CITY COUNCIL MEETING W/ PUBLIC HEARING & EXECUTIVE SESSION

August 06, 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 Meeting Minutes - July 2, 2024
   - B. City Council Regular Meeting - July 2, 2024
5. **FINANCIAL REPORT**
   - A. Financial Report - June 2024 Final
   - B. Financial Report - July 2024 Preliminary
6. **FORMAL PROCEEDINGS**
   - A. Public Hearing - Appeal of CUP24-000001
   - B. Public Hearing - Amendment - Adoption of Transit Related Documents to support City TSP Updates
   - C. Public Hearing - Amendment - Main Street "Downtown" Development Plan
   - D. Public Hearing - Amendment - Commercial District Use Zone
7. **ACTION ITEMS - ORDINANCES**
   - A. Ordinance 5-2024 - Boardman Development Code Chapter 2.2 Commercial Update
8. **ACTION ITEMS - RESOLUTIONS**
   - A. Resolution 17-2024 - Decision on CUP24-000001
   - B. Resolution 18-2024 - Adopting Guidance Documents for the TSP
   - C. Resolution 19-2024 - Downtown Amendment
   - D. Resolution 20-2024 - Contingency Transfer 2024-2025
   - E. Resolution 21-2024 - Escrow Account Silver Creek Contracting LLC
   - F. Resolution 22-2024 - Escrow Account Granite Construction Company
9. **ACTION ITEMS - OTHER BUSINESS**
   - A. Approval of the City of Boardman Charter - Final Draft
   - B. Letter of Support - Sunstone Solar Project

10. 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.

11. DOCUMENT SIGNATURES

12. 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 - Evaluation Process

13. EXECUTIVE SESSION

- **A.** Executive Session 192.660 (2)(i) - Evaluate employment-related performance of the City Manager

14. ACTION ITEMS - OTHER BUSINESS

- **A.** Decision from Executive Session

15. 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 COUNCIL WORKSHOP

July 02, 2024 at 6:00 PM

Boardman City Hall Council Chambers

MINUTES

1. **CALL TO ORDER**

   Council President Baumgartner called the workshop to order 6:00 pm.

2. **FLAG SALUTE**

3. **ROLL CALL/EXCUSED ABSENCES**

   Councilors present: Mayor Paul Keefer (via Zoom), Councilor Heather Baumgartner, Councilor Ethan Salata, Councilor Cristina Cuevas, Councilor Richard Rockwell, Councilor Karen Pettigrew

   Councilors absent: Councilor Brenda Profitt

4. **REPORTS, CORRESPONDENCE, AND DISCUSSION**

   A. Mailbox Discussion – Timestamp 1:01

      Discussion about mailboxes.

   B. Charter Finalization – Timestamp 11:48

      Discussion to finalize The City of Boardman Charter to be included in ballot.

   C. Municipal Code Update - Business License – Timestamp 15:14

      Discussion about the proposed business license chapter of the Municipal Code.

   D. Municipal Code Update – Chicken – Timestamp 32:32

      Discussion about the proposed chicken chapter of the Municipal Code

   E. Shipping Containers – Timestamp 40:40

      Discussion about shipping container use.

5. **ADJOURNMENT**

   Meeting was adjourned 6:45 pm.

_____ _____

Paul Keefer – Mayor

Amanda Mickles – City Clerk

CITY COUNCIL MEETING

July 02, 2024 at 7:00 PM

Boardman City Hall Council Chambers

MINUTES

1. CALL TO ORDER

Council President Baumgartner called the meeting to order at 7:00 pm.

2. FLAG SALUTE

3. ROLL CALL/EXCUSED ABSENCES

Councilors present: Mayor Paul Keefer (via Zoom), Councilor Heather Baumgartner, Councilor Ethan Salata, Councilor Cristina Cuevas, Councilor Richard Rockwell, Councilor Karen Pettigrew

Councilors absent: Councilor Brenda Profitt

4. APPROVAL OF MINUTES

A. City Council Meeting Minutes, June 4, 2024 – Timestamp: 0:59

Motion to approve the Minutes of June 4, 2024, City Council Meeting as presented.

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

5. FINANCIAL REPORT

A. May 2024 Financial Report – Final – Timestamp: 1:28

Finance Director Barajas presented the report provided to the Council.

B. June 2024 Financial Report – Preliminary – Timestamp: 3:30

Finance Director Barajas stated the June report was not completed in time for the meeting.

6. FORMAL PROCEEDINGS

A. Public Hearing - Surplus Property – Timestamp: 3:49

Council President Baumgartner opened the public hearing at 7:04 pm.

City Manager Hammond presented the staff report.

Testimony in favor - none.

Testimony in opposition - none.

Neutral Testimony - Bobby Barnes and Kathy Street

Council President Baumgartner closed the public hearing at 7:10 pm.

7. INTRODUCTIONS

A. City Manager Hammond introduced new Public Works Workers, Jose Ponce and Humberto Sanchez. Timestamp: 10:18

8. PUBLIC COMMENT

A. Prearranged Presentation - Missing Middle Housing Fund – Timestamp: 11:25

Nathan Wildfire of Missing Middle Housing Fund gave a presentation.

B. Prearranged Presentation - Premium Tire & Lube – Timestamp: 39:01

The owner of Premium Tire & Lube gave a presentation about a new business opportunity and expansion.

9. ACTION ITEMS - RESOLUTIONS

A. Resolution 16-2024 Surplus Property - Time stamp 51:27

Motion to approve Resolution 16-2024, a resolution declaring surplus real property.

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

10. ACTION ITEMS - OTHER BUSINESS

A. Missing Middle Housing Fund – Timestamp 52:31

City Manager Hammond asked for consensus to continue working with the Missing Middle Housing Fund. Council gave consensus.

B. Premium Tire & Lube – Timestamp 55:00

Discussion about selling land on NE Front Street to Premium Tire & Lube. Decision by Council was to wait and find a new location for this business.

C. Personal Service Agreement for Legal Advice Program – Timestamp 1:01:26

City Manager Hammond asked for consensus to sign Personal Service Agreement for Legal Advice Program. The council gave consensus.

D. Develop Strategic Plan – Timestamp 1:02:19

City Manager Hammond asked for consensus to begin the process for developing a strategic plan. The council gave consensus.

11. PUBLIC COMMENT

Ashli Barron – HOA Concerns – Timestamp 1:08:31

Taylor Wightman – Hillview Estates Land Sale Concerns – Timestamp 1:14:59

Judy Smythe – Hillview Estates Land Sale Concerns – Timestamp 1:19:59

Bobby Barnes – Hillview Estates Land Sale Concerns – Timestamp 1:25:38

Kathy Streets – Thanks the City's Public Works Staff – Timestamp 1:34:41

Lorena Bose – Hillview Estates Land Sale Concerns – Timestamp 1:36:56

Stephen Fuss via Zoom – Timestamp 1:39:19

Jonathan Tallman via Zoom – Housing – Timestamp 1:43:03

Seth Wheeler – Timestamp 1:45:54

A. Report Only - May Boardman Chamber/BCDA Report

12. DOCUMENT SIGNATURES

13. REPORTS, CORRESPONDENCE, AND DISCUSSION

Council President Baumgartner asked to skip staff reports due to the time of the meeting, Councilors agreed.

D. City Manager – Timestamp 1:47:20

City Manager Hammond gave his report.

Action Minutes – Council gave consensus.

Voucher Program – Council will continue conversation at next meeting.

Antique Wagon – Council would like to have it repaired.

City Manager Performance Evaluation will be August 6th in Executive Session.

14. EXECUTIVE SESSION

A. Real Estate ORS 192.660 (2)(e) – Timestamp 2:12:09

Regular meeting paused 9:12 PM

Councilors held Executive Session for Real Estate under ORS 192.660 (2)(e)

15. ACTION ITEMS - OTHER BUSINESS

A. Decision from Executive Session – Timestamp 2:12:15

Regular meeting resumed 9:40 PM

Council gave consensus to City Manager Hammond to move forward with negotiations regarding a land sale on Tower Road.

16. ADJOURNMENT

Meeting was adjourned 9:42 PM.

_____ _____

Paul Keefer – Mayor Amanda Mickles – City Clerk

City of Boardman
Finance Report
As of June 30, 2024

We are at the end of the fiscal year 2023-2024.

General Fund: We received approximately 2.5% above the budgeted general property taxes, which is about $65,000.

Garbage Fund: We had four months in which we offered free garbage vouchers. For the months of July and November 2023 we paid $9,665 and for the vouchers of April and May 2024 we paid $15,390. This increase was largely due to the garbage rate increase from Sanitary Disposal.

Building Fund: A payment for the City Hall expansion, which houses the Building Department, in the amount of $207,274.01 was issued in June. The final payment will be issued in the next fiscal year. The final payment is approximately $251,000.

Capital Project Fund: The Water System Improvements-Phase II (GO Bond funded) is approximately 80% complete, with about $9,095,000 made in payments. This project is steadily coming along, with a completion by late fall.

Go Bond Fund: For our GO Bond taxes, we have received approximately 98.9%, with a budgetary shortfall of $14,400. We were able to make our $882,365.63 GO Bond payment in June, with reserves in the fund, which are held in place for this precise reason. Our next GO Bond payment will be in December 2024.

CITY OF BOARDMAN
Monthly Council Financial Statement
Period Ending June 30, 2024
Fiscal Year Elapsed 100.00%

FISCAL YEAR 2023-2024

			REVENUE						EXPENDITURES					
		A	B		C	D	E	F		G	H	I	J	
FUND #	Fund Description	2023 - 2024 BUDGET	Beginning Cash C/Over	Revenue Received This Month	Year to Date Revenue	(B+C) Total Revenue	(A-D) Remaining Expectations (over budget)	(D/A) % of Budget Received	Expenditures This Month	Year to Date Expenditures	(A-G) Unexpended Budget	(G/A) % of Expended Budget	(D-G) Fund Balance	Fund #
100	General Government	867,845							55,907	636,967	230,878	73.40%		100
110	Public Safety - Police	3,328,945							270,570	2,653,939	675,006	79.72%		110
125	Code Compliance	140,245							6,315	113,343	26,902	80.82%		125
180	Facilities	940,170							20,740	819,123	121,047	87.13%		180
195	Non-Departmental	10,347,695							3,868	8,127,753	2,219,942	78.55%		195
100	GENERAL FUND	15,624,900	2,919,837	359,171	11,424,940	14,344,776	1,280,124	91.81%	357,400	12,349,845	3,273,775	79.04%	1,994,931	100
220	WATER FUND	1,624,500	518,446	99,490	1,295,212	1,813,658	(189,158)	111.64%	75,664	1,131,543	492,957	69.65%	682,114	220
230	SEWER FUND	1,769,650	1,000,998	91,456	939,809	1,940,807	(171,157)	109.67%	55,552	1,079,089	690,561	60.98%	861,717	230
240	GARBAGE FUND	1,407,700	252,165	81,279	918,380	1,170,545	237,155	83.15%	98,793	761,999	645,701	54.13%	408,547	240
250	STREET FUND	644,900	175,434	30,667	470,003	645,437	(537)	100.08%	37,481	439,122	205,778	68.09%	206,315	250
260	BUILDING FUND	17,219,370	11,835,455	336,496	7,971,729	19,807,184	(2,587,814)	115.03%	331,338	5,453,899	11,765,471	31.67%	14,353,286	260
300	GENERAL RESERVE FUND	7,312,500	5,309,649	32,987	2,915,528	8,225,176	(912,676)	112.48%	0	0	7,312,500	0.00%	8,225,176	300
320	WATER RESERVE FUND	3,182,535	2,106,646	40,143	912,476	3,019,122	163,413	94.87%	13,861	392,191	2,790,344	12.32%	2,626,931	320
330	SEWER RESERVE FUND	3,811,275	2,462,152	23,295	996,294	3,458,446	352,829	90.74%	0	306,816	3,504,459	8.05%	3,151,630	330
350	STREET RESERVE FUND	11,329,025	4,636,638	39,069	5,345,031	9,981,668	1,347,357	88.11%	29,498	269,710	11,059,315	2.38%	9,711,959	350
410	CAPITAL PROJECT FUND	10,607,115	10,721,051	12,572	315,701	11,036,752	(429,637)	104.05%	602,744	8,512,519	2,094,596	80.25%	2,524,233.49	410
510	GO BOND FUND	1,594,398	4,865	10,563	1,618,874	1,623,739	(29,341)	101.84%	882,366	1,368,781	225,617	85.85%	254,958	510
	CITY TOTAL	76,127,868	41,943,335	1,157,188	35,123,976	77,067,311	(939,443)	101.23%	2,484,695	32,065,513	44,061,074	42.12%	45,001,798	
815	CENTRAL URA DISTRICT	2,361,975	238,210	2,063	95,880	334,091	2,027,884	14.14%	0	0	2,361,975	0.00%	334,091	815
819	WEST URA DISTRICT	212,590	91,166	1,115	97,506	188,672	23,918	88.75%	0	101,290	111,300	47.65%	87,382	819
	URA TOTAL	2,574,565	329,376	3,178	193,387	522,763	2,051,802	20.30%	0	101,290	2,473,275	3.93%	421,473	
	CITY OF BOARDMAN GRAND TOTALS	78,702,433	42,272,711	1,160,366	35,317,363	77,590,074	1,112,359		2,484,694.91	32,166,803.11	46,534,349.29	46.05%	45,423,271	

CASH REPORT:

	Amount	as of 6/30/24 Interest Rate
Bank of Eastern Oregon Police	$6,923	5.20%
Banner Bank Checking	($284,175)	-
Banner Bank Savings	$249,549	5.51%
Bank of Eastern Oregon	$199,630	5.20%
OR Government Pool	$43,051,285	5.20%
CURA Government Pool	$334,209	5.20%
WURA Government Pool	$87,382	5.20%
Xpress Online Clearing	$1,260,805	-
Bank of Eastern Oregon - R&G	$0	0.10%
Bank of Eastern Oregon - 2KG	$131,931	0.10%
Bank of Eastern Oregon - Rotschy	$385,733	0.10%
TOTAL CASH	**$45,423,271**	
Cash Clearing - Utilities	$0.00	
Total	$45,423,271	

Current Month Net Cash Change (No URA) **(1,327,506)**

2023-2024 Year to Date Net Cash Change **3,150,560**

Budgeted Interfund Transfers, as of 5/22/2024

Included in Expenditures		*Included in Revenue*	
Budgeted Interfund Transfers From:		Budgeted Interfund Transfers To:	
100-General Fund	(7,960,256.94)	100-General Fund	51,150.00
220-Water Fund	(218,000.00)	250-Street Fund	130,000.00
230-Sewer Fund	(443,000.00)	260-Building Fund	146,113.61
260-Building Fund	(15,150.00)	300-General Reserve Fund	2,000,000.00
510-GO Bond Fund	(184,050.00)	320-Water Reserve Fund	712,025.00
TOTAL TRANSFERS FROM	(8,820,456.94)	330-Sewer Reserve Fund	697,025.00
		350-Street Reserve Fund	5,084,143.33
		TOTAL TRANSFERS TO	8,820,456.94
URD Budgeted Interfund Transfers From:		URD Budgeted Interfund Transfers To:	
819-West URA District	(101,290.00)	330-Sewer Reserve Fund	101,290.00
TOTAL TRANSFERS FROM	(101,290.00)	TOTAL TRANSFERS TO	101,290.00

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.

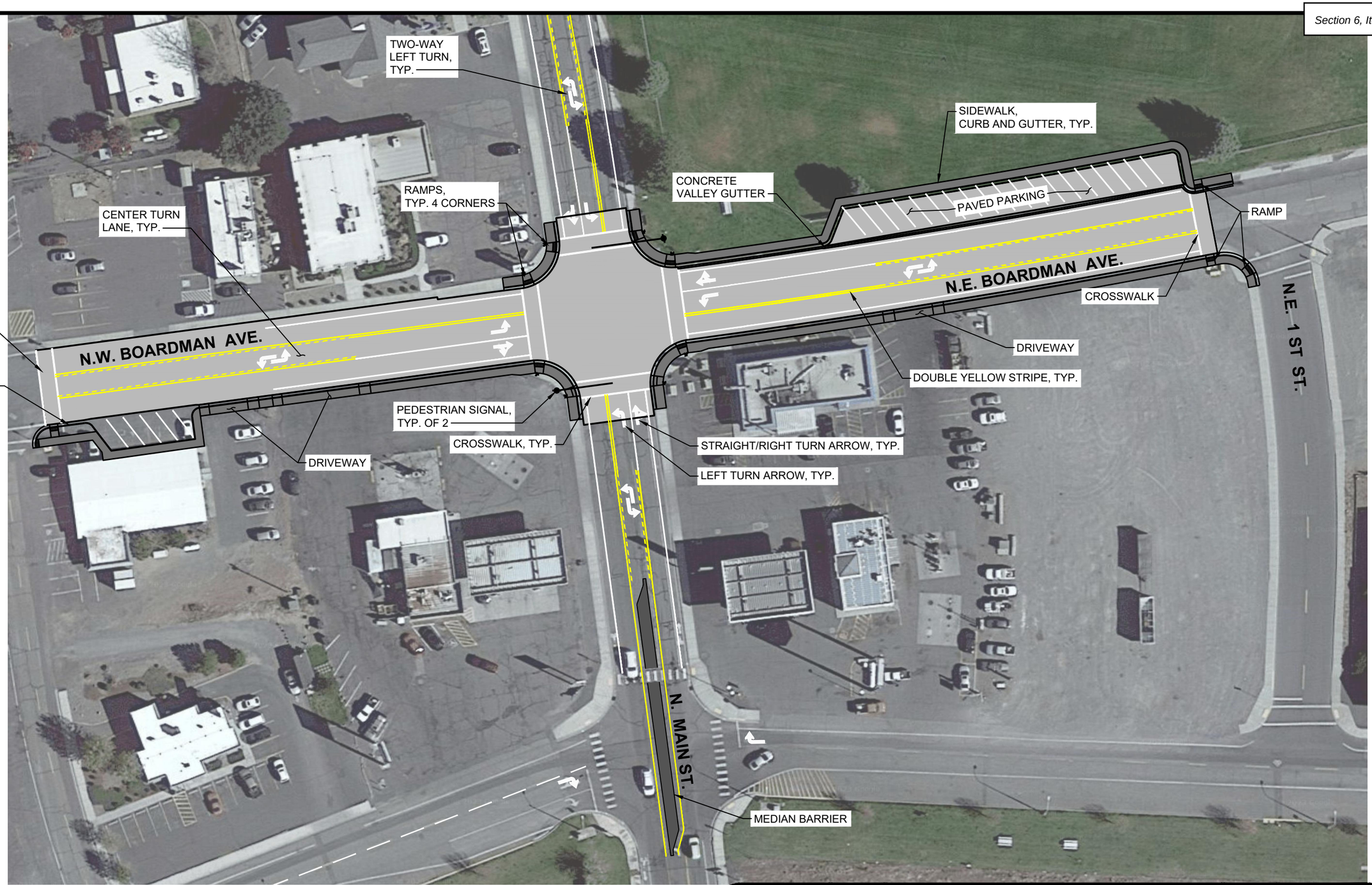
IX. **PLANNING OFFICIAL RECOMMENDATION:** The Planning Official recommends that the City Council deny this appeal and affirm that the HAWK signal is consistent with the MS IAMP and is warranted.

_____

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



30 0 30 60 90
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

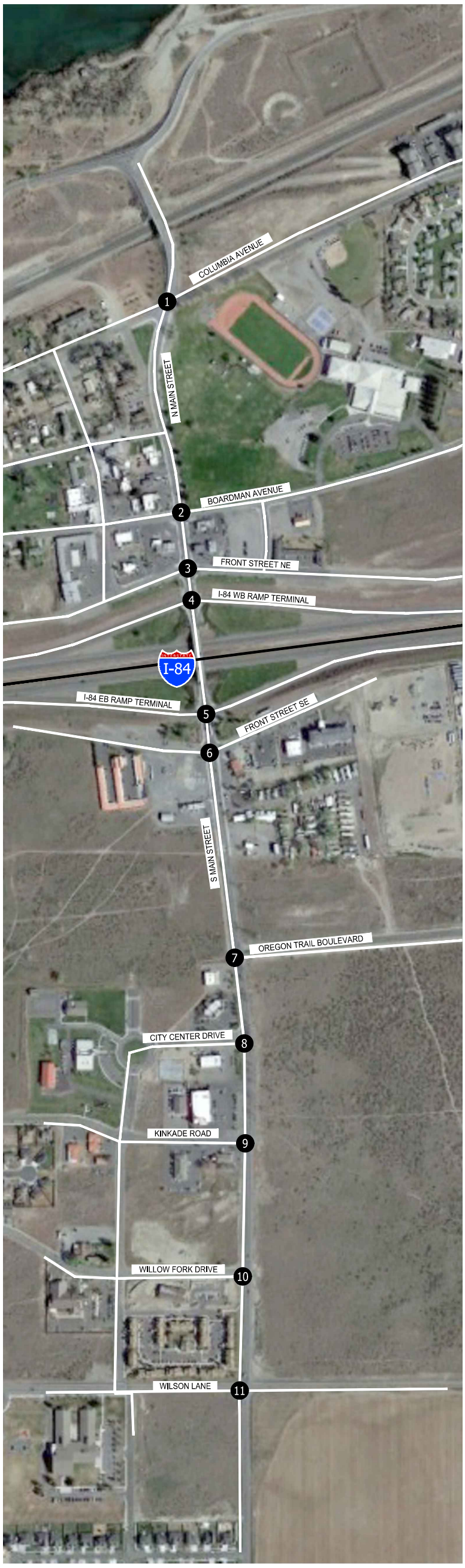
The operational standard for intersections involving only City roadways is based on level-of-service (LOS). The City maintains a LOS standard of "C" or better for all intersections.

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

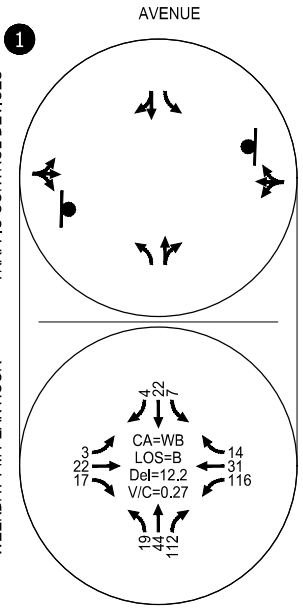
Study intersection crash histories were obtained and reviewed in an effort to identify potential safety issues. ODOT provided crash records for the study intersections for the five-year period from January 1, 2016 through December 31, 2020. *Appendix C provides the ODOT crash report which provides more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



MAIN STREET/ COLUMBIA AVENUE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

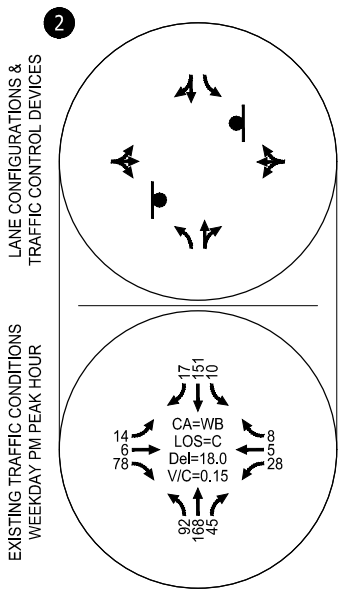
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ BOARDMAN AVENUE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

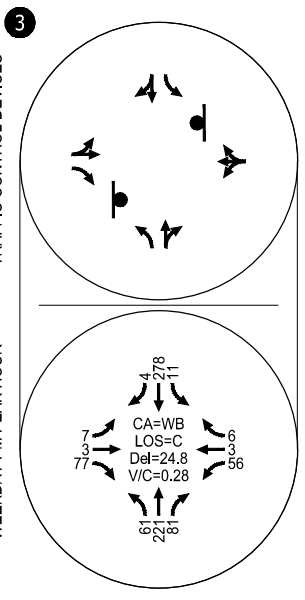
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ FRONT STREET NE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

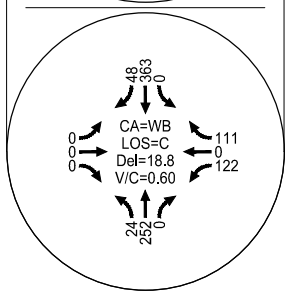
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ I-84 WB RAMP TERMINAL

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

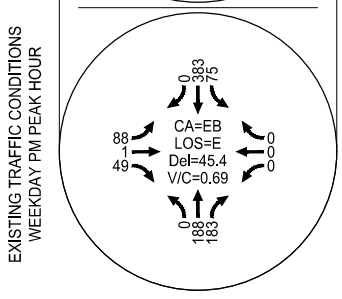
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ I-84 EB RAMP TERMINAL

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

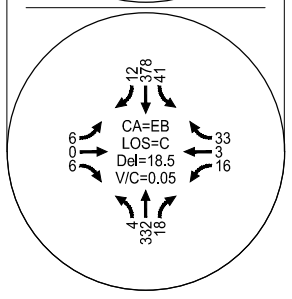
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ FRONT STREET SE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

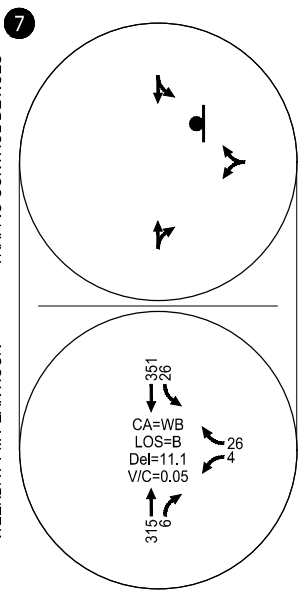
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ OREGON TRAIL BOULEVARD

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

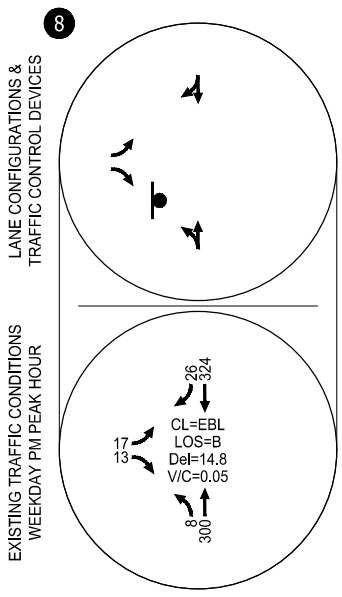
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ CITY CENTER DRIVE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

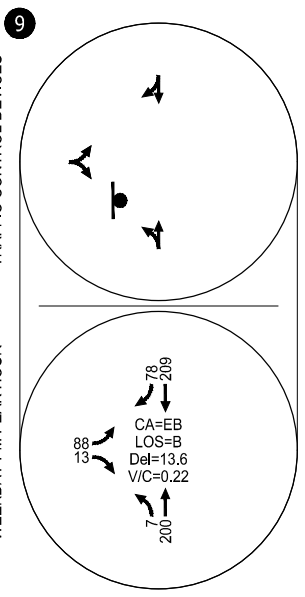
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ KINKADE ROAD

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

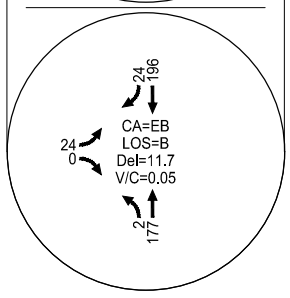
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



MAIN STREET/ WILLOW FORK DRIVE

LANE CONFIGURATIONS & TRAFFIC CONTROL DEVICES

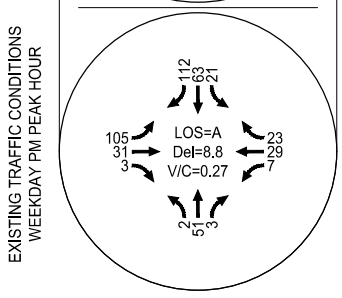
EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR



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

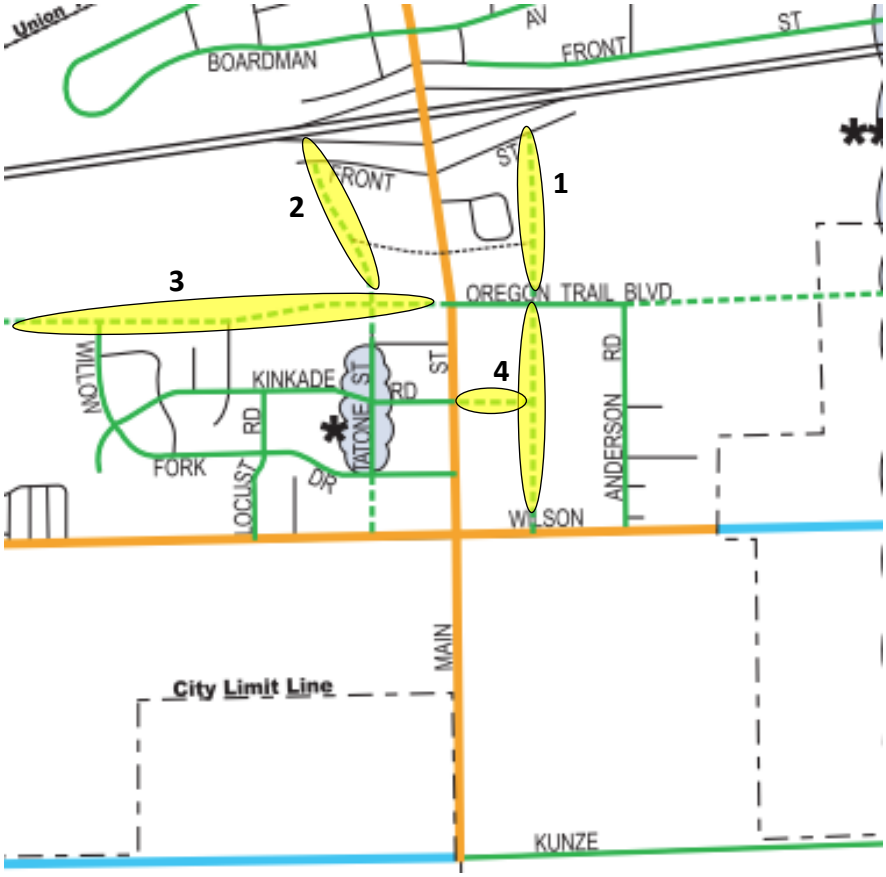
This section documents the future travel demand and forecast traffic operations along the Main Street study corridor. The future traffic projections are based on anticipated land use and development through the year 2042 using the same cumulative traffic forecast methodology from the 2009 IAMP.

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.

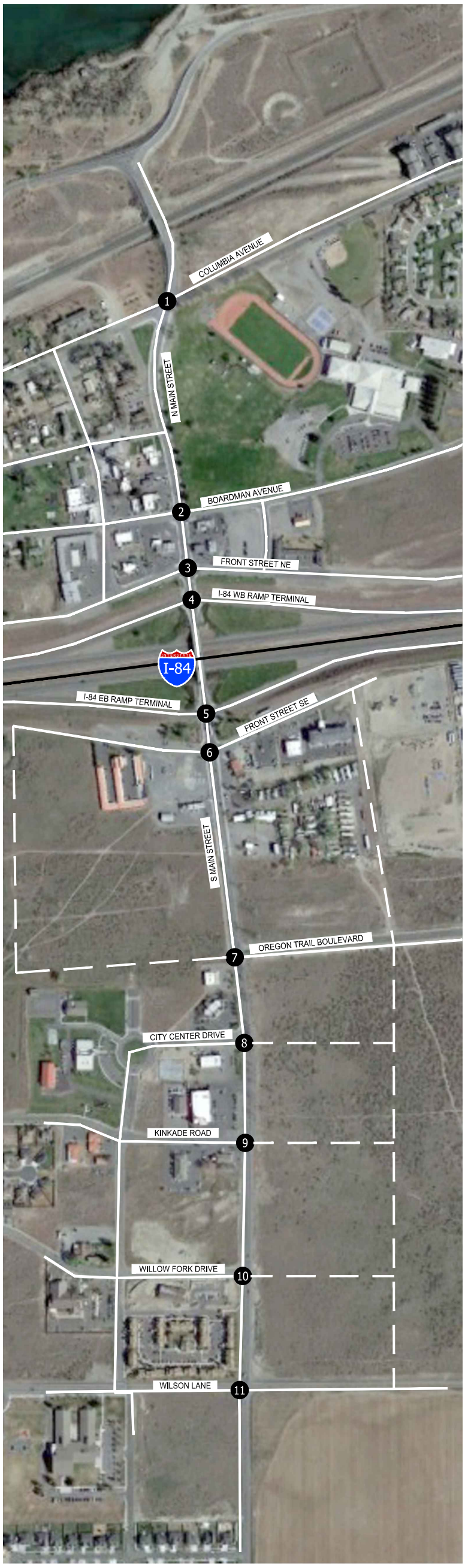
Future 2042 Traffic Conditions

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:

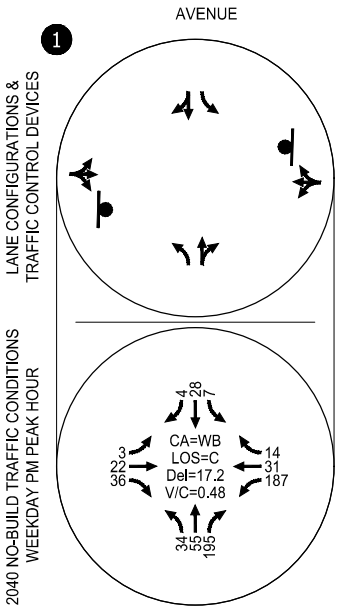
- N Main Street/Boardman Avenue – the critical westbound approach is forecast to operate at LOS E conditions during the weekday PM peak hour. This is primarily due to the limited capacity of the single-lane stop-controlled Boardman Avenue approach and forecast traffic growth along the Boardman Avenue 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.

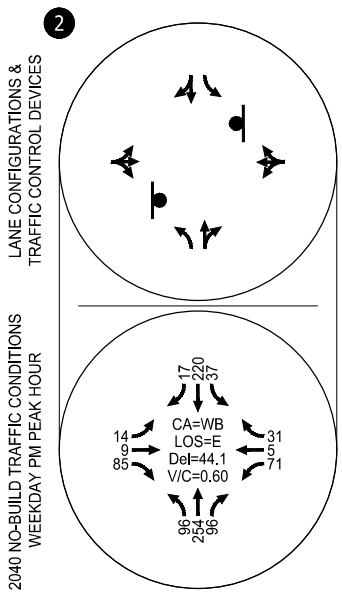
While relatively consistent with the forecast operations from the 2009 IAMP, the forecast operations at the N Main Street/Boardman Avenue and S Main Street/I-84 EB Ramp Terminal intersections necessitated the reinvestigated of several improvement alternatives.



MAIN STREET/ COLUMBIA AVENUE



MAIN STREET/ BOARDMAN AVENUE



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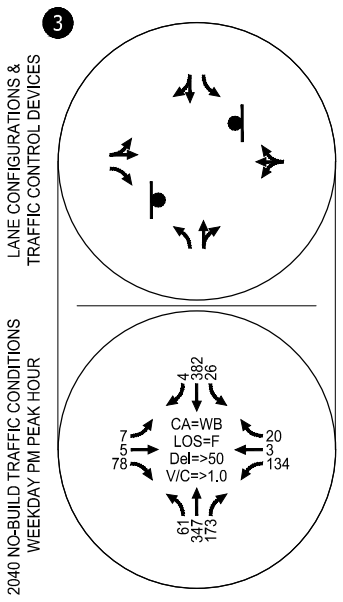
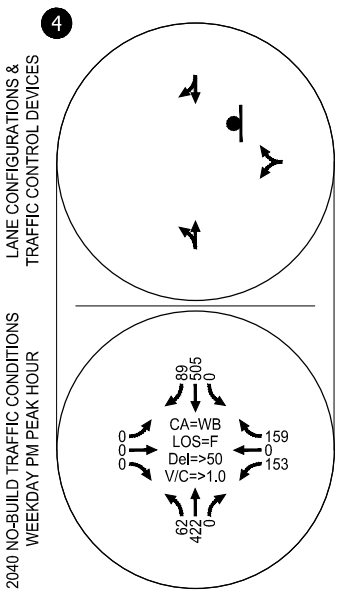
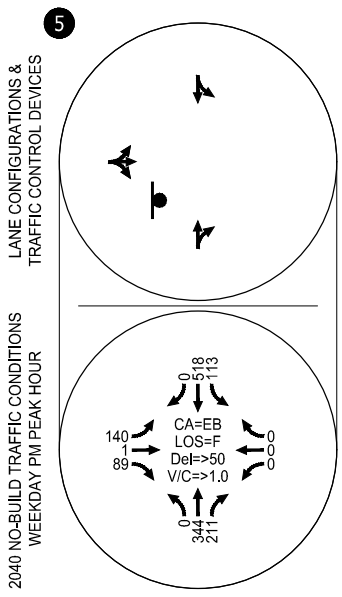


MAIN STREET/ I-84 WB RAMP TERMINAL



MAIN STREET/ I-84 EB RAMP TERMINAL



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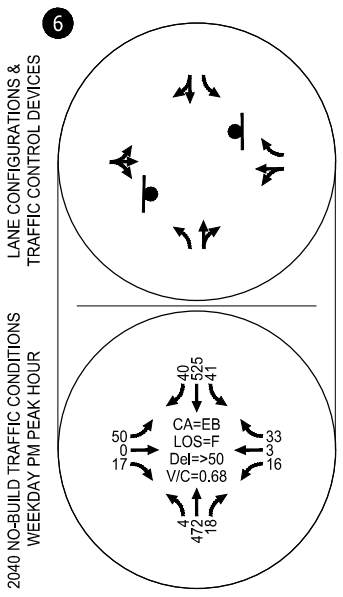
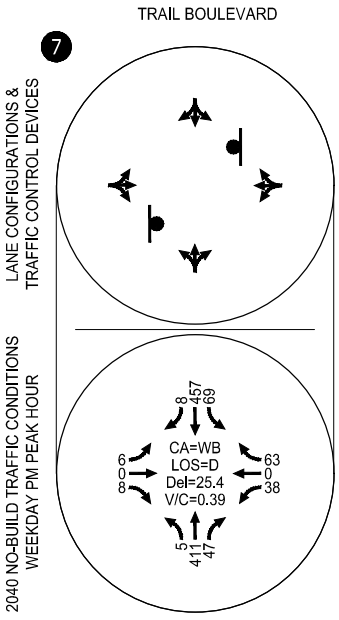
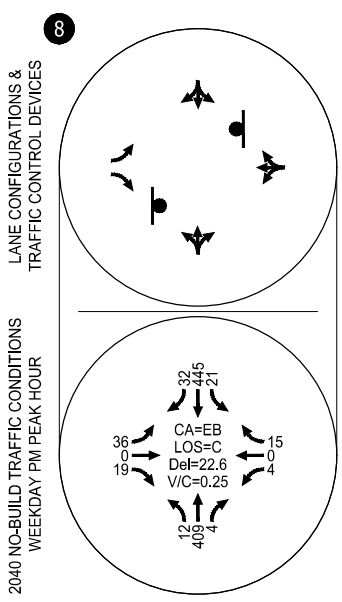


MAIN STREET/ OREGON TRAIL BOULEVARD



MAIN STREET/ CITY CENTER DRIVE



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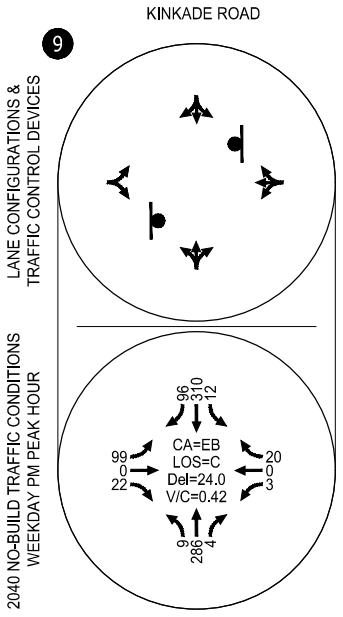
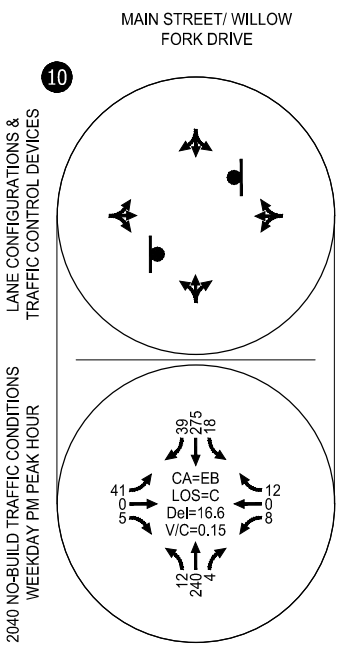
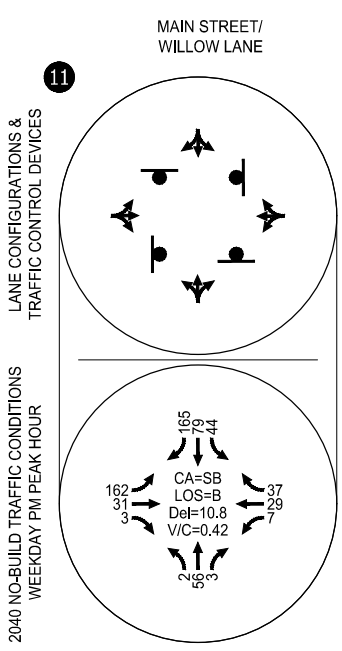


MAIN STREET/ WILLOW FORK DRIVE



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

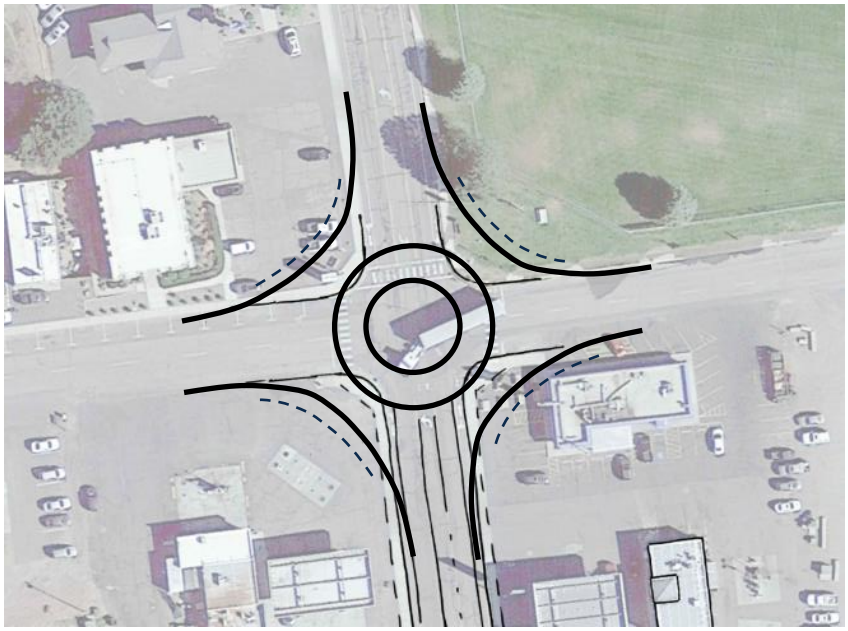
Given the forecast operations and the likely increased volume impacts that could be generated in the near-term by other projects currently in the 2009 IAMP (restrictions of N Front Street to right-in/right-out movements and a raised median along the N Main Street corridor), the need for traffic control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

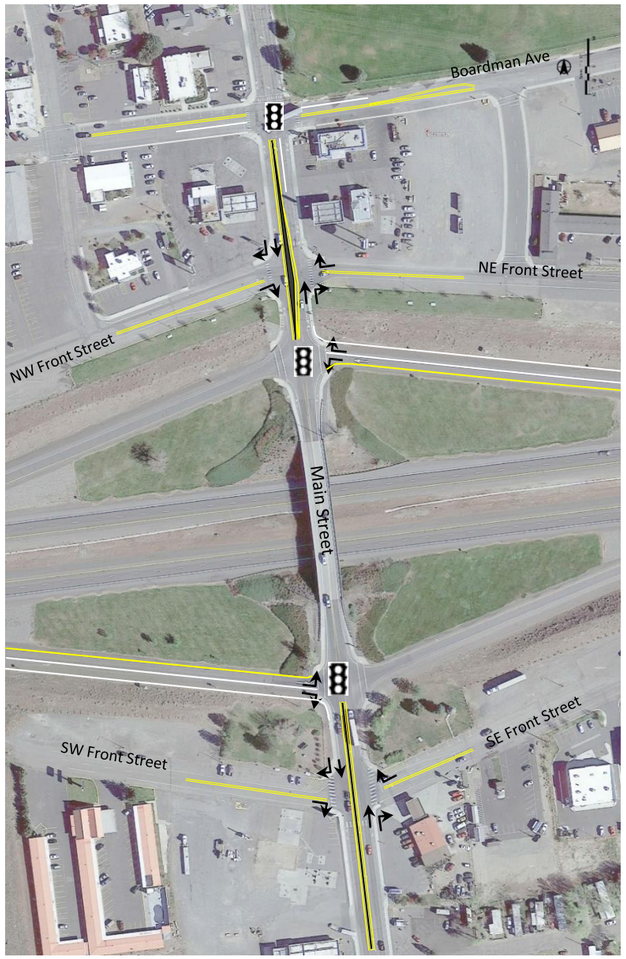
In response to these issues, two interchange improvement concepts were developed as documented in the following tables. Each table contains the following planning-level evaluation:

- 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

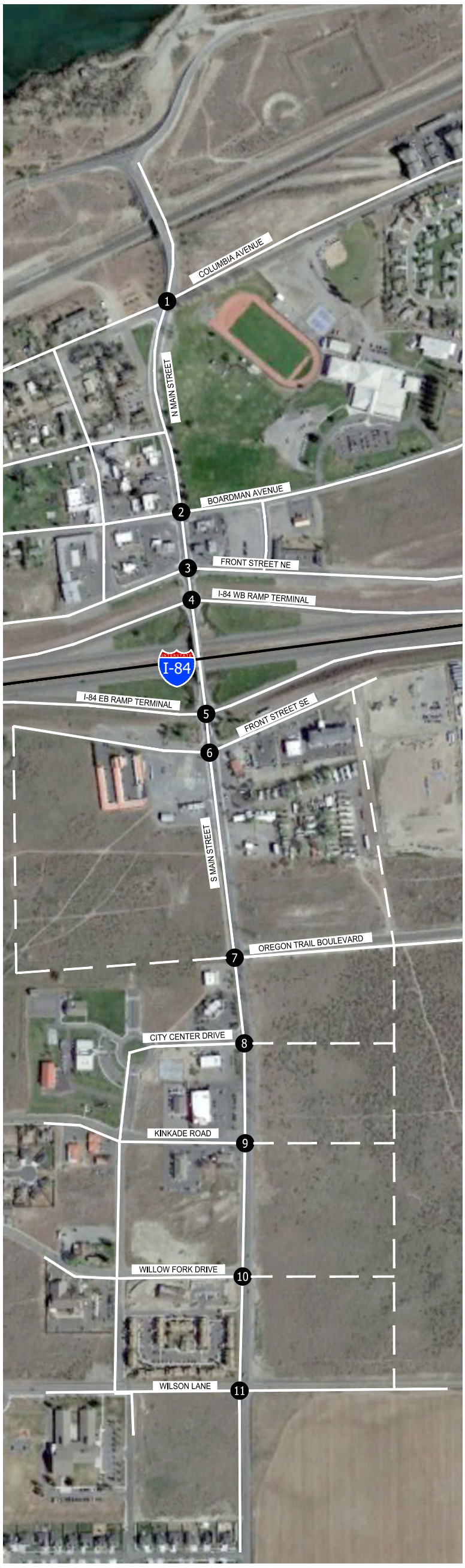
Circulation Alternative #1	Evaluation Information				Evaluation Results	
Concept Description and Illustration	**Category**	**Evaluation Criteria**	**Scoring Key**		**Score**	**Comments**
Circulation Alternative #1 signalizes the two I-84 EB and WB ramp terminals (when warranted) and converts the N Main 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**



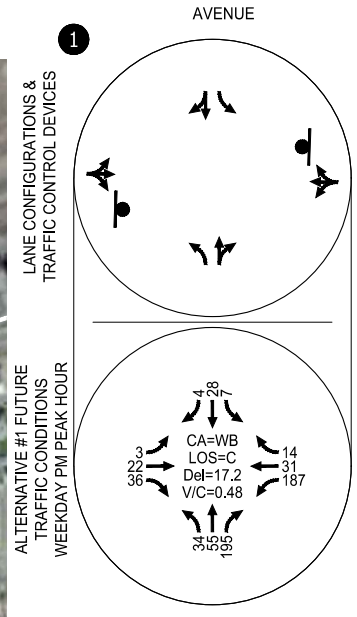
Note: Graphic is for illustrative purposes only.

Miscellaneous Evaluation Comments

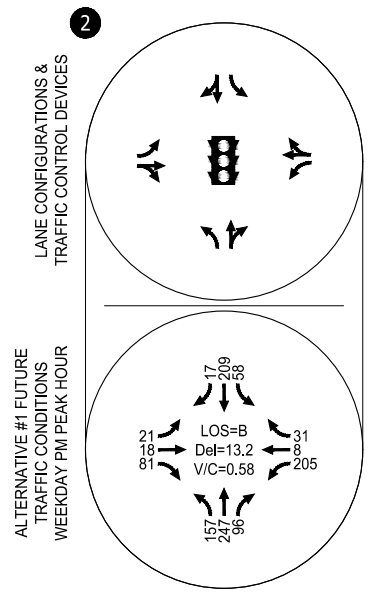
- While signalization of the I-84 WB and EB ramp terminals is possible, it is unlikely that such a mitigation measure would be considered without an affiliated widening of the Main Street overpass structure that would accommodate separate northbound and southbound left-turn lanes.
- Signalization of 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.



MAIN STREET/ COLUMBIA AVENUE



MAIN STREET/ BOARDMAN AVENUE



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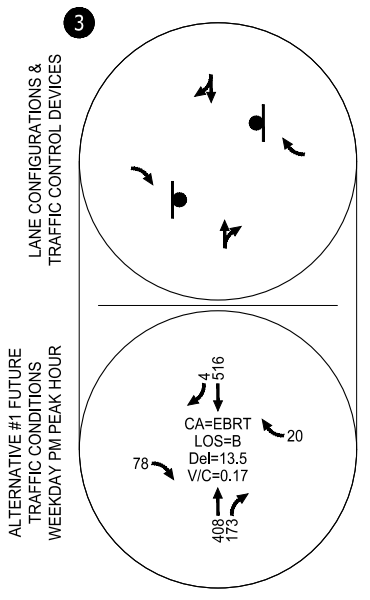

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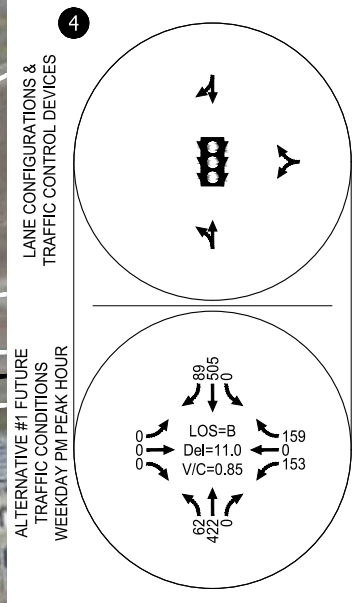
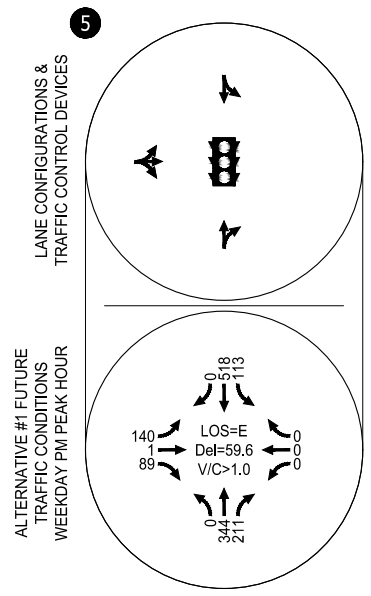
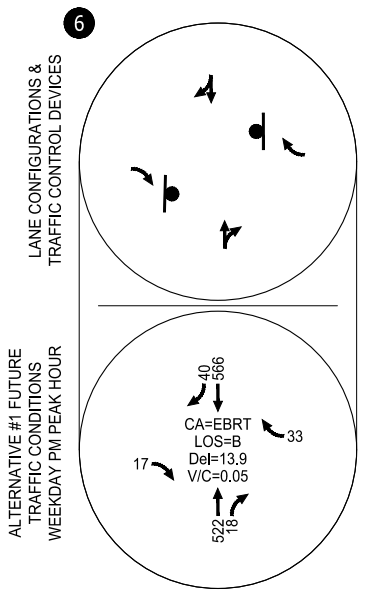


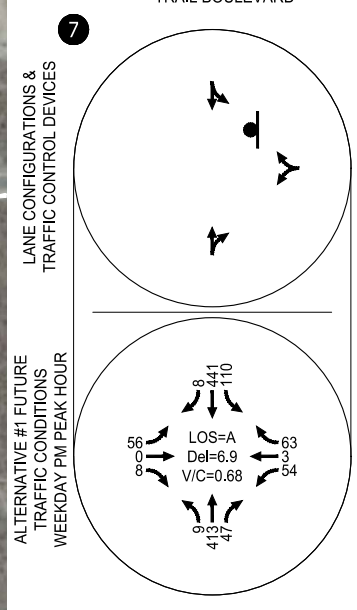
MAIN STREET/ I-84 EB RAMP TERMINAL



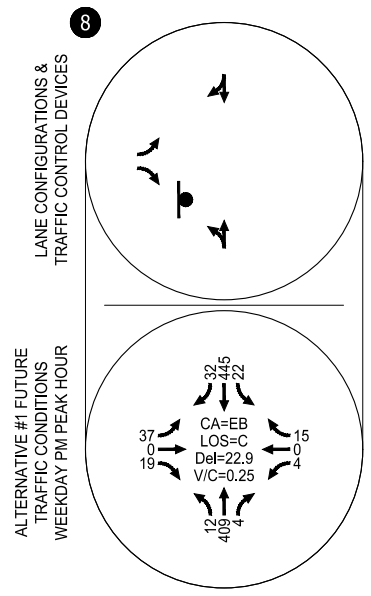
MAIN STREET/ FRONT STREET SE



MAIN STREET/ OREGON TRAIL BOULEVARD



MAIN STREET/ CITY CENTER DRIVE



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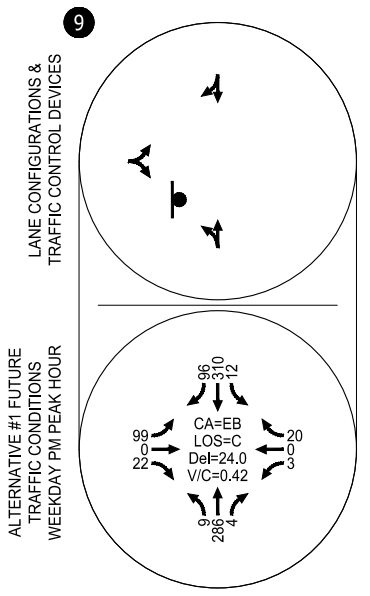
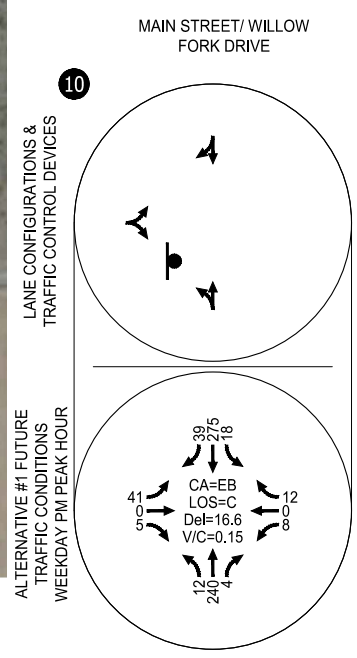
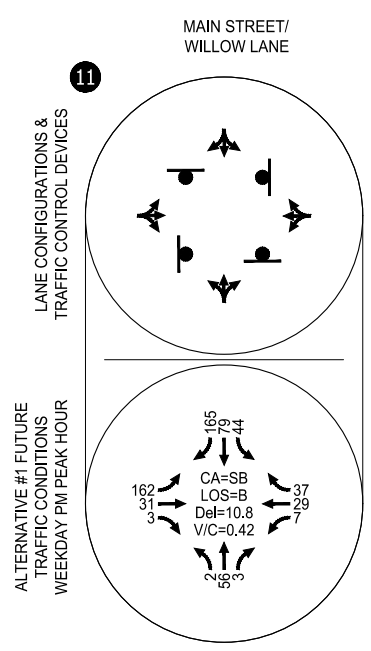


MAIN STREET/ WILLOW FORK DRIVE



MAIN STREET/ WILLOW LANE



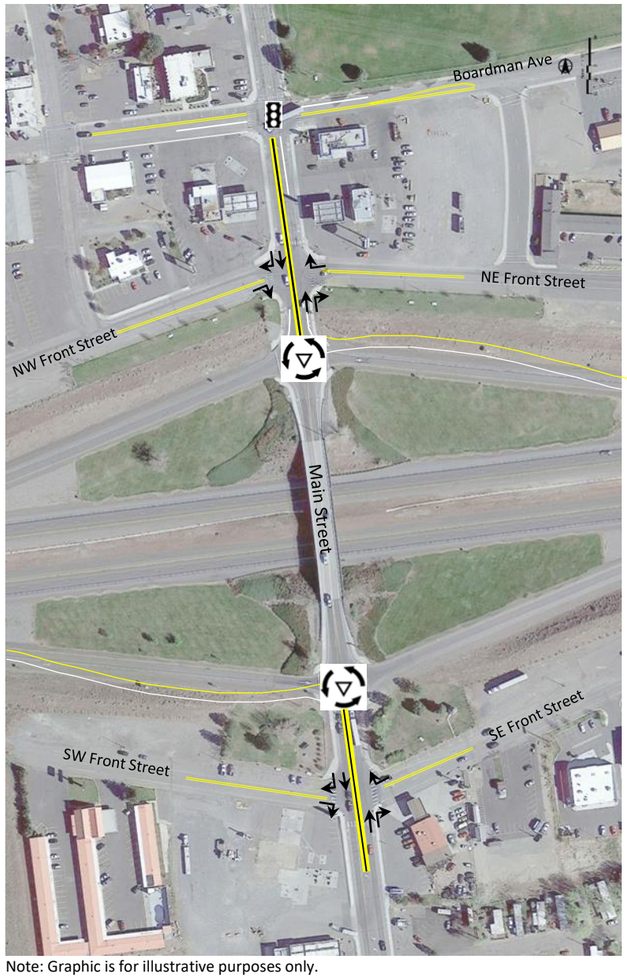
##- Study Intersections

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

Figure
3

Table 6 – Circulation Alternative #2 Summary and Evaluation

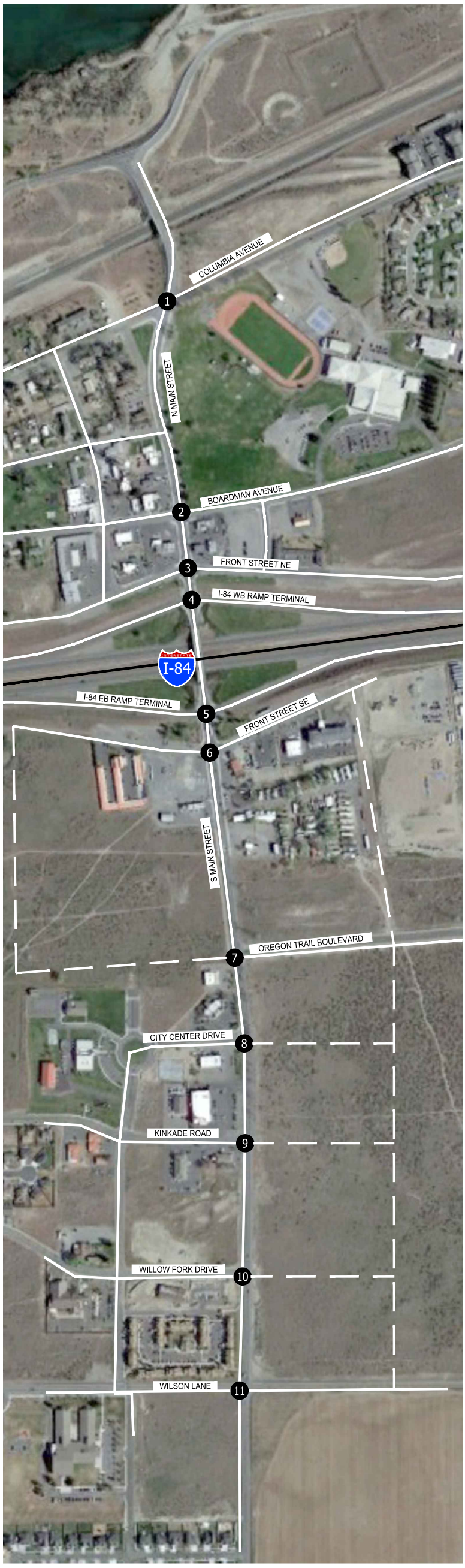
Circulation Alternative #2	Evaluation Information				Evaluation Results	
Concept Description and Illustration	**Category**	**Evaluation Criteria**	**Scoring Key**		**Score**	**Comments**
Circulation Alternative #2 includes single lane roundabouts at the two I-84 EB and WB ramp terminals and converts 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**



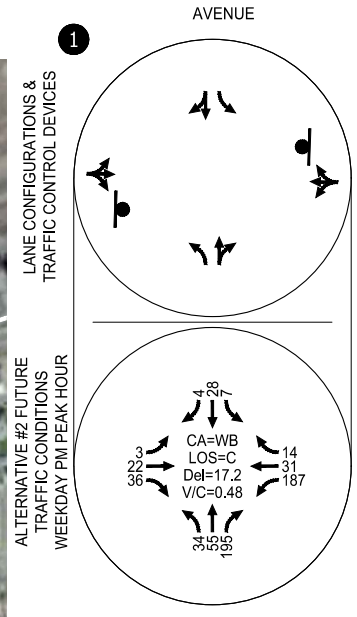
Note: Graphic is for illustrative purposes only.

Miscellaneous Evaluation Comments

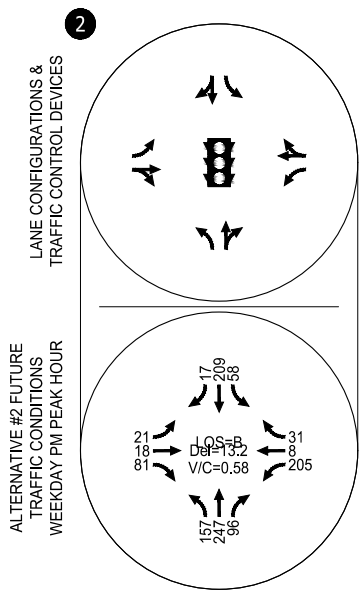
- The accommodation of roundabouts at the I-84 EB and WB ramp terminals will require realignment of the respective offramps. Additional design efforts would need to explore the ramifications of accommodating the offramp realignments considering the sloped embankments at the interchange.
- Additional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



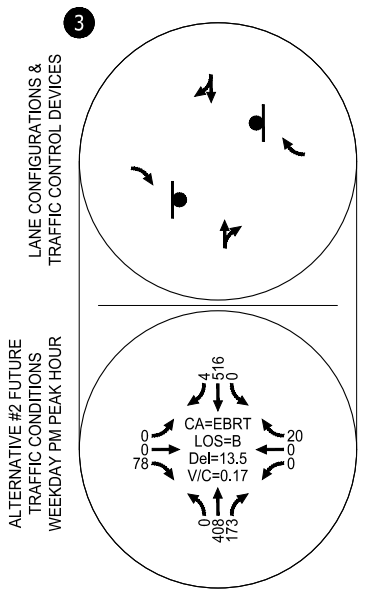
MAIN STREET/ COLUMBIA AVENUE



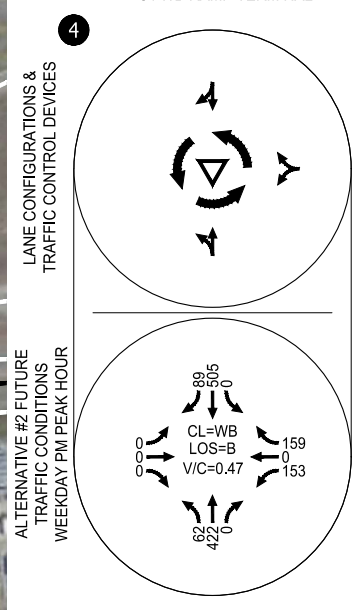
MAIN STREET/ BOARDMAN AVENUE



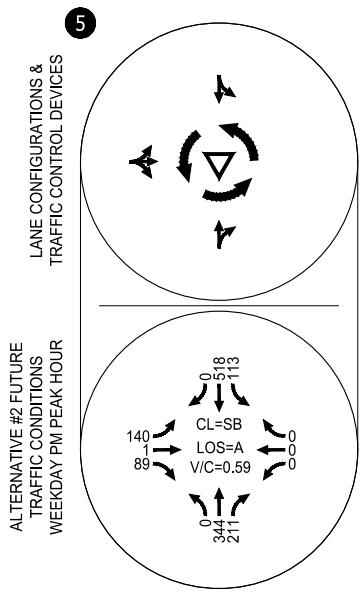
MAIN STREET/ FRONT STREET NE



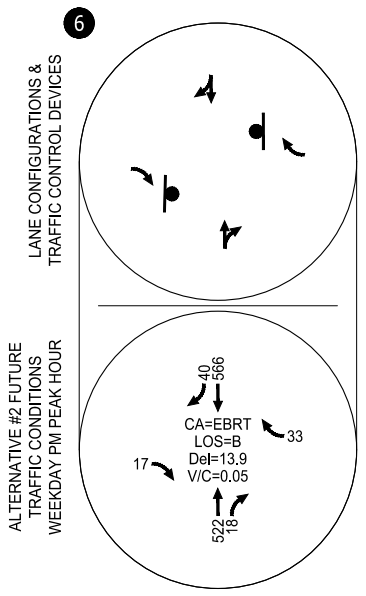
MAIN STREET/ I-84 WB RAMP TERMINAL



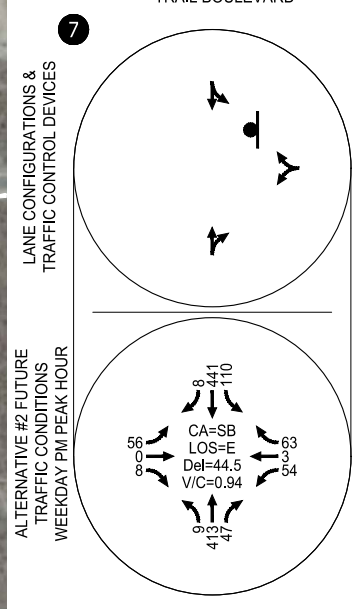
MAIN STREET/ I-84 EB RAMP TERMINAL



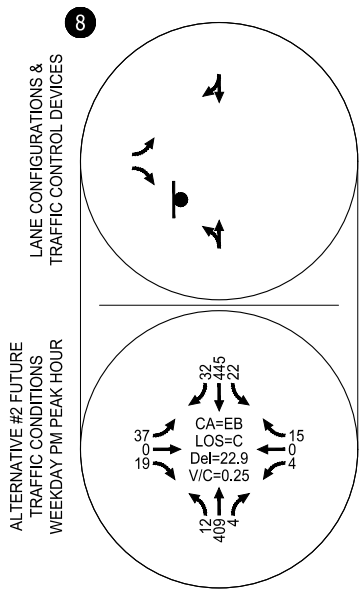
MAIN STREET/ FRONT STREET SE



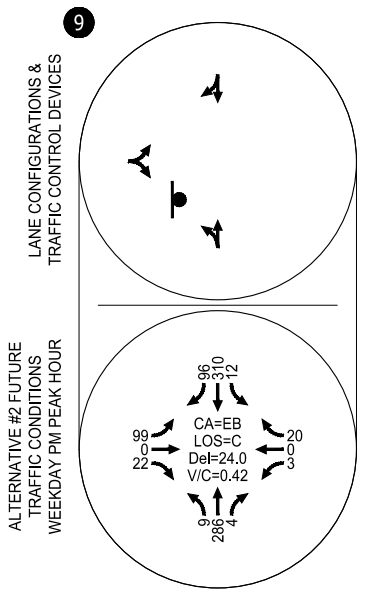
MAIN STREET/ OREGON TRAIL BOULEVARD



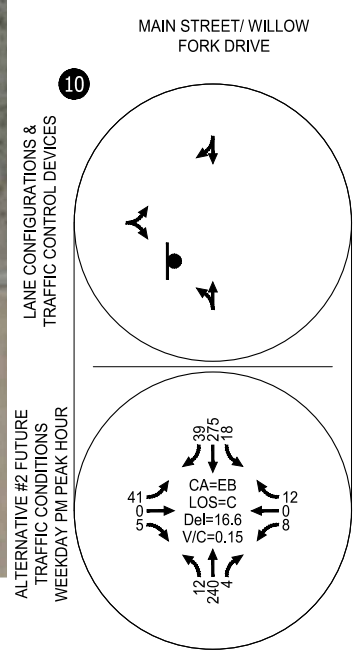
MAIN STREET/ CITY CENTER DRIVE



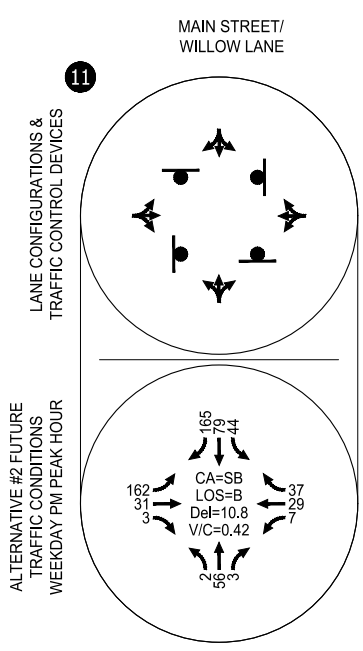
MAIN STREET/ KINKADE ROAD



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

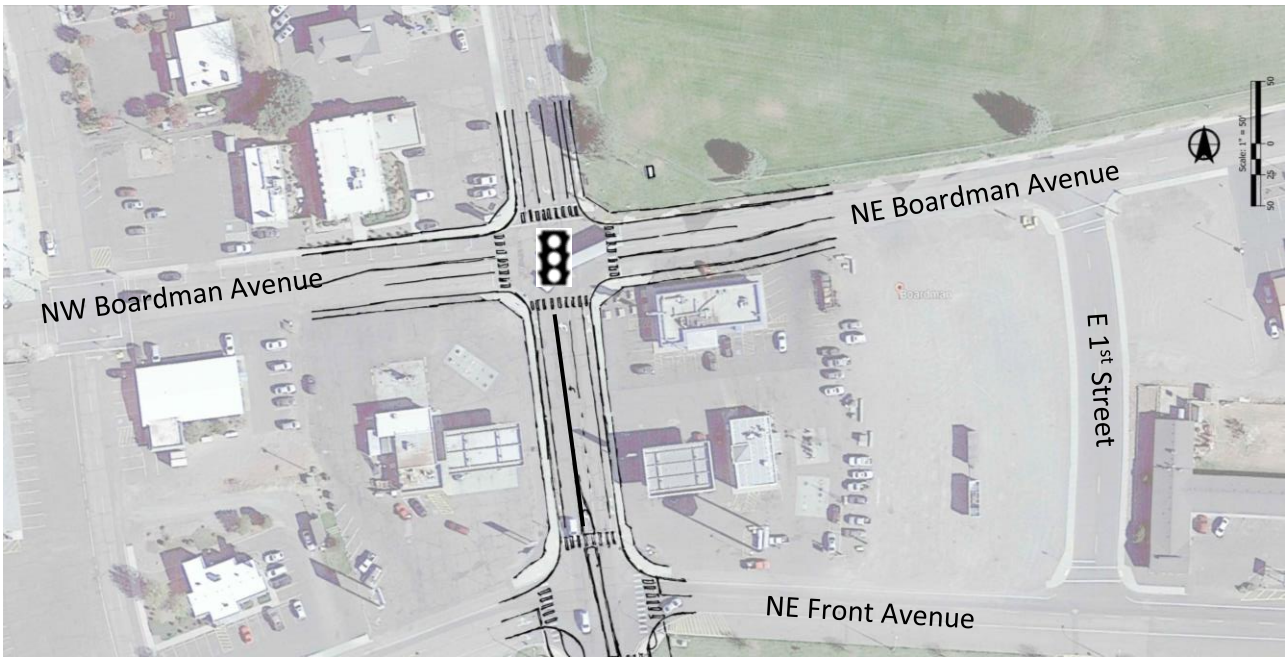
Refined geometric layouts of various components of Circulation Alternative #2 were prepared taking into consideration known right-of-way constraints, forecast traffic demands, the vehicle/truck types associated with the I-84 Main Street interchange, and multimodal considerations. The refined components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

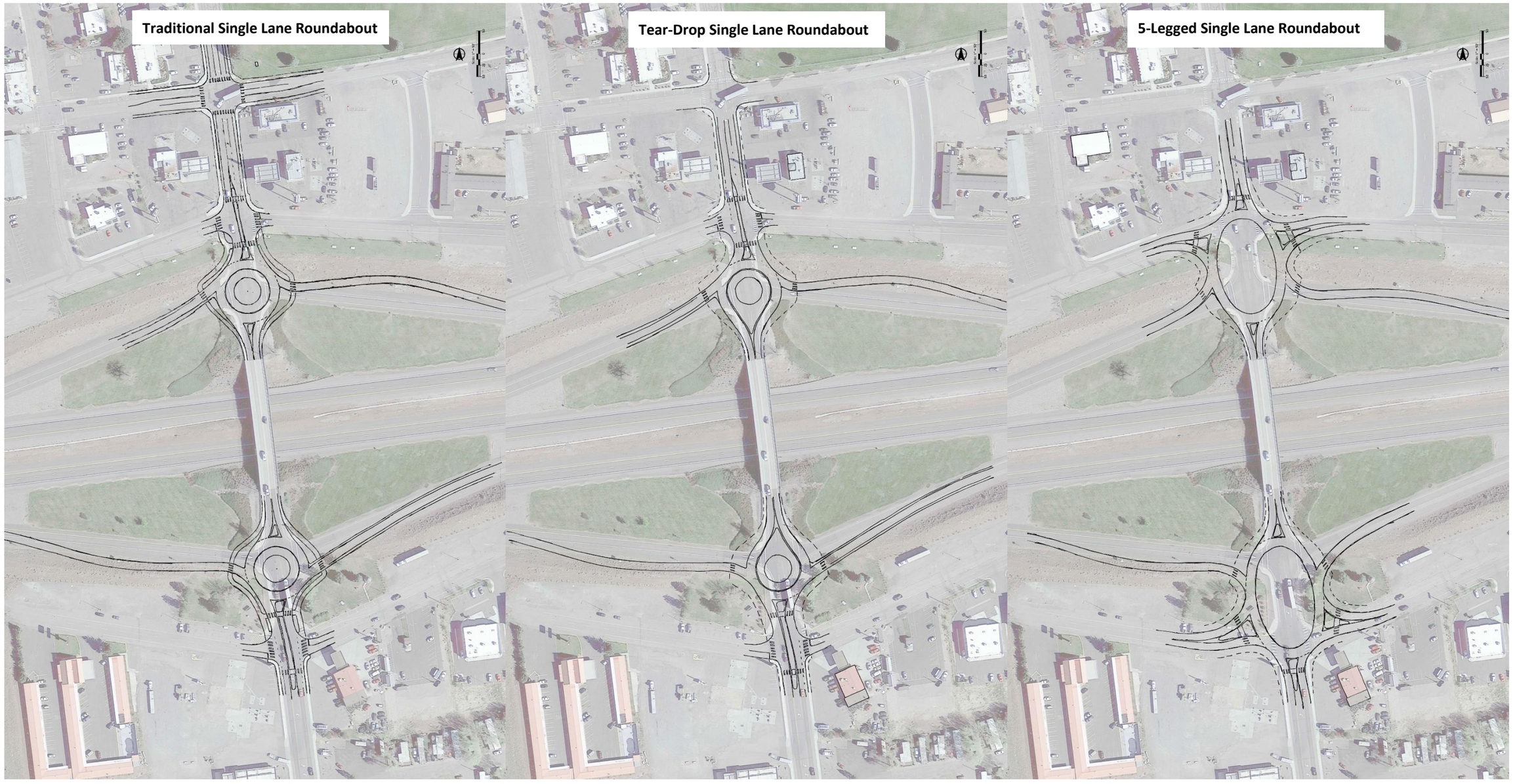


Figure 7 – Refined Circulation Alternative #2 Sketch-Level Layout (for illustrative purposes only)

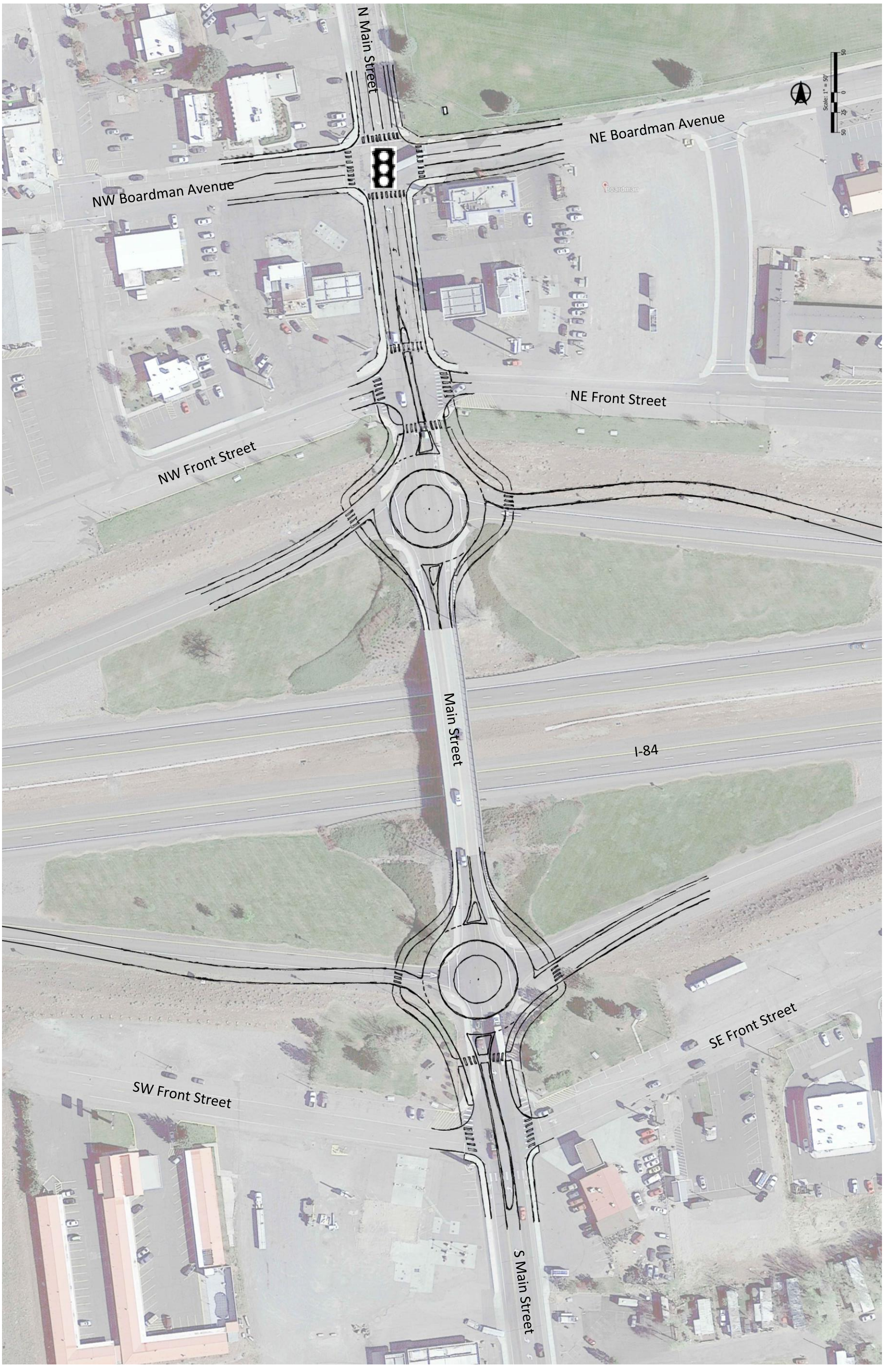
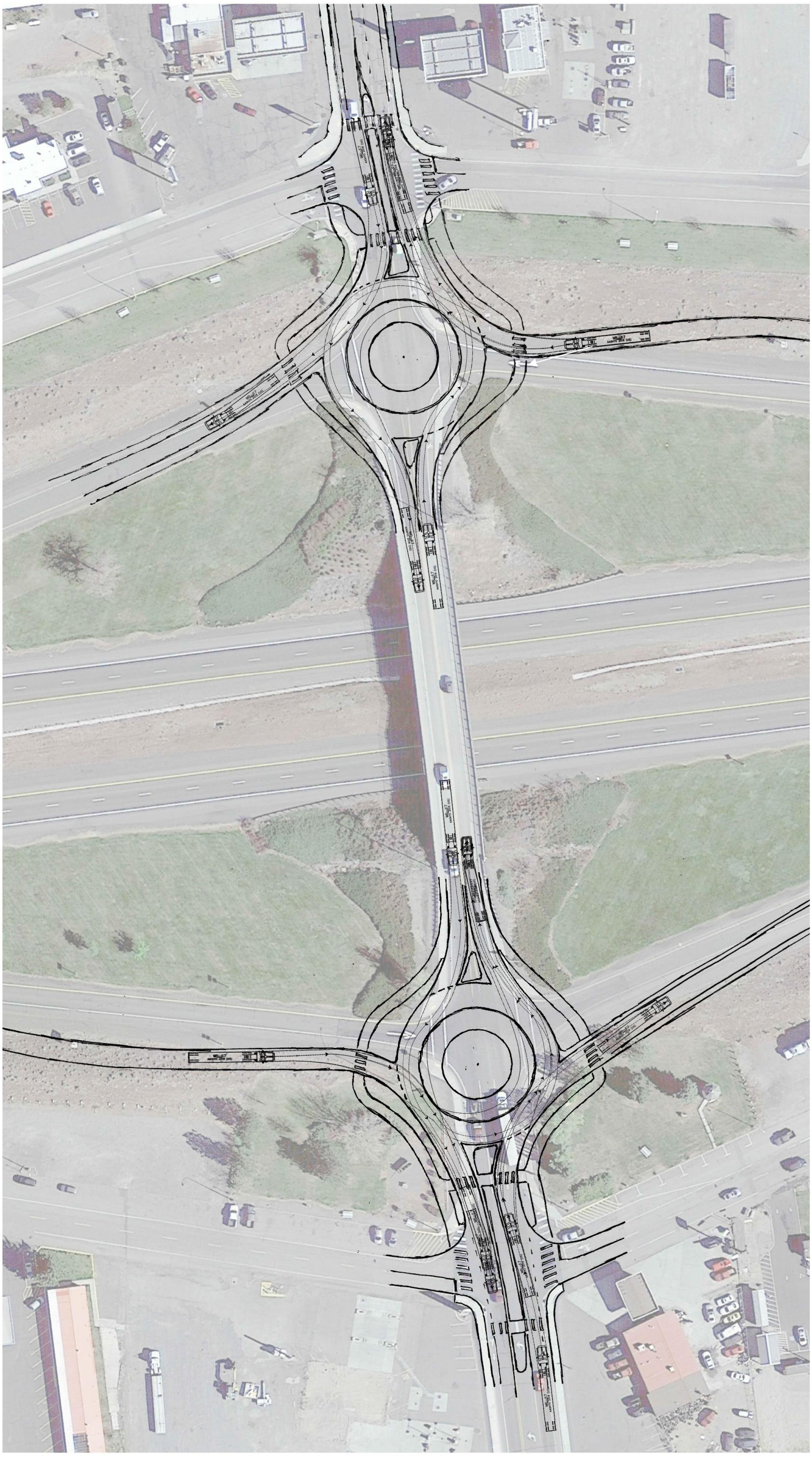


Figure 8 – Refined Circulation Alternative #2 Sketch-Level Layout (with WB-67 Truck Turning Template)



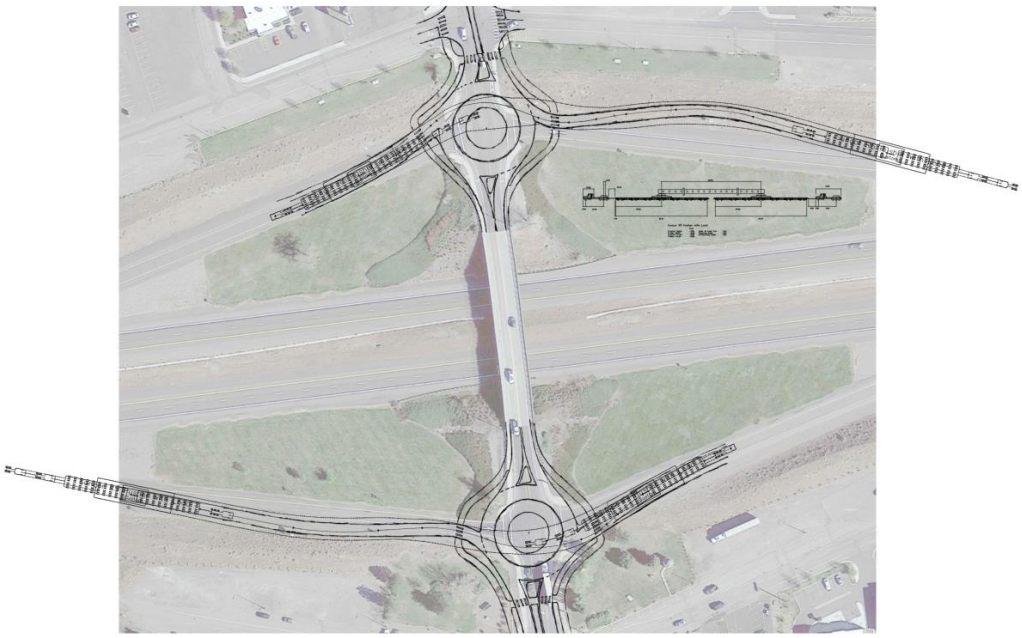
Truck Turning Evaluation

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

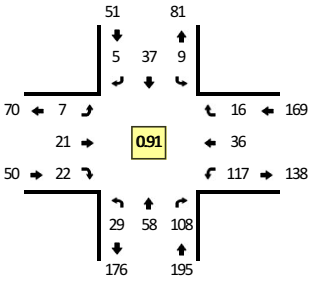
Type of peak hour being reported: Intersection Peak

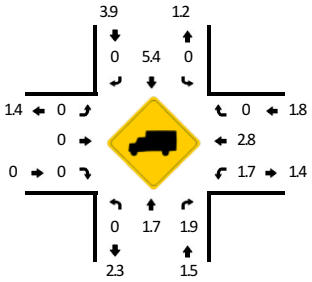
Method for determining peak hour: Tot

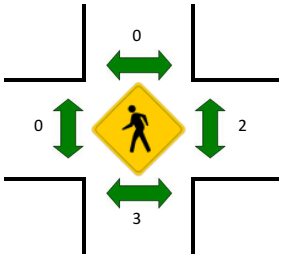
LOCATION: N Main St -- Columbia Ave NE
CITY/STATE: Boardman, OR

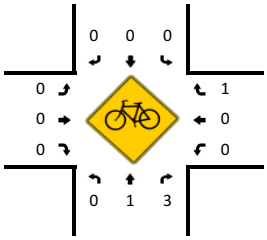
QC JOB #: 15762801
DATE: Thu, Mar 31 2022

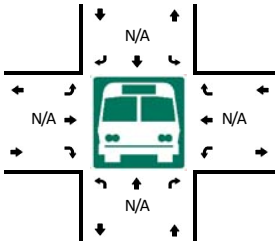
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

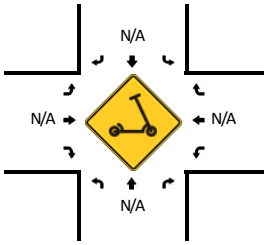












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Columbia Ave NE (Eastbound)				Columbia Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	5	2	0	0	3	2	0	1	0	1	0	5	4	2	0	25	
3:05 PM	1	1	4	0	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	
3:45 PM	0	1	7	0	0	3	0	0	0	4	2	0	9	2	0	0	28	
3:50 PM	0	1	10	0	0	4	0	0	1	2	1	0	11	2	1	0	33	
3:55 PM	0	1	9	0	0	6	0	0	0	1	0	0	11	5	0	0	33	401
4:00 PM	0	3	7	0	1	2	2	0	0	1	1	0	7	1	1	0	26	402
4:05 PM	0	2	8	0	0	3	0	0	0	1	5	0	17	1	1	0	38	413
4:10 PM	2	1	7	0	1	4	0	0	1	0	2	0	18	2	3	0	41	415
4:15 PM	3	5	9	0	0	1	0	0	0	2	1	0	8	5	0	0	34	414
4:20 PM	1	1	10	0	0	1	0	0	1	4	0	0	7	4	0	0	29	416
4:25 PM	2	4	11	0	1	1	0	0	0	2	0	0	13	3	0	0	37	423
4:30 PM	1	6	9	0	1	2	0	0	0	4	2	0	13	1	3	0	42	426
4:35 PM	4	5	14	0	0	0	1	0	0	2	2	0	5	2	0	0	35	415
4:40 PM	2	3	10	0	0	5	1	0	0	1	2	0	8	5	3	0	40	416
4:45 PM	2	2	9	0	1	2	0	0	0	1	0	0	7	1	2	0	27	415
4:50 PM	0	8	13	0	1	0	0	0	0	2	1	0	5	3	1	0	34	416
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
5:05 PM	4	1	7	0	0	2	1	0	0	0	2	0	12	5	1	0	35	418
5:10 PM	2	4	8	0	0	4	0	0	0	4	1	0	13	6	1	0	43	420
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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
5:30 PM	3	4	10	0	1	2	1	0	0	3	3	0	6	1	0	0	34	432
5:35 PM	2	7	11	0	0	1	0	0	2	0	1	0	14	1	2	0	41	438
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

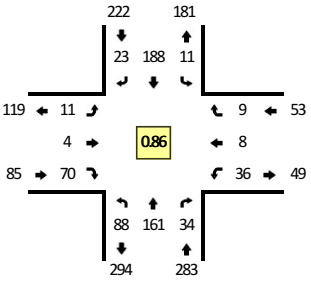
Type of peak hour being reported: Intersection Peak

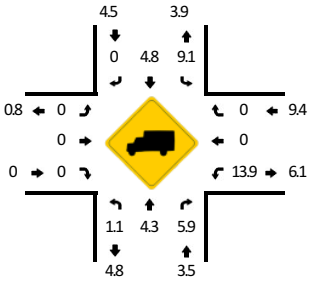
Method for determining peak hour: Tot

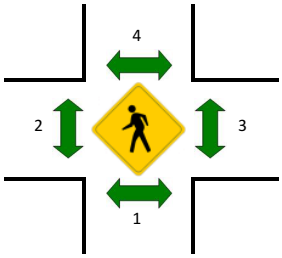
LOCATION: N Main St -- Boardman Ave NW
CITY/STATE: Boardman, OR

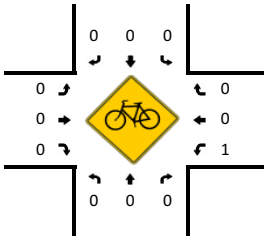
QC JOB #: 15762802
DATE: Thu, Mar 31 2022

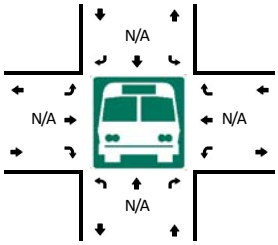
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 3:30 PM -- 3:45 PM

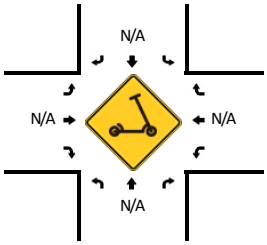












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Boardman Ave NW (Eastbound)				Boardman Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	2	8	2	0	1	9	2	0	0	1	2	0	16	1	2	0	46	
3:05 PM	6	11	5	0	1	15	1	0	1	0	6	0	15	3	0	0	64	
3:10 PM	4	9	4	0	0	29	0	0	1	1	1	0	8	1	4	0	62	
3:15 PM	3	6	2	0	0	18	1	0	1	0	8	0	12	0	2	0	53	
3:20 PM	4	9	5	0	2	10	3	0	3	0	6	0	2	1	0	0	45	
3:25 PM	3	15	4	0	1	7	1	0	1	0	6	0	2	1	3	0	44	
3:30 PM	6	16	4	0	3	16	1	0	1	0	5	0	3	1	2	0	58	
3:35 PM	6	18	2	0	0	19	4	0	1	0	5	0	6	2	0	0	63	
3:40 PM	8	18	7	0	0	19	4	0	0	2	6	0	2	0	1	0	67	
3:45 PM	5	9	0	0	0	16	2	0	2	0	6	0	7	0	0	0	47	
3:50 PM	6	11	2	0	1	11	2	0	1	0	2	0	2	0	1	0	39	
3:55 PM	9	10	1	0	3	16	2	0	1	0	2	0	2	2	1	0	49	637
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

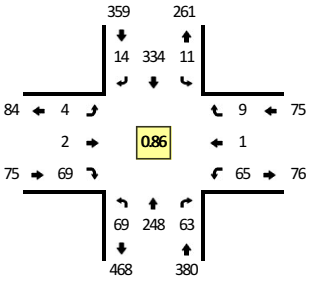
Type of peak hour being reported: Intersection Peak

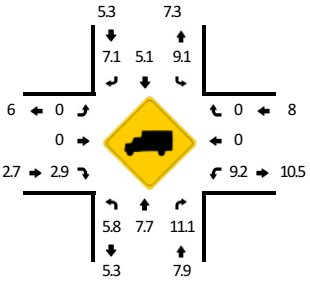
Method for determining peak hour: Tot

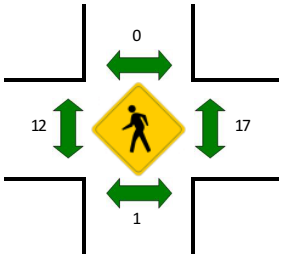
LOCATION: N Main St -- Front St NE
CITY/STATE: Boardman, OR

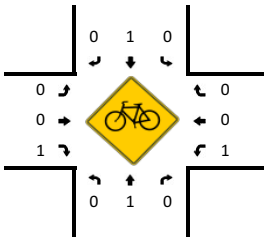
QC JOB #: 15762803
DATE: Thu, Mar 31 2022

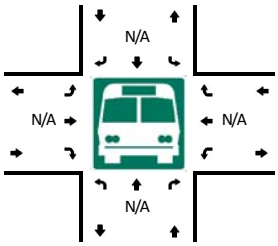
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:00 PM -- 3:15 PM

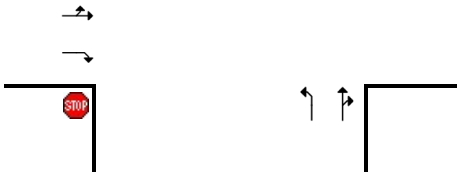


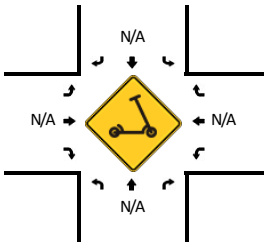












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Front St NE (Eastbound)				Front St NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	7	14	4	0	1	34	2	0	0	0	9	0	9	0	2	0	82	
3:05 PM	6	23	4	0	1	41	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

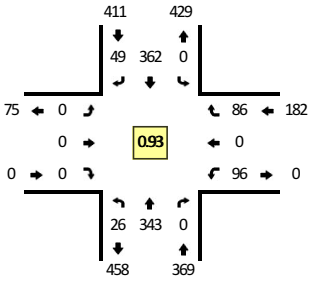
Type of peak hour being reported: Intersection Peak

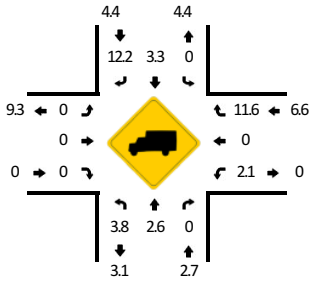
Method for determining peak hour: Tot

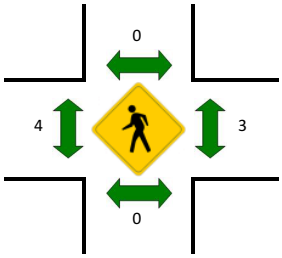
LOCATION: N Main St -- I-84 WB Ramp Terminal
CITY/STATE: Boardman, OR

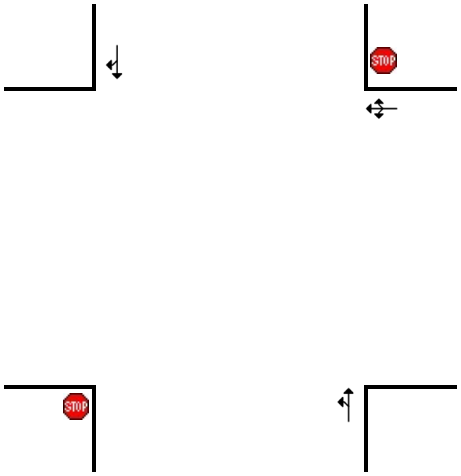
QC JOB #: 15762804
DATE: Thu, Mar 31 2022

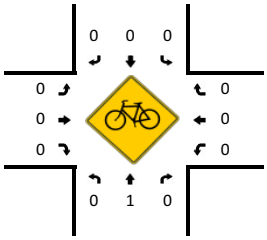
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

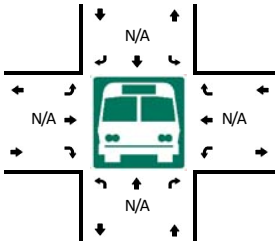


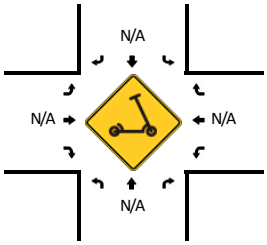












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				I-84 WB Ramp Terminal (Eastbound)				I-84 WB Ramp Terminal (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	2	21	0	0	0	47	2	0	0	0	0	0	6	0	5	0	83	
3:05 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

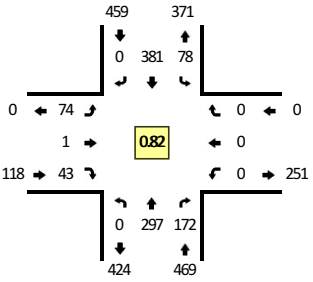
Type of peak hour being reported: Intersection Peak

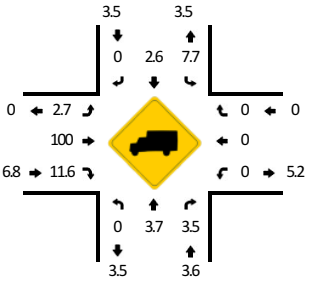
Method for determining peak hour: Tot

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

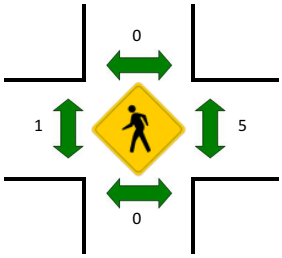
QC JOB #: 15762805
DATE: Thu, Mar 31 2022

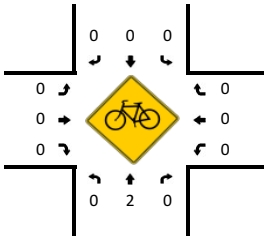
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

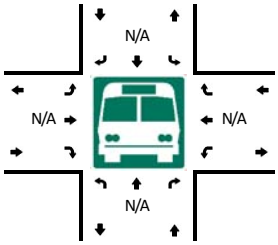


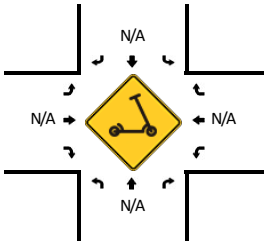


Quality Counts
DATA THAT DRIVES COMMUNITIES









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

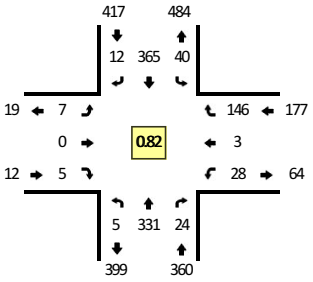
Type of peak hour being reported: Intersection Peak

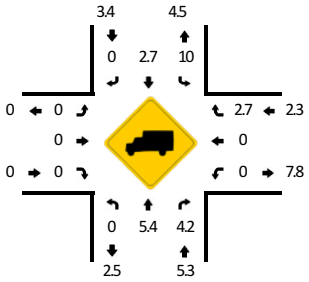
Method for determining peak hour: Tot

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

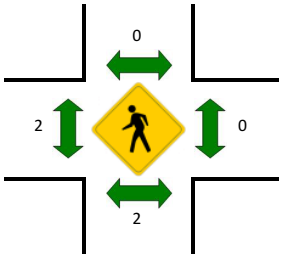
QC JOB #: 15762806
DATE: Thu, Mar 31 2022

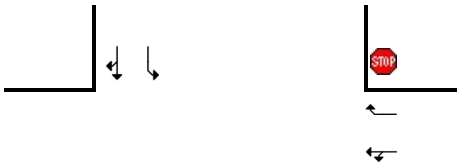
Peak-Hour: 3:55 PM -- 4:55 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

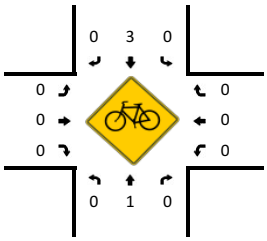


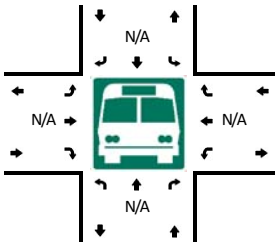


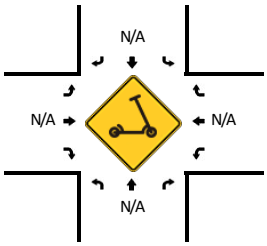
Quality Counts
DATA THAT DRIVES COMMUNITIES











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
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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

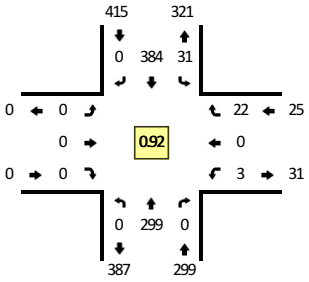
Type of peak hour being reported: Intersection Peak

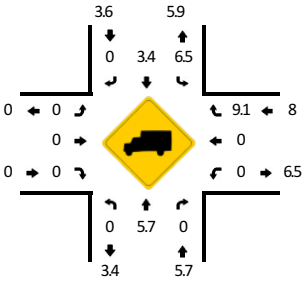
Method for determining peak hour: Tot

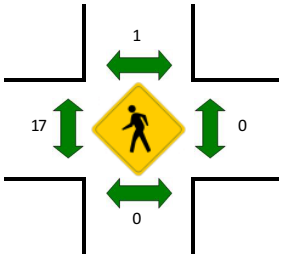
LOCATION: S Main St -- Oregon Trail Blvd
CITY/STATE: Boardman, OR

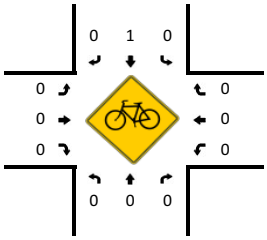
QC JOB #: 15762807
DATE: Thu, Mar 31 2022

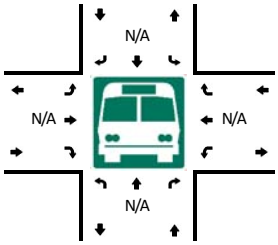
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:05 PM -- 3:20 PM

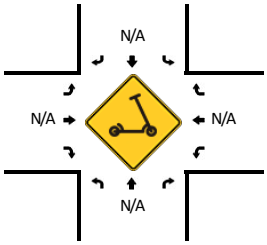












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Oregon Trail Blvd (Eastbound)				Oregon Trail Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	14	0	0	5	31	0	0	0	0	0	0	0	0	1	0	51	
3:05 PM	0	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
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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

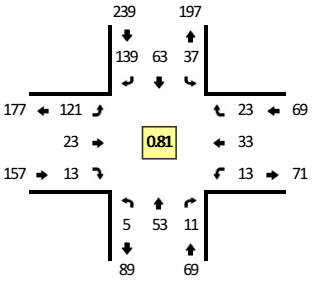
Type of peak hour being reported: Intersection Peak

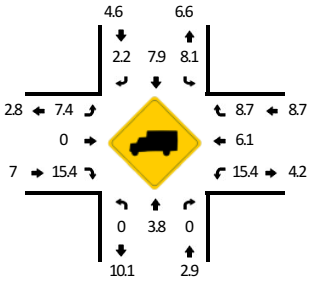
Method for determining peak hour: Tot

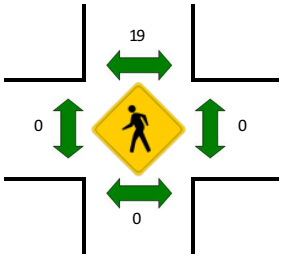
LOCATION: S Main St -- Wilson Ln SE
CITY/STATE: Boardman, OR

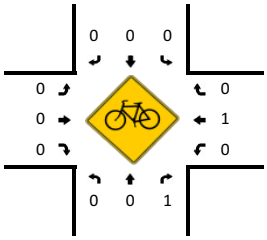
QC JOB #: 15762808
DATE: Thu, Mar 31 2022

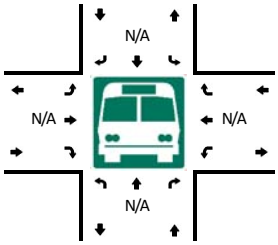
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:10 PM -- 3:25 PM

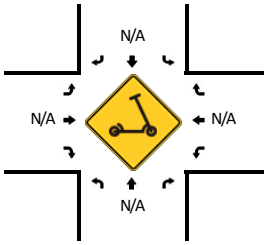












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Wilson Ln SE (Eastbound)				Wilson Ln SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	4	0	0	0	7	9	0	5	0	0	0	2	0	3	0	30	
3:05 PM	0	3	0	0	3	5	20	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

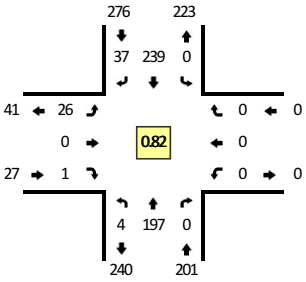
Type of peak hour being reported: Intersection Peak

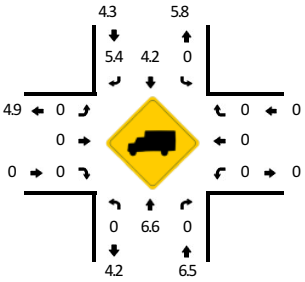
Method for determining peak hour: Tot

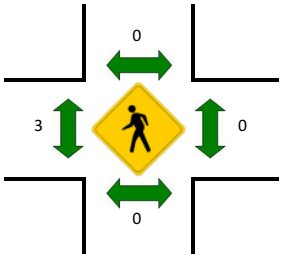
LOCATION: S Main St -- Willow Fork Dr SW
CITY/STATE: Boardman, OR

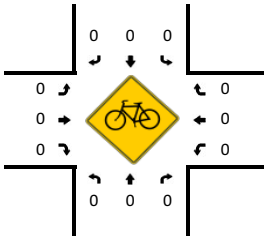
QC JOB #: 15762809
DATE: Thu, Mar 31 2022

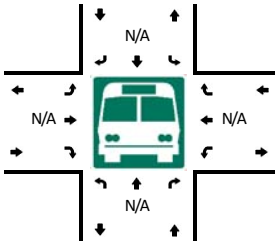
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:10 PM -- 3:25 PM

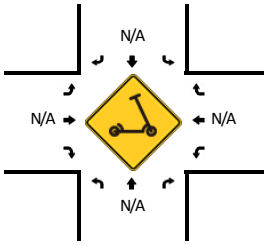












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Willow Fork Dr SW (Eastbound)				Willow Fork Dr SW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	1	11	0	0	0	18	4	0	0	0	0	0	0	0	0	0	34	
3:05 PM	0	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

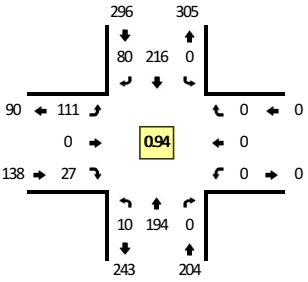
Type of peak hour being reported: Intersection Peak

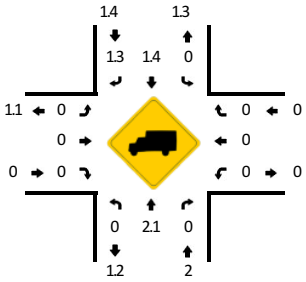
Method for determining peak hour: Tot

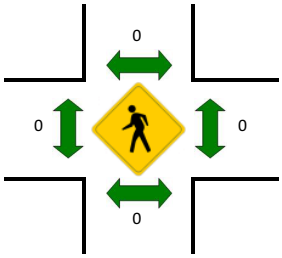
LOCATION: S Main St -- Kinkade Rd
CITY/STATE: Boardman, OR

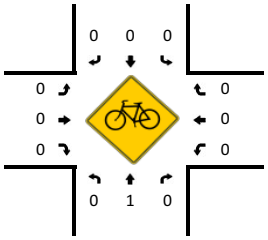
QC JOB #: 15762810
DATE: Thu, Mar 31 2022

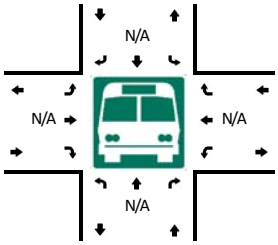
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

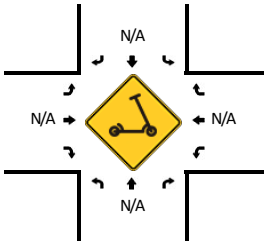












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Kinkade Rd (Eastbound)				Kinkade Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	11	0	0	0	19	6	0	4	0	0	0	0	0	0	0	40	
3:05 PM	1	11	0	0	0	30	2	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
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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

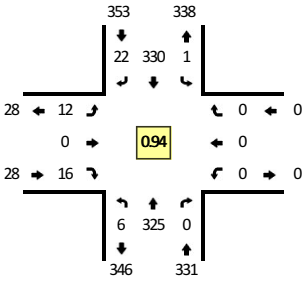
Type of peak hour being reported: Intersection Peak

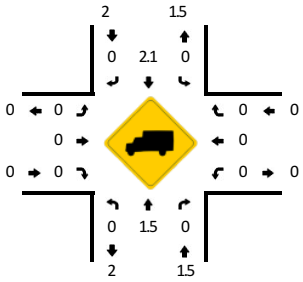
Method for determining peak hour: Tot

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

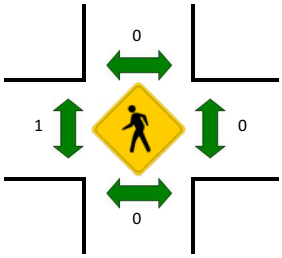
QC JOB #: 15762811
DATE: Thu, Mar 31 2022

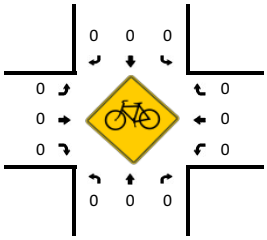
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

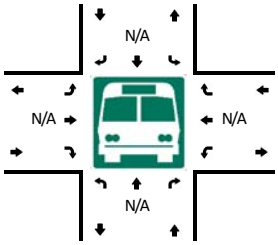


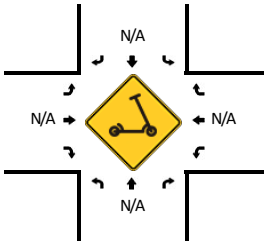


Quality Counts
DATA THAT DRIVES COMMUNITIES









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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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	SUR F	TOT VEH	VEHICLE TYP/OWN #1	VEHICLE TYP/OWN #2	--PEOPLE-- KILL	INJ 1	INJ 2	INJ C	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 SPED
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

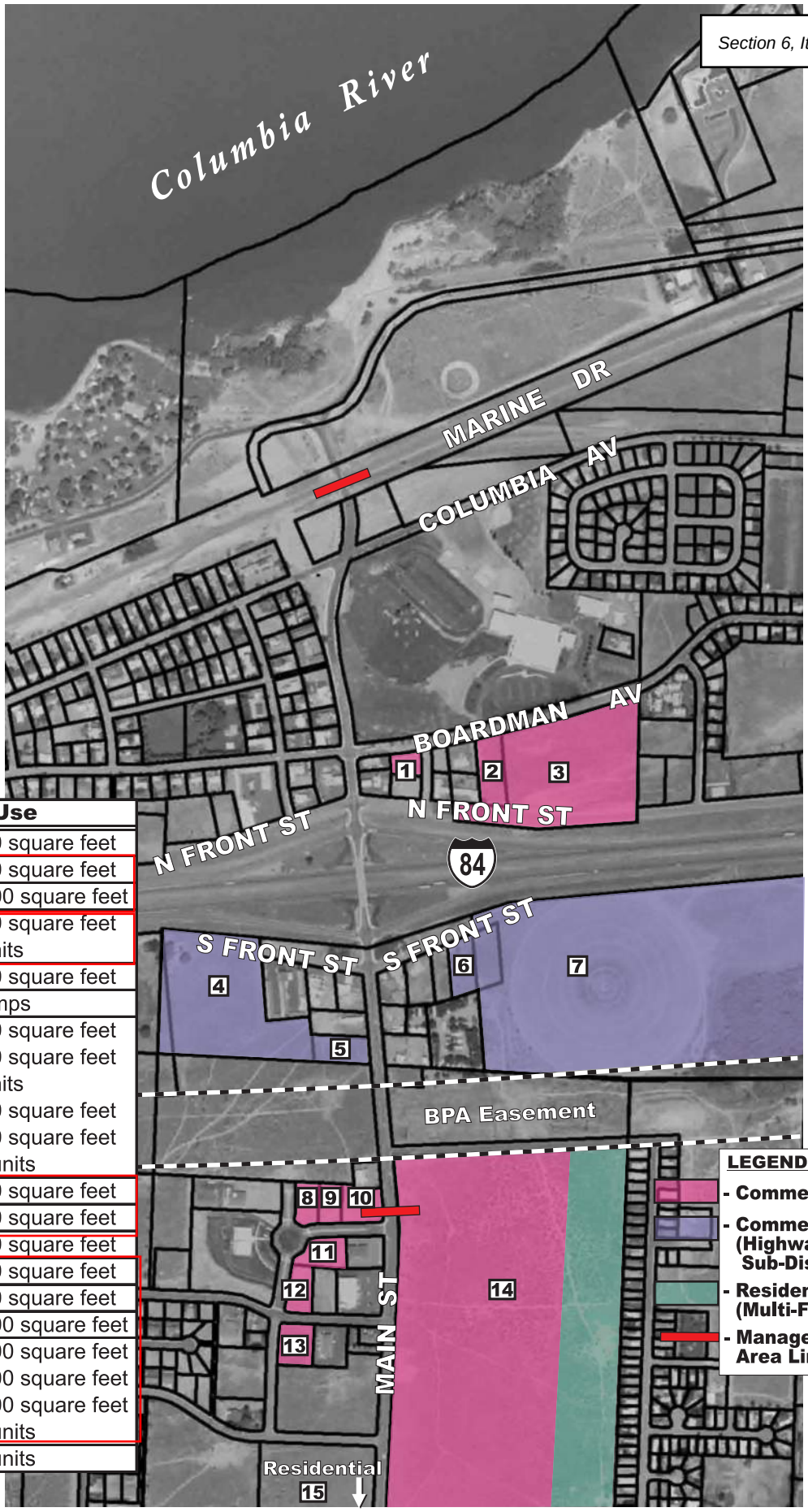
Code	Short Description	Medium Description	Long Description
001	FEL/JUMP	FELL/JUMPED MV	Occupant fell, jumped or was ejected from moving vehicle
002	INTERFER	PSNGR INTERFERED	Passenger interfered with driver
003	BUG INTF	ANML INTERFERED	Animal or insect in vehicle interfered with driver
004	INDRCT PED	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

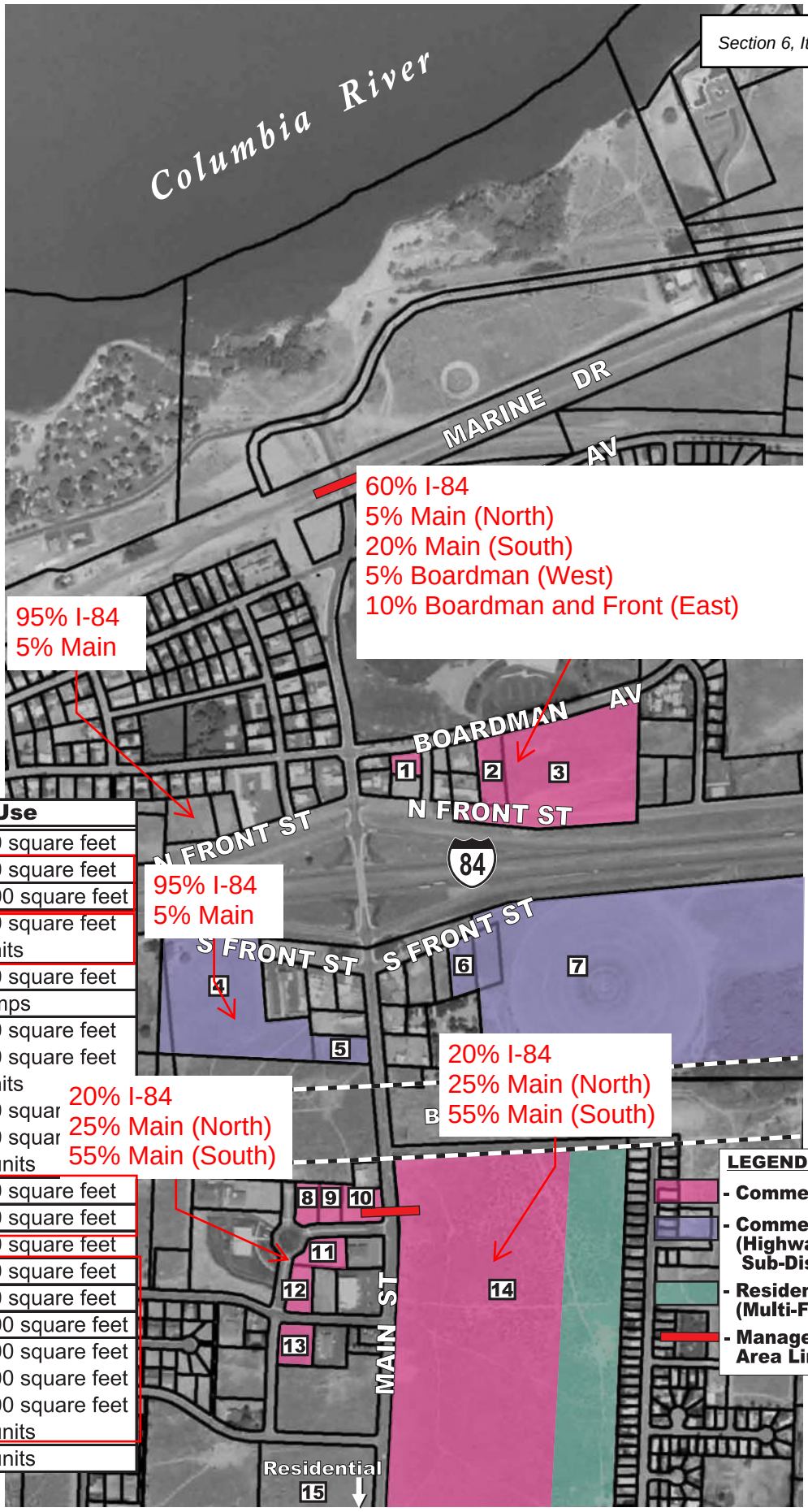
DKS Associates
TRANSPORTATION SOLUTIONS

City of Boardman Main Street IAMP
April 2009

Figure 4.1

MAIN STREET 20-Y FORECASTED DEVELOPM

112



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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

113

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

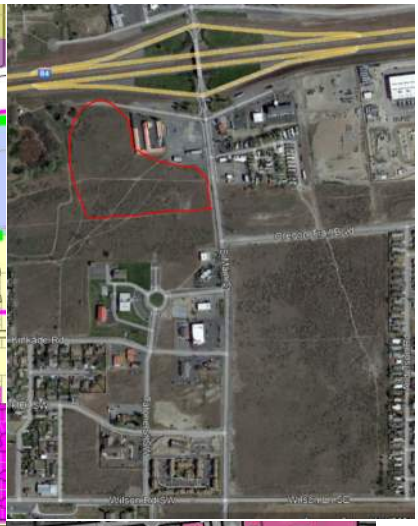
City Zoning: Commercial - Hwy Sub District
2009 IAMP assumption: Fast Food Resturant & Specialty Retail
Proposed Land Use: Fast Food Resturant & High Turn-Over Resturant

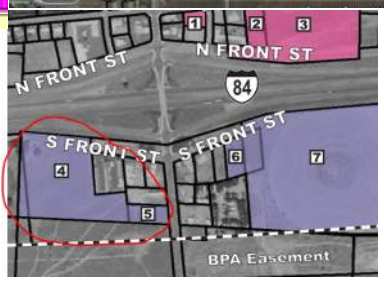
Trip Generation: High-Turnover Resturant

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

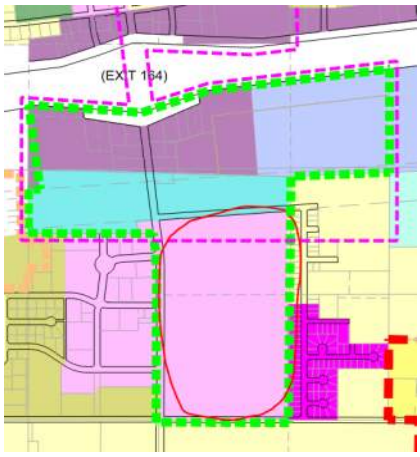


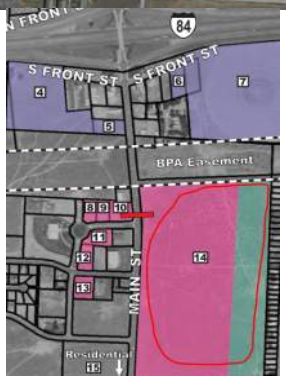


City Zoning: Commercial - Hwy Sub District
2009 IAMP assumption: Resturant & Motel
Proposed Land Use: Truck Stop

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	
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

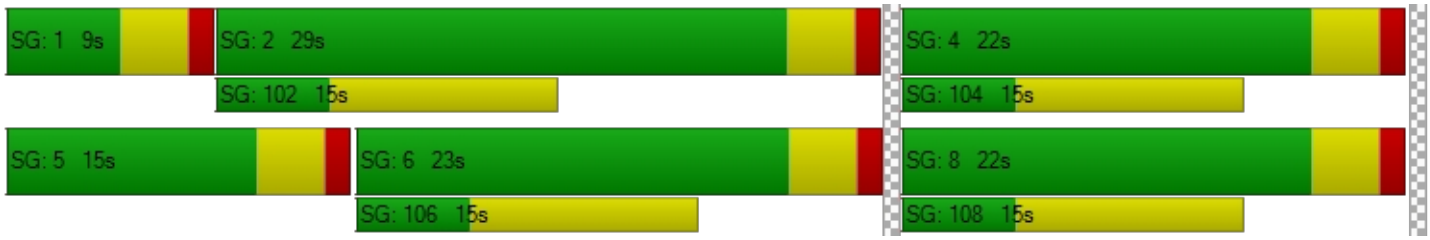
d_M, Delay for Movement [s/veh]	7.14	16.04	16.04	7.22	14.59	14.59	11.08	9.89	9.89	15.76	9.30	9.30
Movement LOS	A	B	B	A	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	13.25			13.08			10.10			14.73		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.19											
Intersection LOS	B											
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:	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	
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	2.0	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	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

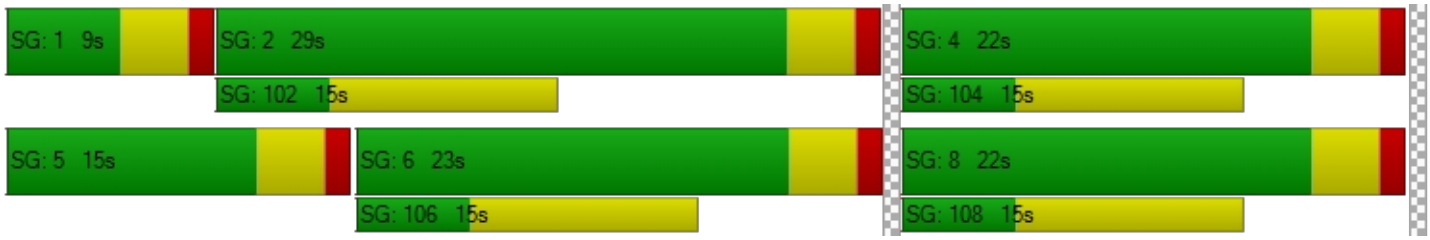
d_M, Delay for Movement [s/veh]	7.14	16.04	16.04	7.22	14.59	14.59	11.08	9.89	9.89	15.76	9.30	9.30
Movement LOS	A	B	B	A	B	B	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	13.25			13.08			10.10			14.73		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.19											
Intersection LOS	B									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

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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 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.

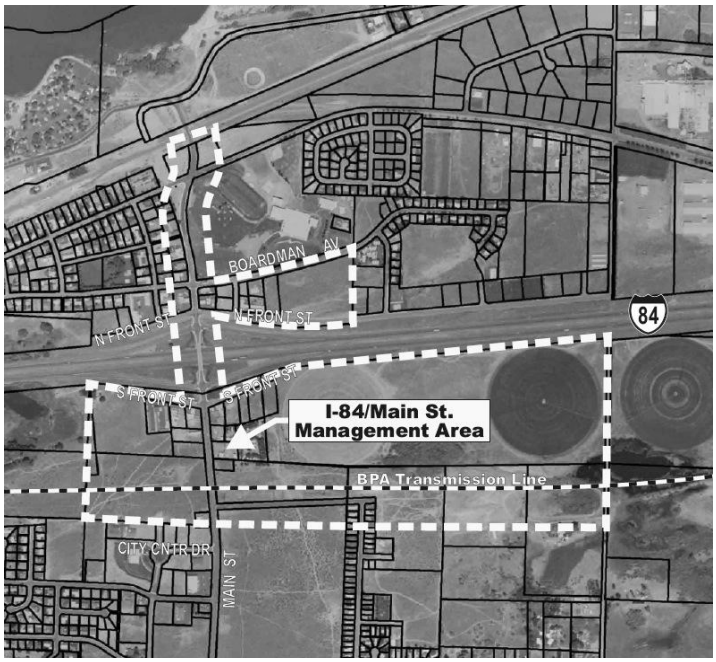

Figure 1.1: Management Area

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.

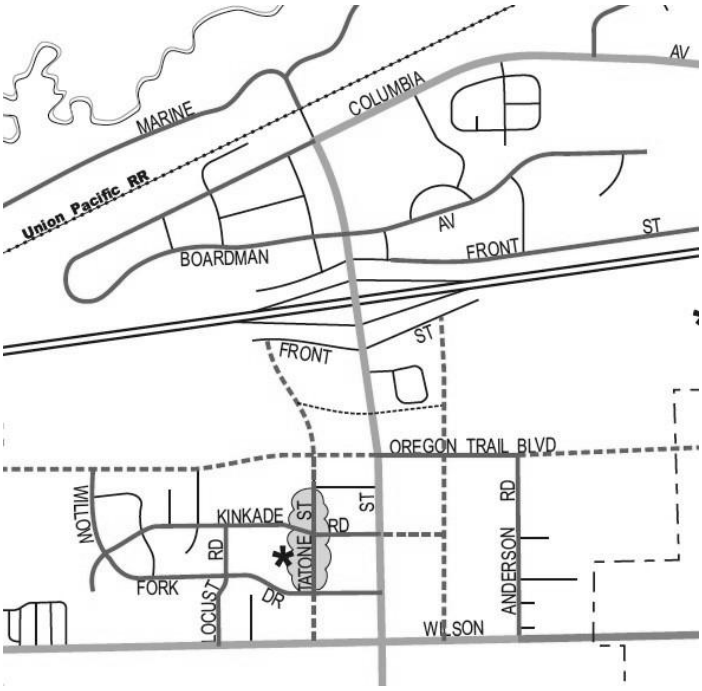

Figure 1.2: Main Street Area Plan

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:

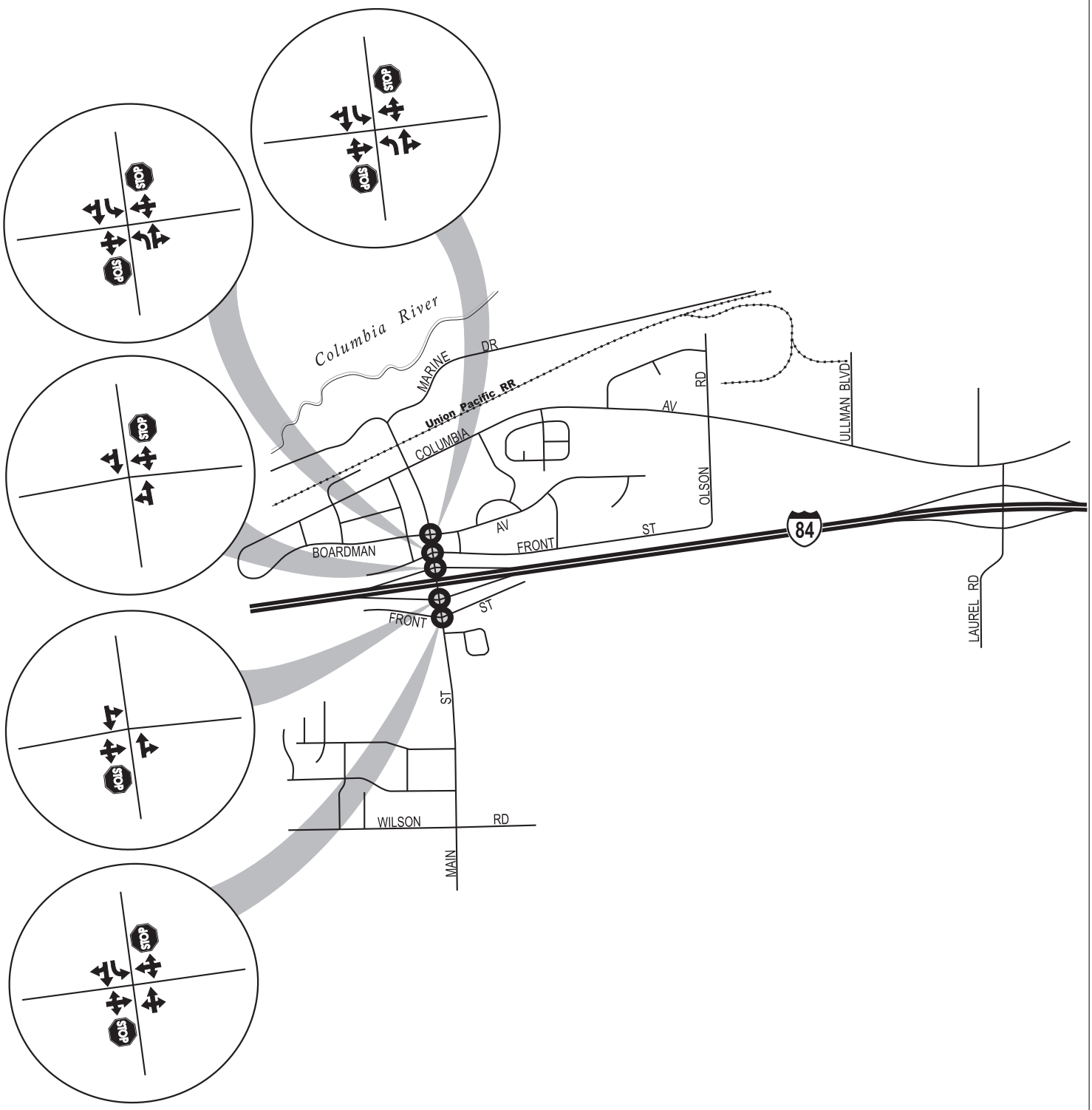
- I-84 EB Ramp at Main Street
- I-84 WB Ramp at Main Street

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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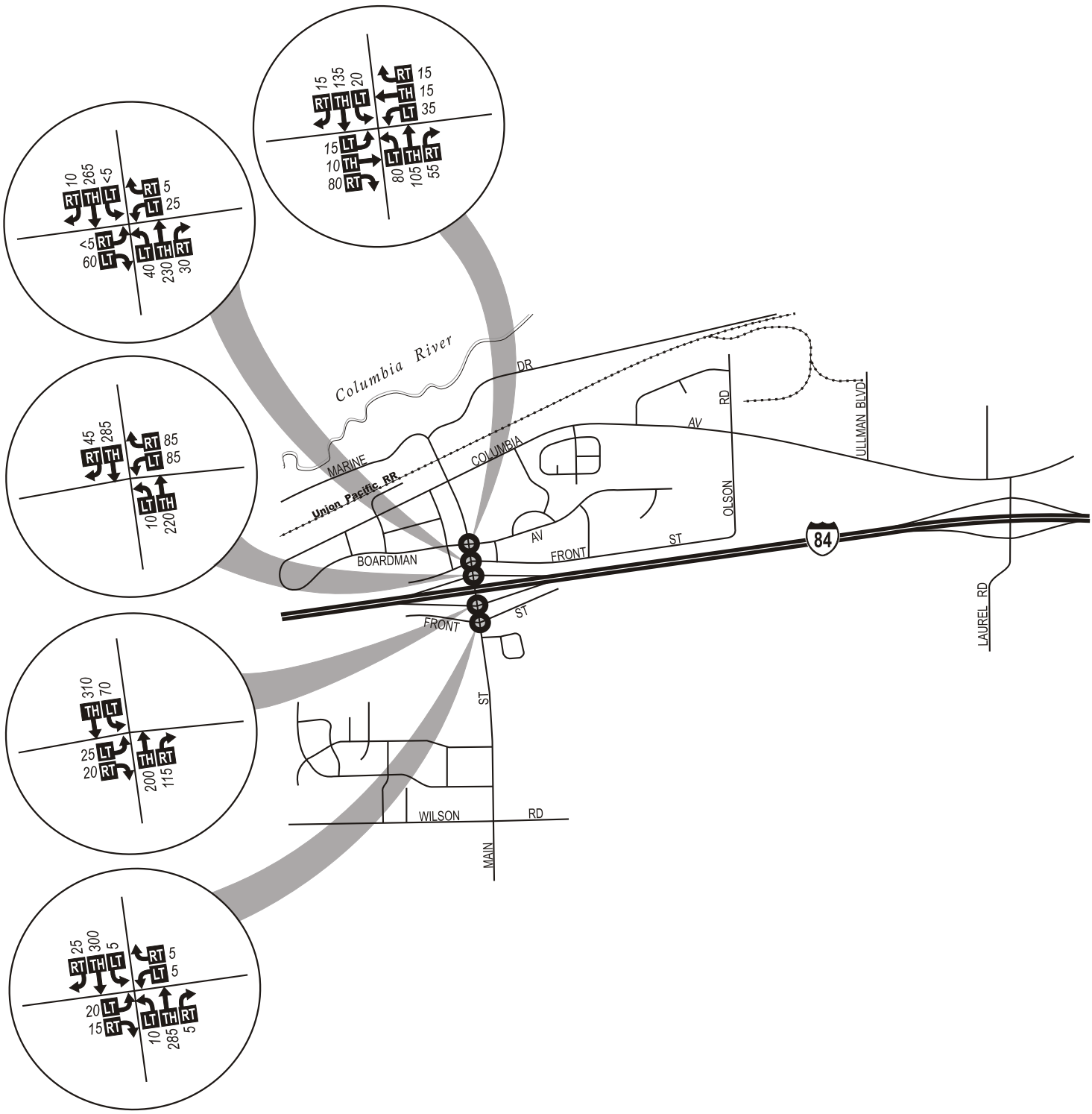
Figure 3.2

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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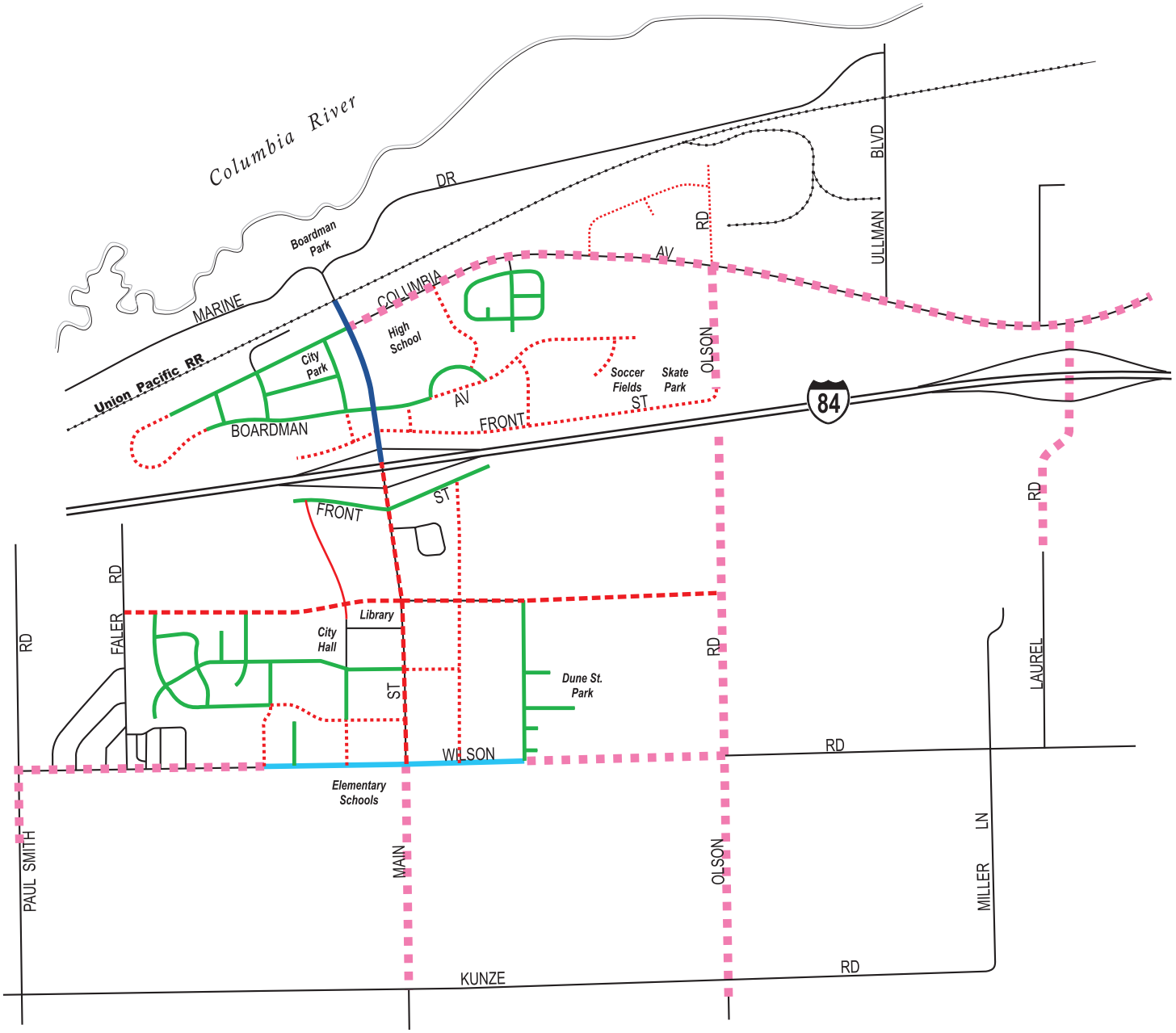
City of Boardman Main Street IAMP
April 2009

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.

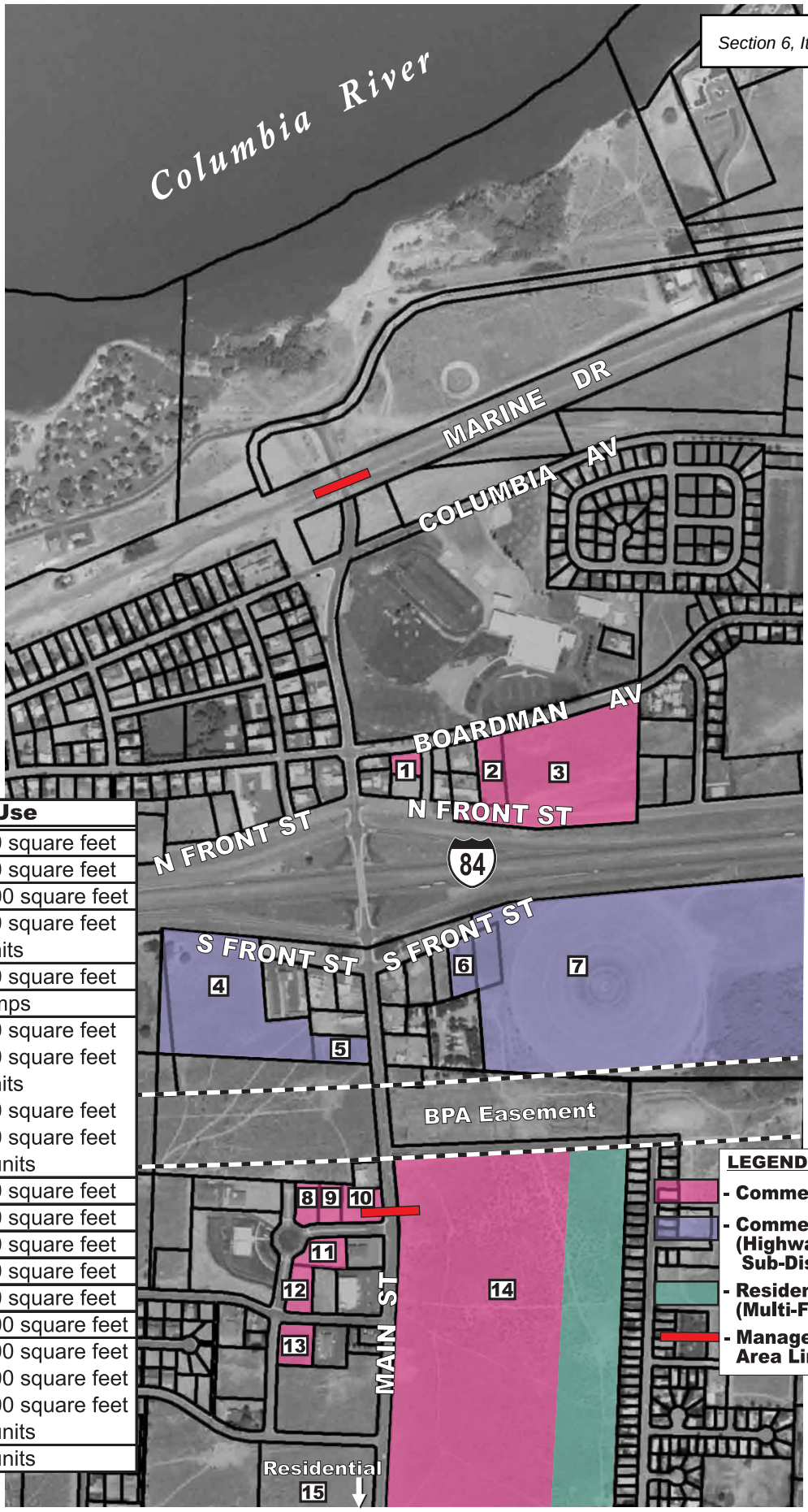
Future Year Forecasts

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
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Figure 4.1

MAIN STREET 20-Y FORECASTED DEVELOPM

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Table 4.2: PM Peak Hour Trip Generation Rates

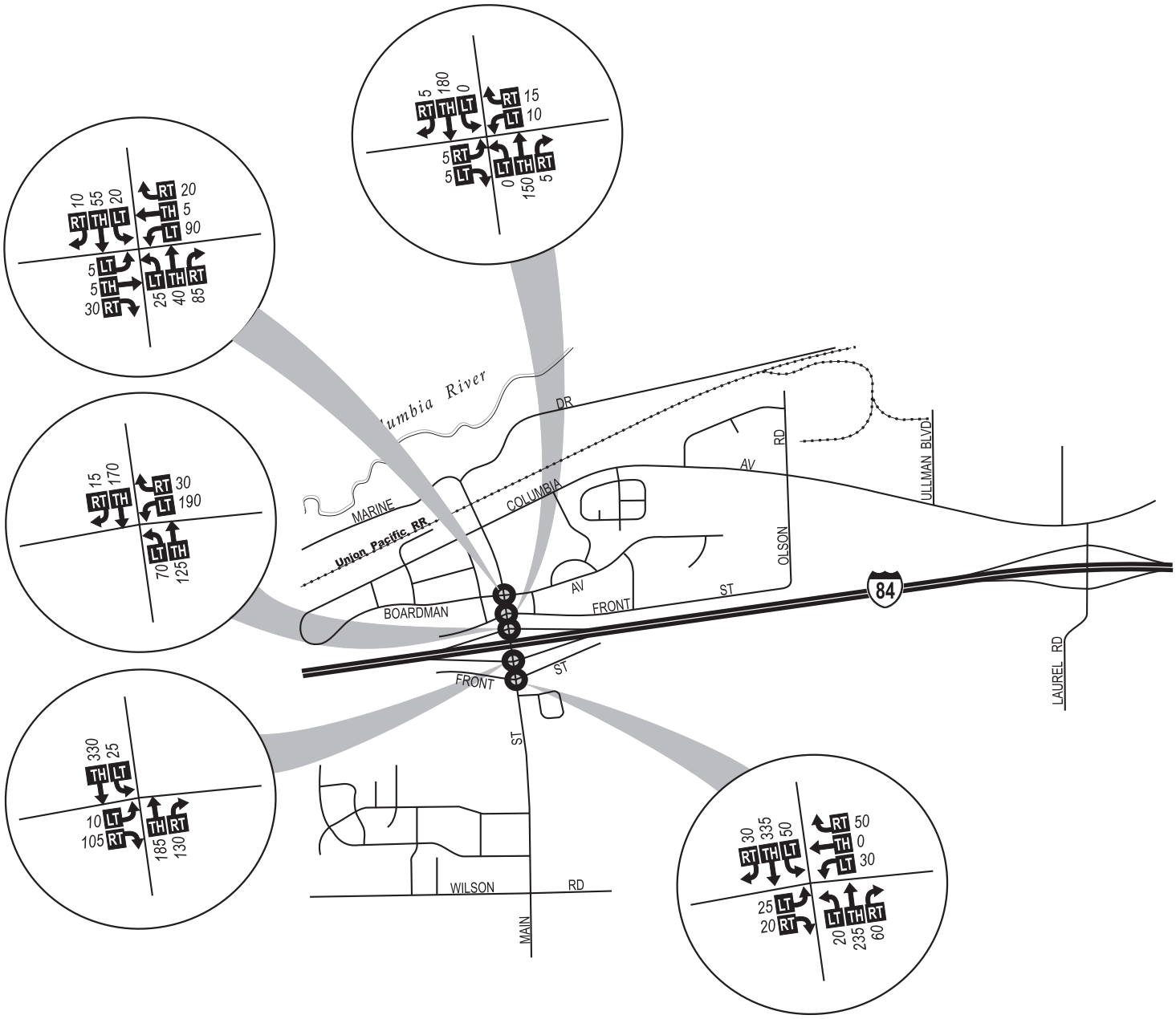
Land Use Description	ITE Code	Land Use Unit	Vehicle Trips Per Land Use Unit	Assumed Size of Land Use
Single Family Detached Housing	210	Dwelling Unit	1.01	220
Housing - Condos	230	Dwelling Unit	0.52	120
Motel	320	Room	0.58	130
Single Tenant Office	715	1,000 s.f. building area	1.73	20
Medical/Dental Office	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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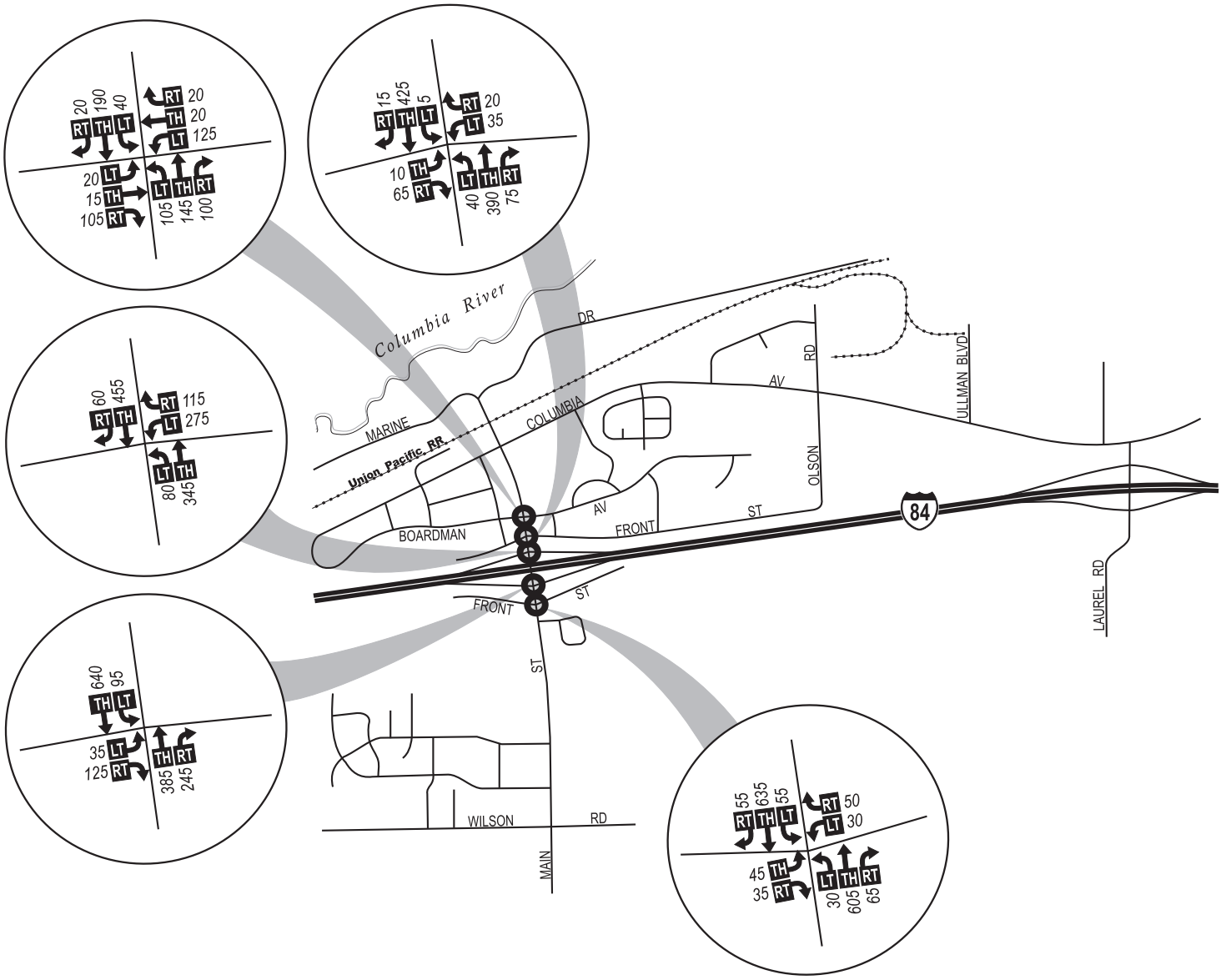

LEGEND

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

City of Boardman Main Street IAMP
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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.

