STAFF FINDINGS & RECOMMENDATION

FILE NUMBERS: MP 19-01

LOCATION: 801 W Hood Avenue
Map and Taxlot: 151005DC07202

APPLICANT/OWNER: Threewind Partners, LLC

STAFF: Nicole Mardell, Principal Planner

REQUEST: The Applicant is requesting approval of a Master Planned Development (Type III). Proposed development includes up to 28,000 square feet of commercial building area, up to 28,000 square feet of ground floor multifamily building area, a public street, and associated site improvements. This application is for preliminary approval of these uses, more detailed review of the development will occur at the time of site plan review.

APPLICABLE CRITERIA: City of Sisters Development Code (SDC):
- Chapter 4.1 – Types of Applications and Review Procedures
- Chapter 4.5 – Master Planned Developments
- Chapter 2.15 – Special Provisions
- Chapter 2.6 – Highway Commercial District (HC)
- Chapter 3.1 – Access and Circulation
- Chapter 3.2 – Landscaping and Screening

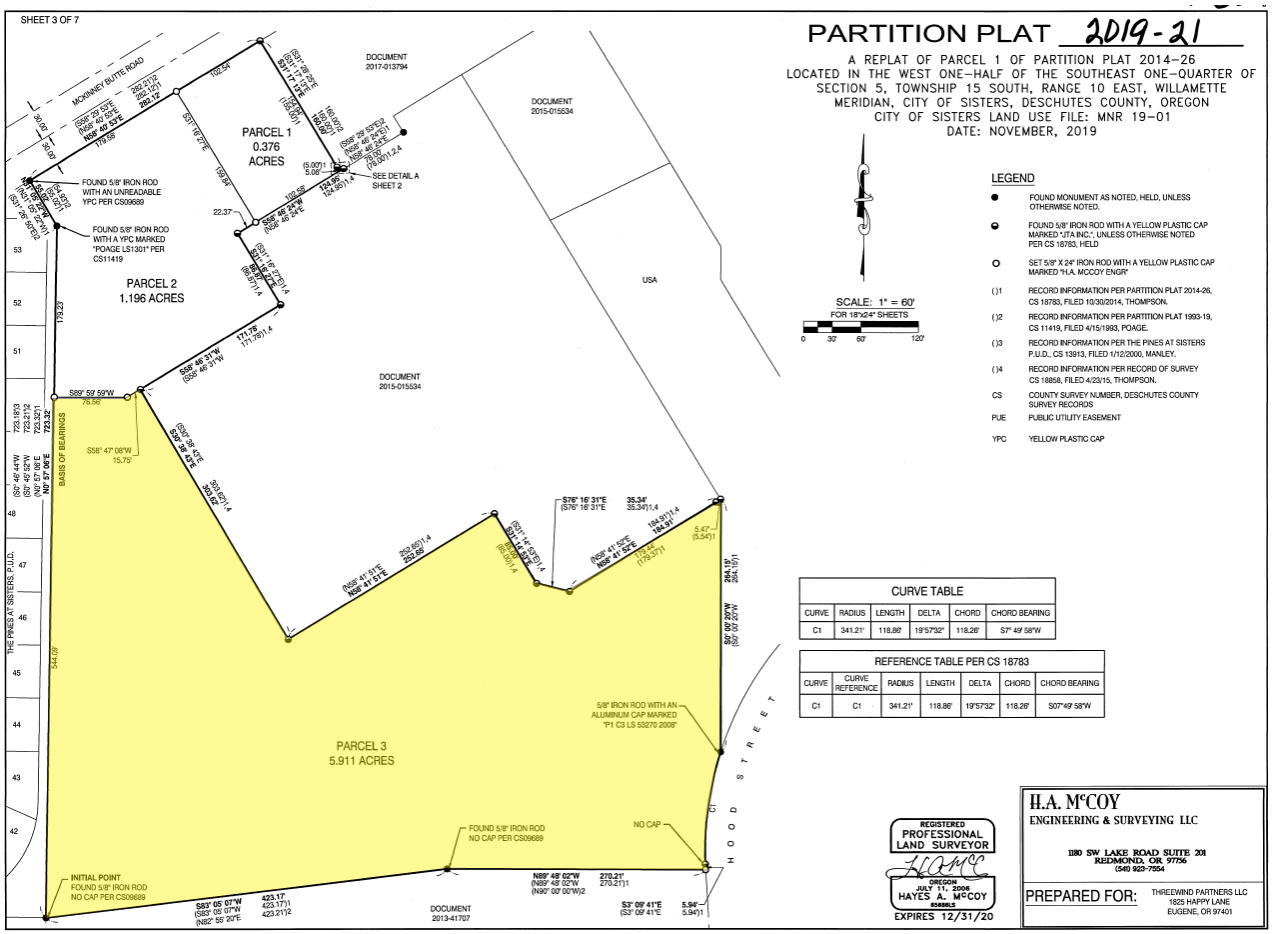
Statewide Land Use Goals
City of Sisters Comprehensive Plan
Oregon Revised Statutes
Oregon Administrative Rules
- Division 12 – Transportation Planning

HEARING DATE: **February 20, 2020, 5:30 pm**, Sisters City Council Chambers, 520 E. Cascade Avenue, Sisters, Oregon

<u>FINDINGS OF FACT:</u>
ZONING: Highway Commercial - HC
COMPREHENSIVE PLAN DESIGNATION: Commercial Highway - CH

PROPOSAL DESCRIPTION: The subject property consists of 5.911 acres located at 801 W Hood Avenue, on a newly created lot designated under taxlot number 151005DC07202. The applicant is requesting a Master Planned Development for up to 28,000 square feet of commercial building area, up to 28,000 square feet of ground floor multifamily building area, a public street, and associated site improvements.

LOT OF RECORD: The original property was platted as Parcel 1 of Partition Plat 2014-26. The applicant received approval of a Minor Partition through file number MNR 19-01, which became final on September 6, 2019. A final plat reflecting this partition was approved and subsequently recorded on December 10, 2019 as Partition Plat 2019-21. The focus of this application is Parcel 3, which is 5.911 acres in size.



Parcel 3 in Partition Plat 2019-21

SITE DESCRIPTION & SURROUNDING LAND USES: The subject site is undeveloped and mostly flat with mature Ponderosa Pine trees scattered throughout.

To the north of the subject property is a Highway Commercial (HC) zoned property, including an existing Bi-Mart location and a newly created 1.20-acre vacant parcel, which recently received site plan approval for a retail store. To the east of the subject property is a federally owned East Portal Interpretation Site parcel, zoned Open Space (OS). To the south is a vacant parcel zoned for Multi-Family Residential (MFR), and to the East is the existing "Pines at Sisters" subdivision, also zoned MFR. The Pines includes single family residences.

The property also contains an existing shared driveway that connects W. Hood Avenue to the east of the property to the Bi-Mart location north of the subject property. This driveway was identified as "Red Crater Way" on Partition Plat 2014-26.

BACKGROUND: The site was partitioned in December 2019 through file numbers MNR 19-01 and FP 19-05. As part of the partition, a public access easement through both the subject property and the property

to the northwest. Applicant is proposing to establish a driveway within this access easement as part of a future connection to Highway 242. The site has not received previous development approvals.

A neighborhood meeting was held by the applicant on January 21, 2020 at the Pines Club House. At that time, approximately 8 residents attended to discuss the concept plan with the applicant and the owner's team. Key issues that were discussed at that time included: building orientation to increase privacy for residents of the Pines subdivision, dark skies compliant lighting, parking, garbage and recycling access, and connections to existing city streets. The applicant provided a revised set of drawings reflecting agency and some informal public comments – the set of plans referred to in this document are dated 1/23/2020.

SUMMARY OF CONCLUSIONARY FINDINGS: The subject application can either be approved, approved with conditions, or denied on the basis of whether the applicable standards and criteria can be satisfied either as submitted, or as mitigated through conditions of approval.

A detailed analysis of applicable standards and conclusionary findings specific to the requested Master Planned Development are contained in the staff findings below.

STAFF RECOMMENDATION: ***Approve with Conditions***. Based on the information and findings contained in this staff report, staff concludes that the requested Master Planned Development satisfies the approval criteria and recommends that the Planning Commission vote to approve this request, with conditions (Exhibit **F**).

EXHIBITS:
The following Exhibits make up the record in this matter:

- **A. Vicinity Map**
- **B. Proposed Master Plan**
- **C. Transportation Analysis, Addendum & Access Management Plan**
- **D. Public Notice & Comments**
- **E. Agency Review Comments**
- **F. Recommended Draft Conditions of Approval**

APPLICABLE CRITERIA & STAFF FINDINGS

CONCLUSIONARY FINDINGS
The following findings relate to compliance with applicable criteria. The terms "subject property" or "site" refers to the subject site under consideration. The criteria applicable to this land use application are as follows:

City of Sisters Development Code (SDC):
- Chapter 4.1 – Types of Applications and Review Procedures
- Chapter 4.5 – Master Planned Developments
- Chapter 2.5 – Highway Commercial District (HC)
- Chapter 2.15 – Special Provisions
- Chapter 3.1 – Access and Circulation

Statewide Land Use Goals
City of Sisters Comprehensive Plan

SISTERS DEVELOPMENT CODE

CHAPTER 4.1 – TYPES OF APPLICATIONS AND REVIEW PROCEDURES

4.1.200 Description of Permit/Decision-Making Procedures
All land use and development permit applications, except building permits, shall be decided by using the procedures contained in this Chapter. General provisions for all permits are contained in Section 4.1.700. Specific procedures for certain types of permits are contained in Section 4.1.200 through 4.1.600. The procedure "type" assigned to each permit governs the decision-making process for that permit. There are four types of permit/decision-making procedures: Type I, II, III, and IV. These procedures are described in subsections A-D below. In addition, Table 4.1.200 lists all of the City's land use and development applications and their required permit procedure(s).

…

C. Type III Procedure (Quasi-Judicial). Type III decisions are made by the Planning Commission after a public hearing, with appeals heard by the City Council. Type III decisions generally use discretionary approval criteria;

Table 4.1.200 **Summary of Development Decisions/Permit by Type of Decision-making Procedure**		
Action	**Decision Type**	**Applicable Regulations**
Master Planned Development	Type III	Chapter 4.5

E. Notice of all Type III and IV hearings will be sent to public agencies and local jurisdictions (including those providing transportation facilities and services) that may be affected by the proposed action. Affected jurisdictions could include ODOT, the Department of Environmental Quality, the Oregon Department of Aviation, and neighboring jurisdictions.

***Staff Findings*:** The proposal includes a Master Planned Development (Type III). The procedures outlined in the sections above were followed in the review of this application.

4.1.500 Type III Procedure (Quasi-Judicial)
…

***Staff Findings*:** Staff provided the required notice to those persons entitled to notice at least 14 calendar days before the February 20, 2020 hearing. The notice contained all of the required information. Staff also published notice in a local newspaper as would be required for a Type III decision. The public hearing will follow the requirements of SDC 4.1.500(C) and a decision will be issued in accordance with SDC 4.1.500(D) through (F).

4.1.700 General Provisions
….

***Staff Findings*:** The application was initially submitted on September 11, 2019 and was deemed incomplete on September 19, 2019. Following the submission of additional information, the application contained all of the materials set forth in this Section and was deemed complete on November 12, 2019.

The 120 day in which the City must issue a final local land use decision is March 11, 2020. The subject property constitutes a lot of record for the reasons set forth above.

CHAPTER 4.5 – MASTER PLANNED DEVELOPMENTS

4.5.100 Purpose

The purpose of this Section is to encourage creativity, flexibility and open space in the planning of Residential, Commercial, Industrial and Mixed-Use Developments.

Staff Findings: Staff finds that this purpose statement does not contain any approval criteria.

