supply must be through receptacles mounted on the generator or welder.

B. The non-current-carrying metal parts of equipment and the equipment grounding conductor terminals of the receptacles shall be bonded to the equipment frame.

C. Vehicle-mounted generators and welders shall be bonded to the vehicle frame.

D. Any neutral conductor shall be bonded to the equipment frame.

E. Do not operate a portable generator near a building's air intake vent.

5.2.13 Guarding of Tools

5.2.13.1 Portable circular saws

A. Saws having a blade diameter greater than 2 inches shall be equipped with guards above and below the base plate or shoe.

B. Saws without properly operating guards shall be removed from service.

C. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to a covering position.

5.2.13.2 Portable Belt Sanding Machines

A. Belt sanding machines shall be provided with guards at each end over the nip point.

B. The unused run of the sanding belt shall be guarded against accidental contact.

C. The guards shall effectively prevent the hands or fingers of the operator from coming in contact with the nip points.

5.2.13.3 Switches and Controls

A. All handheld saws shall be equipped with a constant pressure switch or control that will shut off the power when the pressure is released. Do not use hand-held saws or other hand-held powered equipment with a locking switch.

5.3 Acceptance Criteria

5.3.1 Tools are inspected and free of defects before use.

5.3.2 Any tool that requires documentation of an inspection before use will have the records completed as required.

5.4 Post-Performance Activity

None

6 References

6.1 References

6.1.1 Oregon OSHA Division 1, 437-001-0760

6.1.2 Oregon OSHA Division 2, Subdivision I, 1926.302 Power Operated Hand Tools

6.1.3 Oregon OSHA Division 2, Subdivision O, 1910.215 Abrasive Wheel Machinery

6.1.4 Oregon OSHA Division 2, Subdivision P, 1910.241-.244, Hand and Portable Powered Tools and Other Hand-Held Equipment (includes: portable tools, explosive-actuated fastening tools, power lawn mowers, jacks).

6.1.5 Oregon OSHA Division 2, Subdivision R, 1910.269(i), Hand and Portable Power Tools (cord-and-plug connected equipment, portable and vehicle-mounted generators, hydraulic and pneumatic tools).

6.1.6 Oregon OSHA Division 2, Subdivision S, 1910.304(f)(5)(v) Grounding of Equipment Connected by Cord and Plug.

7 Forms and Records

7.1 Forms

None

7.2 Appendices

None

HEAT ILLNESS TRAINING

Summers are getting hotter and longer. For people working in hot environments, the risks of heat illness are on the rise. These talking points provide a quick overview of what you need to know to protect yourself and others from heat illnesses.

Types of heat-related illness
Heat illnesses are a serious issue for many workplaces and it's important to recognize symptoms early. Here are the four most common types of heat illnesses.

Heat cramps – These happen when workers are sweating a great deal while doing physical tasks. The cramps come from losing salt through sweating, which causes muscle pain. What to look for:

- Muscle cramps or pain
- Spasms in the abdomen, arms, or legs

Heat exhaustion – This comes from the body's response to losing water and salt, usually through sweating. What to look for:

- Headache
- Nausea
- Dizziness
- Weakness
- Irritability
- Thirst
- Heavy sweating
- Elevated body temperature
- Decreased urine output

Heat syncope – Fainting or dizziness spells caused by dehydration or not being used to working in the heat. What to look for:

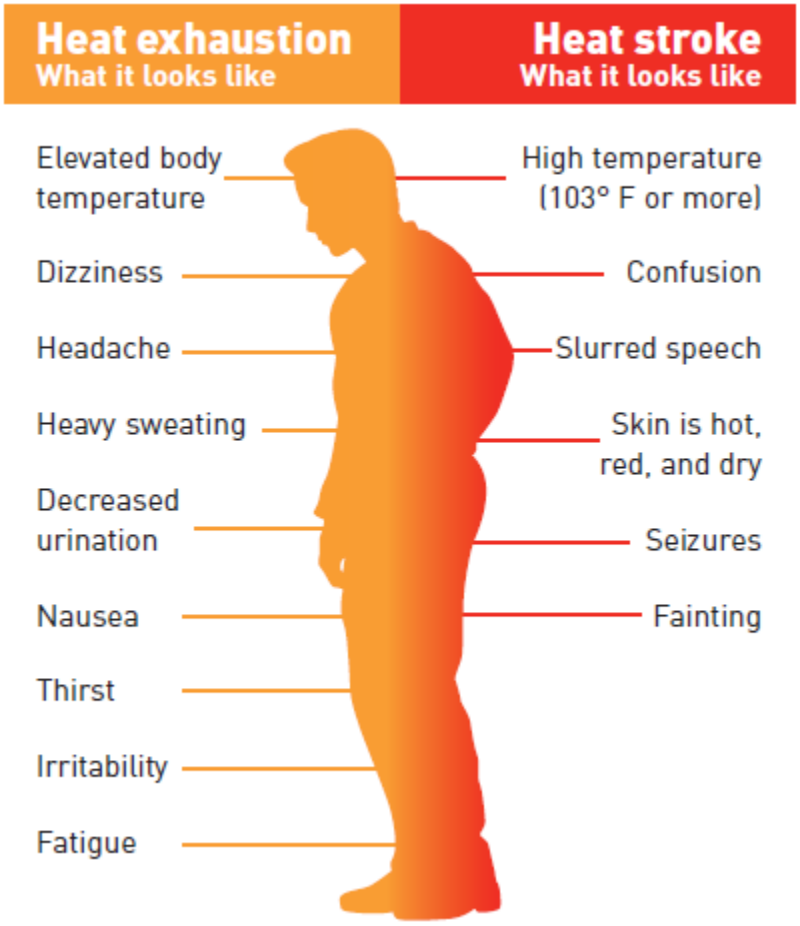
- Fainting
- Dizziness
- Light-headedness after standing for long periods or after quickly rising from a sitting or lying position

Heat stroke – The most serious heat-related illness, heat stroke can cause death or permanent disability if not treated immediately. The body is unable to control its temperature or cool itself down. What to look for:

- Confusion, altered mental status, slurred speech
- Loss of consciousness
- Hot, dry skin or profuse sweating
- Seizures
- Very high body temperature

Resources: NIOSH heat stress- heat-related illness
https://www.cdc.gov/niosh/topics/heatstress/heatrelillness.html

Heat exhaustion vs. heat stroke:
Learn the symptoms:
https://www.saif.com/Documents/SafetyandHealth/Wellness/S1106_Handout_HeatStress.pdf
Poster: https://www.saif.com/Documents/SafetyandHealth/Wellness/S1106_POSTER_HeatStress.pdf



Risk factors
The risk of heat-related illness increases when heat is paired with:

- Strenuous activity
- Wearing heavy or dark clothing
- Wearing personal protective equipment (PPE)
- Age, particularly 40 years or older
- Medical or chronic health conditions — obesity, high blood pressure, diabetes, or pregnancy
- Medication — antihistamines, beta blockers, diuretics, or calcium channel blockers
- Alcohol, which can cause dehydration
- History of heatstroke — if a worker has had a heatstroke in the past, they are more likely to have another one

Adapting to a hot work environment
Workers are less likely to experience heat illness if they gradually adapt to working in hot environments.

The National Institute for Occupational Safety and Health (NIOSH) has a schedule that can be used to help workers. https://www.cdc.gov/niosh/topics/heatstress/acclima.html

What can employers do?
Oregon OSHA passed a temporary rule for excessive heat in July 2021, and have set requirements based on the heat index, not just temperature:

- **What's the heat index?** The heat index is a measure that combines humidity and air temperature. These are two apps that can help you calculate the heat index:
- **Outdoor workplaces:** Use the OSHA-NIOSH Heat Safety Tool https://www.cdc.gov/niosh/topics/heatstress/heatapp.html for real-time heat index information and hourly forecasts by location.
- **Indoor workplaces:** Use the NOAA Heat Index Calculator. https://www.wpc.ncep.noaa.gov/html/heatindex.shtml Resource: Oregon OSHA tutorial on using the OSHANIOSH Heat Safety Tool https://www.youtube.com/watch?v=VQg-cGDLnDQ
- **80 degrees Fahrenheit**
  Employers are required to provide access to shade and drinking water when the heat index reaches 80 degrees Fahrenheit.

Water must be provided by the employer free of cost and easily accessible. Enough water must be available for each worker to have 32 ounces per hour, and employers must provide ample opportunity to drink water. The water must be under 77 degrees.

Shade must be provided as close as practical to working areas and either be open to the air or provide mechanical cooling. The shaded area needs to be large enough to accommodate all workers during their breaks.

- **90 degrees Fahrenheit**
  In addition to the measures required at 80 degrees, employers must provide a shaded 10-minute rest period for every two hours of work when the heat index reaches 90 degrees Fahrenheit. Employers must ensure workers can effectively report concerns and must monitor all workers for signs and symptoms of heat illness. Finally, the employer must create both a plan to allow workers to gradually adapt to working in the heat, and a plan to deal with heat-related medical emergencies.

Resource: Oregon OSHA video on heat illness https://www.youtube.com/watch?v=lSCC3etvMi4

What can workers do?
The most important thing workers can do is look out for one another. Heat illnesses can come on very quickly, and workers often don't realize what's happening until it's too late.

Learning the signs and symptoms, scheduling frequent breaks, and being aware of the risk factors that can contribute to heat illnesses can help keep workers safe.

Other things to remember:

- Sip water instead of drinking quickly
- Avoid caffeine when working in heat
- Wear sunscreen and hats when working outside
- Do outdoor work in the morning or in late evening, if possible

Find out more SAIF's page on heat stress
https://www.saif.com/safety-and-health/topics/preventinjuries/heat/cold-stress.html

Oregon OSHA's temporary rule on heat illness prevention
https://osha.oregon.gov/OSHARules/adopted/2021/ao6-2021-letter-heatillnessprevention.pdf

SILICA EXPOSURE CONTROL PROGRAM

Introduction
Exposure to hazardous levels of respirable crystalline silica can result in a variety of health effects including cancer, silicosis, tuberculosis (TB), bronchitis, obstructive pulmonary disease, kidney disease and others.