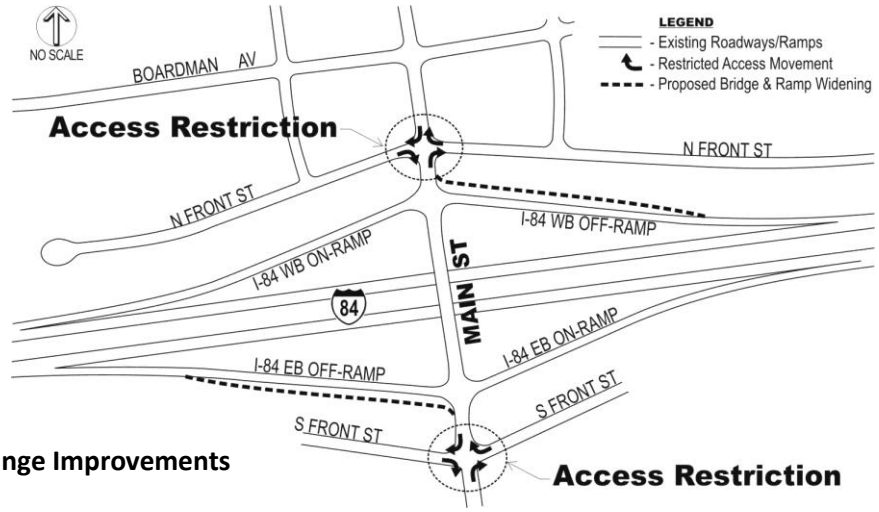


Figure 5.1a
Short/Mid-Range Improvements

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.

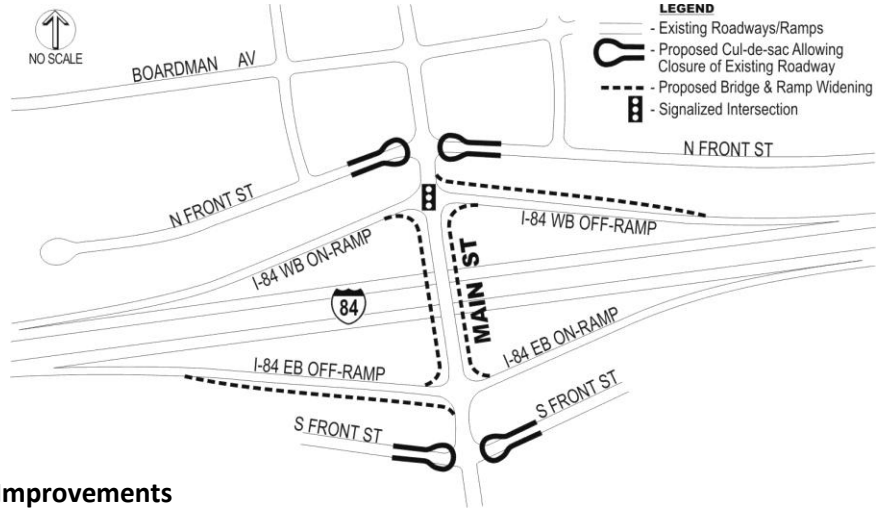


Figure 5.1b
Long-Range Improvements

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.

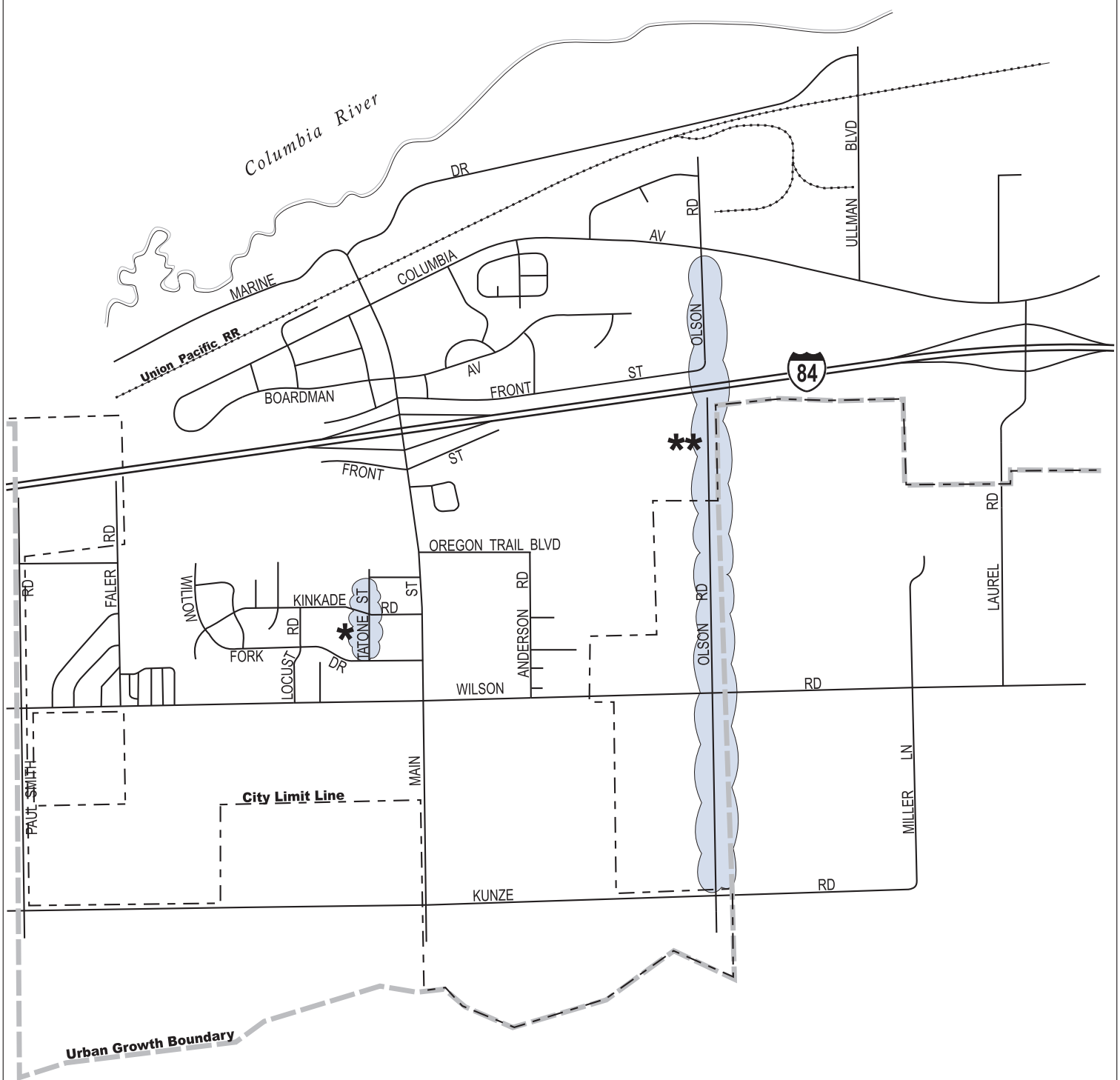
There are several potential opportunities to improve the north-south and east-west connectivity within the City, which will make drivers less dependent on Main Street for every trip around town. Currently, the north-south connectivity is limited to Main Street and Laurel Lane due mainly to the constraints 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)

City of Boardman Main Street IAMP
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TRANSPORTATION SOLUTIONS

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

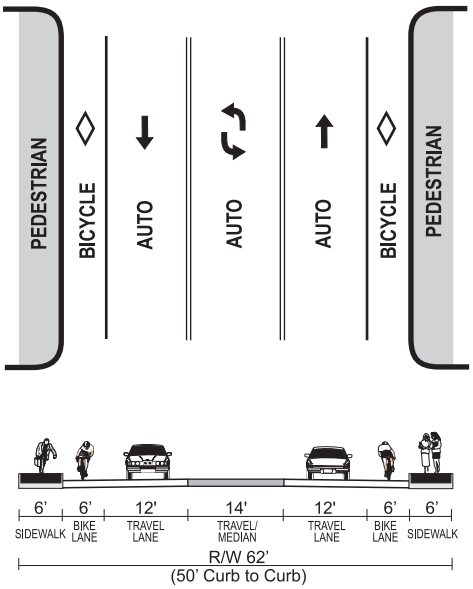
The City's 1999 Transportation System Plan envisions a new I-84 crossing at Olson Road. This new freeway overcrossing would not provide access to/from Interstate 84, but it would provide an alternate north-south circulation route between employment and school uses on the north side of the highway with 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.

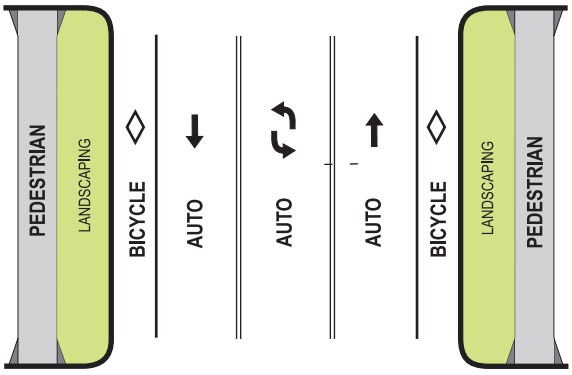
Pedestrian/Bicycle Network

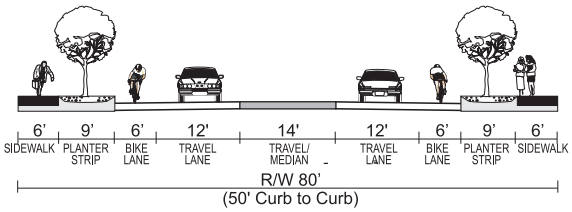
The pedestrian network should be addressed in parallel to the street network improvements. In general, curb and sidewalk similar to North Main Street will improve the safety of pedestrians along South Main Street. Pedestrian access across Main Street is also important. Pedestrian crossings shall be accommodated 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.

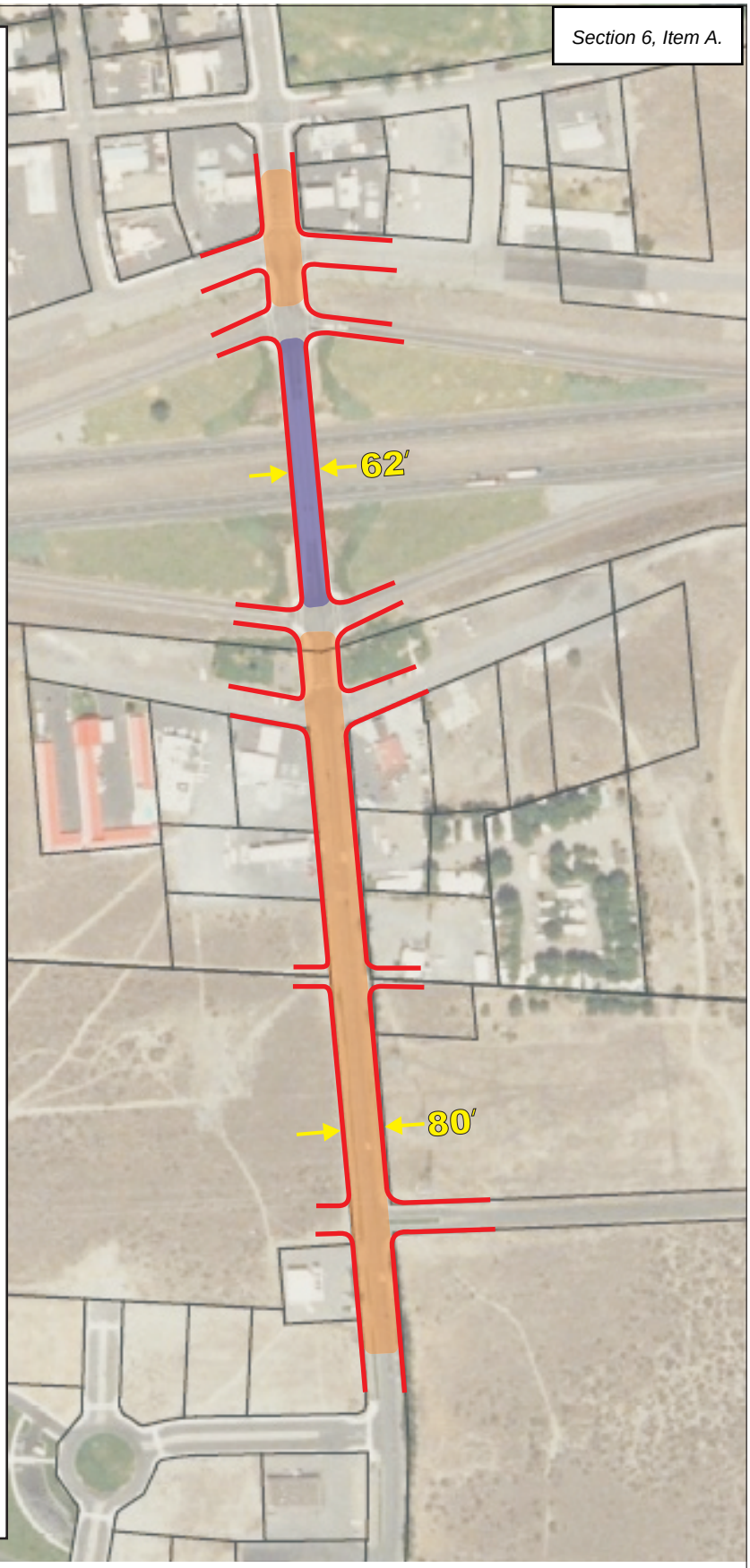
Typical 62 foot cross-section



Typical 80 foot cross-section







LEGEND

- 80' Cross-section
- 62' Cross-section

City of Boardman IAMP
April 2009

NO SCALE

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TRANSPORTATION SOLUTIONS

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.

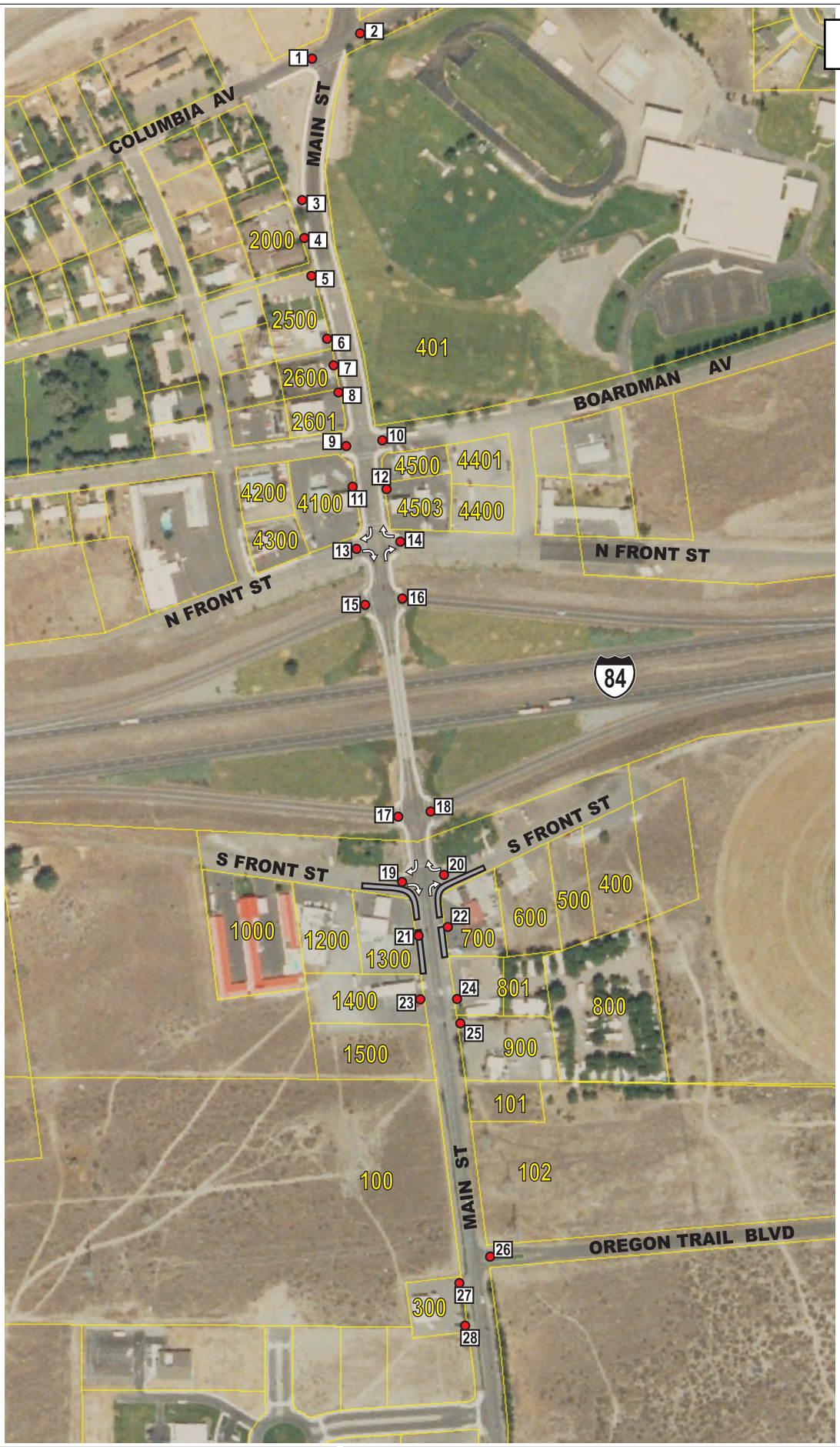
Table 5.2: Cost Estimates for Main Street IAMP Improvements

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 *

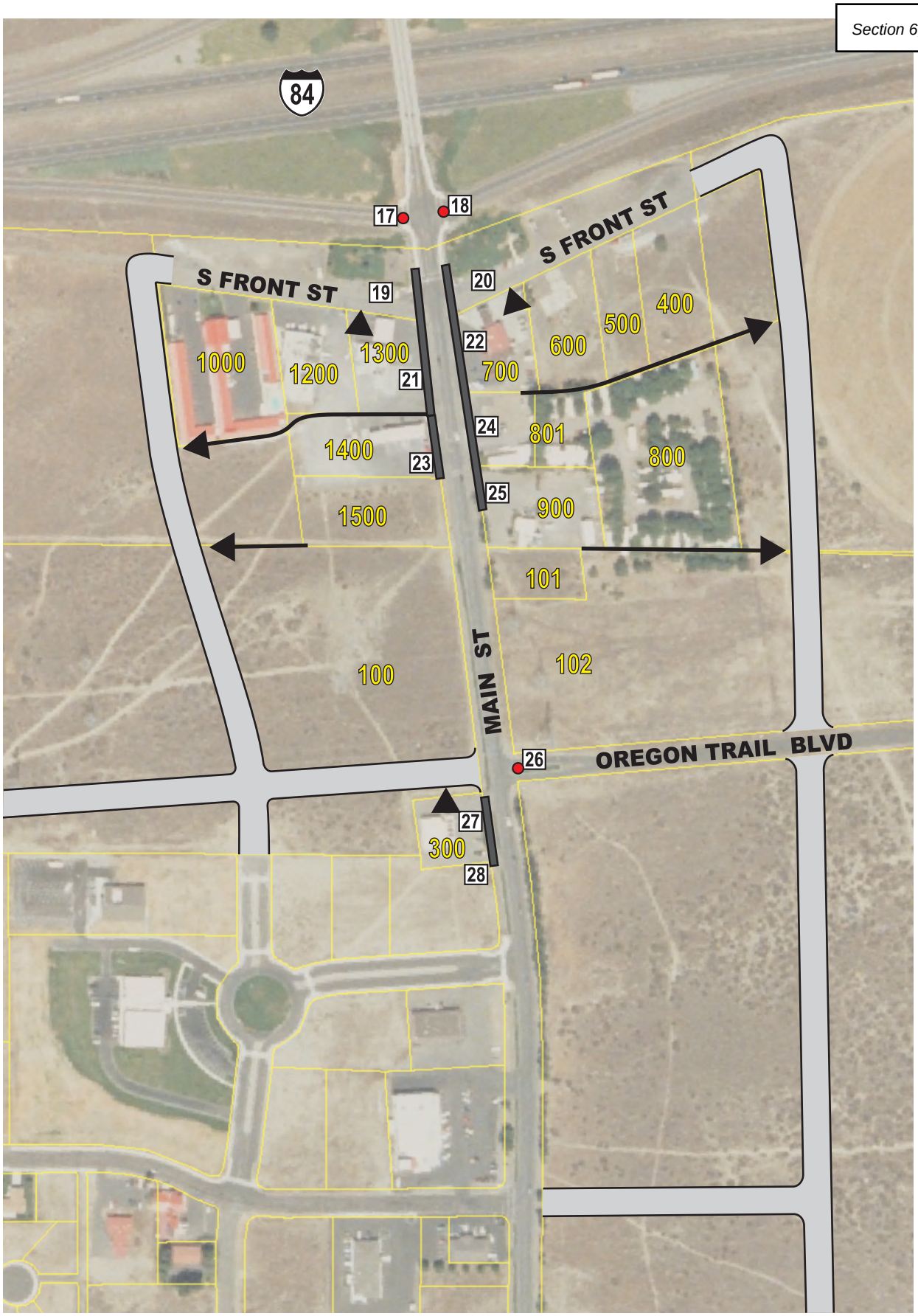
*Approach will not be closed until reasonable access becomes available

City of Boardman Main Street IAMP
April 2009

NO SCALE

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.			

DKS Associates
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

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Appendix 1
Background Plan Review

DKS Associates
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:

DKS 25 YEARS

1400 S.W. 5th Avenue
Suite 500
Portland, OR 97201-5502

(503) 243-3500
(503) 243-1934 fax
www.dksassociates.com

- 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

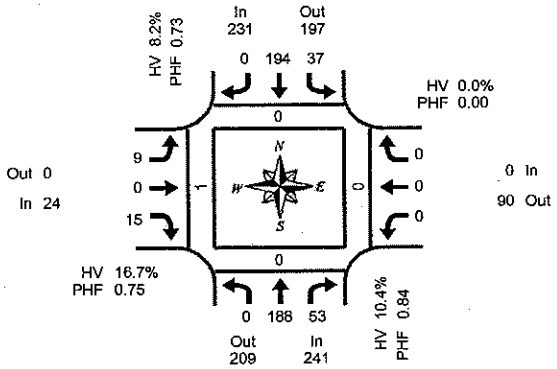
12. How should improvements identified through this plan be funded?
13. Would you be willing to contribute a proportional share to any locally funded portion of the improvements?

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

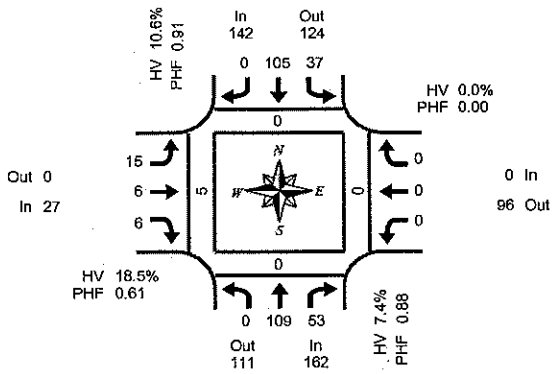
Rolling Hour Summary
6:00 AM to 8:00 AM

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				

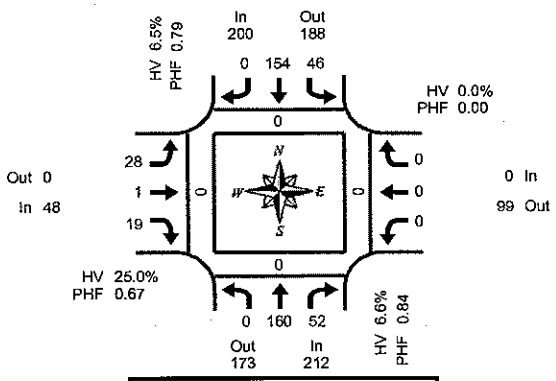
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	109	53	162	37	105	0	142	15	6	6	27	0	0	0	0	331
%HV	0.0%	6.4%	9.4%	7.4%	16.2%	8.6%	0.0%	10.6%	13.3%	50.0%	0.0%	18.5%	0.0%	0.0%	0.0%	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				

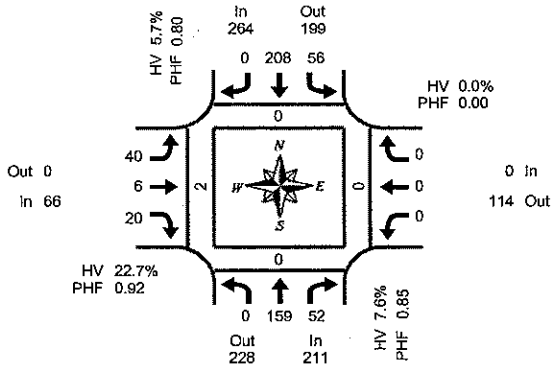
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	160	52	212	46	154	0	200	28	1	19	48	0	0	0	0	460
%HV	0.0%	5.6%	9.6%	6.6%	13.0%	4.5%	0.0%	6.5%	17.9%	#####	31.6%	25.0%	0.0%	0.0%	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				

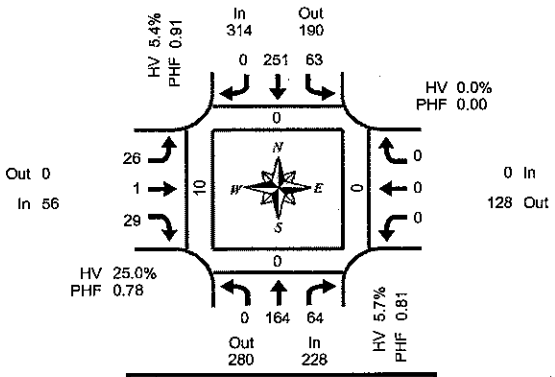
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	159	52	211	56	208	0	264	40	6	20	66	0	0	0	0	541
%HV	0.0%	5.7%	13.5%	7.6%	7.1%	5.3%	0.0%	5.7%	17.5%	66.7%	20.0%	22.7%	0.0%	0.0%	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

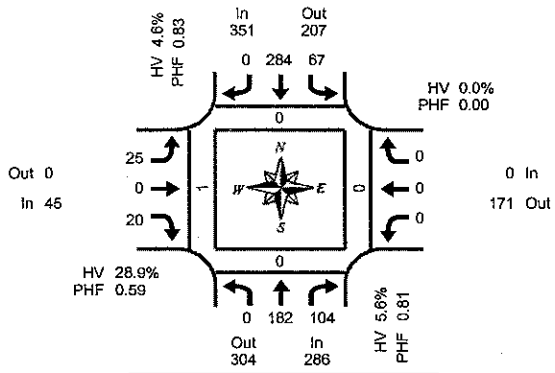
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	164	64	228	63	251	0	314	26	1	29	56	0	0	0	0	598
%HV	0.0%	5.5%	6.3%	5.7%	4.8%	5.6%	0.0%	5.4%	19.2%	#####	27.6%	25.0%	0.0%	0.0%	0.0%	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				

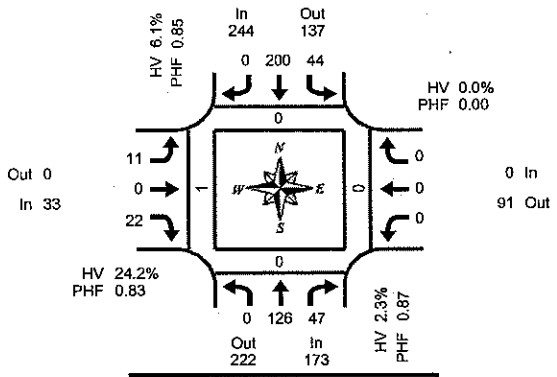
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	182	104	286	67	284	0	351	25	0	20	45	0	0	0	0	682
%HV	0.0%	3.3%	9.6%	5.6%	4.5%	4.6%	0.0%	4.6%	28.0%	0.0%	30.0%	28.9%	0.0%	0.0%	0.0%	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				

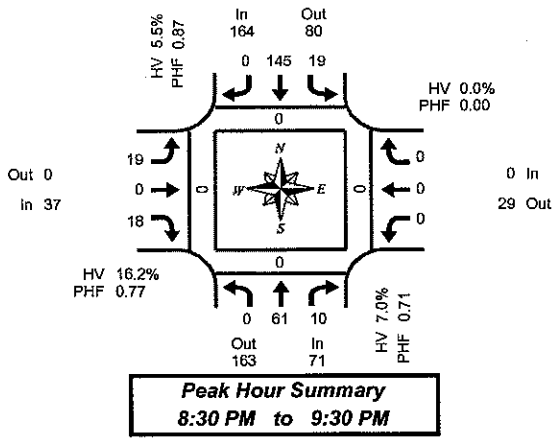
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	126	47	173	44	200	0	244	11	0	22	33	0	0	0	0	450
%HV	0.0%	2.4%	2.1%	2.3%	6.8%	6.0%	0.0%	6.1%	9.1%	0.0%	31.8%	24.2%	0.0%	0.0%	0.0%	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				

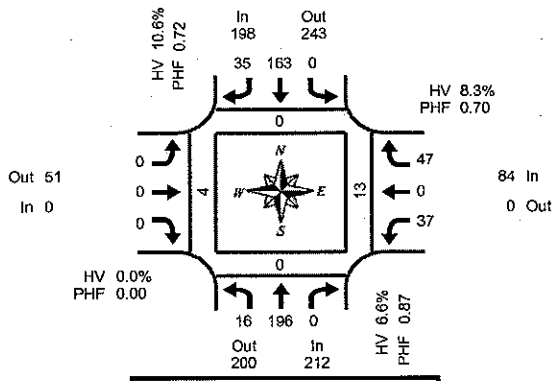
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 EB Ramps				Westbound I-84 EB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	61	10	71	19	145	0	164	19	0	18	37	0	0	0	0	272
%HV	0.0%	4.9%	20.0%	7.0%	5.3%	5.5%	0.0%	5.5%	5.3%	0.0%	27.8%	16.2%	0.0%	0.0%	0.0%	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				

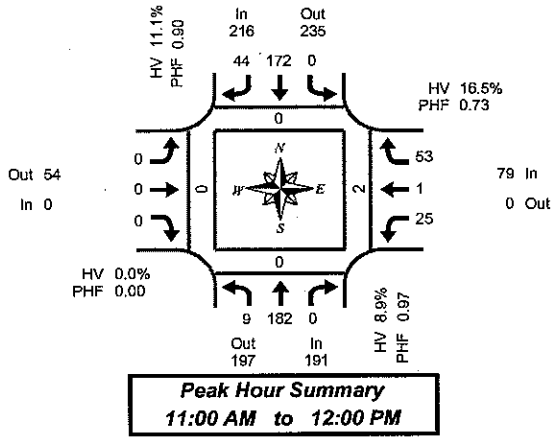
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	16	196	0	212	0	163	35	198	0	0	0	0	37	0	47	84	494
%HV	43.8%	3.6%	0.0%	6.6%	0.0%	5.5%	34.3%	10.6%	0.0%	0.0%	0.0%	0.0%	5.4%	0.0%	10.6%	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				

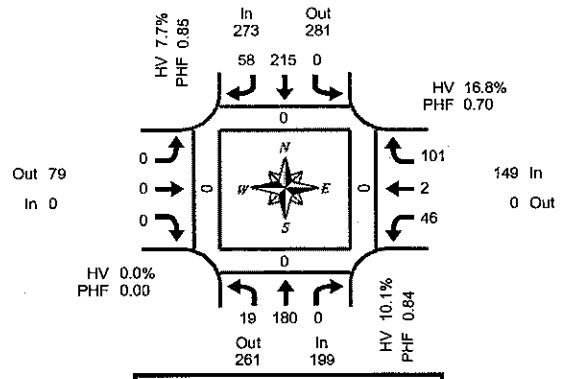
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	9	182	0	191	0	172	44	216	0	0	0	0	25	1	53	79	486
%HV	55.6%	6.6%	0.0%	8.9%	0.0%	5.8%	31.8%	11.1%	0.0%	0.0%	0.0%	0.0%	12.0%	#####	17.0%	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

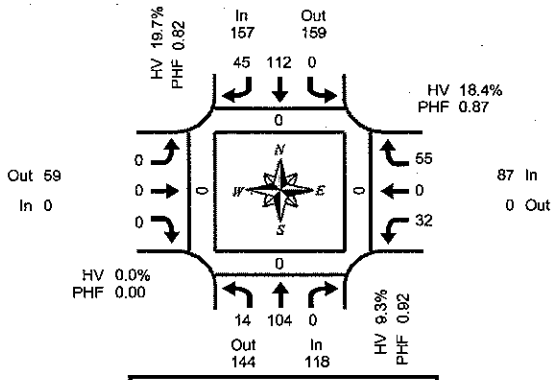
Rolling Hour Summary
12:00 PM to 2:00 PM

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				

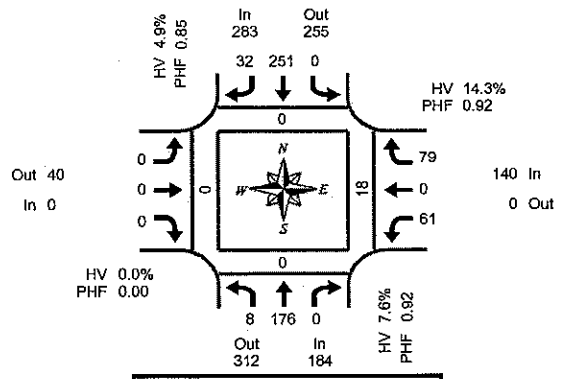
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	14	104	0	118	0	112	45	157	0	0	0	0	32	0	55	87	362
%HV	42.9%	4.8%	0.0%	9.3%	0.0%	11.6%	40.0%	19.7%	0.0%	0.0%	0.0%	0.0%	9.4%	0.0%	23.6%	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

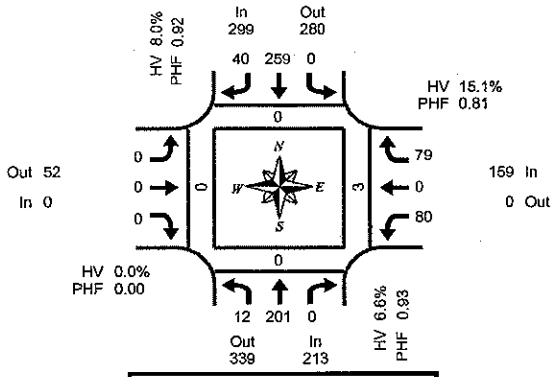
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	8	176	0	184	0	251	32	283	0	0	0	0	61	0	79	140	607
%HV	37.5%	6.3%	0.0%	7.6%	0.0%	3.6%	15.6%	4.9%	0.0%	0.0%	0.0%	0.0%	11.5%	0.0%	16.5%	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

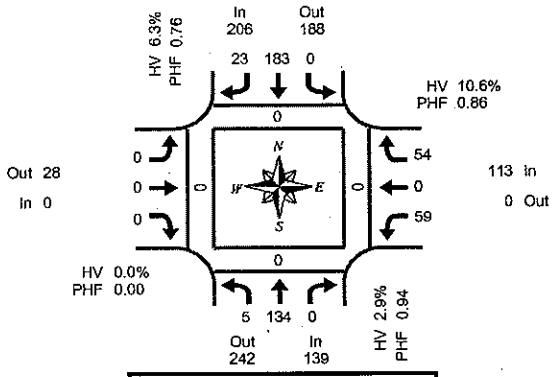
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	12	201	0	213	0	259	40	299	0	0	0	0	80	0	79	159	671
%HV	25.0%	5.5%	0.0%	6.6%	0.0%	3.1%	40.0%	8.0%	0.0%	0.0%	0.0%	0.0%	11.3%	0.0%	19.0%	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				

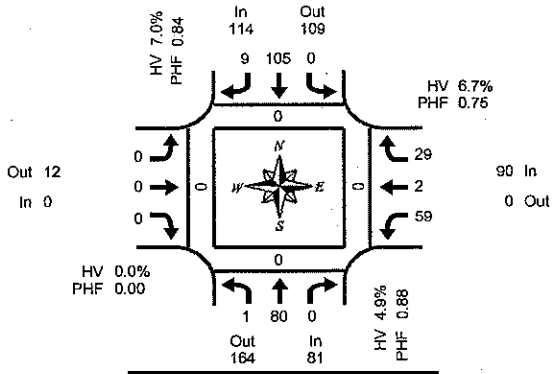
By Movement	Northbound Main St				Southbound Main St				Eastbound I-84 WB Ramps				Westbound I-84 WB Ramps				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	5	134	0	139	0	183	23	206	0	0	0	0	59	0	54	113	458
%HV	20.0%	2.2%	0.0%	2.9%	0.0%	4.4%	21.7%	6.3%	0.0%	0.0%	0.0%	0.0%	11.9%	0.0%	9.3%	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

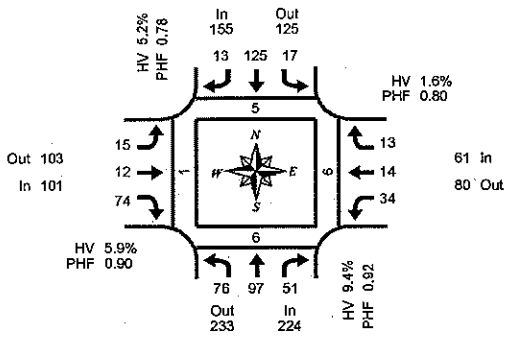
Rolling Hour Summary
8:00 PM to 10:00 PM

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				

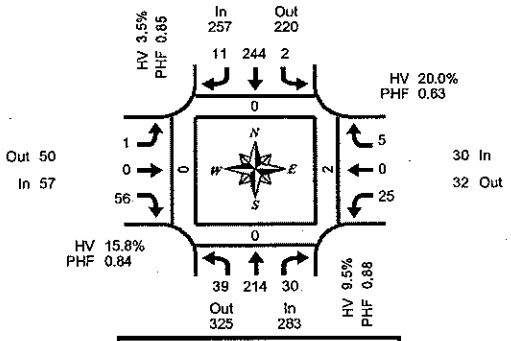
By Movement	Northbound Main St				Southbound Main St				Eastbound Boardman Ave				Westbound Boardman Ave				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	76	97	51	224	17	125	13	155	15	12	74	101	34	14	13	61	541
%HV	5.3%	9.3%	15.7%	9.4%	0.0%	3.2%	30.8%	5.2%	0.0%	8.3%	6.8%	5.9%	2.9%	0.0%	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				

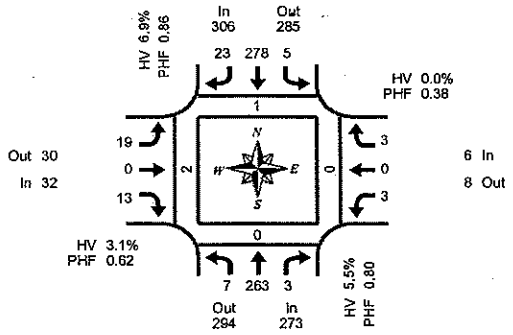
By Movement	Northbound Main St				Southbound Main St				Eastbound Front St NW				Westbound Front St NW				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	39	214	30	283	2	244	11	257	1	0	56	57	25	0	5	30	627
%HV	5.1%	9.3%	16.7%	9.5%	0.0%	3.7%	0.0%	3.5%	0.0%	0.0%	16.1%	15.8%	20.0%	0.0%	20.0%	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

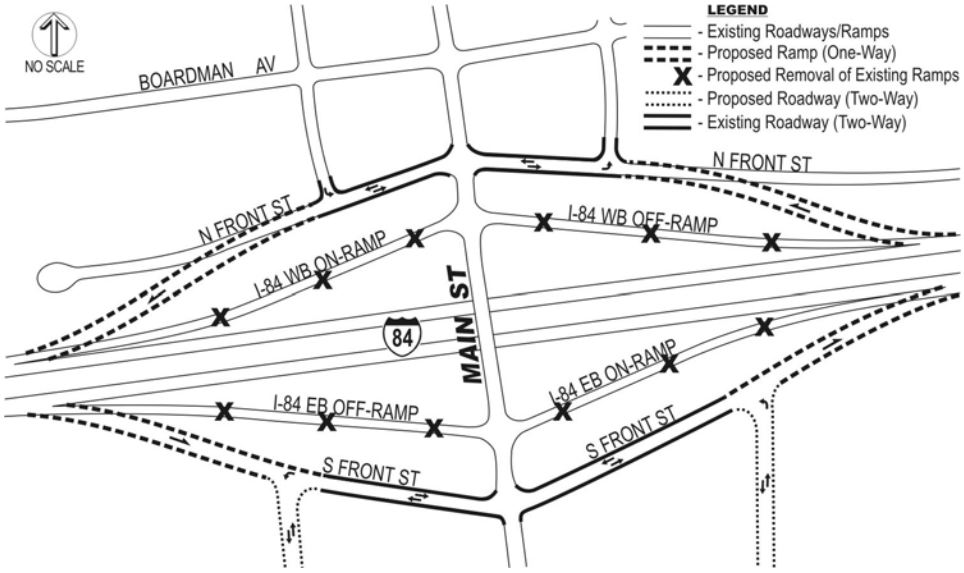
		Trip Generation			
Land Use	**Daily**	**AM In**	**AM out**	**PM In**	**PM Out**
Convenience Mart*	590	27	27	21	21
Fast Food w Drive-Thru**	848	46	45	31	28
Free Standing Discount Store***	728	7	3	33	33
East N Front - Subtotal	**2,167**	**81**	**75**	**85**	**82**
Gas Station w/Mart****	951	29	29	39	39
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.

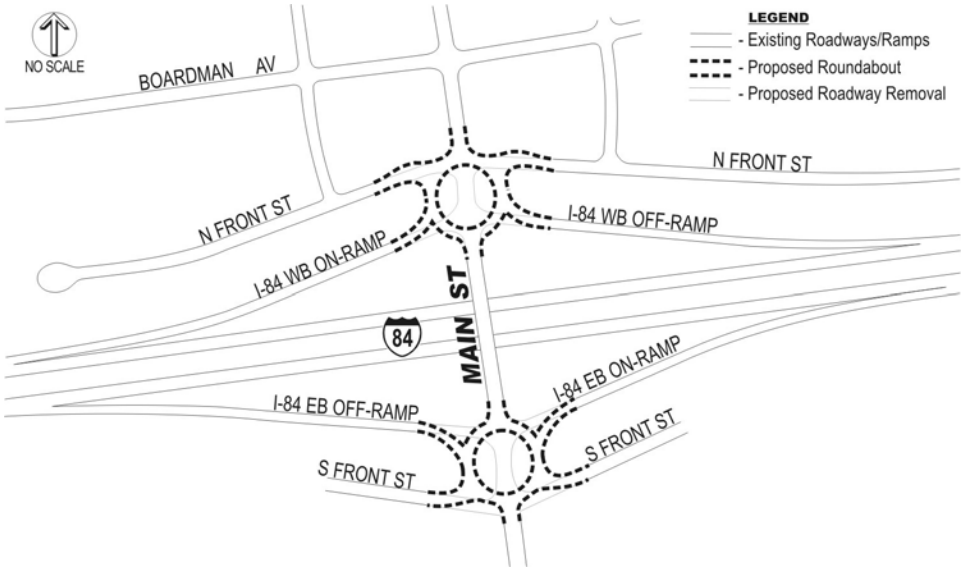
Main Street Alt. 3: Combine Ramp Terminals and Front Street by Roundabouts

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.

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
Attorney
Admitted in Oregon, Washington,
and California
jbragar@tomasilegal.com

121 SW Morrison Street, Suite 1850
Portland, Oregon 97204
Tel 503-894-9900
Fax 971-544-7236
www.tomasilegal.com

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

MEMORANDUM

To: City Council
From: Carla McLane, Planning Official
Date: July 19, 2024
RE: Support Documents for the Transit Component of the Upcoming Transportation System Plan (TSP) Update

---

The Boardman Planning Commission did hold a public hearing on July 18, 2024, to consider this action and is forwarding this proposal to the City Council with a “do adopt” recommendation. Included with this memorandum is the Planning Commission Final Findings of Fact, the request letter from Morrow County, and the three documents recommended for adoption by Resolution. Those three documents are as follows:

- Morrow County Coordinated Human Services Transportation Plan, or Plan. This document, adopted by Morrow County in 2022, supports the funding and delivery of services to senior citizens, people with disabilities, veterans, and other defined groups outlined in the Plan. As the newest document to be included in this recommendation for adoption it provides an understanding of the demographics of those being served by Morrow County transit services.
- Hermiston-Boardman Connector/Boardman-Port of Morrow Circular. This services plan, adopted by Morrow County in 2021, captures what was envisioned as future transit routes and delivery modes for Morrow and Umatilla County’s. While this services plan is only three years old and is still a good representation of the intended goals of Morrow County transit there are several factors that have led to changes in how routes are being implemented. It is, however, a valuable input to understand the how’s and why’s of transit for the City of Boardman.
- Morrow County/Umatilla County Transit Development Strategies. This strategy document, adopted by Morrow County in 2018, was developed by the Oregon Department of Transportation, Morrow County, Umatilla County, and the Confederated Tribes of the Umatilla Reservation. The intent at the time of development was to understand the myriad transportation issues in what was coined the Umatilla/Morrow travel shed. It was intended to take the work accomplished in the 2016 Coordinated Human Services Transportation Plans for the two counties and look at work and other travel in the region on a broader scale.

It is the intent of this action to adopt these three documents as guidance for the pending TSP update. The formal action on the agenda is through Resolution 18-2024.

Please reach out if you have any questions.

FINAL FINDINGS OF FACT
PLANNING COMMISSION
AMENDMENT LND24-000004

REQUEST: To adopt The Morrow County Coordinated Human Services Transportation Plan August 2022, the Hermiston – Boardman Connector/Boardman – Port of Morrow Circular June 2021, and the Morrow County/Umatilla County Transit Development Strategy 2018 all as input or guidance documents to support the pending update of the Boardman Transportation System Plan (TSP) with a specific focus on the transit elements of that update.

APPLICANT: City of Boardman
Planning Official
Post Office Box 229
200 City Center Circle
Boardman, Oregon 97818

I. GENERAL INFORMATION: The current Boardman TSP is all but silent on the need for transit services in and around the City of Boardman. In 2001 when the current Boardman TSP was adopted the Morrow County program now known as the LOOP only provided door-to-door service for the elderly and disabled. That program has seen significant growth over the past 20 years and is now implementing fixed route services throughout Morrow County. As part of the Boardman TSP update we want to allow for this type of service to be delivered in and around Boardman but also want to develop well thought out standards for how the needed routes and infrastructure will be designed, installed, and maintained.

The Boardman TSP Update has been funded through a Transportation and Growth Management grant, which is a program of both the Oregon Department of Transportation and the Department of Land Conservation and Development. It is anticipated that the city will receive a Notice to Proceed within the next month and should be kicking off the update project by late summer.

II. PROCEDURE: This adoption of identified TSP update inputs relative to the delivery of transit services is being processed using Type IV procedures found within the Boardman Development Code. The Type IV process requires a hearing before the Planning Commission with a recommendation to the City Council. The final hearing will occur before the City Council.

III. APPROVAL CRITERIA: The request has been filed under the BDC Chapter 4.1 Types of Applications and Review Procedures, more specifically 4.1.600 Type VI Procedures (Legislative). The criteria are identified below in **bold** type with responses in regular type.

G. Decision-Making Considerations. The recommendation by the Planning Commission and the decision by the City Council shall be based on consideration of the following factors:

1. Approval of the request is consistent with the Statewide Planning Goals.

The Statewide Planning Goals applicable to this request are Goal 1, Citizen Involvement; Goal 2, Coordination; and Goal 12, Transportation.

Goal 1 requires the City to "develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process." Because the proposed legislative amendment will be heard by both the Planning Commission and the City Council, there will be at least two opportunities for public comment to the proposed change. This is consistent with the City's acknowledged citizen involvement program. (Goal 1, Policy 4: The Planning Commission is officially designated as the Citizen Involvement Committee.)

Goal 2 requires the City to adopt a comprehensive plan and implement the plan through its development code and by extension other planning level documents. The proposed adoption of support or guidance documents is consistent with and will support the comprehensive plan, particularly Goal 12, as described in these findings. (Goal 2, Policy 3: The City has adopted the City of Broadman 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.)

Goal 12 requires the City to plan for transportation facilities and is implemented through the City's Transportation System Plan. The proposed adoption of the three documents for support and guidance to the Boardman TSP update will assist in understanding current and future transit needs and options within the greater Boardman area resulting in a better TSP. There is not a specific Policy in the current version of Goal 12 that can be cited here further exemplifying the need for an update to the Boardman TSP.

For these reasons, the criterion is met.

2. Approval of the request is consistent with the Comprehensive Plan.

The Boardman Comprehensive Plan (BCP) has a variety of policies that support the proposed amendment and the process used to achieve it. Goal 1 policies support citizen involvement and the public hearing process. Goal 1, Policy 4, designates the Planning Commission as the City's official Citizen Involvement Committee. Therefore, review by the Planning Commission ensures compliance with the comprehensive plan.

While none of the Goal 2 Policies are specifically applicable to this action, staff assert that the land use planning process required through Goal 2 is supported with the update of the Boardman TSP and that the adoption of these guidance documents further supports that action. The desired end result is a Boardman TSP that addresses transit needs for the residents of the City of Boardman and this is a good start.

Goal 12, Policy 1, designates the Transportation System Plan (TSP) as part of the comprehensive plan, and the pending update of the Boardman TSP to include transit activities will benefit the residents and workers within and adjacent to the City of Boardman. Thus, because the amendment advances transit opportunities, it is consistent with Goal 12, Policy 1.

For these reasons, the criterion is met.

3. **The property and affected area is presently provided with adequate public facilities, services and transportation networks to support the use, or such facilities, services and transportation networks are planned to be provided concurrently with the development of the property.**

No specific property is affected by the proposed amendment. The intent is to adopt three reference or guidance documents to support the update to the Boardman TSP with a focus on transit considerations for the community and employers within the greater Boardman area.

For these reasons, the criterion is met.

IV. LEGAL NOTICE PUBLISHED: June 25, 2024
East Oregonian

V. DLCD 35-DAY NOTICE: April 5, 2024

VI. AGENCIES NOTIFIED: Dawn Hert, Department of Land Conservation and Development; Teresa Penninger and Cheryl Jarvis-Smith, Oregon Department of Transportation

VII. HEARING DATES:

Planning Commission
July 18, 2024
Council Chambers
Boardman City Hall
200 City Center Circle
Boardman, Oregon 97818

City Council
August 6, 2024
Council Chambers
Boardman City Hall
200 City Center Circle
Boardman, Oregon 97818

VIII. PLANNING OFFICIAL RECOMMENDATION: The Planning Official recommends the Planning Commission forward the request to the City Council with a 'do adopt' recommendation.

18-JUL-2024

Zack Barresse, Chair — Date
Planning Commission

ATTACHMENTS:

- April 2, 2024, Letter from Matthew Jensen, Morrow County Administrator
- Morrow County Coordinated Human Services Transportation Plan August 2022
- Hermiston – Boardman Connector/Boardman – Port of Morrow Circular June 2021
- Morrow County/Umatilla County Transit Development Strategy 2018

P.O. Box 788 • 110 N. Court St.
Heppner, OR 97836
(541) 676-2529

Matthew Jensen
County Administrator

April 2, 2024

Mayor Keefer and Mr. Hammond
City of Boardman
200 City Center Circle
Boardman, OR 97818

Dear Mayor Keefer and Mr. Hammond:

I am writing to you on behalf of The Loop Morrow County Public Transit to formally request that the City of Boardman and the City of Boardman Planning Commissioners to consider adopting the transit plans currently approved and implemented by the Oregon Department of Transportation (ODOT), Morrow County, and Morrow County Public Transit, in collaboration with neighboring agencies, the Port of Morrow, and surrounding communities, as the foundational framework for their own Transit Plan.

The plans developed by ODOT, Morrow County, and Morrow County Public Transit, in conjunction with key stakeholders, reflect comprehensive research, analysis, and community input aimed at addressing the transportation needs and challenges within our region. By aligning with these established plans, the City of Boardman can leverage existing resources, maximize efficiency, and ensure seamless coordination with neighboring jurisdictions.

Furthermore, adopting these plans will not only facilitate integration and interoperability across transit systems but also foster greater connectivity, accessibility, and sustainability within our community. It is imperative that the City of Boardman takes proactive steps to synchronize its transit initiatives with broader regional strategies to achieve cohesive and impactful outcomes for our residents.

We firmly believe that by embracing the recommendations and strategies outlined in the ODOT, Morrow County, and Morrow County Public Transit plans, the City of Boardman can enhance mobility options, promote economic development, and improve the overall quality of life for its residents.

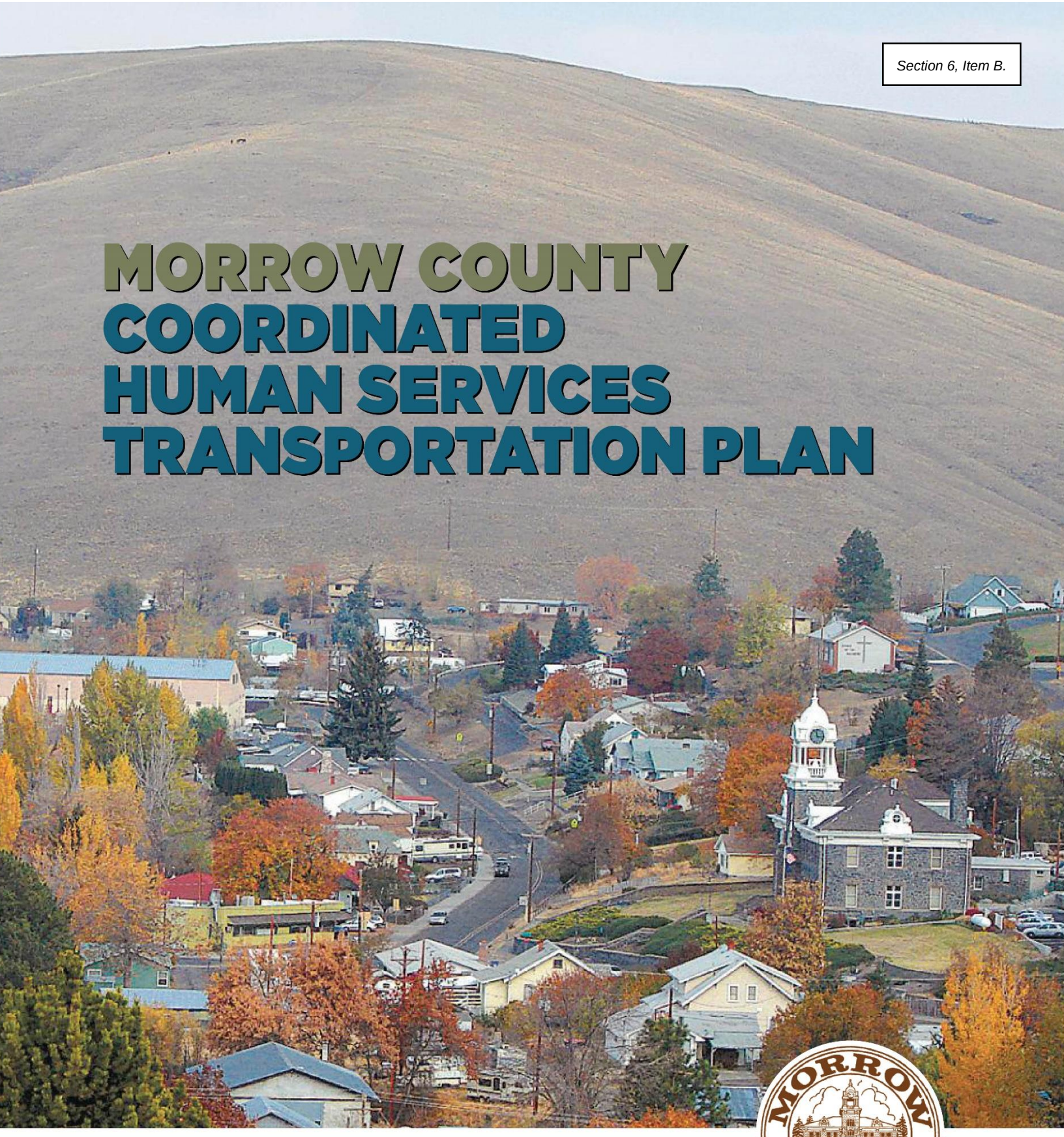
I respectfully request that the City of Boardman and the City of Boardman Planning Commissioners prioritize the adoption of these plans and incorporate them into the City's Transit Plan without delay.

Thank you for considering our request and giving the County the opportunity to collaborate with you on this critical endeavor.

Sincerely,

Matthew Jensen
County Administrator

MORROW COUNTY COORDINATED HUMAN SERVICES TRANSPORTATION PLAN



MORROW COUNTY

August 2022

ACKNOWLEDGEMENTS

Morrow County appreciates the input, energy, and commitment of local and regional stakeholders who participated in this plan update. The following organizations and individuals made significant contributions toward this effort:

Morrow County Public Transit Advisory Committee (PTAC)

Aaron Palmquist – Chair, Irrigon/Low Income
Debbie Radie – Vice Chair, Port of Morrow Employers/Employees
Karen Pettigrew, Boardman/Low Income
Sheryll Bates, Heppner/Seniors
Debra Khaljani
Katie Imes, County Staff/Transportation Coordinator
Stephanie Case, County Staff/Local Planner
George Nairns

Morrow County Public Transit Project Management Team

Katie Imes, Transportation Coordinator
Stephanie Case, County Planner II
Tamra Mabbott, County Planning Director

Morrow County The Loop Stakeholder Workshop Participants

Aaron Palmquist, City of Irrigon
Angie Jones, Grant County People Mover
Ann Morter, BMCC Training Center
Carla McClane, City of Boardman
Debbie Radie, Boardman Foods
Emily Roberts, Morrow County Health District
Heidi Turrell, Morrow County The Loop
Jon Asher, Wheeler County
Kate Neuberger, GOBHI
Kraig Cutsforth, City of Heppner
Kris Boler, GOBHI
Megan Davchevski, Umatilla County
Patience Searle, Oregon Employment Department
Rick Stokoe, City of Boardman
Roberta Carver-Carson, Kayak Public Transit
Sanjuanita Olivas, Columbia River Health
Steve Abernathy, Greyhound Lines
Susan Johnson, Kayak Public Transit

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ACRONYMS

ACS - American Community Survey
CTP – Coordinated Human Services Public Transportation Plan/Coordinated Transportation Plan
CTUIR - Confederated Tribes of Umatilla Indian Reservation
DLCD - Department of Land Conservation and Development
FTA – Federal Transit Administration
IAMP - Interchange Area Master Plan
HRTG – Highly Rural Transportation Grant
ICU - Intensive Care Unit
LEP - Low English Proficiency
MCPT - Morrow County Public Transit
PMT - Project Management Team
PTAC - Public Transit Advisory Committee
ODOT – Oregon Department of Transportation
RVHT - Rural Veteran Healthcare Transportation Grant
STF – Special Transportation Fund
STIF - Statewide Transportation Improvement Fund
TSP - Transportation System Plan
WORC - Workforce On-Demand Ride Cooperative

INTRODUCTION

INTRODUCTION

Morrow County is undertaking an update to its Coordinated Human Services Public Transportation Plan (the Coordinated Transportation Plan, or CTP) to address a combination of regulatory and community goals.

The Federal Transit Administration's (FTA's) Section 5310 program and Oregon's Special Transportation Fund (STF) both fund projects and services that enhance the mobility of seniors and persons with disabilities. To be eligible for funding, projects and services are required to be "included in a locally developed, coordinated public transit human services transportation plan." While §5310 funds are directed solely toward services open to the general public, STF funds can also be used for client-only services and programs enhancing the mobility of low-income individuals. As the recipient of Morrow County's STF funds, Morrow County Public Transit (MCPT) implements projects and services funded by §5310.

The STF is being merged into Oregon's Statewide Transportation Improvement Fund (STIF) effective July 2023. Administrative rulemaking related to this merger will not be finalized until late 2022. However, if ODOT's initial recommendations are implemented, client-only projects and services will need to be included in the CTP to be eligible to receive STIF funding. As the designated STIF Qualified Entity, Morrow County has the ability to distribute federal and state funds to itself and to eligible subrecipients to support the mobility of seniors and persons with disabilities. An update to Morrow County's CTP should capture existing STIF plan projects and inform future STIF planning.

The intent of the CTP is to be a "living" document identifying needs and investment priorities. Transit providers and partners in Morrow County will use the plan to allocate funding and develop and enhance transit services. Since the plan must be updated every five years, it has been written in a way that can incorporate ongoing updates and revisions.

Coordinated Transportation Plan Requirements

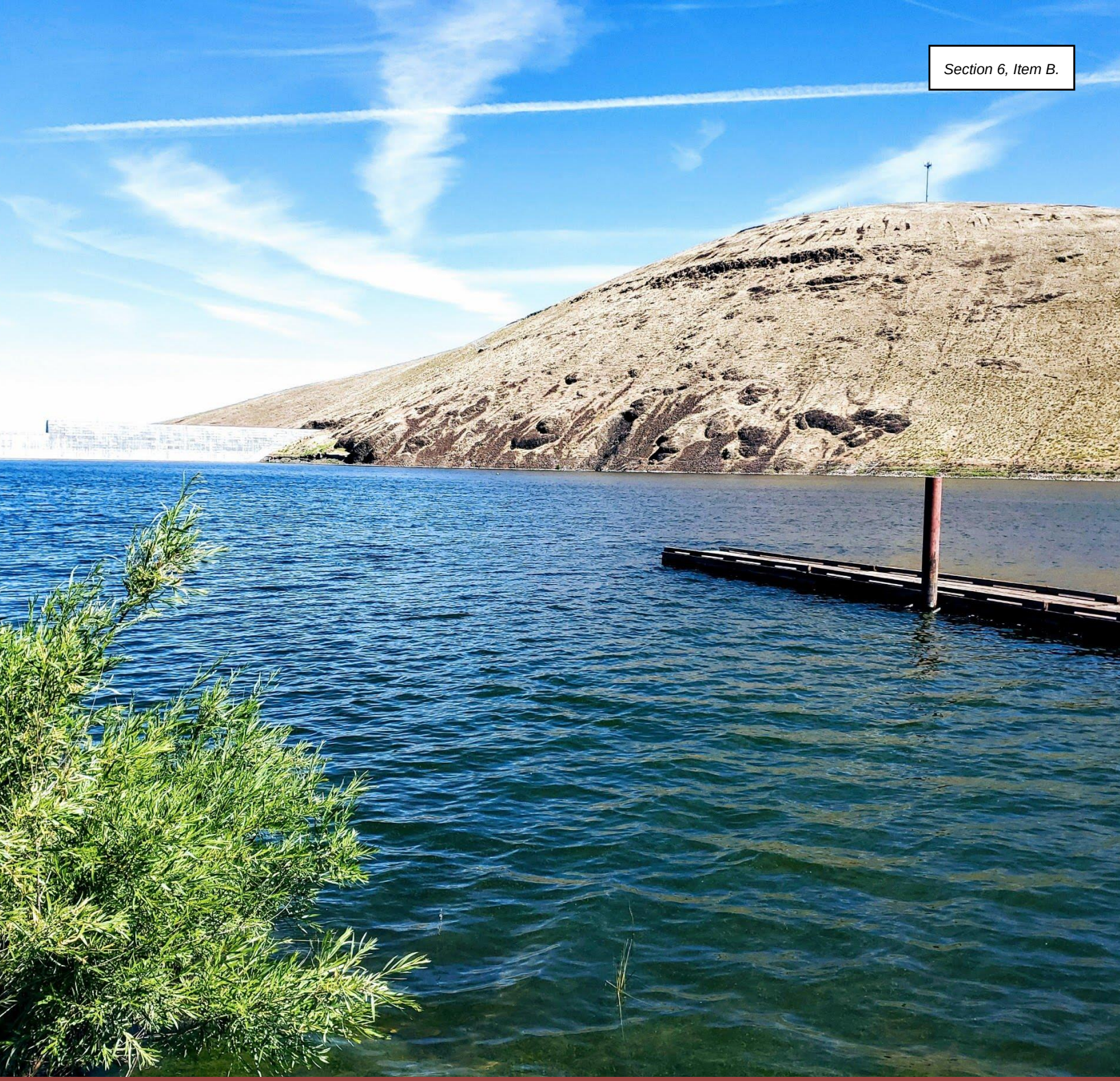
ODOT provides the following requirements for Coordinated Transportation Plans:

- (1) An assessment of available services that identifies current transportation providers (public, private, and non-profit);
- (2) An assessment of transportation needs for individuals with disabilities, older adults, and people with low incomes. This assessment can be based on the experiences and perceptions of the planning partners or on more sophisticated data collection efforts, and gaps in service (Note: If a community does not intend to seek funding for a particular program (Section 5310, 5311),then the community is not required to include an assessment of the targeted population in its coordinated plan);
- (3) Strategies, activities, and/or projects to address the identified gaps between current services and needs, as well as opportunities to achieve efficiencies in service delivery; and
- (4) Priorities for implementation based on resources (from multiple program sources), time, and feasibility for implementing specific strategies and/or activities identified.

Assessing Need and Identifying Proposed Service and Capital Improvements

Reflecting legislative priorities identified in the Keep Oregon Moving act, the CTP addresses the transportation needs of people residing and traveling within the region, especially those residents in low-income communities. Key project and program provisions of the CTP include the following STIF Criteria:

- Increased frequency of bus service to areas with a high percentage of Low-Income Households.
- Expansion of bus routes and bus services to serve areas with a high percentage of Low-Income Households.
- Fund the implementation of programs to reduce fares for public transportation in communities with a high percentage of Low-Income Households.
- Procurement of low or no emission buses.
- The improvement in the frequency and reliability of service between communities inside and outside of the Qualified Entity's service area.
- Coordination between Public Transportation Service Providers to reduce fragmentation in the provision of transportation services.
- Implementation of programs to provide student transit service for students in grades 9-12.



DEMOGRAPHICS

DEMOGRAPHICS

Understanding specific demographic distributions and needs is vital to evaluating the quality of a transit system. This section discusses the composition of Morrow County and its communities, and the considerations for needs for different transit dependent populations. It should be noted that census block groups in Morrow County are large, and dilute the density of populations. As such, maps provide the total population within each transit dependent population group in addition to density.

Transit riders are typically generalized into two categories:

- **Choice riders** have adequate resources and abilities to own, operate, and maintain a vehicle but choose to use transit. Choice riders are more likely to use public transportation for commuting or when transit offers an advantage over driving (i.e., roads are congested, convenience, high parking fees, passenger amenities, etc.)
- **Captive riders,** also referred to as transit dependent riders, use public transportation because they lack access or resources to own or operate a vehicle. These riders use public transportation for most of their trips, including to get to work, medical appointments, shops, and social activities.

Choice riders can be located anywhere in a community, with the strongest market areas typically being areas with high population or employment density. Market areas for captive riders, however, is more complex, as an understanding of population distributions and considerations for special concerns is needed. For example, older adults tend to travel during the daytime and require shorter walks to/from a bus stop. The following outlines seven demographic groups typically associated with higher use of transit:

- **People Experiencing Poverty** – individuals who live within a set of income thresholds established by the US Census Bureau, which vary by family size and composition. Low-income households tend to rely on public transportation as it is less expensive than owning and operating a vehicle.
- **People with Disabilities –** people with a disability often have difficulty operating a vehicle and require access to public transportation.
- **Youth** – individuals under 18 years old have limited access or ability to drive a vehicle.
- **Elderly Adults** – individuals aged 65 and older may become less comfortable driving as they age or are no longer physically able to drive.
- **People of a Racial Minority** – often live in neighborhoods that have suffered systemic disinvestment and other barriers to transportation.
- **Zero Vehicle Households** – persons residing in households without access to a vehicle typically rely on walking, biking, public transportation, or carpooling to meet their mobility needs.
- **Low English Proficiency Households –** low English proficiency (LEP) can be a barrier for interacting with the transportation system, particularly in terms of owning and operating a vehicle. Typically, households with low English proficiency rely on other modes to meet their mobility needs.

- **Veterans** - have devoted years of their lives into their respective field of expertise, with many impacted by limited mobility and high medical needs.

Title VI of the Civil Rights Act of 1964 prohibits discrimination in the provision of federally supported benefits and services, including public transportation service. In addition to Title VI populations, this analysis presents information about the study area population's transit reliant populations, including poverty status, age, racial/ethnic composition, and English proficiency, and proportion of people with disabilities.

Table 1 breaks down these metrics for Morrow County and its communities. This analysis provides information regarding populations who are typically more reliant on transit or have been historically underrepresented in planning processes. Values higher than the state average are in **bold**. As shown, cities throughout Morrow County have high percentages of people below the poverty line, people with a disability, youth, older adults, zero vehicle households, households with low English proficiency, and veterans.

Table 1. Title VI and Underrepresented Populations

	2020 Census Population	Total Population (ACS)	Total Households (ACS)	Below 100% Poverty	Below 200% Poverty	People with Disability	Youth (Under 18)	Older Adults (65 and older)	Racial/Ethnic Minority	Zero Vehicle Households	Households with LEP	Veteran
Oregon	4,246,155	4,096,744	1,642,579	12.4%	29.3%	14.3%	20.7%	17.7%	25.0%	7.2%	2.4%	8.3%
Morrow County	12,303	11,384	4,093	**15.1%**	**42.5%**	**17.3%**	**27.5%**	**22.4%**	**41.3%**	2.0%	**6.7%**	**10.6%**
Boardman	NA	3,527	1,086	**20.6%**	**51.3%**	11.1%	**33.7%**	12.5%	**74.7%**	2.5%	**20.3%**	4.2%
Heppner	NA	1,264	556	10.9%	**39.9%**	**27.9%**	**25.9%**	**29.5%**	12.3%	2.0%	0.0%	**12.1%**
Ione	NA	410	178	**16.6%**	29.3%	**32.7%**	19.5%	**32.9%**	24.6%	0.0%	**10.1%**	**12.1%**
Irrigon	NA	1,896	668	**16.2%**	**44.6%**	**16.4%**	**25.9%**	16.6%	**51.3%**	0.7%	**4.5%**	**11.2%**
Lexington	NA	160	85	8.8%	**51.3%**	**44.4%**	**21.9%**	**40.0%**	12.5%	**15.3%**	0.0%	**20.0%**

Source: 2020 Census and American Community Survey 2016-2020 5-Year Estimates; Tables S1602, S1701, S1810, B25044. NA = Not Available.

People Experiencing Poverty

Low-income populations are individuals that live within a set of income thresholds established by the US Census Bureau, which vary by family size and composition. Historically, people experiencing poverty may rely on active and public transportation more than the general population; therefore, recognition of this group's concentration centers is needed to determine transportation needs. Figure 1 and Figure 2 illustrate areas with high percentages of people living below the poverty level. Densities of individuals residing below 100% poverty exist in the following areas:

- Northern part of Irrigon and the surrounding areas
- Most parts of Boardman with a higher concentration south of I-84 and north of Wilson Lane

Densities of individuals residing below 200% poverty exist in the following areas:

- Throughout Irrigon
- Parts of Boardman south of I-84 and north of Wilson Lane

The federal poverty level is defined by household size. The 2022 federal poverty level for a family of 4 is $27,750 of income. 200% of federal poverty level for a family of 4 would be $55,500. The state of Oregon uses 200% poverty level for Statewide Transportation Improvement Fund criteria.

People with Disabilities

People with a disability often have difficulty operating a vehicle and require access to public transportation. Figure 3 illustrates areas with high percentages of households with disabilities. Densities of people with disabilities exist in the following areas:

- All of Irrigon, but mostly concentrated in the northern part and surrounding areas
- Most parts of Boardman, with a higher concentration south of I-84
- Western half of Ione
- Western portion of Heppner

Youth & Seniors

Analyzing an area's age composition helps decision-makers understand the potential need for increased transit options. As people age, they typically begin to drive less and require alternative modes of transportation for medical appointments, shopping, and visiting family and friends. Children are unable to operate a vehicle and must rely on family, friends, walking, biking, or public transportation to travel. Figure 4 and Figure 5 illustrate areas with concentrations of youth and older adults, respectively. As illustrated in both the figures, densities of youth and older adults existing in the following areas:

- All of Irrigon, but mostly concentrated in the northern part and surrounding areas
- Most parts of Boardman, with a higher concentration south of I-84 and north of Wilson Lane

People of a Racial Minority

People of a racial minority, defined by the US Census Bureau as non-white and/or Hispanic populations, typically live in neighborhoods that have suffered systemic disinvestment and other barriers to transportation. Understanding where people of color live is a step towards equitably implementing transit service that serves their needs. Figure 6 illustrates areas with high percentages of people of a racial minority. Densities of racial minorities existing in the following areas:

- All of Irrigon, but mostly concentrated in the northern part and surrounding areas
- All of Boardman, with a higher concentration south of I-84 and north of Wilson Lane
- Most of Ione
- Western portion of Heppner

Zero Vehicle Households

Vehicle availability may limit a person's ability to commute to work or get to an activity center. Depending on the number of people living in each household, a certain number of vehicles may not be able to provide everyone with a means of transportation. Figure 7 illustrates areas with concentrations of households with no vehicles available. Densities of zero car households existing in the following areas:

- Northern part of Irrigon and the surrounding areas
- Most parts of Boardman with a higher concentration north of I-84
- Eastern part of Ione
- Southeastern portion of Heppner

Low English Proficiency Households

Low English proficiency can be a barrier for interacting with the transportation system, particularly in terms of owning and operating a vehicle. Typically, households with low English proficiency rely on other modes to meet their mobility needs. Figure 8 illustrates areas with high percentages of households with low English proficiency. Densities of households with low English proficiency exist in the following areas:

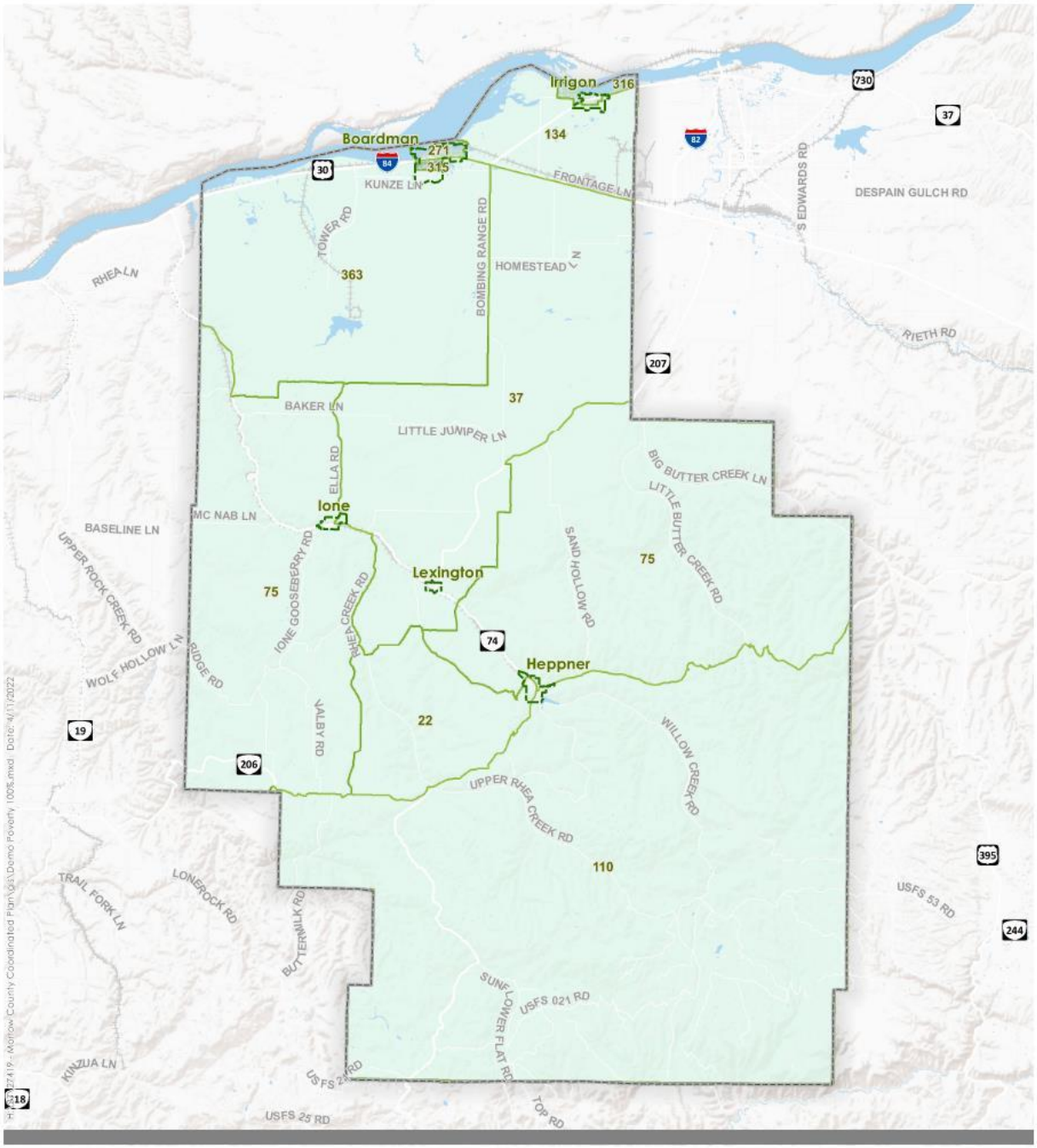
- Northern part Irrigon and the surrounding areas
- All of Boardman, with a higher concentration south of I-84 and north of Wilson Lane
- Most of Ione
- Portion of the northern Heppner

Veterans

Veterans typically have an increased need for transit options given mobility impairments and higher medical travel needs. Figure 9 illustrates areas with high percentages of veterans. Densities of households with veterans exist in the following areas:

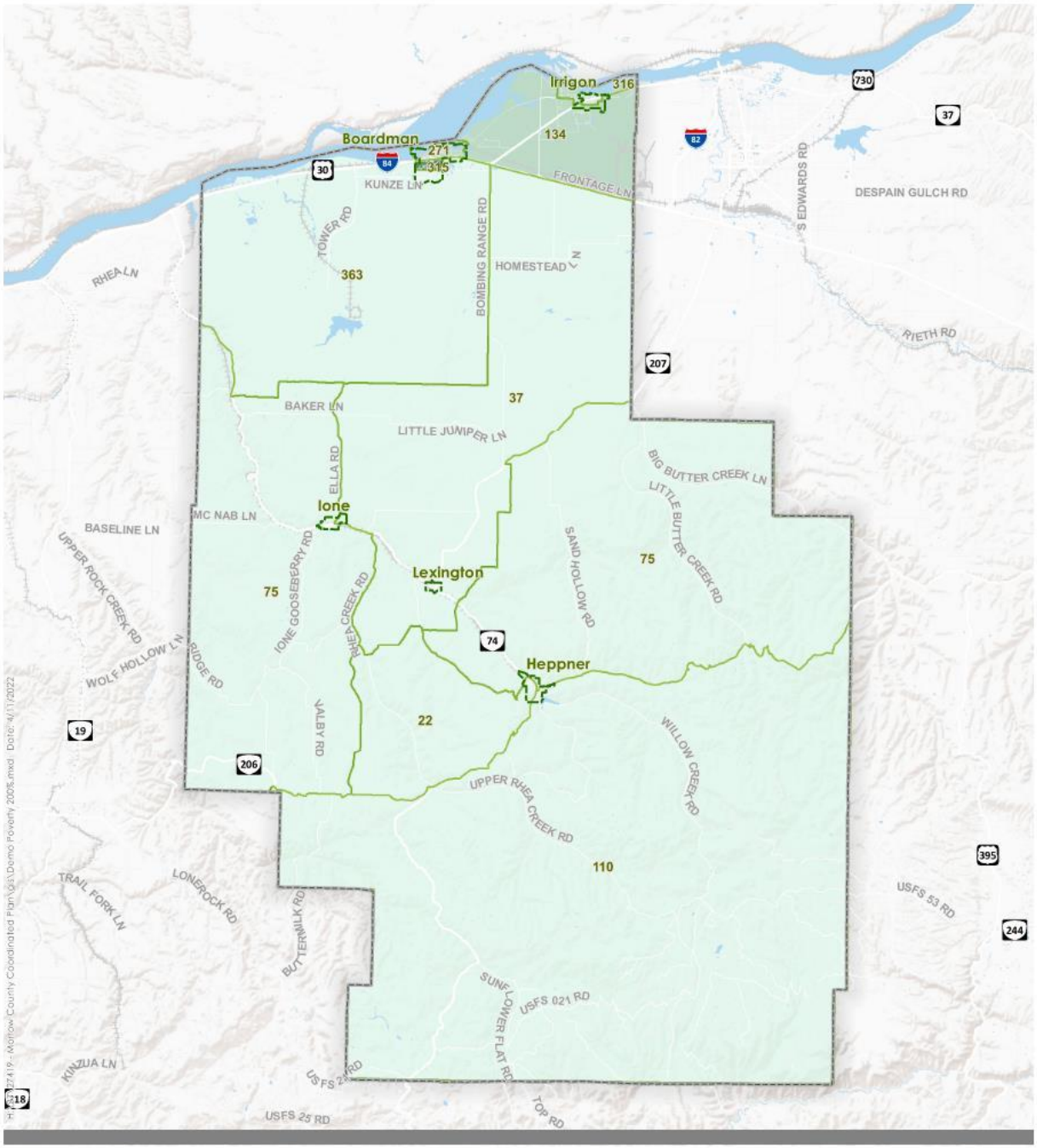
- All of Irrigon, but mostly concentrated in the northern part and surrounding areas
- All of Boardman, with a higher concentration south of I-84 and north of Wilson Lane
- Western portion of Heppner

Figure 1. People Below 100% Poverty



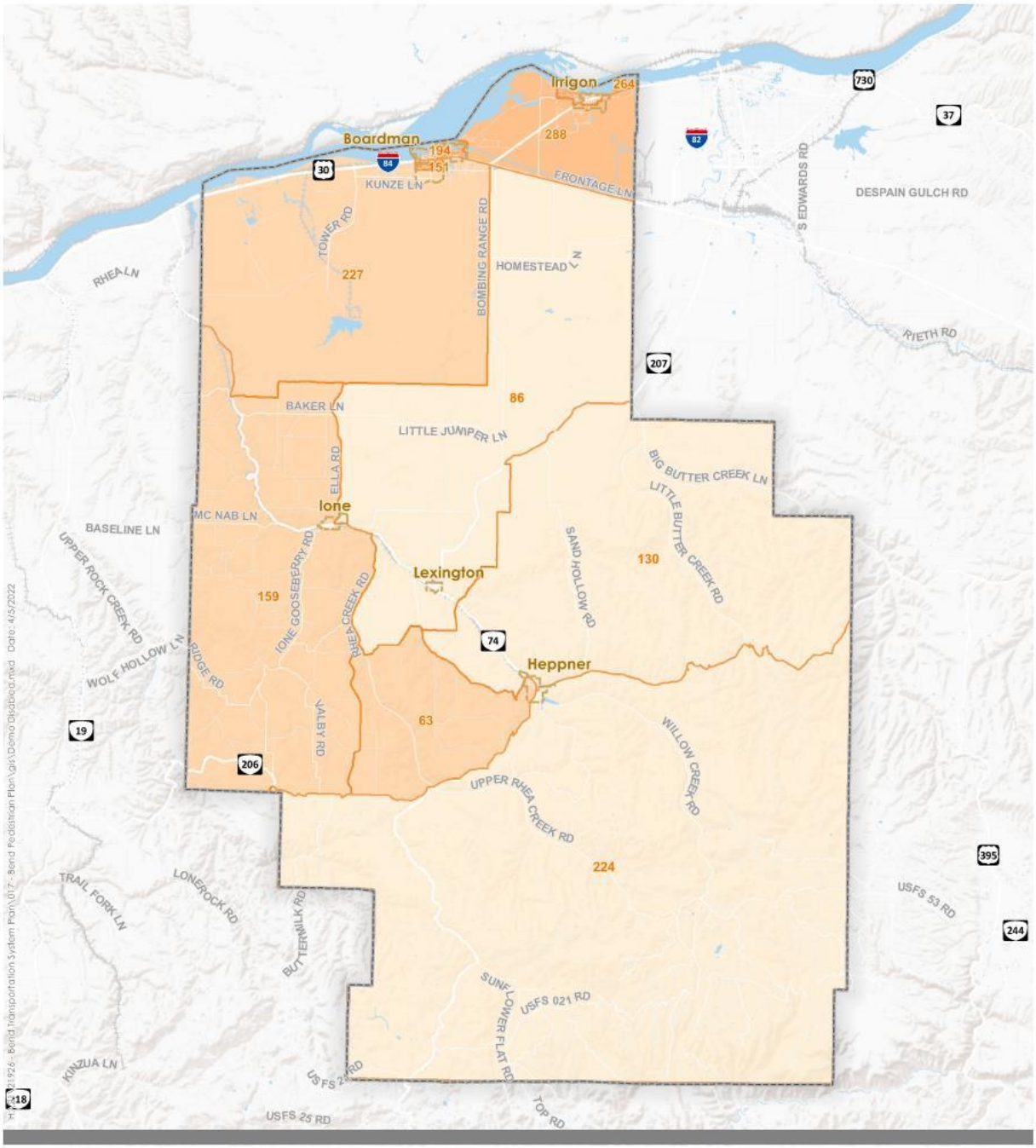
Source: American Community Survey 5yr 2020 Table C21007

Figure 2. People Below 200% Poverty



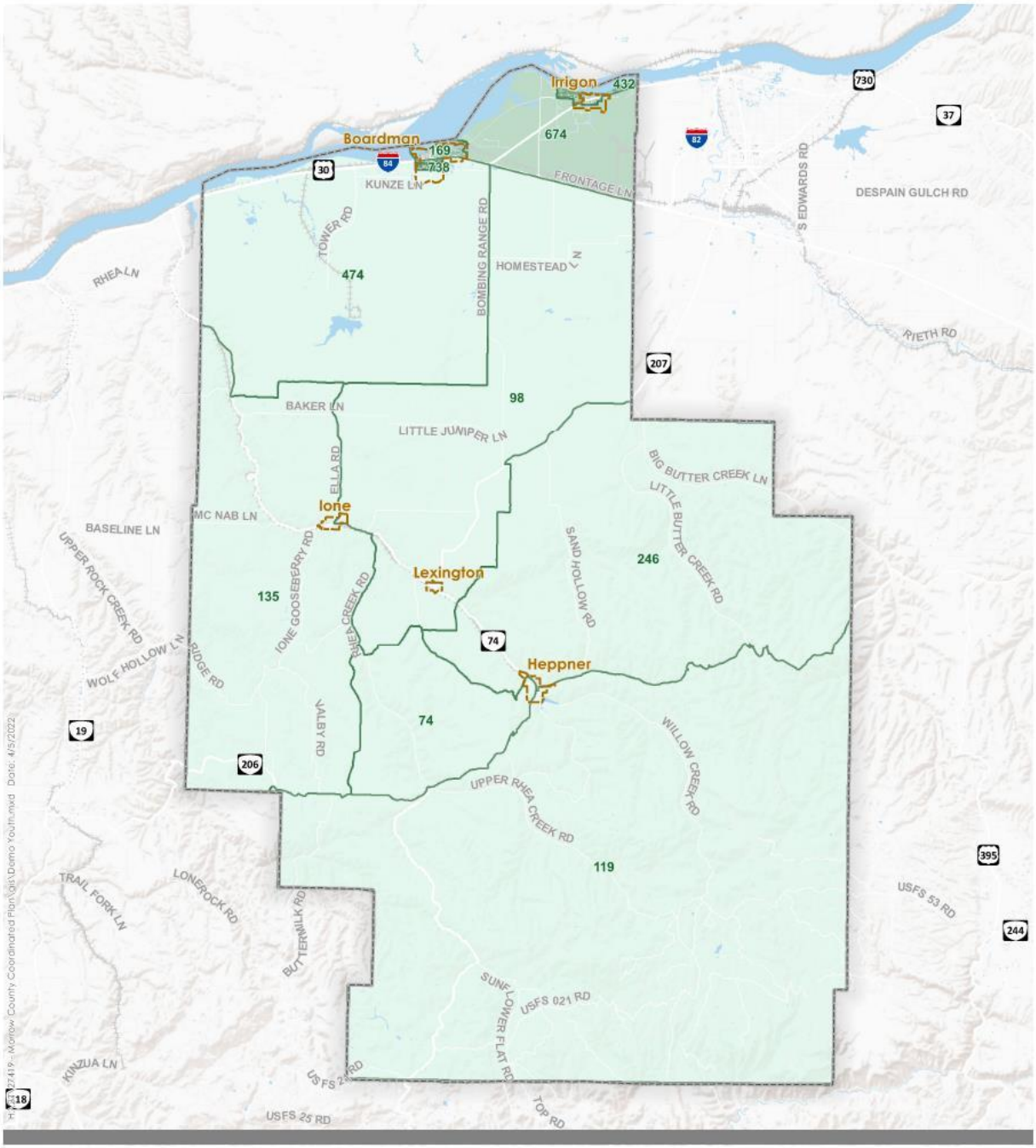
Source: American Community Survey 5yr 2020 Table C21007

Figure 3. People with Disabilities



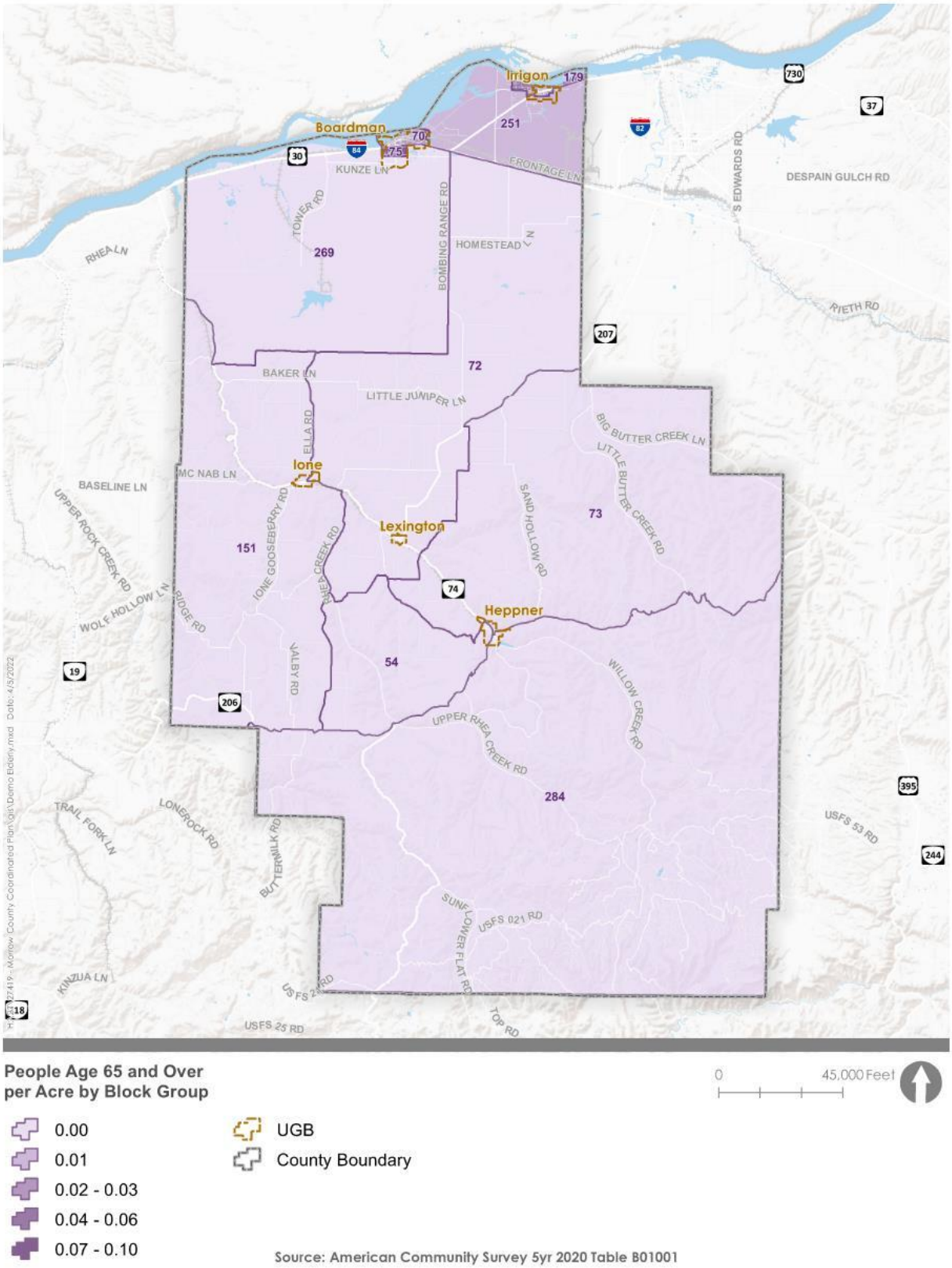
Source: American Community Survey 5yr 2020 Table C21007

Figure 4. Youth Population



Source: American Community Survey 5yr 2020 Table B01001

Figure 5. Senior (Age 65 and Over) Population



Source: American Community Survey 5yr 2020 Table B01001

Figure 6. People of a Racial Minority

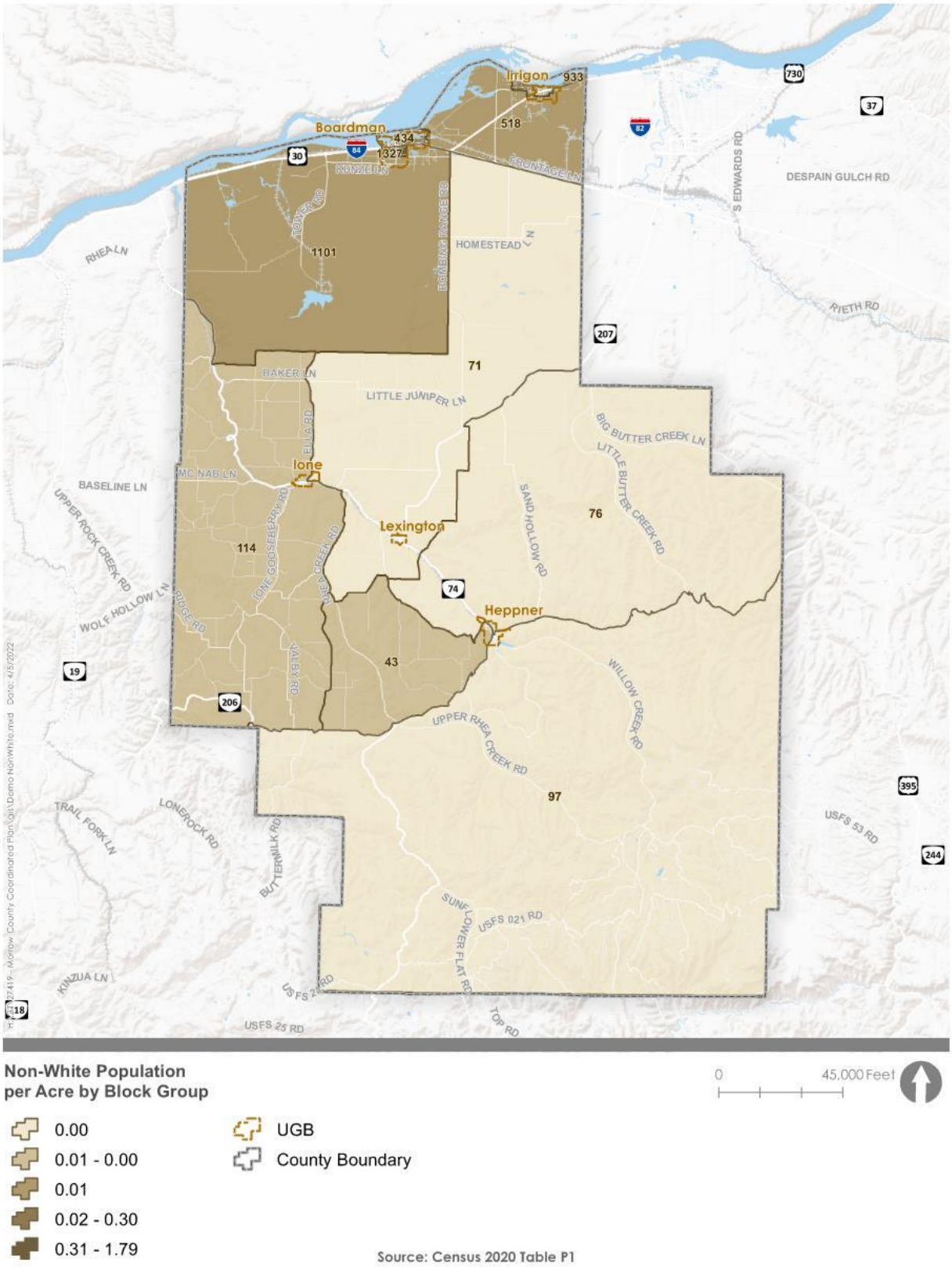


Figure 7. Zero Vehicle Households

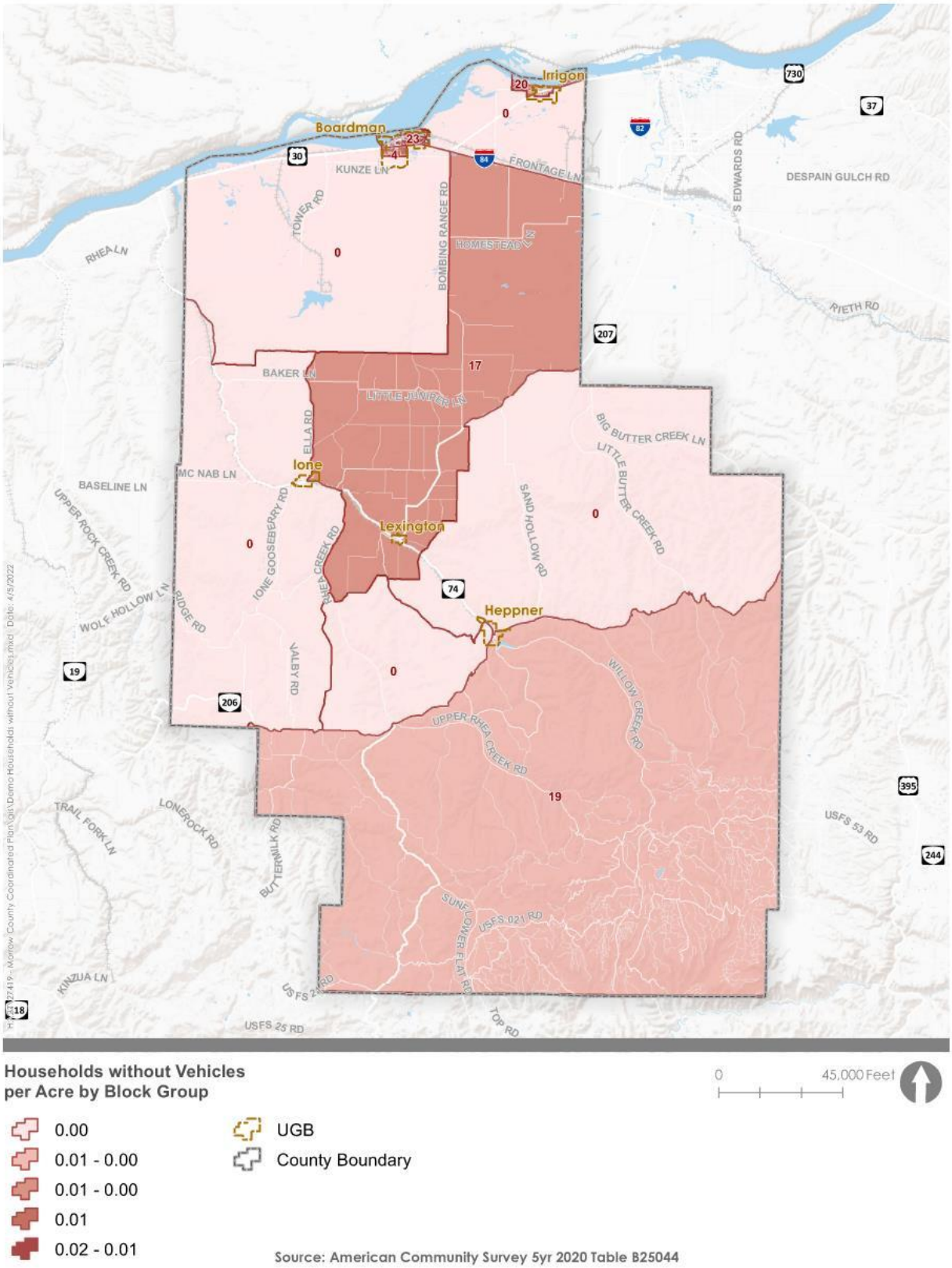


Figure 8. Low English Proficiency (LEP) Households

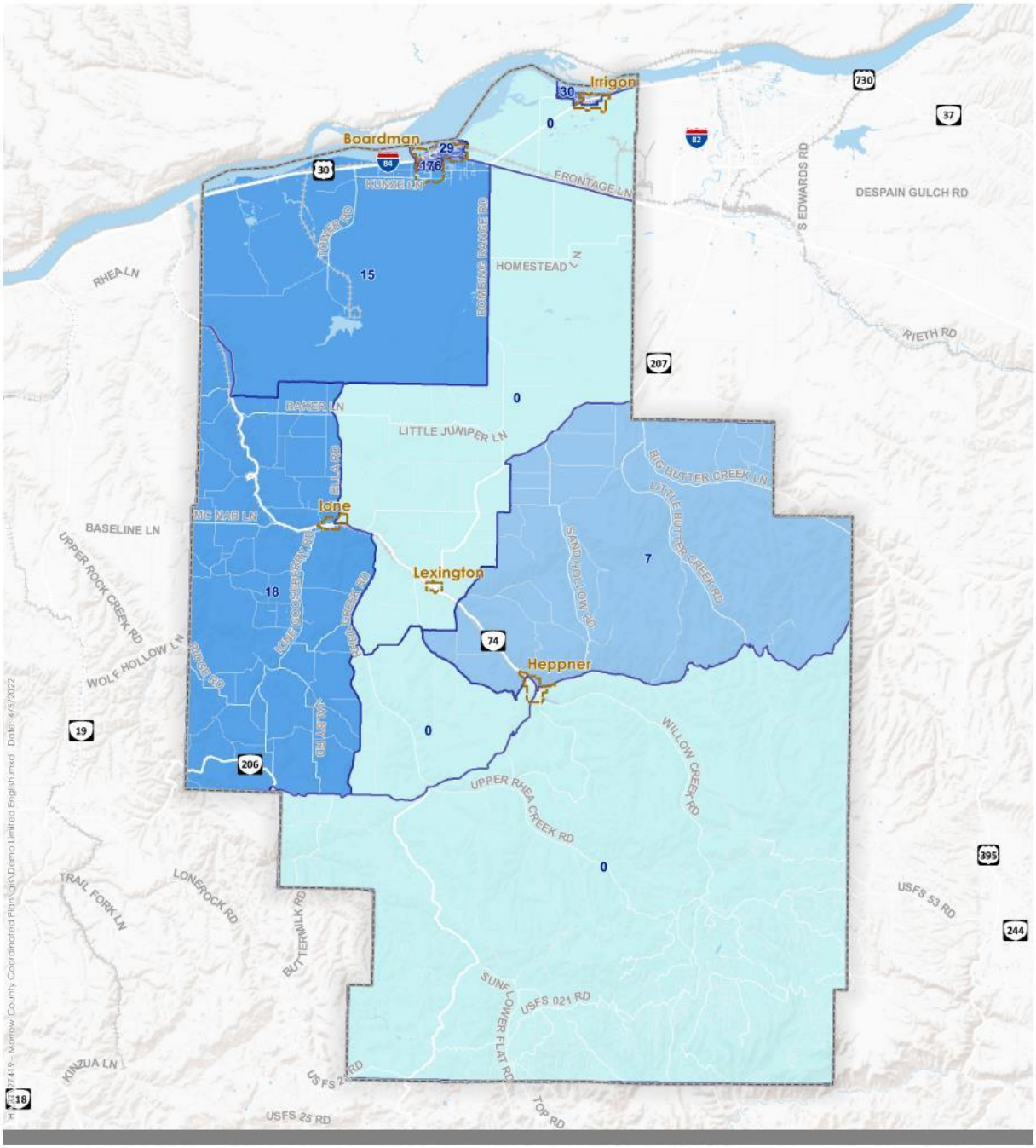
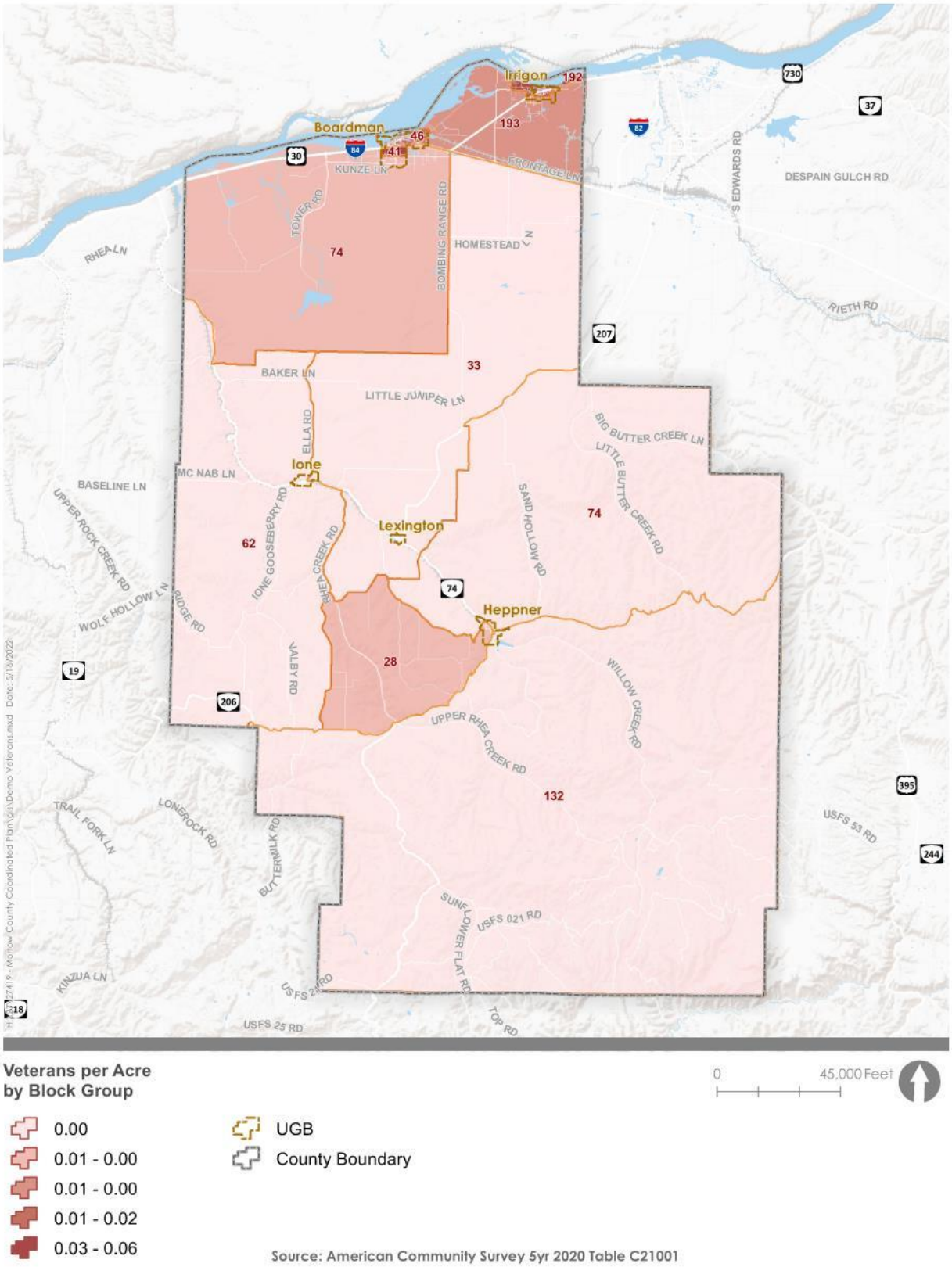
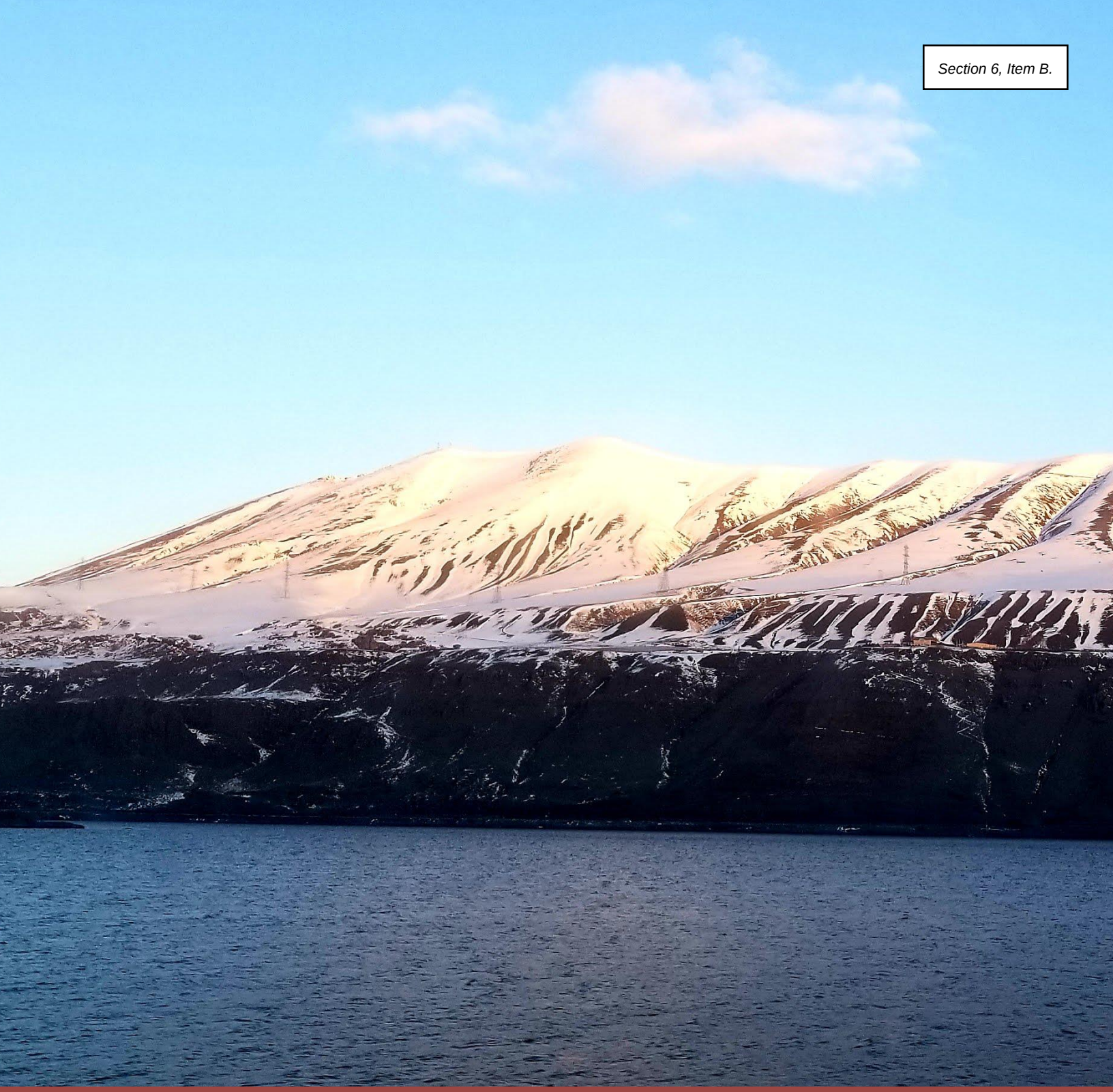


Figure 9. Veterans





EXISTING SERVICES AND RESOURCES

EXISTING SERVICES AND RESOURCES

Taking inventory of the existing transportation services and resources within the county helps identify any unmet transit needs and gaps in transportations service. Available services include one fixed-route (buses running on a set schedule with set pick-up and drop-off points) operated by Kayak Public Transit serving Irrigon. The second main public transportation operator is Morrow County, which operates a dial-a-ride service (called The Loop) in which passengers can get picked up at their home and taken to their destination. Other privately provided transportation services in the region are also described.

Public Transportation Service within Morrow County

Transportation services provided in Morrow County by public entities are summarized below.

THE LOOP

Morrow County Public Transit operates The Loop, a demand-response service (also known as dial-a-ride service) for residents of Morrow County. Service is provided on weekdays between 8 a.m. and 5 p.m. Trip times can be adjusted to meet earlier or later appointments or activities. Weekend trips can also be requested. Request for service is made through the dispatch office, those hours are weekdays 8-12 am and 1-5 pm.

KAYAK PUBLIC TRANSIT

Kayak Public Transit provides public transportation serving southeastern Washington and northeastern Oregon via fixed-route, ADA Paratransit[6], and a voucher-based taxi system. The service is operated by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), which is headquartered in Mission in Umatilla County. The goal of service lies in connecting towns and transporting people to employment and school. Kayak Public Transit's Hermiston Hopper route services Irrigon Monday-Saturday, providing two stop times daily. Morrow County funds the service to Irrigon.

TRANSIT FACILITIES

Morrow County Public Transit has three bus storage locations in the cities of Heppner, Boardman and Irrigon. These facilities are at capacity. Morrow County is planning to expand its transit facility infrastructure to meet its current and future operating demands. This could include but is not limited to, storage and maintenance facilities, transit centers, and park and ride areas.

Neighboring Public Transportation Services

Neighboring transportation services are provided by local city, county, and private providers.

GREYHOUND

Regional transportation services available near Morrow County are provided by Greyhound. Greyhound operates private transit bus lines throughout the United States. Greyhound has a daily route that travels through Morrow County but does not have a scheduled stop within the County. The nearest scheduled Greyhound stop is in Stanfield, 25 miles east of Boardman on I-84,

in Umatilla County at the Pilot Travel Center. The stop is served by a Greyhound route connecting Portland and Denver via Boise and Salt Lake City. The stop is also the end point of a connecting route to Pasco, Yakima, and Seattle. Morrow County residents feel strongly that Greyhound should schedule stops in the northern portion of Morrow County.

GRANT COUNTY

Grant County People Mover also provides service near Morrow County, with a Prairie City to Walla Walla route providing stops in John Day, Mt. Vernon, Long Creek, Dale, Ukiah, Pilot Rock, Pendleton, and Milton-Freewater on Tuesdays.

CITY OF HERMISTON

The City of Hermiston provides workforce and senior transportation services seven days a week, typically between 6 AM and 6 PM. The workforce program (WORC) serves approximately 30 riders per month and senior transportation serves 100 riders per month.

GILLIAM COUNTY

Gilliam County provides dial-a-ride services Monday through Thursday, 8 a.m. to 5 p.m., and Fridays, 8 a.m. to 4 p.m., providing roughly 75 to 100 trips per month. Riders are typically accessing services such as grocery stores, medical, social services, elder/senior services, banking, and community events.

WHEELER COUNTY

Wheeler County provides dial-a-ride services, primarily for seniors and people with disabilities but open to the general public when space allows. The service is operated by both volunteer and paid drivers. Trips are typically for non-emergency medical, and passengers access facilities as far as The Dalles and Portland.

Client-Based Transportation Service

Several transportation services in Morrow County are privately provided to specific clients.

CAREVAN (GOOD SHEPHARD HEALTH CARE SYSTEM)

In addition to The Loop's demand-response service for all populations, CareVan Medical Transportation provides services for residents living in Boardman and Irrigon that have appointments at Good Shepherd Medical facilities in Hermiston. Service operates from 7:30 a.m. to 5:30 p.m. on weekdays. Rides are dispatched by a volunteer at Good Shepherd and are only available for clients of Good Shepherd. Transportation is currently provided for approximately 400 to 700 clients per month.

COLUMBIA RIVER COMMUNITY HEALTH SERVICES

Columbia River Community Health Services is a clinic located in Boardman providing medical services to the greater Boardman area population, migrant/seasonal farm workers, refugees, and low-income populations. Clients without access to other transportation are provided nonemergent rides to/from appointments. Rides must be scheduled with the clinic on a case-by-case basis. Transportation is currently provided for approximately 50 clients per month.

CAPECO

CAPECO is a non-profit who provides service to a mix of clients including Medicaid recipients, older adults, and the general public. The agency provides Dial-a-Ride transportation in Umatilla County and community services in Morrow County. CAPECO services include eight drivers, four of whom are paid.

TRANSPORTATION SOLUTIONS

Transportation Solutions provides non-emergency medical transport in Walla Walla, The Dalles, La Grande, Pendleton, Hermiston, Baker City, Clarkston/Lewiston, Boise, and the Coeur d'Alene areas for Medicaid patients. They typically serve into Irrigon about once per day and occasionally other communities in Morrow County. Vehicles include ambulatory and wheelchair-accessible vans.

EMPLOYMENT TRANSPORTATION

Workforce transportation is provided by some employers, such as Independent Transport, Atkinson Staffing, MJ's Labor, and others.

Other Transportation Service

TAXIS

Limited taxi service exists in the northern region of Morrow County provided by taxi companies based in Umatilla County (e.g., Umatilla Cab Company, Elite Taxi). There is no consistent taxi service in eastern or southern Morrow County.

UMATILLA-MORROW COUNTY HEADSTART

Umatilla-Morrow County Headstart provides bus services for children enrolled at the Boardman Center and Irrigon Headstart. The Oregon Child Development Coalition provides bus services for children enrolled in the Migrant Education Program.

MID COLUMBIA BUS COMPANY

Mid Columbia Bus Company provides school transportation services, though buses can be contracted as charter bus transportation if fleet and drivers are available. Should Mid Columbia Bus Company not provide charter services, public entities in the region can contract to serve these trips.

Rail Facilities

Rail services within Morrow County includes only freight service. Rail transportation has historically been, and continues to be, an important avenue for moving goods within the region. Passenger service had previously been provided via a stop at the Hinkle Railyard in Hermiston and is desired by Morrow County residents to return. Future transit services should connect to passenger rail service.

RAIL FREIGHT FACILITIES

Rail freight services are provided to businesses in Morrow County by the Union Pacific Railroad: from their main line, which parallels 1-84. Multiple spurs extend from this line: one serving the coal-fired gas plant and another serving the Umatilla Ordinance Depot.

In fact, The Union Pacific main line running east-west through the Columbia River Gorge runs through the Boardman Industrial Park, owned by the Port of Morrow. Through this connection, the Port is able to transport its goods either to the Port of Portland or east into the continental United States.

The Hinkle Classification Yard, located 20 miles east of the Port of Morrow (near Hermiston, Oregon), is the largest hump yard west of St. Louis. Through use of this facility, the Port is able to access rail lines leading north into Canada and south into California. The Port is effectively able to use rail service because of the Hinkle hump yard to send its products in many different directions.

Historically, there were freight rail lines in place at the former Umatilla Chemical Depot (previously known as the Umatilla Army Depot). There are no spurs currently active on the depot land. The Union Pacific Mainline runs east and west adjacent to the southern border of the depot property. Future development plans are to reconnect a spur off the UP mainland to the depot property with connectivity to serve future industrial sites that will be located at the depot.

PASSENGER RAIL FACILITIES

There has been no passenger rail service in Morrow County since the mid-1990s, when the Amtrak Pioneer line between Salt Lake City, Utah and Portland, Oregon stopped operating. Loss of this line not only removed service from Morrow County, but also from a regional perspective, deleted service east to Salt Lake City. Amtrak does provide service between Portland and Spokane on its Empire Builder line. Morrow County residents must go to the Tri- Cities, the closest stop, to use this service.

Airport Facilities

Two public airports exist in Morrow County currently limited to private aircraft. They include the Lexington-Morrow County airport and the Port of Morrow airport west of Boardman. The closest public air service is located in Pendleton, Oregon. Depending on the growth of Morrow County, opportunities exist to expand the Port of Morrow's airport facility to provide public air transportation service. In addition to airport facilities, medical flight service is available in the County.

LEXINGTON-MORROW COUNTY AIRPORT

Morrow County Airport in Lexington is owned and operated by Morrow County. There is an Automated Weather Observation System and a 4,300-foot main runway that will accommodate most intermediate size aircraft.

Lexington is located one-half mile north of the Town of Lexington city center, just west of Highway 207. The airport access road is located approximately one-half mile north of the

intersection of Highway 207 and Highway 74. The paved airport access road travels approximately ¼ mile from Highway 207 to the vehicle parking area.

The airport has been a base for agricultural spraying operators for many years, in addition to accommodating general aviation, business, medical and charter activities. The airport currently accommodates locally based single engine aircraft, including two turbine powered agricultural aircraft. In addition to local aircraft, the airport accommodates intermediate general aviation, business aviation, including turboprop, business jet and helicopter operations. Morrow County has been the owner of the airport since 1960.

Location Identifier 9S9, FAA site Number 19500.5*A, Latitude 45-27-14.9000N, Longitude 119-41-25.0000, Elevation 1634

The Airport Layout Plan for the Lexington-Morrow County Airport, acknowledged by DLCD in 2002, defines how the airport is planned to be used over the next two decades. The Air Industrial Zone identified in the Airport Layout Plan has been applied as an overlay zone in the Morrow County Zoning Ordinance. Copies of the Airport Layout Plan are available at the County Public Works Department.

PORT OF MORROW AIRPORT FACILITY

The Port of Morrow purchased what was previously known as the Boardman airport. This facility offers a 4,200-foot-long paved runway. This runway was designed to offer takeoff and landing capability for heavy bombers and commercial passenger/cargo jets, but current use is corporate jets and light general aviation aircraft.

After acquiring the airport, the Port of Morrow developed an Airport Industrial Park centering on the 100-foot wide, 4,200-foot-long landing strip. Industrial sites are available for facilities that would benefit from the capabilities of the airport as well as the general services provided by the Port of Morrow. Sufficient land exists at the Port's Airport Industrial Park to extend the runway and to offer a full range of aviation services depending on the need of future industrial, commercial, or public clientele.

Future Port of Morrow improvements to the Airport Industrial Park focus on improved access for ground transportation services. Also to be considered are the actions approving a major motor speedway and related uses at the Boardman Airport.

LIFE FLIGHT SERVICES

Air Ambulance World provides life flight services to Pioneer Memorial Hospital in Heppner. These services provide Intensive Care Unit (ICU)-equipped aircraft to transport patients between medical facilities.

SUMMARY OF RELEVANT PLANS

SUMMARY OF RELEVANT PLANS

The Morrow County Coordinated Human Services Transportation Plan (Morrow County CTP) Update will identify public transportation needs for people with disabilities, seniors, individuals with lower incomes, individuals with limited English proficiency, and others who depend on public transportation services. The Morrow County CTP will seek to minimize duplication of services, identify gaps in services, identify unmet needs, and prioritize strategies for better public transportation services. This section lists the relevant plans conducted since the 2016 Morrow County CTP and identifies elements critical to this Morrow County CTP update. Reviewed documents include:

- Morrow County Coordinated Human Services Public Transportation Plan (2016)
- Port of Morrow Interchange Area Master Plan (IAMP, 2012 with ongoing update)
- City of Heppner Transportation System Plan (2018)
- Morrow County/Umatilla County Transit Development Strategies (2018)
- Hermiston – Boardman Connector / Boardman – Port of Morrow Circular Report (2021)

In addition to these plans, the project team notes that the following documents were completed prior to and incorporated in the 2016 Morrow County CTP:

- Morrow County Heritage Trail Concept Plan (2000)
- Boardman Main Street IAMP (2009)
- City of Ione Transportation System Plan (1999)
- City of Lexington Transportation System Plan (2003)
- Irrigon Downtown Development Plan and Highway 730 Streetscape Plan (2009)
- Irrigon to Umatilla Highway 730 Corridor Plan (2008)

Morrow County Coordinated Human Services Public Transportation Plan (2016)

The 2016 Coordinated Human Services Public Transportation Plan developed and documented transportation needs, opportunities, and challenges for Morrow County for key target populations, including older adults, people with disabilities, and people with low incomes. In addition to intra-city, commuters, the plan aims for better coordination with health and human services providers. This document will be further evaluated in *Task 3: Evaluation of Former Plan Recommendations* for relevancy and updates. Table 2 summarizes the documented transit-related needs and opportunities from the 2016 Morrow County CTP.

Table 2: 2016 Morrow County CTP Needs/Opportunities

Need	Opportunity	Keep and Update?
Information and Marketing		
Market The Loop to the general public	Focus marketing so that all individuals know they can use The Loop, and it is not only for "special transportation."	Yes
Bilingual information and marketing	Morrow County's large Spanish-speaking population may not be aware of transit service availability.	Yes
Geographic		
Service to medical facilities	Central/southern Morrow County residents need access to Pioneer Memorial Hospital in Heppner while those in northern Morrow County generally need to get to Tri-Cities or Umatilla County hospitals.	Yes
Connections to Port of Morrow	Dense employment clusters at Port of Morrow could support transit, carpools, or vanpools.	Yes
Inter-county service	Morrow County residents must often travel to Tri-Cities, Umatilla County, or farther destinations for services.	Yes
Kayak service to Boardman	Kayak currently links Pendleton through Hermiston to Irrigon. The agency has thought about extending service to Boardman. The county and Boardman can work with Kayak to assess service viability and support expansion, if warranted.	Modify – Implement service to Boardman
Long-distance trips	Current volunteer and veteran's programs transport passengers 100 miles or more to services on a regular basis, including destinations such as Portland or Walla Walla.	Yes
Regional transportation network	Many providers serve the greater region, but service lacks coordination. A system with a mix of regional intercity routes supported with demand-response services and vanpools/carpools would provide all-day mobility options serving multiple markets.	Yes
Temporal		
Late night/very early morning service	Employees working 2nd and 3rd shifts (late night and early morning) do not have transit options available.	Yes
Organization		
Employer coordination	So far one employer has shown interest in providing transportation options to employees at the Port of Morrow. The Loop can reach out to this employer and others to educate employers about existing service and find out transportation needs.	Yes
Funding silos dictate service eligibility requirements	Special Transportation Funds, Highly Rural Transportation Grants, Title IIIB, and Medicaid are some of the funding sources being used to provide transportation in Morrow County and its neighbors. Comingling clients funded by separate sources on one vehicle is often either disallowed outright or is not encouraged, resulting in low passenger productivity per vehicle or hour.	Yes

Need	Opportunity	Keep and Update?
Technology		
Scheduling software	The county plans to purchase scheduling software, which will enable The Loop to potentially increase service productivity and also coordinate with other providers.	Modify – Monitor purchased software
Operations		
Lack of volunteers	The Loop relies upon volunteers, which are often in short supply.	No
Lack of regular service	Residents do not have access to regularly scheduled service offerings that do not require a reservation, making transit inconvenient.	Yes
Door-through-door assistance	Some passengers are not able to board vehicles at the curb without assistance, meaning the volunteer must be able to provide assistance.	Yes
Underserved Markets		
Medicaid recipients	There is no public transportation Medicaid authorized provider in the county.	Yes
Hispanic community	Hispanic populations in Morrow County (Boardman, Irrigon) do not have access to or know of how to use available public transit	Yes
Veterans	The VA clinic in Boardman can provide some services and has capacity to serve more people, but funding is limited and its continued operation is in question. Continued outreach needed to alert veterans about Veteran's Choice program providers in Morrow County.	Yes

Port of Morrow Interchange Area Master Plan (IAMP, 2012 with ongoing update)

The Port of Morrow IAMP was prepared for the I-84/Laurel Lane interchange to preserve the capacity of the interchange while providing safe and efficient operations between connecting roadways. The IAMP establishes near-term and long-term recommendations for the interchange and surrounding roadway network. The ongoing update currently proposes refined interchange area designs with walking and biking facilities, but does not include mention of transit needs.

Morrow County/Umatilla County Transit Development Strategies (2018)

The 2018 *Morrow County/Umatilla County Transit Development Strategy* evaluates needs and identifies strategies and solutions that address these needs. The transit-related needs identified in this plan are summarized below.

TRANSIT SERVICE

» Add transit service not just to major population centers, but to the various rural employment clusters that exist throughout Morrow and Umatilla County. Major employment clusters that should be a focus of this study include:

- Port of Morrow

- I-84/I-82/Westland Road interchange area
- US 395 (south of Hermiston) industrial area
- McNary/Port of Umatilla area

» Increase the geographic scope of fixed route transit service. Areas for consideration include:
- City of Boardman/Port of Morrow
- City of Arlington
- City of Heppner/City of Lexington
- Tri-Cities in Washington State
- OR 11 corridor between Pendleton and Milton-Freewater/Walla Walla, WA.

» Consider the special needs of providing transit service to industrial areas and rural employment clusters.
- Take into account employee shift patterns when considering transit service to industrial areas and employment clusters.
- Broad service spans that accommodate the variety of work shifts that exist at many large-scale employment centers.

» Some employment clusters such as the Port of Morrow and Port of Umatilla/McNary area have a large geographic footprint. Transit service to these areas may necessitate smaller shuttle service to more efficiently serve the various businesses that are located too far from transit stops or lack adequate pedestrian facilities.

INFRASTRUCTURE NEEDS

» Construct and integrate Park-and-Ride facilities along the I-84 corridor. Planning for Park-and-Ride facilities has already been included in the recent City of Pendleton Transportation System Plan and Mission Area Community Plan.

» Construct new pedestrian improvements to accommodate transit service in employment clusters.

COORDINATION AND ORGANIZATIONAL NEEDS

» Coordinate services that cross jurisdictional and transit provider service area boundaries.

» Coordinate services among social service agencies, senior centers, medical facilities, employers, and other organizations to share information about local transportation options, training opportunities, and other information.

» Apply technological solutions to facilitate coordination efforts.

CAPITAL AND FUNDING NEEDS

» Sustainable funding to maintain and provide for service additions and route enhancements.

» Fare subsidies for several population groups (fixed incomes, those with medical plans that don't cover transportation, for medical trips, for accompanying caregivers).

City of Heppner Transportation System Plan (2018)

The City of Heppner TSP highlighted issues and opportunities related to transit, including those related to information and marketing, technology, operations, and the market for transit service. With regards to physical improvements, the City of Heppner TSP highlights the need for a larger long-term facility for fleet storage, maintenance and operations, vehicle upgrades, shuttles/vanpools, fixed-route feasibility in Heppner, and continued demand-response service. Table 3 summarizes the identified transit-related issues and opportunities in the City of Heppner TSP.

Table 3: City of Heppner TSP Transit Plan - Issues and Opportunities

Topic Area	Issue	Opportunity
Information and Marketing	General public may not be aware of The Loop Service	Continue marketing service to all Morrow County residents
	Potential to appeal to younger generation who is interest in transit	Increase marketing and social media presence
Technology	Dispatching and schedule done manually	Staff currently receiving training on new scheduling software. Pursue a contract with software provider to automatically handle scheduling and dispatch.
	Limited vehicle amenities; long trip distances	Study the possibility of offering wi-fi on vehicles to increase appeal to broader range of riders.
Operations	Fleet has outgrown existing Heppner bus barn	Explore options for building or renting larger long-term facility in Heppner, Lexington, or the surrounding area.
	Not all The Loop vehicles are equipped with wheelchair lifts or ramps.	Upgrade vehicles when funding becomes available.
	Long-term staffing for The Loop uncertain	Form a succession plan to account for current staff retirement, and hire new staff with specific transit planning experience.
	Lack of volunteers/unmet demand – 17 denials in the month of September	Identify additional volunteer drivers to expand the volunteer pool beyond the existing nine. Explore ways to incentivize additional volunteers, such as by increasing the daily reimbursement rate.
	Limited funding for system expansion	Oregon HB 2017 will allocate additional funding for Morrow County transportation – possibly $100,000 - $200,000 annually beginning in FY 2020.
Market for Transit Service	Difficult to serve agricultural sector workers and Port of Morrow; destinations not on main roads and demand for employees ebbs and flows.	Shuttles or vanpools may best serve employment market
	Trip distances on The Loop are very long. People must travel far from Heppner to major destinations, which is difficult to address with regular transit service.	Consider connecting people via Morrow County transit to locations served by other providers, like Kayak. Transit to Hermiston, for example, would allow a person to travel via Kayak to Pendleton, Tri-Cities, or La Grande, for example.
	Desire to expand public transportation both within Heppner as well as connecting to regional destinations.	Study feasibility of establishing fixed route service in the near future. Look to Grant County People Mover as a potential example.
	Although Heppner is compact, topography and consideration of those with limited mobility may indicate demand for intra-Heppner transit	Continue providing demand-response service within Heppner

Hermiston – Boardman Connector / Boardman – Port of Morrow Circular Report (2021)

The Hermiston – Boardman Connector / Boardman – Port of Morrow Circular Report identified the preferred operations of two new services:

- The Hermiston- Boardman Connector, a clockwise and counterclockwise fixed-route loop between Hermiston, Umatilla, Irrigon, and Boardman utilizing the I-84, Westland Road, US 395, and US 730 corridors. Service would be provided by Kayak Public Transit.
- Boardman – Port of Morrow Circular, a deviated fixed-route service covering the Port of Morrow with a flexible deviation zone and the City of Boardman along Columbia Avenue, Main Street, Wilson Lane, Boardman Avenue, and other local roadways. Morrow County's the Loop would operate the Circular.

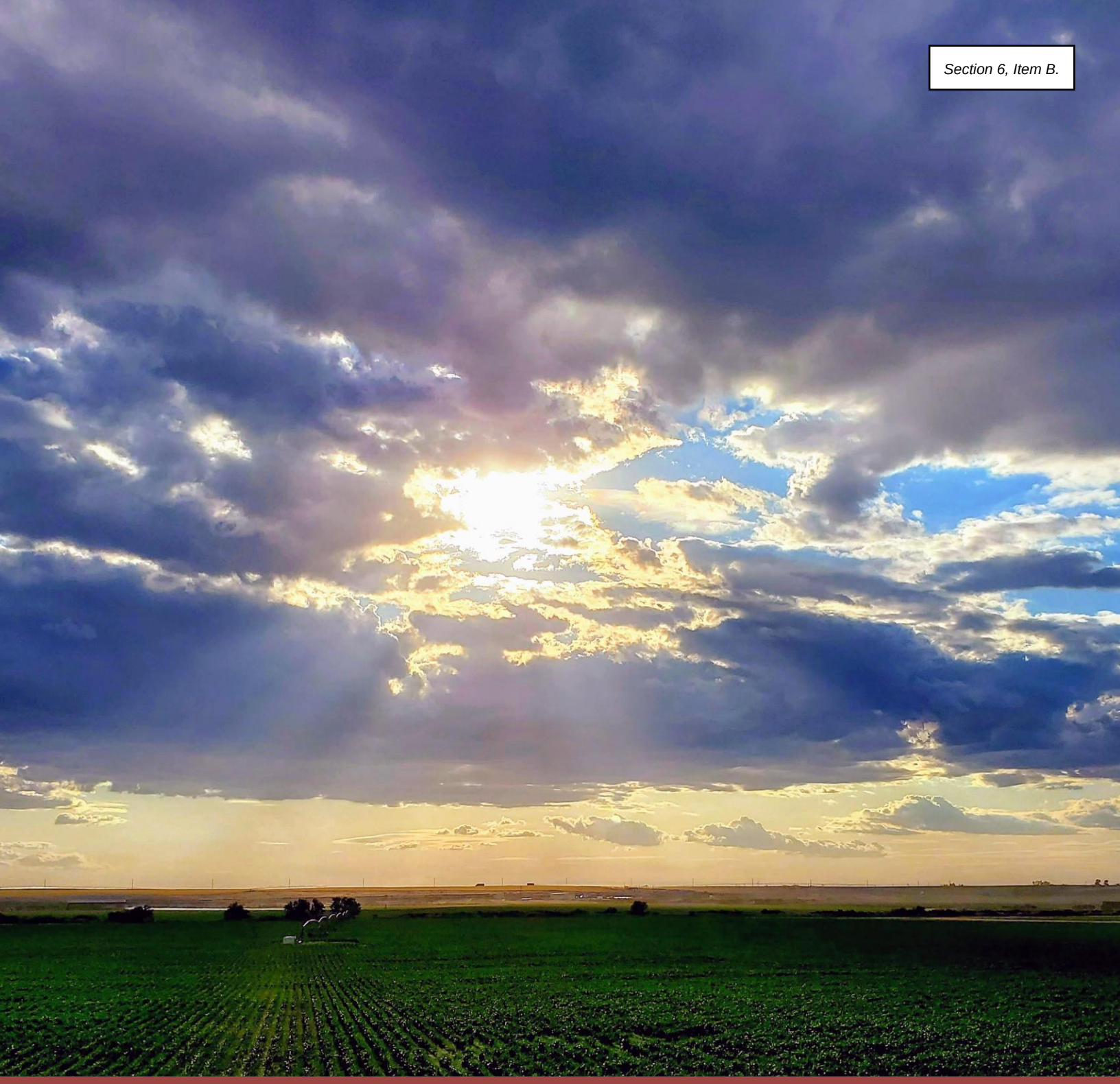
In addition to the services, key outcomes for Morrow County include bus stop improvements in the County, bicycle and pedestrian connections to those stops, and the need for a Morrow County transit center, storage and maintenance, and/or park-and-ride facilities, likely in Boardman and/or Irrigon.

Near-term implementation needs (verbatim from the Final Report) include:

- **Pursue** funding through the identified funding sources or others that arise to support operating and capital costs.
- **Coordinate** with local jurisdictions, businesses, and property owners to establish stops and seek bus stop and access improvements.
- **Develop** marketing and advertising materials in conjunction with partners.
- **Improve** local coordination, potentially through dedicated staff at transit agencies and/or designated liaisons at the local agencies.
- **Plan** for property acquisitions and/or capital improvement of existing properties for regional facilities such as transit centers, park-and-rides, and vehicle maintenance and storage facilities as described in this Report.
- **Refine** the transit schedules through ground-truthing prior to implementation.
- **Monitor** system performance and demand over time and consider adjustments to service.

Morrow County Transporation System Plan

The Morrow County Transportation System Plan (TSP) was recently updated to incorporate recent transit planning efforts. The TSP reiterates many of the needs discussed above, and also describes the desire for improved long-distance rail and bus transportation in the County. The TSP identifies other roadway, biking, and walking facility improvements that can support and promote transit use.



STAKEHOLDER INVOLVEMENT

STAKEHOLDER INVOLVEMENT

Stakeholder involvement is essential for a successful Coordinated Transportation Plan. Engaging the appropriate organizations and individuals in this planning efforts is critical to identifying the needs of the target populations, the public transportation resources available, local context, and prioritization of strategies.

This section summarizes responses to a provider survey to inventory transportation services in Morrow County, provider interview summary, stakeholder workshop feedback, and Morrow County Public Transportation Advisory Committee (PTAC) feedback.

Inventory Survey

The inventory survey asked questions regarding existing services provided, rider use of the system, COVID-19 pandemic impacts, funding, and needs identified by each agency and/or its clients. Responses from the inventory survey were received from the following providers:

- City of Hermiston's Hermiston WORC program
- Columbia River Health
- Confederated Tribes of the Umatilla Indian Reservation (CTUIR)'s Kayak Public Transit
- Gilliam County Transportation
- Good Shepherd Health Care System's CareVan
- Greyhound (via Isaacs & Associates)
- Morrow County

Responses from these providers helped to revise and supplement the pre-populated inventory of existing services. In addition, responses were used to understand needs and potential strategies. Key findings related to goals and needs from the responses are as follows:

- All respondents serve the general public, and most noted that they serve tribal members, low-income households, people with disabilities, older adults, homeless populations, veterans, people with limited English proficiency, people with chronic medical needs, and people in recovery from substance abuse.
- The most common trip purpose includes medical/dental appointments, social service appointments, grocery shopping, and recreation.
- Key transportation challenges faced by clients include:
  - Local routine trips such as appointments, work, and grocery shopping aren't accessible by transit
  - Lack of understanding on how to use the transit system
  - Transit trips take longer than a client's capacity for travel
  - Lack of resources to pay for transportation services
  - Public transit service does not operate late enough in the evening
  - An accessible vehicle isn't always available
  - Bus stops are not close enough to residences and/or destinations like work
  - Eligible trip purposes are limited (e.g., for medical, senior nutrition, day program, or work trips only)
  - Difficulty making reservations for demand response services

- Several providers don't have ADA accessible vehicles
- Most respondents require reservations to be made in-advance (typically 24 hours), rather than within an hour or two
- Average ridership is at about 40-50% of pre-COVID levels for Greyhound, Columbia River Health, senior services, and Kayak Public Transit. Gilliam County and the WORC program are near their pre-COVID levels.
- Providers responded to COVID by reducing service when-needed (either frequency, service type, or stopping service altogether), using vehicles for food transportation, limiting trip purposes, reducing the number of passengers per vehicle, and implementing disinfecting procedures
- Key funding includes federal, state, county, and city-level funding, as well as grants, private donations, and fares.
  - Morrow County has secured the DLCD Rural Transportation Equity Fund grant and is looking to incorporate it into the CTP.
- Columbia River Health added that a stop near their clinic on future services would be helpful for clients.

Other feedback, that doesn't necessarily impact goals and needs, include:

- Most respondents directly provide transportation services and own their own fleet (rather than lease), except for the City of Hermiston

Full details are included in Appendix A.

Interview Summary

Interviews were conducted to further expand on survey responses and explore other topics stemming from initial questions. Interviews were conducted with the following providers:

- Gilliam County
- Grant County
- Greyhound
- Kayak Public Transit
- Morrow County
- Wheeler County

Detailed notes are provided in Appendix B. Key themes from these discussions include:

- Obtaining drivers is challenging for all agencies.
- Dial-a-ride services are generally back to their pre-COVID demand, with several agencies not seeing changes to demand during COVID.
- Greyhound services are down in ridership, and the provider will need to see ridership return more before returning to 2 roundtrips per day for service, which is currently at 1 roundtrip per day.
- Most public providers primarily serve elderly, people with disabilities, and low-income populations, and typically for medical and grocery shopping trips.

- Marketing and education is challenging, many members of the public don't know that the services exist. Leveraging local organizations and agencies to market services could be helpful.

Stakeholder Workshop

The summary of relevant plans, demographics, inventory of existing services and resources, and draft goals and objectives were presented to stakeholders during a workshop. Key comments and needs from the discussion are as follows:

- In addition to the STF/highly rural funds, note that STIF and other funding sources should be used efficiently and allow for passengers sharing vehicles and rides, regardless of funding source.
- It's important to have parking availability for the workforce, and also consider how working parents get to and from childcare. Can buses provide car seats? Bike parking?
- Look at wheelchair charging stations at more stop locations.
- ODOT has a micromobility pilot program, looking at this for electric scooters, golf carts, etc. for first/last-mile connections in the Port would be helpful.
- Explicitly state that providers with both paid and unpaid drivers were surveyed and are present in the area.
- Improve services goal should discuss workforce, connecting people with disabilities, low-income populations, and access like parking, scooters and other micromobility
- Think more regionally, provide linkages between other areas and plans. How do these plans work together?
- For funding, include partnerships with employers
- For staff, seek other training opportunities, increases to driver pay to be competitive, bilingual staff
- Focus the plan on "Human" – what are all the needs? Making sure to integrate into other plans.

Morrow County Public Transportation Advisory Committee (PTAC) Presentation

This draft CTP was presented to the Morrow County Public Transportation Advisory Committee on July 19th, 2022, for review and feedback. The PTAC was in agreement with the CTP's identified needs, strategies, and priorities. The PTAC noted that obtaining resources, such as funding and vehicles, can be challenging in Morrow County. A statement was added to the *Implementation and Monitoring Program* section to highlight that the identified timeframes are outlined by need, and that resources must be obtained to be able to implement the strategies.

GOALS AND OBJECTIVES

GOALS AND OBJECTIVES

Goals and objectives were developed based on statewide and regional plans, local needs, and survey and stakeholder feedback. These were refined based on input from the Project Management Team (PMT), Morrow County PTAC, and further stakeholder input.

- Goal 1. Provide improved service to meet the needs of all community members, with a focus on those reliant on public transportation.
  - Objective 1A. Prioritize improvements, with the help of the DLCD transit equity grant and similar efforts, for transit-dependent people, including low-income populations, people with disabilities, zero-vehicle households, racial and ethnic minorities, older adults, youth, people with limited English proficiency, and veterans.
  - Objective 1B. Improve access to education and work opportunities, in particular at the Port of Morrow, via new and improved transportation services and coordination with private transportation providers.
  - Objective 1C. Determine customer needs through direct outreach, consultation with service providers, and findings from other planning efforts.
  - Objective 1D. Improve convenience through mobile tools and apps that integrate regional and neighboring transportation services.
  - Objective 1E. As services are implemented and improved, promote safe and comfortable transit facilities and low-stress walking and biking connections, especially at transit centers and major transit stops.
  - Objective 1F. Collaborate with local governments and connecting transit providers to ensure transit service meets the needs of riders.
- Goal 2. Provide reliable transportation options for health-supporting destinations.
  - Objective 2A. Enhance service to connect to grocery stores, pharmacies, recreational centers, social service agencies, and other community resources.
  - Objective 2B. Collaborate with all transportation service providers, pairing traditional fixed-route and demand-response services with first-/last-mile connection options such as shuttles, transportation network companies (TNCs), sharing of bikes and other mobility devices, and cooperative programs such as those within assisted living communities.
  - Objective 2C. Support enhancements to long-distance services, such as passenger rail, Greyhound service within Morrow County, and transportation by private providers, for access to medical, employment training, and other opportunities not available in Morrow County.
- Goal 3. Provide reliable transportation options for economic opportunities.
  - Objective 3A. Enhance service to connect to educational centers, government centers, job centers, and other community resources.
  - Objective 3B. Collaborate with large employers to help meet the transportation needs of employees, especially for those who are working non-traditional business hours (early morning/late night shifts).
  - Objective 3C. Coordinate with other public agencies and divisions, such as those responsible for land use planning, housing, and development review, to strengthen transit effectiveness and include transit considerations in growth and development.

- Goal 4. Improve marketing of services and education across transportation service areas.
  - Objective 4A. Improve transit education and marketing, particularly through outreach to transportation-disadvantaged and underserved groups that focuses on bilingual marketing and outreach and travel training.
  - Objective 4B. Collaborate with transit agencies to share public transit information in a variety of formats and media to inform and attract new transit users, such as improving availability of route and schedule information as well as access to real-time arrivals and other data.
  - Objective 4C. Promote transit-supportive measures that make bus stop availability clear, including trip planning services, wayfinding signage, stop amenities (e.g., bike racks), and more.
- Goal 5. Pursue stable funding sources to maintain and lower transportation costs to the public.
  - Objective 5A. Foster new and innovative partnerships to share and leverage resources, improve services, and further create awareness of transportation services in and nearby Morrow County.
  - Objective 5B. Pursue clean fuel for transit vehicles, such as electrification of the future vehicle fleet and infrastructure, to reduce gas and maintenance costs.
  - Objective 5C. Identify a range of needs, opportunities, and strategies that can be ready to take advantage of grant funding opportunities, such as those focused on employment, capital improvements, service reliability, and/or geographic coverage.
  - Objective 5D. Identify vehicle storage and maintenance and public-friendly transit center sites to reduce "deadhead" mileage and costs.
- Goal 6. Recruit and retain staff to be able to provide reliable services.
  - Objective 6A. Partner with Oregon Employment Department and neighboring transit providers to promote and access Commercial Driver's License (CDL) training centers and reduce costs to agencies and/or potential drivers.
  - Objective 6B. Consider ways to provide transportation for driver or staff training opportunities or market existing services for job access opportunities.
  - Objective 6C. Conduct regular feedback with staff to ensure workplace satisfaction and identify opportunities to improve working conditions.
  - Objective 6D. Monitor salaries, incentives, and benefits of peer agencies to promote fair living wages to transportation provider staff.

