Consolidated Land Use Board Agenda

March 26, 2025
5:30 PM
City – County Complex, Community Room

Join Zoom Meeting
https://us02web.zoom.us/j/81462600061?pwd=4GGKAR8RAKWeIPlwkX9etx8Iq2PE2H.1

Meeting ID: 814 6260 0061
Passcode: 180605
Phone: 669-900-9128

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1. Roll Call

2. Approval of Minutes

3.Public Comment

Individuals are reminded that public comments should be limited to item over which the City Commission has supervision, control jurisdiction, or advisory power (MCA 2-3-202)

4. Planning Items

   A. WORK SESSION ON PROPOSED NORTHTOWN PLANNED UNIT DEVELOPMENT

5. Zoning Items

6. Board Comments

7. Adjournment

To ensure that it is passed on to the voting members, written public comment should be submitted before noon the day of any public meeting. This deadline is set to ensure comments reach City Commission, Boards, Committees, and City Staff timely allowing all parties to review comments prior to the start of any public meeting. Comments received after this deadline are not guaranteed to reach the intended persons before the start of the meeting.

LivingstonMontana.org | PublicComment@LivingstonMontana.org | 406.823.6000

DATE: March 26, 2025

TO: Chair Wilcox and Land Use Board Members

FROM: Grant Gager, City Manager

RE: Staff Report for Northtown PUD Work Session

Recommendation and Summary

Staff is providing the Consolidated Land Use Board with a copy of the Northtown Planned Unit Development in advance of the March 26, 2025, work session.

The reasons for the transmittal are as follows:

- The Livingston Municipal Code has established process for Planned Unit Developments.
- An applicant is first required to hold a work session.

Introduction and History

Section 30.47 of the Livingston Municipal Code (LMC) provides the procedure for Planned Unit Development applications and approvals. The LMC provides that:

> *A public work session is required to be held on a proposed PUD plan prior to any public hearing. The work session is intended for informational purposes only to inform both the public, the Zoning Commission, the Planning Board, and the City Commission about the various aspects of the project. It is not intended to be a public hearing and the Zoning Commission, Planning Board and City Commissioners shall not ask questions, provide comments or take formal action on the PUD application. All owners of property within 300 feet of the proposed PUD shall be invited to this work session. An invitation to the work session may be included within the formal public hearing notice or it may be sent separately.*

Analysis

The application for the Northtown Planned Unit Development has been received and is being provided for review in the work session.

Fiscal Impact
There is no fiscal impact arising from this work session.

Strategic Alignment
The development of a planned unit development ordinance was a goal of the Growth Policy.

Attachments
- Attachment A: Northtown PUD Application

NORTHTOWN APARTMENTS
PLANNED UNIT DEVELOPMENT

MARCH 2025

PLANNED UNIT DEVELOPMENT

PARK COUNTY

Prepared By:

HEADWATERS ENGINEERING

1105 REEVES ROAD WEST, SUITE 6
BOZEMAN, MT 59718
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www.headwatersmt.net

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Northtown
PUD Submittal

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HEADWATERS ENGINEERING

Tab A

Cover Letter & Narrative Addressing PUD Requirements

Northtown PUD

HEADWATERS ENGINEERING

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BOZEMAN, MT 59718
406-581-5730
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March 14, 2025

Jennifer Severson
City of Livingston
Department of Planning
220 E. Park St.
Livingston, MT 59047

Re: Northtown Apartments PUD Submittal

Dear Mrs. Severson,

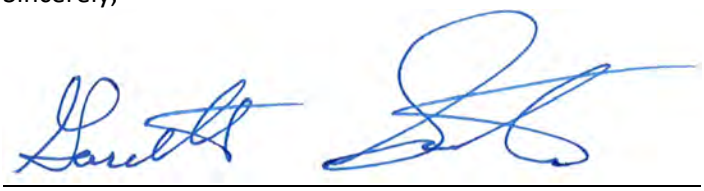
Please find attached our submittal for the Northtown Planned Unit Development (PUD), located on Scenic Trail., approximately 0.5 miles northwest of Front Street in Livingston, MT. Included are (2) copies of the PUD application form, a review fee of $2,000, and accompanying supporting information.

The original lot is described as Lot 3B of Minor Subdivision 644, located in the NE ¼ of Section 14, T02S, R09E PM, in Park County, Montana.

The 20-acre site is currently vacant land, zoned R-2. The property lies within the Livingston Fire and Rescue District.

If you have any questions or comments, please contact me at 406-570-3676.

Sincerely,



Garrett Schultz P.E.
Headwaters Engineering, Inc.
www.headwatersmt.net

H:\2025\003\DOCS\PUD\1_Cover Letter_Northtown PUD.docx

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, SUITE 6
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406-581-5730
www.headwatersmt.net

Narrative Addressing City of Livingston PUD Submittal Requirements

The following information required for the PUD Submittal is included ***(responses in bold italics)***:

- Two (2) copies of the Completed Application Form.
  Two copies of the Completed Application Form are included in Tab B.

- Fees:
  - Single Phase PUD Review Fee: $2,000
  - Phased PUD: $700/ each additional phase

  A $2,000 check for the PUD Review is included.

- Signed form from City Staff confirming Pre-Application Conference was held at least 30 days prior to submittal of the PUD application.
  The Pre-application Conference was held September 21st, 2024. Please provide the relevant form for signature, if required.

- Demonstration of notification to property owners within 300 ft of PUD by applicant, including opportunities to provide comment, and comments received from surrounding owners (must be completed after the Pre-Application Conference and before Application Submittal).
  Notification of property owners within 300 feet of the Subject Property was provided via Certified mail. The letter sent to adjoining property owners along with Certified Mail receipts, is included in Tab C. Additionally, public input opportunities were provided via the website https://northtownlivingston.com/pud/. Three comments were received, and included in Tab C.

- PUD Plan / Preliminary Plat (Subdivisions) that includes:
  - Existing and proposed site layout- includes streets, lots, buildings, open space, wetlands, floodplain, environmental hazards, storm water facilities, water, sewer, dry utilities, existing and proposed easements, and other basic elements in the development
  - Locations, size, and types of proposed uses and associated structures within the PUD and maximum height of each structure
  - Topography map showing significant natural features
  - Existing zoning of PUD property and adjacent surrounding parcels
  - Phasing Plan (multiple phase projects)
  - Operation and Maintenance Plan for private common facilities and public facilities

  The required PUD plans are included in Tab D.

- List of Requested Deviations from the base zoning district and justification for each of the following:

- Zoning Requirements (uses, setbacks, parking, etc.)
- Livingston Subdivision Design Standards (if it is a subdivision)

A list of Requested Deviations is included in Tab E. This project is not a subdivision, so the Subdivision Regulations are not triggered.

- Project Narrative: that successfully demonstrates how the proposed PUD will implement the goals and strategies of the adopted Growth Policy.
  The Project Narrative is included in Tab F.

- Affordable Housing: To receive developer incentives for affordable housing as identified in the City's PUD ordinance Sec. 30.47.D.1, the following must be submitted: a plan describing the number and type of units of housing that will be deemed as affordable and eligible for incentives as identified in Sec 30.47.D.1. The plan shall include the type and location of units as well as a plan to set the sale or rent price at an affordable level at the point of initial habitation and also at each change of occupancy. The plan shall also include information on monitoring of resident income at each point in change of occupancy to ensure compliance with the then-present affordability level established by the City Commission.
  Developer incentives for affordable housing are not being pursued.

- A Historic Survey or letter from Montana SHPO that confirms no cultural or historic resources are within the area proposed for PUD.
  A historical survey was completed in 2022 covering the entire 100-acre Northtown property, which included the PUD project site. The State Historic Preservation Office was contacted in September 2024 to confirm the findings of 2022. There have been no new cultural properties recorded and no new cultural inventories. A letter from the Montana Historical Society is included in Tab G. The Historical Survey does not identify any significant historical or cultural resources on the Subject Property.

- An ecological survey that identifies environmentally sensitive areas in the proposed PUD area, potential impacts, and mitigation measures.
  An ecological survey that describes environmental impacts, areas, and mitigation is included in Tab H. The survey includes surface water, groundwater, geology, vegetation, wildlife, historical features, and visual impact. A NRCS soil report and U.S. Fish and Wildlife wetlands map is also included.

- A wildlife survey that identifies the presence of Threatened & Endangered wildlife within the proposed PUD area and/or locations of significant wildlife corridors or use areas, as well as potential impacts and mitigation measures. A letter from Montana FWP must be included with the PUD Application that confirms these findings.
  The general design of the proposed PUD aims to provide for connectivity for wildlife via vast open spaces that are connected on the exterior of the property and follow the existing wildlife corridors. The high-density development layout works to localize structures, while still

providing open lands for wildlife to pass through unobstructed. No watercourses exist on the property; therefore, no watercourse mitigation plan is required. Wildlife and wildlife habitat are discussed in Tab I. A letter from Montana FWP is also included.

- View shed Impacts must be evaluated and identified, and mitigation must be proposed if significant natural view sheds will be impacted by the proposed development.
  Due to the vast amount of open space within the parcel, and the rising topography of the site, no significant natural view sheds are anticipated to be impacted. 3-dimesional renderings of the buildings on the site can be seen in Tab D.

- Transportation Impacts- A Trip Generation Estimate, prepared and certified by a qualified Transportation Engineer licensed in the State of Montana, must be submitted; if more than 100 new daily trips will be generated by the development, a traffic study must also be submitted (the level of analysis of the study will be determined by City Staff based on PUD location and anticipated impacts to the existing transportation network).
  The expected transportation impacts for the area are anticipated to be minimal. Most nearby road segments and intersections will continue to operate at acceptable levels with the proposed project. It is understood that upcoming projects by others are likely to positively impact the Level of Service for vehicles using nearby road intersections. A Traffic Study was completed by Bob Abelin, PE of Abelin Traffic Services. It can be viewed in Tab J.

- Internal Circulation and Parking Plan- must include locations and number of parking spaces (including bicycle parking) allocated to each use or structure in the PUD and a general concept traffic movement within the PUD and to/from the surrounding transportation network for motor vehicles, bicycles, pedestrians and transit
  Internal circulation and parking can be viewed on the Site Plan in Tab D.

- Storm water – Drainage Study prepared and certified by a qualified Engineer licensed in the State of Montana showing historic (existing) and proposed drainage; Plan for proposed treatment of Storm water Runoff in PUD through full build out
  Stormwater will be collected and conveyed through a series of pipes, inlets, and swales to be treated in retention ponds throughout the site. The proposed grading of the site will facilitate drainage, without inundating any of the first floor of the proposed development. Retention ponds are sized to meet the City of Livingston's Design Standards. A full stormwater memo is included in Tab K, while the Grading & Drainage Plan is included in Tab D.

- Water, Sewer and Solid Waste - must provide an analysis of calculated demands from new development and proposed infrastructure capacity. Solid Waste disposal for individual buildings/ building clusters must be addressed.
  The water for each building will be supplied via services to an extension of the City of Livingston Public Water Main. Approximately 1,530 LF of 8" water main is proposed to serve the project. Fire Hydrants will be installed per the City of Livingston Fire District's requirements

and needs. Each building will have its own water service and fire service supply line. The buildings will be fully sprinkled with an external fire department connection. Available capacity has been confirmed by the City's Engineer, TD&H. A complete utility design report is included with the submittal, found in Tab L.

Wastewater collection for the project will be served by an extension of the City of Livingston public sewer main that is located on Scenic Trail. Approximately 1,150 LF of 8" sewer main is proposed to serve the project. Each building will have its own four-inch sewer service that will connect to the sewer main extension using an 8" x 4" wye. A total of 5 sewer manholes are proposed to serve the development. Available capacity has been confirmed by the City's Engineer, TD&H. A complete utility design report, and capacity confirmation from the City of Livingston, is included in Tab L.

Solid waste will be stored in animal-resistant containers/dumpsters and collected by the City of Livingston and hauled off site to one of the City's transfer stations. The proposed site layout will provide sufficient circulation for a garbage truck to collect solid waste from the dumpsters. Dumpster locations are shown on the Site Plan in Tab D.

- Buffers/ transition treatments between high and low intensity land uses within the PUD, and between the PUD and surrounding properties.
  There is ample open space within the PUD, in addition to natural topography that serves as a buffer from the single-family homes to the west. Within the PUD, all proposed use is high density.

- Lighting Plan for common areas
  The internal access roads will be lighted with overhead streetlights, meeting City of Livingston Design Standards, and matching the fixtures used in the adjacent Northtown Subdivision. A wall-mounted fixture will be used to light the parking areas. Lighting details can be found in Tab M, while the layout of streetlights can be seen on the Site Plan in Tab D.

- Other significant site development features (ponds, parks, etc.)
  The dedicated park is shown in the Site Plan in Tab D.

- Development Timeline- must identify the order in which development will occur and estimated time for completing key components or phases of the PUD.
  The PUD Timeline is discussed in the Project Narrative in Tab F. Development is anticipated to start in spring/summer of 2025, beginning with infrastructure for Phase 1, which will include water, sewer, storm, and roads to serve the first (3) buildings on the property. The Phasing Plan can be viewed in Tab D.

- Adequate provision for a Home Owners Association (HOA) or other private management organization to provide for the operation and maintenance of common facilities not maintained

by the City, such as: private streets and alleys, parks, club houses, sales offices, open space, trails, recreational facilities, parking facilities, private lighting systems, subdivision entrance signage and common mailboxes.
NorthTown Development Corp intends to own and manage the NorthTown Apartments Project, under a separate entity. This entity will provide maintenance of the grounds, landscaping, parking lots, sidewalks, entrance drives, and buildings. This will include snow removal, lawn mowing, weed mitigation, trail maintenance, a mail facility for central mail/package delivery, central garbage collection site at each building, a leasing and management office, and building maintenance.

- Adequate provisions shall be made for maintenance of all public common facilities (e.g., a trail or park) which are developed on public land, but intended to be maintained by a private organization or homeowners association
  NorthTown Development Corp intends to own and manage the NorthTown Apartments Project, under a separate entity. This entity will provide maintenance of the grounds, landscaping, parking lots, sidewalks, entrance drives, and buildings. This will include snow removal, lawn mowing, weed mitigation, trail maintenance, a mail facility for central mail/package delivery, central garbage collection site at each building, a leasing and management office, and building maintenance.

- All documents other than maps and design schematics must be submitted on either 8 ½" x 11" or 11" x 17" paper. Additionally, a digital copy of the full application in PDF file format is required.
  A digital copy has been submitted, and hard copies in the required sizes will follow.

H:\2025\003\DOCS\PUD\Revised PUD Narrative.docx

HEADWATERS ENGINEERING

Tab B

PUD Application Form

Northtown PUD

City of Livingston
Department of Planning
220 E. Park St.
Livingston, MT 59047
(406)222-4903
planning@livingstonmontana.org

City of Livingston Planned Unit Development (PUD)

The planned Unit Development is a zoning district intended to encourage more efficient use of land and public services than is generally attainable under standard zoning application. Conventional area and density requirements are replaced by application of the PUD district to lands upon which an approved plan becomes the basis for control of land development. PUD encourages clustered development, diverse housing types, mixed land uses, and natural resource preservation.

PUD Requirements

- Minimum of ½ acre size
- PUDs are allowed in the following zoning districts: R-II, RII-MH, R-III, RMO, MU, CBD and HC.
- All PUDs shall include residential uses.
- Commercial uses in PUDs that are not allowed by-right in the base zoning district must be appropriately scaled and compatible with other uses in proposed development and with respect to the existing surrounding neighborhood. Commercial uses should be located, designed and operated to serve the needs of residents within the PUD and individuals residing outside the PUD.
- Light Industrial uses that are appropriately scaled and compatible with surrounding land uses may be allowed.
- Heavy Industrial uses are not allowed

Development Incentives	Public Benefits
Residential Density Bonus	10% deed restricted Affordable Housing Units (min. 2 units)
	Deed restricted Affordable Housing units at or below 60% AMI
Height Increase	10% reduction in vehicular trips to be generated by the PUD
	Open Space area is at least 20% of PUD
Waived Impact Fees	Commercial Uses in at least 5% of total building floor area

The PUD review process includes:

- Pre-Application Conference with City Staff
- Preliminary Public Engagement
- Application Submittal
- Public Work Session
- Consolidated Land Use Board Public Hearing
- City Commission Public Hearing

PUD applications are evaluated based upon the following criteria listed in Section 30.47 of the City of Livingston Municipal Code:

- The proposed PUD supports the adopted Growth Policy with respect to applicable density and use goals, objectives and/or strategies identified in the Growth Policy.
- The proposed departures from the adopted City of Livingston Public Works Design Standards and Specifications and/or Subdivision Regulations (if a subdivision of land is proposed) will not adversely affect the public or surrounding neighborhood.
- The PUD will establish effective connections within the PUD and to the surrounding transportation network.
- The size and type of parkland and open space and demonstration of its adequacy for the land use, densities and dwelling types proposed in the PUD, as well as the proposal for maintenance and conservation of the areas.
- The PUD will not adversely impact the natural environment, critical wildlife and habitat, agriculture, public health and safety, and local services.

Action by the Consolidated Land Use Board:

I. The Board shall hold a public hearing on the application and submit its recommendations to the City Commission regarding the PUD based on the review criteria under 3.a-e in this section.

II. The Planning Board will review the PUD Plan and, after holding a public hearing, make a recommendation to the City Commission to approve, conditionally approve or deny the PUD.

III. Where a PUD involves a subdivision of land, Subdivision review will be as directed by Chapter 28 of Livingston Municipal Code. Any deviations from the Subdivision Regulations or the City of Livingston Public Works Design Standards and Specifications will only be allowed through the variance process contained in Chapter Municipal 28 of the Livingston Code.

Action by the City Commission:

I. Upon receiving recommendations from the Consolidated Land Use Board, the City Commission will review and approve, approve with conditions, or deny the PUD application and any applicable Preliminary Plat. The City Commission ay conduct the first reading of the zoning ordinance amendment required for a PUD at the same meeting during which the preliminary PUD plan is approved.

City of Livingston
Department of Planning
220 E. Park St.
Livingston, MT 59047
(406)222-4903
planning@livingstonmontana.org

City of Livingston PUD Application Form

1. Property Owner Name: NORTHTOWN DEVELOPMENT CORP

2. Location of Property

General Location: 0.5 MILES NORTHWEST OF FRONT STREET

Address: TBD SCENIC TRAIL

Legal Description: MINOR SUB 644, LOT 3B, NE 1/4 S14, T02 S, R09 E

Zoning District: R-II

3. Contact Information

Property Owner(s)

Home Address: 1425 w. MAIN ST. #101, BOZEMAN, MT 59715

Phone Number: 406-580-7034

Email Address: matt@fharchitects.com

Primary Contact/ Applicant

Name: GARRETT SCHULTZ

Address: 1105 REEVES ROAD WEST, SUITE 6, BOZEMAN, MT 59718

Phone Number: 406-570-3676

Email Address: gschultz@headwatersmt.net

Secondary Contact

Name: BILL MUHLENFELD

Address: 1425 W. Main Street, Suite 101, Bozeman, MT 59715

Phone Number: 406-522-8700

Email Address: bill@northtownlivingston.com

4. Project Information

Proposed PUD Name: NORTHTOWN PUD

Brief Description of Project : The PUD will include a mix of 240 studio, one bedroom, and two-bedroom apartments, and an additional commercial space in one of the buildings.

Proposed Use(s): Multi-Family/Commercial

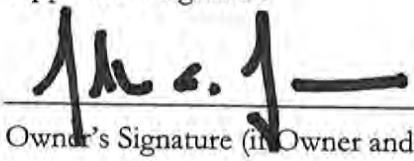
Number of Phases: 3

Number of Lots in each Phase: 1

Total Number of Lots: 1

I hereby certify that the information included in this application is true and accurate.

Applicant's Signature — 2/19/2025 — Date



Owner's Signature (if Owner and Applicant differ) — 2.19.25 — Date

Application must be signed by ALL owners of record; Articles of Organization must be submitted for LLCs.

Submittal Requirements:

- ☐ Two (2) copies of the Completed Application Form.
- ☐ Fees:
  - Single Phase PUD Review Fee: $2,000
  - Phased PUD: $700/ each additional phase
- ☐ Signed form from City Staff confirming Pre-Application Conference was held at least 30 days prior to submittal of the PUD application.
- ☐ Demonstration of notification to property owners within 300 ft of PUD by applicant, including opportunities to provide comment, and comments received from surrounding owners (must be completed after the Pre-Application Conference and before Application Submittal).
- ☐ PUD Plan / Preliminary Plat (Subdivisions) that includes:
  - Existing and proposed site layout- includes streets, lots, buildings, open space, wetlands, floodplain, environmental hazards, storm water facilities, water, sewer, dry utilities, existing and proposed easements, and other basic elements in the development
  - Locations, size, and types of proposed uses and associated structures within the PUD and maximum height of each structure
  - Topography map showing significant natural features
  - Existing zoning of PUD property and adjacent surrounding parcels
  - Phasing Plan (multiple phase projects)
  - Operation and Maintenance Plan for private common facilities and public facilities
- ☐ List of Requested Deviations from the base zoning district and justification for each of the following:
  - Zoning Requirements (uses, setbacks, parking, etc.)
  - Livingston Subdivision Design Standards (if it is a subdivision)
- ☐ Project Narrative: that successfully demonstrates how the proposed PUD will implement the goals and strategies of the adopted Growth Policy.
- ☐ Affordable Housing: To receive developer incentives for affordable housing as identified in the City's PUD ordinance Sec. 30.47.D.1, the following must be submitted: a plan describing the number and type of units of housing that will be deemed as affordable and eligible for incentives as identified in Sec 30.47.D.1. The plan shall include the type and location of units as well as a plan to set the sale or rent price at an affordable level at the point of initial habitation and also at each change of occupancy. The plan shall also include information on monitoring of resident income at each point in change of occupancy to ensure compliance with the then-present affordability level established by the City Commission.
- ☐ A Historic Survey or letter from Montana SHPO that confirms no cultural or historic resources are within the area proposed for PUD.
- ☐ An ecological survey that identifies environmentally sensitive areas in the proposed PUD area, potential impacts, and mitigation measures.

- ☐ A wildlife survey that identifies the presence of Threatened & Endangered wildlife within the proposed PUD area and/or locations of significant wildlife corridors or use areas, as well as potential impacts and mitigation measures. A letter from Montana FWP must be included with the PUD Application that confirms these findings.

- ☐ View shed Impacts must be evaluated and identified, and mitigation must be proposed if significant natural view sheds will be impacted by the proposed development.

- ☐ Transportation Impacts- A Trip Generation Estimate, prepared and certified by a qualified Transportation Engineer licensed in the State of Montana, must be submitted; if more than 100 new daily trips will be generated by the development, a traffic study must also be submitted (the level of analysis of the study will be determined by City Staff based on PUD location and anticipated impacts to the existing transportation network).

- ☐ Internal Circulation and Parking Plan- must include locations and number of parking spaces (including bicycle parking) allocated to each use or structure in the PUD and a general concept traffic movement within the PUD and to/from the surrounding transportation network for motor vehicles, bicycles, pedestrians and transit

- ☐ Storm water – Drainage Study prepared and certified by a qualified Engineer licensed in the State of Montana showing historic (existing) and proposed drainage; Plan for proposed treatment of Storm water Runoff in PUD through full build out

- ☐ Water, Sewer and Solid Waste - must provide an analysis of calculated demands from new development and proposed infrastructure capacity. Solid Waste disposal for individual buildings/ building clusters must be addressed.

- ☐ Buffers/ transition treatments between high and low intensity land uses within the PUD, and between the PUD and surrounding properties

- ☐ Lighting Plan for common areas

- ☐ Other significant site development features (ponds, parks, etc.)

- ☐ Development Timeline- must identify the order in which development will occur and estimated time for completing key components or phases of the PUD

- ☐ Adequate provision for a Home Owners Association (HOA) or other private management organization to provide for the operation and maintenance of common facilities not maintained by the City, such as: private streets and alleys, parks, club houses, sales offices, open space, trails, recreational facilities, parking facilities, private lighting systems, subdivision entrance signage and common mailboxes

- ☐ Adequate provisions shall be made for maintenance of all public common facilities (e.g., a trail or park) which are developed on public land, but intended to be maintained by a private organization or homeowners association

All documents other than maps and design schematics must be submitted on either 8 ½" x 11" or 11" x 17" paper. Additionally, a digital copy of the full application in PDF file format is required.

HEADWATERS ENGINEERING

Tab C
Notification of Adjacent Property Owners
Northtown PUD

NorthTown
LIVINGSTON

LEGAL NOTICE

The NorthTown Development Corp (NDC) is in the business of creating a liveable community in the City of Livingston. As a significant part of that commitment we are seeking to significantly comply with the city's growth policy to provide an increased number of badly needed workforce housing units.

NDC is proposing a planned unit development (PUD), which will be the first of its kind in the city. The PUD complex will be thoughtfully designed, and located at the intersection of th Street and Scenic Trail on a 20 acre parcel of land, with 20% of the parcel set aside as an open space and an additional 60% as undeveloped land.

The PUD will include a mix of 240 studio, one bedroom and two bedroom apartments, and additional commercial space in the building nearest Scenic Trail to include an opportunity for several first floor, mixed use businesses, with easy access from the surrounding neighborhood.

- **You may review exhibits of the proposed PUD at northtownlivingston.com/PUD.**
- **You can make comments at the link above. All comments will be shared with the city and become part of the record.**
- **A hard copy of the proposal may be viewed at the City of Livingston City Hall.**

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

FJELL CONDO ASSOC.
P.O. BX 10572
BOZEMAN 59719

9590 9402 8371 3156 4542 76

2. Article Number (Transfer from service label)

9589 0710 5270 1965 9001 80

PS Form 3811, July 2020 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☑ Addressee

B. Received by (Printed Name) Shanie DiBenardino C. Date of Delivery 9/18

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

RUSSELL PRINTZ
72 N. 9th ST
LIVINGSTON MT
59047

9590 9402 8371 3156 4542 52

2. Article Number (Transfer from service label)

89 0710 5270 1965 9001 66

PS Form 3811, July 2020 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Russell Printz ☐ Agent ☐ Addressee

B. Received by (Printed Name) Russell Printz C. Date of Delivery SEP

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

SCHOOL DIST #4
132 S. B. ST.
LIVINGSTON MT 59047

9590 9402 8371 3156 4543 13

2. Article Number (Transfer from service label)

9589 0710 5270 1965 8923 62

PS Form 3811, July 2020 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☑ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

JOHN & RUSSELL PRINTZ
72 N 9TH ST
LIVINGSTON 59047

9590 9402 8371 3156 4542 38

2. Article Number (Transfer from service label)

9589 0710 5270 1965 9002 03

PS Form 3811, July 2020 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Russell Printz ☐ Agent ☐ Addressee

B. Received by (Printed Name) Russell Printz C. Date of Delivery SEP

D. Is delivery address different from item 1? ☑ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

JOHN & RUSSELL PRINTZ
72 N. 9th ST
LIVINGSTON MT
59047

9590 9402 8371 3156 4542 45

2. Article Number (Transfer from service label)

PS Form 3811, July 2020 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Russell Printz ☐ Agent ☐ Addressee

B. Received by (Printed Name) Russell Printz C. Date of Delivery SEP

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

Item A.

Gmail

Garrett Schultz <gschultz@headwatersmt.net>

Fwd: New comment from Lulu Herrera

1 message

William Muhlenfeld <bill@northtownlivingston.com> Fri, Jan 24, 2025 at 10:45 AM
To: Garrett Schultz <gschultz@headwatersmt.net>

Bill Muhlenfeld, Owner/Partner
NorthTown Development Group
406-522-8700

NorthTown LIVINGSTON

---------- Forwarded message ---------
From: **Northtown PUD** <info@northtownlivingston.com>
Date: Tue, Dec 3, 2024 at 4:45 AM
Subject: New comment from Lulu Herrera
To: <bill@northtownlivingston.com>

Your name
Lulu Herrera
Address
1110 W Reservoir St Map It
Email
aherrera0525@gmail.com
Your Comment:

The proposed PUD from NorthTown Corp (NTC) claims to comply with the city's growth policy to increase workforce housing. While I support mixed-use development, the lack of pedestrian and bike-friendly infrastructure fails to provide “easy access from the surrounding neighborhood.” No trails are included in the PUD, nor in any past or future phases, which conflicts with both the Growth Policy and the Trails and Active Transportation Plan. The plan identifies two key trails for creating an interconnected community-wide trail system. Given that prior phases omitted trails, it’s crucial the PUD include a trail linking the north side to the Water Tower. This trail must be a meaningful connection, not just an afterthought squeezed onto a sidewalk.

The open space in the proposal is steep, undevelopable terrain, which remains isolated. If the developer aims to create a “thoughtfully designed” and “livable” community, preserving open space and ensuring connectivity should be a priority. This can be achieved by leaving some lots undeveloped and adding more easements between streets and open space, as only one easement is currently proposed. This critical trail connection runs directly through NorthTown. If not developed, it will force the trail onto streets, contradicting the Growth Policy’s Vision Zero goals. The Livingston Trails and Active Transportation Plan emphasizes safer pedestrian and bicycle routes as a key goal in the Growth Policy.

By incorporating this infrastructure, NorthTown would fulfill community goals and improve safety, connectivity, and reduce traffic congestion. Survey respondents cited the lack of adequate pathways and crossings as a top barrier to walking and biking, and trails connecting to the Water Tower and North Hills area were among the most desired. The proposed NorthTown trails could provide these connections if properly developed and maintained.

The PUD claims to encourage "context-sensitive design that conforms to topography and minimizes site impacts," but the proposed development does not reflect these principles. Five of the nine buildings are located on a steep hillside, which

would dramatically alter the landscape and fail to preserve the area's character. The development's excessive density, w three-story buildings, would disrupt the natural environment and change the skyline. This design contradicts the Growth Policy's focus on preserving community character, including the region's natural beauty, outdoor recreation, and rural landscape.

Additionally an objective of the PUD is to "reduce vehicular trip generation through mixed use development and enhanced multi-modal connectivity" The northside already suffers from significant traffic congestion, particularly at pinch points, which would not be eliminated by an another grade-separated crossing, and so adding an additional 240 units is unsuitable for the location. The Growth Policy emphasizes integrating land use and transportation, urging careful evaluation of transportation impacts in greenfield developments. This development will exacerbate traffic issues, and without a connected active transportation route crossing the tracks, the additional traffic worsens already unsafe conditions for pedestrians and cyclists, including children who lack safe routes to school.

Reducing the number of units and building alternative types of high-density housing, such as townhomes, will also align with community preferences and the Growth Policy. This would also help minimize the strain on an already congested area, and contribute to the Growth Policy's goals of creating a range of housing types and fostering distinctive, attractive communities.

NTC has already built out single family homes and is planning to construct a total of 400 homes, and is now proposing workforce housing. However nowhere on this 142 acre development has affordable housing been identified. Workforce housing is not the same as low-income housing, and so this development does not fill the affordable housing gap,

What I ask from commission and the planning department is to hold NTC accountable for coming up with a more thoughtful design—including a variety of housing types, reduced density, and safe pedestrian and bike infrastructure/trails through connected open space— that could better meet the needs of the community. We need a balanced approach that adheres to the intent of the PUD, the Growth Policy and Trails and Active Transportation Plan, while preserving the safety, character, and livability of the community.

12/03/2024

Item A.

Gmail

Garrett Schultz <gschultz@headwatersmt.net>

Fwd: New comment from Marisa Kwok

1 message

William Muhlenfeld <bill@northtownlivingston.com> Fri, Jan 24, 2025 at 10:46 AM
To: Garrett Schultz <gschultz@headwatersmt.net>

Bill Muhlenfeld, Owner/Partner
NorthTown Development Group
406-522-8700

NorthTown LIVINGSTON

---------- Forwarded message ---------
From: **Northtown PUD** <info@northtownlivingston.com>
Date: Wed, Sep 18, 2024 at 8:15 PM
Subject: New comment from Marisa Kwok
To: <bill@northtownlivingston.com>

Your name
Marisa Kwok
Address
901 Scenic Trl Map It
Email
m_wong3@yahoo.com
Your Comment:
I have two major concerns with this development. 1) I do not believe the current train crossings will be sufficient for the increase in population density on the north side of town. Already the two crossing are a bottleneck and I fear that in an emergency evacuation (eg wildfires) we will not be able to escape quickly enough and lives could be lost. 2) The designs of the buildings do not fit into the aesthetic of the neighborhood. They will be a site for sore eyes.

09/18/2024

Item A.

Gmail

Garrett Schultz <gschultz@headwatersmt.net>

Fwd: New comment from Matthew Lukens

1 message

William Muhlenfeld <bill@northtownlivingston.com> Fri, Jan 24, 2025 at 10:45 AM
To: Garrett Schultz <gschultz@headwatersmt.net>

Bill Muhlenfeld, Owner/Partner
NorthTown Development Group
406-522-8700

NorthTown LIVINGSTON

---------- Forwarded message ---------
From: **Northtown PUD** <info@northtownlivingston.com>
Date: Mon, Sep 30, 2024 at 5:34 PM
Subject: New comment from Matthew Lukens
To: <bill@northtownlivingston.com>

Your name
Matthew Lukens
Address
3655 Bozeman Trail Rd Map It
Email
mlukens@mtellis.org
Your Comment:
I bought the 5.5 acre parcel across the street and have built the Fjell detached condo development on the land. My concern is that the retention ponds for the planned PUD will not be sufficient and will affect the retention ponds on my lot. Has a study been done on the effect this PUD would have on storm water run on off?

09/30/2024

HEADWATERS ENGINEERING

Tab D

Vicinity Map, Zoning Map, Site Layouts, Grading Plan, Road Plans, Phasing Plan, & Architectural Plans

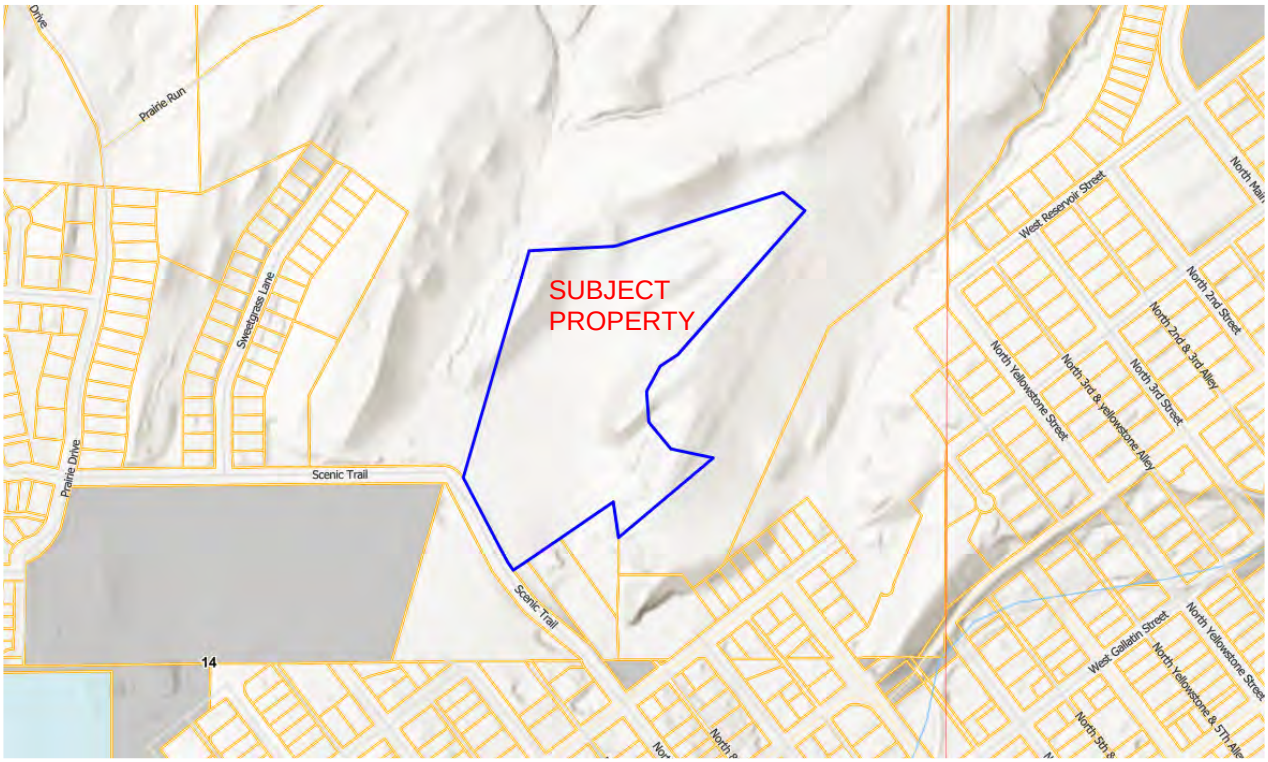
Northtown PUD

VICINITY MAP

Cadastral Property Report

Tax Year: 2025

Scale: 1:6389.59 Basemap: Cadastral Application Base Map



Summary

Primary Information

Property Category: RP

Subcategory: Non-Qualified Ag

Geocode: 49-0802-14-2-40-75-0000

Assessment Code: 0000042274

Primary Owner:
NORTHTOWN DEVELOPMENT CORP
MAIL TO BILL MUHLENFELD
BOZEMAN, MT 59718
Note: See Owners section for all owners

Property Address:
SCENIC TRL
LIVINGSTON, MT 59047

Certificate of Survey:

Legal Description: MINOR SUB 677, S14, T02 S, R09 E, Lot 3B, ACRES 20.01

Last Modified: 1/18/2025 13:44:28 PM

NORTHTOWN ZONING MAP

NORTHTOWN PUD BOUNDARY

2/6/2025, 12:49:43 PM

Road Centerlines

Livingston Zoning

<Null>

CBD
HC
I
MU
NC
P
R II
R II(MH)
R III

1:11,838

0 0.1 0.2 0.4 mi

0 0.15 0.3 0.6 km

Esri, NASA, NGA, USGS, FEMA, Maxar

N

GRAPHIC SCALE
60 0 30 60
(IN FEET)
1 inch = 60 ft.
11"X17": 1"= 120 ft

Plot Date: 2/6/2025 10:01 AM
H:\2025\003\ACAD\SHEETS\SITE PLAN.dwg

VERIFY SCALE
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, SUITE 6, BOZEMAN, MT 59718
HEADWATERSMT.NET 406-581-5730

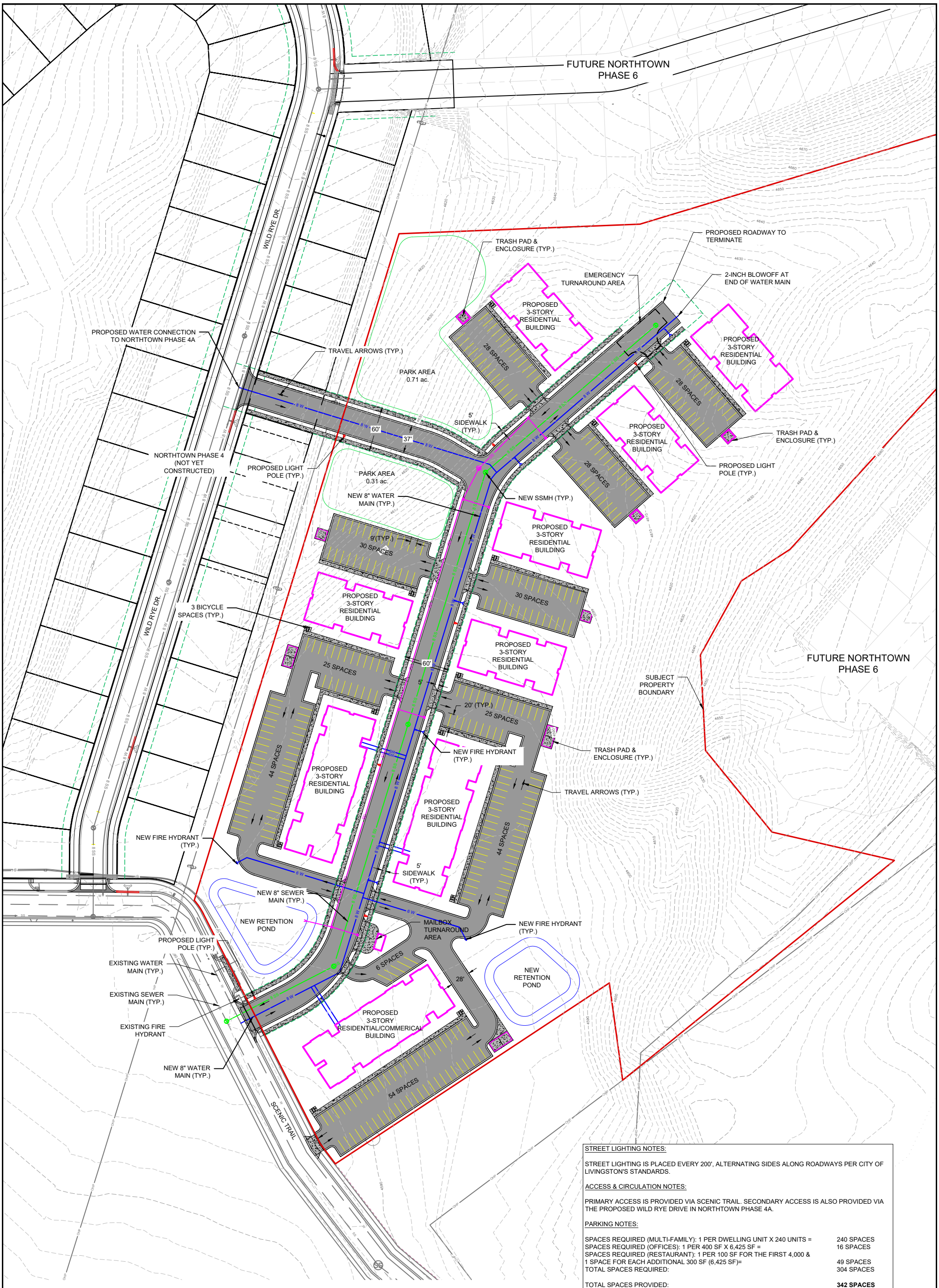
DRAWN BY: NJH
DATE: 02/06/2025
REVISION DATE:
PROJECT LOCATION
LIVINGSTON
MONTANA

NORTHTOWN DEVELOPMENT
PUD

OVERALL PHASING PLAN

HEADWATERS PROJECT NUMBER
2025.003

DRAWING NUMBER
C1.0



STREET LIGHTING NOTES:

STREET LIGHTING IS PLACED EVERY 200', ALTERNATING SIDES ALONG ROADWAYS PER CITY OF LIVINGSTON'S STANDARDS.