Any work involving grinding, drilling, cutting, chipping, or similar activities on silica-containing materials containing crystalline silica can lead to exposure. Silica-containing materials include sand, stone, brick, mortar, concrete, cement, asphalt, and others.

To control this hazard, employers need to assess work activities that may result in exposure and determine if these activities result in silica exposure above the action level. Silica hazards are controlled with elimination and substitution, engineering controls, administrative controls, and personal protective equipment.

If all work activities, tools, and controls conform to the requirements specified in Table 1 of the Oregon OSHA regulation OAR 437-002-1057 (see Appendix), workplace air monitoring or collection of objective data showing actual levels of silica in the air is not required.

Purpose
In support of our efforts to protect worker health and safety, this plan is designed to prevent health effects from exposure to respirable crystalline silica that can occur during work activities. The plan reflects the requirements stated in Oregon Administrative Rules Division 2/Z – Silica (437-002-1053 through 1065) which covers both general industry and construction.

Scope
This plan covers all employees whose work activities may result in exposure to respirable crystalline silica at levels that are regulated by Oregon OSHA standards. Employees whose exposure to crystalline silica will always remain below 25 micrograms per cubic meter of air (25 ug/m3) as an 8-hour time-weighted average (TWA) under any foreseeable conditions are exempt from these requirements.

Work activities that may expose employees to levels of respirable crystalline silica above the action level will be covered by this plan.

Definitions
Action level means a concentration of airborne respirable crystalline silica of 25 µg/m3, calculated as an 8-hour TWA.

Affected employee means anyone whose work activities may expose them to respirable silica at or above the action level.

Competent person means an individual who can identify existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in this program.

Employee exposure means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.

Objective data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Permissible exposure limit (PEL) means a concentration of airborne respirable crystalline silica of 50 µg/m3, calculated as an 8-hour TWA.

Physician or other licensed health care professional [PLHCP] means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by 437-002-1062.

Regulated area means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of respirable crystalline silica exceeds, or can reasonably be expected to exceed, the PEL.

Respirable crystalline silica means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size-selective samplers specified in the *International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling.*

Specialist means an American Board-Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

Responsibilities
The Public Works Director is responsible for the implementation of this program and will serve as the competent person for silica exposure.

The **competent person** is responsible for:

- Conducting a work activities assessment (see next section) to identify all activities that may generate silica dust and the approximate amount of time employees spend doing these
- activities.
- Identifying materials and products to determine whether you have the type of regulated (crystalline) silica at your facility or worksite.
- Identifying the work practices, respiratory protection, and housekeeping measures to be used for each task and maintaining this information (see Work Activities and Controls in Appendix).

- Identifying work areas where employee access might need to be regulated to avoid exposure to silica.
- Ensuring that these regulated areas are signed as appropriate.
- Identifying work activities that require an exposure assessment and ensuring this assessment is conducted.
- Developing exposure control plans for specific work tasks when indicated.
- Maintaining records.
- Providing training and oversight to affected employees.
- Reviewing this plan on an annual basis and updating it as needed.

Affected employees are responsible for:

- Observing the procedures and requirements outlined in this plan.
- Knowing the hazards of silica dust exposure.
- Reporting immediately to their supervisor any hazards (i.e., unsafe conditions, unsafe acts, improperly operating equipment, PPE issues/needs, etc.).
- Attending training sessions.
- Complying with medical surveillance requirements.
- Wearing respiratory protection and other PPE, as required.
- Notifying supervisors of changes in the workplace that could cause an increase in exposures to respirable crystalline silica.

All employees are required to comply with restrictions to prevent access to areas that may expose them to airborne silica dust.

Work Activities Assessment

The competent person shall assess the workplace to identify all tasks that may generate silica dust and the approximate amount of time workers may be exposed. In addition to the work activities, the competent person will identify dust controls currently in use.

This information is to be recorded on the Work Activities Assessment Form (see Appendix).

- Information on this form will be compared to the work tasks and dust control measures listed on Table 1 (see Appendix).
- If the work activities performed at our facilities reflect the tools and dust controls listed in Table 1, no monitoring will be needed.

If the work activities do not reflect the information on Table 1, the competent person will change the work operation, tools, and/or controls to reflect Table 1.

If it is infeasible to use the controls specified in Table 1 or if work activities and/or equipment fall outside the scope of Table 1, the competent person will institute a workplace monitoring program to accurately determine the levels of silica exposure.

The *Work Activities Assessment Form* will be updated as needed and used in worker training.

Workplace Monitoring

If monitoring is required, the workplace monitoring program will be conducted by a technically qualified professional and reflect the requirements specified in OAR 437-002-1056 Exposure Assessment.

Results of the program will be documented and shared with the affected employees.

Based on the results of this monitoring, the competent person will identify controls that will be used to ensure worker health. The selection of controls will reflect the hierarchy of controls as follows (list is in order of preference):

1. **Elimination and Substitution**: If possible, products with lower levels of silica will be sourced and used. A tool or task can be substituted to lower worker exposure below the PEL.
2. **Engineering**: These controls minimize the amount of dust released. Examples include Local Exhaust Ventilation and Wet Dust Suppression Systems.
3. **Administrative**: Work schedules and/or locations can be adjusted so workers are not in areas where dust poses a hazard. Housekeeping procedures can be altered to avoid dispersing dust.
4. Personal Protection Equipment (PPE): When engineering and administrative controls are not effective in reducing exposures below the PEL, use of respiratory protective equipment will be required.

Based on this assessment and identification of controls, the Work Activities Assessment Form (see Appendix) will be updated as needed and used in worker training.

Regulated Areas
Employee access to the areas listed in the Regulated Areas List (see Appendix) will be restricted when exposure to silica dust is anticipated.

Employees will be informed of the hazard by posting signs with the following information:

DANGER
RESPIRABLE CRYSTALLINE SILICA
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION IN THIS AREA
AUTHORIZED PERSONNEL ONLY

Respiratory protection must be required for and provided to every authorized person entering a regulated area.

Housekeeping
Work practices must prevent silica-containing dust from becoming dispersed in the air to the extent possible. All workers must adhere to the following rules:

- Do not dry sweep or brush silica-containing dust.
- Do not blow off dust from clothing or surfaces with compressed air unless used with a ventilation system that controls the dust.
- Cleaning must be done by wet sweeping or using a HEPA equipped vacuum system.

If it is infeasible to follow these requirements, the competent person must identify alternate methods to ensure the dust does not create a hazard. This must be documented.

Medical Surveillance
Medical surveillance will be made available for each employee who will be required to use a respirator for 30 or more days per year due to Respirable Crystalline Silica exposure. It will also

be available to employees who are exposed to silica at or above the action level for 30 or more days per year.

Medical surveillance (i.e., medical examinations and procedures) will be performed by a PLHCP and provided at no cost to the employee at a reasonable time and place.

These exams will include chest X-rays and lung function tests as indicated. A qualified NIOSH B-Reader must interpret all chest X-rays.

Medical surveillance procedures and processes will meet the requirements outlined in OAR 437-002-1062 Medical Surveillance.

Recordkeeping

Records to be maintained to comply with this plan, according to OAR 437-002-360 include:

- Medical exam results of employees who are under medical surveillance for the duration of employment plus 30 years.
- Exposure records (including objective data records) must be retained for 30 years.
- Training records of affected employees.
- Current Work Activities Assessment Form.
- Current Regulated Areas List, if used.

Air Monitoring Records

If performed, air monitoring records and other data that show potential exposure to silica. Data to be recorded includes:

- The date of measurement for each sample taken
- The task monitored
- Sampling and analytical methods used
- Number, duration, and results of samples taken
- Identity of the laboratory that performed the analysis
- Type of personal protective equipment, such as respirators, worn by the employees monitored; and
- Name and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

Objective Data Records

If performed, the results of objective data will be collected to assess employee exposure. Data to be recorded includes:

- The crystalline silica-containing material in question
- The source of the objective data
- The testing protocol and results of testing
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

All data and monitoring results are to be maintained and made available in accordance with 1910.1020 Access to Employee Exposure and Medical Records.

Training

Affected employees will receive initial training that covers the following topics:

- The effects of silica dust on the human body.
- General requirements of the silica standard.
- Work activities that may expose them to silica.
- Controls, work practices, and PPE required for each work activity. (See Work Activities Assessment Form in the Appendix).
- The role of the competent person.
- Proper use and care of required personal protective equipment.
- Housekeeping procedures to control silica dust.
- Availability of the medical surveillance program as applicable.

Retraining will be performed when:

- There is a change in work activities or dust controls.
- There are observed deficiencies in the worker's understanding of the requirements of this program.

This training will be documented.

The education and training will be delivered to employees in a variety of ways, including:

- New employee orientations.
- Formal classroom training.
- Equipment/task-specific training.
- Pre-job briefings.
- Signs, notifications, and bulletins.

Appendix

This appendix contains the following forms and resources:

Work Activities Assessment Form
Page 312
Use this form to document all work activities that may result in exposure to silica dust. Update this form as needed whenever additional work activities are identified or additional controls are implemented. The current version of this form should be made available to workers and used in training as appropriate.

Regulated Areas List
Page 313
If other employees may be exposed to airborne dust, access to these areas needs to be regulated. This form can be used to identify those areas and times when access is to be controlled.

Table 1
Page 314
This table is reprinted from the OSHA regulations and can be used to assess whether silica dust exposure exceeds the Permissible Exposure Limit (PEL).

Work Activities Assessment Form

Work Task/Tool	Frequency		Dust Control Methods	Respirator?
	Hours/Day	Days/Mo.		