NEED AND STRATEGIES

NEEDS AND STRATEGIES

Based on the above analysis, the needs and corresponding strategies are summarized below. Many strategies meet multiple needs. While displayed as tied to each individual need here, the strategies are expanded and prioritized individually in the next section.

- **Need:** Provide local and regional connectivity for transit-dependent groups, especially in Heppner, Boardman, and Lexington, which have high percentages of people with disabilities, people experiencing poverty, racially diverse populations, and zero vehicle households
  - Implement and continue to monitor the Boardman – Port of Morrow Circular and Hermiston – Boardman Connector
  - Begin on-demand shuttles to communities such as Heppner, Lexington, Ione, and other communities not connected to the fixed-route system.
  - Enhance service hours and/or number of vehicles operating at a time dial-a-ride services
  - Promote and/or subsidize vanpools
  - Expand bilingual information and marketing program
- **Need:** Enhance services for populations in unincorporated areas and communities not connected to the existing system, in particular for elderly populations
  - Begin on-demand shuttles to communities such as Heppner, Lexington, Ione, and other communities not connected to the fixed-route system.
  - Enhance service hours and/or number of vehicles operating at a time dial-a-ride services
  - Coordinate with public and private providers to ensure access and eligibility
  - Promote rideshares
- **Need:** Ensure reliable transportation for employment-based trips, especially for low-income populations
  - Implement and continue to monitor the Boardman – Port of Morrow Circular and Hermiston – Boardman Connector
  - Refine, implement, and continue to monitor the Heppner – Boardman Connector
  - Refine, implement, and continue to monitor the Arlington – Boardman Connector
  - Promote and/or subsidize vanpools
  - Expand marketing and partnerships via employers
- **Need:** Maintain and enhance connections with other transportation providers
  - Establish regular coordination meetings with connecting providers
  - Enhance bus amenities throughout Boardman, Hermiston, and other locations that currently exist or are planned to connect with The Loop and Kayak Public Transit.
- **Need:** Better serve ridership on existing services
  - Enhance weekend dial-a-ride and/or future fixed-route service and later night/earlier morning service
  - Improve fare payment options for transportation services that aren't free, including affordable options for low-income populations and students
  - Provide real-time vehicle arrival information

- **Need:** Enhance transit facilities
  - Enhance bus amenities throughout Boardman, Hermiston, and other locations that currently exist or are planned to connect with The Loop and Kayak Public Transit.
  - Implement transit centers and major bus stops with higher levels of amenities
  - Build bus storage and maintenance facilities to accommodate existing and future buses
  - Provide bilingual marketing materials at stops
  - Consider the installation of wheelchair charging stations at transit stops
  - Provide parking near stops
- **Need:** Maintain and grow vehicle fleet to meet service needs
  - Obtain new vehicles
  - Establish capital replacement plan
  - Investigate and pursue transition to alternative fuels
  - Ensure adequate storage and maintenance capabilities, such as the planning effort in Boardman
- **Need:** Stabilize costs and grow funding streams
  - Continue to leverage local funds to obtain state and federal funds, such as the Rural Transportation Equity Program
  - Seek ways to share trips across funding pools (5310, 5311, RVHT, HRTG, etc.) while maintaining separate ride records
  - Investigate and pursue transition to alternative fuels
- **Need:** Attract and retain staff, including drivers, maintenance, supervisors, and administration
  - Partner with local colleges to communicate availability of job openings
  - Seek peer review to ensure competitive wages and benefits
  - Conduct regular feedback sessions with staff
  - Provide professional development/continuing education opportunities
  - Provide an employee recruitment/retainment incentive program

The following section brings forward the strategies discussed above, establishes evaluation criteria, and presents the prioritized strategies.

Evaluation Criteria

The evaluation criteria for the strategies focus on the costs and benefits, ease of implementation, and group(s) served or needs met. These criteria are established at the following scales:

- Costs – Roughly estimated costs considering the scale of implementation.
  - $: Less than $25,000 Annually
  - $$: $25,000 to $75,000 Annually
  - $$$: Greater than $75,000 Annually
- Benefits – Qualitative measure identifying expected outcome of the recommendation.
  - +: Allows for services to continue operating as-is, such as retaining a fleet and staff
  - ++: Enhances services slightly to moderately, such as adding slight geographic area or service hours

- +++: Enhances services substantially, such as adding new connections regionally

» Difficulty of Implementation – Considers whether the strategy can be implemented quickly and with little complication, beyond costs to implement.
  - Low: Infrastructure, staff, and other resources are already in-place
  - Medium: Some infrastructure, staff, and other resources are in-place, but more will need to be obtained
  - High: No infrastructure, staff, or other resources are in-place

» Group(s) Served/Needs Met – Considers how many of the following groups benefit from this strategy: Low-income populations, people with disabilities, youth, older adults, racial/ethnic minority, zero vehicle households, households with Limited English Proficiency, veterans, and employees.
  - ◑: Fewer groups served/needs met
  - ●: Many groups served/needs met

Results and Prioritization

Using the above evaluation criteria, the strategies were evaluated and prioritized in Table 4. High priority strategies are generally lower cost, provide greater benefits, have lower difficulty to implement, and serve the needs of more groups.

Table 4. Strategies and Priorities

Strategy	Cost	Benefit	Difficulty of Implementation	Group(s) Served/ Needs Met	Resulting Priority
Routes and Services					
Implement and continue to monitor the Boardman – Port of Morrow Circular and Hermiston – Boardman Connector	$$$	+++	Low	●	High
Refine, implement, and continue to **monitor the Heppner – Boardman Connector**	$$$	+++	High	●	High
Refine, implement, and continue to monitor the Arlington – Boardman Connector	$$$	+++	High	●	Medium
Begin on-demand shuttles to communities such as Heppner, Lexington, Ione, and other communities not connected to the fixed-route system.	$$	+++	Medium	●	Medium
Enhance service hours and/or number of vehicles operating at a time dial-a-ride services	$$	++	Medium	●	Medium
Promote and/or subsidize vanpools	$	++	Medium	◑	High
Enhance weekend dial-a-ride and/or future fixed-route service and later night/earlier morning service	$$	++	High	●	Low
Transit Stops and Rider Facilities					
Enhance bus amenities throughout Boardman, Hermiston, and other locations that currently exist or are planned to connect with The Loop and Kayak Public Transit.	$	++	Low	◑	High
Implement transit centers and major bus stops with higher levels of amenities	$$$	++	Medium	●	Medium
Consider the installation of wheelchair charging stations at transit stops	$	+	Medium	◑	Medium
Provide parking near stops	$$$	+	Medium	◑	Low
Internal and Inter-Agency Coordination					
Establish regular coordination meetings with connecting providers	$	+	Low	●	High
Conduct regular feedback sessions with staff	$	+	Low	●	High

Strategy	Cost	Benefit	Difficulty of Implementation	Group(s) Served/ Needs Met	Resulting Priority
Coordinate with public and private providers to ensure access and eligibility	$	+	Low	●	High
Continue to leverage local funds to obtain state and federal funds, such as the Rural Transportation Equity Program	$	+	Low	●	High
Seek peer review to ensure competitive wages and benefits	$$	+	Low	●	Medium
Provide professional development/continuing education opportunities	$	+	Low	●	High
Provide an employee recruitment/retainment incentive program	$$	+	Low	●	High
Marketing and External Information					
Expand marketing and partnerships via employers	$	+	Low	◑	High
Provide bilingual marketing materials at stops	$$	+	Low	◑	High
Expand bilingual information and marketing program	$$	+	Low	◑	High
Partner with local colleges to communicate availability of job openings	$	+	Low	◑	High
Promote rideshares	$	++	Medium	●	Medium
Technology					
Provide real-time vehicle arrival information	$$	++	Low	●	High
Seek ways to share trips across funding pools (5310, 5311, RVHT, HRTG, etc.) while maintaining separate ride records	$	+	Medium	◑	High
Improve fare payment options for transportation services that aren't free, including affordable options for low-income populations and students	$$	++	Medium	◑	Medium
Fleet and Facilities					
Obtain new vehicles	$$	++	Medium	●	High
Establish capital replacement plan	$	+	Low	◑	High
Investigate and pursue transition to alternative fuels	$$$	++	High	◑	Medium
Build bus storage and maintenance facilities to accommodate existing and future buses, such as the planning effort in Boardman	$$$	+	Medium	◑	High

IMPLEMENTATION AND MONITORING PLAN

IMPLEMENTATION AND MONITORING PLAN

This section identifies funding opportunities and timeline for the high-priority strategies and describes the considerations and partners to get recommendations on-the-ground.

Funding Sources and Timeline

Table 5 shows the funding sources that were assessed for each strategy and their primary area of eligibility for operating, capital, city/county facilities (primarily walking and biking connections), and marketing and outreach.

Table 5. Funding Sources

Funding Source	Description	Eligibility			
		Operating	Capital	City/County Facilities	Marketing/Outreach
Federal Transit Administration (FTA) Grants	Section 5304: Non-Metropolitan Transportation Planning Grant. Funds are allocated to states, which then distribute them to regional and local agencies for transit planning. Planning needs to be cooperative, continuous, and comprehensive, resulting in long-range plans and short-range programs reflecting transportation investment priorities.				X
	Section 5310: Enhanced Mobility of Seniors & Individuals with Disabilities . Formula funding to states and metropolitan regions for the purpose of meeting the transportation needs of seniors and people with disabilities. ODOT allocates state 5310 funds to rural areas via local STF agency and may reserve for discretionary programs.	X	X		X
	Section 5311: Rural Area. Formula funding to small cities and rural areas with populations of less than 50,000 for transit capital, planning, and operations, including job access and reverse commute projects. Funds are apportioned to states based on a formula that includes land area, population, revenue vehicle miles, and low-income individuals in rural areas and funds are distributed to providers through ODOT. Additionally, no less than 15 percent of funds must be spent on the development and support of intercity bus transportation, unless the intercity bus needs of the state are being adequately met.	X	X		X
	Section 5339: funding through an allocation process to states for small urban and rural areas, and transit agencies in large urban areas, to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities.		X		
	Other: The FTA periodically releases additional funding opportunities. In 2019, the FTA released the Integrated Mobility Innovation opportunity, providing $15 million for demonstration projects focused on Mobility on Demand, Strategic Transit Automation Research, and Mobility Payment Integration. For FY20, the FTA also announced the Mobility for All Pilot Program to invest in mobility options for older adults, individuals with disabilities, and people with low incomes, aimed to enable connections to jobs, education, and health services. The FTA also provides Section 5314 – Technical Assistance and Workforce Development grants, which support technical assistance and educational activities that enable more effective and efficient delivery of transportation services, foster compliance with federal laws (including the ADA). These types of funding opportunities can help ODOT and providers invest in innovative and effective practices and partnerships.				

State Special Transportation Funds (STF)	Allocated by the Oregon Legislature every two years. Funds may be used for any purpose directly related to public transportation services for seniors and people with disabilities.	X			X
Statewide Transportation Improvement Fund (STIF)	Formula funds for expanding access to jobs, improving mobility, relieving congestion, and reducing greenhouse gas emissions, while providing a special focus on low-income populations. STIF funds may be used for public transportation purposes that support the operations, planning, and administration of public transportation programs and may also be used as the local match for state and federal grants for public transportation service. ● 90% of STIF funds are distributed to Qualified Entities (Morrow County). ● 5% of STIF funds are available via discretionary grants for flexible funding. ● 4% of funds are available via discretionary grants for projects enhancing intercommunity service and the statewide transit network. ● 1% of the funds are allocated for program administration and a technical resource center.	X	X		X
Highly Rural Transportation Grant (HRTG)	This grant-based federal program, under Veteran Affairs, provides demand-response services. It transports Veterans in highly rural areas to VA-authorized health care facilities. There is no cost fee, as long as the program is available in the area the Veteran lives in.	X			
Rural Veteran Healthcare Transportation Grant (RVHT)	This program, under ODOT, provides demand-response services, providing Veterans access to physical, mental, and/or behavioral healthcare. Access is not limited to VA-authorized health care facilities; access to services that contribute to a veteran's well-being may be accommodated as well. This program aims to focus its services to veterans but is open to shared rides with civilians.	X			
Private/Public Sponsorships	Private/public sponsorships involve a private entity, such as a local business owner, working with the public agency to fund a project (e.g., bus stop shelter and sidewalk connection maintenance). In return for their investment in the community, these business owners often have recognition for their role, providing a marketing venue for the business.	X	X	X	X
STIP Enhance	Funds allocated to projects through a competitive grant application process. Eligible projects include public transit capital improvements.		X	X	
Multimodal Impact Fees	Similar to transportation system development charges (SDC), but focused on improvements to multimodal transportation options. In the event a TIF is established, the fixed-route service could work to allocate a portion of funds towards transit-enhancing improvements.			X	
ODOT Safe Routes to School Grant Program	Eligible projects include safety improvements that positively affect the ability of children to walk and bicycle to school. Projects must be within a public road right-of-way, consistent with jurisdictional plans, supported by the school or school district, within a one-mile radius of a school, and able to be constructed within five years of the application. Project examples include sidewalks, median refuge islands, rapid flashing beacons, etc. The minimum funding request is $60,000, and the maximum is $2 million.		X	X	
Transportation Options Program	Discretionary grant program including initiatives such as Innovative Mobility Grants, which ODOT is currently determining a framework for, and Immediate Opportunity Grants of $5,000 or less for qualified activities. Examples of eligible activities include: ● Transportation focused community events such as Open Streets, Bike Rodeos, etc. ● Activities to engage historically underserved communities in active or multimodal transportation outreach or education ● Purchase of bike racks, helmets, locks, etc. associated with bike and pedestrian safety outreach				X
Rural Transportation	This one-off ODOT funding opportunity seeks to support rural communities in:				

Equity Program	• Identifying and engaging underserved communities in rural areas to provide transportation options like biking, walking, and public transportation in order to access to critical services and destinations; • Building capacity within local governments to maintain relationships and connections to underserved communities, with a focus on including underserved groups in future planning efforts; and/or • Matching communities' needs with outside funding opportunities (i.e. Federal, State programs and resources) through strategic investment planning. Morrow County received this grant and will conduct outreach in the coming year. Should this grant become a regularly provided fund, Morrow County could continue to pursue this in the future.				

In addition to these, roadway facility owners (cities, Morrow County, ODOT) can pursue walking and biking facility improvements through the following funds:

- Surface Transportation Block Grants
- State Highway Fund
- Road Fund Serial Levy
- Road Utility Fee
- Vehicle Registration Fee
- Local-Option Fuel Tax
- Immediate Opportunity Funds
- All Roads Transportation Safety (ARTS)
- General Fund
- Transportation Development Tax
- System Development Charges (SDC)
- Local Improvement District (LID)
- Tax Increment Financing
- Urban Renewal Districts

Table 6 aligns the high-priority strategies to the relevant funding sources and identifies a timeline. The timeline is based on considerations such as securing staff, vehicles, or other resources to implement the recommendation, whether an activity is ongoing or a discrete task, and what other strategies need to be in-place before the strategy itself should be implemented. These timeframes represent the ideal implementation timeline and are subject to the availability of resources such as funding, staff availability, vehicles and facilities, and other factors.

Table 6. High Priority Strategies and Available Funding Pools

Strategy	Section 5304	Section 5310	Section 5311	Section 5339	STF	STIF	HRTG	RVHT	Private/Public Sponsorships	STIP Enhance	ODOT Safe Routes to School Grant	Transportation Options Program	Rural Transportation Equity Program	Timeline
Routes and Services														
Implement and continue to monitor the Boardman – Port of Morrow Circular and Hermiston – Boardman Connector		X	X		X	X	X	X	X					<2 yrs
Refine, implement, and continue to monitor the Heppner – Boardman Connector		X	X		X	X	X	X	X					3-5 yrs
Promote and/or subsidize vanpools		X	X		X	X			X			X		<2 yrs
Transit Stops and Rider Facilities														
Enhance bus amenities throughout Boardman, Hermiston, and other locations that currently exist or are planned to connect with The Loop and Kayak Public Transit.		X	X	X		X			X	X	X			0-5 yrs
Internal and Inter-Agency Coordination														
Establish regular coordination meetings with connecting providers		X	X		X	X			X					<2 yrs
Conduct regular feedback sessions with staff		X	X		X	X								0-5 yrs
Coordinate with public and private providers to ensure access and eligibility		X	X		X	X			X					0-5 yrs
Continue to leverage local funds to obtain state and federal funds, such as the Transit Equity Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	0-5 yrs

Strategy	Section 5304	Section 5310	Section 5311	Section 5339	STF	STIF	HRTG	RVHT	Private/Public Sponsorships	STIP Enhance	ODOT Safe Routes to School Grant	Transportation Options Program	Rural Transportation Equity Program	Timeline
Provide professional development/continuing education opportunities		X	X		X	X								0-5 yrs
Provide an employee recruitment/retainment incentive program		X	X		X	X								0-5 yrs
Marketing and External Information														
Expand marketing and partnerships via employers		X	X		X	X			X			X	X	0-5 yrs
Provide bilingual marketing materials at stops			X			X			X		X			0-5 yrs
Expand bilingual information and marketing program	X		X			X			X			X	X	<2 yrs
Partner with local colleges to communicate availability of job openings		X	X		X	X			X			X	X	0-5 yrs
Technology														
Provide real-time vehicle arrival information		X	X		X	X	X	X	X					<2 yrs
Seek ways to share trips across funding pools (5310, 5311, RVHT, HRTG, etc.) while maintaining separate ride records		X	X		X	X	X	X	X					0-5 yrs
Fleet and Facilities														
Obtain new vehicles		X	X	X	X	X	X	X		X				0-5 yrs
Establish capital replacement plan	X	X	X		X	X								<2 yrs
Build bus storage and maintenance facilities to accommodate existing and future buses, such as the planning effort in Boardman		X	X	X	X	X			X	X				3-5 yrs

Considerations and Partners

The following section describes additional considerations and partners to implement the high-priority strategies.

ROUTES AND SERVICES

- **Implement and continue to monitor the Boardman – Port of Morrow Circular and Hermiston – Boardman Connector:** Morrow County has procured a vehicle and identified a preferred operating plan for the Circular alongside Umatilla County, Kayak Public Transit, cities, and stakeholder such as employers and healthcare representatives. As this strategy moves forward, continuing to refine its stop locations and amenities, route schedule, and marketing will be crucial to its success.
- **Refine, implement, and continue to monitor the Heppner – Boardman Connector:** Morrow County will need to procure a vehicle, hire a driver, and refine a preferred operating plan for the Heppner – Boardman Connector. While entirely within Morrow County and intended to be operated by MCPT, this service would still need coordination with partners such as city staff, employers, health and social service agencies, and other organizations.
- **Promote and/or subsidize vanpools:** Morrow County could implement this recommendation by promoting programs such as Commute with Enterprise[1] or further supporting vanpools by subsidizing this service, similar to Cascades East Transit's program which subsidizes $500 per van per month[2].

TRANSIT STOPS AND RIDER FACILITIES

- **Enhance bus amenities throughout Boardman, Hermiston, and other locations that currently exist or are planned to connect with The Loop and Kayak Public Transit:** While establishing new bus stops in Morrow County, MCPT could start with basic amenities such as signage at stops as ridership patterns become apparent. Higher-level stops may warrant the need for benches, shelters, trash cans, bike racks, and more. Partners for this strategy include land owners, primarily private property owners, cities, ODOT, and Morrow County itself.

INTERNAL AND INTER-AGENCY COORDINATION

- **Establish regular coordination meetings with connecting providers:** Partners for this strategy include staff from connecting agencies such as Kayak Public Transit and the Hermiston WORC program. These regular coordination meetings can help to identify further opportunities to enhance services and reduce duplication of efforts.
- **Conduct regular feedback sessions with staff:** Gathering feedback from MCPT staff can help to not only improve staff morale and retention, but can also help to highlight rider concerns and institutional challenges that may otherwise not be passed along to MCPT administration staff.
- **Coordinate with public and private providers to ensure access and eligibility:** Working with both the public agencies previously identified and private providers, such as employers

[1] www.commutewithenterprise.com
[2] https://www.commuteoptions.org/vanpool/

and non-emergency medical transportation brokerages, can improve public access to affordable transportation services. This coordination can also support updating the inventory of existing services and marketing services to the public.

- **Continue to leverage local funds to obtain state and federal funds, such as the Transit Equity Fund:** MCPT can leverage local funds, such as those provided by city improvements and private property owner development, to access state and federal funds. In addition to property owners and infrastructure improvements as local match, services such as vanpool programs offered by employers may be able to be used as local match.
- **Provide professional development/continuing education opportunities:** Professional development and education helps to keep staff up-to-date on industry trends in addition to basic training requirements, bringing fresh ideas to improve service back to Morrow County. Beyond MCPT staff, MCPT could look to provide training and education to other agency staff (ODOT, cities, etc.) through partnerships.
- **Provide an employee recruitment/retainment incentive program:** Attracting and retaining staff is a challenge in providing reliable services. Establishing an incentive program can help to expand the staffing pool and promote staff morale and retention.

MARKETING AND EXTERNAL INFORMATION

- **Expand marketing and partnerships via employers:** MCPT has strong connections to many employers throughout the County, and continuing these partnerships can help to market services to existing and potential employees. In addition to employers, MCPT can work with neighboring transportation providers to educate the public on all available services.
- **Provide bilingual marketing materials at stops:** As bus stops are implemented, providing information in both English and Spanish will be crucial to serving Limited English Proficiency populations. MCPT can work with local organizations and community members to refine the messaging and communication.
- **Expand bilingual information and marketing program:** Similar to the previous strategy, expanding the bilingual information and marketing program can promote transportation use for populations who often lack reliable options. This strategy could be implemented imminently through the Rural Transportation Equity Program in partnership with community groups. This program should be reviewed and revised as-needed following implementation.
- **Partner with local colleges to communicate availability of job openings:** Promoting job openings through local colleges not only attracts staff to MCPT, but also provides job opportunities to younger populations who tend to be lower-income. In addition to the colleges, Oregon Employment Department and workforce organizations such as New Horizons would be helpful partners in implementing this strategy.

TECHNOLOGY

- **Provide real-time vehicle arrival information:** MCPT is participating in iTransitNW, a trip planning and bus tracking tool which several providers in the northeast Oregon and southeast Washington markets use to present transit information in one place. Real-time vehicle tracking is an aspect of iTransitNW, and allows for MCPT vehicles to be tracked both in this application and in other tools such as Google Maps. While typically implemented for fixed-route systems, real-time vehicle arrival information could also be

helpful for dial-a-ride services and giving better estimated arrival times to these passengers.

- **Seek ways to share trips across funding pools (5310, 5311, RVHT, HRTG, etc.) while maintaining separate ride records:** Institutional barriers can prohibit or limit the sharing of trips when different funding pools are involved. Resolving these barriers can help to efficiently use transportation services and meet the needs of the community. MCPT can work with other public and private transportation providers to share trips and identify technologies for tracking these data. They can also work with ODOT to identify where barriers remain and work to resolve these at the state and federal levels.

FLEET AND FACILITIES

- **Obtain new vehicles:** To continue providing services and ultimately expand their system, MCPT needs to regularly obtain new vehicles to replace aging fleets. An up-to-date fleet is also less likely to breakdown, increasing reliability of the system and reducing maintenance costs.
- **Establish capital replacement plan:** In addition to the activity of obtaining new vehicles, a capital replacement plan can help MCPT to plan ahead for vehicle replacement and additions. A capital replacement plan should also consider alternative fuel technologies, specifically which service(s) could feasibly operate using alternative fuels based on existing mileage limitations. Partners for this strategy may include utility companies and other agencies and neighboring providers who may wish or need to charge their fleet within Morrow County.
- **Build bus storage and maintenance facilities to accommodate existing and future buses, such as the planning effort in Boardman:** MCPT's bus storage facilities are currently at capacity. In addition to currently planning efforts for a storage and maintenance/public-facing transit center near Boardman, MCPT will continue to monitor the need for additional facilities. Partners include property owners, and where the facility is public-facing, the riders and any connecting transit providers.

MONITORING PROGRAM

The following section provides a program to track transit service performance and the success of the plan's recommendations. The program is data-driven and is founded on performance measures that can be tracked on a regular basis through set benchmarks. In most cases, these performance measures are already tracked as part of Federal Transit Administration (FTA) reporting requirements. This program enables a dynamic system where service adjustments can be implemented and justified following performance evaluations.

Performance measures are divided into monitoring on an annual and a less-frequent (e.g., biennial) basis. Most of the recommended performance measures should be reviewed each year; the performance measures identified for less-frequent review are less likely to fluctuate meaningfully on an annual basis. As these performance measures are applied in the future, Morrow County may adjust how often specific performance measures are examined. Benchmarks also consider existing and future data availability.

Annual Review of Performance Measures

The following performance measures are recommended to be evaluated at least annually to understand how the new services are being used. All but one of these measures are typically already monitored for National Transit Database (NTD) reporting purposes.

- **Capital costs:** Examine annual capital costs directly to the service operator (Morrow County) and improvements by facility owners (Morrow County, local cities, employers, other property owners). This information is useful for budgeting for vehicle replacements and additional transit-supportive infrastructure such as shelters, based on actual agency cost experience.
- **Operating costs:** Tracks annual operating costs for the services. This information is useful for evaluating cost trends for future budgeting purposes, and for calculating other performance measures, such as cost per hour, that can be compared with peer agencies.
- **Annual rides:** Tracks total number of rides per year. This information is useful for evaluating ridership trends, and for calculating other performance measures, such as rides per hour or cost per ride, that can be compared with peer agencies. Transit providers typically also track ridership more frequently (e.g., by month, by day of week) to help identify ridership patterns and trends.
- **Revenue service hours:** Tracks total number of hours of revenue service provided. This measure is used to calculate rides and cost per hour.
- **Rides per hour:** Tracks average annual rides per hour (productivity). Staff resources permitting, tracking annual productivity by scheduled trip is useful for identifying and supporting the need for schedule changes (e.g., addressing consistently over- or under-utilized trips), for identifying the need to purchase higher-capacity vehicles, and for targeting marketing efforts to increase ridership, among other uses.
- **Cost per hour:** Tracks average annual operating cost per revenue hour. Cost per hour is a useful measure to compare to peer agencies, to check whether one's costs and cost trends are in line with, greater than, or less than one's peers.

- **Number of Deviation Request Denials (Circular service):** Tracks the total number of deviation requests denied on the Boardman – Port of Morrow Circular, to help identify the need for schedule and/or route changes to maintain service reliability and attractiveness. In addition, although more labor-intensive, tracking where and how frequently deviation requests are made can be useful for making route adjustments to serve high-demand trip origins and destinations.

Less-Frequent Review of Performance Measures

The following performance measures are either (1) less likely to change in a significant way on an annual basis and do not need to be tracked each year, or (2) are time-intensive to evaluate on an annual basis.

- **System ease of use:** Tracks improvements made to travel between communities or transit providers, such as technology improvements (trip-planning, real-time tracking apps) and timed transfers between different transit providers.
- **Walking and bicycling access:** Tracks the percentage of stops having a sidewalk/path, bicycle lane/path, and/or crossings connecting to the stop.

Peer Comparison

While every transit provider has unique service area and operating characteristics, comparing a provider's performance to that of similar providers can help managers and decision-makers gauge whether changes in performance match the experience of similar agencies, or may be due to actions on the provider's part (either something to correct or something to continue, depending on how performance changed). Transit agencies that receive federal funding are required to report information about service miles, service hours, and ridership, among others, to the NTD. Peer comparisons were conducted for Morrow County to understand existing and potential performance using the most-recent year of available data, 2018. Peers were primarily identified using the process described in *TCRP Report 141: A Guidebook on Performance Measurement and Peer Comparison in the Transit Industry*, which uses factors such as type of service provided, amount of service provided, geographic characteristics, and more.

Morrow County does not currently report data to NTD, given that it has not historically received federal funding that requires NTD reporting. Therefore, several providers who provide service similar to the proposed service were selected. These peers were matched based on an estimated 5,000 service hours and about 50,000 annual service miles for the Port of Morrow Circular and accompanying countywide dial-a-ride. This analysis only looked at local bus service (i.e., not commuter bus or demand-response as reported to NTD). Similar providers include CTUIR's local services, the City of Woodburn, South Clackamas Transportation District's (SCTD's) Molalla service, Lane Transit District's Florence service, and Malheur Council on Aging and Community Service's (MCOACS's) Ontario service. All of these services connect to regional transit service. Table 7 provides the peer comparison evaluation and

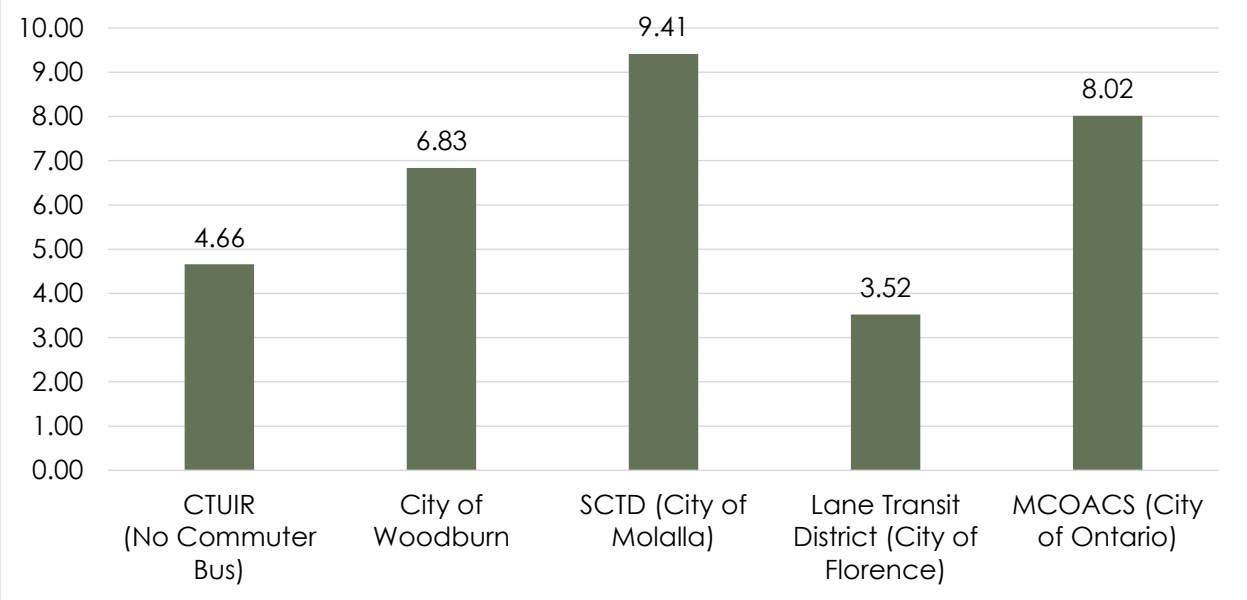
Figure 10 shows rides per hour for the peer providers. Table 7 also shows city populations and employments for each jurisdiction, with the Boardman numbers not including unincorporated

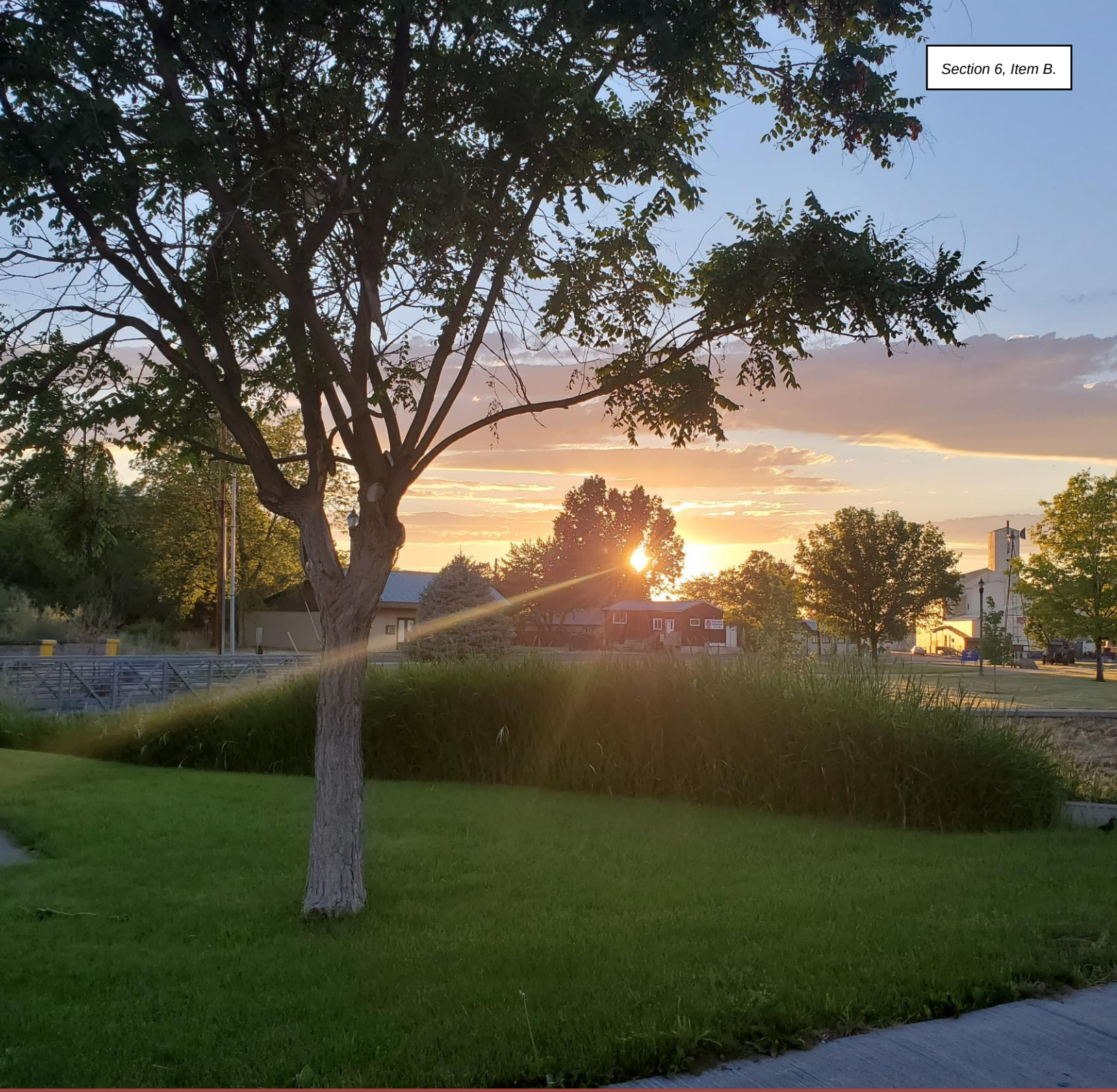
Port of Morrow employment. As shown, similar-sized providers typically generate 4-10 rides per hour. Ridership is generally higher in communities with high employment such as Boardman.

Table 7. Transit Provider Comparison (2018) for Boardman - Port of Morrow Circular

Data	Boardman/Port of Morrow	CTUIR (No Commuter Bus)	City of Woodburn	SCTD (City of Molalla)	Lane Transit District (City of Florence)	MCOACS (City of Ontario)
Population	3,439	Hermiston - 17,423 Mission - 850	25,738	9,155	8,921	10,966
Employment	6,283+	Hermiston - 7,305 Mission - 2,101	9,517	2,570	3,112	8,542
Annual Service Miles	50,000	92,832	45,023	17,104	27,177	65,023
Annual Service Hours	5,000	5,256	3,048	2,547	2,173	3,012
Annual Rides	—	24,485	20,831	23,968	7,651	24,150
Rides per Hour	—	4.66	6.83	9.41	3.52	8.02

Figure 10. Rides per Hour for Boardman - Port of Morrow Circular Comparable Services





CONCLUSION

CONCLUSION

Transportation services play a key role in Morrow County, connecting its residents and visitors to the places they need to go locally and regionally. Most imminently, this document can serve as preparation for funding cycles, including STF and STIF plans, to begin implementing recommendations and enhancing transportation services. Beyond that, the recommendations are intended to provide conceptual guidance to be refined by MCPT and its partners as funding and partnership opportunities become available.

While this document provides prioritized strategies and examples of how these would specifically be implemented, the recommendations are a snapshot in time and may adjust to meet the changing needs of the region.

Hermiston – Boardman Connector/ Boardman – Port of Morrow Circular

Confederated Tribes of the Umatilla Indian Reservation,
Morrow County, and Umatilla County

June 2021

Confederated Tribes of the Umatilla Indian Reservation, Morrow County, and Umatilla County

Hermiston – Boardman Connector/ Boardman – Port of Morrow Circular

Prepared for:

Confederated Tribes of the Umatilla Indian Reservation, Morrow County, and Umatilla County

Prepared by:

Kittelson & Associates, Inc.
851 SW 6th Avenue, Suite 600
(503) 228-5230

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Project Management Team

- J.D. Tovey, Confederated Tribes of the Umatilla Indian Reservation
- Susan Johnson, Confederated Tribes of the Umatilla Indian Reservation
- Staci Kunz, Umatilla County
- Katie Imes, Morrow County
- Darrell Green, Morrow County
- Tamra Mabbott, Morrow County
- Kalie Davis, Port of Morrow
- Frank Thomas, Oregon Department of Transportation

Stakeholder Group

The Stakeholder Group included over 50 representations of local cities and other government bodies, employers within the Port of Morrow and across the region, and representatives from health, education, and community organizations. Stakeholders provided insight throughout the project and dedicated personal time to the commitment.

Consultant Team – Kittelson & Associates, Inc.

- Paul Ryus, PE
- Krista Purser, PE
- Bincy Koshy
- Matt Hughart, AICP

  Susan Wright, PE, PMP

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SAGE Center – Boardman
Potential Transit Stop

1. INTRODUCTION

INTRODUCTION

Project Purpose

The Hermiston–Boardman Connector and Boardman–Port of Morrow Circular aim to make connections that will enable people to travel regionally and locally for employment, education, healthcare, and more. These transit services will help improve accessibility to major employment clusters in the area — in particular, the I-84/I-82/ Westland Road area and the Port of Morrow — and will enable critical last-mile connections from regional transit services. This project is developing a strategic plan for service to meet these needs, identifying travel needs, a preferred service model, and routing alternatives.

This project is being led by the Confederated Tribes of the Umatilla Indian Reservation's (CTUIR's) public transportation branch, Kayak Public Transit, and Morrow County's transit service The Loop, in partnership with Morrow County, Umatilla County, and the Port of Morrow. This document details the project's process, findings, and recommendations for a realistic, implementable service offering opportunities for the region's residents, employees, and visitors.

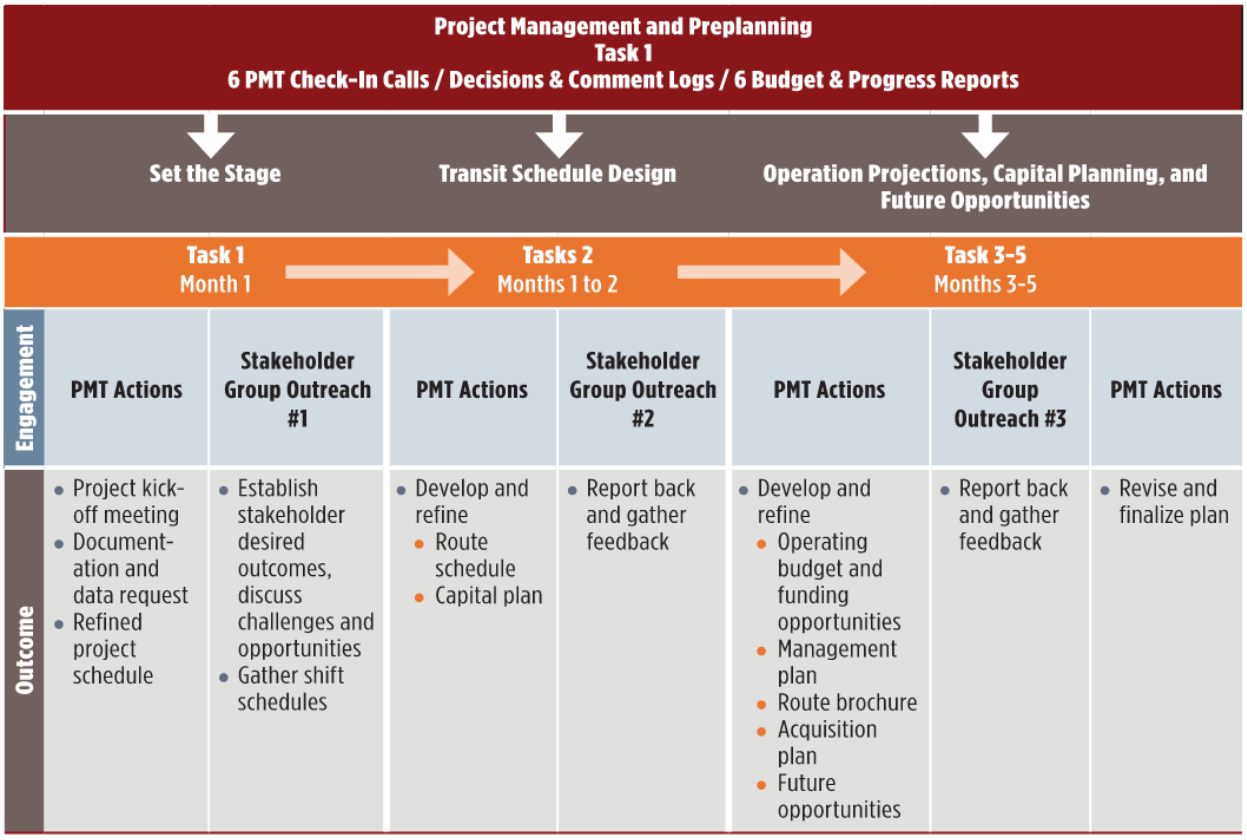
Project and Public Involvement Process

This project followed a process that gained consensus among CTUIR, Morrow County, Umatilla County, the Port of Morrow, and various stakeholders and community members. Table 1 and Figure 1 summarize the project process and public involvement activities. Regular checkpoints between the project management team and public ensured interim and end products that were achievable and fit the needs of the community.

Table 1. Public Involvement Process

Type of Activity	Activity Details and Purpose
Stakeholder Outreach #1 February 9th, 2021 February 11th, 2021 February 17th, 2021	Discuss and collect information by conducting three listening sessions with stakeholders, including a dedicated Port of Morrow employer session to understand operations, shift times and days, and employee needs. Understand opportunities identified by respondents in their community for bus connections and issues or concerns related to the development of the services.
Stakeholder Outreach #2 March 30th, 2021	Present the draft routes and schedules developed for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular and solicit feedback from stakeholders.
Stakeholder Outreach #3 June 22nd, 2021	Present the Draft Report to the stakeholders and conduct a 1-hour listening session

Figure 1. Project Process



Project Background

The need to increase the areas and connections served by transit within Morrow and Umatilla counties, particularly major rural employment clusters in the region, has been identified in several previous planning efforts. The potential transit solutions in the 2018 *Morrow County/Umatilla County Transit Development Strategy* include a solution to "significantly improve the accessibility to a major employment cluster." No fixed-route transit service is currently provided to Boardman and the Port of Morrow, although Morrow County does operate a demand-response service, The Loop, on weekdays.

Two high priority near-term transit service projects are identified in the transit development strategy:

- The **Hermiston – Boardman Connector** would directly link Umatilla County to Morrow County and the major employment clusters along portions of the US 730, US 395, and I-84 corridors. This service would provide better connectivity between the cities of Irrigon, Umatilla, Hermiston, Stanfield, and Echo and the regional employment base. Kayak Public Transit was identified as the potential implementation agency.
- The **Boardman – Port of Morrow Circular** would provide localized service within the Port of Morrow and would connect to the Hermiston – Boardman Connector. This service would improve access to businesses that are not centrally located within the Port of Morrow.

Port of Morrow, The Loop (Morrow County), or another service provider (unidentified, open to others) were identified as potential implementation agencies.

The transit development strategy also identified future connections between Heppner and Boardman, which would connect to both the Hermiston – Boardman Connector and the Boardman – Port of Morrow Circular, as well as long-term service needs connecting Arlington to Boardman and Pendleton to Kennewick.

Other local plans also identify the need for these services. The *City of Boardman Transportation System Plan* (TSP) identifies commute demands, in particular to Hermiston and the Tri-Cities area (Kennewick, Pasco, Richland) in Washington. The *City of Umatilla TSP* supports development of transit districts and increased transit services and facilities. The *City of Hermiston TSP* also supports increased transit services and highlights the need for regional travel. The *Morrow County, Umatilla County, and CTUIR Coordinated Human Services – Public Transportation Plans* also include project goals to increase job access for commuters between Boardman, Hermiston, Stanfield, and Tri-Cities. Data from Hermiston's employment taxi program shows high demands for low-income employees, in particular to grocery, retail, and restaurant employment in Hermiston.

Service Area Demographics

This section summarizes the existing general population characteristics, employment characteristics, and underrepresented populations of the cities of Boardman, Echo, Hermiston, Irrigon, Stanfield, and Umatilla.

Table 2 summarizes the current populations of cities in northern Morrow County and western Umatilla County that potentially could be served by one of the new transit services, based on the American Community Survey's 2019 5-year estimates. The 2017 *Port of Morrow Economic Impact Analysis* identified 8,452 permanent jobs at the Port of Morrow and Port-related businesses, which encompasses all Port sites (not just Boardman and the unincorporated areas nearby).

Table 2. City Population and Employment

City	Existing Population	Existing Employment
Boardman	3,439	1,673
Echo	735	339
Hermiston	17,423	7,735
Irrigon	2,053	865
Stanfield	2,722	1,215
Umatilla	7,162	2,137

The 2018 *Morrow County/Umatilla County Transit Development Strategy* provides pre-COVID-19 pandemic commute data. Table 3 illustrates the top three home cities of workers employed in northern Morrow and western Umatilla counties. Most workers who work in Boardman and Irrigon live in Boardman, followed by Hermiston and Irrigon. Most

workers who work in Hermiston and Umatilla live in Hermiston, followed by Umatilla and Pendleton. These data suggest that the Hermiston – Boardman Connector should prioritize connections between Boardman, Irrigon, and Hermiston. The Hermiston Hopper (Hopper) route currently provides a direct connection between Pendleton and Umatilla.

Approximately 63% of Morrow County's employees live outside the county, with the highest proportion in Umatilla County. In comparison, only 34% of Umatilla County's employees live outside the county. Most workers who work in Morrow County live in the City of Hermiston (11.5%) and most workers who work in Umatilla County live in the City of Pendleton (18%).

Table 3. Top Three Cities Where Workers Live Who are Employed in Morrow County and Umatilla County

Workers in:	Live in:
Boardman	1. Boardman
	2. Hermiston
	3. Irrigon
Irrigon	1. Boardman
	2. Hermiston
	3. Irrigon
Hermiston	1. Hermiston
	2. Umatilla
	3. Pendleton
Umatilla	1. Hermiston
	2. Umatilla
	3. Pendleton

Title VI and Underrepresented Populations

Title VI of the Civil Rights Act of 1964 prohibits discrimination in the provision of federally supported benefits and services, including public transportation service. The Title VI analysis presents information about the study area population's poverty status, age, racial/ethnic composition, English proficiency, and proportion of people with disabilities. Table 4 breaks down these Title VI metrics for each study area city and both counties and provides the state's average for comparison. This analysis provides information regarding populations who are typically more reliant on transit or have been historically underrepresented in planning processes.

Compared to Oregon as a whole, all study area cities have a higher percentage of households with incomes below 100% and 200% of the poverty level and a higher percentage of youth. The City of Umatilla ranks highest in all three metrics. All cities except Echo have a higher number of Hispanic/Latino residents than the State of Oregon as a whole. The cities of Boardman, Irrigon, and Stanfield have a higher number of American Indians or Alaskan Natives, and some other race alone, compared to the state

average. The percentage of people with limited English proficiency is higher than the state average in all cities except Echo, with the City of Umatilla having the highest percentage. Echo and Irrigon have a higher percentage of people with disabilities compared to Oregon as a whole.

Table 4. Title VI and Underrepresented Populations

		Oregon	Morrow County	Umatilla County	Boardman	Echo	Hermiston	Irrigon	Stanfield	Umatilla
Total Surveyed Population Estimate		4,052,019	11,273	72,376	3,439	729	17,229	2,042	2,702	4,979
Total Households		1,611,982	4,108	26,908	1,157	286	6,207	709	924	1,748
Income	Below 100% Poverty	13.2%	14.5%	17.9%	16.2%	19.6%	19.3%	16.1%	15.5%	26.1%
	Below 200% Poverty	30.8%	41.4%	41.0%	44.1%	41.3%	42.9%	45.5%	34.8%	62.7%
Age	Youth	21.0%	27.4%	26.6%	30.9%	24.4%	30.5%	29.0%	23.3%	35.4%
	Older Adults	17.2%	15.6%	15.6%	6.2%	11.0%	11.6%	14.2%	14.2%	7.3%
Race or Ethnicity	White	84.4%	89.6%	86.7%	87.7%	89.7%	87.9%	75.9%	82.6%	92.4%
	Black	1.9%	0.3%	0.6%	0.0%	1.0%	0.3%	0.8%	0.0%	2.9%
	American Indian or Alaskan Native	1.1%	1.4%	3.2%	1.7%	0.0%	0.8%	3.1%	1.3%	0.0%
	Asian	4.4%	0.6%	1.1%	1.0%	2.1%	0.4%	1.6%	0.0%	0.0%
	Hawaiian or Pacific Islander	0.4%	0.5%	0.3%	0.0%	0.4%	0.3%	1.4%	0.3%	0.0%
	Some other race alone	3.1%	4.5%	4.6%	7.6%	2.2%	7.4%	9.4%	10.5%	2.7%
	Two or more races	4.7%	3.1%	3.6%	2.0%	4.7%	3.0%	7.9%	5.3%	2.0%
	Hispanic or Latino of any race	13.0%	36.5%	27.2%	65.5%	5.6%	47.0%	45.3%	37.8%	50.6%
Persons with Limited English Proficiency		2.5%	6.2%	4.1%	13.1%	0.0%	6.3%	7.9%	7.6%	17.7%
Persons with Disability		14.4%	15.8%	16.2%	9.3%	15.0%	13.3%	16.1%	12.2%	12.9%

American Community Survey 2014–2019 5-Year Estimates; Tables S1602, S1810, S1701. Note that the City of Umatilla's census survey estimates are substantially lower than its estimated population.

SW 3rd/Orchard in Hermiston – Current Transit Stop

2. OPERATIONS PLAN

OPERATIONS PLAN

The operations plan section summarizes travel needs to be served, service model and routing alternatives, service span and frequency, and ridership estimates.

Travel Needs

This section presents the process used to develop alternatives for transit service for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular, considering locations of employment centers, commute demands, connecting transit services, and health-supporting, education, and other community resources that riders may access via transit.

Employment Centers

In general, key employment centers in the region are concentrated in or near the cities of Hermiston, Boardman, and Umatilla and in small areas near Irrigon, Stanfield, and Echo. Employment centers, as well as other community resources, are mapped in Figure 2, Figure 3, and Figure 4.

Hermiston – Boardman Connector

The Hermiston – Boardman Connector aims to bring people to jobs and employment opportunities near the Port of Morrow, but also provide opportunities to serve the South Hermiston Industrial area, I-84/I-82/Westland Road, and other employers in the region. Note that the City of Hermiston WORC program provides employees with service between Hermiston, Stanfield, Echo, and the Westland Road employment areas. Major employers that the Connector could serve include:

- Central Business Districts of the cities
- Port of Morrow (Connect to the Circular)
- Lamb Weston (Westland Road)
- Two Rivers Correctional Institution
- Columbia Basin Onion
- Home Depot
- Lamb Weston (Hermiston)
- Marlette Homes
- McDonalds
- MJs Labor Services
- Pacific Ag
- River Point Farms
- Shearer's Food
- Blue Mountain Community College
- Columbia River Health
- Good Shepherd Health Care System
- Hermiston BiMart
- Hermiston Grocery Outlet
- Hermiston Plaza (Safeway, DMV, Rite Aid)
- Walmart Distribution Center

Figure 2. Activity Centers and Employers – Overall

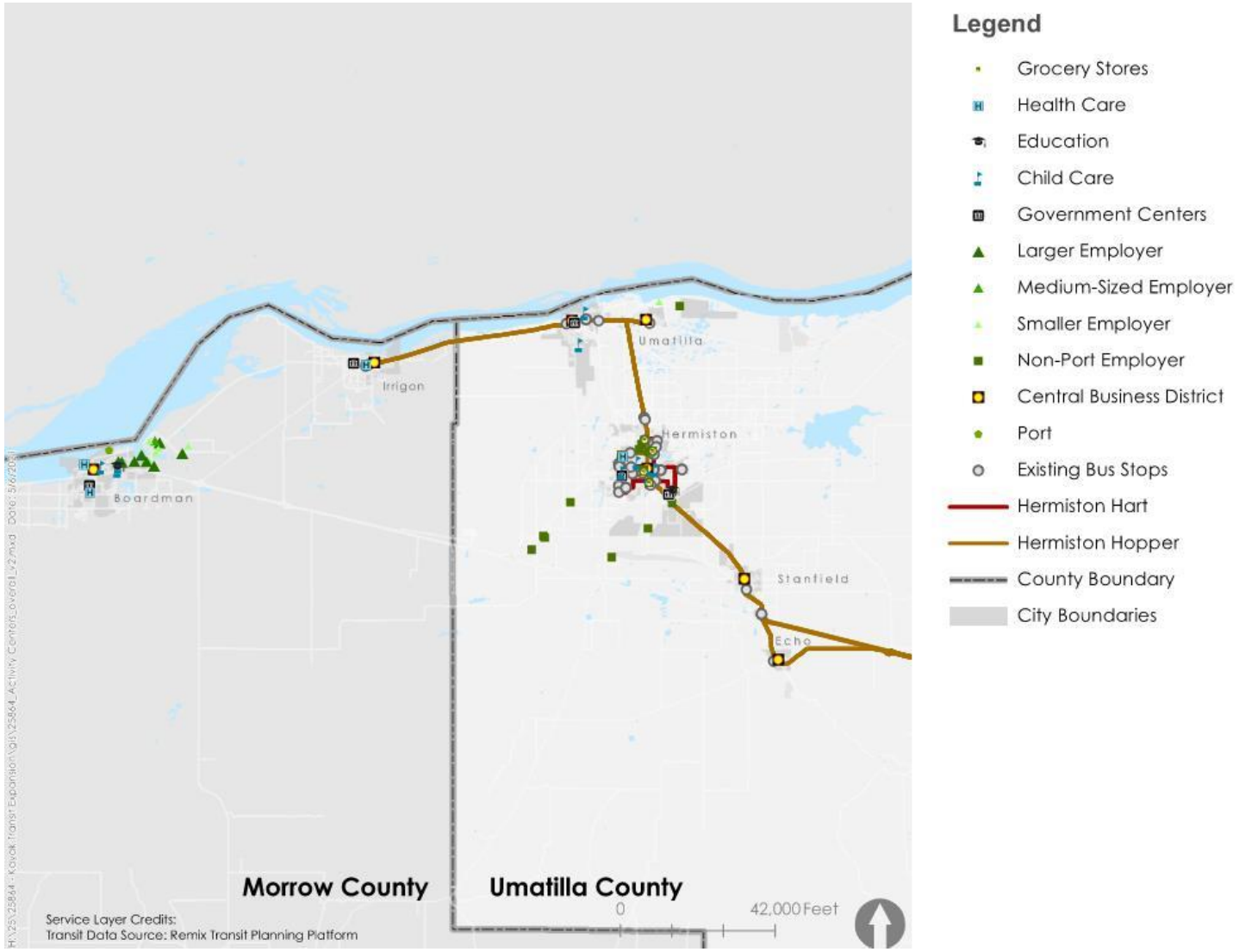


Figure 3. Activity Centers and Employers – Boardman

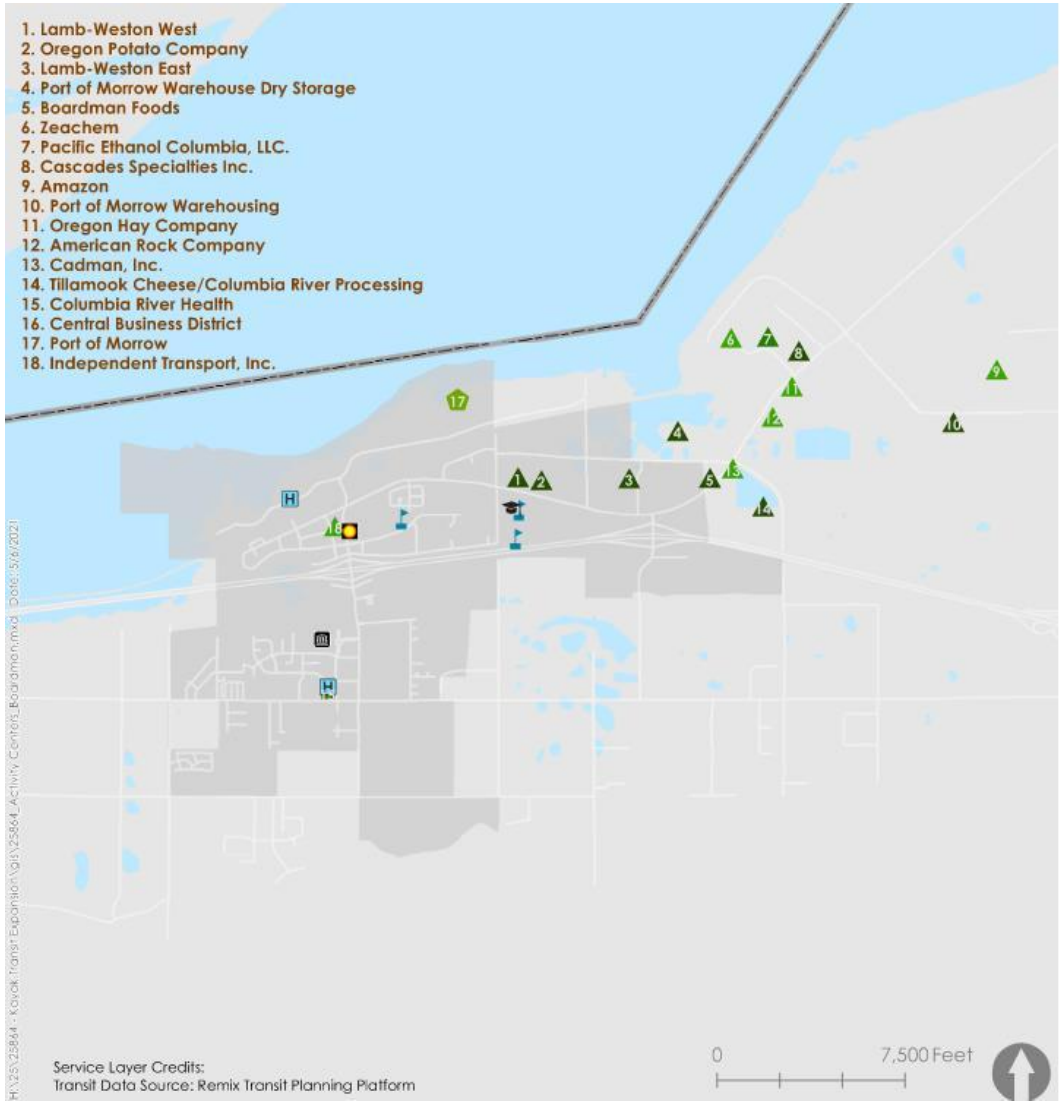
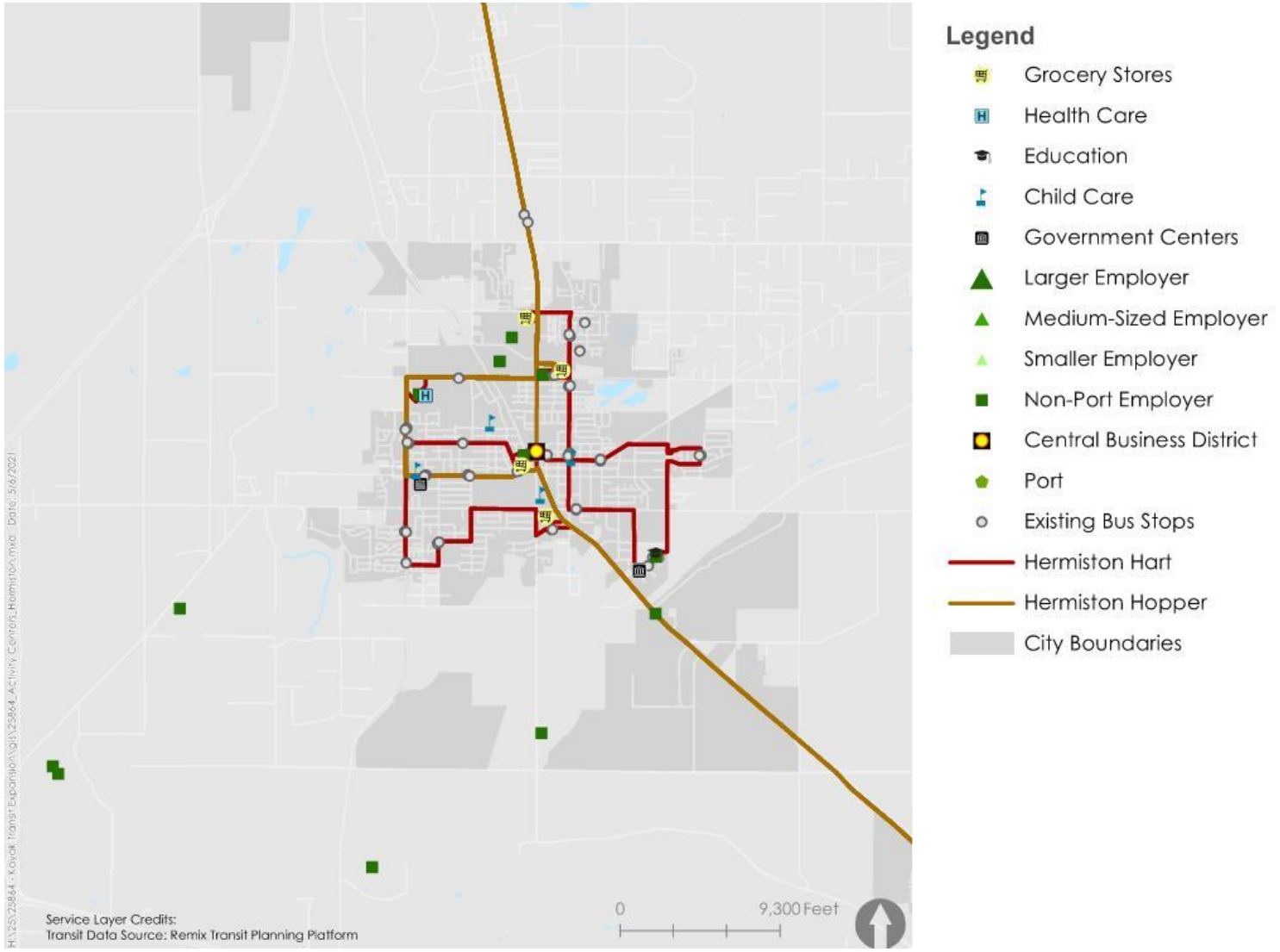


Figure 4. Activity Centers and Employers – Hermiston



Boardman – Port of Morrow Circular

The Boardman – Port of Morrow Circular aims to provide service within Boardman and the Port to facilitate transit connectivity and access during peak employer shift times. The Circular will also connect with the Hermiston – Boardman Connector to facilitate easy transfer opportunities to other cities. Large employers (bolded) and smaller employers that the Circular could serve include:

- Amazon
- American Rock
- Barenbrug USA
- Boardman Chip Company
- **Boardman Foods**
- Cadman Sand
- **Cascade Specialties, Inc.**
- **Columbia River Dairy***
- Independent Transport
- **Lamb-Weston**
- LTI, Inc.
- Morrow County Grain Growers
- **Oregon Potato Company**
- Oregon Hay Company
- Pacific Ethanol
- **Port of Morrow Warehouse**
- Tidewater
- **Tillamook – Columbia River Processing**
- **Threemile Canyon Farms***
- Zeachem

**Far from Boardman and Port of Morrow, off-map.*

Commute Demands

This section summarizes the commute patterns for the Hermiston – Boardman Connector and details the Port of Morrow shift data collected as part of Stakeholder Outreach #1.

Hermiston – Boardman Connector

As noted in the review of the 2018 Morrow County/Umatilla County Transit Development Strategy in the Project Background section, connections between Boardman, Hermiston, and Irrigon should be prioritized for the Hermiston – Boardman Connector. In considering impacts to the Hopper, the service should consider impacts of a transfer or direct connection to Umatilla, given the commute demand to Pendleton. Umatilla could also potentially serve as a transfer point for the return of transit service to the Tri-Cities, serving bi-directional commute demands between Oregon and Washington. The Tri-Cities connection to Umatilla and Hermiston was discontinued in 2014 due to budgetary limitations and is a highly requested route from the public.

Boardman – Port of Morrow Circular

Several employers provided information about where their employees live and what shift times they operated. Confirming census data, key home locations of employees were Boardman, Hermiston, Umatilla/McNary, Irrigon, Stanfield, and Kennewick, listed in order of the highest number of employees to lowest. Major shift times generally begin in the 5 AM to 8 AM range and end in the 4 PM to 7 PM range, though most employers

operate overnight shifts. Shifts are generally all days of the week. *More details on this information are included in Appendix A*.

Connecting Transit Services

Kayak Public Transit

Kayak Public Transit currently operates two routes within the service area.

The **HART** loops forwards and backwards on a fixed route through Hermiston five times in each direction every weekday. Demand-responsive ADA paratransit service is provided between locations within ¾ mile of the fixed route for persons with disabilities that prevent them from accessing the fixed route.

The **Hopper** is a commuter bus connecting the Umatilla Indian Reservation and Pendleton with Umatilla via Stanfield, Hermiston, and McNary. The Hopper operates four weekday round trips per day in the early morning, mid-morning, mid-afternoon, and early evening, with the two midday trips also serving Echo and Irrigon. Two round trips are provided on Saturday in the mid-morning and late afternoon. Timed connections to the HART are provided in Hermiston. Connections to other Kayak Public Transit routes can be made in Pendleton, Mission, the Wildhorse Resort & Casino, and the Arrowhead Travel Plaza.

Figure 5 shows the Hopper and HART's major stops, scheduled stop times, and travel times between stops.

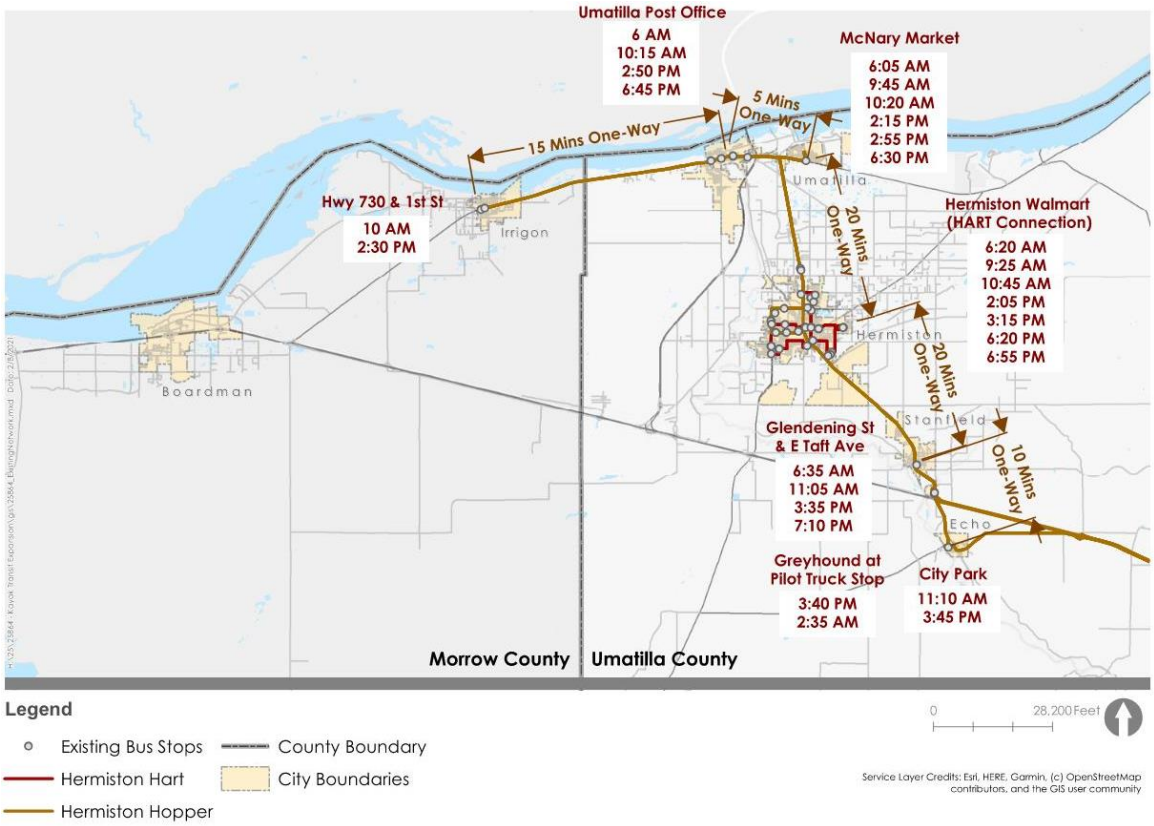
The Loop

Morrow County operates The Loop, demand-response service for residents of and visitors to Morrow County. Service is provided on weekdays between 8 a.m. and noon and between 1 and 5 p.m. At present, due to the COVID-19 pandemic, service is limited to serving medical appointments and grocery shopping trips.

Greyhound

Greyhound intercity buses stop at the Pilot Travel Center south of Stanfield. The stop is served by a Greyhound route connecting Portland and Denver via Boise and Salt Lake City. The stop is also the end point of a connecting route to Pasco, Yakima, and Seattle.

Figure 5. Transit Routes, Major Stops, Schedules, and Travel Time between Stops



Health Supporting, Education and Other Community Resources

Entities to be considered for routing of the Hermiston – Boardman Connector and the Boardman – Port of Morrow Circular also include health-supporting destinations, education and community resources. Although employment destinations are a focus of both services, these resources are common draws to intercity and local bus services. In the region, these include:

- Blue Mountain Community College*
- Columbia River Health
- Community Health Improvement Partnership of Morrow County (CHIPOMC)
- Desert Sage Manor
- Good Shepherd Health Care System*
- Hermiston BiMart
- Hermiston Grocery Outlet
- Hermiston Plaza (Safeway, DMV)*
- Irrigon Medical Clinic
- Morrow County VA Clinic
- Morrow County School District
- Morrow County Planning Department
- Neal Early Learning Center
- SAGE Center
- Umatilla County Court
- Walmart Store*
- WIC Hermiston – Umatilla/Morrow Head Start

**Also a substantial employment center*

Service Model and Routing

This section introduces the service model and presents the process used to develop recommended alternatives for the Hermiston – Boardman Connector and the Port of Morrow Circular considering potential key stops, and routing. The development of the recommended alternatives for both services was informed by key employment centers and shift times, routing information, other existing and planned transit services, and stakeholder engagement.

Hermiston – Boardman Connector

Given the long distances between cities, employment centers, and other developed areas, the Hermiston – Boardman Connector is likely to be classified as an intercity or commuter bus service. The FTA defines routes that are classified as "commuter bus" routes using one of the definitions provided in 49 CFR §37.3:

- "Commuter bus service means fixed route bus service, characterized by service predominantly in one direction during peak periods, limited stops, use of multi-ride tickets, and routes of extended length, usually between the central business district and outlying suburbs."
- "Commuter bus service may also include other service, characterized by a limited route structure, limited stops, and a coordinated relationship to another mode of transportation."

Because the Hermiston – Boardman Connector is likely to serve multiple commute pairs with consistent travel in peak periods, the second definition of commuter bus is most applicable. It is also possible for different portions of a route to be classified in different ways. For example, a long, non-stop portion of a route along a freeway could be considered commuter bus service and not require complementary paratransit service, while a local portion of the route off the freeway that provides stops at regular intervals would require complementary paratransit service. As another example, deviated-route service can be provided for one part of a route, along with fixed-route plus complementary paratransit service for another part of the route. The Hermiston – Boardman Connector is likely to be a traditional fixed-route service, without deviation zones due to funding source classification and the long-distance service focus.

The Hermiston – Boardman Connector will likely have 3 stops or fewer in each community and riders may experience long wait times if the service operates with long headways. As such, stops desirably should have relatively high levels of passenger activity, amenities to make waiting comfortable and to attract ridership, and minimal distance from the main roads to minimize overall travel time. Additionally, these points should connect to other existing or planned transit services. These stops may include:

- Boardman
    - SAGE Center, located along Olson Road. The SAGE Center shares a location with the Boardman Chamber of Commerce and provides well-lit, shaded space to wait. In addition, the SAGE Center is close to many employers, Blue Mountain

Community College, and Boardman Rec Center. The proximity to the Port of Morrow would also make timed transfers for employee shifts easier; with connections to the Boardman – Port of Morrow Circular closer to the ultimate destination. This location has potential for a park-and-ride partnership. In addition, employers identified that many of their employees use a childcare facility at this location, which would make this an ideal transfer point between the services, though it requires coordination for quick drop-off/pick-up time. Additionally, the Hermiston – Boardman Connector may be able to stop at a few large employers on its way to and from the SAGE Center, depending on shift times.

  - Boardman City Hall, located at City Center Drive. Boardman City Hall includes community space and resources, proximity to other businesses such as banks, grocery stores, and a DHS office, and proximity to residential areas. However, this destination would increase travel times for intercity commuters to Port of Morrow jobs. This location has potential for a park-and-ride partnership.
  - Employers, throughout the Port of Morrow. The Hermiston – Boardman Connector could stop at 1-2 large employers or employers far from the SAGE Center on its way into the Boardman area. Doing so would provide a direct connection for those traveling via the Connector and decrease the demand on the Circular.
- Hermiston
  - Walmart, located along N 1st Avenue. The Walmart stop would provide a connection to both the Hopper and HART routes and access to the shopping center. In addition to grocery trips, the Walmart is a key employer in the region. This location has potential for a park-and-ride partnership.
  - SW 3rd Street & Orchard Avenue. This stop provides a connection to both the Hopper and HART routes and access to the Bi-Mart shopping center. Other nearby resources include the USPS office and Hermiston Municipal Court. This location may be challenging to provide a park-and-ride partnership, as large nearby parking lots are primarily schools with similarly-timed parking needs.
  - Hermiston Plaza, located along the Umatilla-Stanfield Highway. The Hermiston Plaza stop would provide a connection to the HART. Currently, the Hopper does not stop at the Plaza but passes by it. Providing a key stop on the Hopper route at the Hermiston Plaza will provide transfer opportunities as well as access to grocery stores, pharmacies and other activities.
- Other Stops
  - Echo, Irrigon, McNary, Stanfield, and Umatilla – Stops in these communities should be at the existing Hopper stops, both for connection purposes and as these stops are already centrally located to the communities and their resources. These stops include City Park in Echo, Highway 730/First Street in Irrigon, McNary Market in McNary, Glendening & E Taft in Stanfield, and City Hall in Umatilla. The Port of Entry in Umatilla has also been considered for relocation, and its site could be used as a park-and-ride location in the future.
  - Other – Depending on the recommended route, stops could be located in the South Hermiston Industrial area, Westland Road employment area, or elsewhere.

Remix transit planning software was used to develop routing alternatives. The PMT then recommended specific alternatives based on the evaluation of the initial alternatives. Remix provided estimated run times (based on an assumed 35 miles-per-hour average speed) and estimated mileage. A minimum layover buffer of 10% of the runtime was included in the total trip time for each route to account for breaks for the driver, recovery from delays, and/or time to change drivers.

Route and Stops

The following section provides information about the Early AM Route and Regular Route versions of the Preferred Routes. Each Preferred Route will serve the region for 12–18 hours per day, 6 days per week. As some of the first shifts at the Port of Morrow start at 5:00 AM, the Early AM Route would need to start at 4:00 AM in Hermiston to connect to the Boardman–Port of Morrow Circular at the SAGE Center at 4:40 AM. All Early AM and Regular Hermiston–Boardman Connector trips will provide a timed connection with the Early AM and Regular Boardman–Port of Morrow Circular, respectively.

Hermiston – Boardman Connector Early AM Route

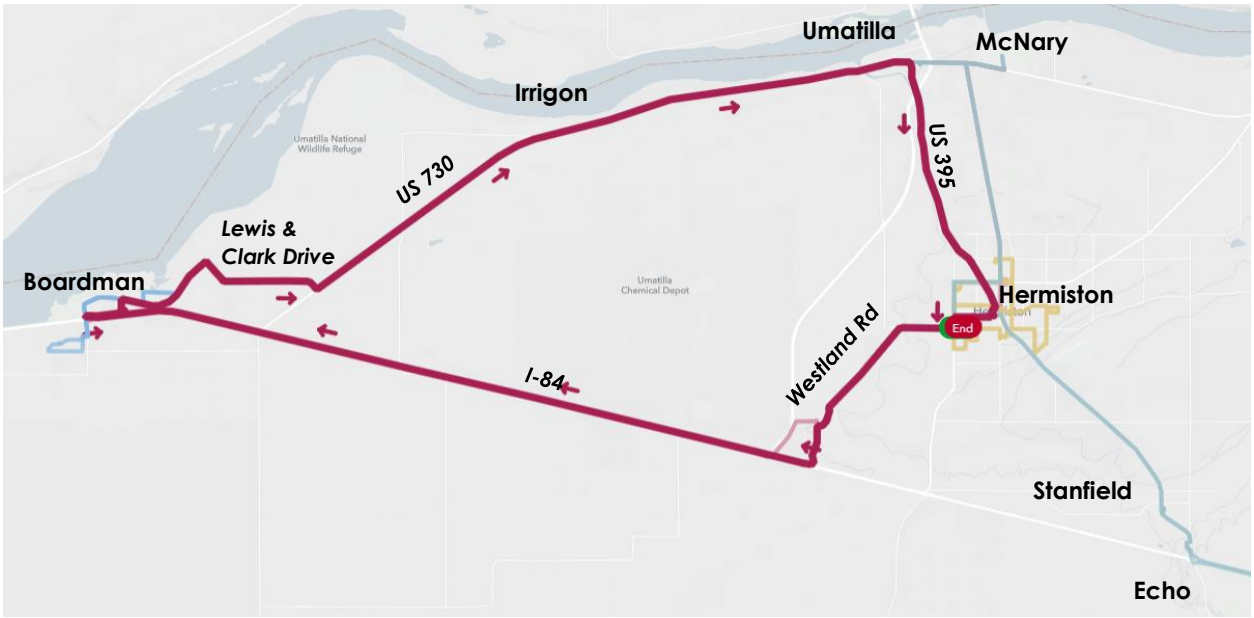
Ridership on the Early AM Routes is expected to be driven primarily by Port of Morrow employees. Therefore, Early AM Routes are designed to focus on the shortest and quickest travel paths between Hermiston and Boardman – Port of Morrow. As indicated later in this report, the Hopper route would stay the same in the AM, providing service to McNary.

Based on the employment data provided, employer shifts at the Port of Morrow start as early as 5:00 AM and continue through 7:00 AM. Therefore, Clockwise and Counterclockwise routes have been developed to maximize service times during this important morning period. The Counterclockwise route begins in Hermiston and uses Umatilla River Road, US 730, and Lewis and Clark Drive in the Port of Morrow before stopping at the Sage Center. It returns to Hermiston via I-84, County 1232 Road to minimize left-turns at interchanges, Westland Road, and Highland Avenue. The Clockwise route runs nearly the same route, but in the opposite direction. Both the Counterclockwise and Clockwise routes have 90-minute headways, with Counterclockwise runs arriving at the Sage Center at 4:40 AM, 6:10 AM, and 7:40 AM and Clockwise runs arriving at the SAGE Center near 5:25 AM, 6:55 AM, and 8:25 AM. While some of these runs do not provide perfectly timed arrivals with every Port of Morrow shift, coordination with employers may lead to changes in shift times to align with Connector timing. The Preferred Early AM Counterclockwise and Clockwise Routes are shown in Figure 6 and Figure 7. Estimated travel times for both routes are:

- Runtime – 75 minutes
- Recovery/Layover Buffer – 15 minutes
- Total Trip Time – 90 minutes

Figure 6. Hermiston–Boardman Connector Early AM Counterclockwise Route

Figure 7. Hermiston–Boardman Connector Early AM Clockwise Route



Hermiston – Boardman Connector Regular Route

The Regular Route is designed with similar Counterclockwise and Clockwise runs operating after the Early AM Route between 8:30 AM and the end of the service day around 9:20 PM. Both routes travel routings similar to the Early AM routes; however, they travel between Hermiston, McNary, and Umatilla via US 395. The regular Counterclockwise route has a 2-hour headway, with runs arriving at the SAGE Center at 9:22 AM, 11:22 AM, 1:22 PM, 3:22 PM, 5:22 PM, and 7:22 PM. The regular Clockwise route would operate at 2-hour headways with runs arriving at the SAGE Center at 10:20 AM,

12:20 PM, 2:20 PM, 4:20 PM, 6:20 PM, and 8:20 PM. The Preferred Regular Counterclockwise and Clockwise Routes are shown in Figure 8 and Figure 9. Estimated travel times for this route are:

- Runtime – 88 minutes
- Recovery/Layover Buffer – 32 minutes
- Total Trip Time – 120 minutes

Figure 8. Hermiston – Boardman Connector Regular Counterclockwise Route

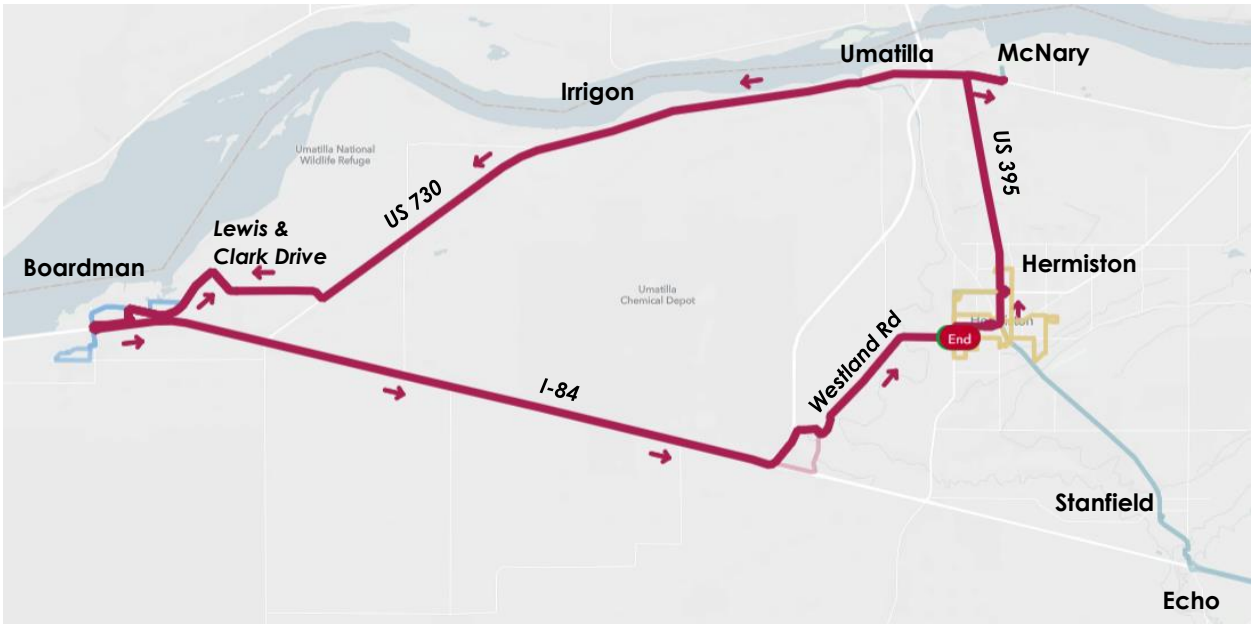


Figure 9. Hermiston – Boardman Connector Regular Clockwise Route

Long-Term Route Improvements

If more funding is available in the long term, Sunday trips can be added to the schedule to provide 7-days-a-week service. Kayak Public Transit currently does not provide Sunday service on any route, and would need to obtain additional dispatch, supervisory, maintenance, and other staff to support this service expansion. In addition, Umatilla/McNary and Stanfield/Echo are interested in obtaining local demand-response services. A future version of the Hermiston – Boardman Connector could look to connect to these services and operate the Early AM version of the route throughout the day, improving headways and relying on connections to demand-response for those not directly served by the route. *If funding is limited in the near- or long terms, a reduced funding option is shown in Appendix B.*

Boardman – Port of Morrow Circular

The Boardman – Port of Morrow Circular is intended to provide first/last-mile connections, in particular to Port of Morrow employers. This service will also provide transit options to the wider Boardman community. Given the varying shift needs of employers, and the dispersed and low-density land uses of both the Port of Morrow and Boardman, a deviated fixed-route service is recommended to provide the necessary scheduling and routing flexibility.

Under the requirements of the Americans with Disabilities Act (ADA), transit agencies that provide fixed-route transit service (not including intercity service) must also provide origin-to-destination "complementary paratransit" (demand-response) service for persons with disabilities that prevent them from accessing or using the fixed-route service. Among other conditions, this service must be available within ¾ mile of the fixed route during the same hours that fixed-route service operates. The service must either fill the gap from a person's origin or destination to a connecting transit service or provide the full trip of service. As noted previously, Morrow County operates the demand-response service The Loop, which could serve as the complementary demand-response for fixed-route transit during The Loop's hours of operation. However, if the Circular operates early in the morning to provide Port of Morrow shift service, the whole Circular route would need to be deviated fixed-route to satisfy complementary paratransit requirements.

If deviation is implemented, several best practices for service design should be followed. Deviated-route service works best when the typical number of deviation requests is relatively low (e.g., one or two per one-way trip), such that the schedule has time built in to accommodate deviations, but neither provides too much slack time that goes unused on most trips, nor experiences so many requests that buses cannot start their next trip on time. Desirable conditions for deviated-route service include the following:

- **Streamlined route patterns.** Direct and straight routes, as opposed to ones with more turns for coverage, provide extra time in the schedule that can be used to accommodate deviations, without necessarily requiring changes to the route headway

or endpoints. As ridership patterns stabilize, stops that have passenger activity on most trips continue to be served by the fixed route. At the same time, little-used stops that require out-of-direction travel can be eliminated from the fixed route. These former stops can continue to be served on an as-needed basis via a request for a route deviation, as well as by walking a little farther from the next-closest fixed-route stop.

- **Longer distances between stops.** Stops are desirably close enough to each other so as not shrink the area within walking distance of the route by too much, but far enough apart to minimize the amount of out-of-direction travel required when making a deviation. An average ¼-mile spacing provides a reasonable compromise.
- **Reduced/eliminated use of flag stops.** Small-city transit agencies with relatively low ridership demand often allow passengers to board or alight the bus at any safe location along the fixed route as a convenience to shorten walking distances. However, this policy is more difficult to maintain with deviated-route service, as the bus is only required to serve the fixed stops along the route, and may deviate from the fixed route between those stops as needed. As a result, a potential passenger waiting along the route between two designated stops may be bypassed if a deviation occurs along that section of the route. It is possible to avoid this issue by requiring the bus to turn around after deviating to rejoin the fixed route at the point it left it, but this approach is less-efficient time-wise and tends to reduce the number of deviations that can be made per trip. In addition, flag stops eventually become unsustainable as ridership increases, as the extra stops made along the route slow buses down too much.
- **Prioritizing ADA passengers for deviations.** Under the ADA, requests for complementary paratransit must be allowed to be made until the end of the day before the trip. Requiring other passengers to wait until the day of their trip to confirm a deviation request maximizes the capacity of deviated-route service to serve ADA passengers and thus minimizes the need for supplemental dial-a-ride service to avoid service denials to ADA passengers. When general passengers are allowed to request deviations, the agency may set a deadline for when the request can be made (e.g., no later than one hour in advance for pick-ups). Drivers may be allowed to make drop-offs on request, if the schedule permits.

The Boardman – Port of Morrow Circular should provide timed connections to the Hermiston – Boardman Connector.

Remix transit planning software was used to develop routing alternatives. The PMT then recommended specific alternatives based on the evaluation of the initial alternatives. Remix provided estimated run times (based on an assumed 12 miles-per-hour average speed) and estimated mileage. A minimum layover buffer of 10% of the runtime was included in the total trip time for each route to account for breaks for the driver, recovery from delays, and/or time to change drivers. All routes are assumed to deviate within the Port of Morrow.

Route and Stops

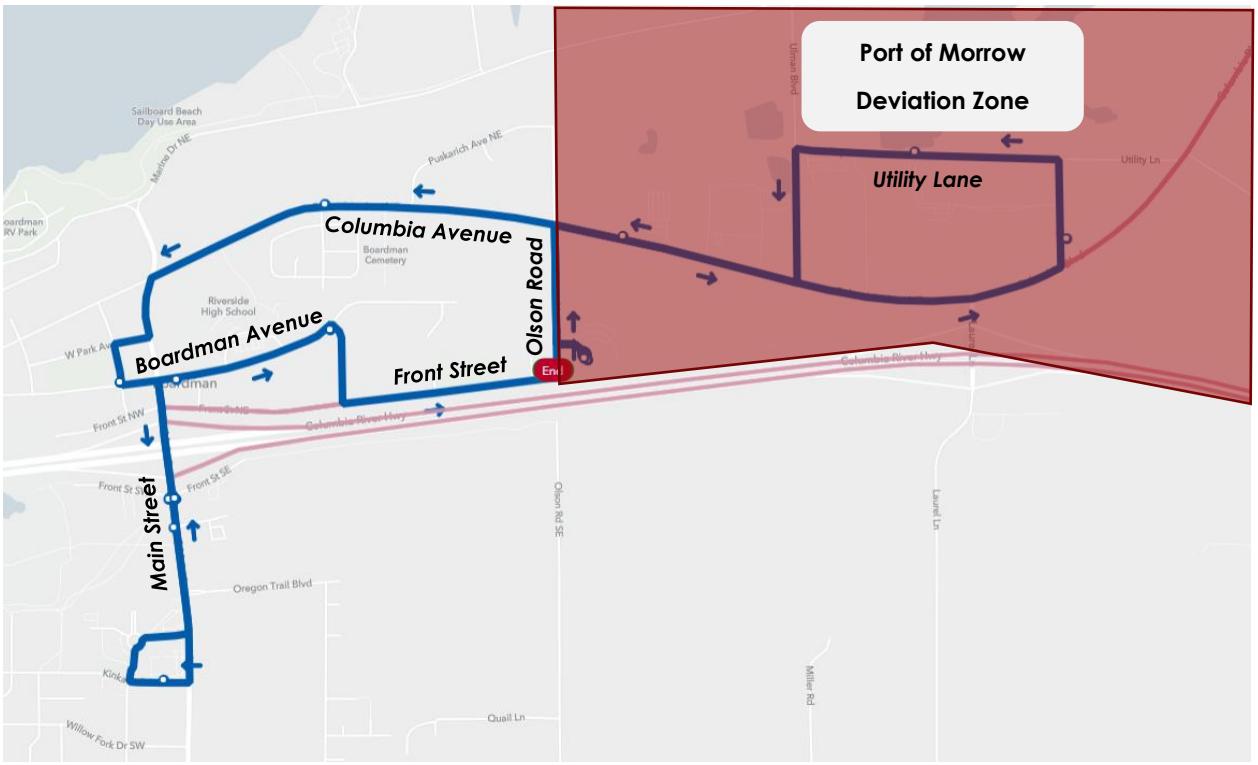
The following section provides information about the Early AM Route and Regular Route versions of the Preferred Circular. The routes will serve the region for 12–18 hours per day. Every trip will connect with the Hermiston–Boardman Connector.

Boardman–Port of Morrow Circular Early AM Route

The route would start at 4:22 AM, travel to south Boardman, and then back to the SAGE Center to connect to the Hermiston–Boardman Connector, allowing riders to either transfer between the Hermiston–Boardman Connector if needed or stay on the Boardman – Port of Morrow Circular to travel to the employment centers in the Port of Morrow for the first shifts of the day. The route's schedule includes time to deviate for 7 minutes in the Port of Morrow. The route deviates up to ¼ mile outside of the Port of Morrow, when The Loop isn't operating, as well. The Early AM Route runs for a total of 45 minutes starting at the SAGE Center arriving at 4:40 AM, 5:25 AM, 6:10 AM, 6:55 AM, 7:40 AM, and 8:25 AM, and departing again 5 minutes after arrival. The exception is the trip at 9:10 AM, which waits 15 minutes and then becomes the Regular Route. The Preferred Early AM Route is shown in Figure 10. Estimates for this alternative include:

- Runtime – 33 minutes
- Layover and Deviation Buffer – 12 minutes
- Total Trip Time – 45 minutes

Figure 10. Boardman – Port of Morrow Circular Early AM Route

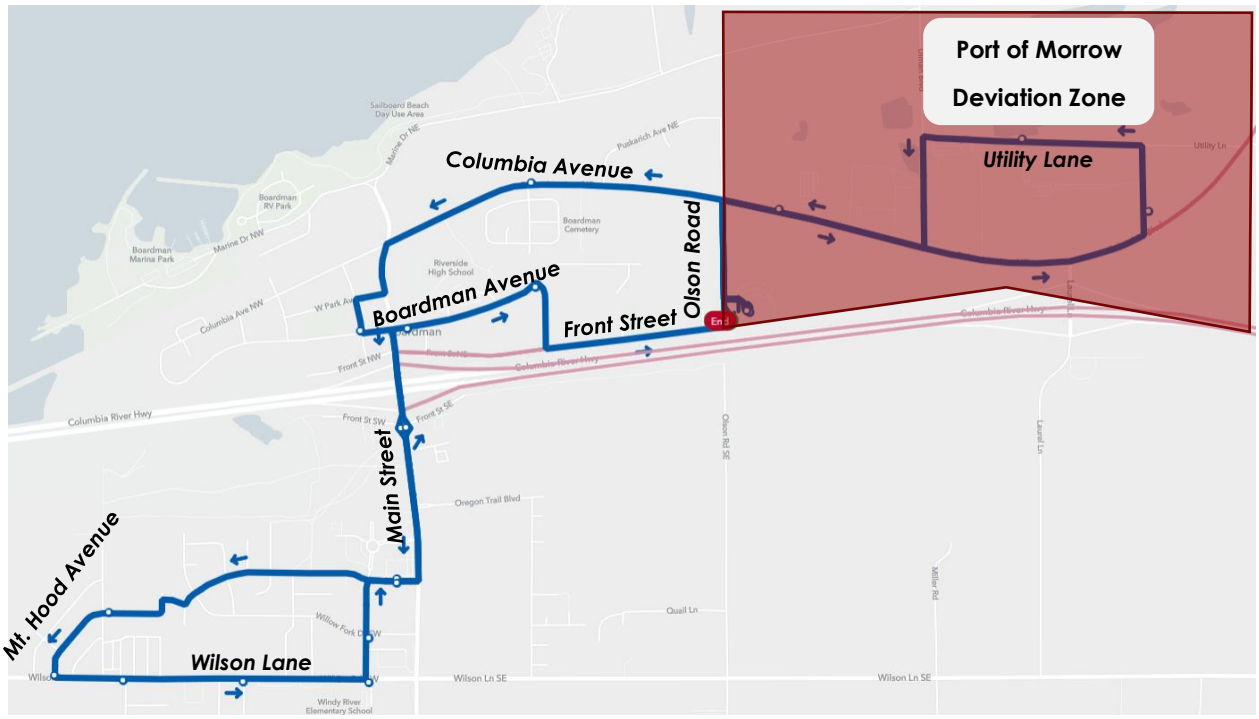


Boardman – Port of Morrow Circular Regular Route

The Regular Route is designed to operate after the early route, from 9:25 AM until the end of the service day around 8:15 PM. This route departs the SAGE Center, serves the Port of Morrow employment area, returns to the SAGE Center, and then continues through parts of the residential areas before returning to the SAGE Center. The route deviates for 12 minutes in the Port of Morrow. The regular route runs for a total of headways of 60 minutes (1 hour). It arrives at the SAGE Center in the end of every trip and departs after 5 minutes from the SAGE Center at the beginning of every trip at 9:25 AM, 10:25 AM, 11:25 AM, 12:25 PM, 1:25 PM, 2:25 PM, 3:25 PM, 4:25 PM, 5:25 PM, 6:25 PM, and 7:25 PM. The Preferred Regular Route is shown in Figure 11. Estimates for this alternative include:

- Runtime – 43 minutes
- Layover and Deviation Buffer – 17 minutes
- Total Trip Time – 60 minutes

Figure 11. Boardman – Port of Morrow Circular Regular Route



Service Span and Frequency

This section presents the service characteristics (e.g., days and hours of service, service frequency, schedule), network characteristics and evaluation of access of the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular.

Hermiston – Boardman Connector

Table 5 and Table 6 show the near-term route schedules for weekday and Saturday service on the Preferred Early AM and Regular Routes. As shown in the table, if funding is limited, the 5:30 AM to 6:05 PM service is higher priority, as it captures both ends of many employers' shifts and allows connections to other transit services.

Table 5. Hermiston–Boardman Connector Counterclockwise Schedule

Stop		Early AM Route			Regular Route					
Priority		+1.5 hr	Higher Priority Runs – 13 Service Hours							+2.5 hr
Hermiston	SW 3rd St. / W Orchard Ave.	4:00	5:30	7:00	8:30	10:30	**12:30**	**2:30**	**4:30**	**6:30**
	Walmart	–	–	–	8:40	10:40	**12:40**	**2:40**	**4:40**	**6:40**
	Northwest Farm Supply	–	–	–	8:44	10:44	**12:44**	**2:44**	**4:44**	**6:44**
N/A	McNary Market	–	–	–	8:51	10:51	**12:51**	**2:51**	**4:51**	**6:51**
Umatilla	Post Office	–	–	–	8:55	10:55	**12:55**	**2:55**	**4:55**	**6:55**
	Recycling Depot	–	–	–	8:56	10:56	**12:56**	**2:56**	**4:56**	**6:56**
	6th Street/B Street	4:14	5:44	7:14	8:57	10:57	**12:57**	**2:57**	**4:57**	**6:57**
Irrigon	US 730 /First Street	4:22	5:52	7:22	9:06	11:06	**1:06**	**3:06**	**5:06**	**7:06**
N/A	Cascade Specialties	4:34	6:04	7:34	9:17	11:17	**1:17**	**3:17**	**5:17**	**7:17**
Boardman	Lamb Weston West or Boardman Foods	4:37	6:08	7:38	9:20	11:20	**1:20**	**3:20**	**5:20**	**7:20**
	SAGE Center (arrive)	4:40	6:10	7:40	9:22	11:22	**1:22**	**3:22**	**5:22**	**7:22**
	SAGE Center (depart)	4:47	6:17	7:47	9:30	11:30	**1:30**	**3:30**	**5:30**	**7:30**
	Boardman Ave/Main St	4:52	6:22	7:52	9:35	11:35	**1:35**	**3:35**	**5:35**	**7:35**
N/A	Lamb Weston (Westland Road)	5:10	6:40	8:10	9:53	**11:53**	**1:53**	**3:53**	**5:53**	**7:53**
Hermiston	SW 3rd St./ W Orchard Ave.	5:22	6:52	8:22	10:05	**12:05**	**2:05**	**4:05**	**6:05**	**8:05**

Bold times indicate PM.

Table 6. Hermiston–Boardman Connector Clockwise Schedule

Stop		Early AM Route	Regular Route						
Priority		+1.5 hr	Higher Priority Runs – 13 Service Hours						+2.5 hr
Hermiston	SW 3rd St. / W Orchard Ave.	4:50	6:20	7:50	9:45	11:45	**1:45**	**3:45**	**5:45**	**7:45**
N/A	Lamb Weston (Westland Road)	5:02	6:32	8:02	9:57	11:57	**1:57**	**3:57**	**5:57**	**7:57**
Boardman	Boardman Ave/Main St	5:20	6:50	8:20	10:15	**12:15**	**2:15**	**4:15**	**6:15**	**8:15**
	SAGE Center (arrive)	5:25	6:55	8:25	10:20	**12:20**	**2:20**	**4:20**	**6:20**	**8:20**
	SAGE Center (depart)	5:32	7:02	8:32	10:27	**12:27**	**2:27**	**4:27**	**6:27**	**8:27**
	Columbia River Processing	5:35	7:05	8:35	10:30	**12:30**	**2:30**	**4:30**	**6:30**	**8:30**
N/A	Port of Morrow Warehouse	5:38	7:08	8:38	10:33	**12:33**	**2:33**	**4:33**	**6:33**	**8:33**
Irrigon	US 730 / First Street	5:50	7:20	8:50	10:45	**12:45**	**2:45**	**4:45**	**6:45**	**8:45**
Umatilla	City Hall Village Square	5:59	7:29	8:59	10:54	**12:54**	**2:54**	**4:54**	**6:54**	**8:54**
	6th Street/Yrexa Avenue	6:00	7:30	9:00	10:55	**12:55**	**2:55**	**4:55**	**6:55**	**8:55**
N/A	McNary Market	–	–	–	11:00	**1:00**	**3:00**	**5:00**	**7:00**	**9:00**
N/A	KIE Supply Corporation	–	–	–	11:07	**1:07**	**3:07**	**5:07**	**7:07**	**9:07**
Hermiston	Walmart	–	–	–	11:11	**1:11**	**3:11**	**5:11**	**7:11**	**9:11**
	SW 3rd St./ W Orchard Ave.	6:12	7:42	9:12	11:20	**1:20**	**3:20**	**5:20**	**7:20**	**9:20**

Bold times indicate PM.

Hopper and HART Recommendations

In order to decrease transfer times and improve connections, Hopper and HART schedule modifications were considered. Table 7 shows the connection opportunities at SW 3rd Street/Orchard Avenue in Hermiston.

Hopper Schedule Modifications

- AM Trip: Begin the AM trip 30 minutes later to provide a timed transfer with the Hermiston–Boardman Connector on its way to Pendleton as the Connector goes to Boardman. No modifications to the route alignment are recommended for this trip. Maintaining the Umatilla connection has the additional benefit of reducing the need to transfer between buses, especially as there is a relatively high commute demand between Umatilla and Pendleton. The Hopper would start from SW 3rd Street/Orchard Avenue at 6:16 AM instead of 5:46 to head north (McNary/ Umatilla) and at 6:54 AM instead of 6:24 AM to head south (Pendleton).
- Mid-AM trip: Remove service between Umatilla and Irrigon, resulting in 30 minutes of travel time savings. This changes the route's return time to stop by SW 3rd Street/W Orchard

Avenue at 10:21 AM instead of 10:51 AM, allowing for transfers between the Hermiston-Boardman Connector on the Hopper's way to Pendleton. This change to the schedule also allows Boardman-to-Pendleton travelers to have a timed transfer. Alternatively, to avoid having the Hopper and Connector buses follow shortly after each other on the way back from Umatilla, the Hopper could return directly to Hermiston from Umatilla via the Umatilla River Road and have its layover in Hermiston instead of at the McNary Market.

- Mid-PM trip: Begin this run 20 minutes later and remove the Hermiston-to-Irrigon segment of the service, making SW 3rd Street/Orchard Avenue the terminus for this Hopper run. This change would schedule the Hopper to arrive at 2:18 PM instead of 1:58 PM to allow transfers between the Hermiston-Boardman Connector (arrives at 2:18 PM and departs at 2:30 PM). The timed transfer also maintains low transfer times for riders.
- PM trip: Remove the Hermiston-to-Irrigon segment, making SW 3rd Street/Orchard Avenue the terminus for this Hopper run. If the Hopper continued north from Hermiston, it would duplicate service with the Hermiston-Boardman Connector. The timed transfer also maintains low transfer times for riders.

HART Schedule Modifications

Wait times for transfers in both directions between the Connector and HART are generally 30 minutes or less. The HART schedule could be adjusted to time connections with the Hermiston-Boardman Connector (particularly the 10:16 am HART departure), but the transfer times that would result under the existing HART schedule are reasonable. Therefore, no significant HART schedule changes are recommended at this time.

Network, Travel Times, and Transfers

Figure 12 and Figure 13 show the approximate travel times and transfer times to connecting services of the Early AM and Regular Hermiston–Boardman Connector, respectively. As shown in Figure 12, it takes 14 minutes between Hermiston and Umatilla, 8 minutes between Umatilla and Irrigon, 18 minutes between Irrigon and Boardman (SAGE Center), and 35 minutes between Boardman and Hermiston on the Preferred Early AM Clockwise and Counterclockwise Hermiston – Boardman Connector. As shown in Figure 13, it takes 27 minutes one-way to travel between Hermiston and Umatilla, 9 minutes between Umatilla and Irrigon, 16 minutes between Irrigon and Boardman (SAGE Center), 18 minutes between Boardman (SAGE Center) to Irrigon; and 35 minutes between Boardman and Hermiston on the Preferred Regular Clockwise and Counterclockwise Hermiston – Boardman Connector. Timed connections to the Hopper are provided at SW 3rd Street/Orchard Ave for both versions of the Connector route.

Figure 14 and Figure 15 show the route taken by the Early AM and Regular Hermiston – Boardman Connector, respectively, within Hermiston. A focused view of the Boardman end of the routes is included with the Boardman – Port of Morrow Circular section later in this report.

Table 7. SW 3rd Street/Orchard Avenue Connection Opportunities

		SW 3rd Street/W Orchard Ave (Hermiston)																			
Hermiston–Boardman Connector		CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW
	Arrive	–	–	5:22	*6:12*	*6:52*	7:42	8:22	*9:12*	10:05	11:20	***12:05***	**1:20**	***2:05***	**3:20**	**4:05**	**5:20**	***6:05***	**7:20**	**8:05**	**9:20**
	Depart	4:00	4:50	5:30	*6:20*	*7:00*	7:50	8:30	*9:45*	10:30	11:45	***12:30***	**1:45**	***2:30***	**3:45**	**4:30**	**5:45**	***6:30***	**7:45**	–	–
Existing Hopper	*To Umatilla*	–	–	–	5:46	–	–	–	9:26	–	–	–	–	**1:58**	–	–	–	**6:15**	–	–	–
	To Pendleton	–	–	–	6:24	–	–	–	10:51	–	–	–	–	**3:23**	–	–	–	**6:59**	–	–	–
Proposed Hopper Modification	*Depart to McNary/ Umatilla*	–	–	–	*6:16*	–	–	–	*9:26*	–	–	–	–	–	–	–	–	–	–	–	–
	Arrive from Pendleton	–	–	–	–	–	–	–	–	–	–	–	–	***2:18***	–	–	–	***6:15***	–	–	–
	Depart to Pendleton	–	–	–	–	*6:54*	–	–		*10:21*	–	–	–	***2:30***	–	–	–	***6:29***	–	–	–
Existing HART		–	–	–	–	7:14	7:57	8:04 8:47	*9:26*	10:09 10:16	10:59	***12:19*** **1:02**	**1:09**	**1:52** **3:09**	**3:52** **3:58**	**4:42**	**5:19**	**6:03** ***6:08***	**6:52**	–	–

Bold times indicate PM.
Red italic times indicate opportunity for timed transfer to and from the Connector.
CC = counterclockwise, CW = clockwise.

Figure 12. Early AM Hermiston – Boardman Connector Network, Travel Times, and Transfers

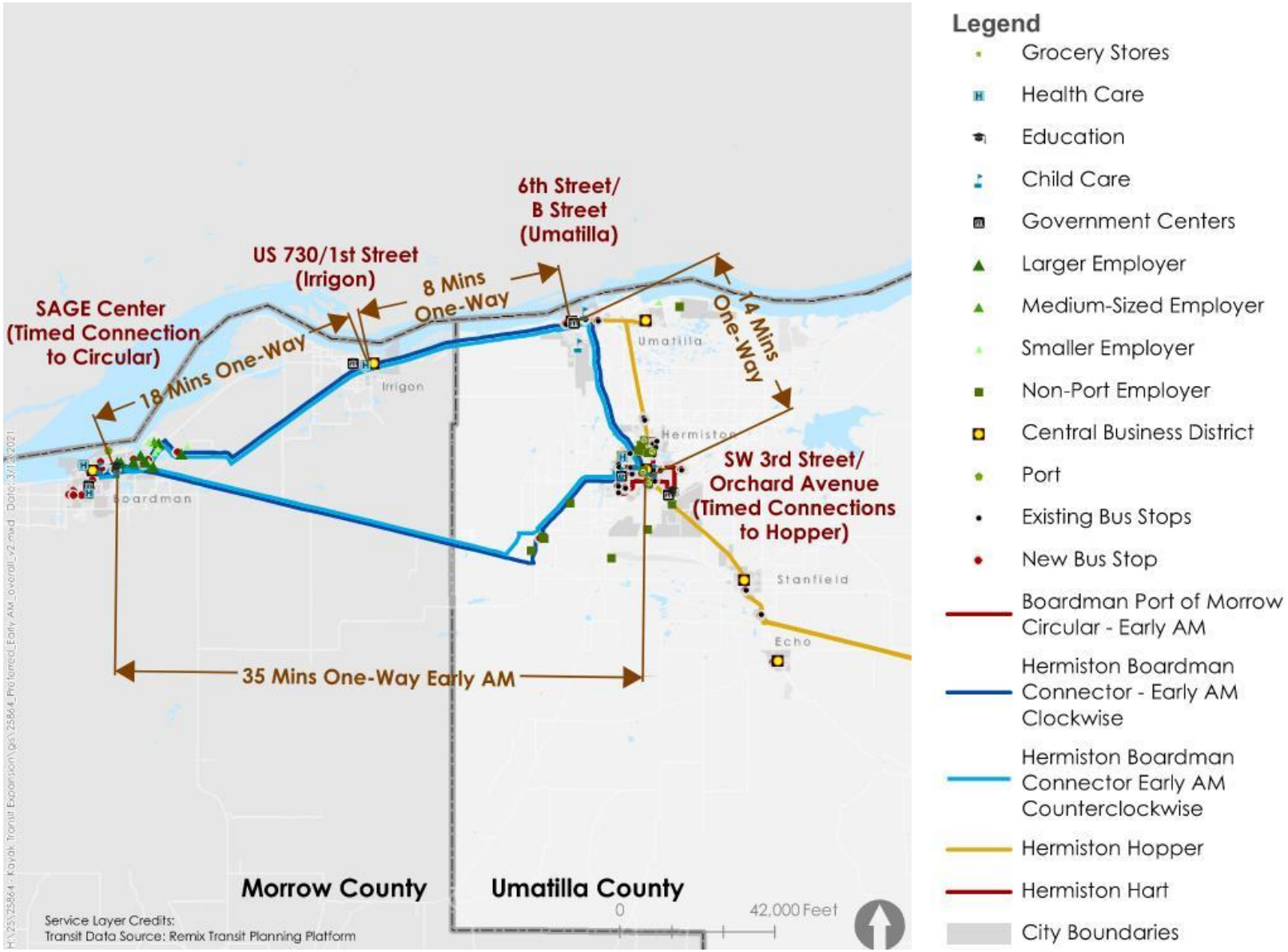
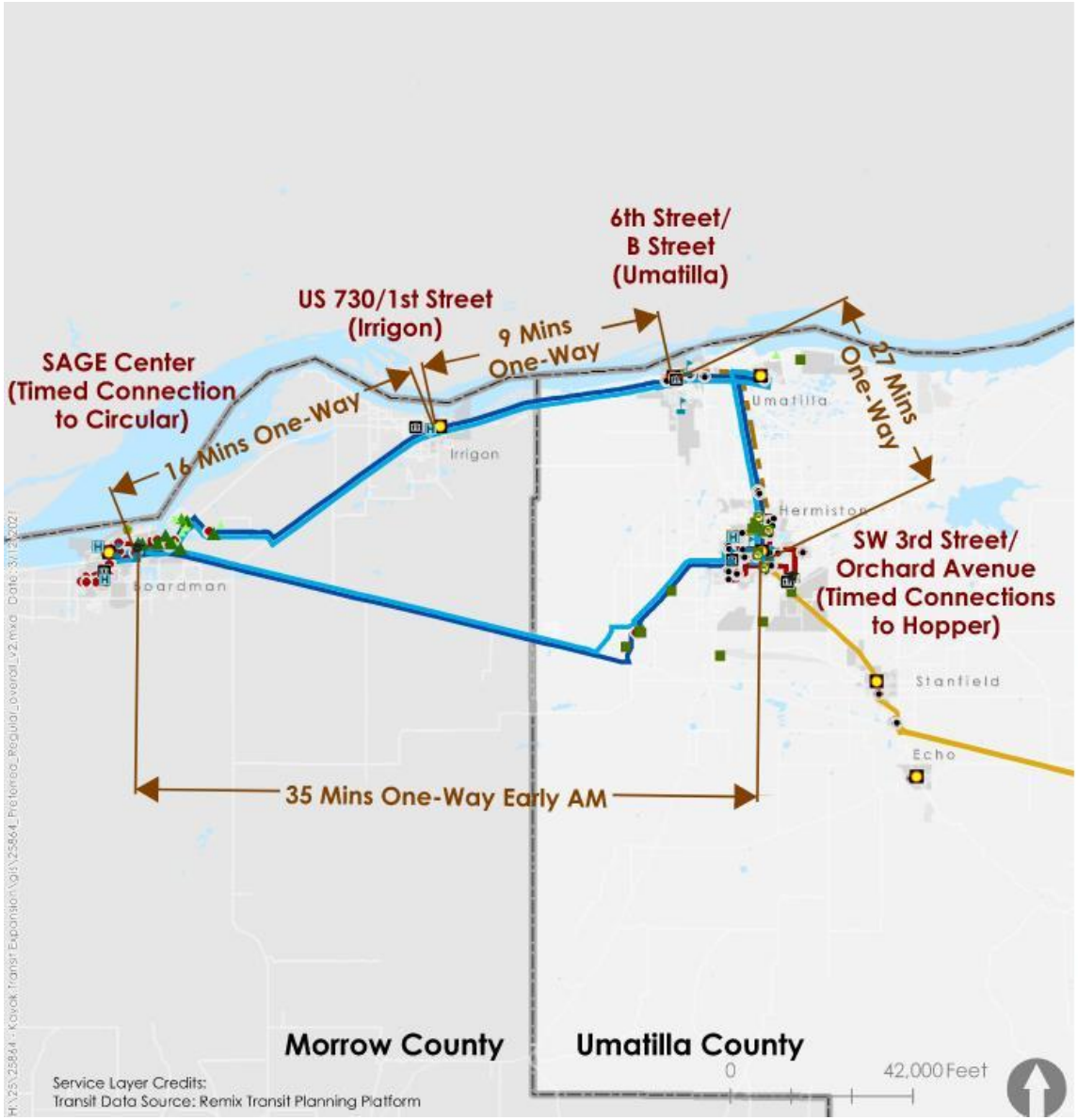


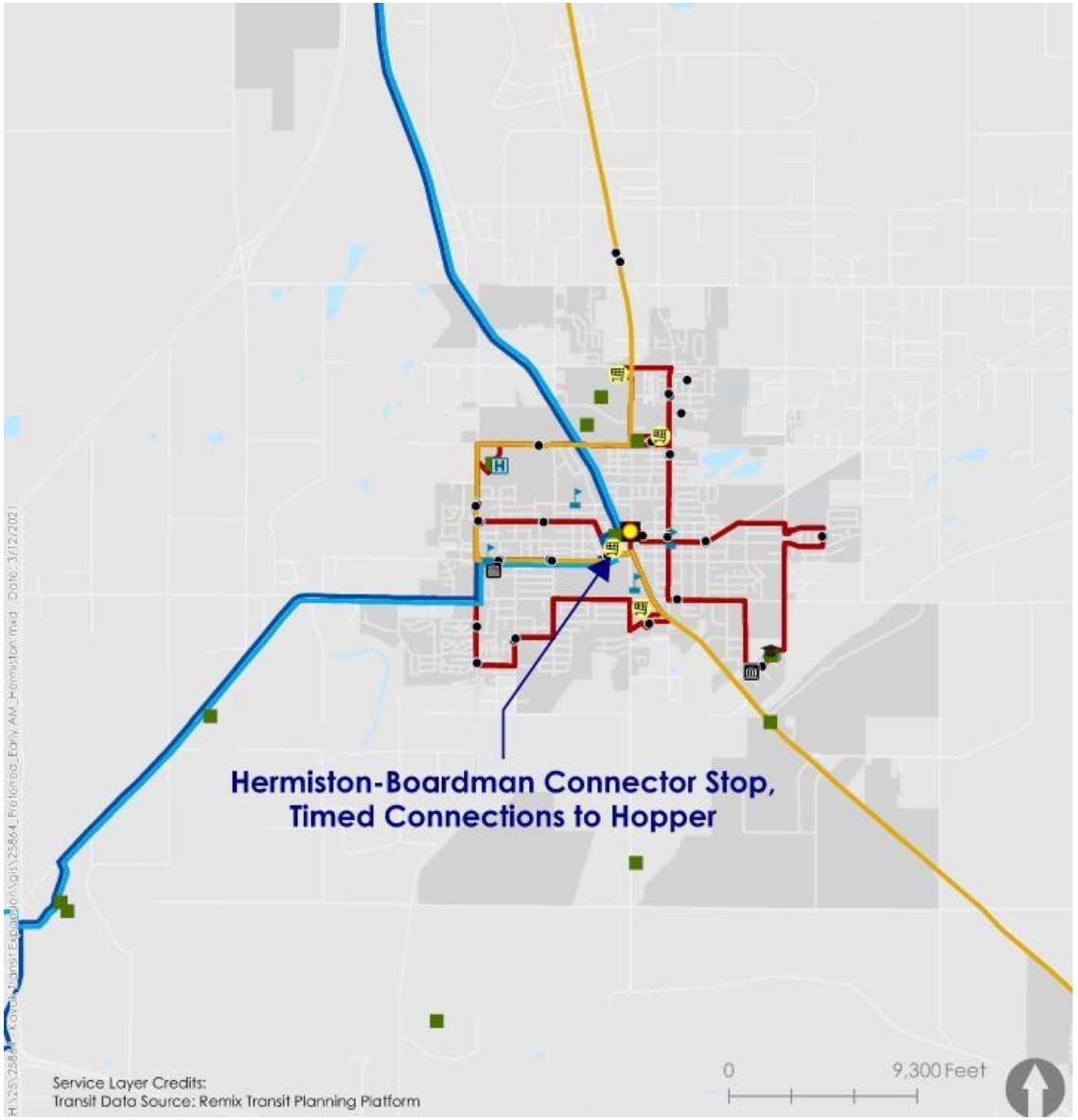
Figure 13. Regular Hermiston – Boardman Connector Network, Travel Times, and Transfers



Legend

- Grocery Stores
- Health Care
- Education
- Child Care
- Government Centers
- Larger Employer
- Medium-Sized Employer
- Smaller Employer
- Non-Port Employer
- Central Business District
- Port
- Existing Bus Stops
- New Bus Stop
- Boardman Port of Morrow Circular - Regular
- Hermiston Boardman Connector - Regular Clockwise
- Hermiston Boardman Connector - Regular Counterclockwise
- Hermiston Hopper
- Hermiston Hopper - Umatillla (AM Only)
- Hermiston Hart
- County Boundary
- City Boundaries

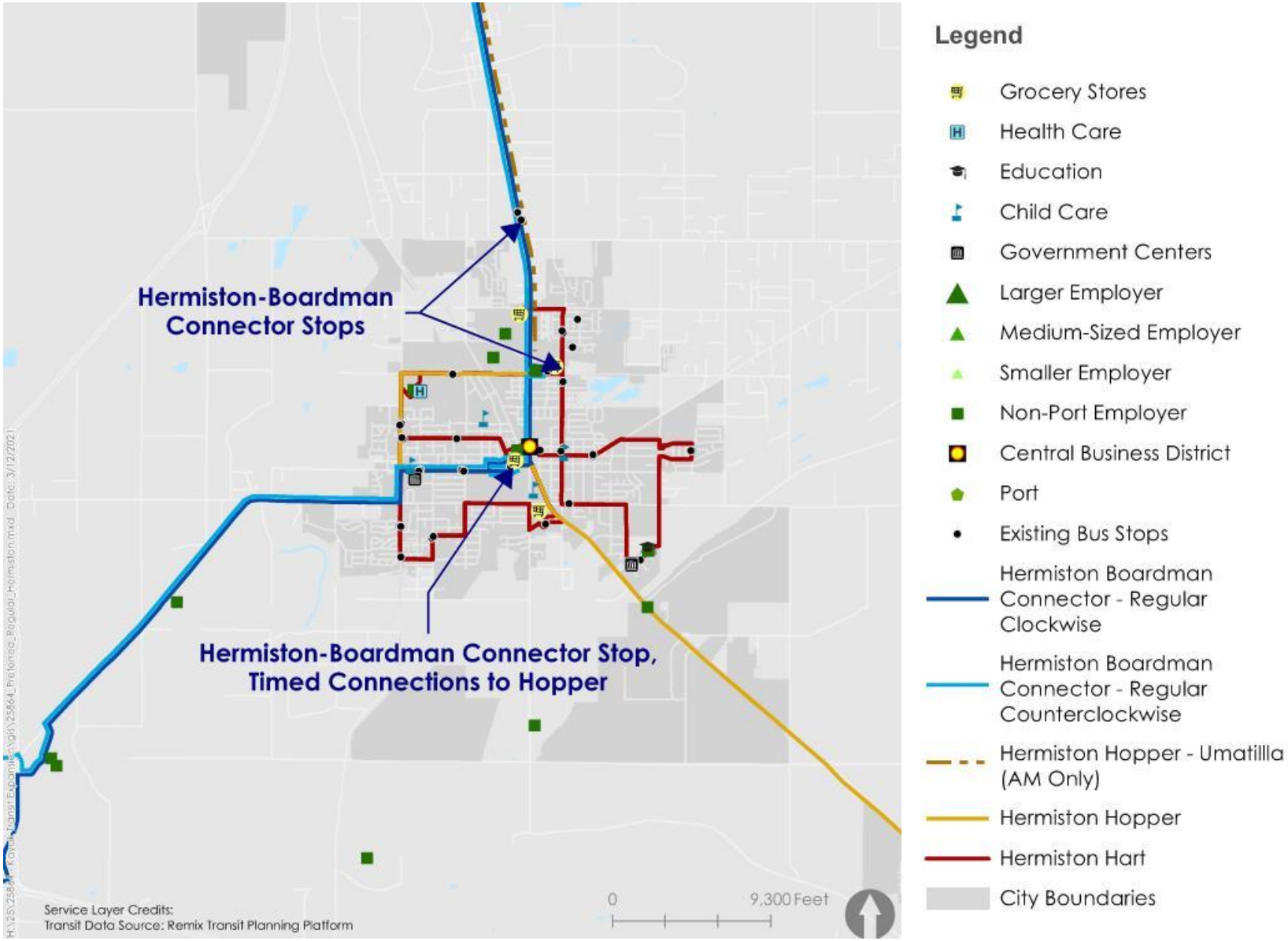
Figure 14. Early AM Hermiston – Boardman Connector: Hermiston Detail



Legend

- Grocery Stores
- Health Care
- Education
- Child Care
- Government Centers
- Larger Employer
- Medium-Sized Employer
- Smaller Employer
- Non-Port Employer
- Central Business District
- Port
- Existing Bus Stops
- Hermiston Boardman Connector - Early AM Clockwise
- Hermiston Boardman Connector Early AM Counterclockwise
- Hermiston Hopper
- Hermiston Hart
- City Boundaries

Figure 15. Regular Hermiston – Boardman Connector: Hermiston Detail



Evaluation of Access

Table 8 shows the existing amenities and infrastructure, including walking facility availability, biking facility availability, park-and-ride availability, and stop amenities at the proposed stops. As shown, many stops lack biking facilities, park-and-ride feasibility, and stop amenities. Improvements within communities could be prioritized near stops to make accessing transit more comfortable and convenient.

Table 8. Amenities and Infrastructure at Stops

	Stop	Walking Availability	Biking Availability	Park-and-Ride Availability	Stop Amenities
Hermiston	SW 3rd Street/W Orchard Ave	Good	Poor	Potential Future	Shelter; Trash Cans; Seating
	Walmart	Good	Good	Potential Future	Shelter; Restrooms; Trash Cans
	Northwest Farm Supply	Fair	Poor	None	Trash Cans
	KIE Supply Corporation	Fair	Poor	None	None
N/A	Lamb Weston (Westland Road)	Poor	Poor	Potential Future	None
	McNary Market	Fair	Poor	None	Shelter; Trash Cans
Umatilla	Post Office	Fair	Poor	None	None
	Recycling Depot	Good	Poor	None	Trash Cans
	6th Street/B Street	Good	Poor	None	Trash Cans
	City Hall Village Square	Good	Poor	None	Seating
	6th Street/Yrexa Avenue	Good	Poor	None	None
Irrigon	Highway 730 and First Street	Good	Poor	None	None
Boardman	Employment stops	Poor	Poor	Undesirable	None
	SAGE Center	Fair	Poor	None	Shelter; Restrooms; Trash Cans; Bike Racks; Seating
	Boardman Ave/Main St	Good	Fair	Potential Future	Trash Cans

Walking and Biking Rating: Good = sidewalks and crosswalks; bicycle lanes or sharrows; Fair = some sidewalks; adequate shoulder for biking; Poor = no facilities

Boardman – Port of Morrow Circular

Table 9 shows the near-term route schedule for weekday and Saturday service. As identified, the 5:25 AM to 7:15 PM service is higher priority, if funding is limited, to provide first/last-mile connections to the Port of Morrow employers. If more funding is available, additional early and late service could be added to provide more connectivity within the Boardman and Port of Morrow region.

Table 9. Port of Morrow Circular Schedule

Stop	Early AM Route		Regular Route																
	+1 hr		Higher Priority Runs – 13 Service Hours															+2 hr	
SAGE Center (Arrives)	–	4:40	5:25	6:10	6:55	7:40	8:25	9:10	10:20	11:20	**12:20**	**1:20**	**2:20**	**3:20**	**4:20**	**5:20**	**6:20**	**7:20**	**8:20**
SAGE Center (Departs)	–	4:45	5:30	6:15	7:00	7:45	8:30	9:25	10:25	11:25	**12:25**	**1:25**	**2:25**	**3:25**	**4:25**	**5:25**	**6:25**	**7:25**	**8:25**
Boardman Foods EB	–	4:52	5:37	6:22	7:07	7:52	8:37	9:31	10:31	11:31	**12:31**	**1:31**	**2:31**	**3:31**	**4:31**	**5:31**	**6:31**	**7:31**	**8:31**
Lamb-Weston East	–	4:54	5:39	6:24	7:09	7:54	8:39	9:33	10:33	11:33	**12:33**	**1:33**	**2:33**	**3:33**	**4:33**	**5:33**	**6:33**	**7:33**	**8:33**
Lamb Weston West	–	4:58	5:43	6:28	7:13	7:58	8:43	9:37	10:37	11:37	**12:37**	**1:37**	**2:37**	**3:37**	**4:37**	**5:37**	**6:37**	**7:37**	**8:37**
SAGE Center	4:22	5:07	5:52	6:37	7:22	8:07	8:52	9:52	10:52	11:52	**12:52**	**1:52**	**2:52**	**3:52**	**4:52**	**5:52**	**6:52**	**7:52**	**8:52**
Columbia Ave/2nd St	4:26	5:11	5:56	6:41	7:26	8:11	8:56	9:56	10:56	11:56	**12:56**	**1:56**	**2:56**	**3:56**	**4:56**	**5:56**	**6:56**	**7:56**	**8:56**
Boardman Post Office	4:29	5:14	5:59	6:44	7:29	8:14	8:59	9:59	10:59	11:59	**12:59**	**1:59**	**2:59**	**3:59**	**4:59**	**5:59**	**6:59**	**7:59**	**8:59**
Main St/Front St SB	4:30	5:15	6:00	6:45	7:30	8:15	9:00	10:00	11:00	12:00	**1:00**	**2:00**	**3:00**	**4:00**	**5:00**	**6:00**	**7:00**	**8:00**	**9:00**
Select Market/DHS	4:32	5:17	6:02	6:47	7:32	8:17	9:02	10:02	11:02	12:02	**1:02**	**2:02**	**3:02**	**4:02**	**5:02**	**6:02**	**7:02**	**8:02**	**9:02**
Faler Rd/Mt. Hood Ave	–	–	–	–	–	–	–	10:06	11:06	12:06	**1:06**	**2:06**	**3:06**	**4:06**	**5:06**	**6:06**	**7:06**	**8:06**	**9:06**
Mt. Hood Ave/Wilson Ln	–	–	–	–	–	–	–	10:07	11:07	12:07	**1:07**	**2:07**	**3:07**	**4:07**	**5:07**	**6:07**	**7:07**	**8:07**	**9:07**
Wilson Rd/River Ridge Dr	–	–	–	–	–	–	–	10:08	11:08	12:08	**1:08**	**2:08**	**3:08**	**4:08**	**5:08**	**6:08**	**7:08**	**8:08**	**9:08**
Wilson Rd/Anthony Rd	–	–	–	–	–	–	–	10:09	11:09	12:09	**1:09**	**2:09**	**3:09**	**4:09**	**5:09**	**6:09**	**7:09**	**8:09**	**9:09**
Tatone St/Wilson Rd	–	–	–	–	–	–	–	10:10	11:10	12:10	**1:10**	**2:10**	**3:10**	**4:10**	**5:10**	**6:10**	**7:10**	**8:10**	**9:10**
Tatone St/Willow Fork Dr	–	–	–	–	–	–	–	10:11	11:11	12:11	**1:11**	**2:11**	**3:11**	**4:11**	**5:11**	**6:11**	**7:11**	**8:11**	**9:11**
Select Market/DHS	4:32	5:17	6:02	6:47	7:32	8:17	9:02	10:12	11:12	12:12	**1:12**	**2:12**	**3:12**	**4:12**	**5:12**	**6:12**	**7:12**	**8:12**	**9:12**
Main St/Front St NB	4:34	5:19	6:04	6:49	7:34	8:19	9:04	10:14	11:14	12:14	**1:14**	**2:14**	**3:14**	**4:14**	**5:14**	**6:14**	**7:14**	**8:14**	**9:14**
C&D Drive-In	4:36	5:21	6:06	6:51	7:36	8:21	9:06	10:15	11:15	12:15	**1:15**	**2:15**	**3:15**	**4:15**	**5:15**	**6:15**	**7:15**	**8:15**	**9:15**
Boardman Ave/2nd Ave	4:37	5:22	6:07	6:52	7:37	8:22	9:07	10:16	11:16	12:16	**1:16**	**2:16**	**3:16**	**4:16**	**5:16**	**6:16**	**7:16**	**8:16**	**9:16**

Evaluation of Access

Table 10 shows the existing amenities and infrastructure, including walking facility availability, biking facility availability, park-and-ride potential, and stop amenities at the proposed stops. Walking and biking availability at stops are fair along Wilson Road in Boardman and good at Main Street/Boardman Avenue. As shown, many stops lack amenities given they'd be established through this service. Park-and-ride is not as critical of a criterion due to this route's local service purpose, although it could be provided at the SAGE Center for the Connector. Walking and biking improvements could be prioritized near stops and amenities could be improved to make accessing transit comfortable and convenient.

Table 10. Amenities and Infrastructure at Stops

Stop	Walking	Biking	Park-and-Ride	Stop Amenities
SAGE Center	Fair	Poor	Potential Future	Shelter; Restrooms; Trash Cans; Bike Racks; Seating
Employment Stops	Poor	Poor	Undesirable	None
Columbia Ave/2nd St	Fair	Poor	None	Shelter
Boardman Post Office	Fair	Fair	None	Trash Cans
Main St/Front St	Fair	Fair	None	Restrooms; Trash Cans
Select Market/DHS	Fair	Poor	None	Trash Cans
Faler Rd/Mt. Hood Ave	Poor	Poor	None	None
Mt. Hood Ave/Wilson Ln	Poor	Poor	None	None
Wilson Rd/River Ridge Dr	Fair	Fair	None	None
Wilson Rd/Anthony Rd	Fair	Fair	None	None
Tatone St/Wilson Rd	Fair	Fair	None	None
Tatone St/Willow Fork Dr	Poor	Poor	None	None
C&D Drive-In	Poor	Poor	None	Shelter; Restrooms; Trash Cans; Seating
Boardman Ave/2nd Ave	Poor	Poor	None	None

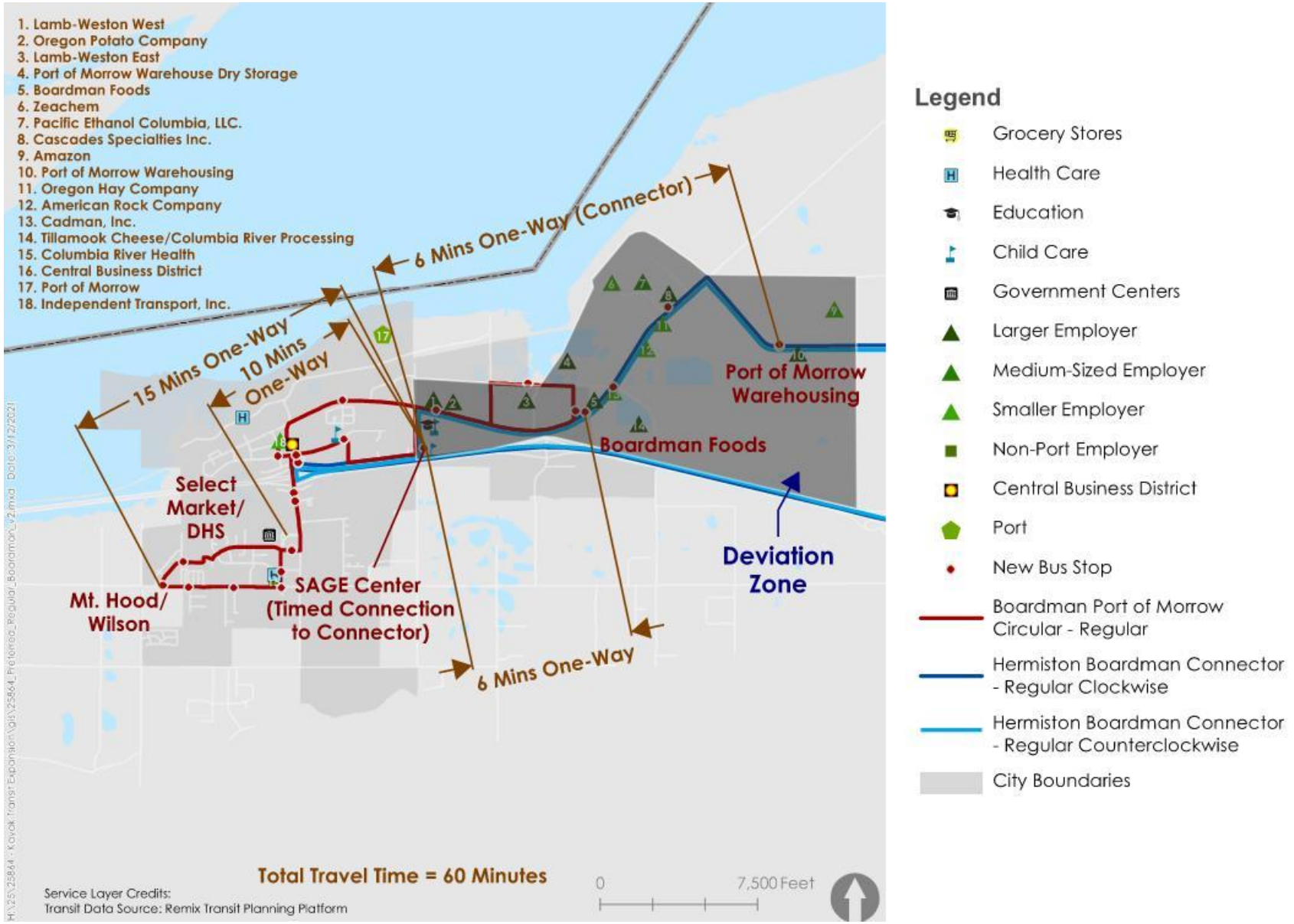
Walking and Biking Rating: Good = sidewalks and crosswalks; bicycle lanes or sharrows; Fair = some sidewalks; adequate shoulder for biking; Poor = no facilities

Network, Travel Times, and Transfers

Figure 16 and Figure 17 show the travel times and transfer times of the Early AM and Regular Boardman – Port of Morrow Circular. As shown, employees can generally travel between SAGE and the Port employers in 10 minutes or less and from SAGE to residential areas in 15 minutes with the Early AM Route and Regular Route. There are timed connections at the SAGE Center to the Connector for both routes, allowing riders to transfer between the services with little wait time.

Figure 16. Early AM Port of Morrow Circular

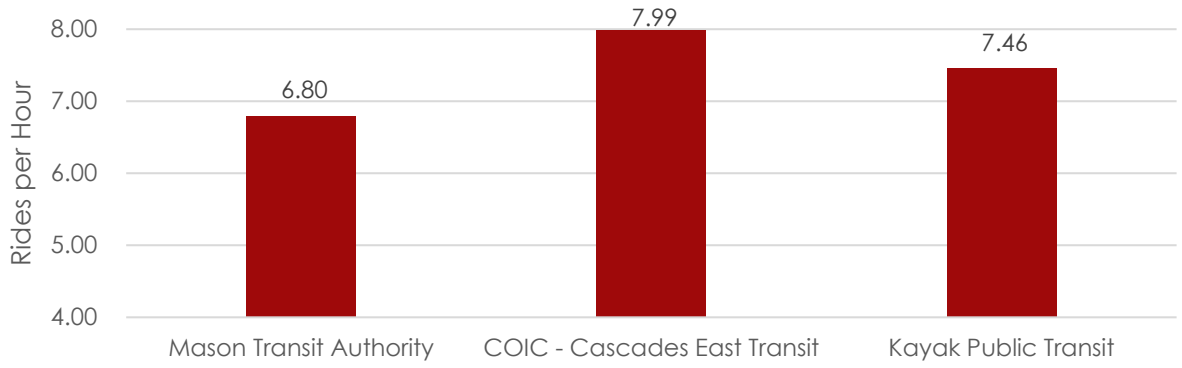
Figure 17. Regular Port of Morrow Circular



Ridership Estimates

To determine estimated ridership, the Hermiston – Boardman Connector characteristics were compared to similar services elsewhere in Oregon and Washington. Figure 18 shows ridership of the following commuter bus services: Mason Transit Authority's intercommunity services (Route 1 - Shelton/Belfair, Route 3 - Belfair/Bremerton and Route 6 - Shelton/Olympia) in Washington, Central Oregon Intergovernmental Council's (COIC's) Cascades East Transit intercommunity service, and Kayak Public Transit's intercommunity service. These routes generally operate during daytime hours (8 AM – 6 PM is typical). Late night and early morning service for Port of Morrow shifts may result in lower ridership, as those riding the service for non-commute purposes will likely be lower. As shown in the figure, rides per hour for COIC is 7.99, Kayak Public Transit is 7.46, and Mason Transit Authority is 6.80. The Hermiston – Boardman Connector will likely attract 6-8 rides per hour, depending on the service alternative and service hours.

Figure 18. Ridership Estimates of Similar Commuter Bus Services



For the Boardman – Port of Morrow Circular, potential transit demand was estimated using TCRP Report 161. In 2012, the Transportation Research Board (TRB) published a methodology to estimate small-city fixed-route transit demand through Transit Cooperative Research Program (TCRP) Web-Only Document 58 and Report 161. TCRP Report 161 is a workbook providing step-by-step procedures for quantifying the need for passenger transportation services and to quantify the demand that is likely to be generated given the service hours provided.

The purpose of this evaluation is to understand expected demand for a fixed-route system. It is important to note that the demand reported by this analysis is only a rough estimate based on the demographic makeup of Boardman. It is a very broad-brush analysis based on typical demographics factors that would indicate a propensity to use transit. It doesn't contain any specific land use variables and is generic for all small cities.

As shown in Table 11, the initial 12 to 18 hours of service is generally predicted to provide 6-6.5 rides per hour. The demand forecast increases non-linearly as more hours of service are provided, and does not take into consideration shift times or the higher employment in Boardman compared to other similarly sized cities.

Table 11. TCRP Report 161 Ridership Estimates

Hours per Day	Annual Revenue Hours[1]	TCRP 161 Estimated Ridership	Rides per Hour	Annual Operating Cost
12	4,368	28,900	6.62	$150,000
15	5,460	35,200	6.45	$200,000
18	6,552	41,500	6.33	$250,000

[1] All buses assumed to operate daily.

Hermiston City Hall Reconstruction
Potential Transit Stop

3. FINANCIAL PLAN

FINANCIAL PLAN

This section provides an overview of potential funding sources, projected operating budget, and potential funding scenarios to meet the operating budget. This section provides a rough estimate of capital funding for improvements such as bus stops, sidewalk facility, and bicycle facility improvements; an in-depth evaluation is included in the *Capital Plan* section.

Potential Funding Sources

Potential funding sources that CTUIR, Morrow County, and Umatilla County can tap include federal, state, and local sources. Some funding sources have already been identified and secured, such as Statewide Transportation Improvement Fund (STIF) formula funding. Other sources are being actively pursued, such as Morrow County seeking Federal Transit Administration (FTA) Section 5311 qualification and funding. These funding sources, as well as others not currently being pursued, can be used to support initial services and expand future service.

Federal Funding Opportunities

This section describes several federal funding opportunities. The primary federal operating funding sources are the Enhanced Mobility of Seniors & Individuals with Disabilities Formula Grant (Section 5310) and the Rural Area Formula Grant (Section 5311).

Section 5304/5305 – Statewide Planning and Planning Programs Grants

The 5304 and 5305 grant programs provides funding and procedural requirements for the following types of projects:

- Studies related to management, planning, operations, capital requirements, and economic feasibility of new services;
- Evaluation of previously financed projects;
- Peer reviews and exchanges of technical data in support of planning analyses;
- Planning activities preliminary to and in preparation for constructing, acquiring, or improving the operation of facilities and equipment.

The FTA apportions funds to states using a formula that considers the state's urbanized area population. ODOT expects to receive approximately $1,000,000 through this program during the FY21–23 biennium. ODOT accepts applications for these funds from eligible providers, which can include counties, cities, rural transit districts, and tribal governments, among others. A 20% local match is required, which can include the value of staff time devoted to the project. These funds could be used, for example, to evaluate the outcomes of the initial service; to plan future service changes or expansions; and to evaluate pedestrian access needs to bus stops.

Section 5310 – Enhanced Mobility of Seniors & Individuals with Disabilities Formula Grant

The 5310 operating grant provides formula funding to states and metropolitan areas for the purpose of meeting the transportation needs of seniors and people with disabilities. Funds are apportioned based on each state's share of the population for these two groups and funds. ODOT receives the portion of the funds set aside for small urban and rural areas and distributes these funds to transit providers through a competitive grant process. For FY20–22, ODOT received approximately $2.25 million. Morrow County received $13,500 to support operations, while the City of Pendleton received $23,200 for preventative maintenance and mobility management.

The purpose of the Section 5310 program is to improve mobility for seniors and people with disabilities by removing barriers to transportation service and expanding transportation mobility options. Eligible projects include both "traditional" capital investment and "nontraditional" investment beyond the requirements for Americans with Disabilities Act (ADA) complementary paratransit services. From the FTA, eligible activities include:

"Traditional Section 5310 project examples include:

- buses and vans
- wheelchair lifts, ramps, and securement devices
- transit-related information technology systems, including scheduling/routing/one-call systems
- mobility management programs
- acquisition of transportation services under a contract, lease, or other arrangement

Nontraditional Section 5310 project examples include:

- travel training
- volunteer driver programs
- building an accessible path to a bus stop, including curb-cuts, sidewalks, accessible pedestrian signals or other accessible features
- improving signage, or way-finding technology
- incremental cost of providing same day service or door-to-door service
- purchasing vehicles to support new accessible taxi, rides sharing and/or vanpooling programs
- mobility management programs"

Operations projects require a 50% local match, while other types of projects require a 20% local match.

Section 5311 – Rural Area Formula Grant

The Section 5311 grant program provides funding to small cities and rural areas with populations of less than 50,000 for transit capital, planning, and operations, including job access and reverse commute projects. Funds are apportioned to states based on a formula that includes land area, population, revenue vehicle miles, and low-income individuals in rural areas. ODOT receives the funds and distributes them to prequalified providers, which can include local and tribal governments and non-profit organizations. To be prequalified, providers must have a Drug and Alcohol Policy compliant with FTA 49CFR Part 655 and seek qualification through an application to the Public Transportation Advisory Committee (PTAC). Providers receive a $100,000 base allocation, which is then increased using a formula based on miles of rural service operated (60%) and number of rides provided (40%). For FY21–23, ODOT expects to distribute approximately $20.1 million statewide, with CTUIR receiving $674,369. Morrow County is currently pursuing general 5311 qualification and funding. The required local match is 43.92% for operations projects and 10.27% for all other project types.

In addition to the formula grant program, Section 5311 includes, among others, an Intercity Bus Program under Section 5311(f) and a Tribal Transit Program under Section 5311(c)(1)(b). ODOT combines FTA's intercity funding with Oregon's Statewide Transit Network Program, discussed in the State Funding Opportunities section below. The Tribal Transit Program is discussed in the next section.

Section 5311(c)(1)(b) – Tribal Transit Program

As a federally recognized tribe, CTUIR is eligible for formula funding under the Tribal Transit Program. The formula component of the program is funded nationally at $30 million annually; CTUIR's share in FY2019 was $455,203. Formula funds can be used for "capital, operating, planning, and administrative expenses for public transit projects that meet the growing needs of rural tribal communities," along with any other activity eligible under the main Section 5311 program, including purchasing transit services from other providers. No local match is required for formula funds.

The Tribal Transit Program also includes a competitive grant program funded at $5 million annually, which can be used for the same types of projects eligible for tribal formula funds. A 10% local match is required for competitive grants. In FY2019, CTUIR received a $36,593 competitive grant to purchase and install security infrastructure at several facilities.

Section 5339 – Bus and Bus Facilities

The 5339 grant provides funding for small city and rural transit providers to replace vehicles, expand the vehicle fleet, purchase bus-related equipment, construct or modify bus-related facilities, and install signs and shelters. This program provides funding for major capital improvements to rural transit systems that would not be achievable through formula allocations. Each state receives a base $1.75 million allocation per year, which is then increased based on population and service factors. ODOT then distributes its share of the funds to transit providers through a competitive grant process;

a total of $10.3 million was available during the FY20–22 biennium. The required local match is 15% for vehicles and 20% for all other types of eligible projects.

Surface Transportation Block Grant (STBG)

The STBG program provides flexible federal funding to best address state and local transportation needs, including Federal-aid highways, bridge and tunnel projects on public roads, pedestrian and bicycle infrastructure, and transit capital projects, such as fleet replacement. ODOT provides a STBG Fund Exchange program in which cities with populations between 5,000 and 200,000, and all counties, can exchange their federal funds for state funds at a rate of 90 cents in state funds for each dollar of federal funds (this rate applies to FY22 and beyond). Recipients can then use the state funds they receive to (1) provide local match for other federal grants or (2) implement their projects without being constrained by federal requirements that would accompany the use of federal funds. ODOT also transfers funds it receives from the STBG program into the state's STP Discretionary Bus Replacement Program, described in the State Funding Opportunities section below.

Other Federal Funding

The FTA periodically releases additional funding opportunities. In 2019, the FTA released the Integrated Mobility Innovation opportunity, providing $15 million for demonstration projects focused on Mobility on Demand, Strategic Transit Automation Research, and Mobility Payment Integration. For FY20, the FTA also announced the Mobility for All Pilot Program to invest in mobility options for older adults, individuals with disabilities, and people with low incomes, aimed to enable connections to jobs, education, and health services. The FTA also provides Section 5314 Technical Assistance and Workforce Development grants, which support technical assistance and educational activities that enable more effective and efficient delivery of transportation services, foster compliance with federal laws (including the ADA). These types of funding opportunities can help providers invest in innovative and effective practices and partnerships.

State Funding Opportunities

This section describes the various funding opportunities provided by the state of Oregon.

Special Transportation Fund (STF)

The STF was created in 1985 by the Oregon Legislature. Funds are allocated to 42 jurisdictions around the state based on population. The STF is funded by cigarette tax revenue, excess revenue earned from sales of photo ID cards, and other funds from ODOT. The STF Program provides a flexible, coordinated, reliable, and continuing source of revenue to support transportation services for seniors and people with disabilities of any age. The Oregon Legislature intended that STF funds be used to provide transportation services needed to access health, education, work, and social/recreational opportunities so that seniors and people with disabilities may live as independently and productively as possible. The funds may be used for any purpose directly related to transportation services, including transit operations, capital

equipment, planning, travel training, and other transit-related purposes. No local match is required.

In the 2019–2021 biennium, CTUIR and Morrow County received $135,400 each and Umatilla County received $384,991. The awards for the 2021–2023 biennium will be the final separate STF distribution, as the Oregon Legislature has directed that the STF be merged into the Statewide Transportation Improvement Fund (STIF) by July 1, 2023.

Statewide Transportation Improvement Fund (STIF)

Section 122 of Keep Oregon Moving (Oregon House Bill 2017) established the STIF, a new dedicated funding source for expanding public transportation service, funded through an 0.1 percent employee payroll tax in Oregon. HB 2017's goals included expanding access to jobs, improving mobility, relieving congestion, and reducing greenhouse gas emissions, while providing a special focus on low-income populations. STIF funds may be used for public transportation purposes that support the operations, planning, and administration of public transportation programs and may also be used as the local match for state and federal grants for public transportation service.