ACCESS & CIRCULATION NOTES:

PRIMARY ACCESS IS PROVIDED VIA SCENIC TRAIL. SECONDARY ACCESS IS ALSO PROVIDED VIA THE PROPOSED WILD RYE DRIVE IN NORTHTOWN PHASE 4A.

PARKING NOTES:

SPACES REQUIRED (MULTI-FAMILY): 1 PER DWELLING UNIT X 240 UNITS =	240 SPACES
SPACES REQUIRED (OFFICES): 1 PER 400 SF X 6,425 SF =	16 SPACES
SPACES REQUIRED (RESTAURANT): 1 PER 100 SF FOR THE FIRST 4,000 & 1 SPACE FOR EACH ADDITIONAL 300 SF (6,425 SF)=	49 SPACES
TOTAL SPACES REQUIRED:	304 SPACES
TOTAL SPACES PROVIDED:	**342 SPACES**
BICYCLE PARKING REQUIRED: 10% OF REQUIRED PARKING=	37 SPACES
TOTAL BICYCLE SPACES PROVIDED:	**39 SPACES**

GRAPHIC SCALE
60 0 30 60
(IN FEET)
1 inch = 60 ft.
11"X17": 1"= 120 ft

Plot Date: 3/13/2025 2:17 PM
H:\2025\003\ACAD\SHEETS\SITE PLAN.dwg

VERIFY SCALE
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, SUITE 6, BOZEMAN, MT 59718
HEADWATERSMT.NET 406-581-5730

DRAWN BY: NJH
DATE: 03/13/2025
REVISION DATE:
PROJECT LOCATION
LIVINGSTON
MONTANA

NORTHTOWN DEVELOPMENT
PUD

OVERALL SITE PLAN

HEADWATERS PROJECT NUMBER
2025.003

DRAWING NUMBER
C2.0

GENERAL NOTES:

1. THIS LAYOUT IS CONCEPTUAL ONLY. TOPOGRAPHY VARIES ON THIS PARCEL AND INCLUDES SLOPES UP TO 40%. SIGNIFICANT GRADING WOULD BE REQUIRED TO ACHIEVE THIS DENSITY.
2. GRADING SHOWN IS PRELIMINARY. FURTHER DESIGN IS REQUIRED FOR SUBMITTAL TO CITY OF LIVINGSTON.
3. BEDROCK IS LIKELY TO BE AT DEEP CUT AREAS.
4. EARTHWORK NUMBERS BELOW DO NOT TAKE ASPHALT PAVEMENT AND CONCRETE SECTIONS INTO ACCOUNT.

EARTHWORK:

CUT:	77,820 CY
FILL:	83,200 CY
NET:	5,380 CY (FILL)

FUTURE PHASE 4 SWALE

PROPOSED TWIN 18" CULVERTS (TYP.)

PROPOSED ROADWAY TO TERMINATE WITH TURNAROND HERE

PROPOSED 3-STORY RESIDENTIAL BUILDING FFE:4615.0'

PROPOSED 3-STORY RESIDENTIAL BUILDING FFE:4620.0'

PROPOSED 3-STORY RESIDENTIAL BUILDING FFE: 4615.0'

PROPOSED 3-STORY RESIDENTIAL BUILDING FFE:4608.0'

PROPOSED 3-STORY RESIDENTIAL BUILDING FFE: 4603.0'

PROPOSED 3-STORY RESIDENTIAL BUILDING FFE: 4603.0'

PROPOSED 3-STORY RESIDENTIAL BUILDING FFE: 4597.0'

PROPOSED 3-STORY RESIDENTIAL BUILDING FFE: 4597.0'

PROPOSED 3-STORY RESIDENTIAL/COMMERICAL BUILDING FFE: 4588'

STORM INLET (TYP.)

STORM INLET (TYP.)

RETENTION POND TOP:4590.5' BOTTOM:4586.5'

RETENTION POND TOP: 4584.0' BOTTOM:4580.0'

DRAINAGE SWALE 3:1 SIDES & 5' BOTTOM

PROPOSED PUD BOUNDARY

SCENIC TRAIL

0.80% 3.06% 12.32% 27.44% 2.99% 3.00% 33.30% 50.10% 50.30% 50.12% 3.00% 1.18%

GRAPHIC SCALE
60 0 30 60
(IN FEET)
1 inch = 60 ft.
11"X17": 1"= 120 ft

Plot Date: 2/20/2025 4:11 PM
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VERIFY SCALE
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, SUITE 6, BOZEMAN, MT 59718
HEADWATERSMT.NET 406-581-5730

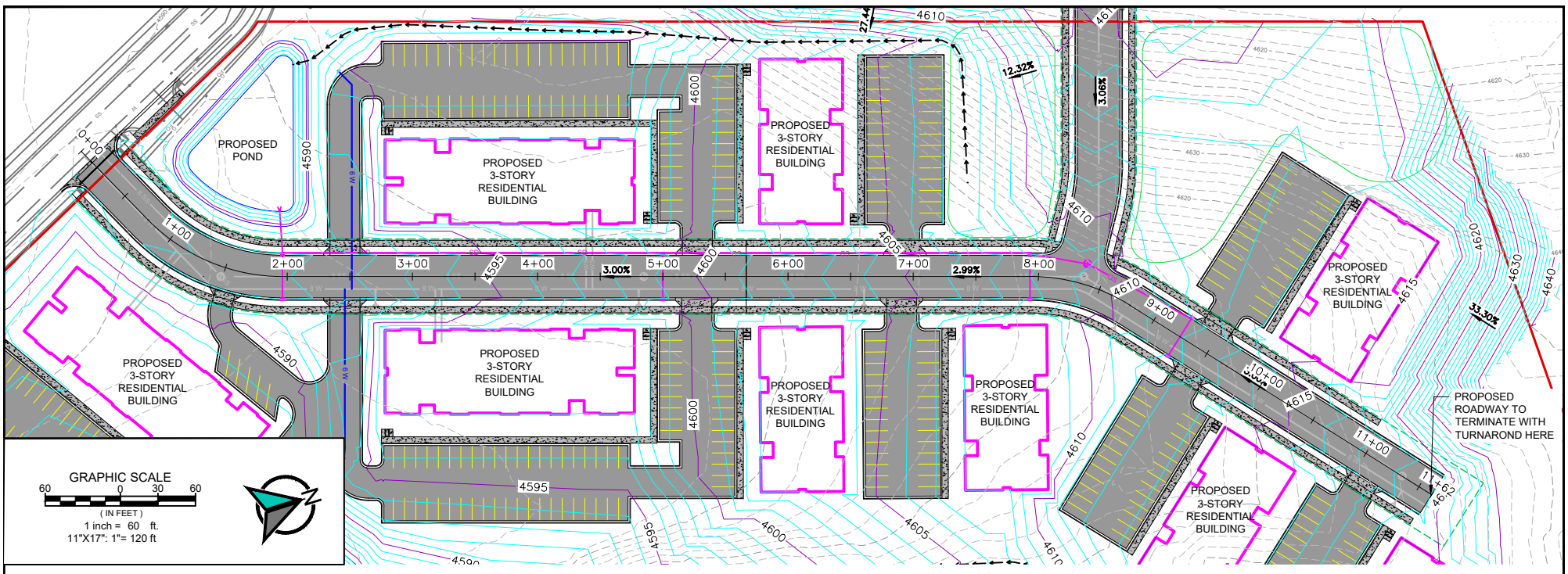
DRAWN BY: NJH
DATE: 02/19/2025
REVISION DATE:
PROJECT LOCATION
LIVINGSTON
MONTANA

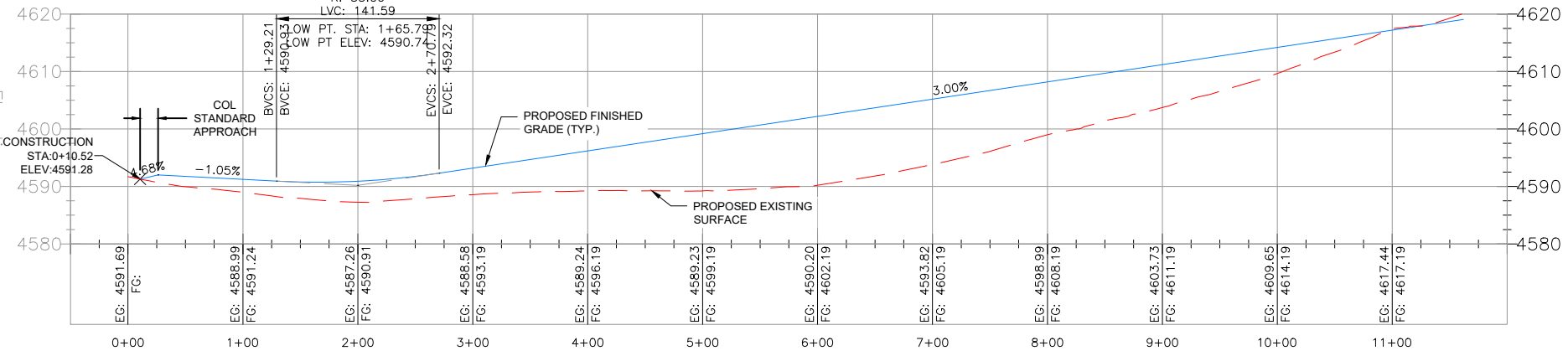
NORTHTOWN DEVELOPMENT
PUD

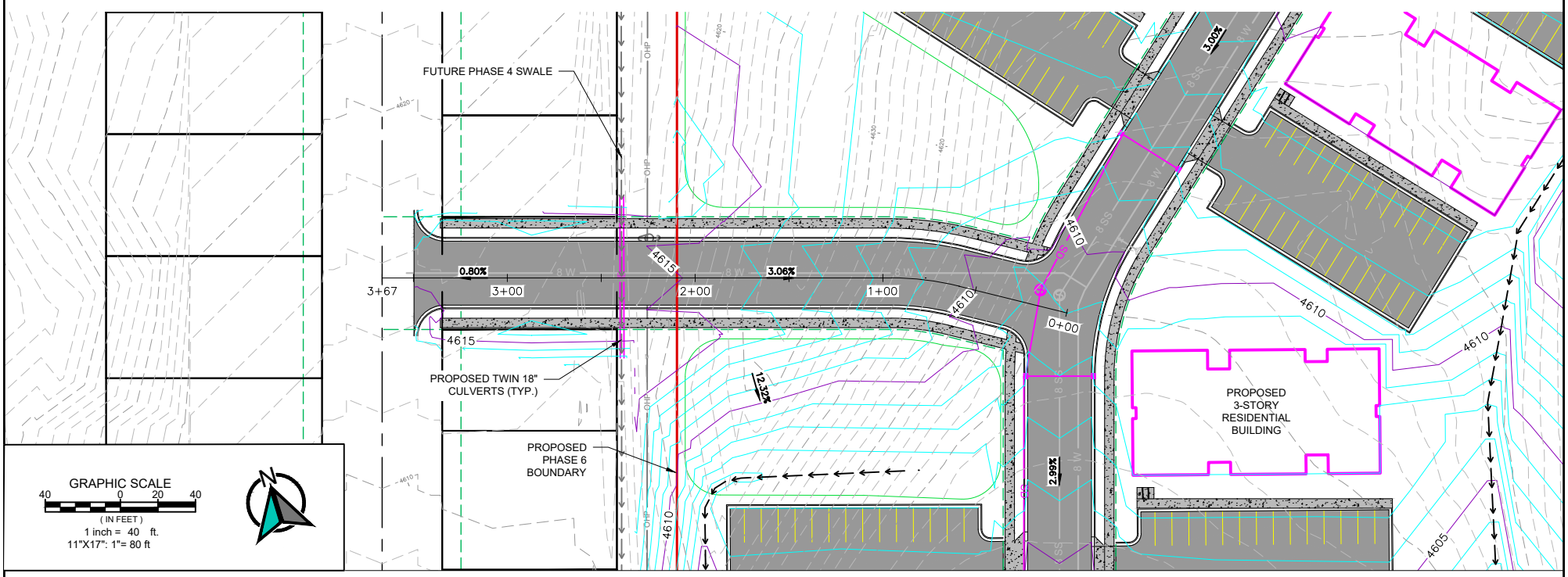
GRADING & DRAINAGE PLAN

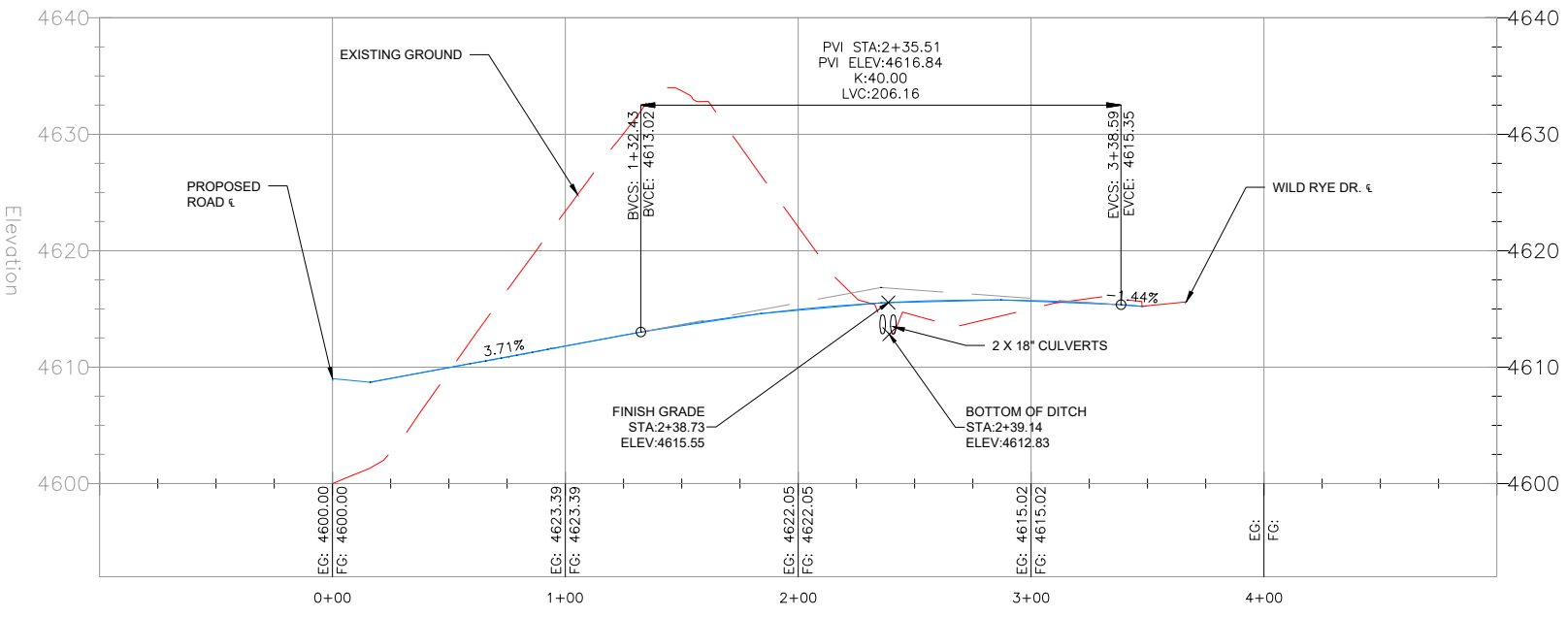
HEADWATERS PROJECT NUMBER
2025.003

DRAWING NUMBER
C3.0









Plot Date: 2/6/2025 10:01 AM
H:\2025\003\ACAD\SHEETS\PLAN & PROFILES.dwg

VERIFY SCALE
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, SUITE 6, BOZEMAN, MT 59718
HEADWATERSMT.NET 406-581-5730

DRAWN BY: NJH
DATE: 02/06/2025
REVISION DATE:
PROJECT LOCATION
LIVINGSTON
MONTANA

NORTHTOWN DEVELOPMENT
PUD

HEADWATERS PROJECT NUMBER
2025.003

PLAN & PROFILES

DRAWING NUMBER
C4.0

NORTHTOWN APARTMENTS

PLANNED UNIT DEVELOPMENT

X SEE SHEET A1.2 FOR LOCATION OF 3D VIEWS

1 OVERALL VIEW - FROM SCENIC TRAIL

2 36 UNIT RESIDENTIAL BUILDING

3 24 UNIT RESIDENTIAL BUILDING

4 COMMERCIAL / RESIDENTIAL BUILDING

JOB NO: 16-804
DATE: 03/12/2025

FAURE HALVORSEN ARCHITECTS
ARCHITECTURE · PLANNING · DEVELOPMENT · INTERIORS
1425 WEST MAIN ST. · SUITE A · BOZEMAN, MONTANA · 59715
TELEPHONE: (406) 587-1204 · EMAIL: FHA@FHARCHITECTS.COM

2025

NORTHTOWN APARTMENTS - PUD
SCENIC TRAIL
LIVINGSTON, MT

G0.1
COVER

Item A.

X SEE SHEET A1.2 FOR LOCATION OF 3D VIEWS

5 OVERALL VIEW

6 VIEW UP PROPOSED ROAD

7 VIEW FROM BALCONY DOWN PROPOSED ROAD

8 VIEW FROM PARK TO RESIDENTIAL BUILDINGS

JOB NO: 16-804
DATE: 03/12/2025

FAURE HALVORSEN ARCHITECTS
ARCHITECTURE · PLANNING · DEVELOPMENT · INTERIORS
1425 WEST MAIN ST. · SUITE A · BOZEMAN, MONTANA · 59715
TELEPHONE: (406) 587-1204 · EMAIL: FHA@FHARCHITECTS.COM

2025

NORTHTOWN APARTMENTS - PUD
SCENIC TRAIL
LIVINGSTON, MT

G2.1
3D VIEWS

Item A.

1 NORTHTOWN DEVELOPMENT - OVERALL MASTER PLAN
1" = 100'-0"

NORTH

FAURE HALVORSEN ARCHITECTS

NORTHTOWN APARTMENTS - PUD

SCENIC TRAIL
LIVINGSTON, MT

2025

A1.1
MASTER PLAN

BUILDING INFORMATION

	STORIES	FOOTPRINT SF	# OF BUILDINGS	TOTAL STUDIO	TOTAL 1-BED	TOTAL 2-BED	TOTAL # OF UNITS
*COMMERCIAL / 24 UNIT RESIDENTIAL	3	12,850	1	8	8	8	24
36 UNIT RESIDENTIAL	3	12,850	2	24	24	24	72
24 UNIT RESIDENTIAL	3	8,300	6	72	36	36	144

*COMMERCIAL LEASE SPACE ON 1ST LEVEL (12,850 SF)

PARKING

LOT #	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	LOT 6	LOT 7	LOT 8	LOT 9	LOT 10	TOTAL
# OF SPACES	50	40	40	24	24	30	30	28	28	28	328

1 NORTHTOWN APARTMENTS PUD SITE PLAN

1" = 60'-0"

NORTH

FAURE HALVORSEN ARCHITECTS
ARCHITECTURE · PLANNING · DEVELOPMENT · INTERIORS
1425 WEST MAIN ST. · SUITE A · BOZEMAN, MONTANA · 59715
TELEPHONE: (406) 587-1204 · EMAIL: FHA@FHARCHITECTS.COM

JOB NO: 16-804
DATE: 03/12/2025

2025

NORTHTOWN APARTMENTS - PUD
SCENIC TRAIL
LIVINGSTON, MT

A1.2
NORTHTOWN APARTMENTS PUD SITE PLAN

- 36 UNIT RESIDENTIAL
- COMMERCIAL / 24 UNIT RESIDENTIAL
- 24 UNIT RESIDENTIAL

1. COLORED METAL PANEL SIDING

2. GRAY AFC PANEL SIDING

3. HARDIE SELECT CEDERMILL IRON GRAY

4. 22 GAUGE SNAP SEAM METAL SIDING, COLOR REGAL WHITE

5. BLACK RAILING

1 36 UNIT RESIDENTIAL - MATERIALS

FAURE HALVORSEN ARCHITECTS
ARCHITECTURE · PLANNING · DEVELOPMENT · INTERIORS
1425 WEST MAIN ST. · SUITE A · BOZEMAN, MONTANA · 59715
TELEPHONE: (406) 587-1204 · EMAIL: FHA@FHARCHITECTS.COM

JOB NO: 16-804
DATE: 03/12/2025

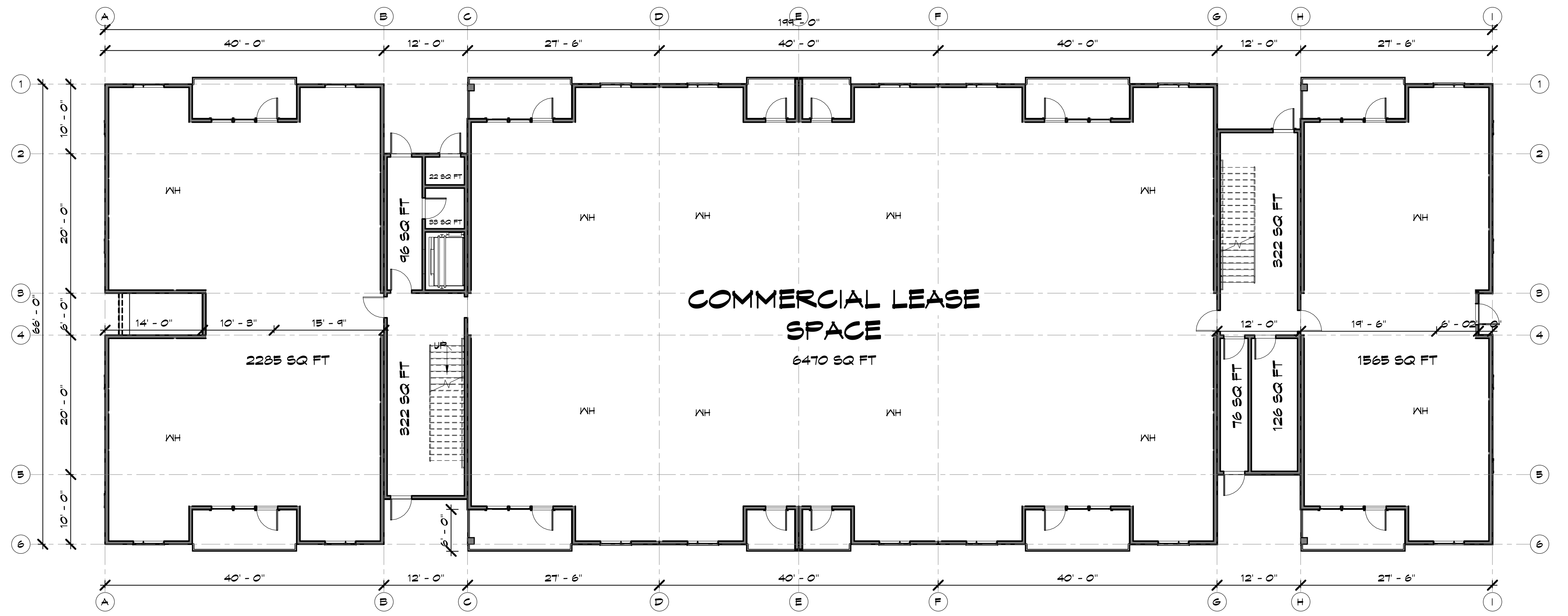
NORTHTOWN APARTMENTS - PUD
SCENIC TRAIL
LIVINGSTON, MT
2025

G2.2
MATERIAL BOARD

36 UNIT RESIDENTIAL

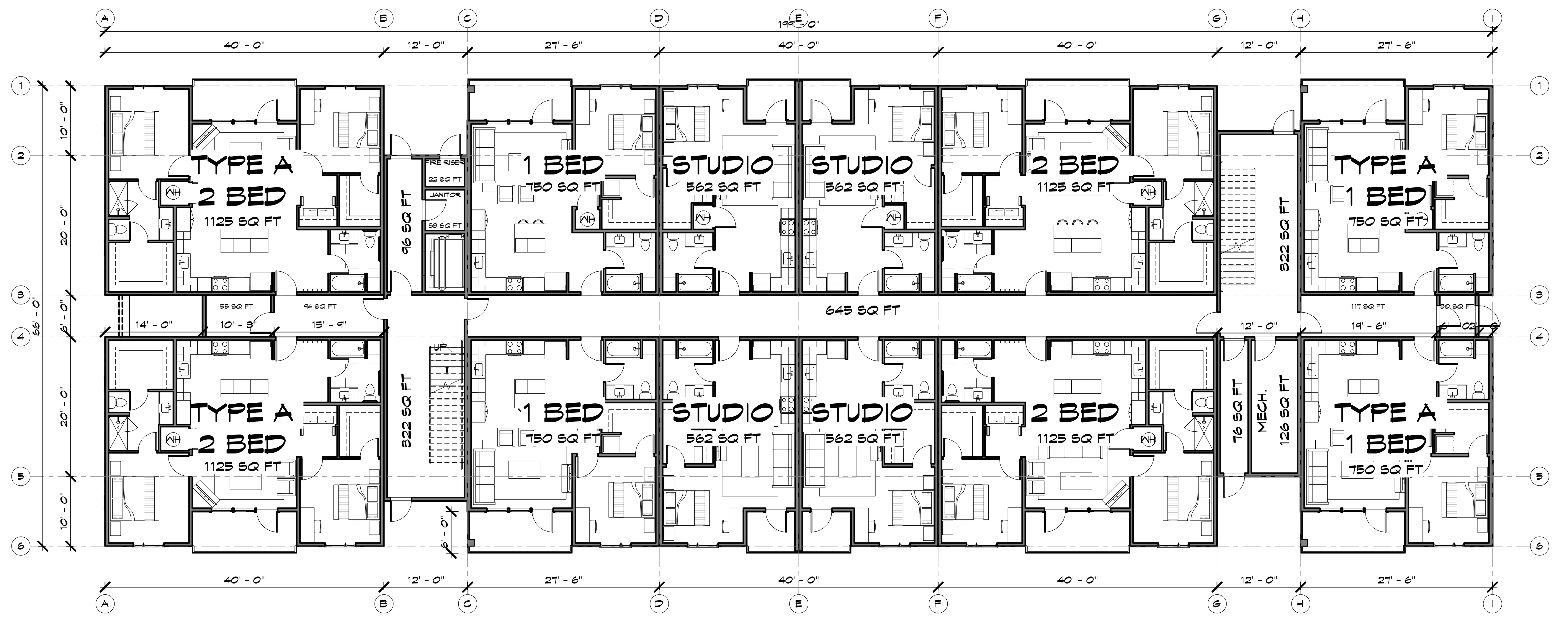
COMMERCIAL / 24 UNIT RESIDENTIAL

24 UNIT RESIDENTIAL



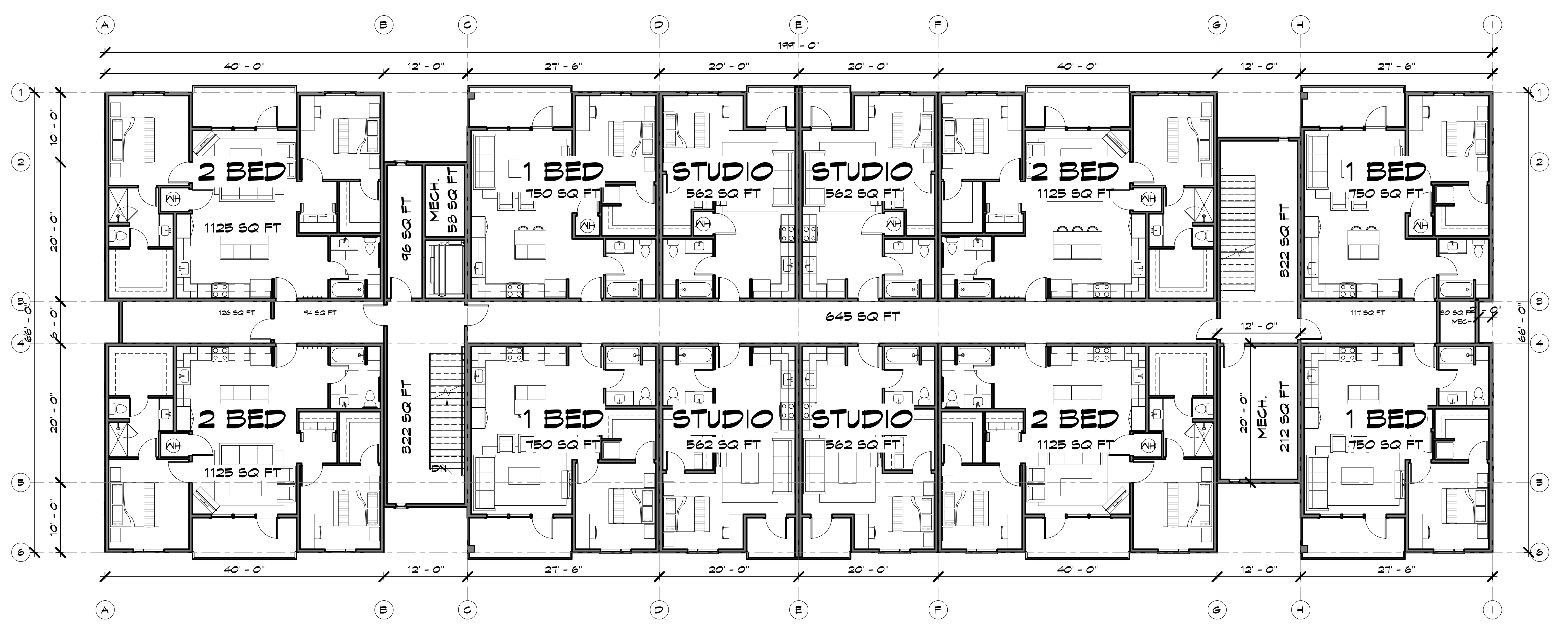
③ MAIN LEVEL FLOOR PLAN COMMERCIAL - BLDG. 1 — TOTAL SQ FOOTAGE: 12,850 SQ FT

3/32" = 1'-0"



① MAIN LEVEL FLOOR PLAN - BUILDINGS 2, 3 — TOTAL SQ FOOTAGE: 12,850 SQ FT

3/32" = 1'-0"



② SECOND & THIRD FLOOR PLAN - BUILDINGS 1, 2, 3 — TOTAL SQ FOOTAGE: 12,850 SQ FT

3/32" = 1'-0"

JOB NO: 16-804
DATE: 03/12/2025

FAURE HALVORSEN ARCHITECTS
ARCHITECTURE · PLANNING · DEVELOPMENT · INTERIORS
1425 WEST MAIN ST. · SUITE A · BOZEMAN, MONTANA · 59715
TELEPHONE: (406) 587-1204 · EMAIL: FHA@FHARCHITECTS.COM

2023

NORTHTOWN APARTMENTS - PUD

SCENIC TRAIL
LIVINGSTON, MT

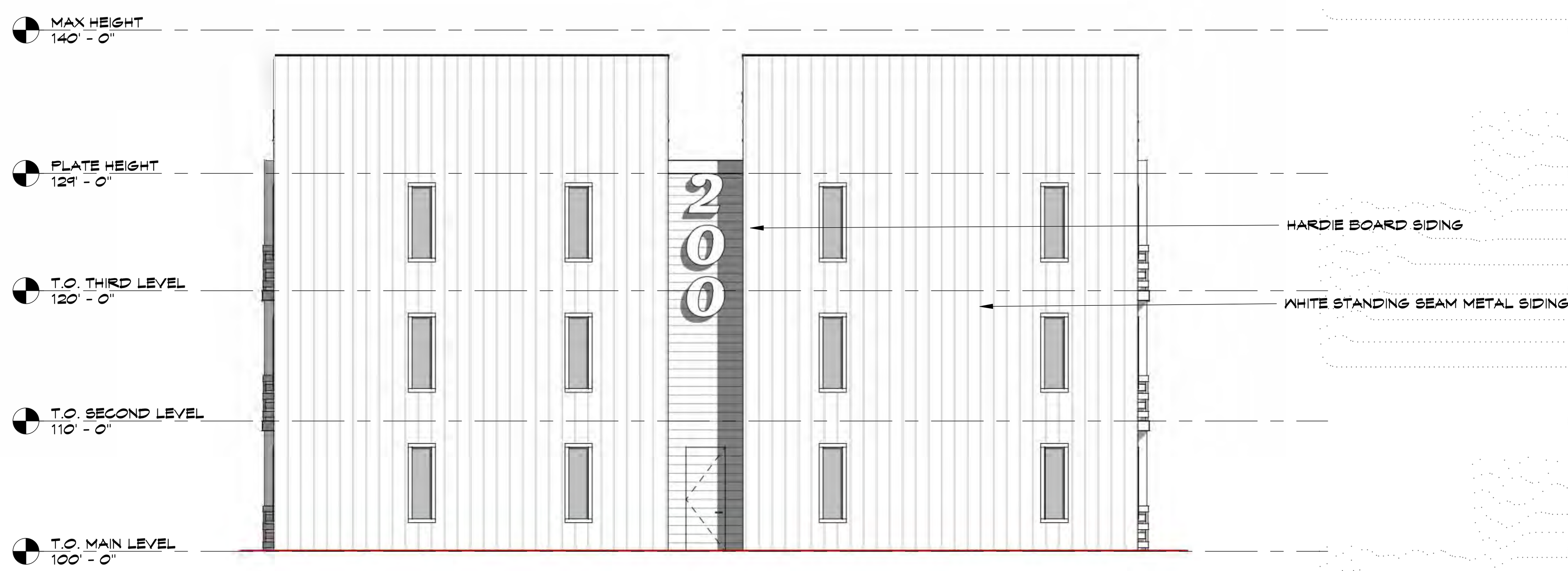
A2.1
FLOOR PLANS

36 UNIT RESIDENTIAL

COMMERCIAL / 24 UNIT RESIDENTIAL

24 UNIT RESIDENTIAL

1 ELEVATION - 36 UNIT BUILDING
1/8" = 1'-0"



2 ELEVATION - 36 UNIT BUILDING
1/8" = 1'-0"

3 ELEVATION - 36 UNIT BUILDING
1/8" = 1'-0"

4 ELEVATION - 36 UNIT BUILDING
1/8" = 1'-0"

JOB NO: 16-804
DATE: 03/12/2025

FAURE HALVORSEN ARCHITECTS
ARCHITECTURE · PLANNING · DEVELOPMENT · INTERIORS
1425 WEST MAIN ST. · SUITE A · BOZEMAN, MONTANA · 59715
TELEPHONE: (406) 587-1204 · EMAIL: FHA@FHARCHITECTS.COM