4.5.200 Applicability and Uses

A. Applicability. The Master Planned development designation may be combined with any of the City's land use districts. An applicant may develop a project as a Master Planned Development. A Master Planned development shall be used for any property or combination of contiguous properties of ten (10) acres or larger in the Residential District and of five (5) acres or larger in the Residential Multi-Family, Industrial or the Commercial Districts, and for all Major Retail Developments.

B. Uses.

1. Master Planned development (MP) in the Residential (R) and Multi-Family Residential (MFR) Districts shall include uses in accordance with the underlying zoning districts. Master Plans are encouraged to have a mix of residential uses.
3. Use(s) not permitted in the underlying zone may be permitted and approved to occupy up to 20% of the gross area of the MP. Said use(s) shall be considered to be a conditional use and may be approved subject to compliance with the conditional use permit criteria in Chapter 4.4.

C. Accessory Uses. Accessory uses such as laundry rooms, recreational vehicle storage areas, storage and maintenance facilities and similar uses may be permitted. All accessory buildings/uses shall be approved per the Master Plan.

Staff Findings: The proposal is located within the Highway Commercial district and is greater than five (5) acres in size. A Master Planned development application and review is required.

The proposed Master Planned development includes uses in accordance with the Highway Commercial zone and includes a mix of residential uses and commercial uses, which are allowed in the zone. No non-permitted uses per SDC 4.5.200(B)(3) have been requested.

The applicant has not proposed any standalone accessory buildings or uses as part of the proposed application.

4.5.300 Review and Approvals Process

A. Submittal requirements as required by Site Plan Review, Chapter 4.2, may be processed as part of the Master Plan Approval. When the submittal requirements including elevations and floor plans are not included as part of the Master Plan application, then subsequent Site Plan Review applications and approvals shall be required as a condition of approval of the Master Plan. All Site Plan Review applications shall be submitted prior to the expiration of the Master Plan approval.

B. The Master Planned development and all other concurrent applications shall be reviewed using the Type III procedure in Chapter 4.1, the submittal requirements in Section 4.5.500, and the approval criteria in Section 4.5.700.

C. As a condition of approval, the applicant shall record a deed restriction on the subject property and all future lots and parcels created, noting inclusion in the approved Master Planned Development.

D. Land Use District map designation. After the Master Plan has been approved, the Land Use District Map shall be amended to indicate the approved Master Planned Development (MPD) designation for the subject development site.

Staff Findings: The proposed application does not include specific details on the commercial or residential development proposals. Site Plan applications will be required for development of any uses or structures on the subject property. A condition of approval has been added to satisfy this criterion. The remaining requirements in this section are procedural and have been acknowledged by the applicant.

4.5.400 Property Development Standards

A. If the continuous horizontal distance (i.e., as measured from end-wall to end-wall) of an individual facade of a multi-family structure is greater than 20 lineal feet, the facade shall contain a minimum of five of the following features:

…

Staff Findings: The applicant will submit details regarding the design of multi-family structures at the time of Site Plan Review application, which must comply with this criterion.

B. Development standards, except for density, landscape and open space, may be modified by up to 20 percent of the required standard of the underlying Zone District. Dimensional standards include lot area, lot width, setbacks, lot coverage, lot depth, and access spacing on local streets. These development standards may be modified upon a finding by the Planning Commission that such modification will not be detrimental to the general welfare, health or safety of the City of Sisters and will enhance the visual characteristics of the neighborhood.

Staff Findings: The applicant has not requested any modifications to development standards. Therefore, this section does not apply.

C. Except for residential uses, parking space requirements may be modified up to 20 percent of the required standard upon a finding by the Planning Commission that such modifications will not be detrimental to the general welfare, health or safety of the City of Sisters and will enhance the visual characteristics of the neighborhood. All other vehicle and bicycle parking standards shall be per City Standards and shall be provided for in the submitted plan.

Staff Findings: The applicant has not requested any modifications to the parking space requirements. Therefore, this section does not apply.

D. Public and private streets and alleys shall comply with the Public Works Construction Standards, latest edition. See also Access and Circulation, Chapter 3.1.

Staff Findings: The applicant is proposing one public local street along the southern portion of the development, which shall comply with the Public Works Construction Standards, latest edition. Specific standards are addressed in findings under Chapter 3.1 below.

E. Landscaping. A landscaping plan in accordance to Chapter 3.2 showing all fences, walls, hedges, screen plantings and trees shall be provided for in the submitted plan.

Staff Findings: The applicant provided a concept landscape plan identifying the location of street trees as part of this application. Additional information regarding the landscaping and screening of the commercial and multifamily developments will occur at the time of Site Plan Review when specific development is proposed. Staff finds that the submitted information is sufficient to satisfy this criterion.

F. Laundry Facilities. All dwelling units shall be provided with internal laundry facilities or an accessory laundry building shall be provided on site.

Staff Findings: This criterion will be reviewed at the time of Site Plan Review when specific designs for dwelling units are proposed. Staff has added a condition of approval to ensure this standard is satisfied.

G. Garbage and recycling collection areas. All exterior garbage cans, garbage collection areas, and recycling collection areas shall be oriented away from the street and adjacent properties. Trash enclosures shall be constructed of solid, durable and attractive walls/fences, a minimum of six (6) feet in height, with solid doors, and shall be visually consistent with project architecture. Trash receptacles for pedestrian use are exempt. Trash enclosures shall be compliant with all applicable fire codes.

Staff Findings: The applicant has not provided a detailed layout or site plan that outlines garbage and recycling collection areas as part of this proposal. A proposal compliant with this provision must be provided at time of Site Plan Review.

H. Open Space. The net acreage of the development site shall be used to calculate the minimum required open space of 15%. Net acres shall be determined by subtracting land dedicated to the public for rights-of-way or private streets and alleys.

Usable open spaces may be provided in the form of natural areas, tree preservation areas, playgrounds, active or passive recreational areas, and similar areas. Portions of the right-of-ways that include tree preservation or parkway strips 10-feet or greater may also be counted as open space. Usable open space area shall not include: drainage swales with slopes steeper than a 3:1 slope, right-of-ways for public or private streets and alleys, parkway strips less than 10-feet, vehicle parking areas, areas adjacent to or between any structures less than ten (10) feet apart, setbacks, patios and private yards.

Open space area calculations and dimensions shall be provided for in the plan submitted. Open space must be readily accessible to all lots and uses within the Master Plan development, and be generally accessible to the public (using a public access easement). Access to private recreational buildings can be restricted to residents within the Master Plan development.

Open space shall be designated as a common area on the Master Plan and on all plats, as applicable. Open space may be dedicated to the public, if approved by a public agency with

responsibility for open space, recreation, or park facilities. If the open space is privately owned, it shall be maintained by a homeowners' association, property owner, or other legal entity.

Staff Findings: The applicant stated in the burden of proof that a minimum of 1.1 acres of open space is required based on the net acreage of the site. Following the submittal of the application, the property received final plat approval and the net acreage for the subject property decreased. Therefore, a minimum of 15% (0.89 acres) of open space is required based on the net acreage (5.91 acres) of the site following the recent partition of the property. The applicant has not provided detail regarding the location or size of the required open space, but acknowledged that 15% of the area shall be designated as open space and reviewed at the time of the subsequent Site Plan Review application. If the property is divided, required open space must be platted as common areas.

I. Amenities. All residential planned developments shall provide recreational amenities which may include: a swimming pool, spa, clubhouse, tot-lot with play equipment, picnic area, gazebo, barbecue area, day care facilities, and court-game facilities. The minimum number of amenities required shall be provided according to the following schedule.

1 to 11 units	1 amenity
12 to 40 units	2 amenities
41 to 100 units	3 amenities
More than 100 units	4 amenities

Staff Findings: The applicant is proposing approximately 50 residential units, therefore a minimum of three (3) amenities are required. The applicant is proposing the following to satisfy this requirement:

1. A park
2. A play structure
3. Picnic area with tables and chairs

Staff finds that the proposed features qualify as amenities for purposes of this criterion except that a park will not qualify as an amenity if its only feature is either a play structure or a picnic area (i.e. no double-counting). As a condition of approval, site plan applications will include the location and design of the amenities, which must be delivered on a schedule proportionate to the development proposed (i.e. a site plan for a 10 unit development must provide 1 amenity, a site plan for 20 units must provide 2 amenities, etc.) and be completed prior to issuance of a certificate of occupancy for the associated multi-family structure.

J. Public Improvements Needed for Development. Development shall not occur unless the public improvements serving the development comply with the Public Works Construction Standards, latest edition,

Staff Findings: The applicant will provide detailed public improvement plans at the time of site plan review. Staff has added a condition of approval to ensure that all public improvements conform to the Public Works Construction Standards, latest edition.

K. Conditions of Development Approval. No development may occur unless required public facilities are in place or are guaranteed in conformance with the provisions of this Code and the

Public Works Construction Standards, latest edition. Improvements required as a condition of development approval, when not voluntarily accepted by the applicant, shall be roughly proportional to the impact of development. Findings in the development approval shall indicate how the required improvements are roughly proportional to the impact.

Staff Findings: The City Engineer and Public Works Director have reviewed this proposal and added conditions of approval to ensure compliance with this standard. Additional detail is provided in Exhibit E and in Exhibit F of this document. Staff will further review the required public facilities at the time of site plan review.

L. Mixed-use Development Requirement

1. The Master Plan process may be used to transfer ground-floor commercial and residential uses between parcels in the same development, which may result in stand-alone residential structures or ground-floor residential uses fronting the street, provided that a minimum of 50 percent of the ground floor shall be commercial uses.
2. Mixed use developments may be mixed "vertically" – meaning that a residential use is developed above the commercial use or may be mixed "horizontally" – meaning commercial and residential uses both occupy ground floor space, provided that a minimum of 50 percent of the ground floor shall be commercial uses.
3. Mixed use developments may be modified as allowed by Section a and b upon a finding by the Planning Commission that such modification will not be detrimental to the general welfare, health or safety of the City of Sisters and will enhance the visual characteristics of the neighborhood.
4. Mixed use developments may be modified as allowed by Section a and b upon a finding by the Planning Commission that such modification will create an attractive mixed-use environment through the use and inter-relationship of open spaces, building locations, building scale, and design, and pedestrian amenities

Staff Findings: The applicant is proposing five stand-alone multifamily residential buildings as part of the proposed master plan. The applicant is proposing commercial space on a minimum of 50 percent of the ground floor of structures on site. Therefore, staff finds this mix of uses is appropriate as part of the master plan and a modification is not required.

M. Gated communities may be permitted upon a finding by the Planning Commission that such modification will not be detrimental to the general welfare, health and safety of the City of Sisters and will enhance the visual characteristics of the neighborhood.

Staff Findings: The applicant is not proposing a gated community as part of this master plan application. This criterion does not apply.

N. Front lot lines do not need to abut a street.

Staff Findings: The configuration of the site was approved as part of MNR 19-01.

4.5.500 Master Plan Submittal Requirements

A. Submittal requirements. The applicant shall submit an application containing all of the general information required for a Type III procedure, as governed by Chapter 4.1. In addition, the applicant shall submit the following:

1. A detailed project description by the applicant; This statement should include a description of the character of the proposed development and the rationale behind the assumptions and choices made by the applicant;
2. Burden of Proof documenting compliance with all applicable approval criteria;
3. Complete application form with fee;
4. Electronic copies of all materials submitted (acceptable file types to be determined by the Community Development Director or designee); and,
5. Preliminary title report or equivalent printed within 90 days of the date of the application submittal.
6. Existing Conditions Site Plan
7. Topographic Map at appropriate contour intervals to be determined by the Community Development Director
8. Access and Circulation Map
9. Site Plan – proposed
10. Landscape/Open Space Plan
11. Utility Plan
12. Conceptual Drainage Plan (to include benchmarks and elevations at staffs discretion)
13. Elevations and floor plans of all proposed buildings, unless reviewed during subsequent Site Plan Review applications.
14. Sign Plan if applicable
15. Tentative Plat if applicable
16. Development Schedule
17. Copy of all existing covenants and restrictions, and general description of proposed restrictions or covenants (e.g., for common areas, access, parking, etc.).
18. Special studies prepared by qualified professionals may be required by the Community Development Director, Planning Commission or City Council to determine potential traffic, geologic, noise, environmental, natural resource and other impacts, and required mitigation.