Regulated Areas List

Work Task	Description of Restricted Area	Times When Access is Limited

Table 1

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	Stationary masonry saws	• Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	• Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	• Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with a blade diameter of eight inches or less) for tasks performed outdoors only	• Use saw equipped with commercially available dust collection system. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None
4a	Walk-behind saws when used outdoors	• Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.	None	None
4b	Walk-behind saws when used indoors or in an enclosed area	• Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	• Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
6	Rig-mounted core saws or drills	• Use tools equipped with integrated water delivery system that supplies water to cutting surface. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.	None	None
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	• Use drill equipped with commercially available shroud or cowling with dust collection system. • Operate and maintain the tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	None	None
8	Dowel drilling rigs for concrete for tasks performed outdoors only	• Use shroud around drill bit with a dust collection system. • Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	• Use a dust collection system with a close capture hood or shroud around the drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	• Operate from within an enclosed cab and use water for dust suppression on the drill bit.	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	• Use a tool with a water delivery system that supplies a continuous stream or spray of water at the point of impact.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use a tool with a water delivery system that supplies a continuous stream or spray of water at the point of impact.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
10c	Jackhammers and handheld powered chipping tools when used outdoors	• Use tools equipped with a commercially available shroud and dust collection system. • Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tools equipped with a commercially available shroud and dust collection system. • Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
11	Handheld grinders for mortar removal (i.e., tuckpointing)	• Use a grinder equipped with a commercially available shroud and dust collection system. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions. • Dust collector must provide twenty-five cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	• Use a grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. • Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions.	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	• Use grinder equipped with a commercially available shroud and dust collection system. • Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide twenty-five cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	• Use grinder equipped with a commercially available shroud and dust collection system. • Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide twenty-five cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
13a	Walk-behind milling machines and floor grinders	• Use a machine equipped with an integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.	None	None
13b	Walk-behind milling machines and floor grinders	• Use a machine equipped with a dust collection system recommended by the manufacturer. • Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None
14	Small drivable milling machines (less than half-lane)	• Use a machine equipped with supplemental water sprays designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machines to minimize dust emissions.	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	• Use machines equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machines to minimize dust emissions.	None	None
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use machines equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machines to minimize dust emissions.	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use a machine equipped with supplemental water spray designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machines to minimize dust emissions.	None	None
16	Crushing machines	• Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyors, sieves/sizing or vibrating components, and discharge points). • Operate and maintain the machine in accordance with manufacturer's instructions to minimize dust emissions. • Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station.	None	None
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• Operate equipment from within an enclosed cab.	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

WILDFIRE SMOKE EXPOSURE PROGRAM

Introduction
Large scale wildfire events are increasing in frequency and can potentially devastate the air quality across wide regions. These events can last for weeks, and exposure to excessive levels of wildfire smoke can pose serious health risks to a worker's eyes (e.g., burning, redness, tearing), respiratory system (e.g., sore throat, coughing, difficulty breathing, irritation, shortness of breath), and general health (e.g., fatigue, headache, irregular heartbeat, chest pain).

Wildfire smoke contains harmful chemicals along with tiny smoke particles. The particles of most concern are particulate matter with a diameter of 2.5 micrometers or less, referred to as PM2.5. These tiny particles are not filtered out by the nose and collect in the tiny passages deep in the lungs.

To protect our workers, we will monitor the region's air quality and enact protective measures when workers are exposed to wildfire smoke above the action level (air quality index of 101 or greater).

Purpose
This program's purpose is to protect our employees from the hazards of wildfire smoke, and to comply with Oregon OSHA's Protection from Wildfire Smoke rules (OAR 437-002-1081).

Scope
This program covers anyone whose job activities require them to work outdoors or in structures that lack a mechanical ventilation system when the air quality index is 101 or more.

This program does not cover:
- Workers in an air-conditioned vehicle with a cabin air filter system and closed windows and doors. This exemption does not include vehicles used for public transit.
- Employees working at home.
- Emergency response operations and emergency responders.

Definitions
Air Quality Index (AQI): The Air Quality Index indicates the overall air quality and is based on measurements of ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide.

DEQ: Department of Environmental Quality

Filtering facepiece respirator: A disposable, negative-pressure, air purifying respirator where an integral part of the facepiece or the entire facepiece is made of air contaminant filtering material. Acceptable ratings include: N95, P95, R95, N99, P99, N100 and P100.

NIOSH: The National Institute for Occupational Safety and Health of the United States Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

PM2.5: Solid particles and liquid droplets suspended in air, known as fine particulate matter, with a diameter of 2.5 micrometers or smaller and measured in micrograms per cubic meter (µg/m3).

Sensitive groups: Individuals with pre-existing health conditions and those who are sensitive to air pollution. Examples of sensitive groups include people with lung or heart disease or asthma, smokers, anyone suffering from a cold or flu, workers under 18 years old or over 65, pregnant women, people with diabetes, and people suffering from other medical or health conditions which can be exacerbated by exposure to wildfire smoke as determined by a physician or other licensed healthcare provider.

Wildfire smoke: Emissions from unplanned fires in wildlands, which may include adjacent developed and cultivated areas to which the fire spreads or from where it originates.

Wildlands: Uncultivated and sparsely populated geographical areas covered primarily by grass, brush, trees, slash, or a combination thereof.

Responsibilities

Management

It is the responsibility of management to protect employees from wildfire smoke by ensuring the requirements of this program are implemented. This includes providing workers with the training and resources needed to control smoke exposure.

Program Manager

This program will be managed by City Manager and Human Resources. It is the responsibility of the Program Manager to:

- Maintain this written program and update it as needed.
- Ensuring that our Emergency Medical Plan addresses wildfire smoke exposure.
- Respond to the employees' concerns regarding the effectiveness of this program.
- Enforce the elements of this program.
- Maintain training records.

Supervisors

Supervisors are responsible for:

- Assessing the current and predicted AQI when wildfire smoke is visibly present.
- Applying engineering and administrative controls when feasible.
- Applying additional protective measures when engineering and administrative controls are infeasible.
- Training exposed workers to fulfill their responsibilities under this program.
- Ensuring an adequate supply of personal protective equipment.
- Providing oversight to exposed workers.

Exposed Workers

Exposed workers are responsible for:

- Reporting any change in the AQI in their area that may require a change in protective measures.
- Reporting any health conditions that might be worsened by smoke or the use of a respirator to a medical provider (through the medical evaluation process which is part of the respiratory

- protection program).
- Reporting any adverse health effects from smoke exposure.
- Following all the procedures that are used to control smoke exposure.
- Using all personal protective equipment in the manner specified by the manufacturer.
- Employees should stop working and report any adverse health effects to their supervisor.

Training

All employees who have responsibilities under this program will be trained to fulfill those responsibilities. Employees shall receive training before exposure to an AQI greater than 100. This training may consist of formal classroom instruction, on-the-job orientation, or a combination of both.

A record of employees who have received training and training dates shall be maintained by the Program Manager. Training will be conducted by a supervisor or otherwise qualified trainer.

Exposed Workers

Training shall include:

- Symptoms of wildfire smoke exposure.
- The potential health effects from wildfire smoke exposure, including the risks to those in sensitive groups (see Definitions).
- How to report health issues related to wildfire smoke exposure and obtain medical treatment.
- How workers can obtain the current average and forecasted AQI value for their work location.
- Our methods for protecting workers from wildfire smoke are based on the current and predicted AQI.
- The proper fitting and use of a filtering facepiece respirator when used on a voluntary basis (AQI 101-250).
- Reviewing any job tasks in which the use of a filtering facepiece respirator would expose the wearer to illness or injury more severe than that posed by wildfire smoke.
- Requirements specified in the Wildfire Smoke Prevention Respiratory Program when the AQI is between 251 and 500.
- Requirements specified in our Respiratory Protection Program when the AQI is greater than 500.

Supervisors

In addition to all the training specified for exposed workers, supervisor training will include:

- How to apply engineering and administrative controls when feasible.
- Use of the 5-3-1 Visibility Index (see Appendix) when current AQI levels can't be determined.
- The use of air monitoring equipment to determine the level of PM2.5, if used.
- Proper selection of respirators and how to ensure an adequate supply.
- Ensuring that there is a means of two-way communication with workers when they are exposed above the action level.
- Requirements and exemptions listed in OAR 437-002-1081 Protection from Wildfire Smoke.
- Requirements of the Wildfire Smoke Protection Respiratory Program.
- How to deliver required training to exposed workers including recordkeeping requirements.

- Procedures to follow when a worker reports symptoms of wildfire smoke exposure.

Program Manager
In addition to all the training specified for supervisors, the program manager training will include:

- Maintaining training documentation.
- Maintaining this written program.

Refresher Training
Refresher training will be provided annually or when:

- There are changes to this plan which affect the responsibilities of the affected employees.
- There are changes to the equipment or procedures used to control wildfire smoke exposure.
- There are observed deficiencies in the employees' fulfillment of their responsibilities under this program.

Protecting Workers from Wildfire Smoke
Whenever wildfire smoke is visibly present, supervisors will determine the current and predicted AQI for workers who may be exposed. AQI information is available on the DEQ website at: https://oraqi.deq.state.or.us/home/map or regional air pollution authority websites.

If the AQI area cannot be determined from public sources, supervisors will assess the visibility to estimate the concentration of smoke. (See Appendix: 5-3-1 Visibility Index).

Air monitoring equipment can also be used to determine the level of PM2.5.

If the AQI is deemed to be above 101, supervisors will implement the controls listed below.

Engineering Controls
Depending on the job activity and location, outdoor workers might be temporarily relocated to available indoor areas where the air is adequately filtered. Portable air purifiers equipped with HEPA or similar high-efficiency filters can also be deployed in enclosed areas. These must be sufficient in number and capacity for the size of the enclosed area.