2025

NORTHTOWN APARTMENTS - PUD

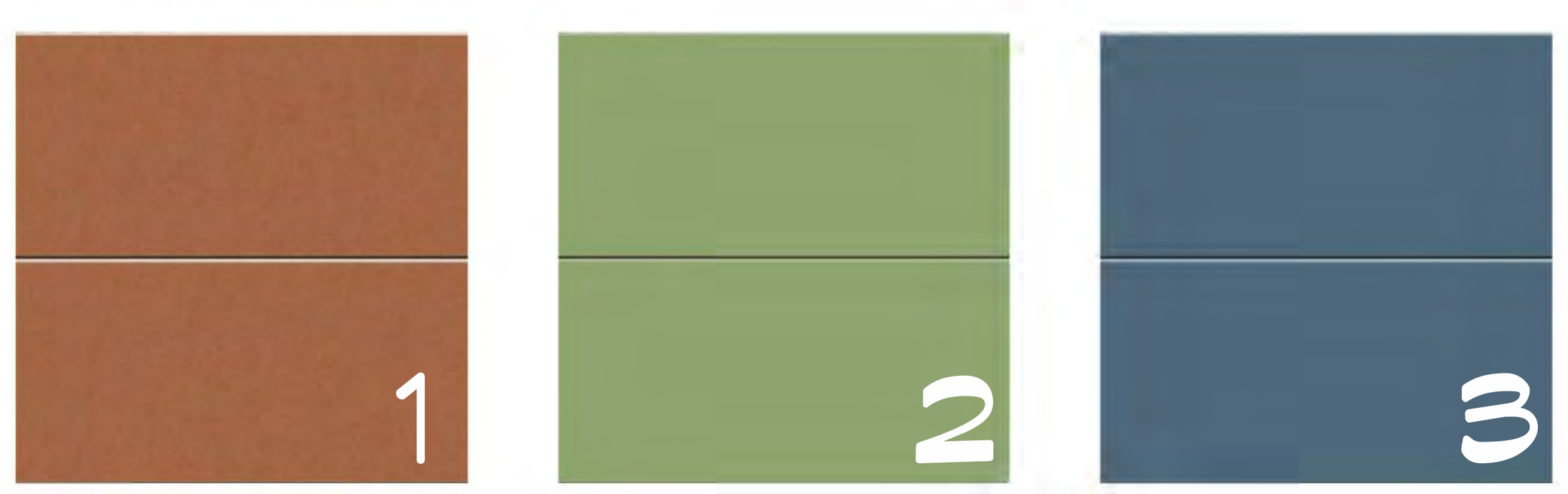
SCENIC TRAIL
LIVINGSTON, MT

A3.1
EXTERIOR BUILDING ELEVATIONS

CONCEPT

36 UNIT RESIDENTIAL

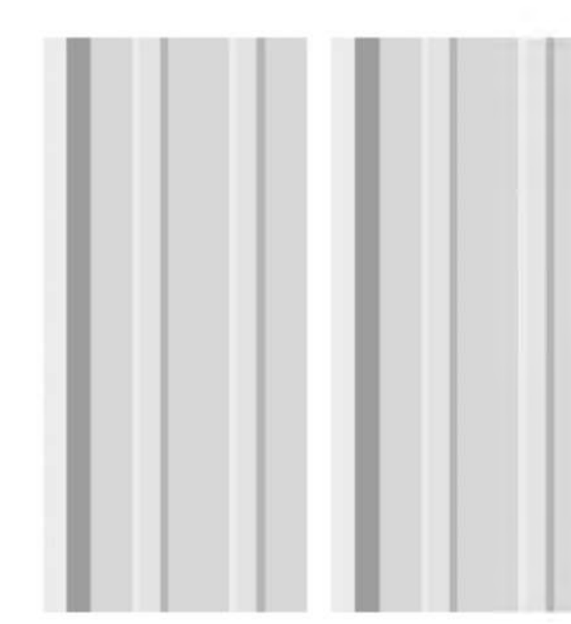
COMMERCIAL / 24 UNIT RESIDENTIAL



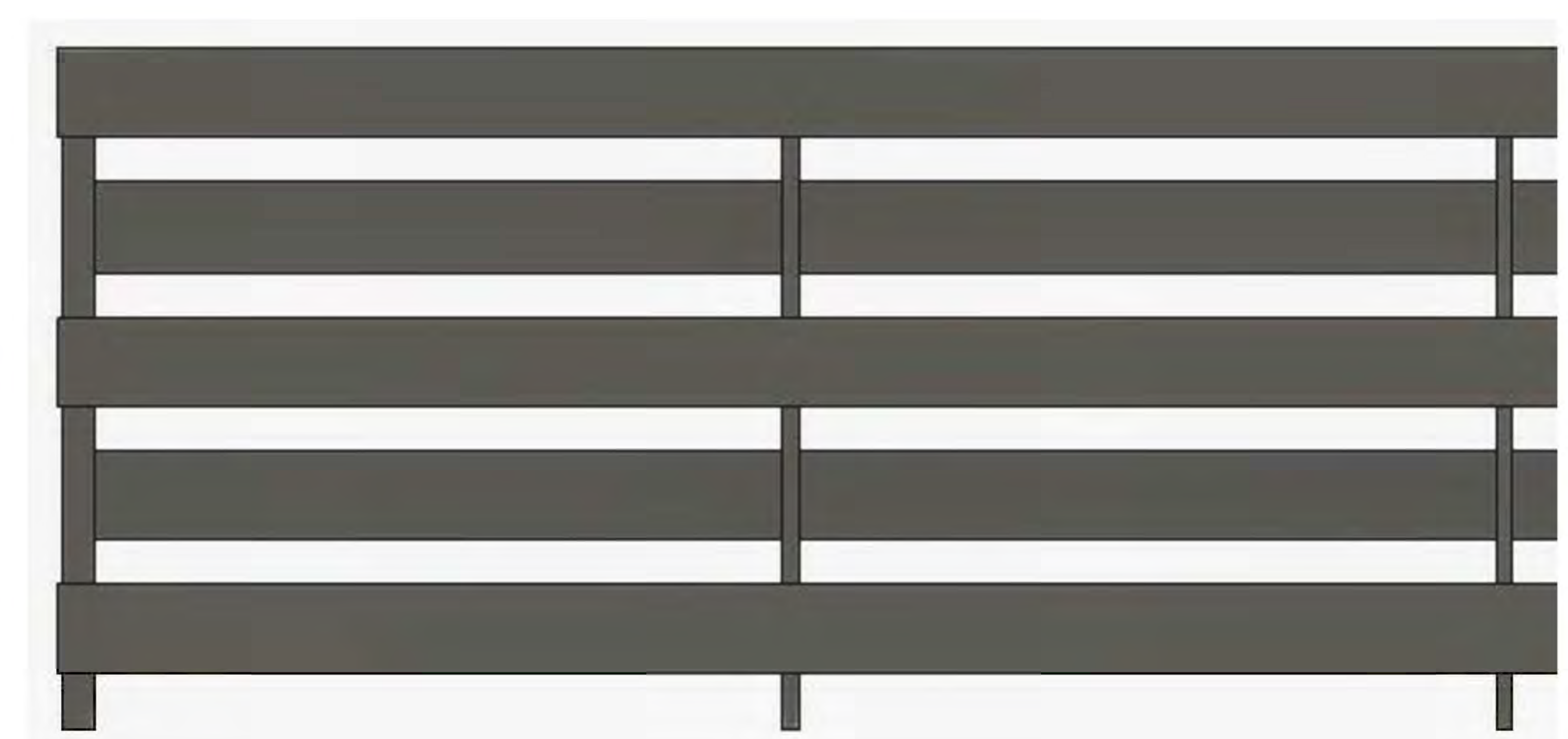
COLORED METAL PANEL SIDING

GRAY AFC PANEL SIDING

HARDIE SELECT CEDERMILL IRON GRAY



22 GAUGE SNAP SEAM METAL SIDING, COLOR REGAL WHITE



BLACK RAILING

FAURE HALVORSEN ARCHITECTS
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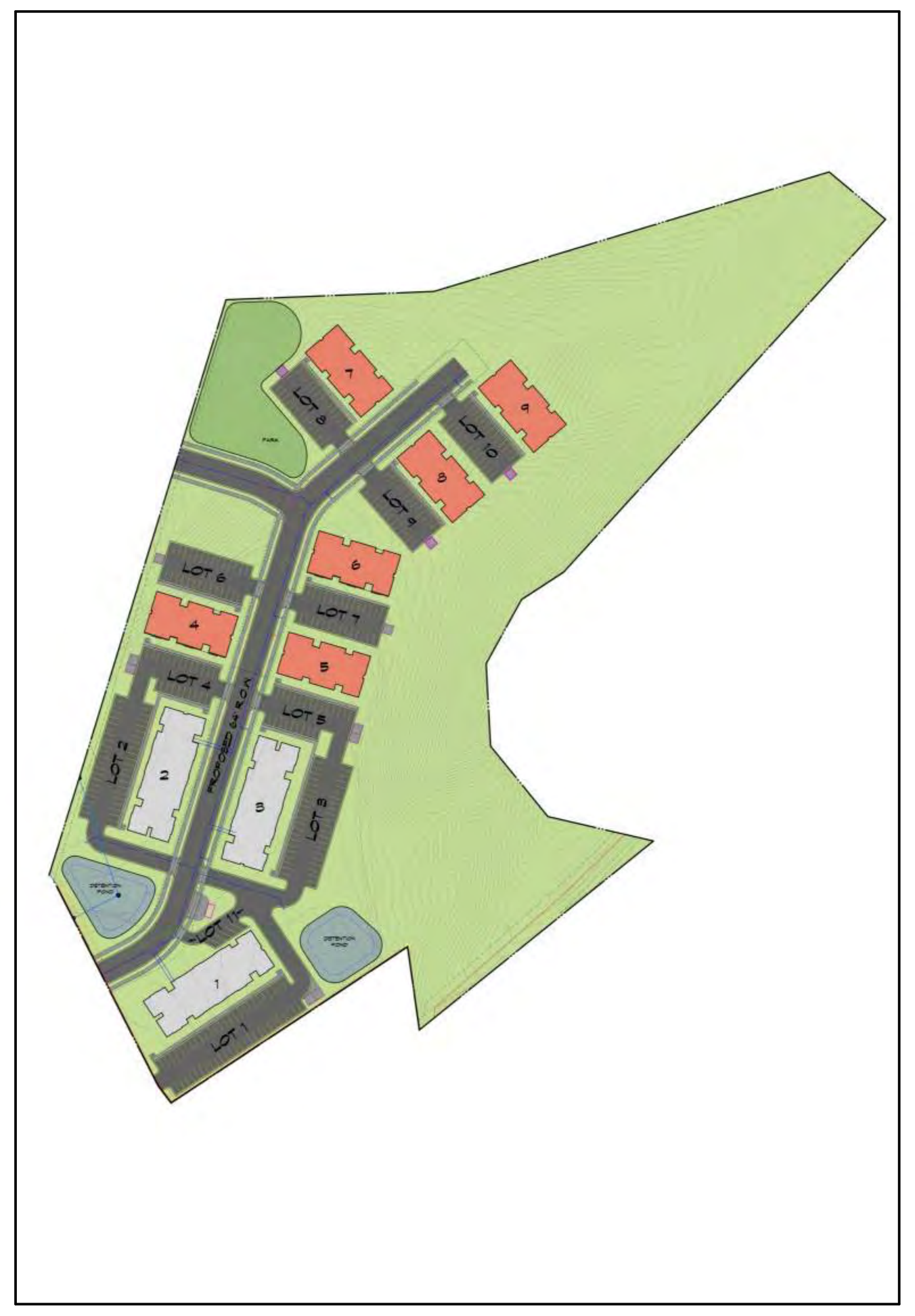
JOB NO: 16-804
DATE: 03/12/2025

2025

NORTHTOWN APARTMENTS

SCENIC TRAIL
LIVINGSTON, MT

G2.2
MATERIAL BOARD



36 UNIT RESIDENTIAL

COMMERCIAL / 24 UNIT RESIDENTIAL

1 MAIN LEVEL FLOOR PLAN
3/32" = 1'-0" 7,819 SF

2 SECOND & THIRD FLOOR PLAN
3/32" = 1'-0" 7,819 SF

3 THIRD LEVEL
3/32" = 1'-0" 7,819 SF

BUILDINGS 4,5,6,7,8,9 2 EXITS REQURIED (295.5 OCCUPANTS) 24 UNITS - FOOTPRINT: 7,819 3 STORIES: 23,457 SF, 6 1 BED, 6 2 BED, 12 STUDIO.

CONCEPT

FAURE HALVORSEN ARCHITECTS

JOB NO. 16-304
DATE 03/12/2025

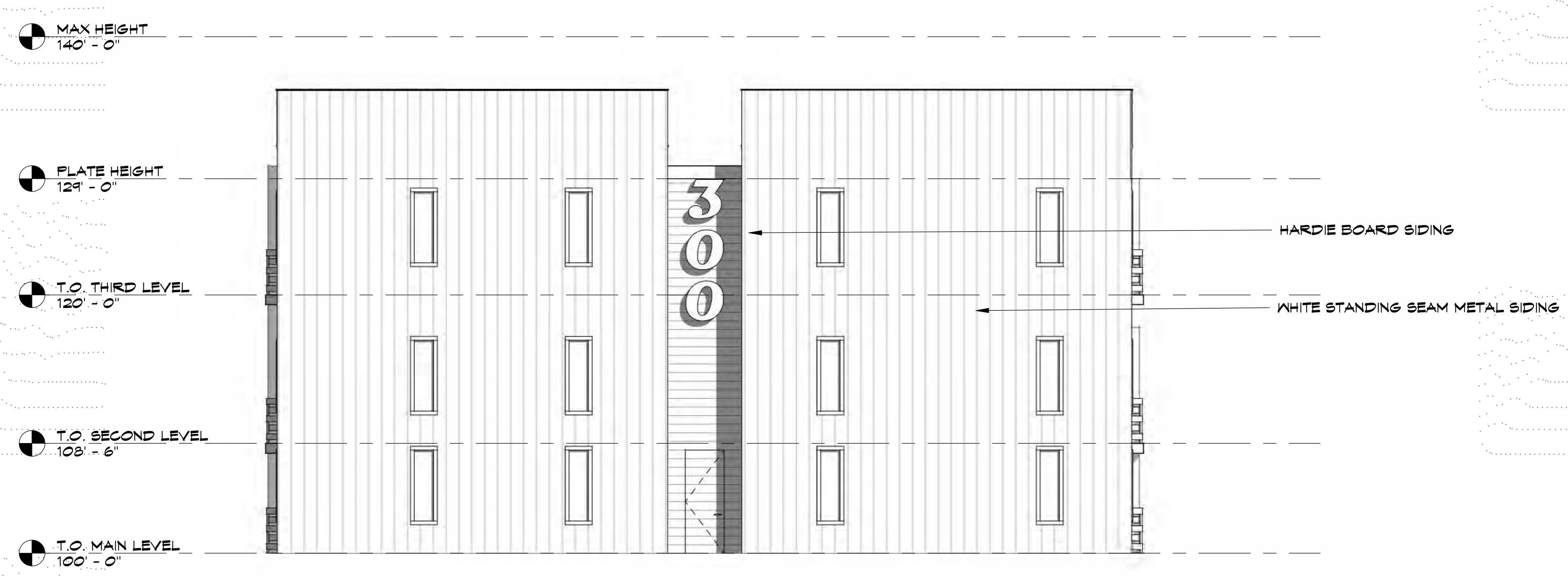
NORTHTOWN APARTMENTS

A2.1
MAIN LEVEL FLOOR PLAN

36 UNIT RESIDENTIAL

COMMERCIAL / 24 UNIT RESIDENTIAL

1 NORTH
1/8" = 1'-0"



2 EAST
1/8" = 1'-0"

3 WEST
1/8" = 1'-0"

4 SOUTH
1/8" = 1'-0"

CONCEPT

JOB NO: 16-804
DATE: 03/12/2025

FAURE HALVORSEN ARCHITECTS
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2025

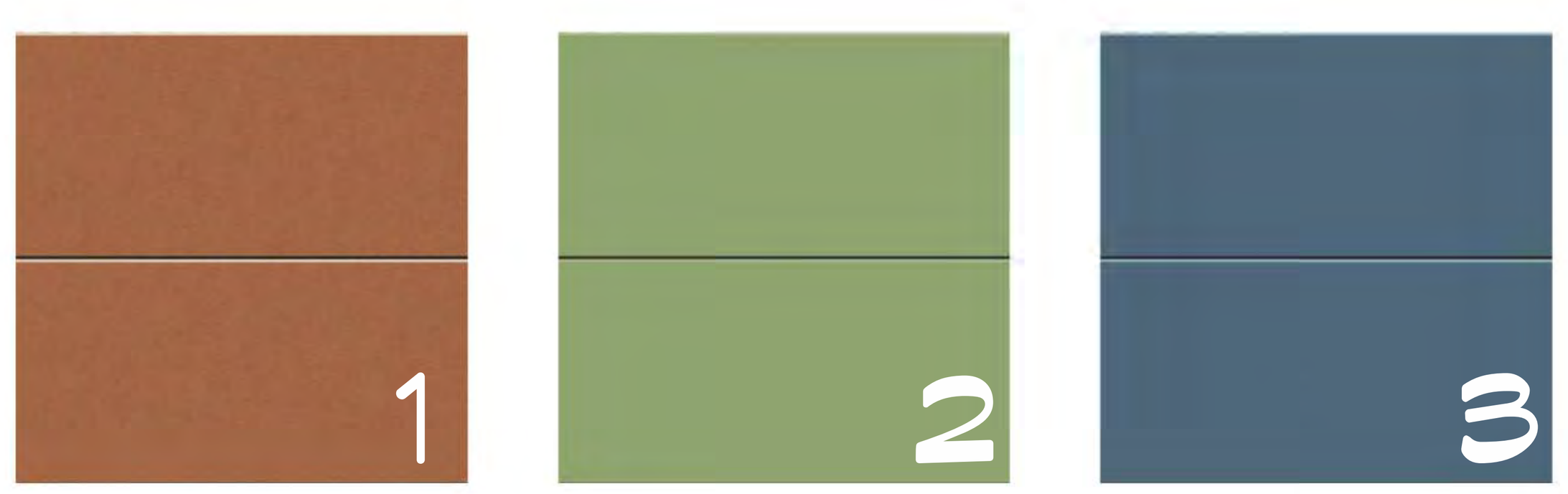
NORTHTOWN APARTMENTS

SCENIC TRAIL
LIVINGSTON, MT

A3.1
EXTERIOR BUILDING ELEVATIONS

36 UNIT RESIDENTIAL

COMMERCIAL / 24 UNIT RESIDENTIAL



COLORED METAL PANEL SIDING

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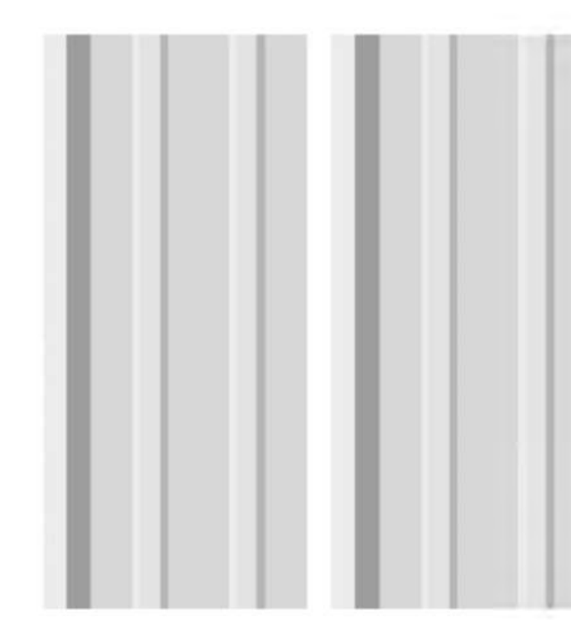

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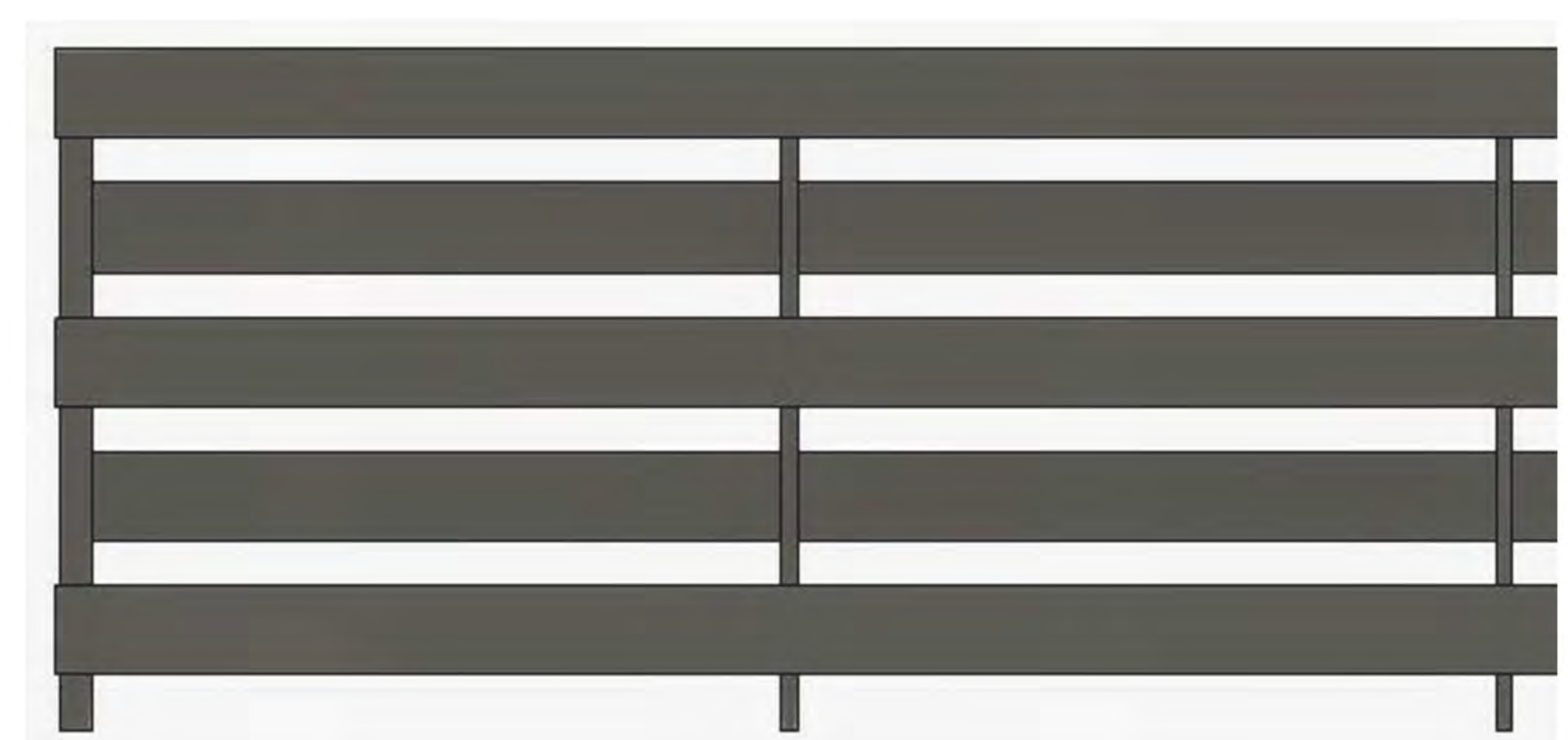

BLACK RAILING

1 24 UNIT RESIDENTIAL - MATERIALS

CONCEPT

FAURE HALVORSEN ARCHITECTS
ARCHITECTURE · PLANNING · DEVELOPMENT · INTERIORS
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JOB NO: 16-804
DATE: 03/12/2025

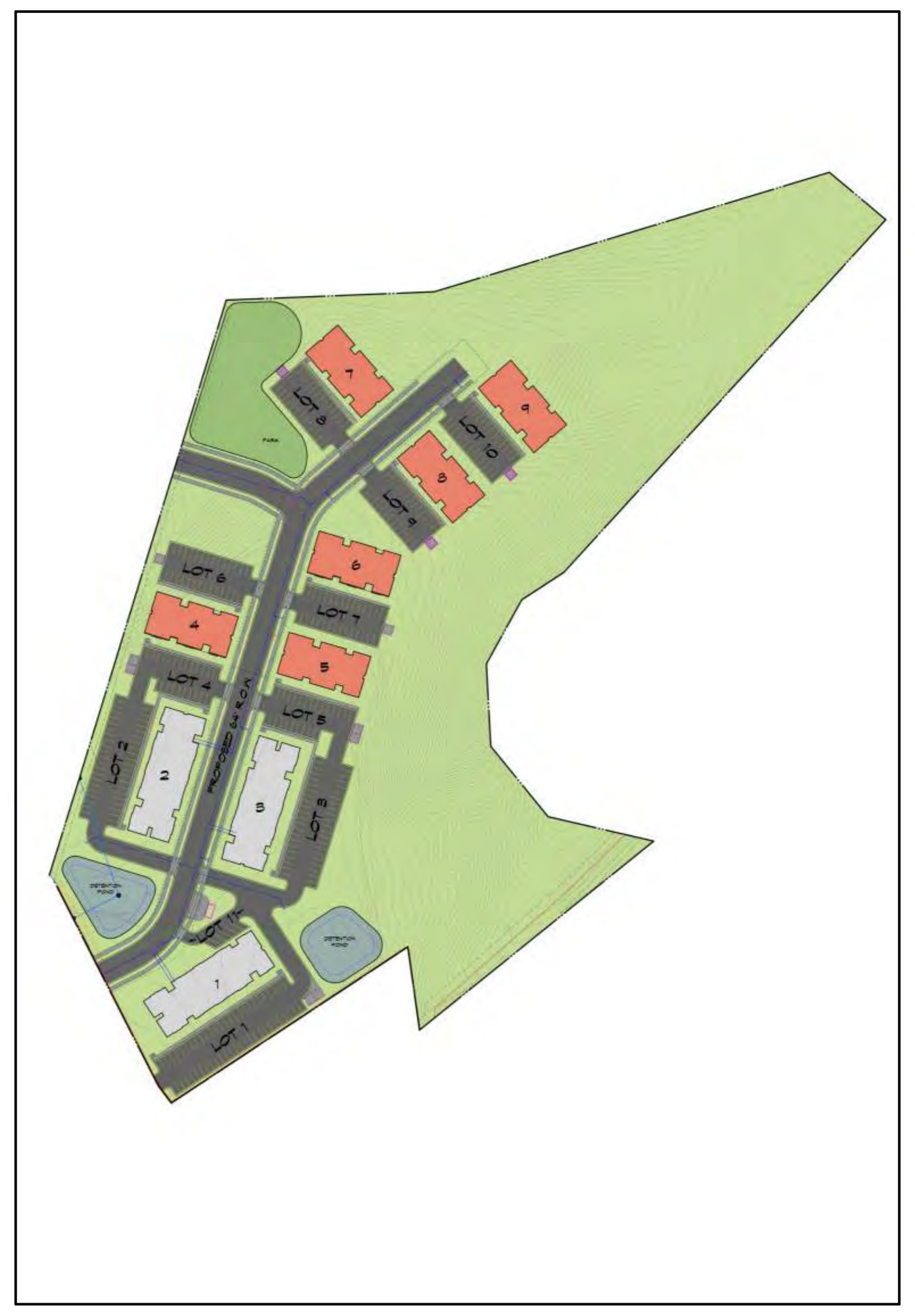
2025

NORTHTOWN APARTMENTS

SCENIC TRAIL
LIVINGSTON, MT

G2.2
MATERIAL BOARD

Item A.



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CONCEPT

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NORTHTOWN APARTMENTS

SCENIC TRAIL
LIVINGSTON, MT

A2.1
FLOOR PLANS

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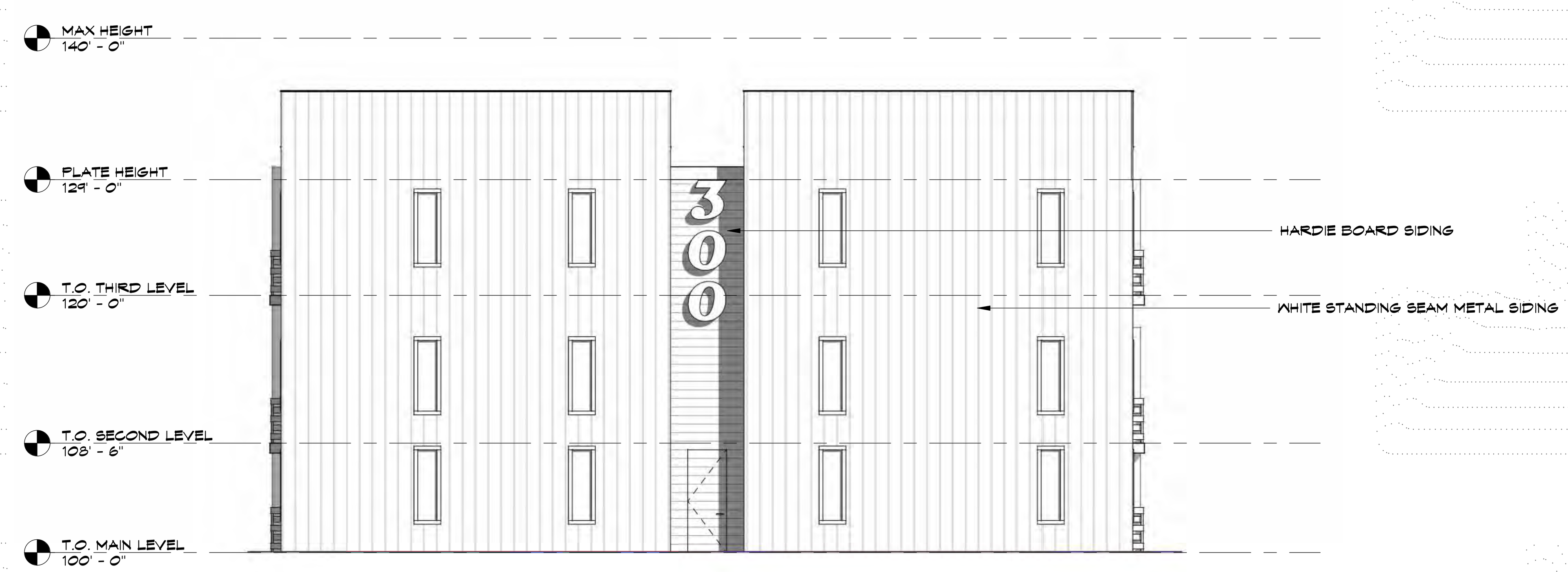

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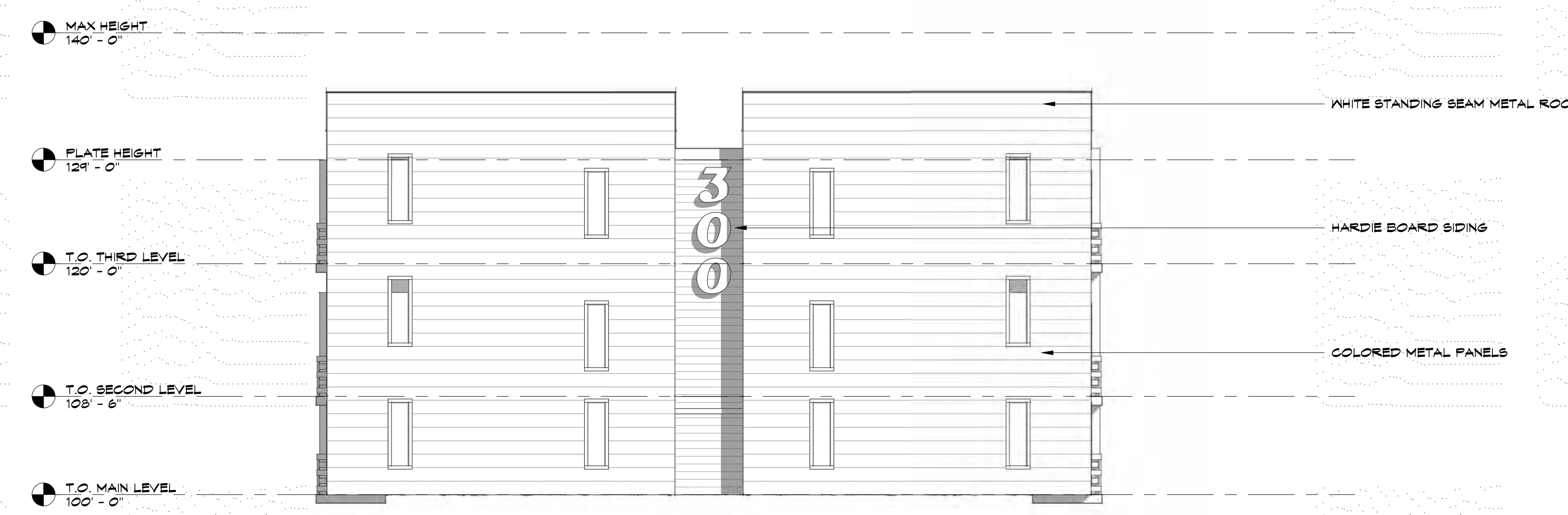

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JOB NO. 16-304
DATE 03/12/2025

FAURE HALVORSEN ARCHITECTS

2025

NORTHTOWN APARTMENTS

A3.1
EXTERIOR BUILDING ELEVATIONS

CONCEPT

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GRAY AFC PANEL SIDING

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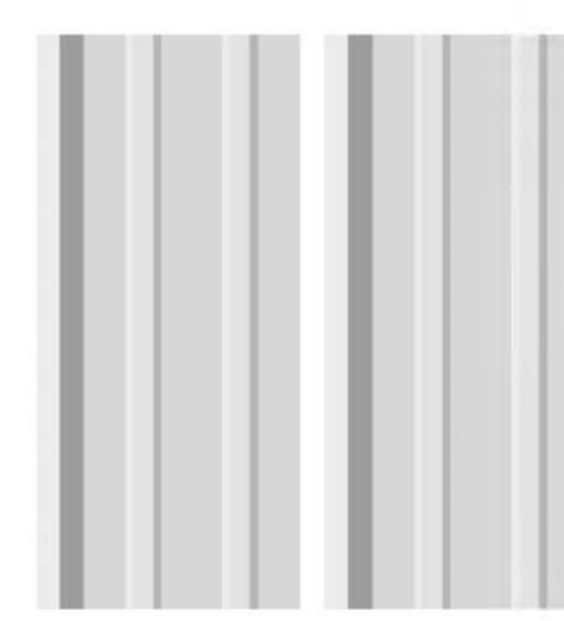

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BLACK RAILING

NORTHTOWN APARTMENTS

SCENIC TRAIL
LIVINGSTON, MT

G2.2
MATERIAL BOARD

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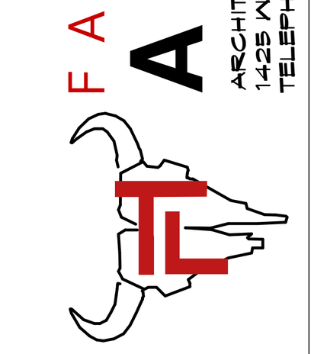
Item A.

CONCEPT

JOB NO: 16-804
DATE: 03/12/2025



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2025

NORTHTOWN APARTMENTS

SCENIC TRAIL
LIVINGSTON, MT

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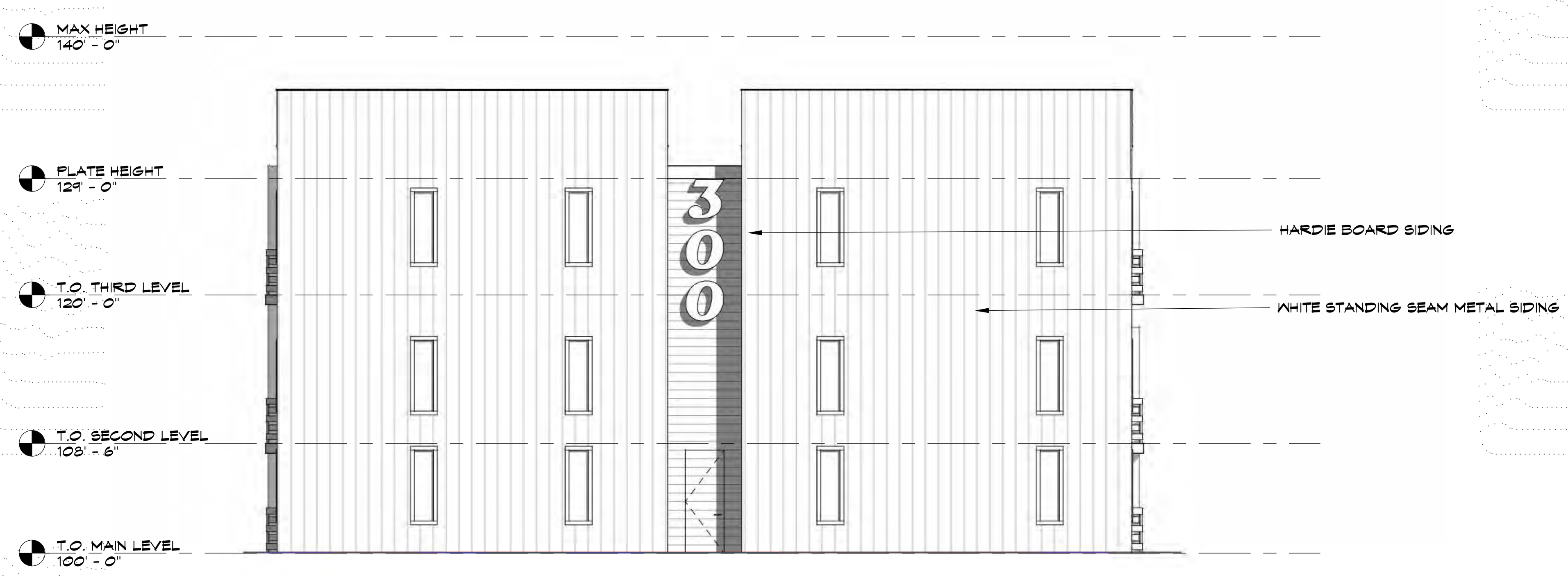

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2025

NORTHTOWN APARTMENTS

SCENIC TRAIL
LIVINGSTON, MT

A3.1
EXTERIOR BUILDING ELEVATIONS

HEADWATERS ENGINEERING

Tab E
Requested Deviation
Northtown PUD

HEADWATERS ENGINEERING

1105 REEVES ROAD WEST, SUITE 6
BOZEMAN, MT 59718
406-581-5730
www.headwatersmt.net

February 19, 2025

Jennifer Severson
City of Livingston
Department of Planning
220 E. Park St.
Livingston, MT 59047

Re: Northtown PUD– Requested Deviations

Dear Mrs. Severson,

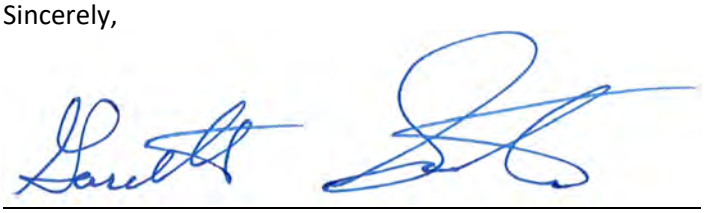
The 20-acre site is currently vacant land, zoned R-II. In order to accommodate the planned PUD, We are respectfully requesting one deviation from the R-2 zoning district regulations.

Per Table 30.41 of the City of Livingston Zoning Regulations, the maximum height for all buildings is to be 27', or 34' if the roof pitch is greater than 3:12. The owner is requesting a deviation from this requirement.

The proposed buildings are 3 levels, with a max height of 40'. This height allows the buildings to have a full 3 levels with additional dwelling units. Without this deviation, the buildings would only be able to have 2 levels, a total reduction of approximately 84 living units. Having 3 levels increases the density of the development and provides the community additional residential opportunities.

If you have any questions or comments, please contact me at 406-570-3676.

Sincerely,



Garrett Schultz P.E.
Headwaters Engineering, Inc.
www.headwatersmt.net

H:\2025\003\DOCS\PUD\E-01_Requested Deviations.docx

HEADWATERS ENGINEERING

Tab F
Project Narrative
Northtown PUD

Project Narrative

NorthTown Apartments and Planned Unit Development

Submission To: City of Livingston Planning Department
Submitted By: NorthTown Development Corp. and Headwaters Engineering Inc.
Date: March, 2025

The NorthTown Development Corp (NDC) is in the business of creating a livable community in the City of Livingston. As a significant part of that commitment, we are seeking to comply as best we can with the city's growth policy to provide an increased number of workforce housing units.

NDC is proposing a planned unit development (PUD), which will be the first of its kind in the city. The PUD complex will be thoughtfully designed, and located at the intersection of 9th Street and Scenic Trail on a 20-acre parcel of land, with 64% of the parcel remaining as undeveloped land or park space.

The PUD will include a mix of 240 studio, one bedroom and two-bedroom apartments, and additional commercial space in the building nearest Scenic Trail to include an opportunity for several first floor, mixed-use businesses, with easy access from the surrounding neighborhood.

Need

Both the City of Livingston and the Park County Housing Coalition (PCHC) recognize the need for more housing which is affordable to a greater share of the population. According to the PCHC, the city's growth policy creates the "opportunity to prioritize community values through the zoning code… (and) offers incentives for building community housing."

With regard to NorthTown, the city's acceptance and approval for accessory dwelling units (ADUs) and duplex housing within R2 Zoning will have a significant impact in the newer phases of NorthTown development, to accompany this proposal for rental housing.

The PUD is an example of the city's commitment and expanded effort to positively impact housing opportunity for current and future residents. A Planned Unit Development is designed to impact housing by applying zoning reform and flexible development standards, as recommended by the Park County Housing Action Plan (HAP). We estimate that the apartments, when complete, will be affordable to approximately 80-85% of Livingston's workforce.

See Park County Housing Action Plan: https://www.parkcountyhousing.com/documents

Project Description

- Physical Location: Intersection of N. 9th Street and Scenic Trail
- Site Area: 20 Acres Annexed and Zoned R2
- Building Description: 9 Buildings; 3 Stories High; 40' In Height
- Number of Rental Units: 240
- Unit Composition:
  104 Studio Apartments
  68 1-Bdrm Apartments
  68 2-Bdrm Apartments
  12,850 sf First Floor, Mixed Use Commercia Space in the building nearest Scenic Dr.

Development Objectives

- To create a vibrant community that fosters social interaction and inclusivity
- To incorporate sustainable practices in construction and operation
- To provide affordable housing options to the Livingston area workforce
- To provide important commercial outlets on the city's north side

Timeline

- Pre-Application Conference w/ City Staff: September, 2024
- Preliminary Public Engagement: October, 2024 – February, 2025
- Application Submittal: February, 2205
- Public Work Session: March, 2025
- Consolidated Land Use Board Public Hearing: March, 2025
- City Commission Public Hearing: April, 2025
- Est. Project Start: Summer 2025

Management and Maintenance

NorthTown Development Corp intends to own and manage the NorthTown Apartments Project, under a separate entity. This entity will provide maintenance of the grounds, landscaping,

parking lots, sidewalks, entrance drives, and buildings. This will include snow removal, lawn mowing, weed mitigation, trail maintenance, a mail facility for central mail/package delivery, central garbage collection site at each building, a leasing and management office, and building maintenance.

- Responsive Property Management Team
- On-site Maintenance Service for quick repairs
- Clear Communication and Online Portals for service requests

Open Space and Amenities

- 11.7 Acres of Undeveloped Land
- 1.02 Acres of Maintained Park for Residents (e.g. playground, picnic area; uses to be determined)
- Access to adjacent NorthTown Subdivision streets and walkways
- Mixed Use Commercial (e.g. coffee shop, shared office space, convenience shopping, etc.)
- City of Livingston Infrastructure and Services (e.g. water, sewer, street maintenance, snow removal, garbage removal, etc.)
- High Speed Internet

Landscape and Environmental Impact

- Native plants and trees to enhance appearance and biodiversity
- Compliance with local zoning and environmental regulations
- Stormwater drainage management

Traffic Mitigation, Parking & Transportation

- Use of On-site Commercial Businesses for North Side Residents
- Access to Windrider Bus Stop at Scenic Dr. & 9th Street
- Remote Worker Impact on Trip Commutes
- Shift Worker Impact on Trip Commutes
- Walkability and Bicycle Trips (8 blocks to downtown)
- Ample Parking Spaces for Residents and Visitors
- Bike Racks (1 set per building)

Public Safety

The City of Livingston Fire and Police Departments have reviewed the plan and do not note any difficulties regarding service when needed. A turnaround area is provided at the end of the proposed road for emergency services.

Community Engagement

- Notification by certified mail of property owners within 300’ of the proposed PUD
- Direct access to ownership through the northtownlivingston.com website
- Public comment at planning and zoning board meeting and at the city commission meeting

Conclusion

The NorthTown Apartments and PUD project represents an opportunity to enhance local housing options in the City of Livingston, by providing modern, affordable options for the area’s workforce, while promoting sustainable practices and community engagement. We look forward to working with the public and the City of Livingston to bring this vision to fruition.

HEADWATERS ENGINEERING

Tab G
Historical Survey Letter from Montana SHPO
Northtown PUD

Gmail

Nick Hammond <nhammond@headwatersmt.net>

Northtown PUD - Request for Comments

Murdo, Damon <dmurdo@mt.gov> Fri, Sep 6, 2024 at 3:01 PM
To: Nick Hammond <nhammond@headwatersmt.net>

Hi Nick,

I just a conducted cursory check of your 20 acre project within the area that I previously commented on in 2022. There have been no new cultural properties recorded, and no new cultural inventories. Therefore, I believe my previous letter should still suffice.

If you require a new file search to be conducted and a new letter generated for this subdivision, please upload an updated file search request form and maps to the Montana Cultural Resource Database for review.

Thanks,

Damon Murdo

Cultural Records/Data Manager

Montana Historical Society

State Historic Preservation Office

406/444-7767

dmurdo@mt.gov

mhs.mt.gov

The Montana Historical Society saves Montana's past, shares our stories, and inspires exploration, to provide meaning for today and vision for tomorrow.

MONTANA HISTORICAL SOCIETY
State Historic Preservation Office

[Quoted text hidden]

Item A.

Gmail

Garrett Schultz <gschultz@headwatersmt.net>

RE: [EXTERNAL] Northtown Development Major Subdivision

1 message

Murdo, Damon <dmurdo@mt.gov> Thu, Feb 24, 2022 at 11:04 AM
To: "whinkel@headwatersmt.net" <whinkel@headwatersmt.net>
Cc: Garrett Schultz <gschultz@headwatersmt.net>

Big Sky. Big Land. Big History.
Montana
Historical Society

February 24, 2022

Westin Hinkel

Headwaters Engineering

190 Northstar Engineering

Bozeman MT 69718

RE: NORTHTOWN SUBDIVISION – PHASE 4, PARK COUNTY. SHPO Project #: 2022022402

Dear Westin:

I have conducted a cultural resource file search for the above-cited projects located in Section 14, T2S R9E. According to our records there have been a few previously recorded sites within the designated search locale. In addition to the sites there have been a few previously conducted cultural resource inventories done in the areas. I've attached a list of the sites and reports. If you would like any further information regarding the sites or reports, you may contact me at the number listed below.