Staff Findings: The Master Plan application was reviewed for conformance with the Master Plan Submittal Requirements listed in SDC 4.5.500 above and was deemed complete for the purposes of this section on November 12, 2019.

4.5.600 Comprehensive Sign Plan

A. Comprehensive Sign Plan is intended to integrate the signs proposed for a development project with the design of the structures, into a unified architectural statement. A Comprehensive Sign Plan provides a means for defining common sign regulations for multi-tenant projects, to encourage maximum incentives in the design and display of multiple signs and to achieve, not circumvent the intent of this Ordinance.
   1. Applicability. A Comprehensive Sign plan shall be required for all Master Plans. Signs shall comply with the provisions of this ordinance and Chapter 3.4 Signs.
   2. Approval Authority. The City shall approve a Comprehensive Sign Plan as part of the Master Plan approval.
   3. Application Requirements. The Comprehensive Sign plan shall include all information and materials required as follows:
      a. Location: identification of sign locations on the buildings and on the property.
      b. Materials: description of the type of sign and sign materials including construction materials and proposed lighting if any.
      c. Size: itemization of sign size or sign band area at identified locations.

d. The Comprehensive Sign plan shall accommodate future revisions that may be required because of changes in use or tenants; and
e. Signs located in the Commercial Districts shall comply with the 1880's Western Design Theme.

4. Revisions to Comprehensive Sign Plans. The Community Development Department may approve revisions to a Comprehensive Sign plan if the intent of the original approval is not affected.

Staff Findings: The proposal does not include any signage. Therefore, a comprehensive sign plan is not applicable. If any signage, other than standard street and other safety signage is proposed, a Comprehensive Sign Plan and a sign permit will be required and will be reviewed for conformance with SDC Chapter 3.4 Signs in addition to this subsection at the time of sign permit application.

4.5.700 Master Plan Approval Criteria

The City shall make findings that all of the following criteria are satisfied when approving, or approving with conditions, the Master Planned development. The City shall make findings that at least one of the criteria is not satisfied when denying an application:

A. Comprehensive Plan. All relevant provisions of the Comprehensive Plan are met;

Staff Findings: The Development Code expresses the goals, policies and objectives of the Comprehensive Plan. The proposal meets the requirements of the Development Code and is therefore compliant with the Sisters Comprehensive Plan.

Moreover, the proposed master plan meets the specific goals and policies of the Comprehensive Plan. Specifically, the project implements the Comprehensive Plan Goal 5 – Open Space, Scenic and Historic Spaces, Natural Areas, which encourages protection of natural resources and open spaces. In accordance with Policy 5.4(1), Task B, the Development Code requires open space as part of a Master Planned Development. The proposed master plan includes a sufficient amount of open space to meet the Development Code.

Although there are no policies under Comprehensive Plan Goal 10 specific to the approval of Master Plans, the proposal advances several objectives of and also implements the Comprehensive Plan Goal 10 – Housing. Goal 10 provides that the City shall "provide for the housing needs of citizens of the City and ensure that land development allows for different housing types and densities." The proposed Master Plan will increase supplies of multi-family housing within the City. Goal 9 intends "to provide adequate opportunities for a variety of economic activities vital to the health, welfare, and prosperity of the City's citizen. The proposed master plan would increase the City's square footage of available commercial space by approximately 28,000 square feet. Staff finds the proposal is compliant with the Comprehensive Plan.

B. Land Division Chapter. All of the requirements for land divisions, as applicable, shall be met (Chapter 4.3);

Staff Findings: The applicant is not proposing a land division as part of the master plan. This section does not apply.

C. Chapter 2 Land Use and Chapter 3 Design Standards. Land use and design standards contained in Chapter 2 and 3 are met, except as modified by Section 4.5.400.

Staff Findings: Land use and design standards contained in Chapter 2 and 3 are met as discussed in further detail below.

D. Property Development Standards. Land use and design standards contained in Section 4.5.400 are met.

Staff Findings: Land use and design standards contained in Section 4.5.400 have been met as discussed in further detail above.

E. Architectural Features. The Master Plan includes architectural features that complement and enhance positive characteristics of the site and surrounding area. Setbacks from streets shall be staggered or buildings otherwise provided with architectural features that assure variety and interest along the street. Master Plans in the Commercial Districts shall comply with the 1880's Western Frontier Design Theme;
…

Staff Findings: The proposal is for a mixture of residential and commercial development in the Highway Commercial (HC) district. The applicant has not proposed any physical development at this time. Architectural features for specific structures will be reviewed at the time of Site Plan application to ensure conformance with the required development and design standards. A condition of approval has been added to ensure compliance with this criterion.

F. Compliance with Purpose of Master Planned Development Chapter. The Master Plan substantially meets the purpose of Section 4.5.100; and

Staff Findings: The purpose of this Section is to encourage creativity, flexibility and open space in the planning of Residential, Commercial, Industrial and Mixed-Use Developments. The proposed Master Plan encourages flexibility and a mix of housing types as well as dispersed open spaces, which comply with the purposes of the Master Planned Development Chapter.

G. Comprehensive Sign Plan. The Master Plan is in compliance with Section 4.5.600, Comprehensive Sign Plan.

Staff Findings: As previously stated, no signage is proposed. Therefore, a comprehensive sign plan is not required. If signage is proposed in the future, a comprehensive sign plan in compliance with Section 4.5.600 will be required.

G. Conformance with applicable public works, building and fire code standards.

Staff Findings: The project, as conditioned, shall comply with all public works. Conformance with building and fire code standards is a technical review that is conducted at the time building permits are issued.

CHAPTER 2.5 HIGHWAY COMMERCIAL DISTRICT

2.5.100 Purpose

The purpose of the Highway Commercial (HC) District is to provide areas suitable for commercial uses and services. However, the HC District is also intended to achieve the following objectives: Limit direct access to highways, provide opportunities for off-highway internal circulation, provide attractive

opportunities for a variety of economic activities, enhance the gateways into the City of Sisters, sustain the historic tourist character of the City of Sisters by applying the Western Frontier Architectural Design Theme standards in the HC District, and provide opportunities for automobile-oriented development.

Staff Findings: This section is advisory.

2.5.200 Uses

A. Permitted uses. Uses allowed in the Highway Commercial District are listed in Table 2.5.1 with a "P." These uses are allowed if they comply with the development standards and other regulations of this Code.

B. Special Provisions. Uses that are either permitted or conditionally permitted in the Highway Commercial District subject to special provisions for that particular use are listed in Table 2.5.1 with an "SP." Uses subject to an SP shall comply with the applicable special use standards included in Chapter 2.15.

C. Conditional uses. Uses that are allowed in the Highway Commercial District with approval of a conditional use permit are listed in Table 2.5.1 with either a Minor Conditional Use "MCU" or a Conditional Use "CU." These uses must comply with the criteria and procedures for approval of a conditional use set forth in Chapter 4.4 of this Code.

D. Similar uses. Similar use determinations shall be made in conformance with the procedures in Chapter 4.8 – Code Interpretations.

Land Use Category	Permitted/Special Provisions/Conditional Use
Residential	
Dwelling(s) located above, within, or attached to a commercial building not including single family dwellings.	P/SP
Eating and drinking establishments	P/See Section 2.5.300.L
Retail Sales Establishment	P

Key: P = Permitted SP=Special Provisions

Staff Findings: The applicant is proposing approximately 50 multifamily residential units and up to 28,000 square feet of commercial space. Standalone residential structures are not a use permitted outright in the Highway Commercial District, but are permitted as part of a Master Plan Development as described in Section 4.5.400(L) above. The applicant has noted general commercial and a food establishment on the conceptual site plan. Eating and Drinking Establishments, Retail Sales Establishments, and other commercial uses are permitted outright in the Highway Commercial district. Additional detail regarding the specific use of the commercial space will be reviewed at the time of Site Plan application.

2.5.300 Development Standards

The following property development standards shall apply to all land, buildings and uses in the Highway Commercial District:

A. Lot Area, lot frontage, setbacks, lot coverage and building height. See Table 2.5.2.

Table 2.5.2 Development Standards for the Highway Commercial District

Development Standard	Highway Commercial District	Comments/Other Requirements
Minimum lot size	No minimum lot size	
Lot Frontage	No minimum lot frontage	
Front yard setback		
a. Abutting local street	10 foot minimum	Through-Lots. For buildings on through-lots (lots with front and rear frontage onto a street), the front yard setbacks shall apply.
b. Abutting state highway	50 foot minimum; 30 foot buffer setback which shall not include parking or vehicular circulation (See Buffering)	The following features are allowed to encroach into the required setback by no more than five (5) feet: eaves, chimneys, overhangs, canopies, fire escapes, landing places, outside stairways, and similar architectural features.
c. Abutting Arterial	20 foot minimum	
d. Abutting Collector street	10 foot minimum	
Interior side yard setback		
a. Abutting non-residential district	No minimum	
b. Abutting residential district	15 foot minimum	See buffering
Exterior side yard setback		The following features are allowed to encroach into the required setback by no more than five (5) feet: eaves, chimneys, overhangs, canopies, fire escapes, landing places, outside stairways, and similar architectural features.
a. Abutting local street	10 foot minimum	
b. Abutting state highway	50 foot minimum building setback; 30 foot buffer setback which shall not include parking or vehicular circulation (See Buffering)	
c. Abutting Arterial	20 foot minimum	
d. Abutting Collector street	10 foot minimum	
Rear yard setback		
a. Abutting non-residential district	No minimum	
e. Abutting residential district	15 foot minimum	See Buffering

Lot coverage	No maximum lot coverage	Compliance with other sections of the Code (landscaping, parking, pedestrian circulation, etc.) may preclude 100 percent lot coverage of certain uses
Building height	35-feet	See exceptions to building height in Section 2.5.300.B.

Staff Findings: The applicant has provided a conceptual site plan that demonstrates general compliance with the Development Standards in Table 2.5.2. Buffering requirements for setbacks abutting a residential district are discussed below. The applicant will provide more detailed information regarding lot frontage, setbacks, and building height at the time of Site Plan application and will be reviewed by staff for compliance.

B. Exceptions to Building Height.

1. The building height increase allowed for housing shall apply only to vertical mixed use buildings, and shall only apply to that portion of the building that contains housing.
2. Not included in the maximum height limit are bell towers, steeples, flagpoles, and similar features that are not intended for human occupancy and by their vertical orientation do not block views.
3. Not included in the maximum height limit are western design theme facades (false front facades), which may extend to 40 feet for a maximum 25 percent of the street-facing building length.

Staff Finding: The applicant acknowledged these requirements in the burden of proof statement. Compliance with building height will be reviewed by staff at time of Site Plan application.

C. All uses shall be conducted wholly within a completely enclosed building, except for service stations, off-street parking and loading facilities and outdoor displays, sales and dining. The Planning Commission may permit the outdoor operation of other permitted use by approving a conditional use permit including display of larger items, such as automobiles, trucks, motorcycles, buses, recreational vehicles/boats, construction equipment, building materials, and similar vehicles and equipment.

D. Outdoor Displays, Sales, and Dining. Outdoor display, sale of merchandise and dining associated with the primary use is permitted and shall be limited to the private property of that primary use. Merchandise shall be limited to items such as cards, plants, floral products, food, books, newspapers, bicycles, and similar small items for sale or rental to pedestrians. A minimum clearance of 4 feet shall be maintained at all times to allow pedestrians to pass by the displays, sales and dining areas. This section does not include public art; see Special Provisions.

Staff Finding: The applicant acknowledged these requirements in the burden of proof statement. No proposal to develop outdoor storage or outdoor uses is included as part of the Master Plan application. These requirements will be reviewed in greater detail at the time of Site Plan application.