Administrative Controls
Possible administrative controls may include temporarily relocating outdoor work operations to another area with better air quality. Employee work schedules can also be adjusted to times when better air quality is forecasted.

Although they are the preferred method of controlling smoke exposure, engineering and administrative controls may not be feasible given the variety of work activities and locations.

Protective Measures
When engineering and administrative controls are not adequate, the following protective measures will be used.

Air Quality Index	Risk Level	Protective Measures
101-250	Lower (caution)	• Assess and monitor air quality at each work location where employees are exposed. • Provide and document employee training. • Implement two-way communication system. • Implement engineering and administrative controls. • Provide NIOSH-approved filtering facepiece respirators[1] for voluntary use.
251-500	Moderate	*All measures listed above plus:* • Provide NIOSH-approved filtering facepiece respirators for *mandatory use*. • Implement the *Wildfire Smoke Respiratory Protection Program*.
501 and above	High	*All measures listed above plus:* • Provide NIOSH-approved respirators for mandatory use. • Use will comply with our *Respiratory Protection Program* in accordance with OAR 437-004-1041.

1. See definition. Ensure adequate supply and a variety of sizes.

Wildfire Smoke Protection Respiratory Program
This program will be implemented when employees are exposed to an AQI of 251 to 500.

Workers will be required to wear a filtering facepiece respirator unless the use of this respirator creates a substantially greater hazard to the employee during the work activity than that posed by wildfire smoke.

If employees are exposed to an AQI of above 501, or if they are using a respirator that is not a filtering facepiece model, the requirements of our Respiratory Protection Program will be met.

Employee Training
Any employee that is required to use a filtering facepiece respirator will be trained on the following topics:

- Proper selection and use of respirators, including donning and doffing
- Limitations on their use
- How to fit the respirator and check the fit using a positive and negative pressure seal check

Seal Check

Each employee who uses a filtering facepiece respirator must perform a user seal check to ensure a sufficient fit. Employees should use the positive or negative pressure check as described below or the procedure recommended by the manufacturer.

Positive Pressure Seal Check

1. Don the respirator and place your hands over the facepiece. Try to cover as much surface area as possible. Exhale gently into the facepiece.
2. The fit is sufficient if a slight positive pressure builds up inside the facepiece without air passing between your face and the facepiece.
3. If the respirator has an exhalation valve, a positive pressure check may not be possible. Instead, perform a negative pressure check.

Negative Pressure Seal Check

1. Don the respirator and cover as much of the filter surface as possible with your hands. Inhale gently.
2. The facepiece should collapse slightly without air passing between your face and the facepiece.

Correcting problems

If air leaks around the nose, mold the nose area to the shape of your nose. Readjust the straps along the sides of your head until a proper seal is achieved.

Appendix

5-3-1 Visibility Index

This procedure is only to be used when AQI measurements are not available from public sources and there are no other means of assessing the air quality.

Note that this method is less reliable under high humidity conditions.

Determine the limit of your visual range by looking for distant targets or familiar landmarks such as mountains, mesas, hills, or buildings at known distances (miles). The visual range is that point at which these targets are no longer visible. In general, if you can clearly see the outlines of individual trees on the horizon it is generally less than five miles away.

The viewing of any distance targets should be done with the sun behind you, if possible.

Once distance has been determined:

- If visibility is well over five miles, the air quality is generally good.
- If visibility is five miles but hazy, air quality is moderate and beginning to deteriorate.
- If visibility is under five miles, the air quality is unhealthy for sensitive groups.
- If under three miles, the air quality is unhealthy for everyone.

AQI Index	PM2.5 (µg/m³)	Visibility
0 – 50	0.0 – 12.0	More than 15 miles
51 – 100	12.1 – 35.4	5 – 15 miles
101 – 150	35.5 – 55.4	3-5 miles
151 – 200	55.5 – 150.4	1-3 miles
201 – 300	150.5 – 250.4	1 mile
301 and higher	250.5 and higher	Less than 1 mile

2024 LOC Member Voter Guide

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2024 Member Voter Guide

Background: Each even-numbered year, the LOC appoints members to serve on seven policy committees, which are the foundation of the League's policy development process. Composed of city officials, these committees analyze policy and technical issues and recommend positions and strategies for the upcoming two-year legislative cycle. This year, seven committees identified 23 legislative policy priorities to advance to the full membership and LOC Board of Directors. It's important to understand that the issues that ultimately do not rise to the top based on member ranking are not diminished with respect to their value to the policy committee or the LOC's advocacy. These issues will still be key component of the LOC's overall legislative portfolio for the next two years.

Ballot/Voting Process: Each city is asked to review the recommendations from the seven policy committees and provide input to the LOC Board of Directors, which will formally adopt the LOC's 2025-26 legislative agenda. While each city may have a different process when evaluating the issues, it's important for cities to engage with your mayor and entire council to ensure the issues are evaluated and become a shared set of priorities from your city. During its October meeting, the LOC Board will formally adopt a set of priorities based on the ranking process and their evaluation.

Each city is permitted one ballot submission. **Once your city has reviewed the proposed legislative priorities, please complete the electronic ballot to indicate the top 5 issues that your city would like the LOC to focus on during the 2025-26 legislative cycle**. The lead administrative staff member (city manager, city recorder, etc.) will be provided with a link to the electronic ballot. If your city did not receive a ballot or needs a paper option, please reach out to Meghyn Fahndrich at mfahndrich@orcities.org or Jim McCauley at jmccauley@orcities.org.

Important Deadline: The deadline for submitting your city's vote is **5 p.m. on September 27, 2024.**

Community and Economic Development Committee

Contact: Jim McCauley, jmccauley@orcities.org

INFRASTRUCTURE FUNDING (CO-SPONSORED BY WATER AND WASTEWATER COMMITTEE)

RECOMMENDATION: *The LOC will advocate for a comprehensive infrastructure package to support increased investments in water, sewer, stormwater and roads. This includes: funding for system upgrades to meet increasingly complex regulatory compliance requirements; capacity to serve needed housing and economic development; deferred maintenance costs; seismic and wildfire resiliency improvements; and clarity and funding to address moratoriums. The LOC will also champion both direct and programmatic infrastructure investments to support a range of needed housing development types and affordability.*

Background: Cities continue to face the challenge of how to fund infrastructure improvements – to maintain current, build new, and improve resiliency. Increasing state resources in programs that provide access to lower rate loans and grants will assist cities in investing in vital infrastructure. Infrastructure development impacts economic development, housing, and livability. The level of funding for these programs has been inadequate compared to the needs over the last few biennia, and the funds are depleting and unsustainable without significant program modifications and reinvestments. This priority will focus on maximizing both the amount of funding and the flexibility of the funds to meet the needs of more cities across the state to ensure long-term infrastructure investment. The 2024 LOC Infrastructure Survey revealed the increasing need for water and road infrastructure funding. The results show $11.9 billion of infrastructure funds needed ($6.4 billion for water and $5.5 billion for roads).

Combined with the federal-cost share decline on water infrastructure projects – despite the recent bi-partisan infrastructure law investment – cities face enormous pressure to upgrade and maintain water infrastructure. At the same time, cities across the state are working urgently to address Oregon's housing crisis. To unlock needed housing development and increase affordability, the most powerful tool the Legislature can deploy is targeted investments in infrastructure to support needed housing development.

SHELTER AND HOMELESS RESPONSE

RECOMMENDATION: *The LOC will support a comprehensive homeless response package to fund the needs of homeless shelter and homeless response efforts statewide. Funding should include baseline operational support to continue and strengthen coordinated regional homeless response and include a range of shelter types and services, including alternative shelter models, safe parking programs, rapid rehousing, outreach, case management, staffing and administrative support, and other related services. The LOC will also support capital funding for additional shelter infrastructure and site preparation. Oregon's homeless response system must recognize the critical role of cities in homeless response and meaningfully include cities in regional funding and decision-making, in partnership with counties, community action agencies, continuums of care, housing authorities, and other service provider partners.*

Background: The LOC recognizes that to end homelessness, a cross-sector coordinated approach to delivering services, housing, and programs is needed. Despite historic legislative investments in recent years, Oregon still lacks a coordinated, statewide shelter and homeless response system with stable funding. Communities across the state have developed regional homeless response collaboratives, beginning with the HB 4123 pilot communities funded by the Legislature in 2022 and the more recently established Multi-Agency Collaboratives and Local Planning Groups created by Governor Kotek's **Executive Order on Affordable Housing and Homelessness**. As Oregon continues to face increasing rates of unsheltered homelessness, the LOC is committed to strengthening a regionally based, intersectional state homeless response system to ensure all Oregonians can equitably access stable housing and maintain secure, thriving communities.

EMPLOYMENT LANDS READINESS AND AVAILABILITY

Legislative Recommendation: *The LOC will support incentives, programs and increased investment to help cities with the costs of making employment lands market-ready, including continued investment in the state brownfields programs. The LOC also recognizes the deficit of industrial land capacity in strategic locations and will support efforts to build a more comprehensive industrial lands program by strengthening the connection between the DLCD Goal 9 Program and Business Oregon IL programs and resources.*

Background: Infrastructure cost is a significant barrier for cities that are looking to increase the supply of market-ready industrial land. Cities require a supply of industrial land that is ready for development to recruit and retain business operations. For sites to be attractive to site selectors, the basic infrastructure must be built out first. For example, the Regionally Significant Industrial Site (RSIS) program within Business Oregon is designed to help cities with the cost of readiness activities

through a reimbursement program, but many cities are not able to take advantage of this program due to a lack of staff capacity and up-front capital for investments.