Most (90%) of STIF funds are distributed to Qualified Entities based on a formula, with CTUIR, Morrow County, and Umatilla County all receiving direct formula funds. Five percent of STIF funds are available via discretionary grants for flexible funding, while four percent are available via discretionary grants for projects enhancing intercommunity service and the statewide transit network. One percent of the funds are allocated for program administration and a technical resource center.

Table 12 shows the projected growth of STIF formula funding for CTUIR, Morrow County and Umatilla County. As shown, STIF funding for CTUIR is a fixed amount and is not projected to grow through 2023, whereas STIF funding for Morrow County and Umatilla County are projected to grow by 5.38% per year through 2023. These amounts do not include discretionary and intercommunity funds.

Table 12. STIF Formula Fund Projections for CTUIR, Morrow County and Umatilla County

STIF	2020	2021	2022	2023	Projected Growth 2022–2023
CTUIR	$100,000	$100,000	$100,000	$100,000	0.00%
Morrow County	$252,176	$282,687	$269,786	$284,300	5.38%
Umatilla County	$1,007,761	$1,153,532	$1,114,300	$1,174,250	5.38%

Source: https://www.oregon.gov/odot/RPTD/RPTD%20Committee%20Meeting%20Documents/STIF-Allocation-Estimates-Oct2020.pdf

The discretionary element of the STIF awarded over $10.5 million in grants during the 2019–2021 biennium. Eligible recipients include "Qualified Entities" as defined in OAR 732-040-0005(26) that provide public transportation services, as well as other "Public Transportation Service Providers" as defined in OAR 732-040-0005(24). CTUIR, Morrow County, and Umatilla County are Qualified Entities that provide public transportation services. The local match is typically a minimum of 20%, although certain projects may qualify for a 10% local match (e.g., providing access to rural communities, providing

service outside a provider's geographic jurisdiction, filling significant gaps in the Statewide Transit Network, benefitting multiple providers). Eligible projects include capital, planning, management, and transit-adjacent projects (e.g., infrastructure projects to improve transit user safety). Pilot operations projects are also eligible, but discretionary funds are not intended to be a source of ongoing operations funding, and applicants must provide a feasible financial plan for continued operations as part of their application for a pilot project.

STP Discretionary Bus Replacement Program

Oregon transfers federal STBG funds into Section 5310, Section 5311, and Section 5307 (Mass Transit Vehicle Program, used by large urban areas) and allocates funds to transit providers throughout Oregon through a competitive grant process. Funds must be used to replace existing vehicles that were purchased through ODOT and that have ODOT on the vehicle title as the first security interest holder. A local match of 10.27% is required. In the 2020–2022 biennium, ODOT allocated $5 million to the program; CTUIR received $236,761 to replace two vehicles. The Oregon Transportation Commission has committed to continuing this program for one more grant cycle.

Statewide Transit Network Program

This program is designed to support intercommunity and intercity transit services. It is funded partially by the STIF Intercommunity Discretionary Fund ($7.3 million in the 2019–2021 biennium) and partially by federal Section 5311(f) intercity funds ($1.3 million).

All entities that are eligible for STIF funding and provide intercommunity/intercity service are eligible to apply to the STIF Intercommunity Discretionary Fund. The required local match is the same as for STIF Discretionary grants: 20%, or 10% for specified project types; intercity service typically has characteristics that qualify for the 10% local match. CTUIR received $1,035,268 in the 2019–2021 biennium for its various intercity services.

Eligibility for 5311(f) funds is broader than for STIF funds, as eligible entities also include non-profit and private for-profit providers of intercity service. However, these funds also require a greater local match: 50% for operations projects and 20% for capital projects and project administration.

Local Funding Opportunities

This section describes several local funding opportunities. CTUIR, Morrow County, and Umatilla County should consider these funding sources as well as continue to work with employers, local organizations, communities, and stakeholders in the region to identify their travel needs and form partnerships that could aid in securing local funds to develop solutions for services.

Partnership Programs

Potential partnerships include cities prioritizing sidewalk and bicycle improvements near bus stops, incorporating the transit providers in development review to ensure bus facilities are planned for, and partnering with Port employers to facilitate connections from bus stops to building entrances. Such connections could include on-site sidewalks,

bikeshare or scootershare programs, or company vans picking up and dropping off at the SAGE Center or near the driveways. The Funding Scenarios section of this memorandum focuses primarily on these partnerships for local support. These partnerships would also count toward local match, which can be leveraged for state and federal funding programs. Partnerships with private companies are also referred to as Public-Private Partnerships.

Local Taxes and Fees

Many operators, particularly districts providing transit service, generate local funding through dedicated taxes for transit service. Cities and counties can also support transit through dedicated fees and taxes, or through general fund revenue. The following is a list of typical funding sources used throughout the state of Oregon:

- Property Taxes: Most municipalities collect property taxes assessed on the value of an owned property, a portion of which may be used to fund transit. Providers such as Basin Transit Service and Lincoln County Transportation Service District implement these taxes. The counties could consider pursuing a property tax.
- Business Taxes: These tax the net income of nearby businesses. Businesses benefit from their employees receiving consistent and reliable transportation and their customers receiving viable means to travel to the establishment.
- Tax Increment Financing: This method is used to capture additional property taxes generated in the vicinity of transit-specific improvements or areas. This type of funding can also be used to capture a portion of the increase in property value created by a particular transit investment.
- Tax Incentive Zones: Provide an indirect avenue for transit funding by potentially increasing sponsorship revenue by providing tax incentives for businesses and residents residing near transit oriented or transit friendly developments.
- Multimodal Impact Fees: These fees are similar to auto-focused Transportation Impact Fees (TIFs) but are dedicated to improvements to multimodal transportation options. Transit providers can also benefit from projects funded by auto-focused TIFs that improve roadway operations for all roadway users.
- Parking Fees/Fines: Provide incentives for users to use transit to reach desirable areas, such as downtown areas. The implementation of a parking strategy can increase transit ridership, as well as increase parking revenue.

Other Transit Provider Revenue

Other, usually relatively minor, funding sources include advertising/sponsorships and investment income. Advertising typically provides a consistent, small stream of revenue. Some transit providers sell sponsorships for facility names, individual transit vehicles, etc. Many transit providers receive small amounts of investment income from the Local Government Investment Pool (LGIP) on some of their long-term savings.

Operating Budget

The operating budget for the Hermiston – Boardman Connector includes driver costs, fuel, vehicle maintenance and insurance, and administrative and management staff that are typically rolled into a per-hour operating cost. The Boardman – Port of Morrow Circular includes hourly driver costs, fuel, vehicle maintenance and insurance, but not administrative costs. In addition, vehicles typically need to be replaced every several years, depending on the amount of mileage the vehicle accrues each year. This section presents operating cost projections at different levels of service.

Table 13 lists the cost assumptions factored into the operating budget. These costs include an hourly operating cost for regional (Connector) and local (Circular) services; estimated costs for non-fleet capital improvements; expected useful life (EUL) of the fleet vehicles; fleet local match estimate; the number of weekdays, Saturdays, and Sundays operated per year; and an annual growth rate for service operating and capital costs, per year. These assumptions were derived from CTUIR's and Morrow County's existing costs when available and estimated from similar systems otherwise.

Table 13. Cost Assumptions

Costs	2023
Regional Operating	$100
Local Operating	$35
Other Capital	$50,000
Regional Vehicle EUL (miles)	450,000
Regional Vehicle Match	$17,000
Local Vehicle EUL (miles)	200,000
Local Vehicle Match	$28,000
Weekdays	255
Saturdays	55
Sundays	55

Ordering vehicles for the new services will take several years. For planning purposes, 2023 is assumed to be the first feasible year of service. Table 14 shows the Year 2023 operating and fleet replacement cost based on different levels of service. The *Revised Draft Route Schedules* identified higher-priority service hours as 5:30 AM to 7:30 PM, with additional service that could be provided as early as 4 AM and late as 9:30 PM. In the longer term, Sunday service could be added. Generally, the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular should operate the same hours.

As shown, weekday and Saturday, 5:30 AM to 7:00 PM service, would cost about $868,000 annually to operate for the Hermiston – Boardman Connector and $141,000 for the Boardman – Port of Morrow Circular. The Hermiston – Boardman Connector would operate about 228,000 annual service miles, or just over a vehicle's EUL if all miles were on the same vehicle. Therefore, the service would need to replace an average of one

vehicle per year, although these vehicles would typically be purchased in multiples every 2–3 years. CTUIR would need to save about $9,000 and Morrow County about $6,000 on average, annually, to meet the local match for fleet replacement. Vehicle replacement costs are assumed to increase in proportion to the increasing service hours and costs of other scenarios.

Table 14. Year 2023 Operating and Fleet Replacement Costs

Service	Operating Hours Scenario	Annual Service Hours	Operating Costs	Annual Service Miles	Annual Vehicle Local Match	Total 2023 Costs
Hermiston-Boardman Connector	Weekdays + Saturday; 5:30 AM to 7:30 PM	8,680	$868,000	228,656	$9,000	$877,000
	Weekdays + Saturday; 4:00 AM to 9:30 PM	10,850	$1,085,000	292,392	$11,000	$1,096,000
	All Days; 4:00 AM to 9:30 PM	12,775	$1,278,000	344,268	$13,000	$1,291,000
Boardman-Port of Morrow Circular	Weekdays + Saturday; 5:30 AM to 7:30 PM	4,030	$141,000	39,525	$6,000	$147,000
	Weekdays + Saturday; 4:20 AM to 9:20 PM	4,650	$163,000	49,631	$7,000	$170,000
	All Days; 4:20 AM to 9:20 PM	5,475	$192,000	58,437	$8,000	$200,000
Other Capital			$50,000	–	–	$50,000

Costs for operating services are anticipated to increase over time. Table 15 shows the projected five-year operating costs and Table 16 shows the long-term operating costs, with future years projected using a 3.5% annual cost increase.

Table 15. Projected Five-Year Operating and Fleet Replacement Costs

Service	Scenario	2023	2024	2025	2026	2027
Hermiston-Boardman Connector	Weekdays + Saturday; 5:30 AM to 7:30 PM	$877,000	$908,000	$941,000	$974,000	$1,009,000
	Weekdays + Saturday; 4:00 AM to 9:30 PM	$1,096,000	$1,135,000	$1,175,000	$1,217,000	$1,260,000
	All Days; 4:00 AM to 9:30 PM	$1,291,000	$1,336,000	$1,383,000	$1,432,000	$1,483,000
Boardman-Port of Morrow Circular	Weekdays + Saturday; 5:30 AM to 7:30 PM	$147,000	$153,000	$159,000	$165,000	$172,000
	Weekdays + Saturday; 4:20 AM to 9:20 PM	$170,000	$176,000	$183,000	$190,000	$198,000
	All Days; 4:20 AM to 9:20 PM	$200,000	$207,000	$215,000	$223,000	$232,000
Other Capital		$50,000	$50,000	$52,000	$54,000	$56,000
Weekdays + Saturday; Shorter Service Hours		$706,000	$1,074,000	$1,113,000	$1,154,000	$1,195,000
Weekdays + Saturday; Longer Service Hours		$858,000	$1,316,000	$1,363,000	$1,412,000	$1,463,000
All Days; Longer Service Hours		$1,001,000	$1,541,000	$1,595,000	$1,652,000	$1,711,000

Table 16. Projected Long-Term Operating and Fleet Replacement Costs

Service	Scenario	2023	2028	2033	2038	2043
Hermiston-Boardman Connector	Weekdays + Saturday; 5:30 AM to 7:30 PM	$877,000	$1,045,000	$1,243,000	$1,478,000	$1,756,000
	Weekdays + Saturday; 4:00 AM to 9:30 PM	$1,096,000	$1,305,000	$1,551,000	$1,844,000	$2,192,000
	All Days; 4:00 AM to 9:30 PM	$1,291,000	$1,535,000	$1,825,000	$2,168,000	$2,579,000
Boardman-Port of Morrow Circular	Weekdays + Saturday; 5:30 AM to 7:30 PM	$147,000	$179,000	$215,000	$257,000	$307,000
	Weekdays + Saturday; 4:20 AM to 9:20 PM	$170,000	$205,000	$247,000	$295,000	$351,000
	All Days; 4:20 AM to 9:20 PM	$200,000	$241,000	$288,000	$344,000	$409,000
Other Capital		$50,000	$50,000	$61,000	$76,000	$92,000
Weekdays + Saturday; Shorter Service Hours		$706,000	$1,074,000	$1,285,000	$1,534,000	$1,827,000
Weekdays + Saturday; Longer Service Hours		$858,000	$1,316,000	$1,571,000	$1,874,000	$2,231,000
All Days; Longer Service Hours		$1,001,000	$1,541,000	$1,837,000	$2,189,000	$2,604,000

Funding Scenarios

Primary funding sources for the first several years of service include FTA Section 5311 funding; STIF formula, discretionary, and intercommunity funds; and local and employer support. The following section describes the amounts and scenarios from the different funding sources and compares these to the operating budgets.

Table 17 shows the funding growth assumptions that factored into the operating budget. As shown in the *Potential Funding Sources* section, STIF Formula Funds are projected to grow over the next several years at a 5.38% annual rate. A conservative 4% growth rate was assumed for STIF funding sources. CTUIR currently receives FTA Section 5311 funds, and Morrow County is pursuing FTA Section 5311 qualification and funding, which is projected to grow nearly 2% annually, the historic growth rate for Section 5311 rural program funding. Per Oregon's formula for 5311 distribution, the increase in amount of service provided and ridership from the initial start of these services would also provide an upfront funding increase for CTUIR's 5311 distribution.

Local and employer contribution growth is estimated to grow near 3.5%. These contributions can include sidewalk and bicycle improvements near bus stops, improvements to bus stops themselves, or partnership rideshare, carpool, and vanpool programs. Cities, the counties, and employers implement many of these improvements and programs already and are not expected to contribute funding directly to the transit service providers. *Additional information on cooperative programs is included in Appendix C*.

Table 17. Funding Growth Assumptions

Growth Rates	
STIF Employment/Wage Growth	4.00%
5311 Growth	2.00%
Local and Employer Growth	3.50%

Table 18 shows the projected five-year revenue and Table 19 shows projected long-term revenue by source, as well as the sums by funding scenario. CTUIR, Morrow County, and Umatilla County provided their estimated 2023 contributions, which were increased based on the funding growth assumptions.

Funding Scenario 1 includes STIF Formula and local and employer support. These funding sources are considered highly stable and serve as a minimum level of funding that could be dedicated. Funding Scenario 2 adds 5311 funds from Morrow County, which is likely but not finalized as a funding source. Funding Scenario 3 adds STIF Discretionary Funding, including Intercommunity funds. The intercommunity funding can be granted continuously through the STIF program. However, the discretionary grants are likely in the short-term to get services started, but generally are not intended to provide long-term funding support.

Table 18. Projected Five-Year Revenues

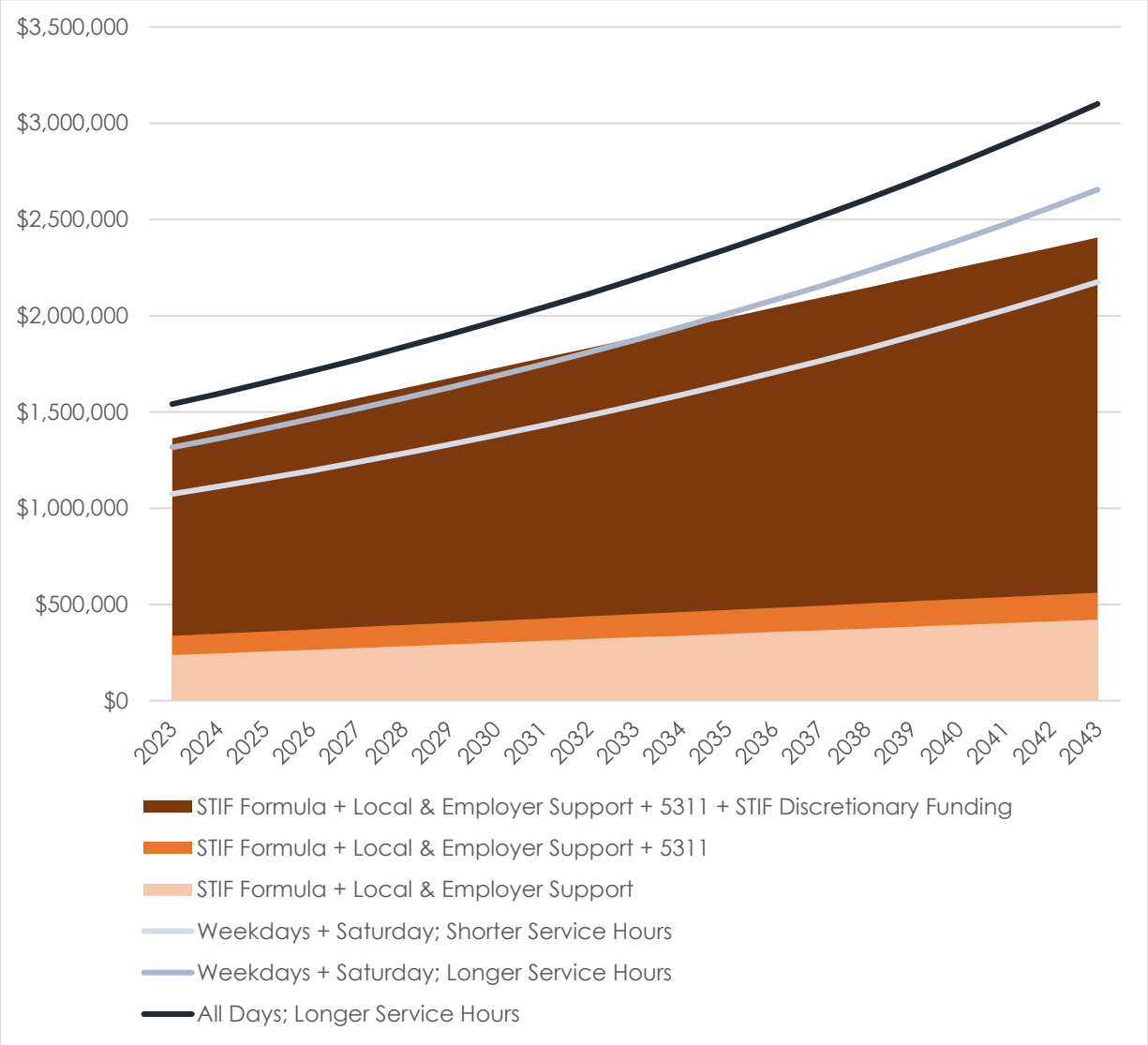
Year		2023	2024	2025	2026	2027
Local & Employer Support		$50,000	$52,000	$54,000	$55,000	$57,000
5311 Funds - Morrow - Circular		$100,000	$102,000	$104,000	$106,000	$108,000
STIF Formula - Morrow - Circular		$50,000	$60,000	$70,000	$80,000	$90,000
STIF Formula - Morrow - Connector		$50,000	$52,000	$54,000	$56,000	$58,000
STIF Formula - Umatilla - Connector		$86,755	$90,000	$94,000	$97,000	$101,000
STIF Discretionary - Morrow - Circular		$75,000	$78,000	$81,000	$84,000	$87,000
STIF Discretionary/Intercommunity Fund		$950,000	$988,000	$1,026,000	$1,064,000	$1,102,000
Scenario 1	STIF Formula + Local & Employer Support	$237,000	$246,000	$256,000	$264,000	$274,000
Scenario 2	STIF Formula + Local & Employer Support + 5311	$337,000	$348,000	$360,000	$370,000	$382,000
Scenario 3	STIF Formula + Local & Employer Support + 5311 + STIF Discretionary Funding	$1,362,000	$1,414,000	$1,467,000	$1,518,000	$1,571,000

Table 19. Projected Long-Term Revenues

Source		2023	2028	2033	2038	2043
Local & Employer Support		$50,000	$59,000	$68,000	$76,000	$85,000
5311 Funds - Morrow - Circular		$100,000	$110,000	$120,000	$130,000	$140,000
STIF Formula - Morrow - Circular		$50,000	$60,000	$70,000	$80,000	$90,000
STIF Formula - Morrow - Connector		$50,000	$60,000	$70,000	$80,000	$90,000
STIF Formula - Umatilla - Connector		$86,755	$104,000	$121,000	$139,000	$156,000
STIF Discretionary - Morrow - Circular		$950,000	$1,140,000	$1,330,000	$1,520,000	$1,710,000
STIF Discretionary/Intercommunity Fund		$50,000	$60,000	$70,000	$80,000	$90,000
Scenario 1	STIF Formula + Local & Employer Support	$237,000	$283,000	$329,000	$375,000	$421,000
Scenario 2	STIF Formula + Local & Employer Support + 5311	$337,000	$393,000	$449,000	$505,000	$561,000
Scenario 3	STIF Formula + Local & Employer Support + 5311 + STIF Discretionary Funding	$1,362,000	$1,623,000	$1,884,000	$2,145,000	$2,406,000

Figure 19 shows the projected operating budgets (lines) and funding scenarios (shaded areas) over time. As shown, the weekday and Saturday service options with both shorter and longer service hours could be supported by Funding Scenario 3 initially, but the costs of the longer service hours are expected to outpace available funding near 2034. Expanding service to Sunday would require additional funding in any year, especially as additional dispatch, supervisory, maintenance, and other staff would be needed to expand CTUIR and Morrow County service to days they do not currently operate on.

Figure 19. Projected Operating Budget and Funding Scenarios



Stafford Hansell Government Center
Potential Transit Center Area

4. MANAGEMENT PLAN

MANAGEMENT PLAN

A coordinated, targeted, and effective public information and marketing campaign would help publicize and encourage people to use transit. The following sections describe management, marketing, and customer information strategies for successful shuttle implementation.

Management Strategies

Management strategies are those that CTUIR and the counties can conduct behind-the-scenes for effective implementation.

- Partner with Employers. Continue to work with employers to identify shift times for employee travel needs to develop solutions for services. Market existing services through employers to encourage information sharing not only to employees but feedback from transit users as well.
- Explore Creating a Transportation Management Association (TMA) and/or Regional Transit Association (RTA). A TMA is a public–private partnership between government entities and businesses and organizations within a location to establish transportation-related policies and programs for the location. An RTA is a partnership primarily compromised of public entities such as neighboring transit service providers and local jurisdictions, such as cities and counties. Entities use TMAs and RTAs to better coordinate and manage their transportation challenges.
- Collaborate with Community-Based Organizations (CBOs) and health and human services organizations. Collaborate with stakeholders and CBOs, including but not limited to Columbia River Health, Community Health Improvement Partnership of Morrow County (CHIPOMC), Good Shepherd Health Care System, SAGE Center, VA Clinics, DHS locations, WIC and Head Start programs, and Desert Sage Manor, to identify changing travel needs and develop solutions for services.
- Promote Coordination between CTUIR, Morrow County, Umatilla County, Local and Regional Partners, and other Transit Providers. Coordination between local partners, including adjacent transit districts, local and regional transportation providers, and local jurisdictions, will lead to a comprehensive and efficient system in which users can travel seamlessly inter- and intra-regionally.
- Create Measurable Outcomes for Services to Promote Effective Monitoring and Increase Customer Satisfaction. The *Monitoring System Performance* section of this memo identifies ways to monitor performance over time to better evaluate service outcomes. Engage community members to improve customer satisfaction, retain existing riders, and attract new riders.

Monitoring System Performance

The following section provides a program to track transit service performance and the success of the plan's recommendations. The program is data-driven and is founded on performance measures that can be tracked on a regular basis through set benchmarks. In most cases, these performance measures are already tracked as part of Federal Transit Administration (FTA) reporting requirements. This program enables a dynamic system where service adjustments can be implemented and justified following performance evaluations.

Performance measures are divided into monitoring on an annual and a less-frequent (e.g., biennial) basis. Most of the recommended performance measures should be reviewed each year; the performance measures identified for less-frequent review are less likely to fluctuate meaningfully on an annual basis. As these performance measures are applied in the future, Morrow County, Umatilla County, and CTUIR may adjust how often specific performance measures are examined. Benchmarks also consider existing and future data availability.

Annual Review of Performance Measures

The following performance measures are recommended to be evaluated at least annually to understand how the new services are being used. All but one of these measures are typically already monitored for National Transit Database (NTD) reporting purposes.

- Capital costs: Examine annual capital costs directly to the service operator (CTUIR, Morrow County) and improvements by facility owners (Umatilla County, Morrow County, local cities, employers, other property owners). This information is useful for budgeting for vehicle replacements and additional transit-supportive infrastructure such as shelters, based on actual agency cost experience.
- Operating costs: Tracks annual operating costs for the services, tracked separately for the Connector and Circular. This information is useful for evaluating cost trends for future budgeting purposes, and for calculating other performance measures, such as cost per hour, that can be compared with other CTIUR routes and with peer agencies.
- Annual rides: Tracks total number of rides per year, tracked separately for the Connector and Circular. This information is useful for evaluating ridership trends, and for calculating other performance measures, such as rides per hour or cost per ride, that can be compared with other CTIUR routes and with peer agencies. Transit providers typically also track ridership more frequently (e.g., by month, by day of week) to help identify ridership patterns and trends.

- Revenue service hours: Tracks total number of hours of revenue service provided, tracked separately for the Connector and Circular. This measure is used to calculate rides and cost per hour.
- Rides per hour: Tracks average annual rides per hour (productivity), tracked separately for the Connector and Circular. Staff resources permitting, tracking annual productivity by scheduled trip is useful for identifying and supporting the need for schedule changes (e.g., addressing consistently over- or under-utilized trips), for identifying the need to purchase higher-capacity vehicles, and for targeting marketing efforts to increase ridership, among other uses.
- Cost per hour: Tracks average annual operating cost per revenue hour, tracked separately for the Connector and Circular. Cost per hour is a useful measure to compare to peer agencies, to check whether one's costs and cost trends are in line with, greater than, or less than one's peers.
- Number of Deviation Request Denials (Circular Only): Tracks the total number of deviation requests denied on the Boardman – Port of Morrow Circular, to help identify the need for schedule and/or route changes to maintain service reliability and attractiveness. In addition, although more labor-intensive, tracking where and how frequently deviation requests are made can be useful for making route adjustments to serve high-demand trip origins and destinations.

Less-Frequent Review of Performance Measures

The following performance measures are either (1) less likely to change in a significant way on an annual basis and do not need to be tracked each year, or (2) are time-intensive to evaluate on an annual basis.

- System ease of use: Tracks improvements made to travel between communities or transit providers, such as technology improvements (trip-planning, real-time tracking apps) and timed transfers between different transit providers.
- Walking and bicycling access: Tracks the percentage of stops having a sidewalk/path, bicycle lane/path, and/or crossings connecting to the stop.

Peer Comparison

While every transit provider has unique service area and operating characteristics, comparing a provider's performance to that of similar providers can help managers and decision-makers gauge whether changes in performance match the experience of similar agencies, or may be due to actions on the provider's part (either something to correct or something to continue, depending on how performance changed). Transit agencies that receive federal funding are required to report information about service miles, service hours, and ridership, among others, to the NTD. Peer comparisons were conducted for CTUIR and Morrow County to understand existing and potential

performance using the most-recent year of available data, 2018. Peers were primarily identified using the process described in *TCRP Report 141: A Guidebook on Performance Measurement and Peer Comparison in the Transit Industry*, which uses factors such as type of service provided, amount of service provided, geographic characteristics, and more.

Hermiston – Boardman Connector (CTUIR)

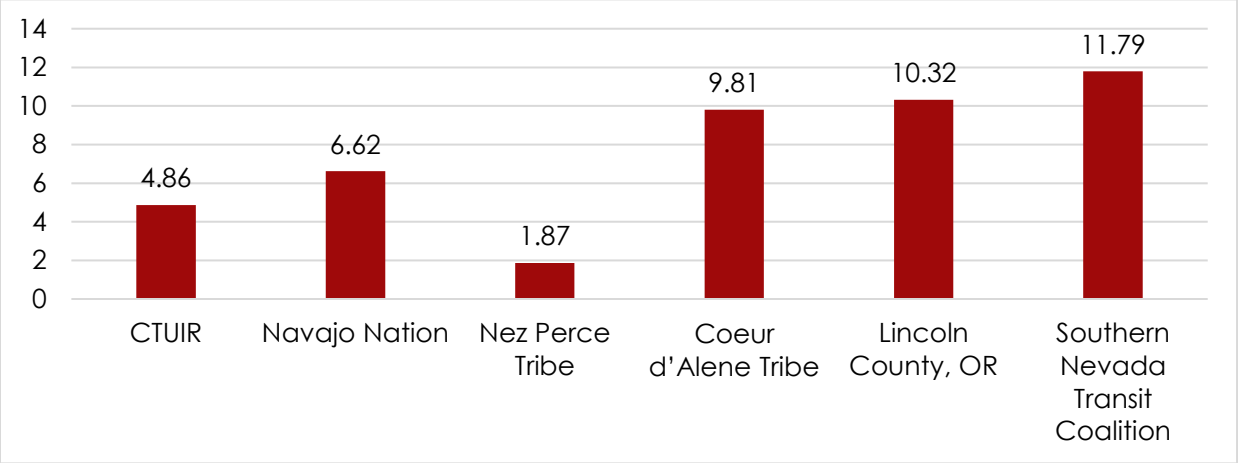
Peers for CTUIR were identified using the rural transit peer-identification method developed by the National Rural Transit Assistance Program and implemented in the online Rural Integrated NTD tool. This tool applies a peer-matching process similar to that described for urban systems in *TCRP Report 141: A Guidebook on Performance Measurement and Peer Comparison in the Transit Industry*. It considers such factors as provider type (e.g., tribal, county, transit district), annual vehicle miles operated, percent local funding, and more. The tool was used to identify three similar tribal operators (neglecting the factor that considers the population of the provider's headquarters, as Pendleton is considerably larger than most tribal provider headquarter cities). The tool was also used to identify two similar non-tribal operators.

The selected tribal providers are the Navajo Nation, the Nez Perce Tribe, and the Coeur d'Alene Tribe. The selected non-tribal providers are the Lincoln County Transportation Service District (Newport, OR) and the Southern Nevada Transit Coalition (Laughlin, NV). Table 20 provides the peer comparison evaluation and Figure 20 shows rides per hour for the peer providers. As shown, CTUIR serves fewer rides per hour than all of its peers except for the Nez Perce Tribe.

Table 20. Transit Provider Comparison (2018) for CTUIR

Data	CTUIR	Navajo Nation	Nez Perce Tribe	Coeur d'Alene Tribe	Lincoln County, OR	Southern Nevada Transit Coalition
Operates Commuter Bus?	Yes	Yes	No	No	Yes	Yes
% Local Funding	23.4%	24.7%	15.1%	30.6%	32.4%	21.7%
% Fixed Route	100%	100%	93.1%	92.5%	77.9%	79.4%
Annual Vehicle Miles	418,955	690,252	300,488	675.469	504,181	409,997
Annual Revenue Hours	15,018	19,486	8,679	25,861	31,198	24,917
Annual Rides	72,971	129,000	16,230	253,721	321,833	293,783
Rides per Hour	4.86	6.62	1.87	9.81	10.32	11.79
Cost per Hour	$94.24	$118.36	$118.85	$51.91	$60.09	$88.99

Figure 20. Rides per hour for CTUIR and comparable systems



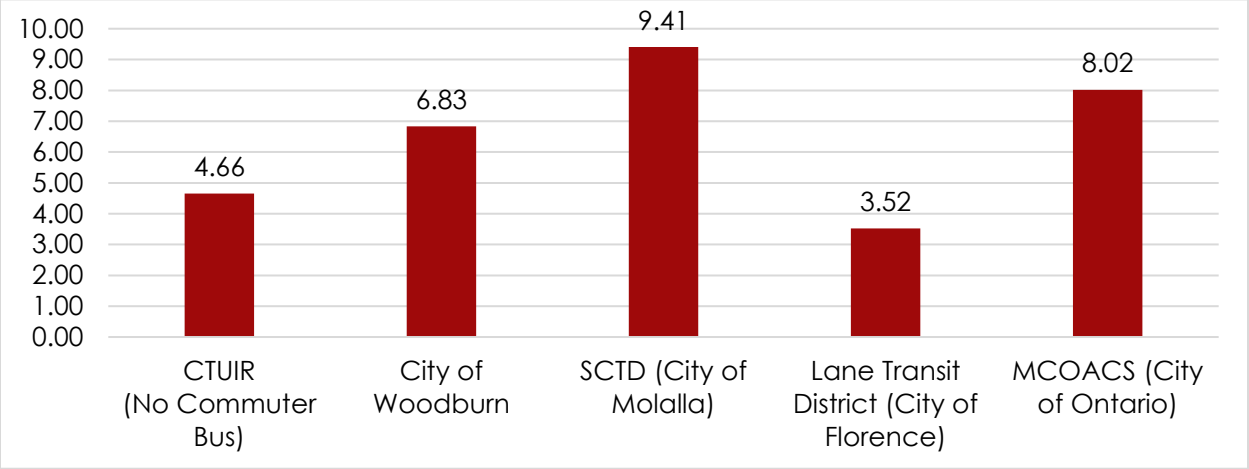
Boardman – Port of Morrow Circular (Morrow County)

Morrow County does not currently report data to NTD, given that it has not historically received federal funding that requires NTD reporting. Therefore, several providers who provide service similar to the proposed service were selected. These peers were matched based on an estimated 5,000 service hours and about 50,000 annual service miles for the Port of Morrow Circular. This analysis only looked at local bus service (i.e., not commuter bus or demand-response as reported to NTD). Similar providers include CTUIR's local services, the City of Woodburn, South Clackamas Transportation District's (SCTD's) Molalla service, Lane Transit District's Florence service, and Malheur Council on Aging and Community Service's (MCOACS's) Ontario service. All of these services connect to regional transit service. Table 21 provides the peer comparison evaluation and Figure 21 shows rides per hour for the peer providers. Table 21 also shows city populations and employments for each jurisdiction, with the Boardman numbers not including unincorporated Port of Morrow employment. As shown, similar-sized providers typically generate 4-10 rides per hour. Ridership is generally higher in communities with high employment such as Boardman.

Table 21. Transit Provider Comparison (2018) for Boardman – Port of Morrow Circular

Data	Boardman/Port of Morrow	CTUIR (No Commuter Bus)	City of Woodburn	SCTD (City of Molalla)	Lane Transit District (City of Florence)	MCOACS (City of Ontario)
Population	3,439	Hermiston - 17,423 Mission - 850	25,738	9,155	8,921	10,966
Employment	6,283+	Hermiston - 7,305 Mission - 2,101	9,517	2,570	3,112	8,542
Annual Service Miles	50,000	92,832	45,023	17,104	27,177	65,023
Annual Service Hours	5,000	5,256	3,048	2,547	2,173	3,012
Annual Rides	—	24,485	20,831	23,968	7,651	24,150
Rides per Hour	—	4.66	6.83	9.41	3.52	8.02

Figure 21. Rides per Hour for Boardman – Port of Morrow Circular Comparable Services



Marketing, Information, and Customer Feedback Strategy

The following describes actions to improve customer service and information that can be implemented in the short term and that should be maintained on a long-term basis:

- Develop Transit Service Branding. Branding is the foundation of the marketing strategy and provides an identity and image to potential customers. It helps create immediate recognition of all aspects of the service. Key elements of visible marketing tools include the name, logo, vehicle colors and graphics, and bus stop signage and facilities. For maximum effort, it is important to consistently use colors and graphics. A distinctive base color used consistently on transit vehicles and facilities becomes the "color of the bus" in the community. Vehicle graphics, bus stop signage, shelters, and benches create visibility throughout the community and their style, color, and quality should be consistent. Bus stops and shelters are a convenient place to provide additional information about routes, schedules, and deviation zones. While CTUIR and Morrow County have existing branding for some of their services, highlighting these services at new bus stops and facilities will be helpful in marketing services.
- Provide Maps and Brochures in a Single User-Friendly Brochure. Printed brochures and pamphlets can be designed and distributed to various target audiences to promote the transit services. The main element of this kind of promotion is the different style of communication depending on distinct target groups while encouraging all to use the same transit service. A printed brochure or pamphlet should include a route map or maps showing all routes with deviation zones, bus stop locations, landmarks, and key destinations clearly depicted. How-to-ride information, including how to request a deviation, should be included. Contact information, including website, telephone number, and reference to a trip planning app (if available) should be provided. Providing information in other

languages spoken in the community (e.g., Spanish) helps reach members of the community who speak English as a second language.

- Provide Real-Time Information, Trip-Planning Technologies, and Support Mobile Application Technologies. Real-time information, including real-time bus arrival and route information, helps improve the ridership experience by reducing passenger wait times at the stop (passengers know when they should leave for the stop) and provides confidence that a bus has not been missed. With the introduction of deviated-route service, bus arrival times at stops become more approximate, depending on whether or not a deviation was made earlier in the trip. With 45-60 minute headways creating long waits if a bus is missed, real-time information helps reassure riders that their bus is on the way. A mobile/smartphone presence has become increasingly important. As automatic vehicle location (AVL) technology is installed on buses, providing real-time AVL data feeds could make real-time bus locations available on applications such as Google Maps and Transit, and could potentially be integrated into Morrow County, Umatilla County, and CTUIR's websites. Information on all routes can be provided via the websites or smartphones through "push" technologies such as text messages and through telephone support. Oregon Department of Transportation (ODOT) provides support in converting real-time bus arrival information for compatibility with applications such as Google Maps and Transit.
- Invest in Training Programs. The faces of the transit operator are the bus operators and customer service staff. Ongoing investment in training resources will help staff continue to contribute to the region's positive image.
- Advertise. Advertising via different medias can help attract a range of riders. Newspaper display advertising of the services is a great tool to introduce and promote the service that can lead to high ridership. Securing a Transportation Options Innovation Grant from ODOT could help with advertising efforts. Other ways of promoting the service includes radio communication, television advertising, social media like Facebook and Next Door, and email blasts.

Boardman Pool & Rec Center
Potential Transit Center Area

5. CAPITAL PLAN

CAPITAL PLAN

This section provides an overview of the capital needs for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular, including bus stop improvements and fleet considerations. Safe and comfortable facilities can improve the rider experience and increase ridership by improving stop visibility, providing protection from poor weather, and improving access to transit.

The information in this section also considers other future transit services. The 2018 Morrow County/Umatilla County Transit Development Strategy includes Heppner–Boardman and Pendleton–Kennewick (potentially via I-82 and/or US 395) as high-priority transit needs and Arlington–Boardman as a medium priority. These other services may increase demands at transit stops established through the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular and/or trigger the need for major transit centers, park-and-rides, and vehicle storage and maintenance facilities.

Capital Needs Plan

This section provides the short-term and long-term capital needs, with a detailed breakdown for the first 3 years of operation in the *Capital Acquisitions Plan* section.

Bus Stops

Waiting at a bus stop is generally the first part of a rider's journey on a transit system, and a visible, safe, and comfortable stop is critical. Bus stops can be as large as transit centers and as small as a stop with signage. Bicycle and pedestrian access needs can include facilities along roadways, crossings, and bicycle storage. Park-and-rides can provide a useful location for riders to transfer to regional services. The following describes the types of facilities that may be applicable for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular.

Bus Stops Amenities

The following summarizes potential bus stop amenities, cost ranges[1], and uses:

- **Signage**: The cost for new bus stop signage and a pole, installed, can range from $300 to $1,000, depending on the material and the installation conditions. Generally, every stop should have signage identifying it.
- **Benches**: Benches should be considered for stops with at least three boardings per day, although other factors, such as the proximity to senior housing and nearby businesses willing to contribute to the costs, should be factored into the decision as well. Installed benches vary in price from $500 to $1,500.

[1]*Cost estimates are sourced from Transit in Small Cities: A Primer for Planning, Siting, and Designing Transit Facilities in Oregon* https://digital.osl.state.or.us/islandora/object/osl:10551

- **Trash Cans**: The cost for a trash can averages about $750 in materials, not including installation. Trash cans are often installed alongside shelters, providing cost savings. Installation should also consider maintenance and the need to regularly empty cans.
- **Bike Racks**: Bike racks are typically most beneficial at regional transfer locations, such as the Hermiston – Boardman Connector. Bike racks typically cost $1,000 in materials. Bicycle accommodation should also consider the demand to load bicycles onto transit vehicles for first/last-mile connections.
- **Shelters**: Passenger shelters add to the comfort of using transit and are generally popular with riders. An "off the shelf" passenger shelter costs about $6,000 plus installation. In addition to initial capital costs, passenger shelters will incur maintenance costs for cleaning, repair, and replacement. The cost estimate does not include the concrete pad, if needed. Given their higher cost, shelters may be less feasible to implement, and may be reserved for stops with ten or more boardings per day.
- **Transit Centers and Major Transit Stops**: Transit centers provide a transfer point for bus routes, while major transit stops are typically provided at major activity centers. In addition to providing greater passenger amenities that improve rider comfort, transit centers and major transit stops provide visibility for the transit service, reminding residents and visitors of the availability of the service within their community. They can include higher-level amenities such as restrooms and indoor waiting areas, large covered waiting zones, and more. While no transit centers are present in the study areas, the 3rd/Orchard Stop and Walmart Stop, served by both the existing Hopper and HART services, could be considered major transit stops.

Table 22 summarizes existing, recommended short-term (within the first 3 years), long-term (beyond 3 years), and not recommended (N/A) improvements at identified stops. The recommendations seek to establish at least one stop with higher levels of amenities in each community, often at an existing public facility or major activity center. As services and ridership patterns stabilize, the service providers and local jurisdictions can further refine and prioritize the long-term improvements. Shelters are considered existing if they are immediately adjacent to the stop; restrooms are considered existing if they are publicly available, or in the case of employment stops, available to the employees. Some amenities, such as restrooms at the Recycling Depot and 6th Street/B Street stops, are intended to be one restroom servicing both stops, which are across the street from each other.

Table 22. Amenities at Stops

Stop	Benches	Shelters	Trash Cans	Bike Racks	Restrooms
SW 3rd Street/W Orchard Ave	Ex	Ex	Ex	Short-Term	Short-Term
Walmart	Short-Term	Short-Term	Ex	Short-Term	Long-Term
Northwest Farm Supply	Long-Term	Long-Term	Ex	Long-Term	N/A
KIE Supply Corporation	Long-Term	Long-Term	Long-Term	Long-Term	N/A
Lamb Weston (Westland Road)	Short-Term	Long-Term	Long-Term	Long-Term	N/A
McNary Market	Short-Term	Ex	Ex	Short-Term	Long-Term
Post Office	Long-Term	Long-Term	Long-Term	Long-Term	N/A
Recycling Depot	Short-Term	Short-Term	Ex	Short-Term	Long-Term
6th Street/B Street	Short-Term	Short-Term	Ex	Short-Term	Long-Term
City Hall Village Square	Ex	Long-Term	Long-Term	Long-Term	N/A
6th Street/Yrexa Avenue	Short-Term	Long-Term	Long-Term	Long-Term	N/A
Highway 730 and First Street	Short-Term	Short-Term	Short-Term	Short-Term	Long-Term
Employment stops	Short-Term	Long-Term	Long-Term	Long-Term	Ex
SAGE Center	Ex	Ex	Ex	Ex	Ex
Boardman Ave/Main St	Short-Term	Short-Term	Ex	Short-Term	N/A
Columbia Ave/2nd St	Short-Term	Ex	Short-Term	Short-Term	N/A
Boardman Post Office	Short-Term	Short-Term	Ex	Short-Term	Long-Term
Main St/Front St	Short-Term	Short-Term	Ex	Short-Term	N/A
Select Market/DHS	Short-Term	Short-Term	Ex	Short-Term	Long-Term
Faler Rd/Mt. Hood Ave	Long-Term	Long-Term	Long-Term	Long-Term	N/A
Mt. Hood Ave/Wilson Ln	Short-Term	Short-Term	Short-Term	Short-Term	N/A
Wilson Rd/River Ridge Dr	Long-Term	Long-Term	Long-Term	Long-Term	N/A
Wilson Rd/Anthony Rd	Short-Term	Long-Term	Long-Term	Long-Term	N/A
Tatone St/Wilson Rd	Short-Term	Long-Term	Long-Term	Long-Term	N/A
Tatone St/Willow Fork Dr	Long-Term	Long-Term	Long-Term	Long-Term	N/A
C&D Drive-In	Ex	Ex	Ex	Short-Term	N/A
Boardman Ave/2nd Ave	Short-Term	Long-Term	Long-Term	Long-Term	N/A

Ex: Existing amenity
Short-Term: Within the next 3 years
Long-Term: Beyond 3 years, preferably within 20 years, dependent on demand as transit service stabilizes.
N/A: Not recommended for future improvement.

These stops represent general locations and can shift based on service needs and discussions with property and business owners. For example, the 3rd/Orchard stop represents a major activity center in Hermiston, and ongoing conversations with City of Hermiston staff may identify a different location for a future transit center in Hermiston. For example, a future option may include Hermiston City Hall, which is planned for reconstruction and has the potential to include elements such as bus bays and sheltered waiting areas. A transit center could also be developed in the open areas near Port Drive and SE 9th Street, providing a connection to Blue Mountain Community College, DHS, and Umatilla County Circuit Court – Hermiston Branch, with a smaller stop still providing service to central Hermiston. Other vacant land, such as near Good

Shepherd Health Care System and Walmart, could also be developed as a transit center. The Umatilla Port of Entry has also been discussed as a potential future transit center and/or vehicle storage and maintenance location, if the Port of Entry is relocated in the future. Morrow County is actively seeking a location for a new maintenance facility, which could potentially serve as a transit center as well. This site is to be determined in partnership with the City of Boardman and businesses.

Bicycle and Pedestrian Access

Virtually every bus rider is also a pedestrian, and bicycles provide an important "last mile" option for transit, particularly for regional riders who may be fairly dispersed. CTUIR and Morrow County can work with local public works authorities to prioritize pedestrian and bicycle improvements that serve transit stops and encourage cities to modify their plans, if-needed.

It is of particular importance and a legal requirement to provide for access by persons with disabilities. Transit centers, shelters, and new or relocated bus stops should be designed to meet the requirements of the Americans with Disabilities Act (ADA). It is recommended that cities, the County, and Oregon Department of Transportation (ODOT) prioritize street corners near transit centers and shelters for ADA ramps.

Locations identified for improvements near recommended bus stops in previous planning efforts include:

- Morrow County TSP – calls for an overpass over I-84 at Olson Road, which could include pedestrian and bicycle facilities.
- City of Irrigon TSP – recommends sidewalks and/or paths on US 730 between First Street and 11th Street, and along First Street, Division Road, 7th Street, and 11th Street.
- City of Boardman TSP – recommends extending NE Boardman Avenue to Olson Road, and extending Third Street, Second Street, Chaperell Drive, Kinkade Road, and Anderson Road, which could include pedestrian and bicycle facilities. The City of Boardman is also planning a footbridge crossing the railroad near the Port Offices.
- City of Boardman Multi-Use Path Plans – recommends a new multi-use path on Columbia Avenue between Main Street and Olson Road and to the south of Wilson Lane, as an extension of Faler Road.
- Heritage Trail Map – The Heritage Trail includes existing and proposed trails extending east–west from Boardman to Irrigon and Umatilla, primarily along the river. The existing path follows the riverfront in Boardman and then continues on the north side of Marine Drive about to Olson Road (on the north side of the railroad). The proposed alignment would continue along Marine Drive, to Ullman Boulevard, Columbia Avenue, US 730, and River Lane, then along a riverfront path leading to the north end of Pleasant View Road and on into Umatilla County.
- Umatilla County TSP – identifies sidewalk improvements for Bensel Road, Bud Draper Road, Roxury Lane, Beach Access Road, Powerline Road, Umatilla River Road, Ford Road, 3rd Street, Scapelhorn Road, and Power City Road in the City of Umatilla. Identifies bicycle pathways for Bud Draper, McNary Beach Recreation Area, Powerline Road to "F" Street, and Powerline Road.

- City of Umatilla TSP – recommends that US 730's cross-section include 6' sidewalks, 5' planter strips, and 6' bike lanes with 8' parking lanes throughout the corridor. Collector street cross-sections also include sidewalks and bicycle lanes; intersecting collector streets include Powerline Drive, B Street, F Street, Switzler Drive, County 1275 Road, Brownell Boulevard, Power City Road, Devore Road, Wildwood Lane, Pomoro Drive, and Willamette Street.
- City of Hermiston TSP – identifies the need for sidewalks on all urban streets, bikeways on urban major collectors and arterials, and wide shoulders on rural collectors and arterials.

Table 23 summarizes local planning efforts and recommends stop-by-stop improvements for pedestrian and bicycle access. Stops are categorized by short-term priorities, consistent with the stops identified for higher-level amenities, and long-term priorities.

Table 23. Pedestrian and Bicycle Infrastructure at Stops

Stop	Walking Availability	Biking Availability	Priority	Recommended Improvements
SW 3rd Street/ W Orchard Ave	Good	Poor	Short-Term	Provide bicycle facilities, such as bike lanes, along local and arterial roadways.
Walmart	Good	Good	Short-Term	None
Northwest Farm Supply	Fair	Poor	Long-Term	Widen US 395 shoulders for bicycle use and/or provide parallel path.
KIE Supply Corporation	Fair	Poor	Long-Term	Widen US 395 shoulders for bicycle use and/or provide parallel path. Improve sidewalks on west side of US 395.
Lamb Weston (Westland Road)	Poor	Poor	Long-Term	Provide pedestrian and bicycle facilities between designated stops and other employment in the area.
McNary Market	Fair	Poor	Short-Term	Provide sidewalks and bicycle lanes along Willamette Avenue, extending to such connecting roadways as Walla Walla Street and Lewis Street.
Post Office	Fair	Poor	Long-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path.
6th Street/ Yrexa Avenue	Good	Poor	Short-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path. Provide sidewalks along Yrexa Avenue, connecting to nearby residential and commercial properties.
Recycling Depot	Good	Poor	Short-Term	
City Hall Village Square	Good	Poor	Long-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path.
6th Street/ B Street	Good	Poor	Short-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path. Provide sidewalks along cross streets, connecting to nearby residential and commercial properties, Nugent Park Trails.

Stop	Walking Availability	Biking Availability	Priority	Recommended Improvements
Highway 730 and First Street	Good	Poor	Short-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path to the west, connect to existing bicycle lane off Columbia Lane to the east. Provide sidewalks along US 730.
Employment stops	Poor	Poor	Long-Term	Provide improved connections from driveways to building entries.
SAGE Center	Fair	Poor	Short-Term	Extend sidewalk and bicycle facilities to Columbia Avenue, along Columbia Avenue.
Boardman Ave/ Main St	Good	Fair	Short-Term	Extend sidewalks along Boardman Avenue, improve bicycle facilities as-needed.
C&D Drive-In	Good	Fair	Short-Term	
Columbia Ave/ 2nd St	Fair	Poor	Long-Term	Extend sidewalks along Columbia Avenue and 2nd Street, improve bicycle facilities along Columbia Avenue.
Boardman Post Office	Fair	Fair	Short-Term	Extend sidewalks along Boardman Avenue and NW 1st Street, improve bicycle facilities as-needed.
Main St/ Front St	Fair	Fair	Short-Term	Extend sidewalks along Front Street.
Select Market/ DHS	Fair	Poor	Short-Term	Extend sidewalks along Kinkade Road, sidewalks and bicycle lanes along Tatone Street.
Faler Rd/ Mt. Hood Ave	Poor	Poor	Long-Term	Construct sidewalks and crosswalks, starting at the intersection and extending to residential properties.
Mt. Hood Ave/ Wilson Ln	Poor	Poor	Short-Term	Construct sidewalks and crosswalks, starting at the intersection and extending to residential properties.
Wilson Rd/ River Ridge Dr	Fair	Fair	Long-Term	Construct sidewalks and crosswalks, starting at the intersection and extending to residential properties.
Wilson Rd/ Anthony Rd	Fair	Fair	Long-Term	Construct crosswalks.
Tatone St/ Wilson Rd	Fair	Fair	Long-Term	Install curb ramps on northeast intersection corner.
Tatone St/ Willow Fork Dr	Poor	Poor	Long-Term	Construct sidewalks along Tatone Street.
Boardman Ave/ 2nd Ave	Good	Poor	Long-Term	Improve bicycle facilities along Boardman Avenue.

Walking and Biking Rating: Good = sidewalks and crosswalks; bicycle lanes or sharrows; Fair = some sidewalks; adequate shoulder for biking; Poor = no facilities

Park-and-Ride Lots

Park-and-ride lots are typically feasible in situations where there is either a parking charge or parking shortages at the rider's destination, or if there is a substantial savings in travel cost or time by using transit. As parking is typically free throughout the area, an interest in using all-day parking to save cost or time, or for short-term parking for pick-up/drop-off, are the more likely drivers for park-and-ride demands. Park-and-ride locations could include:

- **Hermiston** – New park-and-ride locations could include a new facility near Port Drive and SE 9th Street, Good Shepherd Health Care System, Walmart, and/or another location as identified in partnership with the City of Hermiston. Existing parking lots could be used as pick-up/drop-off locations, while partnerships with businesses with underused weekday parking has potential to support all-day parking. These locations could also serve as park-and-ride(s) for future Pendleton – Kennewick service. Port Drive and SE 9th Street are particularly opportunistic, already zoned for light industrial/outlying commercial and positioned near the Gettman Road/Railway Alternative Transportation Enhancement (GRATE) Project, improving access and efficiency for buses in the area. Additionally, the new Hermiston City Hall will have public amenities available and can be considered for a pick-up/drop-off transit center.
- **Umatilla** – In the short-term, parking occupancy near City Hall could be evaluated for potential use for park-and-ride. The Umatilla Port of Entry potentially could be modified to provide pick-up/drop-off or all-day parking space. This location could also serve as park-and-ride for future Pendleton – Kennewick service.
- **Irrigon** – The properties near US 730 and First Avenue have large, undefined paved and gravel areas. Repaving and striping these lots could make them feasible park-and-ride or pick-up/drop-off areas. Parking could also be coordinated outside of city limits for all-day parking.
- **Boardman** – The SAGE Center or other nearby properties are recommended as the transfer point for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular, and could also be promising park-and-ride sites for these and future Heppner – Boardman and Arlington – Boardman services. Within central Boardman, space near Boardman Avenue/1st Street or City Center Drive/Main Street could be developed for transit facilities.

Vehicle Fleet

Maintaining an operational fleet with the amenities and sizing to meet the area's needs will help to improve ridership and the existing rider experience, improve system performance, and maintain service reliability. This section describes the vehicle types, fleet size and replacement rate, and storage and maintenance needs for the services.

Vehicle Types

The types of vehicles operated for service should consider the passenger load, amenities such as bike racks, fueling types, and low-floor/kneeling models. All vehicles should be ADA accessible. Considerations include:

- **Passenger Load** – The vehicle fleet will need to provide capacity for peak ridership times and consider the fuel cost savings of a smaller vehicle. The *Strategic Plan* estimated Hermiston – Boardman Connector ridership near 6–8 rides per hour and the Boardman – Port of Morrow Circular at 6-7 rides per hour. These estimates were averages, and the services are likely to see periods of higher ridership, such as those that may occur during shift changes. The service providers could monitor time-of-day ridership to assess future vehicle sizing needs.
- **Bike Racks** – Riders will need bike racks on vehicles if they need to bike on both the first- and last-mile of their journey or if secure bicycle storage is not available at bus stops. It is recommended that buses be equipped with front racks accommodating 2 bicycles to start, with rack usage monitored to assess future needs.
- **Fuel Type** –A bus with hybrid-electric propulsion costs $150,000 to $200,000 more than a similar bus with diesel propulsion but will generally reduce fuel costs by approximately 25 to 30 percent. A bus with compressed natural gas (CNG) costs $25,000 to $50,000 more than a similar bus with diesel propulsion but will generally reduce fuel costs by approximately 25 to 45 percent. Challenges in using hybrid-electric and CNG are the additional cost of purchasing new vehicles relative to diesel vehicles and the need for charging/dual fueling facilities.
- **Low Floor** – Low-floor buses eliminate the steps in the vehicle, provide easier access for riders, speed boarding and alighting, and are much easier for drivers to operate than traditional lifts. Eventually, as part of the normal bus replacement schedule and as sidewalk infrastructure improves, CTUIR and Morrow County can replace high-floor buses with low-floor models.

Fleet Size and Replacement

Properly-maintained and replaced vehicles reduce the likelihood of vehicle breakdowns and/or disruptions to service.

For determining fleet size, a 20 percent spare ratio is recommended. CTUIR will have three vehicles for the Hermiston – Boardman Connector. The Hermiston – Boardman Connector will only require two vehicles at a time to operate, and thus the third provides a spare for CTUIR. Additionally, as CTUIR already operates a fleet, vehicles could be shared across these services. Morrow County will need to consider its spare ratio needs and how vehicles could or could not be shared with existing The Loop services. As the services expand, CTUIR and Morrow County should obtain additional vehicles as needed to maintain this spare ratio.

Table 24 shows the fleet replacement needs based on the annual service miles. The Hermiston – Boardman Connector operates vehicles with an expected useful life (EUL) of 450,000 miles. Depending on the amounts of service, CTUIR will need to replace 2–3 vehicles every several years. For example, CTUIR will need to replace 2 vehicles in 2026 if operating fewer hours of service or 3 vehicles in 2026 if operating more hours of service. The Boardman – Port of Morrow Circular operated vehicles with an EUL of 200,000 miles and will need to replace a vehicle about every 4 years, depending on the amount of service provided.

Table 24. Fleet Replacement

Service	Operating Hours Scenarios	Annual Service Miles	2023	2024	2025	2026	2027
Hermiston-Boardman Connector	Weekdays + Saturday; 5:30 AM to 7:30 PM	228,656	0.51	1.02	1.52	2.03	2.54
	Weekdays + Saturday; 4:00 AM to 9:30 PM	292,392	0.65	1.30	1.95	2.60	3.25
	All Days; 4:00 AM to 9:30 PM	344,268	0.77	1.53	2.30	3.06	3.83
Boardman-Port of Morrow Circular	Weekdays + Saturday; 5:30 AM to 7:30 PM	39,525	0.20	0.40	0.59	0.79	0.99
	Weekdays + Saturday; 4:20 AM to 9:20 PM	49,631	0.25	0.50	0.74	0.99	1.24
	All Days; 4:20 AM to 9:20 PM	58,437	0.29	0.58	0.88	1.17	1.46

Note: Values represent the equivalent useful life of one vehicle accumulated in a given year. For example, for the "all days" scenario for the Hermiston–Boardman Connector, all 3 vehicles would need be replaced in 2026 if used equally.

Storage and Maintenance Needs

Locating vehicle storage and maintenance facilities near the area(s) where vehicles are used can help reduce "deadhead" miles and hours. Deadheading occurs when a vehicle travels without passengers between its storage location and the start/end of its route. Reducing deadheading reduces costs due to vehicle wear and tear, fuel, and driver time. Locating maintenance facilities near service areas also helps reduce response time if a vehicle breaks down. CTUIR currently conducts their vehicle maintenance and storage in Mission, while Morrow County stores their vehicles at the Boardman Senior Center and Irrigon Senior Center, which are both at capatiy. Constructing new storage and maintenance facilities, or partnering with local jurisdictions to share existing space, such as at the Hermiston Public Works yard, would help reduce deadheading. Routine planned vehicle maintenance at CTUIR's facility can also be accommodated by swapping vehicles between the Hermiston – Boardman Connector and Hopper routes, allowing the vehicle undergoing maintenance to travel in service to and from Mission, rather than deadheading. Given the amount of future service planned, a future vehicle storage and possible vehicle maintenance location in Boardman with partnership between Morrow County and CTUIR would serve the area well. This partnership could also include the ports, cities, or other partners that would benefit from these facilities.

Capital Acquisitions Plan

This section provides the detailed capital acquisitions breakdown for the first 3 years of operation.

Bus Stop and Access Improvements

This section summaries the timing for stop and pedestrian and bicycle recommendations. Table 25 summarizes the other recommended stop improvements by year and improvement type, in addition to signage at all stops. Table 26 summarizes stop-by-stop improvements for pedestrian and bicycle access, consistent in priority with Table 25 recommendations. Stops were prioritized based on anticipated ridership, with at least one stop prioritized in each community. In the case of 3rd/Orchard, the

improvements are anticipated to occur when the stop is relocated and a new major stop is identified in Hermiston. Overall, these stops represent general locations and can shift based on service needs and discussions with nearby property and business owners.

Table 25. Improvement Timeline within 3 Years

Stop	Benches	Shelters	Trash Cans	Bike Racks	Restrooms
SW 3rd Street/W Orchard Ave	Ex	Ex	Ex	3	3
Walmart	1	1	Ex	1	-
Lamb Weston (Westland Road)	2	-	-	-	-
McNary Market	2	Ex	Ex	2	-
Recycling Depot	1	1	Ex	1	-
6th Street/B Street	1	1	Ex	1	-
6th Street/Yrexa Avenue	3	-	-	-	-
Highway 730 and First Street	1	1	3	1	-
Employment Stops	2	-	-	-	-
Boardman Ave/Main St	1	1	Ex	1	-
Columbia Ave/2nd St	3	Ex	3	3	-
Boardman Post Office	2	2	Ex	2	-
Main St/Front St	3	3	Ex	3	-
Select Market/DHS	1	1	Ex	1	-
Mt. Hood Ave/Wilson Ln	2	2	3	2	-
Wilson Rd/Anthony Rd	3	-	-	-	-
Tatone St/Wilson Rd	2	-	-	-	-
C&D Drive-In	Ex	Ex	Ex	1	-
Boardman Ave/2nd Ave	2	-	-	-	-

Ex: Existing amenity

Table 26. Pedestrian and Bicycle Infrastructure at Stops

Stop	Year	Recommended Improvements
SW 3rd Street/ W Orchard Ave	3	Provide bicycle facilities, such as bike lanes, along local and arterial roadways.
Walmart	1	None
McNary Market	2	Provide sidewalks and bicycle lanes along Willamette Avenue, extending to connecting roadways such as Walla Walla Street and Lewis Street.
6th Street/ Yrexa Avenue	1	Widen US 730 shoulders for bicycle use and/or provide parallel path. Provide sidewalks along Yrexa Avenue, connecting to nearby residential and commercial properties.
Recycling Depot		
6th Street/ B Street	1	Widen US 730 shoulders for bicycle use and/or provide parallel path. Provide sidewalks along cross streets, connecting to nearby residential and commercial properties, Nugent Park Trails.
Highway 730 and First Street	1	Widen US 730 shoulders for bicycle use and/or provide parallel path to the west, connect to existing bicycle lane off Columbia Lane to the east. Provide sidewalks along US 730.

Stop	Year	Recommended Improvements
SAGE Center	1	Extend sidewalk and bicycle facilities to Columbia Avenue, and provide along Columbia Avenue.
Boardman Ave/ Main St	1	Extend sidewalks along Boardman Avenue, improve bicycle facilities as-needed.
C&D Drive-In		
Boardman Post Office	2	Extend sidewalks along Boardman Avenue and NW 1st Street, improve bicycle facilities as-needed.
Main St/ Front St	3	Extend sidewalks along Front Street.
Select Market/ DHS	1	Extend sidewalks along Kinkade Road, sidewalks and bicycle lanes along Tatone Street.
Mt. Hood Ave/ Wilson Ln	2	Construct sidewalks and crosswalks, starting at the intersection and extending to residential properties.

Transit Centers and Park-and-Rides

Major infrastructure changes, beyond a potential new Hermiston transit center, are not anticipated to occur in the first three years. However, CTUIR and Morrow County can partner with jurisdictions to identify locations for future facilities and begin planning, property acquisition, and partnership agreements. As noted in the *Capital Needs Plan* section, existing parking occupancy near SW 3rd Street/ Orchard Avenue, Walmart, Umatilla City Hall, US 730 and First Street, and SAGE Center can be evaluated for consideration for pick-up/drop-off and all-day parking availability. Morrow County is planning for major transit infrastructure investment projects in the Boardman area. Morrow County will be applying for Section 5339 funding and other sources to fund the construction of the facility.

Vehicle Fleet

The *Capital Needs Plan* section identified that batch vehicle replacement is likely not needed in the first 3 years of service for both the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular. However, the agencies should still plan to save funds for local match for vehicle replacement near year 4. Similar to transit centers and park-and-rides, new vehicle maintenance and storage facilities are not anticipated in the first 3 years, but partnerships to use existing facilities could be established.

Capital Financial Plan

This section provides cost estimates for smaller bus stop improvements and identifies funding sources for all improvements identified in this memorandum. The costs for larger improvements, such as transit centers and storage and maintenance facilities, can vary depending on land needs, existing utilities, and desired facility size, and thus were not estimated. Pedestrian and bicycle improvements would typically be completed by local jurisdictions; these were prioritized, but costs are not quantified in this report.

Cost Estimates

Table 27 shows itemized bus stop improvement costs, the number of units recommended in the short-term (less than 3 years) and the number of units recommended in the long-term (beyond 3 years), as identified in the *Bus Stop Amenities* section. As shown, costs are estimated to be near $120,000 in the short term and $125,500 in the long term. These costs are for initial installation and do not include maintenance and replacement. Costs include materials and installation estimates. Cost savings can be found by coordinating the installation of these improvements alongside other public works projects, such as sidewalk repairs.

Table 27. Bus Stop Improvement Costs

Hermiston – Boardman Connector	Unit Cost	Short-Term Units	Short-Term Cost	Long-Term Units	Long-Term Cost
Signage	$750	14	$10,500	0	$0
Bench	$1,000	8	$8,000	3	$3,000
Shelter	$7,500	4	$30,000	7	$52,500
Trash Can	$750	1	$750	6	$4,500
Bike Racks (at Stops)	$1,000	6	$6,000	7	$7,000
		Total	$55,250	Total	$67,000
Boardman – Port of Morrow Circular	**Unit Cost**	**Short-Term Units**	**Short-Term Cost**	**Long-Term Units**	**Long-Term Cost**
Signage	$750	13	$9,750	0	$0
Bench	$1,000	9	$9,000	3	$3,000
Shelter	$7,500	5	$37,500	6	$45,000
Trash Can	$750	2	$1,500	6	$4,500
Bike Racks (at Stops)	$1,000	7	$7,000	6	$6,000
		Total	$64,750	Total	$58,500

Table 28 shows itemized bus stop improvement costs for the first 3 years of service. As shown, costs are highest in the first year in order to establish attractive and comfortable bus stops. These costs are for initial installation and do not include maintenance and replacement. Costs include materials and installation estimates. Cost savings can be found by coordinating the installation of these improvements alongside other public works projects, such as sidewalk repairs.

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Table 28. Bus Stop Improvement Costs – First 3 Years

Hermiston – Boardman Connector	Unit Cost	Year 1 Units	Year 1 Cost	Year 2 Units	Year 2 Cost	Year 3 Units	Year 3 Cost
Signage	$750	27	$12,750	0	$0	0	$0
Bench	$1,000	4	$4,000	3	$3,000	1	$1,000
Shelter	$7,500	4	$30,000	0	$0	0	$0
Trash Can	$750	0	$0	0	$0	1	$750
Bike Racks (at Stops)	$1,000	4	$4,000	1	$1,000	1	$1,000
		Total	$50,750	-	$4,000	-	$2,750
Boardman – Port of Morrow Circular	**Unit Cost**	**Year 1 Units**	**Year 1 Cost**	**Year 2 Units**	**Year 2 Cost**	**Year 3 Units**	**Year 3 Cost**
Signage	$750	10	$7,500	0	$0	0	$0
Bench	$1,000	2	$2,000	4	$4,000	3	$3,000
Shelter	$7,500	2	$15,000	2	$15,000	1	$7,500
Trash Can	$750	0	$0	0	$0	2	$1,500
Bike Racks (at Stops)	$1,000	3	$3,000	2	$2,000	2	$2,000
		Total	$27,500	-	$21,000	-	$14,000

Potential Funding Sources

As described in the *Financial Plan* section, several federal, state, and local funding sources are available for capital improvements. Table 29 summarizes which funding sources are applicable to which improvements.

Table 29. Funding Eligibility for Improvements

Item	5310	5311	5339	STBG	STF/ STIF	STP	Statewide Transit Network	Local Jurisdictions/ Partnerships	Public-Private Partnerships
Signage	X	X	X	X	X			X	X
Bench	X	X	X	X	X			X	X
Shelter	X	X	X	X	X			X	X
Trash Can		X		X	X			X	X
Bike Racks (at Stops)		X		X	X			X	X
Transit Centers		X	X	X	X		X	X	X
Pedestrian Facilities	X	X		X	X			X	X
Bicycle Facilities		X		X	X			X	X
Park-and-Ride Lots		X		X	X		X	X	X
Fleet Replacement		X	X		X	X			
Vehicle Maintenance and Storage		X	X		X		X	X	X

Columbia Avenue South Side Pedestrian Path

6. NEXT STEPS AND REFERENCES

NEXT STEPS AND REFERENCES

This Draft Report will be reviewed with the Project Management Team, revised, and presented to the Stakeholder Group for feedback. Their feedback will inform the Final Report, which will guide the process to establish and monitor service. Immediate implementation steps for service include:

- **Pursue** funding through the identified funding sources or others that arise to support operating and capital costs.
- **Coordinate** with local jurisdictions, businesses, and property owners to establish stops and seek bus stop and access improvements.
- **Develop** marketing and advertising materials in conjunction with partners.
- **Improve** local coordination, potentially through dedicated staff at transit agencies and/or designated liaisons at the local agencies.
- **Plan** for property acquisitions and/or capital improvement of existing properties for regional facilities such as transit centers, park-and-rides, and vehicle maintenance and storage facilities as described in this Report.
- **Refine** the transit schedules through ground-truthing prior to implementation.
- **Monitor** system performance and demand over time and consider adjustments to service.

Content developed in this report was based on the following interim deliverables:

- Reference A – Strategic Plan
- Reference B – Detailed Route Schedules
- Reference C – Operating Budget and Funding Opportunities
- Reference D – Management Plan
- Reference E – Capital Needs Plan
- Reference F – Capital Acquisitions Plan

Appendix A. Employee Data

Table 30. Employer Shift Times

Employer	Shift Start	Shift End	Days of Week	Number of Employees	Comments
ALTO Columbia (Pacific Ethanol)	6-7 AM	6-7 PM	All Days	30-35	This site runs 24/7
Lamb Weston	7:00 AM	7:00 PM			East and West Plants
	7:00 PM	7:00 AM			
	5:45 AM	4:00 PM			Lamb Weston Center Packaging
	3:45 PM	2:00 AM			
	6:00 AM	6:00 PM			
	7:45 PM	6:00 AM			
	6:30 AM	4:30 PM			Lamb Weston Center Warehouse
	3:00 PM	1:30 AM			
	11:00 PM	9:30 AM			
Port of Morrow Warehousing	5:00 AM	3:30 PM			
	7:00 AM	5:30 PM			
	2:00 PM	12:30 AM			
	3:00 PM	1:30 AM			
	9:00 PM	7:30 AM			
	10:00 PM	8:30 AM			
Oregon Potato	8:00 AM	4:00 PM	All Days	160-185	Most employees in day shift, least in grave shift.
	4:00 PM	12:00 AM			
	12:00 AM	8:00 AM			
Threemile Canyon Farm	4:00 AM	4:00 PM	All Days	350	Dairy Farm
	5:00 AM	4:00 PM		250	Calf Farm
	7:00 AM	5:00 PM		600	Other Farm – Winter
	5:00 AM	7:00 PM			Other Farm – Other Seasons
Tillamook – Columbia River Processing	5:00 AM	5:30 PM	All Days	25-75	
	5:30 AM	6:00 PM			
	6:00 AM	6:00 PM		10-20	
	5:00 PM	5:30 AM		25-75	
	5:30 PM	5:00 AM			
	6:00 PM	6:00 AM		10-20	

Table 31. Employer Home Locations

Zip Code	General Location	Boardman Foods	Threemile Canyon Farms
35244		1	
90277		1	
97006		1	
97035		1	
97301		1	
97741		1	
97756		1	
97801	Pendleton	1	5
97818	Boardman	132	300
97836	Heppner	2	3
97838	Hermiston	48	150
97843		1	
97844	Irrigon	27	50
97875	Stanfield	5	20
97882	Umatilla, McNary	20	75
98944		1	
99301		1	
99336	Kennewick	2	10
99337	Kennewick, Finley	2	
99352		1	
Totals		250	Approx. 600

Appendix B. Limited Funding Alternative

The following section provides information about a reduced-funding Early AM Route and Regular Route.

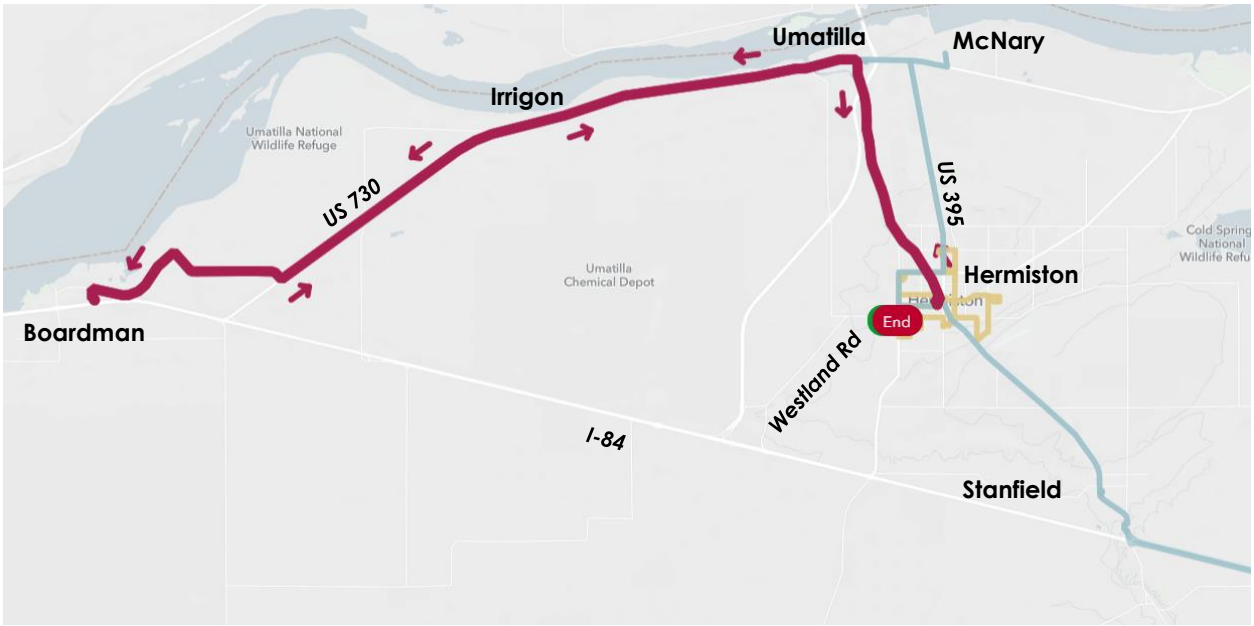
Hermiston-Boardman Connector Limited Early AM Route

If service is provided early in the morning, ridership is expected to be driven by Port of Morrow employees. Therefore, Early AM Routes skips KIE Supply/NW Farm Supply, Walmart, McNary Market, and Umatilla-Stanfield Highway, instead using Umatilla River Road between Hermiston and Umatilla. As indicated later in this report, the Hopper route would stay the same in the AM, providing service to McNary.

Based on the employment data provided, some of the first employer shifts at the Port of Morrow start at 5:00 AM. This route would start at 4:00 AM and connect to the Boardman–Port of Morrow Circular at the SAGE Center at 4:40 AM, allowing riders to get off at the employment stops or transfer to the Circular in time for a 5:00 AM shift. The early route has a 90-minute headway, arriving at the SAGE Center at 4:40 AM, 6:10 AM, and 7:40 AM. Some of these times do not provide a perfectly-timed arrival to Port shifts, but coordination with employers may lead to changes in shift times to align with Connector timing. The Limited Early AM Route is shown in Figure 22 and its schedule is shown in Table 32. Estimated travel times for this route are:

- Runtime – 80 minutes
- Recovery/Layover Buffer – 10 minutes
- Total Trip Time – 90 minutes

Figure 22. Hermiston–Boardman Connector Route Limited Early AM Route



Hermiston-Boardman Connector Limited Route

The Regular Route is designed to operate between 8:30 AM, after the Early AM Route until the end of the service day around 8:15 PM. This route travels from Hermiston to McNary and Umatilla via US 395 and continues on to Irrigon and Boardman via US 730. The regular route would operate at 2-hour headways and would arrive at the SAGE Center at 9:22 AM, 11:22 AM, 1:22 PM, 3:22 PM, 5:22 PM and 7:22 PM. The Limited Regular Route is shown in Figure 23 and its schedule is shown in Table 32. Estimated travel times for this route are:

- Runtime – 105 minutes
- Recovery/Layover Buffer – 15 minutes
- Total Trip Time – 120 minutes

Figure 23. Hermiston-Boardman Connector Limited Regular Route

Table 32 shows the near-term route schedule for weekday and Saturday service on the Limited Early AM and Regular Routes. As shown in the table, if funding is limited, the 5:30 AM to 6:15 PM service is higher priority, as it would capture both sides of many employers' shifts and it allows connections to other transit services. If more funding is available, one earlier and later trip could be added to the schedule to provide more shift coverage.

Table 32. Hermiston–Boardman Connector Limited Schedule

Stop		Early AM Route			Regular Route					
Priority		*+1.5 hr*	*Higher Priority Runs – 13 Service Hours*							*+2.5 hr*
Hermiston	**SW 3rd St. / W Orchard Ave.**	4:00	5:30	7:00	8:30	10:30	**12:30**	**2:30**	**4:30**	**6:30**
	Walmart	–	–	–	8:40	10:40	**12:40**	**2:40**	**4:40**	**6:40**
N/A	**Northwest Farm Supply**	–	–	–	8:44	10:44	**12:44**	**2:44**	**4:44**	**6:44**
N/A	**McNary Market**	–	–	–	8:51	10:51	**12:51**	**2:51**	**4:51**	**6:51**
Umatilla	**Post Office**	–	–	–	8:55	10:55	**12:55**	**2:55**	**4:55**	**6:55**
	Recycling Depot	–	–	–	8:56	10:56	**12:56**	**2:56**	**4:56**	**6:56**
	6th Street/B Street	4:14	5:44	7:14	8:57	10:57	**12:57**	**2:57**	**4:57**	**6:57**
Irrigon	**US 730 / First Street**	4:22	5:52	7:22	9:06	11:06	**1:06**	**3:06**	**5:06**	**7:06**
N/A	**Cascade Specialties**	4:34	6:04	7:34	9:17	11:17	**1:17**	**3:17**	**5:17**	**7:17**
Boardman	**Lamb Weston West or Boardman Foods**	4:37	6:08	7:38	9:20	11:20	**1:20**	**3:20**	**5:20**	**7:20**
	SAGE Center (arrive)	4:40	6:10	7:40	9:22	11:22	**1:22**	**3:22**	**5:22**	**7:22**
	SAGE Center (depart)	4:42	6:12	7:42	9:25	11:25	**1:25**	**3:25**	**5:25**	**7:25**
	Columbia River Processing	4:45	6:15	7:45	9:28	11:28	**1:28**	**3:28**	**5:28**	**7:28**
N/A	**Port of Morrow Warehouse**	4:48	6:18	7:48	9:31	11:31	**1:31**	**3:31**	**5:31**	**7:31**
Irrigon	**US 730 / First Street**	5:00	6:30	8:00	9:43	11:43	**1:43**	**3:43**	**5:43**	**7:43**
Umatilla	**City Hall Village Square**	5:09	6:39	8:09	9:52	11:52	**1:52**	**3:52**	**5:52**	**7:52**
	6th Street/Yrexa Avenue	5:10	6:40	8:10	9:53	11:53	**1:53**	**3:53**	**5:53**	**7:53**
N/A	**McNary Market**	–	–	–	9:57	11:57	**1:57**	**3:57**	**5:57**	**7:57**
N/A	**KIE Supply Corporation**	–	–	–	10:04	**12:04**	**2:04**	**4:04**	**6:04**	**8:04**
Hermiston	**Walmart**	–	–	–	10:08	**12:08**	**2:08**	**4:08**	**6:08**	**8:08**
	SW 3rd St./ W Orchard Ave.	5:22	6:52	8:22	10:18	**12:18**	**2:18**	**4:18**	**6:18**	**8:18**

Bold times indicate PM.

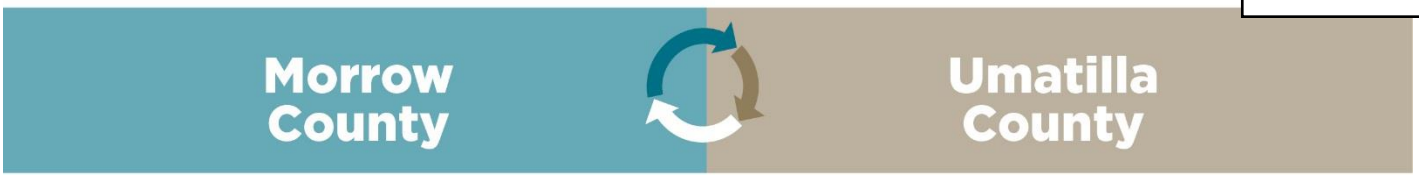
Appendix C. Transportation Options

As part of Umatilla County Coordinated Human Service Plan, the following strategy was identified to promote transportation options in the region:

Table 33. Transportation Options Strategy

Development of rideshare, carpool, and vanpool or workforce on-demand ride cooperative programs	
Target Need	
Due to the geographically size of Morrow and Umatilla Counties, resident workers must travel a substantial distance to reach employment/industry clusters located in Hermiston, Pendleton and the Port of Morrow. In addition, there are industry clusters in isolated locations outside the core industry area at the Port of Morrow. There may be a variety of situations where a fixed route bus is probably not the best way to serve residents workers due to irregular shifts, overtime requirements or family situations. When industry employers identify transportation issues or need from their workers, they can pick a transit option program. A manual with rules and restrictions on utilizing and maintaining the service may need to be developed. The program could provide a sustainable, reliable and cost-effective form of transportation to resident workers throughout the two counties.	
Rideshare, carpool and vanpool program	***WORC Program***
Rideshare, carpool and vanpool programs can help ease transit need to Morrow or Umatilla Counties resident workers by working directly with employers to develop the program. A rideshare, carpool and vanpool program can be arranged by the employers to serve resident workers. The program would be arranged between the employer and employees and the rider costs paid through payroll deductions to off-set the cost of the service. Suggest development of manual with rules and restrictions on utilizing the service. Operating hours and service areas may be defined and not serve all shifts.	Workforce On-Demand Ride Cooperative (WORC) program is a transit option to help ease transit needs to Morrow or Umatilla Counties resident workers. The WORC program would be developed as a company program to serve resident workers. The service can be operated by a local taxi company or a hired transportation company. The program would be arranged between the employer and employees and the rider costs paid through payroll deductions to off-set the cost of the service. Suggest development of manual with rules and restrictions on utilizing the service. Operating hours and service areas may be defined and not serve all shifts.
Suggested Strategy	
1. When industry leaders identify a transit need for resident workers and seek to launch a program to assist with transportation to/from workers home. 2. Develop a transit option program that works in collaboration with employees identifying shifts schedules, costs for the program (capital purchases and maintenance) and cost allocations between the employers/employees. 3. Startup assistance may be needed through county transit funding. 4. Monitor process and repeat throughout the county as needed.	

Responsible Party	***Timeframe***	***Level of Effort***	***Cost***
Morrow or Umatilla Counties Public Transit	1-3 years or on-going	Medium	$



Morrow County/Umatilla County Transit Development Strategy

Morrow County and Umatilla County

2018

Morrow County/Umatilla County Transit Development Strategy

Morrow County/Umatilla County

Prepared For:
Oregon Department of Transportation
3012 Island Avenue
La Grande, OR 97850
(541) 963-1344

Prepared By:
Kittelson & Associates, Inc.
610 SW Alder, Suite 700
Portland, OR 97205
(503) 228-5230

Project No. 18879

2018

Morrow County Umatilla County

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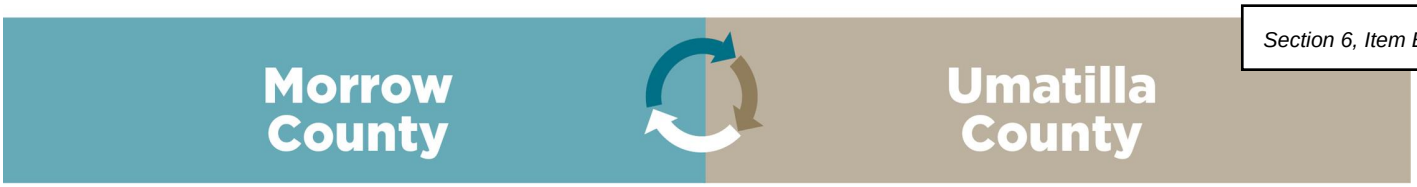
ADVISORY COMMITTEE/PROJECT ASSISTANCE

The following individuals were part of the project's advisory committee or contributed their time, expertise, and insights towards making this a better project.

Teresa Penninger, Oregon Department of Transportation
Frank Thomas, ODOT Region 5 Transit Coordinator
Carla McLane, Morrow County
Anita Pranger, The Loop
Leanne Rea, Morrow County Commissioner (retired)
Debbie Radie, Boardman Foods
Lisa Mittelsdorf, Port of Morrow
Dan Brosnan
Bob Waldher, Umatilla County
Tamra Mabbott, City of Umatilla
Laura Slater, ODOT Region 5 Transit Coordinator (former)
JD Tovey, Confederate Tribes of the Umatilla Indian Reservation
Andrea Weckmueller-Behringer, WWVMPO/SRTPO
Mandie Bates, Cayuse Technologies
Melissa Drugge, Business Oregon
Susan Bower, Eastern Oregon Business Source
Mark Morgan, City of Hermiston
Anna Harris
Teresa Ducher/Lauren Sweeny, City of Milton Freewater
Robin Philips ODOT Region 5 Transit Coordinator (former)
Angie Jones, Grant County Transportation District
Jim Doherty, Morrow County Commissioner
Marsha Hoskins, ODOT Rail and Public Transit Division

Chapter 1
Introduction



INTRODUCTION

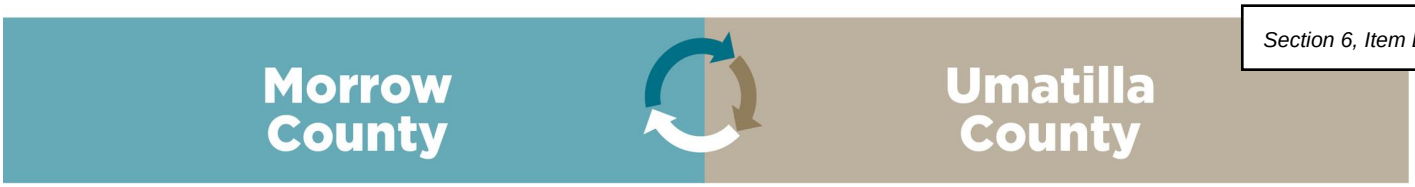
In 2016, Morrow County and Umatilla County adopted separate Coordinated Human Services Transportation Plans. These coordinated plans are guiding documents that outline strategies for grant distributions funded by the State of Oregon's Special Transportation Fund (STF) and the Federal Transit Administration (FTA) Section 5310 program. The goal of each coordinated plan is to improve transportation programs and services for key target populations (older adults, people with disabilities, and people with low incomes) through the identification of new transit service, enhancements to existing transit programs, improvements to the marketing of transit programs, and new technology.

While each of the coordinated plans have been prepared specific to the various needs of the individual counties, it has been noted through the planning process as well as other transportation planning efforts carried out by the Oregon Department of Transportation (ODOT) that Morrow and Umatilla County are closely integrated from a transportation perspective. With a large number of jobs located in an around the Port of Morrow and a relatively low population base, Morrow County tends to import workers from Umatilla County and beyond creating a fairly significant employment-based commuting profile. With more geographically dispersed employment centers and a larger population base, Umatilla County not only imports jobs from neighboring counties, but experiences a significant amount of intra-county employment commuting to the various employment centers.

Building upon the efforts outlined in the two Coordinated Human Services Transportation Plans, the Morrow County/Umatilla County Transit Development Strategy seeks to develop a broader range of transit solutions that will better address the larger inter- and intra-county transportation needs of workforce participants, seniors, people with disabilities, and lower incomes.

The Morrow County/Umatilla County Transit Development Strategy is divided into six chapters, as outlined below:

- Chapter 1 - Introduction
- Chapter 2 - Summarizes the transit supportive demographic profiles of Morrow County and Umatilla County.
- Chapter 3 – Summarizes the employment-based commuting profiles of Morrow County and Umatilla County
- Chapter 4 - Briefly summarizes the public and private transit providers that operate in Morrow and Umatilla County.
- Chapter 5 – Identifies and evaluates the potential transit service strategies.
- Chapter 6 - Presents a set of prioritized strategies for Morrow County, Umatilla County, and the various transit service providers to improve transit accessibility within and between the two counties.



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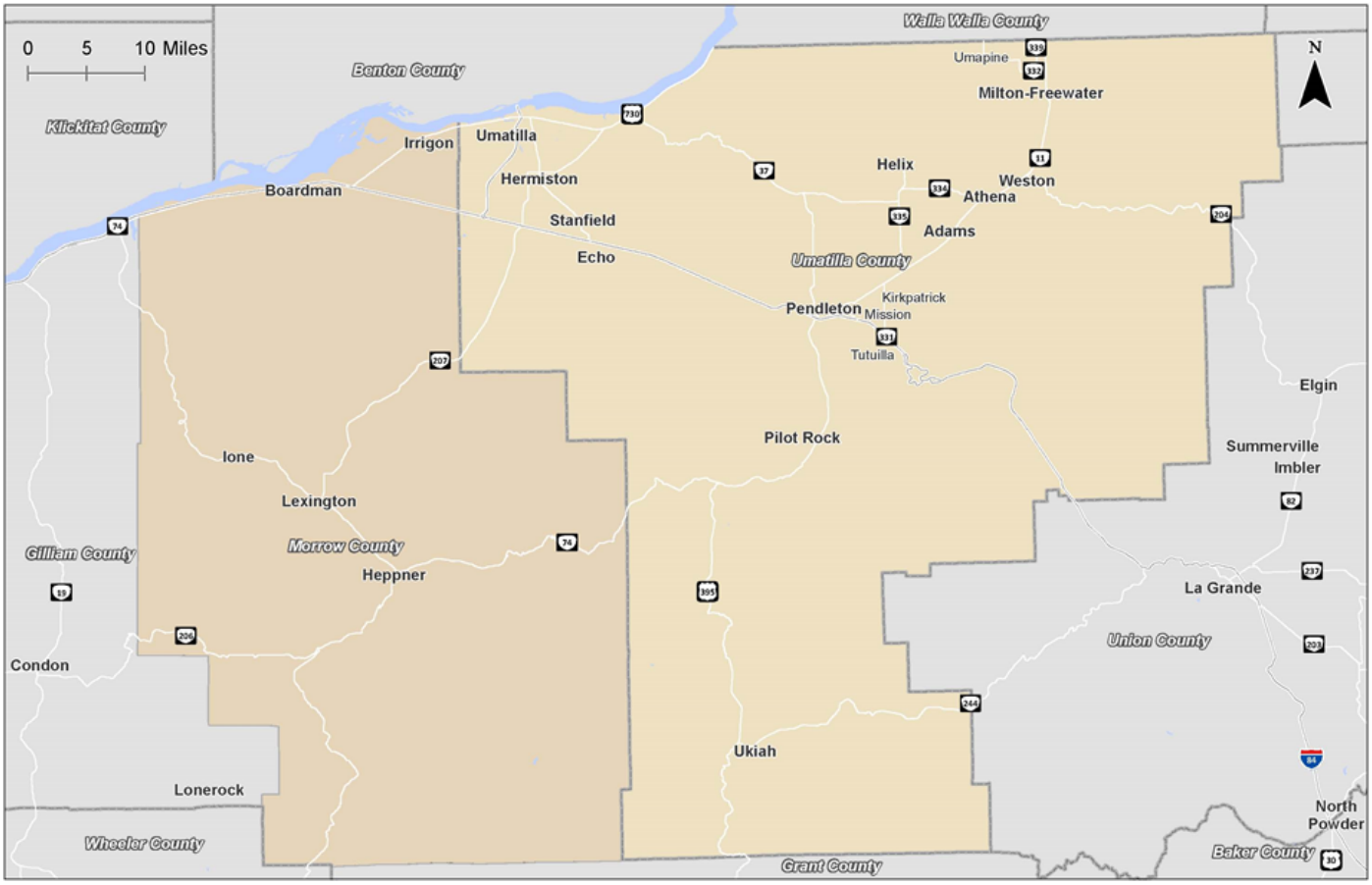
Chapter 2
Demographic Context

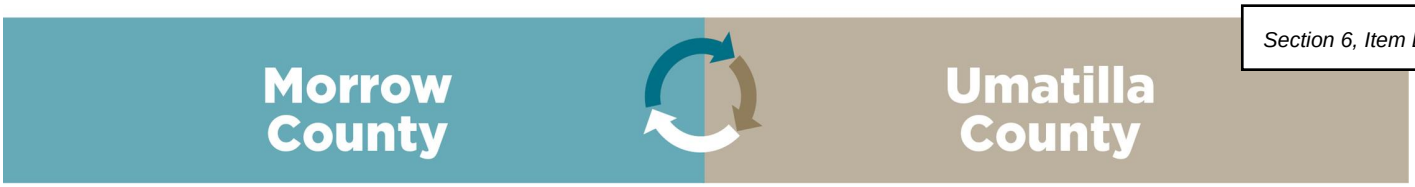
Morrow County | Umatilla County

DEMOGRAPHIC CONTEXT

This chapter provides a demographic profile of Morrow and Umatilla County's key target populations for transit usage.

Exhibit 1 – Morrow County and Umatilla County Study Area





MORROW COUNTY/UMATILLA COUNTY POPULATION

Table 1 documents the share of population in each of the major Morrow County and Umatilla County cities relative to the total county population. As shown, Boardman is the most populous city in Morrow County while Hermiston is the most populous city in Umatilla County. As large predominately rural counties, both have a relatively high percentage of their population living in unincorporated areas.

Table 1 – Population Summary for Morrow and Umatilla County

Morrow County			Umatilla County		
City	2015 Population Estimate	%	City	2015 Population Estimate	%
Boardman	3,320	30%	Athena	1,069	1%
Heppner	1,151	10%	Echo	734	1%
Ione	255	2%	Hermiston	17,121	22%
Irrigon	2,217	20%	Milton-Freewater	7,089	9%
Lexington	189	2%	Mission	970	1%
Unincorporated	4,072	36%	Pendleton	16,882	22%
Total Morrow County	**11,204**	**100%**	Pilot Rock	1,476	2%
			Stanfield	2,241	3%
			Umatilla	6,999	9%
			Weston	723	1%
			Unincorporated	21,434	28%
			Total Umatilla County	**76,738**	**100%**

Source: 2015 American Community Survey 5-year Population Estimates

TRANSIT SUPPORTIVE DEMOGRAPHIC PROFILE

This section provides an overview of the transit supportive demographic characteristics of both counties based on data from the 2010-2015 American Community Survey (ACS) 5-year estimate dataset. This data is useful to illustrate geographic areas with concentrations of population groups that face particular mobility challenges.

Table 2 provides a “snapshot” of the presence of the four population groups of interest for Morrow County and Umatilla County: older adults (persons over 65 years old), persons with disabilities, persons in poverty, and zero car households. Compared to the entire State of Oregon, both Morrow and Umatilla County have a higher percentage of persons with some sort of disability while the percentage of zero car households is slightly lower than the state overall. Additional data for each of the major cities within the two counties are documented in the following sections.

Table 2 – County Transit Supportive Demographic Snapshot

	Total Population	% Persons Aged 65+	% Persons w/ Disabilities	% Persons in Poverty	% Zero Car Households
Oregon	3,939,233	15%	7%	10%	8%
Morrow County	11,204	14%	7%	8%	3%
Umatilla County	76,738	14%	7%	8%	8%

Source: American Community Survey 2010-2015 American Community Survey 5-year Estimates

Older Adults

Table 3 lists the percentage of the population aged 65 years and older for individual cities in both Morrow and Umatilla County. Compared to Umatilla County, Morrow County has considerably fewer adults aged 65+, but the percentage of the total population is roughly equal. Within Umatilla County, the City of Pendleton has the highest number of adults aged 65+, accounting for approximately 3% of the total county population.

Table 3 – Adults Aged 65+ by City

Morrow County				Umatilla County			
City	2015 Population Estimate Aged 65+	% of City Population	% of Morrow County Population	City	2015 Population Estimate Aged 65+	% of City Population	% of Umatilla County Population
Boardman	229	7%	2.04%	Athena	185	17%	0.24%
Heppner	247	21%	2.20%	Echo	121	16%	0.16%
Ione	63	25%	0.56%	Hermiston	1,975	12%	2.57%
Irrigon	234	11%	2.09%	Milton-Freewater	800	11%	1.04%
Lexington	45	24%	0.40%	Mission	78	8%	0.10%
Unincorporated	711	17%	6.35%	Pendleton	2,221	13%	2.89%
Total Morrow County	1,529		13.65%	Pilot Rock	189	13%	0.25%
				Stanfield	278	12%	0.36%
				Umatilla	440	6%	0.57%
				Weston	113	16%	0.15%
				Unincorporated	4,024	19%	5.24%
				Total Umatilla County	10,424		13.58%

Source: American Community Survey 2010-2015 American Community Survey 5-year Estimates

Persons with Disabilities

The definition of "disability" varies; for this project, information cited is consistent with definitions reported in the 2015 American Community Survey (ACS). The questions regarding disability on the 2015 American Community Survey remain unchanged from the 2008 ACS and include three questions with a total of six subparts with which to identify people with disabilities. The questions are as follows:

- 16a. Is this person deaf or does he/she have serious difficulty breathing? (yes/no)
- 16b. Is this person blind or does he/she have serious difficulty seeing even when wearing glasses? (yes/no)
- 17a. Because of a physical, mental, or emotional condition, does this person have serious difficulty concentrating, remembering, or making decisions? (yes/no)
- 17b. Does this person have serious difficulty walking or climbing stairs? (yes/no)
- 17c. Does this person have difficulty dressing or bathing? (yes/no)
- 18. Because of a physical, mental, or emotional condition, does this person have difficulty doing errands along such as visiting a doctor's office or shopping? (yes/no)

Table 4 lists the number of persons who are classified as disabled for individual cities in both Morrow and Umatilla County. Within Morrow County, 14 percent of the City of Heppner's population is classified as having some sort of disability. The City of Boardman has the highest disabled population accounting for approximately 1.5 percent of the total county population. Within Umatilla County, the City of Pendleton has the highest disabled population accounting for approximately 1.6 percent of the total county population.

Table 4 – Disabled Population by City

Morrow County				Umatilla County			
City	2015 Disabled Population Estimate	% of City Population	% of Morrow County Population	City	2015 Disabled Population Estimate	% of City Population	% of Umatilla County Population
Boardman	168	5.06%	1.50%	Athena	104	10%	0.14%
Heppner	161	13.99%	1.44%	Echo	76	10%	0.10%
Ione	20	7.84%	0.18%	Hermiston	879	5%	1.15%
Irrigon	115	5.19%	1.03%	Milton-Freewater	524	7%	0.68%
Lexington	3	1.59%	0.03%	Mission	90	9%	0.12%
Unincorporated	358	8.79%	3.20%	Pendleton	1,243	7%	1.62%
Total Morrow County	825		7.36%	Pilot Rock	142	10%	0.19%
				Stanfield	222	10%	0.29%
				Umatilla	435	6%	0.57%
				Weston	53	7%	0.07%
				Unincorporated	1,723	8%	2.25%
				Total Umatilla County	5,491		7.16%

Source: American Community Survey 2010-2015 American Community Survey 5-year Estimates

Persons in Poverty

The U.S. Census defines residents according to the Poverty Status Index, which is based on income and household size. Table 5 lists the percentages of the population in poverty for individual cities in Morrow and Umatilla County. Within Morrow County, the City of Boardman has the highest number of persons in poverty accounting for approximately 3.5 percent of the total county population. Within Umatilla County, the City of Hermiston has the highest number of persons in poverty accounting for approximately 2 percent of the total county population.

Table 5 – Persons Living in Poverty by City

Morrow County				Umatilla County			
City	2015 Population Estimate for Persons in Poverty	% of City Population	% of Morrow County Population	City	2015 Population Estimate for Persons in Poverty	% of City Population	% of Umatilla County Population
Boardman	396	12%	3.53%	Athena	125	12%	0.16%
Heppner	102	9%	0.91%	Echo	63	9%	0.08%
Ione	15	6%	0.13%	Hermiston	1,591	9%	2.07%
Irrigon	135	6%	1.20%	Milton-Freewater	1,052	15%	1.37%
Lexington	0	0%	0.00%	Mission	151	16%	0.20%
Unincorporated	239	6%	2.13%	Pendleton	1,345	8%	1.75%
Total Morrow County	887		7.92%	Pilot Rock	113	8%	0.15%
				Stanfield	151	7%	0.20%
				Umatilla	384	5%	0.50%
				Weston	28	4%	0.04%
				Unincorporated	1,196	6%	1.56%
				Total Umatilla County	6,199		8.08%

Source: American Community Survey 2010-2015 American Community Survey 5-year Estimates

Vehicle Ownership

Vehicle ownership is an indicator of mobility, as access to a vehicle is a necessity in most rural communities due to relatively limited transportation options. Approximately five and seven percent of households do not have access to a vehicle in Morrow and Umatilla Counties, respectively.

A common metric that is used to evaluate the likelihood of residents using transit is "auto insufficiency"; that is, whether there is more than one worker per vehicle available. Table 6 shows households by the number of vehicles available and by the auto insufficiency based on the reported number of workers in the household. Compared to Umatilla County, the rate of auto insufficiency is lower in Morrow County among the 0-1 worker households, but considerably higher in the 3+ worker households.

Table 6 – Workers per Household and Auto Insufficiency

Morrow County			Umatilla County		
Number of Workers	Percent of Total Households	Percent Auto Insufficient	Number of Workers	Percent of Total Households	Percent Auto Insufficient
0-1 workers	67%	6%	0-1 workers	65%	10%
2 workers	27%	10%	2 workers	30%	11%
3+ workers	6%	36%	3+ workers	6%	26%

Chapter 3
Commuting Patterns

Morrow County | Umatilla County

COMMUTING PATTERNS

COMMUTING PROFILES

In addition to the transit supportive demographic profiles, it is also important to look at the employment-based commuting travel characteristics for each county. This information can be useful for identifying the number of workers who are traveling within and between the two counties to reach places of employment. Two sources of information were used to determine the employment commuting profiles for each county. The first source is the US Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program which provides job flow data that can be used to determine employment-based commuting profiles. The second source is a survey of major employers in Morrow and Umatilla Counties (see Table X for a list of participating employers) that was conducted as part of this project. This survey (see Exhibit 2 for a copy of the survey form) was conducted to supplement the LEHD data and provide more specific data associated with the various employment clusters that exist throughout Morrow and Umatilla County.

Exhibit 2 - Survey Form of Morrow County and Umatilla County Businesses

Oregon Department of Transportation | business oregon | plan4health | Regional Solutions

MORROW COUNTY/UMATILLA COUNTY TRAVEL SHED ANALYSIS BUSINESS SURVEY

Please answer the following questions to the best of your ability

1. Total number of full time employees at your company: _____

2. Hours of operation: _____
(If you operate in multiple shifts, provide hours and number of employees during each shift)
_____
_____
_____
_____

3. Please provide number of employees residing in each city **or** zip code listed below. If the city or zip code is not listed below, please write in using one of the blank cells.

HOME CITY	HOME ZIP CODE	# OF EMPLOYEES	HOME CITY	HOME ZIP CODE	# OF EMPLOYEES
Adams	97810		North Powder	97867	
Arlington	97812		Pendleton	97801	
Athena	97813		Pilot Rock	97868	
Baker City	97814		Stanfield	97875	
Boardman	97818		The Dalles	97058	
Cove	97824		Ukiah	97880	
Echo	97826		Umatilla	97882	
Helix	97835		Union	97883	
Heppner	97836		Weston	97886	
Hermiston	97838		College Place, WA	97324	
Hood River	97031		Kennewick, WA	99336	
Ione	97843		Pasco, WA	99301	
Irrigon	97844		Richland, WA	99352	
La Grande	97850		Walla Walla, WA	99362	
Lexington	97839				
Milton-Freewater	97862				
Mission	97801				
Mosier	97040				

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Oregon Department of Transportation | business oregon | plan4health | Regional Solutions

4. Does your company currently offer or organize any formal ridesharing or carpooling program for employee use? If so, please identify the program and list the number of employees who participate in the program.
_____
_____
_____

5. If transit or ridesharing service could be expanded to Umatilla and Morrow Counties, would your company be interested in participating with future planning of these services?
_____
_____
_____

Name: _____ Business: _____

Email: _____ Phone: _____

Please send your responses directly to the following individual. Thank you.

Anna Harris
Oregon Regional Solutions
541-310-0339
anna.j.harris@oregon.gov
Eastern Oregon University
233 Badgley Hall, One University Boulevard
La Grande, OR 97850

Table 7 – List of Survey Participants Providing Employee Zip Code Data

Mission Area Cluster	Hermiston Area Cluster
CTUIR	DuPont Pioneer Seed
Wildhorse Resort & Casino	City of Hermiston
Cayuse Technologies	River Point Farms
Pendleton Area Cluster	Hermiston School District
Keystone RV	Simmons Insurance Agency
City of Pendleton	Smitty's Ace Hardware
St Anthony Hospital	Good Shepherd Medical Center
BMCC	McNary Place
Umatilla County	Boardman Area Cluster
Pendleton School District	Boardman Foods
Interpath Laboratories	Umatilla Electric Coop
Milton-Freewater Area Cluster	Pacific Ethanol-Columbia
City of Milton-Freewater	Port of Morrow Warehousing
Les Schwab Milton-Freewater	City of Boardman
I-84/I-82/Westland Road Area Cluster	
Conagra Foods	
Hermiston Foods	

Where Workers Live

Table 8 summarizes the home county of the workers that are employed in Morrow and Umatilla County. From the LEHD data, approximately 63 percent of Morrow County's workforce lives outside the county with the highest proportion living in Umatilla County. This data suggests that there are more jobs in Morrow County than there are workers. For Umatilla County, only 34 percent of its workforce is imported from outside the county. Table 8 also summarizes the home county of the workers employed at the surveyed businesses. While this data is less comprehensive than the LEHD, it also points out that there is a significant amount of workforce importing going on in Morrow County with the majority of that workforce living in Umatilla County.

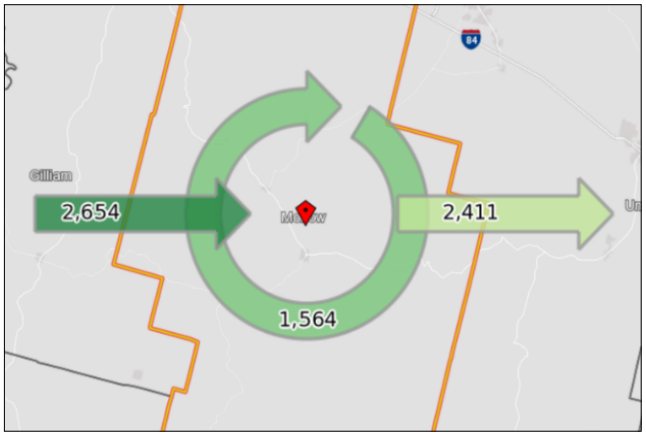
Table 8 – Where Workers Live (by County) Who Are Employed in the Selected County

Morrow County			Umatilla County		
Home County	LEHD %	Business Survey %	Home County	LEHD %	Business Survey %
Morrow County, OR	37.1%	51.72%	Umatilla County, OR	66.4%	83.4%
Umatilla County, OR	28.8%	45.38%	Walla Walla County, WA	3.7%	5.8%
Benton County, WA	5.3%	0.53%	Benton County, WA	3.7%	3.4%
Grant County, OR	4.1%	-	Morrow County, OR	3.5%	3.9%
Gilliam County, OR	2.8%	-	Union County, OR	2.7%	2.3%
Franklin County, WA	1.7%	0.5%	Multnomah County, OR	1.6%	-
Union County, OR	1.5%	-	Grant County, OR	1.5%	-
Multnomah County, OR	1.3%	-	Franklin County, WA	1.3%	0.5%
Baker County, OR	1.0%	-	Baker County, OR	1.0%	0.1%
Washington County, OR	1.0%	-	Washington County, OR	1.0%	-
All Other Locations	15.5%	2.4%	All Other Locations	13.6%	0.7%
Total All Jobs	**100.0%**	**100.0%**	**Total All Jobs**	**100.0%**	**100.0%**

Morrow County

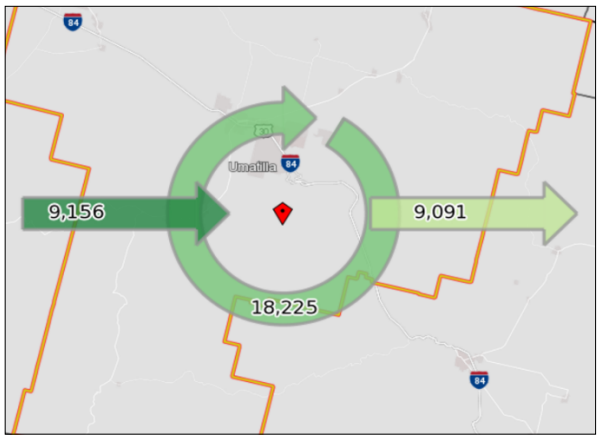
Umatilla County

Exhibit 3 – Morrow County Commuting Flow



Source: Census on the Map LEHD

Exhibit 4 – Umatilla County Commuting Flow



Source: Census on the Map LEHD

Similar data for select cities in each county are provided in the following Tables 9 through 11.

Table 9 - Where Workers Live (by City) Who Are Employed in the Selected County

Morrow County			Umatilla County		
Home City	LEHD %		Home City	LEHD %	
Hermiston, OR	11.5%		Pendleton, OR	18.0%	
Boardman, OR	11.0%		Hermiston, OR	15.8%	
Irrigon, OR	6.2%		Umatilla, OR	4.9%	
Umatilla, OR	5.8%		Milton-Freewater, OR	4.5%	
Heppner, OR	3.9%		Walla Walla, WA	2.1%	
Kennewick, WA	2.7%		Kennewick, WA	1.7%	
Pendleton, OR	1.6%		La Grande, OR	1.4%	
Pasco, WA	1.5%		Stanfield, OR	1.4%	
Richland, WA	1.5%		Portland, OR	1.3%	
Ione, OR	1.2%		Pilot Rock, OR	1.2%	
Lexington, OR	0.66%		Ukiah, OR	0.17%	
Unincorporated Morrow County	14.10%		Athena, OR	0.82%	
All Other Locations	38.3%		Helix, OR	0.19%	
Total All Jobs	**100.0%**		Echo, OR	0.57%	
			Weston, OR	0.32%	
			Adams, OR	0.19%	
			Unincorporated Umatilla County	18.32%	
			All Other Locations	27%	
			Total All Jobs	**100.0%**	

Source: LEHD and Survey Data

Table 10: Where Workers Live Who Are Employed in the Selected Morrow County City

City of Boardman			City of Irrigon			City of Heppner		
Home City	LEHD%	Business Survey %	Home City	LEHD %	Business Survey %	Home City	LEHD %	Business Survey %
Boardman, OR	15.7%	39.6%	Boardman, OR	10.7%	-	Heppner, OR	12.7%	-
Hermiston, OR	10.3%	33.5%	Hermiston, OR	10.7%	-	Hermiston, OR	5.7%	-
Irrigon, OR	8.5%	10.8%	Irrigon, OR	7.2%	-	Ione, OR	4.7%	-
Umatilla, OR	6.1%	8.2%	Umatilla, OR	6.4%	-	Boardman, OR	3.8%	-
Kennewick, WA	2.2%	1.3%	Kennewick, WA	4.2%	-	John Day, OR	3.0%	-
Portland, OR	1.9%	-	Richland, WA	2.2%	-	Pilot Rock, OR	2.7%	-
Pendleton, OR	1.6%	-	Heppner, OR	2.0%	-	Lexington, OR	2.5%	-
Heppner, OR	1.2%	-	Pendleton, OR	1.7%	-	Arlington, OR	2.3%	-
Richland, WA	1.2%	0.5%	Portland, OR	1.3%	-	Irrigon, OR	2.3%	-
Arlington, OR	1.0%	-	Arlington, OR	1.2%	-	Pendleton, OR	1.9%	-
All Other Locations	50.3%	6%	All Other Locations	52.5%	-	All Other Locations	58.5%	-
Total All Jobs	**100.0%**	**100.0%**	**Total All Jobs**	**100.0 %**	-	**Total All Jobs**	**100.0 %**	-
Home County	LEHD%	Business Survey %	Home County	LEHD %	Business Survey %	Home County	LEHD %	Business Survey %
Morrow County, OR	39.7%	51.72%	Morrow County, OR	35.6%	-	Morrow County, OR	43.0%	-
Umatilla County, OR	28.7%	45.38	Umatilla County, OR	28.3%	-	Umatilla County, OR	17.6%	-
Benton County, WA	4.4%	0.53%	Benton County, WA	8.4%	-	Grant County, OR	10.4%	-
Grant County, OR	3.1%	-	Grant County, OR	3.0%	-	Gilliam County, OR	5.5%	-
Gilliam County, OR	2.7%	-	Washington County, OR	3.0%	-	Wallowa County, OR	2.1%	-
Multnomah County, OR	2.7%	-	Gilliam County, OR	2.7%	-	Baker County, OR	1.9%	-
Union County, OR	1.7%	-	Multnomah County, OR	1.7%	-	Union County, OR	1.9%	-
Baker County, OR	1.2%	-	Baker County, OR	1.5%	-	Marion County, OR	1.7%	-
Clackamas County, OR	1.1%	-	Union County, OR	1.5%	-	Wasco County, OR	1.7%	-
Cowlitz County, WA	1.0%	-	Marion County, OR	1.2%	-	Wheeler County, OR	1.3%	-
All Other Locations	14.0%	2.9%	All Other Locations	13.2%	-	All Other Locations	12.9%	-
Total All Jobs	**100.0%**	**100.0%**	**Total All Jobs**	**100.0 %**	-	**Total All Jobs**	**100.0 %**	-

Source: LEHD and Survey Data

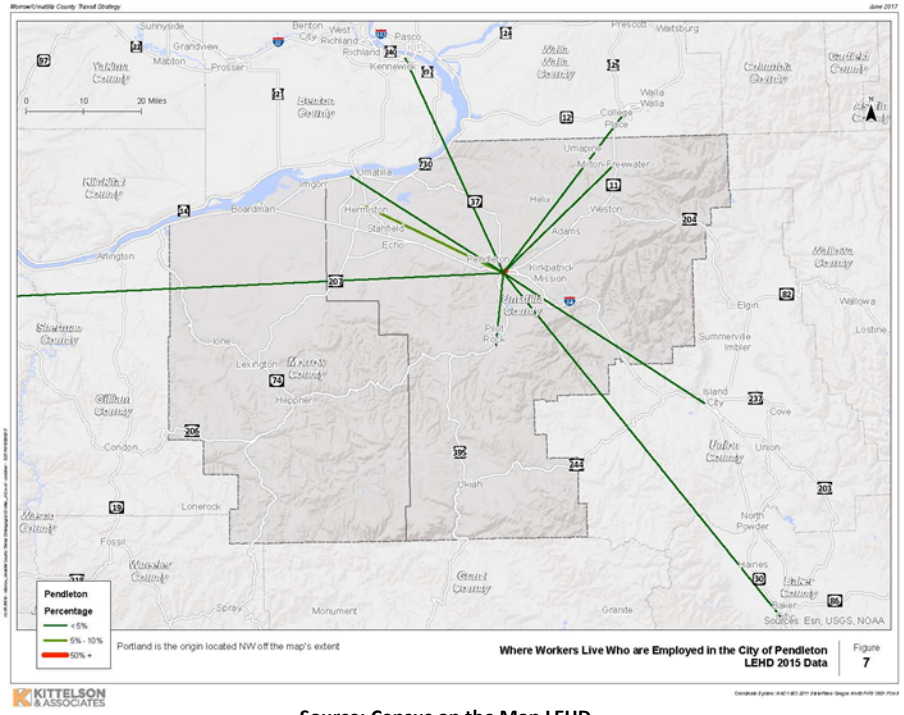
Table 11 – Where Workers Live Who Are Employed in the Selected Umatilla County City

Hermiston			Pendleton			Milton-Freewater			Umatilla		
Home City	**LEHD%**	**Survey %**	**Home City**	**LEHD%**	**Survey %**	**Home City**	**LEHD%**	**Survey %**	**Home City**	**LEHD%**	**Survey %**
Hermiston, OR	33.2%	76.9%	Pendleton, OR	42.7%	-	Milton-Freewater, OR	33.0%	73.9%	Hermiston, OR	21.2%	28.1%
Umatilla, OR	8.3%	8.5%	Hermiston, OR	4.5%	23.71%	Walla Walla, WA	12.1%	13.6%	Umatilla, OR	12.4%	45.0%
Pendleton, OR	3.9%	-	La Grande, OR	2.3%	4.34%	College Place, WA	4.2%	2.2%	Pendleton, OR	6.2%	2.9%
Stanfield, OR	2.0%	5.3%	Pilot Rock, OR	1.9%	16.9%	Pendleton, OR	3.3%	-	Kennewick, WA	3.5%	8.2%
Portland, OR	1.9%	-	Milton-Freewater, OR	1.6%	13.38%	Athena, OR	2.1%	-	Boardman, OR	1.7%	.6%
Kennewick, WA	1.8%	1.0%	Umatilla, OR	1.4%	3.05%	Hermiston, OR	1.4%	-	Irrigon, OR	1.6%	5.9%
Boardman, OR	1.6%	2.3%	Portland, OR	1.3%	-	Eugene, OR	1.1%	-	Pasco, WA	1.6%	.6%
La Grande, OR	1.2%	.1%	Baker City, OR	1.0%	.23%	Weston, OR	1.0%	5.7%	Stanfield, OR	1.3%	1.8%
Pasco, WA	1.1%	.6%	Kennewick, WA	0.9%	2%	Umatilla, OR	0.8%	-	Richland, WA	1.3%	1.2%
Richland, WA	1.0%	.5%	Walla Walla, WA	0.8%	6.1%	Pasco, WA	0.8%	-	Pilot Rock, OR	1.2%	-
All Other Locations	44.1%	5.5%	All Other Locations	41.5%	30.28%	All Other Locations	40.3%	4.6%	All Other Locations	48.1%	5.8%
Total All Jobs	**100.0%**	**100.0%**	**Total All Jobs**	**100.0%**	**100%**	**Total All Jobs**	**100.0%**	**100.0%**	**Total All Jobs**	**100.0%**	**100.0%**
Home County	**LEHD%**	**Survey %**	**Home County**	**LEHD%**	**Survey %**	**Home County**	**LEHD%**	**Survey %**	**Home County**	**LEHD%**	**Survey %**
Umatilla County, OR	66.5%	92.4%	Umatilla County, OR	71.2%	79.6%	Umatilla County, OR	58.1%	79.5%	Umatilla County, OR	64.0%	82.0%
Morrow County, OR	5.0%	5.6%	Union County, OR	4.2%	5.6%	Walla Walla County, WA	20.9%	15.9%	Benton County, WA	6.8%	9.4%
Benton County, WA	4.1%	1.2%	Benton County, WA	2.0%	2.9%	Lane County, OR	1.8%	-	Morrow County, OR	5.9%	6.4%
Union County, OR	2.5%	.02%	Baker County, OR	1.7%	.2%	Grant County, OR	1.6%	-	Franklin County, WA	2.0%	.6%
Multnomah County, OR	2.3%	-	Multnomah County, OR	1.7%	-	Benton County, WA	1.3%	-	Baker County, OR	1.5%	-
Franklin County, WA	1.4%	.4%	Grant County, OR	1.7%	-	Union County, OR	1.1%	-	Union County, OR	1.4%	1.2%
Washington County, OR	1.3%	-	Morrow County, OR	1.5%	3.5%	Franklin County, WA	1.1%	-	Multnomah County, OR	1.3%	-
Grant County, OR	1.3%	-	Walla Walla County, WA	1.3%	7.4%	Wasco County, OR	0.9%	-	Grant County, OR	1.3%	-
Clackamas County, OR	1.2%	-	Washington County, OR	1.1%	-	Multnomah County, OR	0.8%	-	Jefferson County, OR	1.0%	-
Marion County, OR	1.2%	-	Clackamas County, OR	1.1%	-	Baker County, OR	0.8%	-	Washington County, OR	1.0%	-
All Other Locations	13.2%	.4%	All Other Locations	12.5%	.5%	All Other Locations	11.6%	4.6%	All Other Locations	13.8%	.6%
Total All Jobs	**100.0%**	**100.0%**	**Total All Jobs**	**100.0%**	**100%**	**Total All Jobs**	**100.0%**	**100.0%**	**Total All Jobs**	**100.0%**	**100.0%**

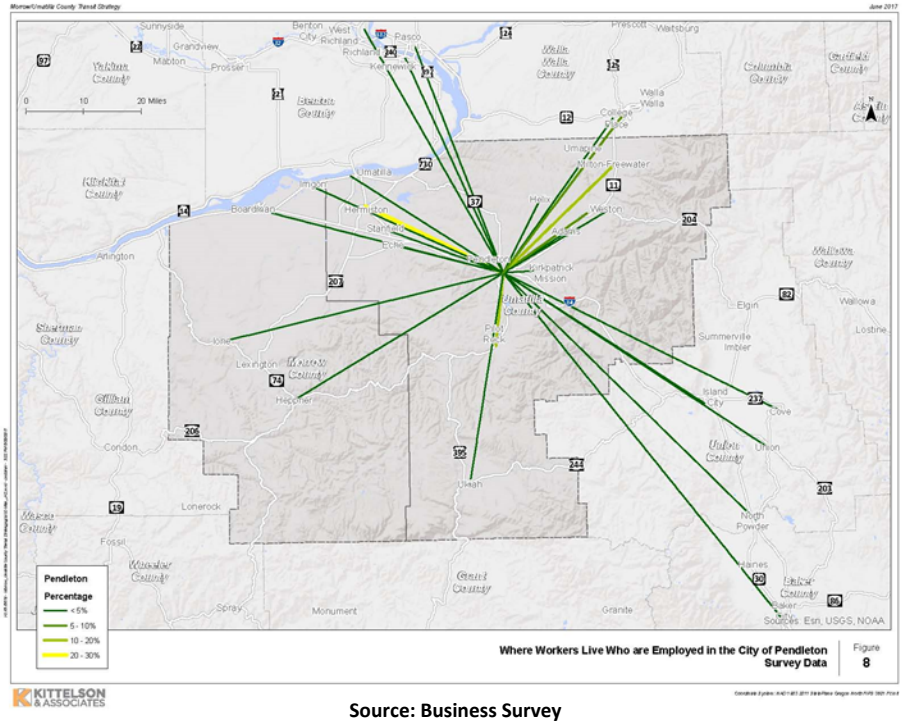
Source: LEHD and Survey Data

Exhibits 5 through 7 graphically illustrate where workers live who are employed in the selected City. This data is illustrated according to the LEHD data and the business survey data.

Exhibit 5 – Where Workers Live Who Are Employed in the City of Pendleton

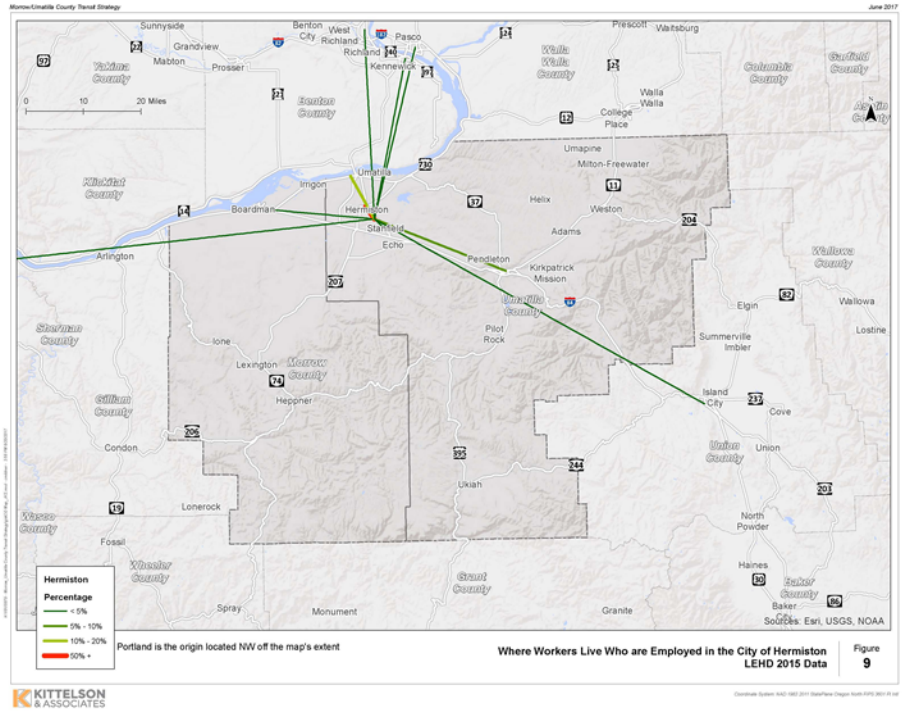


Source: Census on the Map LEHD



Source: Business Survey

Exhibit 6 – Where Workers Live Who are Employed In the City of Hermiston



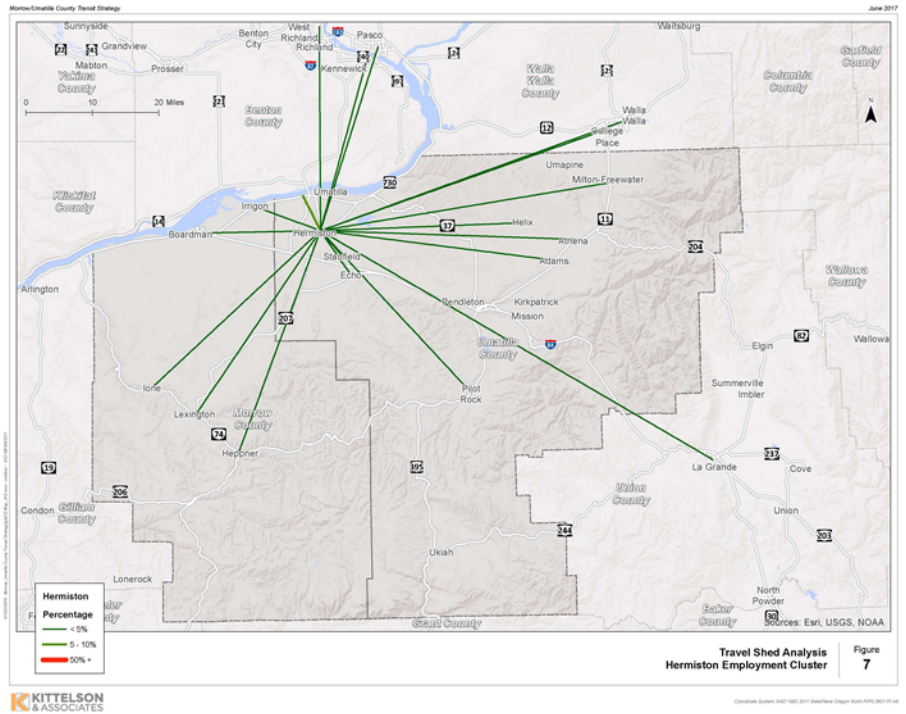
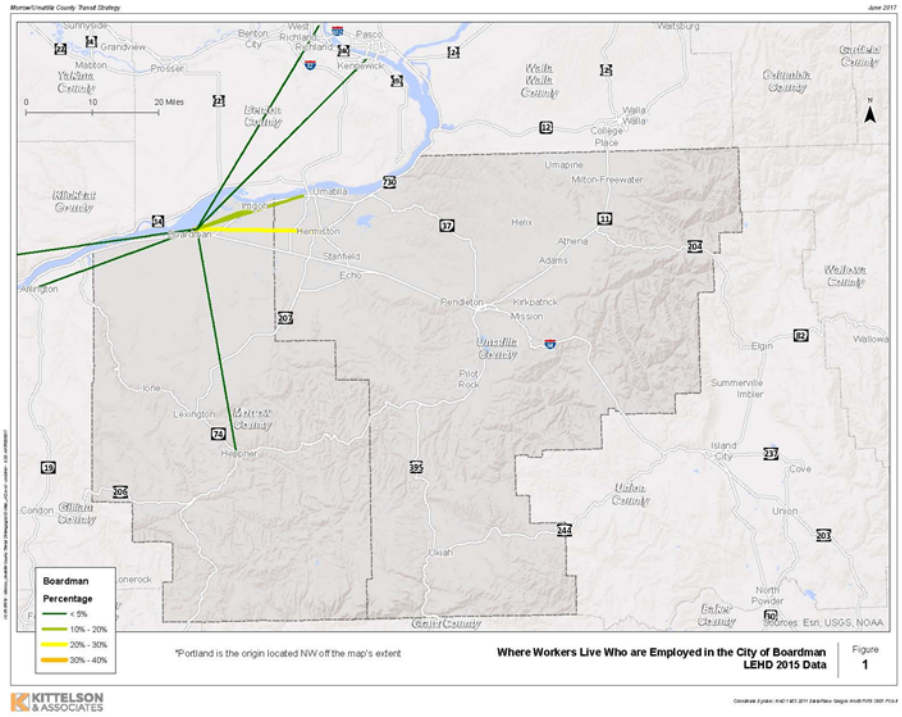
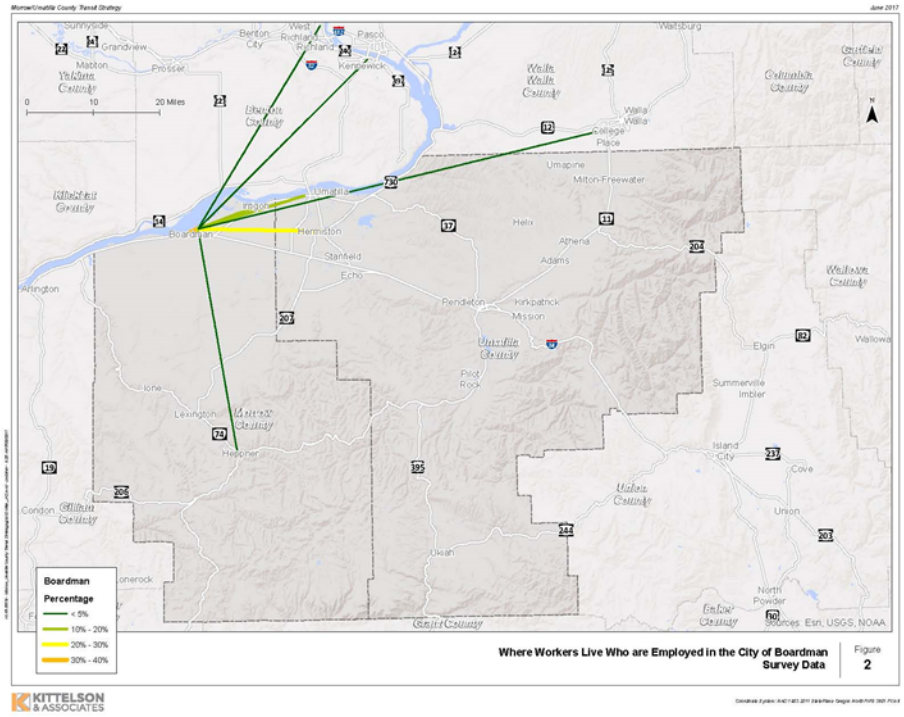


Exhibit 7 - Where Workers Live Who Are Employed in the City of Boardman





Chapter 4
Overview of Existing Public Transportation Services

OVERVIEW OF EXISTING PUBLIC TRANSPORTATION SERVICES

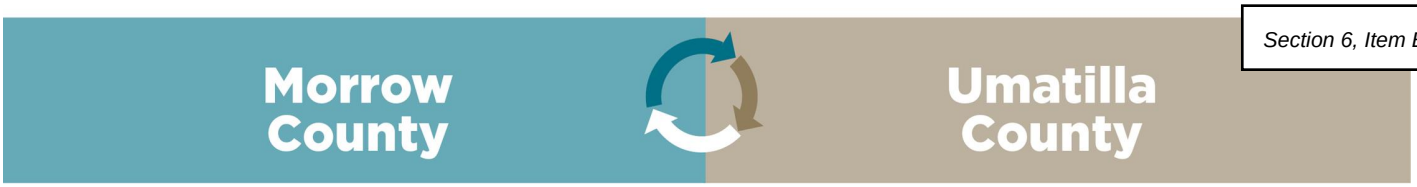
The section presents an overview of existing transit service in Morrow and Umatilla County. A detailed summary has been prepared as part of their respective Coordinated Human Service Public Transportation Plans. Given the level of detail and recent publication of these documents, only a short summary of transit service is provided in the following sections.

Morrow County Transit Service Overview

- The Loop
  - Free dial-a-ride service for Morrow County residents
  - Volunteer drivers
  - Coordinated by Morrow County Transportation Coordinator
- Kayak Public Transit
  - Free transit fixed route transit service
  - Operated by Confederate Tribes of the Umatilla Indian Reservation (CTUIR)
  - Serves Irrigon within Morrow County. Other service areas include Pendleton, Hermiston, Umatilla, Mission, Pilot Rock, La Grande and Walla Walls, WA.
- Client Based Service
  - Good Shepherd Health Care System
    - Medical transport to/from Good Shepherd's Hermiston medial campus
    - Serves Boardman and Irrigon (Echo, Stanfield, and Umatilla)
  - CAPECO
    - Dial a ride service for select Medicaid recipients and other individuals
  - Safe T Transport
    - For profit service select clientele in Boardman and Irrigon

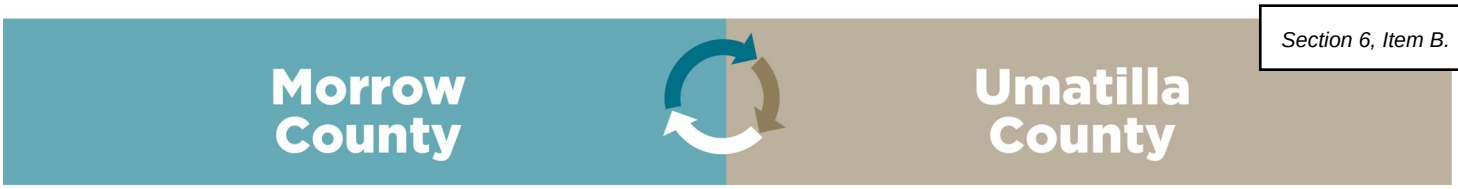
Umatilla County Transit Service Overview

- Milton-Freewater Transit Service
  - Fixed route bus service and dial-a-ride service
  - Operates between Milton-Freewater and Walla Walla, WA
- Kayak Public Transit
  - Free transit fixed route transit service
  - Operated by CTUIR



  - Service areas in Umatilla County include Pendleton, Hermiston, Umatilla, Mission, Pilot Rock, La Grande and Walla Walla, WA.
- Hermiston Taxi Voucher Program
  - Available to Hermiston residents who are seniors or have qualifying disabilities
- Pendleton Let'er Bus
  - Programs include senior taxi, daily van service, Elite Transit tickets, Aquatic Center transportation, Parks and Rec Interpark Transportation, Care-Ride
- Grant County People Mover
    - Fixed route bus service.
    - Two routes serve Umatilla County locations (Ukiah, Pilot Rock, Pendleton, Milton-Freewater) on their way to Walla Walla, WA
- Pilot Rock medical transport
- Ukiah medical transport
- Weston medical transport
- Client-Based Service
  - CAPECO
      - Dial a ride service for select Medicaid recipients and other individuals
  - Clearview Mediation and Disability Resource
  - Good Shepherd Health Care System
      - CareVan provides medical transportation for appointments at any affiliated medical provided with offices in Hermiston. Travels to Echo, Umatilla, Irrigon, and Boardman
  - Safe T Transport
      - Dial-a-ride service for medical and private appointments
  - Various Taxi services (Umatilla Cab and Elite Taxi)

Chapter 5
Transit Solutions Analysis


Morrow
County
Umatilla
County

TRANSIT SOLUTIONS ASSESSMENT

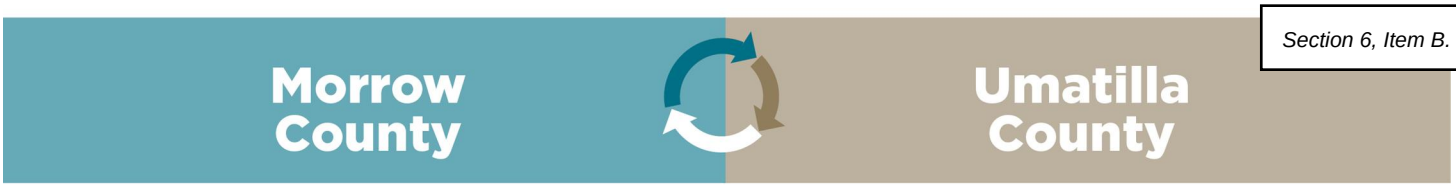
This chapter identifies potential transit improvements to address the existing transit and employment commuting needs.

TRANSIT NEEDS

The following list of transit needs was generated based on a review of the Morrow County and Umatilla County Coordinated Human Services Public Transportation Plans, feedback obtained from advisory committee meetings, and a review of the employment-based commuting patterns.

Transit Service

- Add transit service not just to major population centers, but to the various rural employment clusters that exist throughout Morrow and Umatilla County. Major employment clusters that should be a focus of this study include:
  - Port of Morrow
  - I-84/I-82/Westland Road interchange area
  - US 395 (south of Hermiston) industrial area
  - McNary/Port of Umatilla area
- Increase the geographic scope of fixed route transit service. Areas for consideration include:
  - City of Boardman/Port of Morrow
  - City of Arlington
  - City of Heppner/City of Lexington
  - Tri-Cities in Washington State
  - OR 11 corridor between Pendleton and Milton-Freewater/Walla Walla, WA.
- Consider the special needs of providing transit service to industrial areas and rural employment clusters.
  - Take into account employee shift patterns when considering transit service to industrial areas and employment clusters.
  - Broad service spans that accommodate the variety of work shifts that exist at many large-scale employment centers.
- Some employment clusters such as the Port of Morrow and Port of Umatilla/McNary area have a large geographic footprint. Transit service to these areas may necessitate smaller shuttle service to more efficiently serve the various businesses that are located too far from transit stops or lack adequate pedestrian facilities.



Infrastructure Needs

- Construct and integrate Park-and-Ride facilities along the I-84 corridor. Planning for Park-and-Ride facilities has already been included in the recent City of Pendleton Transportation System Plan and Mission Area Community Plan.
- Construct new pedestrian improvements to accommodate transit service in employment clusters.

Coordination and Organizational Needs

- Coordinate services that cross jurisdictional and transit provider service area boundaries.
- Coordinate services among social service agencies, senior centers, medical facilities, employers, and other organizations to share information about local transportation options, training opportunities, and other information.
- Apply technological solutions to facilitate coordination efforts.

Capital and Funding Needs

- Sustainable funding to maintain and provide for service additions and route enhancements.
- Fare subsidies for several population groups (fixed incomes, those with medical plans that don't cover transportation, for medical trips, for accompanying caregivers).

POTENTIAL TRANSIT SOLUTIONS

Projects have been developed to begin to address these transit service, infrastructure, and coordination/organizational needs. To assist in this effort, the ODOT staff used the transit planning software Remix to generate and test potential transit solutions. The following pages summarize and assess these potential solutions.

Morrow County Umatilla County

Modifications to Existing Fixed-Route Service

Several potential modifications could be considered for existing fixed-route transit service lines. The activation of additional stops along lines provided by Kayak Public Transit could significantly increase the population and jobs exposure and illustrated and summarized in Exhibit 8 and Table 12.

Exhibit 8 – Modifications to Existing Fixed-Route Service Concept

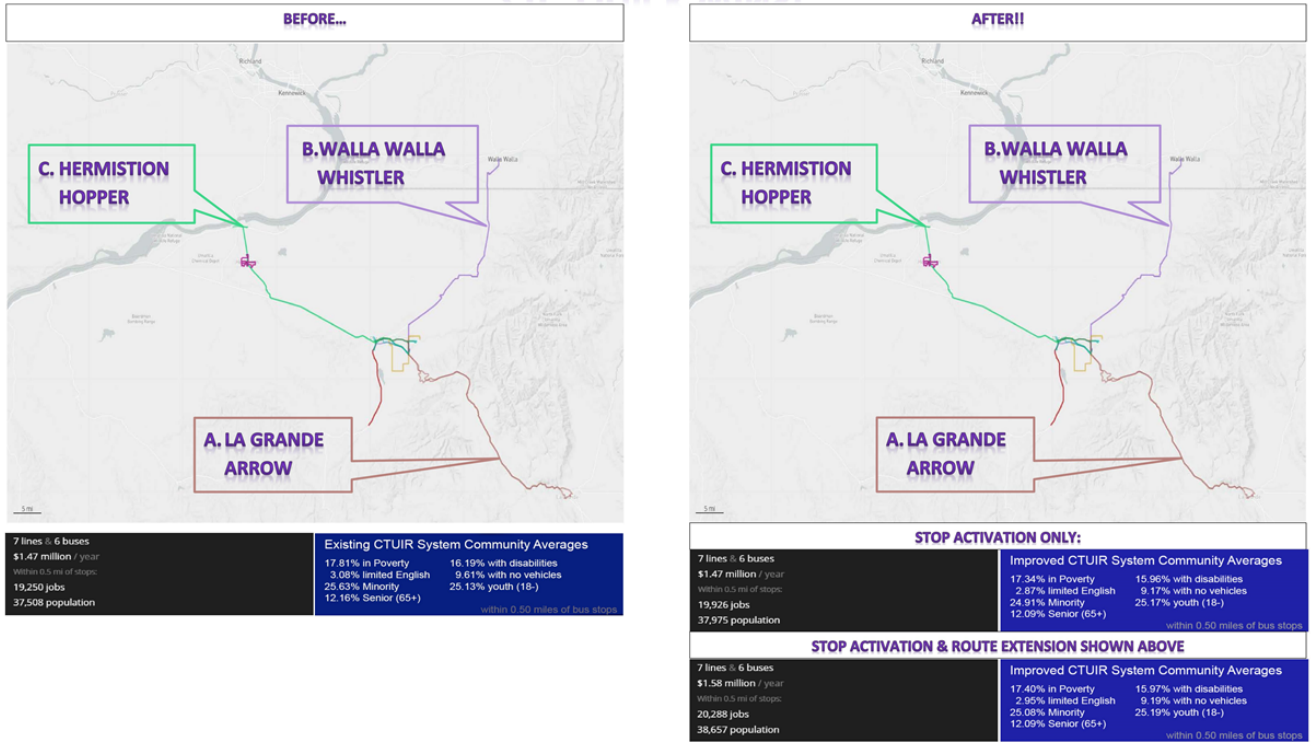


Table 12 – Assessment of Modifications to Existing Fixed-Route Service

Project	Benefit	Implementing Agency	Considerations
Activate/Increase stops along existing fixed-transit routes.	• La Grande Arrow: Population Exposure Increase 8.3%, Jobs Exposure Increase – 2.2% • Walla Walla Whistler: Population Exposure Increase 8.6%, Jobs Exposure Increase 4.1% • Hermiston Hopper: Population Exposure Increase 28.9%, Jobs Exposure Increase 23.6%	Kayak Public Transit	• Transit lines receiving Section 53.11F funds limit the number of stops in each community to two stops which would lower the jobs and population exposure.

Morrow County Umatilla County

Develop a Fixed-Route Connection to Boardman/Port of Morrow (Option #1)

Establishing a fixed-route connection to Boardman/Port of Morrow would significantly improve the accessibility to a major employment cluster. One potential option involves the modification of Kayak's existing Hermiston Hopper line as illustrated in Exhibit 9 and Table 13.

Exhibit 9 – Fixed-Route Connection to Boardman/Port of Morrow (Option #1)

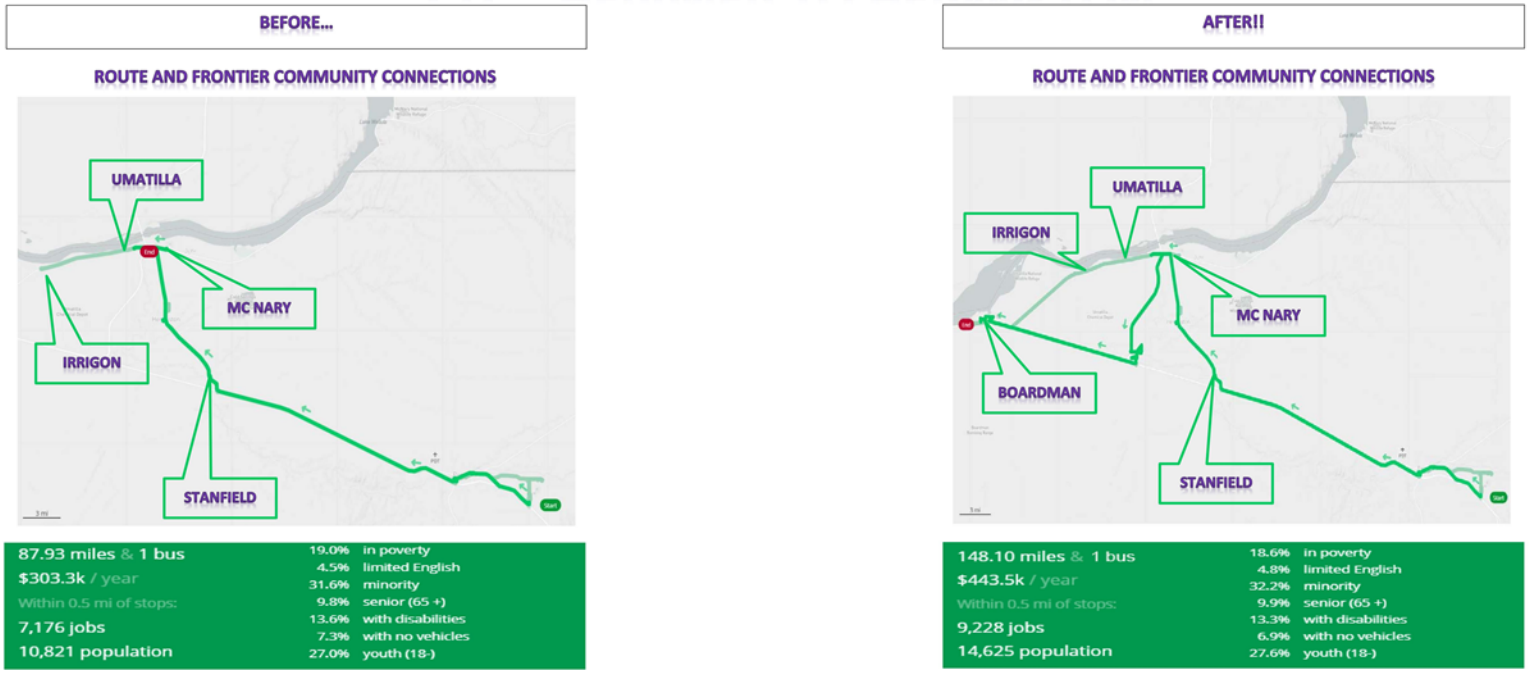


Table 13 – Assessment of Fixed-Route Conneciton to Boardman/Port of Morrow (Option #1)

Project	Benefit	Implementing Agency	Considerations
Develop a fixed-route connection to Boardman/Port of Morrow	• Increases population exposure by 35% and job access by approximately 29% • Route modifications could include employment clusters such as the I-84/I-82/Westland Road area.	Kayak Public Transit	• Would require a complete overhaul of the Hermiston Hopper. • Increases the travel distance for the bus line from approximately 88 miles to 148 miles. Given this distance, a separate route may be more efficient.

Morrow County — Umatilla County

Develop a Fixed-Route Connection to Boardman/Port of Morrow (Option #2)

A second option for establishing a fixed-route Boardman/Port of Morrow Connection would involve a completely new route that would loop along the I-84, US 730, and US 395 corridors. This option is illustrated in Exhibit 10 and summarized in Table 13.

Exhibit 10 - Fixed-Route Connection to Boardman/Port of Morrow (Option #2)

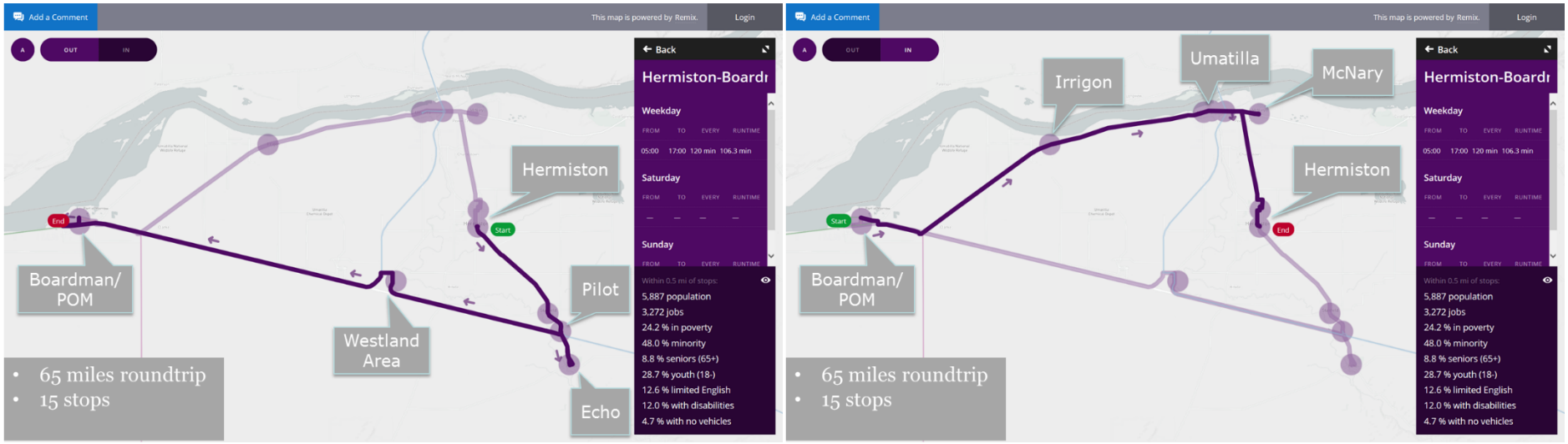


Table 14 - Assessment of Fixed-Route Conneciton to Boardman/Port of Morrow (Option #2)

Project	Benefit	Implementing Agency	Considerations
Develop a fixed-route connection to Boardman/Port of Morrow	• Does not require modification of established routes (Hermiston Hopper) • Route would hit three major employment clusters (South Hermiston Industrial area, I-84/I-82/Westland Road, Port of Morrow)	Kayak Public Transit Port of Morrow	• Would require new bus infrastructure • 65-mile loop. Not as easy/convenient to get from Irrigon to Port of Morrow.