It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are within the Area of Potential Effect, and are over fifty years old, we would recommend that they be recorded, and a determination of their eligibilit

be made prior to any disturbance taking place.

As long as there will be no disturbance or alteration to structures over fifty years of age, we feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or if cultural materials be inadvertently discovered during this project, we would ask that our office be contacted, and the site investigated.

If you have any further questions or comments, you may contact me at (406) 444-7767 or by e-mail at dmurdo@mt.gov. I have attached an invoice for the file search. Thank you for consulting with us.

Sincerely,

Damon Murdo
Cultural Records Manager
State Historic Preservation Office

File: LOCAL/SUBDIVISIONS/2022

3 attachments

Reports.pdf
28K

Sites.pdf
30K

2022022402.pdf
179K

STATE HISTORIC PRESERVATION OFFICE
Montana Cultural Resource Database

CRABS Township,Range,Section Results

Report Date:2/24/2022

Township:2 S Range:9 E Section: 14

HERBORT DALE P.

4/1/1993 CULTURAL RESOURCE INVENTORY OF FOUR GRAVEL PIT RECLAMATION PROJECTS

CRABS Document Number: ZZ 5 15073 Agency Document Number:

Township:2 S Range:9 E Section: 14

GREISER T. WEBER, ET AL.

11/1/2000 RESULTS OF A CULTURAL RESOURCES INVENTORY FOR THE TOUCH AMERICA/AT & T FIBER OPTIC CABLE ROUTE BETWEEN BILLINGS AND LOOKOUT PASS IN MONTANA

CRABS Document Number: ZZ 6 23275 Agency Document Number:

Township:2 S Range:9 E Section: 14

LAHREN LARRY A.

1/1/2003 CULTURAL RESOURCE EVALUATIONS OF THE HOME EQUITY PARTNERS HOUSING PROJECT, PARK COUNTY MONTANA

CRABS Document Number: PA 6 26411 Agency Document Number:

Township:2 S Range:9 E Section: 14

THOMAS JENNIFER L .AND RENEA D. MARTINSON

7/2/2010 DOWL-HKM-LIVINGSTON: A CULTURAL RESOURCE INVENTORY OF 35.47 ACRES IN LIVINGSTON, PARK COUNTY, MONTANA

CRABS Document Number: PA 4 32131 Agency Document Number:

STATE HISTORIC PRESERVATION OFFICE
Cultural Resource Information Systems
CRIS Township, Range, Section Report

Report Date:2/24/2022

Site #	Twp	Rng	Sec	Qs	Site Type 1	Site Type 2	Time Period	Owner	NR Status
24PA0764	2S	9E	14	NE	Historic Vehicular/Foot Bridge		1930-1939	Other	Undetermined*
24PA1120	2S	9E	14		Historic Railroad		Historic More Than One Decade	Private	Eligible
24PA1357	2S	9E	14	SW	Historic Trash Dump		Historic Period	Private	Ineligible
24PA1358	2S	9E	14	SW	Historic Residence		1950-1959	Private	Ineligible
24PA1359	2S	9E	14	SW	Historic Residence		1950-1959	Private	Ineligible
24PA1360	2S	9E	14	SW	Historic Irrigation System		Historic More Than One Decade	Private	Eligible
24PA1649	2S	9E	14	SE	Historic Commercial Development		Historic Period	MDOT	Undetermined*

File Search Request Form

Contact Name:	Westin Hinkel		
Organization:	Headwaters Engineering		
Address:	190 Northstar Engineering		
City:	Bozeman		
State:	MT	**Zip Code:**	**69718**
Telephone:	**406-451-8660**		
Email:	whinkel@headwatersmt.net		

Big Sky. Big Land. Big History.
Montana Historical Society

Montana State Historic Preservation Office
1301 E. Lockey, PO Box 201202
Helena MT 59620

SEND TO:

Damon Murdo dmurdo@mt.gov (406) 444-7767

Project Name:	Northtown Subdivision - Phase 4
Project Description:	The site contains an area of existing residential lots and approximately 100 acres of undeveloped land. The purpose of the proposed subdivision is to create another 90 residential lots.

Land Use:	Residential	**County:**	**Park**
Agency Involved: (Private,FWP,BLM)	Private	**Land Ownership:**	**Private**

Project Area Location Information

Township(N/S)	Range (E/W)	Section(s)
02 S	09 E	14

File Search Fee Structure

$25 / section

Please complete this form and attach a map showing the proposed project location. Feel free to attach additional project information if available.

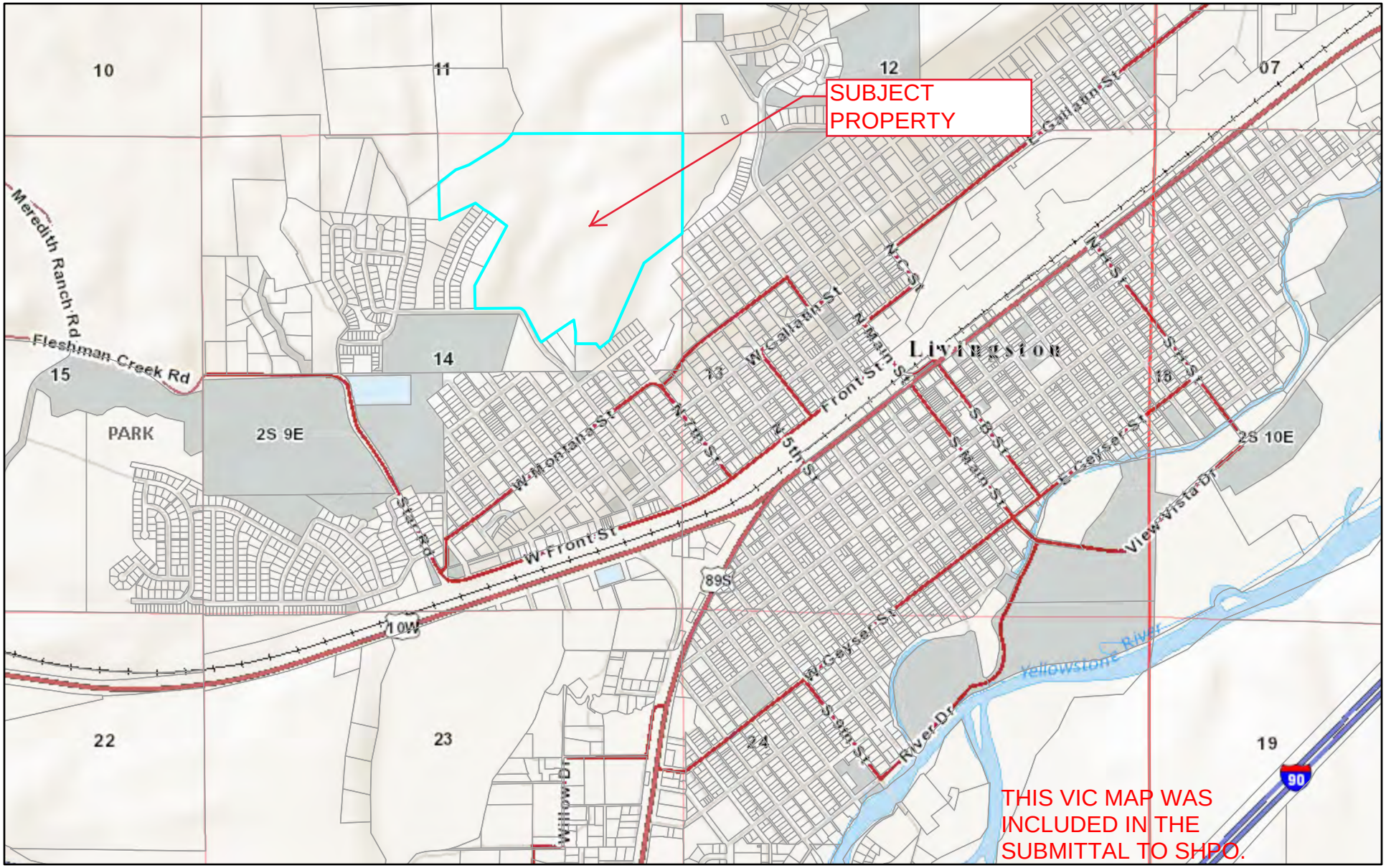
All fields must be completed in order to process your request.

All sections must be added up and entered in to the box below before a file search will take place.

An invoice will be sent with your file search results.

Total Sections to be searched:	1
Total amount to be paid to SHPO:	**$25.00**

Montana Cadastral Map



5/5/2022, 1:17:36 PM

1:26,303

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Montana State Library

CadastralWebMerc - OwnerParcel

CadastralWebMerc - PLSS Township

CadastralWebMerc - PLSS First Division

CadastralWebMerc - Counties

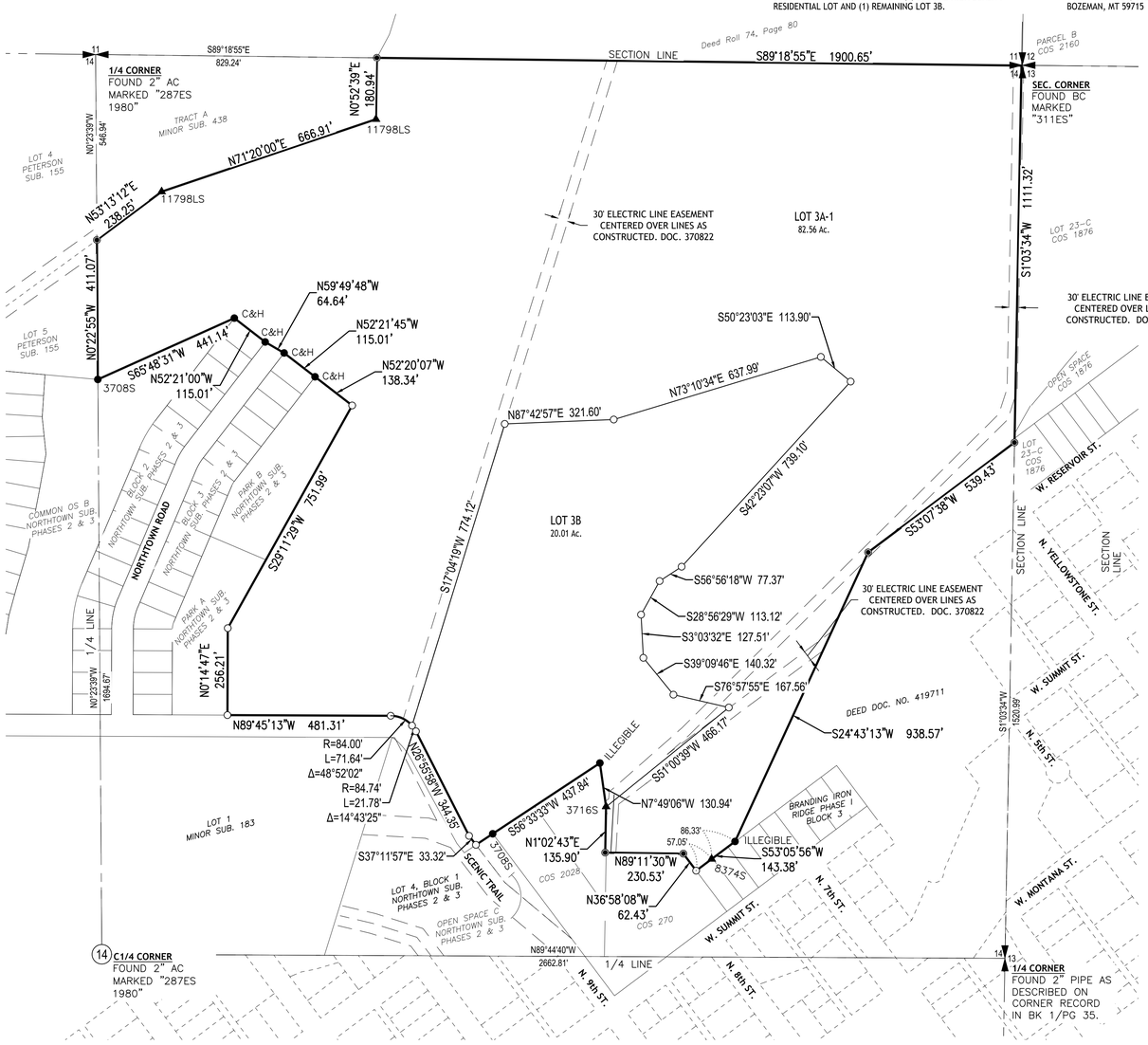
Section

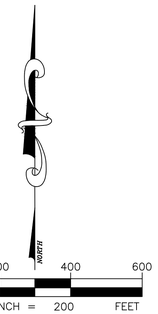
Final Plat of
MINOR SUBDIVISION NO. _____

BEING LOT 3A OF NORTHTOWN SUBDIVISION PHASES 2 & 3 IN THE NE ¼ SECTION 14, TOWNSHIP 2 SOUTH, RANGE 9 EAST, PRINCIPAL MERIDIAN, CITY OF LIVINGSTON, PARK COUNTY, MONTANA

PURPOSE: TO CREATE A 2 LOT MINOR SUBDIVISION OF THE NORTHTOWN SUBDIVISION PHASES 2 & 3 INTO A (1) 20-ACRE HIGH DENSITY RESIDENTIAL LOT AND (1) REMAINING LOT 3B.

FOR: NORTHTOWN DEVELOPMENT CORP.
1425 W. MAIN ST, STE 101
BOZEMAN, MT 59715





BASIS OF BEARING
BEARINGS SHOWN ARE MONTANA STATE PLANE GRID, DERIVED FROM GPS OBSERVATIONS WITH SURVEY-GRADE RECEIVERS AND REFERENCED TO THE MONTANA COORDINATE SYSTEM, SINGLE ZONE, NAD83-2011.

DISTANCES SHOWN ARE GROUND, INTERNATIONAL FEET.

LEGEND

- ▲ SET REBAR W/ AC MARKED "32875 LS"
- ▲ FOUND REBAR W/ AC MARKED AS NOTED
- ● SET NAIL W/ WASHER/TAG MARKED "32875 LS"
- ◉ FOUND UNMARKED REBAR, NO CAP
- ○ SET REBAR W/ YELLOW CAP MARKED "32875 LS"
- ● FOUND REBAR W/ YELLOW CAP MARKED AS NOTED
- FOUND PUBLIC LAND SURVEY SYSTEM CORNER AS NOTED

AC	ALUMINUM CAP
BC	BRASS CAP
R/W	RIGHT-OF-WAY
NS2&3	PLAT OF NORTHTOWN SUBDIVISION PHASES 2 & 3, Doc. No. 419538
OS	OPEN SPACE

- SURVEYED BOUNDARY
- SURVEYED LOT LINE
- EXISTING LOT LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- SECTION LINE
- 1/4 LINE
- R/W CENTERLINE
- TIE LINE

PREVIOUS RECORD DIMENSION NOTE
PLEASE REFER TO THE FINAL PLAT OF NORTHTOWN SUBDIVISION, PHASES 2 AND 3 FOR PREVIOUS RECORD DIMENSIONS TO SATISFY ARM 24.183.1104(1)(D)(XII).

CERTIFICATE OF CONSENT

We, the undersigned property owner, hereby certify that we have caused to be surveyed, subdivided, and platted into lots, blocks, parks, open space parcels, and other divisions of land as shown by the plat hereunto included, the following described parcel of land:

Lot 3A of Northtown Subdivision Phases 2 & 3 in the NE 1/4 Section 14, Township 2 South, Range 9 East, Principal Meridian, City of Livingston, Park County, Montana.

Said parcel of land being 102.57 acres, along with and subject to any existing easements.

The above described parcel of land shall be known and designated Minor Subdivision No._____, Park County, Montana.

WAIVER OF RIGHT TO PROTEST

We, the undersigned property owner of this subdivision, hereby waive the right to protest creation of Special Improvement Districts for all lots within this subdivision, for Special Improvement Districts for public improvements to the Livingston west-end underpass and Front Street extension projects. In doing so, we do not waive the right to comment on, protest, and/or appeal any assessment formula which may be proposed if we believe it to be inequitable. This waiver shall be binding on the heirs, assigns, and purchasers of all lots within this subdivision.

DATED this _____ day of _____, 2024.

_____
Northtown Development Corp.
William Muhlenfield, Member

STATE OF MONTANA)
)
COUNTY OF PARK)

This instrument was signed or acknowledged before me on this _____day of _____, 2024, by William Muhlenfield, Member of Northtown Development Corp.

_____
Notary Public for the State of Montana

CERTIFICATE OF EXCLUSION

We, the undersigned property owner(s), do hereby certify that all parcels are exempt from sanitary restriction review pursuant to Section 76-4-103, *MCA* as the tracts are greater than 20 acres and not defined as a subdivision.

CERTIFICATE OF CITY COMMISSION

The City Commission of Livingston, Park County, Montana, hereby certifies that this plat of Minor Subdivision No._____, has been examined and, having found the same to conform to the requirements of the Subdivision and Platting Act, Sec. 76-3-101 through 76-3-625, *MCA*, and the City of Livingston Subdivision Regulations, approves it and hereby accepts the dedication to public use of any and all lands show on this plat as being dedicated to such use.

DATED this _____ day of _____, 2024.

_____
Chairperson of the City Commission
City of Livingston, Montana

CERTIFICATE OF COUNTY TREASURER

I, Kevin J. Larkin, Treasurer of Park County, Montana, hereby certify that the accompanying plat has been examined and that all real property taxes and special assessments assessed and levied on the land to be subdivided have been paid.

DATED this _____ day of _____, 2024.

_____
Treasurer, Park County, Montana

CERTIFICATE OF CLERK AND RECORDER

STATE OF MONTANA)
)
COUNTY OF PARK)

I, Maritza H. Reddington, Clerk and Recorder of Park County, Montana, hereby certify that this instrument was filed for record this_____ day of _____, 2024, at _____o'clock, and was assigned Subdivision Plat No. _____, Records of Park County.

_____
Clerk & Recorder, Park County, Montana

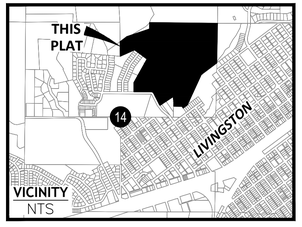
CERTIFICATE OF SURVEYOR

I, the undersigned, Ryan J. Dee, Professional Land Surveyor, do hereby certify that in _____, I surveyed Northtown Subdivision, and described the same as shown on the accompanying plat and platted in accordance with the provisions of the Montana Subdivision and Platting Act, Sections 76-3-101 through 76-3-625, M.C.A., and the Park County Subdivision Regulations.

Dated this _____ day of _____, 2024.

_____
Ryan J. Dee
Montana Registration No. 32875 LS

THIS PLAT MAP WAS INCLUDED IN THE SUBMITTAL TO SHPO.



TRUE NORTH SURVEYING, LLC

VERIFY SCALE
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, SUITE 6, BOZEMAN, MT 59718
HEADWATERSMT.NET 406-581-5730

DRAWN BY: GPS
DATE: 08/2024
REVISION DATE:_____
PROJECT LOCATION
LIVINGSTON
MONTANA

MINOR SUBDIVISON NO._____
NE 1/4 OF S14, T02 S, R09 3, LOT 3A, PMM

FINAL PLAT

HEADWATERS PROJECT NUMBER
2025.003

DRAWING NUMBER
PLAT

H:\2025\003\ACAD\SHEETS\PLAT\PLAT_PHASE 6_FINAL.dwg Plot Date: 8/28/2024 11:15 AM

HEADWATERS ENGINEERING

Tab H

Ecological Impacts & Environmental Assessment, Soil Report, Wetlands Map

Northtown PUD

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, SUITE 6
BOZEMAN, MT 59718
406-581-5730
www.headwatersmt.net

Northtown Development, Planned Unit Development – Environmental Assessment

1. **Surface Water**
    a. **Mapping –** There are no natural water systems evident on the subject property. Several natural drainage swales do exist throughout the property that may convey stormwater during extreme storm events, but no evidence of frequently recurring water on the property exists.
    b. **Description –**. The natural drainage swales on site generally drain from the up-gradient northern areas of the site, to the low-lying areas toward the south of the site.
    c. **Water Body Alteration –** No natural water bodies exist on the subject property.
    d. **Wetlands –** No wetlands were identified on the U.S. Fish and Wildlife Service National Wetlands Inventory, or during site visits in spring of 2021. A wetland study is not anticipated to be necessary.
2. **Ground Water**
    a. **Depth –** Groundwater is at 6’ or deeper as determined by an NRCS Soil Report. Headwaters Engineering observed forty preliminary test pits on site, dug to a depth of roughly 10 to 14’ on March 3rd, 2022. No groundwater, or evidence of groundwater, was observed during the evaluation.
    b. **Steps to Avoid Degradation –** No degradation is expected due to the apparent deep depth of groundwater in this area.

3. **Geology**
    a. **Geologic Hazards –** There are no known geologic hazards on the site. Existing slopes across the property range from 1 to 37 percent. There is no evidence of landslides on the subject property. The site will undergo significant grading, including excavation and embankment, to create constructible home sites. Embankments will be brought up and compacted in lifts, according to the recommendations in the geotechnical report, provided by Rawhide Engineering. There are several small rock outcroppings throughout the subject property which could produce minimal rockfall. Buildings will generally be located away from ride lines and outcroppings. The soil structure observed via test pits indicate a structurally sound composition that is not prone to subsidence.
    b. **Protective Measures -** N/A, see above
    c. **Unusual Features –** The subject property does have areas of steep terrain, and areas of shallow bedrock. Lot sites will be cut and/or filled to create constructible home sites. During excavation for test pits, the rock was able to be removed through the use of a typical excavator for this size of project. The excavation will be slower than if the in-situ material was a softer material. Steep terrain will be excavated and used for fill as required. The rock and other materials will be processed and mixed per the geotechnical report, prior to being used as fill.

HEADWATERS ENGINEERING

d. **Soils Map -** See the soil map of the project area located in the NRCS soil report. The U.S. Fish and Wildlife Service National Wetlands Inventory is included with this Environmental Assessment.
e. **Cuts & Fills -** See grading plan located in the appendix of the Stormwater Design Report in Tab D. All areas disturbed during construction will be graded, topsoiled, and seeded to revegetate the disturbances and prevent erosion.

4. **Vegetation**
   a. Major vegetation types (grassland, forest, shrub, etc.…) – The site has been used has as a grazing pasture for horses with native grasses occupying most of the property. There are no trees on the subject property.
   b. Critical plant communities (stream bank vegetation, vegetation on steep/unstable slopes, etc.…) – No critical plant communities have been identified within the subject property.
   c. Protective Measures – there are no trees on the subject property.

5. **Wildlife**
   a. **Species –** See Summary of Probable Impacts and Community Impacts located in this section's subsequent pages.
   b. **Critical Areas –** There are no "key" wildlife areas, such as big game winter range, waterfowl nesting areas, or habitat for rare or endangered species. Wetland areas were not identified on the property.
   c. **Protective Measures –** N/A, see Summary of Probable Impacts and Community Impacts.
   d. **FWP –** See FWP notification letter and FWP Response

6. **Historical Features**
   a. **Affected Areas –** There are no known historical, paleontological, archeological, or cultural sites, structures, or objects located on the property.
   b. **Protective Measures -** N/A, see above
   c. **SHPO –** See SHPO letter and SHPO Response. The SHPO response encompasses the project area, in addition to the entire 100-acre Northtown properties.

7. **Visual Impact**
   a. **Measures -** See Grading & Drainage Plan. The layout is consistent with the surrounding area. Revegetation will be consistent with the surrounding areas, and implement native vegetation patterns to visually blend with the adjacent properties. All utilities proposed for the development will be installed underground, and roadways will conform to City/County construction standards.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Park County Area, Montana

NORTHTOWN PUD

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

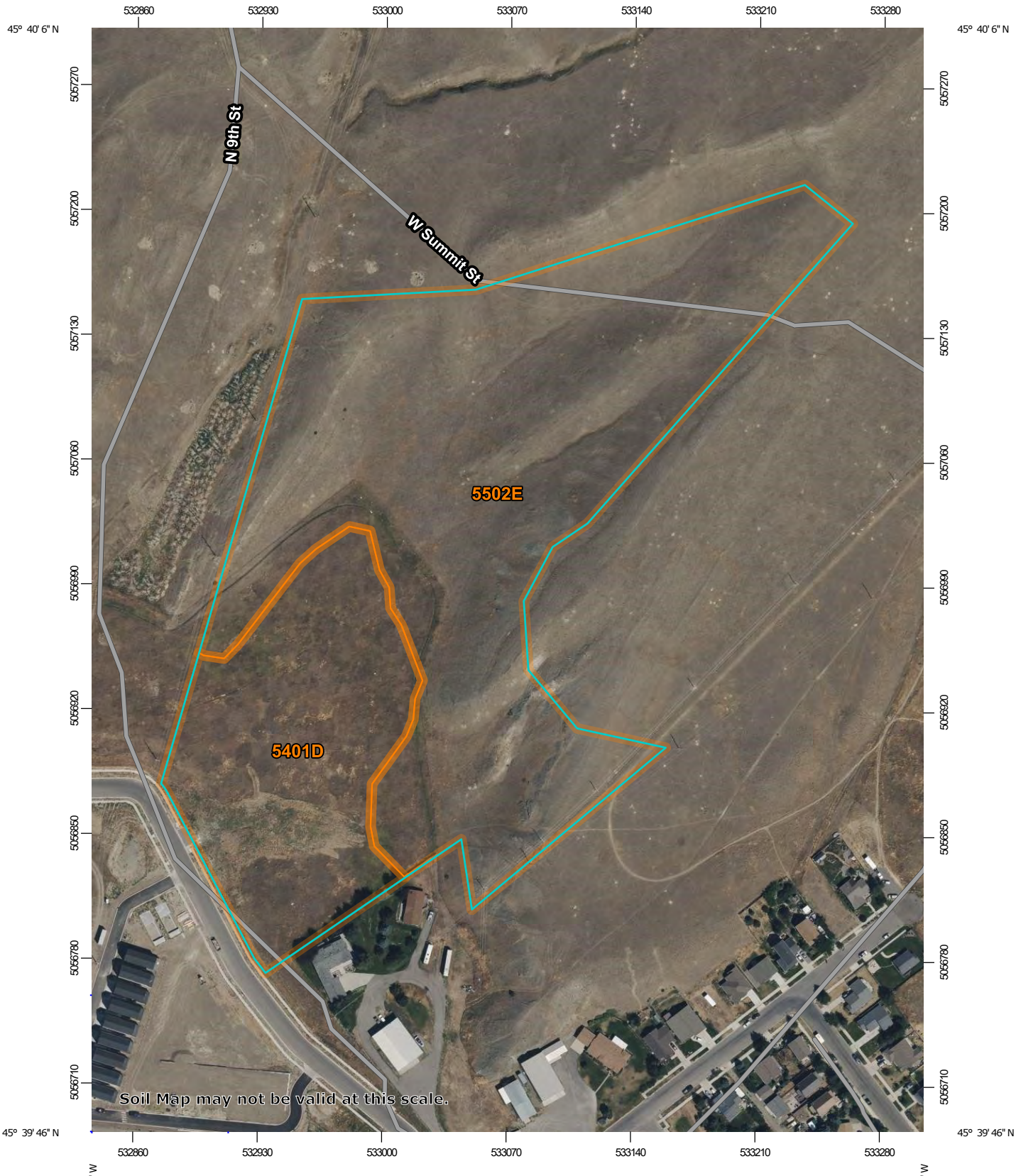
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:3,010 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Park County Area, Montana
Survey Area Data: Version 15, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 4, 2022—Aug 29, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5401D	Ethridge-Tanna-Reedpoint complex, 2 to 15 percent slopes	5.5	27.4%
5502E	Reedpoint-Tanna-Ethridge complex, 4 to 35 percent slopes	14.5	72.6%
Totals for Area of Interest		**20.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Park County Area, Montana

5401D—Ethridge-Tanna-Reedpoint complex, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: 582g
Elevation: 4,300 to 5,100 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Ethridge and similar soils: 35 percent
Tanna and similar soils: 25 percent
Reedpoint and similar soils: 15 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ethridge

Setting

Landform: Swales on hills
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 4 inches: clay loam
Bt - 4 to 17 inches: clay loam
Bk1 - 17 to 53 inches: clay loam
2Bk2 - 53 to 60 inches: gravelly loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.21 to 0.71 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R044BA001MT - Clayey (Cy) LRU 01 Subset A
Hydric soil rating: No

Description of Tanna

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

A - 0 to 8 inches: clay loam
Bt - 8 to 16 inches: clay loam
Bk - 16 to 23 inches: loam
Cr - 23 to 60 inches: bedrock

Properties and qualities

Slope: 4 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.00 to 0.28 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R044BA032MT - Loamy (Lo) LRU 01 Subset A
Hydric soil rating: No

Description of Reedpoint

Setting

Landform: Hills
Landform position (two-dimensional): Summit
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

A1 - 0 to 2 inches: very channery loam
A2 - 2 to 8 inches: extremely channery loam
R - 8 to 18 inches: bedrock

Properties and qualities

Slope: 4 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.57 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): 7s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R044BP811MT - Shallow Sagebrush Shrubland
Hydric soil rating: No

Minor Components

Cabbart

Percent of map unit: 10 percent
Landform: Scarp slopes
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R044BA132MT - Shallow Limy (SwLy) LRU 01 Subset A
Hydric soil rating: No

Yamacall

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R044BA032MT - Loamy (Lo) LRU 01 Subset A
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent

5502E—Reedpoint-Tanna-Ethridge complex, 4 to 35 percent slopes

Map Unit Setting

National map unit symbol: 580l
Elevation: 4,300 to 5,200 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Reedpoint and similar soils: 35 percent
Tanna and similar soils: 25 percent

Ethridge and similar soils: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reedpoint

Setting

Landform: Dip slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone

Typical profile

A1 - 0 to 2 inches: very channery loam
A2 - 2 to 8 inches: extremely channery loam
R - 8 to 18 inches: bedrock

Properties and qualities

Slope: 4 to 35 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R044BP811MT - Shallow Sagebrush Shrubland
Hydric soil rating: No

Description of Tanna

Setting

Landform: Swales on dip slopes
Landform position (two-dimensional): Backslope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from sandstone and shale

Typical profile

A - 0 to 2 inches: sandy clay loam
Bt - 2 to 8 inches: clay loam
Bk - 8 to 26 inches: loam
Cr - 26 to 30 inches: weathered bedrock
R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 4 to 25 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock
Drainage class: Well drained

Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.00 to 0.28 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R044BA032MT - Loamy (Lo) LRU 01 Subset A
Hydric soil rating: No

Description of Ethridge

Setting

Landform: Swales on dip slopes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium derived from sandstone and shale

Typical profile

A - 0 to 5 inches: clay loam
Bt - 5 to 21 inches: clay loam
Bk1 - 21 to 30 inches: clay loam
2Bk2 - 30 to 60 inches: gravelly loam

Properties and qualities

Slope: 4 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.21 to 0.71 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R044BA001MT - Clayey (Cy) LRU 01 Subset A
Hydric soil rating: No

Minor Components

Cabbart

Percent of map unit: 12 percent
Landform: Scarp slopes

Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R044BA132MT - Shallow Limy (SwLy) LRU 01 Subset A
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent

Bigsandy

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044BP812MT - Shallow Shrubland
Hydric soil rating: Yes

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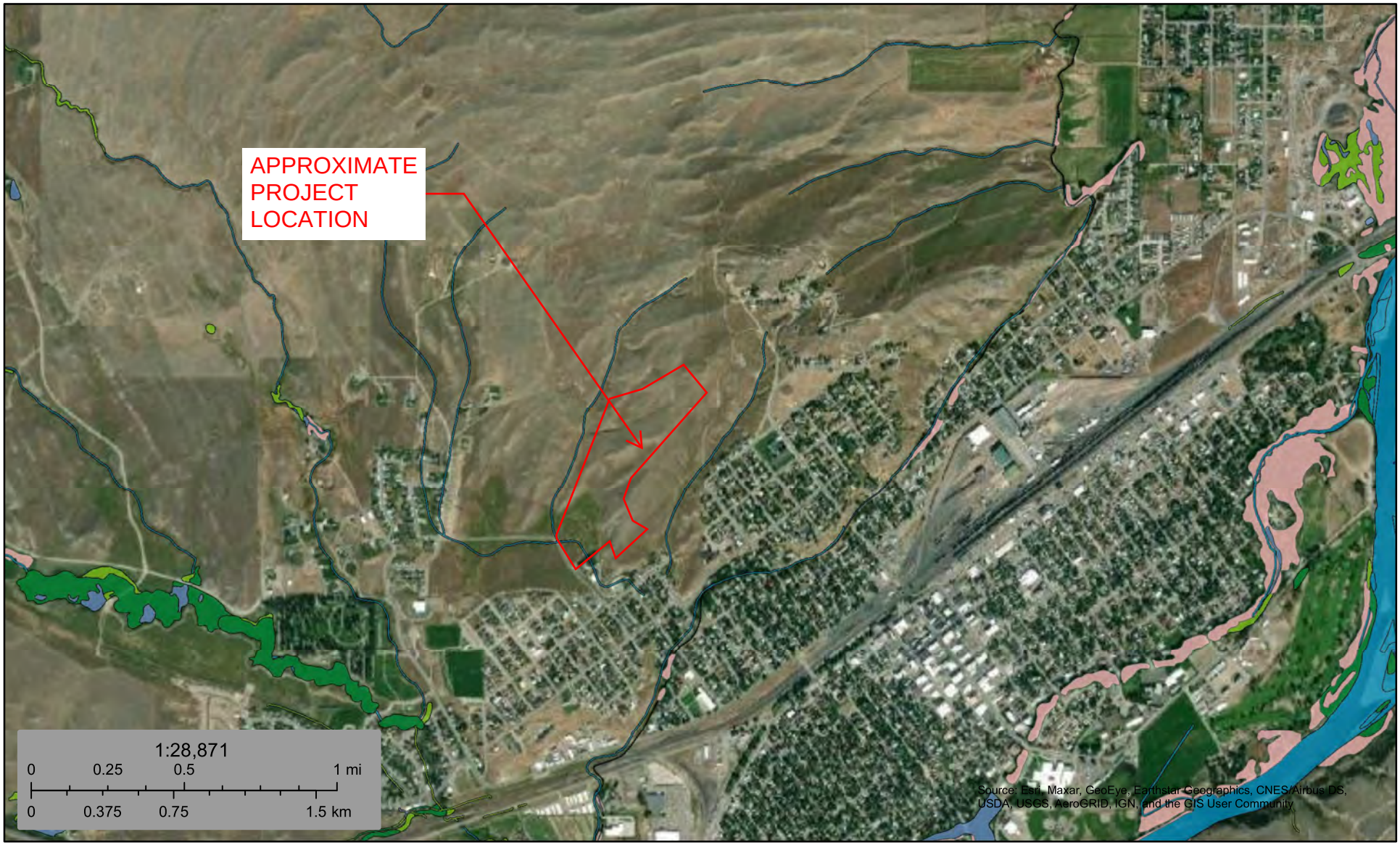
U.S. Fish and Wildlife Service
National Wetlands Inventory

Northtown Wetlands



January 26, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

HEADWATERS ENGINEERING

Tab I

Wildlife and Habitat Survey, Sage Grouse Map

Northtown PUD

HEADWATERS ENGINEERING

1105 REEVES ROAD WEST, SUITE 6
BOZEMAN, MT 59718
406-581-5730
www.headwatersmt.net

Summary of Wildlife and Wildlife Habitat

The following narrative addresses the proposed development and how it acts to mitigate potential wildlife and wildlife habitat impacts. The goals, policies, and requirements described below follow the order they are presented in the documents referred to at the beginning of each section, as they relate to the Planned Unit Development (PUD).

Summary

The general design of the proposed PUD aims to provide for connectivity for wildlife via vast open spaces that are connected on the exterior of the property and follow the existing wildlife corridors. The high-density development layout works to localize structures, while still providing open lands for wildlife to pass through unobstructed. No watercourses exist on the property; therefore, no watercourse mitigation plan is required. An ecological survey/environmental assessment is also included with the application.

Connectivity

Due to the vast amounts of connected open space within the PUD boundary, wildlife travel corridors will remain mostly unobstructed through the development. Any new fencing installed on the Open Space boundaries will be wildlife-friendly to allow for continued passage of wildlife.

Development and Housing

Setbacks and required buffers will be achieved inherently by the Open Spaces that line the exterior of the PUD. There are no wetlands on the property, so no wetland impacts occur because of the PUD.

The proposed high-density development allows for ample undeveloped open spaces and continued passageways for wildlife.

Living with Wildlife

No wildlife signage is proposed within the subdivision. The interior roads are low-speed residential routes with ample sight distances, which provides low probability of wildlife-vehicle collisions.

Closed receptacle trash storage will be required to lessen potential wildlife attractants. Bear-resistant waste bins will be encouraged to be used by residents, but not mandated at this time, unless bear interactions occur.

Wildlife-Friendly Fencing

Any new fencing will be wildlife-friendly and allow safe crossings for wildlife, as allowed by adjoining ranch operations.

Wildlife Crossings

Wildlife crossings of interior roadways have not been proposed. Due to the localized density of homes, animals are more likely to remain on the exterior of the PUD in the Open Spaces with less human and pet activity and therefore not cross interior roads.

Fish and Wildlife Recommendations for Subdivision Development in Montana (Montana FWP)

Section II. Recommendations for Subdivision Application and Review Process

A. Water Bodies – No water bodies exist on the property.
B. Big Game Winter Range – The property is not known to be an active winter range.
C. Public Hunting – Due to its proximity to other residences, structures, and public roadways, the property is not well-suited for public hunting.
D. Human/Bear Conflicts – The area is not known to be of high or potentially high risk of human/bear conflict. Enclosed trash receptacles and proper property maintenance required by the covenants will mitigate potential bear attractants and maintain a low likelihood of human/bear conflicts.
E. Native Grasslands and Native Shrub Habitats –Native grasses and shrubs will be maintained in undeveloped areas.
F. Selected Species of Concern – Each listed species of concern is addressed as follows:

Common Loon

Common Loons are not known to nest on the property. The Common Loon is known to reuse nesting areas year to year, and such activity has not been observed on the property. The Livingston area falls within the migratory distribution area for Loons in Montana, but is outside of their known breeding area in the northwest portion of the state.

Great Blue Heron

The Livingston area is within the year-round range shown in the FWP Subdivisions Guide. Herons live near most types of water, including wetlands, streams and rivers. There are no wetland areas on the subject property.

Nesting areas usually occur in the tallest trees available, centralized around riparian areas. There are no existing trees within the PUD area.

Trumpeter Swan

Optimal habitat for Trumpeter Swans does not exist on the property. Swans tend towards shallow marshes and ponds that hold consistent year-round water levels. Such areas do exist in the area, but not within the subject property boundaries.

Though the Livingston area is shown as a Trumpeter Swan year-round habitat, the majority of swans observed in the area are during winter and spring migration. Of the swans observed, the majority are Tundra Swans, which are not a species of concern.

Long-billed Curlew

Long-billed Curlew are typically found in native prairies and grasslands. These birds are not known to inhabit Park County. The FWP recommended standard for developments is to provide a vegetated buffer between Long-billed Curlew nesting areas and subdivision design features. In case a population of Long-Billed Curlew were to inhabit the area, the exterior Open Space areas within the proposed PUD will allow for such buffers and provide space for nesting opportunities.

Burrowing Owl

The FWP distribution maps suggest that Burrowing Owls frequent the Livingston area. The FWP recommended standard for developments is to provide a vegetated buffer between Burrowing Owl nesting areas and subdivision design features. The exterior Open Space areas within the proposed PUD will allow for such buffers and provide space for nesting opportunities.

Bald Eagle & Golden Eagle

Both eagles inhabit the entire state of Montana. The Bald and Golden Eagle Protection Act prohibits destruction or disturbance of Bald and Golden Eagles or their nests. No eagle nests will be disturbed as a result of this PUD.

Ferrunginous Hawk

Ferrunginous Hawks tend to nest in sagebrush and grasslands across the state. The ample Open Space areas within the proposed PUD will allow for nesting opportunities.

Peregrine Falcon

Nesting areas for the Peregrine Falcon are typically situated on ledges of vertical cliffs. No such land features exist on the property; therefore nesting area disturbances will not occur.