E. Buffering. When abutting residential districts or a state highway, the setback area shall include landscaping to screen parking, services and delivery areas, and building walls without windows or entries, as applicable. The buffer may contain pedestrian seating but shall not contain any trash receptacles, parking or vehicular circulation, loading facilities or storage of

equipment, materials, vehicles, etc. The landscaping standards in Chapter 3.2 may require buffering of other activities, as well.

Staff Finding: The subject property abuts a residential district to the west and south. The conceptual site plan shows a landscaping buffer ranging from ten (10) to fifteen (15) feet along the western boundary. There is no specific buffer called out on the conceptual site plan along the southern boundary. Applicant acknowledged these requirements in the burden of proof statement. The master plan map will be revised to depict these buffers. Moreover, Applicant will be required to comply with this criterion as part of site plan review, which is a prerequisite to any physical development on the site.

F. Building Orientation Standards. The following standards shall apply to all development within the Highway Commercial District in order to reinforce streets as public spaces and encourage alternative modes of transportation such as walking and bicycling.

1. **Building entrances.** Buildings shall have their primary entrance(s) oriented to (facing) the street. On corner lots, buildings shall have at least one entrance oriented to the street. All other street facing elevations shall comply with the Design Standards including ground floor windows. Building entrances may include entrances to individual units, lobby entrances, entrances oriented to pedestrian plazas, or breezeway/courtyard entrances (i.e., to a cluster of units or commercial space).
2. **Arterial street orientation and pedestrian connections.** When the only street abutting the development is an arterial street, the building entrance may be oriented to an internal drive. The internal drive shall ensure a direct pedestrian connection between the street and buildings on the site, and between buildings and other activities within the site. In addition, options should be provided for extension of the pedestrian connection to adjacent sites, where feasible. The pedestrian connections must be hard-surface, and be at least 6 feet wide. Where the system crosses driveways, parking areas, and loading areas, the pedestrian system must be identifiable, through the use of elevation changes, speed bumps, different paving materials, or other similar methods and shall be in compliance with American Disability Act (ADA) Standards.

Staff Finding: The subject property has partial frontages on W. Hood Ave., an arterial, and a to-be-constructed public street along its southern property line. However, the subject property is irregular in shape and internal circulation routes, which determine site layout, have already been determined through establishment of existing driveways and easements. Staff finds that strict compliance with this requirement is not required because of these factors and because it is the intent of the master planning process to provide flexibility in site design.

G. Design Standards. The design standards in this section apply to all uses and buildings in the Highway Commercial District.

1. Ground floor windows shall be provided along all street facing facades for viewing the activity inside the building and blank walls are prohibited.
2. Architectural features include, but are not limited to the following: recesses, projections, wall insets, arcades, window display areas, awnings, balconies, window projections or other features that complement the design of the structure.
3. Roofs should be designed to reduce the apparent exterior mass of a building, add visual interest and be appropriate to the Western Frontier Architectural Design theme. Architectural methods shall be used to conceal flat roof tops. Overhanging eaves, sloped

roofs, articulated parapet walls and multiple roof elements are highly encouraged. Mansard style roofs are prohibited.

4. Clearly defined, highly visible customer entrances using features such as canopies, porticos, arcades, arches, wing walls, and/or integral planters are required.

Staff Finding: The applicant acknowledged these requirements in the burden of proof statement. This requirement will be reviewed in greater detail at the time of Site Plan application when specific building designs are proposed.

H. Major Retail Development, as defined, shall refer to Chapter 2.15, Special Provisions.

Staff Finding: The applicant is proposing commercial space on a property that is larger than five (5) acres in size. Therefore, the special provisions in section 2.15 apply and are reviewed in further detail later in this document.

I. Pedestrian Amenity Standards. Development in the Highway Commercial District shall provide at least two (2) of the pedestrian amenities listed below. Pedestrian amenities may be provided within a public right-of-way (i.e., on the sidewalk, curb, or street pavement) when approved by the City (for city street), Deschutes County (for county roads) or ODOT (for state highways).

1. A plaza, courtyard, square or extra-wide sidewalk next to the building entrance (minimum width of 8 feet).
2. Sitting space (i.e., benches or ledges between the building entrance and sidewalk, with a minimum of 16 inches in height and 30 inches in width).
3. Building canopy, awning, pergola, or similar weather protection (minimum projection of 4 feet over a privately owned sidewalk or pedestrian space).
4. Public art
5. Water feature

Staff Finding: The applicant has acknowledged this requirement in the burden of proof, but has not proposed specific pedestrian amenities at this time. Because this criterion is applicable for site plan review, staff finds that the applicant may defer this requirement until the initial site plan review application.

J. Screening. The screening standards address specific unsightly features which detract from the appearance of commercial areas.

1. Garbage and recycling collection areas. Garbage and recycling collection enclosures are required and shall be orientated away from the street and adjacent properties. Enclosures shall be constructed of solid, durable and attractive walls/fences, a minimum of six (6) feet in height, with solid doors, and shall be visually consistent with project architecture. Trash receptacles for pedestrian use are exempt. Enclosures shall be compliant with all applicable fire codes.
2. Mechanical equipment. Mechanical equipment located on the ground, such as heating or cooling equipment, pumps or generators, must be screened from the street and any abutting residential zones by walls, fences, or vegetation. Landscaping and screening shall be tall enough to screen the equipment. Mechanical equipment placed on roofs must be screened by a parapet around the façade or the equipment that is as tall as the tallest part

of the equipment. Screening shall be compliant with all applicable fire codes and height requirements.

Staff Finding: The applicant has acknowledged this requirement in the burden of proof. This criterion will be reviewed at the time of Site Plan application.

K. Western Frontier Architectural Design Theme. See Special Provisions, Chapter 2.15.

Staff Finding: The subject property is located in a Commercial District and will be subject to the Western Frontier Design Theme requirement. The applicant has acknowledged this requirement in the burden of proof and a condition of approval has been added to ensure compliance. This criterion will be reviewed at the time of Site Plan application.

L. Formula Food Establishments. The City of Sisters has developed a unique community character in its commercial districts. The city desires to maintain this unique character and protect the community's economic vitality by ensuring a diversity of businesses with sufficient opportunities for independent entrepreneurs. To meet these objectives, the city limits Formula Food Establishments to a maximum of six within this zone.

Staff Finding: The applicant requests that one of the six Formula Fast Food allotments is reserved for this use as part of the Master Plan. Staff finds there are currently five formula food establishments in the Highway Commercial Zone. There is no express authority for the City to reserve a Formula Fast Food allotment and staff finds that the City should decline to do so absent site plan approval for a formula food establishment. This avoids speculation and allows applicants with actual Formula Fast Food Establishments to move forward with their projects.

CHAPTER 2.15. SPECIAL PROVISIONS

2.5.2000 Major Retail Development Standards.

A. A Major Retail Development shall require a Master Plan.

Staff Findings: The applicant has submitted a Master Plan application for this use. This criterion is met.

B. Major Retail Development Standards. The following development standards apply to all Major Retail Development. The goal of these development standards is to affirm the City's objective that Major Retail Development create or impart a sense of place and/or streetscape at a scale appropriate to the character of Sisters with its small town atmosphere, its exceptional unique architectural characteristics and rural western community heritage, as well as preserving the diversity and vitality of Sisters' commercial districts and the quality of life of Sisters residents. It is generally noted that the typical or classic "big box" type of commercial building and development pattern does not meet these community development objectives. In addition to the development standards prescribed elsewhere in this Chapter and the Development Code, all Major Retail Development shall comply with the following development standards:

1. All development shall comply with the 1880's Western Frontier Design Theme.
2. Incorporate changes in building direction (i.e., articulation), and divide large masses into varying heights and sizes. Such changes may include building offsets; projections; changes

in elevation or horizontal direction; sheltering roofs; terraces; a distinct pattern of divisions in surface materials; and use of windows, screening trees; 1880s theme wall lighting; and similar features.

3. The design of service areas, including outdoor storage, trash collection, loading, etc., shall be incorporated into the primary building design and shall be of materials of comparable quality and appearance as that of the primary building.
4. When the service areas (loading docks, refuse storage and enclosures, etc.) are adjacent to or across the street from residential neighborhoods, all delivery trucks, garbage trucks, and other large vehicles servicing the commercial development shall access the service areas via internal driveways and not from the residential street.
5. Any equipment, whether on the roof, side of building, or ground, shall be screened. The method of screening should be architecturally integrated with the building design in terms of materials, color, shape and size. Screening shall be applicable to all fire codes and height requirements.
6. Parking and security lights shall not be taller than the buildings within the development, or a maximum of twenty (20) feet above grade, whichever is less and shall comply with the Dark Skies Standards in Special Provisions.
7. All ground mounted and monuments signs permitted by the Sign Ordinance for the applicable zoning district shall be located in a landscaped area that is equal in size or larger than the total sign area for that freestanding sign.
8. Maximum size of interior shall not exceed 50,000 square feet.

Staff Finding: The applicant has provided a conceptual site plan that incorporates articulation of structures on the property with varying heights and sizes. The applicant also provided detail regarding the location of services areas to reduce conflicts with the neighboring residential area. Finally, the applicant acknowledged that these standards are applicable to commercial development within the master planned area. Staff finds that the information provided is sufficient to meet this criterion at the master plan stage and that further review will be conducted upon application for a site plan.

C. Major Retail Development – Abandoned Building Surety Bond. As may be required by the City, all Major Retail Development as defined herein, shall obtain, provide evidence to the City, and carry in full force and effect throughout the duration of the life of the building, or time period as may be stipulated by a development agreement, a performance/surety bond providing for demolition of the primary building or buildings as identified by the City. Said performance/surety bond shall be an amount 120 % of an estimate of the funds to cover the cost of complete building demolition and maintenance of the vacant building site if the primary building is ever vacated or abandoned, and remains vacant or abandoned for a period of more than 24 consecutive months following primary business closure. The cost estimate must be submitted to and accepted by the City prior to bonding.

Staff Finding: The applicant has acknowledged this criterion in the burden of proof. Staff has added a condition to ensure a surety bond of 120% of the cost of complete building demolition and maintenance of the building site in the event of a vacation or abandonment following the primary business closure. This bond shall be required prior to the issuance of a building permit.

2.5.2600 Western Frontier Architectural Design Theme

A. Purpose. The purpose of the 1880's Western Frontier architectural design theme is to improve the City's image and visual appearance. It has also been developed with the desire to establish City identity and interest and to attract visitors and tourists in support of a significant community economy.

B. **Applicability.** The Western Frontier Architectural Design Theme applies to all new, reconstructed or remodeled uses in all Commercial Districts. Each proposed development is required to complete land use review process subject to the following standards. All designs must comply with all applicable Building and Fire Codes.

…

Staff Findings: The applicant has acknowledged these requirements in the burden of proof. Compliance with the Western Design Standards above will be reviewed at the time of Site Plan application, when specific building designs are proposed. A condition of approval has been added to ensure compliance with this criterion.

CHAPTER 3.1 – ACCESS AND CIRCULATION

3.1.100 Purpose

The purpose of this Chapter is to ensure that developments provide safe and efficient access and circulation for pedestrians, bicycles (including ADA and transit accessibility) and motorized vehicles including emergency vehicles and to preserve the transportation system in terms of safety, capacity, and function.

Staff Findings: Staff find that this provision does not contain approval criteria.

3.1.200 Applicability

A. Applicability. This Chapter applies to all rights-of-way within the City and to all properties that abut these rights-of-way. The standards apply when lots are created, consolidated, or modified through a land division, partition, or street vacation; and when properties are subject to Site Plan Review. These standards also may be applied at the City's discretion during Conditional Use permit.

Staff Findings: The applicant is proposing a Master Plan application which will require subsequent Site Plan applications. The applicant has provided preliminary analysis to ensure compliance with the access and circulation requirements on a greater scale as part of this master planning process.