Morrow County — Umatilla County

Small Modifications to The Loop

Establishing a fixed-route connection to Boardman/Port of Morrow would significantly improve the accessibility to a major employment cluster. One potential option involves the modification of the existing Kayak Hermiston Hopper line as illustrated in Exhibit 11 and Table 15.

Exhibit 11 – Small Modifications to The Loop Concept

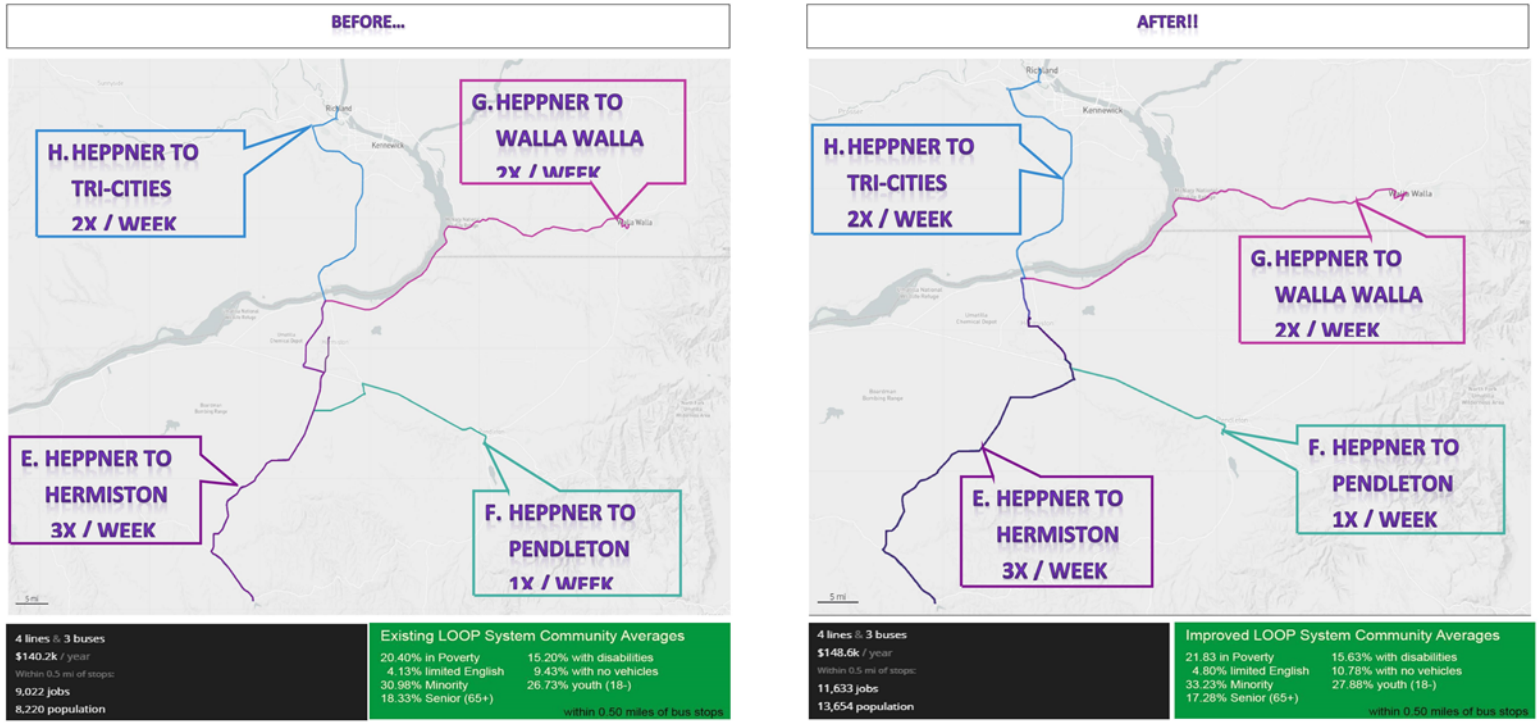


Table 15 – Assessment of Small Modifications to The Loop

Project	Benefit	Implementing Agency	Considerations
Modifications to existing weekly The Loop medical commitment runs that incorporate other communities	• Takes advantage of existing weekly medical appointment rips by incorporating other communities along the way such as Echo, Stanfield and Good Shepherd Medical Center in Hermiston.	The Loop	• Would increase the cost by approximately $8,000 per year. • Dependent upon weekly medical appointments by others.

Morrow County Umatilla County

Modifications to Grant County People Mover

East Umatilla County could also benefit from expanded transit coverage. The activation of additional stops along the Prairie City to Walla Walla line by the Grand County People Mover could significantly increase the population and jobs exposure and illustrated and summarized in Exhibit 12 and Table 16.

Exhibit 12 – Modifications to Grant County People Mover Concept

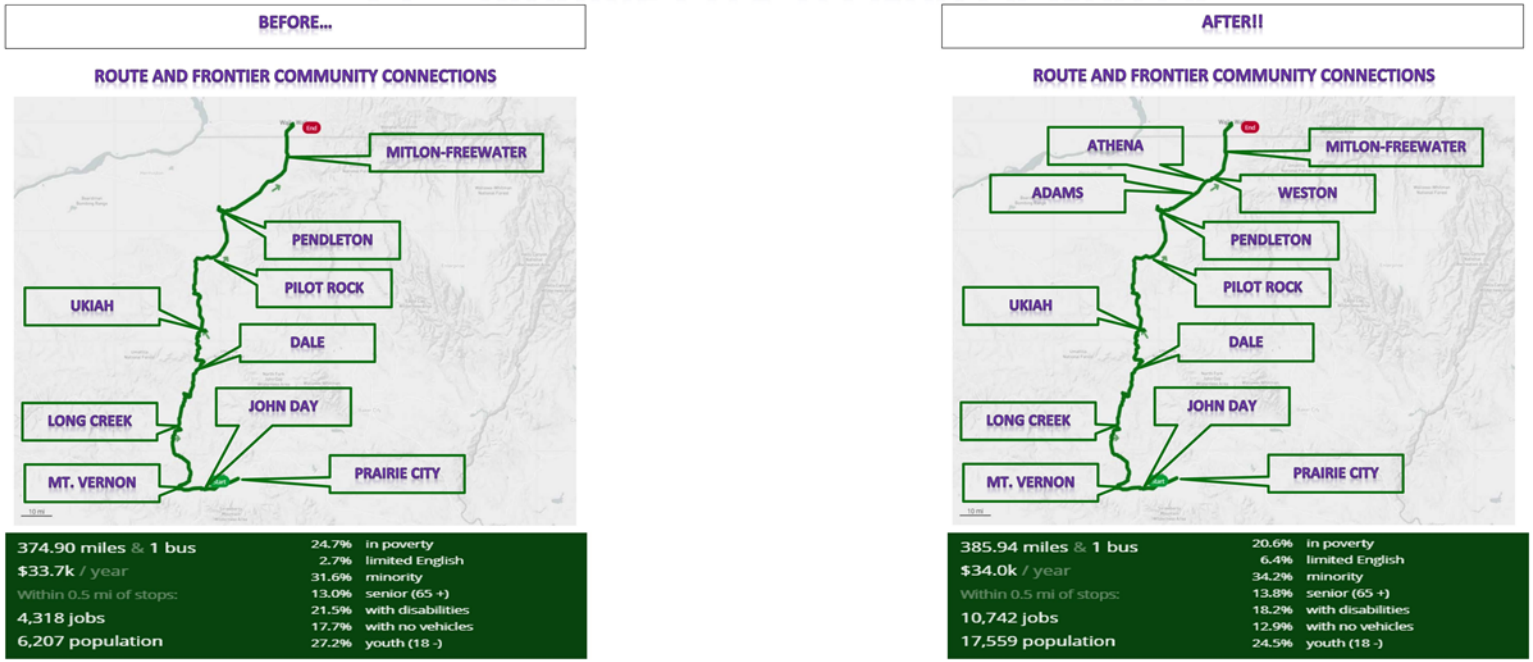


Table 16 – Assessment of Modifications to Grant County People Mover

Project	Benefit	Implementing Agency	Considerations
Activate/increase stops along existing route	• New stops could be provided in Pendleton (various locations, Adams, Athena, and Weston.	Grant County People Mover	• Route only runs once a week and is not a local priority for expansion under HB 2017. • Could be seen as a feeder service that supplies passengers to other fixed route lines to Walla Walla.

Morrow County — Umatilla County

Arlington to Boardman/Port of Morrow Connection

Morrow County lacks any kind of transit service east of Boardman along the I-84 corridor. A new transit line connecting the City of Arlington to Boardman/Port of Morrow would significantly improve access to the employment cluster at the Port of Morrow as summarized in Exhibit 13 and Table 17.

Exhibit 13 – Arlington to Boardman/Port of Morrow Connection Concept

Table 17 – Assessment of Boardman/Port of Morrow Connection

Project	Benefit	Implementing Agency	Considerations
New transit service between Arlington and Boardman/Port of Morrow	• Regional transit connection. • Increases access to jobs for an area that has been auto dependent. • Reduces commuting costs and environmental impacts.	The Loop	• Will need to work with Port of Morrow employers to identify optimal service times based on employment shift hours.

Morrow County Umatilla County

Heppner – Boardman Connector

A new transit line connecting the City of Heppner and City of Lexington to Boardman/Port of Morrow would significantly improve access to the employment cluster at the Port of Morrow as summarized in Exhibit 14 and Table 18.

Exhibit 14 – Heppner-Boardman Connector Concept

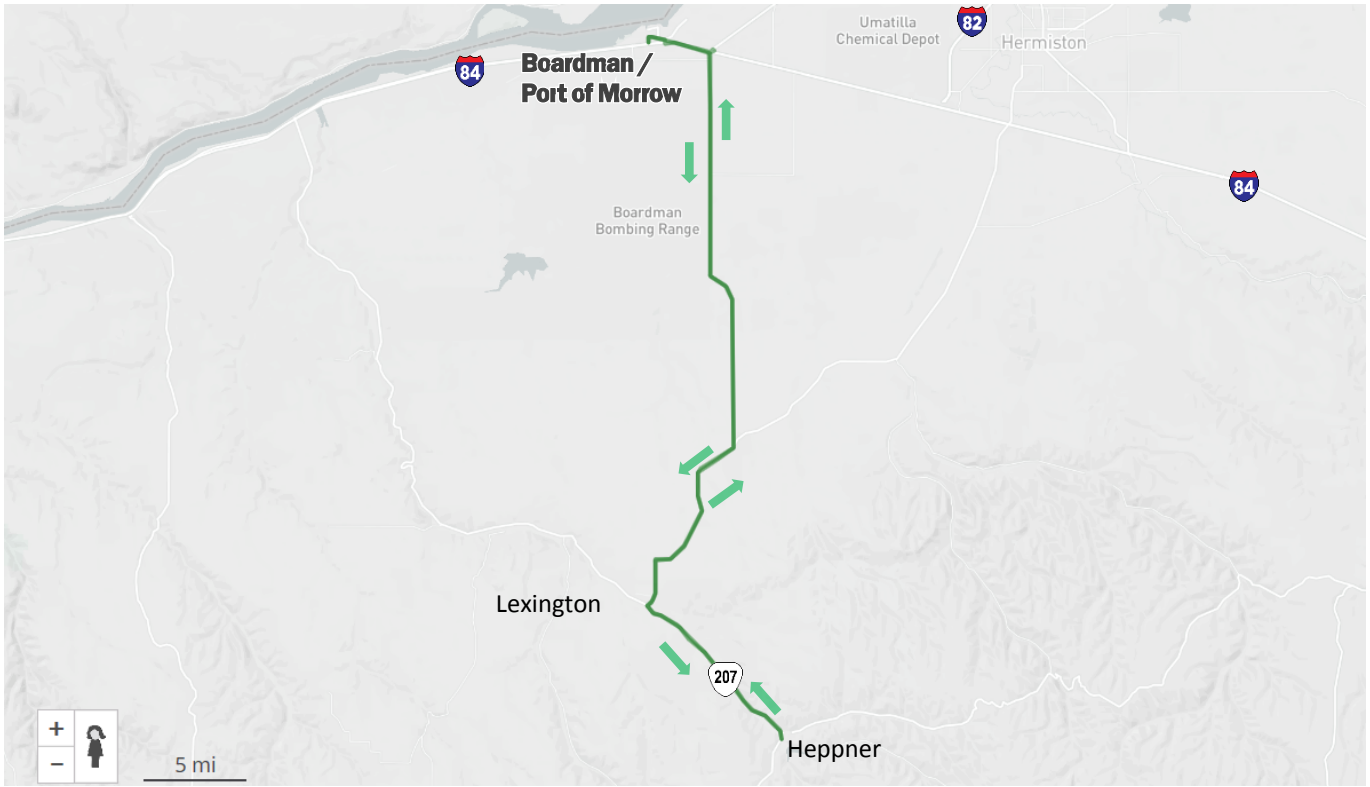


Table 18 – Assessment of Heppner-Boardman Connector

Project	Benefit	Implementing Agency	Considerations
New transit service between Heppner and Boardman/Port of Morrow	• Regional transit connection. • Increases access to jobs for an area that has been auto dependent. • Reduces commuting costs and environmental impacts.	The Loop	• Will need to work with Port of Morrow employers to identify optimal service times based on employment shift hours.

Morrow County — Umatilla County

Pendleton – Kennewick Connector

Reestablishing a connection to the Tri-Cities area in Washington State will significantly improve regional mobility and accessibility to jobs and services. One potential concept is illustrated in Exhibit 15 and Table 19.

Exhibit 15 – Pendleton – Kennewick Connector Concept

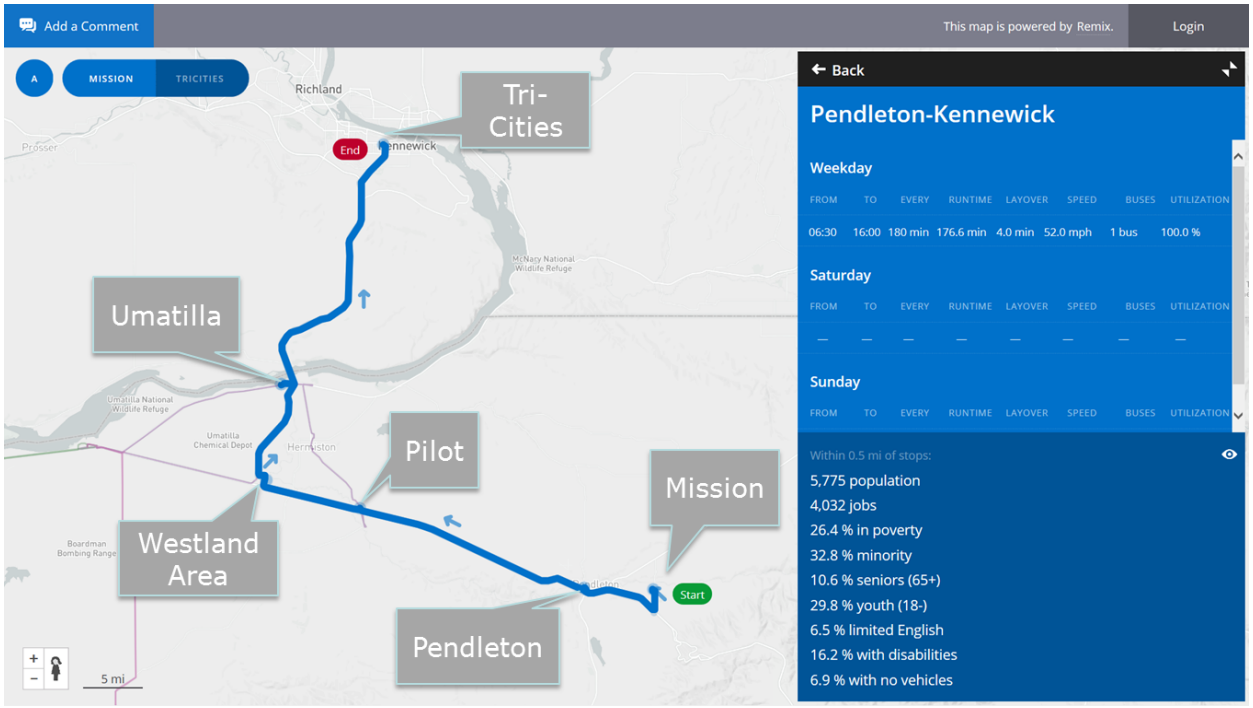


Table 19 – Assessment of Pendleton – Kennewick Connector

Project	Benefit	Implementing Agency	Considerations
Reestablishment of fixed-route transit service between Kennewick and Pendleton/Mission area	• Reestablishes an inter-state transit connection. • Links the two largest metropolitan areas in eastern Washington and eastern Oregon. • Coupled with the Hermiston-Boardman Connector, increases access to jobs and services.	Kayak Public Transit	• Work with CTUIR, City of Pendleton, City of Stanfield, City of Umatilla, and City of Kennewick to identify specific local route and stop locations that will maximize rider convenience. • Coordinate service with proposed Hermiston-Boardman Connector and existing Kayak routes.

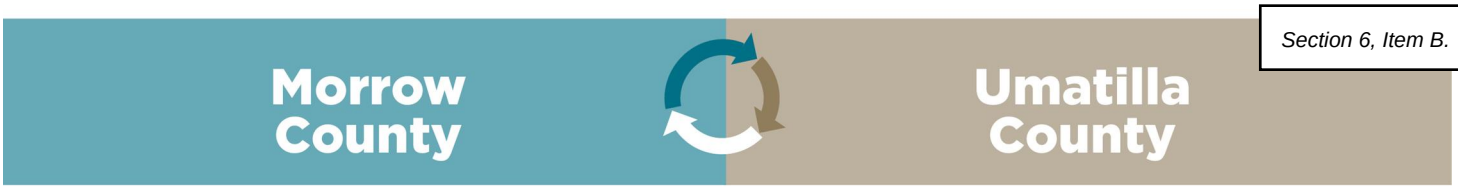
Park-n-Ride Locations

The establishment of a network of Park-n-Ride locations along the major freeway corridors as summarized in Exhibit 16 and Table 20 could provide a more formal and structured opportunity for commuters to use regional fixed transit lines.

Exhibit 16 – Park-n-Ride Locations Concept

Table 20 – Assessment of Park-n-Ride Locations

Project	Benefit	Implementing Agency	Considerations
Establish formal Park-n-Ride locations	• Provides a more formal and structured opportunity for commuters to use regional fixed route transit lines for employment commuting. • Reduces commuting costs, congestion, and environmental impacts	Arlington, Heppner, Umatilla, Mission/CTUIR, Pendleton, Umatilla County	• Park-n-Ride facilities are currently identified in the CTUIR, Pendleton, and Heppner Transportation System Plans. Work with these jurisdictions to accelerate the design/implementation of the park-n-ride facilities.



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Chapter 6
Priorities and Strategies

TRANSIT DEVELOPMENT STRATEGIES

This chapter presents an overview of new transit development strategies to improve transit-based circulation within and amongst both Morrow County and Umatilla County. The strategies were generated with input from the technical advisory committee, the existing Morrow and Umatilla County Coordinated Plans, and analysis generated by the project team to address the regional transit needs.

The strategies presented below are intended to address transit needs for the larger region's employment-based commuters as well as the transit-dependent population. This is an important element of the Plan as it provides an opportunity to document regional service priorities as well as to identify lead entities responsible to implement them. Table 21 summarizes the specific transit development strategies while the following project sheets provide a detailed overview and graphical summary.

Table 21 – Transit Development Strategy Summary

Project	Benefit	Potential Implementing Agency[1]	Time Frame	Priority	Annual Operating Cost
New Transit Service Strategies					
Arlington-Boardman-Port of Morrow Connector	• Regional transit connection. • Increases access to jobs for an area that has been auto dependent. • Reduces commuting costs and environmental impacts.	Morrow County / The Loop, or other service provider	Long-Term	Medium	$100k-$150k
Heppner-Boardman Connector	• Provides fixed-route transit service to auto-dependent southern Morrow County. • Increases access to jobs. • Reduces commuting costs and environmental impacts.	Morrow County, The Loop, or other service provider	Near-Term	High	$150k-$200k
Hermiston-Boardman Connector	• Directly links the Umatilla County to Morrow County and the major employment clusters that exist along portions of the US 730, US 395, and I-84 corridors. • Better integrates the Cities of Irrigon, Umatilla, Hermiston, Stanfield, and Echo to the regional employment base. • Improves regional commuting for jobs and services.	Kayak or other service provider	Near-Term	High	$250-$350k
Port of Morrow Circulator	• Provides localized service within the Port of Morrow. • Improves access to businesses that are not centrally located within the Port of Morrow.	The Loop / Port of Morrow or other service provider	Near-Term	High	$150k-$200k
Pendleton-Kennewick Connector	• Reestablishes an inter-state transit connection. • Links the two largest metropolitan areas in eastern Washington and eastern Oregon. • Coupled with the Hermiston-Boardman Connector, increases access to jobs and services.	Kayak or other service provider	Near-Term	High	$300k-$350k
Expanded Transit Service Strategies					
The Loop – Route Modification	• With increased frequency, can be used for jobs access.	The Loop	Mid-Term	Medium	$150k-$200k
Grant County People Mover – Increased Frequency	• Would provide access to existing regional fixed transit routes in Walla Walla and Pendleton	Grant County People Mover	Mid-Term	Medium	$300
Infrastructure Strategies					
Park-N-Ride	• Reduces commuting costs, congestion, and environmental impacts for some commuters. • Provides a formal and structured opportunity to use regional fixed-route transit.	Various City Partners	Long-Term	Low	<$50k per Park-N-Ride
Coordination Strategies					
Create and/or maintain a Transit Coordinator Position	• Identifies transit funding opportunities. • Writes grants for new transit funding opportunities. • Ensures better regional transit coordination.	Morrow County and Umatilla County	Near-Term	High	<$100k
Form and maintain appropriate Advisory Committees	• Assesses and disperses transit funding. • Ensures better County-wide participation in transit decision making.	Morrow County and Umatilla County	Near-Term	High	<$50k

[1] Transit providers listed are preliminary and based on current service characteristics/trends. Formal implementation details would be determined based on the interests of local transit service providers and funding availability.

Morrow County — Umatilla County

Arlington-Boardman-Port of Morrow Connector

Description:	Add a weekday fixed-route bus line connecting the City of Arlington to the City of Boardman/Port of Morrow (POM). Route would be 57-miles roundtrip and would travel along the I-84 corridor.
Benefit:	Provides a regional transit connection for work-based commutes to/from the City of Arlington to a major employment cluster at the Port of Morrow. Reduces commuting costs and environmental impacts.

Transit Dependent Population Within ½ Mile of Route Stops

Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
525	396	30%	54.9%	7.6%	14.2%	2.5%	30.8%

Action Items:

- Secure funding and infrastructure needed to begin a new fixed route transit line.
- Work with the Cities of Arlington, Boardman, and Port of Morrow to identify specific route and stop locations that will maximize rider convenience.
- Work with Port of Morrow employers to identify optimal service times based on employment shift hours.

Cost: $100-$150k	**Time Frame:** Long-Term	**Priority:** Medium	**Consistent with Morrow County Coordinated Human Services Plan?:** Yes

Implementing Agency:	Morrow County / The Loop or other service provider
Project Partners:	Morrow County, City of Arlington, City of Boardman, Port of Morrow

Conceptual Route Details:

Morrow County — Umatilla County

Heppner-Boardman Connector

Description:	Add a weekday fixed-route bus line connecting the Cities of Heppner and Lexington to the City of Boardman/Port of Morrow (POM). Route would be 87-miles roundtrip and would travel along Highway 207, Bombing Range Road, and I-84.
Benefit:	Provides a regional transit connection that better links the major population centers of south Morrow County to the major employment clusters in north Morrow County.

Transit Dependent Population Within ½ Mile of Route Stops

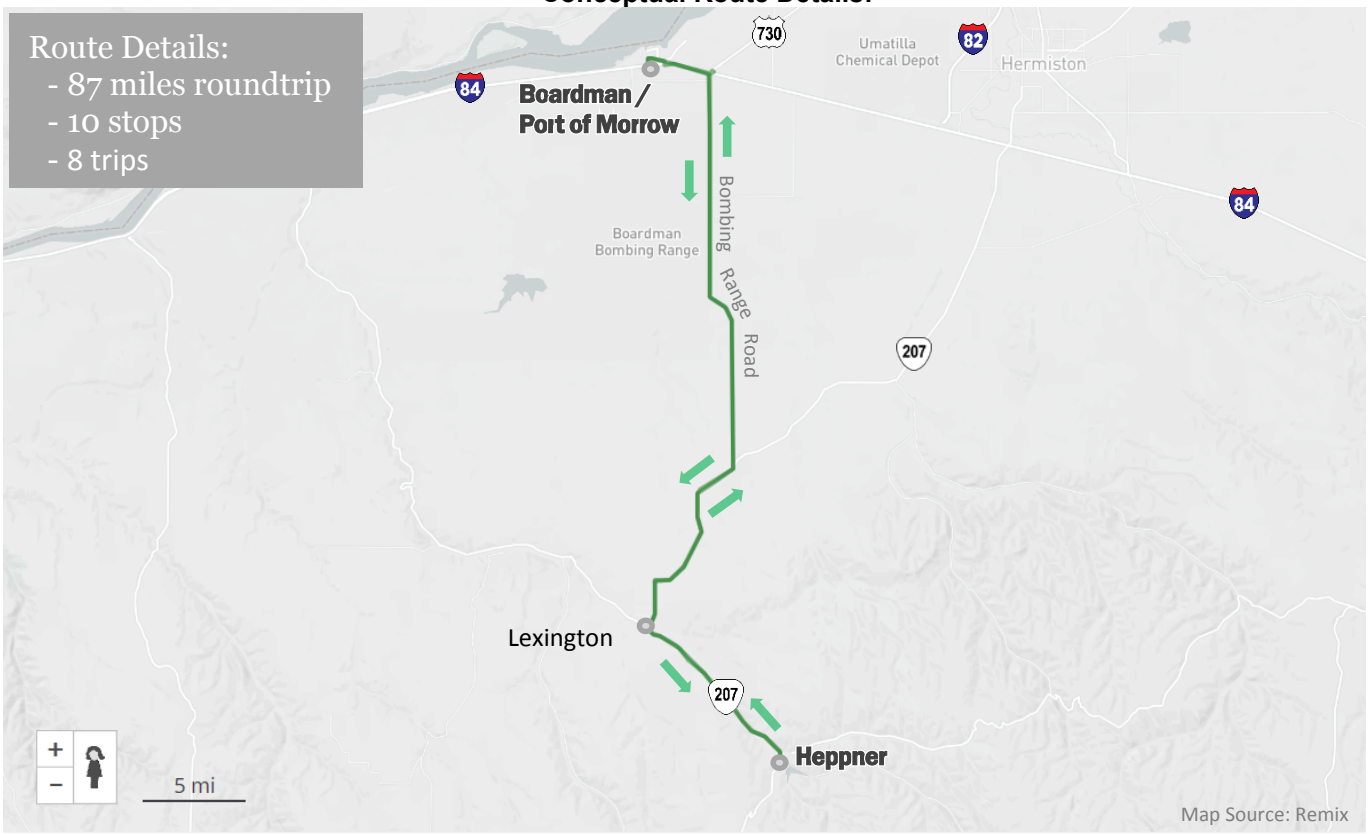
Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
527	396	29.9%	54.7%	7.6%	14.2%	2.5%	30.8%

Action Items:

- Secure funding and infrastructure needed to begin a new fixed route transit line.
- Work with the Cities of Heppner, Lexington, Boardman, and Port of Morrow to identify specific route and stop locations that will maximize rider convenience.
- Work with Port of Morrow employers to identify optimal service times based on employment shift hours.

Cost: $150-$200k	**Time Frame:** Near-Term	**Priority:** High	**Consistent with Morrow County Coordinated Human Services Plan?:** Yes
Implementing Agency:	Morrow County / The Loop or other service provider		
Project Partners:	Morrow County, City of Heppner, City of Lexington, Port of Morrow, City of Boardman		

Conceptual Route Details:



Morrow County — Umatilla County

Hermiston-Boardman Connector

Description:	Add weekday fixed-route bus lines connecting the Cities of Hermiston, Stanfield, Echo, the Westland Road employment cluster, Port of Morrow, Boardman, Irrigon, Umatilla, and McNary. Route A would connect Hermiston to Boardman via the US 395/US 730 corridors. Route B would connect Hermiston to Boardman via the US 395/I-84 corridors.
Benefit:	Links the Cities of Boardman, Irrigon, Umatilla, Hermiston, Stanfield, and Echo to employment clusters at the Port of Morrow and other employment clusters near the cities of Hermiston and Umatilla.

Transit Dependent Population Within ½ Mile of Route Stops

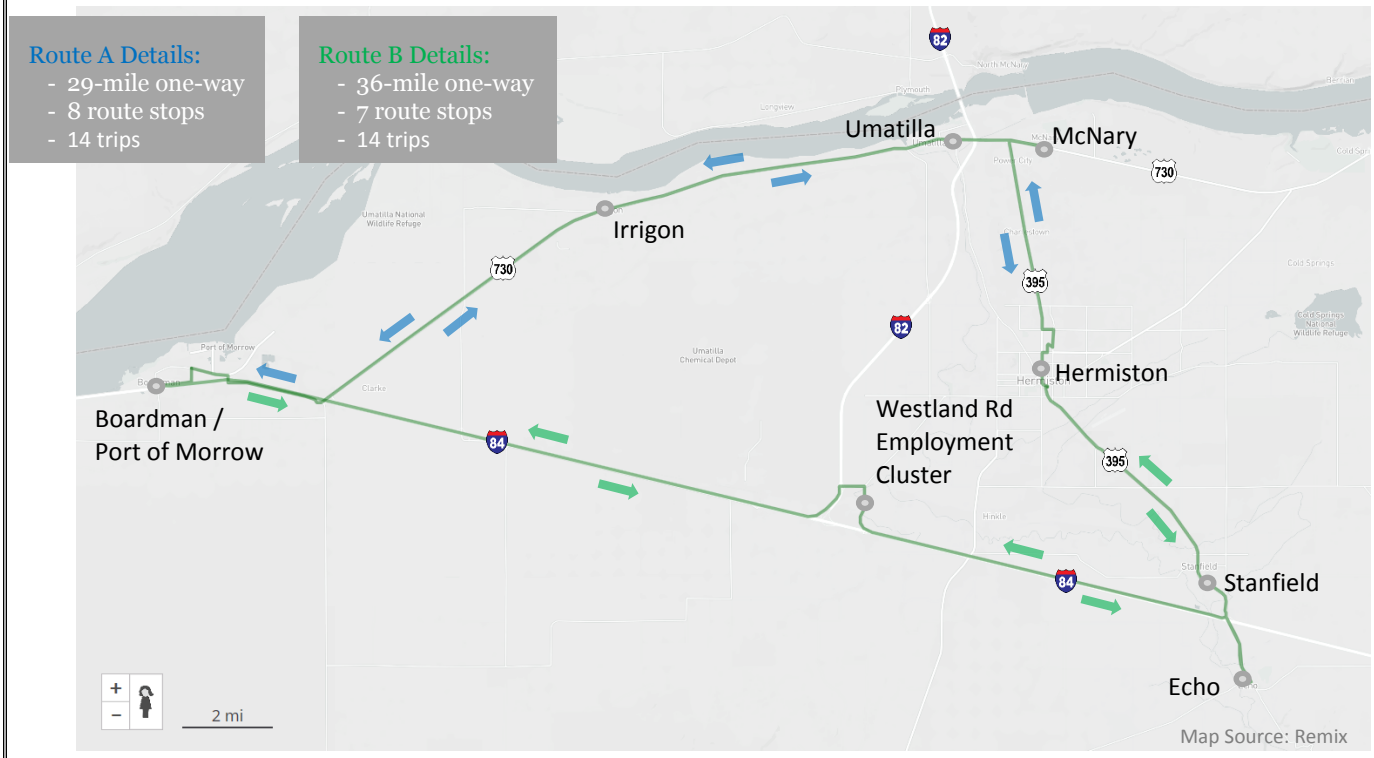
Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
5,887	3,272	24.2%	48%	8.8%	12%	4.7%	28.7%

Action Items:

- Integrate with or phase out existing fixed-route service in Hermiston such as the Hermiston Hopper.
- Work with the Cities of Hermiston, Stanfield, Echo, Port of Morrow, Boardman, Irrigon, and Umatilla to identify specific stop locations that will maximize rider convenience and provide the pedestrian accessibility.
- Work with Port of Morrow employers and other major employers to identify optimal service times based on employment shift hours. Explore the possibility of a companion shuttle route within the Port of Morrow to provide localized service to major employers.
- Incorporate planned regional park-n-ride locations as they are implemented.

Cost: $250-$350k	**Time Frame:** Near-Term	**Priority:** High	**Consistent with Morrow/Umatilla County Coordinated Human Services Plans?:** Yes
Implementing Agency:	Kayak or other service provider		
Project Partners:	The Loop, City of Hermiston, City of Stanfield City of Echo, Port of Morrow, City of Boardman, City of Irrigon, City of Umatilla, McNary/Port of Umatilla		

Conceptual Route Details:



Morrow County — Umatilla County

Port of Morrow Circulator

Description:	Add a shuttle van that will circulate amongst the various business located throughout the Port of Morrow. The shuttle van will complement the regional fixed route transit lines from Arlington, Heppner, and Hermiston/Umatilla County.
Benefit:	Will provide more localized service to the various Port of Morrow businesses not located within a close or safe walking distance from the regional fixed route transit stop(s).

Transit Dependent Population Within ½ Mile of Route Stops

Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
-	2,000+	-	-	-	-	-	-

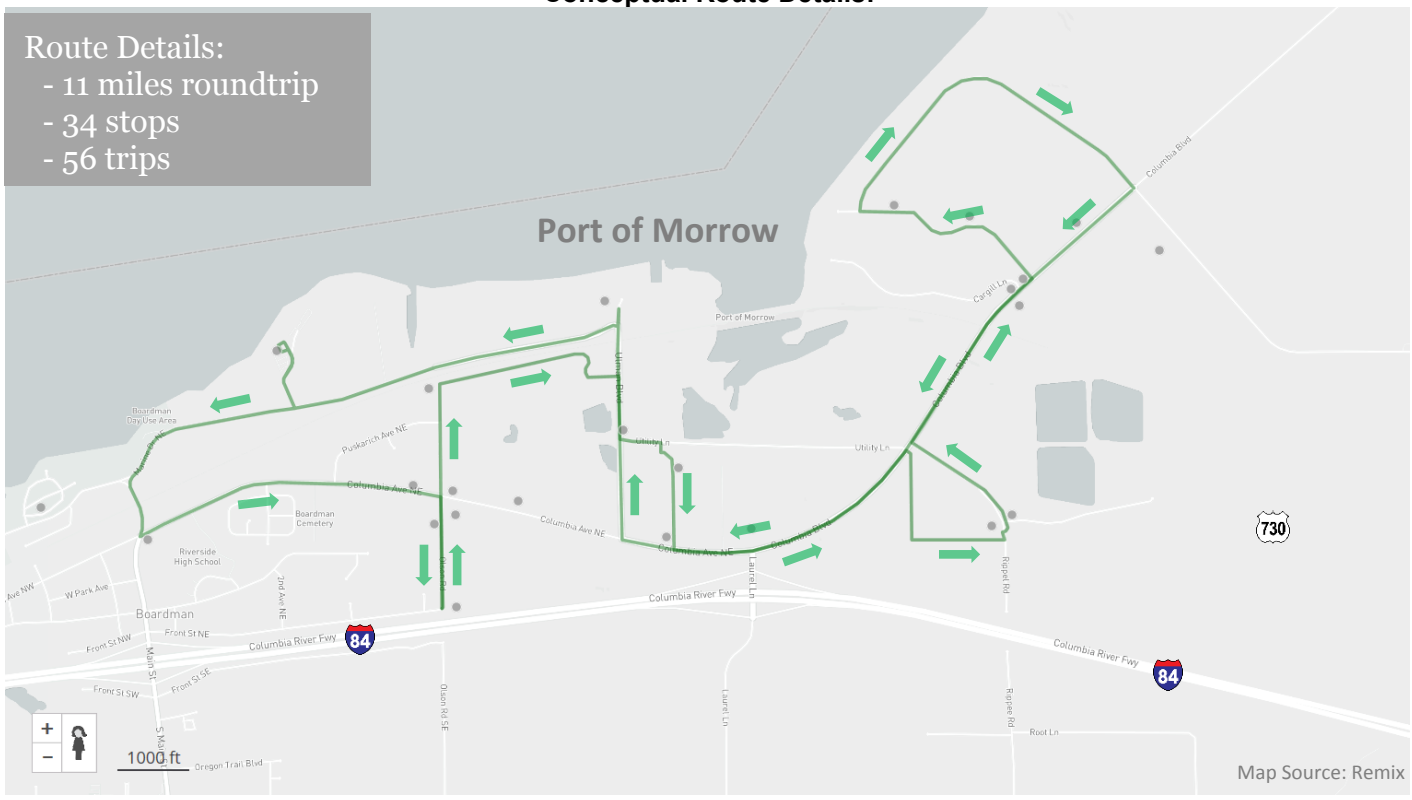
Action Items:

- Secure funding and infrastructure to accommodate a shuttle van.
- Work with the Port of Morrow to investigate the need for expanded pedestrian infrastructure.
- Work interested employers to develop on-site transit stops that are convenient and accessible to business entrances/security gates.

Cost: $150-$200k	**Time Frame:** Long-Term	**Priority:** Low	**Consistent with Umatilla County Coordinated Human Services Plan?:** Yes

Implementing Agency:	The Loop, Port of Morrow, or other service provider
Project Partners:	Morrow County and Port of Morrow Businesses

Conceptual Route Details:



Morrow County — Umatilla County

Pendleton-Kennewick Connector

Description:	Add a weekday fixed-route bus line connecting Mission, City of Pendleton, City of Umatilla, and City of Kennewick. Route would be 153-miles roundtrip and would primarily travel along I-84 and I-82. Stops would include Mission, Pendleton, Stanfield, Westland Road employment cluster, Umatilla, Kennewick
Benefit:	Provides an inter-state transit connection that addresses a significant gap in the regional transit coverage between the Tri-Cities area in Washington and the two largest population centers in eastern Oregon.

Transit Dependent Population Within ½ Mile of Route Stops

Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
5,775	4,032	26.4%	32.8%	10.6%	16.2%	6.9%	29.8%

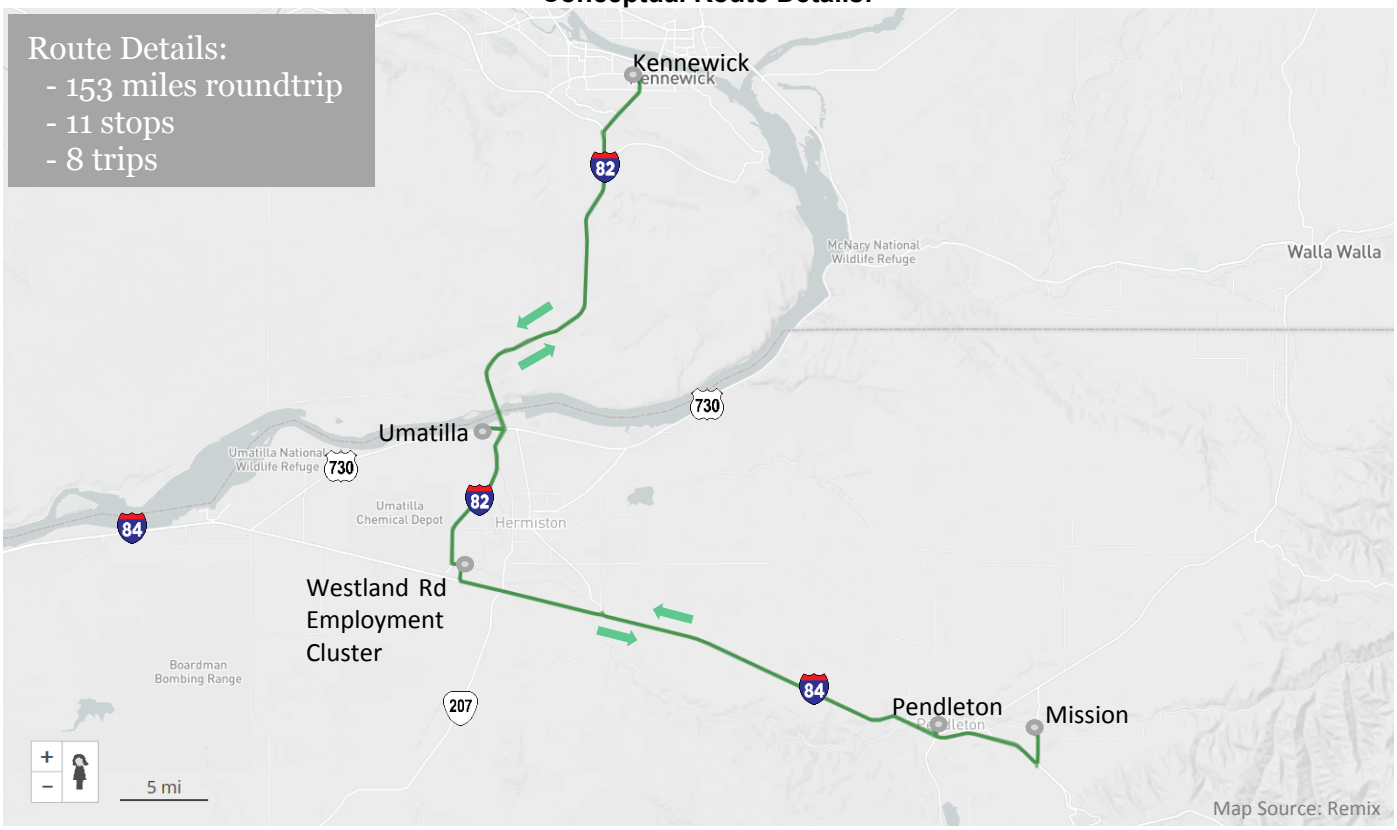
Action Items:

- Work with CTUIR, City of Pendleton, City of Stanfield, City of Umatilla, and City of Kennewick to identify specific local route and stop locations that will maximize rider convenience.
- Coordinate service with proposed Hermiston-Boardman Connector and existing Kayak routes.
- Work with major employers in the Westland Road employment cluster to identify optimal service times based on employment shift hours.

Cost: $300-$350k	**Time Frame:** Near-Term	**Priority:** High	**Consistent with Umatilla County Coordinated Human Services Plan?:** Yes

Implementing Agency:	Kayak or other service provider
Project Partners:	CTUIR, City of Pendleton, City of Umatilla, City of Kennewick

Conceptual Route Details:



Morrow County — Umatilla County

The Loop – Route Modification and Increased Frequency

Description:	Modify the travel routes of existing demand-responsive trips to incorporate nearby population centers such as the Cities of Echo, Stanfield, Umatilla/McNary. Increase the frequency of trips from Heppner to Hermiston from three times per week to five times per week.
Benefit:	Takes advantage of existing and consistent weekly medical appointments. Shared capacity along with increased frequency can then be used for potential jobs access and reverse commuting.

Increased Transit Dependent Population Within ½ Mile of Route Stops

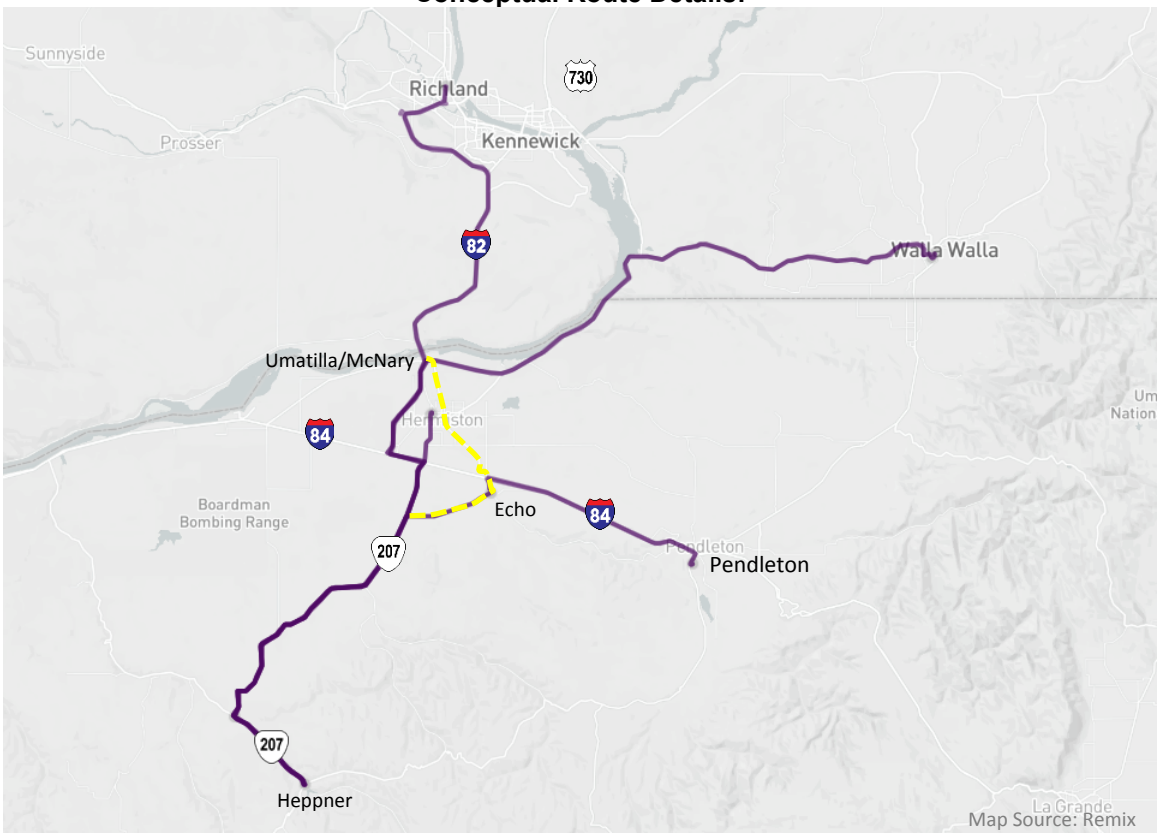
Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
+5,434	+2,611	+1.43%	2.25%	1.05%	0.43%	1.35%	1.15%

Action Items:

- Secure funding to formally staff and develop modified route plans.

Cost: $150-$200k	**Time Frame:** Mid-Term	**Priority:** Medium	**Consistent with Morrow/Umatilla County Coordinated Human Services Plan?:** Yes
Implementing Agency:	Morrow County / The Loop		
Project Partners:	Morrow County, City of Echo, City of Stanfield		

Conceptual Route Details:



Morrow County — Umatilla County

Regional Park-n-Ride

Description:	Formally develop and incorporate regional park-n-ride facilities.
Benefit:	Provides a more formal and structured opportunity for commuters to use regional fixed route transit lines for employment commuting. Reduces commuting costs, congestion, and environmental impacts.

Increased Transit Dependent Population Within ½ Mile of Route Stops

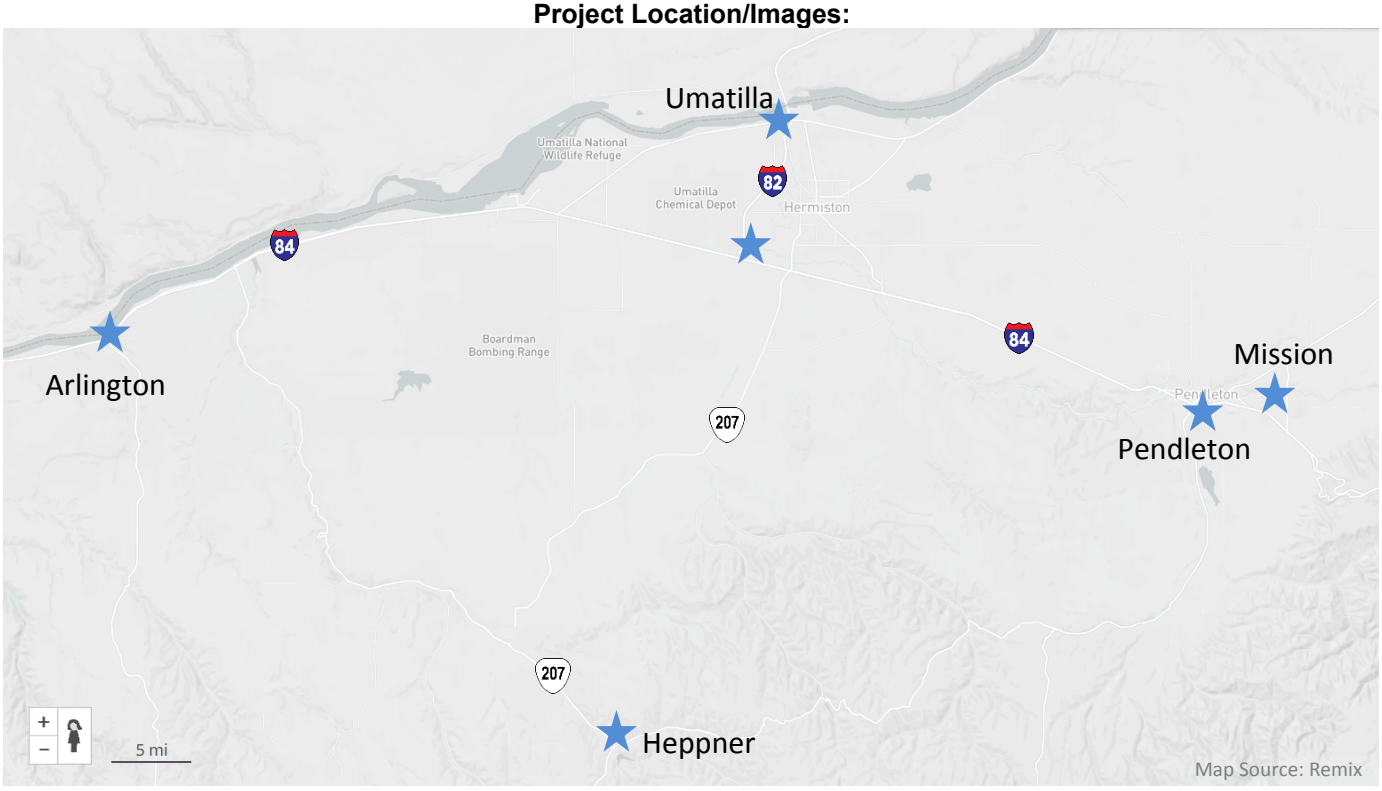
Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
-	-	-	-	-	-	-	-

Action Items:

- Park-n-Ride facilities are currently identified in the CTUIR, Pendleton, and Heppner Transportation System Plans. Work with these jurisdictions to accelerate the design/implementation of the park-n-ride facilities
- Work with the City of Arlington, City of Umatilla, and Umatilla County to acquire land or agreements with land owners for the development of formal park-n-ride facilities.
- Work with transit providers to incorporate park-n-ride locations into fixed bus routes.

Cost: Varies	**Time Frame:** Mid-Term	**Priority:** Medium	**Consistent with Morrow/Umatilla County Coordinated Human Services Plan?:** No
Implementing Agency:	CTUIR, City of Pendleton, City of Heppner, City of Arlington, City of Umatilla, Umatilla County		
Project Partners:	The Loop, Kayak, other service providers		

Project Location/Images:



★ Potential Park-n-Ride Locations

Morrow County — Umatilla County

Grant County People Mover Increased Frequency

Description:	Modify the route to include the inclusion of communities/major attractions already in route such as Pendleton (Saint Anthony Hospital, Safeway), Adams Post Office, Athena Post Office, Weston Post Office, and Walla Walla (Walmart, Andy's Market, Walla Walla Transfer Center, Saint Mary's Hospital)
Benefit:	Since this route only runs one day per week, these improvements do not represent a viable line for daily job access. It would be better suited to feeder access supplying access to existing fixed-service.

Increased Transit Dependent Population Within ½ Mile of Route Stops

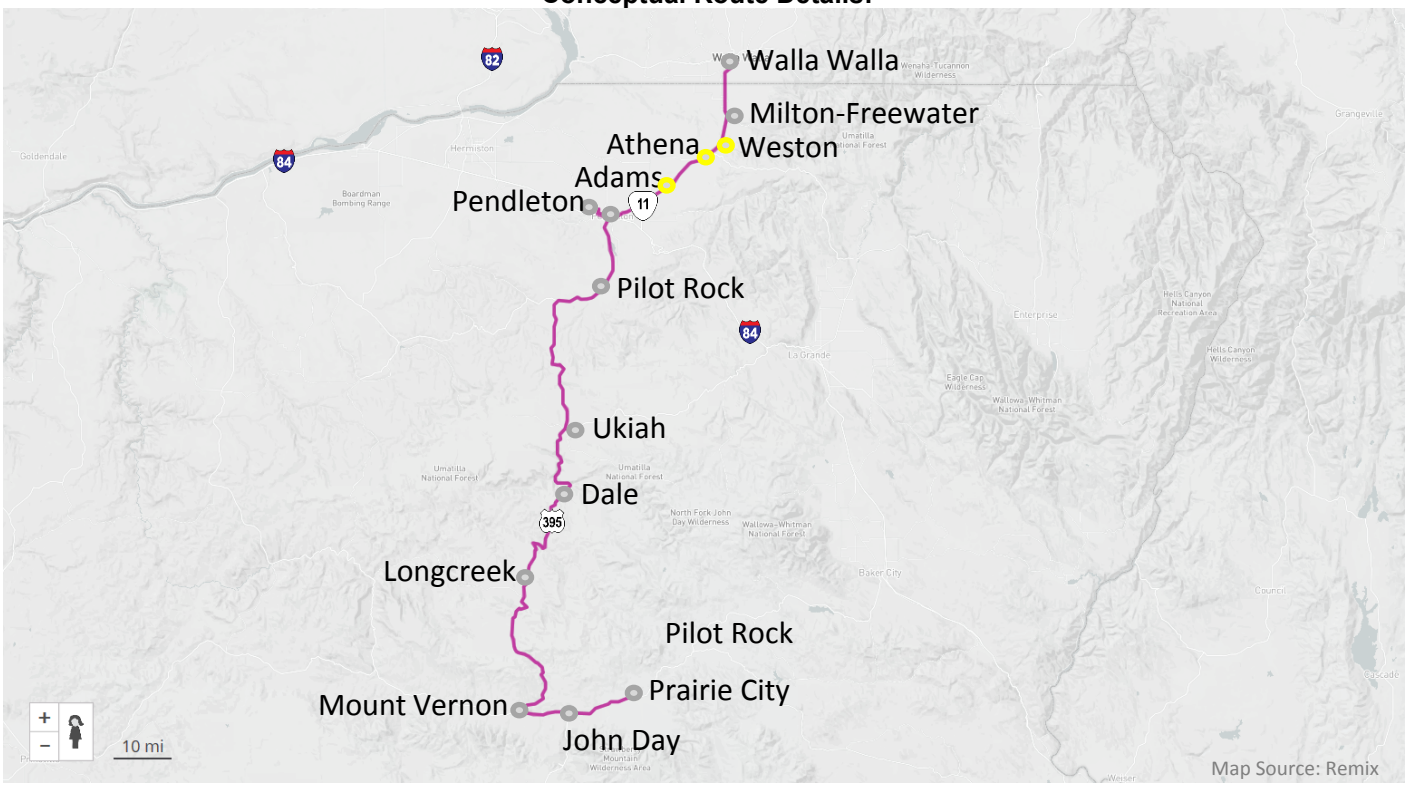
Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
+11,352	+6,424	+4.1%	2.6%	0.8%	3.3%	4.8%	2.7%

Action Items:

- Secure funding to formally staff and develop modified route plans.

Cost: $300k	**Time Frame:** Mid-Term	**Priority:** Medium	**Consistent with Umatilla County Coordinated Human Services Plan?:** Yes
Implementing Agency:	Grant County People Mover		
Project Partners:	Kayak, City of Pendleton, City of Athena, City of Weston, City of Walla Walla		

Conceptual Route Details:



Morrow County  Umatilla County

Create or Maintain a Transportation Coordinator Position

Description:	Create or maintain a county-wide transportation coordinator position that will be responsible for identifying transit funding opportunities, writing funding grants, and coordinating opportunities to enhance regional transit connections.
Benefit:	Ensures better local and regional transit coordination.

Increased Transit Dependent Population Within ½ Mile of Route Stops

Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
-	-	-	-	-	-	-	-

Action Items:	• Maintain or secure funding to staff the transportation coordinator position.		
Cost: <$100k	**Time Frame:** Near-Term	**Priority:** High	**Consistent with Umatilla County Coordinated Human Services Plan?:** Yes
Implementing Agency:	Morrow County and Umatilla County		
Project Partners:	-		

Form or Maintain Appropriate Advisory Committees

Description:	Assesses and disperses transit funding.
Benefit:	Ensures better County-wide participation in transit decision making.

Increased Transit Dependent Population Within ½ Mile of Route Stops

Population Served	Jobs	% in Poverty	% Minority	% Aged 65+	% with Disability	% with No Vehicle	% Youth <18
-	-	-	-	-	-	-	-

Action Items:	• Form or maintain appropriate advisory committees		
Cost: <$50k	**Time Frame:** Near-Term	**Priority:** High	**Consistent with Umatilla County Coordinated Human Services Plan?:** Yes
Implementing Agency:	Morrow County and Umatilla County		
Project Partners:	-		

MEMORANDUM

To: City Council
From: Carla McLane, Planning Official
Date: July 25, 2024
RE: Amendment of the Downtown Development Plan

The Boardman Planning Commission did hold a public hearing on July 18, 2024, to consider this action and is forwarding this proposal to the City Council with a “do adopt” recommendation. Included with this memorandum is the Planning Commission Final Findings of Fact and the redlined Downtown Development Plan proposed for adoption by Resolution.

In the early 2000s as the City of Boardman worked to establish and update many of the planning documents the Downtown Development Plan was included. At the time of adoption by Resolution in 2002 the intent was for it to serve as guidance for the Comprehensive Plan and Development Code to provide insight and options as to how Boardman might regain a sense of a downtown center, a project that we are all still endeavoring to see come to fruition.

The proposed changes include removing a city preferred alternative street design that has a walking path down the center of Main Street, an unsafe option and one not supported by current city staff or the Oregon Department of Transportation. This is to allow for a safe design for the rebuilding of South Main Street, a project that will be happening soon and that is on the recently adopted Capital Improvement Plan. A couple of other minor changes have also been identified – renaming Dillabaugh Street to Tatone, catching some misspellings, and replacing the Commercial use zone in Appendix A to reflect the most recent version.

The formal action on the agenda is through Resolution 19-2024.

Please reach out if you have any questions.

FINAL FINDINGS OF FACT
PLANNING COMMISSION
AMENDMENT LND24-000005

REQUEST: To amend the Main Street "Downtown" Development Plan (MSDDP) to remove the City Developed Alternative street design standards, replace the Downtown District with the Commercial District, and accomplish other minor housekeeping changes.

APPLICANT:

City of Boardman
Planning Official
Post Office Box 229
200 City Center Circle
Boardman, Oregon 97818

I. GENERAL INFORMATION: The proposed amendment is specifically designed to facilitate pending improvements to South Main Street. The current version of the MSDDP has as a City Developed Alternative street design standard that incorporates a walking path down the center of the street. This design standard is not only a safety concern but also doesn't meet current design standards allowable in the State of Oregon. Without this change the proposed design of South Main Street could be compelled to comply with this standard, something that is not the current desire of Planning, Public Works, or Engineering staff. The other changes that are included is replacing Dillabaugh with Tatone, replacing the Downtown District with the Commercial District in Appendix A, and some other minor housekeeping items.

There is also a lack of clarity as to which version of the MSDDP that was adopted in 2001 so staff are working from the version that is on the website as it has been the one publicly available for the past couple of years. The difference between that version and others that have been located are minor and will be called out in the redlined version.

II. PROCEDURE: This amendment to the MSDDP is being processed using Type IV procedures found within the Boardman Development Code. The Type IV process requires a hearing before the Planning Commission with a recommendation to the City Council. The final hearing will occur before the City Council.

III. APPROVAL CRITERIA: The request has been filed under the BDC Chapter 4.1 Types of Applications and Review Procedures, more specifically 4.1.600 Type VI Procedures (Legislative). The criteria are identified below in **bold** type with responses in regular type.

G. Decision-Making Considerations. The recommendation by the Planning Commission and the decision by the City Council shall be based on consideration of the following factors:

1. Approval of the request is consistent with the Statewide Planning Goals.

The Statewide Planning Goals applicable to this request are Goal 1, Citizen Involvement; Goal 2, Coordination; Goal 9, Economic Needs; Goal 11, Public Facilities; and Goal 12, Transportation.

Goal 1 requires the City to "develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process." Because the proposed

legislative amendment will be heard by both the Planning Commission and the City Council, there will be at least two opportunities for public comment to the proposed change. This is consistent with the City's acknowledged citizen involvement program. (Goal 1, Policy 4: The Planning Commission is officially designated as the Citizen Involvement Committee.)

Goal 2 requires the City to adopt a comprehensive plan and implement the plan through its development code and by extension other planning level documents. The proposed amendment is consistent with the comprehensive plan as described in these findings. (Goal 2, Policy 3: The City has adopted the City of Broadman 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.) Staff would assert that the MSDDP would function similarly to provide guidance to the land use development process.

Goal 9 requires the City to provide adequate opportunities for a variety of economic activities vital to the health, welfare, and prosperity of its citizens. The proposed amendment is consistent with this Goal as it further clarifies how South Main Street will be developed and staff find that improvements to South Main Street can have the effect of facilitating development in the areas zoned for commercial purposes south of Interstate 84. Goal 11, Policy 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.)

Goal 11 requires the City to plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban development. While the Comprehensive Plan Public Facilities chapter does not discuss transportation at length, it does discuss transportation as part of the overall infrastructure that needs to be planned for and developed for the City to grow and prosper. The proposed amendment facilitates the development of public transportation infrastructure by providing design standards and the South Main Street project will include other public facility improvements. (Goal 11, Policy 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. Goal 11, Policy 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.)

Goal 12 requires the City to plan for transportation facilities and is implemented through the City's Transportation System Plan, including the MSDDP. The proposed amendment implements the MSDDP by facilitating the improvements to South Main Street as well as other streets in the planning area. (Goal 12, TSP Policy: 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.)

For these reasons, the criterion is met.

2. Approval of the request is consistent with the Comprehensive Plan.

The Boardman Comprehensive Plan (BCP) has a variety of policies that support the proposed amendment and the process used to achieve it. Goal 1 policies support citizen involvement and the public hearing process. Goal 1, Policy 4, designates the Planning Commission as the City's official Citizen Involvement Committee. Therefore, review by the Planning Commission ensures compliance with the comprehensive plan.

Goal 2, Policies 4 through 6, requires the City to acknowledge the city center and the MSDDP as the mechanism to facilitate commercial development. The proposed amendment clarifies street design standards and will facilitate the development of South Main Street with a focus on both vehicular and pedestrian safety.

Goal 9 requires the City to provide adequate opportunities for a variety of economic activities vital to the health, welfare, and prosperity of its citizens. The proposed amendment is consistent with the Comprehensive Plan as it would allow the City to develop the necessary infrastructure in support of employment lands. (Goal 11, Policy 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.)

Goal 11 supports public facilities planning including assuring that urban services, which includes streets, are available to lands available for development. Goal 11, Policy 1, requires the City ensure that urban services, including water, sewer and storm drainage services and transportation infrastructure, are available to serve industrial lands within the City. The proposed amendment allows for the safe installation of public infrastructure that provides for these urban services. To that end, the improvement of South Main Street can have the effect of encouraging other improvement and development in the commercial areas south of Interstate 84.

Further, Goal 11, Policy 12 provides that the City shall monitor the condition of water, sewer, storm drainage and transportation infrastructure and finance regular maintenance of these facilities. This amendment to the MSDDP will allow the City to develop South Main Street utilizing a street design standard that is allowable and safe.

Finally, Goal 12, Policy 1, designates the Transportation System Plan (TSP) as part of the comprehensive plan, and the MSDDPs street design standards can be considered an extension of the TSP. Thus, because the amendment advances the MSDDP, it is consistent with Goal 12, Policy 1. In addition, Goal 12 requires the City plan and develop a network of streets to provide circulation within the community, which will be enhanced by the reconstruction of South Main Street.

For these reasons, the criterion is met.

3. **The property and affected area is presently provided with adequate public facilities, services and transportation networks to support the use, or such facilities, services and transportation networks are planned to be provided concurrently with the development of the property.**

No specific property is affected by the proposed amendment. The intent is to amend the MSDDP with a focus on the street design standards to allow South Main Street, and other streets affected by the Plan, to be built to a standard that is allowable and safe. Other public facilities such as water, wastewater, and certain utilities will be addressed as part of the design of South Main Street as that project moves from design to construction meeting the requirements of this criterion.

For these reasons, the criterion is met.

IV. LEGAL NOTICE PUBLISHED: June 25, 2024
East Oregonian

V. DLCD 35-DAY NOTICE: April 5, 2024

VI. AGENCIES NOTIFIED: Dawn Hert, Department of Land Conservation and Development; Teresa Penninger, Oregon Department of Transportation

VII. HEARING DATES:

Planning Commission
July 18, 2024
Council Chambers
Boardman City Hall
200 City Center Circle
Boardman, Oregon 97818

City Council
August 6, 2024
Council Chambers
Boardman City Hall
200 City Center Circle
Boardman, Oregon 97818

VIII. PLANNING OFFICIAL RECOMMENDATION: The Planning Official recommends the Planning Commission forward the request to the City Council with a 'do adopt' recommendation.

18-JUL-2024

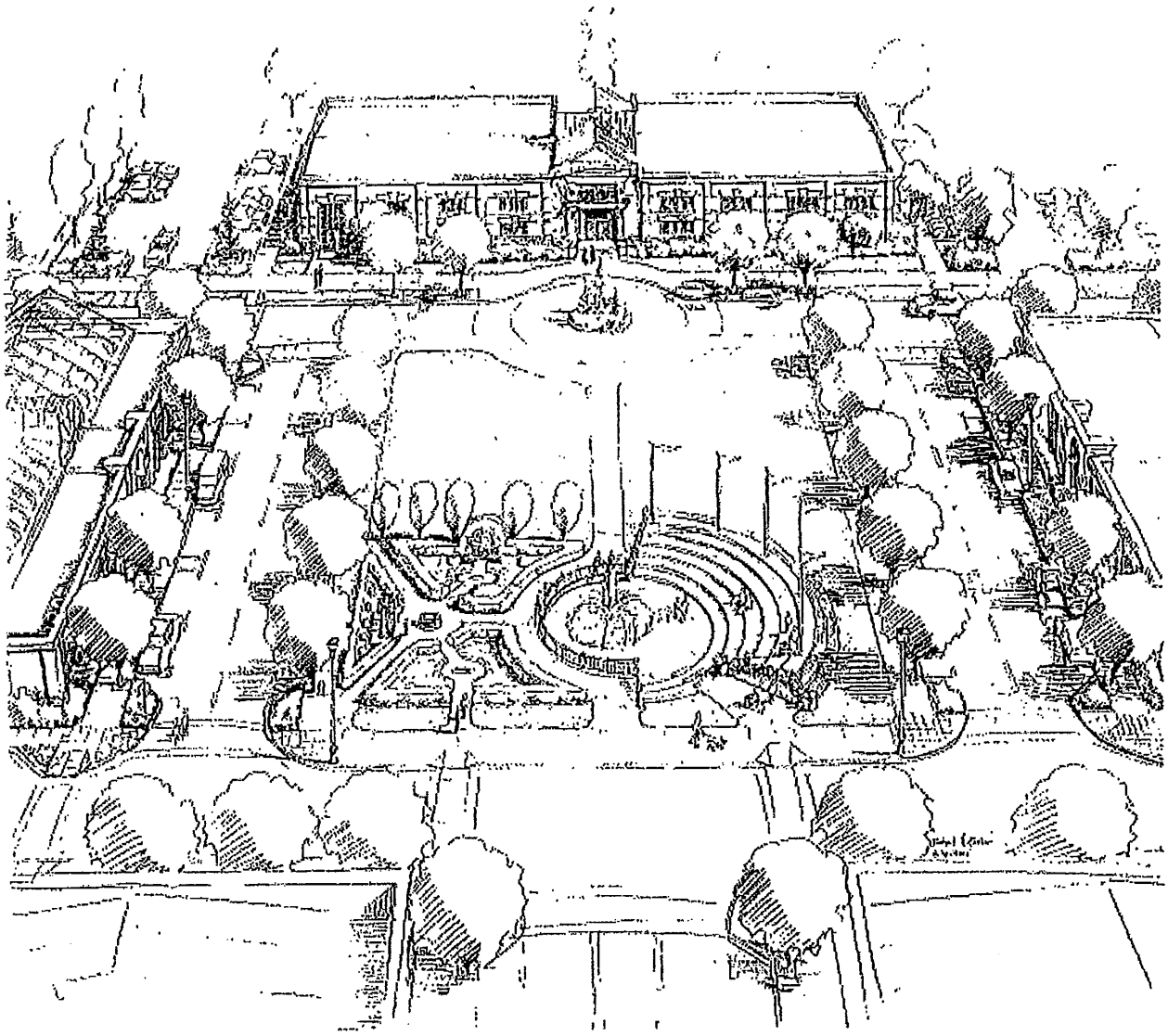
Zack Barresse, Chair — Date
Planning Commission

ATTACHMENTS:

- Redline Version of the MSDDP.

CITY OF BOARDMAN

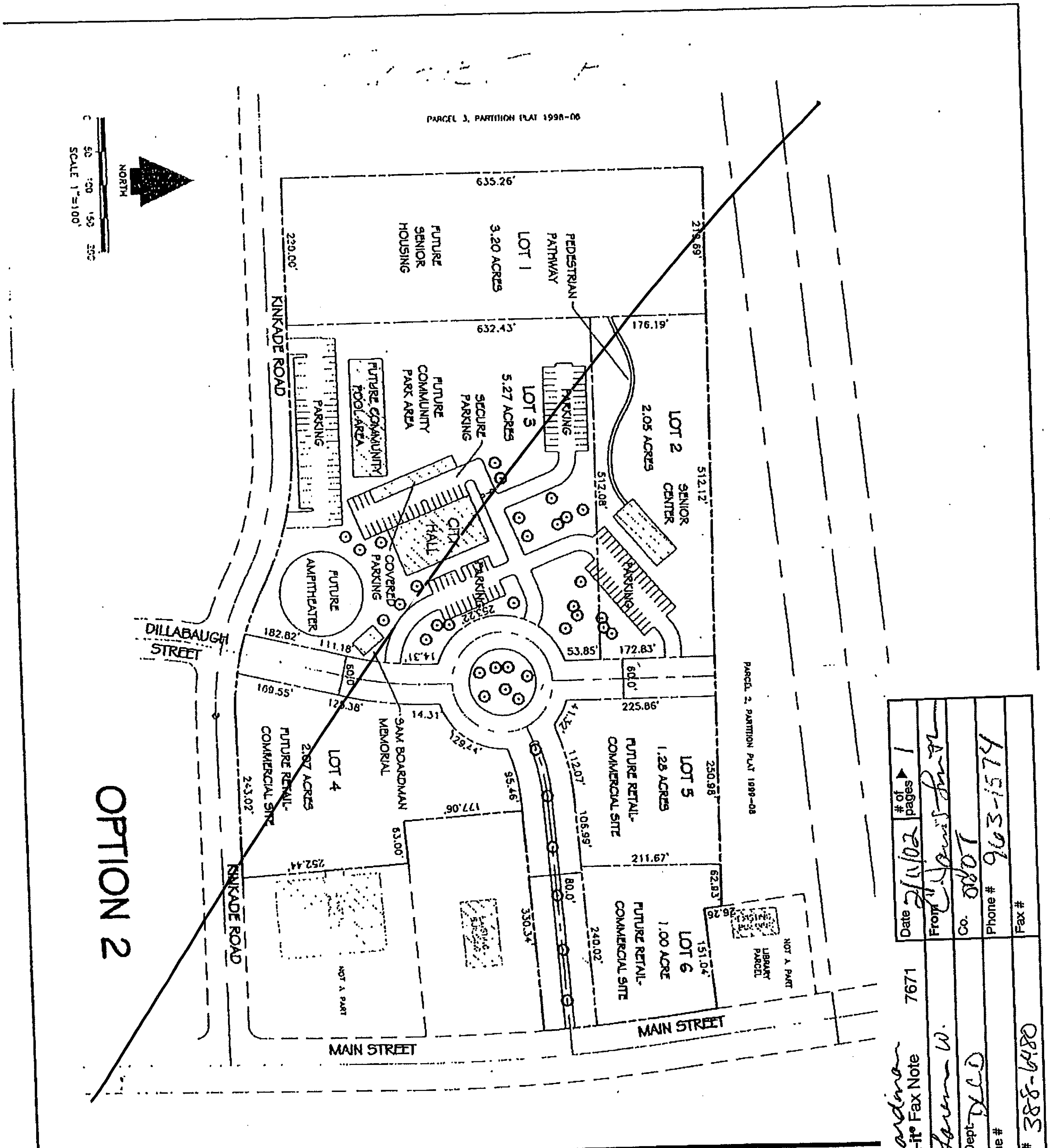
MAIN STREET "DOWNTOWN" DEVELOPMENT PLAN



2000-2001

TRILAND DESIGN GROUP, INC. / FOSTER CONSULTANTS / CTS ENGINEERS

— EDITED WEB VERSION —



SHEET NUMBER	PROJECT NUMBER	VIC004	CITY OF BOARDMAN
1	DATE:	5-14-01	DOWNTOWN DEVELOPMENT PLAN
	DRAWN BY:	J. STORMO	
	DESIGNED BY	J. STORMO	OPTION #2

PINNACLE ENGINEERING ASSOCIATES CORPORATION

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I. PROJECT OVERVIEW & EXISTING CONDITIONS

PROJECT DESCRIPTION AND BACKGROUND

Boardman was incorporated in 1927. With construction of the John Day Dam in the early 1960's, the town was moved to its current location on higher ground. Interstate 84 runs east-west through the town, dividing the city roughly one-third to the north, along the Columbia River, and two-thirds south. The Port of Morrow, one of the nation's largest inland ports, has a significant amount of industrial land along the Columbia River in Boardman, and uses the Columbia River, rail lines, and the Interstate for it's shipping.

Historically, most of the City's development has occurred on the north side of the I-84/Main Street interchange. However, in the past 10 years, the residential land on the north side has been building out and more residential development has been occurring on the south side. The north and south sides of the City of Boardman are served by two interchanges – one at the west end of town, which serves most of the commercial and residential development, and one at the east end of town that primarily serves the Port of Morrow and the industrial area. These State facilities pose unique issues for transportation and land use in the City.

During development of the TSP, the west interchange (Main Street) and local streets that are in the vicinity of on- and off ramps were identified as a major point of current traffic conflict and a constraint to future development. Land use and transportation solutions were examined that could mitigate current problems and prevent having to rebuild/expand the interchange or redesign the interchange. There are several potential improvements that might improve current and future operations of the I-84/Main Street interchange. These will be assessed to develop appropriate mitigation for the interchange; current and future operations of Main Street must be assessed to determine what might be improved.

One of the solutions identified was to focus future commercial development in a downtown area south of the freeway on 75 acres of privately owned, for-sale land which is zoned for commercial use, and which is currently undeveloped and completely vacant. The Preferred downtown area is within the influence area I-84/Main Street interchange. The interchange might be impacted by solutions or projects identified in the downtown development plan. The project will address these issues and assist the community in developing a traditional compact, mixed use downtown with a park or plaza and a grid system pattern of blocks and streets with sidewalks and multi-use paths.

The downtown design will be integrated with the Governor's Community Development Objectives and ensure connectivity to future community facilities. The Contractor shall produce a coordinated and cohesive downtown development plan to guide infrastructure improvement. The downtown development study area must include enough of the adjacent area to understand the context of the site, existing commercial development, and potential pedestrian destinations, activity centers, and schools. The interchange is part of the downtown development study area and must also include existing parallel roadways and potential connecting roadways.

The downtown development plan must provide accessibility to all modes of travel, accommodate and facilitate business development, intensify land uses, and enhance circulation. The downtown development plan must identify focus areas in the downtown and provide a vision for a future downtown consistent with the scale of the community.

The project is timely in many respects. Boardman is one of the fastest growing cities in the state with 102% population increase since the 1990 census. The City currently has two new subdivisions under construction, with four additional subdivisions in the planning stages of development. All of these are on the South side. The Port of Morrow is very active in attracting new Industry. Construction is currently underway for the new Tillamook Cheese Plant and the Blue Mountain Community College Boardman Campus.

With continued growth will come demands for increased commercial development. The City will be achieving a size and scale to attract retail and service uses that the local residents now have to drive to other cities to obtain. The current zoning permits a scattered pattern of commercial development that, if not addressed, will contribute to a lack of community focus and disconnected, auto-oriented development, as well as traffic conflicts centered around the freeway interchanges. The momentum has been established – it is critical to follow through to develop a specific downtown master plan and implementation strategy.

PROJECT OBJECTIVES AND TRANSPORTATION RELATIONSHIPS/BENEFITS

The following project objectives and transportation relationships/benefits were identified by the City of Boardman and ODOT during development of the initial project description and statement of work.

- Strengthen the capability of Boardman to effectively manage growth and comply with the Transportation Planning Rule (TPR), integrate transportation and land use planning, and encourage transportation-efficient land uses.
- Address the 1999 Oregon Highway Plan (OHP) and access management standards, Policy 3C Interchange Access Management Areas, and Policy 1G Major Improvements Policy.
- Make more efficient use of the transportation infrastructure by separating local traffic from freeway-related traffic, thereby preventing or postponing reconstruction of the current interchange/overpass and on and off-ramps.
- Reduce reliance on the automobile by developing the City's commercial/retail focal point in the area of future residential development and connecting it with a grid system of streets, bikeways and pedestrian paths.
- Reduce traffic around the freeway interchange and the local street system that immediately serves and connects with the freeway system by encouraging future locally oriented commercial uses to develop away from the areas of conflict and by creating alternate travel routes.
- Improve transportation safety by separating local and freeway-oriented traffic, which also includes a large proportion of trucks that are accessing the Port of Morrow or utilizing traveler services at the interchange on Main Street.
- Improve local transportation network connectivity by developing a plan that includes a grid system pattern of streets in the south Boardman area, and links current and future community facilities and the Port of Morrow.
- Direct commercial development in a concentrated, localized, mutually beneficial, and aesthetically pleasing pattern.
- Establish a stronger community identity.
- Increase the overall livability in Boardman, thereby making it a more attractive place to reside.
- Reduce commuter-related traffic.
- Adoption and implementation of the City of Boardman TSP in compliance with OAR 660-012-0015(3) and 660-012-045.

EXISTING CONDITIONS

The existing conditions base map (page 7) identifies primary elements that form the city of Boardman. This includes identification of the following features and elements:

- **The Columbia River** – The Columbia River, the impetus behind the origination of Boardman, forms Boardman's strong northern boundary. The river dictated development of Boardman to occur in a southerly direction from the river. The southerly direction for growth and development was further advanced by the construction of the John Day Dam in the early 1960's which forced the town to move south to higher grounds.

- **Interstate 84** – The east-west oriented Interstate 84 bisects Boardman, dividing it geographically with one-third located north of I-84 between the interstate and the river, and two-thirds located south of I-84. The interstate is the primary access in and out of Boardman. It is inevitable that future growth and development in Boardman must occur south of I-84 due to the fact that "north" Boardman is largely developed and the larger "south" Boardman is largely undeveloped.

- **North Boardman** – The city, north of I-84 is largely developed with a mix of residential, commercial, public and institutional, and industrial uses. This area comprises approximately one-third of the geographical area of Boardman and the Urban Growth Boundary (UGB). The north-south oriented Main Street is the center of commercial activity with commercial uses expanding one-to-two blocks west of Main Street. The area west of the Main Street commercial area (and north of I-84) is primarily residential that consists of older single family housing stock with an established neighborhood character.

  East of Main Street (north of I-84) consists of a mix of residential, institutional, public, and industrial uses including single family and multi-family (apartments) residential, the Riverside High School, I-84 frontage road use including Blue Mountain Community College Campus which recently constructed an initial building, a soccer field and undeveloped property, and the Port of Morrow which occupies a large area and has significant area employment in the northeast section of Boardman.

  The riverfront includes a large park with boat launch, camping, RV, and bicycle/pedestrian pathway.

- **I-84/Main Street Interchange** – The interchange is the primary traffic generator and access to both the north and south sides of Boardman. This is one of two I-84 interchanges in Boardman with the other interchange located at the east end of the city and providing primary access to the Port of Morrow. As future growth and development occurs in Boardman this interchange will incur additional traffic. Future interchange capacity and safety issues will need to be address as growth occurs including the potential need to close frontage roads that intersect with Main Street in close proximity to the interchange ramps. A more detailed description of the I-84/Main Street interchange and traffic conditions is provided in the Opportunities & Constraints section of this report.

- **Olson Road Future Interstate Overpass** – Olson Road is a north-south oriented street on both the north and south sides of I-84. Currently there is no connection between the north and south sides of the interstate. Previous discussions and plans, including the city's Transportation System Plan identify a future I-84 overpass on Olson road.

- **Main Street** – As identified above, Main Street is the primary north-south oriented street that provides access throughout Boardman from I-84, access to existing commercial uses, and the primary local street providing access to residential areas. This is true on the developing south side of I-84 as well as the north side. South of I-84, Main Street currently includes freeway-oriented commercial uses in close proximity to the freeway, and residential serving uses further south of I-84, i.e. grocery store,

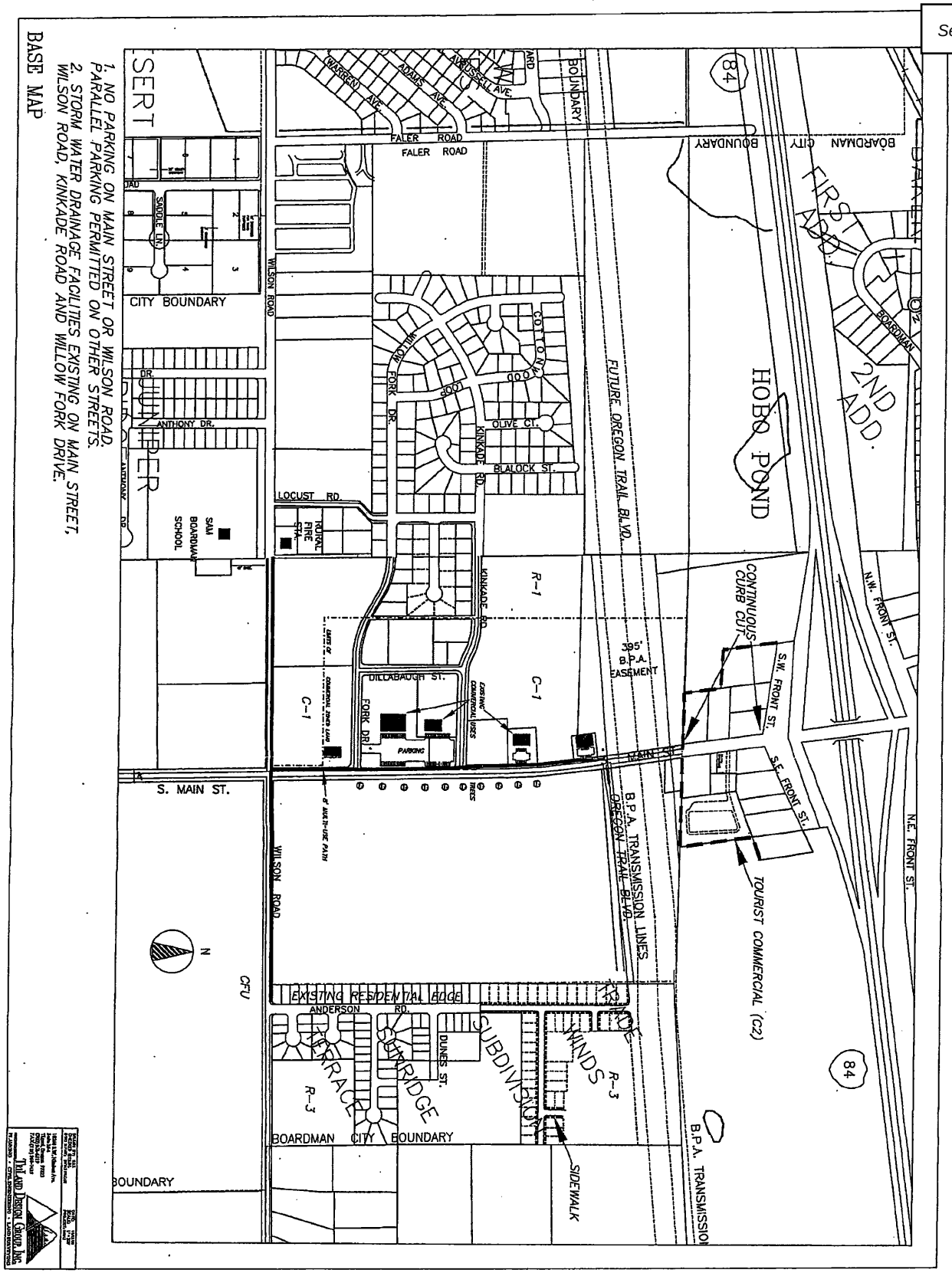
library, and auto-parts store. The majority of the Main Street frontage, south of I-84 is currently undeveloped.

- **BPA Power Line Easement** – The BPA easement is a primary physical element that includes a major transmission line and approximately 150-feet wide. The easement generally parallels the interstate approximately 600 feet south of the interstate through Boardman. Development is restricted within the BPA easement.

- **South Boardman** – South of I-84 is the developing part of Boardman, primarily due to the northern part of Boardman being mostly developed. The large area of the city, south of I-84, is largely undeveloped and will incur a significant amount of development in the future. The City, through previous planning efforts, has zoned the south Boardman area with commercial zoning on both the east and west sides of Main Street and surrounded by residential zoning. Single family residential development has occurred and the elementary school is located in this area on Wilson Road west of Main Street.

- **Two Potential New Downtown Sites** – Previous community visioning and planning efforts identified an undeveloped 75-acre site, located south of I-84 and east of Main Street as a future focus for commercial development. Based on the results of the initial project meetings with the Project Management Team and the Advisory Committee, an undeveloped commercial-zoned area located on the west side of Main Street (south of I-84) was also identified as a potential, future commercial development site. The Existing Conditions Base Map (following page) identifies both of these potential downtown development sites.

Following the initial meetings and preparation of the existing conditions base map, Advisory Committee members followed up with the potential for downtown and public use development west of Main Street. It was determined, at that time, that it was more feasible for new downtown/public development to occur east of Main Street. Therefore, following the completion of the Existing Conditions Base Map and Opportunities & Constraints, the focus of the Alternative Design Concepts shows downtown-commercial-public development along Main Street and east of Main Street.



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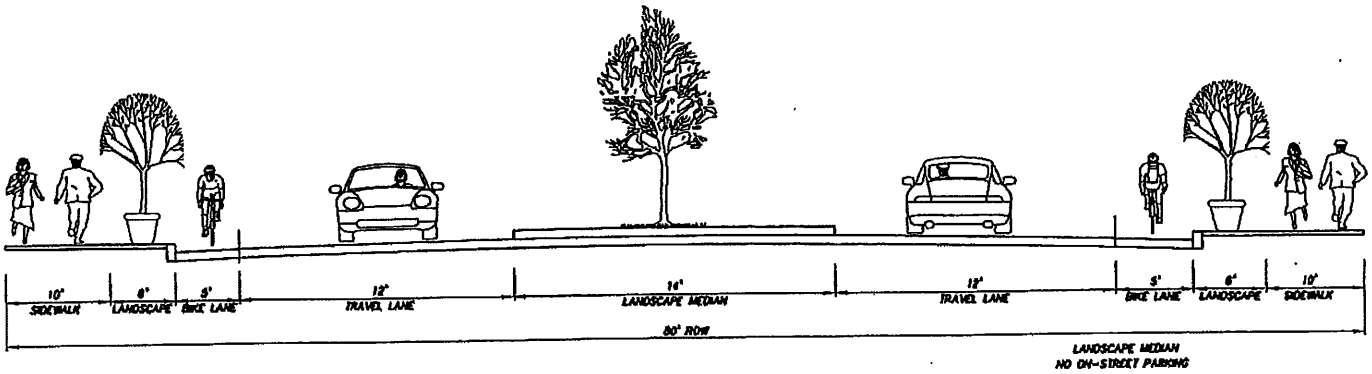
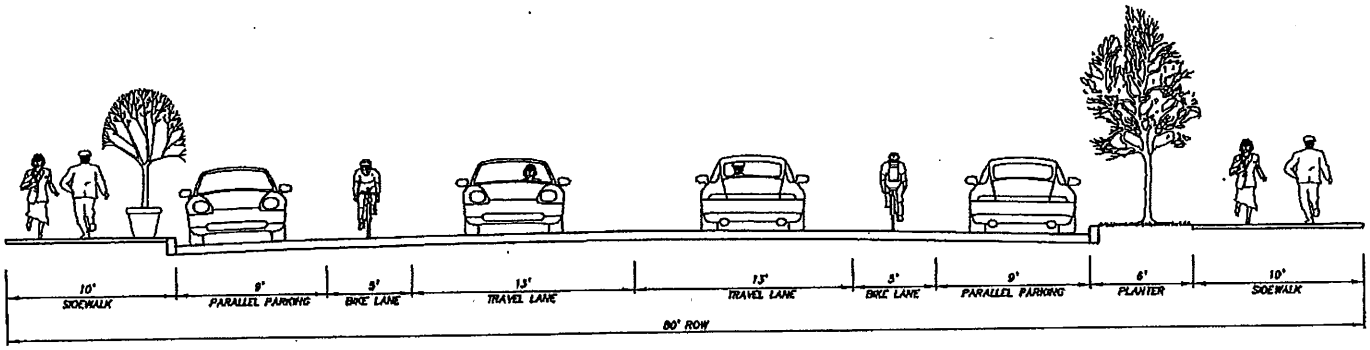
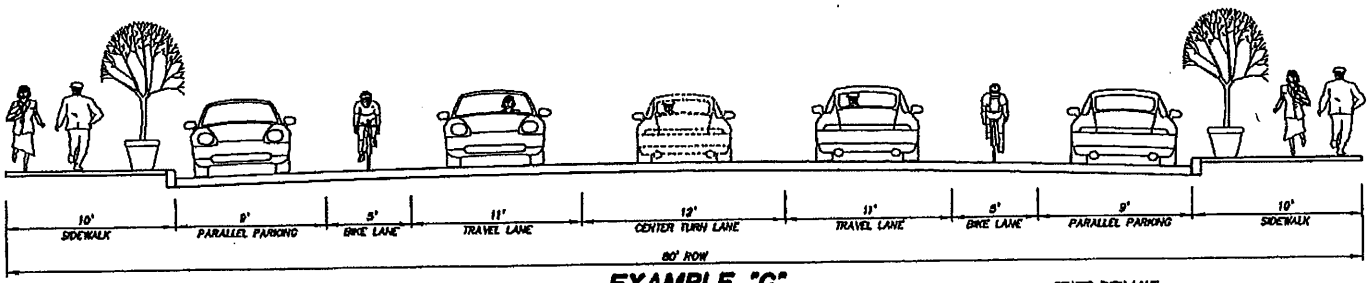


EXAMPLE "A"



EXAMPLE "B"



EXAMPLE "C"

10260 S.W. Nimbus Ave.
Suite M-4
Tigard, Oregon 97223
(503) 968-6589
FAX (503) 968-7439
TRILAND DESIGN GROUP, INC.
PLANNING · CIVIL ENGINEERING · LAND SURVEYING

EXAMPLE MAIN STREET
CROSS SECTION
BOARDMAN, OREGON

PREPARED FOR:
CITY OF BOARDMAN

Project:	00015
Designed:	
Drawn:	SAE
Scale:	NTS
Date:	11/13/00
Sheet:	1 of 1

II. OPPORTUNITIES & CONSTRAINTS

EXISTING CONTEXT AND PHYSICAL FEATURES

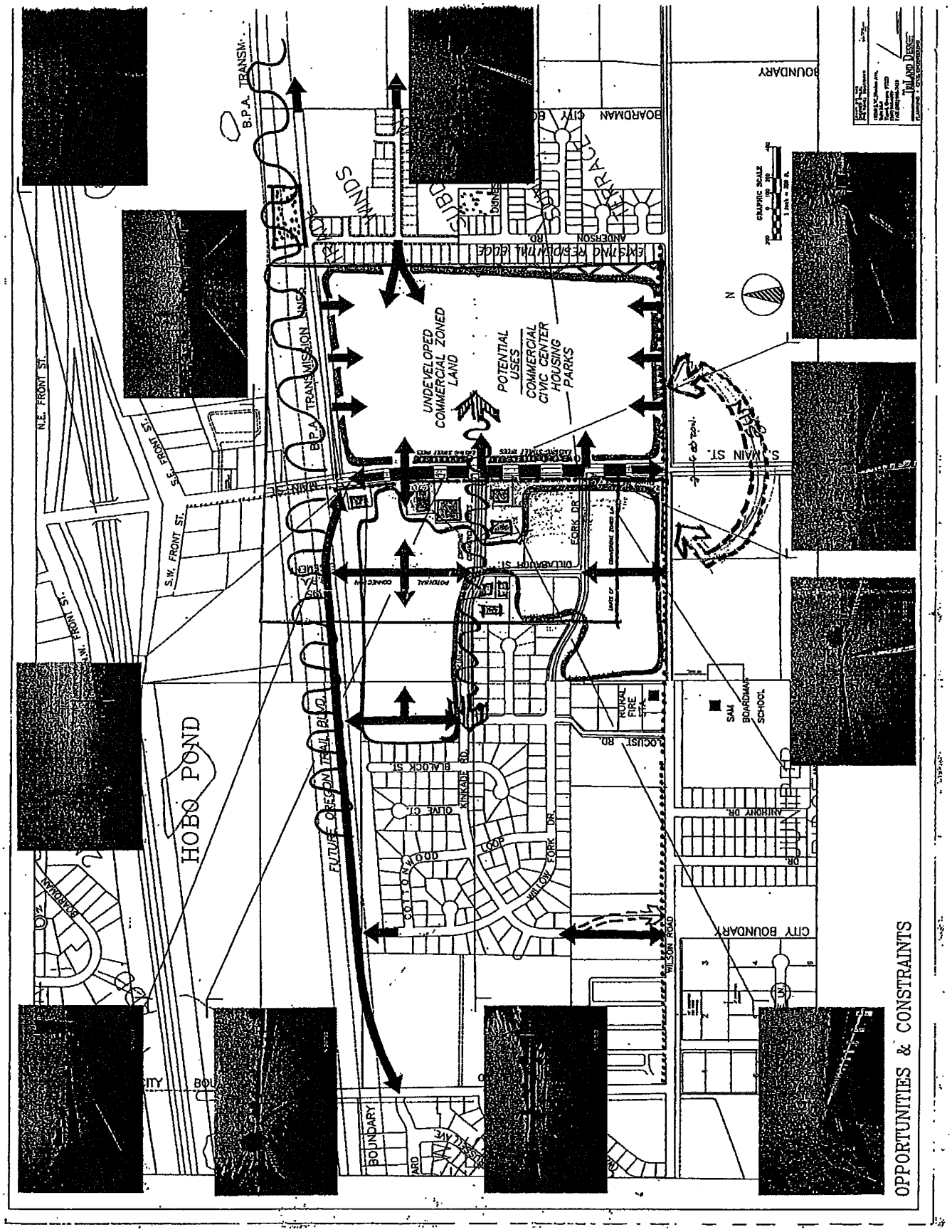
This subsection provides a focus and more detailed description of the general area identified as the location of for the new Main Street "Downtown" development. This area is generally described as being south of I-84 to Wilson Road, both east and west of Main Street. The following table identifies key physical and regulatory features. Constraints and opportunities of each featured is described. The Opportunities & Constraints Diagram, enclosed at the end of this section, provides identification of these features.

Existing Features	Constraints	Opportunities
BPA Easement/Transmission Line	• Restricted development – no buildings, permission required from BPA for any use • Caution/potential adverse impacts of being near transmission lines	• Potential usage as linear park with multi-modal pathways for pedestrians, bicyclists, skaters, scooters, etc. • Potential play fields, skate board park, BMX track, and other active recreation facilities • Potential parking although be cautious of "shock" when touching car after if has been parked under the transmission lines for 2+ hours.
Main Street – I-84 south to Wilson Road		• Primary north-south access for autos, bicyclists, and pedestrians. • Opportunity for access to adjacent properties (with appropriate access spacing standards. • Adequate right-of-way width or opportunity to expand ROW if needed.
Commercial Zoned Land	• Surplus of undeveloped commercial zoned land restricts development of other uses, i.e. residential. Rezoning of some property will likely be required in the future to "fit" with market conditions. Property owners may be resistant to perceived "downzoning" from commercial to other zoning districts.	• Large undeveloped commercial zoned land provides ample opportunity for future commercial development. • Ample undeveloped commercial zoned land on both sides of Main Street allows flexibility for location and varied types of commercial development.
Undeveloped Land East of Main Street	• Current lack of infrastructure, i.e. streets, water, sewer, stormwater drainage. • Privately owned lessens probability of land being developed as planned by the City. • Land acquisition for public uses dependent upon property owners willingness to sell, trade, etc.	• Totally undeveloped provides opportunity for master plan with limited restrictions. • Single ownership • Access (through existing streets) provided on north, south, and west sides. • Limited natural features restrict design/development potential.

Existing Features	Constraints	Opportunities
Existing Main Street Buildings	• Grocery store, auto parts store, library, etc. buildings limit opportunity for completely new design/master plan.	• Established retail and public uses in place. Provides opportunity to develop additional commercial and public uses around existing uses – creating commercial village and/or public use focus.
Existing and Planned Public Facilities	The 395' wide BPA easement extends east-west along the north side of the proposed downtown area. Development of most structures, i.e. buildings, is prohibited in this easement. There are potential safety concerns associated with human activity under and near the transmission lines. The public library is the other existing public facility. The library site is adjacent to the BPA easement and may impact the extension of Oregon Trail Blvd.	The BPA easement will be maintained as open space. There are opportunities to provide additional public facilities within the easement, i.e. extending Oregon Trail Blvd., providing park and recreation facilities such as play fields, multi-use path, and parking. The fire station is currently located in this general area on the north side of Wilson Road, east of Locust Rd. New and relocated public facilities can be incorporated into the new downtown area, i.e. city hall, community center, swimming pool, police/fire station, post office, park/public plaza, etc.
Community Features	Currently, there are no significant and identifiable community features in this area.	As noted above, there are opportunities to incorporate community features in the new downtown area. Community features could become the focal point and a central attraction of the new downtown area, i.e. a civic/public plaza surrounded by public, commercial, and residential uses.
Streets and Accessways	Main Street is a collector street. Development of this area needs to recognize that Main Street will continue to function as a collector street and not adversely impact through-traffic needs. The 75-acre parcel east of Main St. is currently "landlocked" on the east side, prohibiting access to Anderson Rd. unless property acquisition or easement(s) occur.	The limited number of existing streets, especially on the east side of Main Street provides flexibility in street design and access. The establishing grid system west of Main Street (Kinkade, Willow Fork, ~~Dillabaugh~~, Locust, and ~~Wilson~~ STATELINE streets) makes it logical to further develop this area with a street grid system.

		The large parcels of land and limited number of existing access points on Main, Wilson, and Oregon Trail Blvd. enables the City to establish and implement access management in this area.
Neighborhood Boundaries	The Trade Winds and Sunridge Terrace Subdivisions, located on the east side of the 75-acre parcel (east of Main St.) currently does not provide any public connections between Oregon Trail Blvd. and Wilson Rd.	Opportunity to develop the 75-acre site east of Main Street with compatible uses on the east side adjacent to the two subdivisions. This may include public access (vehicular and/or pedestrian/ bicycle) connecting the new development to Anderson Rd.
Pedestrian Generators		Existing pedestrian generators located west of Main Street include the elementary school and commercial uses on Main Street, i.e. Sentry Market. The library can be considered a pedestrian generator – located on Main Street and connected to the elementary school and residential areas by the existing multi-use pathway on Main Street and Wilson Road.
Schools		The existing elementary school is located on the south side of Wilson Road near residential areas and in proximity to the commercial zoned area.
Walking distance to nearby destinations		There is approximately .6 mile between the library and elementary school via the existing multi-use pathway with the market located between these two destinations. Residential areas are within ½ mile of the market and library.
Logical Block and Building Placement Configurations		The west side of Main Street is developing with a street grid system. This should be continued as development occurs, creating logical and easily accessible streets and parcels of land. The generally level topography does not restrict street layout.

Existing Features	Constraints	Opportunities
Drainage Features	There are limited drainage features. As development in this area occurs, a comprehensive drainage system needs to be developed to serve this entire area.	
Significant Vegetation	Significant vegetation is missing in this area.	Street trees have been planted along the east side of Main Street.
Parking	Existing parking is located between Main Street and buildings along the west side of Main Street. This creates an "auto-dominated" character.	The large undeveloped area enables adequate capacity and location of parking to occur with development. Parking should generally be located behind and to the sides of building in order to create a pedestrian friendly environment.
Traffic Control Facilities		Traffic control facilities in this area are currently limited to stop signs at Main St./Wilson Rd. and local street connecting to Main St.
Multi-use Pathway		Opportunity to expand the existing multi-use pathway located on Main St. and Wilson Rd. throughout this area including the BPA easement.
Infrastructure	The generally flat area requires consideration and design of a comprehensive storm drainage system concurrent with development.	
Land Use Concerns		The existing zoning presents a logical and compatible land use system. Commercial zoned land is generally surrounded by residential land, providing an opportunity for commercial development to occur in proximity to residential areas. Opportunity to provide downtown mixed use development which will create a walkable, pedestrian friendly environment, and reduce automobile dependency.
Urban Design Issues and Redevelopment Opportunities	Currently, there are no significant urban design features.	The largely undeveloped land in this area presents the opportunity to establish a cohesive development pattern with design standards. The limited number of existing structures (west side of Main St.) can be redeveloped to "fit" in with the new downtown area.


OPPORTUNITIES & CONSTRAINTS
UNDEVELOPED COMMERCIAL ZONED LAND
POTENTIAL USES
COMMERCIAL
CIVIC CENTER
HOUSING
PARKS
HOBO POND
FUTURE OREGON TRAIL BLVD.
B.P.A. TRANSMISSION
S.W. FRONT ST.
S.E. FRONT ST.
N.E. FRONT ST.
S. MAIN ST.
FORK DR.
WILSON ROAD
BOARDMAN CITY BOUNDARY
SAM BOARDMAN SCHOOL
RURAL FIRE STA.
CITY BOUNDARY
BOUNDARY
GRAPHIC SCALE
N

EXISTING TRAFFIC AND ROADWAY CONDITIONS

This section summarizes our assessment of existing traffic and roadway conditions along Main Street. The study area for this project is along Main Street from south of the interchange with I-84 to Wilson Road. The objective of this task is to establish baseline traffic conditions and operational issues that will be used to assess future traffic volumes and needs throughout the study area. Major findings of this assessment include:

1. The Boardman Transportation System Plan (June 1999) reported that volumes along Main Street tend to peak on weekday afternoons from 4-5 PM. However, our observations and comments from City staff indicate another peak period earlier between 2-3 PM when the schools lets out. To quantify these concerns, traffic operations were observed during the traditional 4-6 PM peak hours as well as near the schools during these earlier times for both schools. Capacity analyses at these intersections found that they operate at LOS B or better during the 4-5 PM Peak Hour.
2. An extensive multi-use pedestrian and bicycle path runs along Main Street (west side) and Wilson Road (north side) throughout the study area.
3. Most streets in the study area do not have on-street parking. The only major obvious off-street parking area is the lot for the supermarket along Main Street.
4. During the last three years, 2 accidents were reported near the intersection of Main Street and Kinkade Road and another accident was reported near the Main Street and Wilson Road intersection. To improve traffic safety, the intersection of Main Street and Wilson Road was recently converted to all-way stop control.
5. Key traffic operational issues appear to be capacity at the Main Street/I-84 Interchange at projected future traffic volumes.

The following paragraphs document the information reviewed, analyses, results, and major findings.

STUDY AREA

The project's study area is along Main Street from south of the I-84 Interchange to Wilson Road. Attached are photos of the key study area roadways. Figure II-2 shows existing traffic control configurations at key intersections throughout the study area.

Area Land Uses

The project's study area encompasses the proposed Boardman downtown area. All the land in this area is zoned for residential or commercial uses. Along Main Street are freeway commercial uses just south of the interchange, a commercial area containing a Sentry Supermarket and professional offices near Kinkade Road, and residential areas to the west. Most the land east of Main Street is vacant and a new subdivision is under construction. Other main traffic generators include the City Hall, Police Station, High School and other freeway commercial uses just north of the interchange, and the elementary schools and daycare along Wilson Road, west of Main Street. It should also be noted that Boardman has a public park/recreation area along the Columbia River to the north, which includes a boat launch.

Roadway Characteristics

Table 1 presents the characteristics of Main Street and key minor streets through the study area. Main Street contains two lanes (one in each direction) and is 28 feet wide and does not contain any marked turn lanes at the minor streets. Parking is not permitted along Main Street or Wilson Road.

Pedestrian and Bicycling Facilities

Boardman has a multi-use path (for pedestrians and bicyclists) along the west side of Main Street and the north side of Wilson Road throughout the study area as shown on Figure II-3 and the attached pictures. Most the minor streets have sidewalks along both sides. Most of the street corners along these streets also have handicap ramp treatments. No bicycle lanes are marked in the study area. Few pedestrians and/or bicyclists observed during our site visits, except in the immediate areas of the schools.

Other Features

The City of Boardman has one main route to/from I-84. This access is along Main Street to the interchange with I-84 at the north part of the study area. Interstate 84 is also accessible about 6 miles to the east along Wilson Road and about 4 miles to the west along Kunze Road south of the study area.

Existing Traffic Volumes and Peak Hour Operations

Traffic Volumes

This study will rely on several sources of traffic volume data that include ODOT daily traffic counts at the I-84 ramps, PM peak hour counts from the original Transportation Systems Plan(TSP) performed in 1998 and PM peak hour counts conducted by CTS Engineers during 2000. Daily traffic volumes were estimated from the PM peak hour counts. All of these volumes are summarized on Figure II-3. CTS also conducted peak 15-minute counts when the schools let out in an effort to quantify observed volumes during the 2-3 PM hour. Figure II-3 also summarizes these data. Comparing the 1998 volumes to more recent 2000 volumes indicates that they are similar, although overall the more recent counts are generally higher. The most of the 2000 traffic volume counts were taken in May, which is considered a peak month for this area. These volumes will be used as the basis for future volume estimates as they represent typical peak hour peak month traffic volumes. Traffic volumes during the school release times appear to be very intense for about 15 minutes, but dissipate afterwards. While these may represent a peak 15 minutes, the basis of the analysis should be for a peak hour that occurs thought the year. Finally, along Main Street, less than 3 percent of vehicles were large trucks, although some recreational vehicles and horses were observed. However, at the interchange a higher percent of trucks (approximately 5%) was counted.

Peak Hour Traffic Operations

Traffic conditions at key intersections were analyzed during the critical PM peak hours based on the volumes shown in Figure II-3. Intersection operational analyses were conducted using the procedures in the 1997 Highway Capacity Manual (HCM) for evaluating signalized and unsignalized intersections, which describe the traffic operations of an intersection in terms of its Level of Service (LOS). The Level of Service (LOS) criteria range from "A", which indicates little, if any, delay, to "F", which indicates that vehicles experience long delays. Tables 2 and 2A show the results of the intersection capacity analyses for both the 1998 and 2000 traffic volumes. These analyses indicate that these intersections operate at LOS B or better during the PM peak periods. The 1999 Oregon Highway Plan uses volume to capacity ratios (v/c) to evaluate mobility deficiencies and needs. V/C is the ratio of peak hour traffic volume to maximum hourly volume of vehicles that a roadway section can pass. In other words, v/c measures the percentage of the capacity of the roadway section that is utilized during the peak hour. The maximum acceptable v/c ratio for District/Local Interest Roads outside the Portland Metro is 0.80.

Table 1: 1998 Levels of Service

Intersection	Weekday PM Peak Hour		
	Unsignalized Intersection		
	Avg Vehicle Delay (Sec/Veh)	LOS	v/c
Main Street/I-84 Westbound Ramp WB Approach	8.4	B	0.23
Main Street/I-84 Eastbound Ramp EB Approach	8.7	B	0.05
South Main Street/Front Street EB Approach	7.5	B	0.07
South Main Street/Wilson Road SB Approach	4.8	A	0.24

Table 2A: 2000 Levels of Service

Intersection	Weekday PM Peak Hour		
	Unsignalized Intersection		
	Avg Vehicle Delay (Sec/Veh)	LOS	v/c
Main Street/I-84 Westbound Ramp WB Approach	12.4	B	0.16
Main Street/I-84 Eastbound Ramp EB Approach	12.6	B	0.14
South Main Street/Kinkade Road EB Approach	10.6	B	0.11

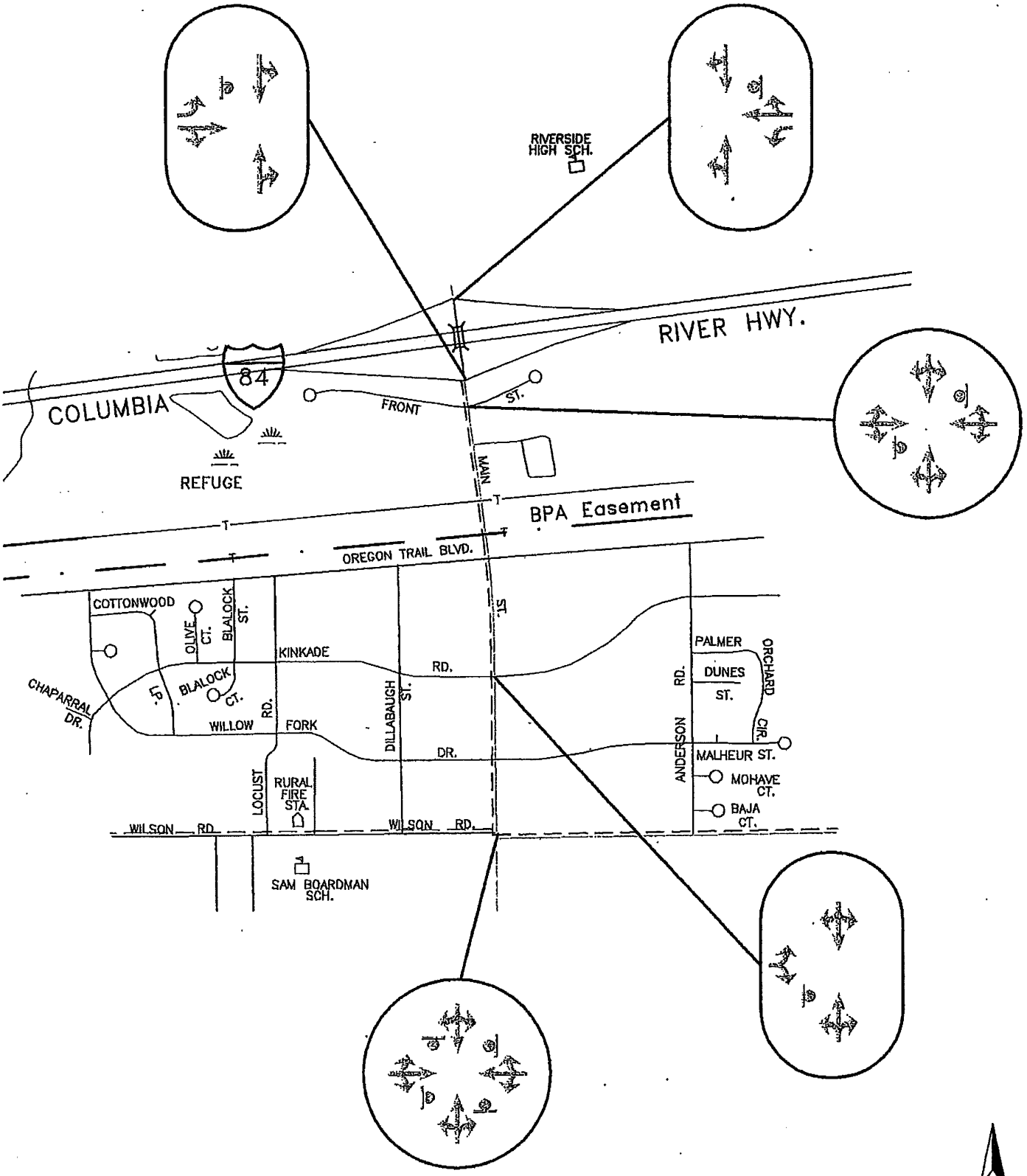
Traffic Safety

Accident records for the most recent three years of available data (January 1997 to December 1999) were obtained from ODOT files for Main Street. These data are summarized on Figure II-4. During this period, only three accidents were reported. Of these, 2 occurred at the intersection of Main Street and Kinkade Road. The other accident reported occurred at the intersection of Main Street and Wilson Road. According to the 1999 TSP, this was a problem intersection. It should be noted that the TSP recommended that a safety improvement occur at this intersection. Specifically, it should be converted to all way stop controlled intersection. This improvement was in place by the spring of 2000. For reference, the past traffic safety analysis from the TSP is attached to this memorandum.

Transportation Issues

In reviewing the TSP and in our discussion with City officials and members of the technical advisory committee (TAC) transportation issues through the study area are limited. One issue is the future capacity of the interchange and at what level of future traffic will traffic signal be needed at the ramp intersections. The future traffic analysis in the TSP reveal that the westbound I-84 ramp is more critical that than the eastbound ramp. People also commented about traffic congestion when the schools let out. Our observations found that traffic volumes are relatively high for about 15 minutes during these periods, but dissipate shortly afterwards.

Figure II-2: Existing Traffic Controls And Lane Configurations at Study Area Intersections



Multi–Use Path — — — —

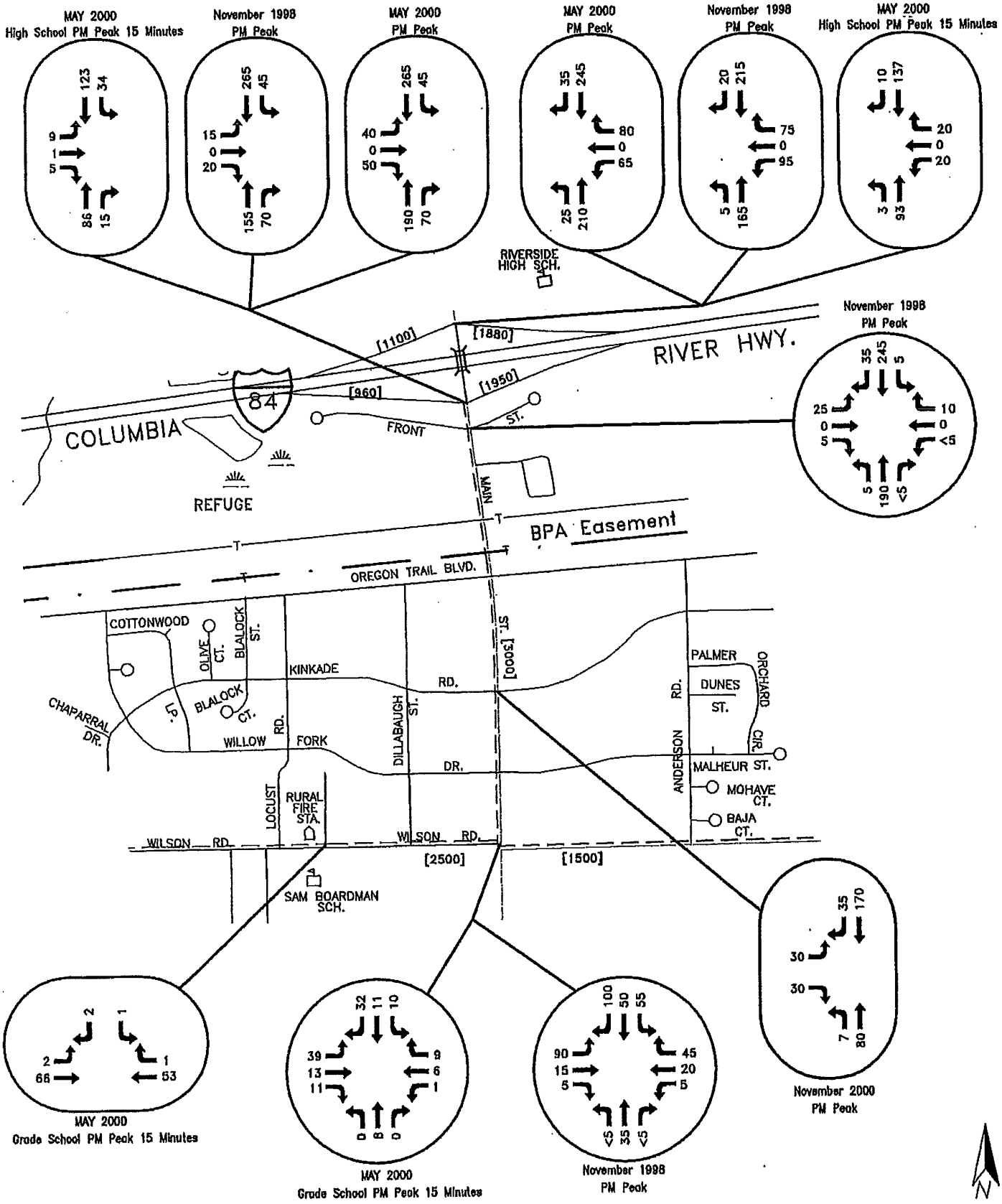
Stop Sign

Boardman TSP

Drawing not to scale.

cts *Engineers, Inc.*

Figure II-3: Recent Peak Hour Traffic Volumes



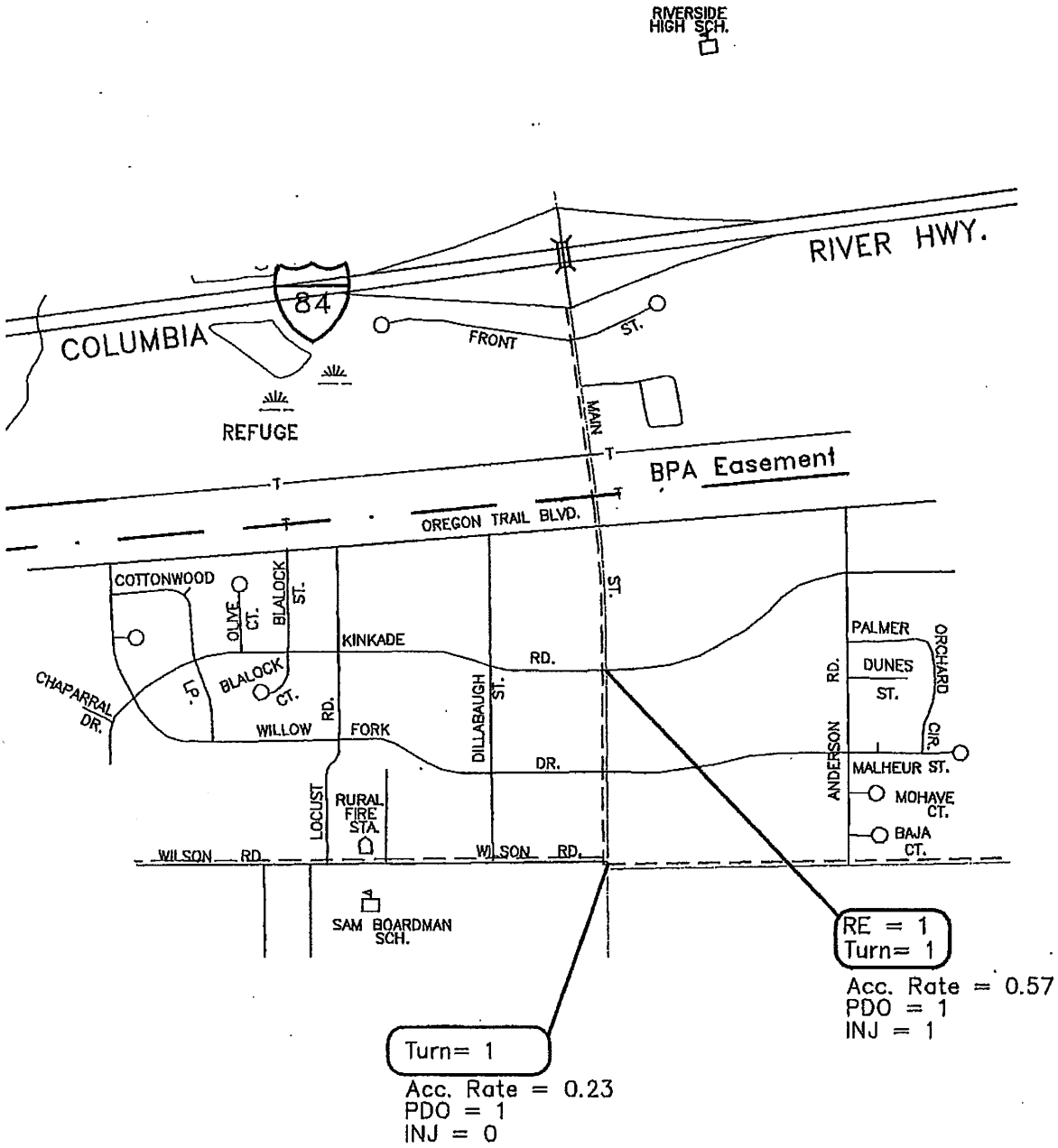
Annual Daily Traffic [ADT]

Drawing not to scale.

Boardman TSP

cts Engineers, Inc.

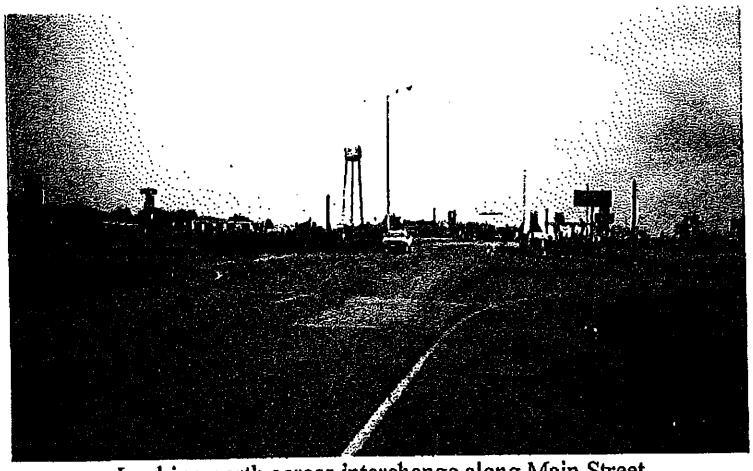
Figure II-4: Recent Accidents (January 1997 to December 1999)



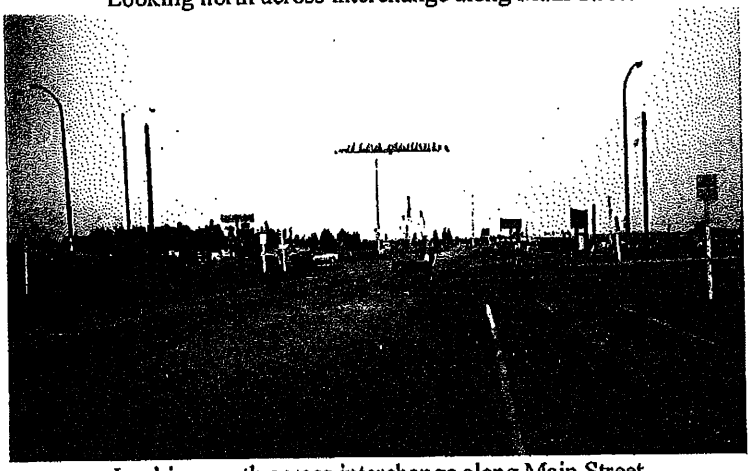
KEY: RE = Rearend
S/S = Sideswipe
Fix Obj = Fixed Object
PDO = Property Damage
INJ = Injury

ACC. Rate = Average Accident Rate Per Million Entering Vehicles

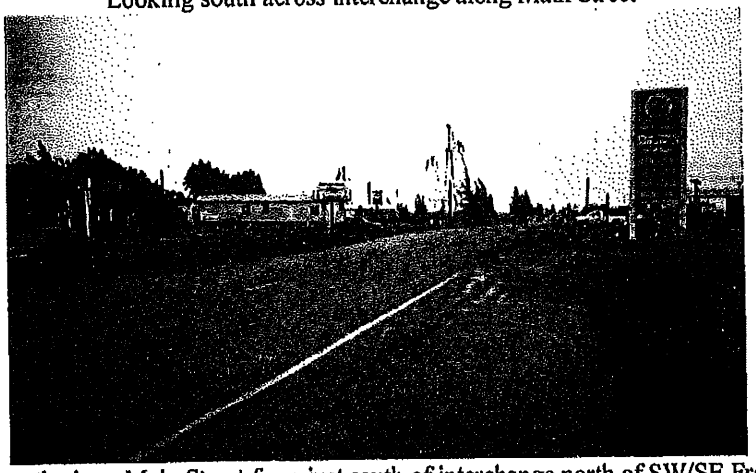
Drawing not to scale.



Looking north across interchange along Main Street

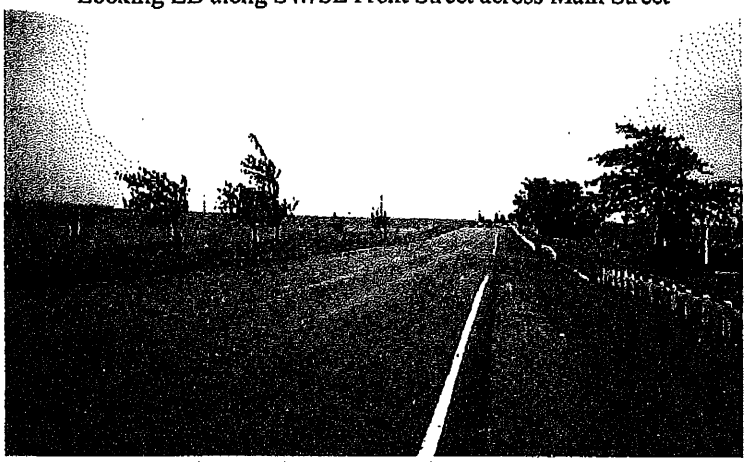


Looking south across interchange along Main Street

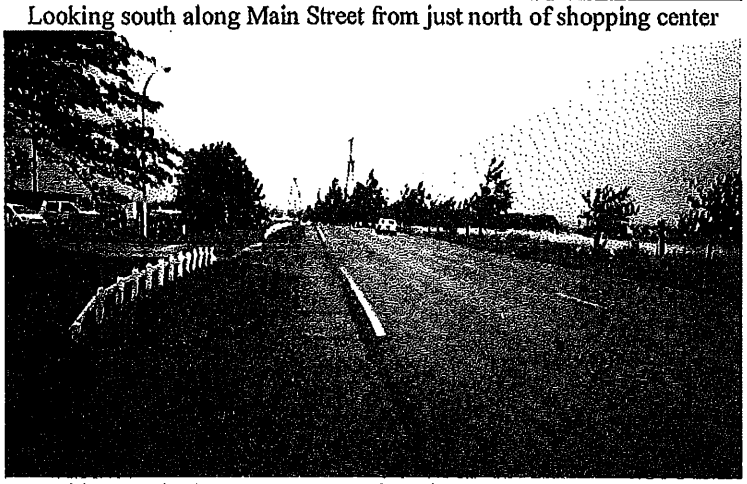


Looking south along Main Street from just south of interchange north of SW/SE Front Street

Looking EB along SW/SE Front Street across Main Street



Looking south along Main Street from just north of shopping center



Looking north along Maon Street from just north of shopping center

Looking EB along KinKade at Main Street

Looking along the multi-use path on the west side of Main Street from south of shopping center

Looking SB along Main Street at Wilson Road

Looking WB along Wilson Road at Main Street (note school at far left)

MARKET ANALYSIS AND DRAFT DEVELOPMENT PROGRAM

Boardman is somewhat unique in that the number of people employed in Boardman exceeds the population. This is primarily due to the large employment base of the Port of Morrow located within Boardman, and the limited housing that is currently available for employees and their families. Existing commercial uses are limited to those areas just north and south I-84 on Main Street. Commercial uses generally consists of restaurants, gas stations, motels, and other tourist related retail uses. A grocery store, auto parts, library and a few other service oriented uses are located along the west side of Main Street, south of I-84.

The subject site, located south of I-84 has a significant amount of undeveloped land including the 75-acre site east of Main Street between Oregon Trail Blvd. and Wilson Road that is zoned commercial, and commercially zoned land west of Main Street between existing uses and immediate west of the existing uses, i.e. grocery store, auto parts, library, etc. In addition, there is considerable residential zoned land east, west, and south of the commercial zoned land that is undeveloped.

The following summary is based on a preliminary review and recommendations of a market analyst, John Ingle of Palmer, Groth, and Pietka. These observations and conclusions should not be based on statistical analysis, but should be viewed based on Mr. Ingle's professional expertise and familiarity with Boardman and the surrounding area.

A general land use concept and development program for the 75-acre commercial zoned site located east of Main Street was described and reviewed with Mr. Ingle. The land use plan, enclosed in the Concept Plan Section, includes a mix of public, retail, office, multi-family, and single family uses. The concept land use plan generally shows the potential for approximately 30,000 square feet of retail space, 23,000 square feet of office, 225 single family dwellings on 40-acres, and 125 multi-family dwelling units. The market analysts preliminary comments are provided below.

Generally, the distribution of land uses appears appropriate.

Housing

Show as big a variety as possible for housing. The more diverse types of multi-family housing we can show, the more opportunities there will be, and therefore, the more realistic the market conditions will be.

The amount of housing (dwelling units) shown on the plan indicates that it will likely take about 20 years for that absorption to occur.

±16 units per apartment complex is appropriate.

Consider an assisted living facility, preferably near the public uses and retail uses.

If residential rents are about $100 cheaper than comparable residential dwellings in Hermiston, people that work in Boardman will likely live in Boardman. Because Hermiston is more service oriented, people will likely live in Hermiston and commute to Boardman if rents are similar.

Show 20-30 townhouse units. This is attractive because it addresses affordability (less expensive than buying a single family dwelling) and attractive for investment.

Add as much open space in the residential areas as possible (to make the housing more realistic from a market standpoint).

Retail/Office

Orient offices closer to public offices, i.e. title company, attorneys, etc. near public offices.

Consider flipping the grocery store to the east side of Main Street as a retail anchor with accompanying neighborhood villages uses or, flip retail uses to west side creating neighborhood village near/around the existing grocery store.

There are limited retail opportunities. Do not show specific retail uses that would just replace (displace) an existing retail use. Consider retail uses that are in Boardman now, but would attract people, i.e.

farm supply, hardware, outlet mall, bars, rifle range, bass fishing, etc.

Offices sizes shown on the plan make sense.

Landmarks/Special Events
Attract visitors by providing landmark, i.e. this is a hot stretch, possibly a Boardman Waterpark/Pioneer Park – a waterslide visible from the freeway at the community swimming pool. Combine with a park, i.e. Pioneer Park.

Consider special events that would attract people, i.e. didn't Dodge City Restaurant once have a small arena for rodeo events at one time?

Other
Isn't there a petroglyph in Boardman?

III. NOVEMBER 16, 2000 PUBLIC MEETINGS & DESIGN CHARRETTES

On November 16 2000, a Project Management Team Meeting, Youth Charrette, and Community Kick-Off Meeting/Charrette were conducted. Summaries of the Youth Design Charrette and Community Kick-off Meeting/Design Charrette are provided below.

YOUTH DESIGN CHARRETTE

The 4th grade class list of desired uses and elements for Boardman's New Downtown:

What would you like to do in a new downtown?

- Skateboard Park
- Radio Shack
- Park
- 4-wheeler monster track
- Macy's Store
- Chuck Cheese
- Silverwood
- Scotts – Bike Store
- BMX/Go Cart Track
- Soccer Field
- Zoo Museum
- Bicycle/Skate Repair Shop
- Mall
- Bowling
- Six Flags
- Toy-R-Us
- Hotels
- Sears
- Block Buster Video Store
- Water Park
- Disney Store
- Train Stops
- Gift Shop
- Comic Shop
- Skating Rink
- Skiing and Snowboarding
- Stop Lights
- Doughnut Shop
- Candy Store
- McDonalds
- Ice Skating
- Football Team
- Movie Theater
- Skate Shop
- Wal-Mart
- Chinese Restaurant
- Airport
- Pokemon Store
- 99 Cent Store
- Pet Shop
- Community Theater – Plays
- Community Center
- Indoor Swimming Pool
- King Supers
- More Streets
- Arcade
- Bigger School
- Mexican Restaurant
- Hockey Rink
- Cookie Store - Tree

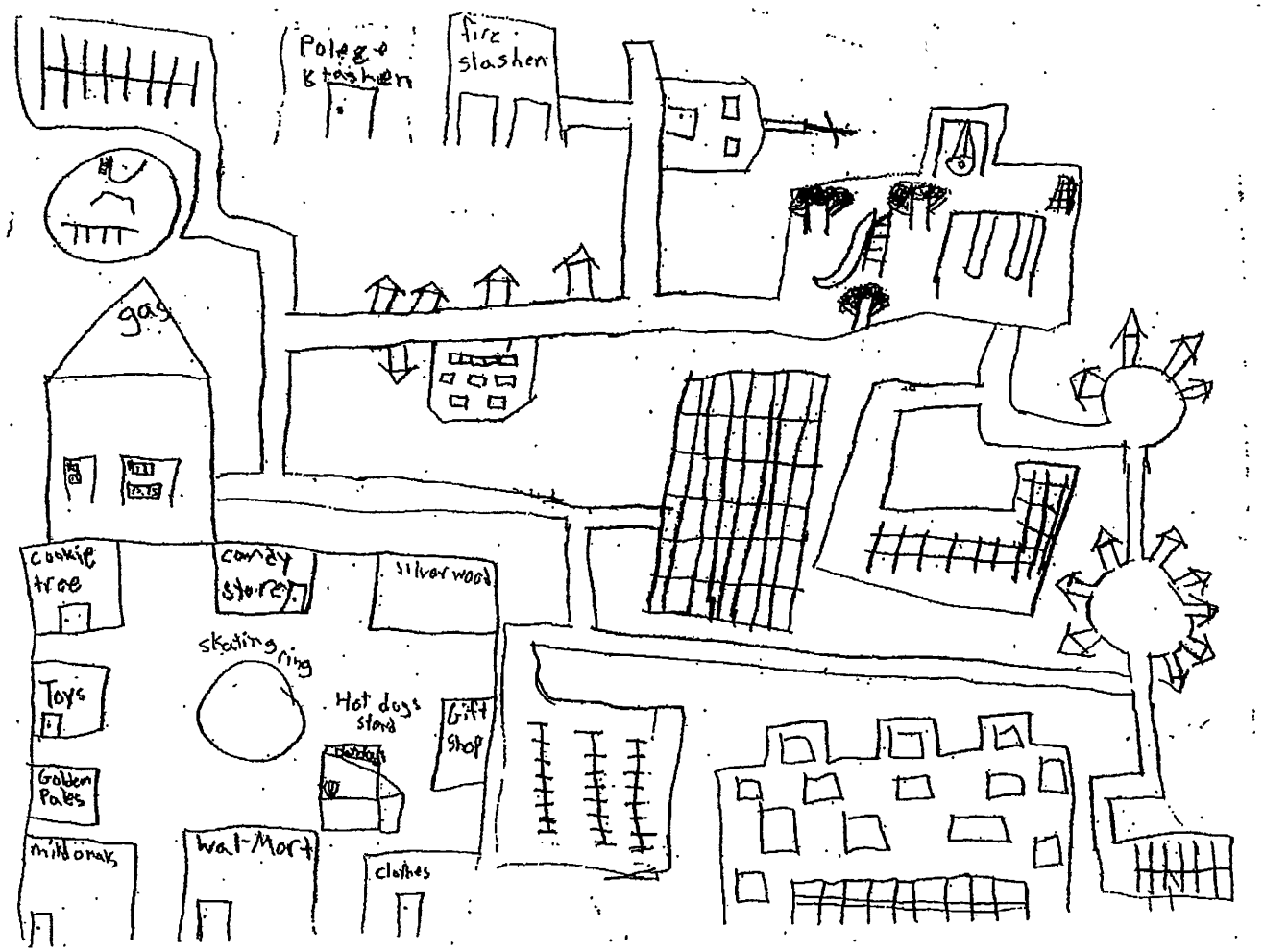
What would you like to see?

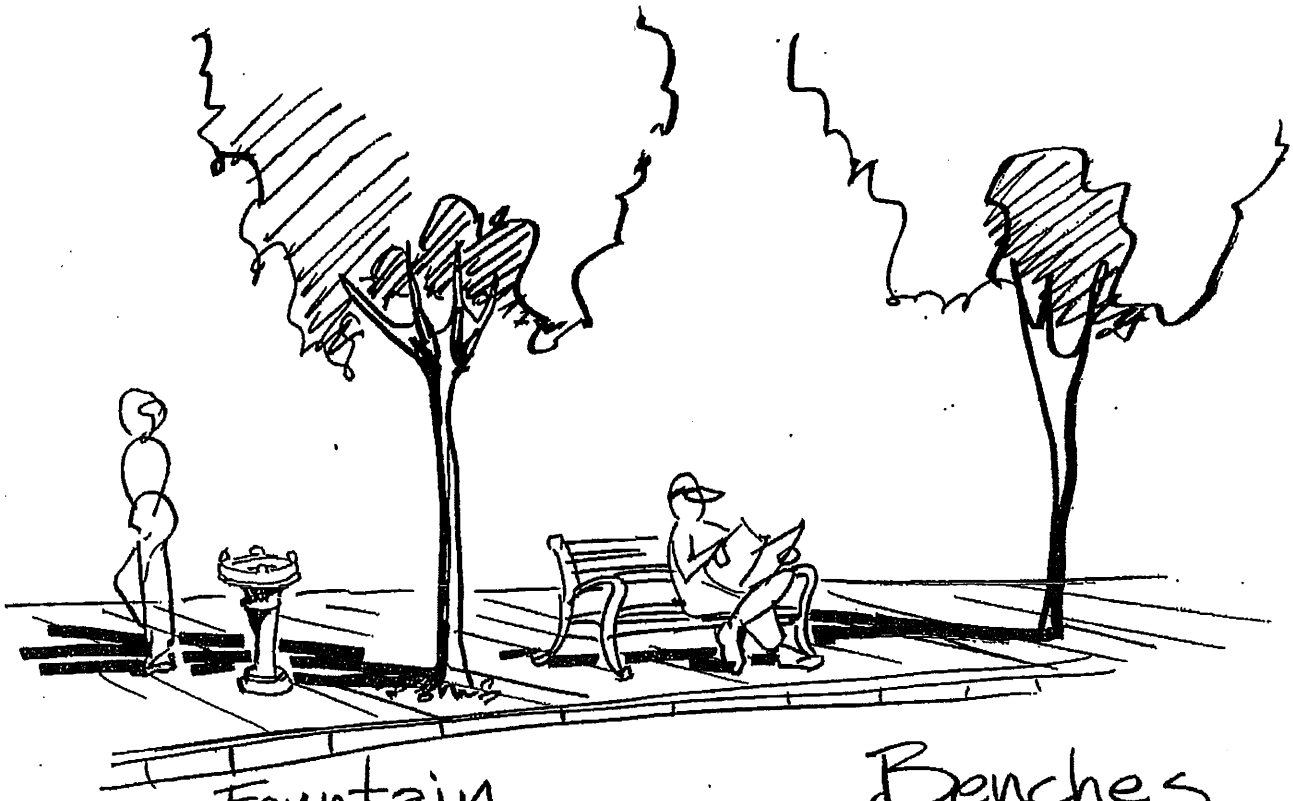
- Park
- Skateboard Park
- Bigger Slide (Tall, Huge-Huge)
- Merry-Go-Round
- Bike Path
- Basketball Court & Supplies
- Bears-Animals-Zoo
- Ice Cream Shop
- Public Football Field
- Bars for flips
- Tetherball
- Pyramid
- Monkey Cages – Bars
- Pyramid
- Tire Swings
- Cotton Candy Shop

How do you want to get to the new downtown?

- Community Bus
- Subway Car
- Go-Cart
- Scooter
- Bike
- Rollerblades
- Parents drive
- Walk
- Skateboard
- Jogging-Run

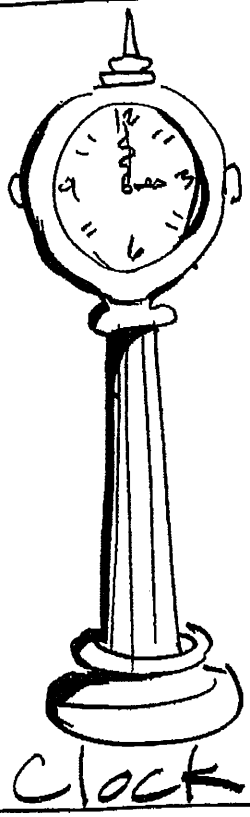
The 4th grade class also prepared sketches of their "new downtown". One example is provided below.