FULL FUNDING AND ALIGNMENT FOR HOUSING PRODUCTION

RECOMMENDATION: *The LOC will advocate to maintain and increase state investments to support the development and preservation of a range of needed housing types and affordability, including: publicly supported affordable housing and related services; affordable homeownership; permanent supportive housing; affordable modular and manufactured housing; middle housing types; and moderate-income workforce housing development. In addition, the LOC will seek opportunities to address structural barriers to production of different housing options at the regional and state level. This includes: streamlining state agency programs, directives, funding metrics, and grant timelines that impact development; aligning state programs with local capital improvement and budget timelines; and increasing connections between affordable housing resources at Oregon Housing and Community Services (OHCS) with the land use directives in the Oregon Housing Needs Analysis (OHNA) and Climate Friendly and Equitable Communities (CFEC) programs at the Department of Land Conservation and Development (DLCD).*

Background: Recent legislation and executive orders have made significant changes to the state's land use planning process, including new housing production directives for cities and counties. These updates have resulted in extensive, continuous, and sometimes conflicting efforts that are not supported by adequate state funding. Cities do not have the staff capacity or resources needed to implement existing requirements. Additional state support is needed to assist local implementation, including technical assistance and education for local staff and decision makers, and workforce development. The state should prioritize implementation and coordination of existing programs in the 2025-2026 legislative sessions before considering any new policies.

General Government Committee

Contact: Scott Winkels, swinkels@orcities.org

RESTORATION OF RECREATIONAL IMMUNITY

RECOMMENDATION: *The LOC will introduce legislation to protect cities and other landowners who open their property for recreational purposes from tort liability claims.*

Background: An adverse court ruling stemming from a recreational injury sustained on a city owned trail opened cities and other public and private landowners to tort claims for injuries sustained by people who are recreating. The Legislature enacted a temporary restoration of the immunity in 2024 that will expire

on July 1, 2025. Legislation to make the immunity permanent will be needed for cities to offer recreational amenities without fear of tort liability lawsuits or excessive risk premiums.

BEHAVIORAL HEALTH ENHANCEMENTS

RECOMMENDATION: *The LOC will introduce and support legislation to expand access to behavioral health treatment beds and allow courts greater ability to direct persons unable to care for themselves into treatment through the civil commitment process.*

Background: While Oregon has historically ranked at or near the bottom nationally for access to behavioral healthcare, the state has made significant investments over the past four years. It will take time for investments in workforce development and substance abuse treatment to be realized, and areas for improvement remain. The standard for civilly committing a person into treatment remains very high in Oregon, and as a result, individuals who present a danger to themselves or others remain untreated, often producing tragic results. Additionally, the number of treatment beds for residential care does not meet demand, with services unavailable in multiple areas of the state.

CONTINUED ADDICTION POLICY REFORM

RECOMMENDATION: *The LOC will Introduce and support legislation to allow drug related misdemeanors to be cited into municipal court; provide stable funding for services created in HB 4002 in 2024; allow more service providers to transport impaired persons to treatment; establish the flow of resources to cities to support addiction response; and monitor and adjust the implementation of HB 4002*.

Background: The Legislature passed significant changes to Oregon's approach to the current addiction crisis with the creation of a new misdemeanor charge designed to vector defendants away from the criminal justice system and into treatment. Changes also included: sentencing enhancements for drug dealers; investments in treatment capacity; and expanded access to medical assisted addiction treatment. HB 4002 did not include stable funding for the services created or provide cities with direct access to resources, or the ability to cite the new offense into municipal courts. Additionally, the new law will likely require adjustments as the more complicated elements get implemented.

Energy and Environment Committee

Contact: Nolan Pleše, nplese@orcities.org

BUILDING DECARBONIZATION, EFFICIENCY, AND MODERNIZATION

RECOMMENDATION: *The LOC will support legislation to protect against any rollback and preemptions to allow local governments to reduce greenhouse gas emissions from new and existing buildings while ensuring reliability and affordability. In addition, the LOC will lead and back efforts that support local governments, including statewide capacity, expertise, and resources to allow local governments to pursue state and federal funding and continue to support off-ramps for local governments unable to meet the state's new building performance standards.*

Background: Homes and commercial buildings consume nearly one-half of all the energy used in Oregon, according to the Oregon Department of Energy. Existing buildings can be retrofitted and modernized to become more resilient and efficient, while new buildings can be built with energy efficiency and energy capacity in mind.

Oregon cities, especially small to mid-sized and rural communities, require technical assistance and financial support to meet the state's goals. Without additional support, some communities will be unable to meet the state's building performance standards. Off-ramps are necessary to protect cities unable to meet the state's goals to ensure they are not burdened by mandates they can't meet.

Some initiatives may include local exceptions for building energy codes and performance standards, statewide home energy scoring, or financial incentives from the Infrastructure Investment and Jobs Act (IIJA), the Inflation Reduction Act (IRA), state incentives, and other financial incentives like CPACE (Commercial property-assessed clean energy).

For cities to meet their climate resilience and carbon reduction goals while maintaining home rule authority, their flexibility must be preserved to allow for a successful transition from fossil fuels. State pre-emptions should not prohibit cities from exceeding state goals and achieving standards that align with their values.

INVESTMENT IN COMMUNITY RESILIENCY AND CLIMATE PLANNING RESOURCES

RECOMMENDATION: *The LOC will support investments that bring resiliency and climate services (for mitigation and adaptation) together in coordination with public and private entities, and work to fill the existing gaps to help communities get high-quality assistance. These resources are needed for local governments to effectively capture the myriad of available state and federal funding opportunities that cannot be accessed due to capacity and resource challenges. The LOC will work with partners to identify barriers and potential*

solutions towards resiliency opportunities, such as local energy generation and battery storage, and to support actions that recognize local control.

Background: Oregon communities have unique resources and challenges, and increasingly need help to plan for climate and human-caused impacts and implement programs to reduce greenhouse gases. Oregon should focus on maintaining the reliability of the grid while supporting safe, healthy, cost-effective energy production that includes external costs.

Although many opportunities for building resiliency exist, not all will not be built or managed by cities. Cities support efforts to build resiliency hubs in coordination with public, private, and non-profit interests and will seek more investments in programs that support resiliency hubs.

Cities also have a broad range of perspectives on how to address the impacts of the climate crisis. Concerns about costs and reliability during this energy transition have surfaced in many cities. At the same time, others who share those concerns also aim to have stronger requirements that meet their cities' climate goals. To meet these challenges, cities oppose additional mandates but support exceptions and additional support that recognize each city's unique perspectives, resources, and experience while preserving local authority.

Oregon's small to mid-sized communities and rural communities are particularly in need of technical assistance, matching funds, and additional capacity to address climate impacts. Without assistance, these communities face unfunded mandates due to low resources and capacity challenges to go after many available opportunities.

ADDRESS ENERGY AFFORDABILITY CHALLENGES FROM RISING UTILITY COSTS

RECOMMENDATION: *The LOC will: support actions to maintain affordable and reliable energy resources; invest in programs and new technology that support energy efficiency, renewable energy, and battery storage to help reduce overall energy costs and demands; and address grid challenges during peak energy demand and the associated rising costs, while balancing the pace of energy production and power supply that impact rates.*

Background: In recent years, rising utility costs have increased the energy burden on Oregonians, particularly low-income Oregonians, those with fixed incomes, and those who are unable to work. Costs contributing to these increases include, infrastructure upgrades, maintenance, and modernization, climate impacts from increased extreme weather events (wildfires, ice storms, snowstorms, flooding, etc.) and mitigation costs associated with them, fuel costs, inflation, legislative and gubernatorial actions, and investments in new energy-producing technology, and battery storage, are some of many reasons that are impacting utility rates.

While many investment opportunities exist, more cooperation and collaboration

needed to find a path forward that reduces the need for large rate increases that impact Oregonians. Rate increases should balance and prioritize vital labor, infrastructure, and mitigations necessary to sustain present and future energy demands with compensation.

In addition, the LOC would advocate for new tools and utilizing existing tools to modernize rate structures to provide flexibility and account for the time of year of rate increases (phasing in of rate increases) and recognize the higher burden for low and moderate-income and fixed-income Oregonians.

Finance and Taxation Committee

Contact: Lindsay Tenes, ltenes@orcities.org

LODGING TAX FLEXIBILITY

RECOMMENDATION: *The LOC will advocate for legislation to increase flexibility to use locally administered and collected lodging tax revenue to support tourism-impacted services.*

Background: In 2003, the Legislature passed the state lodging tax and restricted local transient lodging tax (TLT) by requiring that revenue from any new or increased local lodging tax be spent according to a 70/30 split: 70% of local TLT must be spent on "tourism promotion" or "tourism related facilities" and up to 30% is discretionary funds.

Tourism has created an increased demand on municipal service provision. Some of the clearest impacts are on roads, infrastructure, public safety, parks, and public restrooms. Short term rentals and vacation homes also reduce the housing supply and exacerbate housing affordability issues.

Cities often play an active role in tourism promotion and economic development efforts, but requiring that 70% of lodging tax revenue be used to further promote tourism is a one-size fits all approach that does not meet the needs of every tourism community. Cities must be allowed to strike the balance between tourism promotion and meeting the needs for increased service delivery for tourists and residents.

MARIJUANA TAX

Legislative Recommendation: *The LOC will advocate for legislation that increases revenue from marijuana sales in cities. This may include proposals to restore state marijuana tax losses related to Measure 110 (2020), and to increase the 3% cap on local marijuana taxes.*

Background: The state imposes a 17% tax on recreational marijuana products. Until

the end of 2020, cities received 10% of the state's total tax revenues (minus expenses) on recreational marijuana products. Measure 110 largely shifted the allocation of state marijuana revenue by capping the amount that is distributed to the recipients that previously shared the total amount (the State School Fund, the Oregon Health Authority, the Oregon State Police, cities and counties) and diverted the rest to drug treatment and recovery services. Starting in March of 2021, quarterly revenue to cities from state marijuana taxes saw a decrease of roughly 74%. Marijuana revenue has also been on a downward trend because the market is oversaturated, which has continually reduced sale prices (high supply, steady demand). Marijuana is taxed on the price of the sale and not on volume.