Greater Sage-Grouse and Sharp-tailed Grouse

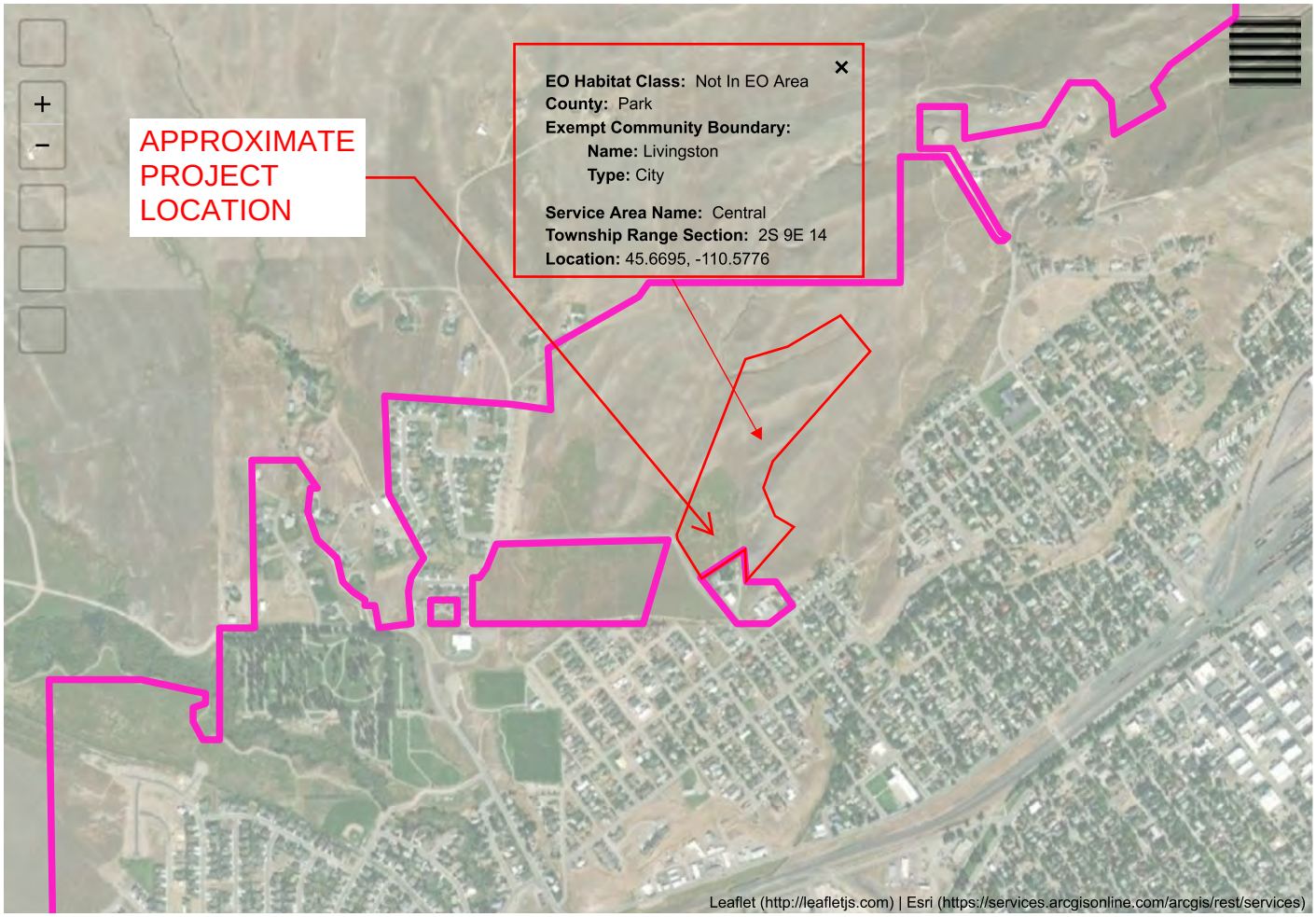
As shown on the Montana Sage Grouse Habitat Conservation Program map, the area is not within a Sage-Grouse habitat area. Similarly, Sharp-tailed Grouse inhabit similar landscapes, and these grouse are not known to occupy the property.

Photo Credit: Richard Prodgers

Montana Sage Grouse Habitat Conservation Map

Use this map to view and explore types of sage grouse habitat designated as core (blue), general (green), connectivity (light-blue) habitats or BLM priority areas. To zoom into an area, hold the Shift key and draw a rectangle. Anyone proposing new development activities in sage grouse habitat must submit a development project application (/ProposedProject/Instructions) for consultation.

If your project is close to designated sage grouse habitat or BLM Priority area, or if you are unsure your project is within designated sage grouse habitat or BLM Priority area, please submit your project for review as permitting agencies will be checking to see if your project is located within these designated sage grouse habitats. If your permitting agency requires evidence that your project is outside of designated sage grouse habitat, we recommend that you log in (/saml/login) and start a project application and take a screenshot of your project's location.



Montana Fish, Wildlife & Parks
Region 3 Headquarters
1400 S 19th Avenue
Bozeman, MT 59718

October 4, 2024

Headwaters Engineering
190 Northstar Lane
Bozeman, MT 59718

RE: Northtown PUD

Montana Fish, Wildlife & Parks (FWP) appreciates the opportunity to comment on the Northtown PUD.

The area is used by big game including pronghorn and mule deer. A variety of nongame species are present. Black bears or mountain lions may use the area occasionally. To help lessen the impact of this development to local wildlife populations, FWP offers the following general comments for you to consider during construction and development of neighborhood covenants:

1. Include requirements for bear-resistant garbage facilities. In addition to garbage, other items can attract bears, including pet food, gardens and fruit trees, birdseed (which should be discouraged from April 1st through November), barbecue grills, and compost piles (unless limited to grass, leaves, and garden clippings). To maximize human safety, these additional items should be addressed in a subdivision's covenants.
2. Property owners should be aware that feed or supplements (such as salt blocks), are attractants and are against state law (MCA 87-6-216) for public safety and wildlife health.
3. Pets should be controlled and not be allowed to roam. Under current state law it is illegal for dogs to chase hoofed game animals and the owner may be cited for their dogs' behavior (MCA 87-6-404).
4. Homeowners should understand that wildlife, particularly deer and elk, will feed on green lawns, gardens, flowers, and ornamental shrubs and trees. Homeowners should consider landscaping with native vegetation that is less likely to suffer feeding damage, and/or incorporate protection for new landscaping.

For further questions or concerns, please reach out to the following FWP personnel.

Michael Yarnall, wildlife biologist (406-224-1162, michael.yarnall@mt.gov)
Jen Smitham, R3 public comment coordinator (406-495-3262, jsmitham@mt.gov)

Thank you again for the opportunity to comment.

Sincerely,

Nathan Lance

Nathan Lance
Acting Region 3 Supervisor

HEADWATERS ENGINEERING

Tab J
Transportation Study
Northtown PUD

abelin traffic services

Northtown PUD
Traffic Impact Study UPDATE

Livingston, Montana

Prepared For:

Headwaters Engineering, Inc.
1105 Reeves Road West, Suite 6
Bozeman, MT 59718

March, 2025

130 South Howie Street
Helena, Montana 59601
406-459-1443

Northtown PUD
Traffic Impact Study UPDATE
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Northtown PUD
Residential Development
Traffic Impact Study UPDATE
Livingston, Montana

A. EXECUTIVE SUMMARY

The Northtown PUD is a 20-acre multi-use development proposed north of Scenic Trail in Livingston, Montana. Upon anticipated completion, the development would include 240 new residential units and 15,600 SF of commercial space. The development would produce up to 1,812 new daily vehicle trips in this area. As proposed, Northtown PUD will increase traffic volumes on the surrounding road network and may create the need for roadway improvements in this area. Most road segments and intersections will continue to operate at acceptable levels of service with the proposed project. However, the LOS at the intersection of 5th Street & Front Street will fall to LOS D with the proposed project and may require intersection traffic control improvement. If the developers reduce the Northtown PUD trip generation to less than 700 new daily vehicle trips (approximately 100 multi-family units or a combination of multi-family and business park), then the intersection of 5th Street & Front Street will remain within the LOS C range. Ultimately, the future west-side connection to Highway 10 will provide improved access to this portion of Livingston and will decrease traffic volumes at the intersections along 5th Street, but it is not known when these road improvements may be implemented. The west-side connection is not necessary for the development of the proposed project.

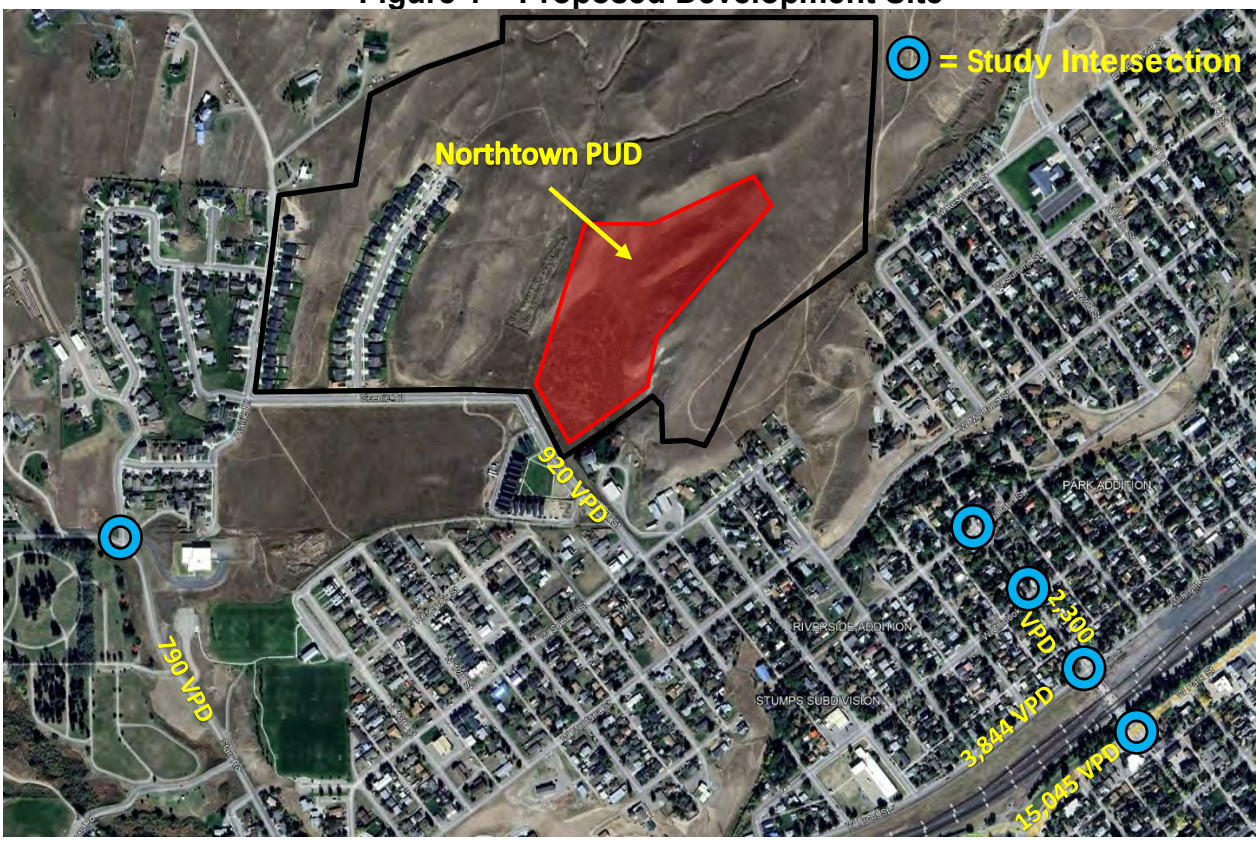
B. PROJECT DESCRIPTION

This document studies the possible effects on the surrounding road system from the proposed Northtown PUD located in the northwestern portion of Livingston, perpendicular to Scenic Trail. A total of 53 single Family units from previous phases of this development have been completed along Prairie Drive and Sweetgrass Lane on the western side of the development. Phases 4 & 5 have been platted but not yet constructed and include 88 single family units. The document provides information regarding possible traffic impacts in the area and identifies mitigation efforts that the proposed Northtown PUD would require along with the previously platted phases. The Northtown PUD would include 240 additional multi-family residential units and 15,600 square feet of neighborhood commercial space at full development.

C. EXISTING CONDITIONS

The Northtown PUD is a 20-acre multi-use development being proposed within the overall larger 100.41-acre parcel of land located in Section 14, Township 2 South, Range 9 East, located on the northern edge of Livingston. The area to the north is undeveloped, while nearby residential developments are present to the east, west, and south with parcels in various stages of build-out, including the Northtown Major Subdivision Phases 2, 3, 4A, 4B, and 5 which is partially completed. See **Figure 1** for a location map of the proposed development.

Figure 1 – Proposed Development Site



Adjacent Roadways

Scenic Trail/North 9th Street is a recently constructed local street that loops from Prairie Drive to the west to North 9th Street and serves the developing bedroom communities north of the original Livingston townsite. The road is comprised of a 40-foot cross section with curb & gutter, providing two travel lanes and on-street parallel parking. A boulevard separates the sidewalks located along both sides of the roadway. Scenic Trail is under "STOP" sign control at the intersection with Prairie Drive. Traffic data collected by ATS in June of 2022 indicates that the road currently carries 870 Vehicles Per Day (VPD).

Starr Road is an extension of West Front Street that continues in a northerly direction. It is comprised of two 11-foot travel lanes with 7-foot shoulders and narrows to 24 feet in width north of the intersection with Prairie Drive. This major collector presently serves nearby subdivisions to the west and north as well as multiple recreational parks and the cemetery. A trail/pedestrian crossing is located at the intersection with Northern Lights Road. The posted speed limit is 25 mph. Much of the adjacent roadside is open with minimal to no adjacent roadside friction. Traffic data collected by MDT in 2023 indicates that the road currently carries 790 Vehicles per Day (VPD).

Prairie Drive a local residential street routed through the Ridgeview Trails community, connecting Starr Road with Scenic Trail. The cross section is 34 feet wide with curb & gutter and on-street parking along the east side of the roadway. The posted speed limit is 25 mph. The alignment and adjacent roadside friction control the travel speeds along this short segment. Prairie Drive is "STOP" sign controlled in place at the intersection with Starr Road and also at the intersection with Scenic Trail and Wildflower Trail. Traffic data collected by ATS in June of 2022 indicates that the road currently carries 350 Vehicles per Day (VPD).

North 5th Street is a north/south major collector road. From the signalized intersection with Park Street to the intersection with Front Street, it has a 40-foot cross section with curb & gutter. At the intersection with Park Steet, the cross section provides for a northbound travel lane, a southbound dedicated right-turn lane, and a shared southbound thru-left-turn lane. Located on the north leg of the intersection is a trail/pedestrian crossing. Within the major collector segment, there are three railroad crossings controlled with an active automatic gate assembly and flashing signals. Continuing north through the intersection with Front Street, North 5th Street enters a densely developed mature residential neighborhood. Parallel parking is in use along both sides of the roadway with a boulevard providing separation between the roadway and the sidewalk network. "STOP" sign control is in place at the intersection with Chinook Street, with Chinook Street having the continuous movement. North 5th Street ends just beyond the intersection with Gallatin Street. Traffic data collected by MDT in 2023 indicates that the road currently carries 5,725 Vehicles per Day (VPD). The posted speed limit is 25 mph.

Front Street is a major collector that begins at a "STOP" sign controlled "T" intersection with North Main Street. It travels parallel to the railroad, funneling traffic from the surrounding area to the 5th Street railroad crossing and the signalized intersection with Park Street. Parallel parking is in use along the north side of the 40-foot cross section. "STOP" sign control is in place at the intersection with North 5th Street. The posted speed limit is 25 mph and the railroad property to the south is fenced. MDT traffic data collected in 2023 indicates that between the intersections with 5th Street and 6th Street, Front Street carried 3,845 VPD.

Park Street (Highway 89) is a principle arterial and part of the National Highway System. The cross section is 47 feet wide with curb & gutter and on-street parking. The parking lanes

were converted into auxiliary turn lanes to facilitate through mobility at signalized intersections. Adjacent features include a day use park area between Park Street and the railroad, and commercial development along the southeast side of the roadway. The posted speed limit is 25 mph. MDT traffic data collected in 2023 indicates that between the intersections with 5th Street and 6th Street, Park Street carried 15,045 VPD.

Traffic Counts

In June of 2022, Abelin Traffic Services (ATS) collected traffic data at area intersections to evaluate current operational characteristics. These counts included peak-hour turning movement counts and 24-hour volume counts along North 5th Street. The peak-hour turning movement counts on North 5th Street were performed at the intersections with Park Street, Front Street, Chinook Street, and Gallatin Street. Additional 24-hour volume counts were collected on Starr Road, Prairie Drive, and North 9th Street. The raw traffic data is included in **Appendix A** of this report. No additional traffic counts were collected for this update.

ATS obtained traffic data from MDT's nearest automatic continuous count site A-071 located on Interstate 90, 10-miles west of Livingston. The continuous count data indicates the traffic counts collected in June are 121% of the AADT (Average Annual Daily Traffic) in this area. For a conservative result no factorization was applied to the raw data for the analysis of this project.

Historic Traffic Data

Abelin Traffic Services obtained historic traffic data for area roadways from the Montana DOT, which is presented in **Table 1**. The traffic data history for this area indicates that overall growth rates in this area have averaged 0.9% over the past ten years. This growth rate was used to factor raw data to the projected 2026 volumes for intersection analysis upon completion of the Northtown PUD.

Area Crash Data

ATS collected crash data for the study intersections from the MDT public crash database. This system typically contains records and basic information for all reported crashes which have occurred on public roads over the past 5 years. Intersections are typically evaluated by the rate of Crashes per Million Vehicles Entering (MVE) or crashes per million vehicle miles traveled (MVMT) along a specified segment. The database only contained those crashes that occurred and were reported in 2023. ATS previously contacted MDT for clarification when the database contained only one crash identified, and it is likely that there are additional crashes not reported to the database by law enforcement.

Table 1 – Historic Average Daily Traffic Data

Location	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Park St. – bwt. 5th & 6th #34-2A-009	13,360	13,030	13,408	15,161	13,381	13,640	12,440	14,707	14,736	15,045
Park St – E. of Yellowstone St. #34-2A-010	9,940	9,360	9,998	11,440	9,846	9,797	10,266	10,721	10,742	10,968
5th St. – bwt. Park & Front #060021G	--	5,388	5,453	5,409	5,490	5,523	5,136	5,650	5,690	5,724
Front St. – bwt. 5th St. & 6th St. #34-2A-025	3,380	3,690	3,709	5,245	5,324	3,679	3,421	3,695	3,821	3,844
Front St. – bwt. 9th St. & 10th St. #34-2A-026	2,460	2,720	2,768	2,815	2,857	3,237	3,010	3,251	3,090	3,109
Starr Rd. North of Sun Ave. #34-2A-027	880	960	998	1,032	1,047	1,513	1,407	1,520	1,134	1,141
Starr Rd. North of Cemetery Rd #34-2A-028	710	700	727	507	515	518	841	908	787	792
7th St – North Of Chinook Ave #34-2A-018	3,170	2,000	1,935	3,581	3,635	2,491	2,317	2,502	2,286	2,300

There were no reported crashes on the local street network at or adjacent to the proposed development in 2023. There was one crash reported (1.05 per MVE) on North 7th Street near the intersection with West Montana Street, one midblock crash reported (0.79 per MVMT) on West Front Street and one reported (0.41 per MVE) at the intersection of West Front Street with North 5th Street. Separately, there were two crashes reported (0.26 per MVE) at the signalized intersection of North 5th Street with West Park Street and one midblock crash on West Gallatin Street between the intersections of North 5th Street and North 6th Street. The limited amount of information does not point to a deficiency or correctable condition.

Northside Transportation Plan

The subdivision is adequately served by the rail crossing on 5th Street and with a second crossing option on Bennett Street. In addition to that, the 2018 Livingston *Northside Transportation Plan* provided an analysis and recommendations for the growth and development of a new major link across the railroad tracks west of Livingston to connect with Highway 10. This future connection will increase access to the subdivision and provide alternative access during times when trains pass through the area. The project would extend

Front Street west of Starr Road, to a future connection under the railroad tracks, to a new signalized intersection with Highway 10. This connection would support growth on the west side of Livingston and would provide an alternative connection to Interstate 90 for traffic traveling to the west towards Bozeman. It is not clear when this plan may be implemented.

The Northside Transportation Plan also includes future traffic forecasts for this area and assumes that up to 550 new homes will be developed in the areas in and around the Northtown Subdivision property.

Livingston Trails & Active Transportation Plan

The *Livingston Trails & Active Transportation Plan* provides recommendations for improving the bike and trail network throughout the area and includes some of the routes near the Northtown major Subdivision. Currently, most of the newer roadways around the Northtown Subdivision have bike lanes and sidewalks, and the neighborhoods closer to the center of Livingston also have established trails. However, large segments of 7th Street and Gallatin Street do not have established pedestrian or bicycle facilities. The *Trails & Active Transportation Plan* recommends establishing new sidewalk connections along Summit Street and 7th Street to connect the existing facilities in this area.

Additional Developments

The Fjell Condominium project is currently nearing completion just west of 9th Street near the Northtown PUD development site and was not constructed when the traffic counts for this analysis were conducted in 2022. Once completed, this development will include 20 new condominium units on 4.5 acres of land. The projected traffic volumes from this project (135 VPD) were included in the future traffic volumes for this analysis.

Level of Service

To determine the operational characteristics at intersecting roadways, generally a Level of Service (LOS) analysis is conducted using peak hour operations information. This evaluation was conducted in accordance with the procedures outlined in the Transportation Research Board's *Highway Capacity Manual 7th Edition: A Guide for Multimodal Mobility Analysis* and the Highway Capacity Software (HCS) version 8.2. The intersections are graded from A to F representing the average delay that a vehicle entering an intersection can expect. Typically, a LOS of C or better is considered acceptable for peak-hour conditions.

Table 2 shows the existing 2024 LOS for the AM, and PM peak hours without the traffic from the proposed development. This analysis was performed using factored 2022 traffic volumes. The LOS calculations are included in **Appendix C**. The table shows that most of the intersections in this area are currently operating with minimal overall delay and have

considerable capacity for future growth.

Table 2 – 2024 Existing Level of Service Summary

	AM Peak Hour		PM Peak Hour	
Intersection	**Delay (Sec.)**	**LOS**	**Delay (Sec.)**	**LOS**
5th Street & Gallatin Street*	8.8/9.0	A/A	8.8/9.1	A/A
5th Street & Chinook Street*	10.9/11.7	B/B	12.9/11.4	B/B
5th Street & Front Street*	12.9/15.1	B/B	12.1/20.6	B/C
5th Street & Park Street	17.3	B	16.1	B
Prairie Drive & Starr Road*	9.7	A	10.5	B

*Eastbound/Westbound or Northbound/Southbound Side Street LOS and Delay.

D. PROPOSED DEVELOPMENT

The Northtown PUD is currently proposed north of Scenic Trail. The property to be developed is an approximate 20-acre parcel of undeveloped land located within a larger 100.41-acre semi-developed parcel. The development is planned to include one approach south onto Scenic Trail and a connection to the north into a future 46-acre phase of the existing Northtown Major Subdivision. The Northtown PUD would add 240 multi-family residential units and 12,900 SF of neighborhood commercial space; and would likely be completed by 2026. The Northtown PUD site plan is shown in **Figure 2**.

E. TRIP GENERATION AND ASSIGNMENT

ATS performed a trip generation analysis to determine the anticipated future traffic volumes from the proposed development using the trip generation rates contained in *Trip Generation* (Institute of Transportation Engineers, Eleventh Edition). These rates are the national standard and are based on the most current information available to planners. A vehicle "trip" is defined as any trip that either begins or ends at the development site. ATS determined that the critical traffic impacts on the intersections and roadways would occur during the weekday morning and evening peak hours. According to the ITE trip generation rates, at full build-out, the Northtown PUD would produce 113 AM peak hour trips, 138 PM peak hour trips, and 1,778 daily trips. The trip generation rate used for the commercial lot with the development was ITE code #770 (Business Park). This is a general trip generation rate that should account for the most likely uses of the property (professional offices, special retail, or general services). More intense commercial uses such as high turnover restaurants or banks are not likely uses of this commercial space. See **Table 3** for detailed trip generation information.

Figure 2 – Proposed Development

Table 3 - Trip Generation Rates

Land Use	Units	AM Peak Hour Trip Ends per Unit	Total AM Peak Hour Trip Ends	PM Peak Hour Trip Ends per Unit	Total PM Peak Hour Trip Ends	Weekday Trip Ends per Unit	Total Weekday Trip Ends
Phase 4 & 5 Single Family ITE #210 (previously platted)	88 Units	0.7	62 (16in/47out)	0.94	83 (52in/31out)	9.43	830
Northtown PUD Multi-Family ITE #220	240 Units	0.4	96 (22in/74out)	0.51	122 (77in/45out)	6.74	1,618
Northtown PUD Business Park ITE #770	12.9 KSF	1.35	17 (14in/3out)	1.22	16 (4in/12out)	12.44	160
Northtown PUD Total Trip Generation			**113** (36in/77out)		**138** (81in/57out)		**1,778**

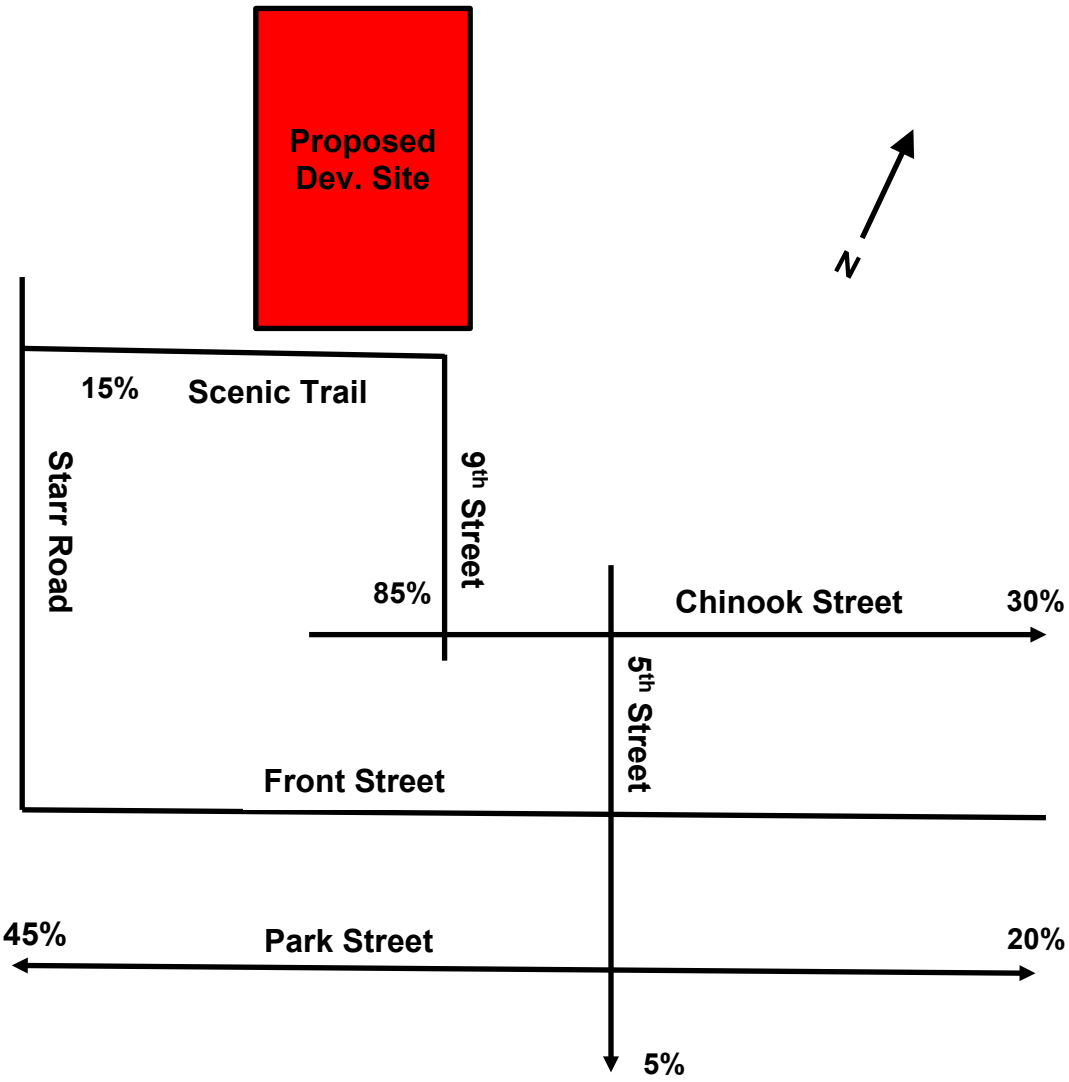
F. TRIP DISTRIBUTION

The traffic distribution and assignment for the proposed development was based upon the existing ADT volumes along the adjacent roadways and the peak-hour turning volumes. Due to the road configuration in this portion of Livingston, most traffic from the proposed development would flow towards 5th Street to cross the railroad tracks and then be distributed into the other portions of Livingston. A small amount of traffic from the development will likely proceed to the west from the project to the residential areas on the northwest side of Livingston, and then proceed into the city using Starr Road and Front Street. Traffic is expected to distribute onto the surrounding road network as shown in **Figure 3**. See the model in **Appendix B** for detailed trip distribution information.

G. TRAFFIC IMPACTS OUTSIDE OF THE DEVELOPMENT

Using the trip generation and trip distribution numbers, ATS determined the future Level of Service for the area intersections through the 2026 buildout of the project. The anticipated intersection LOS with the Northtown PUD is shown in **Table 4**. The traffic volume calculations are included in **Appendix B** of this report. As the table shows, most of the nearby intersections will be minimally affected by the additional traffic from the Northtown PUD. Traffic volume increases at the study intersections will range from 50 to 100 VPH. Overall, the current road network is sufficient to serve the additional residential units and commercial space proposed in the Northtown PUD. The LOS will decrease from LOS B to LOS C at the intersection of 5th Street & Chinook Street and will fall from LOS C to LOS D at the intersection of 5th Street & Front Street.

Figure 3 – Trip Distribution



It may be necessary to look at traffic control improvements at the intersection of 5th Street & Front Street with the Northtown PUD. The intersection is currently operating at LOS C and is projected to function at LOS D in the PM peak hours with the increased traffic from the proposed development. Special care must be taken in this instance to improve traffic control without impacting the operations of the railroad crossings just 130 feet south of this intersection. Potential options for traffic control improvements at this intersection include a four-way STOP, a traffic signal, or a roundabout. Any traffic control improvements would need to be configured to minimize northbound vehicle queues at the intersection which could conflict with the railroad

tracks. A four-way STOP control at the intersection would be the easiest solution but may not provide enough flexibility to limit northbound vehicle queues. A traffic signal could significantly improve the LOS but would need to be timed to prevent unacceptable northbound vehicle queues. It is also unclear if the intersection would have sufficient daily volume to meet warrants for the installation of a traffic signal, which would be required by MDT. A roundabout may be the most flexible option for this location, but it may be difficult to construct a roundabout due to limited right-of-way availability. As a temporary solution, it may be possible to limit vehicle queues at the intersection by creating a northbound left-turn lane to separate left-turn traffic from through traffic. This improvement would not correct the LOS issues at the intersection but could effectively mitigate many of the operational concerns at the intersection without creating queuing issues at the railroad crossing. It would be beneficial for the developers to study the operations at this intersection in detail in coordination with the City of Livingston, MDT, and the BNSF railway to determine an appropriate long-range solution for the anticipated LOS issues at this location.

Table 4 – Projected 2028 Level of Service with Development

	AM Peak Hour		PM Peak Hour	
Intersection	**Delay (Sec.)**	**LOS**	**Delay (Sec.)**	**LOS**
5th Street & Gallatin Street*	8.6/9.3	A/A	8.7/9.7	A/A
5th Street & Chinook Street*	13.2/13.6	B/B	20.1/13.0	C/B
5th Street & Front Street*	15.5/19.3	C/C	14.4/29.1	B/D
5th Street & Park Street	19.6	B	17.6	B
Prairie Drive & Starr Road*	9.9	A	10.9	B
Scenic Trail & West Approach	10.9	B	10.9	B
Scenic Trail & East Approach	11.7	B	11.9	B

*Eastbound/Westbound or Northbound/Southbound Side Street LOS and Delay.

In order to reduce the potential traffic impacts from the Northtown PUD at the intersections along Front Street, the developers requested an analysis of an interim phase which could be developed without causing the projected LOS D conditions at the intersection of 5th Street and Front Street. ATS reviewed the traffic volumes at the intersection to determine how much additional traffic could be added to the approaches without reducing the overall LOS at the intersection. Based on this review, two different operational scenarios were identified. One scenario includes only 100 new multi-family units on the site and the other scenario includes 70 new multi-family units and all 15.6 KSF of the proposed commercial business park. The projected trip generation from these two potential scenarios is shown in **Table 5**.

Table 5 - Trip Generation Rates Northtown Phased Scenarios

Land Use	Units	AM Peak Hour Trip Ends per Unit	Total AM Peak Hour Trip Ends	PM Peak Hour Trip Ends per Unit	Total PM Peak Hour Trip Ends	Weekday Trip Ends per Unit	Total Weekday Trip Ends
Northtown PUD Phased Option 1							
Multi-Family ITE #220	100 Units	0.4	40 (9in/31out)	0.51	51 (32in/19out)	6.74	674
Northtown PUD Phased Option 2							
Multi-Family ITE #220	70 Units	0.4	28 (6in/22out)	0.51	36 (23in/13out)	6.74	472
Business Park ITE #770	12.9 KSF	1.35	17 (14in/3out)	1.22	16 (4in/12out)	12.44	160
Total			**45 (20in/25out)**		**52 (27in/25out)**		**632**

Using these trip generation numbers, ATS re-evaluated the LOS for the intersection of 5th Street and Front Street for the two potential Northtown phased scenarios. The results of this analysis are shown in **Table 6**. The table indicates that either of these phase scenarios would allow this intersection to continue to function at LOS C. The critical trip generation that would likely cause the drop from LOS C to LOS D is approximately 50 peak hour vehicle trips or 670 daily vehicle trips. Any significant development at the Northtown PUD past these thresholds would cause the LOS at the intersection of 5th Street and Front Street to drop to D.

Table 6 – Projected 2026 Level of Service with Phased Options

	AM Peak Hour		PM Peak Hour	
5th Street & Front Street	**Delay (Sec.)**	**LOS**	**Delay (Sec.)**	**LOS**
Phased Option 1*	14.3/17.2	B/C	13.1/23.8	B/C
Phased Option 2*	14.2/17.3	B/C	13.4/24.7	B/C

*Eastbound/Westbound or Northbound/Southbound Side Street LOS and Delay.

If and when the new west-side crossing is developed along Front Street, it is likely that more traffic from all of the subdivisions in this area will divert to the new road link (20%-30% of residential traffic), which will increase traffic volumes along Prairie Drive and Starr Road, but would decrease traffic traveling towards the intersections along 5th Street and would correct the project LOS issues at this location. The new west-side crossing is not necessary for the development of the Northtown PUD.

H. IMPACT SUMMARY & RECOMMENDATIONS

As proposed, the Northtown PUD will increase traffic volumes on the surrounding road network and may create the need for roadway improvements in this area. Most road segments and intersections will continue to operate at acceptable levels of service with the proposed project. However, the LOS at the intersection of 5th Street & Front Street will fall to LOS D with the proposed project and may require intersection traffic control improvement. If the developers reduce the Northtown PUD trip generation to less than 700 new daily vehicle trips (approximately 100 multi-family units or a combination of multi-family and business park), then the intersection of 5th Street & Front Street will remain within the LOS C range. Ultimately, the future west-side connection to Highway 10 will provide improved access to this portion of Livingston and will decrease traffic volumes at the intersections along 5th Street, but it is not known when these road improvements may be implemented. The west-side connection is not necessary for the development of the proposed project.

APPENDIX A

Traffic Data

Turning Movement Count
All Vehicles
Location 5th & Gallatin
Date 6/28/22 and 6/29/2022

	Northbound				Southbound				Eastbound				Westbound				
	Left	Thr	Right	Peds	Left	Thr	Right	Peds	Left	Thr	Right	Peds	Left	Thr	Right	Peds	TOTAL
7:00 - 7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 - 7:30	1	0	2	0	0	1	0	0	0	0	0	0	9	1	0	0	14
7:30 - 7:45	0	0	2	0	0	1	0	0	0	1	1	1	6	0	0	0	12
7:45 - 8:00	3	1	1	0	0	0	0	0	0	1	1	1	4	0	0	0	12
8:00 - 8:15	0	2	2	0	0	0	0	0	0	0	2	0	5	0	0	0	11
8:15 - 8:30	1	0	4	0	0	0	0	0	0	0	1	0	5	0	0	0	11
8:30 - 8:45	0	1	2	0	0	2	0	0	0	0	1	0	2	0	0	0	8
8:45 - 9:00	1	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	6
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 - 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 - 1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 - 1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 - 1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 - 2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 - 2:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 - 2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 - 2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 - 3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 - 3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 - 3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 - 3:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 - 4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 - 4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 - 4:30	1	0	6	0	0	0	0	0	0	0	0	0	10	2	0	0	19
4:30 - 4:45	3	1	5	0	0	0	0	0	0	0	1	0	5	0	0	0	15
4:45 - 5:00	4	0	11	0	0	0	0	0	0	0	0	0	2	0	0	0	17
5:00 - 5:15	2	1	12	0	0	0	0	0	0	0	2	0	7	1	0	1	26
5:15 - 5:30	1	0	6	0	0	0	0	0	0	1	3	0	2	1	0	0	14
5:30 - 5:45	1	0	9	0	0	0	0	0	0	0	1	0	5	1	0	0	17
5:45 - 6:00	2	0	10	0	0	0	0	0	0	1	1	0	6	0	0	0	20
6:00 - 6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 - 6:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 - 6:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 - 7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20	6	74	0	0	4	0	0	0	4	14	2	71	6	0	1	202

Turning Movement Count
All Vehicles
Location 5th & Front
Date 6/28/22 and 6/29/2022

	Northbound				Southbound				Eastbound				Westbound				
	Left	Thr	Right	Peds	Left	Thr	Right	Peds	Left	Thr	Right	Peds	Left	Thr	Right	Peds	TOTAL
7:00 - 7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 - 7:30	12	14	5	1	1	48	0	1	0	3	26	1	2	2	0	0	116
7:30 - 7:45	20	9	2	0	0	54	2	1	1	5	50	1	2	7	0	0	154
7:45 - 8:00	11	16	7	2	1	58	1	3	1	9	43	0	3	7	0	0	162
8:00 - 8:15	18	15	6	0	0	56	0	3	0	5	38	0	0	3	2	0	146
8:15 - 8:30	16	17	5	0	2	30	2	1	0	10	30	0	2	9	1	0	125
8:30 - 8:45	20	9	5	0	4	27	1	3	0	11	24	2	5	2	0	2	115
8:45 - 9:00	13	12	4	3	6	37	0	1	1	20	22	2	1	8	1	1	132
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 - 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 - 1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 - 1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 - 1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 - 2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 - 2:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 - 2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 - 2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 - 3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 - 3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 - 3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 - 3:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 - 4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 - 4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 - 4:30	44	29	7	5	0	40	2	0	1	5	30	1	7	10	2	7	190
4:30 - 4:45	33	32	10	1	0	32	1	1	1	4	42	1	9	9	1	3	180
4:45 - 5:00	40	40	11	1	0	36	0	0	1	6	42	0	2	9	0	1	189
5:00 - 5:15	48	57	8	2	0	30	0	1	2	4	35	1	2	11	1	0	202
5:15 - 5:30	44	40	5	1	3	26	1	1	1	10	29	1	6	21	3	1	193
5:30 - 5:45	40	31	5	2	1	26	0	2	1	11	32	1	4	11	0	0	167
5:45 - 6:00	61	39	6	3	1	28	2	0	1	8	21	0	8	17	0	0	195
6:00 - 6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 - 6:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 - 6:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 - 7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	420	360	86	21	19	528	12	18	11	111	464	11	53	126	11	15	2266

Turning Movement Count
All Vehicles
Location 5th & Park
Date 6/28/22 and 6/29/2022

	Northbound				Southbound				Eastbound				Westbound				
	Left	Thr	Right	Peds	Left	Thr	Right	Peds	Left	Thr	Right	Peds	Left	Thr	Right	Peds	TOTAL
7:00 - 7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 - 7:30	6	4	0	0	14	7	53	0	24	58	2	0	2	69	1	1	241
7:30 - 7:45	7	6	2	1	30	11	62	1	23	69	2	1	1	67	4	0	287
7:45 - 8:00	7	2	1	0	30	14	57	1	26	95	1	0	1	75	3	4	317
8:00 - 8:15	8	6	1	0	18	16	58	4	31	69	0	1	1	70	3	0	286
8:15 - 8:30	8	6	2	0	6	6	47	1	27	85	0	0	1	105	6	2	302
8:30 - 8:45	11	4	3	0	6	7	37	3	21	90	4	0	0	76	4	0	266
8:45 - 9:00	8	2	1	1	12	5	38	2	24	82	1	0	3	93	2	0	274
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 - 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 - 1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 - 1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 - 1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 - 2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 - 2:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 - 2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 - 2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 - 3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 - 3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 - 3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 - 3:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 - 4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 - 4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 - 4:30	13	16	2	4	13	10	45	0	54	134	5	1	0	100	7	0	404
4:30 - 4:45	16	16	4	2	13	9	58	0	58	108	3	2	1	85	7	2	384
4:45 - 5:00	21	15	1	1	21	11	59	0	63	137	3	3	2	96	4	0	437
5:00 - 5:15	17	20	3	0	9	7	49	0	70	114	3	0	0	96	7	0	395
5:15 - 5:30	14	24	1	1	11	10	40	1	69	125	2	2	0	77	9	0	386
5:30 - 5:45	7	14	2	0	11	5	43	2	65	134	2	0	0	69	4	0	358
5:45 - 6:00	12	15	3	4	9	6	40	1	66	121	4	0	2	101	3	0	387
6:00 - 6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 - 6:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 - 6:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 - 7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	155	150	26	14	203	124	686	16	621	1421	32	10	14	1179	64	9	4724