Fountain

Benches
Shade



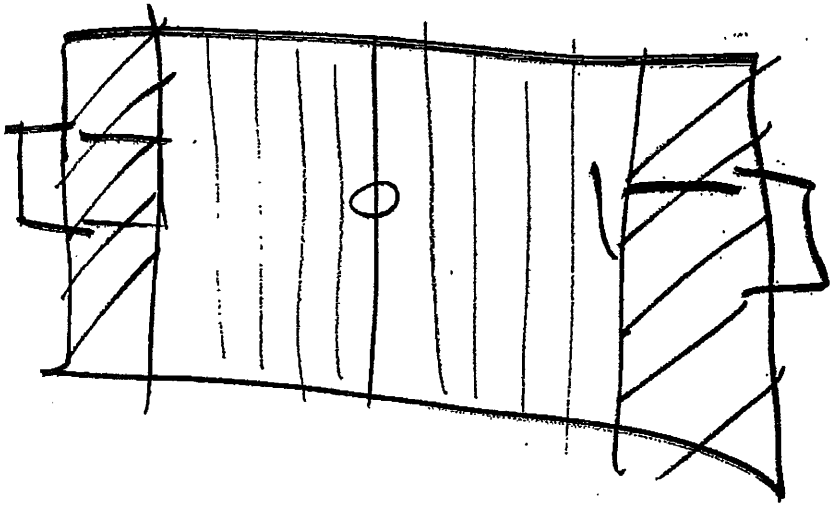
Clock

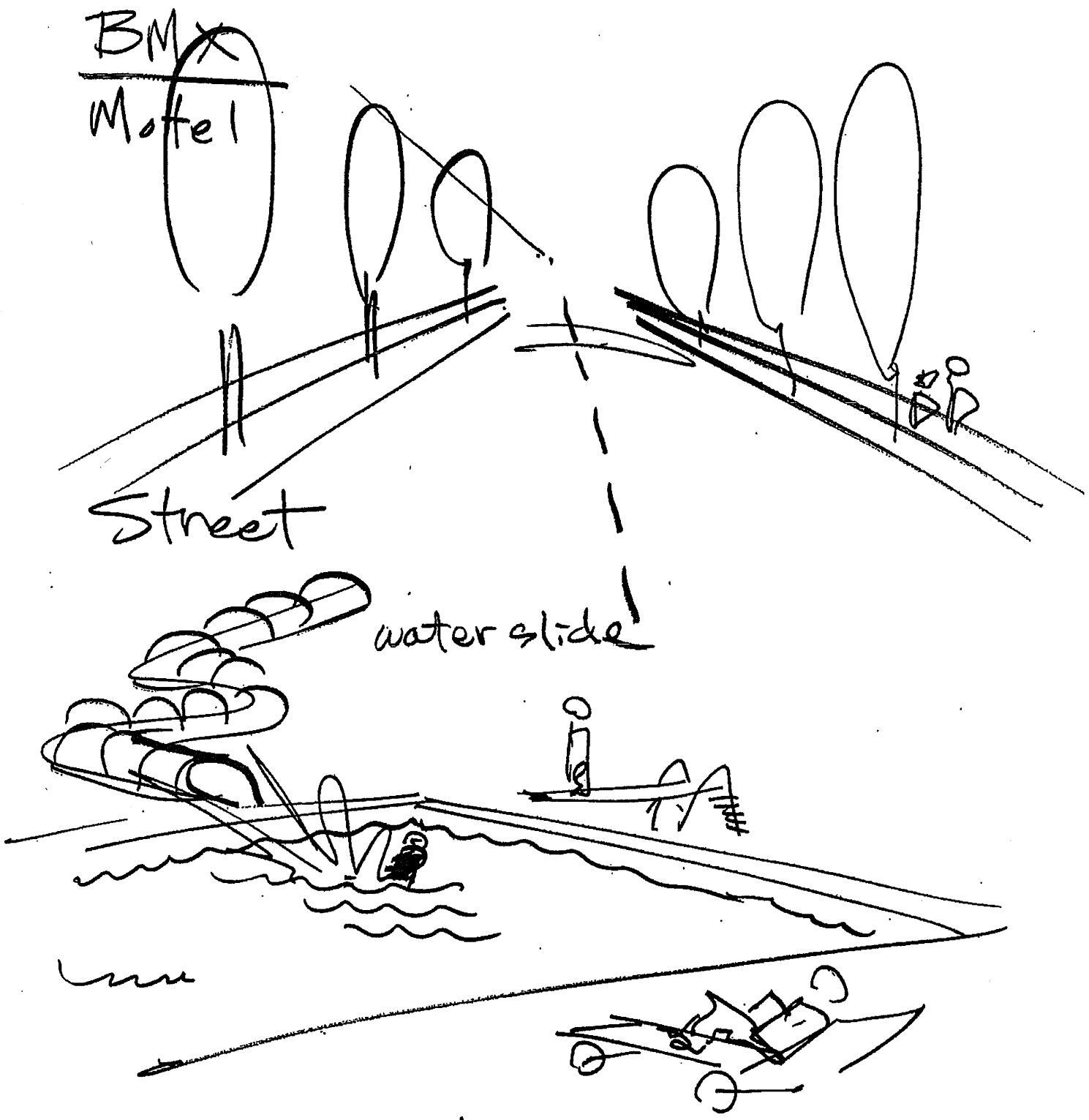
Furniture Diagrams

22

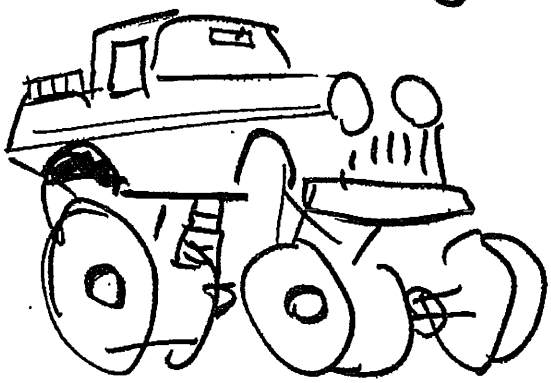
Boardman Skate Park

Football

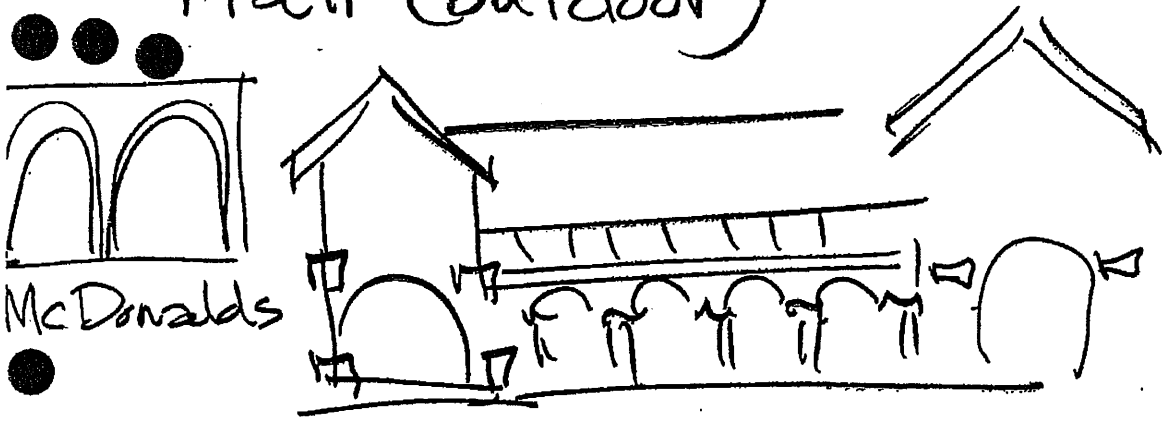



BMX
Motel
Street
water slide
Swimming Pool
2

Monster trucks (Not downtown)
Museum
Snow boarding



Mall (outdoor)



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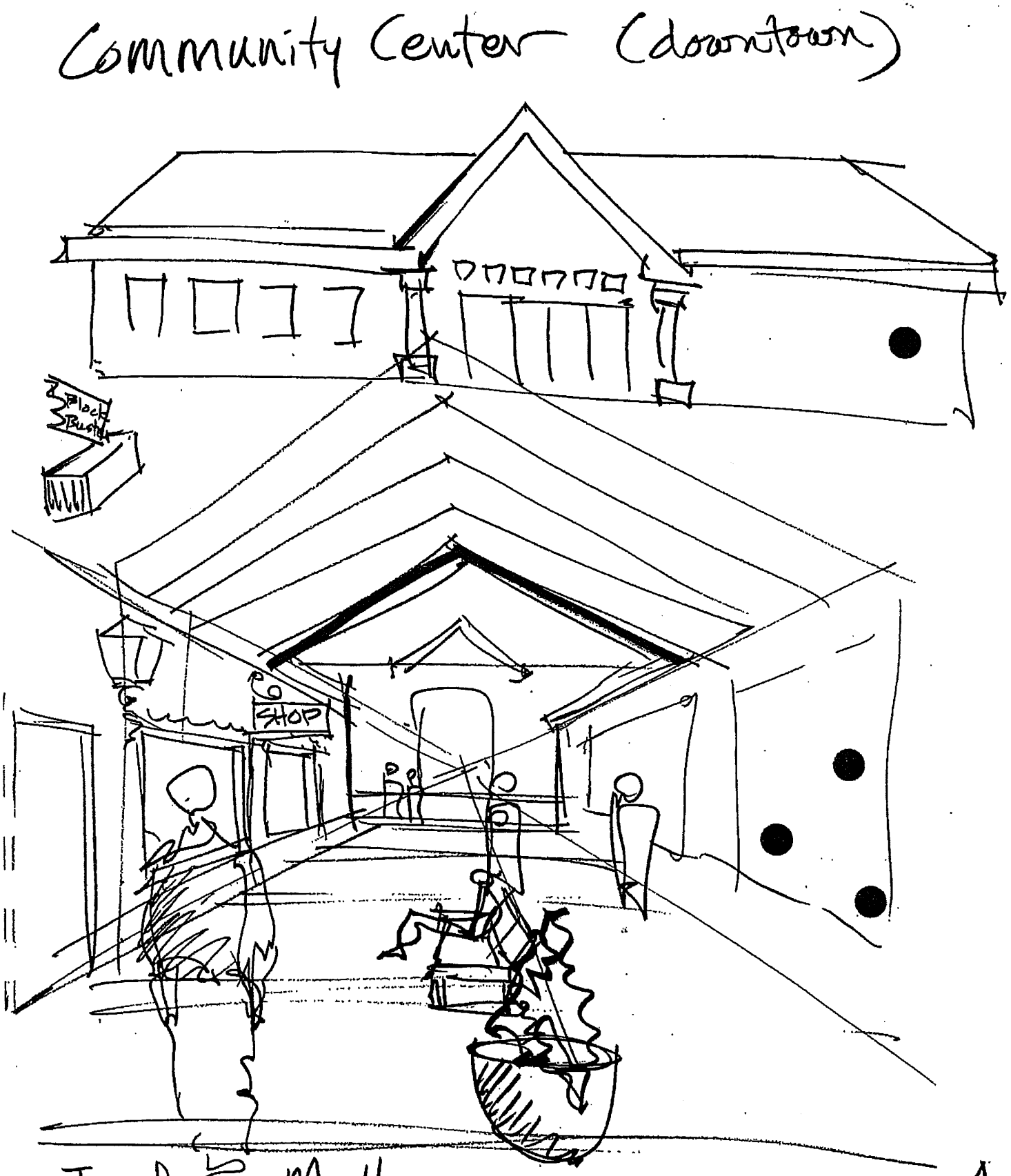
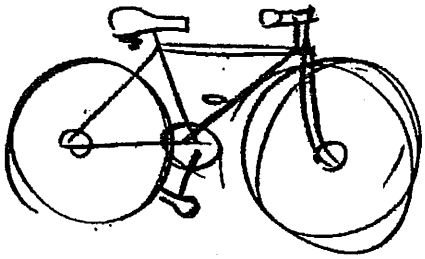
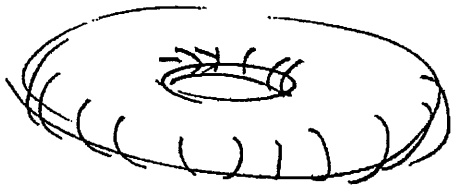

Community Center (downtown)
Block Building
SHOP
Indoor Mall
4

99¢ store ✓
Comic books ✓
Restaurants ✓
Bike Shop
Donut shop ✓
New Bank
Ice Cream ✓
Power Plant
Bike racks

IceCream



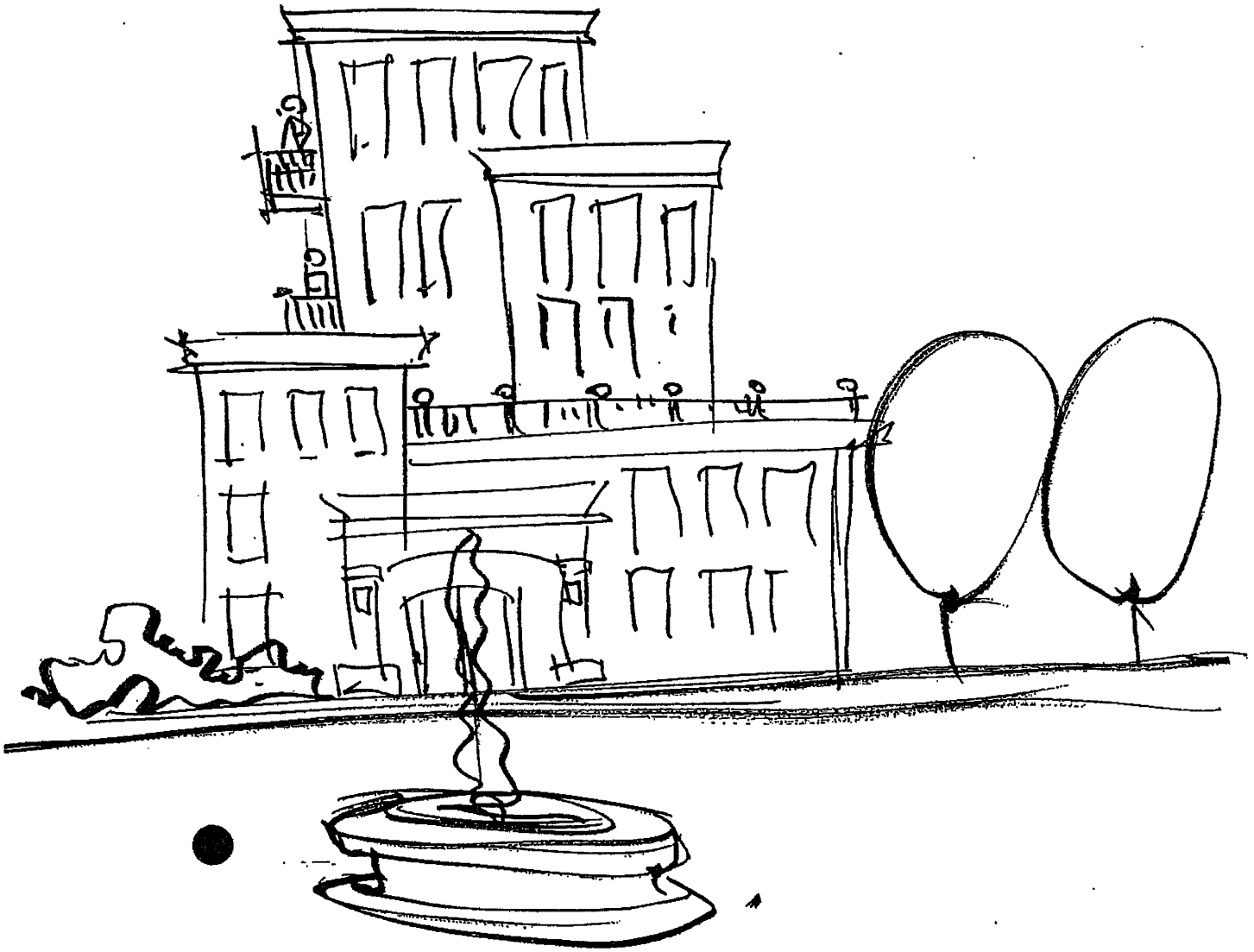
Bike



Donut

5

High rise building Hotel



COMMUNITY KICK-OFF MEETING/DESIGN CHARRETTE

The Existing Conditions Base Map, Opportunities and Constraints Analysis Diagram, Photographs of Existing Conditions, and Youth Design Charrette Sketches were displayed and discussed. The Kick-Off Meeting/Community Design Charrette included a presentation that showed participants several examples of downtown designs. The presentation was a collection of slides taken from the ODOT Patterns Book and from TriLand Design Group and Foster Consultants slide collections.

At the Community Kick-Off Meeting/Charrette there was considerable discussion on whether or not future commercial/downtown uses should develop south of I-84 or occur along the north I-84 frontage. Near the end of the meeting/charrette, participants were asked to place a "dot" on a map of Boardman where they preferred the downtown develop. Eight of the nine participants identified the preferred location for the future downtown to be south of I-84 near Main Street.

Four alternative concept diagrams were described which showed how the downtown could develop south of Main Street. This included:

#1 Linear Concept Diagram with development focusing on the both sides of the Main Street frontage;

#2 Nodal Concept Diagram with development focusing around a central public space located on the east side of Main Street across from Kinkade Street;

#3 Perpendicular Concept Diagram with development occurring along a new east-west oriented street, east of Main Street.

#4 Linear/Perpendicular Concept Diagram that has development occurring along the existing Main Street frontage and on a new east-west oriented street perpendicular to and east of Main Street.

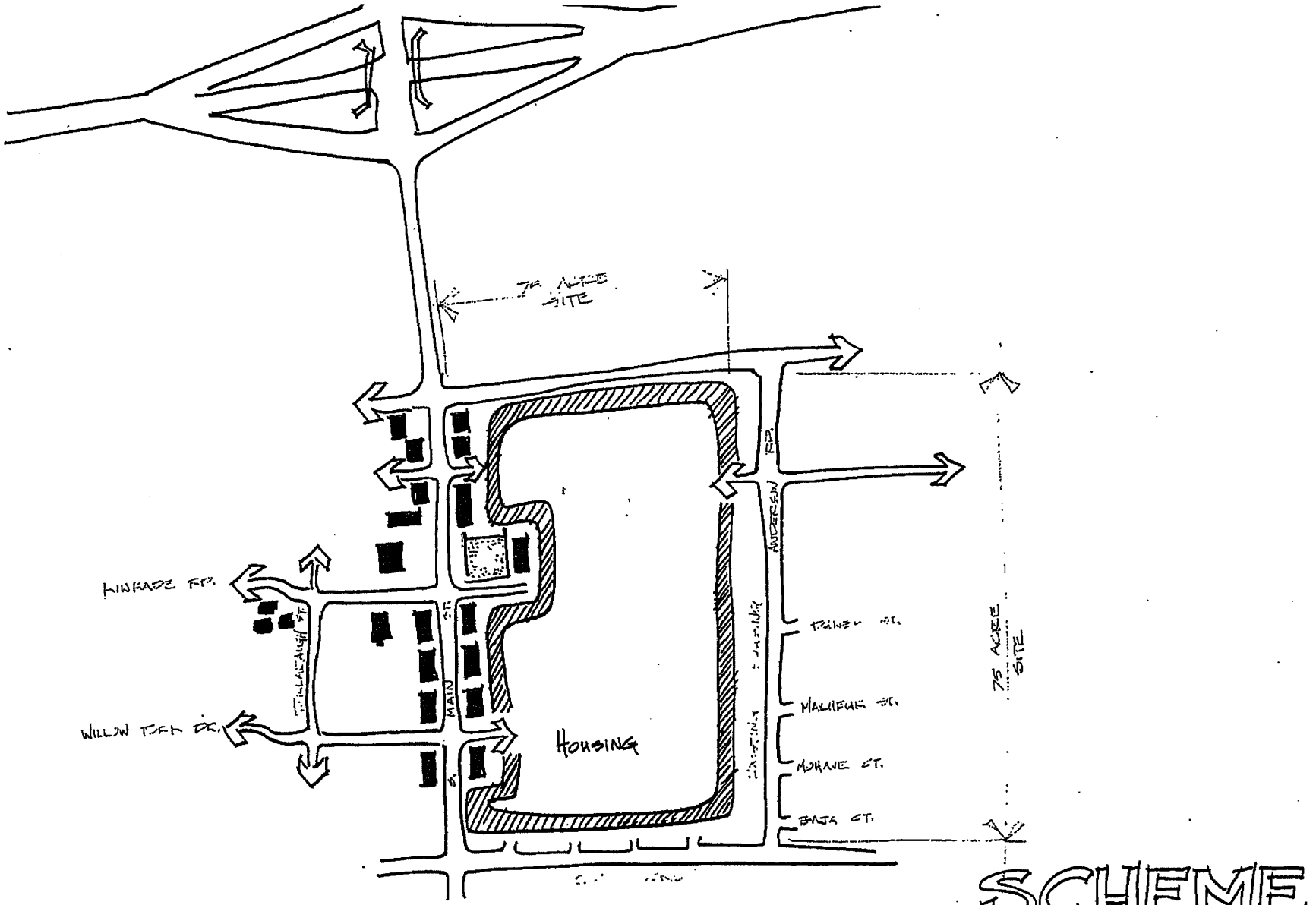
Preferred Concept Diagram
Discussion resulted in participants placing "dots" on their preferred diagram. Participants concluded that they preferred an alteration to the #4 Linear/Perpendicular Concept. This preferred concept has development occurring along the existing Main Street frontage and on a new east-west oriented street perpendicular to Main Street on both the east and west sides. The east-west street would be along Kinkade Road which would extend east of Main Street.

Comparative Analysis Of Concept Diagrams
Descriptions are prefaced with one of four symbols:
++ This indicates the Concept is very conducive and compatible with the identified Element
+ The Concept is somewhat conducive and compatible with the identified Element.
- The Concept is not conducive and compatible with the identified Element.
-- The Concept is definitely not conducive and compatible with the identified Element.

Element	Linear Concept	Nodal Concept	Perpendicular Concept	Linear/ Perpendicular Concept
The need for Main Street to be a collector street and accommodate through-traffic.	-- Focuses development along Main Street frontage, competing with the needs of through traffic.	- Provides some development off Main Street however the focus of development is along Main Street.	++ Focuses development perpendicular to Main Street thereby enabling Main Street to function as a collector street.	+ Distributes development along both Main Street and perpendicular to Main Street.

Element	Linear Concept	Nodal Concept	Perpendicular Concept	Linear/ Perpendicular Concept
Provides a mix of land uses and compatible land use pattern	- - Provides downtown development in a lineal pattern along Main Street with housing separated form the downtown.	- Although some "downtown" uses shown off Main Street, still concentrates commercial development on Main Street.	++ Clearly demonstrates commercial uses in the middle and surrounded by residential development in proximity to commercial uses.	++ Clearly demonstrates commercial uses in the middle and surrounded by residential development in proximity to commercial uses.
Multi-modal	+/- Development is focused on Main St. resulting in autos, bicyclists, and pedestrians concentrating on Main St. This is positive toward creating a multi-modal area if adequate facilities are provided, i.e. wide sidewalks buffered from autos. It could create conflicts amongst different transportation modes if adequate facilities are not provided.	+ Similar to Linear Concept although a central square will likely attract more pedestrians and bicyclists.	++ Multi-modal opportunities increase by locating a new "Main Street" in proximity to housing.	++ Multi-modal opportunities increase by locating a new "Main Street" in proximity to housing.
Parking	Each concept promotes parking located behind buildings in order to prohibit parking lots between streets and buildings, and create a pedestrian-friendly environment.			
Infrastructure	++ Main St. is the "central artery" for transportation, water, sewer, storm drainage, and other utilities	+ Infrastructure costs increase slightly (from the Linear Concept) due to the creation of the square.	- Major infrastructure must be constructed perpendicular to Main Street.	-- Infrastructure must be provided along both Main Street and the new perpendicular street.

In conclusion, the Perpendicular Concept and Linear/Perpendicular Concept have more positive attributes and the Linear Concept and Nodal Concept regarding accommodation of Main Street as a collector street, providing a mix of land uses and compatible land use pattern, and providing a multi-modal environment. Infrastructure costs may be less expensive with the Linear Concept. In each Concept, commercial and residential uses are fairly equal therefore not creating more or less population or employment in one Concept over another. The resulting development program needs to assure that excessive commercial development is not allowed given the existing commercial zoning. Excessive commercial zoning could result in "piece-meal" commercial development and therefore preclude the desire to create a compact, identifiable downtown.



SCHEME 1

LINEAR CONCEPT

BOARDMAN DOWNTOWN DEVELOPMENT PLAN

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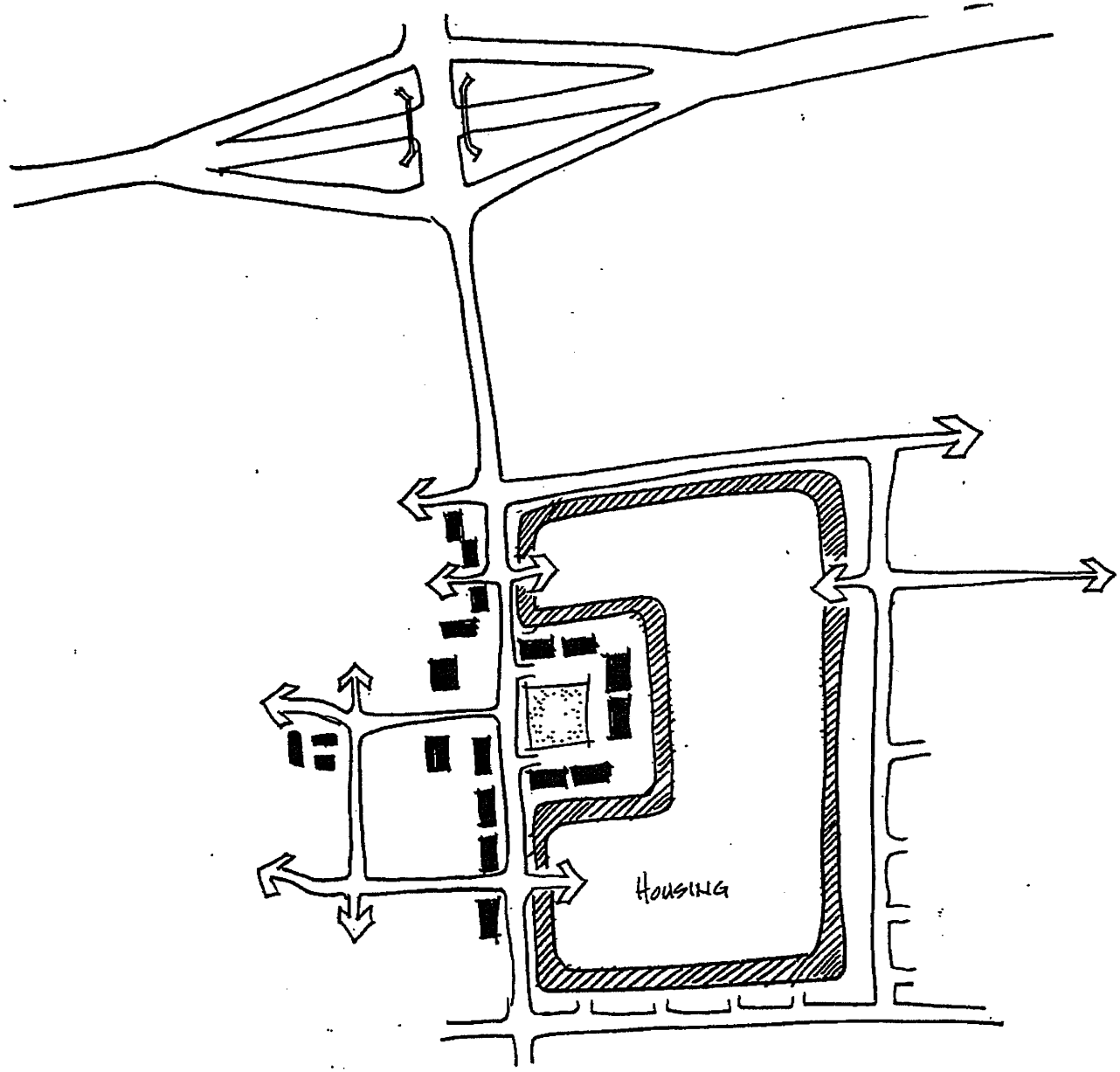
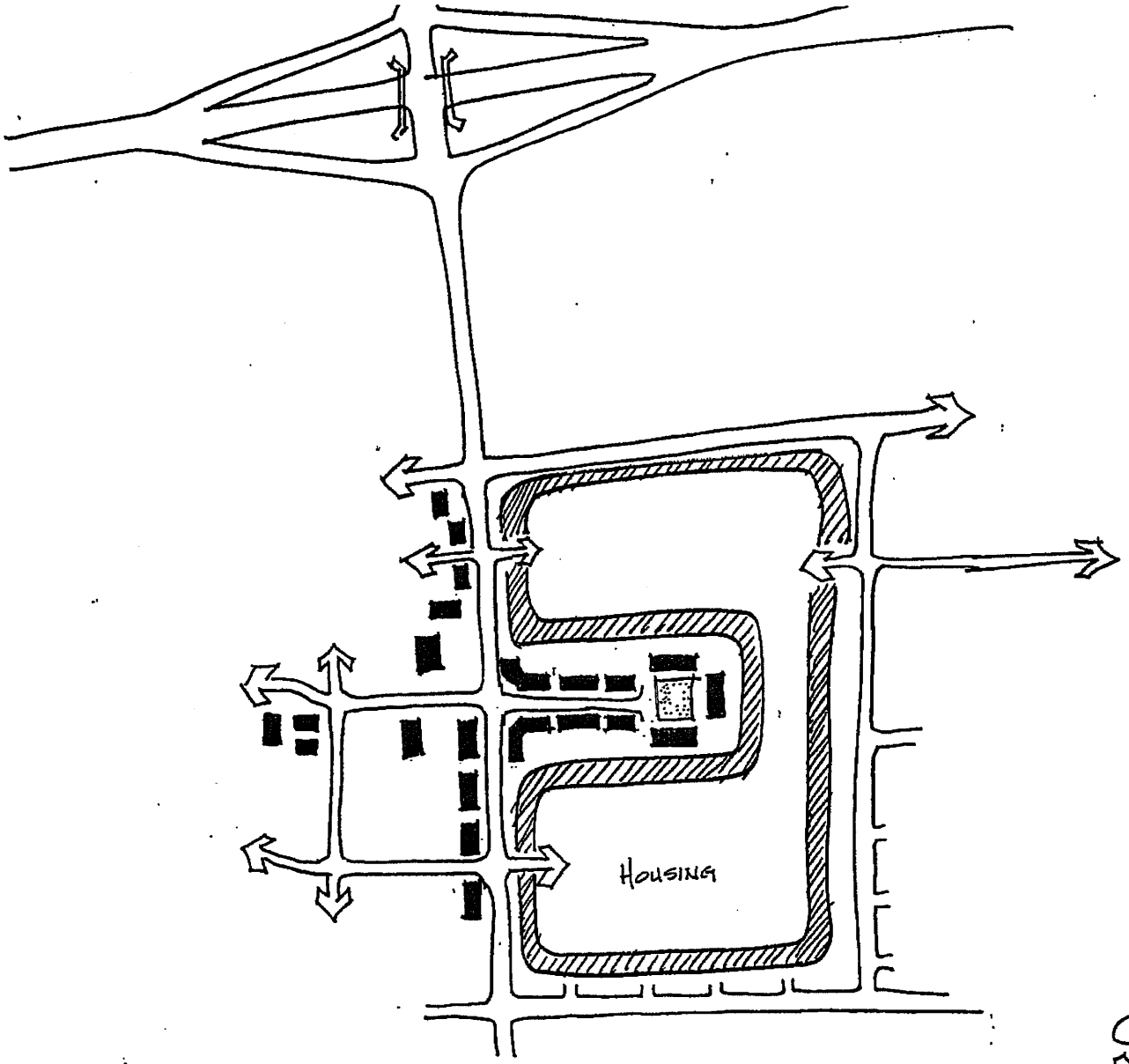


SCHEME 2

NODAL CONCEPT

BOARDMAN DOWNTOWN DEVELOPMENT PLAN

TRILAND DESIGN GROUP, INC. & FOSTER CONSULTANTS 11-16-2000

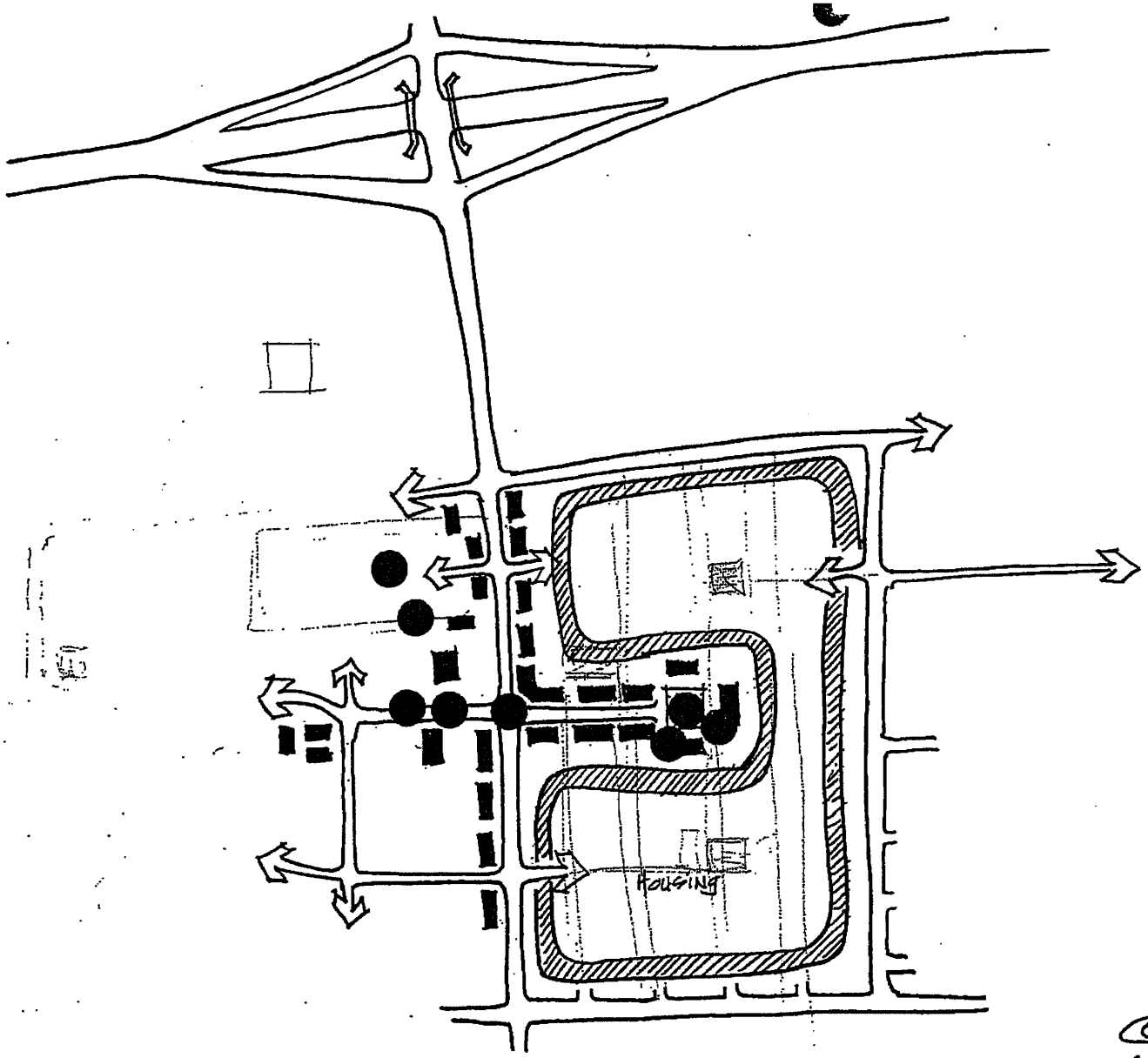


SCHEME 3

PERPENDICULAR CONCEPT

BOARDMAN DOWNTOWN DEVELOPMENT PLAN

TRIAND DESIGN GROUP, INC. & FOSTER CONSULTANTS 11-16-2000



SCHEME 4

LINEAR/PERPENDICULAR CONCEPT

BOARDMAN DOWNTOWN DEVELOPMENT PLAN

TRILAND DESIGN GROUP, INC. & FOSTER CONSULTANTS

11-16-2000

IV. CONCEPTUAL DESIGNS/SITE PLANS

LAND USE PLAN DESCRIPTION

Based on the results of the public meetings and design charrettes, three alternative conceptual designs/site plans were developed. The alternative concepts, described below, focus on:

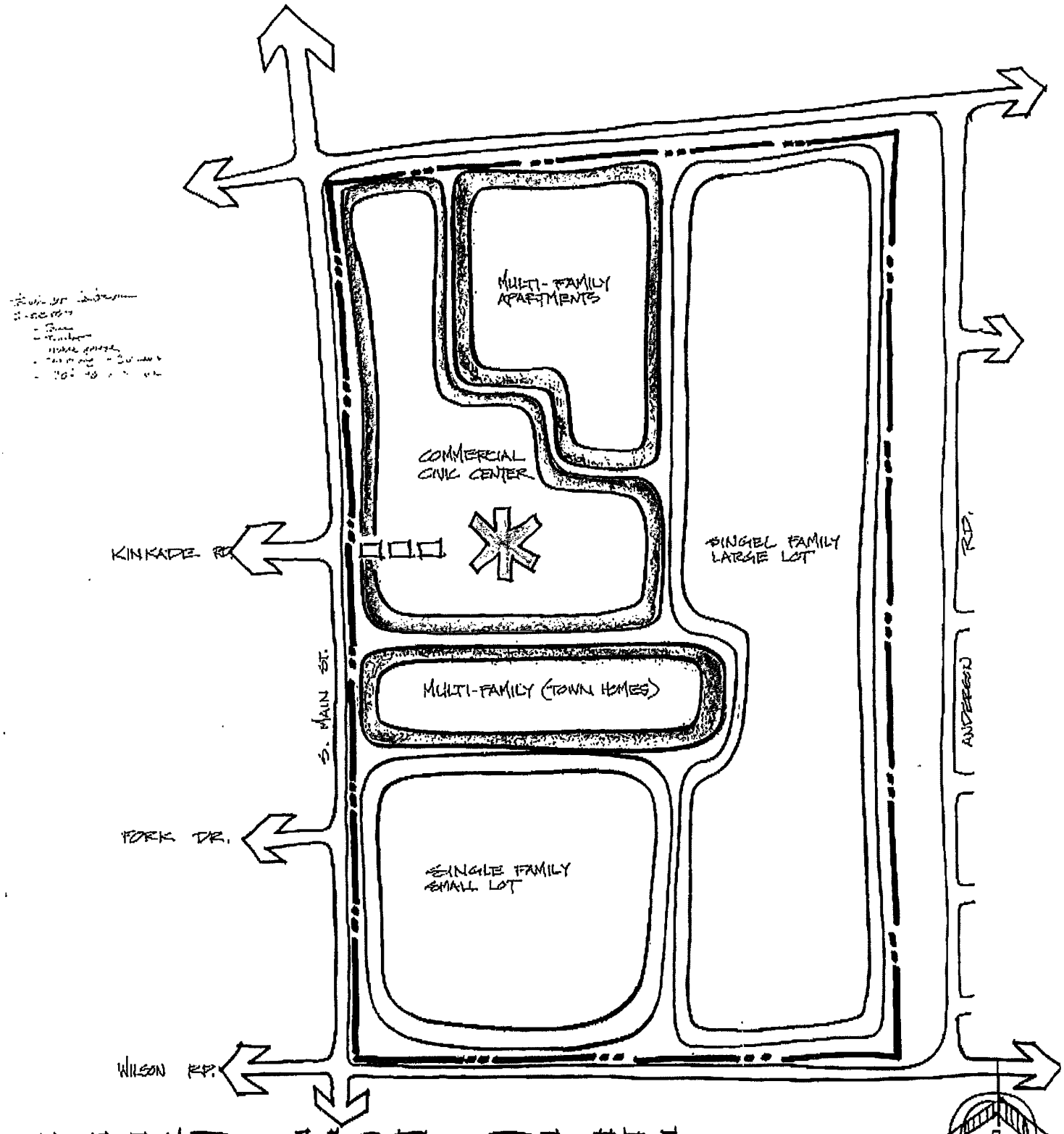
- potential development of existing Main Street,
- the 75-acre site located east of Main Street,
- a new "main street" perpendicular to the existing Main Street that can be either east, west, or both east-west of Main Street.

The location, development program, and physical framework used to prepare the alternative concepts was based on:

- the development program established by the TriLand Team including review and input from a market analyst,
- Incorporating the 75-acre preferred site established in the Transportation System Plan for the downtown location;
- The citizen's preferred Linear/Perpendicular Concept Diagram identified in the public meeting/design charrette that has development occurring along the existing Main Street frontage and on a new east-west oriented street perpendicular to Main Street on both the east and west sides.

Prior to developing the alternative concepts, a land use plan was prepared that identifies the general location, development program, and physical framework used to prepare the alternative concepts. The Land Use Plan includes the following components:

Land Use	Location	Size ±	Density/Sq. Ft.
Commercial/Civic Center	Along the east side of Main Street from Oregon Trail Blvd. to just south of Kinkade Road. The Commercial/Civic Center then extends up to 750 feet east, into the 75-acre site. It can also extend west along Kinkade Road.	15-20 acres	Retail: 30,000 – 35,000 sq. ft. Office: 20,000 – 25,000 sq. ft. Civic: 6-8 acres
Multi-Family (Apartments)	North-central part of site, south of Oregon Trail Blvd. East and north of the commercial/civic ctr.	7-12 acres	70-90 units
Multi-Family (Townhomes)	South of the commercial/civic ctr. East of Main St. between Kinkade Rd. and Willow Fork Dr.	5-10 acres	50-60 units
Single Family – Large Lot	Along the east side of the 75-acre site from Oregon Trail Blvd. to Wilson Road.	13-18 acres	70-80 lots 6,500 sq. ft. lots
Single Family – Small Lot	Southwest portion of the 75-acre site adjacent to Main St. and Wilson Rd.	12-15 acres	80-90 lots 5,000 sq. ft. lots



LAND USE PLAN

BOARDMAN, OREGON
TRILAND DESIGN GROUP INC.
FOSTER CONSULTANTS

KEY PLAN COMPONENTS

Key plan components that are consistent in each alternative are described below and illustrated in the enclosed birds-eye renderings and a perspective that illustrate the civic center, improvements to existing Main Street, and the new commercial "main street".

The Civic Center

In each alternative concept, the Civic Center is located one-block east of Main Street via an extended Kinkade Road. From Main Street, one sees the new City Hall/Library building with a Civic Square in the foreground. The Civic Square is a village green with gardens, amphitheater/fountain, and skateboard park. Civic buildings are located north and south of the Civic Square and include a community center/swimming pool, police station, and post office. The Civic Square is bordered by a loop street that provides access to the square and the civic buildings. The loop street can be either a one-way or two-way loop with parking. Off-street parking is provided behind the civic buildings.

Commercial Uses

Retail and office uses front Main Street and along the extended Kinkade Road which provides a new "main street" between existing Main Street and the Civic Center. The retail uses along Kinkade Road can also extend west of Main Street along the existing street. Retail uses are located at the street level with office or residential uses located on the second level. Buildings are located adjacent to sidewalks with parking located behind the buildings.

Streetscape elements are recommended along the new "main street" (extension and development of Kinkade Road). Streetscape elements includes building facades adjacent to the sidewalk. Wide sidewalks (10-14 feet) with "furniture zone" located adjacent to the curb with planters, street trees, benches, street lights, trash receptacles.

Office and service-related uses are located in the northwest part of the site, adjacent to Main Street and Oregon Trail Blvd.

Residential Uses

The multi-family areas can have a range of uses, i.e. apartments, townhouses, condominiums, assisted living, and other types of multi-family housing. The single family area located along the east side has 6,500 to 7,000 square foot lots with no alleys. The small lot tract located at the south end of the site show 5,000 square foot lots than can be single family, duplex, and zero lot line units. Dwelling would be located near the street creating a pedestrian friendly atmosphere with alleys provided for accessing garages located at the back of lots. Both multi-family and single family areas include parks, green spaces, and pedestrian connections.

Main Street

The existing Main Street, in each alternative concept, has street level retail uses occurring along the street frontage. Buildings, along the east side, are to be located close to the street, adjacent to the sidewalks with off-street parking provided behind the buildings. This concept is also recommended on the west side of Main Street, as infill of vacant parcels and redevelopment of developed properties occurs. Main Street is recommended to have four travel lanes with a tree-lined median and center turn-lanes at intersections. Curb extensions (bulb-outs) are to be provided at intersections providing a safer and enhanced pedestrian friendly atmosphere. Main Street could have parallel parking and bus pull-outs which could become additional travel lanes in the future if traffic volumes justify increasing capacity. A landscaped planter with street trees is located adjacent to the curb on both sides of Main Street. (Refer to the enclosed birds-eye rendering of Main Street.)

ALTERNATIVE CONCEPT DESIGNS/SITE PLANS

The three alternative concepts are described on the following pages. Each alternative includes:

- Brief description of the circulation system;
- Land Use & Circulation Diagram which identifies the different land uses and primary street system;
- Site Plan that illustrates specific land uses, building footprints, lots, parks, and circulation.

The Grid Concept

The Grid Concept is based on a street grid that has streets oriented north-south and east-west. The Grid extends existing Kinkade Road and Willow Fork Drive, the east-west oriented streets, located west of Main Street to the east, into the 75-acre site. New streets are incorporated into the Grid and connecting to the existing Main Street, Oregon Trail Blvd., and Wilson Road. The Grid also has one street connecting east to Anderson Road through the new subdivision. The Grid provides an easy-to-understand circulation system with multiple connections for motorists, bicyclists, and pedestrians.

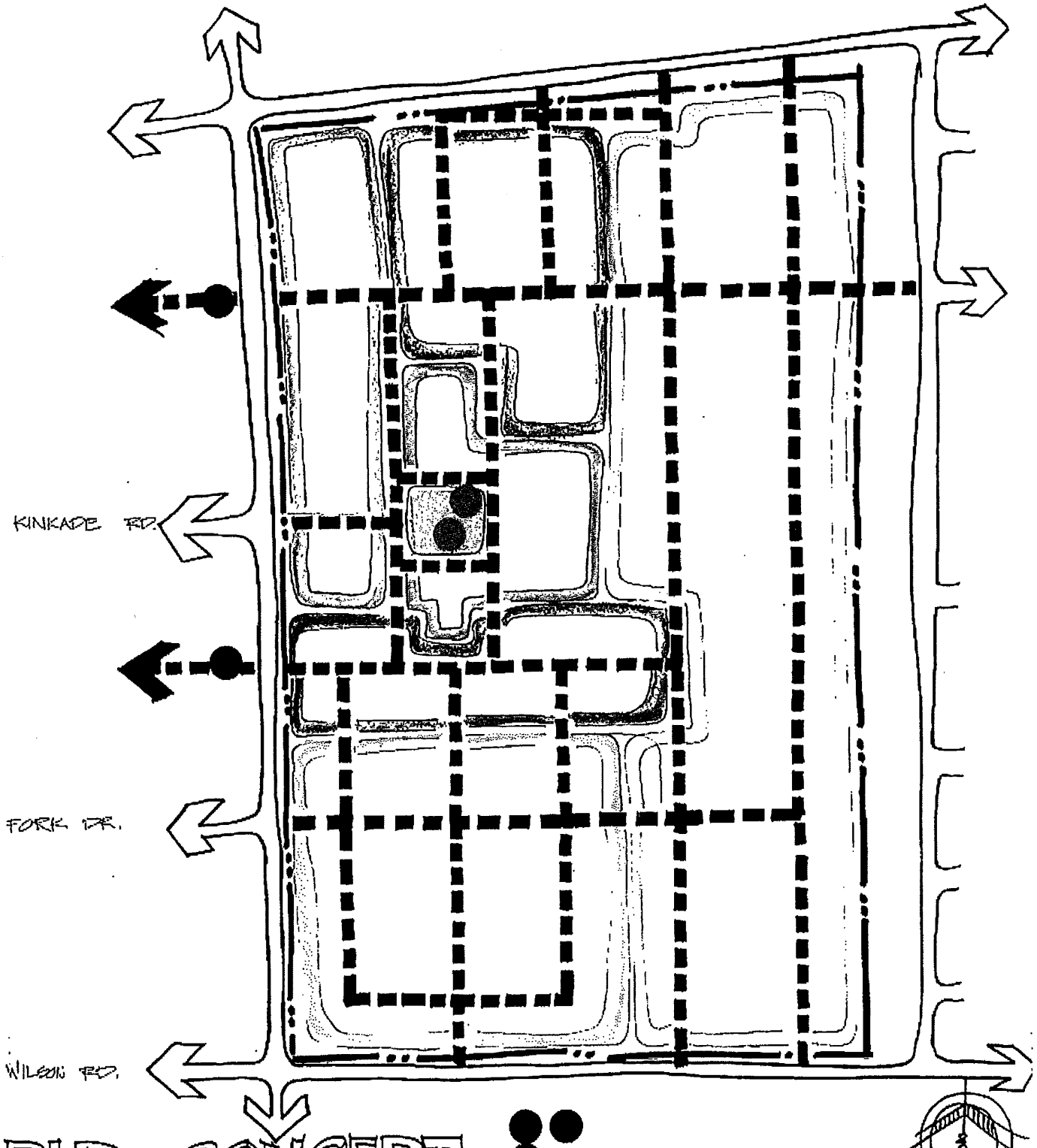
The Crescent Concept

The Crescent creates a long, sweeping semi-circle street through the site that provides primary access to residential uses. The Crescent street connects Main Street at the north end of the site near the existing library site, and aligns with Willow Fork Drive near the south end of the site. Angled streets, with a northeast-southwest and northwest-southeast orientations, bisect the Crescent street. The angled streets connect to a grid street system or north-south/east-west oriented streets.

The Crescent street system creates irregular-shaped parcels which is beneficial in providing green spaces and pocket parks. The irregular-shaped parcels can make it more difficult to develop standard rectangular buildings and off-street parking. The Crescent street system likely increases infrastructure costs, i.e. construction of water and sewer lines due to the curving street.

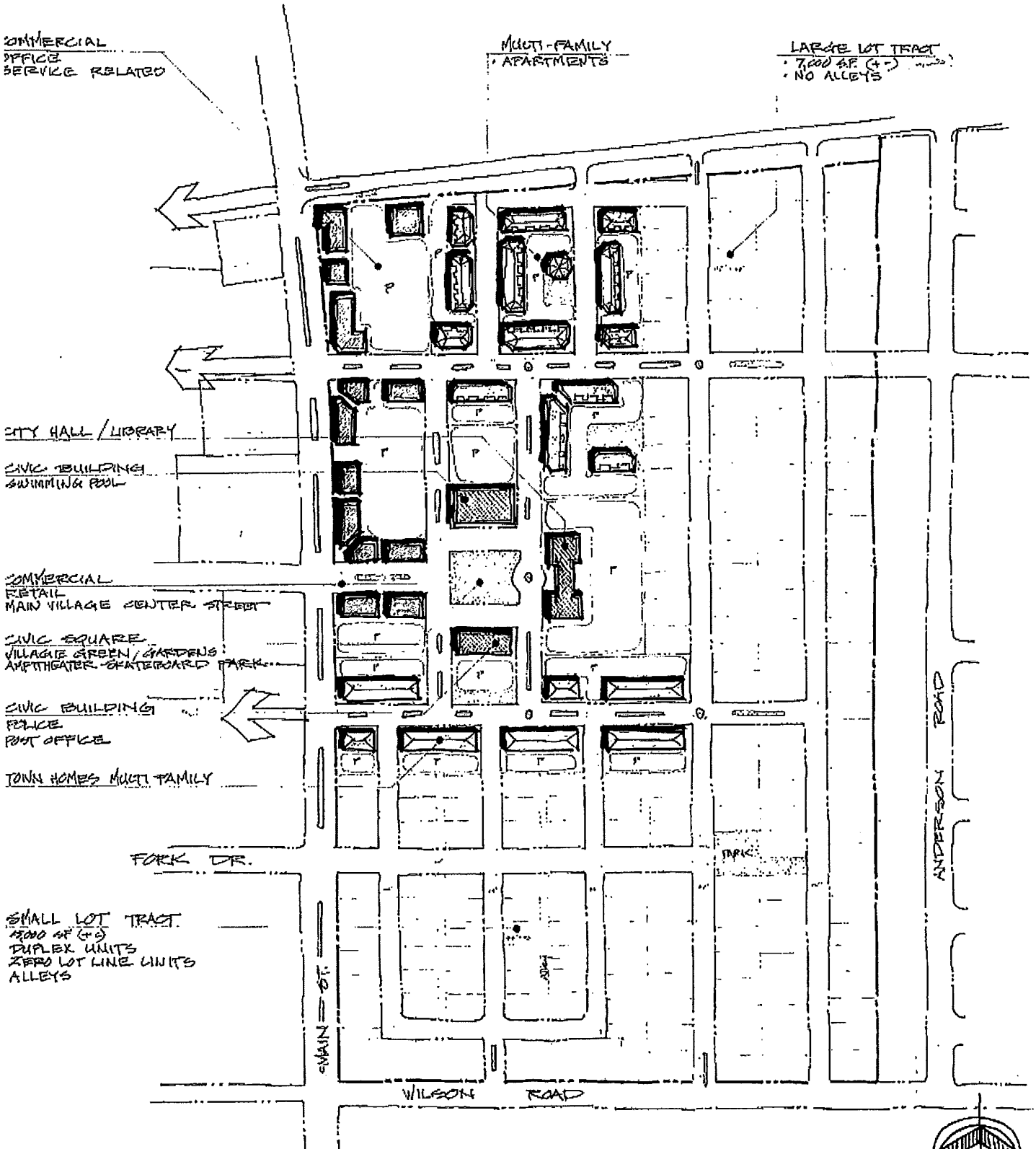
The Amphitheater Concept

The Amphitheater Concept is named because the street system, from a plan view, creates an amphitheater-look with "V" shaped streets. Kinkade Road extends one block east of Main Street and terminates into the Civic Square. Two street angle off the end of Kinkade in a northeast and southeast direction. These streets connect to north-south/east-west oriented streets. The Amphitheater Concept creates several irregularly shaped parcels.



GRID CONCEPT

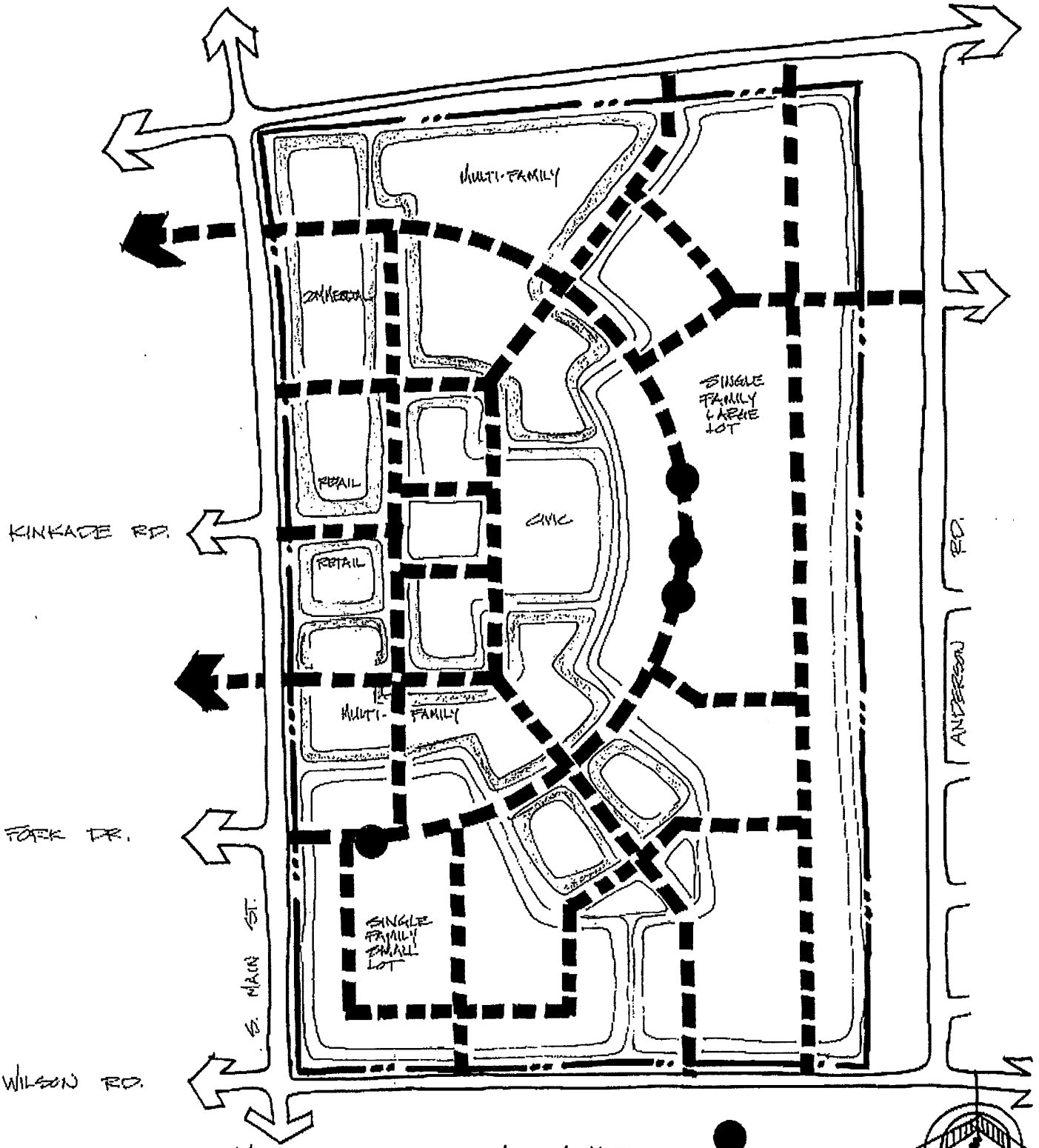
BOARDMAN, OREGON
TRILAND DESIGN GROUP INC.
FOSTER, CONSULTANTS



GRID CONCEPT

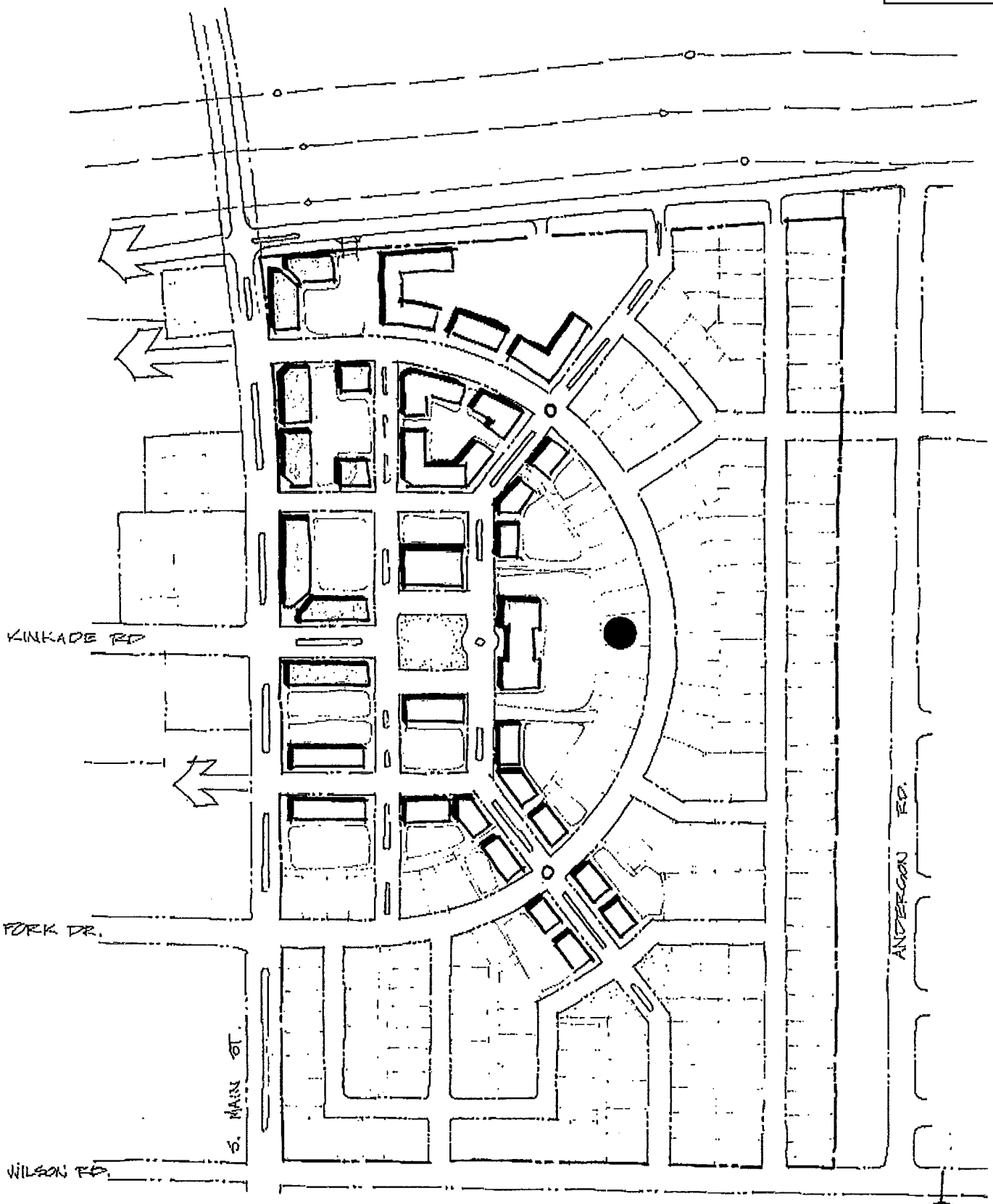
BOARDMAN, OREGON
TRILAND DESIGN GROUP INC.
FOSTER CONSULTANTS

NORTH
2-10-2011
Scale: 1"=100'
0' 100' 200' 300' 400'



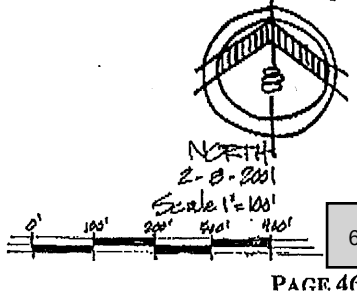
CRESCENT CONCEPT

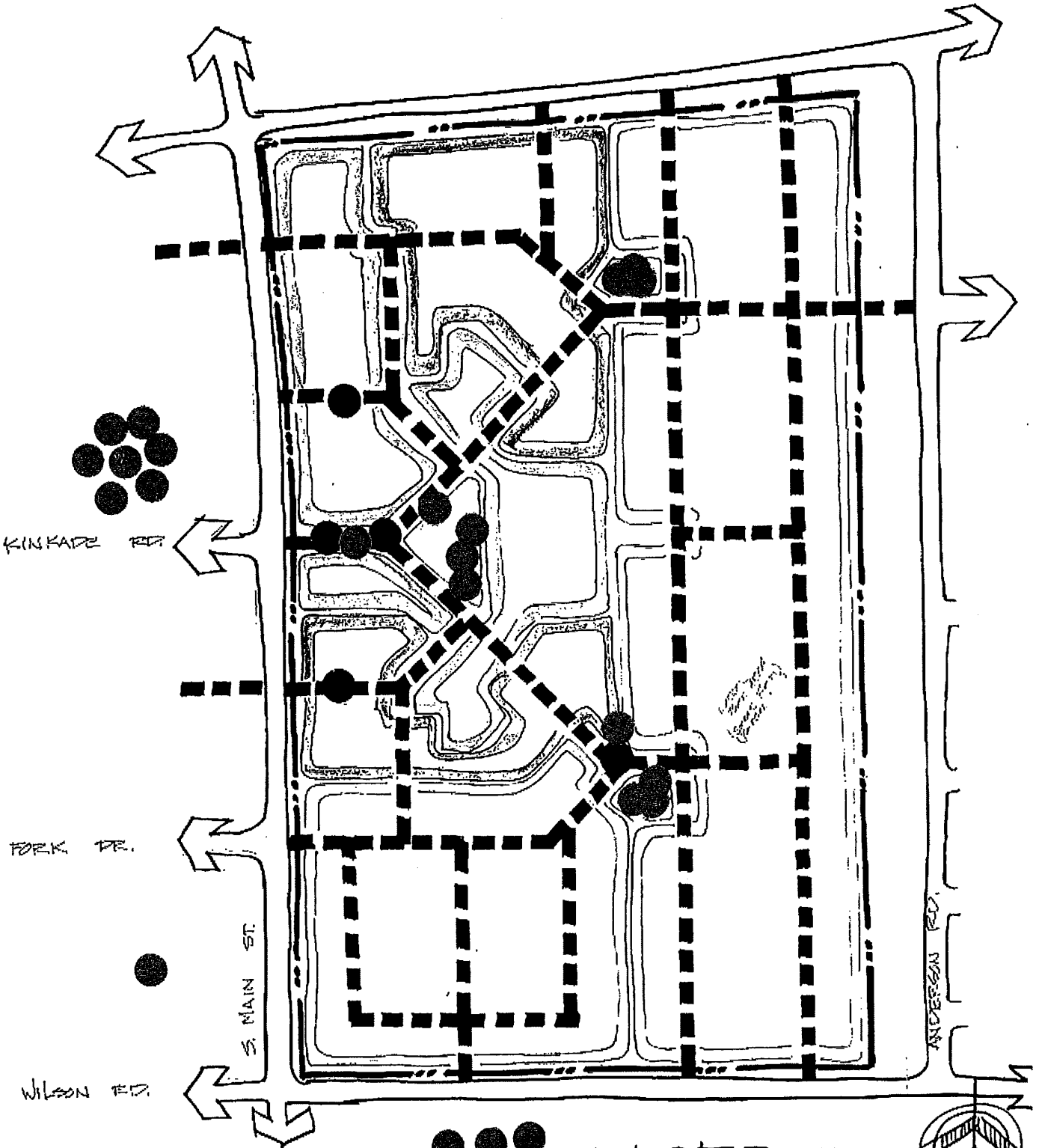
BOARDMAN, OREGON
TRILAND DESIGN GROUP INC.
FOSTER CONSULTANTS



CRESCENT CONCEPT

SCAPEMAN, OREGON
RILAND DESIGN GROUP INC.
OTHER CONSULTANTS





AMPITHEATER CONCEPT

BOARDMAN, OREGON
TRILAND DESIGN GROUP INC.
FOSTER CONSULTANTS

NORTH
2-8-2001
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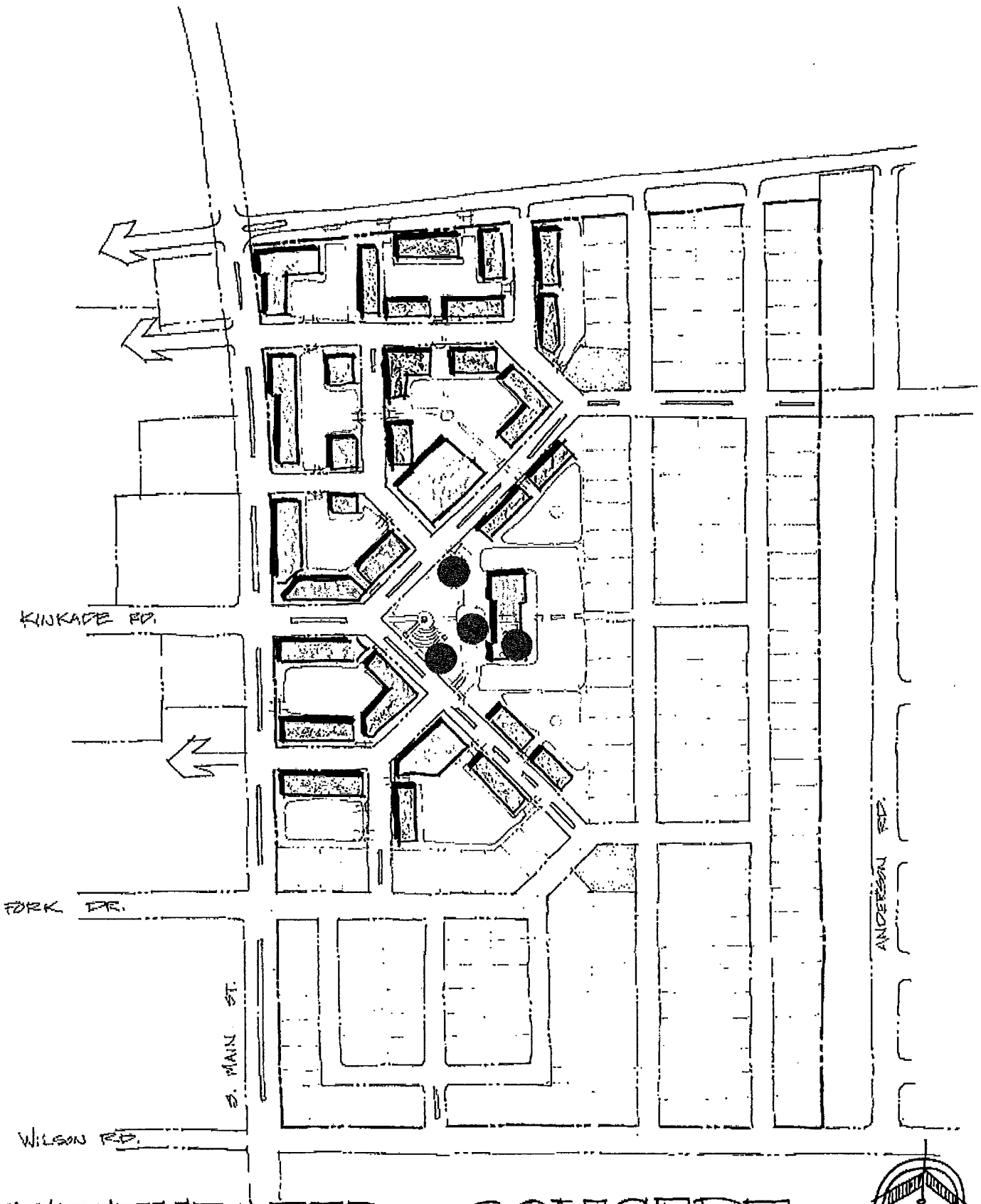
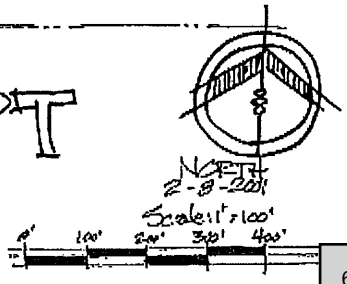
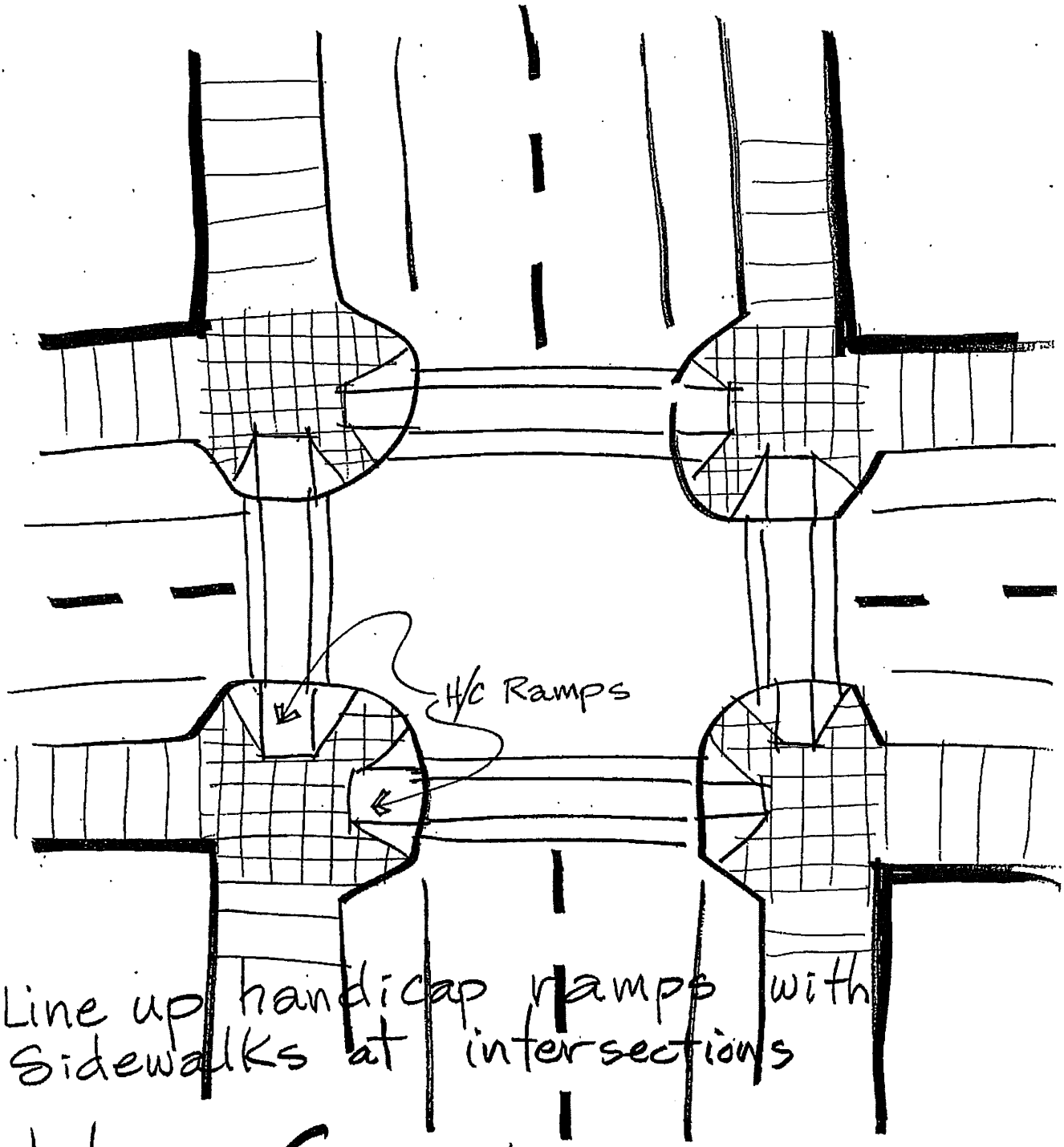
0' 100' 200' 300' 400'



AMPITHEATER CONCEPT

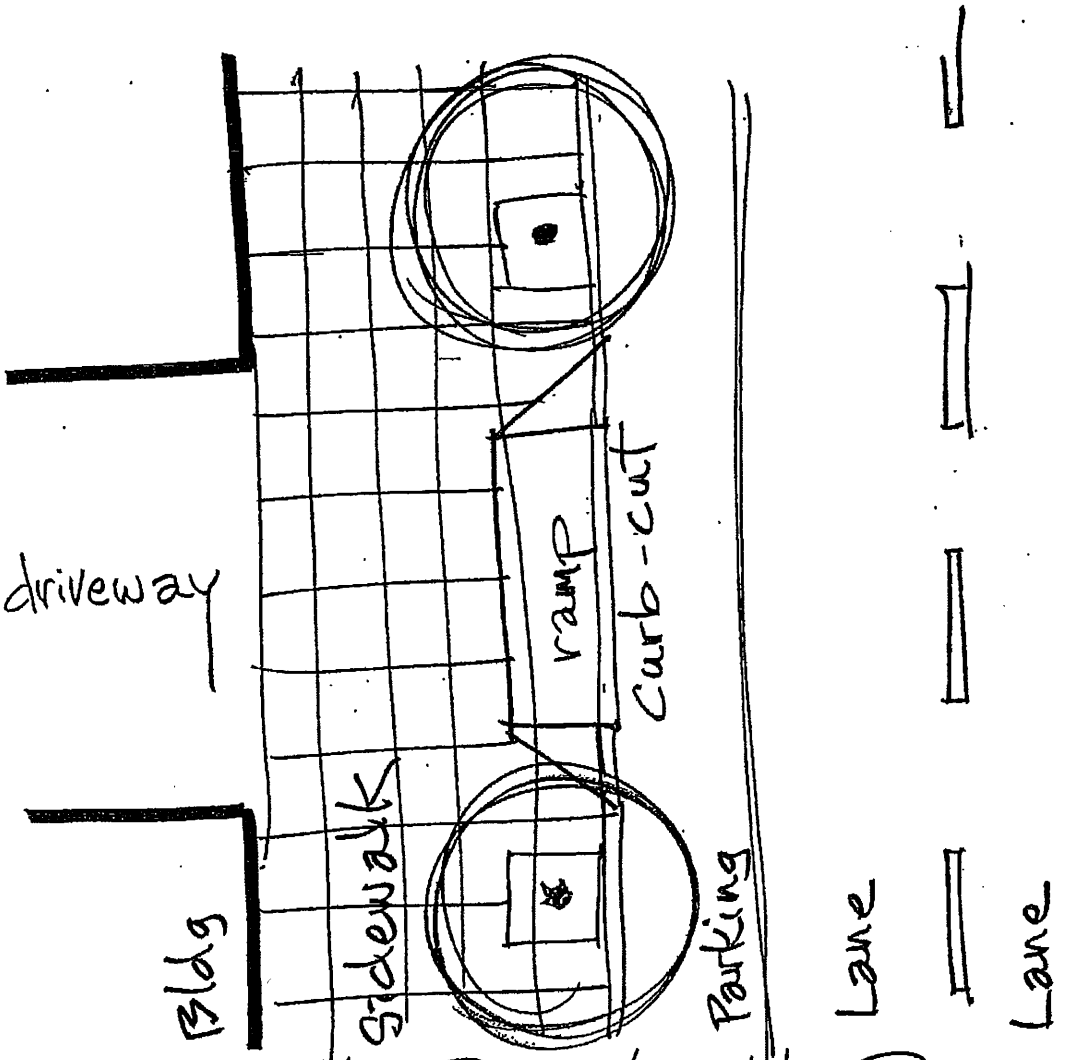
BOARDMAN, OREGON
TRILAND DESIGN GROUP INC.
ZGTER CONSULTANTS





- Line up handicap ramps with sidewalks at intersections

Urban Concepts Diagrams



- Sidewalk Priority At Driveways
- Curb cuts/ramps in Furniture Zone
- Non striped parallel parking for More cars per lineal bay

Urban Concept Diagrams

V. SITE PLAN WORKSHOP

February 8, 2001, 4:00 p.m.
Boardman City Hall

A project status report was described that included a summary of previous public meetings, development of alternative concept diagrams, and selection, by the public, of a preferred concept diagram that was used to develop the conceptual designs/site plans described above in Section IV. The Conceptual Designs/Site Plans were described. The Conceptual Designs/Site Plans illustrate the streets system, buildings, landscape treatments, streetscape design, and pedestrian and bicycle facilities in plan view and perspectives/sketch vignettes. A primary purpose for the Site Plan Workshop was to solicit input from the public and reach consensus on a preferred conceptual design that will be used to prepare the final recommended plan. A summary of comments, questions, and identification of the preferred conceptual design is provided below.

- The plan must have the ability to expand retail uses if something "big" occurs, e.g. the race track. Retail uses could be extended along Main Street, as well as within the commercial zoned land. There is also opportunity to provide mixed uses where retail establishments would be on the first level of buildings with residential use on the upper level(s). There may be funds (grants) available for development of buildings with "joint uses".

- The Grid Concept is better from the standpoint of a developer purchasing land because development parcels are rectangular and the developer has a better sense of available parcels (than the Crescent Plan or Amphitheater Plan). The Grid Concept provides better flexibility for dividing land and, therefore, may be more salable.

- Parks need to be incorporated in neighborhood development.

- The plan needs to be flexible to adapt to market conditions.

- The Grid Concept provides limited opportunity for building design other than rectangular shaped buildings.

- The Amphitheater Concept provides the opportunity for creative shaped parcels and building design.

- The Crescent Concept would be more expensive to construct infrastructure, i.e. water and sewer.

- The Grid Concept likely has the most pavement.

- There was informal consensus that the Amphitheater Concept was the preferred concept, primarily due to the ability to have creative-shaped parcels to be used for development as well as for open space.

- There was discussion on limiting access on/off Main Street. Maybe side street access off Main Street should be limited to the existing streets (intersections), i.e. Oregon Trail Blvd., Kinkade Road, and Willow Fork Drive. Property accessing Main Street may be limited to right-in/right-out only. There was also discussion that more intersections may be better for providing adequate circulation. These issues will be discussed with the traffic engineer.

- No parking is preferred on Main Street. People generally believe that Main Street will remain the primary north-south access and through traffic will flow better is parking is prohibited or limited on Main Street. There is also an option to initially provide parallel parking on Main Street with the option to eliminate the parking for additional travel lanes is required due to traffic conditions in the future.

- Circulation around the "Civic Loop" needs to be evaluated. Are turning radii adequate for large vehicles, i.e. trucks and buses? The loop could be a one-way loop.

- Ensure adequate traffic patterns will be maintained as development occurs. The preliminary development program identifies the potential for approximately 1200 additional residents, which is one-third of the existing Boardman area population.

- There was discussion whether or not the Concept Plans ignored the possibility that the new downtown could be developed on the west side of Main Street. It was explained that consensus achieved at the previous public meeting was to look at Kinkade Road, the new "main street", having the flexibility to develop on either or both sides of Main Street. Kinkade Road, west of Main Street, could be developed as the new main street and downtown site. The civic uses could be developed on the west side of Main Street as well as the east side. There are approximately 18-acres available for commercial development given the existing zoning and developable land.

Participants were asked to place "red and black dots" on the plans and renderings. "Red dots" indicated the plan or elements of the plans that the public liked while "black dots" indicated a negative feeling. The results gave a strong indication that the Amphitheater Concept is the preferred plan to follow when developing the final plan. Please refer to the Site Plans and renderings to see where the dots were placed.

A question to be determined is whether the final plan should be developed for the east or west side of Main Street. While flexibility is good, some specific direction regarding location of the final plan is needed from the community. This will provide community direction for pursuing acquisition of land for the civic uses. Following the Site Plan Workshop City staff held discussions with the Project Management Team and with members of the community to identify the preferred location for the new downtown and the civic center. This resulted in the preferred location for the civic center being a seven acre parcel located west of Main Street near Wilson Road, and the new downtown being developed, primarily, west of Main Street. The TriLand Team will now work with the City and ODOT to determine if this preferred location accommodates the civic center and the Amphitheater Concept.

VI. PREFERRED MAIN STREET "DOWNTOWN" DEVELOPMENT PLAN

This section provides a description of the preferred Boardman Main Street "Downtown" Development Plan. The preferred plan is a result of a planning process that included an inventory of existing conditions, identification of opportunities and constraints, development of alternative conceptual designs and site plans, and public involvement.

Public input was instrumental in development of the preferred plan. Technical and community input was provided through Project Management Team meetings, Advisory Committee (Boardman Downtown Development Association) meetings, a youth design charrette, a community design charrette, and public workshops.

A description of the preferred plan is provided below and includes the following descriptions and diagrams:

- **A Flexible Plan**
- **Flexible Land Use Diagram**
- **Land Use Development Program**
- **Land Use Plan**
- **Land Use Plan Diagram**
- **Final Development Site Plan**
- **Public Plaza Birds-Eye Rendering**
- **Street Design Standards**
- **Main Street Birds-Eye Rendering**
- **Streetscape Elements**
- **Retail Street Perspective**
- **Traffic Projections And Analysis**
- **Conceptual Infrastructure Plans**
- **Cost Estimates and Implementation Strategies**
- **Review of Original Project Objectives & Transportation Relationships/Benefits**

A FLEXIBLE PLAN

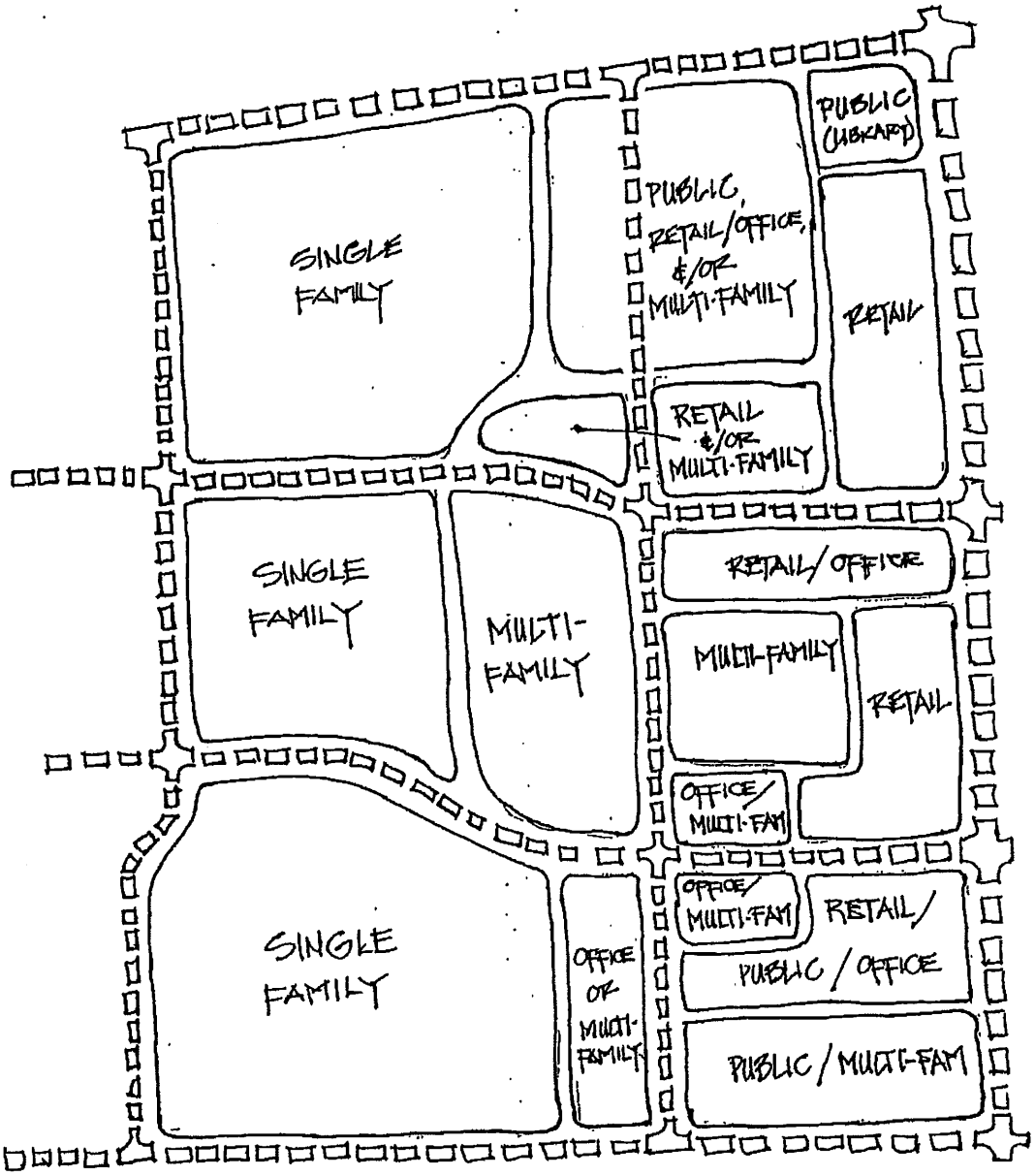
Developing a flexible plan that can be adjusted to market conditions and development opportunities is the key to implementing a successful plan. The Boardman community identified the need to create a flexible plan. The preferred plan is a flexible plan. In order to adequately describe and illustrate the preferred plan it is necessary to develop a site specific plan. Therefore, the preferred plan is developed for the existing area located west of Main Street, south of (future) Oregon Trail Blvd., north of Wilson Road, and east of Locust Road.

However, the intent of this plan is to provide the flexibility to relocate various land uses throughout the downtown district while maintaining the mix of uses described in the land use development program. Therefore, the downtown plan could be relocated to the east side of Main Street as shown in the alternative conceptual site plans; or the mix of land uses can be relocated on the west side of Main Street.

Key components that create flexibility in the preferred plan are identified below:

- The plan is developed on a grid street concept that capitalizes upon the existing street framework. The grid street framework creates several land parcels that are conducive to development because of the typical rectangular shape;
- A land use development program is established that provides an appropriate mix of retail, office, residential, and public uses. The land use mix can be adjusted to reflect current market conditions and development opportunities.
- A locational relationship amongst the mix of land uses is established. In other words, there are appropriate locations for the different land uses:
  - Retail and office uses are appropriately located along Main Street and on Kinkade Road and Willow Fork Road between Main Street and ~~Dillabaugh~~ Street. STATONE
  - Residential dwellings are allowed on the second level of ground level retail and office uses.

- Multi-family residential uses, i.e. apartments, townhouses, condominiums, are permitted adjacent to retail and office uses;
- Transitional areas, shown as office and retail uses on the preferred plan, would also be appropriate for residential use.
- Residential uses are appropriately located near existing and developing residential uses located west of Locust Road.
- Public uses, i.e. city hall, public plaza, community center, parks, etc., can be appropriately located within the commercial uses, between the commercial and residential uses, or within the residential uses.



FLEXIBLE LAND USE DIAGRAM

CITY of BOARDMAN, OREGON

TRIAND DESIGN GROUP (503) 968-6689
FOSTER CONSULTANTS (503) 635-6190

LAND USE DEVELOPMENT PROGRAM

The preferred plan encompasses approximately 75 acres between Main Street and Locust Road, and (future) Oregon Trail Blvd. and Wilson Road. The following table identifies the land use development program including a range of total square footage for retail, office, public/civic buildings, and park space; and number of dwelling units for multi-family and single family uses.

Land Use	Square Footage	Dwelling Units
Retail	50,000-80,000	
Office	32,000-80,000	
Public/Civic Buildings*	68,000-83,000	
Multi-Family Residential		160-280 units
Single Family Residential		130-150 units
Open Space	100,000	
Off-Street Parking	900-1,000 spaces	

* Public/Civic Buildings includes a city hall (14,000-28,000 SF), community center (46,000 SF), and one other building for public use (8,000-9,000 SF).

There are several transitional development areas identified on the Flexible Land Use Diagram (above) that are appropriate for more than one land use, depending on market conditions and development opportunities.

LAND USE PLAN

As described and illustrated above, the preferred Main Street "Downtown" Development Plan provides flexibility in that the mix of land uses can be arranged in several different configurations while providing a compatible arrangement of uses. In order to better describe the preferred plan, one specific arrangement of land uses is shown on the following Land Use Diagram and Final Development Plan. A description of key elements of the preferred plan is provided below and followed by the Land Use Diagram.

The "Downtown" Location

There was considerable discussion in the public workshops regarding the location of the new "downtown". The alternatives focused on locating the downtown on the east side of Main Street however the community expressed the desire and need to extend or relocate the downtown on the west side of Main Street. For the preferred plan, the decision was made to locate the downtown on the west side of Main Street.

The Grid Concept

Based on the decision to located downtown on the west side of Main Street, the grid street concept was selected due to the existing grid street framework formed by existing Main Street, Kinkade Road, Willow Fork Road, ~~Dillabaugh~~ Street, Locust Road, and planned Oregon Trail Blvd. extension. The preferred plan maintains and extends this grid system.

Commercial Uses

The following Land Use Diagram identifies a logical land use order by providing commercial uses along the Main Street frontage and adjacent to existing commercial development along Main Street. Retail and office uses continue along the Kinkade Road and Willow Fork Road frontages which are the collector streets that are perpendicular and connect to Main Street.

Civic Center

The plan identifies a civic center that generally consists of a public plaza/village square, city hall, community center, and additional uses combined with the new city hall and/or in a new adjacent building. Additional civic uses could include a post office, police station, library, or other related facilities.

The Civic Center is shown west of Main Street between Willow Fork Road and Wilson Road. This

is a particular land use that has flexibility in it's location. The Civic Center could be located in practically any location between Main Street and east of ~~Dillabaugh~~ Street because it is appropriate to surround it with retail, office, and multi-family housing. All of these uses are compatible with the civic uses.

Multi-Family Residential
The land use plan generally locates multi-family residential uses just west of and integrated with the retail uses. The ~~Dillabaugh~~ Street corridor, the first collector street west and perpendicular to Main Street, shows multi-family uses on both sides. The close proximity of the multi-family uses with the retail uses provides a convenient and short trip, via walking, bicycling, or driving between the higher density housing and retail uses. Additionally, second level residential dwellings are encourage to be located above ground level retail and office uses.

Development of multi-family housing will likely occur at a faster rate if a range of housing opportunities are allowed. Therefore, the plan recommends that permitted multi-family uses include apartments, townhouses, condominiums, assisted living facilities, and other types of housing.

Single Family Residential
Single family residential uses are provided in the western portion of the site. This is consistent with the existing and developing single family development located along both sides of Locust Road.

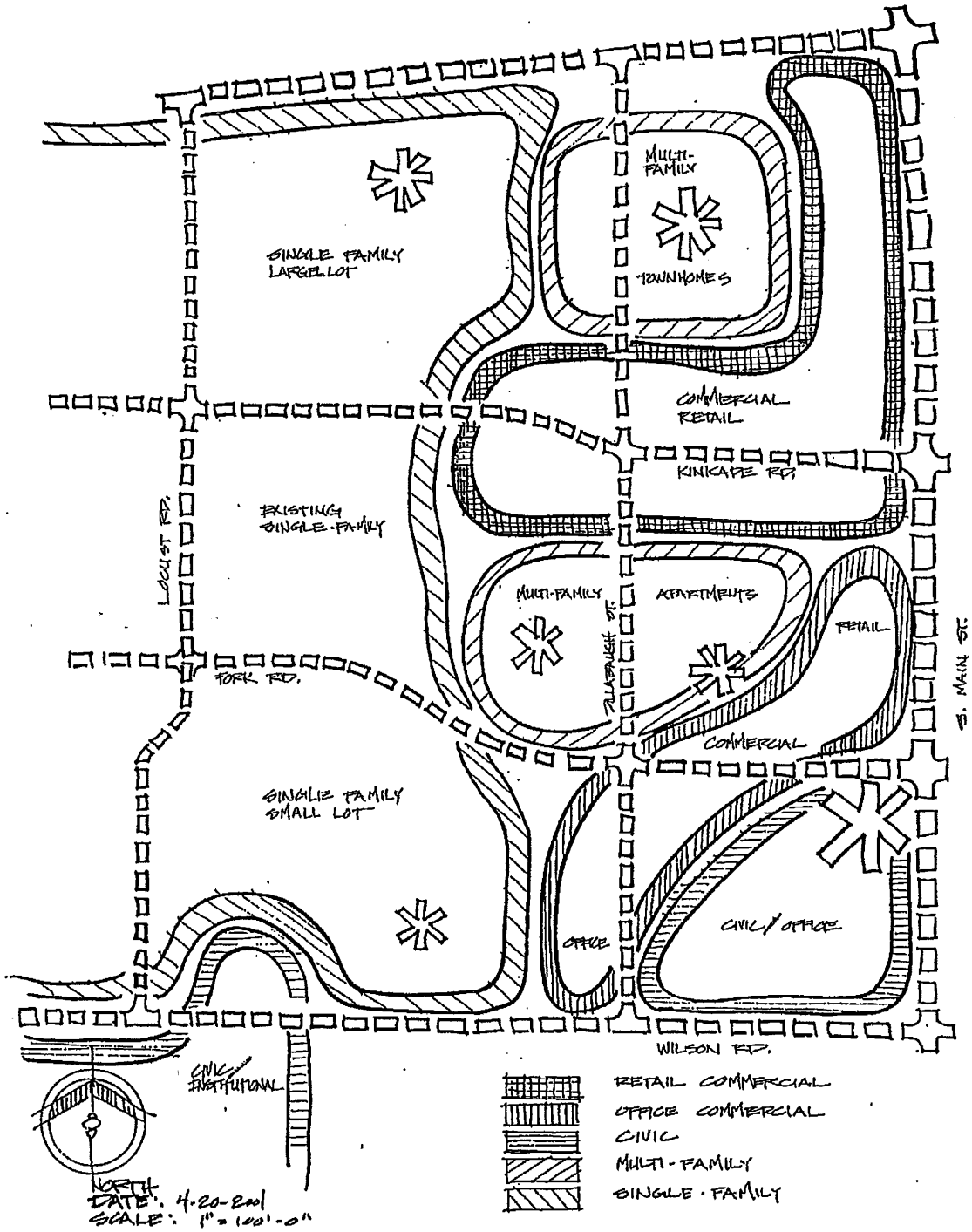
Open Space
In addition to the civic plaza/village square, the preferred plan identifies smaller parks to be located in each major land use group. This provides nearby outdoor recreation opportunities (active or leisure) for residents, workers, and visitors, and also provides views of open space from buildings. The open spaces should be connected to the overall pedestrian system via sidewalks and pathways.

Parking Behind Buildings
A consistent theme provided in the preferred plan is to located buildings adjacent to street frontages with parking located behind buildings. This will provide a pedestrian friendly street system that is not so dominated by automobiles.

Pedestrian/Bicycle System
The plan provides a connected pedestrian and bicycle system that links residential, commercial, and public/open spaces uses. This is primarily accomplished by providing sidewalks along streets, bicycle lanes on Main Street and shared bicycle/travel lanes on collector streets, i.e. Kinkade Road, Willow Fork Road, ~~Dillabaugh~~ Street, Locust Road, and the future Oregon Trail Blvd. Each development parcel is recommended to have an internal pedestrian system that connects buildings, parking, and the external pedestrian sidewalk system. In additional crosswalks and curb extensions are recommended on streets between and including Main Street and ~~Dillabaugh~~ Street.

The plan also recommends that an extended pedestrian/bicycle system be incorporated along the entire length of the Oregon Trail Blvd./BPA Easement with connections to residential, commercial, and open space uses.

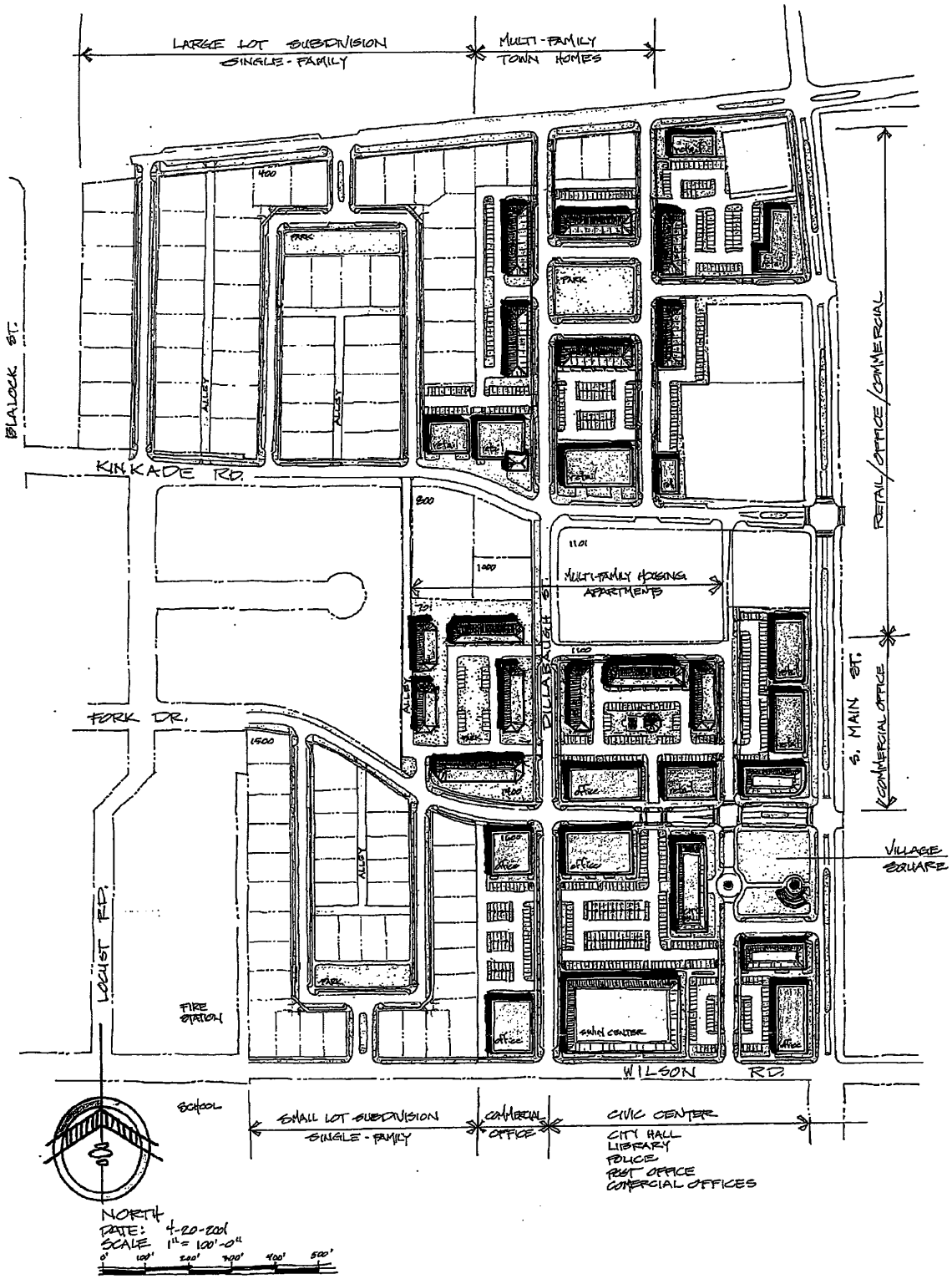
The Village Square
The village square is to be located in front of the new civic building(s) and provide an open space and community gathering place. The village square is envisioned to include an amphitheater, fountain, lawn and gardens. The amphitheater can be used for performances, i.e. music and plays, speaking, outdoor classroom, arts and crafts shows, and other special events. The fountain is envisioned to be incorporated with the amphitheater and turned on and off as appropriate with the current event and usage. The fountain provides an attractive visual and listening attraction as well as providing an opportunity to play and cool during warm weather. The lawn and gardens provide a leisure area and attraction for residents and visitors.



NORTH
DATE: 4-20-2001
SCALE: 1" = 100'-0"

LAND USE DIAGRAM
CITY OF BOARDMAN, OREGON

TRIAND DESIGN GROUP (503) 968-6589
FOSTER CONSULTANTS (503) 695-6190



FINAL DEVELOPMENT PLAN

CITY OF BOARDMAN, OREGON

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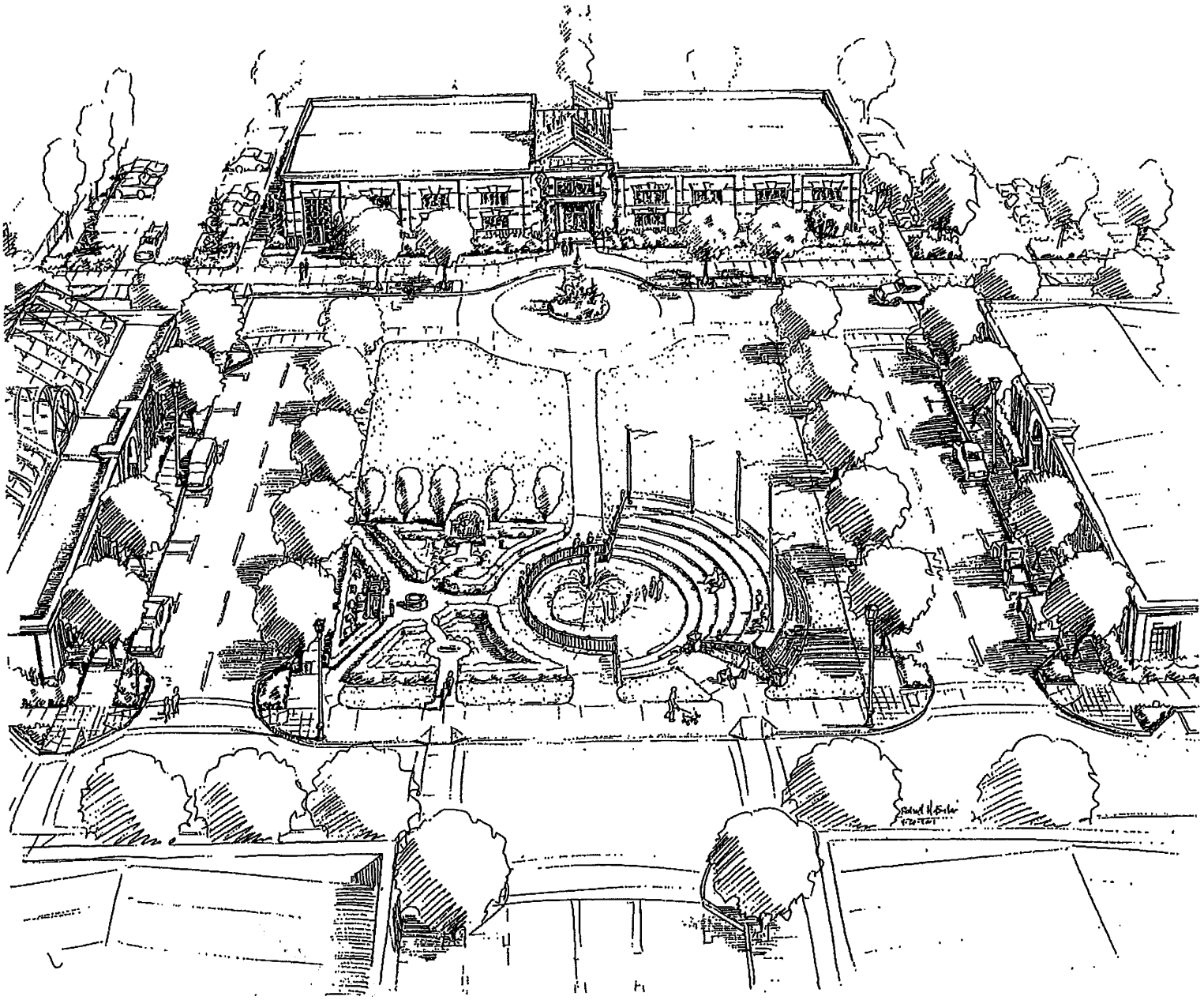
FOSTER CONSULTANTS (503) 635-6190



STREET DESIGN STANDARDS

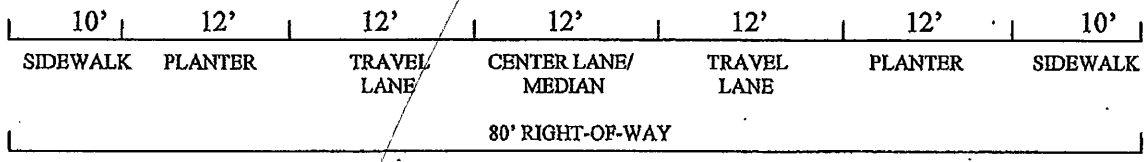
Alternative downtown street design standards includes standards for arterial and collector streets.

The arterial and collector streets each include two alternative street design standards:

- Typical standards
- Standards developed by and being considered by the City;

Arterial – Main Street Standard

Main Street is recommended to have an 80 foot right-of-way that will include two travel lanes with a tree-lined median and center turn-lanes at intersections. Sidewalks and planter strip will be located on both sides of the street. Curb extensions (bulb-outs) are to be provided at intersections which will provide a safer and enhanced pedestrian friendly atmosphere.

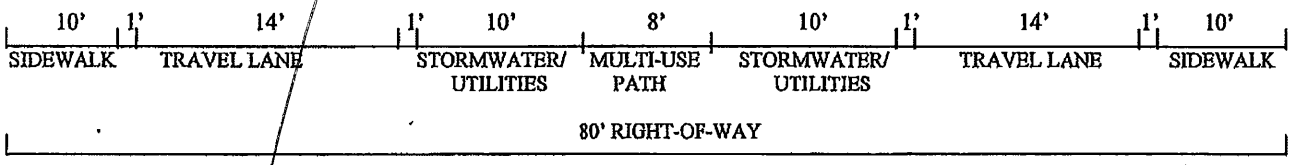


MAIN STREET – OREGON TRAIL BLVD. TO WILSON ROAD

If traffic volumes justify increasing capacity in the future, the 80 foot right-of-way will allow for additional travel lanes (4 lanes). The landscaped planter strip could be reduced to allow the additional travel lanes however, it is recommend to maintain a limited planter strip with street trees should this occur.

Arterial – City Developed Alternative

The City-developed arterial standard includes two travel lanes separated by a 28' curbed median that includes an 8' multi-use path and 10' stormwater/utility strips on both sides of the multi-use path. Sidewalks are provided on both sides.



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STREET DESIGN STANDARDS

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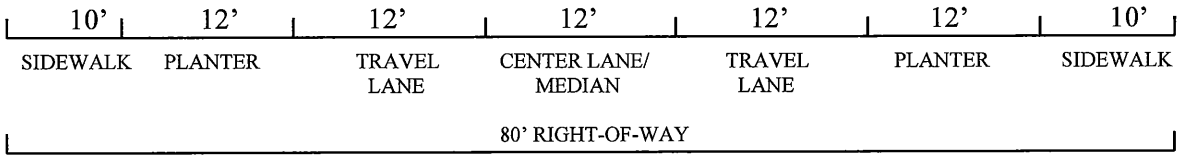

MAIN STREET – OREGON TRAIL BLVD. TO WILSON ROAD

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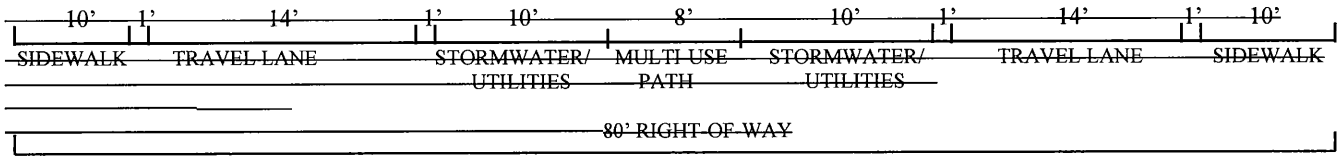
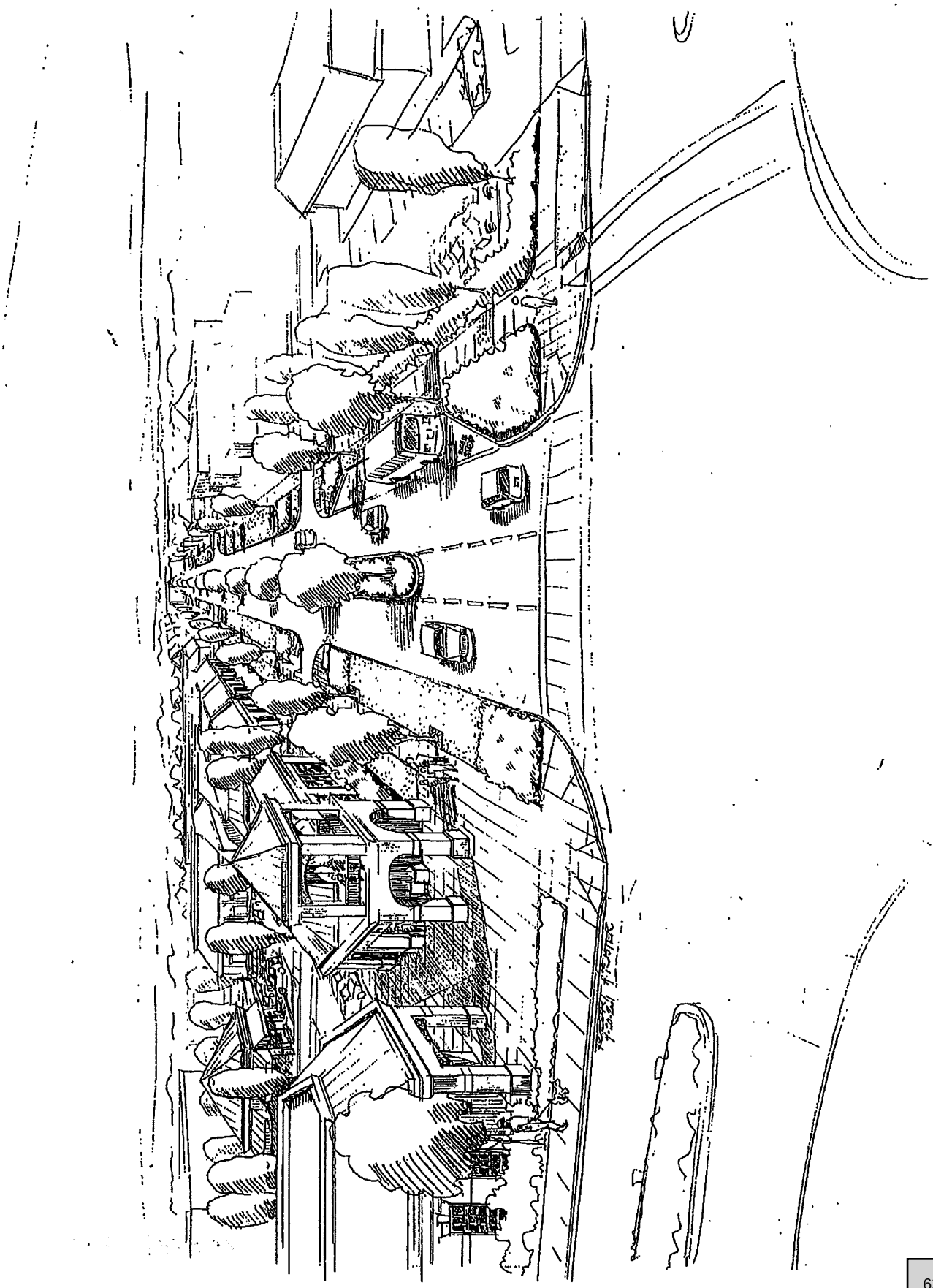
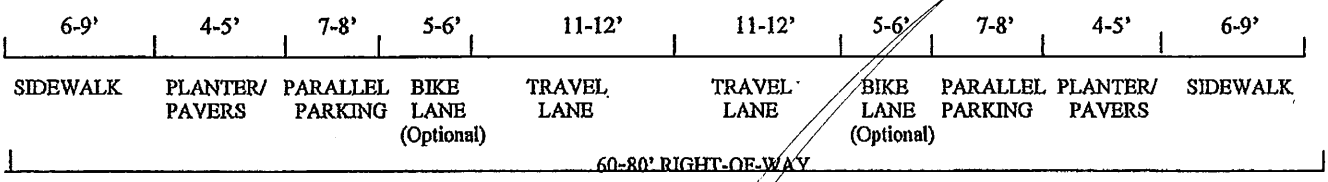




Downtown Collectors – Kinkade Road, Willow Fork Road, Dillabaugh Street, Locust Road, Oregon Trail Blvd.

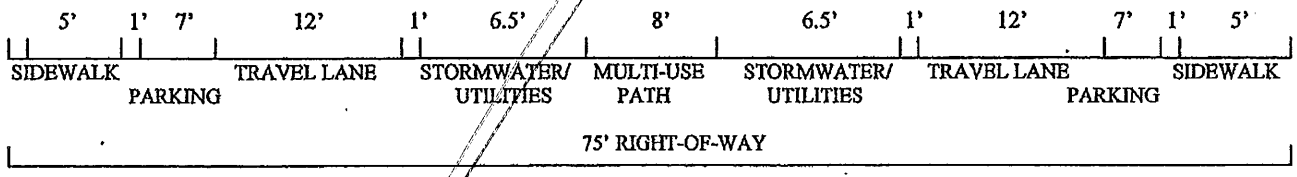
Collector streets should have a minimum 60 foot right-of-way and are recommended to have two travel lanes with parallel parking, landscape strip with street trees, and sidewalk. The travel lanes should include a shared bicycle lane. (Oregon Trail Blvd. may have a different cross section that includes a landscaped median similar to that constructed east of Main Street.)

The typical collector street design standard for downtown includes two travel lanes, bicycle lanes, parallel parking, planter/paver strip, and sidewalks.



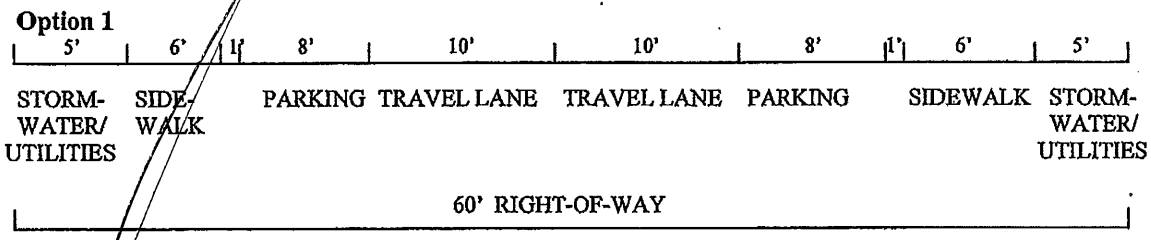
Collector – City Developed Alternative

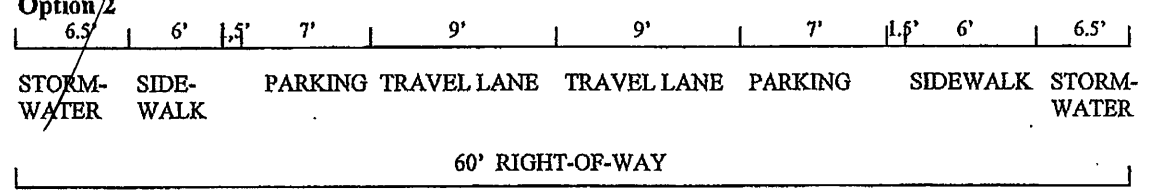
The City-developed collector standard includes two travel lanes separated by a 21' curbed median that includes an 8' multi-use path and 10' stormwater/utility strips on both sides of the multi-use path. Parking and sidewalks are provided on both sides.



Local Commercial and Residential Streets

Local streets are recommended to have a 60 foot right-of-way with two travel lanes for automobiles and bicycles, parallel parking, landscape strip with street trees, and sidewalk. Two options are recommended.





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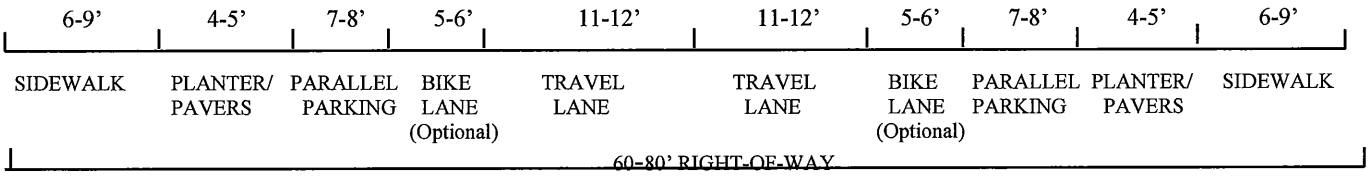
Downtown Collectors – Kinkade Road, Willow Fork Road, ~~Dillabaugh~~ Tatone Street, Locust Road, Oregon Trail Blvd.

Collector streets should have a minimum of 60-foot right-of-way and are recommended to have two travel lanes with parallel parking, landscape strip with street trees, and sidewalk. The travel lanes should include a shared bicycle lane. (Oregon Trail Blvd. may have a different cross section that includes a landscaped median similar to that constructed east of Main Street.)

The typical collector street design standard for downtown includes two travel lanes, bicycle lanes, parallel parking, planter/paver strip, and sidewalks.



~~**Collector – City Developed Alternative**~~

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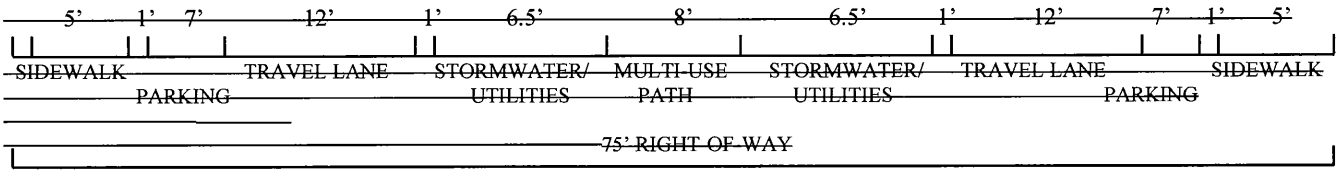
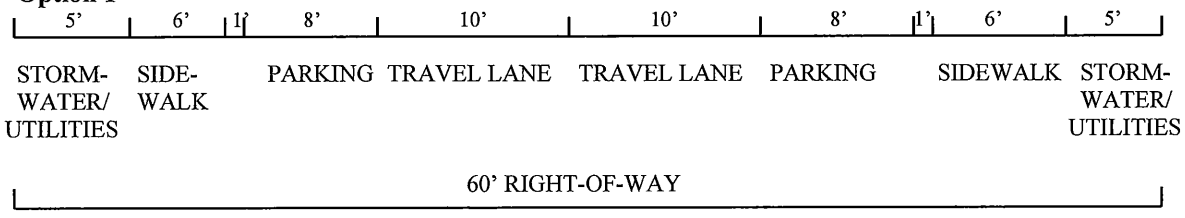


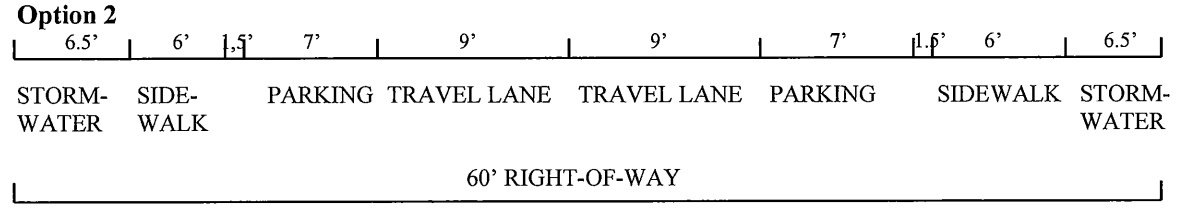
Local Commercial and Residential Streets

Local streets are recommended to have a ~~60-foot~~60-foot right-of-way with two travel lanes for automobiles and bicycles, parallel parking, landscape strip with street trees, and sidewalk. Two options are recommended.

Option 1



Option 2



Alleys
Alleys in single family residential areas should be 20 feet wide and provide rear access to dwellings.

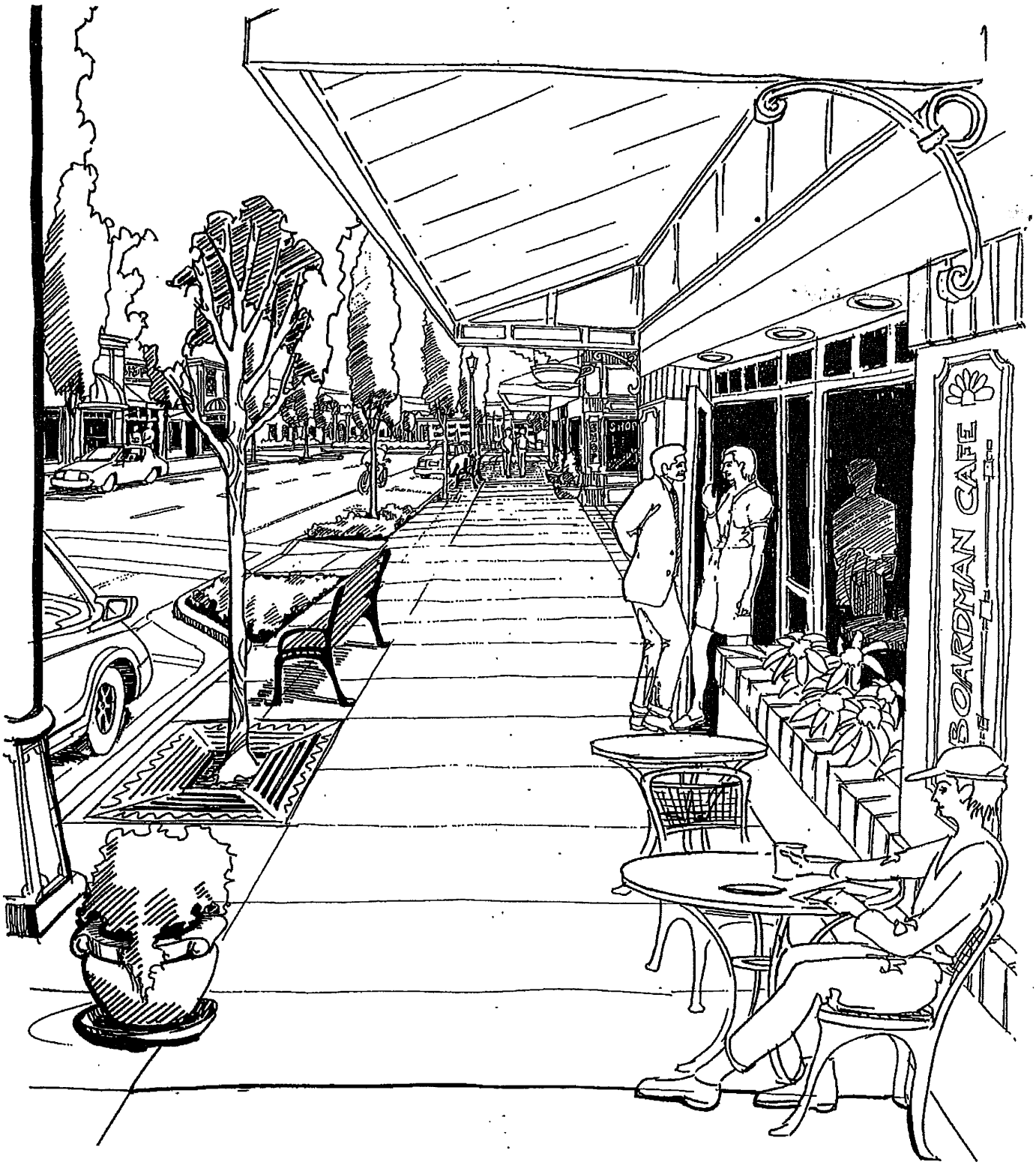
Pedestrian/Bicycle Pathways
Off-street pedestrian/bicycle pathways are recommended to be 10 feet wide.

STREETSCAPE ELEMENTS
As described above, the arterial, collector, and local street standards include a landscape strip between the curb and sidewalk to be planted with street trees and additional landscaping. Additional streetscape elements are recommended for retail street frontages. Main Street as well as Kinkade Road and Willow Fork Road between Main Street and ~~Dillabaugh~~ Street are recommended to have street furniture that will complement the retail uses. The landscape strip along portions of these frontages could be paved and include placement of street trees with grates, ~~street lights;~~ benches, flowering pots, and other amenities.

TATONE

streetlights

Buildings are encouraged to have awnings to provide shade and cooler conditions needed in the summer.


BOARDMAN CAFE

CONCEPTUAL INFRASTRUCTURE PLANS

The selection of the west side of Main Street for the new downtown location dictates that new infrastructure needs should be accommodated through the existing and expanded street system. The infrastructure framework for this area is in place with the existing grid street system consisting of Main Street, ~~Dillabaugh~~ Street, Locust Road, Kinkade Road, and Willow Fork Drive. TATONE

The downtown plan recommends maintaining the established street grid system and expanding these streets as development occurs. This will not only provide a well-connected and efficient street system, it also provides for the logical expansion of water, sanitary sewer, and stormwater services and facilities.

The street design standards address stormwater collection and distribution. This includes the option for stormwater facilities to be located adjacent on both sides of the street or if the median standard is constructed, for stormwater to be within the median. In both street design standards, curbs are proposed that will have "curb weeps" that will allow stormwater to collect and drain off the street into drainage swales.

In conclusion, the downtown area will be serviced by water, sanitary sewer, and stormwater facilities through the existing and expanded street grid system. More specifically, in order to provide adequate infrastructure services for the new downtown area, primary water, sanitary sewer, and stormwater facilities are existing and proposed in the following streets:

Existing

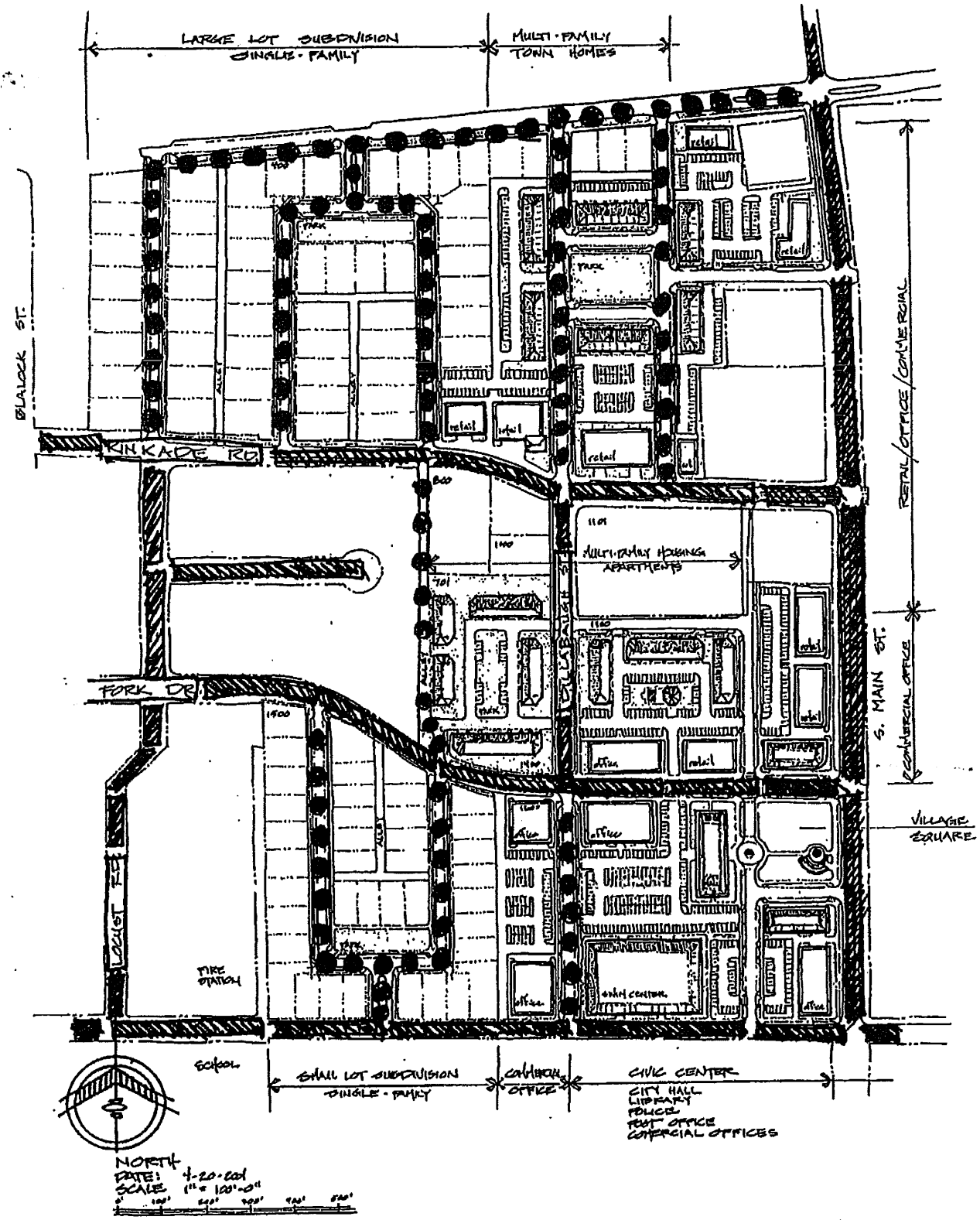
- Main Street (Oregon Trail Blvd. to Wilson Road)
- Kinkade Road (Main Street to Locust Road)
- Willow Fork Drive (Main Street to Locust Road)
- Wilson Road (Main Street to Locust Road)
- Locust Road (Kinkade Road to Wilson Road)

Proposed

- (Planned) Oregon Trail Blvd. (Main Street to Locust Road)
- New north-south street between Main Street and ~~Dillabaugh~~ Street (from Oregon Trail Blvd. to Kinkade Road) TATONE
- TATONG ~~Dillabaugh~~ Street (from Oregon Trail Blvd. to Kinkade Road and from Willow Fork Drive to Wilson Road)
- New north-south streets (from Oregon Trail Blvd. to Kinkade Road and from Kinkade Road to Willow Fork Drive)
- Locust Road (from Oregon Trail Blvd. to Kinkade Road)
- New north-south streets between ~~Dillabaugh~~ Street and Locust Road (from Willow Fork Drive to Wilson Road) TATONE

EXISTING WATER, SANITARY SEWER, & STORM WATER SERVICES & FACILITIES

PROPOSED SERVICES & FACILITIES



FINAL DEVELOPMENT PLAN
CITY OF BOARDMAN, OREGON

TERLAND DESIGN GROUP (503) 968-6889
FOSTER CONSULTANTS (503) 635-6190

ANALYSIS OF FUTURE TRAFFIC VOLUMES AND ALTERNATIVES ALONG MAIN STREET

The purpose of this document is to present an evaluation of future 2020 traffic volumes along Main Street in Boardman. These 2020 traffic volumes were based on the annual 30th highest traffic volumes estimated for 2000 adjusted for future growth along this corridor as well as new developments throughout Boardman including the proposed new "Downtown" area to be located south of I-84 and north of Wilson Road. The main finding of this work is that the proposed three-lane section of Main Street (from TSP) is adequate to accommodate future traffic volumes. Also, analysis found that although traffic signals will be warranted at the I-84 ramp intersections at Main Street, the two lane section across the bridge should be adequate to accommodate most, if not all, the planned future growth. However, right turn lanes should be provided both north and south of the interchange onto both eastbound and westbound I-84 on-ramps.

Estimate of 30th Highest Traffic Volumes for 2000

The primary route through Boardman is Main Street. Past traffic data collected along highways in this area (see Tables 1 and 1A) revealed that the yearly peak hours occurs in the May when the existing traffic counts were taken (See Figures VI-8 and VI-8A). Based on past traffic trends from these other highways, May volumes tend to be the highest (represent about 112-113 percent of the ADT), and would also equate to annual 30th highest hourly volumes (which are also estimated to be about 11-13 percent of the annual average ADT). Thus, the traffic count data from the May 2000 counts will be used for the 30th highest volumes. Three intersections on Figure VI-8 were not counted in May during the PM peak hour. However, the I-84 ramp intersection were counted both in May and November. Comparing these two sets of counts reveals that the May volumes were approximately 15 percent higher than the November counts. Based on this, the November volumes were increased by 15 percent and balanced for traffic flow along Main Street. Finally, using traffic flows along Main Street at Wilson Road and Kinkade, the traffic volumes at Willow Fork Drive as estimated. Based on these assumptions, Figure VI-9 presents the estimated 30th highest hourly traffic volumes for 2000. Table 1 presents the results of intersection capacity analyses of these 30th highest hourly volumes and indicates that all intersections operate at acceptable Levels of Service and V/C ratios.

Table 1 Historical Traffic data from SHUTLER, 11-007 Automatic Traffic Recorder

Location: ORE19, JOHN DAY HIGHWAY, NO. 5, 4.2 miles south of Arlington
Installed: April, 1957

HISTORICAL TRAFFIC DATA

Year	Average Daily Traffic	Percent of ADT				
		Max Day	Max Hour	10TH Hour	20TH Hour	30TH Hour
1991	886	149	18.3	14.6	13.4	12.9
1992	911	174	15.8	13.9	13.4	13.1
1993	929	193	27.0	18.7	16.8	15.3
1994	962	174	15.0	12.4	11.9	11.3
1995	862	***	****	****	****	****
1996	820	165	14.3	12.8	12.3	12.0
1997	866	167	17.3	12.8	12.4	12.0
1998	822	146	14.4	12.4	11.8	11.6
1999	855	155	13.6	12.3	11.9	11.6
2000	788	161	14.3	12.8	12.2	11.9

2000 TRAFFIC DATA

	Average Weekday Traffic	Percent of ADT	Average Daily Traffic	Percent of ADT
January	910	115	737	94
February	989	126	801	102
March	998	127	809	103
April	1027	130	839	106
May	1051	133	887	113
June	998	127	820	104
July	1001	127	829	105
August	967	123	782	99
September	929	118	778	99
October	956	121	810	103
November	853	108	703	89
December	808	103	659	84

Table 1A Historical Traffic Data from Umatilla Bridge (30-025) Automatic Traffic Recorder

Location: I82, McNARY HIGHWAY, NO. 70
0.58 mile south of Oregon-Washington State Line
Installed: April, 1977

HISTORICAL TRAFFIC DATA

		Percent of ADT				
Year	Average Daily Traffic	Max Day	Max Hour	10TH Hour	20TH Hour	30TH Hour
1990	9887	160	16.9	12.7	11.9	11.2
1991	10292	***	****	****	****	****
1992	10924	159	17.3	12.4	11.6	11.3
1993	11120	168	13.9	12.8	12.1	11.8
1994	11874	168	13.9	12.0	11.7	11.1
1995	12655	154	13.9	11.6	11.2	10.9
1996	12675	149	12.4	11.0	10.6	10.3
1997	13355	157	13.9	11.6	11.0	10.7
1998	14514	148	13.4	11.5	10.9	10.7
1999	15438	154	13.2	11.6	11.2	10.9

1999 TRAFFIC DATA

	Average Weekday Traffic	Percent of ADT	Average Daily Traffic	Percent of ADT
January	11956	77	11690	76
February	12359	80	12557	81
March	14167	92	14588	94
April	14932	97	15142	98
May	15244	99	15567	101
June	17055	110	17345	112
July	18119	117	18302	119
August	18032	117	18519	120
September	16859	109	16921	110
October	16414	106	16597	108
November	14761	96	14880	96
December	13189	85	13152	85

Table 2: 2000 Levels of Service for 30th Highest Annual Volumes

Intersection	30th Highest Peak Hour Volumes		
	Unsignalized Intersections+		
	Avg Vehicle Delay (Sec/Veh)	*LOS*	*V/C Ratio*
I-84 Westbound Ramp/Main Street *(Critical Movement: WB Approach)*	12.4	B	0.16
I-84 Eastbound Ramp/Main Street *(Critical Movement: EB Approach*	12.6	B	0.14
Front Street/Main Street *(Critical Movement: EB Approach)*	13.1	B	0.06
Kinkade Road/Main Street *(Critical Movement: EB Approach*	10.2	B	0.05
Willow Fork Drive/Main Street *(Critical Movement: EB Approach*	10.2	B	0.02
Wilson Road/Main Street *(Critical Movement: EB Approach*	10.6	B	0.11

+ All intersections have stop sign control for east/west movements, except for Wilson Road/Main Street that has stop control on all approaches

Estimate of Future 2020 Traffic Volumes

Future 2020 traffic volumes through the study area were estimated from several sources:

1) **Past Traffic Trends:** The data in Figure VI-8 and Tables 1 and 1A indicate that traffic in this region has not increased substantially unless it is directly related to new developments. The Transportation System Plan (TSP) for Boardman assumed a 2.9 percent per year general growth rate, but did not include any specific developments. Figure VI-10 presents the estimated 2020 traffic volumes from the TSP. This resulted in an increase of approximately 450 peak hour trips along Main Street south of I-84, which would equate to about 450 new single family homes. As discussed below, this analyses will include several new residential developments plus the mixed retail, office and residential uses in the new Downtown. Thus, it is assumed that the general growth rate will be only 1 percent per year. That is, existing 30th highest hourly volumes were multiplied by 1.2.

2) **Recent Residential Developments:** Discussions with City staff revealed that three major residential developments are approved and should be built out over the next 5-7 years. Table 3 presents the trip generation estimate for these developments and their locations and assignment of vehicle trips is presented on Figure VI-11. The distribution was based on existing traffic volumes and discussion among the planning staff/consultants.

Table 3: Estimate of Weekday Trip Generation for Recently Approved/Proposed Developments

Name/Access (ITE Code 210)	Units/ Homes	Daily Trips	PM Peak Hour		
			Total	In	Out
35 SF Homes West Of Main Street	35 SF	335	35	22	13
200 SF Homes West Along Wilson Rd	200 SF	1,914	202	129	73
70 SF Homes East of Main Street	70 SF	670	71	45	26
Total	370	3,302	349	223	126

3) **New Downtown Plan.** The main focus of the Boardman Main Street "Downtown" Development Plan study has been to select an area for the new Downtown and develop a set of land uses that could occur based on area growth trends and market analysis. The impetus for this plan is that most of the residents of Boardman live south of I-84, but most of the retail and jobs in Boardman are north of I-84. To direct future growth in Boardman and not overload the interchange, this project evaluated several sites along Main Street (most of this land is zoned C-1, which permits a wide range of commercial and residential uses) and design options for a new Downtown on a parcel(s) along Main Street from Oregon Trail Blvd. to Wilson Road. A full consensus has not been reached on this plan or its location. Consequently, this traffic analysis will evaluate the last version of the Downtown Plan. This latest version is presented in Figure VI-12 and described in Table 4. The latest plan encompasses approximately 75 acres between Main Street and Locust Road, and (future) Oregon Trail Blvd. and Wilson Road. The following table identifies the land use development program including a range of total square footage for retail, office, public/civic buildings, and park space; and number of dwelling units for multi-family and single family uses. Table 5 presents the trip generation associated with these land uses.

Table 4: Development Plan for Boardman Main Street "Downtown"

Land Use	Square Footage	Dwelling Units
Retail	50,000-80,000	
Office	32,000-80,000	
Public/Civic Buildings*	68,000-83,000	
Multi-Family Residential		160-280 units
Single Family Residential		130-150 units
Open Space	100,000	
Parking		900-1,000 spaces

* Public/Civic Buildings includes a city hall (14,000-28,000 SF), community center (46,000 SF), and one other building for public use (8,000-9,000 SF).

Table 5: Estimated Trip Generation For Boardman Main Street Downtown Plan

Land Use	Daily Trips	AM Peak Hour			PM Peak Hour			
		Total	In	Out	Total		In	Out
Retail (80,000 GSF)	5,906	140	85	55	542		260	282
(ITE Code 820)								
Pass-By Trips		30% 42	21	21	30%	163	82	81
Internal Trips		10% 14	9	5	10%	54	26	28
New Trips		60% 84	51	33	60%	325	156	169
General Office Building	881	125	110	15	119		20	99
(80,000 GSF) (ITE Code 710)								
Recreational Community Center	1,052	61	40	21	81		28	53
(46,000 GSF) (ITE Code 495)								
Government Office Complex	925	83	74	9	106		33	73
(37,000 GSF) (ITE Code 733)								
Single-Family Homes	1,436	113	28	85	152		97	55
(150 Homes) (ITE Code 210)								
Apartments	1856	143	23	120	174		117	57
(280 Units) (ITE Code 220)								
Subtotal of Office/Residential	6,150	525	275	250	632		295	337
Total Pass-By Trips		42	21	21	163		82	81
Total Internal Trips		14	9	5	54		26	28
Total New Vehicle Trips		609	326	283	957		451	506

Finally, with the buildout of the Downtown Plan on the west side of Main Street, it is assumed that residential uses would then develop on the east side of Main Street. This parcel contains about 55 acres and based on the existing residential development patterns, was assumed to have a buildout of 330 single-family homes. Trip generation for this area is presented in Table 6.

Table 6: Estimate of Weekday Trip Generation for Future Residences East of Main Street

Name/Access (ITE Code 210)	Units/ Homes	Daily Trips	PM Peak Hour		
			Total	In	Out
55 Acres East of Main Street	330	3,158	333	213	120

Figure VI-13 presents the directional trip distributions for the different types of land uses in the Downtown Development Plan. To assign all these volumes onto the roadway network, a Traffix Model was developed. This model assumed that the entire street network in this plan as well as the basic improvements in the TSP (discussed below) was constructed. This model is shown in Figure VI-14. It should be noted that the assignment of trips to each of these land uses was via the most direct route and trips between the residential and commercial uses were performed via direct assignments of trips. To be conservative and due to the lack of consensus about the plan, localized adjustments for pass-by trips was not performed. Figure VI-15 presents traffic generated by all proposed future developments by 2020 throughout the study area.

Based on the above, two scenarios were evaluated:

Scenario 1: Future traffic volumes including 20 percent background growth and three planned residential developments. Resulting total future 2020 traffic volumes for this scenario are presented in Figure VI-16.

Scenario 2: Future traffic volumes including 20 percent background growth and all planned developments including new Downtown Plan. Resulting total future 2020 traffic volumes for this scenario are presented in Figure VI-17.

Future Roadway Improvement Plans

This section discussed future roadway improvement plans proposed in the TSP. First, Figure VI-18 presents the typical cross sections for roadway in Boardman. Main Street is classified as an arterial street and by 2020 we assumed that it was buildout to its ultimate 3-lane section with left turn lanes at all major intersections and right turn lanes as needed. Figure VI-19 presents the initial proposed lane configurations assumed to be in place by 2020.

Below is a discussion of other roadway improvement issues from the TSP:

Front Street interstate 84 Interchange Operational Issues

Analysis of year 2020 future forecast volumes revealed that the Interstate 84 Westbound Ramp/Main Street intersection would require capacity improvements to restore intersection operations to an acceptable level of service. As a result of the close spacing between the Interstate 84 ramps and the two respective frontage roads (North Front Street and South Front Street), it is expected that several geometric changes will be required to accommodate future traffic volume growth. There are several interrelated factors that will determine whether, and how, the capacity of the Interstate 84 interchange and Main Street can be ensured. These issues include:

- **Intersection Spacing.** The existing intersections of Main Street/North Front Street, Main Street/Interstate 84 Westbound Ramp, Main Street interstate 84 Eastbound Ramp, Main Street/South Front Street are too closely spaced and will not function efficiently as traffic volumes grow. Overlapping functional areas of intersections make it especially difficult for drivers on side streets (such

as Front Street) to safely enter Main Street because of the numerous conflicting vehicle movements that must be simultaneously monitored. For example, a driver trying to turn left from North Front Street onto Main Street must find an adequate gap in the Main Street traffic stream while also coordinating with vehicles entering Main Street from the Westbound Interstate 84 ramp, Boardman Avenue, and any number of adjacent commercial properties.

- **Circulation Patterns.** Ill-defined circulation patterns along North and South Front Streets, in conjunction closely spaced intersections, make minor street turning operations at intersections difficult for drivers.

- **Access Management.** The lack of access management along Main Street complicates intersection operations as drivers are able to make turns onto and off of Main Street at virtually any location. The lack of access management results in a multitude of cut-through trips that create safety issues in parking lots. The situation is especially evident when Riverside High School students are released and drivers cut through local commercial parking lots to avoid queuing at the North Main Street/ Boardman Avenue intersection.

- **North-South Connectivity.** The lack of alternative north-south connections across Interstate 84, which focuses the majority of north-south travel through the city via Main Street and the Interstate 84 interchange, further complicates intersection/interchange operations. The lack of continuity is further exacerbated by the existing development pattern in Boardman that funnels many of the residences across the interstate at Main Street on a daily basis to access employment and service centers.

In addition to these issues, the existing pedestrian and bicycle facilities in this area are inadequate. Given the large demand for north-south pedestrian facilities, especially along Main Street, any improvement project(s) should incorporate improved pedestrian/bicycle facilities.

Front Street/Interstate 84 Interchange Improvement Needs
There are several potential improvements that could be made to the Interstate 84 interchange to increase capacity as identified below:

- signalize the north leg of the interchange;
- provide a left-turn lane across the Interstate 84 Interchange;
- widen the eastbound and westbound Interstate 84 ramps to accommodate separate left- and right-turn lanes; or,
- enhance circulation on the north and south sides of the interchange.

The decision to implement one or more of the improvements identified above is subject to several considerations. It is especially important to consider a system perspective in evaluating these alternatives. For example, signalization alone will not fully address the capacity needs of the interchange and adjacent intersections. Further, development of left-turn lanes at the interchange would require widening of the existing bridge deck, potentially necessitating a new interchange altogether. The effect of signalizing the Interstate 84 Westbound Ramp/Main Street intersection must also consider the impact signalization will have on adjacent intersections.

Considering a more global system perspective, if alternative links across Interstate 84 can be implemented in conjunction with access management and circulation improvements along Main Street, it is conceivable that future traffic volume demands at the existing interchange can be accommodated. There are also issues as to how the interchange will operate in the future with respect to the frontage roads located on either side of the interchange. The following paragraphs highlight some of the other issues that need to be considered.

Circulation Improvements
The City of Boardman' s roadway system is comprised of a number of streets that collectively feed the two Interstate 84 interchanges. The east-west orientation of the Columbia River, Interstate 84, the Union Pacific Railroad right-of-way, and the Bonneville Power Administration's right-of-way all limit the number and extent of north-south connections through the city and have shaped the local roadway network.

As more properties develop in the southern and northeast quadrants of the city, the city needs to ensure that adequate facilities are provided such that the city does not become entirely dependent on any one roadway to facilitate local trips. As properties develop in the these parts of the city, careful consideration should be given to the type and locations of connections to the existing street system, and to connectivity and access issues within any new subdivisions. It is essential to provide pedestrian, bicycle, and vehicular access both to and within new developments and to provide a sense of linkage to and continuity with the existing developments in town. Care should also be taken to avoid "cul-de-sac" developments in these and other residential areas that may be developed in town.

North-South Connectivity
There are several potential opportunities to strengthen north-south connectivity within the City of Boardman. Ideally, roadway circulation alternatives should provide routes for local trips while accommodating industrial/heavy vehicle traffic destined to the Port and other locations on separate facilities. Opportunities to strengthen north-south connectivity include:.

- provision of a new interchange or overpass on the west side of Boardman; and/or ,
- extension of Olson Road across Interstate 84.

East- West Connectivity
In addition to improving north-south connectivity, there is also a need to ensure that the city develops adequate east-west facilities parallel to Interstate 84 such that these facilities provide access to local commercial and residential properties in a safe and efficient manner. It will be especially important to ensure that convenient east-west connectivity is preserved such that the city does not become entirely dependent on interstate access to facilitate local east-west trips. In addition, with the large amount of development occurring on the south side of the city, there is a need to ensure that the city's east-west roads are connected in a logical manner. Potential opportunities to strengthen east-west connectivity within the City of Boardman include:

- extension of South Front Street between South Main Street and Olson Road; and/or ,
- construction of Oregon Trail Boulevard, a proposed east-west roadway along the BPA easement, to provide additional east-west connectivity south of the Interstate 84.

In addition to connectivity enhancements, the city should also consider development of access management techniques to further circulation needs. These techniques should provide for the consolidation of access points along collector and arterial level roadways as property develops or redevelops and allow for more focused crossings of roadways in areas outside of the downtown.

Future 2020 Traffic Conditions

This section presents the results of the intersection capacity analysis for future 2020 traffic volumes. The 1999 OHP requires that the maximum acceptable v/c ration for district and local interest roads be 0.80 or lower. The minimum acceptable v/c ratio for both I-84/Main Street ramp intersections is 0.70.

Scenario 1: 20 Percent General Growth and Three Residential Developments
As discussed above, the 2020 traffic volumes for this scenario (in Figure VI-16) are slightly lower than the volumes in the TSP (Figure VI-10). The results of intersection capacity analyses for this scenario are presented in Table 7. The results in this table reveal that all intersections will operate at acceptable V/C ratios. Tables 8 and 9 present the results of warrant analyses for providing separate right and left turn lane from Main Street onto the minor streets. From these analyses warrants are not met for separate turn lanes at any of these intersections except for a separate right turn lane southbound along Main Street at Oregon Trail.

Table 7: Scenario 1 2020 Levels of Service

Intersection	30th Highest Peak Hour Volumes		
	Unsignalized Intersections+		
	Avg Vehicle Delay (Sec/Veh)	*LOS*	*V/C Ratio*
I-84 Westbound Ramp/Main Street *(Critical Movement: WB Approach)*	13.9	B	0.23
I-84 Eastbound Ramp/Main Street *(Critical Movement: EB Approach*	16.3	C	0.31
Front Street/Main Street *(Critical Movement: EB Approach)*	19	C	0.13
Oregon Trail/Main Street *(Critical Movement: WB Approach)*	15.4	C	0.12
Kinkade Road/Main Street *(Critical Movement: WB Approach)*	13.9	B	0.03
Willow Fork Drive/Main Street *(Critical Movement: EB Approach)*	11.1	B	0.04
Wilson Road/Main Street *(Critical Movement: EB Approach)*	9.2	A	0.27

+ All intersections have stop sign control for east/west movements, except for Wilson Road/Main Street that has stop control on all approaches

Table 8: Scenario 1: Results of Left Turn Warrant Analyses for Intersections along Main Street

	Future 2020 PM Peak Hour		ODOT Design Manual	
Intersection	Left Turns (vph)	Combined Volume Criteria (vph/Lane)	Minimum Criteria (Left-Turns-vph)	Warrant Met?
NB Main Street at Front Street	10	448	30	NO
SB Main Street at Front Street	10	448	30	NO
NB Main Street at Oregon Trail	25	315	46	NO
NB Main Street at Kinkade Road	12	255	56	NO
SB Main Street at Kinkade Road	10	255	56	NO
NB Main Street at Fork Drive	6	220	62	NO

Table 9: Scenario 1 Results of Right Turn Warrant Analysis for Intersections along Main Street

	Future 2020 PM Peak Hour		ODOT Design Manual	
Intersection	Right Turns (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Warrant Met?
NB Main Street at Front Street	10	371	64	No
SB Main Street at Front Street	42	525	43	No
NB Main Street at Oregon Trail	5	188	88	No
SB Main Street at Oregon Trail	82	443	54	Yes
NB Main Street at Kinkade Road	10	163	92	No
SB Main Street at Kinkade Road	54	346	67	No
NB Main Street at Fork Drive	21	294	74	No

Scenario 2: 20 Percent General Growth and All Proposed/Planned Developments

As discussed above, the 2020 traffic volumes for this scenario (in Figure VI-17) are significantly higher than the volumes in the TSP (Figure VI-10), particularly at the I-84 interchange area. The results of intersection capacity analyses for this scenario are presented in Table 10. The only intersection with a high V/C ratio was at Main Street and Oregon Trail. Front Street is estimated to have significant delays, but the v/c ratio is acceptable. Preliminary traffic signal warrants were evaluated at the I-84 ramp intersections, at Front Street, and at Oregon Trail. These analyses are presented in Tables 11A-11D and found that warrants for a traffic signal are met at the I-84 ramps, but not at the other two intersections. The results in this table reveal that all other intersections will operate at acceptable V/C ratios. Tables 12 and 13 present the results of warrant analyses for providing separate right and left turn lane from Main Street onto the minor streets. Results of these analyses indicate that all intersections need separate left turn lanes and most meet warrants for separate right turn lanes. It should be noted that separate left turn lanes were not assumed along Main Street at the I-84 ramps due to the two lane ramp, but separate right turn lanes were assumed off of each ramp, northbound onto the EB on-ramp and southbound onto the WB on-ramp.