ALCOHOL TAX

RECOMMENDATION: *The LOC will advocate for increased revenue from alcohol taxes. This includes support for any recommendation by the HB 3610 Task Force on Alcohol Pricing to increase the beer and wine tax that maintains 34% shared distribution to cities. This may also include legislation to lift the pre-emption on local alcohol taxes.*

Background: Cities have significant public safety costs related to alcohol consumption and must receive revenue commensurate to the cost of providing services related to alcohol.

Oregon is a control state and the Oregon Liquor and Cannabis Commission (OLCC, formerly known as the Oregon Liquor Control Commission) acts as the sole importer and distributor of liquor. Cities and other local governments are preempted from imposing alcohol taxes. In exchange, cities receive approximately 34% share of net state alcohol revenues. The OLCC has also imposed a 50-cent surcharge per bottle of liquor since the 2009-2011 biennium, which is directed towards the state's general fund. Oregon's beer tax has not been increased since 1978 and is $2.60 per barrel, which equates to about 8.4 cents per gallon, or less than 5 cents on a six-pack. Oregon's wine tax is 67 cents per gallon and 77 cents per gallon on dessert wines. Oregon has the lowest beer tax in the country and the second lowest wine tax.

Broadband, Cybersecurity, Artificial Intelligence (AI), and Telecommunications Committee

Contact: Nolan Plese, nplešе@orcities.org

DIGITAL EQUITY AND INCLUSION

RECOMMENDATION: *The LOC will support legislation and policies that help all individuals and communities have the information technology capacity needed for full participation in our society, democracy, and economy through programs such as digital*

navigators, devices, digital skills, and affordability programs like the Affordable Connectivity Program (ACP) and the Oregon Telephone Assistance Program (OTAP – also known as Lifeline) that meet and support community members where they are.

Background: Connectivity is increasingly relied on for conducting business, learning, and receiving important services like healthcare. As technology has evolved, the digital divide has become more complex and nuanced. Now, the discussion of the digital divide is framed in terms of whether a population has access to hardware, to the Internet, to viable connection speeds, and to the skills they need to effectively use it. Recognizing individual knowledge and capacity, abilities, and lived experience is now vital, and programs that offer devices, digital literacy skills, cybersecurity, and support for internet affordability, are critical to closing the digital divide.

CYBERSECURITY & PRIVACY

RECOMMENDATION: *The LOC will support legislation that addresses privacy, data protection, information security, and cybersecurity resources for all that use existing and emerging technology like artificial intelligence (AI) and synthetic intelligence (SI), including, but not limited to: funding for local and state government cyber and information security initiatives; interagency and government coordination and cooperative arrangements for communities that lack capacity; statewide resources for cyber and AI professionals and workforce development; vendor and third-party vendor accountability; regulations of data privacy; or standards for software/hardware developers to meet that will make their products more secure while ensuring continued economic growth. The LOC will oppose any unfunded cybersecurity and/or AI mandates and support funding opportunities to meet any unfunded insurance requirements.*

Background: Society's continued reliance on technology will only increase with the emergence of artificial intelligence (AI) and synthetic intelligence (SI). This will mean an increased risk for cybercrimes. Cybersecurity encompasses everything that pertains to protecting our sensitive and privileged data, protected health information, personal information, intellectual property, data, and governmental and industry information systems from theft and damage attempted by criminals and adversaries.

Cybersecurity risk is increasing, not only because of global connectivity but also because of the reliance on cloud services to store sensitive data and personal information. As AI and SI technology and adoption accelerate, the ability to guard against cyber threats and threats created through AI will increase. Strengthening coordination between the public and private sectors at all levels is essential for decreasing risks and quickly responding to emerging threats. This ensures resilience is considered to reduce the damage caused by cyber threats.

RESILIENT, FUTUREPROOF BROADBAND INFRASTRUCTURE AND PLANNING INVESTMENT

RECOMMENDATION: *The LOC will support legislation to ensure broadband systems are built resiliently and futureproofed, while also advocating for resources to help cities with broadband planning and technical assistance through direct grants and staff resources at the state level. The LOC will oppose any preemptions that impede local government's ability to maintain infrastructure standards in the local rights-of-way. Municipalities' have a right to own and manage access to poles and conduit and to become broadband service providers.*

Background:

Broadband Planning and Technical Assistance

Most state and federal broadband infrastructure funding requires communities to have a broadband strategic plan in place in order to qualify. Many cities do not have the resources or staff capacity to meet this requirement. Cities will need to rely on outside sources or work with the state for assistance and support the state setting up an office to aid local governments.

Resilient and Long-Term Systems

As broadband continues to be prioritized, building resilient long-term networks will help Oregonians avoid a new digital divide as greater speeds are needed with emerging technologies like artificial intelligence (AI). Important actions that will ensure resilient broadband include: dig once policies; investing in robust middle-mile connections; ensuring redundancy and multiple providers in all areas' sharing current and future infrastructure to manage overcrowding in the right-of-way (ROW); and undergrounding fiber instead of hanging it on poles. Additionally, infrastructure should be built for increased future capacity to avoid a new digital divide by allowing Oregon to determine speeds that reflect current and future technology.

Optional Local Incentives to Increase Broadband Deployment

Cities need flexibility to adequately manage public rights-of-ways (ROW). Instead of mandates, the state should allow cities the option to adopt incentives that could help streamline broadband deployment. Flexibility for cities to fund conduit as an eligible expense for other state infrastructure (most likely water or transportation projects) would reduce ROW activity. Additionally, local governments can work with state and federal partners to streamline federal and state permitting to reduce delays in broadband deployment.

Regulatory Consistency Amidst Convergence

With rapid changes in communication, standards and policy should keep pace. When a converged technology utilizes differing communications technologies, it may be

required to adhere to multiple standards and regulations, or providers may argue that some parts of their service is not subject to regulations. The LOC will support legislation that addresses the inconsistency of regulations applied to traditional and nontraditional telecommunications services as more entities move to a network-based approach.

ARTIFICIAL INTELLIGENCE (AI)

RECOMMENDATION: *The LOC will support legislation that promotes secure, responsible and purposeful use of artificial intelligence (AI) and synthetic intelligence (SI) in the public and private sectors while ensuring local control and opposing any unfunded mandates. Cities support using AI for social good, ensuring secure, ethical, non-discriminatory, and responsible AI governance through transparent and accountable measures that promotes vendor and third-party vendor accountability, improving government services while protecting sensitive data from use for AI model learning, and fostering cross-agency, business, academic, and community collaboration and knowledge sharing.*

Background: While artificial intelligence (AI) and synthetic intelligence (SI) are not new, the recent advancements in machine learning and the exponential growth of artificial and synthetic intelligence require governments and providers to be responsible and purposeful in the use of this technology. The opportunities and risks that AI and SI present demand responsible values and governance regarding how AI systems are purchased, configured, developed, operated, or maintained in addition to ethical policies that are transparent and accountable. Policies should also consider the implication of AI on public records and retention of information on how AI is being used. Additionally, governments need to consider how procurements are using AI, how they are securing their systems, and any additional parties being used in the process.

AI systems and policies should:

- Be Human-Centered Design - AI systems are developed and deployed with a human-centered approach that evaluates AI-powered services for their impact on the public.
- Be Secure & Safe - AI systems should maintain safety and reliability, confidentiality, integrity, and availability through safeguards that prevent unauthorized access and use to minimize risk.
- Protect Privacy - Privacy is preserved in all AI systems by safeguarding personally identifiable information (PII) and sensitive data from unauthorized access, disclosure, and manipulation.
- Be Transparent - The purpose and use of AI systems should be proactively communicated and disclosed to the public. An AI system, its data sources,

operational model, and policies that govern its use should be understandable, documented, and properly disclosed publicly.

- Be Equitable - AI systems support equitable outcomes for everyone; urban, rural, suburban, frontier, and historically underrepresented communities. Bias in AI systems should be effectively managed to reduce harm to anyone impacted by its use.
- Provide Accountability - Roles and responsibilities govern the deployment and maintenance of AI systems. Human oversight ensures adherence to relevant laws and regulations and ensures the product's creator is ultimately responsible for reviewing the product prior to release and held accountable.
- Be Effective - AI systems should be reliable, meet their objectives, and deliver precise and dependable outcomes for the utility and contexts in which they are deployed.
- Provide Workforce Empowerment - Staff are empowered to use AI in their roles through education, training, and collaborations that promote participation and opportunity.

Transportation Committee

Contact: Jim McCauley, jmccauley@orcities.org

2025 TRANSPORTATION PACKAGE

RECOMMENDATION: *The LOC supports a robust, long-term, multimodal transportation package focused on: stabilizing funding for operations and maintenance for local governments and ODOT; continued investment in transit and bike/ped programs, safety, congestion management, and completion of projects from HB 2017. As part of a 2025 package, the funding level must maintain the current State Highway Fund (SHF) distribution formula and increase investments in local programs such as Great Streets, Safe Routes to Schools, and the Small City Allotment Program. In addition, the package should find a long-term solution for the weight-mile tax that stabilizes the program with fees that match heavier vehicles' impact on the transportation system. The funding sources for this package should be diverse and innovative. Additionally, the package should maintain existing choices and reduce barriers for local governments to use available funding tools for transportation investments.*

Background: Oregon has one of the country's most transportation-dependent economies, with 400,000 jobs (1 in 5) related directly to transportation via rail, road, and ports. The State Highway Fund (SHF) is the primary revenue source for the state's transportation infrastructure, and comes from various sources, including gas

and diesel tax, weight mile tax, vehicle registration fees, vehicle title fees, and driver's license fees. These funds are distributed using a 50-30-20 formula, with 50% to the state, 30% to counties, and 20% to cities. Continued investment in transportation infrastructure is critical for public safety objectives such as "Safe Routes to Schools" and the "Great Streets" program. The Legislature must develop a plan to match inflationary costs and a plan to transition from a gas tax to an impact fee based on miles traveled to stabilize transportation investment.