Basic Volume Summary: 3 5TH FRONT

Grand Total For Data From: 15:00 - 06/28/2022 To: 14:59 - 06/29/2022

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #2	5	0	2	0	3	3	20	43	43	50	54	85	82	95	83	117	97	128	108	69	64	57	24	11	1243
Lane #4	8	2	2	2	23	46	88	160	137	126	95	109	116	107	90	103	119	87	73	49	50	30	19	5	1646
TOTAL	13	2	4	2	26	49	108	203	180	176	149	194	198	202	173	220	216	215	181	118	114	87	43	16	2889

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #2	0%	0%	0%	0%	0%	0%	2%	3%	3%	4%	4%	7%	7%	8%	7%	9%	8%	10%	9%	6%	5%	5%	2%	1%
Lane #4	0%	0%	0%	0%	1%	3%	5%	10%	8%	8%	6%	7%	7%	7%	5%	6%	7%	5%	4%	3%	3%	2%	1%	0%
TOTAL	0%	0%	0%	0%	1%	2%	4%	7%	6%	6%	5%	7%	7%	7%	6%	8%	7%	7%	6%	4%	4%	3%	1%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #2	5	0	2	0	3	3	20	43	43	50	54	85	82	95	83	117	97	128	108	69	64	57	24	11	1243
Lane #4	8	2	2	2	23	46	88	160	137	126	95	109	116	107	90	103	119	87	73	49	50	30	19	5	1646
TOTAL	13	2	4	2	26	49	108	203	180	176	149	194	198	202	173	220	216	215	181	118	114	87	43	16	2889

LANE #2

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	0	0	675	568	0	0	0	Weekday (Mon-Fri) :	1243	100%
# Days :	0.0	0.0	0.4	0.6	0.0	0.0	0.0	ADT :	1243	
ADT :	0	0	1800	909	0	0	0	Weekend (Sat-Sun) :	0	0%
Percent :	0%	0%	54%	46%	0%	0%	0%	ADT :	0	

LANE #4

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	0	0	535	1111	0	0	0	Weekday (Mon-Fri) :	1646	100%
# Days :	0.0	0.0	0.4	0.6	0.0	0.0	0.0	ADT :	1646	
ADT :	0	0	1427	1778	0	0	0	Weekend (Sat-Sun) :	0	0%
Percent :	0%	0%	33%	67%	0%	0%	0%	ADT :	0	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	0	0	1210	1679	0	0	0	Weekday (Mon-Fri) :	2889	100%
# Days :	0.0	0.0	0.4	0.6	0.0	0.0	0.0	ADT :	2889	
ADT :	0	0	3227	2686	0	0	0	Weekend (Sat-Sun) :	0	0%
Percent :	0%	0%	42%	58%	0%	0%	0%	ADT :	0	

Basic Volume Summary: 10 STAR RD

Grand Total For Data From: 15:00 - 06/28/2022 To: 14:59 - 06/29/2022

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #2	2	1	2	0	1	3	7	27	19	28	26	30	39	31	35	33	37	42	38	23	22	16	3	4	469
Lane #4	0	0	1	1	1	2	17	26	36	35	20	35	35	32	21	29	36	42	20	15	14	7	3	5	433
TOTAL	2	1	3	1	2	5	24	53	55	63	46	65	74	63	56	62	73	84	58	38	36	23	6	9	902

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #2	0%	0%	0%	0%	0%	1%	1%	6%	4%	6%	6%	6%	8%	7%	7%	7%	8%	9%	8%	5%	5%	3%	1%	1%
Lane #4	0%	0%	0%	0%	0%	0%	4%	6%	8%	8%	5%	8%	8%	7%	5%	7%	8%	10%	5%	3%	3%	2%	1%	1%
TOTAL	0%	0%	0%	0%	0%	1%	3%	6%	6%	7%	5%	7%	8%	7%	6%	7%	8%	9%	6%	4%	4%	3%	1%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #2	2	1	2	0	1	3	7	27	19	28	26	30	39	31	35	33	37	42	38	23	22	16	3	4	469
Lane #4	0	0	1	1	1	2	17	26	36	35	20	35	35	32	21	29	36	42	20	15	14	7	3	5	433
TOTAL	2	1	3	1	2	5	24	53	55	63	46	65	74	63	56	62	73	84	58	38	36	23	6	9	902

LANE #2

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	0	0	218	251	0	0	0	Weekday (Mon-Fri) :	469	100%
# Days :	0.0	0.0	0.4	0.6	0.0	0.0	0.0	ADT :	469	
ADT :	0	0	581	402	0	0	0	Weekend (Sat-Sun) :	0	0%
Percent :	0%	0%	46%	54%	0%	0%	0%	ADT :	0	

LANE #4

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	0	0	171	262	0	0	0	Weekday (Mon-Fri) :	433	100%
# Days :	0.0	0.0	0.4	0.6	0.0	0.0	0.0	ADT :	433	
ADT :	0	0	456	419	0	0	0	Weekend (Sat-Sun) :	0	0%
Percent :	0%	0%	39%	61%	0%	0%	0%	ADT :	0	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	0	0	389	513	0	0	0	Weekday (Mon-Fri) :	902	100%
# Days :	0.0	0.0	0.4	0.6	0.0	0.0	0.0	ADT :	902	
ADT :	0	0	1037	821	0	0	0	Weekend (Sat-Sun) :	0	0%
Percent :	0%	0%	43%	57%	0%	0%	0%	ADT :	0	

Incoming Weekly Counts
9thStLivingston

from Tue-Jun-28-2022-01-00-PM to Wed-Jun-29-2022-02-59-PM

Hour	6/27/2022 Monday 6/27/2022	to Tuesday 6/28/2022	7/3/2022 Wednesday 6/29/2022	Thursday 6/30/2022	Friday 7/1/2022	Saturday 7/2/2022	Sunday 7/3/2022	Week Day Avg	Weekend Avg	Week Day 85% Avg Speed
0 - 1	*	*	4	*	*	*	*	4	0	31
1 - 2	*	*	0	*	*	*	*	0	0	0
2 - 3	*	*	0	*	*	*	*	0	0	0
3 - 4	*	*	0	*	*	*	*	0	0	0
4 - 5	*	*	1	*	*	*	*	1	0	23
5 - 6	*	*	1	*	*	*	*	1	0	23
6 - 7	*	*	8	*	*	*	*	8	0	31
7 - 8	*	*	12	*	*	*	*	12	0	29
8 - 9	*	*	26	*	*	*	*	26	0	26
9 - 10	*	*	19	*	*	*	*	19	0	28
10 - 11	*	*	19	*	*	*	*	19	0	28
11 - 12	*	*	44	*	*	*	*	44	0	29.6
12 - 13	*	*	46	*	*	*	*	46	0	29.7
13 - 14	*	9	35	*	*	*	*	22	0	29.6
14 - 15	*	26	1	*	*	*	*	13.5	0	29
15 - 16	*	23	*	*	*	*	*	23	0	32
16 - 17	*	29	*	*	*	*	*	29	0	30.8
17 - 18	*	29	*	*	*	*	*	29	0	29.2
18 - 19	*	35	*	*	*	*	*	35	0	28.5
19 - 20	*	19	*	*	*	*	*	19	0	29.5
20 - 21	*	7	*	*	*	*	*	7	0	31
21 - 22	*	10	*	*	*	*	*	10	0	30
22 - 23	*	9	*	*	*	*	*	9	0	38
23 - 24	*	1	*	*	*	*	*	1	0	23
Totals	0	197	216	0	0	0	0			
% of Total	0%	47.7%	52.3%	0%	0%	0%	0%			

Outgoing Weekly Counts
9thStLivingston

from Tue-Jun-28-2022-01-00-PM to Wed-Jun-29-2022-01-59-PM

	6/27/2022	to	7/3/2022							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Week	Weekend	Week Day 85%
Hour	6/27/2022	6/28/2022	6/29/2022	6/30/2022	7/1/2022	7/2/2022	7/3/2022	Day Avg	Avg	Avg Speed
0 - 1	*	*	3	*	*	*	*	3	0	32
1 - 2	*	*	1	*	*	*	*	1	0	18
2 - 3	*	*	1	*	*	*	*	1	0	23
3 - 4	*	*	2	*	*	*	*	2	0	39
4 - 5	*	*	5	*	*	*	*	5	0	31
5 - 6	*	*	6	*	*	*	*	6	0	31
6 - 7	*	*	23	*	*	*	*	23	0	32
7 - 8	*	*	31	*	*	*	*	31	0	33
8 - 9	*	*	31	*	*	*	*	31	0	27.8
9 - 10	*	*	33	*	*	*	*	33	0	33.5
10 - 11	*	*	34	*	*	*	*	34	0	30.5
11 - 12	*	*	40	*	*	*	*	40	0	27.8
12 - 13	*	*	48	*	*	*	*	48	0	29.7
13 - 14	*	14	36	*	*	*	*	25	0	32.5
14 - 15	*	34	*	*	*	*	*	34	0	32
15 - 16	*	28	*	*	*	*	*	28	0	28
16 - 17	*	45	*	*	*	*	*	45	0	29.2
17 - 18	*	32	*	*	*	*	*	32	0	29.5
18 - 19	*	18	*	*	*	*	*	18	0	34
19 - 20	*	15	*	*	*	*	*	15	0	34
20 - 21	*	16	*	*	*	*	*	16	0	29.5
21 - 22	*	6	*	*	*	*	*	6	0	35
22 - 23	*	3	*	*	*	*	*	3	0	28
23 - 24	*	0	*	*	*	*	*	0	0	0
Totals	0	211	294	0	0	0	0			
% of Total	0%	41.78%	58.22%	0%	0%	0%	0%			

Incoming Weekly Counts
PrairieDrive

from Tue-Jun-28-2022-01-00-PM to Wed-Jun-29-2022-02-59-PM

Hour	6/27/2022 Monday 6/27/2022	to Tuesday 6/28/2022	7/3/2022 Wednesday 6/29/2022	Thursday 6/30/2022	Friday 7/1/2022	Saturday 7/2/2022	Sunday 7/3/2022	Week Day Avg	Weekend Avg	Week Day 85% Avg Speed
0 - 1	*	*	0	*	*	*	*	0	0	0
1 - 2	*	*	0	*	*	*	*	0	0	0
2 - 3	*	*	1	*	*	*	*	1	0	18
3 - 4	*	*	0	*	*	*	*	0	0	0
4 - 5	*	*	0	*	*	*	*	0	0	0
5 - 6	*	*	2	*	*	*	*	2	0	22
6 - 7	*	*	7	*	*	*	*	7	0	28.5
7 - 8	*	*	11	*	*	*	*	11	0	25.5
8 - 9	*	*	11	*	*	*	*	11	0	27
9 - 10	*	*	11	*	*	*	*	11	0	25.3
10 - 11	*	*	4	*	*	*	*	4	0	24
11 - 12	*	*	12	*	*	*	*	12	0	26.5
12 - 13	*	*	16	*	*	*	*	16	0	25
13 - 14	*	3	15	*	*	*	*	9	0	24
14 - 15	*	14	1	*	*	*	*	7.5	0	22
15 - 16	*	12	*	*	*	*	*	12	0	27
16 - 17	*	8	*	*	*	*	*	8	0	26.5
17 - 18	*	15	*	*	*	*	*	15	0	24
18 - 19	*	13	*	*	*	*	*	13	0	25
19 - 20	*	8	*	*	*	*	*	8	0	23
20 - 21	*	6	*	*	*	*	*	6	0	22.5
21 - 22	*	3	*	*	*	*	*	3	0	23
22 - 23	*	4	*	*	*	*	*	4	0	20
23 - 24	*	1	*	*	*	*	*	1	0	23
Totals	0	87	91	0	0	0	0			
% of Total	0%	48.88%	51.12%	0%	0%	0%	0%			

Outgoing Weekly Counts
PrairieDrive

from Tue-Jun-28-2022-01-00-PM to Wed-Jun-29-2022-02-59-PM

Hour	6/27/2022 Monday 6/27/2022	to Tuesday 6/28/2022	7/3/2022 Wednesday 6/29/2022	Thursday 6/30/2022	Friday 7/1/2022	Saturday 7/2/2022	Sunday 7/3/2022	Week Day Avg	Weekend Avg	Week Day 85% Avg Speed
0 - 1	*	*	1	*	*	*	*	1	0	29
1 - 2	*	*	0	*	*	*	*	0	0	0
2 - 3	*	*	4	*	*	*	*	4	0	21
3 - 4	*	*	0	*	*	*	*	0	0	0
4 - 5	*	*	1	*	*	*	*	1	0	26
5 - 6	*	*	2	*	*	*	*	2	0	24
6 - 7	*	*	3	*	*	*	*	3	0	35
7 - 8	*	*	2	*	*	*	*	2	0	26
8 - 9	*	*	6	*	*	*	*	6	0	24
9 - 10	*	*	9	*	*	*	*	9	0	27
10 - 11	*	*	13	*	*	*	*	13	0	28
11 - 12	*	*	12	*	*	*	*	12	0	29
12 - 13	*	*	14	*	*	*	*	14	0	28
13 - 14	*	4	14	*	*	*	*	9	0	26.5
14 - 15	*	13	3	*	*	*	*	8	0	29.25
15 - 16	*	14	*	*	*	*	*	14	0	26
16 - 17	*	14	*	*	*	*	*	14	0	31.3
17 - 18	*	15	*	*	*	*	*	15	0	28
18 - 19	*	25	*	*	*	*	*	25	0	27.5
19 - 20	*	10	*	*	*	*	*	10	0	23
20 - 21	*	7	*	*	*	*	*	7	0	22
21 - 22	*	11	*	*	*	*	*	11	0	25
22 - 23	*	2	*	*	*	*	*	2	0	31
23 - 24	*	4	*	*	*	*	*	4	0	27
Totals	0	119	84	0	0	0	0			
% of Total	0%	58.62%	41.38%	0%	0%	0%	0%			

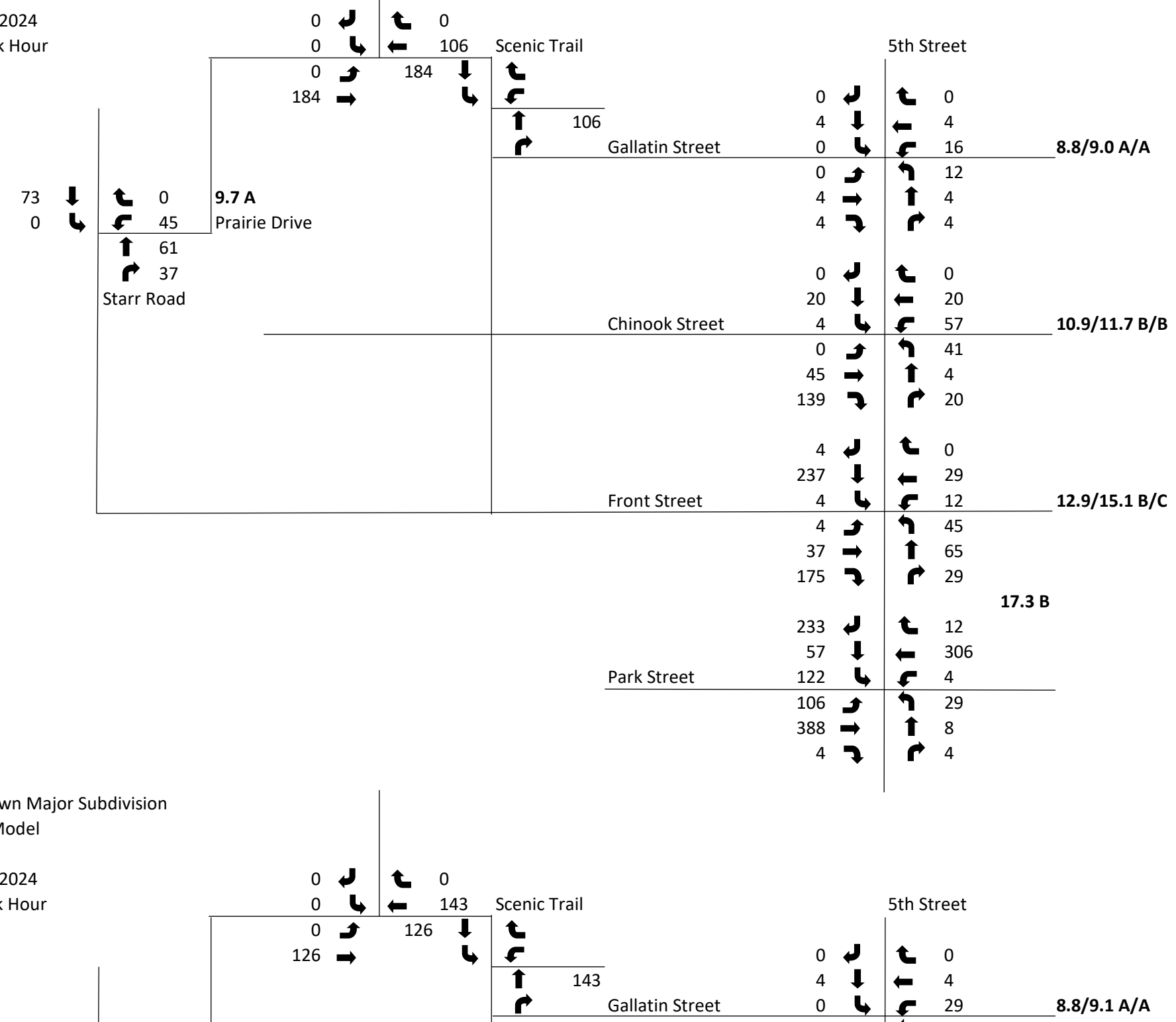
APPENDIX B

Traffic Model

Northtown Major Subdivision
Traffic Model

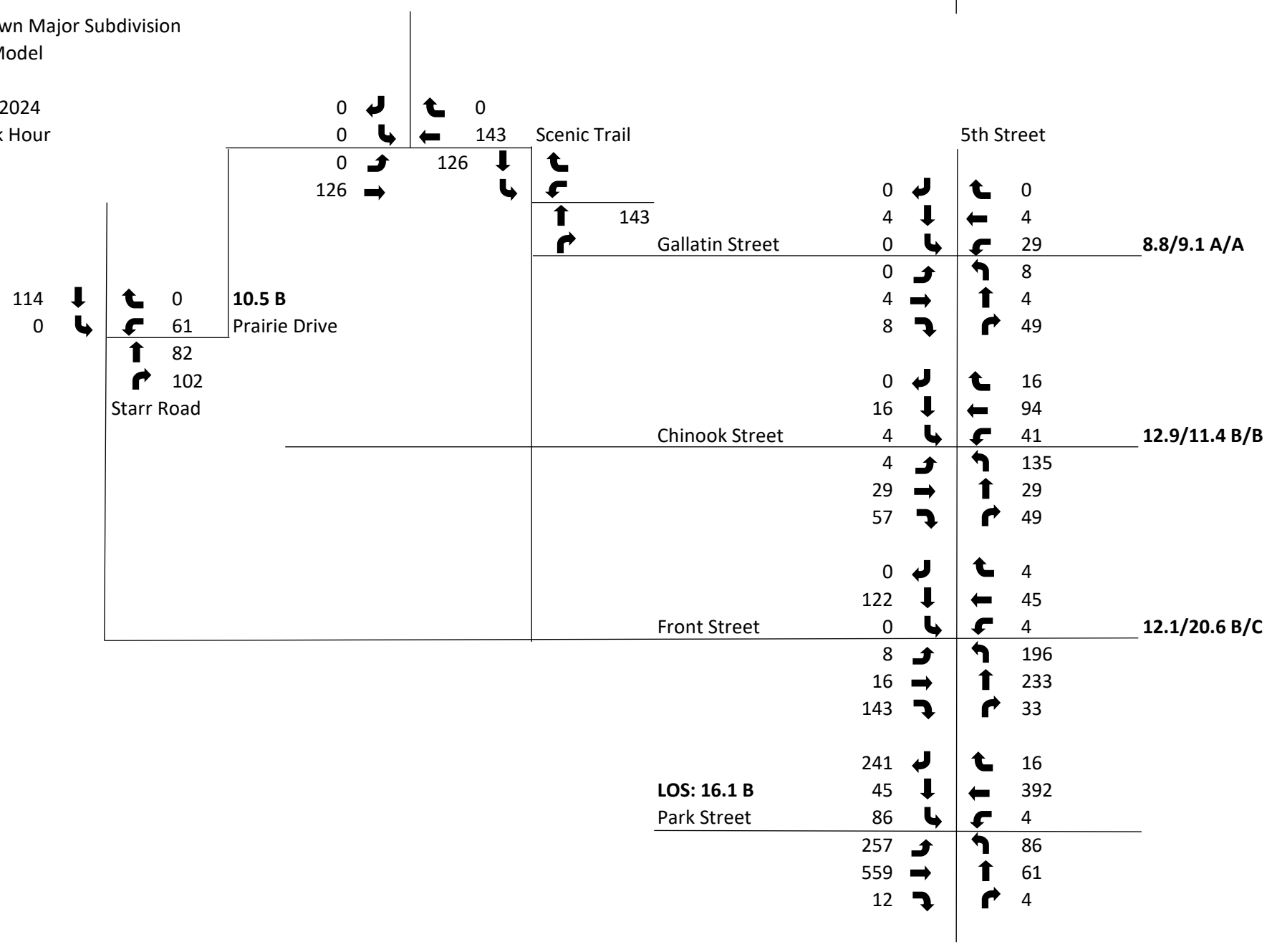
2022-2024 Factor 1.02

Existing 2024
AM Peak Hour



Northtown Major Subdivision
Traffic Model

Existing 2024
PM Peak Hour



Northtown Major Subdivision
Traffic Model

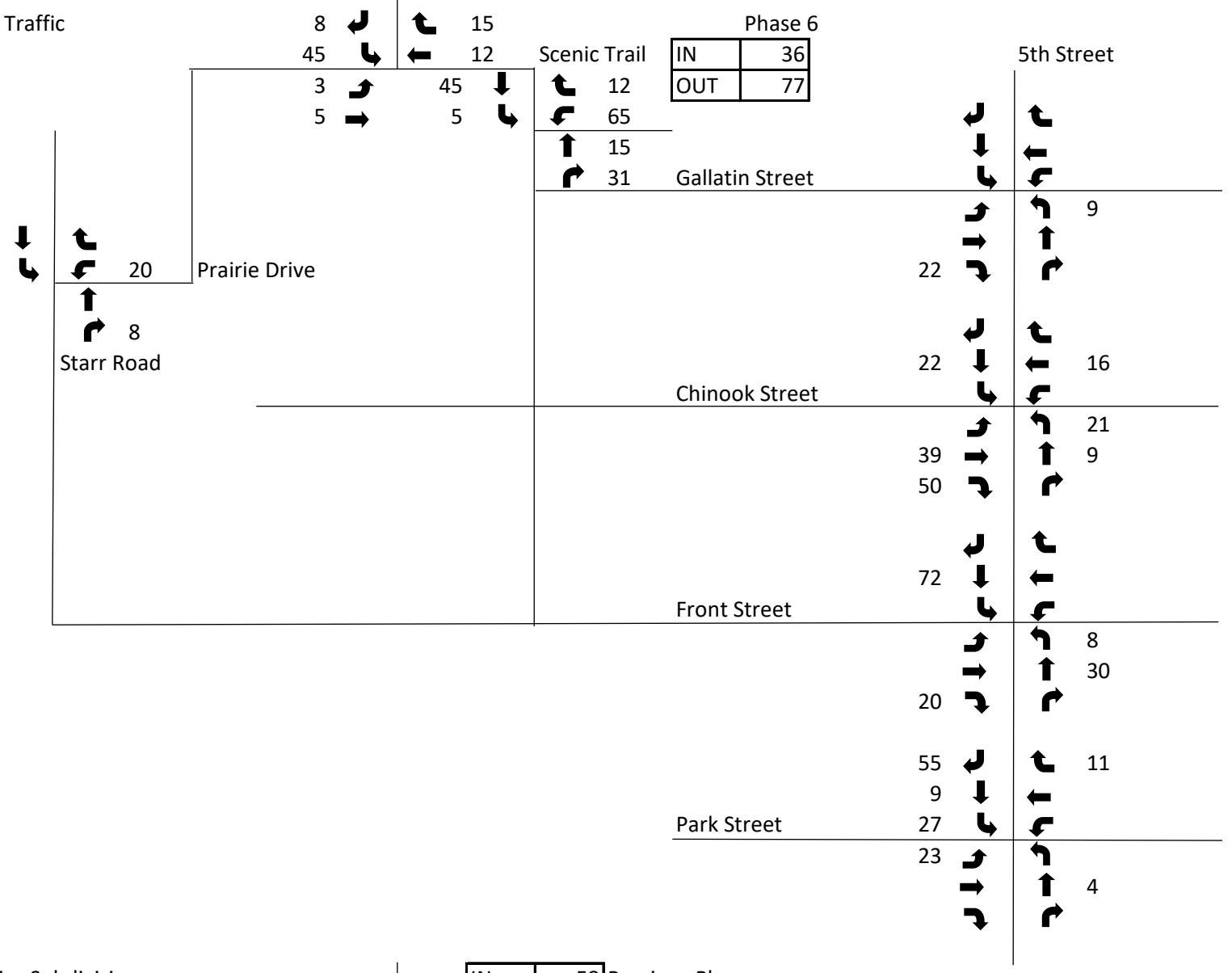
Site Generated Traffic
AM Peak Hour

IN	18
OUT	53

Previous Phases

Phase 6

IN	36
OUT	77



Northtown Major Subdivision
Traffic Model

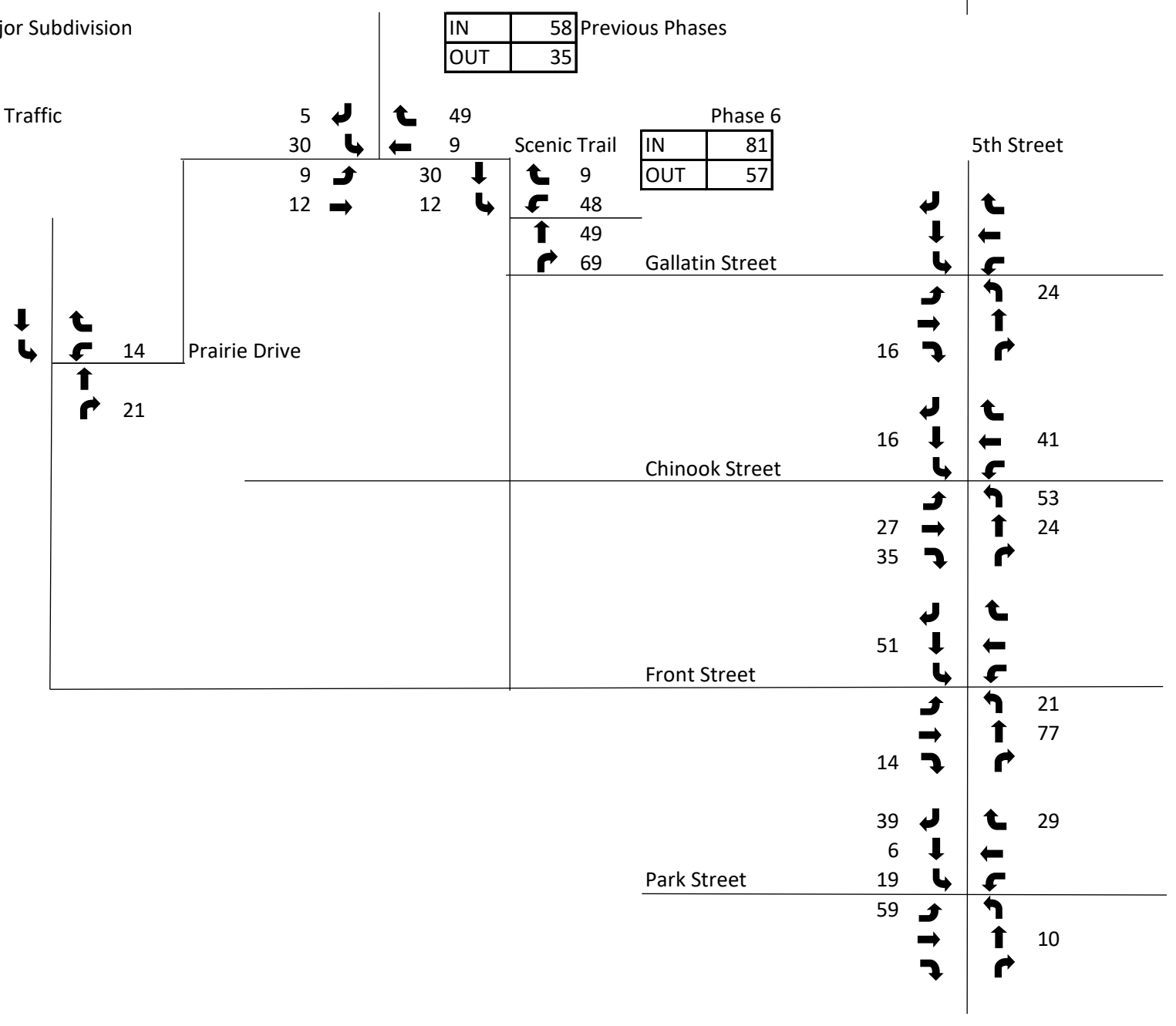
Site Generated Traffic
PM Peak Hour

IN	58
OUT	35

Previous Phases

Phase 6

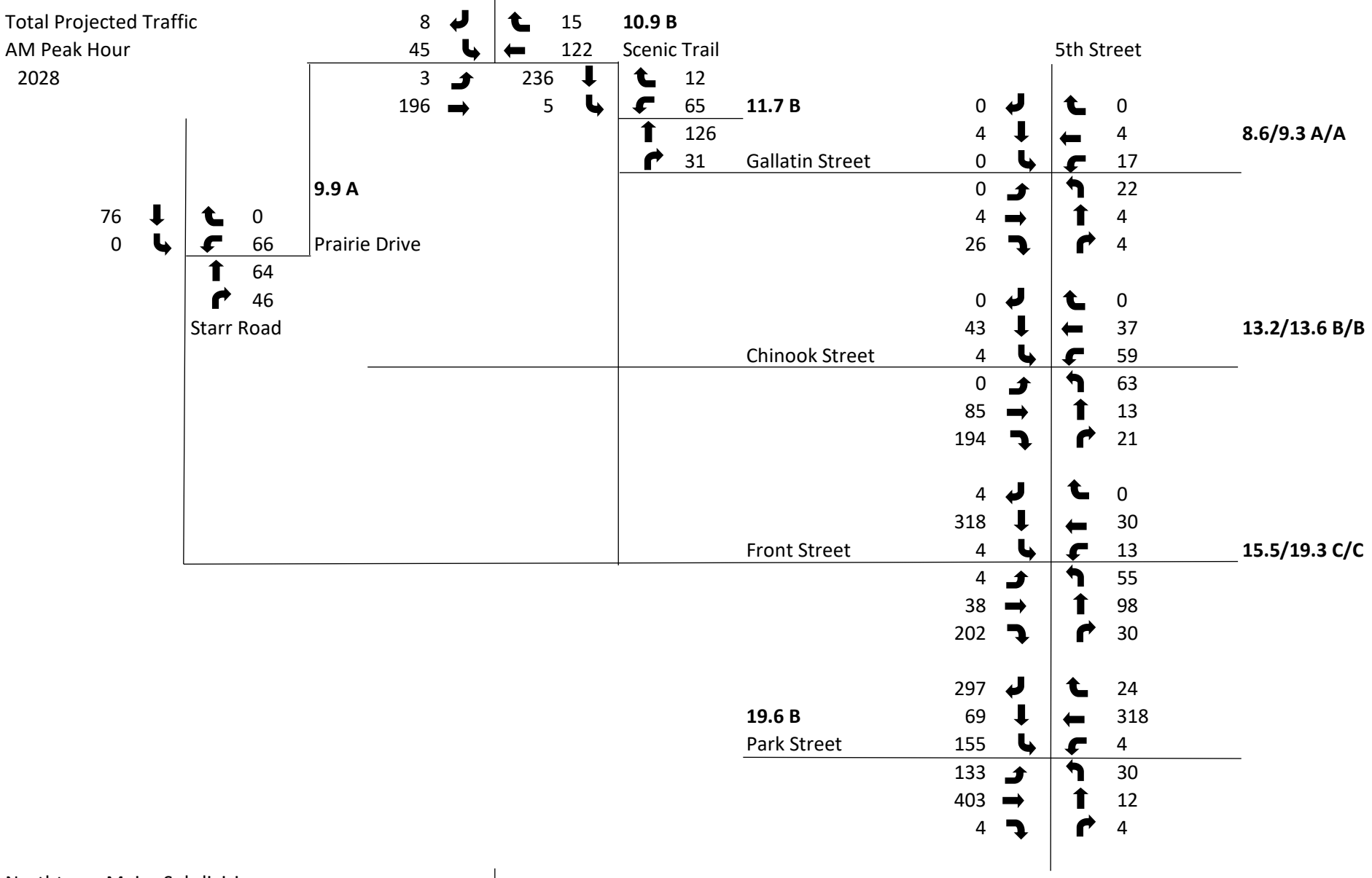
IN	81
OUT	57



Northtown Major Subdivision
Traffic Model

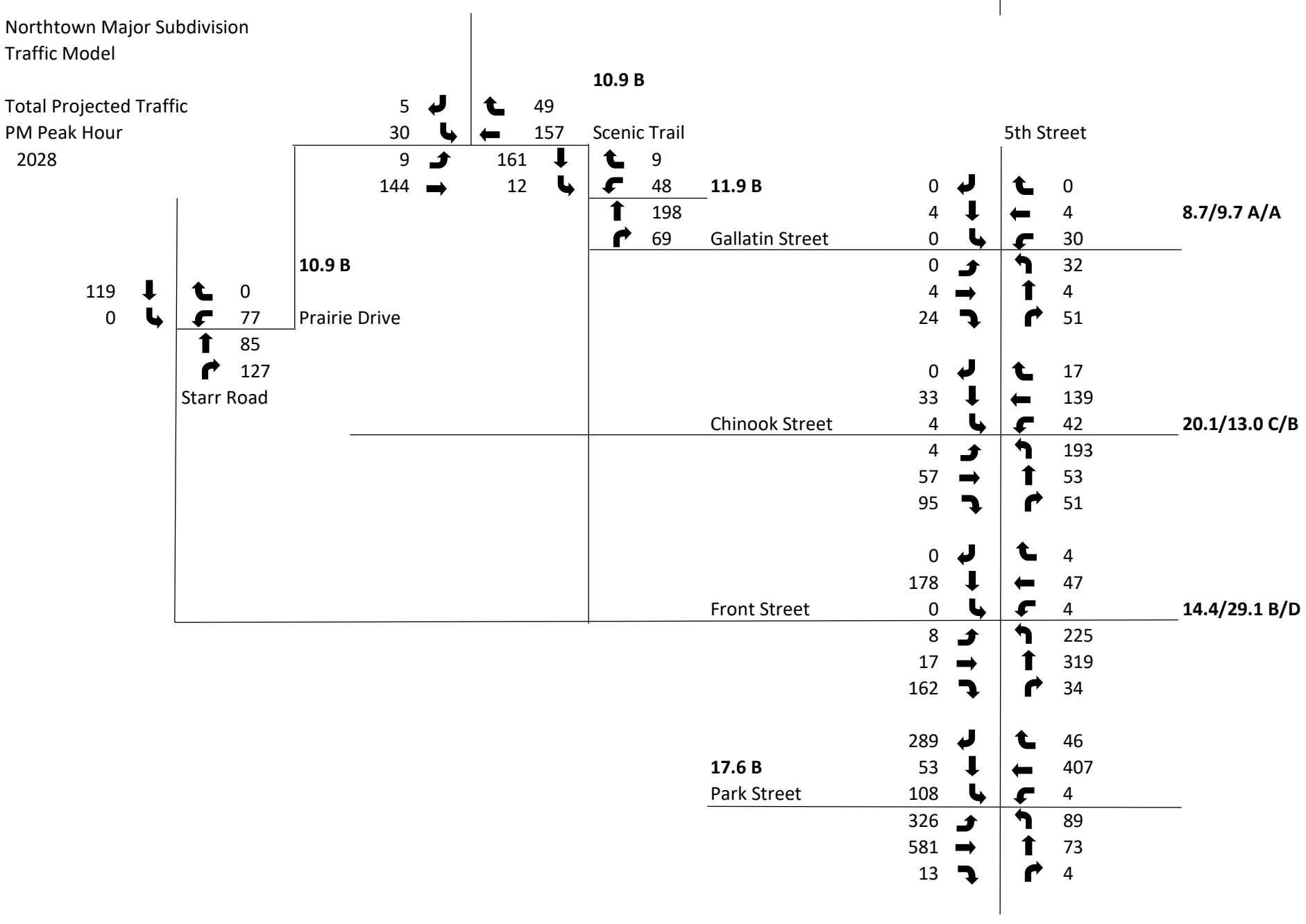
Total Projected Traffic
AM Peak Hour
2028

Growth Factor 1.04
(2024-2028)



Northtown Major Subdivision
Traffic Model

Total Projected Traffic
PM Peak Hour
2028

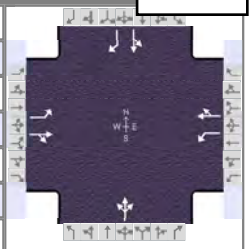


APPENDIX C

LOS Calculations

HCS Signalized Intersection Results Summary

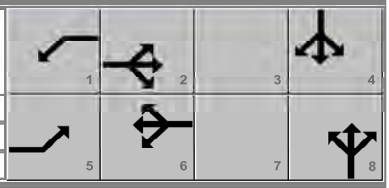
General Information				Intersection Information	
Agency	ATS			Duration, h	0.250
Analyst	RLA	Analysis Date	Oct 30, 2024	Area Type	Other
Jurisdiction	MDT	Time Period	AM Peak	PHF	1.00
Urban Street	Park Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	5th Street	File Name	ParkStreetAM.xus		
Project Description	Northtown Major				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	106	388	4	4	306	12	29	8	4	122	57	233

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.6	1.0	56.7	15.7	0.0	0.0	
Yellow	3.0	3.0	3.0	3.0	0.0	0.0	
Red	1.0	1.0	1.0	1.0	0.0	0.0	



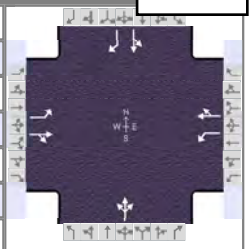
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		8.0		7.0
Phase Duration, s	9.6	65.7	4.6	60.7		19.7		19.7
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0		4.0		4.0
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.2		3.2
Queue Clearance Time (g_s), s	3.6		2.1			3.9		14.8
Green Extension Time (g_e), s	0.2	0.0	0.0	0.0		0.9		0.9
Phase Call Probability	0.93		0.10			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	106	392		4	318			41			179	233
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1853	1867		1853	1858			1479			1528	1585
Queue Service Time (g_s), s	1.6	7.5		0.1	6.9			0.0			7.9	12.8
Cycle Queue Clearance Time (g_c), s	1.6	7.5		0.1	6.9			1.9			9.8	12.8
Green Ratio (*g/C*)	0.71	0.69		0.64	0.63			0.17			0.17	0.17
Capacity (*c*), veh/h	806	1280		690	1171			327			334	277
Volume-to-Capacity Ratio (*X*)	0.132	0.306		0.006	0.272			0.126			0.536	0.842
Back of Queue (*Q*), ft/ln (95 th percentile)	20.7	117.6		1.1	115.9			33.9			164.2	219.7
Back of Queue (*Q*), veh/ln (95 th percentile)	0.8	4.6		0.0	4.6			1.3			6.5	8.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00			0.00			0.00	0.00
Uniform Delay (d_1), s/veh	4.4	5.6		6.1	7.4			31.4			34.7	35.9
Incremental Delay (d_2), s/veh	0.0	0.6		0.0	0.6			0.1			0.5	2.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Control Delay (*d*), s/veh	4.4	6.2		6.1	8.0			31.5			35.2	38.6
Level of Service (LOS)	A	A		A	A			C			D	D
Approach Delay, s/veh / LOS	5.9	A		8.0	A		31.5	C		37.1	D	
Intersection Delay, s/veh / LOS	17.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.63	B	1.87	B	1.93	B	1.93	B
Bicycle LOS Score / LOS	1.31	A	1.02	A	0.56	A	1.17	A

HCS Signalized Intersection Results Summary

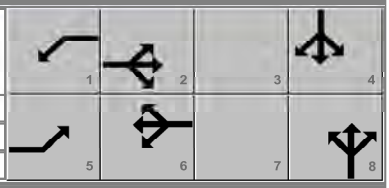
General Information				Intersection Information	
Agency	ATS			Duration, h	0.250
Analyst	RLA	Analysis Date	Oct 30, 2024	Area Type	Other
Jurisdiction	MDT	Time Period	PM Peak	PHF	1.00
Urban Street	Park Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	5th Street	File Name	ParkStreetPM.xus		
Project Description	Northtown Major				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	257	559	12	4	392	16	86	61	4	86	45	241