3.1.300 Vehicular Access and Circulation

A. Traffic Study and Control Requirements

1. The City or other agency with access jurisdiction may require a traffic study prepared at applicant/developers expense by a qualified professional to determine access, circulation and other transportation requirements. A Traffic Impact Study shall be required for all development applications that will result in a traffic impact or increase in traffic impact of 200 or more average daily trips (ADT).
2. Traffic control devices, subject to the approval of the Hearings Body, shall be required with development when traffic signal warrants are met, in conformance with the Oregon State Highway Capacity Manual, and Manual of Uniform Traffic Control Devices. The location of traffic control devices shall be noted on approved street plans. Where a proposed street intersection will result in an immediate need for a traffic signal or other traffic control device, a device meeting approved specifications shall be installed. The developer's cost and the timing of improvements shall be included as a condition of development approval.
3. Traffic-calming features, such as curb extensions, narrow residential streets, and special paving shall be required where appropriate and in accordance with the Transportation System Plan and Public Works' Standards and Specifications, latest edition, in order to slow traffic in

neighborhoods and areas with high pedestrian traffic and to maximize a pedestrian friendly environment.

Staff Findings: A traffic study was submitted and reviewed (*ThreeWind Master Plan, Lancaster Engineering, dated March 18, 2019)* The City Civil Engineer and Traffic Engineer have reviewed the plans and traffic study, and determined for the reasons set forth in the submitted traffic studies that capacity exists for proposed development without the need for off-site improvements, and that traffic control devices are not warranted. In a memo dated December 13, 2019, the City's Traffic Engineer, Joe Bessman, requested that the applicant identify the overall pedestrian routes into and through the property, so as to ensure individual applications are aware of and comply with connections established during the master planning process. Staff has requested this information of the applicant and has added a condition of approval to ensure compliance. Special paving and curb design will be reviewed at the time of individual Site Plan review for each building.

B. Access Management. The City or other agency with access permit jurisdiction may require the closing or consolidation of existing curb cuts or other vehicle access points, recording of reciprocal access easements (i.e., for shared driveways), development of a frontage street, installation of traffic control devices, and/or other mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street and highway system.

Staff Findings: The applicant is required to construct a public street including sidewalks, along the southern terminus of the proposed property, as identified on the draft site plan. The applicant is also required to construct a 24-foot internal vehicular route and paved pedestrian facilities within the public access easement noted on the recently approved final plat, PP 2019-21. The applicant is currently coordinating with the Oregon Department of Transportation to receive approval of access permits at three points as depicted in the traffic study: 1) Change of Use for existing access on W Hood Avenue near northeastern portion of the property, 2) New access related to new road on W Hood Avenue near southern portion of the property, and 3) Change of Use for existing access on Hwy 20 north of the subject property, through the Bi-Mart parcel. In their comment letter dated February 5, 2020, ODOT recommended that the City add a condition of approval stating the following:

"The existing access along OR 242 (Hood Avenue) to the East Portal must be realigned to match up with the proposed access along OR 242 (Hood Avenue)."

As the East Portal property is under separate ownership by the applicant is not included in the boundary of the proposed application, staff is instead proposing the following recommendation to meet the overall intent of ODOT's comment. The revised condition has been shared with ODOT's Senior Transportation Planner, Don Morehouse and is included in Exhibit F.

"During the permitting process, the applicant will coordinate with the City, ODOT, and USFS (or future owner of the East Portal Property), to realign the existing entrance to the East Portal with the new entrance serving the proposed development. The proportional share of cost and specific actions required by the applicant will be determined during the permitting process."

C. Fire Access and Turnarounds. When required under the Oregon Fire Code, fire access lanes with turnarounds shall be provided. Except as waived in writing by the Fire Marshal, a fire equipment access drive shall be provided for any portion of an exterior wall of the first story of a building that is located more than 150 feet from an existing public street or approved fire equipment access drive.

The drive shall contain unobstructed adequate aisle width (20 feet) and turn-around area for emergency vehicles. The Fire Marshal may require that fire lanes be marked as "No Stopping/No Parking."

Staff Findings: Initially, the applicant proposed a fire access lane with a turnaround on the west side of the proposed residential portion of the master plan. Upon coordination with the City Engineer and Fire Marshal, this particular fire access is not required, and the updated site plan has removed the access lane from the area. Other fire access lanes and turnarounds have been provided around the conceptual commercial and residential structures, and have been reviewed by the City Engineer and Fire Marshall. These lanes will be reviewed in greater detail at the time of individual Site Plan application.

D. Vertical Clearances. Except for drive-through windows, all driveways, private streets, aisles, turn-around areas and ramps shall have a minimum vertical clearance of 13' 6" for their entire length and width.

Staff Findings: There are no vertical clearance limitations associated with the proposed development.

E. Vision Clearance. Visual obstructions between three (3) feet and eight (8) feet in height are subject to Special Provisions, Vision Clearance.

Staff Findings: This requirement will be reviewed at the time of Site Plan application as no structures are proposed as part of this application. However, the proposed setbacks are designed to allow for the maintenance of clear vision.

F. Surface Options. Required driveways, aprons, parking areas, aisles, and turn-arounds shall be paved with asphalt, concrete or comparable durable surfacing, subject to review and approval by the Community Development Director. Properties located in the Light Industrial (LI) District shall refer to Chapter 2.6.

Staff Findings: The applicant intends to pave the driveways, aprons, parking areas, aisles, and turn arounds in accordance with this provision. Compliance with this provision will also be verified at the time of Site Plan Review.

G. Surface Water Management. All driveways, parking areas, aisles and turn-arounds shall have on-site collection or infiltration of surface waters to eliminate sheet flow of such waters onto public rights-of-way and abutting property. Surface water facilities shall be constructed in conformance with City standards. Swales may be considered to control surface water.

Staff Findings: The applicant indicates that surface water will be controlled with swales and rock trenches in the street. This provision requires that development have on-site facilities. A condition of approval is imposed to provide on-site facilities. Compliance will be verified at the time of site plan review.

H. Private Streets and Alleys. Public and private streets and alleys shall conform to the standards in the City of Sisters Public Works Construction Standards, latest edition. While alley intersections and sharp changes in alignment shall be avoided, the corners of necessary alley intersections shall have a radius of not less than 20 feet.

Staff Findings: The City Engineer has reviewed this proposal for conformance with the City of Sisters Public Works Construction Standards, latest edition, including the proposed intersection alignment of driveways

with local streets (as discussed in further detail in the Engineering Memo dated 12/13/2019) and has provided comments and recommended conditions of approval as necessary to meet this standard, which is further verified upon submission of engineered plans following site plan approval.

I. Access Standards

1. **Access spacing standards.** Street intersection and driveway spacing shall comply with the table below (Figure 3.1.300.A):

Figure 3.1.300.A. Access Spacing Standards

Street Facility	Maximum spacing* of roadways	Minimum spacing* of roadways	Minimum spacing*of roadway to driveway	Minimum Spacing* driveway to driveway
Arterial	1,000 feet	660 feet	330 feet	330 feet or combine
Collector:	600 feet	330 feet	100 feet	100 feet or combine
Neighborhood/Local	600 feet	150 feet	50 feet	10 feet

Notes: *Measured centerline to centerline
TSP January 2010

Staff Findings: A new public local street is proposed along the southern property line that would intersect with Hood Street. The distance between the proposed street and (i) the intersection of Highway 242/Hood Avenue is approximately 520 feet, (ii) the intersection of Highway 20/Hood Ave is approximately 420 feet, and (iii) between and the existing driveway to the north is approximately 155 feet. These spacings do not meet the requirements for an arterial unless an exception is granted. The City Engineer and Traffic Engineer reviewed the proposed access and believe an exception is warranted as discussed below.

2. **Properties with Multiple Frontages**. Where a property has frontage on more than one street, access shall be limited to the street with lesser classification.

Staff Findings: Once the local street is constructed along the southern property line, the subject property will have multiple street frontages (the local street and Hood Ave. an arterial). All access will come from the proposed local street and an existing driveway (not a street) at the northeast corner of the property. Of the two street frontages, the proposed local street is the one with the lower classification. A condition of approval has been added to ensure compliance with this criterion.

3. **Alley Access.** If a property has access to an alley or lane, direct access to a public street is not permitted.

Staff Findings: The subject property does not contain any existing alleys or lanes. Therefore, this criterion does not apply.

4. **Closure of Existing Accesses.** Existing accesses that are not used as part of development or redevelopment of a property shall be closed and replaced with curbing, sidewalks/pathways, and landscaping, as appropriate.

Staff Findings: Per the City Engineer and Traffic Engineer's comments, no existing accesses will be closed.

5. **Shared Driveways on Arterial Streets.** The number of driveways onto arterial streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The City shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes in accordance with the following standards:
   a. Where there is an abutting developable property, a shared driveway shall be provided. When shared driveways are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway temporarily ends at the property line, but may be accessed or extended in the future as the adjacent parcel develops. "Developable" means that a parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).
   b. Access easements (i.e., for the benefit of affected properties) shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.
   c. No more than two lots may access one shared driveway.

Staff Findings: The site utilizes an existing shared driveway to an arterial, which is not proposed to be modified as part of this application. No additional driveway connections to an arterial are proposed.

6. **Frontage Streets and Alleys.** The hearings body for a design review or subdivision may require construction of a frontage street to provide access to properties fronting an arterial or collector street.

Staff Findings: The subject property fronts an arterial, W Hood Avenue. However, a frontage street is not appropriate as the subject property will take access from an existing driveway and a proposed local public street that will in turn connect with an arterial.

7. **Exceptions**
   a. The Community Development Director or designee may allow exceptions to the access standards above in any of the following circumstances:
      1. Where existing and planned future development patterns or physical constraints, such as topography, parcel configuration, and similar conditions, prevent access in accordance with the above standards.
      2. Where the proposal is to relocate an existing access for existing development, where the relocated access is closer to conformance with the standards above and does not increase the type or volume of access.
      3. Where the proposed access results in safer access, less congestion, a better level of service, and more functional circulation, both on-street and on-site, than access otherwise allowed under these standards.
      4. When access requirements are divided by one or more multi-use pathway(s), in conformance with the provisions of Section 3.1.400. Multi-use pathways shall be located to minimize out-of-direction travel by pedestrians and bicycles and shall be 10-feet wide and located within an easement whose width is specified by the Fire Marshal.
   b. Where an exception is approved, the access shall be as safe and functional as practical in the particular circumstance. The City may allow construction of an access connection at a distance less than required from an intersection, provided the access is as far away from the intersection as possible. In such cases, the City may impose turning restrictions (i.e., right in/out, right in only, or right out only) and may also require that the applicant submit a traffic study by a registered engineer to show the proposed access meets these criteria.

Staff Findings: The applicant has requested an exception to the minimum access spacing standards in order to construct a new local street along the southern property line. The proposed street location is approximately 420 feet from the intersection of W Hood Avenue/Highway 20, approximately 520 feet from the intersection of W Hood Avenue/Highway 242, and 155 feet from an existing driveway to the north. An exception is appropriate given the short length of W Hood Avenue between Highway 20 and Highway 242 and because existing development and parcel configurations cannot be adequately accessed with streets and driveways that meet applicable access standards. The proposed local street is needed to afford appropriate circulation through the site and will also afford access and circulation for the property to the south. The proposed local street is as safe and functional as is practical under the circumstances. The proposed local street is located as far as is practical from the various intersections. The applicant is also proposing a variety of pedestrian connections to facilitate pedestrian movements both within the master planned area and to adjacent properties. The City's Traffic Engineer has reviewed this proposal and is supportive of the proposed connection. Staff has added a condition of approval to ensure the applicant receives applicable approvals from the Oregon Department of Transportation for access onto a state highway.