FUNDING AND EXPANDING PUBLIC AND INTER-COMMUNITY TRANSIT

RECOMMENDATION: *The LOC supports expanding funding for public transit operations statewide, focusing on inter-community service, service expansion, and a change in policy to allow for the use of funds for local operations and maintenance.*

Background: During the 2017 session, HB 2017 established Oregon's first statewide comprehensive transit funding by implementing a "transit tax," a state payroll tax equal to one-tenth of 1%. This revenue source has provided stable funding of more than $100 million annually.

These funds are distributed utilizing a formula. Investments made since the 2017 session helped many communities expand and start transit and shuttle services to connect communities and provide transportation options. Many communities, however, still lack a viable public transit or shuttle program and would benefit greatly from expanded services.

SHIFT FROM A GAS TAX TO A ROAD USER FEE

RECOMMENDATION: *The LOC supports replacing Oregon's gas tax with a Road User Fee (RUF) while protecting local government's authority to collect local gas tax fees. An RUF will better measure a vehicle's impact on roads and provide a more stable revenue stream.*

Background: Oregon's current gas tax is 40 cents per gallon. Depending on the pump price, the gas tax represents a small portion of the overall cost of gas. Due to the improved mileage of new vehicles and the emergence and expected growth of electric vehicles, Oregon will continue to face a declining revenue source without a change in the fee structure. Capturing the true impact of vehicles on the transportation system requires a fee structure that aligns with use of roads. The federal tax has remained at 18 cents per gallon since 1993, effectively losing buying power or the ability to keep up with inflation.

COMMUNITY SAFETY AND NEIGHBORHOOD LIVABILITY

RECOMMENDATION: *The LOC supports a strong focus on funding safety improvements on large roads, such as highways and arterials, that run through all communities. This includes directing federal and state dollars toward safety improvements on streets that meet the Great Streets criteria but are not owned by ODOT, and increasing funding for the*

Great Streets program. For those cities that don't qualify for existing programs, ODOT should explore funding opportunities for cities with similar safety needs. Additionally, more funding should be directed to the Highway Safety Improvement Program (HSIP) and All Roads Transportation Safety (ARTS) programs.

Background: Community safety investment remains a critical challenge for local governments, reducing their ability to maintain a transportation system that supports the safe and efficient movement of people and goods. Traffic fatalities and serious injuries continue to grow to record levels in many communities. The lack of stable funding for these basic operations and maintenance functions prevents local governments from meeting core community expectations. Without increases in funding for transportation, this problem is expected to get even worse, as costs for labor and materials continue to increase.

Water and Wastewater Committee

Contact: Michael Martin, mmartin@orcities.org

INFRASTRUCTURE FUNDING (CO-SPONSORED BY COMMUNITY AND ECONOMIC DEVELOPMENT COMMITTEE)

RECOMMENDATION: *The LOC will advocate for a comprehensive infrastructure package to support increased investments in water, sewer, stormwater and roads. This includes: funding for system upgrades to meet increasingly complex regulatory compliance requirements; capacity to serve needed housing and economic development; deferred maintenance costs; seismic and wildfire resiliency improvements; and clarity and funding to address moratoriums. The LOC will also champion both direct and programmatic infrastructure investments to support a range of needed housing development types and affordability.*

Background: Cities continue to face the challenge of how to fund infrastructure improvements – to maintain current, build new, and improve resiliency. Increasing state resources in programs that provide access to lower rate loans and grants will assist cities in investing in vital infrastructure. Infrastructure development impacts economic development, housing, and livability. The level of funding for these programs has been inadequate compared to the needs over the last few biennia, and the funds are depleting and unsustainable without significant program modifications and reinvestments. This priority will focus on maximizing both the amount of funding and the flexibility of the funds to meet the needs of more cities across the state to ensure long-term infrastructure investment. The 2024 LOC Infrastructure Survey revealed the increasing need for water and road infrastructure funding. The results show $11.9 Billion of infrastructure funds needed ($6.4 billion for water and $5.5

billion for roads).

Combined with federal-cost share decline on water infrastructure projects – despite the recent bi-partisan infrastructure law investment – cities face enormous pressure to upgrade and maintain water infrastructure. At the same time, cities across the state are working urgently to address Oregon's housing crisis. To unlock needed housing development and increase affordability, the most powerful tool the Legislature can deploy is targeted investments in infrastructure to support needed housing development.

PLACE-BASED PLANNING

RECOMMENDATION: *The LOC will advocate for funding needed to complete existing place-based planning efforts across the state and identify funding to continue the program for communities that face unique water supply challenges.*

Background: Oregon's water supply management issues are complex. In 2015, the Legislature created a place-based planning pilot program in Oregon administered through the Oregon Water Resources Department that provides a framework and funding for local stakeholders to collaborate and develop solutions to address water needs within a watershed, basin, surface water, or groundwater. In 2023, the Legislature passed a significant bipartisan Drought Resilience and Water Security package (BiDRAWS), which included $2 million into a place-based planning water fund to continue efforts to address a basin-by-basin approach.

OPERATOR-IN-TRAINING APPRENTICESHIPS

RECOMMENDATION: *The LOC will advocate for funding for apprenticeship training programs and the expansion of bilingual training opportunities to promote workforce development of qualified wastewater and drinking water operators due to the significant lack of qualified operators.*

Background: Water utilities must resolve a human-infrastructure issue in order to keep our water and wastewater systems running. Currently, water utilities face challenges in recruiting, training, and retaining certified operations employees. In addition, retirements of qualified staff over the next decade will exacerbate the problem.

In 2023, the Legislature approved one-time funding for the development of a training facility for certified operators and technical assistance staff in partnership with the Oregon Association of Water Utilities. Sustained funding for regional training facilities and direct funding for utilities hosting training programs is needed to train the next generation of water and wastewater operators.

League of Oregon Cities

2024-25 Legislative Priorities Ballot

Ballot Submitter's Information (ALL are required):

City name: _____

Submitter's Name: _____

Job Title: _____

Email Address: _____

Phone Number: _____

Please check 5 boxes that reflect the top 5 issues that your city recommends be added to the priorities for the League's 2024-25 legislative agenda. To see full background information on each of these legislative issues go to:

https://www.orcities.org/application/files/7417/1898/7165/2024_Legislative_Voter_Guide_FINAL.pdf

- ☐ 1. Infrastructure Funding
- ☐ 2. Shelter and Homelessness Response
- ☐ 3. Employment Lands Readiness and Availability
- ☐ 4. Full Funding and Alignment for Housing Production
- ☐ 5. Restoration of Recreational Immunity
- ☐ 6. Behavioral Health Enhancements
- ☐ 7. Continued Addiction Policy Reform
- ☐ 8. Building Decarbonization, Efficiency, and Modernization
- ☐ 9. Investment in Community Resiliency and Climate Planning Resources
- ☐ 10. Address Energy Affordability Challenges from Rising Utility Costs
- ☐ 11. Lodging Tax Flexibility
- ☐ 12. Marijuana Tax
- ☐ 13. Alcohol Tax

League of Oregon Cities

2024-25 Legislative Priorities Ballot

☐	14. Digital Equity and Inclusion
☐	15. Cybersecurity and Privacy
☐	16. Resilient, Futureproof Broadband Infrastructure and Planning Investment
☐	17. Artificial Intelligence (AI)
☐	18. 2025 Transportation Package
☐	19. Funding and Expanding Public and Inter-Community Transit
☐	20. Shift from a Gas Tax to a Road User Fee
☐	21. Community Safety and Neighborhood Livability
☐	22. Place-based Planning
☐	23. Operator-In-Training Apprenticeship

Write-in Option: Please use this space to provide comments (supportive or critical) on the issues listed above, as well as any issues that you think may have been overlooked during the committee process.

_____

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Signature: _____

OREGON LIQUOR & CANNABIS COMMISSION

Instructions for Local Government Recommendation – Liquor License

Per OAR 845-005-0304(3): The Commission requires an applicant for issuance of a new license issued under ORS chapter 471, to provide written notice of the application to the local government in the form of a complete, accurate, and legible Commission form.

The local government is as follows:
(a) If the address of the premises proposed to be licensed is within a city's limits, the local government is the city.
(b) If the address of the premises proposed to be licensed is not within a city's limits, the local government is the county.

INSTRUCTIONS:

- **Section 1: Applicant** completes Section 1 of this form and submits it to the appropriate city or county jurisdiction. Applicant verifies with the local government whether additional forms or fees are required. **Applicant completes payment to local jurisdiction for processing application if they require fees. This does not include OLCC license fees.**

- **Section 2: Local government** completes Section 2 to prove acceptance of recommendation form and returns form to the applicant. **Applicant** may upload the accepted form with Sections 1 & 2 filled out to CAMP or wait until recommendation is made before submitting to OLCC via CAMP.

- **Section 3: Once recommendation is determined, local government** completes Section 3 of this form and returns it to the applicant. **Applicant** uploads the complete form and any supporting information provided by the city or county to CAMP.