Table 10: Scenario 2 2020 Levels of Service

Intersection			
	Signalized Intersections		
	Avg Vehicle Delay (Sec/Veh)	**V/C Ratio**	**LOS**
I-84 Westbound Ramp/Main Street *(Critical Movement: WB Approach)*		0.66	C
I-84 Eastbound Ramp/Main Street *(Critical Movement: EB Approach*		0.62	C
	Minor Street Stop Control+		
Front Street/Main Street *(Critical Movement: EB Approach)*	>45	0.52	F
Oregon Trail/Main Street *(Critical Movement: EB Approach*	>45	1.15	F
Kinkade Road/Main Street *(Critical Movement: EB Approach*	30.9	0.46	D
Willow Fork Drive/Main Street *(Critical Movement: EB Approach*	21.3	0.22	C
Wilson Road/Main Street *(Critical Movement: EB Approach*	10.4	0.41	B

+ All intersections have stop sign control for east/west movements, except for Wilson Road/Main Street that has stop control on all approaches

[HCS Estimate of Delays and V/C]

Table 11A: Summary of Signal Warrant Analysis at I-84 WB off-Ramp/Main Street

Traffic Signal Warrant	ODOT Criteria ADT Volumes		Estimated Future ADT Volumes*		Warrant Met?
	Major Street	Minor Street	Major Street	Minor Street	
1. Minimum Volume	7,400	2,500	9,785	2,820	Yes
2. Interruption of Continuous Flow	11,100	1,250	9,785	2,820	No

* *For Warrants 1 and 2, the 30th highest volumes shown in Figure VI-17 were assumed to be 11 percent of the ADT volumes.*

Table 11B: Summary of Signal Warrant Analysis at I-84 EB off-Ramp/Main Street

Traffic Signal Warrant	ODOT Criteria ADT Volumes		Estimated Future ADT Volumes*		Warrant Met?
	Major Street	Minor Street	Major Street	Minor Street	
1. Minimum Volume (without discounting RT)	7,400	2,500	14,630	440 (2,210)	No (Almost)
2. Interruption of Continuous Flow (without discounting RT)	11,100	1,250	14,630	440 (2,210)	No (Yes)

* *For Warrants 1 and 2, the 30th highest volumes shown in Figure VI-17 were assumed to be 11 percent of the ADT volumes.*

Table 11C: Summary of Signal Warrant Analysis at Oregon Trail/Main Street

Traffic Signal Warrant	ODOT Criteria ADT Volumes		Estimated Future ADT Volumes*		Warrant Met?
	Major Street	Minor Street	Major Street	Minor Street	
1. Minimum Volume	7,400	2,500	12,090	975	No
2. Interruption of Continuous Flow	11,100	1,250	12,090	975	No

* *For Warrants 1 and 2, the 30th highest volumes shown in Figure VI-17 were assumed to be 11 percent of the ADT volumes.*

Table 11D: Summary of Signal Warrant Analysis at South Front Street/Main Street

Traffic Signal Warrant	ODOT Criteria ADT Volumes		Estimated Future ADT Volumes*		Warrant Met?
	Major Street	Minor Street	Major Street	Minor Street	
1. Minimum Volume	7,400	1,850	15,745	400	No
2. Interruption of Continuous Flow	11,100	950	15,745	400	No

* *For Warrants 1 and 2, the 30th highest volumes shown in Figure VI-17 were assumed to be 11 percent of the ADT volumes.*

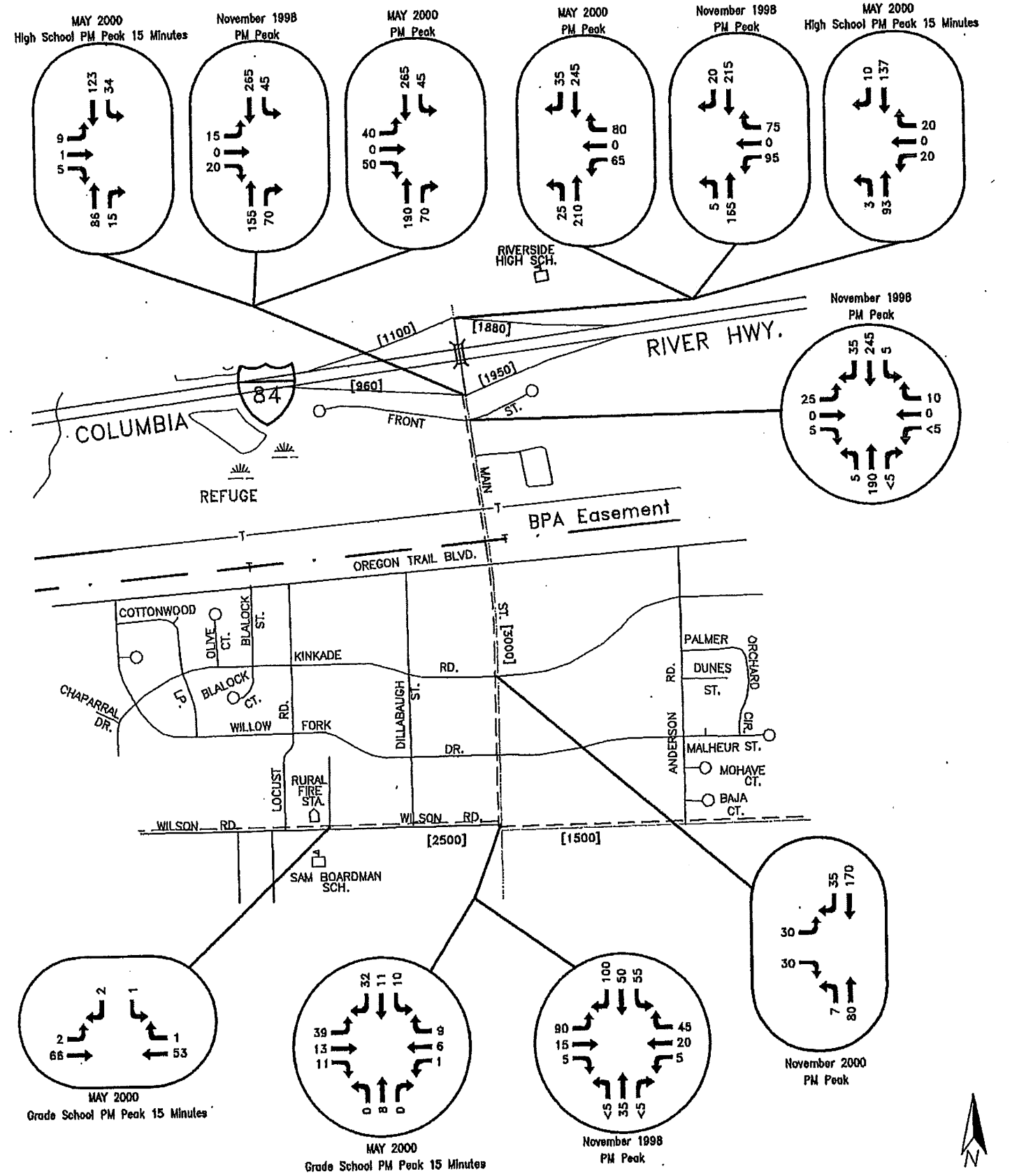
Table 12: Scenario 2 Results of Left Turn Warrant Analyses for Intersections along Main Street

	Future 2020 PM Peak Hour		ODOT Design Manual	
Intersection	Left Turns (vph)	Combined Volume Criteria (vph/Lane)	Minimum Criteria (Left-Turns-vph)	Warrant Met?
NB Main Street at Front Street	10	866	6	Marginal
SB Main Street at Front Street	10	866	6	Marginal
NB Main Street at Oregon Trail	20	665	15	Yes
SB Main Street at Oregon Trail	105	665	15	Yes
NB Main Street at Kinkade Road	53	465	28	Yes
SB Main Street at Kinkade Road	40	465	28	Yes
NB Main St. at Willow Fork Dr.	20	336	43	No
SB Main St. at Willow Fork Dr.	61	336	43	Yes

Table 13: Scenario 2 Results of Right Turn Warrant Analysis for Intersections along Main Street

	Future 2020 PM Peak Hour		ODOT Design Manual	
Intersection	Right Turns (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Warrant Met?
NB Main Street at Front Street	10	830	15	Yes
SB Main Street at Front Street	42	902	15	Yes
NB Main Street at Oregon Trail	27	509	45	No
SB Main Street at Oregon Trail	177	821	15	Yes
NB Main Street at Kinkade Road	23	392	61	No
SB Main Street at Kinkade Road	112	539	41	Yes
NB Main St. at Willow Fork Dr.	23	241	81	No
SB Main St. at Willow Fork Dr.	58	432	56	Yes

Figure VI-8: Recent Peak Hour Traffic Volumes



Annual Daily Traffic [ADT]

Drawing not to scale.

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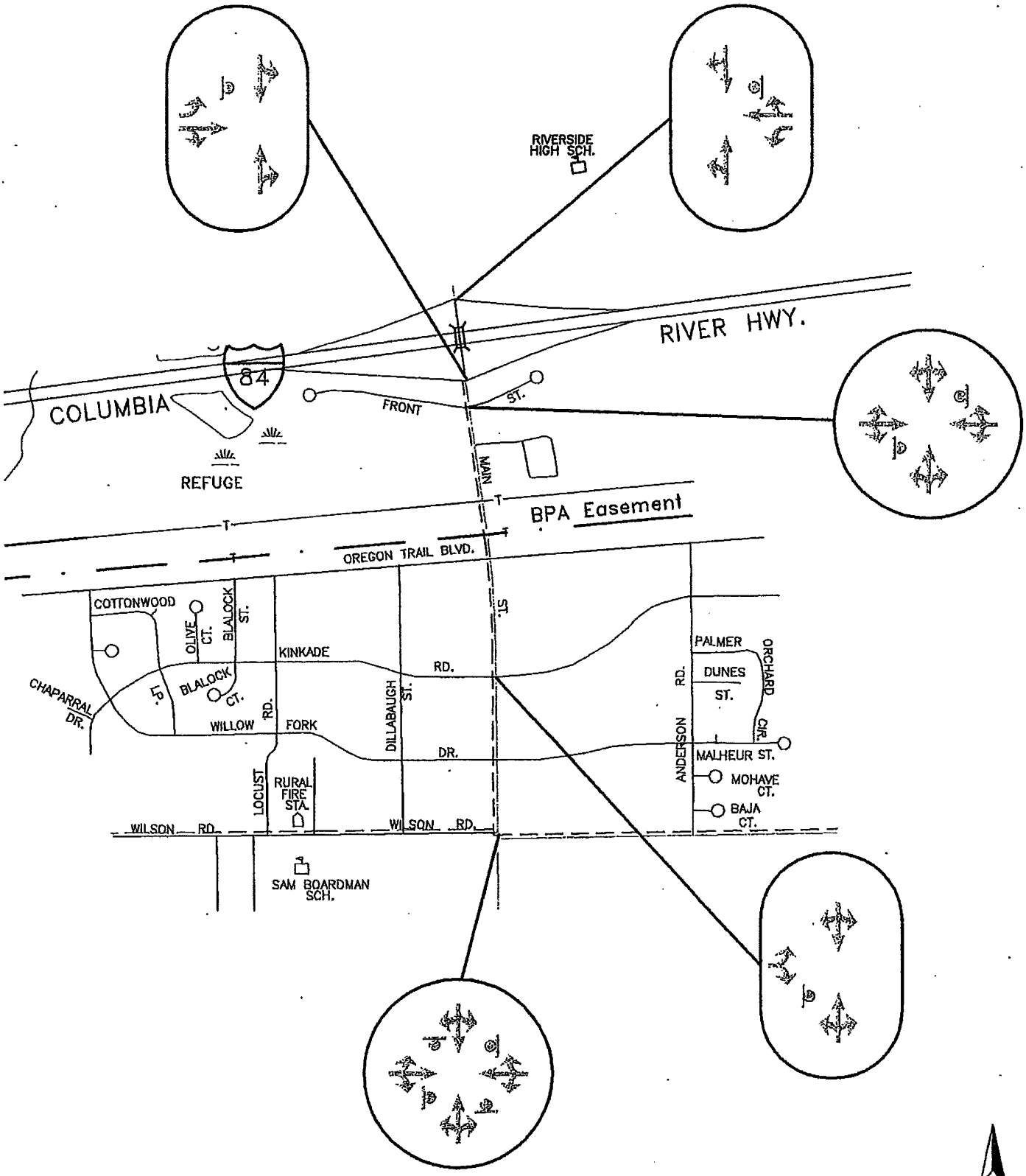
Figure VI-8A: Existing Traffic Controls And Lane Configurations at Study Area Intersections



Multi-Use Path — — — —

Stop Sign

Drawing not to scale.

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Figure VI-9: Estimated 30th Highest Peak Hour Traffic Volumes

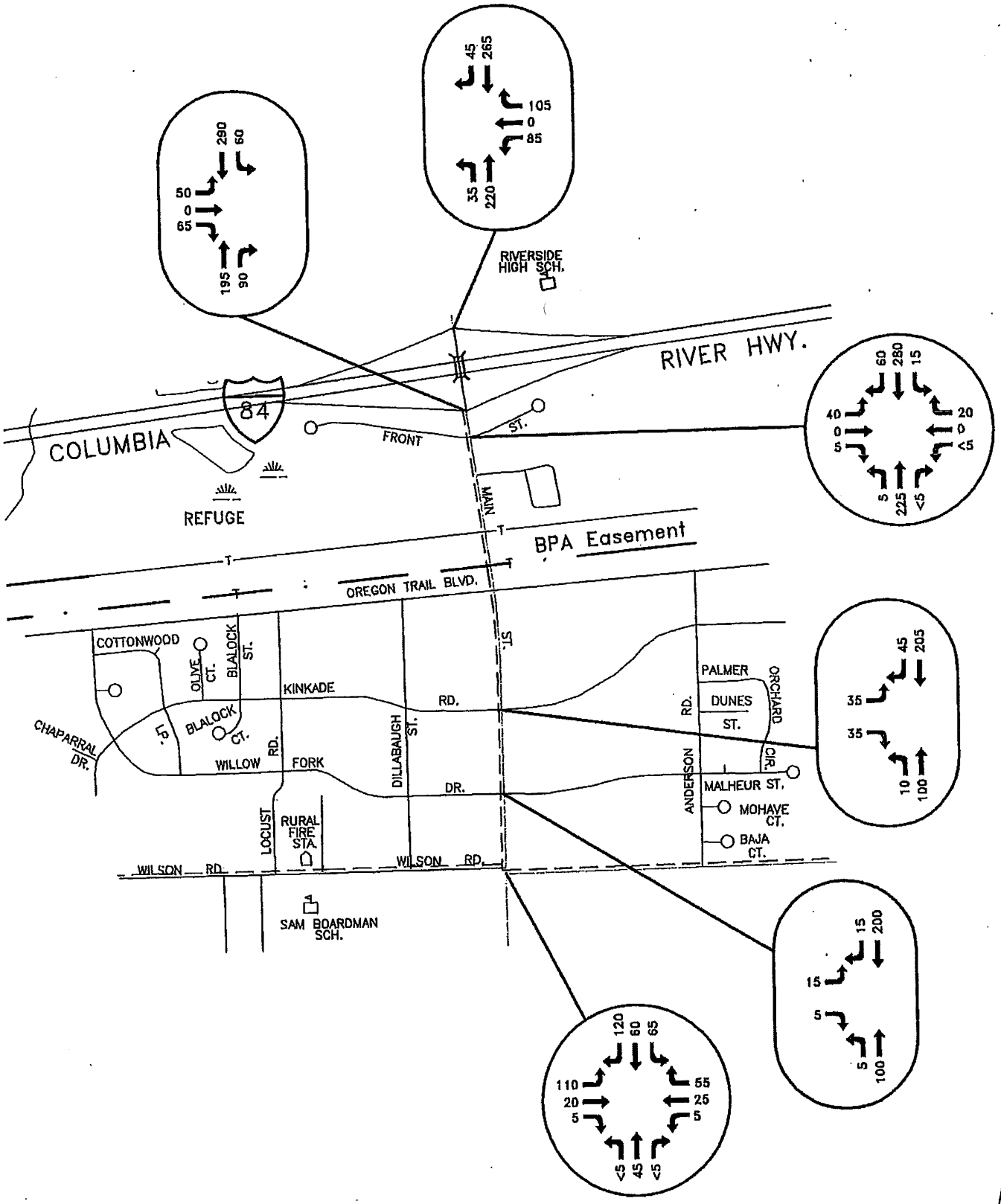
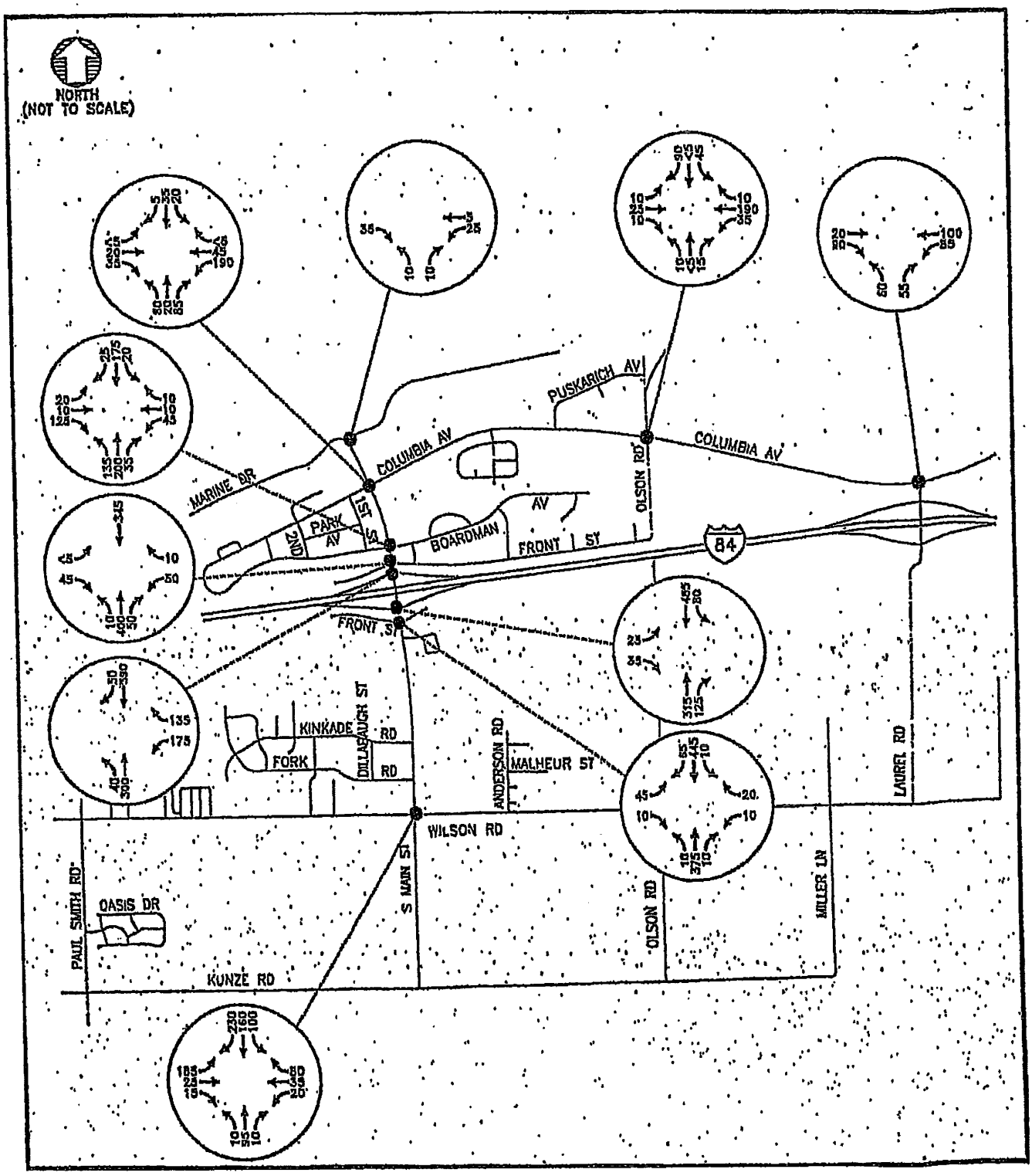


Figure VI-10: Estimated 2020 Traffic Volumes from the TSP



Drawing not to scale.

Figure VI-11: PM Peak Hour Trips Generated By The 3 Single-Family Developments

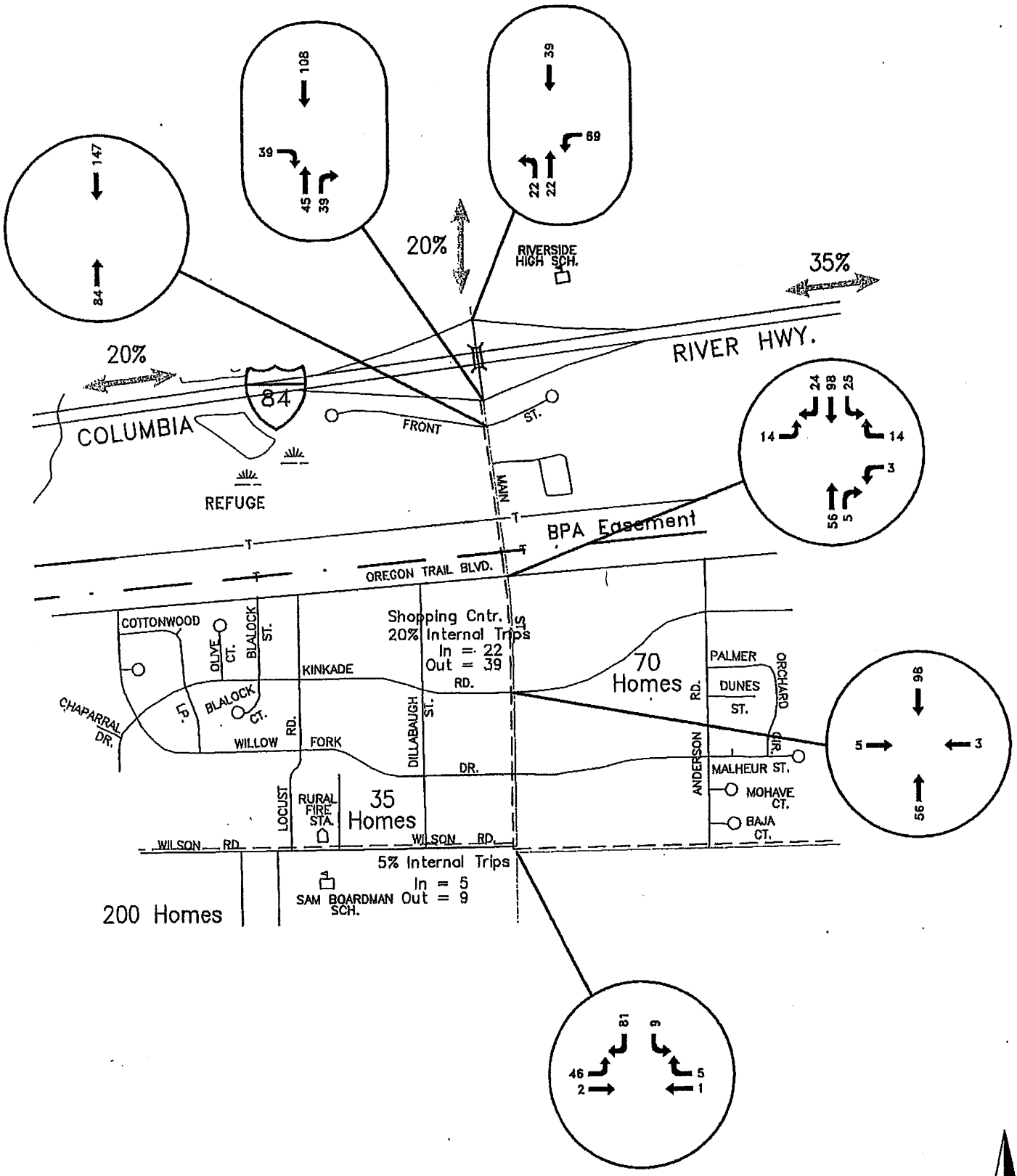


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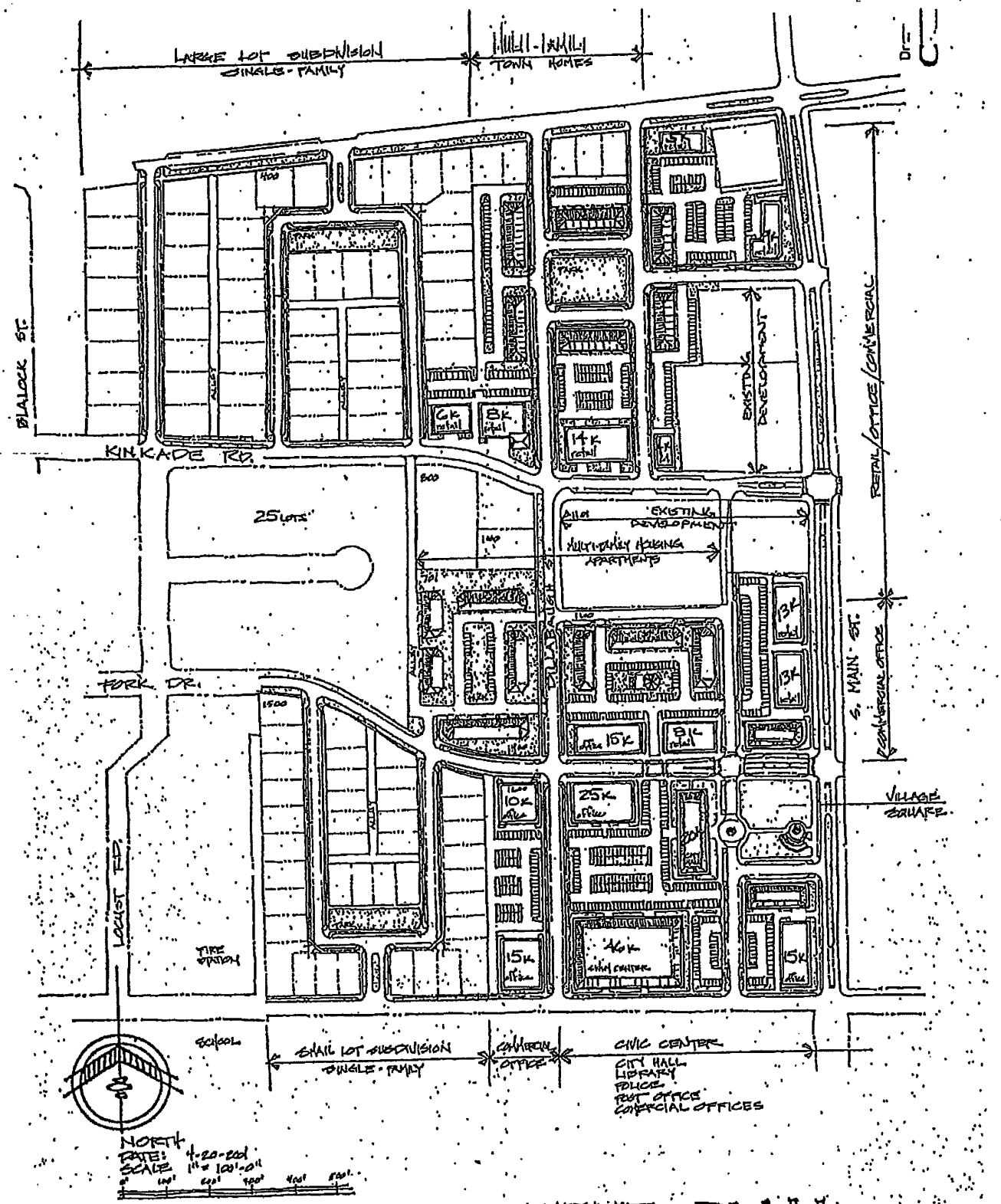
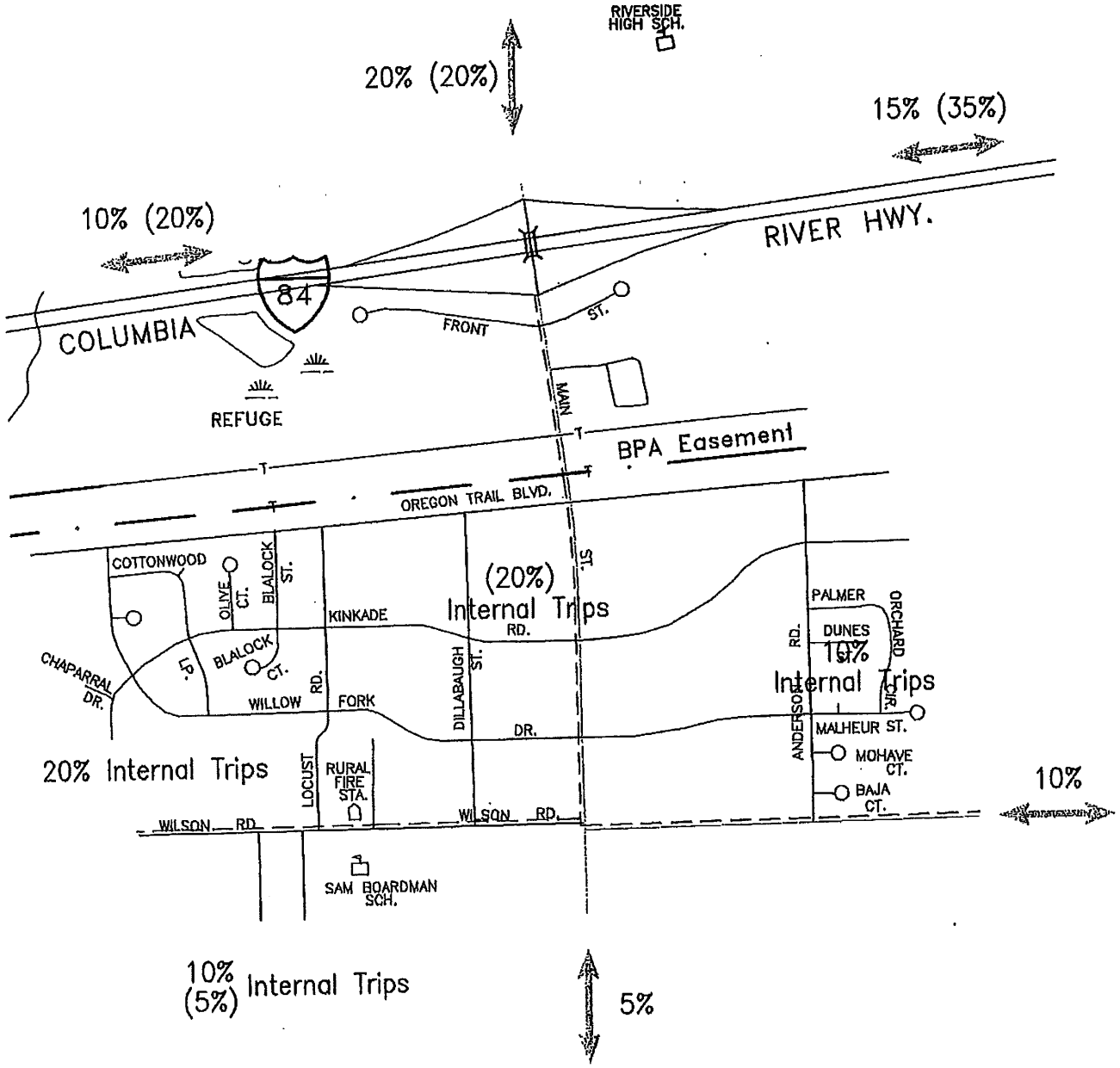
Figure VI-12: Latest Boardman Main Street "Downtown" Development Plan



FINAL DEVELOPMENT PLAN
CITY OF BOARDMAN, OREGON

TEILAND RISKIN GROUP
FOSTER CONSULTANTS
(503) 968-6589
(503) 635-6190

Figure VI-13: Directional Trip Distributions For Land Uses In Boardman Downtown Plan



(Residential) Commercial

Multi-Use Path — — — —

Stop Sign

Boardman TSP

N

Drawing not to scale.

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Figure VI-14: Traffix Model of Future 2020 Roadway Network for Boardman

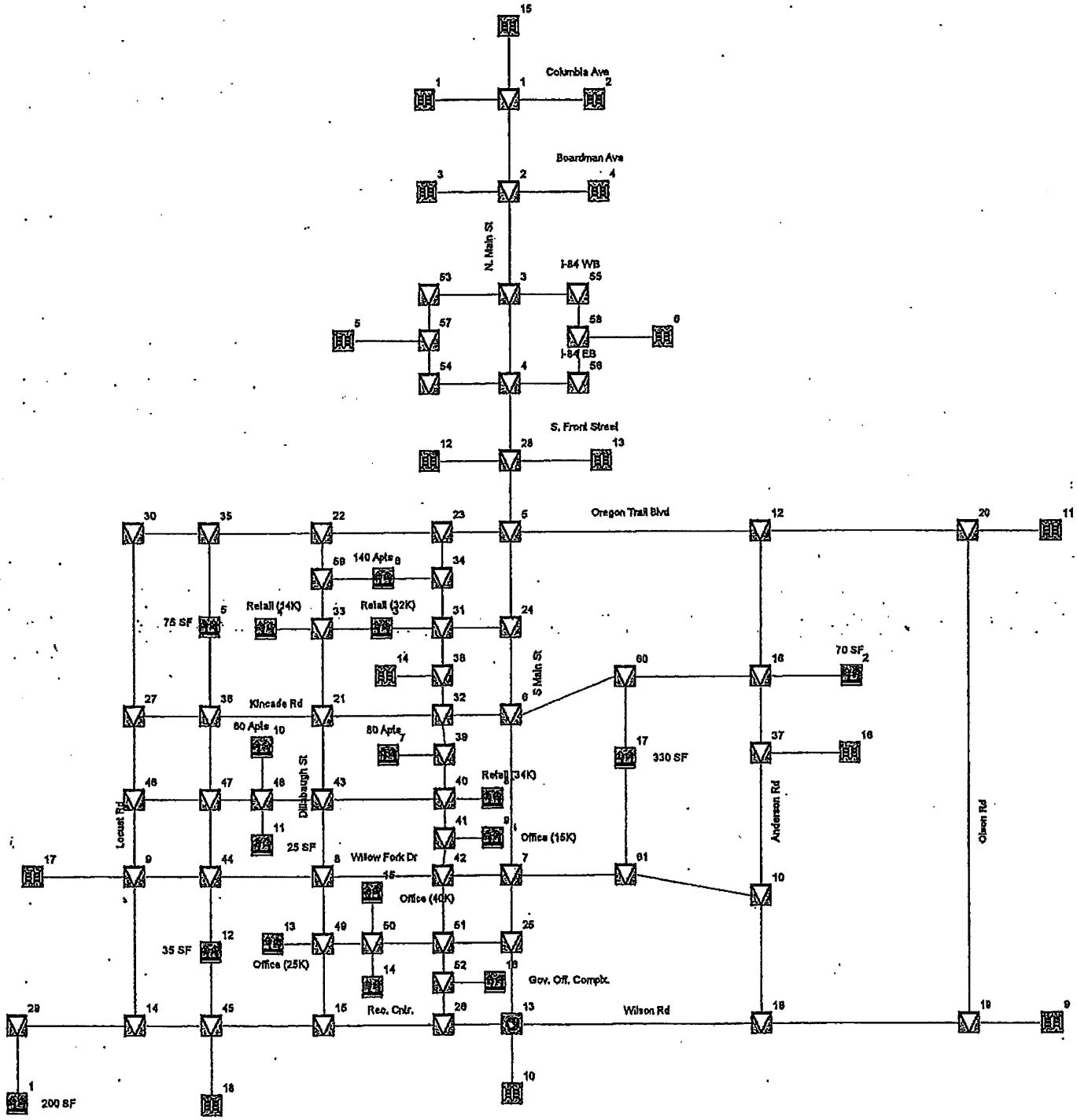

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Figure VI-15: Trips Generated by ALL Developments

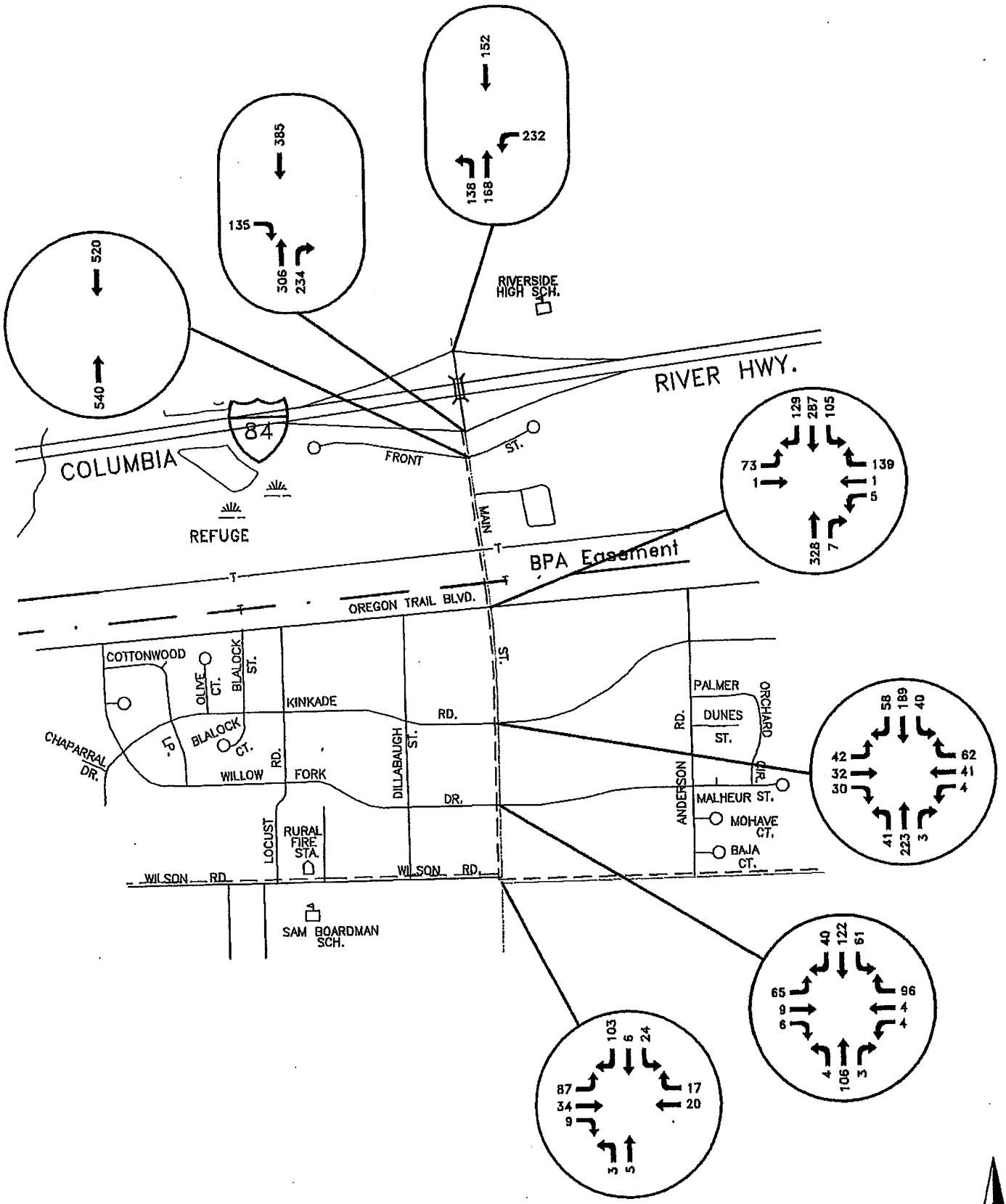

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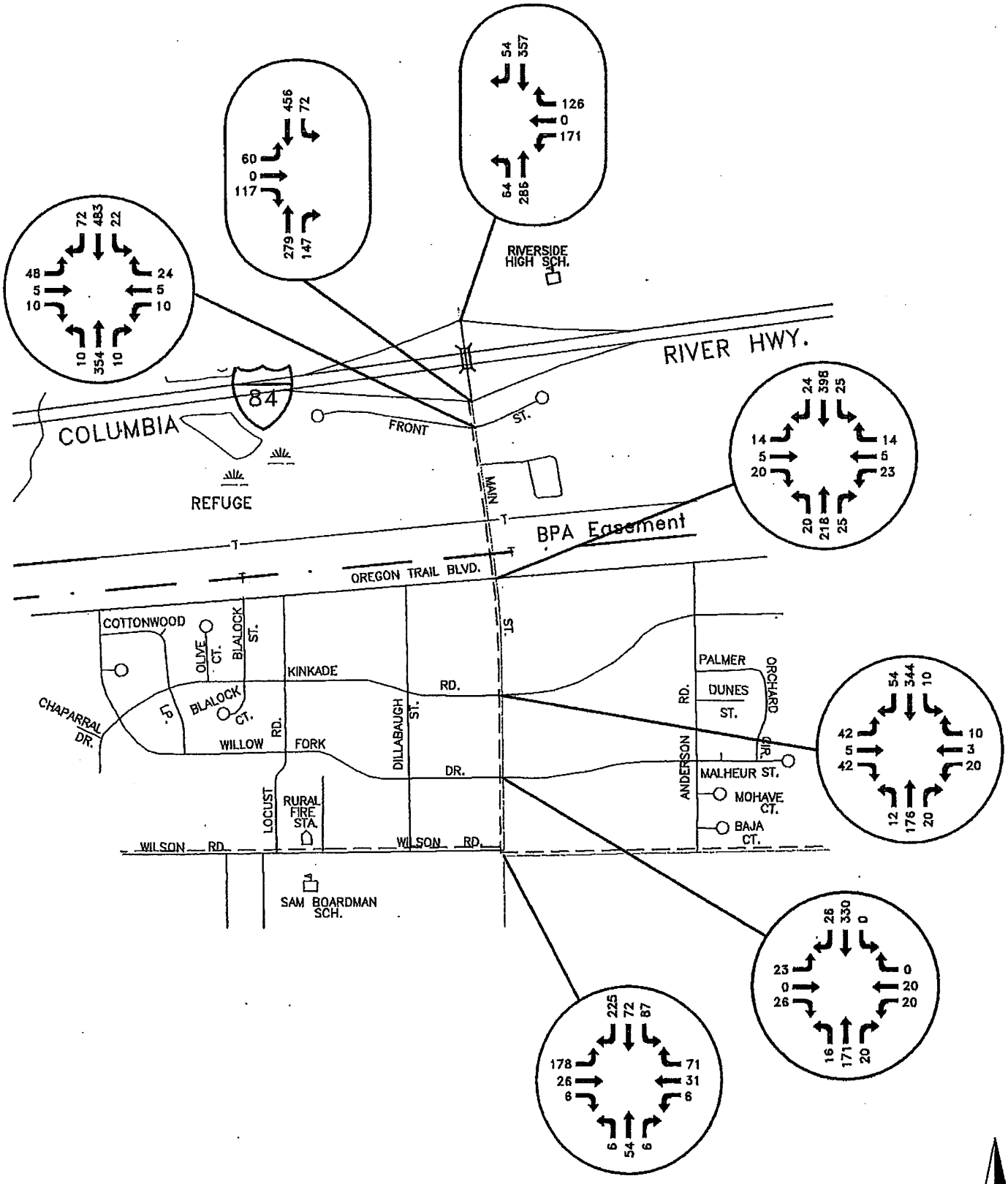
Figure VI-16: 2020 Projected Peak Hour Traffic Volumes With 20 Percent Growth And 3 Single-Family Developments (Scenerio I)



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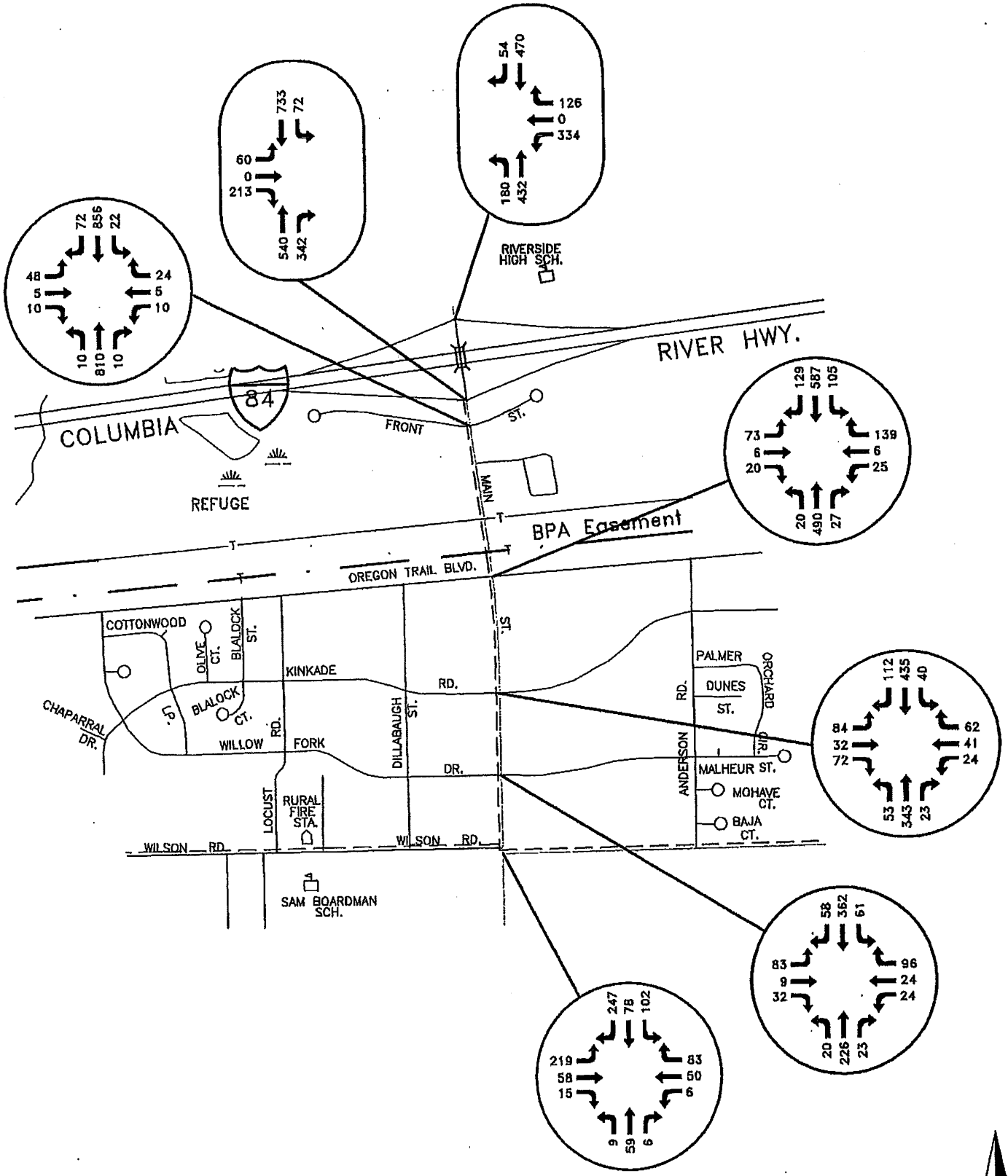
cts Engineers, Inc.

Figure VI-17: 2020 Projected Peak Hour Traffic Volumes With 20 Percent Growth And ALL Developments (Scenerio II)



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cts Engineers, Inc.

Figure VI-18: Standard Roadway Sections from TSP

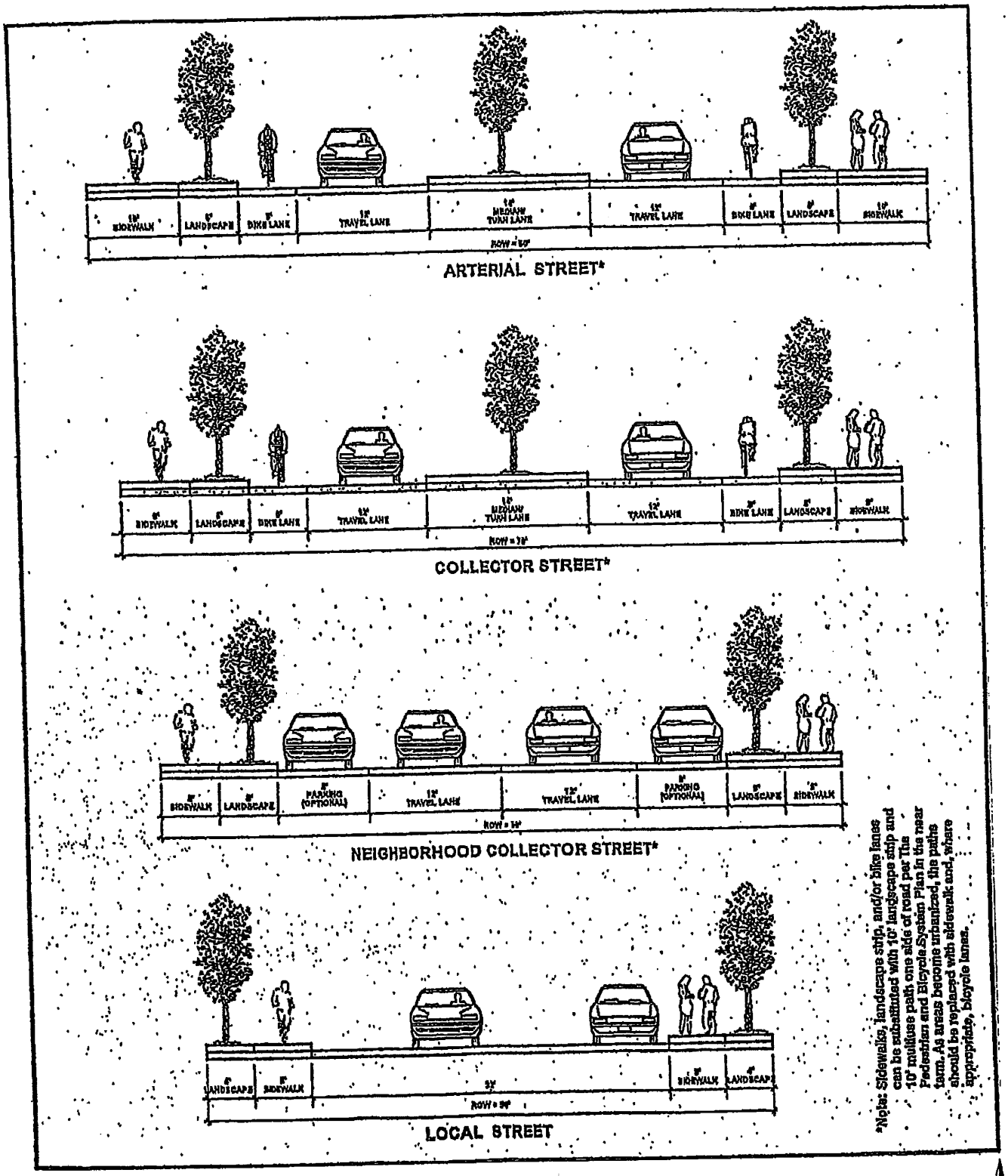

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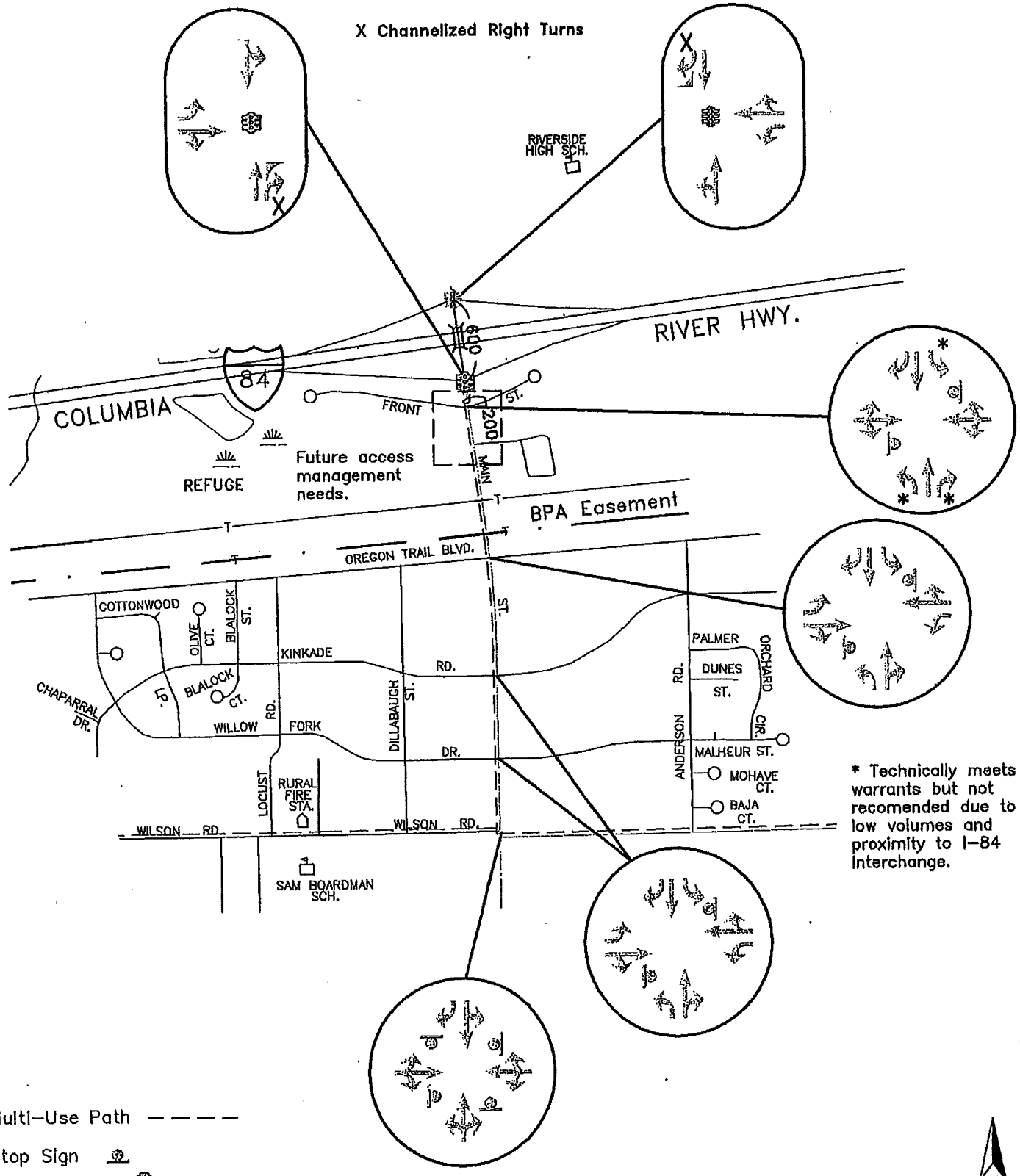
Figure VI-19: Proposed 2020 Traffic Controls and Lane Configurations at Study Area Intersections



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COST ESTIMATES AND POTENTIAL IMPLEMENTATION MECHANISMS

Preliminary cost estimates are provided for arterial, collector, and local streets. These are rough cost estimates to be used as a guide to facilitate identification of costs for specific projects and in identifying funding priorities. As preliminary and final design of specific projects occur, more detailed and accurate cost estimates should be prepared.

Street Cost Estimate

Street Type	Street $[1]	Water/Sewer $	Street Amenities	Design[2]	Total
Arterial	$625/LF	$140/LF	$220/LF[3]	$100/LF	$1,085/LF
Collector	$575/LF	$140/LF	$175/LF[4]	$90/LF	$980/LF
Local Street	$450/LF	$140/LF	$55/LF[5]	$65/LF	$710/LF

Streetscape Amenities

Description	Unit Price	Unit
Street Trees & Grates ($80/tree, $250/grate)	$330	Each
Bulbouts (w/ colored, stamped pattern)	$2,250	Each
Street Lights (non-historic)	$1,100	Each
Historic Street Lights	$1,500	Each
Benches	$800	Each
Drinking Fountain	$1,000	Each
Trash Receptacle	$250	Each
Irrigation	$15	Lineal Foot
Plant Materials	$18	Lineal Foot
Electrical Conduit	$14	Lineal Foot
Total	--	--

[1] Includes elements identified in the street design standards, i.e. pavement width, curbs, sidewalks, storm drainage.
[2] Estimated to be approximately 10% of construction costs.
[3] Includes street trees and grates, bulbouts, historic street lights, irrigation, plant materials, electrical conduit, benches, drinking fountain, trash receptacles.
[4] Includes street trees and grates, bulbouts, historic street lights, irrigation, plant materials, and electrical conduit.
[5] Includes street trees, street lights, and irrigation.

POTENTIAL IMPLEMENTATION MECHANISMS

This section identifies potential implementation mechanisms according to the following categories:

- **Revenue Resources**
- **Grants and Loans**
- **ODOT Funding Sources**
- **Volunteer Labor and Material Donation**

Revenue Resources

In order to finance the recommended transportation system improvements it will require the expenditure of substantial capital resources. More importantly, the City of Boardman needs to consider a range of funding sources implement the identified improvements. Although property taxes have traditionally served as the primary revenue source for local governments, property tax revenue accrues to general fund operations, and is typically not available for dedicated street improvements or maintenance. Despite this limitation, the use of alternative revenue funding has been a trend throughout Oregon as the full implementation of Measure 5 and 47 has significantly reduced property tax revenues (see below). *The alternative revenue sources described in this section may not all be appropriate in Boardman; however, this overview is being provided to illustrate the range of options currently available to finance transportation improvements during the next 20 years.*

Property Taxes

Property taxes have historically been the primary revenue source for local governments. However, property tax revenue accrues to the general operating fund for the City. This revenue source is not typically available for street improvements or maintenance. The dependence of local governments on this revenue source is due, in large part, to the fact that property taxes are easy to implement and enforce. Property taxes are based on real property (i.e. land and buildings), which has a predictable value and appreciation to base taxes upon. This is as opposed to income or sales taxes, which can fluctuate with economic trends or unforeseen events.

Property taxes can be levied through: 1) tax base levies, 2) serial levies, and 3) bond levies. The most common method uses tax base levies, which do not expire and are allowed to increase by six percent per annum. Serial levies are limited by amount and time they can be imposed. Bond levies are for specific projects and are limited by time based on the debt load of the local government on the project.

The historic dependence on property taxes in Oregon is changing with the passage of Ballot Measure 5 in the early 1990s. Ballot Measure 5 limits the property tax rate for purposes other than payment of certain voter-approved general obligation indebtedness. Under full implementation, the tax rate for all local taxing authorities is limited to $15 per $1,000 of assessed valuation. As a group, all non-school taxing authorities are limited to $10 per $1,000 of assessed valuation. All tax base, serial, and special levies are subject to the tax rate limitation. Ballot Measure 5 requires that all non-school taxing districts' property tax rate be reduced if together they exceed $10 per $1,000 of assessed valuation; then all of the taxing districts' tax rates are reduced on a proportional basis. The proportional reduction in the tax rate is commonly referred to as compression of the tax rate.

Measure 47, another ballot initiative passed by Oregon voters in November 1996, is a constitutional amendment that reduces and limits property taxes, which in turn limits local revenues and replacement fees. The measure limits 1997-98 property taxes to the lesser of the 1995-96 tax, minus 10 percent, or the 1994-95 tax. It limits future annual property tax increases to three percent, with exceptions. Local governments' lost revenue may be replaced only with state income tax, unless voters approve replacement fees or charges. Tax levy approvals in certain elections require a "double majority" of 50 percent voter participation and approval.

Subsequent to Measure 47, the state legislature created Measure 50, which retains the tax relief of Measure 47, but clarifies some legal issues. Oregon voters approved this revised tax measure in May 1997.

The League of Oregon Cities (LOC) estimated that direct revenue losses to local governments, including school districts, may total $467 million in fiscal year 1998, $553 million in 1999, and increase thereafter. The actual revenue losses to local governments will depend on actions of the Oregon legislature. LOC also estimates that the state will have revenue gains of $23 million in 1998, $27 million in 1999, and increase thereafter because of increased personal and corporate tax receipts due to lower property tax deduction.

Measure 50 adds another layer of restrictions to those which govern the adoption of tax bases and levies outside the tax base, as well as Measure 5's tax rate limits for schools and non-schools, and tax rate exceptions for voter approved debt. Each new levy, and the imposition of a property tax, must be tested against a longer series of criteria before the collectible tax amount on a parcel of property can be determined.

State Highway Fund
The State of Oregon disburses gas tax revenue to all counties and cities to fund street improvements, road construction, and maintenance. In Oregon, the State collects gas taxes, vehicle registration fees, overweight/overheight fines and weight/mile taxes, and returns a portion of the total revenue to cities and counties through an allocation formula. The revenue share allocated to cities is divided among all incorporated cities based on population. A majority of Oregon cities use state gas tax allocations to fund street construction and maintenance.

Local Gas Taxes
The Oregon Constitution permits counties and incorporated cities to levy additional local gas taxes with the stipulation that the revenue generated from the taxes will be dedicated to street-related improvements and maintenance within the jurisdiction. At present, only a few local governments (including the cities of Woodburn and The Dalles, and Multnomah and Washington Counties) levy a local gas tax. The City of Boardman may consider raising its local gas tax as a way to generate additional street improvement funds. However, with relatively few jurisdictions exercising this tax, an increase in the cost differential between gas purchased in Boardman and gas purchased in neighboring communities may encourage drivers to seek less expensive fuel elsewhere. Any action will need to be supported by careful analysis to minimize the unintended consequences of such an action.

Vehicle Registration Fees
The Oregon Vehicle Registration Fee is allocated to state, counties and cities for road funding. Oregon counties are granted authority to impose a vehicle registration fee covering the entire county. The Oregon Revised Statutes would allow Jackson County to impose a biannual registration fee for all passenger cars licensed within the County. Although both counties and special districts have this legal authority, vehicle registration fees have not been imposed by local jurisdictions. A disincentive to employing such a fee may be the cost of collection and administration. In order for a local vehicle registration fee program to be viable in Jackson County, all incorporated cities and the county would need to formulate an agreement which would detail how the fees would be spent on future street construction and maintenance.

Local Improvement Districts
The Oregon Revised Statutes allow local governments to form Local Improvement Districts (LIDs) to construct public improvements. LIDs are most often used by cities to construct local projects such as streets, sidewalks, bikeways, or public facilities. The statutes allow formation of a district by either the city government or property owners. Cities that use LIDs are required to have a local LID ordinance that provides a process for district formation and payback property owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation. The types of allocation methods are only limited by the scope of the Local Improvement Ordinance. The cost of LID participation is considered an assessment against the property, which is a lien equivalent to a tax lien. Individual property owners typically have the option of paying the assessment in cash or applying for assessment financing through the city. Since the passage of Ballot

Measure 5, cities have most often funded local improvement districts through the sale of special assessment bonds.

Local Trust Funds and Fees
Although not commonly implemented, local trust funds and local fees can be assessed by a local jurisdiction to generate revenue. In Boardman, this could be a method for generating revenue for additional parking. A parking trust fund would be an alternative for meeting parking requirements, i.e. in lieu of providing parking spaces, a fee could be charged for parking spaces. The fees generated in the trust fund would then be used to assist in the financing of a public parking lot or structure.

Businesses could be assessed an annual public parking fee. The parking fee could be based on square footage of the business or by seating capacity for restaurants and charter boats. This would provide the City with an ongoing income that could be used to provide additional parking and to retire any debt incurred to provide additional parking.

System Development Charges (SDCs)
System Development Charges (SDCs), or impact fees, are becoming increasingly popular in funding public works infrastructure needed for new local development. Generally, the objective of systems development charges is to allocate portions of the costs associated with capital improvements on land development projects, which increase demand on transportation, water, sewer, other infrastructure systems, and public services.

Local governments have the legal authority to charge property owners and/or developers fees for improving the local public works infrastructure based on projected demand resulting from their development. The charges are most often targeted towards improving community water, sewer, or transportation systems. Cities and counties must have specific infrastructure plans in place that comply with state guidelines in order to collect SDCs.

Typically, the fee is collected when new building permits are issued. Transportation SDCs are based on trip generation of the proposed development. Residential calculations would be based on the assumption that a typical household will generate a given number of vehicle trips per day.

Nonresidential use calculations are based on employee ratios for the type of business or industrial uses. The SDC revenues help fund the construction of transportation facilities necessitated by new development.

GRANTS AND LOANS

There are a variety of grant and loan programs available, most with specific requirements relating to economic development or specific transportation issues, rather than for the general construction of new streets. Many programs require a match from the local jurisdiction as a condition of approval. Because grant and loan programs are subject to change, as well as statewide competition, they should not be considered a secure long-term funding source for Boardman. Most of the programs available for transportation projects are funded and administered through ODOT and/or the Oregon Economic Development Department (OEDD).

Bike-Pedestrian Grants
By law (ORS 366.514), all road or highway construction or reconstruction projects must include facilities for pedestrians and bicyclists, with some exceptions. ODOTs Bike and Pedestrian Program administers two programs to assist in the development of walking and bicycling improvements: local grants, and Small-Scale Urban Projects. Cities and counties with projects on local streets are eligible for local grant funds. An 80 percent state/20 percent local match ratio is required. Eligible projects include curb extensions, pedestrian crossings and intersection improvements, shoulder widening, and re-striping for bike lanes. Projects on urban state highways with little or no right-of-way acquisition and few environmental impacts are eligible for Small-Scale Urban Project Funds. Both programs are limited to projects costing up to $100,000. Projects that cost

more than $100,000, require right-of-way acquisition, or have environmental impacts should be submitted to ODOT for inclusion in the STIP.

Enhancement Program
This federally funded program earmarks $8 million annually for projects in Oregon. Projects must demonstrate a link to the intermodal transportation system, compatibility with approved plans, and local financial support. A 10.27 percent local match is required for eligibility. Each proposed project is evaluated against all other proposed projects in the region. Within the five Oregon regions, the funds are distributed on a formula based on population, vehicle miles traveled, number of vehicles registered, and other transportation-related criteria. The initial solicitation for applications was mailed to cities and counties October 1998. Local jurisdictions had until January 1999 to complete and file applications for funding available during the 2000-2003 fiscal years, which began October 1999.

Highway Bridge Rehabilitation or Replacement Program
The Highway Bridge Rehabilitation Program (HBRR) provides federal funding for the replacement and rehabilitation of bridges of all functional classifications. A portion of the HBRR funding is allocated for the improvement of bridges under local jurisdiction. A quantitative ranking system is applied to the proposed projects based on sufficiency rating, cost factor, and load capacity. They are ranked against other projects statewide, and require state and local matches of 10 percent each. It includes the Local Bridge Inspection Program and the Bridge Load Rating Program.

Transportation Safety Grant Program
Managed by ODOT's Transportation Safety Section (TSS), this program's objective is to reduce the number of transportation-related accidents and fatalities by coordinating a number of statewide programs. Program funds are intended as seed money, funding a program for three years. Eligible programs include programs in impaired driving, occupant protection, youth, pedestrian, speed enforcement, bicycle and motorcycle safety. Every year, TSS produces a Highway Safety Plan that identifies the major safety programs, suggests counter measures to existing safety problems, and lists successful projects selected for funding, rather than granting funds through an application process.

Special Transportation Fund
The Special Transportation Fund (STF) awards funds to maintain, develop, and improve transportation services for people with disabilities and people over 60 years of age. Financed by a two-cent tax on each pack of cigarettes sold in the state, the annual distribution is approximately $5 million. Three-quarters of these funds are distributed to mass transit districts, transportation districts, and where such districts do not exist, counties, or a per-capita formula. The remaining funds are distributed on a discretionary basis.

Special Small City Allotment Program
The Special Small City Allotment Program (SCA) is restricted to cities with populations under 5,000 residents. Unlike some other grant programs, no locally funded match is required for participation. Grant amounts are limited to $25,000 and must be earmarked for surface projects (drainage, curbs, sidewalks, etc.) However, the program does allow jurisdictions to use the grants to leverage local funds on non-surface projects if the grant is used specifically to repair the affected area. Criteria for the $1 million in total annual grant funds include traffic volume, the five-year rate of population growth, surface wear of the road, and the amount of time since the last SCA grant.

Immediate Opportunity Grant Program
The Oregon Economic Development Department (OEDD) and ODOT collaborate to administer a grant program designed to assist local and regional economic development efforts. The program is funded to a level of approximately $7 million per year through state gas tax revenues. The following are primary factors in determining eligible projects:

- Improvement of public roads;
- Inclusion of an economic development-related project of regional significance;
- Creation of retention of primary employment; and
- Ability to provide local funds (50/50) to match grant.

The maximum amount of any grant under the program is $500,000. Local governments which have received grants under the program include: Washington County, Multnomah County, Douglas County, the City of Hermiston, Port of St. Helens, and the City of Newport.

Oregon Special Public Works Fund
The Special Public Works Fund (SPWF) program was created by the 1995 State Legislature as one of several primarily for the construction of public infrastructure, which support commercial and/or industrial development programs for the distribution of funds from the Oregon Lottery to economic development projects in communities throughout the state. The program provides grant and loan assistance to eligible municipalities and result in permanent job creation or job retention. To be awarded funds, each infrastructure project must support businesses wishing to locate, expand, or remain in Oregon. SPWF awards can be used for improvement, expansion, and new construction of public sewage treatment plants, water supply works, public roads, and transportation facilities.

While SPWF program assistance is provided in the form of loans and grants, the program emphasizes loans in order to assure that funds will return to the state over time for reinvestment in local economic development infrastructure projects. Jurisdictions that have received SPWF funding for projects that include some type of transportation-related improvement include the cities of Baker City, Bend, Cornelius, Forest Grove, Madras, Portland, Redmond, Reedsport, Toledo, Wilsonville, Woodburn, and Douglas County.

Oregon Transportation Infrastructure Bank
The Oregon Transportation Infrastructure Bank (OTIB) program is a revolving loan fund administered by ODOT to provide loans to local jurisdictions (including cities, counties, special districts, transit districts, tribal governments, ports, and state agencies). Eligible projects include construction of federal-aid highways, bridges, roads, streets, bikeways, pedestrian facilities, and right-of-way costs. Capital outlays such as buses, light-rail cars and lines, maintenance yards, and passenger facilities are also eligible.

ODOT FUNDING OPTIONS

The State of Oregon provides funding for all highway related transportation projects through the Statewide Transportation Improvement Program (STIP) administered by the Oregon Department of Transportation. The STIP outlines the schedule for ODOT projects throughout the State. The STIP, which identifies projects for a three-year funding cycle, is updated on an annual basis. Starting with the 1998 budget year, ODOT will then identify projects for a four-year funding cycle. In developing this funding program, ODOT must verify that the identified projects comply with the Oregon Transportation Plan (OTP), ODOT Modal Plans, Corridor Plans, local comprehensive plans, and TEA-21 planning requirements. The STIP must fulfill federal planning requirements for staged, multi-year, statewide, intermodal program of transportation projects. Specific transportation projects are prioritized based on federal planning requirements and the different State plans. ODOT consults with local jurisdictions before highway related projects are added to the STIP.

The highway-related projects identified in Boardman's TSP will be considered for future inclusion on the STIP. The timing of including specific projects will be determined by ODOT based on an analysis of all the project needs within Region 2. The City of Boardman, Jackson County, and ODOT will need to communicate on an annual basis to review the status of the STIP and the prioritization of individual **projects within the project**

area. Ongoing communication will be important for the city, county, and ODOT to coordinate the construction of both local and state transportation projects.

ODOT also has the option of making small highway improvements as part of their ongoing highway maintenance program. Types of road construction projects that can be included within the ODOT maintenance programs are intersection realignments, additional turn lanes, and striping for bike lanes. Usually, ODOT field crews, using state equipment, complete maintenance related construction projects. The maintenance crews do not have the staff or specialized road equipment needed for large construction projects.

An ODOT funding technique that may have future application to Boardman's TSP is the use of state and federal transportation dollars for off-system improvements. ODOT has the authority and ability to fund transportation projects that are located outside the boundaries of the highway corridors. It is expected that this funding technique will be used to finance local system improvements that reduce traffic on state highways or reduce the number of access points for future development along state highways.

Financing Tools

In addition to funding options, the recommended improvements listed in this plan may benefit from a variety of financing options. Although often used interchangeably, the words financing and funding are not the same. Funding is the actual generation of revenue by which a jurisdiction pays for improvements, some examples include the sources discussed above: property taxes, SDCs, fuel taxes, vehicle registration fees, LIDs, and various grant programs. In contrast, financing refers to the collecting of funds through debt obligations.

The City of Boardman has a number of available debt financing options. The use of debt to finance capital improvements must be balanced with the ability to make future debt service payments and to deal with the impact on its overall debt capacity and underlying credit rating. Again, debt financing should be viewed not as a source of funding, but as a time shifting of funds. The use of debt to finance these transportation-system improvements is appropriate since the benefits from the transportation improvements will extend over the period of years. If such improvements were to be tax financed immediately, a large short-term increase in the tax rate would be required. By utilizing debt financing, local governments are essential, spreading the burden of the costs of these improvements to more of the people who are likely to benefit from the improvements and lowering immediate payments.

General Obligation Bonds

General obligation (GO) bonds are voter-approved bond issues, which represent the least expensive borrowing mechanism available to municipalities. GO bonds are typically supported by a separate property tax levy specifically approved for the purposes of retiring debt. The levy does not terminate until all debt is paid off. The property tax levy is distributed equally throughout the taxing jurisdiction according to assessed value of property. GO debts typically are used to make public improvement projects that will benefit the entire community.

State statutes require that the GO indebtedness of a city not exceed three percent (3%) of the real market value of all taxable property in the city. Since GO bonds would be issued subsequent to voter approval, they would not be restricted to the limitations set forth in Ballot Measures 5, 47, and 50. Although new bonds must be specifically voter approved, Measure 47 and 50 provisions are not applicable to outstanding bonds, unissued voter-approved bonds, or refunding bonds.

Limited Tax General Obligation Bonds

Limited tax general obligation (LTGO) bonds are similar to general obligation bonds in that they represent an obligation of the municipality. However, a municipality's obligation is limited to its current revenue sources and is not secured by the public entity's ability to raise taxes. As a result, LTGO bonds do not require voter approval. However, since the LTGO bonds are not secured by the full taxing power of the issuer, the limited tax bond represents a higher borrowing cost than GO bonds. The municipality must pledge to levy the maximum amount

under constitutional and statutory limits, but are not the unlimited taxing authority pledged with GO bonds. Because LTGO bonds are not voter approved, they are subject to the limitations of Ballot Measures 5, 47, and 50.

Bancroft Bonds
Under Oregon Statute, municipalities are allowed to issue Bancroft bonds, which pledge the city's full faith and credit to assessment bonds. As a result, the bonds become general obligations of the city, but are paid with assessments. Historically, these bonds provided a city with the ability to pledge its full faith and credit in order to obtain a lower borrowing cost without requiring voter approval. However, since Bancroft bonds are not voter approved, taxes levied to pay debt service on them are subject to the limitations of Ballot Measures 5, 47, and 50. As a result, since 1991, Bancroft bonds have not been used by Oregon municipalities, which were required to compress their tax rates.

VOLUNTEER LABOR AND MATERIAL DONATION

Volunteer labor and material donation is a potential mechanism for implementing transportation related improvements. However, this type of implementation mechanism typically should not be viewed as an ongoing long-term solution for making improvements.

REVIEW OF ORIGINAL PROJECT OBJECTIVES & TRANSPORTATION RELATIONSHIP/BENEFITS

1. **Strengthen the capability of Boardman to effectively manage growth and comply with the Transportation Planning Rule (TPR), integrate transportation and land use planning, and encourage transportation-efficient land uses.**

The plan provides for a mix of commercial, residential, and public uses within a defined, compact area. Multiple land uses are located within close proximity allowing people to conveniently move between uses via walking, bicycling, or driving.

2. **Address the 1999 Oregon Highway Plan (OHP) and access management standards, Policy 3C Interchange Access Management Areas, and Policy 1G Major Improvements Policy.**

The plan, including the traffic projections and analysis, addresses the OHP access management standards, interchange access management areas, and major improvements policies.

3. **Make more efficient use of the transportation infrastructure by separating local traffic from freeway-related traffic, thereby preventing or postponing reconstruction of the current interchange/overpass and on and off-ramps.**

The plan provides separation of local traffic from freeway-related traffic by providing a mix of uses within a compact area. The plan also provides retail and employment opportunities on the south side of the freeway where the primary residential development is occurring and will continue to occur.

4. **Reduce reliance on the automobile by developing the City's commercial/retail focal point in the area of future residential development and connecting it with a grid system of streets, bikeways and pedestrian paths.**

The plan reduces reliance on the automobile by providing commercial/retail uses in the area of future residential development and connecting it to the existing grid street system, i.e. Main Street, Wilson Road, Kinkade Road, Willow Fork Road, Dillabaugh Street, Locust Road, and planned Oregon Trail Blvd.

5. **Reduce traffic around the freeway interchange and the local street system that immediately serves and connects with the freeway system by encouraging future locally oriented commercial uses to develop away from the areas of conflict and by creating alternate travel routes.**

The location of the downtown reduces the need for local residents to travel to the north side of the freeway for goods and services.

6. **Improve transportation safety by separating local and freeway-oriented traffic, which also includes a large proportion of trucks that are accessing the Port of Morrow or utilizing traveler services at the interchange on Main Street.**

The plan separates local traffic from freeway-oriented traffic by providing a range of services and goods on the south side of the freeway where the primary residential development is occurring.

7. **Improve local transportation network connectivity by developing a plan that includes a grid system pattern of streets in the south Boardman area, and links current and future community facilities and the Port of Morrow.**

The plan capitalizes upon the existing and developing street grid system south of the freeway. The plan recommends future community facilities, i.e. civic use and retail uses, in close proximity to residential uses therefore providing shorter trips and multi-modal transportation opportunities between civic, commercial, and residential uses.

8. Direct commercial development in a concentrated, localized, mutually beneficial, and aesthetically pleasing pattern.

The plan establishes commercial development in a concentrated mixed use area by capitalizing and expanding the existing street grid system and by providing amenities, i.e. pedestrian/bicycle system, street amenities, parks, and open spaces.

9. Establish a stronger community identity.

The mixed use plan and civic uses, including a village square, provide a strong community identity.

10. Increase the overall livability in Boardman, thereby making it a more attractive place to reside.

The plan provides increased livability through a mix of uses within close proximity, multi-modal transportation opportunities and reduced reliance on the automobile, public facilities and open spaces, and an attractive street environment.

11. Reduce commuter-related traffic.

Commuter-related traffic is reduced by locating commercial uses and public facilities within close proximity to the primary developing residential area.

12. Adoption and implementation of the City of Boardman TSP in compliance with OAR 660-012-0015(3) and 660-012-045.

The plan includes update, adoption, and implementation of the Boardman Transportation System Plan.

APPENDICES

Appendix A. Recommended Downtown (D) Zoning District
Appendix B. Street Furniture Examples
Appendix C. Summaries of Meetings
Summary of September 13, 2000 Meetings & September 29, 2000 Telephone Conversation
Boardman Looks At Plans To Develop A "Downtown" Main Street Area (February 2001)
Article by Heidi Soderstrom, Eastern Oregonian
Summary of May 24, 2001 Meetings
Summary of June 14, 2001 Meetings

APPENDIX A. RECOMMENDED DOWNTOWN (D) ZONING DISTRICT

Chapter 2.2 — Downtown (D) District

Sections:

2.2.100 Purpose
2.2.110 Permitted Land Uses
2.2.120 Building Setbacks
2.2.130 Lot Coverage
2.2.140 Block Layout and Building Orientation
2.2.150 Building Height
2.2.160 Design Standards
2.2.170 Pedestrian Amenities
2.2.180 Special Standards for Certain Uses

2.2.100 Purpose

A city goal is to strengthen the Boardman Downtown district as the "heart" of the community and as the logical place for people to gather and create a business center. The District is intended to support this goal through elements of design and appropriate mixed use development. This chapter provides standards for the orderly improvement and expansion of the Boardman Downtown District based on the following principles:

- Efficient use of land and urban services;
- Direct commercial development in a concentrated, localized, mutually beneficial, and aesthetically pleasing pattern;
- Reduce reliance on the automobile by developing the City's commercial/retail focal point in the area of future residential development and connecting it with a grid system of streets, bikeways and pedestrian paths.
- A mixture of land uses to encourage walking as an alternative to driving, and provide more employment and housing options;
- Downtown Boardman provides both formal and informal community gathering places;
- There is a distinct storefront character which identifies downtown Boardman;
- The Boardman Downtown District is connected to neighborhoods and other employment areas;

2.2.110 Permitted Land Uses

A. Permitted Uses. The land uses listed in Table 2.2.110.A are permitted in the Boardman Downtown District, subject to the provisions of this Chapter. Only land uses which are specifically listed in Table 2.2.110.A, and land uses which are approved as "similar" to those in Table 2.2.110, may be permitted *[The land uses identified with a "CU" in Table 2.2.110.A require Conditional Use Permit approval prior to development or a change in use, in accordance with Chapter 4.4.].*

B. Determination of Similar Land Use. Similar use determinations shall be made in conformance with the procedures in Chapter 4.8 - Interpretations.

Table 2.2.110.A
Land Uses and Building Types Permitted in the *Boardman Downtown* District

1. Residential*: a. Single-family attached townhome *Two- and Three-Family* b. Two- and three-family housing (duplex and triplex) *Multi-family* c. Multi-family housing *Residential care* d. Residential care homes and facilities e. Family daycare (12 or fewer children) **2. Home occupations** **3. Bed & breakfast inns and vacation rentals** *[(CU)]**	**4. Public and Institutional*:** a. Churches and places of worship b. Clubs, lodges, similar uses c. Government offices and facilities (administration, public safety, transportation, utilities, and similar uses) d. Libraries, museums, community centers, concert halls and similar uses e. Public parking lots and garages f. Private utilities g. Public parks and recreational facilities h. Schools (public and private) i. Special district facilities j. Telecommunications equipment (including wireless) *[- CU]* k. Uses similar to those listed above *[subject to CU requirements, as applicable]* **5. Accessory Uses and Structures***	**6. Commercial:** a. Entertainment (e.g., theaters, clubs, amusement uses) b. Hotels/motels c. Medical and dental offices, clinics and laboratories d. Mixed use development (housing & other permitted use)* e. Office uses (i.e., those not otherwise listed) f. Personal and professional services (e.g., child care center, catering/food services, restaurants, laundromats and dry cleaners, barber shops and salons, banks and financial institutions, and similar uses) g. Repair services (must be enclosed within building) h. Retail trade and services, except auto-oriented uses i. Uses similar to those listed above *[subject to CU requirements, as applicable]* **7. Industrial*:** Light manufacture (e.g., small-scale crafts, electronic equipment, bakery, furniture, similar goods when in conjunction with retail)
Uses marked with an asterisk (*) are subject to the standards in Section 2.2.180, "Special Standards for Certain Uses." Home occupations and temporary uses are subject to the standards in Section 4.9.		

2.2.120 Building Setbacks

In the Boardman Downtown District, buildings are placed close to the street to create a vibrant pedestrian environment, to slow traffic down, provide a storefront character to the street, and encourage walking. The setback standards are flexible to encourage public spaces between sidewalks and building entrances (e.g., extra-wide sidewalks, plazas, squares, outdoor dining areas, and pocket parks). The standards also encourage the formation of solid blocks of commercial and mixed use buildings for a walkable Boardman Downtown.

Building setbacks are measured from the respective property line. Setbacks for porches are measured from the edge of the deck or porch to the property line. The setback standards, as listed on the following page, apply to primary structures as well as accessory structures. The standards may be modified only by approval of a Variance, in accordance with Chapter 5.1.

A. Front Yard Setbacks.

1. Minimum Setback. There is no minimum front yard setback required.

2. Maximum Setback. The maximum allowable front yard setback is 0 feet. On parcels with more than one building, this standard applies to the largest building. The setback standard may be increased when a usable public space with pedestrian amenities (e.g., extra-wide sidewalk, plaza, pocket park, outdoor dining area or town square with seating) is provided between the building and front property line. (See also, Pedestrian Amenities Standards in Section 2.2.170, and Design Standards in Section 2.2.160 for related building entrance standards.)

B. Rear Yard Setbacks.

1. Minimum Setback. The minimum rear yard setback for all structures shall be 0 feet for street-access lots, and 8 feet for alley-access lots (distance from building to rear property line or alley easement) in order to provide space for parallel parking.

2. Through-Lots. For buildings on through-lots (lots with front and rear frontage onto a street), the front yard setbacks in "A" shall apply.

C. Side Yard Setbacks. There is no minimum side yard setback required, except that buildings shall conform to the vision clearance standards in Chapter 3.1 and the applicable fire and building codes for attached structures, fire walls, and related requirements.

2.2.130 Lot Coverage *[and Floor Area Ratio]*

A. Lot Coverage. There is no maximum lot coverage requirement, except that compliance with other sections of this code may preclude full (100 percent) lot coverage for some land uses.

B. Floor Area Ratio. There is no maximum floor area ratio, except that compliance with other sections of this code may limit floor area ratios.

2.2.140 Block Layout and Building Orientation

This section is intended to promote the walkable, storefront character of Boardman Downtown by forming short blocks and orienting (placing or locating) buildings close to streets. Placing buildings close to the street also slows traffic down and provides more "eyes on the street", increasing the safety of public spaces. The standards, as listed on the following page and illustrated above, compliment the front yard setback standards in Section 2.2.120.

A. Applicability. This Section applies to new Land Divisions and all of the following types of development (i.e., subject to Site Design Review):

1. Three or more single family attached townhomes on their own lots (i.e., townhomes subject to Site Design Review);

2. Duplex and tri-plex developments with more than one building (i.e., duplex and tri-plex developments subject to Site Design Review);

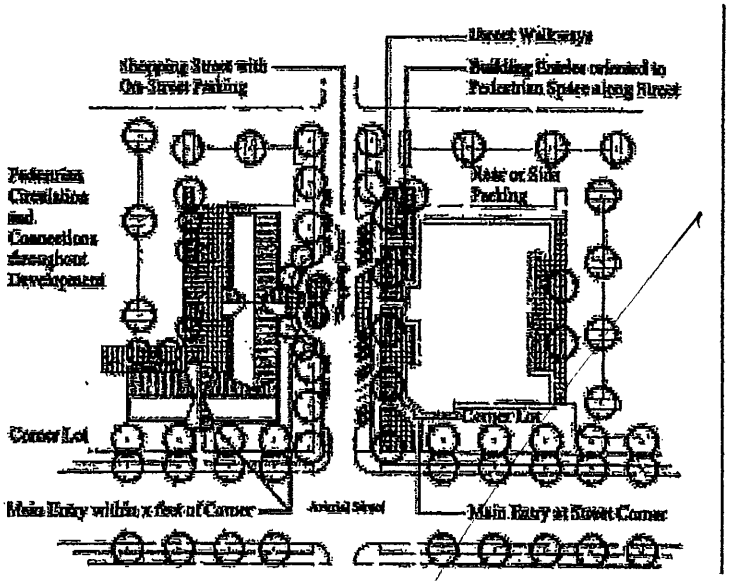
3. Multi-family housing;

4. Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and

5. Commercial and mixed use buildings subject to site design review.

Compliance with all of the provisions of subsections B through E, below, shall be required.

B. Block Layout Standard. New land divisions and developments which are subject to Site Design Review shall be configured to provide an alley or interior parking court, as shown above. Blocks (areas bound by public street right-of-way) shall have a length not exceeding 200 feet, and a depth not exceeding 200 feet. Pedestrian pathways shall be provided from the street right-of-way to interior parking courts between buildings, as necessary to ensure reasonably safe, direct, and convenient access to building entrances and off-street parking. Exceptions to this standard may be approved when all of the provisions of subsection 'C' (Superblock Development) below are met.

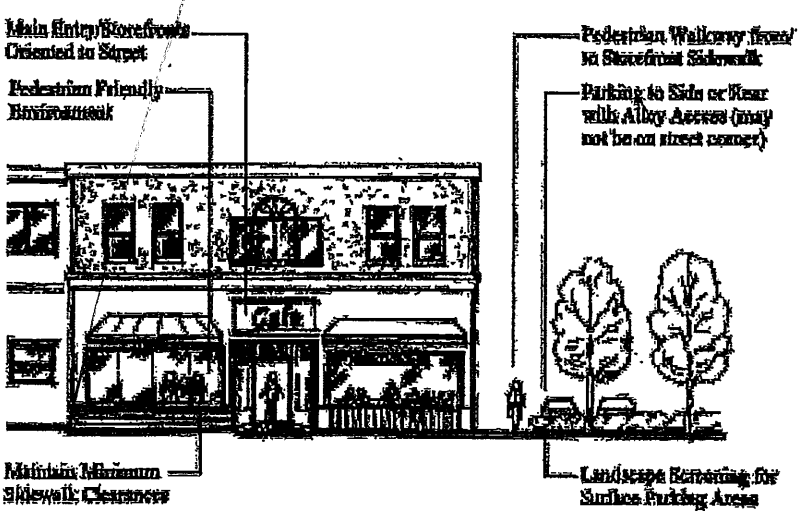


C. **Superblock Developments.** "Superblock developments" shall conform to all of the standards in 1-2 below (See figure):

1. Create a "shopping street". Each development has at least one street or drive designed with the basic elements of a good pedestrian-oriented shopping street: buildings oriented (placed) close to both sides of a "main street", which may be public or private; on-street parking; wide sidewalks (e.g., 8-12 feet typical), street trees; pedestrian-scale lighting and other similar enhancements.

2. Provide usable pedestrian space. Pedestrian space means a plaza or extra-wide pathway/sidewalk near one or more building entrances. Each development provides street trees or planters, space for outdoor seating, canopies or awnings, and on-street parking (in selected areas) to improve the pedestrian environment along internal private drives.

Figure 2.2.140D - Building Orientation (Typical)



D. Building Orientation Standard. All of the developments listed in Section A shall be oriented to a street. The building orientation standard is met when all of the following criteria are met:

1. The minimum and maximum setback standards in Section 2.2.120 are met;

2. Buildings have their primary entrance(s) oriented to (facing) the street. Building entrances may include entrances to individual units, lobby entrances, entrances oriented to pedestrian plazas, or breezeway/courtyard entrances (i.e., to a cluster of units or commercial spaces). Alternatively, a building may have its entrance facing a side yard when a direct pedestrian walkway not exceeding 10 feet in length is provided between the building entrance and the street right-of-way.

3. Off-street parking, driveways or other vehicular circulation shall not be placed between a building and the street which is used to comply with subsection 'b', above. On corner lots, buildings and their entrances shall be oriented to the street corner, as shown above; parking, driveways and other vehicle areas shall be prohibited between buildings and street corners.

E. Variances. The standards of this Section shall not be changed through a Class A Variance. The standard may be varied to address physical constraints, in accordance with the provisions for Class B or C variances in Chapter 5.

2.2.150 Building Height

All buildings in the Boardman Downtown District shall comply with the following building height standards. The standards are intended to allow for development of appropriately-scaled buildings with a storefront character:

A. Maximum Height. Buildings shall be no more than four (4) stories or 50 feet in height, whichever is greater. The maximum height may be increased by 10 feet when housing is provided above the ground floor ("vertical mixed use"), as shown above. The building height increase for housing shall apply only to that portion of the building that contains housing.

B. Method of Measurement. "Building height" is measured as the vertical distance above a reference datum measured to the highest point of the coping of a flat roof or to the deck line of a mansard roof or to the average height of the highest gable of a pitched or hipped roof (See Figure 2.1.170 for examples of measurement). The reference datum shall be selected by either of the following, whichever yields a greater height of building:

1. The elevation of the highest adjoining sidewalk or ground surface within a five-foot horizontal distance of an exterior wall of the building when such sidewalk or ground surface is not more than 10 feet above the lowest grade;

2. An elevation 10 feet higher than the lowest grade when the sidewalk or ground surface described in subsection 'A' is more than 10 feet above the lowest grade. The height of a stepped or terraced building is the maximum height of any segment of the building. Not included in the maximum height are: chimneys, bell towers, steeples, roof equipment, flag poles, and similar features which are not for human occupancy.

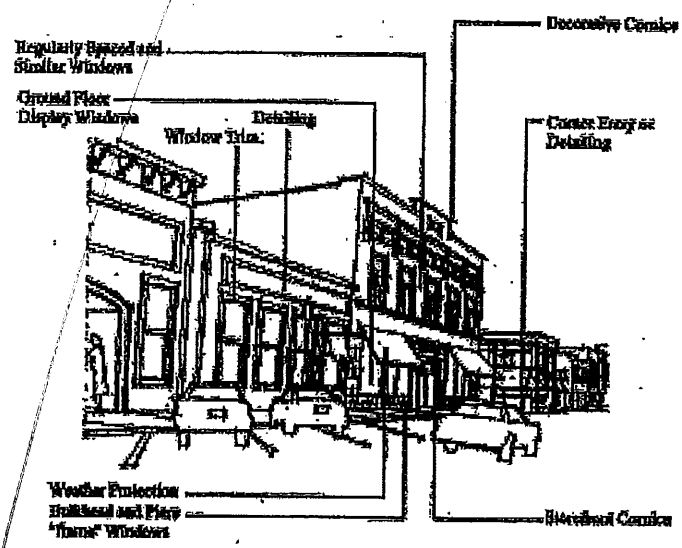
2.2.160 Design Standards

A. Purpose and Applicability. The Boardman Downtown design standards are intended to provide detailed, human-scale design, while affording flexibility to use a variety of building styles. This section applies to all of the following types of buildings:

1. Three or more single family attached townhomes on their own lots (i.e., townhomes subject to Site Design Review);
2. Duplex and tri-plex developments with more than one building (i.e., duplex and tri-plex developments subject to Site Design Review);
3. Multi-family housing;
4. Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and
5. Commercial and mixed use buildings subject to site design review.

B. Guidelines and Standards. Each of the following standards shall be met. An architectural feature used to comply with one standard may be used to comply with another standard.

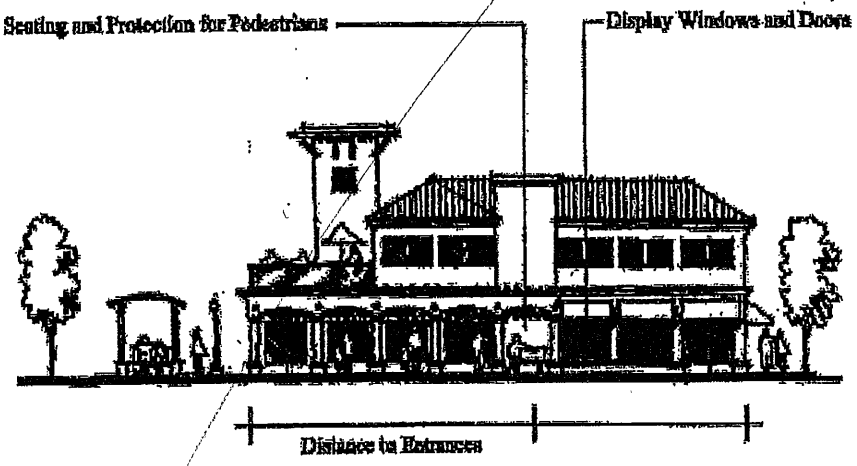
Figure 2.2.160(1) – [Downtown / Main Street] Building Design Elements (Typical)



1. Detailed Storefront Design. All buildings shall contribute to the storefront character and visual relatedness of Downtownbuildings. This criterion is met by providing all of the architectural features listed in a-e, below, along the front building elevation (i.e., facing the street), as applicable. *[Note: the example shown above is meant to illustrate required building design elements, and should not be interpreted as a required architectural style.]*

a. Corner building entrances on corner lots. Alternatively, a building entrance may be located away from the corner when the building corner is beveled or incorporates other detailing to reduce the angular appearance of the building at the street corner.
b. Regularly spaced and similar-shaped windows with window hoods or trim (all building stories).
c. Large display windows on the ground-floor (non-residential uses only). Display windows shall be framed by bulkheads, piers and a storefront cornice (e.g., separates ground-floor from second story, as shown above).
d. Decorative cornice at top of building (flat roof); or eaves provided with pitched roof.
e. All residential buildings subject to design review shall comply with the Residential District design standards, as listed in Chapter 2.1, Section 190.

Figure 2.2.160B(2) – Design of Large-Scale Buildings and Developments (Typical)



2. Design of Large-Scale Buildings and Developments. The standards in subsection "c", below, shall apply to "Large-Scale Buildings and Developments", as defined in a-b:
   a. Buildings with greater than 20,000 square feet of enclosed ground-floor space (i.e., "large-scale"). Multi-tenant buildings shall be counted as the sum of all tenant spaces within the same building shell; and
   b. Multiple-building developments with a combined ground-floor space (enclosed) greater than 40,000 square feet (e.g., shopping centers, public/institutional campuses, and similar developments).
   c. All large-scale buildings and developments, as defined in a-b, shall provide human-scale design by conforming to all of the following criteria:
      (1) Incorporate changes in building direction (i.e., articulation), and divide large masses into varying heights and sizes, as shown above. Such changes may include building offsets; projections; changes in elevation or horizontal direction; sheltering roofs; terraces; a distinct pattern of divisions in surface materials; and use of windows, screening trees; small-scale lighting (e.g., wall-mounted lighting, or up-lighting); and similar features. *[Note: the example shown above is meant to illustrate examples of these building design elements, and should not be interpreted as a required architectural style.]*

(2) Every building elevation adjacent to a street with a horizontal dimension of more than 100 feet, as measured from end-wall to end-wall, shall have a building entrance; except that buildings elevations that are unable to provide an entrance due to the internal function of the building space (e.g., mechanical equipment, areas where the public or employees are not received, etc.) may not be required to meet this standard. Pathways shall connect all entrances to the street right-of-way, in conformance with Chapter 3.1 - Access and Circulation.

2.2.170 Pedestrian Amenities

A. Purpose and Applicability. This section is intended to complement the building orientation standards in Section 2.2.140, and the street standards in Chapter 3.1, by providing comfortable and inviting pedestrian spaces within the Boardman Downtown District. Pedestrian amenities serve as informal gathering places for socializing, resting, and enjoyment of the City's Downtown, and contribute to a walkable district. This section applies to all of the following types of buildings:

1. Three or more single family attached townhomes on their own lots (i.e., townhomes subject to Site Design Review);

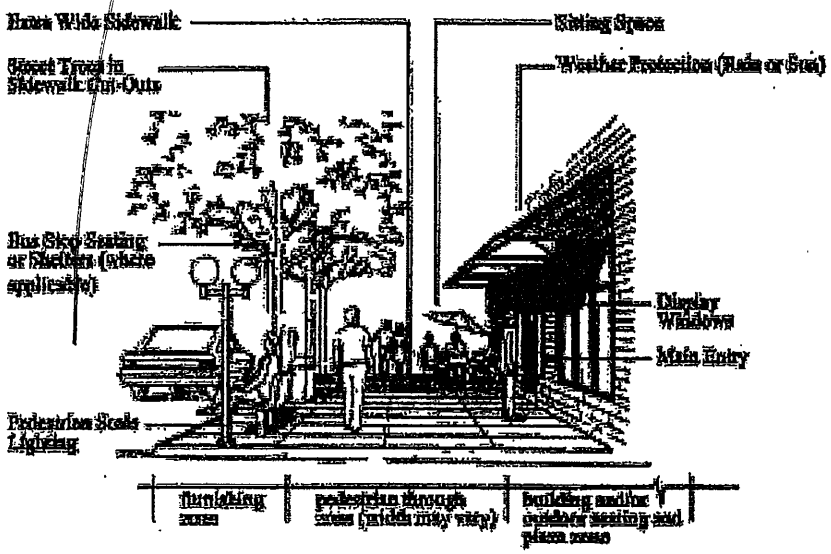
2 Duplex and tri-plex developments with more than one building (i.e., duplex and tri-plex developments subject to Site Design Review);

3. Multi-family housing;

4. Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and

5. Commercial and mixed use buildings subject to site design review.

Figure 2.2.170 - Pedestrian Amenities (Typical)



B. Guidelines and Standards. Every development shall provide one or more of the "pedestrian amenities" listed in 1-4, below, and illustrated above. *[Note: the example shown above is meant to illustrate examples of pedestrian amenities. Other types of amenities and designs may be used.]* Pedestrian amenities may be provided within a public right-of-way when approved by the applicable jurisdiction.

1. A plaza, courtyard, square or extra-wide sidewalk next to the building entrance (minimum width of 15 feet);

2. Sitting space (i.e., dining area, benches or ledges between the building entrance and sidewalk (minimum of 16 inches in height and 30 inches in width);

3. Building canopy, awning, pergola, or similar weather protection (minimum projection of 4 feet over a sidewalk or other pedestrian space).

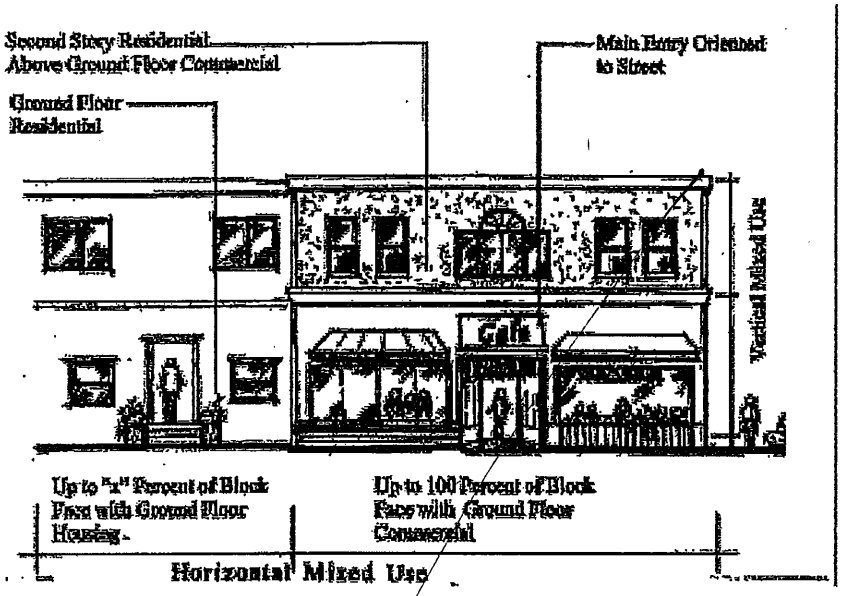
4. Public art which incorporates seating (e.g., fountain, sculpture, etc.).

2.2.180 Special Standards for Certain Uses

This section supplements the standards contained Sections 2.2.100 through 2.2.170. It provides standards for the following land uses in order to control the scale and compatibility of those uses within the Residential District:

- **Residential Uses**
- **Bed and Breakfast Inns and Vacation Rentals**
- **Public and Institutional Uses**
- **Accessory Uses and Structures**
- **Automobile-Oriented Uses and Facilities**
- **Outdoor Storage and Display**
- **Light Manufacture**

A. **Residential Uses.** Higher density residential uses, such as multi-family buildings and attached townhomes, are permitted to encourage housing near employment, shopping and services. All residential developments shall comply with the standards in 1-6, below, which are intended to require mixed use development; conserve the community's supply of commercial land for commercial uses; provide for designs which are compatible with a storefront character; avoid or minimize impacts associated with traffic and parking; and ensure proper management and maintenance of common areas. Residential uses which existed prior to the effective date of this code are exempt from this Section.



1. Mixed Use Development Required. Residential uses shall be permitted only when part of a mixed use development (residential with commercial or public/institutional use). Both "vertical" mixed use (housing above the ground floor), and "horizontal" mixed use (housing on the ground floor) developments are allowed, subject to the standards in 2-6.

2. Limitation on street-level housing. No more than 50 percent of a single street frontage may be occupied by residential uses. This standard is intended to reserve storefront space for commercial uses and public/institutional uses; it does not limit residential uses above the street level on upper stories, or behind street-level storefronts.
3. Density. There is no minimum or maximum residential density standard. Density shall be controlled by the applicable lot coverage, floor area, and building height standards.

4. Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be oriented to alleys, placed underground, placed in structures above the ground floor, or located in parking areas located behind or to the side of the building; except that side-yards facing a street (i.e., corner yards) shall not be used for surface parking. All garage entrances facing a street (e.g., underground or structured parking) shall be recessed behind the front building elevation by a minimum of 6 feet. On corner lots, garage entrances shall be oriented to a side-street (i.e., away from Main Street when access cannot be provided from an alley.

5. Creation of Alleys. When a subdivision (e.g., four or more townhome lots) is proposed, a public or private alley shall be created for the purpose of vehicle access. Alleys are not required when existing development patterns make construction of an alley impracticable. As part of a subdivision, the City may require dedication of right-of-way or easements, and construction of pathways between townhome lots (e.g., between building breaks) to provide pedestrian connections through a development site, in conformance with Chapter 3.1- Access and Circulation.

6. Common Areas. All common areas (e.g., walkways, drives, courtyards, private alleys, parking courts, etc.) and building exteriors shall be maintained by a homeowners association or other

legal entity. Copies of any applicable covenants, restrictions and conditions shall be recorded and provided to the city prior to building permit approval.

B. Public and Institutional Uses. Public and institutional uses (as listed in Table 2.2.110.A) are allowed in the Boardman Downtown District, except that automobile-oriented uses shall comply with the standards in "E", below.

C. Accessory Uses and Structures. Accessory uses and structures are of a nature customarily incidental and subordinate to the principal use or structure on the same lot. Typical accessory structures in the Boardman Downtown District include small workshops, greenhouses, studios, storage sheds, and similar structures. Accessory uses and structures are allowed for all permitted land uses within the Boardman Downtown District, as identified in Table 2.2.2.A. Accessory structures shall comply with the following standards:

1. Primary use required. An accessory structure shall not be allowed before or without a primary use, as identified in Table 2.2.110.A.

2. Setback standards. Accessory structures shall comply with the setback standards in Section 2.2.120.

3. Design guidelines. Accessory structures shall comply with the Boardman Downtown design guidelines, as provided in Section 2.2.160.

4. Restrictions. A structure shall not be placed over an easement that prohibits such placement. No structure shall encroach into the public right-of-way.

5. Compliance with subdivision standards. The owner may be required to remove an accessory structure as a condition of land division approval when removal of the structure is necessary to comply with setback standards.

E. Automobile-Oriented Uses and Facilities. Automobile-oriented uses and facilities, a defined below, shall conform to all of the following standards in the Boardman Downtown District. The standards are intended to provide a vibrant storefront character, slow traffic down, and encourage walking.

1. Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be accessed from alleys, placed underground, placed in structures above the ground floor, or located in parking areas located behind or to the side of a building; except that side-yards on corner lots shall not be used for surface parking. All garage entrances facing a street (e.g., underground or structured parking) shall be recessed behind the front elevation by a minimum of 6 feet. On corner lots, garage entrances shall be oriented to a side-street (i.e., away from Main Street when vehicle access cannot be provided from an alley. Individual surface parking lots shall not exceed a total of 50 parking spaces, or one-half city block, whichever is smaller; larger parking areas shall be in multiple story garages.

2. Automobile-Oriented Uses. "Automobile-oriented use" means automobiles and/or other motor vehicles are an integral part of the use. These uses are restricted because, when unrestricted, they detract from the pedestrian-friendly, storefront character of the district and can consume large amounts of land relative to other permitted uses. Automobile-oriented uses shall comply with the following standards:

   a. Drive-up, drive-in, and drive-through facilities. Drive-up, drive-in, and drive-through facilities (e.g., associated with restaurants, banks, car washes, and similar uses) are permitted only when accessory to a primary commercial "walk-in" use, and shall conform to all of the following standards:
      1. The facility receives access from an alley or driveway, and not a street;
      2. None of the drive-up, drive-in or drive-through facilities (e.g., driveway queuing areas, windows, teller machines, service windows, drop-boxes, and similar facilities) are located within 20 feet of a street and shall not be oriented to a street corner. (Walk-up only teller machines and kiosks may be oriented to a corner);
      3. The facility is subordinate to a primary permitted use. "Subordinate" means all components of the facility, in total, occupy less street frontage than the primary commercial or public/institutional building; and
      4. No more than one drive-up, drive-in, or drive-through facility shall be permitted on one block, or for a distance of 400 linear feet along the same street frontage, whichever is less.

F. Sidewalk Displays. Sidewalk display of merchandise and vendors shall be limited to cards, plants, gardening/floral products, food, books, newspapers, bicycles, and similar small items for sale or rental to pedestrians (i.e., non-automobile oriented). A minimum clearance of 6 feet shall be maintain. Display of larger items, such as automobiles, trucks, motorcycles, buses, recreational vehicles/boats, construction equipment, building materials, and similar vehicles and equipment, is prohibited.

G. Light Manufacture. Light manufacture uses are allowed in the Downtown. "Light manufacture" means production or manufacturing of small-scale goods, such as crafts, electronic equipment, bakery products, printing and binderies, furniture, and similar goods. Light manufacture uses shall conform to all of the following standards which are intended to protect the pedestrian-friendly, storefront character of Boardman Downtown:

1. Retail or Service Use Required. Light manufacture is allowed only when it is in conjunction with a permitted retail or service use and does not exceed 50 percent of the gross floor area.

2. Location. The light manufacture use shall be enclosed within a building, or shall be located within a rear yard not adjacent to a street.

To be included as amended...

Chapter 2.2 – Commercial (C) District

Sections:

2.2.100 – Purpose
2.2.110 – Permitted Land Uses
2.2.120 – Building Setbacks
2.2.130 – Lot Coverage
2.2.140 – Building Height
2.2.150 – Design Standards
2.2.160 – Pedestrian Amenities
2.2.170 – Special Standards for Certain Uses
2.2.180 – Tourist Commercial or Highway Sub District
2.2.190 – City Center Sub District
2.2.200 – Service Center Sub District
2.2.210 – BPA Transmission Easement Sub District

2.2.100 Purpose

The primary purpose of the Commercial District is to create standards that allow for a variety of commercial uses in the Commercial areas of the City of Boardman. This Chapter also creates three Sub Districts---Tourist Commercial or Highway, City Center, and Service Center. The Tourist Commercial or Highway Sub District provides additional standards for the areas of the City adjacent to Interstate 84. The Service Center Sub District provides standards for commercial and light industrial uses located west of the City. The City Center Sub District provides additional standards to create a concentrated and centralized commercial center to serve as the "heart" of the community. The City Center Sub District is created as an optional Sub District that may apply to certain geographic areas within the Commercial District. This geographic area has been designated to form the "center" of Boardman's commercial activities. This chapter provides standards for the orderly creation and expansion of the Commercial District by adherence to the following principles:

- Effective and efficient use of land and urban services;
- Direct commercial and retail development to a concentrated and localized area;
- Provide a mix of uses which provides a destination within the community and encourages walking over driving;
- Create connection with the balance of the community by directing connected transportation routes to commercial areas of the city;
- Provide for additional service employment opportunities.

2.2.110 Permitted Land Uses

A. **Permitted Uses.** The land uses listed in Table 2.2.110.A are permitted in the Commercial District, subject to the provisions contained within this Chapter. Only land uses specifically listed in Table 2.2.110.A and those approved as "similar" uses are permitted. Land uses identified with a "CU" in the table will require a Conditional Use Permit approval prior to development or change in use, in accordance with Chapter 4.4 of this code

B. Determination of Similar Land Use. Similar use determinations shall be made in conformance with the procedures set in Chapter 4.8 – Interpretations.

Table 2.2.110.A
Land Uses and Building Types Permitted in the Commercial District

1. Residential* (CU)	4. Public and Institutional *:	5. Accessory Uses and Structures*
Single-family a. Single-family attached townhomes	a. Churches and other places of worship	**6. Commercial:** a. Auto-dependent and auto-oriented uses and facilities (Prohibited in City Center Sub District) *
b. Two and Three family housing (duplex and triplex townhomes)	b. Clubs, lodges, similar uses	b. Entertainment (e.g., theaters, clubs, amusement uses)
c. Multi-family housing	c. Government offices and facilities (administration, public safety, utilities, and similar uses)	c. Hotels/motels
d. Residential care homes and facilities	d. Libraries, museums, community centers, concert halls and similar uses	d. Hospitals, medical and dental offices, clinics and laboratories
2. Home occupations (CU)	e. Public parking lots and garages	e. Mixed use development (housing with other permitted use) *
3. ~~Bed & breakfast inns (CU)~~	f. Private utilities (office/administration)	f. Office uses (i.e., those not otherwise listed)
	g. Public parks and recreational facilities	g. Family daycare (12 or fewer children)
	h. Schools (public and private) (CU)	h. Personal and professional services (*e.g.*, child care center, catering/food services, restaurants, laundromats and dry cleaners, barber shops and salons, banks and financial institutions, and similar uses)
	i. Transportation Facilities and Improvements. 1. Normal operation, maintenance; 2. Installation of improvements within the existing right-of-way; 3. Projects identified in the adopted Transportation System Plan not requiring future land use review and approval; 4. Landscaping as part of a transportation facility; 5. Emergency Measures; 6. Street or road construction as part of an approved subdivision or partition; 7. Transportation projects that are not designated improvements in the Transportation System Plan ** (CU); and 8. Transportation projects that are not designed and constructed as part of an approved subdivision or partition** (CU)	i. Repair services (must be enclosed within building if located in City Center) j. Retail trade and services, except auto- dependent and auto-oriented uses k. Telecommunications equipment (including wireless) (CU) (Prohibited in City Center). l. Uses similar to those listed above (subject to CU requirements, if applicable) **7. Light Manufacture*** (see 2.2.170 C)

Uses marked with an asterisk (*) are subject to the standards in Section 2.2.170 - Special Standards for Certain Uses. Uses marked with two asterisks (**) are subject to the standards in Section 4.4.400.D. Temporary uses are subject to the standards in Chapter 4.9. CUs are subject to Conditional Use permit standards in Chapter 4.4

2.2.120 Building Setbacks

In the Commercial District, buildings are placed to encourage pedestrian traffic. The setback standards are to encourage public spaces between sidewalks and buildings. The standards are also to encourage the formation of solid blocks of commercial and retail use to encourage a walkable commercial area.

Building setbacks are measured from the respective property line to the nearest vertical wall or foundation line, whichever is closer, of any building or structure. Setbacks for porches are measured from the edge of the deck or porch to the property line. The setback standards, as listed, apply to primary structures and accessory structures. The standards may be modified only by approval of a Variance, in accordance with Chapter 5.1.

A. Front Yard Setbacks.

1. Minimum Setback. There is no minimum front yard setback required except to provide for vision clearance standards set in Chapter 3.1.

2. Maximum Setback. There is no required maximum setback except in the City Center Sub District, which has a 5-foot maximum setback. This standard is met for City Center Sub District development when 50 percent of the front building elevation is placed no more than 5 feet back from the front property line. On parcels with more than one building, this standard applies to the largest building. The setback standard may be increased when a usable public space with pedestrian amenities (e.g., extra-wide sidewalk, plaza, pocket park, outdoor dining area or town square with seating) is provided between the building and front property line. (See also, Pedestrian Amenities Standards in Section 2.2.160, and Design Standards in Section 2.2.150 for related building entrance standards.)

B. Rear Yard Setbacks.

1. Minimum Setback. The minimum rear yard setback for all structures shall be zero (0) feet for street access lots, and eight (8) feet for alley-access lots (distance from nearest vertical wall or foundation line of any building to rear property line or alley easement) in order to provide space for parallel parking, unless to provide for vision clearance standards set in Chapter 3.1.

2. Through-Lots. For buildings on through-lots (lots with front and rear frontage onto a street), the front yard setbacks in "A" will apply except to provide for vision clearance standards set in Chapter 3.1.

C. Side Yard Setbacks.

1. There is no minimum side yard setback required, except that buildings shall conform to the vision clearance standards in Chapter 3.1 and the applicable fire and building codes for attached structures, fire walls and related requirements.

2.2.130 Lot Coverage

A. Lot Coverage. There is no maximum lot coverage requirement, except that compliance with other sections of the zoning codes may preclude full (100%) lot coverage for some land uses. Lot coverage in the Service Center and Tourist Commercial Sub District is limited to 85%.

2.2.140 Building Height

All buildings in the Commercial District shall comply with the following building height standards. The standards are intended to allow for development of appropriately scaled buildings.

A. Maximum Height. Buildings shall be no more ~~that~~than four (4) stories or fifty (50) feet in height, whichever is greater. The maximum height may be increased by ten (10) feet when conditionally approved housing is provided above the ground floor. The building height increase for housing shall apply only to that portion of the building that contains housing. Maximum height in the Tourist Commercial and Service Center Sub Districts are limited to four (4) stories or thirty-five (35) feet in height.

B. Method of Measurement. Building height is measured as the vertical distance above a reference datum measured to the highest point of the coping of a flat roof or to the deck line of a mansard roof or to the average height of the highest gable of a pitched or hipped roof. The reference datum shall be selected by either 2.2.140(B)(1 or 2), whichever yields a greater building height:

1. The elevation of the highest adjoining sidewalk or ground surface within a five (5) foot horizontal distance of an exterior wall of the building when such sidewalk or ground surface is not more ~~that~~than ten (10) feet above the lowest grade;

2. An elevation ten (10) feet higher than the lowest grade when the sidewalk or ground surface described in subsection A is more than ten (10) feet above the lowest grade. The height of a stepped or terraced building is the maximum height of any segment of the building. Not included in the maximum height are: chimneys, bell towers, steeples, roof equipment, flag-poles, and similar features which are not for human occupancy. These features will be no more than 25 feet measured from the highest point of the building.

2.2.150 Design Standards

A. Purpose and Applicability. The Commercial District design standards are intended to provide similar and human scale design, while affording flexibility to use a variety of building styles. Conditional Use approval is required for those uses listed as a Conditional Use in Table 2.2.110.A. Residential development shall follow standards for residential development contained in Chapter 2.1. This section applies to all of the following types of buildings:

1. Commercial buildings intended for use as professional, retail or other similar uses and services;

2. Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public; and

3. Mixed use buildings (buildings containing commercial and residential uses).

B. Guidelines and Standards. The purpose of these standards is to provide that all buildings are to contribute to the appeal of the Commercial District and Sub Districts.

1. Design of Buildings and Developments. The standards in the following section shall apply to buildings and developments listed in Section 2.2.150. Buildings shall be appealing and compatible with balance of the Commercial District and Sub Districts.

   a) Buildings under 20,000 square feet (enclosed ground floor area) shall incorporate at least five (5) of the architectural features as follows:
      i) Decorative cornice or facade (for a flat roof) or provision of eaves or other similar decorative feature for pitched roofs;
      ii) Decorative display windows on ground floor;
      iii) Entrance canopy, breezeway or kiosk;
      iv) Changes in building color or texture;
      v) Building articulation on street frontages;
      vi) Decorative wall or security lighting;
      vii) Regularly spaced and similarly shaped windows;
      viii) Decorative window hoods or trim;
      ix) Changes in building height along street frontages;
      x) Decorative screening of roof mounted equipment;

   b) Buildings with greater than 20,000 square feet of enclosed ground floor space are considered "large scale buildings".
      i.) Measurement for these buildings shall be as follows:
         a. Multi-tenant buildings shall be counted as the sum of all tenant spaces within the same building shell; and
         b. Multiple building developments with a combined ground floor space (enclosed) greater than 40,000 square feet (e.g., shopping centers, public and institutional campuses, and similar developments).
      ii.) Building and Site design for large scale buildings shall include at least two (2) of the following to provide human scale design:
         a. Incorporating changes in building direction (i.e., articulation);
         b. Dividing large masses into varying heights and sizes;
         c. Include building offsets projections;
         d. Changes in elevation or horizontal direction;
         e. Sheltering roofs or terraces;
         f. Providing a distinct pattern of divisions in surface materials;
         g. Use of windows, screening trees; small scale lighting (e.g., wall mounted lighting, or up-lighting).

2.2.160 Pedestrian Amenities

A. **Purpose and Applicability.** This section is intended to provide comfortable and inviting pedestrian spaces within the Commercial District and Sub Districts. Pedestrian amenities serve as informal gathering places for socializing and resting and contribute to the enjoyment of the City's Commercial area. This section applies to all of the following types of buildings:

1) Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and

2) Three or more single family attached townhomes on their own lots (i.e., townhomes subject to Site Design Review);

3) Duplex and tri-plex developments with more than one building (i.e., duplex and tri-plex developments subject to Site Design Review);

4) Multi-family housing;

5) Commercial and mixed-use buildings subject to Site Design review.

B. **Guidelines and Standards.** Every commercial development listed above shall provide at least one of the following amenities listed below. Pedestrian amenities may be provided within a public right-of-way when approved by the applicable jurisdiction.

1. A plaza, courtyard, square or extra-wide sidewalk next to the building entrance (minimum width of 6 feet);

2. A sitting space, dining area, benches or ledges between the building entrance and sidewalk at a minimum of 16 inches height and 30 inches width;

3. Building canopy, awning, pergola or similar weather protection (minimum projection of 4 feet over a sidewalk or other pedestrian space);

4. Public art which incorporates seating (e.g., fountain, sculpture, etc.) or wall decoration.

2.2.170 Special Standards for Certain Uses

This section supplements the uses and standards contained in Sections 2.2.100 through 2.2.160. Conditional Use approval is required for those uses listed as Conditional Use in Table 2.2.110.A. It is to provide standards for the following land uses in order to control the scale and compatibility of those uses within the Commercial District:

- ~~Bed and Breakfast Inns~~
- Accessory Uses and Structures
- Light Manufacturing Uses
- Auto Orientated Uses and Development

2.2.170 Special Standards for Certain Uses *(continued)*

~~1. Bed and Breakfast Inns~~

~~1. Purpose. The purpose of this section is to provide standards for the development of a bed and breakfast inn.~~

~~2. Accessory Use. A bed and breakfast inn must be accessory to a household already occupying the structure as a residence.~~

~~3. Maximum size. The bed and breakfast structure is limited to a maximum of 3 bedrooms for guests and a maximum of 6 guests per night.~~

~~4. Employees. The bed and breakfast facility may have up to 2 non-resident employees for the facility.~~

~~5. Food Service. Food services may only be provided to overnight guests of the bed and breakfast inn.~~

~~6. Owner-occupied. The bed and breakfast inn shall be owner-occupied and shall maintain the exterior physical characteristics of a single family dwelling. No separate structures shall be allowed (except for usual residential accessory buildings such as sheds, or detached garages).~~

~~7. Monitoring. All bed and breakfast inns must maintain a guest logbook. It must include the names and home addresses of guests, guests' license plate numbers if travelling by motor vehicle, dates of stay and the room number of each guest. The log must be available for inspection by City staff upon request.~~

A. **Accessory Uses and Structures.** Accessory uses and structures are of a nature customarily incidental and subordinate to the principal use or structure on the same lot. Typical accessory structures in the Boardman Commercial District include small workshops, greenhouses, studios, and similar structures. Accessory uses and structures are allowed for all permitted land uses within the Boardman Commercial District, as identified in Table 2.2.110.A. Accessory structures shall comply with the following standards:

1. Primary use required. An accessory structure shall not be allowed before or without a primary use, as identified in Table 2.2.110.A.

2. Setback standards. Accessory structures shall comply with the setback standards in Section 2.2.120.

3. Design guidelines. Accessory structures shall comply with the Boardman Commercial District design guidelines, as provided in Section 2.2.150, and shall contribute to the visual relatedness of the district.

4. Restrictions. A structure shall not be placed over or under an easement that prohibits such placement. No structure shall encroach into the public right-of-way.

2.2.170 Special Standards for Certain Uses *(continued)*

5. Compliance with subdivision standards. The owner may be required to remove an accessory structure as a condition of land division approval when removal of the structure is necessary to comply with setback standards.

B. **Light Manufacture.** Light manufacturing uses shall conform to the standards listed in 2.2.170(D), which are intended to protect the pedestrian-friendly character of the Commercial District. "Light manufacture" means production or manufacturing of small-scale goods, such as crafts, electronic equipment, bakery products, printing and binderies, furniture, and similar goods.

1. Retail or Service Use Required. Light manufacture is allowed only when it is in conjunction with a permitted retail or service use and does not exceed 60% of the gross floor area.

2. Location. The light manufacture use shall be enclosed within a building, or shall be located within a rear yard not adjacent to a street and screened from public view.

3. Other Requirements. Any allowed light manufacture shall be conducted to minimize impacts to surrounding business and services. These shall include the conditions set as follows:
   a. Deliveries shall not interfere with normal transportation circulation (vehicular, pedestrian, etc.);
   b. Operations shall not produce solid waste volumes in excess of 200% of the average of surrounding business' and services;
   c. Operations shall not qualify as a hazardous waste generator or small quantity generator as defined by state and federal environmental regulations;
   d. Operations shall not create conditions which would qualify as a nuisance or otherwise not be in compliance under other Boardman Municipal Codes; and
   e. Shall be compatible with other Commercial area activities and operations.

C. **Automobile Dependent and Auto-Oriented Uses and Facilities.**

1. "Automobile-dependent use" means that the use serves automobiles and/or other motor vehicles and the use cannot function without them. These uses are prohibited in the City Center Sub District, permitted as a conditional use in the Commercial District and allowed outright in the Service Center and Tourist Commercial Sub Districts because when unrestricted, they detract from the pedestrian-friendly character of the District and can consume large amounts of land compared to other permitted uses.

2. "Automobile-Orientated Uses" means that automobiles and/or other motor vehicles are an integral part of the use.

3. Standards: Automobile-dependent and Automobile-oriented uses shall comply with the following standards:

2.2.170 Special Standards for Certain Uses *(continued)*

a. Parking, Garages, and Driveways. All off-street parking, including surface lots and garages, shall 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. All underground or structured parking garage entrances facing a street shall be recessed behind the front elevation by a minimum of six (6) feet and have minimum queuing areas of thirty (30) feet. On corner lots, garage entrances shall be oriented to a side-street (i.e., away from a main street) when vehicle access ~~can not~~cannot be provided from an alley or a common driveway.

b. Drive-up, drive-in, and drive-through facilities. Drive-up, drive-in, and drive-through facilities (e.g., associated with restaurants, banks, and similar uses) are permitted only when accessory to a primary commercial "walk-in" use, and shall conform to all of the standards listed below:
   i The facility receives access from an alley or common driveway, and not a street;
   ii None of the drive-up, drive-in or drive-through facilities (e.g., driveway ~~queing~~queuing areas, teller machines, service windows, drop boxes and similar facilities) are located within twenty (20) feet of a street and shall not be oriented to a street corner;
   iii The facility is subordinate to a primary permitted use. "Subordinate" means all components of the facility, in total, occupy less street frontage than the primary commercial or public/institutional building.

D. Variances.

The standards of this section may be modified by a Class B or C variance, as detailed in Chapter 5.

2.2.180 Tourist Commercial Sub District

A. Purpose. The purpose of the Tourist Commercial Sub District is to accommodate development of commercial facilities catering to the traveling public at the I-84 interchange. Retail services shall be limited to that necessary to serve travelers, in order to avoid competition with the Commercial District; Service Center Sub District and City Center Sub District businesses. The base standards of the Commercial District apply, except as modified by the standards of this Sub District.

2.2.180 Tourist Commercial Sub District *(continued)*

Table 2.2.180 A
Land Uses and Building Types Permitted in the Tourist Commercial Sub District

1. Residential* (CU):	~~4.~~ 3Public and Institutional *:	~~5.~~ 4Commercial:
Single-family a. Single-family attached townhomes b. Two and Three family housing (duplex and triplex townhomes) c. Multi-family housing d. Residential care homes and facilities **2. Home occupations (CU)** **3. ~~Bed & breakfast inns (CU)~~**	a. Churches and other places of worship b. Clubs, lodges, similar uses c. Government offices and facilities (administration, public safety, transportation, utilities, and similar uses) d. Libraries, museums, community centers, concert halls and similar uses e. Public parking lots and garages f. Private utilities (office/administration) g. Public parks and recreational facilities h. Schools (public and private) (CU) i. Transportation Facilities and Improvements. 1. Normal operation, maintenance; 2. Installation of improvements within the existing right-of-way; 3. Projects identified in the adopted Transportation System Plan not requiring future land use review and approval; 4. Landscaping as part of a transportation facility; 5. Emergency Measures; 6. Street or road construction as part of an approved subdivision or partition; 7. Transportation projects that are not designated improvements in the Transportation System Plan ** (CU); and 8. Transportation projects that are not designed and constructed as part of an approved subdivision or partition** (CU)	a. Auto-oriented and auto dependent uses and facilities, ~~including~~ excluding truck stops* b. Vehicle sales and repair services, including automotive, truck, RV and boat; c. Retail sales d. Personal and professional services such as laundromats, dry cleaners, barber shops and salons, banks and financial institutions, and similar uses e. Veterinarian clinics, animal clinics, laboratory; ~~e.~~f. Medical and other health related clinics or emergency service facilities ~~d.~~g. Office uses ~~e.~~h. Mixed-Use Development (housing and other permitted development) ~~f.~~i. Motels/Restaurants/Food service ~~g.~~j. Medical Marijuana dispensary under Oregon Health Authority license ***(CU) ~~h.~~k. Uses similar to those listed above **~~6~~5. Industrial:** a. Light manufacture (e.g., small-scale crafts, electronic equipment, bakery, furniture, similar goods) when in conjunction with retail b. Machinery or heavy equipment sales and service

Uses marked with an asterisk (*) are subject to the standards in Section 2.2.180 - Special Standards for Certain Uses. Temporary uses are subject to the standards in Chapter 4.9. ** Uses marked with two asterisks are subject to the standards in Section 4.4.400.D. *** Uses subject to Section 4.4.400.E.

B. Special Standards [This section reserved for future use.]

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2.2.190 City Center Sub District

A. Purpose and Applicability.

The City Center Sub District provides design standards for detailed, human-scaled design, while affording flexibility to use a variety of architectural styles. The City Center Sub District may be applied by a property owner and the City to a site, which meets the following locational criteria:

- The site shall be located within the Commercial District;
- The site shall be located within a radius of ¼-mile of (but not necessarily adjacent to) Main Street;
- The site shall be adjacent to Kinkade Road, ~~Dillabaugh Boulevard~~Tatone Street, or City Center Drive.

In order for this Sub District to apply, the property owner and the City shall describe how the site meets the above locational criteria. The application for the Sub District to apply is a Type III, quasi-judicial land use application described in Chapter 4. If the Sub District were applied, the following development would adhere to the Sub District standards:

1. Public and institutional buildings, except that the standards shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and

2. Commercial and mixed-use buildings subject to Site Design review.

B. Design Standards.

All of the following standards in the following section shall be met.

C. Detailed Storefront Design.

All buildings shall contribute to the storefront character and visual relatedness of downtown buildings. This criterion is met by providing all of the following design features listed in 1-4, below, along front building elevations (i.e., facing a street).

1. Corner building entrances on corner lots. Alternatively, a building entrance may be located away from the corner when the building corner is beveled or incorporates other detailing to reduce the angular appearance of the building at the street corner.

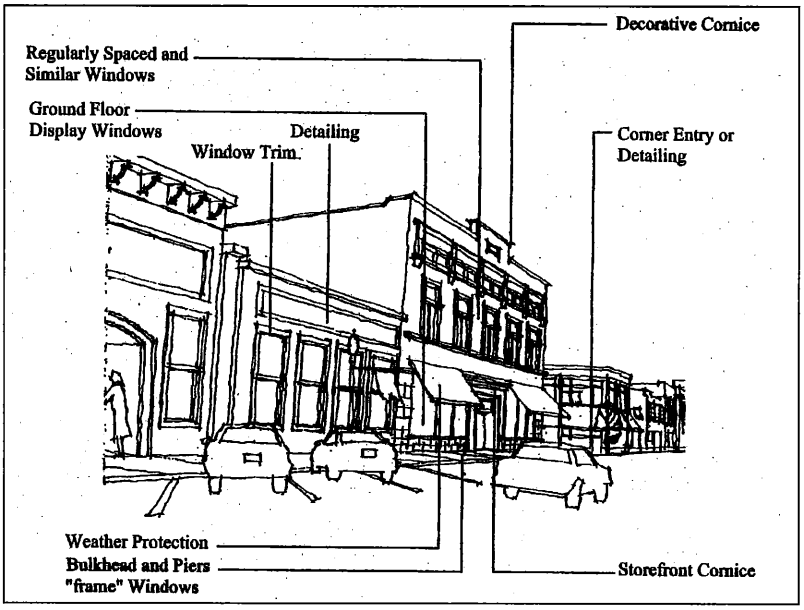
2. Regularly spaced and similar-shaped windows with window hoods or trim (all building stories).

3. Large display windows on the ground floor (non-residential uses only). Display windows shall be framed by bulkheads, piers and a storefront cornice (e.g., separates ground floor from second story, as shown above).

4. Decorative cornice at top of building (flat roof) or eaves provided with pitched roof.

2.2.190 City Center Sub District. *(continued)*

Figure 2.2.190C – City Center Building Design Elements (Typical)



Note: the example shown above is meant to illustrate required building design elements, and should not be interpreted as a required design style.

2.2.190 City Center Sub District *(continued)*

E. Building Orientation. This section is intended to promote the walkable, storefront character of the City Center by placing buildings close to the street. Placing buildings close to the street slows traffic down and provides more "eyes on the street", increasing the safety of public spaces. The standards, as listed on the following page and illustrated above, complement the maximum front yard setback standards in Section 2.2.120.

1. Applicability. This Section applies to new land divisions and all of the following types of development within the City Center Sub District:

   a. Commercial and mixed-use buildings subject to site design review. (Chapter 4.2).

   b. Public and institutional buildings subject to site design review. (Chapter 4.2) except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses).

   c. Residential buildings subject to Site Design review shall comply with the Residential District design guidelines, as listed in Section 2.1.180, in addition to this section. Where conflicts occur, the more restrictive standard shall apply.

   Compliance with all of the provisions of Sections 2.2.190.E.2-4, below, shall be required.

2. Building Orientation Standard. All of the developments listed in Section 2.2.190.E shall be oriented to a street. The building orientation standard is met when all of the following criteria are met:

   a. The minimum and maximum setback standards in Section 2.2.120 are met.

   b. Buildings have their primary entrance(s) oriented to (facing) the street. Building entrances may include entrances to individual units, lobby entrances, entrances oriented to pedestrian plazas, or breezeway/courtyard entrances (i.e., to a cluster of units or commercial spaces). Alternatively, a building may have its entrance facing a side yard when a direct pedestrian walkway is provided between the building entrance and the street right-of-way.

   c. Off-street parking, driveways or other vehicular circulation shall not be placed between a building and the street that is used to comply with subsection '2', above. On corner lots, buildings and their entrances shall be oriented to the street corner, as shown above; parking, driveways and other vehicle areas shall be prohibited between buildings and street corners.

3. Active Ground Floor Standard. The streetside portions of the lower floors of all buildings shall contain shops, offices, lobbies, and other activities oriented toward the passerby. Display windows for viewing the activity inside the building shall be provided.

4. Continuous Building Frontage. Buildings should be built to the property lines on either side so as to create a continuous line of storefronts. Access may be provided to the rear parking areas of the shops, offices etc. by an internal walkway.

2.2.190 City Center Sub District. *(continued)*

E. **Residential Uses.** Higher density residential uses, such as multi-family buildings and attached townhomes, are permitted to encourage housing near employment, shopping and services. All residential developments shall comply with the following standards which are intended to require mixed-use development; conserve the community's supply of commercial land for commercial uses; provide for designs which are compatible with the balance of the City Center Sub District; avoid or minimize impacts associated with traffic and parking; and ensure proper management and maintenance of common areas. Residential uses that existed prior to the effective date of this code are exempt from this section.

1. Mixed-Use Development. Residential uses may be permitted when part of a mixed-use development (residential with commercial or public/institutional use). Both "vertical" mixed-use (housing above the ground floor), and "horizontal" mixed-use (housing on the ground floor) developments are allowed, subject to the standards in 2.2.190(A)(2-6).

2. Limitation on street-level housing. Ground floor street frontage will be limited to upper floor residential access only. This standard is intended to reserve commercial space for commercial uses and public/institutional uses; it does not limit residential uses above the street level on upper stories.

3. Density. There is no minimum or maximum residential density standard. Density shall be controlled by building design, fire/life/safety design, the applicable lot coverage, floor area, building height standards and off-street parking requirements.

4. Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be oriented for reasonable access. Parking may be placed underground, placed in structures above the ground floor, or located in parking areas located behind or to the side of the building. All garage entrances facing a street (e.g., underground or structured parking) shall be recessed behind the front building elevation by a minimum of six (6) feet and have minimum ~~queing~~queuing areas of thirty (30) feet. On corner lots, garage entrances shall be oriented to a side street (i.e., away from a main street).

5. Creation of Alleys. When a subdivision (e.g., four or more townhome lots) is proposed, a public or private alley may be created for the purpose of vehicle access. Alleys are not required when existing development patterns make construction of an alley impractical. As part of a subdivision, the City may require dedication of right-of-way or easements, and construction pathways between townhome lots (e.g., between building breaks) to provide pedestrian connections through a development site, in conformance with Chapter 3.1 – Access and Circulation.

6. Common Areas. All common areas (e.g., walkways, drives, courtyards, private alleys, parking courts, etc.) and building exteriors shall be maintained by a home owners association or other legal entity. Copies of any applicable covenants, restrictions and conditions shall be recorded and provided to the city prior to building permit approval.

2.2.190 City Center Sub District. *(continued)*

F. **Sidewalk Displays.** Sidewalk display of merchandise and vendors shall be limited to stationary, crafts, plants, gardening/floral products, food, books, newspapers, bicycles, and similar small items for sale or rental to the public. A minimum clearance of five (5) feet shall be maintained. Display of larger items, such as automobiles, trucks, motorcycles, buses recreational vehicles/boats construction equipment, building materials, or similar items are prohibited.

2.2.200 Service Center Sub District

A. **Purpose.** The Service Center Sub District is designed to accommodate heavy commercial uses and light industrial uses along portions of the I-84 corridor. The base standards of the Commercial District apply, except as modified by the standards of this Sub District.

B. **Uses Permitted.** The land uses listed in Table 2.2.200B are permitted in the Service Center Sub District, subject to the provisions of this Chapter. Only land uses that are specifically listed in Table 2.2.200B and land uses that are approved as "similar" to those in Table 2.2.200B, may be permitted. The land uses identified with a "CU" in Table 2.2.200B require Conditional use Permit approval prior to development or a change in use, in accordance with Chapter 4.4.

2.2.200 Service Center Sub District *(continued)*

Table 2.2.200B
Land Uses and Building Types Permitted in the Service Center Sub District

1. Residential: a. One caretaker unit shall be permitted for each development, subject to the standard in Section 2.2.200D. b. RV Parks (CU) **2. Public and Institutional:** a. Government facilities (e.g. public safety, utilities, school district bus facilities, public works yards, transit and transportation and similar facilities) where the public is generally not received. b. Private utilities (e.g. natural gas, electricity, telephone, cable and similar facilities) c. Water supply and treatment facility (CU) d. Sewage disposal and treatment facility (CU)	e. Transportation Facilities and Improvements. 1. Normal operation, maintenance; 2. Installation of improvements within the existing right-of-way; 3. Projects identified in the adopted Transportation System Plan not requiring future land use review and approval; 4. Landscaping as part of a transportation facility; 5. Emergency Measures; 6. Street or road construction as part of an approved subdivision or partition; 7. Transportation projects that are not designated improvements in the Transportation System Plan ** (CU); and ~~3~~8. Transportation projects that are not designed and constructed as part of an approved subdivision or partition** (CU)	~~4.~~ 3**Commercial:** a. Retail store, office or service establishment b. Commercial / industrial full service trucking and automotive facilities, to include automobile service stations and vehicle refueling. c. Commercial residential use, to include tourist or travelers' accommodations. d. Commercial amusement or recreation establishment. Medical Marijuana dispensary, Medical Marijuana Grow Facility (not on same parcel) *** (CU) ~~5.~~ 4**Industrial:** a. Manufacturing or warehousing. **5. Agricultural:** a. Farming excluding commercial livestock feedlot, livestock sales yard hog farms and mink farms. b. Agriculturally-oriented commercial use.(CU) c. Medical Marijuana Grow Facility *** (CU) **6. Services:** a. Kennel or animal hospital. ~~5~~7. **Wireless Communication Equipment** - subject to the standards in Chapter 3.6.200.

Uses marked with an asterisk (*) are subject to the standards in Section 2.2.180 - Special Standards for Certain Uses. Temporary uses are subject to the standards in Chapter 4.9. ** Uses marked with two asterisks are subject to the standards in Section 4.4.400.D. *** Uses subject to Section 4.4.400.E.

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2.2.200 Service Center Sub District *(continued)*

B. Other Yard Requirements.

1. Buffering. The City may require landscaping, walls or other buffering in setback yards to mitigate adverse noise, light, glare, and aesthetic impacts to adjacent properties.
2. Neighborhood Access. Construction of pathway(s) within setback yards may be required to provide pedestrian connections to adjacent neighborhoods or other districts, in accordance with Chapter 3.1 - Access and Circulation Standards.
3. Building and Fire Codes. All developments shall meet applicable fire and building code standards, which may require setbacks different from those listed above (e.g., combustible materials, etc.).

C. Determination of Similar Land Use. Similar use determinations shall be made in conformance with the procedures in Chapter 4.8 – Interpretations.

2.2.200 Service Center Sub District *(continued)*

C. **Residential Caretakers.** One residential caretaker unit shall be permitted for each primary industrial use, subject to the following conditions:

1. The unit shall be served with public water and sanitary sewerage disposal, in conformance with City engineering requirements.

2. Caretaker units shall be required to meet applicable fire safety and building code requirements, in addition to the applicable setback standards of this chapter.

D. **Wireless communication equipment.** Wireless communication equipment includes radio (i.e., cellular), television and similar types of transmission and receiving facilities. The requirements for wireless communication equipment are provided in Chapter 3.6.200. Wireless communication equipment shall also comply with required setbacks, lot coverage and other applicable standards of the Commercial District.

2.2.210 - BPA Transmission Easement Sub District

A. Purpose: The purpose of this sub district is to identify the limitations, opportunities and process to be followed on properties, within the Commercial District, directly affected by the Three Hundred Ninety foot (390') wide Bonneville Power Administration (BPA) Transmission Line Easement. The language contained within this section is to identify flexibility in possible uses of the land under the BPA transmission lines, within the land use agreements stipulated by the BPA for the easement. All uses within the easement shall be approved by agreement with BPA prior to approval for development by the City.

B. Building Restrictions: No permanent structures will be allowed within the easement area. However, buildings may go on the portions of the property outside of the easement as part of the overall development which may include land within the easement.

C. Height Restrictions: No foliage or other item will be allowed to exceed twelve feet (12') in height.

D. Utility and Transportation Infrastructure: Utility and transportation infrastructure shall be allowed within guidelines approved by the BPA in writing. This includes, streets, electrical, water, sewer, telephone, gas, TV, and other essential services infrastructure to provide for any allowed commercial activities.

E. Transmission Line Tower Setbacks: The minimum setback from any transmission line tower shall be fifty feet (50') for all activities. Towers shall be protected from any traffic or other possible disturbance to the structural integrity of the towers.

2.2.210 - BPA Transmission Easement Sub District *(continued)*

F. Allowable Uses: The uses identified in 2.2.210 (F) (1-13) shall be considered for approval under a Conditional Use Permit process, as identified in Boardman Development Code Chapter 4.4. All submission requirements of Chapter 4.4 will be reviewed and will be forwarded, by the applicant, to the BPA for an approved and signed Land Use Agreement prior to any Conditional Use Hearing by the Planning Commission.

1. Single family townhomes
2. Residential duplexes or triplexes
3. Multi-family apartments
4. Residential Caretaker Unit
5. Parking lot
6. Vehicle storage
7. Vehicle sales lot
8. Vineyard operation, with retail/wholesale component*
9. Garden center/Nursery, with retail/wholesale component*
10. Mobile vendor station lease space
11. Retail sales operations with an outdoor component which are compatible with surrounding neighborhood.
12. Utility infrastructure including water lines, sewer lines, stormwater management, electrical service lines, gas lines, television cable, telephone lines, communications lines, transportation routes, and other necessary infrastructure to service the sub district.
13. Other uses considered compatible by the Boardman Planning Commission through Conditional Use Permitting process.

* = Structures necessary for retail/wholesale offices, storage, etc. must be located outside of BPA easement.

G. Safety Precautions:

1. Vehicular activities where vehicles are stored or parked for periods over two (2) hours shall have grounding mechanisms to prevent static electricity build up to prevent shock hazards.
2. Utility facilities shall be protected from shock hazards associated with static electricity discharge.
3. No combustible materials shall be stored within the easement unless approved in the Land Use Agreement from BPA.

H. Driveways and Parking Areas: Driveways and parking areas may be compacted and maintained gravel if approved by the BPA and Boardman Planning Commission to meet safety requirements in the BPA Land Use Agreement. Driveway approaches and all areas abutting a public street shall be hard surface to prevent gravel encroachment onto the street.

I. Residential Caretakers: One residential caretaker unit may be permitted for each primary commercial use, subject to the following conditions.

1. The unit shall be served with public water and sanitary sewerage disposal, in conformance with City engineering requirements.

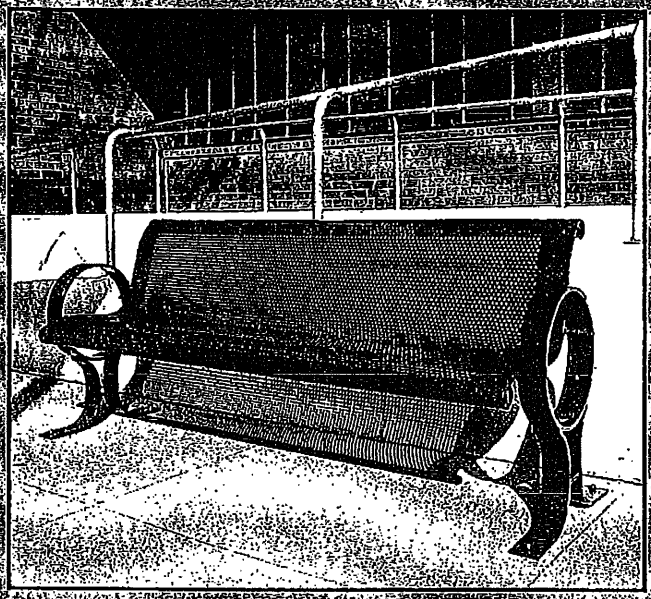
2.2.210 - BPA Transmission Easement Sub District *(continued)*

2. Caretaker units shall be required to meet applicable fire safety and building code requirements, in addition to the applicable setback standards of this chapter (chapter 2.2) and sub district.
3. Other conditions identified by the Bonneville Power Administration or the Boardman Planning Commission:

J. Yard Requirements:

1. Buffering; The City may require landscaping, walls, or other buffering in setbacks areas to mitigate adverse noise, light, glare and aesthetic impacts to adjacent properties.
2. Neighborhood Access; Construction of pathway(s) within setbacks may be required to provide pedestrian connection to neighborhoods or other districts, in accordance with Chapter 3.1 of this Code and requirements of the Bonneville Power Administration.
3. Building and Fire Codes; All developments shall meet applicable fire, building and Bonneville Power Administration code standards, which may require setback different from those listed above.

APPENDIX B. STREET FURNITURE EXAMPLES



MODEL 59 BENCH

Ten gauge perforated steel gently contoured into a comfortable seating surface is the heart of this bench.

Materials:
Seating Surface: 10 gauge perforated steel.
Supports and End Stretcher: 1½" x 3" steel bar.
Fasteners: 3/8" diameter plated.
Finish: Baked-on polyester powder in choice of black, blue, bronze, green (shown), or deep red.

59-60 6' long bench, 2 supports, wt. 196 lbs.
59-80 8' long bench, 2 supports, wt. 222 lbs.

Specify color.

Support Options:
S-1 Embedment
S-2 Surface Plate
S-3 Gull Wing
S-4 Sub-Floor

MODEL 89 RECEPTACLE

The 14 gauge steel of this receptacle is perforated in the same pattern as our 59 Series bench. It is furnished complete with the No. 46-00 polyethylene cover and a 22-gallon plastic liner. Hardware for anchoring are provided.

Materials:
Body: 14 gauge perforated steel.
Frame: 1/4" x 2" - 1/4" x 2" and 1/8" x 1" steel bar.
Reveal Strip: 1/4" x 5" steel bar.
Liner: 22 gallon plastic.
Top: Polyethylene with plastic coated cable.
Finish: Baked-on polyester powder in choice of black, blue, bronze, green (shown) or deep red.

89-00 All-steel receptacle, wt. 41 lbs.

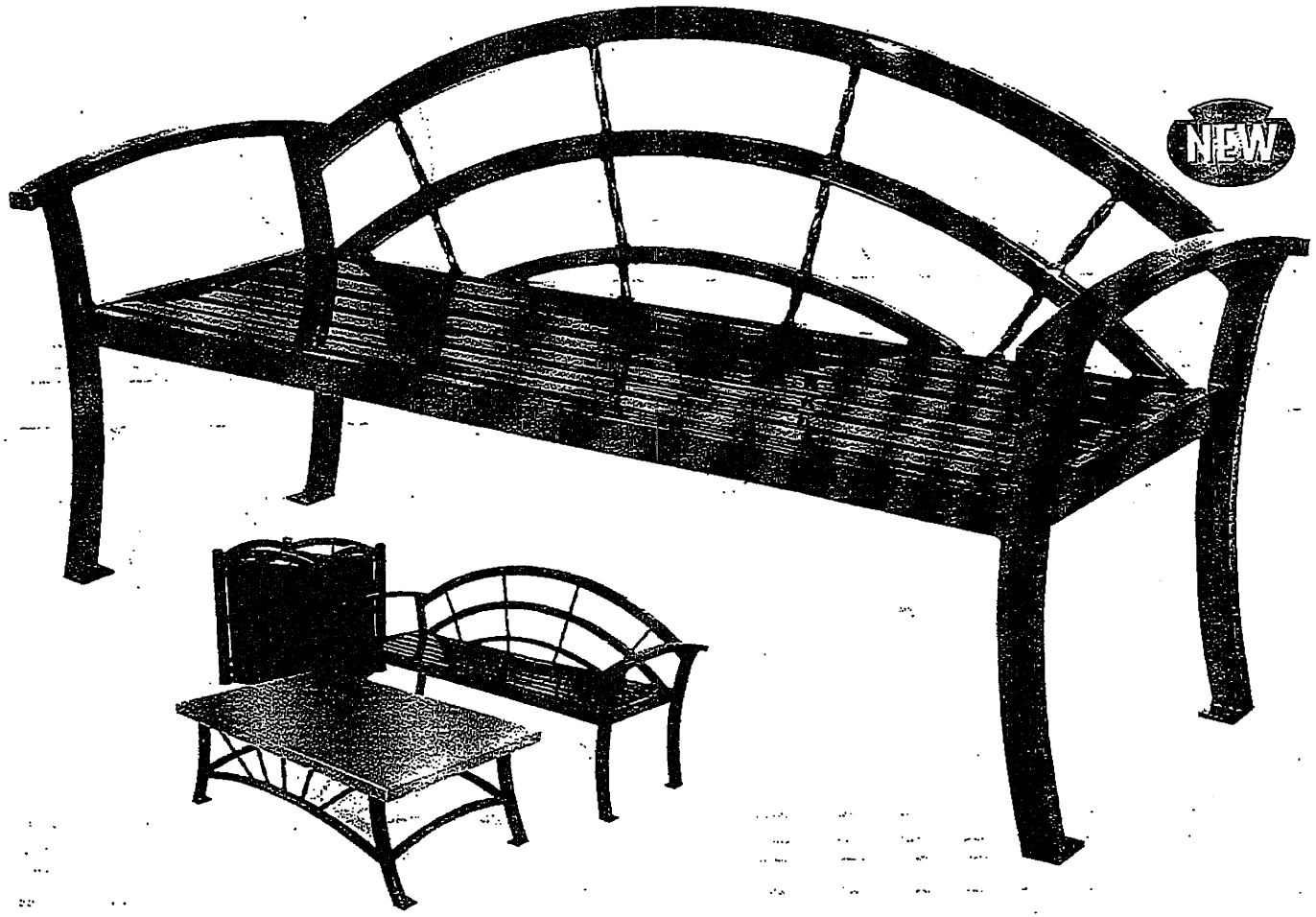
Specify color.