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.6	2.1	55.0	16.3	0.0	0.0	
Yellow	3.0	3.0	3.0	3.0	0.0	0.0	
Red	1.0	1.0	1.0	1.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		8.0		7.0
Phase Duration, s	10.7	65.1	4.6	59.0		20.3		20.3
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0		4.0		4.0
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.2		3.2
Queue Clearance Time (g_s), s	6.2		2.1			9.7		15.2
Green Extension Time (g_e), s	0.5	0.0	0.0	0.0		1.1		1.1
Phase Call Probability	1.00		0.10			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	257	571		4	408			151			131	241
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1853	1863		1853	1857			1568			1507	1585
Queue Service Time (g_s), s	4.2	12.7		0.1	9.9			0.8			0.0	13.2
Cycle Queue Clearance Time (g_c), s	4.2	12.7		0.1	9.9			7.7			6.8	13.2
Green Ratio (*g/C*)	0.71	0.68		0.62	0.61			0.18			0.18	0.18
Capacity (*c*), veh/h	728	1266		542	1135			346			339	287
Volume-to-Capacity Ratio (*X*)	0.353	0.451		0.007	0.359			0.436			0.387	0.840
Back of Queue (*Q*), ft/ln (95 th percentile)	57.5	201		1.2	170.8			133.7			114.8	225
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	7.9		0.0	6.7			5.3			4.5	8.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00			0.00			0.00	0.00
Uniform Delay (d_1), s/veh	5.5	6.7		7.0	8.7			33.2			32.9	35.6
Incremental Delay (d_2), s/veh	0.1	1.2		0.0	0.9			0.3			0.3	2.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Control Delay (*d*), s/veh	5.6	7.8		7.0	9.6			33.5			33.2	38.2
Level of Service (LOS)	A	A		A	A			C			C	D
Approach Delay, s/veh / LOS	7.1	A		9.6	A		33.5	C		36.4	D	
Intersection Delay, s/veh / LOS	16.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.63	B	1.87	B	1.93	B	1.93	B
Bicycle LOS Score / LOS	1.85	B	1.17	A	0.74	A	1.10	A

HCS Two-Way Stop-Control Report

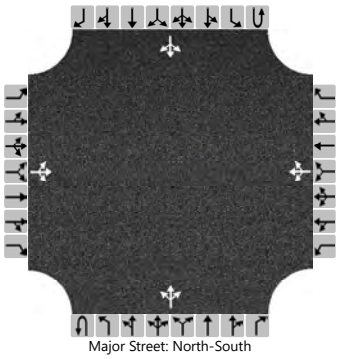
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2024
Time Analyzed	Existing AM 2024
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Gallatin/Fifth
Jurisdiction	Park County
East/West Street	Gallatin
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	4	4		16	4	0		12	4	4		0	4	0
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			9				22			13				0		
Capacity, c (veh/h)			946				922			1611				1605		
v/c Ratio			0.01				0.02			0.01				0.00		
95% Queue Length, Q_{95} (veh)			0.0				0.1			0.0				0.0		
Control Delay (s/veh)			8.8				9.0			7.3	0.1	0.1		7.2	0.0	0.0
Level of Service (LOS)			A				A			A	A	A		A	A	A
Approach Delay (s/veh)	8.8				9.0				4.4				0.0			
Approach LOS	A				A				A				A			

HCS Two-Way Stop-Control Report

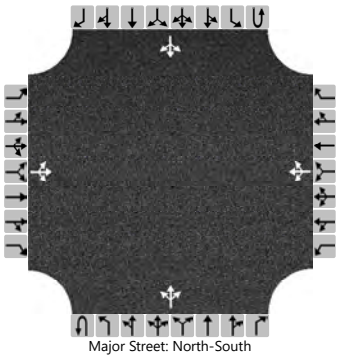
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2024
Time Analyzed	Existing PM 2024
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Gallatin/Fifth
Jurisdiction	Park County
East/West Street	Gallatin
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	4	8		29	4	0		8	4	49		0	4	0
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			13				36			9				0		
Capacity, c (veh/h)			967				905			1611				1540		
v/c Ratio			0.01				0.04			0.01				0.00		
95% Queue Length, Q_{95} (veh)			0.0				0.1			0.0				0.0		
Control Delay (s/veh)			8.8				9.1			7.2	0.0	0.0		7.3	0.0	0.0
Level of Service (LOS)			A				A			A	A	A		A	A	A
Approach Delay (s/veh)	8.8				9.1				1.0				0.0			
Approach LOS	A				A				A				A			

HCS Two-Way Stop-Control Report

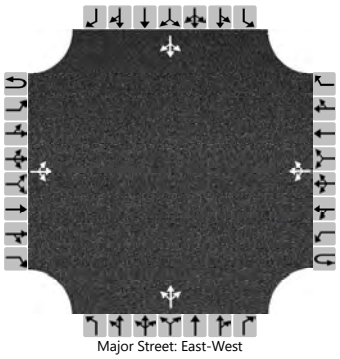
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2024
Time Analyzed	Existing AM 2024
Intersection Orientation	East-West
Project Description	Scenic Trails

Site Information

Intersection	ChinookFifth
Jurisdiction	Park County
East/West Street	Chinook
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	45	139		57	20	0		41	4	20		4	20	0
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				62					71				26	
Capacity, c (veh/h)		1587				1366					684				560	
v/c Ratio		0.00				0.05					0.10				0.05	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.3				0.1	
Control Delay (s/veh)		7.3	0.0	0.0		7.8	0.4	0.4			10.9				11.7	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)	0.0				5.8				10.9				11.7			
Approach LOS	A				A				B				B			

HCS Two-Way Stop-Control Report

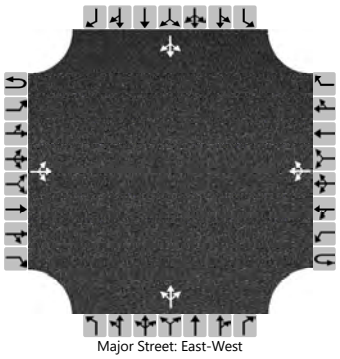
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2024
Time Analyzed	Existing PM 2024
Intersection Orientation	East-West
Project Description	Scenic Trails

Site Information

Intersection	ChinookFifth
Jurisdiction	Park County
East/West Street	Chinook
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		4	29	57		41	94	16		135	29	49		4	16	0
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4				45					232				22	
Capacity, c (veh/h)		1462				1495					683				580	
v/c Ratio		0.00				0.03					0.34				0.04	
95% Queue Length, Q_{95} (veh)		0.0				0.1					1.5				0.1	
Control Delay (s/veh)		7.5	0.0	0.0		7.5	0.2	0.2			12.9				11.4	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)	0.4				2.2				12.9				11.4			
Approach LOS	A				A				B				B			

HCS Two-Way Stop-Control Report

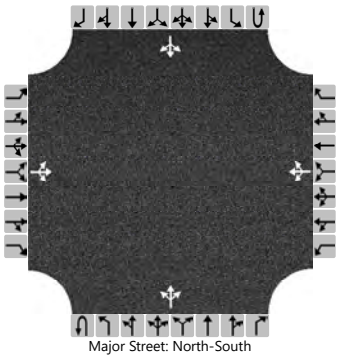
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2024
Time Analyzed	Existing AM 2024
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Front/Fifth
Jurisdiction	Park County
East/West Street	Front
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		4	37	175		12	29	0		45	65	29		4	237	4
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			235				45			49				4		
Capacity, c (veh/h)			690				400			1297				1484		
v/c Ratio			0.34				0.11			0.04				0.00		
95% Queue Length, Q_{95} (veh)			1.5				0.4			0.1				0.0		
Control Delay (s/veh)			12.9				15.1			7.9	0.3	0.3		7.4	0.0	0.0
Level of Service (LOS)			B				C			A	A	A		A	A	A
Approach Delay (s/veh)		12.9				15.1				2.8				0.1		
Approach LOS		B				C				A				A		

HCS Two-Way Stop-Control Report

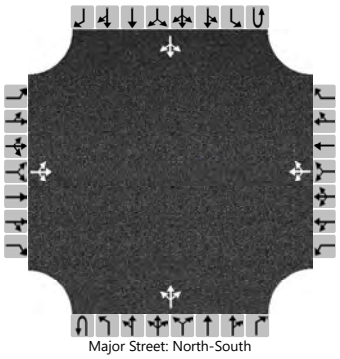
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2024
Time Analyzed	Existing PM 2024
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Front/Fifth
Jurisdiction	Park County
East/West Street	Front
North/South Street	Fifth
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		8	16	143		4	45	4		196	233	33		0	122	0
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			167				53			196				0		
Capacity, c (veh/h)			671				284			1459				1292		
v/c Ratio			0.25				0.19			0.13				0.00		
95% Queue Length, Q_{95} (veh)			1.0				0.7			0.5				0.0		
Control Delay (s/veh)			12.1				20.6			7.8	1.2	1.2		7.8	0.0	0.0
Level of Service (LOS)			B				C			A	A	A		A	A	A
Approach Delay (s/veh)	12.1				20.6				4.0				0.0			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

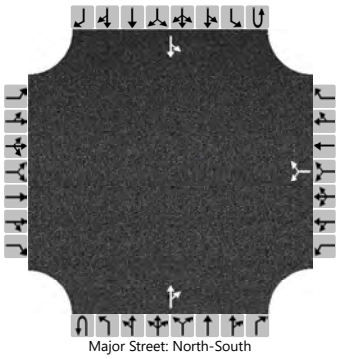
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2024
Time Analyzed	Existing AM 2024
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Prairie/Starr
Jurisdiction	Park County
East/West Street	Prairie
North/South Street	Starr
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						45		0			61	37		0	73	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							49							0		
Capacity, c (veh/h)							822							1478		
v/c Ratio							0.06							0.00		
95% Queue Length, Q_{95} (veh)							0.2							0.0		
Control Delay (s/veh)							9.7							7.4	0.0	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						9.7								0.0		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

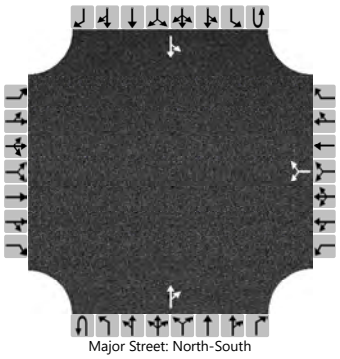
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2024
Time Analyzed	Existing PM 2024
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Prairie/Starr
Jurisdiction	Park County
East/West Street	Prairie
North/South Street	Starr
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						61		0			82	102		0	114	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

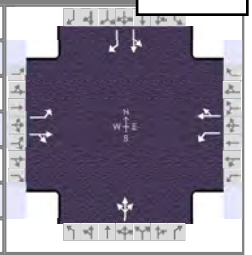
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							66							0		
Capacity, c (veh/h)							719							1366		
v/c Ratio							0.09							0.00		
95% Queue Length, Q_{95} (veh)							0.3							0.0		
Control Delay (s/veh)							10.5							7.6	0.0	
Level of Service (LOS)							B							A	A	
Approach Delay (s/veh)						10.5								0.0		
Approach LOS						B								A		

HCS Signalized Intersection Results Summary

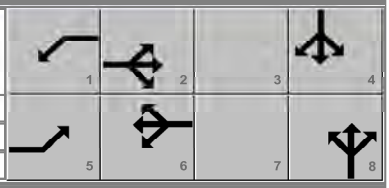
General Information				Intersection Information	
Agency	ATS			Duration, h	0.250
Analyst	RLA	Analysis Date	Oct 30, 2024	Area Type	Other
Jurisdiction	MDT	Time Period	AM Peak	PHF	1.00
Urban Street	Park Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	5th Street	File Name	ParkStreetAMprojected.xus		
Project Description	Northtown Major				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	133	403	4	4	318	24	30	12	4	155	69	197

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.6	1.2	56.4	15.8	0.0	0.0	
Yellow	3.0	3.0	3.0	3.0	0.0	0.0	
Red	1.0	1.0	1.0	1.0	0.0	0.0	



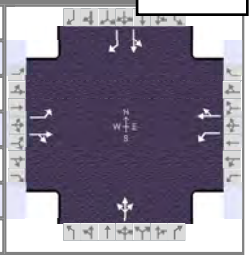
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		8.0		7.0
Phase Duration, s	9.8	65.6	4.6	60.4		19.8		19.8
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0		4.0		4.0
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.2		3.2
Queue Clearance Time (g_s), s	4.0		2.1			4.1		14.9
Green Extension Time (g_e), s	0.2	0.0	0.0	0.0		0.9		0.9
Phase Call Probability	0.96		0.10			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	133	407		4	342			46			224	197
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1853	1867		1853	1847			1495			1515	1585
Queue Service Time (g_s), s	2.0	7.9		0.1	7.6			0.0			10.8	10.5
Cycle Queue Clearance Time (g_c), s	2.0	7.9		0.1	7.6			2.1			12.9	10.5
Green Ratio (*g/C*)	0.71	0.68		0.63	0.63			0.18			0.18	0.18
Capacity (*c*), veh/h	784	1279		676	1158			329			334	278
Volume-to-Capacity Ratio (*X*)	0.170	0.318		0.006	0.295			0.140			0.671	0.708
Back of Queue (*Q*), ft/ln (95 th percentile)	26.7	123.9		1.1	128.6			38.2			209	184.3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	4.9		0.0	5.1			1.5			8.2	7.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00			0.00			0.00	0.00
Uniform Delay (d_1), s/veh	4.6	5.7		6.2	7.7			31.4			35.9	34.9
Incremental Delay (d_2), s/veh	0.0	0.7		0.0	0.7			0.1			0.9	1.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Control Delay (*d*), s/veh	4.6	6.4		6.2	8.3			31.5			36.8	36.2
Level of Service (LOS)	A	A		A	A			C			D	D
Approach Delay, s/veh / LOS	5.9	A		8.3	A		31.5	C		36.5	D	
Intersection Delay, s/veh / LOS	16.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.63	B	1.87	B	1.93	B	1.93	B
Bicycle LOS Score / LOS	1.38	A	1.06	A	0.56	A	1.18	A

HCS Signalized Intersection Results Summary

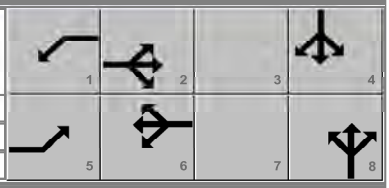
General Information				Intersection Information	
Agency	ATS			Duration, h	0.250
Analyst	RLA	Analysis Date	Oct 30, 2024	Area Type	Other
Jurisdiction	MDT	Time Period	PM Peak	PHF	1.00
Urban Street	Park Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	5th Street	File Name	ParkStreetPMprojected.xus		
Project Description	Northtown Major				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	326	581	13	4	407	46	89	73	4	108	53	289

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.6	4.3	50.1	19.1	0.0	0.0	
Yellow	3.0	3.0	3.0	3.0	0.0	0.0	
Red	1.0	1.0	1.0	1.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		8.0		7.0
Phase Duration, s	12.8	62.3	4.6	54.1		23.1		23.1
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0		4.0		4.0
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.2		3.2
Queue Clearance Time (g_s), s	8.2		2.1			10.1		17.8
Green Extension Time (g_e), s	0.6	0.0	0.0	0.0		1.3		1.3
Phase Call Probability	1.00		0.10			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	326	594		4	453			166			161	289
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1853	1863		1853	1837			1576			1472	1585
Queue Service Time (g_s), s	6.2	14.8		0.1	13.1			0.0			0.5	15.8
Cycle Queue Clearance Time (g_c), s	6.2	14.8		0.1	13.1			8.1			8.6	15.8
Green Ratio (*g/C*)	0.68	0.65		0.56	0.56			0.21			0.21	0.21
Capacity (*c*), veh/h	663	1208		487	1022			396			379	336
Volume-to-Capacity Ratio (*X*)	0.492	0.492		0.008	0.443			0.419			0.425	0.859
Back of Queue (*Q*), ft/ln (95 th percentile)	91.2	235		1.4	227.2			141.5			138.3	257.7
Back of Queue (*Q*), veh/ln (95 th percentile)	3.6	9.3		0.1	8.9			5.6			5.4	10.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00			0.00			0.00	0.00
Uniform Delay (d_1), s/veh	7.6	8.2		9.0	11.8			31.0			31.2	34.2
Incremental Delay (d_2), s/veh	0.2	1.4		0.0	1.4			0.3			0.3	2.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Control Delay (*d*), s/veh	7.8	9.6		9.0	13.2			31.3			31.5	36.7
Level of Service (LOS)	A	A		A	B			C			C	D
Approach Delay, s/veh / LOS	9.0	A		13.1	B		31.3	C		34.8	C	
Intersection Delay, s/veh / LOS	17.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.64	B	1.88	B	1.93	B	1.93	B
Bicycle LOS Score / LOS	2.01	B	1.24	A	0.76	A	1.23	A

HCS Two-Way Stop-Control Report

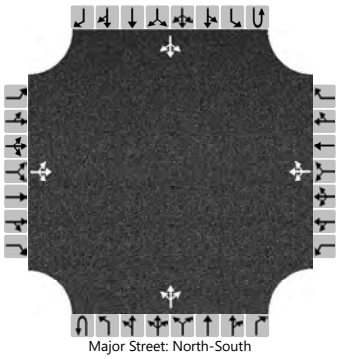
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future AM 2028
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Gallatin/Fifth
Jurisdiction	Park County
East/West Street	Gallatin
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	4	26		17	4	0		22	4	4		0	4	0
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			33				23			24				0		
Capacity, c (veh/h)			1032				860			1611				1605		
v/c Ratio			0.03				0.03			0.01				0.00		
95% Queue Length, Q_{95} (veh)			0.1				0.1			0.0				0.0		
Control Delay (s/veh)			8.6				9.3			7.3	0.1	0.1		7.2	0.0	0.0
Level of Service (LOS)			A				A			A	A	A		A	A	A
Approach Delay (s/veh)	8.6				9.3				5.4				0.0			
Approach LOS	A				A				A				A			

HCS Two-Way Stop-Control Report

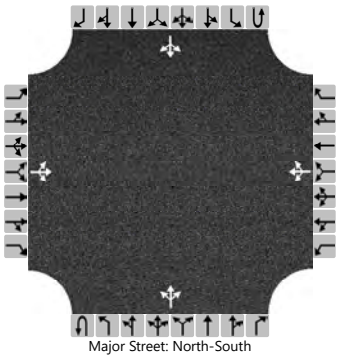
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future PM 2028
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Gallatin/Fifth
Jurisdiction	Park County
East/West Street	Gallatin
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	4	24		30	4	0		32	4	51		0	4	0
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			30				37			35				0		
Capacity, c (veh/h)			1010				802			1611				1537		
v/c Ratio			0.03				0.05			0.02				0.00		
95% Queue Length, Q_{95} (veh)			0.1				0.1			0.1				0.0		
Control Delay (s/veh)			8.7				9.7			7.3	0.2	0.2		7.3	0.0	0.0
Level of Service (LOS)			A				A			A	A	A		A	A	A
Approach Delay (s/veh)	8.7				9.7				2.8				0.0			
Approach LOS	A				A				A				A			

HCS Two-Way Stop-Control Report

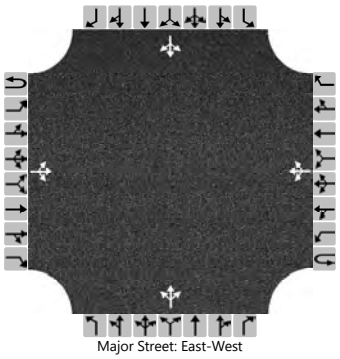
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future AM 2028
Intersection Orientation	East-West
Project Description	Scenic Trails

Site Information

Intersection	ChinookFifth
Jurisdiction	Park County
East/West Street	Chinook
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	85	194		59	37	0		63	13	21		4	43	0
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				64					105				51	
Capacity, c (veh/h)		1563				1252					542				467	
v/c Ratio		0.00				0.05					0.19				0.11	
95% Queue Length, Q_{95} (veh)		0.0				0.2					0.7				0.4	
Control Delay (s/veh)		7.3	0.0	0.0		8.0	0.4	0.4			13.2				13.6	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)	0.0				5.1				13.2				13.6			
Approach LOS	A				A				B				B			

HCS Two-Way Stop-Control Report

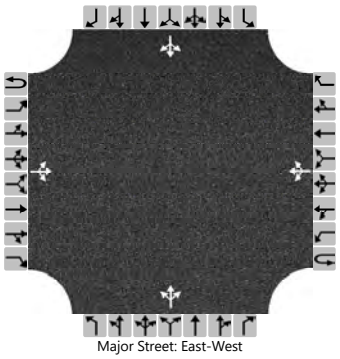
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future PM 2028
Intersection Orientation	East-West
Project Description	Scenic Trails

Site Information

Intersection	ChinookFifth
Jurisdiction	Park County
East/West Street	Chinook
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		4	56	95		42	139	17		193	53	51		4	33	0
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4				46					323				40	
Capacity, c (veh/h)		1402				1408					554				491	
v/c Ratio		0.00				0.03					0.58				0.08	
95% Queue Length, Q_{95} (veh)		0.0				0.1					3.7				0.3	
Control Delay (s/veh)		7.6	0.0	0.0		7.6	0.3	0.3			20.1				13.0	
Level of Service (LOS)		A	A	A		A	A	A			C				B	
Approach Delay (s/veh)	0.2				1.8				20.1				13.0			
Approach LOS	A				A				C				B			

HCS Two-Way Stop-Control Report

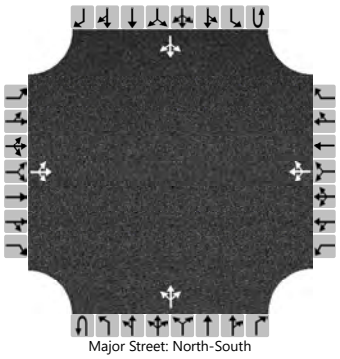
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future AM 2028
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Front/Fifth
Jurisdiction	Park County
East/West Street	Front
North/South Street	Fifth
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		4	38	202		13	30	0		55	98	30		4	318	4
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			265				47			60				4		
Capacity, c (veh/h)			606				299			1203				1438		
v/c Ratio			0.44				0.16			0.05				0.00		
95% Queue Length, Q_{95} (veh)			2.2				0.5			0.2				0.0		
Control Delay (s/veh)			15.5				19.3			8.1	0.4	0.4		7.5	0.0	0.0
Level of Service (LOS)			C				C			A	A	A		A	A	A
Approach Delay (s/veh)		15.5				19.3				2.8				0.1		
Approach LOS		C				C				A				A		

HCS Two-Way Stop-Control Report

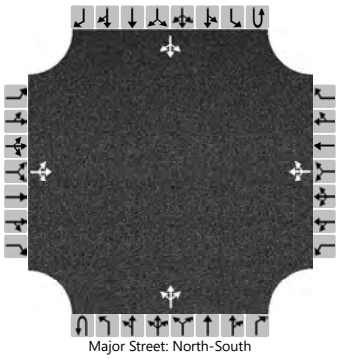
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future PM 2028
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Front/Fifth
Jurisdiction	Park County
East/West Street	Front
North/South Street	Fifth
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		8	17	162		4	47	4		225	319	34		0	178	0
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			187				55			225				0		
Capacity, c (veh/h)			568				204			1392				1200		
v/c Ratio			0.33				0.27			0.16				0.00		
95% Queue Length, Q_{95} (veh)			1.4				1.1			0.6				0.0		
Control Delay (s/veh)			14.4				29.1			8.1	1.6	1.6		8.0	0.0	0.0
Level of Service (LOS)			B				D			A	A	A		A	A	A
Approach Delay (s/veh)	14.4				29.1				4.1				0.0			
Approach LOS	B				D				A				A			

HCS Two-Way Stop-Control Report

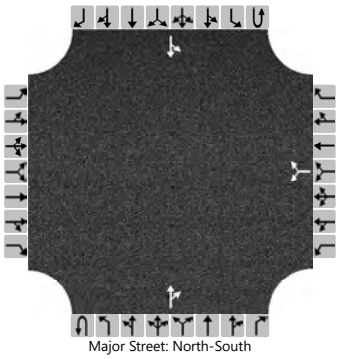
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future AM 2028
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Prairie/Starr
Jurisdiction	Park County
East/West Street	Prairie
North/South Street	Starr
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						66		0			64	46		0	76	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							72							0		
Capacity, c (veh/h)							810							1462		
v/c Ratio							0.09							0.00		
95% Queue Length, Q_{95} (veh)							0.3							0.0		
Control Delay (s/veh)							9.9							7.5	0.0	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						9.9								0.0		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

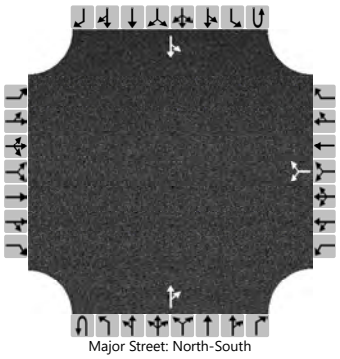
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future PM 2028
Intersection Orientation	North-South
Project Description	Scenic Trails

Site Information

Intersection	Prairie/Starr
Jurisdiction	Park County
East/West Street	Prairie
North/South Street	Starr
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						77		0			85	127		0	119	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							84							0		
Capacity, c (veh/h)							698							1332		
v/c Ratio							0.12							0.00		
95% Queue Length, Q_{95} (veh)							0.4							0.0		
Control Delay (s/veh)							10.9							7.7	0.0	
Level of Service (LOS)							B							A	A	
Approach Delay (s/veh)						10.9								0.0		
Approach LOS						B								A		

HCS Two-Way Stop-Control Report

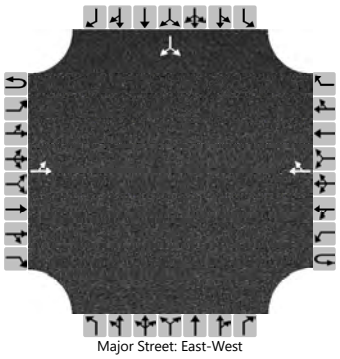
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future AM 2028
Intersection Orientation	East-West
Project Description	Scenic Trails

Site Information

Intersection	Scenic Trail/Approach
Jurisdiction	Park County
East/West Street	Scenic Trail
North/South Street	Approach
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		3	197				122	15						45		8
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3													58	
Capacity, c (veh/h)		1426													664	
v/c Ratio		0.00													0.09	
95% Queue Length, Q_{95} (veh)		0.0													0.3	
Control Delay (s/veh)		7.5	0.0												10.9	
Level of Service (LOS)		A	A												B	
Approach Delay (s/veh)		0.1												10.9		
Approach LOS		A												B		

HCS Two-Way Stop-Control Report

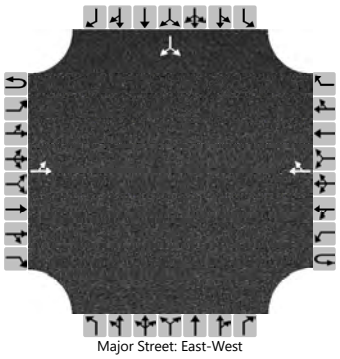
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future PM 2028
Intersection Orientation	East-West
Project Description	Scenic Trails

Site Information

Intersection	Scenic Trail/Approach
Jurisdiction	Park County
East/West Street	Scenic Trail
North/South Street	Approach
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		9	144				157	49						30		5
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10													38	
Capacity, c (veh/h)		1339													645	
v/c Ratio		0.01													0.06	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.7	0.1												10.9	
Level of Service (LOS)		A	A												B	
Approach Delay (s/veh)		0.5												10.9		
Approach LOS		A												B		

HCS Two-Way Stop-Control Report

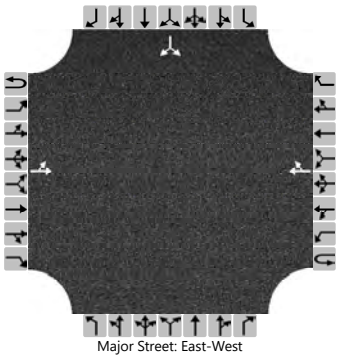
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future AM 2028
Intersection Orientation	East-West
Project Description	Scenic Trails

Site Information

Intersection	Scenic Trail/East Approach
Jurisdiction	Park County
East/West Street	Scenic Trail
North/South Street	East Approach
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		5	236				126	31						65		12
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5													84	
Capacity, c (veh/h)		1400													617	
v/c Ratio		0.00													0.14	
95% Queue Length, Q_{95} (veh)		0.0													0.5	
Control Delay (s/veh)		7.6	0.0												11.7	
Level of Service (LOS)		A	A												B	
Approach Delay (s/veh)		0.2												11.7		
Approach LOS		A												B		

HCS Two-Way Stop-Control Report

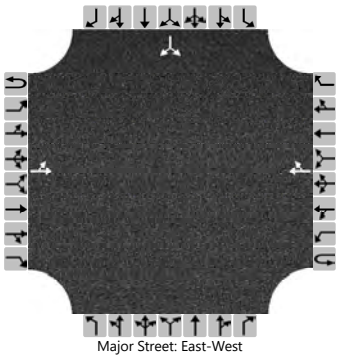
General Information

Analyst	TJS
Agency/Co.	ATS
Date Performed	10/30/2024
Analysis Year	2028
Time Analyzed	Future PM 2028
Intersection Orientation	East-West
Project Description	Scenic Trails

Site Information

Intersection	Scenic Trail/East Approach
Jurisdiction	Park County
East/West Street	Scenic Trail
North/South Street	East Approach
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		12	161				198	69						48		9
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		13													62	
Capacity, c (veh/h)		1266													582	
v/c Ratio		0.01													0.11	
95% Queue Length, Q_{95} (veh)		0.0													0.4	
Control Delay (s/veh)		7.9	0.1												11.9	
Level of Service (LOS)		A	A												B	
Approach Delay (s/veh)		0.6												11.9		
Approach LOS		A												B		

HEADWATERS ENGINEERING

Tab K

Stormwater Design Memo

Northtown PUD

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, SUITE 6
BOZEMAN, MT 59718
406-581-5730
www.headwatersmt.net

Storm Water Management Study

Northtown - PUD
Lot 3B, Minor Subdivision 644, S14, T02 S, R09
Livingston, Montana

March, 2025

Headwaters Engineering, Inc.
Project #: 2025.003

Prepared For:
Northtown Development Corporation

I. Introduction

The proposed 20-acre development, located in the Northeast ¼ of Section 14, Township 2S, Range 9E, PMM, in Park County, MT consists of high-density multifamily buildings and approximately 12,850 sf of commercial space. This design report outlines the storm water analysis conducted for the entire PUD area and describes the storm water drainage and management facilities proposed at the site to meet state and local regulations. More calculations and reports will be included in future site plan submittals. The storm water plan follows the design standards set forth the City of Livingston (COL) Design Standards.

II. Existing Conditions

The subject property generally slopes from the north to the south towards Scenic Trail and Sweetgrass Lane. Topography varies significantly and includes steep ridges that separate drainage bottoms, with slopes ranging from nearly flat, all the way to 40%. The high point of the property is located in the Northeast corner, and the natural grading conveys runoff to the central portion of the property where it then flows through a natural swale to the south.

Flood Hazard Evaluation

The subject property is listed in Zone-X, an area of minimal flood hazard according to the fema.gov FIRMETTE. There are no open streams or ditches in use on the property. The subdivision is designed to utilize existing topography, site grading, curb and gutter, storm inlets, piping, storm swales, and retention ponds to handle stormwater flows. With the installation of the proposed storm facilities, no significant flooding is expected to occur.

III. Stormwater Basins

For the sake of this study, one basin that accompanies the entire project site was analyzed. The existing and post development drainage basin characteristics are shown below. Calculations are shown further below.

Drainage Basin Pre Development

- Total Area: 871,419 sf
- Unimproved Area: 871,419 sf

Drainage Basin Post Development

- Total Area: 871,419 sf
- Proposed Impervious Area: 245,000 sf
- Proposed Landscaped Area: 226,500 sf
- Unimproved Area: 399,919 sf

IV. Drainage Plan

Retention Ponds

Retention ponds were designed to account for the increase in impervious area to the property. The retention ponds were sized by taking the difference between pre-development and post-development pond volumes using the 10-year, 2-hour storm event, as requested by the City of Livingston Design Standards. Pond #1, was sized to accommodate the stormwater from onsite and

from the Northtown Phase 4A, 4B, & 5 project, which was approved in 2022. The retention ponds are shown in the included grading & drainage documents. Retention pond calculations are shown below:

- Pre Development
  - Weighted C Factor: 0.20
  - Storm Intensity: 0.51 in/ hr (City of Livingston Design Standards)
  - A = 20.01 acres
  - Q = CIA = 2.04 cfs
  - V = 7200Q = 14,688 cf

- Post Development
  - Weighted C Factor: 0.37
  - Storm Intensity: 0.51 in/hr (City of Livingston Design Standards)
  - A = 20.01 acres
  - Q = CIA = 3.78 cfs
  - V = 7200Q = 27,216 cf

- Northtown Phase 4A Project
  - Needed storage from approved storm report = 16,432.2 cf

- Pond Sizes
  - Given Volume in Retention Pond #1= 25,032 cf
  - Given Volume in Retention Pond #2 = 22,680 cf
  - Total Proposed Volume = 47,712 cf
  - Needed Volume = (27,216 – 14,688) + 16,432 (from Phase 4A)= 28,960 cf

Conservatively, the given pond volumes above are for the first three feet of depth. The remaining foot of depth is for emergency storage.

Conclusion

Storm water analysis and calculations indicate that the proposed storm water management plan for the project is adequate to safely account for the 10-year, 2-hour storm event while satisfying state and local regulations for peak attenuation and stormwater storage. Conservatively, the ponds were sized to handle the entire storage volume required for the post development runoff.

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HEADWATERS ENGINEERING

Tab L

Water & Sewer Design Report, & Capacity Information

Northtown PUD

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, SUITE 6
BOZEMAN, MT 59718
406-581-5730
www.headwatersmt.net

Preliminary Water and Wastewater Design Report

Northtown PUD
Lot 3B, Minor Subdivision 644, S14, T02 S, R09 E
Livingston, Montana

March 13, 2024

Prepared By:
Headwaters Engineering, Inc.
HW Project #: 2025.003

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HEADWATERS ENGINEERING

Preliminary Water and Wastewater Design Report

Table of Contents

I. Project Background

1. Introduction
2. Soil and Groundwater
3. Land Use
4. Design Standards

II. Water System

1. Layout & Demand
2. Water Supply
3. Hydraulic Analysis
4. Fire Supply

III. Sewer System

1. Projected Flows
2. Sewer Collection
3. Sewer Service Connections
4. Sewer Capacity Evaluation

IV. Conclusion

HEADWATERS ENGINEERING

I. Project Background

I.1 Introduction

The Northtown Planned Unit Development (PUD) is a proposed 20-acre development, located in the Northeast ¼ of Section 14, Township 2S, Range 9E, PMM, in Park County, MT. The owner is applying for a PUD to promote higher density residential and mixed-use development. The property lies on the north side of Scenic Trail, in the City of Livingston, approximately 0.4 miles north of Front Street. Figure 1 shows the project site and the surrounding area. The lot is currently vacant, with no structures on the property. There are no wells or drainfields on the site. Potable water will be supplied by City of Livingston public mains, with service lines to each lot. Wastewater will be collected in City of Livingston mains, via services and sewer mains, and treated at the City of Livingston Wastewater Treatment Plant.

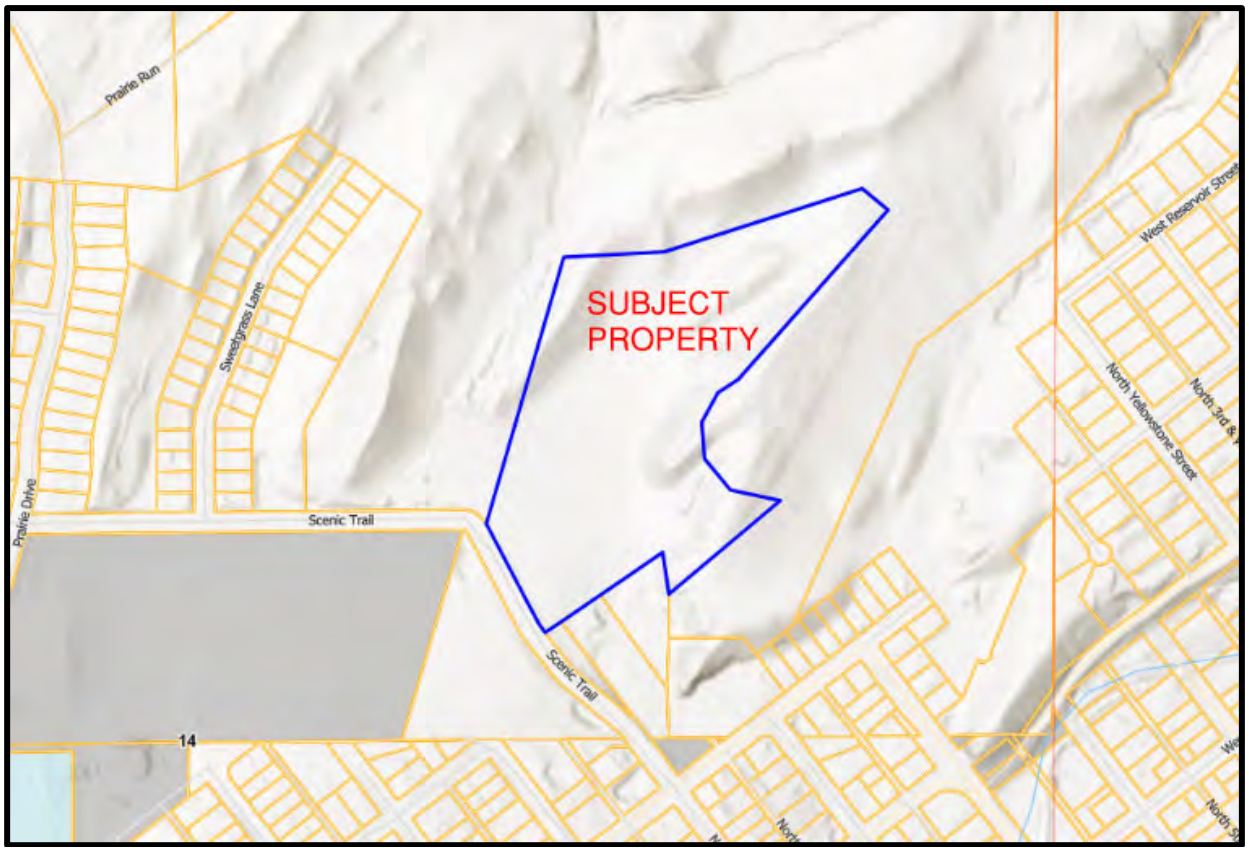

Figure 1. Northtown PUD Vicinity Map

I.2 Soil and Groundwater

The NRCS Soil Survey identifies the two major soil types on the site to be Ethridge-Tanna-Reedpoint complex, 2 - 15 percent slopes and Reedpoint-Tanna-Ethridge complex, 4 - 35 percent slopes (5401D and 5502E). These soils belong to hydrologic soil group C and D.

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I.3 Land Use

The pre-development land use on the subject property is open pasture, with varying terrain, including rolling hills, steep ridges, and drainages. Upon development, the project will include a total of 240 high density dwelling units and 12,850 SF of commercial space. The parcel is zoned R2—Medium Density Residential.

I.4 Design Standards

All water and sewer infrastructure will be designed and constructed in accordance with Montana DEQ and City of Livingston Design Standards.

II. Water System

II.1 Water System Layout and Demand

The Northtown PUD consists of 9 high-density residential buildings to include a total of 240 units. Additionally, there is 12,850 SF of commercial space. We assumed 6,425 SF of restaurant space and 6,425 SF of office space. At this time, we are planning on an 8" water main being extended into the subdivision with 4" water services to each building.

Design Criteria

Dwelling Units =	240 (108 Studios, 72 1-bedrooms, 72 2-bedrooms)
Average Daily Residential Usage =	127.5 gallons per day per person
Average Population Density =	2.5 persons per dwelling unit
Restaurant (6,425 SF)=	750 gallons per day (250 meals x 3gpd)
Office (6,425 SF)=	520 gallons per day (40 employees x 13 gpd)
Maximum Day Demand =	(COL Factor = 2.36)
Maximum Hour Demand =	(COL Factor = 5.28)

- Average Day Demand = 240 dwelling units x 2.5 persons/dwelling unit x 127.5 gpd/person = 76,500 gpd + 750 gpd + 520 gpd = 77,770 gpd = 54.02 gpm
- Maximum Day Demand = 54.02 gpm x 2.36 = 127.41 gpm
- Peak Hour Demand = 54.02 gpm x 5.28 = 285.23 gpm

Irrigation Demand

Irrigation demand is estimated using a typical diversion schedule and total acreage irrigated. Water demand assumes (2.50 acre-ft/acre) of irrigation per season. The season is assumed as 20-weeks, May through September.

DNRC Water Requirements = 2.50AF/season for 1 acre of lawn/garden

- Irrigation Demand = 2.50 AF/season * 5.2 acres of landscaping = 13 acre-feet
- 13 acre-feet = 4,236,068.6 gallons
- Irrigation Demand = 4,236,068.6 gallons/140 days = 30,257.6 gpd = **21.0 gpm**

Total Maximum Daily Demand = 127.41 gpm (domestic) + 21.0 gpm (irrigation) = 148.4 gpm

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II.2 Water Supply

The water for each lot will be supplied by City of Livingston Public Water Mains. An 8" C900 D18 PVC water main is proposed to be installed to serve the subdivision. Each building will have its own 4" PVC water service.