8. **Access Management Plan.** In addition, all requests for an access spacing exception shall be required to complete an access management plan for review and approval by the Public Works Director or City Engineer, which should include at a minimum the following items:
   - **a.** Review of the existing access conditions within the study area (defined the property frontage plus the distance of the minimum access spacing requirement). This should include a review of the last three years of crash data, as well as collection of traffic volume information and intersection operations analysis.
   - **b.** An analysis of the study area safety and operations with the proposed access configuration, as well as with a configuration that would meet access spacing standards. This scenario should also include consideration of the long-term redevelopment potential of the area and discussion of how access spacing standards may be achieved.

Staff Findings: Because the Applicant requested exceptions to the access spacing standards, an Access Management Plan is required. The Applicant submitted a traffic impact study (TIS) (*ThreeWind Master Plan, Lancaster Engineering, dated March 18, 2019)* which serves as the applicant's proposed Access Management Plan. The applicant addressed the requirements above in subsections (a) and (b) above, including a review of the existing and proposed access conditions, a review and analysis of the past five years of crash data within the study intersections, as well as traffic volume information and intersection operations analysis. The Access Management Plan was reviewed and approved by the Public Works Director and City Engineer.

J. Driveways, Access Connections and Driveway Design

1. **Driveway Openings.** Driveway openings (or curb cuts) shall be the minimum width necessary to provide the required number of vehicle travel lanes (10 feet minimum width for each travel lane). The following standards are required to provide adequate site access, minimize surface water runoff, and avoid conflicts between vehicles and pedestrians (as measured where the front property line meets the sidewalk or right-of-way):
   - **a.** Single family, two-family, and three-family residential uses shall have a minimum driveway opening width of 10 feet, and a maximum width of 24 feet. Wider driveways may be necessary to accommodate approved paved recreational vehicle pads, but the driveway opening or connection to the street shall not be allowed to be wider.

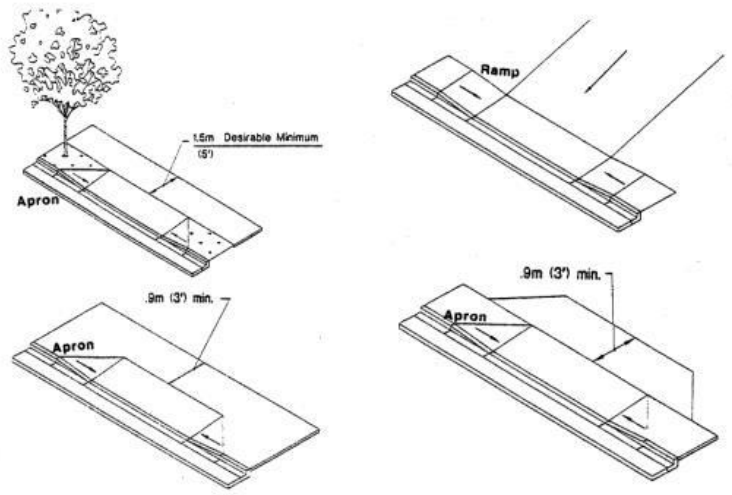
b. Multi-family developments shall have a minimum driveway opening width of 20 feet, and a maximum width of 26 feet. These dimensions may be increased subject to the City Engineer approval.

c. Other Uses. Access widths for all other uses shall be based on 10 feet of width for every travel lane. These dimensions may be increased subject to the City Engineer approval. Driveways providing direct access to parking spaces shall conform to the parking area standards in Chapter 3.3, Vehicle and Bicycle Parking. Properties located in the Light Industrial (LI) District shall refer to Chapter 2.6.

2. **Driveway Approaches.** Driveway approaches shall be designed and located to provide exiting vehicles with an unobstructed view of other vehicles and pedestrians, and to prevent vehicles from backing into the flow of traffic on the public street or causing conflicts with on-site circulation. Construction of driveway accesses along acceleration or deceleration lanes or tapers should be avoided due to the potential for vehicular conflicts. Driveways should be located to allow for safe maneuvering in and around loading areas.

3. **Driveway Construction.** Driveway aprons (when required) shall be installed between the street right-of-way and the private drive, as shown in Figure 3.1.300.B. Driveway aprons shall conform to ADA requirements for sidewalks and pathways,

Figure 3.1.300 B



Staff Findings: Driveways shall conform to the requirements in this subsection and will be reviewed at the time of Site Plan application. A condition of approval has been added to ensure compliance with this criterion.

K. No development may occur unless required public facilities are in place or are guaranteed in conformance with the provisions of this Code. Improvements required as a condition of development approval, when not voluntarily accepted by the applicant, shall be roughly proportional to the impact of development. Findings in the development approval shall indicate how the required improvements are roughly proportional to the impact. All public improvements shall be in conformance with the City of Sisters Public Works Construction Standards, latest edition.

Staff Findings: Based on the submitted plans and transportation study, and after review by the Public Works Director and City Engineer, staff finds that the proposed master plan could be served with required public facilities with certain improvements and conditions of approval. Specifically, the applicant is proposing to construct a new public street, which staff finds appropriate and necessary to serve

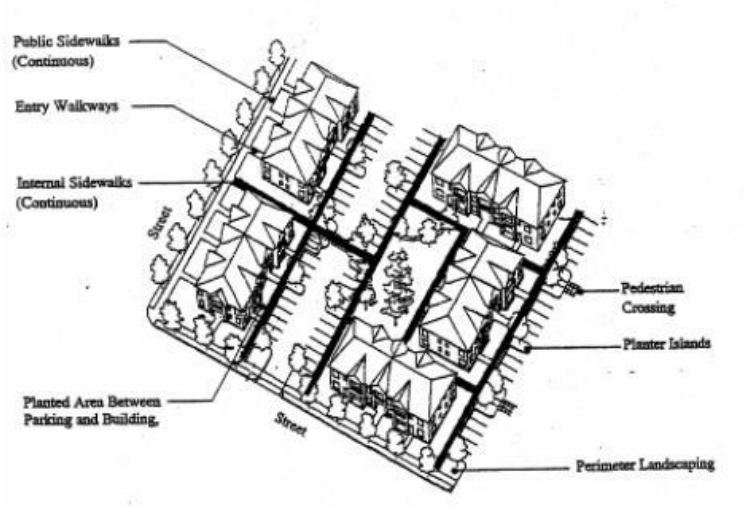
anticipated uses within the master planned area. Although the applicant proposed the improvements, and thus presumably voluntarily accepts a requirement to construct the improvements, staff finds the proposed improvements are roughly proportional because the level of development contemplated for the site could need meet applicable access and fire code requirements without the additional public street. Prior to development, the applicant must develop and submit engineering plans including the design of sewer, water, and transportation facilities to serve the site for approval by the City. No development may occur unless the required public facilities are in place or are guaranteed in conformance with the provisions of this Code which will be further verified at the time of site plan review. A condition of approval has been added to ensure this criterion is satisfied.

3.1.400 Pedestrian/Bicyclist Access and Circulation

A. Site Layout and Design. To ensure safe, direct, and convenient pedestrian circulation, all developments shall provide a continuous pedestrian system. The pedestrian system shall be based on the standards in subsections 1-3, below:

1. **Continuous Access and Circulation System.** The pedestrian/bicycle circulation system shall extend throughout the development site and connect to all future phases of development, and to existing or planned off-site adjacent trails, public parks, and open space areas to the greatest extent practicable. The developer may also be required to connect or stub pathways or multi-use paths to adjacent streets and to private property with a previously reserved public access easement for this purpose.
2. **Safe, Direct, and Convenient.** Pathways and multi-use paths within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent streets
3. **Pathway Connections within Development.** Connections within developments shall conform to the following standards: a. Pathways shall connect all building entrances to one another to the extent feasible; b. Pathways shall connect all on-site parking areas, storage areas, recreational facilities and common areas, and shall connect off-site adjacent uses to the site to the extent feasible. Topographic or existing development constraints may be cause for not making certain pathway connections, as generally shown in Figure 3.1.400A; and

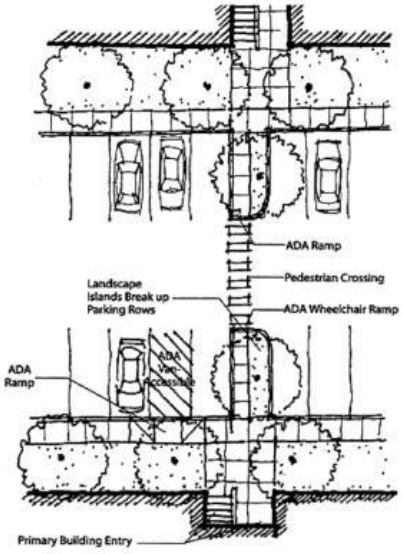
Figure 3.1.400.A Pedestrian Pathway System (Typical)



B. Pathways Design and Construction. Pathways and multi-use paths shall conform to the following standards:

1. **Vehicle/ Pathway and Multi-use Path Separation.** Except for crosswalks (subsection 2) and for properties in the Light Industrial Zone, where a pathway or multi-use path abuts a driveway or street, it shall be raised 6 inches and curbed along the edge of the driveway/street. Alternatively, the decision body may approve a pathway or multi-use path abutting a driveway at the same grade as the driveway if the pathway or multi-use path is protected from all vehicle maneuvering areas. An example of such protection is a row of decorative metal or concrete bollards designed to withstand a vehicle's impact, with adequate minimum spacing between them to protect pedestrians and bicyclists.

Figure 3.1.400 Crosswalk Detail (Typical)



2. **Crosswalks.** Where pathways and multi-use paths cross a parking area, driveway, or street ("crosswalk"), they shall be clearly marked with contrasting paving materials (e.g., light-color concrete inlay between asphalt), which may be part of a raised/hump crossing area. Painted or thermo-plastic striping and similar types of non-permanent applications may be approved for crosswalks not exceeding 24 feet in length.
3. **Pathway and Multi-use Path Width and Surface.** Pathway surfaces shall be concrete, asphalt, brick/masonry pavers, or other durable surface, as approved by the Public Works Director or designee, at least 6 feet wide, and shall conform to ADA requirements. Multi-use paths (i.e., for bicycles and pedestrians) shall be the same materials, at least 10 feet wide and shall conform to ADA requirements.

Staff Finding: The City's Transportation System Plan does not show any multi-use paths or similar pedestrian facilities on the subject property. The applicant's conceptual site plan shows a variety of pedestrian facilities to show how pedestrian connections will be made both within the master planned area and to adjacent properties. These facilities include extensions of sidewalks and a number of public access easements to establish a pedestrian connection from the driveway the northwest corner of the subject property to W. Hood Ave. All development on the site must be consistent with the proposed pedestrian facilities and routes. These facilities will be constructed concurrent with development of the site with site plan review determining the extent of the pedestrian facilities that must be constructed with each phase of development.

Conformance with criteria A.1 and A.2 above will be reviewed at the time of Site Plan application, when applicable.

CHAPTER 3.2 – LANDSCAPING AND SCREENING

Staff Findings: The applicant provided a conceptual landscaping plan and responses in the burden of proof related to an understanding of the landscaping and screening requirements provided in this section. Staff does not see any reason that the applicant could not comply with the requirements of Chapter 3.2. The proposed Master Plan is the first step in a two-step process. This decision relates to the designation of uses and square footage of structures on the property, does not provide detail on the specific site layout. These requirements will be reviewed in detail at the time of Site Plan review. Accordingly, staff finds is appropriate to defer specific review of the requirements of this Chapter until the site plan review stage.

CHAPTER 3.3 – VEHICLE AND BICYCLE PARKING SECTIONS

Staff Findings: The applicant has provided responses in the burden of proof related to an understanding of the vehicle and bicycle requirements provided in this section. The proposed Master Plan is the first step in a two-prong process. This decision relates to the designation of uses and square footage of structures on the property, does not provide detail on the specific site layout. These requirements will be reviewed in detail at the time of Site Plan review.