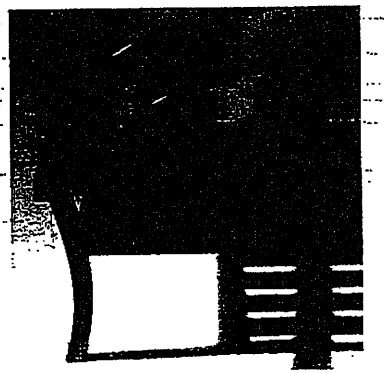
KERRINGTON SERIES

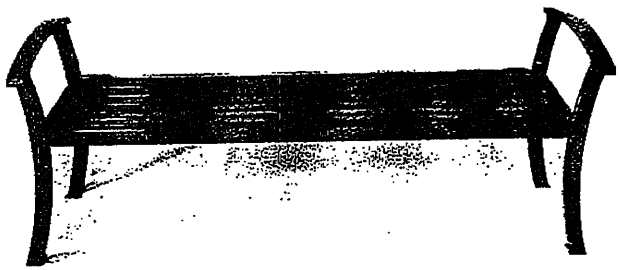
(Patent Pending)

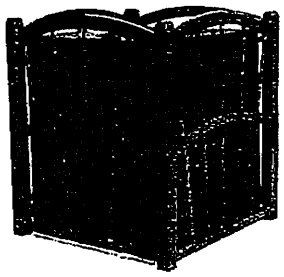
With flowing curves and a cottage-like appeal, the Kerrington embodies the English garden persona, bringing charm and grace to commercial site furniture. An appropriate selection for creating interactive space, we completed this series with a table to create an outdoor sitting room.

- Spiraled steel accents the back design to add a lively touch
- Table is available with stainless or powder coated steel top
- Bench available with back or flat in any length, mounting or standard color
- Litter receptacle includes powder coated steel liner, flat lid, anti-theft lanyard in either 22- or 32-gallon capacity with any mounting or standard color; optional lid and liners *(see page 22)*
- Exclusive KEYSHIELD™ polyester powder coating finish—our stamp of armored excellence that is foremost in the industry









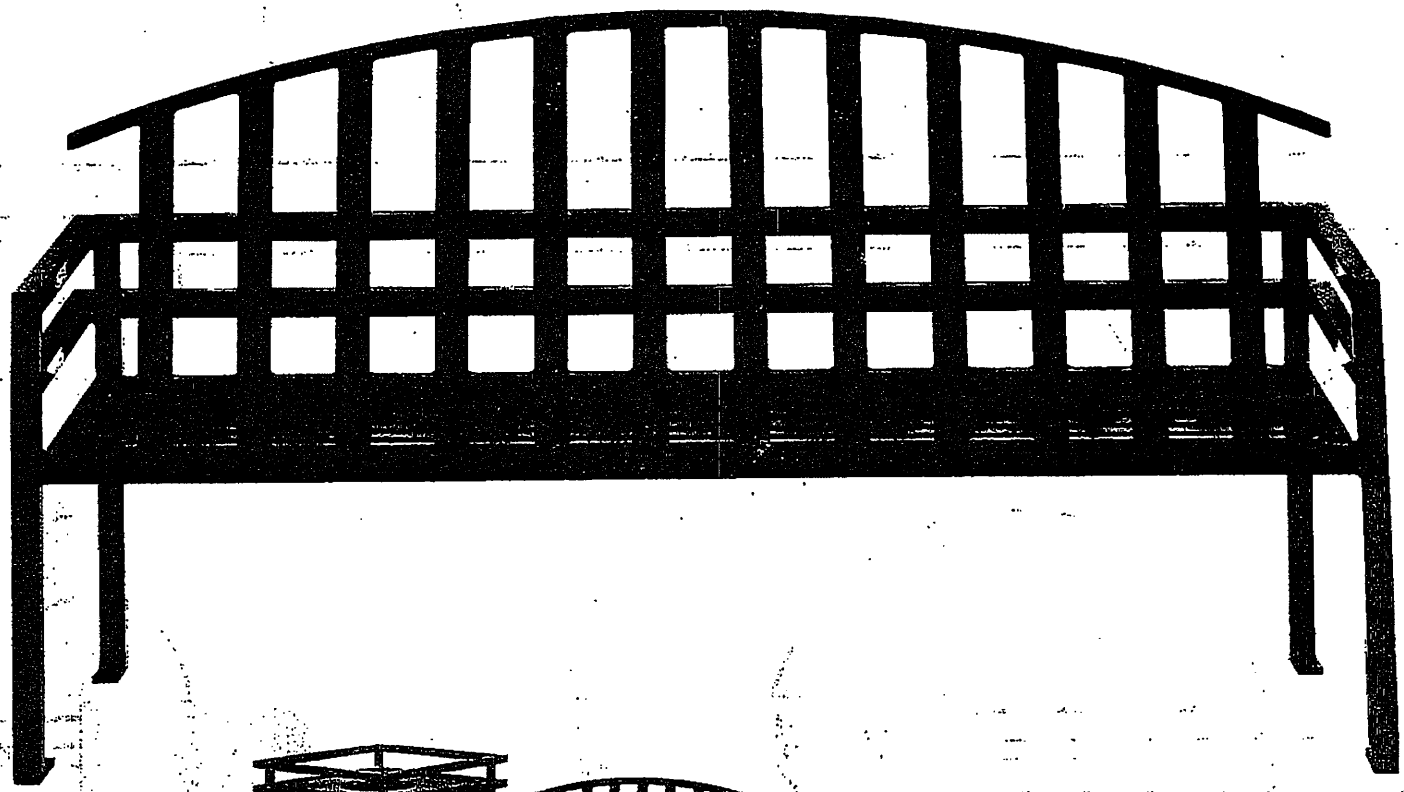
KE24	Kerrington bench w/back 4'	$795
KE26	Kerrington bench w/back 6'	$895
KE28	Kerrington bench w/back 8'	$1095
KE14	Kerrington flat bench 4'	$630
KE16	Kerrington flat bench 6'	$690
KE18	Kerrington flat bench 8'	$790
KE3-22	Kerrington litter 22 gal.	$825
KE3-32	Kerrington litter 32 gal.	$880
KERT	Kerrington table with powder coated top	$775
KERT-S	Kerrington table with stainless steel top	$1250

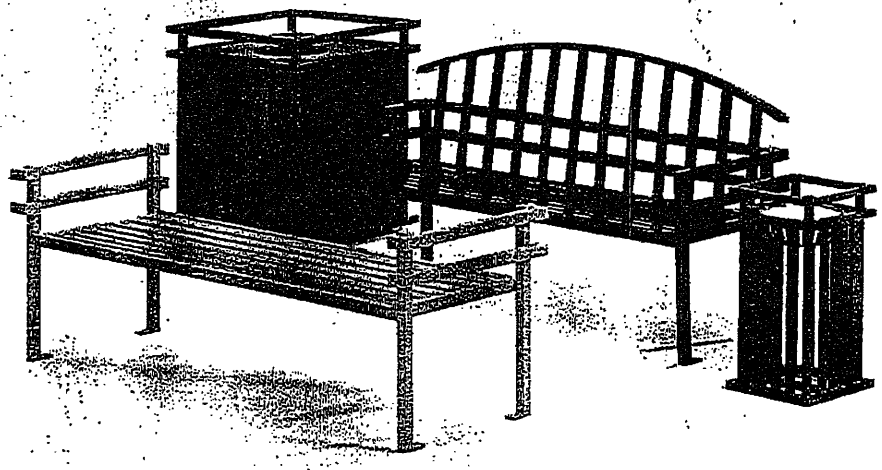
McConnell Series

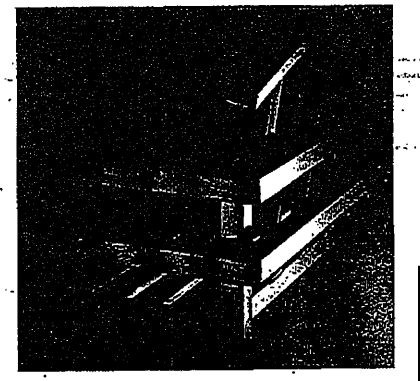
(Patent No. Des. 413,449)

In the style of the Arts and Crafts movement, the McConnell bench focuses attention on the creation of the heart and hand. A regal appearance is dramatized by the arm design with evidence of horizontal lines and artistic engineering. The back is crowned with an arc, completing this period recreation.

- Double steel reinforcement in the arms of the bench
- Curved rectangular tubing accents top of bench
- Bench available with back or flat in any length, mounting or standard color
- Litter receptacle includes liner, flat lid, anti-theft lanyard in either 22- or 32-gallon capacity with any mounting or standard color; optional lid and liners *(see page 22)*
- Exclusive KEYSHIELD™ polyester powder coating finish—our stamp of armored excellence that is foremost in the industry







MC24	McConnell bench w/back 4'	$785
MC26	McConnell bench w/back 6'	$860
MC28	McConnell bench w/back 8'	$960
MC14	McConnell flat bench 4'	$585
MC16	McConnell flat bench 6'	$640
MC18	McConnell flat bench 8'	$740
MC3-22	McConnell litter 22 gal.	$855
MC3-32	McConnell litter 32 gal.	$905
MC5	McConnell ash urn	$425
MCA5	McConnell ash/trash combo	$525

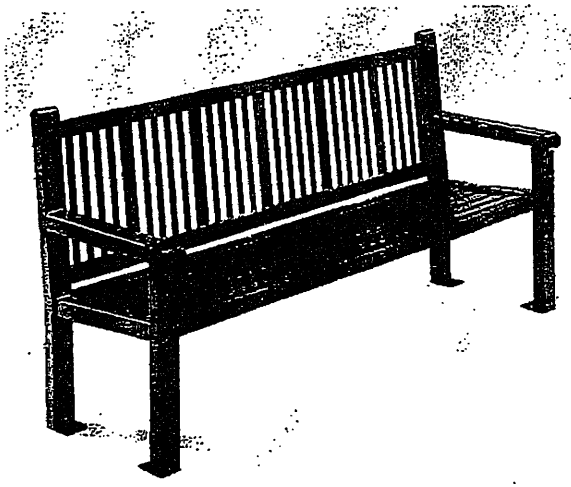
Reading Series

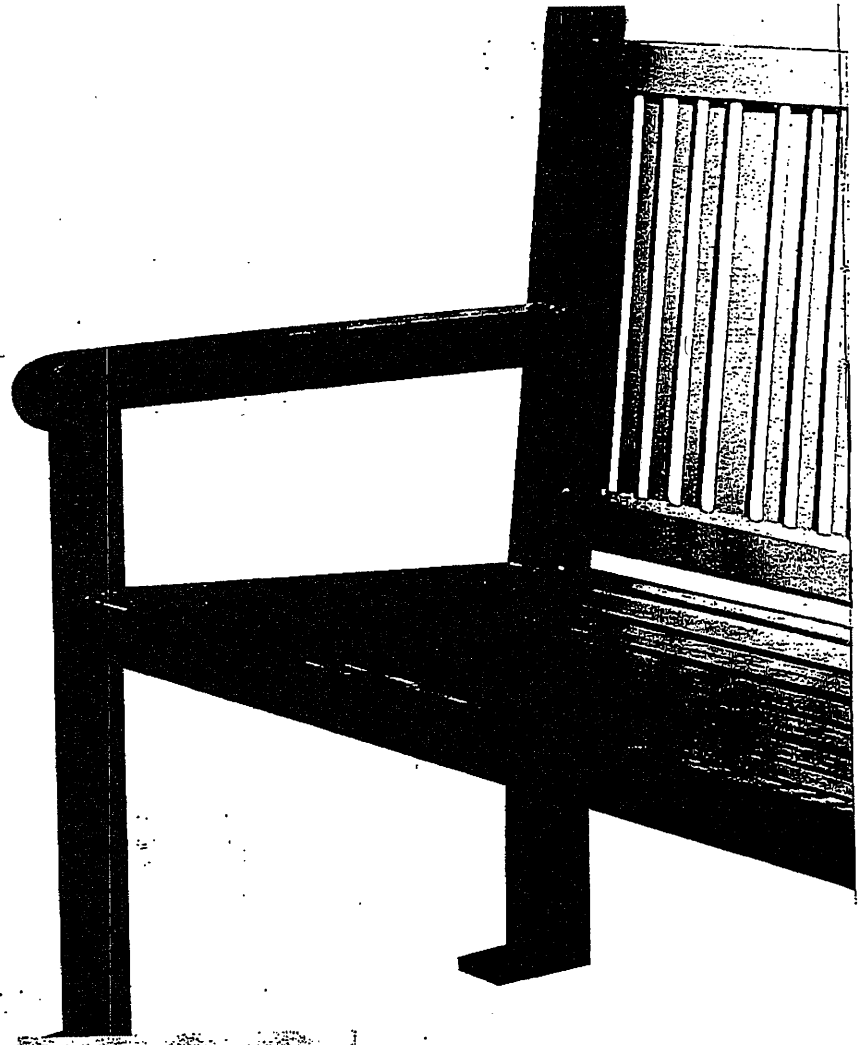
(Patent No. Des. 376,270)

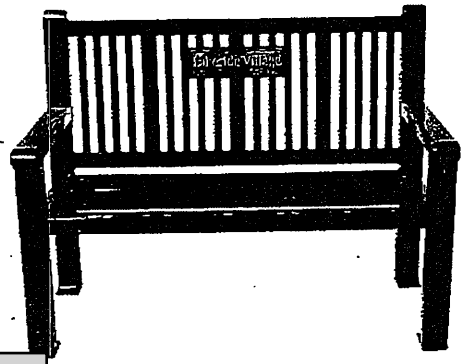
Designed in the style of a wooden garden bench, this patented sturdy metal bench is equally at home in a train station or an exclusive mall.

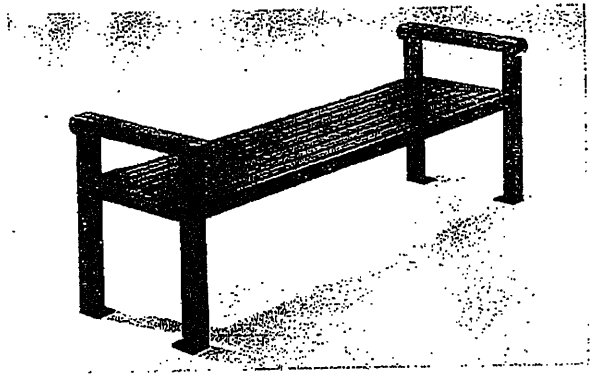
- Bench available with back or flat in any length, mounting or standard color
- Litter receptacle includes plastic liner, flat lid, anti-theft lanyard in either 22- or 32-gallon capacity with any mounting or standard color; optional lid and liners *(see page 22)*
- Exclusive KEYSHIELD™ polyester powder coating finish—our stamp of armored excellence that is foremost in the industry

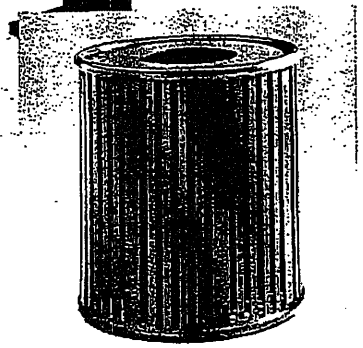
RE22	Reading chair	$745
RE24	Reading bench w/back 4'	$795
RE26	Reading bench w/back 6'	$895
RE28	Reading bench w/back 8'	$1095
RE14	Reading flat bench 4'	$630
RE16	Reading flat bench 6'	$690
RE18	Reading flat bench 8'	$790
RE2CU6	Curved Reading w/back 6'	$1200

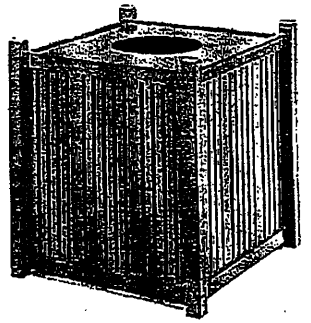






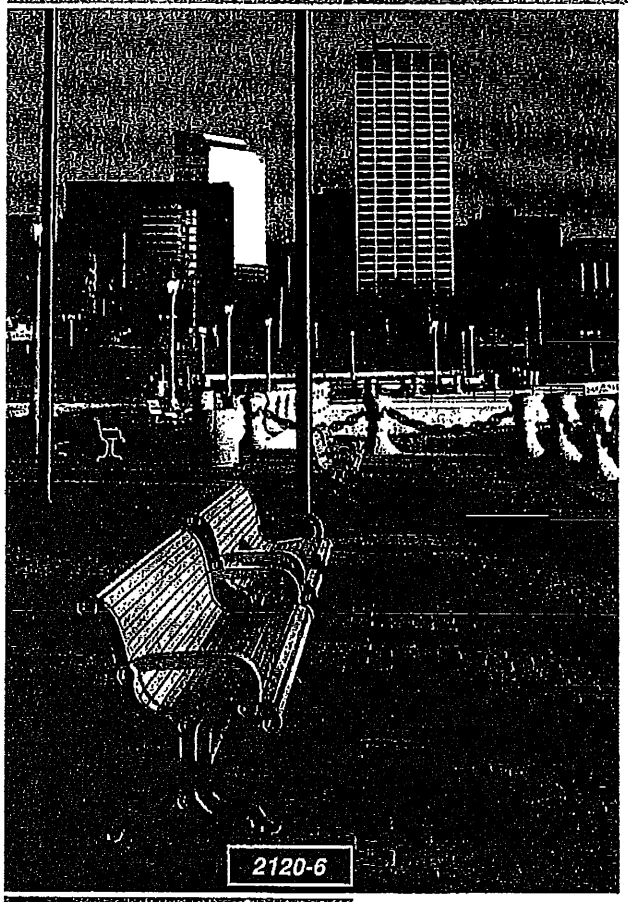






Columbia Cascade

TimberForm® Restoration™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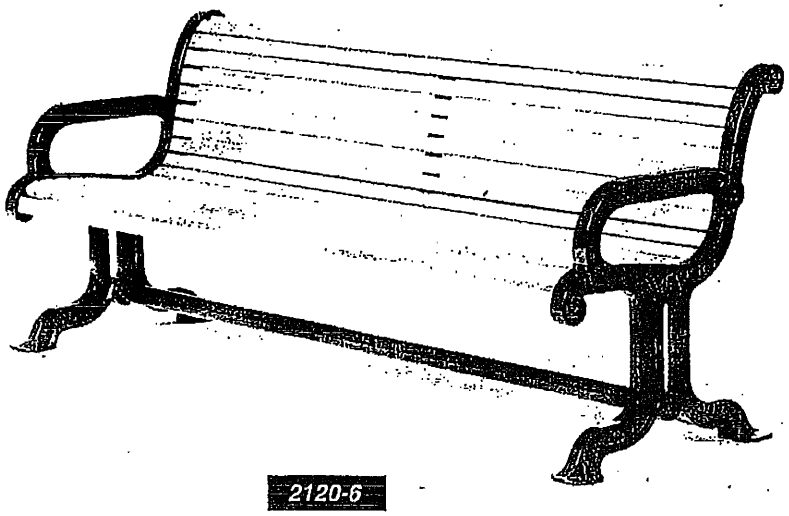
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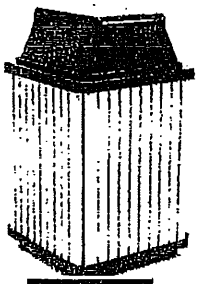
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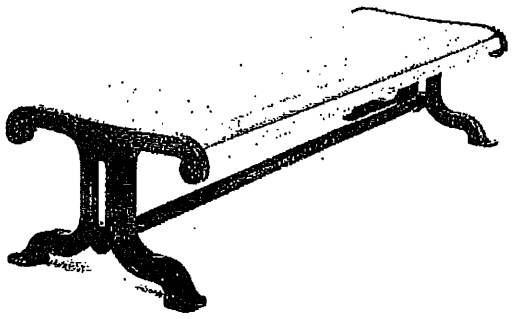
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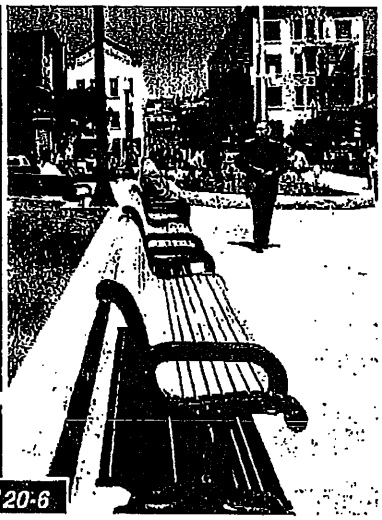


TimberForm Restoration

The TimberForm Restoration series is a twin family of site furnishings featuring benches and seats with cast iron frames and wood slats. Matching wood surrounds appear on the litter container, ash receptacle and planter.

Two design series are offered. One, the 2118 style (facing page), features wide sweeping armrests with a rose relief cast in the bench and seat ends. It was the recipient of the prestigious "G-Mark" of design excellence from the Japanese government. The other, the 2120 style (this page), is a classical civic furniture design with simplified elements. Each style has been successfully used for interior and exterior applications throughout the world.

Symbols and Logos

Custom symbols and graphics can be included in relief on seat and bench ends replacing the existing motifs.

Seating Surfaces

Wood seating surfaces are offered in kiln-dried Alaska yellow cedar, Marine Teak or Purpleheart.

Seating Options

Long lengths, intermediate support frames and armrests are offered.

Litter Containers

Matching wood surrounds a metal 21- or 36-gallon steel liner. Top options: Open Top; Flat Top; Domed Top; Ash/Dome Top; Hamper Top; Hamper Top with ash tray; or Hamper Top with covered ash tray.

Complementary Accessories

Matching ash receptacles and planters.

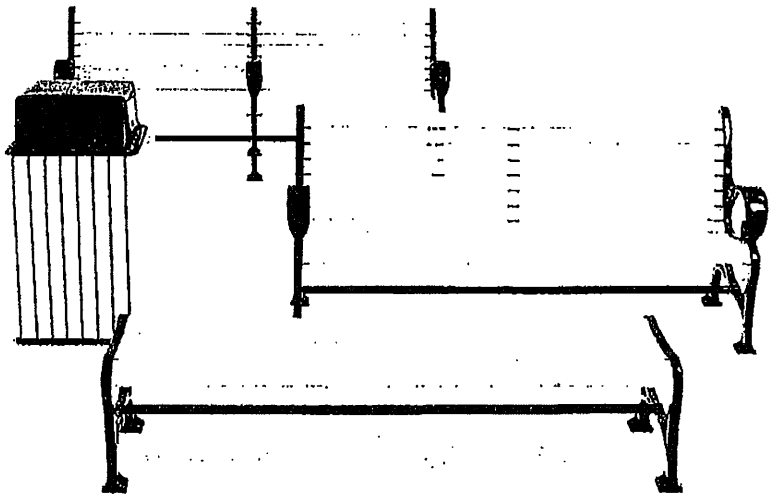
Colors

Choose from ten standard and over 170 special CASPAX-7 designer colors.

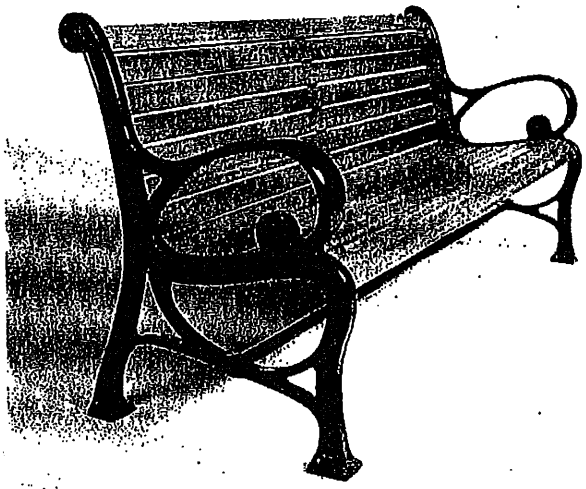
Mounting

Permanent surface mounting or movable applications.

TimberForm® Restoration™



Front to back 2123-6, 2107-HT, 2118-6, 2119-7



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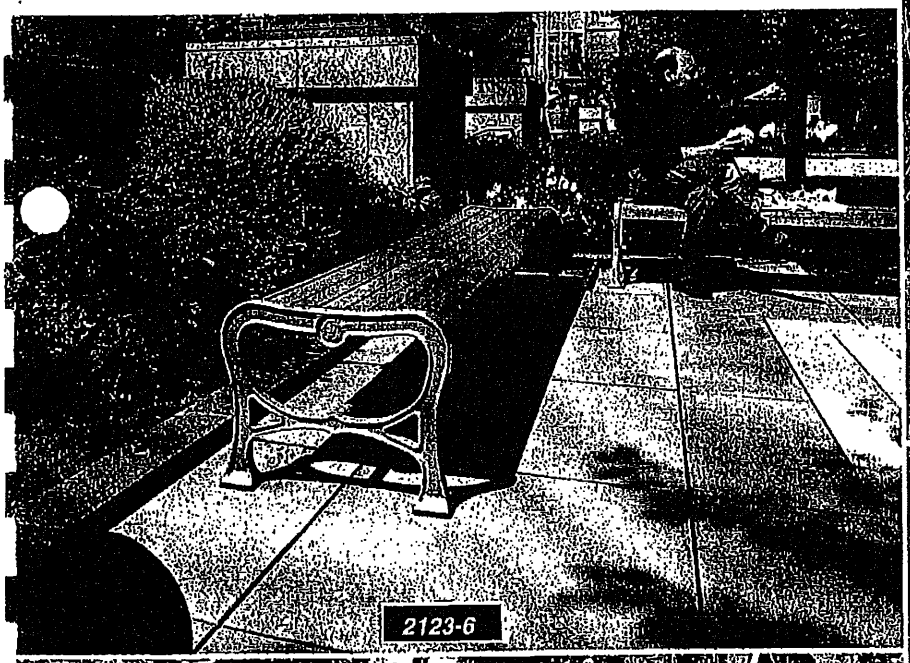

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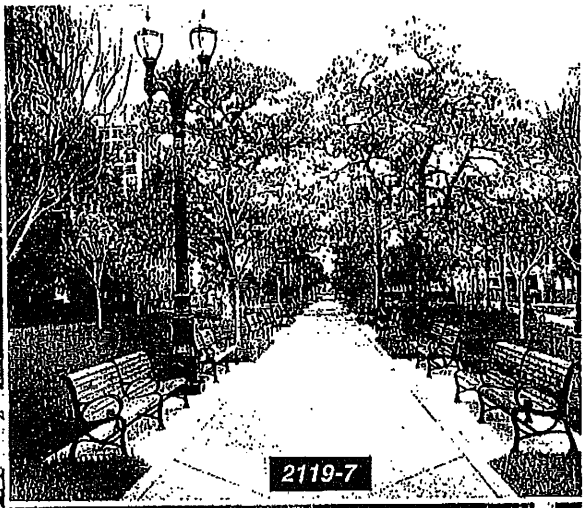

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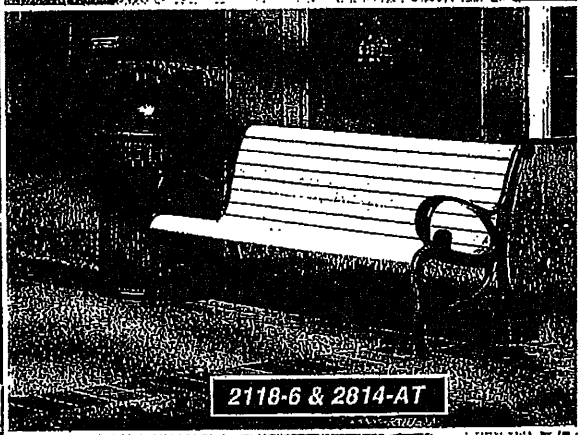
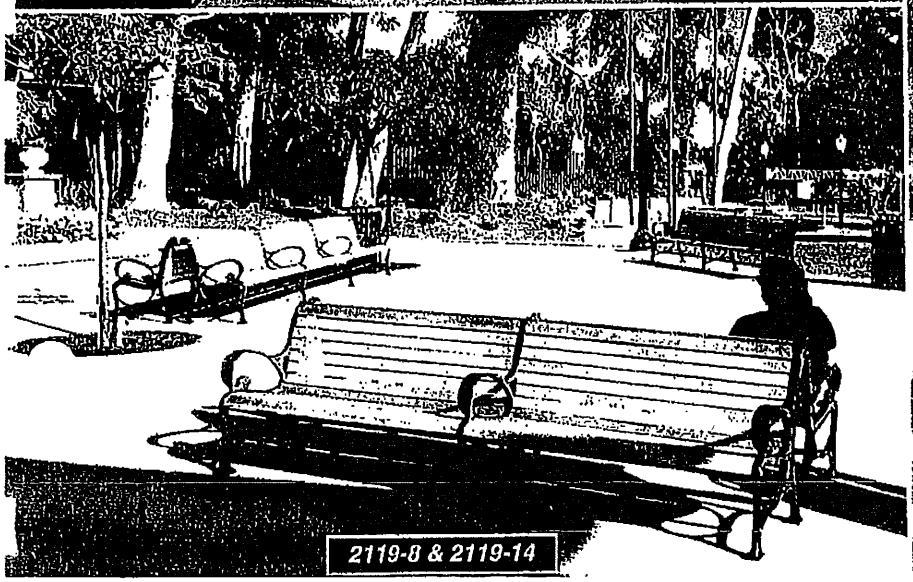


2118-6 & 2814-AT



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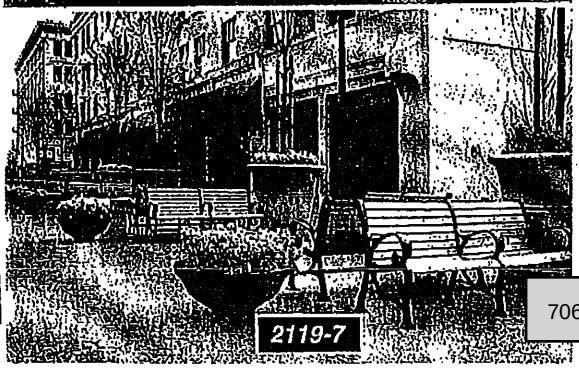

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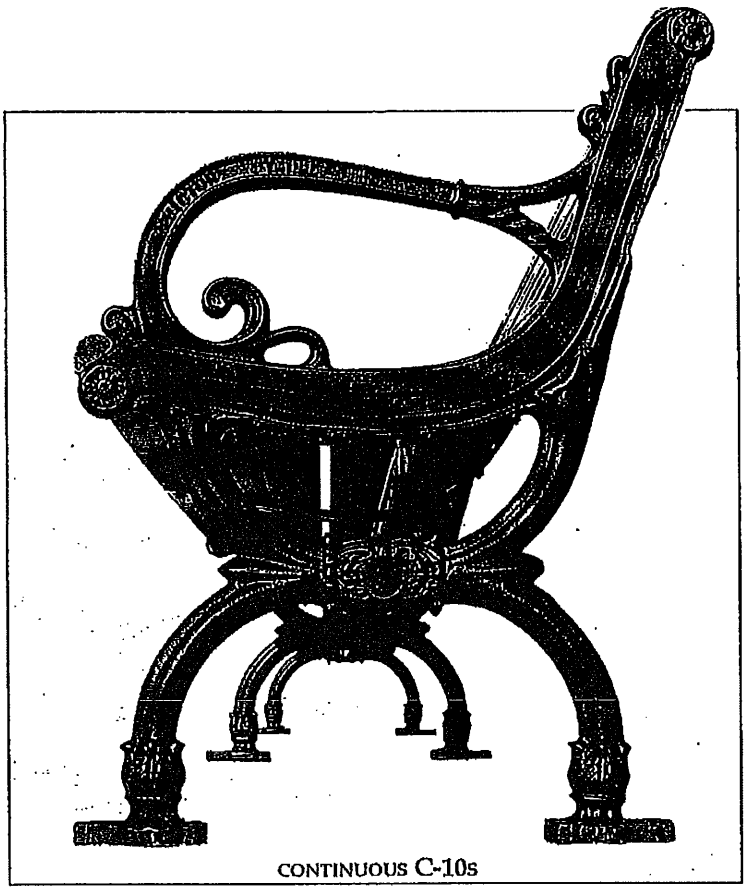
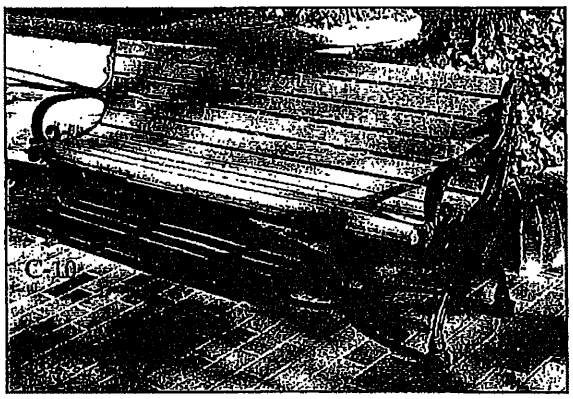
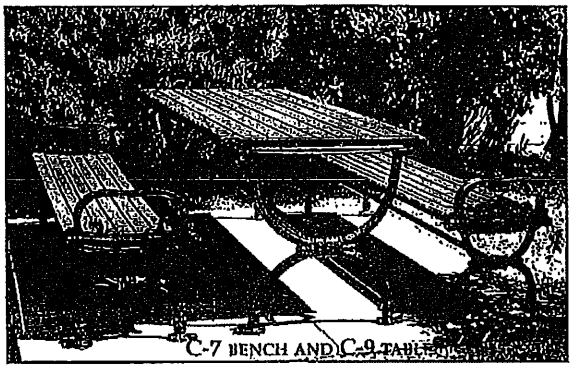


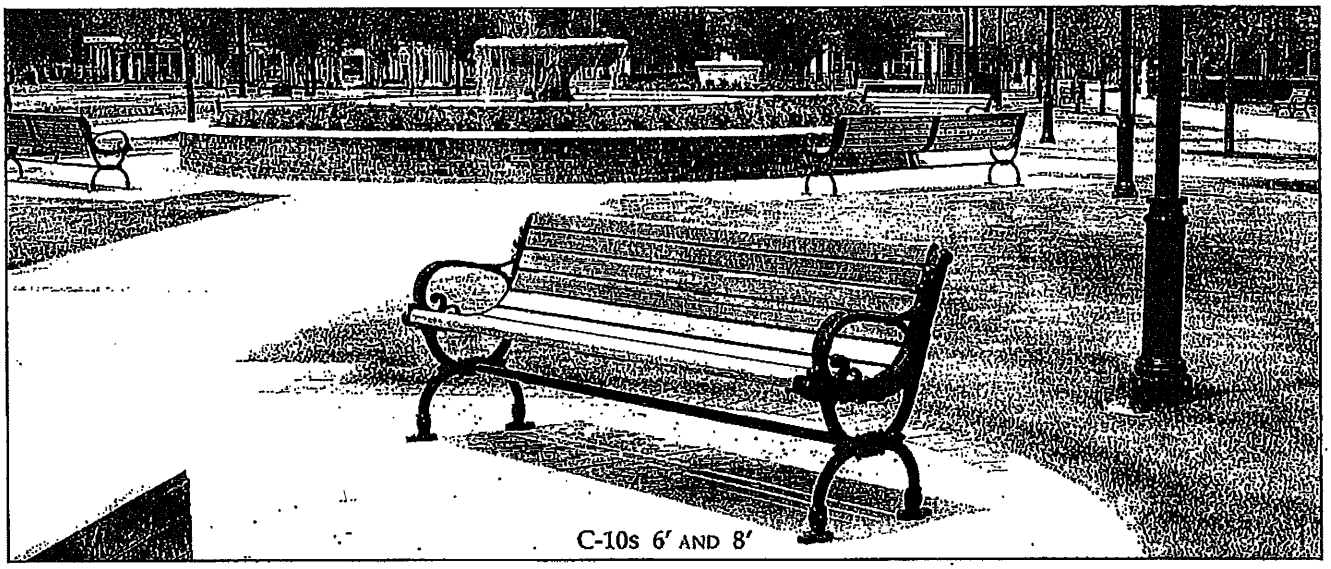
CONTINUOUS C-10s



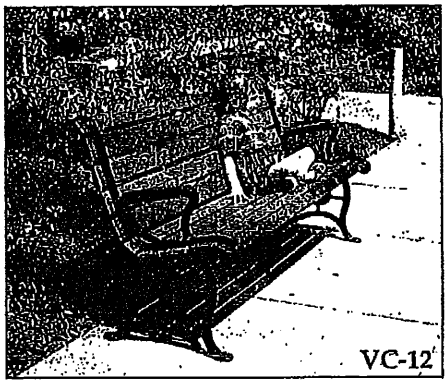
C-10



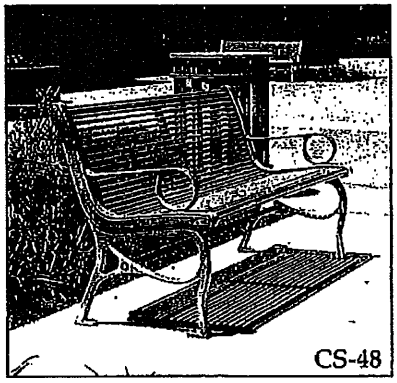
C-7 BENCH AND C-9 TABLE



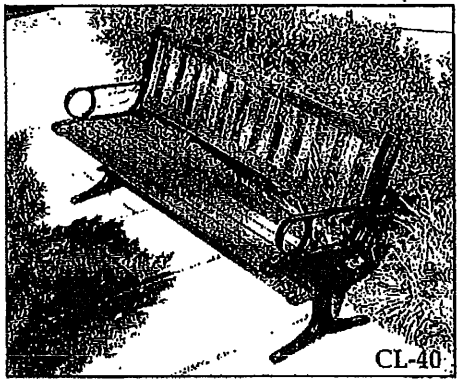
C-10s 6′ AND 8′



VC-12



CS-48

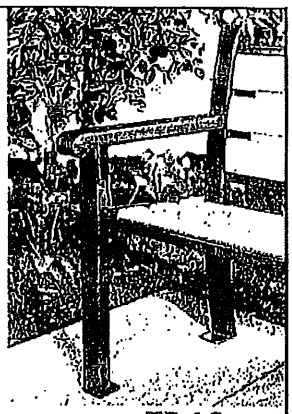


CL-40

02870/Vlc
BuyLine 1157

No-More-Compromises

Now You Can Use Recycled Plastic Products Without Compromising Design, Durability, Appearance or Comfort...

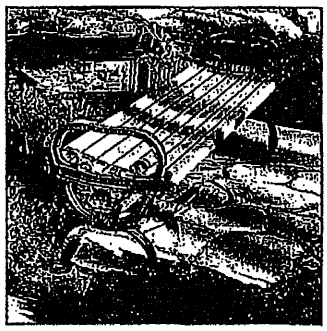


TB-6 Settee

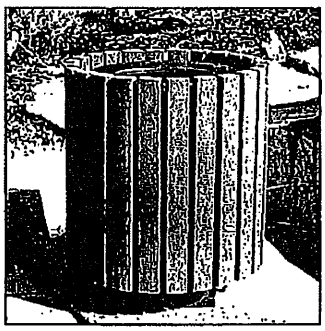
The remarkable 2nd Sites Systems® materials combine recycled plastic and steel in a system designed to be "plug-compatible" with the best wood slats available. They are durable and attractive, with molded-through color and UV-resistance. They shed water and resist rot. They are easily cleaned and highly stain resistant.

Colors include tan, brown, reddish-brown and weathered gray. From a distance, they look like the wood that they replace. Up close, they are comfortable to sit on and incredibly strong. They truly serve the dual roles of creatively using recyclable resources and providing superb design options.

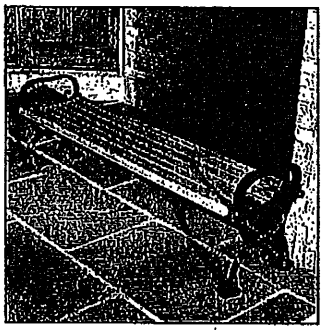
Model 8 with Gullwing Legs



C-7



HF-24 (standard recycled slats)



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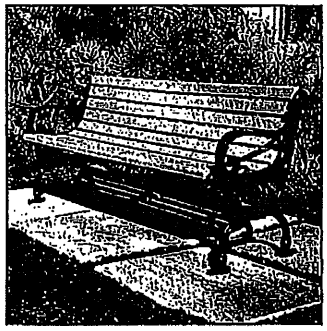
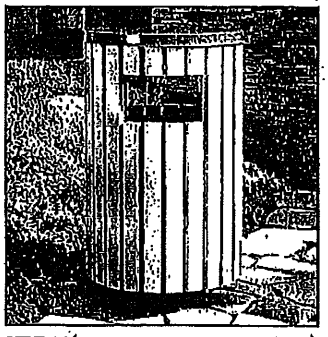
C-97



C-10

C-10



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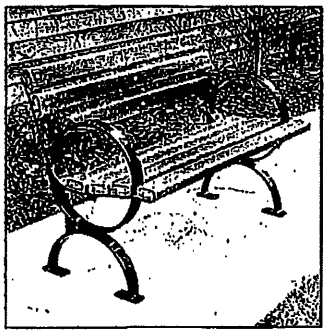
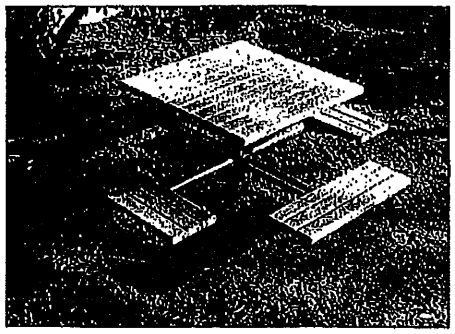


FR-7



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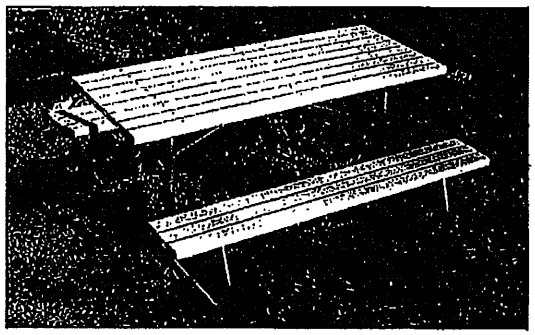
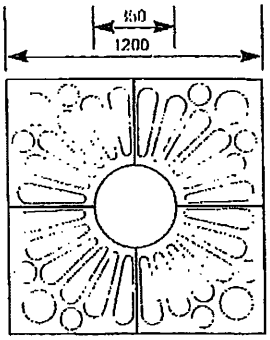
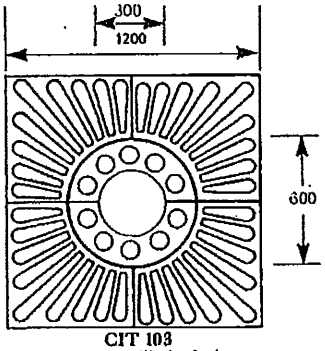


ST-5

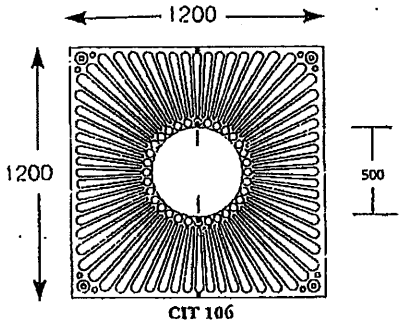
steel support frames as standard and locking devices can be supplied to prevent un-authorised removal. All tree grilles can integrated with our tree guard range.
Tree grilles can be supplied in either natural finish or fully painted with a rust preventative paint.



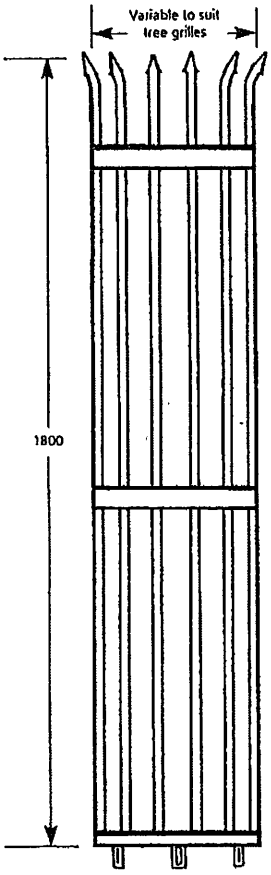
CIT 101
Square Tree Grille in 4 pieces.



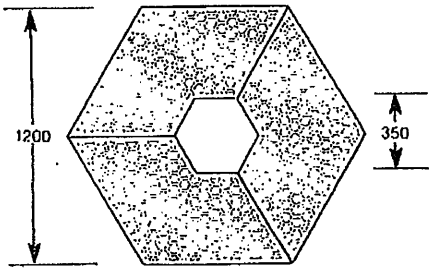
CIT 103
Square Tree Grille in 6 pieces.



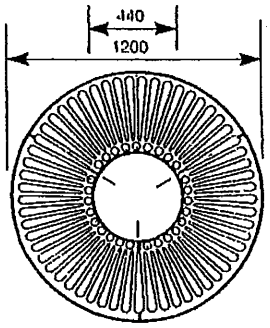
CIT 106
Square Tree Grille in 2 pieces.
Also available 900 x 900



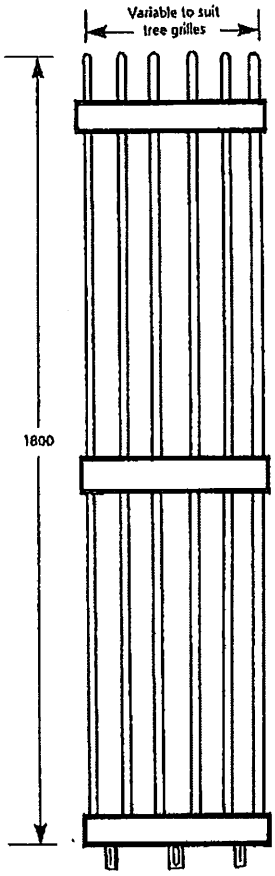
STG 203



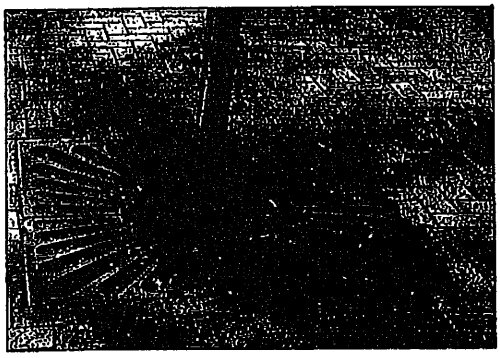
CIT 102
Hexagonal Tree Grille in 3 pieces. Thickness 22mm.



CIT 105
Also available in 2m diameter.

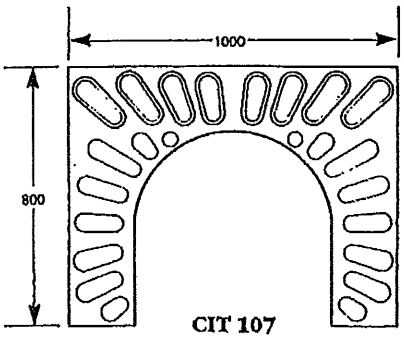


STG 204

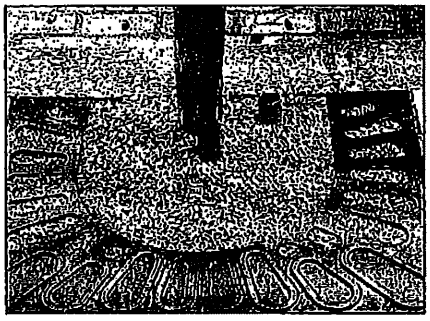


CIT 103

THE PROBLEM



CIT 107

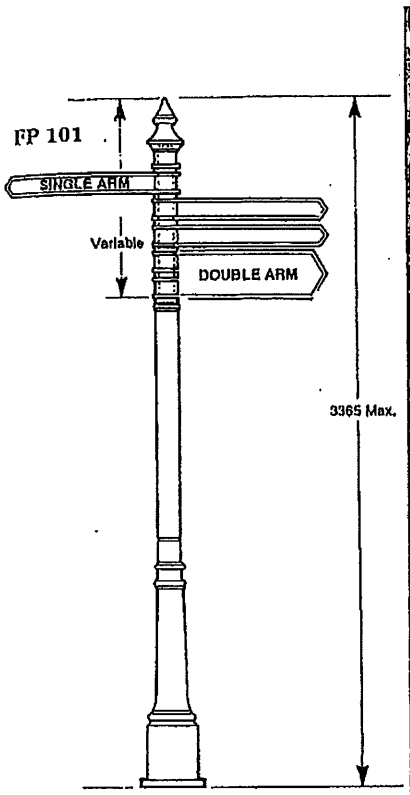


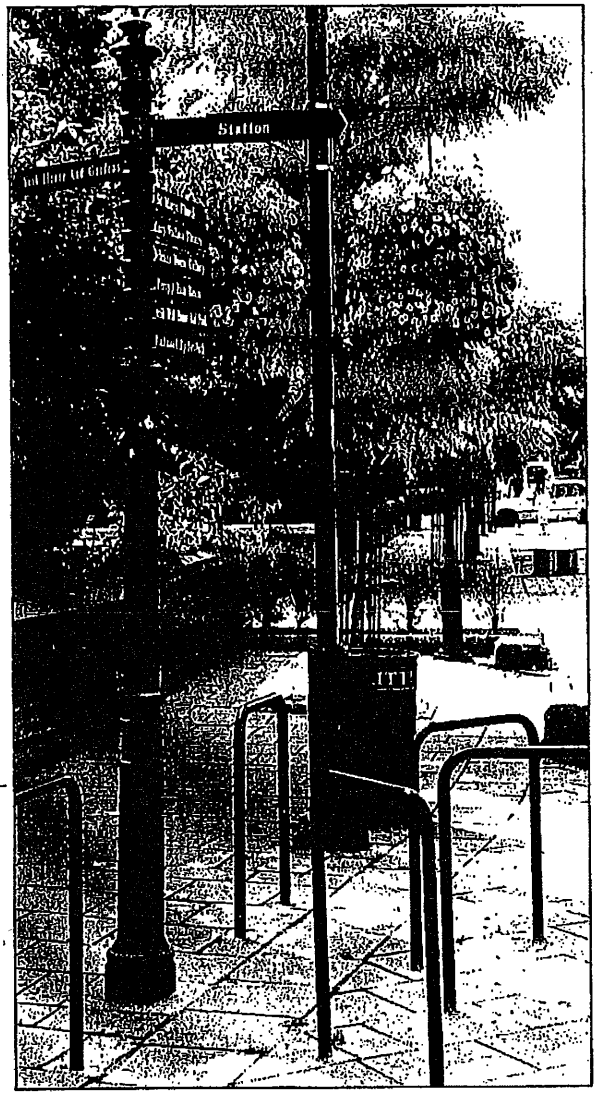
THE SOLUTION

In conjunction with the London Borough of Wandsworth, the CIT 107 has been designed for use where trees are planted within 500mm of the kerb or where pedestrian access may be restricted. As illustrated above the CIT 107 protects the trunk of the tree as

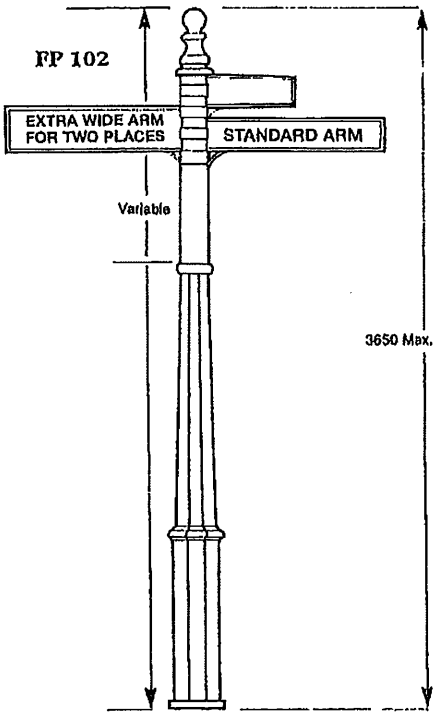
pieces give clear directional and public/tourist information.

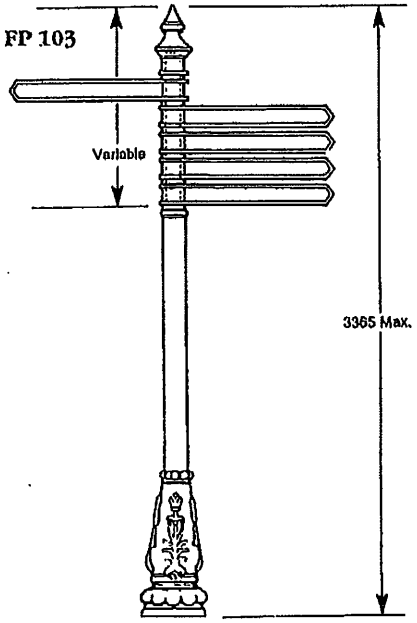
finger post are constructed using a cast iron decorative base and a mild steel mounting tube for the fingers, surmounted with a cast finial. Arms can be either single or double width and are cast in aluminium.

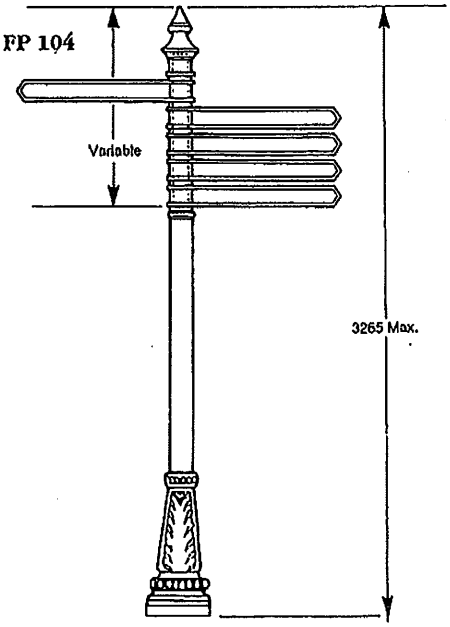


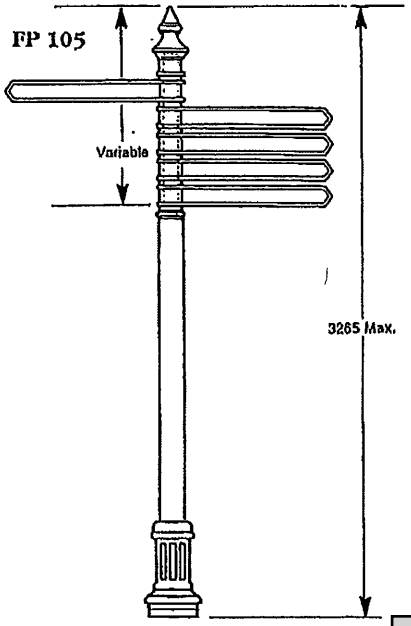


FP 101





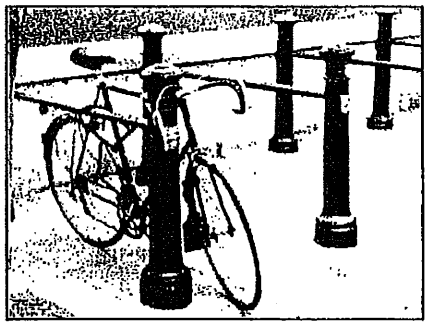




Posts can be bolted directly to a concrete pad-stone using the base flange plate or alternatively supplied with a mild steel root.

THE CAST IRON CO

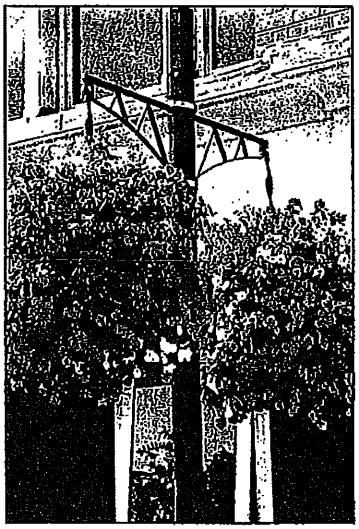
COMMEMORATIVE PLAQUES AND ROAD NAMEPLATES can be cast in either iron, aluminium or bronze from our standard range or to your own particular design.

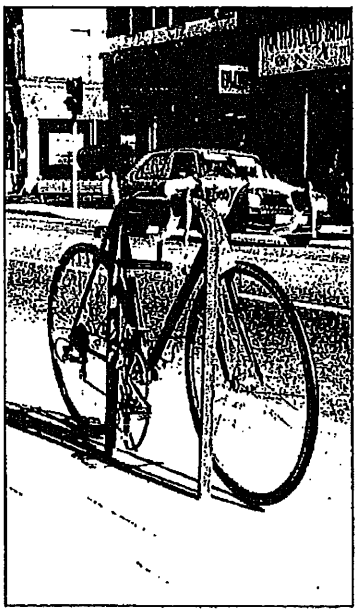


CI 109 Modified for use as a cycle stand

CYCLE STANDS can be constructed using two bollards from our bollard range with a 1200mm length of tubular steel mounted between them. Alternatively they can be fabricated using tubular steel 'croquet hoops' for ground fixing.

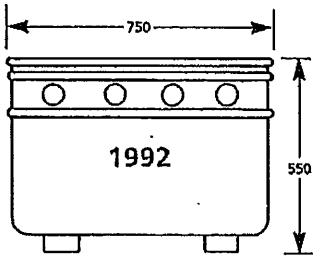
HANGING BRACKETS can be fabricated in a wide range of designs and can be post or wall mounted.





CS 202

PLANTERS can be cast or fabricated and allow small trees and shrubs to be planted where it is not possible or practical to plant directly into the ground.



HANGING BASKETS are fabricated items constructed to the designers own specifications and can be suspended from lamp posts, finger posts and wall brackets. Filled with an array of plants, these items add interest and colour.

The Cast Iron Company design and produce traditional and modern street furniture. Cast and fabricated items can be manufactured and our range includes ornate lighting, bollards and finger posts; litter bins and seats; posts and rails; tree grilles and guards; ornate gates and railings; bandstands and covered walk-ways.

Copies of The Cast Iron Co's trade literature for all products are available by contacting the sales office.

The Cast Iron Co. is constantly improving and developing its products and reserves the right to amend specifications without notice.

APPENDIX C. SUMMARIES OF MEETINGS

Summary of September 13, 2000 Meetings & September 29, 2000 Telephone Conversation

Summary of Project Management Meeting #2, November 16, 2000

Summary of Project Management Meeting #3, February 8, 2001

Boardman Looks At Plans To Develop A "Downtown" Main Street Area (February 2001) Article by Heidi Soderstrom, Eastern Oregonian

Summary of May 24, 2001 Meetings

Summary of June 14, 2001 Meetings

SUMMARY OF SEPTEMBER 13. 2000 MEETINGS & SEPTEMBER 29, 2000 TELEPHONE CONVERSATION

This summary of initial meetings includes:
- September 13, 2000 Project Management Team Meeting
- September 13, 2000 Advisory Committee Meeting
- September 13, 2000 Site Tour
- September 13, 2000 Post-Site Tour Meeting
- September 29, 2000 Telephone Conversation

PROJECT MANAGEMENT TEAM MEETING

September 13, 2000
2:00-3:30 p.m.
Boardman City Hall

Attendees:
Debi Watson, Advisory Committee/Planning Commission/Downtown Development Association
Rex Mather, City Manager, City of Boardman
Barry Beyeler, Utilities/Natural Resources Manager, City of Boardman
Cheryl Jarvis-Smith, ODOT Region 5
Bob Foster, Foster Consultants
Larry Lewis, TriLand Design Group

Summary
The itinerary of the day was discussed including:
- The Project Management Team Meeting: 2:00-3:30 pm
- The Advisory Committee Meetings: 3:30-4:30 pm
- Site Tour: 4:30-5:00 pm

The Project Management Team discussed the plans for the NASCAR racetrack and associated uses and how it would impact Boardman and the downtown area if developed. Summary statements included:
- If developed, the race track and associated uses would likely be located off of Tower Road which intersects with I-84 approximately six miles west of Boardman;
- DLCD will not likely allow a state goal exception to allow retail/urban uses since it is located outside the Urban Growth Boundary (UGB);
- DLCD does not believe the race track should influence the Boardman "Downtown" Main Street project;
- The race track developer has indicated he would participate with the City in the development of the Boardman "Downtown" Main Street project, if requested. It was recommended that the race track developer be invited to an AC meeting at some point in the planning process.

There was discussion regarding interstate-related uses along the I-84 frontage in Boardman. A comment was made that if interstate uses developed on the north side of I-84, traffic congestion may occur due to the close proximity of the high school and the retail uses.

Potential mapping sources include Anderson Perry (541) 963-8309 and Morrow County who has a Boardman Zoning Map. The City has an aerial photograph that is 5-6 years old. Gary Neil of the Port of Morrow may also have mapping.

Art Kegler is the realtor representing the property owner of the 75-acre downtown area site.

Cheryl will provide TriLand with the Boardman Lands Needs and Supply.

ADVISORY COMMITTEE MEETING

September 13, 2000
3:30-4:30 p.m.
Umatilla Electric Conference Room

The meeting began with introductions, description of the Advisory Committee's (AC) project role, and a review of the planning process and project schedule.

An initial question (and focus of the meeting) was how committed should the City and this project be on focusing on the 75-acre site located south of I-84 and east of Main Street. The question was raised because the 75-acre site is privately owned which may make if difficult or infeasible for the new downtown area to be developed as the community desires, i.e. public plaza and public uses. A previous study evaluated three alternative sites and, through a strenuous process, it was agreed that the 75-acres was the recommended site. The Tum-A-Lum property, located west of Main Street was identified as another potential site for the downtown area.

Other issues and comments included:

- Debi stated she believes the city can grow to a population of 10,000 to 12,000 without building up, i.e. multi-story structures;
- Idea of the City providing parking so business owners do not have to;
- Property ownership should be evaluated in the evaluation of alternatives downtown concepts;
- Keep Main Street the main street.
- Consider alternative ownership locations for public space;
- Provide "green" development, i.e. move away from the "endless pavement", provide an open space system;
- Provide a planned street system/street connectivity.
- Is reuse of existing buildings viable?
- In addition to transportation facilities, plan for utilities, i.e. water, sewer, and storm drainage.

SITE TOUR
September 13, 2000
4:30-5:30 p.m.
Library Parking Lot

The AC gathered at the library parking lot located on the west side of Main Street, south of I-84. Discussion included:

- The "Oregon Trail Blvd." will be constructed along the BPA easement from Main Street west to (what is currently known as) "Future Blvd." Timing of construction depends on development;
- The Tum-A-Lum property is an "L" shaped parcel located between the library and Napa Store and behind the Napa Store. It was recommended that someone from the AC should contact the Tum-A-Lum owners to discuss their plans for the property.
- Is it possible to develop the new downtown, or a portion of it, through a public/private partnership or joint venture?
- Identify alternative locations/ownership for the "center" of the new downtown;
- AC members generally do not think parking on the street is a good idea;
- Currently, all residential development is occurring on the southwest side of Boardman with traffic funneling along Wilson Road and Main Street.

POST-SITE TOUR MEETING
September 13, 2000
5:30-8:00 p.m.
Umatilla Electric Conference Room

Following the site tour, Debi Wilson, Kathy Moore, Cheryl Jarvis-Smith, Bob Foster, and Larry Lewis continued the discussion of issues and potential uses for the downtown area including:

- The planned Oregon Trail Blvd. is one component that the community got excited about so it would be beneficial to tie the "downtown" public space with Oregon Trail Blvd;
- Potential ownership of the public plaza could include the City, Urban Renewal Agency, and/or the Port of Morrow;
- The Boardman Downtown Development Association could become land owners because they are a non-profit agency. This may be considered if it would be a benefit to the community;
- Hobo Pond is a wetland area located the I-84 south frontage, west of Main Street.
- Boardman has the highest per capita population under 18 years old in the state with 33% in 1995. The average age in Boardman in 1995 was 23.5.
- There is a 50-60% Hispanic population.
- The grade school may be the best source for the youth charrette since all the elementary students that live in Boardman also go to school in Boardman. The high school includes 50% Boardman students and 50% Irrigon students;
- The Catholic Church has a large Hispanic population and is a good community participant (Dan Deltoso is the contact);
- Public uses that the community will likely buy into include:
  - amphitheater,
  - fountain,
  - public plaza,

  - City Hall,
  - skate board park,
  - senior center/community center
- The Post Office is planning to acquire land within two years and move into a new building in three years.
- There was discussion on how large the public/civic space should be. The initial thought was 12-acres would be an ideal size. Looking at how much space the above noted public uses would require, the total area needed for public uses may be reduced to approximately 8 acres.

SUMMARY OF SEPTEMBER 29, 2000 TELEPHONE CONVERSATION
Debi Watson
Larry Lewis

Debi talked to the Tum-A-Lum people. It appears we need to focus on the original 75-acre site (as described in the contract). The Tum-A-Lum people appear intent on developing their hardware/home improvement-related business in the downtown area and are not interested in other areas in Boardman, i.e. the Port.

Debi is optimistic about a land swap with the 75-acre property owner for the public/civic space. The property owner has previously said he would be interested in a land swap. Debi shared this information with the City Council. City Council believes the appropriate time to talk to the property owner is once we decide how much land we need for the "town square". The City will want two additional acres for a new senior citizens/community center.

SUMMARY OF PROJECT MANAGEMENT TEAM MEETING #2

Thursday, November 16, 2000, 9:30-10:30 am
Boardman City Hall

Attendees
Rex Mather, City of Boardman
Barry Beyeler, City of Boardman
Cheryl Jarvis-Smith, ODOT Region 5
Bob Foster, Foster Consultants
Larry Lewis, TriLand Design Group

Discussion Items

I. Review November 16, 2000 Agenda

9:30-10:30 am	Project Management Team Meeting	City Hall
10:40-11:40 am	Youth Charrette	Boardman Elementary School
4:00-6:00 pm	Community Meeting/Charrette	City Hall

II. Review Base Map, Opportunities & Constraints Analysis, and Discuss the "Downtown" Site
A citywide/UGB map was presented and discussed. Key features identified on this map include two potential downtown sites south of I-84: 1) the 75-acre parcel located east of Main Street and, 2) the undeveloped commercial-zoned land located west of Main Street. The Opportunities & Constraints Map provides more detail about existing conditions of these two sites including existing and potential access. Discussion primarily focused on the potential of the different sites developing as a downtown area given current property ownership. Although the 75-acre site on the east side of Main Street has previously been identified as the new downtown site, there is now discussion amongst members of the community that the west side of Main Street is more feasible as the new downtown site, from a land acquisition or from the standpoint of negotiating with property owners.

III. Youth Charrette Process
The agenda for the youth charrette was discussed briefly including the primary purpose to solicit ideas from the students on what physical elements (i.e. streets, trees, etc.) and what types of land uses they would like to see in the new downtown.

IV. Community Meeting/Charrette Process
The Kick-Off Meeting and Community Charrette agenda was identified including:
- Introduction
- Review Base Maps, Opportunities & Constraints
- Slide Show
- "Downtown" Preference Diagrams
- Public Preference - Desired Downtown Land Uses & Elements

V. Upcoming Meetings (tentative)

The following meetings were tentatively scheduled:

Site Plan Workshop	Thurs. February 8, 2001
Final Plans Workshop/Presentation	Thurs. April 12, 2001
City Council/Planning Commission Work Session	Thurs. May 10, 2001
City Council/Planning Commission Public Hearings (2)	May/June 2001

SUMMARY OF PROJECT MANAGEMENT TEAM MEETING #3

Thursday, February 8, 2001 4:00 p.m.
Boardman City Hall

Attendees

Rex Mather, City of Boardman
Barry Beyeler, City of Boardman
Cheryl Jarvis-Smith, ODOT Region 5
Bob Foster, Foster Consultants
Larry Lewis, TriLand Design Group

Discussion Items

The civic center was discussed as a key element of the new downtown master plan. The City needs to have a good idea of how much land the civic center will require in order to consider specific parcels of land that may be appropriate and feasible. The following civic center "breakdown" was identified:

• City Hall/Library	250' x 350'	2.0 acres
• Park/Plaza	120 x 170'	0.5 acres
• Community Center/Swimming Pool	160 x 240'	1.0 acre
• Police Station and/or Post Office	180 x 150'	0.6 acres
Subtotal:		4.1 acres
Subtotal plus 20%		**5.0 acres**

Next steps in the planning process will include identification of street standards for the existing Main Street, for a new Main Street (i.e. perpendicular to existing Main Street), and for local streets.

In the Crescent Alternatives Site Plan, pedestrian connections need to be shown going east from the 75-acre site.

An overview of the market component and land development program was reviewed.

Discussion included the need to identify how the proposed section of Main Street south of I-84 works with the proposed standard and improvement for Main Street north of I-84.

BOARDMAN LOOKS AT PLANS TO DEVELOP A "DOWNTOWN" MAIN STREET AREA
By HEIDI SODERSTROM
of the East Oregonian

BOARDMAN — Residents crowded into the city hall's conference room Thursday night (February 8, 2001) to discuss design concepts plastered on the walls, drawings defining development of a "downtown" Main Street area south of the freeway on land zoned for commercial use.

Bob Foster, urban designer, and Larry Lewis, planner, explained to the audience the three different designs, each pictured on the east side of Main Street but with capabilities to flip over to the west side if the town so desires.

The conceptual designs show alternative ways to develop the Downtown Main Street site and have been prepared for the preferred diagram that was selected at the community meeting in November, Lewis said. Whichever design is chosen by the city will be implemented over a 20-year time period.

A Transportation Growth Management grant through the Oregon Department of Transportation made it possible for the city of Boardman to hire Lewis and Foster to come up with the concepts.

Specific design features include a potential plaza and other public spaces, location of buildings, building setbacks, parking, streetscape elements, urban design concepts, existing and planned streets, access, potential improvements to intersections and pedestrian/bicycle facilities.

The crowd favorite is the "Amphitheater concept," with it's unique use of angles creating park areas. The "Crescent concept" was also lauded for it's use of a sweeping curve and interconnecting roadways. The "Grid concept" looked boring to most, but was thought to maybe be the most practical.

"The fact is, it's going to be developed a spot here, a spot here, so from that stand point the grid concept is the easiest," Mayor Tom Meyers said.

However, it was the amphitheater design that won most of the votes at the end of the meeting, Foster said.

"Most people wanted more green parks, which is why they chose the amphitheater concept. It just feels more loose," he said, relating back to the issue of flexibility being the key to whichever design is approved as was brought up by several people.

Along with flexibility, residents looked at how traffic, water issues and growth would be effected by each of the concepts.

"We give them our ideas, what we know and what we have experienced," Foster said. "But it is their town, so they have to make the decisions."

Lewis said no total cost has been developed yet, it is part of the next step.

The next development meeting is scheduled tentatively for April 12.

"It gets more and more focused as we go," Foster said, with more details likely be ironed out at the next meeting.

Reporter Heidi Soderstrom can be reached at 1-800-522-0255 (ext. 1-304 after hours) or e-mail: hsoderstrom@eastoregonian.com.

SUMMARY OF MAY 24, 2001 MEETINGS

PROJECT MANAGEMENT TEAM MEETING (6:00 p.m.)

Attendees:

- Rex Mather, City Manager
- Barry Beyeler, City Utilities and Natural Resources Manager
- Cheryl Jarvis-Smith, ODOT
- Larry Lewis, TriLand Design Group

Discussion Items:

- Discussion primarily focused on the recent opportunity the City has to negotiate with a developer that may result in the civic center/city hall being constructed. The location is west of Main Street, between (planned) Oregon Trail Blvd. and Kinkade Street from Main Street to east of Dillabaugh Street.

  The agreed upon final plan identifies flexibility so that land uses can be relocated and still provide a street grid system with a compatible land use arrangement(s).

- Ongoing and planned subdivision development was identified.

- The status of the proposed NASCAR race track and potential impacts to Boardman were discussed.

FINAL PLAN PRESENTATION (7:00 p.m.)

The agenda included review of the planning process, the flexible land use plan, the land use development program, street design standards, and street furniture. The focus of the presentation and discussion was on the flexible land use plan. The final development plan was prepared prior to the latest opportunity the City is pursuing to construct a civic center/city hall west of Main Street, south of the planned Oregon Trail Blvd. A land use diagram was presented that illustrates how the different land uses can be relocated while still maintaining the grid street system and providing compatible land use relationships.

Draft street design standards were presented and discussed. City staff is working on draft street design standards that incorporate a wide median on arterial and collector streets with a multi-use path and stormwater facilities and utilities.

DOWNTOWN (D) ZONING DISTRICT SUMMARY AND TSP AMENDMENTS (±8:30 p.m.)

An overview of the Downtown Zoning District was provided including the purpose and key elements of the new zoning district.

A summary of recommended amendments to the Transportation System Plan was identified including the need to incorporate the Downtown Plan, revise the street classification system, revise the street design standards, incorporate the infill and redevelopment alternative, determine other changes needed to comply with the TPR, and any other changes required to comply with the 1999 Oregon Highway Plan.

SUMMARY OF JUNE 14, 2001 MEETINGS

PROJECT MANAGEMENT TEAM MEETING (5:00 p.m.)

Attendees:

- Rex Mather, City Manager
- Barry Beyeler, City Utilities and Natural Resources Manager
- Cheryl Jarvis-Smith, ODOT
- Larry Lewis, TriLand Design Group

Key Discussion Items:

- Street design standards: review of draft street design standards prepared by Barry including arterial and collector standards that have wide medians with an 8' wide multi-use path and stormwater/utility strip on both sides of the multi-use path. There was considerable discussion about bicycle use and safety of bicyclists accessing the multi-use path across travel lanes and through intersections.
- Downtown zone: The project includes establishing a downtown zone however, due to the flexibility and changing opportunities that have occurred, it has been unrealistic to define appropriate boundaries for the downtown zone.

CITY COUNCIL/PLANNING COMMISSION WORK SESSION (7:00 p.m.)

The intent of the work session was to review and discuss the following items:

- Draft Street Design Standards
- Downtown Zoning Boundary
- Downtown Zoning Ordinance
- TSP Project Update
- TSP Implementing Policies and Ordinances

Draft Street Design Standards

Barry presented the draft standards that include the arterial and collector standards with the wide median for the multi-use path and stormwater/utility facilities. There was considerable discussion about bicycle access and intersection conflicts.

Downtown Zoning Boundary

Following considerable discussion, it was generally determined that the downtown district should include the existing commercial zoned land west of Main Street and a 200-foot depth along the east side of Main Street from Oregon Trail Blvd. to north of Wilson Road. There are some concerns that this area is too large to accommodate a compact pedestrian friendly downtown and that commercial development could occur in a piece-meal fashion, therefore never creating a concentrated downtown area and leaving a lot of land vacant for a long time.

Downtown Zoning District

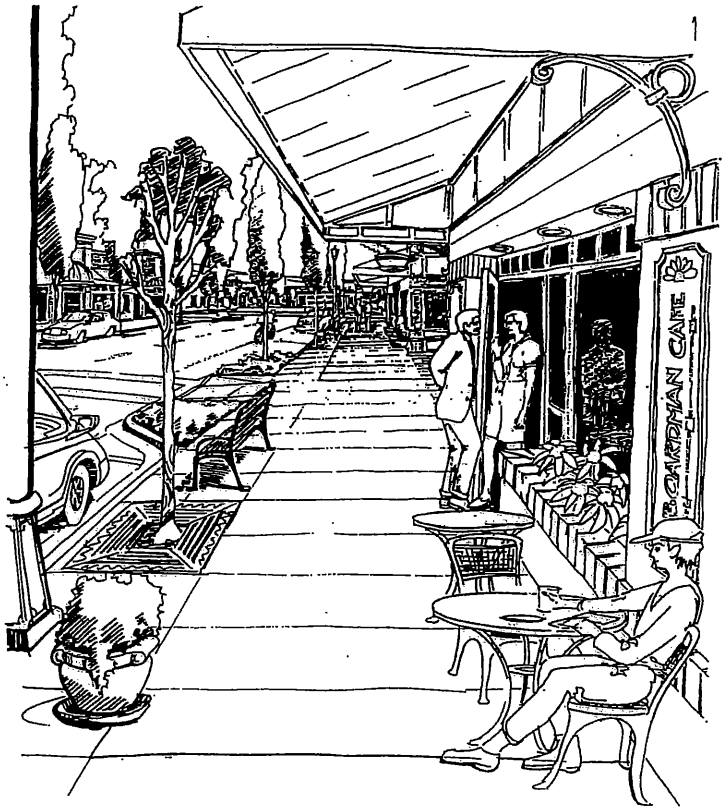
Review of the draft downtown district resulted in the decision for the City Council/Planning Commission to take time to review the draft and have another work session to discuss and revise the draft. There were concerns that some of the ordinances were too detailed and costly, and therefore would not make it attractive or economically feasible for downtown development to occur.

TSP Project Update

Review of the TSP and updates focused on Main Street and the street design standards. Discussion resulted in the need for three Main Street standards including:

- South Main with two 12-foot travel lanes, one 12-foot center turn lane/median, two 12-foot planter strips, and 10-foot sidewalks;
- North Main (Enhancement Project) with two 12-foot travel lanes, one 12-foot center turn lane, 6-foot bicycle lanes, and 6-foot sidewalks;
- Main Street Railroad Overpass with two 12-foot travel lanes and two 6-foot bicycle lanes.

There was also discussion of the potential frontage road closures and the need to identify access management in the TSP to comply with the 1999 Oregon Highway Plan. Generally, new access will be prohibited within ¼ mile of the interchange and ongoing evaluation will be needed to determine if existing access points can be consolidated or eliminated.


CARDMAN CAFE

MEMORANDUM

To: City Council
From: Carla McLane, Planning Official
Date: July 25, 2024
RE: Amendment - Chapter 2.2 Commercial District of the Boardman Development Code

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The Boardman Planning Commission did hold a public hearing on July 18, 2024, to consider this action and is forwarding this proposal to the City Council with a “do adopt” recommendation. Included with this memorandum is the Planning Commission Final Findings of Fact and the redlined Chapter 2.2 Commercial District proposed for adoption by Ordinance.

Over the past two and a half years working with the Boardman Development Code (BDC) many problem areas have been identified. While we are working towards a full update of the BDC this is the first of several minor and somewhat surgical amendments that will be proposed for consideration by the Planning Commission and City Council. Some of the specific issues with the Commercial District is the allowance of Truck Stops in the Tourist Commercial/Highway SubDistrict (Main Street Interchange), the exclusion of retail activity in that same SubDistrict, and the allowance of Bed & Breakfast opportunities (and the larger allowance of single-family dwellings which was discussed by the Planning Commission but is not proposed for action). Again, this is a surgical action addressing just a couple of more problematic issues that we are working on at this time.

All owners of commercially zoned property were provided with notice but to date I have only heard from one who is generally in support of this amendment.

The formal action on the agenda is through Ordinance 5-2024.

Please reach out if you have any questions.

FINAL FINDINGS OF FACT
PLANNING COMMISSION
AMENDMENT LND24-000007

REQUEST: To accomplish minor amendments to the City of Boardman Development Code Chapter 2.2 Commercial District to remove standards related to Bed and Breakfast Inns, to add and remove language to the use tables for both the Commercial and Tourist Commercial/Highway Subdistrict, and to address minor housekeeping items.

APPLICANT: City of Boardman
Planning Official
Post Office Box 229
200 City Center Circle
Boardman, Oregon 97818

I. GENERAL INFORMATION: The current Boardman Development Code (BDC) is, for the most part, over 20 years old and in significant need of an update. While that update process is being planned there are some minor amendments that city Planning staff are going to initiate starting with this short look at the Commercial District. While more work could be done this minor amendment addresses a couple of items that have proven problematic recently and incorporates some other minor changes.

II. PROCEDURE: This amendment is being processed using Type IV procedures found within the Boardman Development Code. The Type IV process requires a hearing before the Planning Commission with a recommendation to the City Council. The final hearing will occur before the City Council.

III. APPROVAL CRITERIA: The request has been filed under the BDC Chapter 4.1 Types of Applications and Review Procedures, more specifically 4.1.600 Type VI Procedures (Legislative). The criteria are identified below in **bold** type with responses in regular type.

G. Decision-Making Considerations. The recommendation by the Planning Commission and the decision by the City Council shall be based on consideration of the following factors:

1. Approval of the request is consistent with the Statewide Planning Goals.

The Statewide Planning Goals applicable to this request are Goal 1, Citizen Involvement and Goal 2, Coordination.

Goal 1 requires the City to "develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process." Because the proposed legislative amendment will be heard by both the Planning Commission and the City Council, there will be at least two opportunities for public comment to the proposed change. Additionally, owners of Commercially zoned property have received notice of this proposed action. This is consistent with the City's acknowledged citizen involvement program. (Goal 1, Policy 4: The Planning Commission is officially designated as the Citizen Involvement Committee.)

Goal 2 requires the City to adopt a comprehensive plan and implement the plan through its development code and by extension other planning level documents. The proposed amendment is consistent with and will support the comprehensive plan relative to employments lands. (Goal 2, Policy 3: The City has adopted the City of Broadman 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.)

For these reasons, the criterion is met.

2. **Approval of the request is consistent with the Comprehensive Plan.**

The Boardman Comprehensive Plan (BCP) has a variety of policies that support the proposed amendment and the process used to achieve it. Goal 1 policies support citizen involvement and the public hearing process. Goal 1, Policy 4, designates the Planning Commission as the City's official Citizen Involvement Committee. Therefore, review by the Planning Commission ensures compliance with the comprehensive plan.

While none of the Goal 2 Policies are specifically applicable to this action, staff assert that the land use planning process required through Goal 2 is supported with the update of the BDC and that the adoption of these changes further supports that action. The desired result is a BDC that provides for reasonable uses that are beneficial to the community and can be achieved in the respective use zones.

For these reasons, the criterion is met.

3. **The property and affected area is presently provided with adequate public facilities, services and transportation networks to support the use, or such facilities, services and transportation networks are planned to be provided concurrently with the development of the property.**

Most if not all the Commercially zoned property in Boardman is or can be serviced with public facilities, services, and transportation networks to support the uses that are identified in the Commercial District currently as proposed to be amended.

For these reasons, the criterion is met.

IV. LEGAL NOTICE PUBLISHED: June 25, 2024
East Oregonian

V. AFFECTED LANDOWNER NOTICE: June 27, 2024
List of recipients on file at City Hall.

VI. DLCD 35-DAY NOTICE: April 5, 2024

VII. AGENCIES NOTIFIED: Dawn Hert, Department of Land Conservation and Development; Teresa Penninger and Cheryl Jarvis-Smith, Oregon Department of Transportation.

VIII. HEARING DATES:

Planning Commission
July 18, 2024
Council Chambers
Boardman City Hall
200 City Center Circle
Boardman, Oregon 97818

City Council
August 6, 2024
Council Chambers
Boardman City Hall
200 City Center Circle
Boardman, Oregon 97818

IX. PLANNING OFFICIAL RECOMMENDATION: The Planning Official recommends the Planning Commission forward the request to the City Council with a 'do adopt' recommendation.

18-JUL-2024

Zack Barresse, Chair — Date
Planning Commission

ATTACHMENTS:

- Redline of Chapter 2.2 Commercial District

Chapter 2.2 – Commercial (C) District

Sections:

2.2.100 – Purpose
2.2.110 – Permitted Land Uses
2.2.120 – Building Setbacks
2.2.130 – Lot Coverage
2.2.140 – Building Height
2.2.150 – Design Standards
2.2.160 – Pedestrian Amenities
2.2.170 – Special Standards for Certain Uses
2.2.180 – Tourist Commercial or Highway Sub District
2.2.190 – City Center Sub District
2.2.200 – Service Center Sub District
2.2.210 – BPA Transmission Easement Sub District

2.2.100 Purpose

The primary purpose of the Commercial District is to create standards that allow for a variety of commercial uses in the Commercial areas of the City of Boardman. This Chapter also creates three Sub Districts---Tourist Commercial or Highway, City Center, and Service Center. The Tourist Commercial or Highway Sub District provides additional standards for the areas of the City adjacent to Interstate 84. The Service Center Sub District provides standards for commercial and light industrial uses located west of the City. The City Center Sub District provides additional standards to create a concentrated and centralized commercial center to serve as the "heart" of the community. The City Center Sub District is created as an optional Sub District that may apply to certain geographic areas within the Commercial District. This geographic area has been designated to form the "center" of Boardman's commercial activities. This chapter provides standards for the orderly creation and expansion of the Commercial District by adherence to the following principles:

- Effective and efficient use of land and urban services;
- Direct commercial and retail development to a concentrated and localized area;
- Provide a mix of uses which provides a destination within the community and encourages walking over driving;
- Create connection with the balance of the community by directing connected transportation routes to commercial areas of the city;
- Provide for additional service employment opportunities.

2.2.110 Permitted Land Uses

A. Permitted Uses. The land uses listed in Table 2.2.110.A are permitted in the Commercial District, subject to the provisions contained within this Chapter. Only land uses specifically listed in Table 2.2.110.A and those approved as "similar" uses are permitted. Land uses identified with a "CU" in the table will require a Conditional Use Permit approval prior to development or change in use, in accordance with Chapter 4.4 of this code

B. Determination of Similar Land Use. Similar use determinations shall be made in conformance with the procedures set in Chapter 4.8 – Interpretations.

Table 2.2.110.A
Land Uses and Building Types Permitted in the Commercial District

1. Residential* (CU)	**4. Public and Institutional *:**	**5. Accessory Uses and Structures***
Single-family a. Single-family attached townhomes b. Two and Three family housing (duplex and triplex townhomes) c. Multi-family housing d. Residential care homes and facilities **2. Home occupations (CU)** **3. ~~Bed & breakfast inns (CU)~~**	a. Churches and other places of worship b. Clubs, lodges, similar uses c. Government offices and facilities (administration, public safety, utilities, and similar uses) d. Libraries, museums, community centers, concert halls and similar uses e. Public parking lots and garages f. Private utilities (office/administration) g. Public parks and recreational facilities h. Schools (public and private) (CU) i. Transportation Facilities and Improvements. 1. Normal operation, maintenance; 2. Installation of improvements within the existing right-of-way; 3. Projects identified in the adopted Transportation System Plan not requiring future land use review and approval; 4. Landscaping as part of a transportation facility; 5. Emergency Measures; 6. Street or road construction as part of an approved subdivision or partition; 7. Transportation projects that are not designated improvements in the Transportation System Plan ** (CU); and 8. Transportation projects that are not designed and constructed as part of an approved subdivision or partition** (CU)	**6. Commercial:** a. Auto-dependent and auto-oriented uses and facilities (Prohibited in City Center Sub District) * b. Entertainment (e.g., theaters, clubs, amusement uses) c. Hotels/motels d. Hospitals, medical and dental offices, clinics and laboratories e. Mixed use development (housing with other permitted use) * f. Office uses (i.e., those not otherwise listed) g. Family daycare (12 or fewer children) h. Personal and professional services (*e.g.*, child care center, catering/food services, restaurants, laundromats and dry cleaners, barber shops and salons, banks and financial institutions, and similar uses) i. Repair services (must be enclosed within building if located in City Center) j. Retail trade and services, except auto- dependent and auto-oriented uses k. Telecommunications equipment (including wireless) (CU) (Prohibited in City Center). l. Uses similar to those listed above (subject to CU requirements, if applicable) **7. Light Manufacture*** (see 2.2.170 C)

Uses marked with an asterisk (*) are subject to the standards in Section 2.2.170 - Special Standards for Certain Uses. Uses marked with two asterisks (**) are subject to the standards in Section 4.4.400.D. Temporary uses are subject to the standards in Chapter 4.9. CUs are subject to Conditional Use permit standards in Chapter 4.4

2.2.120 Building Setbacks

In the Commercial District, buildings are placed to encourage pedestrian traffic. The setback standards are to encourage public spaces between sidewalks and buildings. The standards are also to encourage the formation of solid blocks of commercial and retail use to encourage a walkable commercial area.

Building setbacks are measured from the respective property line to the nearest vertical wall or foundation line, whichever is closer, of any building or structure. Setbacks for porches are measured from the edge of the deck or porch to the property line. The setback standards, as listed, apply to primary structures and accessory structures. The standards may be modified only by approval of a Variance, in accordance with Chapter 5.1.

A. Front Yard Setbacks.

1. Minimum Setback. There is no minimum front yard setback required except to provide for vision clearance standards set in Chapter 3.1.

2. Maximum Setback. There is no required maximum setback except in the City Center Sub District, which has a 5-foot maximum setback. This standard is met for City Center Sub District development when 50 percent of the front building elevation is placed no more than 5 feet back from the front property line. On parcels with more than one building, this standard applies to the largest building. The setback standard may be increased when a usable public space with pedestrian amenities (e.g., extra-wide sidewalk, plaza, pocket park, outdoor dining area or town square with seating) is provided between the building and front property line. (See also, Pedestrian Amenities Standards in Section 2.2.160, and Design Standards in Section 2.2.150 for related building entrance standards.)

B. Rear Yard Setbacks.

1. Minimum Setback. The minimum rear yard setback for all structures shall be zero (0) feet for street access lots, and eight (8) feet for alley-access lots (distance from nearest vertical wall or foundation line of any building to rear property line or alley easement) in order to provide space for parallel parking, unless to provide for vision clearance standards set in Chapter 3.1.

2. Through-Lots. For buildings on through-lots (lots with front and rear frontage onto a street), the front yard setbacks in "A" will apply except to provide for vision clearance standards set in Chapter 3.1.

C. Side Yard Setbacks.

1. There is no minimum side yard setback required, except that buildings shall conform to the vision clearance standards in Chapter 3.1 and the applicable fire and building codes for attached structures, fire walls and related requirements.

2.2.130 Lot Coverage

A. Lot Coverage. There is no maximum lot coverage requirement, except that compliance with other sections of the zoning codes may preclude full (100%) lot coverage for some land uses. Lot coverage in the Service Center and Tourist Commercial Sub District is limited to 85%.

2.2.140 Building Height

All buildings in the Commercial District shall comply with the following building height standards. The standards are intended to allow for development of appropriately scaled buildings.

A. Maximum Height. Buildings shall be no more ~~that~~than four (4) stories or fifty (50) feet in height, whichever is greater. The maximum height may be increased by ten (10) feet when conditionally approved housing is provided above the ground floor. The building height increase for housing shall apply only to that portion of the building that contains housing. Maximum height in the Tourist Commercial and Service Center Sub Districts are limited to four (4) stories or thirty-five (35) feet in height.

B. Method of Measurement. Building height is measured as the vertical distance above a reference datum measured to the highest point of the coping of a flat roof or to the deck line of a mansard roof or to the average height of the highest gable of a pitched or hipped roof. The reference datum shall be selected by either 2.2.140(B)(1 or 2), whichever yields a greater building height:

1. The elevation of the highest adjoining sidewalk or ground surface within a five (5) foot horizontal distance of an exterior wall of the building when such sidewalk or ground surface is not more ~~that~~than ten (10) feet above the lowest grade;

2. An elevation ten (10) feet higher than the lowest grade when the sidewalk or ground surface described in subsection A is more than ten (10) feet above the lowest grade. The height of a stepped or terraced building is the maximum height of any segment of the building. Not included in the maximum height are: chimneys, bell towers, steeples, roof equipment, flag-poles, and similar features which are not for human occupancy. These features will be no more than 25 feet measured from the highest point of the building.

2.2.150 Design Standards

A. Purpose and Applicability. The Commercial District design standards are intended to provide similar and human scale design, while affording flexibility to use a variety of building styles. Conditional Use approval is required for those uses listed as a Conditional Use in Table 2.2.110.A. Residential development shall follow standards for residential development contained in Chapter 2.1. This section applies to all of the following types of buildings:

1. Commercial buildings intended for use as professional, retail or other similar uses and services;

2. Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public; and

3. Mixed use buildings (buildings containing commercial and residential uses).

B. Guidelines and Standards. The purpose of these standards is to provide that all buildings are to contribute to the appeal of the Commercial District and Sub Districts.

1. Design of Buildings and Developments. The standards in the following section shall apply to buildings and developments listed in Section 2.2.150. Buildings shall be appealing and compatible with balance of the Commercial District and Sub Districts.

   a) Buildings under 20,000 square feet (enclosed ground floor area) shall incorporate at least five (5) of the architectural features as follows:
      i) Decorative cornice or facade (for a flat roof) or provision of eaves or other similar decorative feature for pitched roofs;
      ii) Decorative display windows on ground floor;
      iii) Entrance canopy, breezeway or kiosk;
      iv) Changes in building color or texture;
      v) Building articulation on street frontages;
      vi) Decorative wall or security lighting;
      vii) Regularly spaced and similarly shaped windows;
      viii) Decorative window hoods or trim;
      ix) Changes in building height along street frontages;
      x) Decorative screening of roof mounted equipment;

   b) Buildings with greater than 20,000 square feet of enclosed ground floor space are considered "large scale buildings".
      i.) Measurement for these buildings shall be as follows:
         a. Multi-tenant buildings shall be counted as the sum of all tenant spaces within the same building shell; and
         b. Multiple building developments with a combined ground floor space (enclosed) greater than 40,000 square feet (e.g., shopping centers, public and institutional campuses, and similar developments).
      ii.) Building and Site design for large scale buildings shall include at least two (2) of the following to provide human scale design:
         a. Incorporating changes in building direction (i.e., articulation);
         b. Dividing large masses into varying heights and sizes;
         c. Include building offsets projections;
         d. Changes in elevation or horizontal direction;
         e. Sheltering roofs or terraces;
         f. Providing a distinct pattern of divisions in surface materials;
         g. Use of windows, screening trees; small scale lighting (e.g., wall mounted lighting, or up-lighting).

2.2.160 Pedestrian Amenities

A. **Purpose and Applicability.** This section is intended to provide comfortable and inviting pedestrian spaces within the Commercial District and Sub Districts. Pedestrian amenities serve as informal gathering places for socializing and resting and contribute to the enjoyment of the City's Commercial area. This section applies to all of the following types of buildings:

1) Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and

2) Three or more single family attached townhomes on their own lots (i.e., townhomes subject to Site Design Review);

3) Duplex and tri-plex developments with more than one building (i.e., duplex and tri-plex developments subject to Site Design Review);

4) Multi-family housing;

5) Commercial and mixed-use buildings subject to Site Design review.

B. **Guidelines and Standards.** Every commercial development listed above shall provide at least one of the following amenities listed below. Pedestrian amenities may be provided within a public right-of-way when approved by the applicable jurisdiction.

1. A plaza, courtyard, square or extra-wide sidewalk next to the building entrance (minimum width of 6 feet);

2. A sitting space, dining area, benches or ledges between the building entrance and sidewalk at a minimum of 16 inches height and 30 inches width;

3. Building canopy, awning, pergola or similar weather protection (minimum projection of 4 feet over a sidewalk or other pedestrian space);

4. Public art which incorporates seating (e.g., fountain, sculpture, etc.) or wall decoration.

2.2.170 Special Standards for Certain Uses

This section supplements the uses and standards contained in Sections 2.2.100 through 2.2.160. Conditional Use approval is required for those uses listed as Conditional Use in Table 2.2.110.A. It is to provide standards for the following land uses in order to control the scale and compatibility of those uses within the Commercial District:

- ~~Bed and Breakfast Inns~~
- Accessory Uses and Structures
- Light Manufacturing Uses
- Auto Orientated Uses and Development

2.2.170 Special Standards for Certain Uses *(continued)*

~~**1. Bed and Breakfast Inns**~~

~~1. Purpose. The purpose of this section is to provide standards for the development of a bed and breakfast inn.~~

~~2. Accessory Use. A bed and breakfast inn must be accessory to a household already occupying the structure as a residence.~~

~~3. Maximum size. The bed and breakfast structure is limited to a maximum of 3 bedrooms for guests and a maximum of 6 guests per night.~~

~~4. Employees. The bed and breakfast facility may have up to 2 non-resident employees for the facility.~~

~~5. Food Service. Food services may only be provided to overnight guests of the bed and breakfast inn.~~

~~6. Owner occupied. The bed and breakfast inn shall be owner occupied and shall maintain the exterior physical characteristics of a single family dwelling. No separate structures shall be allowed (except for usual residential accessory buildings such as sheds, or detached garages).~~

~~7. Monitoring. All bed and breakfast inns must maintain a guest logbook. It must include the names and home addresses of guests, guests' license plate numbers if travelling by motor vehicle, dates of stay and the room number of each guest. The log must be available for inspection by City staff upon request.~~

A. **Accessory Uses and Structures**. Accessory uses and structures are of a nature customarily incidental and subordinate to the principal use or structure on the same lot. Typical accessory structures in the Boardman Commercial District include small workshops, greenhouses, studios, and similar structures. Accessory uses and structures are allowed for all permitted land uses within the Boardman Commercial District, as identified in Table 2.2.110.A. Accessory structures shall comply with the following standards:

1. Primary use required. An accessory structure shall not be allowed before or without a primary use, as identified in Table 2.2.110.A.

2. Setback standards. Accessory structures shall comply with the setback standards in Section 2.2.120.

3. Design guidelines. Accessory structures shall comply with the Boardman Commercial District design guidelines, as provided in Section 2.2.150, and shall contribute to the visual relatedness of the district.

4. Restrictions. A structure shall not be placed over or under an easement that prohibits such placement. No structure shall encroach into the public right-of-way.

2.2.170 Special Standards for Certain Uses *(continued)*

5. Compliance with subdivision standards. The owner may be required to remove an accessory structure as a condition of land division approval when removal of the structure is necessary to comply with setback standards.

B. **Light Manufacture.** Light manufacturing uses shall conform to the standards listed in 2.2.170(D), which are intended to protect the pedestrian-friendly character of the Commercial District. "Light manufacture" means production or manufacturing of small-scale goods, such as crafts, electronic equipment, bakery products, printing and binderies, furniture, and similar goods.

1. Retail or Service Use Required. Light manufacture is allowed only when it is in conjunction with a permitted retail or service use and does not exceed 60% of the gross floor area.

2. Location. The light manufacture use shall be enclosed within a building, or shall be located within a rear yard not adjacent to a street and screened from public view.

3. Other Requirements. Any allowed light manufacture shall be conducted to minimize impacts to surrounding business and services. These shall include the conditions set as follows:
   a. Deliveries shall not interfere with normal transportation circulation (vehicular, pedestrian, etc.);
   b. Operations shall not produce solid waste volumes in excess of 200% of the average of surrounding business' and services;
   c. Operations shall not qualify as a hazardous waste generator or small quantity generator as defined by state and federal environmental regulations;
   d. Operations shall not create conditions which would qualify as a nuisance or otherwise not be in compliance under other Boardman Municipal Codes; and
   e. Shall be compatible with other Commercial area activities and operations.

C. **Automobile Dependent and Auto-Oriented Uses and Facilities.**

1. "Automobile-dependent use" means that the use serves automobiles and/or other motor vehicles and the use cannot function without them. These uses are prohibited in the City Center Sub District, permitted as a conditional use in the Commercial District and allowed outright in the Service Center and Tourist Commercial Sub Districts because when unrestricted, they detract from the pedestrian-friendly character of the District and can consume large amounts of land compared to other permitted uses.

2. "Automobile-Orientated Uses" means that automobiles and/or other motor vehicles are an integral part of the use.

3. Standards: Automobile-dependent and Automobile-oriented uses shall comply with the following standards:

2.2.170 Special Standards for Certain Uses *(continued)*

a. Parking, Garages, and Driveways. All off-street parking, including surface lots and garages, shall 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. All underground or structured parking garage entrances facing a street shall be recessed behind the front elevation by a minimum of six (6) feet and have minimum queuing areas of thirty (30) feet. On corner lots, garage entrances shall be oriented to a side-street (i.e., away from a main street) when vehicle access ~~can not~~cannot be provided from an alley or a common driveway.

b. Drive-up, drive-in, and drive-through facilities. Drive-up, drive-in, and drive-through facilities (e.g., associated with restaurants, banks, and similar uses) are permitted only when accessory to a primary commercial "walk-in" use, and shall conform to all of the standards listed below:
   i The facility receives access from an alley or common driveway, and not a street;
   ii None of the drive-up, drive-in or drive-through facilities (e.g., driveway ~~queing~~queuing areas, teller machines, service windows, drop boxes and similar facilities) are located within twenty (20) feet of a street and shall not be oriented to a street corner;
   iii The facility is subordinate to a primary permitted use. "Subordinate" means all components of the facility, in total, occupy less street frontage than the primary commercial or public/institutional building.

D. Variances.

The standards of this section may be modified by a Class B or C variance, as detailed in Chapter 5.

2.2.180 Tourist Commercial Sub District

A. Purpose. The purpose of the Tourist Commercial Sub District is to accommodate development of commercial facilities catering to the traveling public at the I-84 interchange. Retail services shall be limited to that necessary to serve travelers, in order to avoid competition with the Commercial District; Service Center Sub District and City Center Sub District businesses. The base standards of the Commercial District apply, except as modified by the standards of this Sub District.

2.2.180 Tourist Commercial Sub District *(continued)*

Table 2.2.180 A
Land Uses and Building Types Permitted in the Tourist Commercial Sub District

1. Residential* (CU):	**~~4.~~ 3Public and Institutional *:**	**~~5.~~ 4Commercial:**
Single-family a. Single-family attached townhomes b. Two and Three family housing (duplex and triplex townhomes) c. Multi-family housing d. Residential care homes and facilities **2. Home occupations (CU)** **3. ~~Bed & breakfast inns (CU)~~**	a. Churches and other places of worship b. Clubs, lodges, similar uses c. Government offices and facilities (administration, public safety, transportation, utilities, and similar uses) d. Libraries, museums, community centers, concert halls and similar uses e. Public parking lots and garages f. Private utilities (office/administration) g. Public parks and recreational facilities h. Schools (public and private) (CU) i. Transportation Facilities and Improvements. 1. Normal operation, maintenance; 2. Installation of improvements within the existing right-of-way; 3. Projects identified in the adopted Transportation System Plan not requiring future land use review and approval; 4. Landscaping as part of a transportation facility; 5. Emergency Measures; 6. Street or road construction as part of an approved subdivision or partition; 7. Transportation projects that are not designated improvements in the Transportation System Plan ** (CU); and 8. Transportation projects that are not designed and constructed as part of an approved subdivision or partition** (CU)	a. Auto-oriented and auto dependent uses and facilities, ~~including~~ excluding truck stops* b. Vehicle sales and repair services, including automotive, truck, RV and boat; c. Retail sales d. Personal and professional services such as laundromats, dry cleaners, barber shops and salons, banks and financial institutions, and similar uses e. Veterinarian clinics, animal clinics, laboratory; ~~e.~~f. Medical and other health related clinics or emergency service facilities ~~d.~~g. Office uses ~~e.~~h. Mixed-Use Development (housing and other permitted development) ~~f.~~i. Motels/Restaurants/Food service ~~g.~~j. Medical Marijuana dispensary under Oregon Health Authority license ***(CU) ~~h.~~k. Uses similar to those listed above **~~6~~5. Industrial:** a. Light manufacture (e.g., small-scale crafts, electronic equipment, bakery, furniture, similar goods) when in conjunction with retail b. Machinery or heavy equipment sales and service

Uses marked with an asterisk (*) are subject to the standards in Section 2.2.180 - Special Standards for Certain Uses. Temporary uses are subject to the standards in Chapter 4.9. ** Uses marked with two asterisks are subject to the standards in Section 4.4.400.D. *** Uses subject to Section 4.4.400.E.

B. Special Standards [This section reserved for future use.]

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2.2.190 City Center Sub District

A. Purpose and Applicability.

The City Center Sub District provides design standards for detailed, human-scaled design, while affording flexibility to use a variety of architectural styles. The City Center Sub District may be applied by a property owner and the City to a site, which meets the following locational criteria:

- The site shall be located within the Commercial District;
- The site shall be located within a radius of ¼-mile of (but not necessarily adjacent to) Main Street;
- The site shall be adjacent to Kinkade Road, ~~Dillabaugh Boulevard~~Tatone Street, or City Center Drive.

In order for this Sub District to apply, the property owner and the City shall describe how the site meets the above locational criteria. The application for the Sub District to apply is a Type III, quasi-judicial land use application described in Chapter 4. If the Sub District were applied, the following development would adhere to the Sub District standards:

1. Public and institutional buildings, except that the standards shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and

2. Commercial and mixed-use buildings subject to Site Design review.

B. Design Standards.

All of the following standards in the following section shall be met.

C. Detailed Storefront Design.

All buildings shall contribute to the storefront character and visual relatedness of downtown buildings. This criterion is met by providing all of the following design features listed in 1-4, below, along front building elevations (i.e., facing a street).

1. Corner building entrances on corner lots. Alternatively, a building entrance may be located away from the corner when the building corner is beveled or incorporates other detailing to reduce the angular appearance of the building at the street corner.

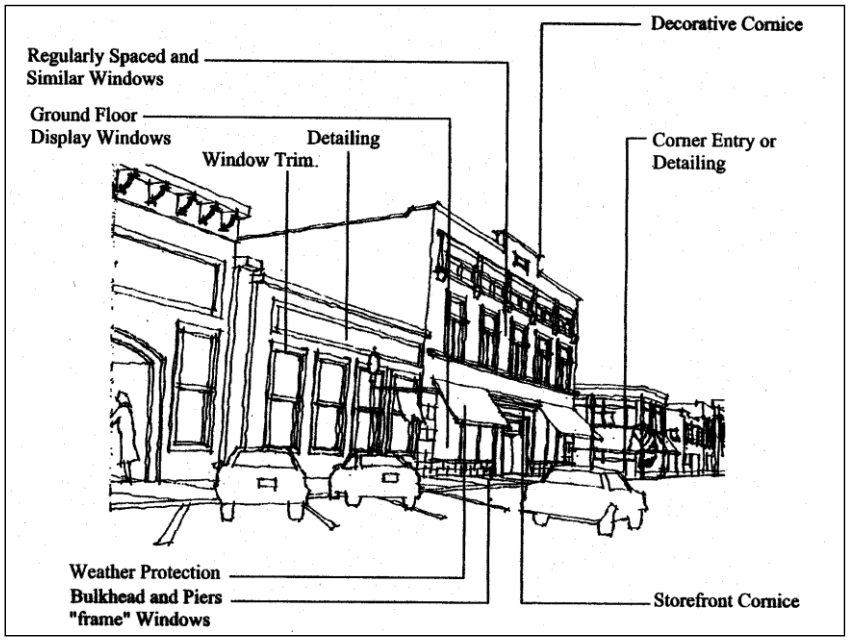
2. Regularly spaced and similar-shaped windows with window hoods or trim (all building stories).

3. Large display windows on the ground floor (non-residential uses only). Display windows shall be framed by bulkheads, piers and a storefront cornice (e.g., separates ground floor from second story, as shown above).

4. Decorative cornice at top of building (flat roof) or eaves provided with pitched roof.

2.2.190 City Center Sub District. *(continued)*

Figure 2.2.190C – City Center Building Design Elements (Typical)



Note: the example shown above is meant to illustrate required building design elements, and should not be interpreted as a required design style.

2.2.190 City Center Sub District *(continued)*

E. Building Orientation. This section is intended to promote the walkable, storefront character of the City Center by placing buildings close to the street. Placing buildings close to the street slows traffic down and provides more "eyes on the street", increasing the safety of public spaces. The standards, as listed on the following page and illustrated above, complement the maximum front yard setback standards in Section 2.2.120.

1. Applicability. This Section applies to new land divisions and all of the following types of development within the City Center Sub District:

   a. Commercial and mixed-use buildings subject to site design review. (Chapter 4.2).

   b. Public and institutional buildings subject to site design review. (Chapter 4.2) except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses).

   c. Residential buildings subject to Site Design review shall comply with the Residential District design guidelines, as listed in Section 2.1.180, in addition to this section. Where conflicts occur, the more restrictive standard shall apply.

   Compliance with all of the provisions of Sections 2.2.190.E.2-4, below, shall be required.

2. Building Orientation Standard. All of the developments listed in Section 2.2.190.E shall be oriented to a street. The building orientation standard is met when all of the following criteria are met:

   a. The minimum and maximum setback standards in Section 2.2.120 are met.

   b. Buildings have their primary entrance(s) oriented to (facing) the street. Building entrances may include entrances to individual units, lobby entrances, entrances oriented to pedestrian plazas, or breezeway/courtyard entrances (i.e., to a cluster of units or commercial spaces). Alternatively, a building may have its entrance facing a side yard when a direct pedestrian walkway is provided between the building entrance and the street right-of-way.

   c. Off-street parking, driveways or other vehicular circulation shall not be placed between a building and the street that is used to comply with subsection '2', above. On corner lots, buildings and their entrances shall be oriented to the street corner, as shown above; parking, driveways and other vehicle areas shall be prohibited between buildings and street corners.

3. Active Ground Floor Standard. The streetside portions of the lower floors of all buildings shall contain shops, offices, lobbies, and other activities oriented toward the passerby. Display windows for viewing the activity inside the building shall be provided.

4. Continuous Building Frontage. Buildings should be built to the property lines on either side so as to create a continuous line of storefronts. Access may be provided to the rear parking areas of the shops, offices etc. by an internal walkway.

2.2.190 City Center Sub District. *(continued)*

E. **Residential Uses.** Higher density residential uses, such as multi-family buildings and attached townhomes, are permitted to encourage housing near employment, shopping and services. All residential developments shall comply with the following standards which are intended to require mixed-use development; conserve the community's supply of commercial land for commercial uses; provide for designs which are compatible with the balance of the City Center Sub District; avoid or minimize impacts associated with traffic and parking; and ensure proper management and maintenance of common areas. Residential uses that existed prior to the effective date of this code are exempt from this section.

1. Mixed-Use Development. Residential uses may be permitted when part of a mixed-use development (residential with commercial or public/institutional use). Both "vertical" mixed-use (housing above the ground floor), and "horizontal" mixed-use (housing on the ground floor) developments are allowed, subject to the standards in 2.2.190(A)(2-6).

2. Limitation on street-level housing. Ground floor street frontage will be limited to upper floor residential access only. This standard is intended to reserve commercial space for commercial uses and public/institutional uses; it does not limit residential uses above the street level on upper stories.

3. Density. There is no minimum or maximum residential density standard. Density shall be controlled by building design, fire/life/safety design, the applicable lot coverage, floor area, building height standards and off-street parking requirements.

4. Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be oriented for reasonable access. Parking may be placed underground, placed in structures above the ground floor, or located in parking areas located behind or to the side of the building. All garage entrances facing a street (e.g., underground or structured parking) shall be recessed behind the front building elevation by a minimum of six (6) feet and have minimum ~~queing~~queuing areas of thirty (30) feet. On corner lots, garage entrances shall be oriented to a side street (i.e., away from a main street).

5. Creation of Alleys. When a subdivision (e.g., four or more townhome lots) is proposed, a public or private alley may be created for the purpose of vehicle access. Alleys are not required when existing development patterns make construction of an alley impractical. As part of a subdivision, the City may require dedication of right-of-way or easements, and construction pathways between townhome lots (e.g., between building breaks) to provide pedestrian connections through a development site, in conformance with Chapter 3.1 – Access and Circulation.

6. Common Areas. All common areas (e.g., walkways, drives, courtyards, private alleys, parking courts, etc.) and building exteriors shall be maintained by a home owners association or other legal entity. Copies of any applicable covenants, restrictions and conditions shall be recorded and provided to the city prior to building permit approval.

2.2.190 City Center Sub District. *(continued)*

F. **Sidewalk Displays.** Sidewalk display of merchandise and vendors shall be limited to stationary, crafts, plants, gardening/floral products, food, books, newspapers, bicycles, and similar small items for sale or rental to the public. A minimum clearance of five (5) feet shall be maintained. Display of larger items, such as automobiles, trucks, motorcycles, buses recreational vehicles/boats construction equipment, building materials, or similar items are prohibited.

2.2.200 Service Center Sub District

A. Purpose. The Service Center Sub District is designed to accommodate heavy commercial uses and light industrial uses along portions of the I-84 corridor. The base standards of the Commercial District apply, except as modified by the standards of this Sub District.

B. Uses Permitted. The land uses listed in Table 2.2.200B are permitted in the Service Center Sub District, subject to the provisions of this Chapter. Only land uses that are specifically listed in Table 2.2.200B and land uses that are approved as "similar" to those in Table 2.2.200B, may be permitted. The land uses identified with a "CU" in Table 2.2.200B require Conditional use Permit approval prior to development or a change in use, in accordance with Chapter 4.4.

2.2.200 Service Center Sub District *(continued)*

Table 2.2.200B
Land Uses and Building Types Permitted in the Service Center Sub District

1. Residential: a. One caretaker unit shall be permitted for each development, subject to the standard in Section 2.2.200D. b. RV Parks (CU) **2. Public and Institutional:** a. Government facilities (e.g. public safety, utilities, school district bus facilities, public works yards, transit and transportation and similar facilities) where the public is generally not received. b. Private utilities (e.g. natural gas, electricity, telephone, cable and similar facilities) c. Water supply and treatment facility (CU) d. Sewage disposal and treatment facility (CU)	e. Transportation Facilities and Improvements. 1. Normal operation, maintenance; 2. Installation of improvements within the existing right-of-way; 3. Projects identified in the adopted Transportation System Plan not requiring future land use review and approval; 4. Landscaping as part of a transportation facility; 5. Emergency Measures; 6. Street or road construction as part of an approved subdivision or partition; 7. Transportation projects that are not designated improvements in the Transportation System Plan ** (CU); and ~~3~~**8.** Transportation projects that are not designed and constructed as part of an approved subdivision or partition** (CU)	~~4.~~ **3Commercial:** a. Retail store, office or service establishment b. Commercial / industrial full service trucking and automotive facilities, to include automobile service stations and vehicle refueling. c. Commercial residential use, to include tourist or travelers' accommodations. d. Commercial amusement or recreation establishment. Medical Marijuana dispensary, Medical Marijuana Grow Facility (not on same parcel) *** (CU) ~~5.~~ **4Industrial:** a. Manufacturing or warehousing. **5. Agricultural:** a. Farming excluding commercial livestock feedlot, livestock sales yard hog farms and mink farms. b. Agriculturally-oriented commercial use.(CU) c. Medical Marijuana Grow Facility *** (CU) **6. Services:** a. Kennel or animal hospital. ~~5~~**7. Wireless Communication Equipment -** subject to the standards in Chapter 3.6.200.

Uses marked with an asterisk (*) are subject to the standards in Section 2.2.180 - Special Standards for Certain Uses. Temporary uses are subject to the standards in Chapter 4.9. ** Uses marked with two asterisks are subject to the standards in Section 4.4.400.D. *** Uses subject to Section 4.4.400.E.

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2.2.200 Service Center Sub District *(continued)*

B. Other Yard Requirements.

1. Buffering. The City may require landscaping, walls or other buffering in setback yards to mitigate adverse noise, light, glare, and aesthetic impacts to adjacent properties.
2. Neighborhood Access. Construction of pathway(s) within setback yards may be required to provide pedestrian connections to adjacent neighborhoods or other districts, in accordance with Chapter 3.1 - Access and Circulation Standards.
3. Building and Fire Codes. All developments shall meet applicable fire and building code standards, which may require setbacks different from those listed above (e.g., combustible materials, etc.).

C. Determination of Similar Land Use. Similar use determinations shall be made in conformance with the procedures in Chapter 4.8 – Interpretations.

2.2.200 Service Center Sub District *(continued)*

C. **Residential Caretakers.** One residential caretaker unit shall be permitted for each primary industrial use, subject to the following conditions:

1. The unit shall be served with public water and sanitary sewerage disposal, in conformance with City engineering requirements.

2. Caretaker units shall be required to meet applicable fire safety and building code requirements, in addition to the applicable setback standards of this chapter.

D. Wireless communication equipment. Wireless communication equipment includes radio (i.e., cellular), television and similar types of transmission and receiving facilities. The requirements for wireless communication equipment are provided in Chapter 3.6.200. Wireless communication equipment shall also comply with required setbacks, lot coverage and other applicable standards of the Commercial District.

2.2.210 - BPA Transmission Easement Sub District

A. Purpose: The purpose of this sub district is to identify the limitations, opportunities and process to be followed on properties, within the Commercial District, directly affected by the Three Hundred Ninety foot (390') wide Bonneville Power Administration (BPA) Transmission Line Easement. The language contained within this section is to identify flexibility in possible uses of the land under the BPA transmission lines, within the land use agreements stipulated by the BPA for the easement. All uses within the easement shall be approved by agreement with BPA prior to approval for development by the City.

B. Building Restrictions: No permanent structures will be allowed within the easement area. However, buildings may go on the portions of the property outside of the easement as part of the overall development which may include land within the easement.

C. Height Restrictions: No foliage or other item will be allowed to exceed twelve feet (12') in height.

D. Utility and Transportation Infrastructure: Utility and transportation infrastructure shall be allowed within guidelines approved by the BPA in writing. This includes, streets, electrical, water, sewer, telephone, gas, TV, and other essential services infrastructure to provide for any allowed commercial activities.

E. Transmission Line Tower Setbacks: The minimum setback from any transmission line tower shall be fifty feet (50') for all activities. Towers shall be protected from any traffic or other possible disturbance to the structural integrity of the towers.

2.2.210 - BPA Transmission Easement Sub District *(continued)*

F. Allowable Uses: The uses identified in 2.2.210 (F) (1-13) shall be considered for approval under a Conditional Use Permit process, as identified in Boardman Development Code Chapter 4.4. All submission requirements of Chapter 4.4 will be reviewed and will be forwarded, by the applicant, to the BPA for an approved and signed Land Use Agreement prior to any Conditional Use Hearing by the Planning Commission.

1. Single family townhomes
2. Residential duplexes or triplexes
3. Multi-family apartments
4. Residential Caretaker Unit
5. Parking lot
6. Vehicle storage
7. Vehicle sales lot
8. Vineyard operation, with retail/wholesale component*
9. Garden center/Nursery, with retail/wholesale component*
10. Mobile vendor station lease space
11. Retail sales operations with an outdoor component which are compatible with surrounding neighborhood.
12. Utility infrastructure including water lines, sewer lines, stormwater management, electrical service lines, gas lines, television cable, telephone lines, communications lines, transportation routes, and other necessary infrastructure to service the sub district.
13. Other uses considered compatible by the Boardman Planning Commission through Conditional Use Permitting process.

* = Structures necessary for retail/wholesale offices, storage, etc. must be located outside of BPA easement.

G. Safety Precautions:

1. Vehicular activities where vehicles are stored or parked for periods over two (2) hours shall have grounding mechanisms to prevent static electricity build up to prevent shock hazards.
2. Utility facilities shall be protected from shock hazards associated with static electricity discharge.
3. No combustible materials shall be stored within the easement unless approved in the Land Use Agreement from BPA.

H. Driveways and Parking Areas: Driveways and parking areas may be compacted and maintained gravel if approved by the BPA and Boardman Planning Commission to meet safety requirements in the BPA Land Use Agreement. Driveway approaches and all areas abutting a public street shall be hard surface to prevent gravel encroachment onto the street.

I. Residential Caretakers: One residential caretaker unit may be permitted for each primary commercial use, subject to the following conditions.

1. The unit shall be served with public water and sanitary sewerage disposal, in conformance with City engineering requirements.

2. Caretaker units shall be required to meet applicable fire safety and building code requirements, in addition to the applicable setback standards of this chapter (chapter 2.2) and sub district.
3. Other conditions identified by the Bonneville Power Administration or the Boardman Planning Commission:

J. Yard Requirements:

1. Buffering; The City may require landscaping, walls, or other buffering in setbacks areas to mitigate adverse noise, light, glare and aesthetic impacts to adjacent properties.
2. Neighborhood Access; Construction of pathway(s) within setbacks may be required to provide pedestrian connection to neighborhoods or other districts, in accordance with Chapter 3.1 of this Code and requirements of the Bonneville Power Administration.
3. Building and Fire Codes; All developments shall meet applicable fire, building and Bonneville Power Administration code standards, which may require setback different from those listed above.

CITY OF BOARDMAN
ORDINANCE 5-2024

AN ORDINANCE TO APPROVE AN AMENDMENT TO THE BOARDMAN DEVELOPMENT CODE CHAPTER 2.2 COMMERCIAL DISTRICT

WHEREAS, the City of Boardman has an adopted Development Code; and,

WHEREAS, Chapter 2.2 Commercial District regulates commercial uses in a variety of commercially designated areas within Boardman; and,

WHEREAS, the most recent update to Chapter 2.2 Commercial District was approved in 2015 through Ordinance Number 4-2015; and,

WHEREAS, the City of Boardman Planning staff have had difficulties with certain provisions of Chapter 2.2 Commercial District concerning truck stops and retail uses as the current version is unclear and problematic; and,

WHEREAS, to facilitate better development in the various commercial Subdistricts Planning staff have proposed amendments; and,

WHEREAS, the Boardman Planning Commission held a public hearing on July 18, 2024, to consider the adoption of the proposed amendments to Chapter 2.2 Commercial District and approved Findings of Fact; and

WHEREAS, the Boardman Planning Commission has forwarded the Findings of Fact and the proposed amended Chapter 2.2 Commercial District to the City Council with a "do adopt" recommendation; and

WHEREAS, the Boardman City Council held a public hearing on August 6, 2024, to further consider the adoption of the Findings of Fact and the amended Chapter 2.2 Commercial District.

NOW THEREFORE BE IT ORDAINED that the City of Boardman approves the amended Chapter 2.2 Commercial District of the Boardman Development Code with the Planning Commission Findings of Fact and repeals the version adopted under Ordinance Number 4-2015. The City Council has also determined that since this is for land use purposes an appropriate effective date is deemed to be September 1, 2024, and an emergency is declared.

Passed by the Council and approved by the Mayor on this 6th day of August 2024 with an effective date of September 1. 2024.

Paul Keefer – Mayor

Amanda Mickles – City Clerk

CITY OF BOARDMAN
RESOLUTION 17-2024

A RESOLUTION DENYING APPEAL APP24-000002 AND AFFIRMING CONDITIONAL USE PERMIT CUP24-000001

WHEREAS, the City of Boardman has an adopted Main Street Interchange Area Management Plan (IAMP) with an effected date of 2009; and

WHEREAS, the City of Boardman identified concerns with traffic volumes and near misses involving pedestrians along Main Street with a particular focus on the use of the Rectangular Rapid Flashing Beacon (RRFB) at the intersection of North Main Street and Boardman Avenue; and

WHEREAS, the City of Boardman engaged Kittelson and Associates to complete a Main Street Circulation Assessment; and

WHEREAS, the City of Boardman initially sought approval for a street light at North Main Street and Boardman Avenue; and

WHEREAS, the Boardman Planning Commission held a public hearing on April 17, 2024, to consider the approval of the proposed streetlight hearing testimony from a number of concerned businesses in the vicinity and asked staff to take another look; and

WHEREAS, the Boardman Planning Commission held a second public hearing on May 15, 2024, to consider the approval of the amended proposal for a HAWK (High-Intensity Activated CrossWalK) signal; and

WHEREAS, the Boardman Planning Commission approved the HAWK Signal and adopted Findings of Fact; and

WHEREAS, the Planning Commission decision in CUP24-000001 was appealed to the City Council by Hattenhauer Distributing Company; and

WHEREAS, the Boardman City Council held a public hearing on August 6, 2024, to consider the appeal of Conditional Use Permit CUP24-00001 and heard testimony from the city, the appellant, and other interested parties.

NOW, THEREFORE, BE IT RESOLVED:

Section 1. Based on the testimony and evidence in the record, the City of Boardman City Council denies Appeal APP24-00001 and affirms the Planning Commission's decision to approve Conditional Use Permit CUP24-000002.

Section 2. The City Council adopts the findings and conclusions in the Planning Commission staff report dated May 16, 2024, as Exhibit A and the City Council staff report dated August 6, 2024, attached as Exhibit B, including all interpretations of the Boardman Development and

Municipal codes set forth therein. The other attachments identified as part of those staff reports are a part of the record and available upon request.

DATED this 6th day of August 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:

_____
Amanda Mickles – City Clerk

CITY OF BOARDMAN
RESOLUTION 18-2024

A RESOLUTION ADOPTING THE MORROW COUNTY COORDINATED HUMAN SERVICES TRANPORTATION PLAN (2022), THE HERMISTON-BOARDMAN CONNECTOR/BOARDMAN-PORT OF MORROW CIRCULAR (2021), AND THE MORROW COUNTY/UMATILLA COUNTY TRANSIT DEVELOPMENT STRATEGIES (2018) AS GUIDANCE FOR THE PENDING UPDATE OF THE BOARDMAN TRANSPORTATION SYSTEM PLAN

WHEREAS, the City of Boardman has an adopted Transportation System Plan (TSP) with an effected date in 2001; and

WHEREAS, the City of Boardman has secured a Transportation and Growth Management grant to update the Boardman TSP; and

WHEREAS, Morrow County has a Special Transportation Program that is growing into a transit program with fixed route deployment underway in and around the City of Boardman; and

WHEREAS, the Boardman Planning Commission held a public hearing on July 18, 2024, to consider the adoption of the three documents and approved Findings of Fact; and

WHEREAS, the Boardman Planning Commission has forwarded the Findings of Fact and the three guidance documents to the City Council with a "do adopt" recommendation; and

WHEREAS, the Boardman City Council held a public hearing on August 6, 2024, to further consider the adoption of the Findings of Fact and the three guidance documents.

NOW, THEREFORE, BE IT RESOLVED:

The City of Boardman adopts 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 resource documents to the pending update of the TSP to support transit policies, programs, and projects that may be outlined in the updated TSP.

Affected Documents:

- Morrow County Coordinated Human Services Transportation Plan (2022)
- Hermiston-Boardman Connector/Boardman-Port of Morrow Circular (2021)
- Morrow County/Umatilla County Transit Development Strategies (2018)

Effective Date: This Resolution adopting guidance for the update of the Boardman Transportation System Plan concerning transit services shall become effective immediately.

DATED this 6th day of August 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:

_____

Amanda Mickles – City Clerk

CITY OF BOARDMAN
RESOLUTION 19-2024

A RESOLUTION ADOPTING AN UPDATE TO THE DOWNTOWN DEVELOPMENT PLAN

WHEREAS, the City of Boardman has an adopted Downtown Development Plan with an effected date in 2002; and

WHEREAS, that Downtown Development Plan has a city preferred street standard that includes a walking path in the center of the street; and

WHEREAS, the City of Boardman is preparing for the rebuilding of South Main Street and the city preferred alternative is not a safe alternative and not supported by current practice; and

WHEREAS, City of Boardman planning and engineering staff recommend removing the city preferred street standard; and

WHEREAS, the Boardman Planning Commission held a public hearing on July 18, 2024, to consider the adoption of the proposed amended Downtown Development Plan and approved Findings of Fact; and

WHEREAS, the Boardman Planning Commission has forwarded the Findings of Fact and the proposed amended Downtown Development Plan to the City Council with a "do adopt" recommendation; and

WHEREAS, the Boardman City Council held a public hearing on August 6, 2024, to further consider the adoption of the Findings of Fact and the amended Downtown Development Plan.

NOW, THEREFORE, BE IT RESOLVED:

The City of Boardman adopts the Downtown Development Plan as proposed to be amended as a resource document to the Comprehensive Plan and Development Code.

Affected Document:

- City of Boardman Main Street Downtown Development Plan

Effective Date: This Resolution adopting the amended Downtown Development Plan shall become effective immediately.

DATED this 6th day of August 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:

_____

Amanda Mickles – City Clerk

CITY OF BOARDMAN
RESOLUTION 20-2024

A RESOLUTION TO DECREASE CONTINGENCY AND TO INCREASE 2024-25 EXPENDITURES FOR MATERIALS AND SERVICES

WHEREAS, ORS 294.463 allows the City to transfer Contingencies and increase appropriations within a fund by resolution; and

WHEREAS, the City holds its Property and Liability insurance with City County Insurance Services, and the premium for the 2024-2025 fiscal year is $153,968.27. This amount is above the budget expenditure for this line item by $23,968.27; and

WHEREAS, the premium is allocated to the various funds of the city, for their proportion of the premium; and

WHEREAS, appropriations of expenditures for Materials and Services will need to be increased, and the funds' corresponding Operating Contingency will be decreased for the General Fund, in the amount of $17,900; the Water Fund, in the amount of $1,700; the Sewer Fund, in the amount of $1,700; the Garbage Fund, in the amount of $800; the Street Fund, in the amount of $1,700; and the Building Fund, in the amount of $2,200; and

THEREFORE, BE IT RESOLVED, the Boardman City Council hereby authorizes the Contingency transfers and appropriations shown below, for the fiscal year 2024-2025, for the following purposes:

GENERAL FUND (100)	
GENERAL GOVERNMENT (100)	
Materials and Services	$ 2,600
PUBLIC SAFETY DEPARTMENT (110)	
Materials and Services	$ 13,500
CODE COMPLIANCE DEPARTMENT (125)	
Materials and Services	$ 1,000
PLANNING DEPARTMENT (130)	
Materials and Services	$ 800
NON-DEPARTMENTAL (195)	
Contingency	$ (17,900)
FUND CHANGE	$ -0-
WATER FUND (220)	
Materials and Services	$ 1,700
Contingency	$ (1,700)
FUND CHANGE	$ -0-
SEWER FUND (230)	
Materials and Services	$ 1,700
Contingency	$ (1,700)
FUND CHANGE	$ -0-

GARBAGE FUND (240)		
Materials and Services	$	800
Contingency	$	(800)
FUND CHANGE	$	-0-
STREET FUND (250)		
Materials and Services	$	1,700
Contingency	$	(1,700)
FUND CHANGE	$	-0-
BUILDING FUND (260)		
Materials and Services	$	2,200
Contingency	$	(2,200)
FUND CHANGE	$	-0-

BE IT FURTHER RESOLVED that this resolution is effective immediately.

Dated this 6th day of August 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:

Amanda Mickles – City Clerk

CITY OF BOARDMAN
RESOLUTION 21-2024

A RESOLUTION ESTABLISHING AN INTEREST-BEARING ESCROW ACCOUNT FOR SILVER CREEK CONTRACTING, LLC FOR WORK ON NW COLUMBIA AVE.

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, Silver Creek Contracting, LLC has been awarded as the contractor for the Columbia Avenue N.W. Improvements-2024 and the amount of the contract has been negotiated at the amount of $1,289,713.56; and

WHEREAS, the estimated date of substantial completion for this project has been set at August 24, 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 6TH day of August 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:

Amanda Mickles – City Clerk

CITY OF BOARDMAN
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

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, Granite Construction Company has been awarded as the contractor for the Wilson Lane and Faler Road Sidewalk Improvements-2024 project and the amount of the contract has been negotiated at the amount of $582,930; and

WHEREAS, the estimated date of substantial completion for this project has been set at October 15, 2024, and the date ready for final payment at 120 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 6TH day of August 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

2024
CITY OF BOARDMAN CHARTER

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PREAMBLE

We, the voters of Boardman, Oregon exercise our power to the fullest extent possible under the Oregon Constitution and laws of the state and enact this Home Rule Charter.

SECTION 1

NAMES AND BOUNDARIES

1.1 Title

This charter may be referred to as the 2024 City of Boardman Charter.

1.2 Name

The City of Boardman, Oregon, continues as a municipal corporation with the name City of Boardman.

1.3 Boundaries

The city includes all territory within its boundaries as they now exist or are legally modified. The city will maintain as a public record an accurate and current description of the boundaries.

SECTION 2

POWERS

2.1 Powers

The city has all powers that the constitutions, statutes, and common law of the United States and Oregon expressly or impliedly grant or allow the city, as fully as though this charter specifically enumerated each of those powers.

2.2 Construction

The charter will be liberally construed so that the city may exercise fully all powers possible under this charter and under United States and Oregon law. The powers of the city under this charter shall be construed liberally in favor of the city, and the specific mention of particular powers in the charter shall not be construed as limiting in any way the general power granted in this article. This Charter's interpretation shall be examined in its entirety.

2.3 Distribution

The Oregon Constitution reserves initiative and referendum powers as to all municipal legislation to city voters. This charter vests all other city powers in the council except as the charter otherwise provides.

SECTION 3

COUNCIL

3.1 General Powers and Duties

All powers of the city shall be vested in the city council, except as otherwise provided by law or this charter, and the council shall provide for the exercise thereof and for the performance of all duties and obligations imposed on the city by law. The council has legislative, administrative, and quasi- judicial authority. The council exercises legislative authority by ordinance, administrative authority by resolution, and quasi-judicial authority by order. The council may not delegate its authority to adopt ordinances.

3.2 Council

The council shall be composed of a mayor and six council members elected from the city.

Council members in office at the time this charter is adopted shall continue in office each until the end of his or her term of office. At each biennial general election after this charter takes effect, three members shall be elected, each for a term of four years.

3.3 Mayor

The term of the mayor in office when this charter is adopted continues until the beginning of the first odd-numbered year after adoption. At every other general election after the adoption, a mayor will be elected for a four-year term.

The mayor presides over and facilitates council meetings, preserves order, enforces council rules, and determines the order of business under council rules. The mayor is a voting member of the council and has no veto authority.

a) With the consent of the council, the mayor appoints members of commissions and committees established by ordinance or resolution.
b) The mayor must sign all records of council decisions.
c) The mayor serves as the political head of the city government but shall have no administrative duties.

3.4 Council President

At its first meeting each year, the council must elect a president from its membership. The president presides in the absence of the mayor and acts as mayor when the mayor is unable to perform duties. In the absence of both mayor and president of the council, the remaining members of the council may elect president pro tem.

3.5 Rules

The council must by resolution adopt rules to govern its meetings.

3.6 Meetings

The council must meet at least once a month at a time and place designated by council rules and may meet at other times in accordance with the rules and laws of the state of Oregon.

3.7 Quorum

Except as specifically addressed, a majority of the council members is a quorum to conduct business. In the event of an absence, a smaller number may meet and compel attendance of absent members as prescribed by council rules. In the event of a vacancy due to resignation or

other events, the quorum is reduced accordingly solely for the purpose to make necessary appointment(s) to reach the required quorum.

3.8 Vote Required

The express approval of a majority of a quorum of the council is necessary for any council decision, except when this charter requires approval by a majority of the council. The voting requirement to fill council member vacancies, if there is less than a majority of council members remaining, is separate from the quorum requirement required to conduct all remaining city business unless otherwise stated.

3.9 Record

A record of council meetings must be kept in a manner prescribed by the council rules and the laws of the state of Oregon.

SECTION 4

LEGISLATIVE AUTHORITY

4.1 Ordinances

The council will exercise its legislative authority by adopting ordinances. The enacting clause for all ordinances must state “The City of Boardman ordains as follows:”

4.2 Ordinance Adoption

a) Except as authorized by subsection (b), adoption of an ordinance requires approval by a majority of the council at two meetings.
b) The council may adopt an ordinance at a single meeting by the unanimous approval of at least a quorum of the council, provided the proposed ordinance is available in writing to the public at least one week before the meeting.
c) Any substantive amendment to a proposed ordinance must be read aloud or made available in writing to the public before the council adopts the ordinance at that meeting.
d) After the adoption of an ordinance, the vote of each member must be entered into the council minutes.
e) After adoption of an ordinance, the Mayor and City Clerk shall sign the document with the date of its passage, name, and title of office.

4.3 Effective Date of Ordinance

Ordinances normally take effect thirty days after adoption or on a later day provided in the ordinance. An ordinance may take effect as soon as adopted or other date less than thirty days after adoption if it contains an emergency clause.

SECTION 5

ELECTIONS

5.1 Councilors

The term of a councilor in office when this charter is adopted is the term for which the councilor was elected. At each general election after the adoption, three councilors will be elected for four-year terms.

5.2 Mayor

The term of the mayor in office when this charter is adopted continues until the beginning of the first odd-numbered year after adoption. At every other general election after the adoption, a mayor will be elected for a four-year term.

5.3 State Law

City elections must conform to state law except as this charter or ordinances provide otherwise. All elections for city offices must be nonpartisan.

5.4 Qualifications

a) The mayor and each councilor must be a qualified elector under state law and reside within the city for at least one year immediately before election or appointment to office.
b) No person may be a candidate at a single election for more than one city office.
c) Neither the mayor nor a councilor may be employed by the city.
d) The council is the final judge of the election and qualifications of its members.
e) Neither the mayor nor a councilor may be elected as a Port of Morrow Commission nor a Morrow County Commissioner.

5.5 Nominations

Nominations for elective office for the city of Boardman shall be made pursuant to the general ordinances of the city.

5.6 Terms

The term of an officer elected at a general election begins at the first council meeting of the year immediately after the election and continues until the successor qualifies and assumes the office.

5.7 Oath

The mayor and each councilor, before entering upon the duties of office, shall take an oath or shall affirm that the officer will support the constitutions and laws of the United States and of the State of Oregon and will faithfully perform the duties of office.

5.8 Vacancies

The mayor or a council office becomes vacant:

a) Upon the incumbent's:
    1. Death.
    2. Adjudicated incompetence.
    3. Recall from the office.
b) Upon declaration by the council after the incumbent's:
    1. Failure to qualify for the office within 10 days of the time the term of office is to begin.
    2. Unexcused absence from all council meetings within a 90-day period.

3. Ceasing to reside in the city.
4. Ceasing to be a qualified elector under state law.
5. Conviction of a felony crime.
6. Resignation from the office.

5.9 Filling Vacancies

A mayor or councilor vacancy shall be filled by appointment by a majority of the remaining council members. Notwithstanding the quorum requirement set forth in Section 3.8, if at any time council membership is reduced to less than 7, the remaining members may, by majority action, appoint additional members to raise the membership to 7. As little as a single council member may constitute a majority for the purpose of filling vacant council seat(s), if all other council seats are vacant. The appointee's term of office runs from appointment until expiration of the term of office of the last person elected to that office. If a disability prevents a council member from attending council meetings or a member is absent from the city, a majority of the council may appoint a councilor pro tem.

Filling council vacancies beginning with one council member will proceed as follows: last remaining councilor appoints one seat, the two then appoint a third, and so on until a quorum of four is present.

5.10 Tie Votes

In the event of a tie vote for candidates for an elective office, the successful candidate shall be determined by a public drawing of lots in a manner prescribed by the council.

SECTION 6

APPOINTIVE OFFICERS

6.1 Appointive Officers

Additional officers of the city may be the city manager, city attorney, and municipal judge, each of whom the council may appoint and may remove by majority vote of all incumbent members of the council. These officers shall be subject to supervision by the council only, however, the judicial functions of the municipal judge shall not be subject to supervision by any elected or appointed officer.

6.2 City Manager

a) The office of city manager is established as the administrative head of the city government. The city manager is responsible to the mayor and council for the proper administration of all city business. The city manager will assist the mayor and council in the development of city policies and carry out policies established by ordinances and resolutions.
b) A majority of the council must appoint and may remove the manager. The appointment must be made without regard to political considerations and solely on the basis of

education and experience in competencies and practices of local government management.

c) The manager will reside in the city.
d) The manager may be appointed for a definite or an indefinite term and may be removed at any time by a majority of the council. The council must fill the office by appointment as soon as practicable after the vacancy occurs.
e) The manager must:
    1. Attend all council meetings unless excused by the mayor or council.
    2. Make reports and recommendations to the mayor and council about the needs of the city.
    3. Administer and enforce all city ordinances, resolutions, franchises, leases, contracts, permits and other city decisions.
    4. Appoint, supervise, and remove city employees.
    5. Organize city departments and administrative structure.
    6. Prepare and administer the annual city budget.
    7. Administer city utilities and property.
    8. Encourage and support regional and intergovernmental cooperation.
    9. Promote cooperation among the council, staff and citizens in developing city policies and building a sense of community.
    10. Perform other duties as directed by the council.
    11. Delegate duties but remain responsible for actions of all subordinates.
f) The manager has no authority over the council or over the judicial functions of the municipal judge.
g) The manager and other employees designated by the council may sit at council meetings but have no vote. The manager may take part in all council discussions.
h) When the manager is temporarily disabled from acting as manager or when the office of the manager becomes vacant, the council must appoint a manager pro tem. The manager pro tem has the authority and duties of manager, except that a pro tem manager may appoint or remove employees only with council approval.
i) No council member may directly or indirectly attempt to coerce the manager or a candidate for the office of manager in the appointment or removal of any city employee, or in administrative decisions regarding city property or contracts. Violation of this prohibition is grounds for removal from office by a majority of the council after a public hearing. In council meetings, councilors may discuss or suggest anything with the manager relating to city business.

6.3 Municipal Judge

a) A majority of the council may appoint and remove a municipal judge. A municipal judge will hold court in the city at such a place as the council directs. The court will be known as the Municipal Court.
b) All proceedings of this court will conform to state laws governing justices of the peace and justice courts.
c) All areas within the city and areas outside the city as permitted by state law are within the territorial jurisdiction of the court.

d) The municipal court has jurisdiction over every offense created by city ordinance. The court may enforce forfeitures and other penalties created by such ordinances. The court also has jurisdiction under state law unless limited by city ordinance.
e) The municipal judge may:
    1. Render judgments and impose sanctions on persons and property.
    2. Order the arrest of anyone accused of an offense against the city.
    3. Commit to jail or admit to bail anyone accused of a city offense.
    4. Issue and compel obedience to subpoenas.
    5. Compel witnesses to appear and testify and jurors to serve for trials before the court.
    6. Penalize contempt of court.
    7. Issue processes necessary to enforce judgments and orders of the court.
    8. Issue search warrants; and
    9. Perform other judicial and quasi-judicial functions assigned by ordinance.
f) The council may appoint and may remove municipal judges pro tem.
g) The council may transfer some or all the functions of the municipal court to an appropriate state court.

SECTION 7

PERSONNEL

7.1 Salaries

Through the approval of the annual budget, Council will authorize the compensation of city employees and city officers.

SECTION 8

PUBLIC IMPROVEMENTS

8.1 Special Assessments

The procedure for levying, collecting and enforcing special assessments for public improvements or other services charged against real property will be governed by ordinance.

SECTION 9

MISCELLANEOUS PROVISIONS

9.1 Debt

City indebtedness may not exceed debt limits imposed by state law. A charter amendment is not required to authorize city indebtedness.

9.2 Ordinance Continuation

All ordinances consistent with this charter in force when it takes effect remain in effect until amended or repealed.

9.3 Repeal

All charter provisions adopted before this charter takes effect are repealed.

9.4 Severability

The terms of this charter are severable. If any provision is held invalid by a court, the invalidity does not affect any other part of the charter.

9.5 Time of Effect

This charter takes effect _____, 2024.

August 6, 2024

Oregon Department of Energy
550 Capitol St. NE, 1st Floor
Salem, OR 97301

Subject: Public Comment on Sunstone Solar Project (FKA Echo Solar Project)

To Whom It May Concern:

The City of Boardman, Oregon wishes to express our support for the proposed Sunstone Solar Project developed by Pine Gate Renewables. As City officials in one of the fastest growing communities in Oregon, we know the importance of investing in clean energy initiatives like this solar project for the economic and environmental prosperity of our region and state. Boardman and Eastern Oregon are becoming a hub for these innovative energy projects as we continue to attract economic investment from businesses that demand access to clean energy.

The multiyear construction of this project will result in robust employment and positive downstream economic benefits to local and regional businesses. The long-term operation of the asset will generate significant, stable tax revenue for Morrow County and additional employment opportunities to support operations and maintenance needs.

Sunstone Solar's strategic location presents a unique opportunity to advance Oregon and Morrow County's clean energy goals. The project will utilize existing transmission infrastructure and is located within a state-designated Critical Groundwater Area.

The Pine Gate Renewables team developing the Sunstone Solar team has already been a thoughtful partner in Boardman's civic groups and initiatives, especially those initiatives focused on finding solutions to providing for both long and short-term housing. We are confident Pine Gate Renewables will continue to play an important and constructive role in our community for many years to come.

Thank you for the opportunity to comment on and express our support for the Sunstone Solar project.

Sincerely,

Paul Keefer
Mayor, City of Boardman

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						2856
Calls for Service	182	180	160	211	225	287	222						1467
Officer Initiated Incidents	157	165	152	198	218	229	270						1389
Traffic stops	48	73	56	79	92	85	135						568
Other OIA Incidents	102	92	96	119	126	144	135						814
Bus/Building Checks	0	3	2	3	14	7	3						32
Veh/Ped check	44	48	56	65	88	98	81						480
Total Officer Reports	42	43	43	52	55	44	45						324
CIS Converstion	0	0	0	0	0	0	0						0
Crash	2	0	1	1	1	0	3						8
Felony	7	6	5	7	7	2	2						36
Information Case	9	12	9	13	15	10	15						83
Misdemeanor	14	14	18	23	23	24	19						135
Violation	1	7	5	5	1	0	0						19
Voided	5	2	1	2	0	1	3						14
Unclaissified Reports	4	2	4	1	8	7	3						29
Total Misdemeanor & Felony Arrest	8	9	16	11	13	19	14						90
Misdemeanor Arrests	7	5	12	8	9	18	12						71
Felony Arrests	1	4	12	3	4	1	2						27
Total Citations	5	15	15	17	31	19	36						138
Code	0	0	0		0	0	0						0
Criminal	0	0	0		0	2	3						5
Violation	5	15	15	14	31	17	33						130
Unclassified													0
FI's	3	1	0	0	2	0	3						9

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,.

Building Department Report

	Aug 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023	Jan. 2024	Feb. 2024	Mar. 1 to Mar. 27 2024	Mar. 28 to Apr. 22 2024	Apr 23 to May 22 2024	May 23 to June 22 2024	June 23 to July 22 2024
Total Permits Sold	69	34	53	37	29	31	25	58	50	76	71	53
Boardman												
Permits Sold	30	18	14	11	10	6	8	4	7	14	21	26
Manufactured Placement Permit	1	2	0	0	0	0	0	0	0	1	1	0
New Home Construction	7	2	2	0	0	1	0	0	0	1	5	5
Multi Family Units												0
Morrow County(excludes 97818)												
Permits Sold	8	10	19	16	12	10	8	10	8	0	10	7
Manufactured Placement Permit	0	0	0	0	1	1	1	0	0	0	0	0
New Home Construction	0	1	0	0	1	1	0	0	1	0	1	0
Morrow County - 97818												
Permits Sold	24	5	18	8	5	12	7	39	33	44	34	11
Manufactured Placement Permit	0	0	0	0	0	0	0	0	0	0	1	0
New Home Construction	0	0	0	1	0	0	0	0	0	0	1	0
Irrigon												
Permits Sold	7	1	2	2	2	3	2	5	2	3	4	0
Manufactured Placement Permit	0	0	0	0	0	0	0	0	0	0	1	0
New Home Construction	2	0	1	1	0	0	2	0	0	2	0	0
Multi - Family (units)												0
Gilliam County												
Permits Sold										15	2	9
Manufactured Placement Permit										3	0	1
New Home Construction										1	0	0
Multi-Family (units)										8	0	0

Public Works Report
May-24

3 Locates (mark water and sewer lines for customers prior to digging)
19 Work Orders
8 New Meter Installs
547 Meter Reads
0 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	0	4	8					16

Besides daily work routines, Public Works also completed the following:

The last 3 weeks, there were 7 water line breaks on Columbia Ave.
The last 3 weeks, there were 3 Sanitary Sewer Overflow (SSO) reports to DEQ.
Isolated Lagoon #1 to dry it out so the solids can be removed.
2 Dog calls
2 Dog transports
Cleaned School Parking lots
Picked up trash from the Community Clean Up event
Serviced 2 cars for the Police Dept.
Unplugged and repaired Marina Parks Lift Station
Repaired lift station 6
Set up cones and helped Police Dept with July 4th traffic control

City Manager July Report

The following July report will give an overview of the objectives accomplished this past month, as well as future plans:

1. Boardman Housing Summit is scheduled for August 6th. Current registration is over 60 participants representing: community stake holders, land owners, developers, state personnel, finance personnel, and city officials.
2. Intergovernmental Agreement has been fully executed with Gilliam County, which provides planning services.
3. Economic Opportunities Analysis (EOA) awarded to Johnson Economics, with MIG as their primary sub. MIG will be performing the Buildable Lands Inventory for the EOA and Housing Needs Analysis (HNA).
4. The City of Boardman's Strategic Planning effort will be led by Johnson Economics and MIG. A soft kickoff will begin on August 8th at the Columbia River Health Clinic community event. Johnson Economics is requesting three work sessions; September 3rd, October 1st and November 5th.
5. Continued garbage voucher discussion in September council meeting.
6. As a city we are investing a significant effort in updating our guidance and regulatory documents. This includes our Transportation System Plan, Development Code, Municipal Code and Comprehensive Plan, which includes a Parks Master Plan. It is our intent to brand this effort and connect to our strategic plan.
7. ICMA is the International County/City Manager Association. This is the largest conference for local government managers. Their 2024 conference will be held in Pittsburgh PA September 21-25. The conference is an excellent forum for reviewing current issues that impact local governments and to further training of administrative staff. Cost rate- Flight/Hotel $2051~ and Conference cost $1625.
8. Safety Update:
    a. Emergency and Evacuation Plan is complete and ready for council review.
    b. Occupational Safety and Health Manual will be included in September Council packet.
9. 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. Umatilla Electric Company
B. Catholic Church
C. Land use Planning Consultants
D. Missing Middle Housing
E. CIS- Supreme Court Ruling
F. Oregon Latinos in Local Government
G. Morrow County School District
H. Nextiva (Phone Service)
I. Boardman Community Development Association
J. River Ridge Subdivision
K. Community Clean-Up
L. Port Commission
M. LPSCC Meeting
N. NW Columbia Construction
O. Boardman Park & Rec District Board Meeting
P. NEACT Meeting
Q. Cities-County-Port Meeting
R. Oregon Trail Library District

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	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	Pre-Construction Meeting August 8th
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

PUBLIC NOTICE / NOTICIA PUBLICA

The Boardman City Council will hold an Executive Session in accordance with ORS 192.660 (2)(i) /

El Ayuntamiento de Boardman celebrará una Sesión Ejecutiva de acuerdo con ORS 192.660 (2)(i)

Tuesday August 6, 2024 at 7:00 p.m.
At Boardman City Hall

Martes 6 de agosto de 2024 a las 19:00 horas.
En el Ayuntamiento de Boardman

200 City Center Circle, Boardman, OR

The purpose of this executive session is for the City Council members to review and evaluate the employment-related performance of the chief executive officer of any public body, a public officer, employee or staff member who does not request an open hearing.

El propósito de esta sesión ejecutiva es que los miembros del Concejo Municipal revisen y evalúen el desempeño relacionado con el empleo del director ejecutivo de cualquier organismo público, un funcionario público, empleado o miembro del personal que no solicite una audiencia abierta.

(s) Amanda Mickles
City Clerk

Posted: July 30, 2024