II.3 Hydraulic Analysis

Preliminary water main sizes and demand have been provided to the City of Livingston and TD&H Engineers. It is assumed that TD&H will analyze the proposed subdivision within the existing water network to determine operating pressures and flows.

II.3 Fire Supply

Fire supply will also be provided via COL water mains. Fire hydrants will be proposed along the length of the proposed water mains, with spacing not exceeding 500', meeting COL requirements.

III. Sewer System

III.1 Projected Flows

The subdivision is intended to have 240 dwelling units (108 Studios, 72 1-bedrooms, 72 2-bedrooms), in addition to 12,850 SF of commercial space:

- Equivalent population (Residential)= 2.5 persons/dwelling unit x 240 dwelling units = 600 persons
- Equivalent population (Commercial)= 250 persons (restaurant) + 40 persons (office) = 290 persons
- Peaking Factor (Harmon Formula) = $(18 + P^{0.5})/(4+P^{0.5})$ where P = Population in thousands
  - $(18 + 0.89^{0.5}) / (4 +0.89^{0.5}) = 3.83$
- Average Daily Flow Rate = 100 gallons per person per day
- Peak Flow Rate = 100 gpd/person x 890 persons x 3.83 = 340,870 gpd = 236.76 gpm = 0.53 cfs

8" Main

- Mannings's Equation = Q (cfs) = $(1.49/n) \times A \times R^{2/3} \times S^{1/2}$
- Mannings's friction factor (n) = 0.013 (unitless)
- Area (A) = $\pi r^2 = 3.141592 \times (4/12)^2 = 0.35$ SF
- Perimeter (P) = $2\pi r = 2.094$ ft
- Hydraulic Radius (R) = A/P = 0.35 / 2.09 = 0.167 ft
- Slope (S) = .004 ft/ft (minimum)
- $Q_{full} = (1.49/.013) \times 0.35 \times 0.167^{2/3} \times .004^{1/2} = 0.77$ cfs

Capacity

$Q / Q_{full} = 0.53 / 0.77 = 0.688 = 68.8\%$

The PVC sewer pipe was modeled at minimum slope, 0.4%. The sewer layout will be submitted to the City of Livingston during the PUD process.

III.2 Sewer Collection

An 8" SDR 35 PVC sewer main is proposed, with 48" concrete manholes to serve the subdivision. The slope of the sewer mains is anticipated to vary between the range of 0.4% to 5%.

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III.3 Sewer Service Connections

Four-inch SDR 35 PVC sewer services from each building will connect to the proposed mains. The minimum slope of the service lines will be 2%.

III.4 Sewer Capacity Evaluation

Sewer main sizes and projected flows were provided to the City of Livingston and TD&H Engineers, to analyze the proposed subdivision within the existing sanitary sewer network**.**

IV. Conclusion

The analysis and calculations included in this report demonstrate that the proposed designs for water provision and wastewater treatment and disposal appear to be feasible options for this proposed subdivision, pending modeling results.

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Item A.

Gmail

Garrett Schultz <gschultz@headwatersmt.net>

Northtown PUD capacity-Water and Sewer

1 message

Shannon Holmes <sholmes@livingstonmontana.org> Fri, Feb 7, 2025 at 9:41 AM
To: Garrett Schultz <gschultz@headwatersmt.net>, Adam Ballew <aballew@livingstonmontana.org>
Cc: "Matt R. McGee" <Matt.McGee@tdhengineering.com>, Jennifer Severson <jseverson@livingstonmontana.org>

Good snowy morning Garrett,

I am sending over the hydraulic information for the water and sewer modeling for this proposed development. The sewer memo does highlight that there is now some sections between Northtown and the plant that is seeing flows above 50% full and Nicole is going to go back into the model and provide information on which pipes are filling up and what capacity remains before hitting 75% full. She will send us a table and map.

The water information is presented as both the proposed Phase 1 development and full build out.

Let me know a good time to discuss and we can talk more.

Thanks,

LIVINGSTON MONTANA

SHANNON HOLMES
Public Works Department Director
406-222-5667
sholmes@livingstonmontana.org
330 Bennett St, Livingston, MT
www.livingstonmontana.org
www.facebook.com/ColPublicWorks

5 attachments

Northtown PUD FlexTable_ Junction Table.pdf
50K

Northtown PUD Max Day Map.pdf
367K

Phase 1 FlexTable_ Junction Table.pdf
50K

Phase 1 Max Day Map.pdf
647K

00_Northtown PUD SSA Summary.pdf
1153K

234 East Babcock Street
Suite 3
Bozeman, MT 59715

406.586.0277
tdhengineering.com

MEMORANDUM

Date:	1/20/2025	**TDH Job No.:**	B23-114-022
To:			
From:	Nicole Rediske, PE		
Subject:	City of Livingston - Northtown PUD Sanitary Sewer Capacity Evaluation		

The purpose of this memorandum is to present the predicted impacts of the proposed Northtown PUD to the City of Livingston's sanitary sewer collection system based on the hydraulic model created using AutoDesk's Storm and Sanitary Analysis (SSA) software. The proposed development is located north and east of Scenic Trail. Background information regarding the hydraulic model, recent updates, and results are presented below.

Hydraulic Model Background

Using SSA, a hydrodynamic model was created in 2019 to predict flow rates, pipe depth, and fluid velocities within the City's collection system. Sanitary flows were estimated throughout the system based on jurisdictional zoning and area. The neighboring City of Bozeman defines design wastewater flows for various land use designations in Table V-2 of its Design Standards; these values were referenced to estimate Livingston's sanitary flows. Typical residential and commercial diurnal curves were input into the model to simulate hourly variations in flow.

The model was calibrated in 2021 based on manhole flow data collected during the 2020 Inflow and Infiltration Study. A flow meter was installed in MH 9-D; located on the trunk main along Park Street. Flow rates upstream of the MH 9-D were adjusted to match recorded flows to the greatest extent practical. A Figure presenting the location of MH 9-D and the upstream collection system is included in the Attachments. Chart 1 presents the measured average hourly flow rates, represented by the colored dots, and the hydraulic model's estimated flows rates, represented as the red line.

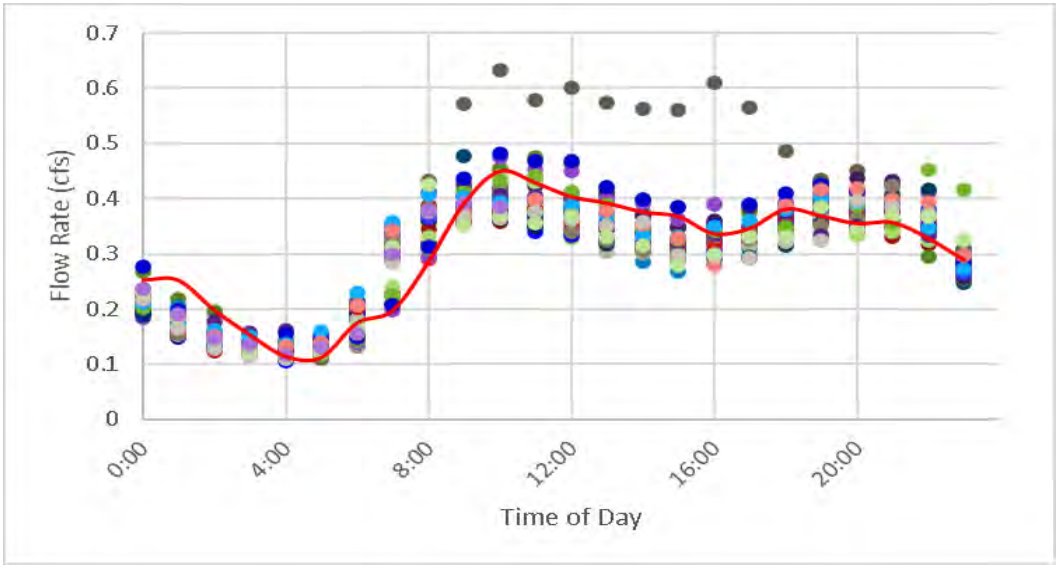


Chart 1: MH 9-D Measured Versus Modeled Flow Rates

Hydraulic Model Updates

Since the hydraulic model was created and calibrated with 2020 measured flow rates, improvement projects have occurred to upsize the 5th Street Railroad Crossing and upstream mains. The model has been updated to reflect the upsized system, referencing As-Builts and Construction Drawings. Additionally, anticipated flows from the upcoming Discovery Vista Phase 4, Northtown Tri Tip, Home 2 Suites, 416 Garnier Avenue, Diamond K, Lahren Subdivision, 208 Llama Lane, Northtown Phases 4 and 5, LARC, Bridger Residences and USDA Love Lane developments have been incorporated into the model.

The hydraulic model was adjusted further to account for predicted flows from the proposed Northtown PUD. Information received from the design engineer indicates the peak hour flow from both proposed phases of the development will be 0.53 cfs (236.76 gpm). To ensure a conservative analysis, this was input into the SSA model as the peak hour flow rate. A diurnal curve was developed referencing a peaking factor of 3.83. An average day flow rate of 0.138 cfs (61.9 gpm) was calculated based on the above information.

Results

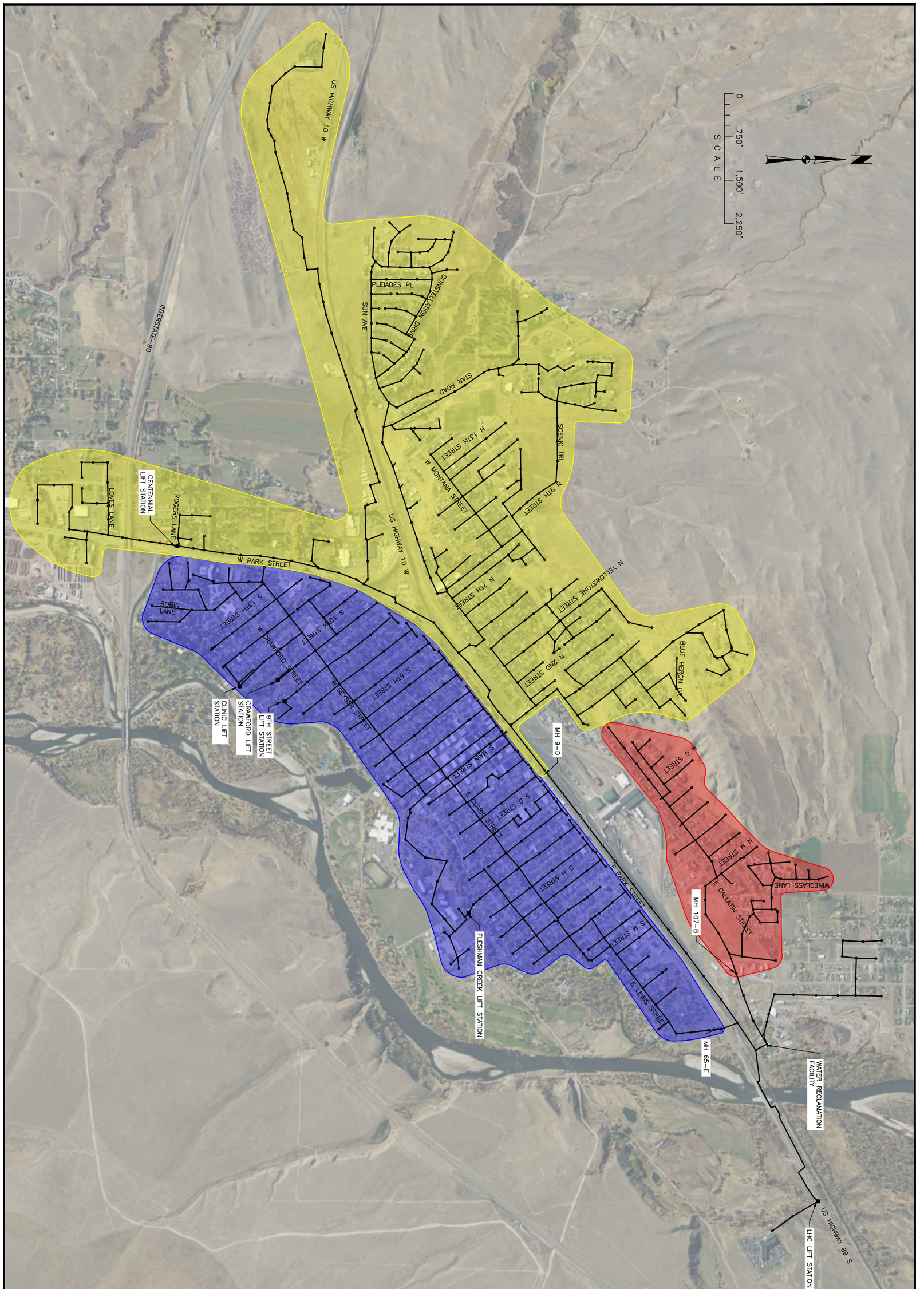
The updated hydraulic model was run once with existing flows and again with predicted flows from the proposed development. As expected, a slight increase in collection system flows and pipe depth was shown. This was most significant directly downstream of the proposed development. Predicted pipe depths remained below 75% and at acceptable levels. However, the 10-inch mains from the proposed developed to the trunk main between Front Street and Chinook Street did report pipe depths above 50% and should be monitored closely with any future developments. Detailed SSA results are available upon request.

Ultimately, the City of Livingston's existing collection system has sufficient capacity to safely convey estimated wastewater generated from all proposed phases of the Northtown PUD.

ATTACHMENTS:

Metered Manhole Locations and Upstream Collection System

J:\2020\20-085 City of Livingston_Wastewater\CADD\CIVIL\2020 WW PER\20-085 PER FIG 2-18.dwg, 5/4/2021 2:40:13 PM, NMR



LIVINGSTON COLLECTION SYSTEM PER AMENDMENT
LIVINGSTON, MONTANA

METERED MANHOLE LOCATIONS AND UPSTREAM COLLECION SYSTEM

FIGURE 2-18 (20-085 PER)

167

DRAWN BY: NMR
DESIGNED BY:
QUALITY CHECK:
DATE: 03-04-2019
JOB NO. 20-085
FIELDBOOK

TD&H Engineering
406.586.0277 • tdhengineering.com
234 E. BABCOCK ST., SUITE 3 • BOZEMAN, MONTANA 59715

REV	DATE	REVISION

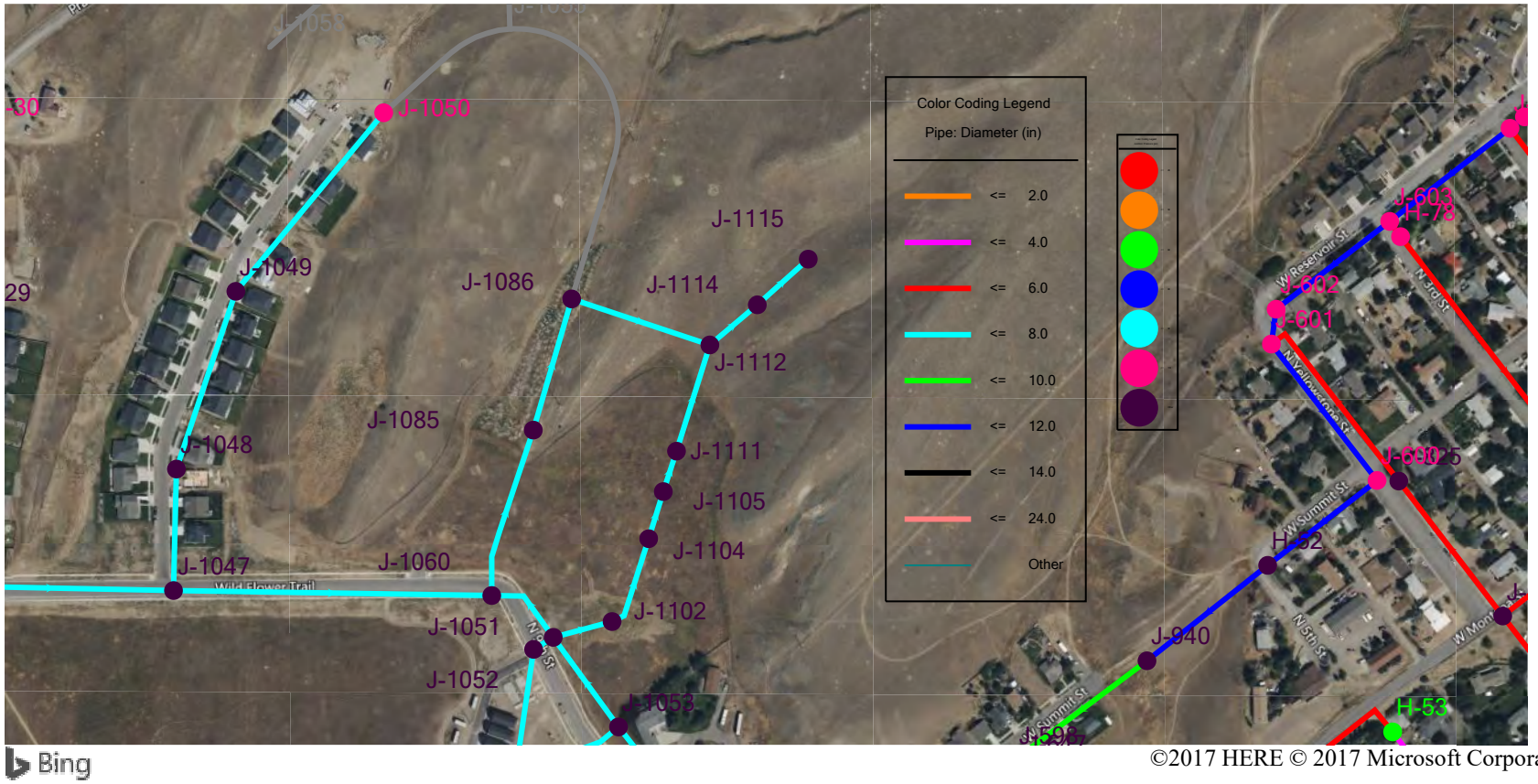
NOT CONSTRU

Item A.

FlexTable: Junction Table

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)	Flow (Total Available) (gpm)	Zone
3765	J-1102	4,590.00	16.96	4,877.07	124	3,038.34	Northtown PUD
3767	J-1104	4,595.00	21.14	4,877.03	122	2,967.74	Northtown PUD
3769	J-1105	4,598.00	21.14	4,877.01	121	2,934.60	Northtown PUD
3783	J-1111	4,605.00	29.72	4,877.01	118	2,916.19	Northtown PUD
3784	J-1112	4,610.00	14.86	4,877.00	116	2,834.37	Northtown PUD
3788	J-1114	4,616.00	29.72	4,877.00	113	2,728.98	Northtown PUD
3790	J-1115	4,620.00	14.86	4,876.99	111	2,599.51	Northtown PUD

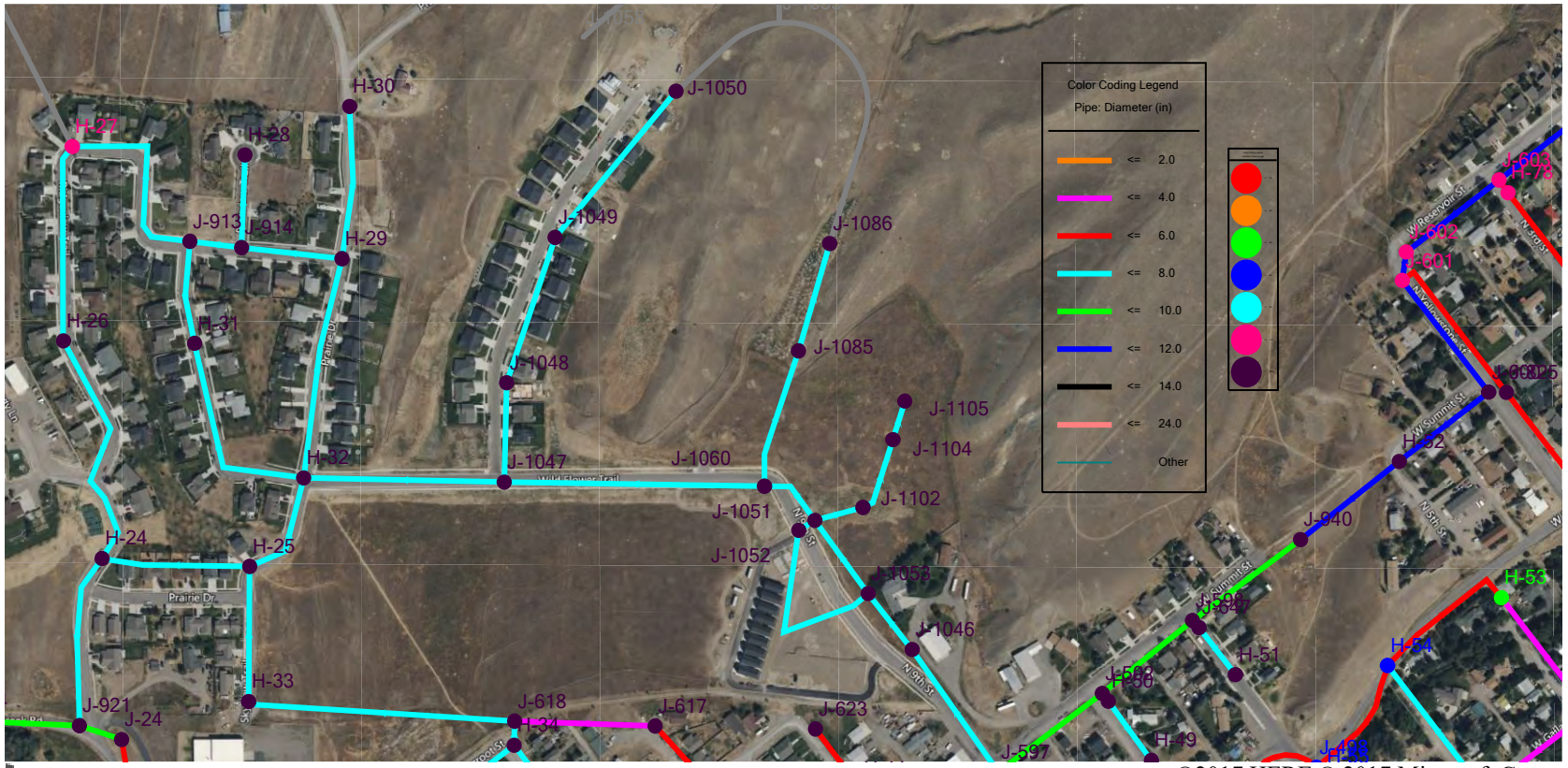
Scenario: 2018 MDD



FlexTable: Junction Table

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)	Flow (Total Available) (gpm)	Zone
3765	J-1102	4,590.00	16.96	4,885.18	128	3,226.72	Northtown PUD
3767	J-1104	4,595.00	21.14	4,885.18	126	3,011.86	Northtown PUD
3769	J-1105	4,598.00	21.14	4,885.17	124	2,914.20	Northtown PUD

Scenario: 2018 MDD



HEADWATERS ENGINEERING

Tab M
Lighting Details
Northtown PUD

ABBREVIATIONS

A or AMP	AMPERES
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONING
AF	AMP FUSE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
AS	AMP SWITCH
BAS	BUILDING AUTOMATION SYSTEM
BKR	BREAKER
C	RACEWAY/CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
C.O.	RACEWAY/CONDUIT ONLY, WITH PULL STRING
C.O.L.	CITY OF LIVINGSTON
CNTRL	CONTROL
CU	COPPER
DISC	DISCONNECT
DIST	DISTRIBUTION
DPDT	DOUBLE POLE DOUBLE THROW
DWG	DRAWING
EA	EACH
EF	EXHAUST FAN
ELEC	ELECTRIC
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
EX OR EXIST	EXISTING
FD	FUSED DISCONNECT
FLR	FLOOR
FO	FIBER OPTIC
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GEC	GROUNDED ELECTRODE CONDUCTOR
GFI	GROUND FALUT INTERRUPTER
GND	GROUND
GRC	GALVANIZED RIGID CONDUIT
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HZ	HERTZ
J-BOX	JUNCTION BOX
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LTG	LIGHTING
MAX	MAXIMUM
MH	METAL HALIDE
MIN	MINIMUM
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFD	NON-FUSED DISCONNECT
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
#	NUMBER
OC	ON CENTER
OH	OVERHEAD
P	POLE
PB	PUSHBUTTON
PNL	PANEL
PVC	POLYVINYL CHLORIDE CONDUIT
PWR	POWER
RECEPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RVNR	REDUCED VOLTAGE NON-REVERSING
RVR	REDUCED VOLTAGE REVERSING
SP	SINGLE POLE TOGGLE SWITCH
SPEC	SPECIFICATION
SPST	SINGLE POLE SINGLE THROW
SSPB	START-STOP PUSHBUTTON
SW	SWITCH
TC	TIME CLOCK
TD	TIME DELAY
TSP	TWISTED SHIELDED PAIR
TTB	TELEPHONE TERMINAL BOARD
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT AMPERES
W	WATTS
WP	WEATHERPROOF
W/O	WITHOUT
XFMR	TRANSFORMER
Y	WYE CONNECTED
△	DELTA CONNECTED
∅	PHASE

*THESE ABBREVIATIONS COMPRISE A STANDARD LIST; NOT ALL ABBREVIATIONS APPEAR ON THIS PROJECT.

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTIONS	MOUNTING HEIGHT, UNO
P-1,3,5	BRANCH CIRCUIT WIRING. ARROW INDICATES HOME RUN TO PANEL WITH CIRCUITS AS NOTED. WIRE SIZE IS #12 UNLESS NOTED OTHERWISE. SHORT TICK MARKS INDICATE PHASE CONDUCTORS. LONG TICK MARKS INDICATE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V BRANCH CIRCUIT. A SINGLE INSULATED GREEN GROUND CONDUCTOR SHALL BE PROVIDED WITH EACH HOME RUN.	
	RACEWAY BELOW FLOOR OR BELOW GRADE	
	RACWAY STUB-OUT OR STUB-UP WITH BUSHED END	
	PAD MOUNTED TRANSFORMER	
M	UTILITY ELECTRIC METER SEE DETAIL SHEET E-2.	
M	METER	
	LINE BREAK	
HH	HANDHOLE SEE DETAIL SHEET E-2	
1	KEY NOTE. REFER TO SPECIFIC NOTE ON SAME DRAWING SHEET.	
	POLE MOUNTED LUMINAIRE ASSEMBLY SECURED TO CONCRETE BASE. LETTER INDICATES FIXTURE TYPE.	
P	PHOTOCELL	
	DUPLEX RECEPTACLE.	18"
A	SPECIAL PURPOSE OUTLET, LETTER INDICATES TYPE. SEE SPEC.	18"
J	JUNCTION BOX	
	FUSED DISCONNECT SWITCH	
	BRANCH CIRCUIT PANELBOARD	
	BREAKER	
C	CONTACTOR	

1. THESE SYMBOLS COMPRISE A STANDARD LIST; NOT ALL SYMBOLS APPEAR ON THIS PROJECT.
2. ALL MOUNTING HEIGHTS ARE TO CENTER OF DEVICE ABOVE FINISHED FLOOR. MOUNTING HEIGHTS INDICATED ON ARCHITECTURAL WALL ELEVATIONS OR AS NOTED SPECIFICALLY ON THE DRAWINGS OR IN THE SPECIFICATIONS SHALL TAKE PRECEDENCE OVER MOUNTING HEIGHTS LISTED.

INCOMING ELECTRICAL SERVICE DIVISION OF RESPONSIBILITY

	ELEC. CONTR.	UTILITY CO.
PRIMARY CONDUIT		X
PRIMARY CONDUCTORS		X
TRANSFORMER		X
POLE RISER (IF POLE MOUNTED TRANSFORMER	X	
TRANSFORMER CONNECTIONS		X
SECONDARY CONDUIT	X	
SECONDARY CONDUCTORS		X
DISCONNECT	X	
METER BASE	X	
METER		X

NOTES:

1. CONTACT AND COORDINATE ALL REQUIREMENTS AND RESPONSIBILITIES WITH SERVING UTILITY COMPANIES PRIOR TO SUBMITTING BID
2. ALL SERVICE INSTALLATION WORK SHALL BE IN STRICT COMPLIANCE WITH THE REQUIREMENTS OF THE SERVING UTILITIES.

POWER CONTACT:

ADDIE SHAFER
NORTHWESTERN ENERGY
BOZEMAN, MT
(406)-220-8066

MORRISON MAIERLE, INC. HAS CONTACTED THE UTILITIES BUT HAS NOT RECEIVED IN WRITING THE FINAL REQUIREMENTS FROM THE POWER UTILITY.
THESE DRAWINGS INDICATE OUR BEST ESTIMATION OF THEIR REQUIREMENTS. PRIOR TO BID CONTACT THE UTILITIES AND OBTAIN IN WRITING THEIR REQUIREMENTS.

PROJECT NOTES

1. PRIOR TO BID CONTRACTOR SHALL VISIT THE SITES. NOT ALL WORK REQUIRED TO COMPLETE THE PROJECT IS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH ALL THE WORK REQUIRED TO COMPLETE THE PROJECT IN ADDITION TO THE LOCAL CONDITIONS AND INCLUDE SAID WORK IN THE BID.
2. GENERAL WORK PRACTICES FOR ELECTRICAL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NECA 1, "STANDARD PRACTICES FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING." THIS PUBLICATION IS AVAILABLE FROM NCSA BY TELEPHONE AT 301-215-4521 OR ON-LINE AT WWW.NECA-NEIS.ORG.
3. U.N.O. ALL POLES AND METER BASES SHALL BE LOCATED 5' FROM BACK OF CURB. VERIFY ALL STATION NUMBERS AND COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS PRIOR TO ROUGH-IN.
4. ALL NEW POLES SHOULD BE PROVIDED WITH BREAKAWAY BOLTS. PROVIDE TRANSPO POLE-SAFE MODEL 4100 OR EQUAL.
5. CONTRACTOR SHALL BORE/DIRECT BURY UNDER ROADWAYS, DRIVEWAYS, SIDEWALKS, ETC. ALL COSTS ASSOCIATED WITH BORING/DIRECT BURY SHALL BE INCLUDED IN CONTRACTOR'S BID PRICE.
6. CONTRACTOR TO IMMEDIATELY NOTIFY ENGINEER AND OWNER OF ANY CONFLICTS ENCOUNTERED DURING CONSTRUCTION. UNDER NO CIRCUMSTANCES SHALL CONTRACTOR RESOLVE CONFLICT PRIOR TO NOTIFICATION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL ELECTRICAL SERVICE WORK WITH NORTHWESTERN ENERGY. OWNER PAYS ALL FEES, CONTRACTOR DOES ALL SCHEDULING AND COORDINATION OF NORTHWESTERN ENERGY WORK. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ALL SCHEDULES ARE MET.

Panel M1 — **PANEL SCHEDULE** — PROJECT: NORTHTOWN

120/240V, 1Ph, 3W | 100A BUS | 100A M.C.B. | SURFACE MOUNTED | 31-Oct-22

Ckt. No.	Description / Location	Load (VA)	Load Type	C.B. Amp	C.B. Pole	Phase	C.B. Amp	C.B. Pole	Load (VA)	Load Type	Description / Location	Ckt. No.
1	LTG NORTH	135	L	20	2	A	20	2	111	L	LTG SOUTH	2
3	--	135	L	--	--	C	--	--	111	L	--	4
5	SPARE			20	2	A	20	2			SPARE	6
7	--			--	--	C	--	--			--	8
9	SPARE			20	2	A	20	2			SPARE	10
11	--			--	--	C	--	--			--	12
13	LIGHTING CONTROL	20	G	20	1	A	20	1			SPARE	14
15	SPARE			20	1	C	20	1			SPARE	16

Total Connected Load: Ph A: 456 VA, 4 A
Total Connected Load: Ph C: 396 VA, 2 A
Maximum Phase Connected Load: Ph A: 396 VA
Total Connected Load (2 X Maximum): 1.0 KVA, 4.1 AMPS
12,175 A rms Available Fault Duty
Total Demand Load: 0.9 KVA, 3.9 AMPS

NOTES:
DETAILS ARE PRELIMINARY, DETAILS SHOWN ARE FROM THE ADJACENT NORTHTOWN PHASE 4A PROJECT

02/07/2025

VERIFY SCALE
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, BOZEMAN, MT 59718
HEADWATERSMT.NET 406-581-5730

DRAWN BY: NJH
DATE: 02/07/2025
REVISION DATE:
PROJECT LOCATION
LIVINGSTON
MONTANA

NORTHTOWN DEVELOPMENT
PUD

LIGHTING DETAILS

HEADWATERS PROJECT NUMBER: 2025.003

DRAWING NUMBER: C5.0

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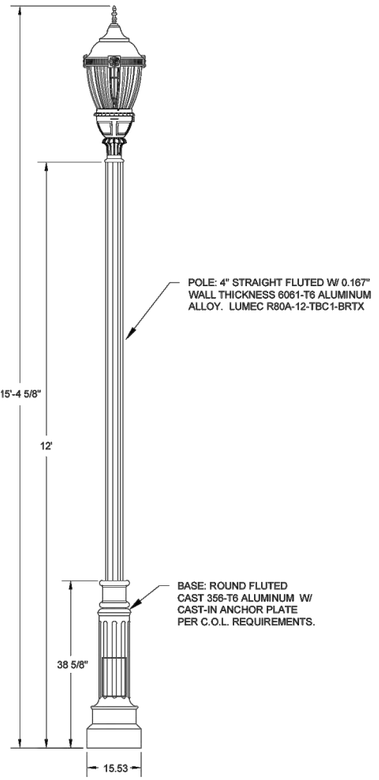
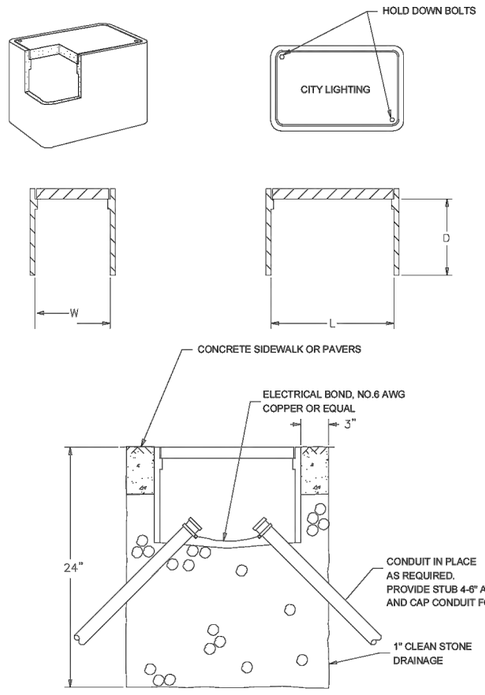
NOTES:
DETAILS ARE PRELIMINARY, DETAILS SHOWN ARE FROM THE ADJACENT NORTHTOWN PHASE 4A PROJECT

LUMINAIRE SCHEDULE

SYMBOL	TYPE	LAMPS	DESCRIPTIONS	MANUFACTURER	CATALOG NO. OR SERIES	MOUNTING/ VOLTAGE
○	E1	35W LED	POST TOP LUMINAIRE WITH TYPE III DISTRIBUTION, 4,394 LUMENS, MOUNTED ON 12FT STRAIGHT POLE ON CONCRETE.	LUMEC	S55-35W32LED4K-G3-ACDR-LE3-240 -DMG-SFX-BRTX	POLE/ 240

PULL BOX COMPOSITE MINIMUM INSIDE DIMENSIONS
TYPE I
W = 12 INCHES
L = 18 INCHES
D = 12 INCHES



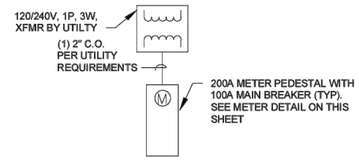


NOTES:

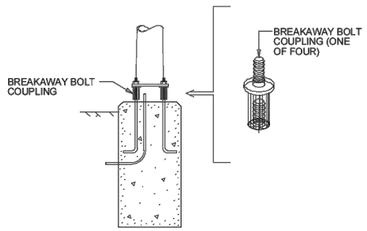
FURNISH PULL BOXES AND COVERS MADE OF POLYMER CONCRETE WITH FIBERGLASS REINFORCEMENT. FURNISH PULL BOXES HAVING CONTINUOUS FIBERGLASS CLOTH REINFORCEMENT ON THE INSIDE AND OUTSIDE PERIMETERS. FURNISH COVERS HAVING A MINIMUM OF TWO LAYERS OF FIBERGLASS CLOTH REINFORCEMENT.

ENSURE THE PULL BOXES AND COVERS COMPLY WITH ALL TEST PROVISIONS OF THE MOST CURRENT ANSI/SCTE 77 FOR TIER 22 APPLICATIONS. FURNISH PULL BOXES AND COVERS THAT HAVE BEEN TESTED AND CERTIFIED BY A NATIONALLY RECOGNIZE D THIRD PARTY INDEPENDENT TEST FIRM SUCH AND UL OR ETL VERIFYING THAT THE BOXES AND COVERS MEET ALL TEST PROVISIONS OF THE ANSI/SCTE 77. FURNISH PULL BOXES THAT HAVE MARKINGS SHOWING THE TIER 22 RATING LABELED OR STENCILED ON THE INSIDE AND OUTSIDE OF THE BOX. FURNISH COVERS THAT MARKING SHOWING THE TIER 22 RATING EMBOSSED IN THE TOP SURFACE OF THE COVER. FURNISH COVERS HAVING PULL SLOTS RATED FOR A MINIMUM PULL OUT OF 3,000 POUNDS.

FURNISH 3/8-7 LAB THREAD HEX HEAD BOLTS TO SECURE THE COVER TO THE PULL BOX.

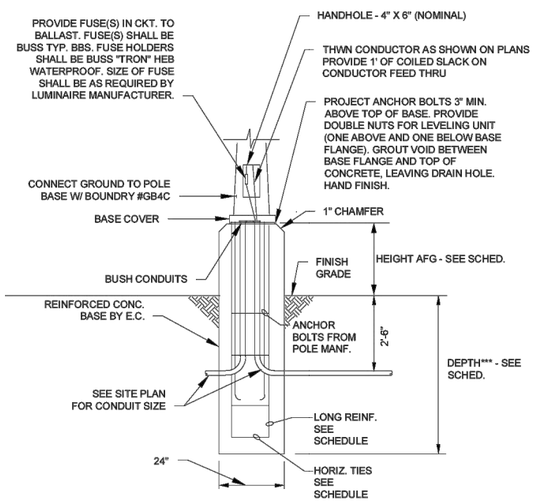


ONE-LINE DIAGRAM
N.T.S.



BOLT COUPLING
(BREAKAWAY TYPE)

BEAKAWAY BOLT COUPLING (TYP)
N.T.S.

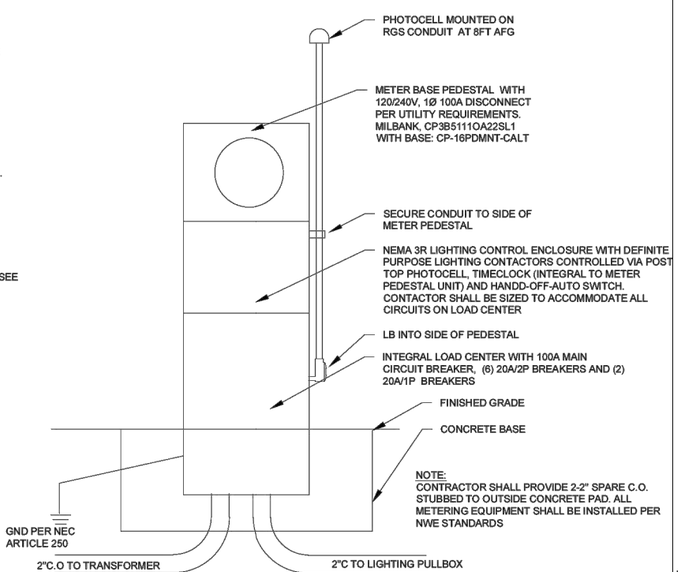


LIGHT FIXTURE BASE SCHEDULE *****

POLE HEIGHT	SIZE	LONG STL	HORIZONTAL STL **	DEPTH ***	HEIGHT AFG
0' - 14'	18" Ø	(6) # 5 ****	#3 AT 10" O.C.	4'-0"	0"

* PROVIDE LONG AT ALL FOUR CORNERS OF SQUARE PIER.
** PROVIDE SPACING OF S/2 AT TOP 1'-0" OF PEIR.
*** DEPTH BELOW FINISHED GRADE.
**** SPACE LONG. STEEL EVENLY AROUND PERIMETER.
***** PROVIDE REINF. CLEARANCE PER ANCI 318.

POLE BASE DETAIL (TYP)
N.T.S.



METER EQUIPMENT DETAIL
N.T.S.

02/07/2025

VERIFY SCALE
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY

HEADWATERS ENGINEERING
1105 REEVES ROAD WEST, BOZEMAN, MT 59718
HEADWATERSMT.NET 406-581-5730

DRAWN BY: NJH
DATE: 02/07/2025
REVISION DATE:
PROJECT LOCATION
LIVINGSTON
MONTANA

NORTHTOWN DEVELOPMENT
PUD

LIGHTING DETAILS

HEADWATERS PROJECT NUMBER
2025.003

DRAWING NUMBER
C6.0

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Click to expand
(assets/images/150W_NextGen_IV_Series_LED_Parking_Lot_Area_Light_Color_Selectable_Direct_Arm_Mount_with_Photocell_SV_2_Shadow_RG_1100px.jpg)