---------- ***End of Conclusionary Findings*** ----------

EXHIBIT A: VICINITY MAP

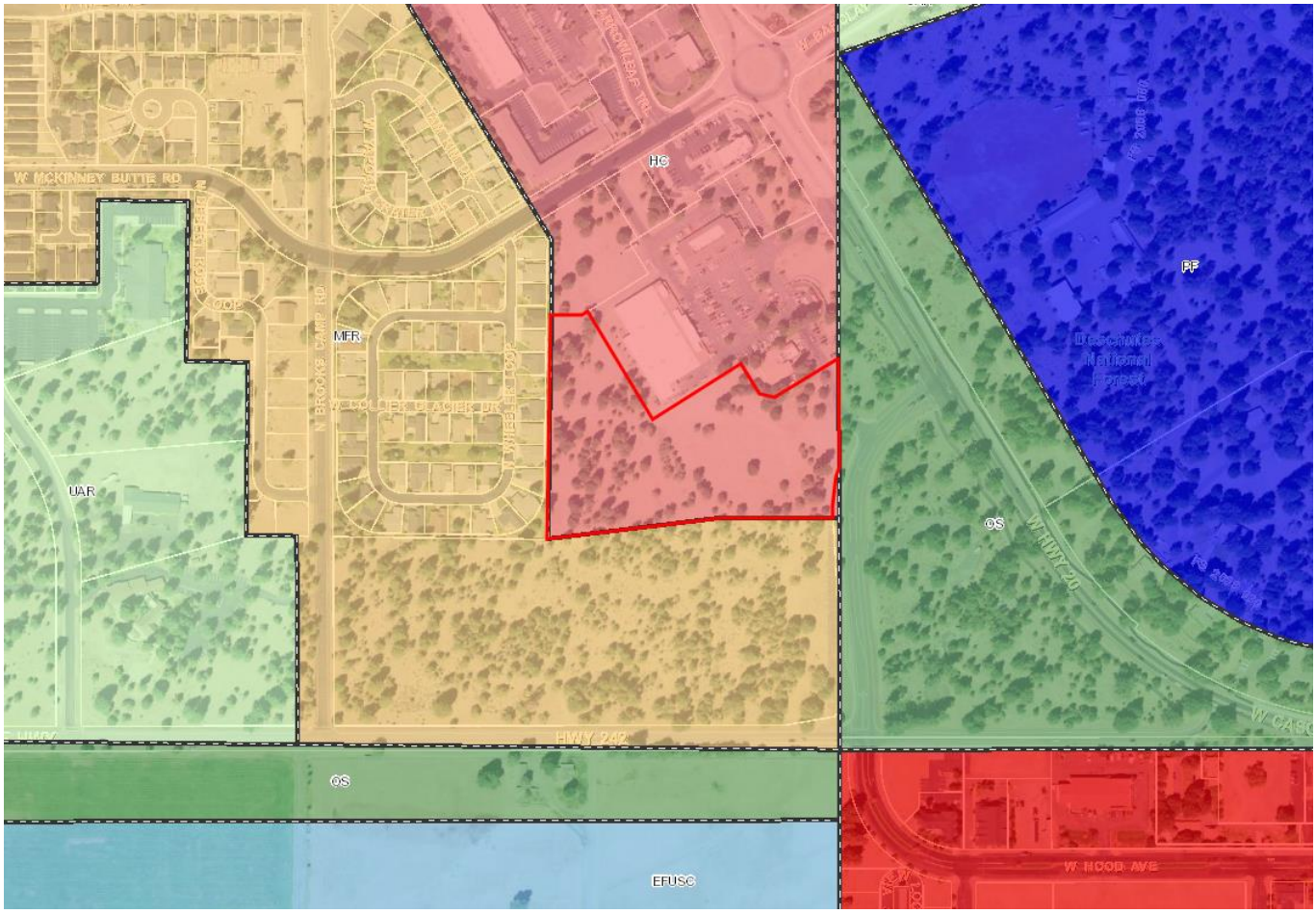


EXHIBIT B: PROPOSED MASTER PLAN

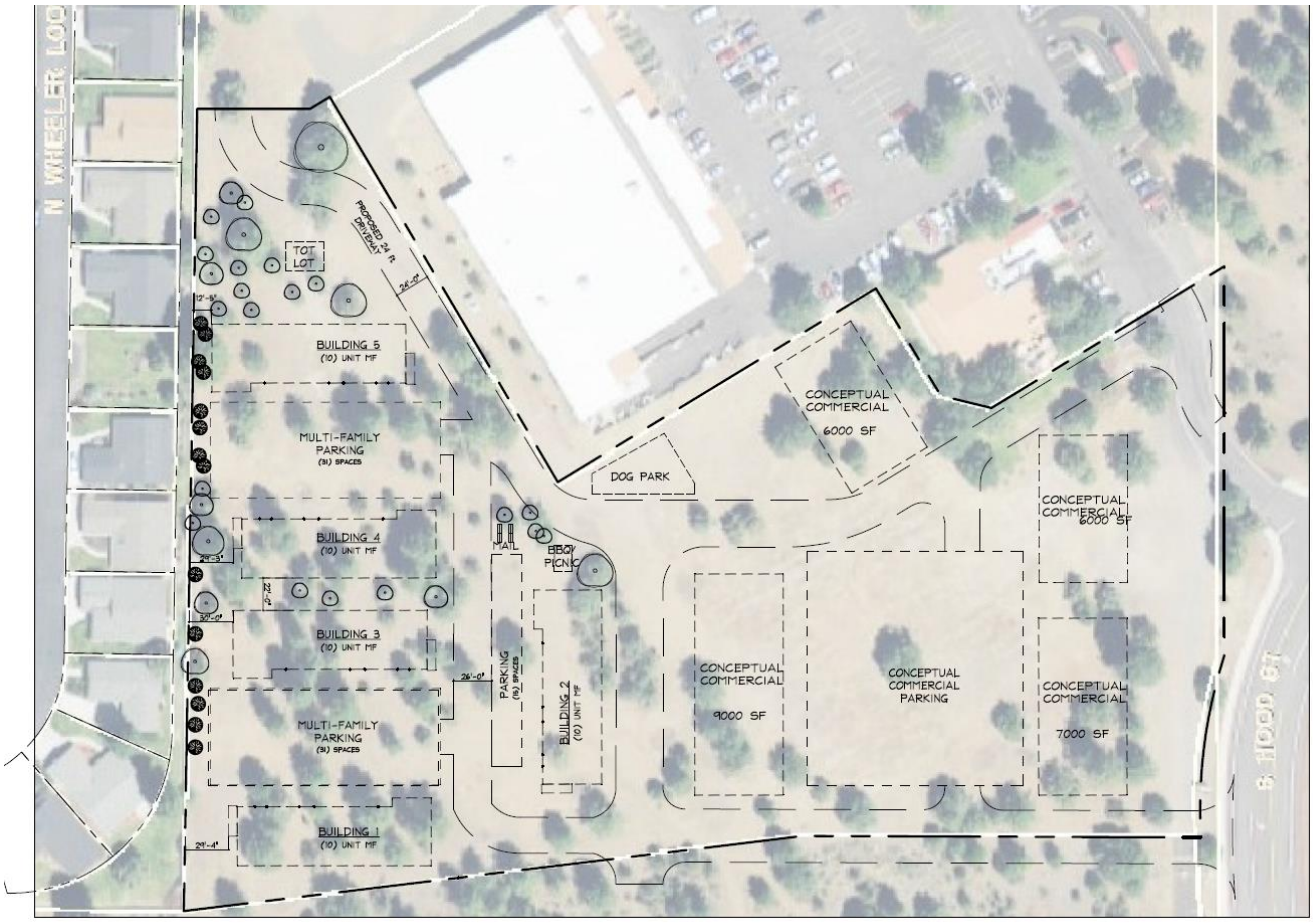


EXHIBIT C: TRANSPORTATION ANALYSIS, ADDENDUM & ACCESS MANAGEMENT PLAN

Threewind Master Plan

Transportation Impact Study

Sisters, OR

Date:
March 18, 2019

Prepared for:
H.A. McCoy Engineering and Surveying

Prepared by:
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Executive Summary

1. The proposed Threewind Master Plan in Sisters, Oregon will include construction of 50 units of multi-family housing and 28,000 square feet of commercial space across several buildings.
2. The trip generation calculations show that the proposed development is projected to generate 36 trips during the morning peak hour and 80 during the evening peak hour.
3. The intersection of W McKinney Butte Drive at N Arrowleaf Trail is projected to operate with a higher v/c ratio than the maximum allowable by the City of Sisters under year 2021 background conditions and year 2021 background plus site conditions. For reasons detailed in this report, no mitigations are recommended.
4. All other study intersections are projected to operate acceptably through the year 2021, with or without site trips generated by the proposed development.
5. Left-turn lane and traffic signal warrants are not projected to be met at any of the study intersections where they would be applicable, and no turn lanes or traffic signals are recommended.
6. Adequate sight distance is available at the proposed site access intersection on W Hood Avenue.
7. Turning movement restictions to the existing Three Wind Shopping Center access to W Hood Avenue are not necessary or recommended in conjunction with the proposed Master Plan.
8. It is recommended that the back-to-back left-turn lane striping on W Hood Avenue south of the existing Three Wind Shopping Center access be removed and replaced with standard two-way left-turn lane striping to accommodate the new public street intersection along the south property line of the street.
9. With development of the vacant residential-zoned property south of the site (known as the Patterson property), traffic volumes at the public street/private street intersection internal to the site and near the south property line will operate well within capacity as a two-way stop-controlled intersection. No higher-order intersection configuration is needed based on intersection capacity.

Introduction

The property located at 915 W McKinney Butte Road in Sisters, Oregon is proposed for Master Plan approval to allow construction of a mixed-use development. The project site consists of Parcel 3 of tax lot 7200, which comprises 5.91 acres. The proposed development includes 50 units of multi-family housing and 28,000 square feet of commercial space (in approxiamtely four buildings), as well as open space.

This report examines the impacts of the proposed development on the transportation system in the vicinity of the project site. The purpose of this report is to ensure safe and efficient performance of the transportation facilities that will be impacted by the proposed development.

All supporting data and calculations are provided in the appendix to this report.

Location Description

The project site is located southeast of W McKinney Butte Road and west of W Hood Avenue in Sisters, Oregon. The site is bordered by undeveloped, residentially-zoned land to the south, single-family residential development to the west, W McKinney Butte Road to the northwest, commercial development to the north and northeast, and W Hood Avenue to the east. The adjacent commercial development to the northeast (Three Wind Shopping Center) is bordered by US Highway 20 to the northeast. The site is currently undeveloped. The project site is shown in Figure 1.

Figure 1 – Project Location

Based on the location of the subject property, preliminary calculations of trip generation, and a confirmation of the scope of work with both the City of Sisters and the Oregon Department of Transportation (ODOT) the following intersections were identified for analysis:

- W McKinney Butte Road at proposed site access
- W McKinney Butte Road at N Arrowleaf Trail
- W Hood Avenue at existing Threewind Shopping Center access
- W Hood Avenue at proposed site access
- US Highway 20 at W Hood Avenue
- US Highway 20 at W McKinney Butte Road/W Barclay Drive
- McKenzie Highway at W Hood Avenue

Site Access

Access to the site will be provided via an existing driveway on W McKinney Butte Road, west of N Arrowleaf Trail, as well as an existing shopping center driveway and a proposed driveway on W Hood Avenue. After construction of the proposed driveway on W Hood Avenue, the existing driveway on W Hood Avenue could be restricted to allow only right turns in and out of the site if the intersection's close proximity to Highway 20 creates operational problems. This report examines the intersection with both full access and with turning movements restricted to right turns in and out.

A shared-use pedestrian and bicycle path will be provided behind the Bi-Mart store, connecting the residential use on the site to McKinney Butte Road.