Annual Liquor License Types	
Off-Premises Sales	**Brewery**
Limited On-Premises Sales	**Distillery**
Full On-Premises, Commercial	**Grower Sales Privilege**
Full On-Premises, Caterer	
Full On-Premises, Other Public Location	**Winery**
Full On-Premises, For Profit Private Club	
Full On-Premises, Non Profit Private Club	**Wholesale Malt Beverage & Wine**
Full On-Premises, Public Passenger Carrier	
	Warehouse
Brewery Public House	

OREGON LIQUOR & CANNABIS COMMISSION

Local Government Recommendation – Liquor License

Section 1 – Submission - To be completed by Applicant:

License Information

Legal Entity/Individual Applicant Name(s): BD REAL LIFE, LLC

Proposed Trade Name: RIVER LODGE + CABINS

Premises Address: 6 MARINE DRIVE NE Ste: OREGON

City: BOARDMAN County: MORROW Zip: 97818

Application Type: ○ New License Application ◉ Change of Ownership ○ Change of Location

License Type: F-COM ☐ Additional Location for an Existing License

Application Contact Information

Contact Name: EDEL DONAHOO Phone: 503-425-1514

Mailing Address: 12670 SW 68TH AVENUE, SUITE 200

City: TIGARD State: OREGON Zip: 97223

Email Address: EDEL@NORTHP.COM

Business Details

Please check all that apply to your proposed business operations at this location:

☐ Manufacturing/Production at this location

☑ Retail Off-Premises Sales at this location

☑ Retail On-Premises Sales & Consumption at this location

If there will be On-Premises Consumption at this location:

☑ Indoor Consumption ☑ Outdoor Consumption

☐ Malt Beverage/Wine/Cider Consumption ☐ Distilled Spirits Consumption

☐ Proposing to Allow Minors

Section 1 Continued on next page

OREGON LIQUOR & CANNABIS COMMISSION

Local Government Recommendation – Liquor License

Section 1 Continued – Submission - To be completed by Applicant:
Legal Entity/Individual Applicant Name(s): BD REAL LIFE, LLC
Proposed Trade Name: RIVER LODGE + CABINS
After completing section 1, please submit your application to the local government for recommendation

Section 2 – Acceptance - To be completed by Local Government:
Local Government Recommendation Proof of Acceptance
After accepting this form, please return a copy to the applicant with received and accepted information
City or County Name: Optional Date Received Stamp
Date Application Received:
Received by:

Section 3 – Recommendation - To be completed by Local Government:
◯ **Recommend this license be granted**
◯ **Recommend this license be denied** (Please include documentation that meets OAR 845-005-0308)
◯ **No Recommendation/Neutral**
Name of Reviewing Official:
Title:
Date:
Signature:
After providing your recommendation and signature, please return this form to the applicant.

BOARDMAN POLICE DEPARTMENT

PATROL STATISTICS (UNAUDITED)
CALENDER YEAR 2024

Statistics	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual Total
Total Incidents	339	345	312	409	443	516	492	457					3313
Calls for Service	182	180	160	211	225	287	222	242					1709
Officer Initiated Incidents	157	165	152	198	218	229	270	215					1604
Traffic stops	48	73	56	79	92	85	135	84					652
Other OIA Incidents	102	92	96	119	126	144	135	131					945
Bus/Building Checks	0	3	2	3	14	7	3	7					39
Veh/Ped check	44	48	56	65	88	98	81	94					574
Total Officer Reports	42	43	43	52	55	44	45	58					382
CIS Converstion	0	0	0	0	0	0	0	0					0
Crash	2	0	1	1	1	0	3	2					10
Felony	7	6	5	7	7	2	2	5					41
Information Case	9	12	9	13	15	10	15	20					103
Misdemeanor	14	14	18	23	23	24	19	22					157
Violation	1	7	5	5	1	0	0	0					19
Voided	5	2	1	2	0	1	3	1					15
Unclaissified Reports	4	2	4	1	8	7	3	8					37
Total Misdemeanor & Felony Arrest	8	9	16	11	13	19	14	18					108
Misdemeanor Arrests	7	5	12	8	9	18	12	14					85
Felony Arrests	1	4	12	3	4	1	2	4					31
Total Citations	5	15	15	17	31	19	36	18					156
Code	0	0	0		0	0	0	0					0
Criminal	0	0	0		0	2	3	2					7
Violation	5	15	15	14	31	17	33	16					146
Unclassified													0
FI's	3	1	0	0	2	0	3	2					11

Note: Beginning in April stats are from the 23rd of prior month to 22nd of current month.
Note: March 2024 stats are as of 3/28/24 at 11:25 am.
Note: Calender year end summary report will project slight different totals due to RIMS variations,.

	June 23 to July 22 2024	July 23 to Aug 22 2024	Aug 23 to Sept 22 2024	Sept 23 to Oct 22 2024	Oct 23 to Nov 22 2024	Nov 23 to Dec 22 2024	Dec 23 to Jan 22 2025	Jan 23 to Feb 22 2025	Feb 23 to Mar 22 2025	Mar 23 to Apr 22 2025	Apr 23 to May 22 2025	May 23 to June 22 2025
Total Permits Sold												
Boardman												
Permits Sold	26	23										
Manufactured Placement Permit	0	1										
New Home Construction	5	7										
Multi Family Units	0	0										
Morrow County(excludes 97818)												
Permits Sold	7	10										
Manufactured Placement Permit	0	0										
New Home Construction	0	0										
Morrow County - 97818												
Permits Sold	11	15										
Manufactured Placement Permit	0	0										
New Home Construction	0	0										
Irrigon												
Permits Sold	0	1										
Manufactured Placement Permit	0	0										
New Home Construction	0	0										
Multi - Family (units)	0	0										
Gilliam County												
Permits Sold	9	9										
Manufactured Placement Permit	1	0										
New Home Construction	0	0										
Multi-Family (units)	0	0										

Public Works Report
Aug-24

20 Locates to mark water and sewer lines for customers prior to digging
19 Work Orders
5 New Meter Installs
493 Meter Reads
31 New Radio Reads Installed

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	New Meters Installed
2023	0	2	2	1	3	3	3	14	3	8	0	0	39
2024	0	0	2	2	0	4	8	5					21

Besides daily work routines, Public Works also completed the following:

- This month we only had three water leaks on NW Columbia Ave.
- Sanitary Sewer Overflow at Columbia and Lewis and Clark Port of Morrow lift station
- Water leak at Rail Road house
- Two dog calls
- One dog transport to Hermiston
- Vacced out school storm drains
- Repaired automatic gate at PD
- Chlorine leak at water building
- Serviced one PD car
- Serviced backhoe
- Serviced vac truck
- Water leak on First St
- We purchased a new vac truck from SWS Equipment under budget through Sourcewell, which gives us a Government approved price so no need for bid process. All the paper work and training should be done soon. After that we can start to use the truck.

City Manager August Report

The following August report will give an overview of the objectives accomplished this past month, as well as future plans:

1. On September 24th from 3:00-6:00pm the city will hold an open house to allow our community an opportunity to see the newly completed building department.

2. In order to keep the council informed regarding the myriad of planning document updates and development projects, I would like to suggest that a monthly report be shared by our Planning Official.

3. As part of our Capital Improvement Plan (CIP), the city will be updating the language within the municipal code. To assist the council with this project we would like to hold a work session in December, prior to the December 3rd council meeting.

4. League of Oregon Cities will conduct a virtual training focused on the proper use of social media as a city council member, Tuesday September 10th from 5:30-6:30pm.

5. Safety Update:
    a. *Emergency & Evacuation Plan* and *Occupational Safety & Health Manual* presented to council for adoption.
    b. CIS conducted a *Basics Training 101* for the safety committee.
    c. SAIF *Policy Snapshot* completed
    d. City Manager completed *Best Practice Annual Survey* with CIS.

6. Community Outreach….(This will be a regular section that I will include with each report. This is a way for myself and the council to keep in mind the importance of ongoing outreach to our community and highlight what has been done and will be upcoming for the future.)

    A. Housing Summit
    B. Ford Family Foundation
    C. Land use Planning Consultants
    D. Health Clinic Community Event
    E. Boardman Parks & Rec District
    F. Oregon Trail Library District RFP Interviews
    G. Heritage Trail Committee Meeting
    H. CIS; Lisa Masters
    I. Morrow County Commission
    J. Unbrick Construction
    K. League of Oregon Cities
    L. Franchise Agreement Consulting
    M. Boardman Healthy Community Project

CAPITAL IMPROVEMENT PROJECTS
2024-25

	PROGRESS
General	
BPA Greenspace	Obtaining BPA final approval
Surplus Old City Shop	Complete
Planning	
Economic Opportunity Analysis	Working on community outreach
Transportation System Plan	In beginning stage of development
Parks Master Plan	Working on community outreach
Development Code	Obtaining quotes and selection
Municipal Code	In house project
Housing Need Analysis	Waiting for state final requirements
Public Works	
Maintenance Shop	In Site design
Streets/Sidewalk	
SE Front St	Construction underway
Wilson & Faler Sidewalk	Construction beginning September
S Main	Developing scope
Boardman Ave & N Main	In approval process
Water/Wastewater	
Bio Solids Removal	Summer 2025
Headworks Screen & Septage Receiving	Ordered headworks
NW Columbia Ave	Construction underway

“Caught Doing Good”

PUBLIC NOTICE / NOTICIA PUBLICA

The Boardman City Council will hold an Executive Session

El Ayuntamiento de Boardman realizará una Sesión Ejecutiva

ORS 192.660

Tuesday September 3, 2024 at 7:00 p.m.
Martes 3 de septiembre de 2024 a las 19:00 horas.

Boardman City Hall / Ayuntamiento de Boardman
200 City Center Circle, Boardman, OR

The purpose of this executive session is for the City Council members to:

ORS 192.660 (2)(d) Conduct deliberations with persons designated by the governing body to carry on labor negotiations.

ORS 192.660 (2)(e) To conduct deliberations with persons designated by the governing body to negotiate real property transactions

ORS 192.660 (2)(i) Evaluate employment-related performance of the City Manager

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El propósito de esta sesión ejecutiva es que los miembros del Concejo Municipal:

ORS 192.660 (2)(d) Llevar a cabo deliberaciones con personas designadas por el órgano rector para llevar a cabo negociaciones laborales.

ORS 192.660 (2)(e) Para llevar a cabo deliberaciones con personas designadas por el órgano rector para negociar transacciones de bienes inmuebles

ORS 192.660 (2)(i) Evaluar el desempeño relacionado con el empleo del administrador de la ciudad

(s) Amanda Mickles
City Clerk

Posted: August 27, 2024