Vicinity Streets

Characteristics of the study roadways are summarized in Table 1

Table 1 – Characteristics of Study Roadways[1,2]

Roadway	Jurisdiction	Functional Classification	Cross-Section	Speed (mph)	Sidewalks?	Bike Lanes?
US Highway 20 (Santiam Highway)	ODOT	Statewide Highway	2-3 lanes	35 posted	Yes	Partial
OR Highway 242 (McKenzie Highway)	ODOT	District Highway (W of Hood St), Statewide Highway (E of Hood St)	2 lanes	40 posted	Partial	None
W Hood Avenue (between US 20 and OR 242)	ODOT	District Highway	3 lanes	30 posted	West side	Yes
W Hood Avenue (south of OR 242)	City of Sisters	Collector	2-3 lanes	20 posted	Yes	None
W McKinney Butte Road	City of Sisters	Collector	2 Lanes	25 posted	Yes	None
N Arrowleaf Trail	City of Sisters	Local Road	2 Lanes	20 posted	Yes	None

Study Intersections

Site trips generated by the proposed development are primarily expected to impact the seven intersections listed in the Location Description section. Characteristics of these intersections are summarized in Table 2. A vicinity map showing the project site, vicinity streets, and study intersection configurations is shown in Figure 2 on page 6.

[1] Oregon Department of Transportation, *1999 Oregon Highway Plan: Including amendments November 1999 through May 2015*, 1999.
[2] *Sisters Transportation System Plan*, 2010. https://www.oregon.gov/ODOT/Planning/TPOD/tsp/city/city_of_sisters_tsp_2010.pdf.

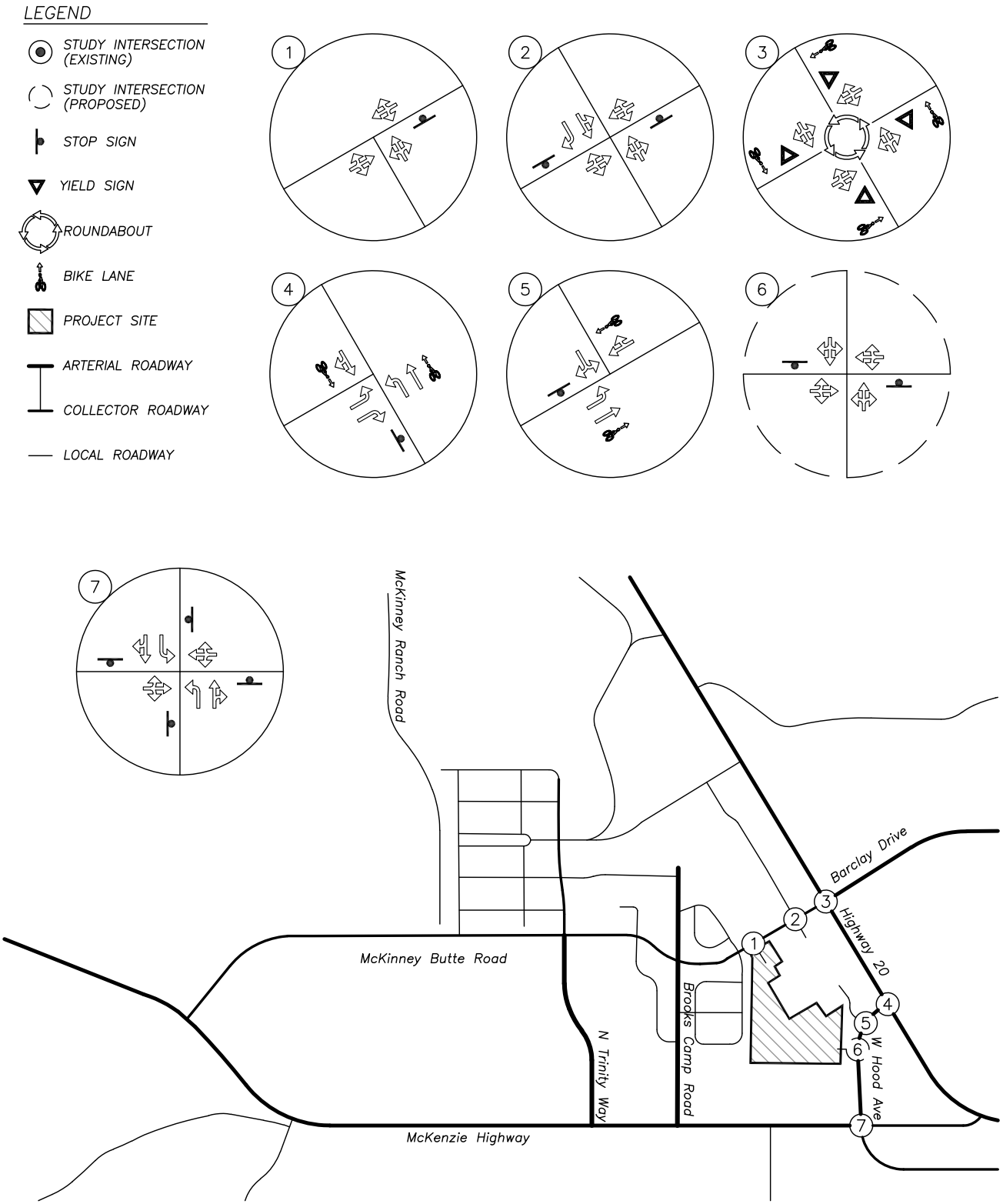
Table 2 – Characteristics of Study Intersections

Number	Name	Geometry	Traffic Control	Stopped Approaches
1	W McKinney Butte Road at Proposed Access	Three-legged	Stop Control	NW-bound
2	W McKinney Butte Road at N Arrowleaf Trail	Four-legged	Stop Control	NW- and SE-bound
3	US Highway 20 at W McKinney Butte Road	Four-legged	Roundabout	N/A
4	US Highway 20 at W Hood Avenue	Three-legged	Stop Control	NE-bound
5	W Hood Avenue at Existing Access	Three-legged	Stop Control	SE-bound
6	W Hood Avenue at Proposed Access	Three-legged	Stop Control	SE-bound
7	McKenzie Highway at W Hood Avenue	Four-legged	Stop Control	All approaches

Traffic Counts

After consulting with the City of Sisters, it was decided that only the evening peak hour would be analyzed for this study. Traffic counts were conducted at the study intersections on December 12, 2018, from 2:00 p.m. to 6:00 p.m. School was in session and under a normal schedule on the day of the counts. Turning movement volumes corresponding to the system peak hour were used for analysis.

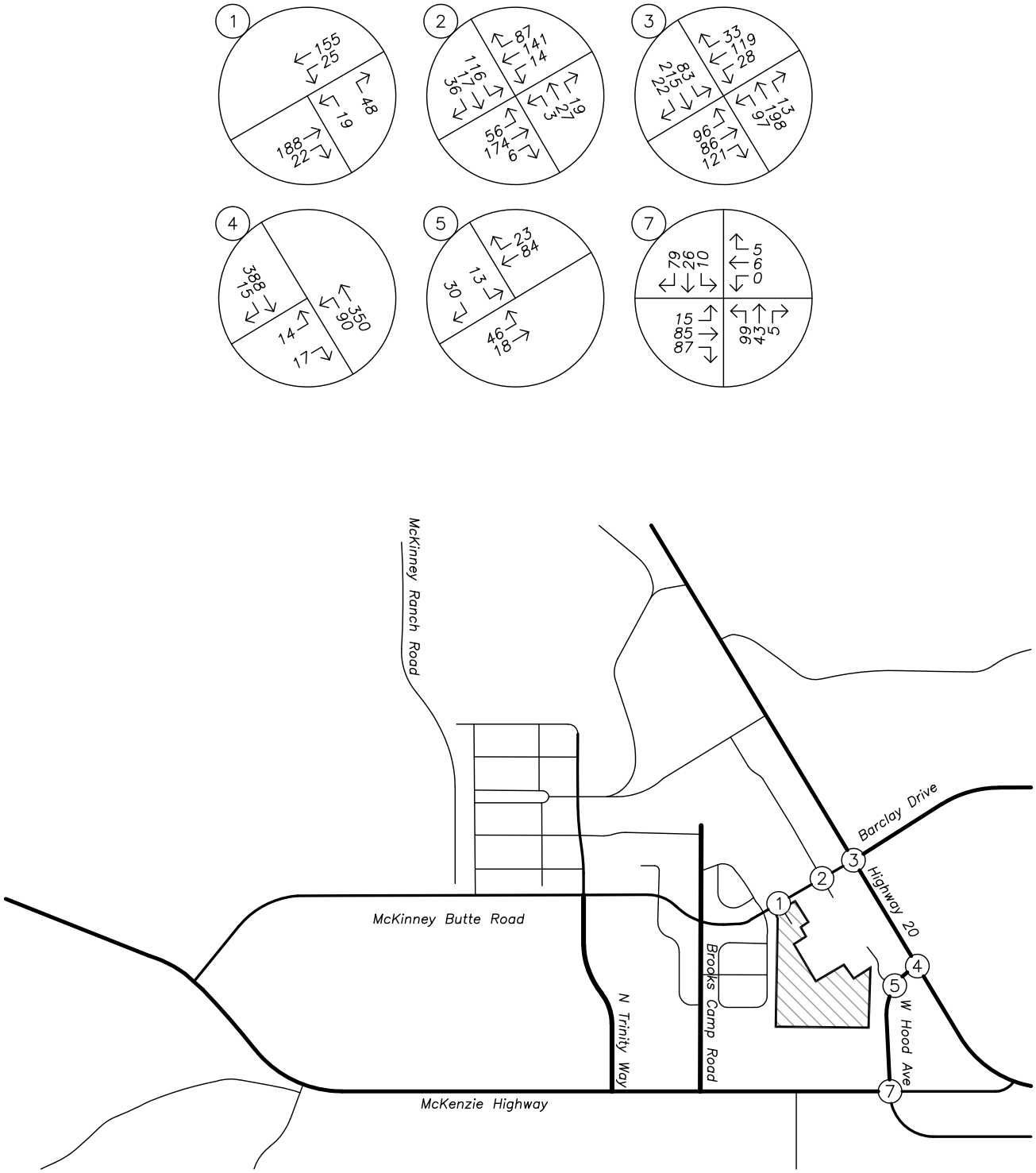
Existing traffic counts at the study intersections are shown in Figure 3 on page 7.



Study Intersection Configurations

no scale

FIGURE 2



TRAFFIC VOLUMES
Existing Conditions – Seasonally Adjusted
PM Peak Hour

no scale

FIGURE 3

Site Trips

This section describes the characteristics of the traffic that is expected to be generated by development within the proposed Master Plan.

Trip Generation

The proposed development includes 50 units of multi-family housing and 28,000 square feet of commercial space. To estimate the number of trips that will be generated by the proposed development, trip rates from the *Trip Generation Manual*[3] were used. Data for land use codes 221 – *Multifamily Housing (Mid-Rise)* and 820 – *Shopping Center* were used to estimate the proposed development's trip generation based on the number of housing units and the square footage of the commercial space.

Since both commercial and residential land uses are proposed for the Threewind Master Plan, some trips generated are likely to be shared, or captured internally within the development and will not impact the study intersections or roadways. Using the *National Cooperative Highway Research Project's* (NCHRP) Report 684, internal capture rates of 0 percent for the morning peak hour and 13 percent for the evening peak hour were calculated and used in trip generation calculations.The trip generation calculations show that, accounting for internalization and pass-by trips, the proposed development is expected to generate 36 trips during the morning peak hour, 80 during the evening peak hour, and a total of 853 on a typical weekday. The trip generation calculation results are summarized in Table 3, and detailed calculation worksheets are provided in the appendix.

Table 3 – Trip Generation Summary

	ITE Code	Size	Morning Peak Hour			Evening Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multi-Family Housing	221	50 Units	5	13	18	13	9	22	272
Internalization (0% AM, 12% PM)			*0*	*0*	*0*	*2*	*1*	*3*	*33*
Shopping Center	820	28,000 s.f.	16	10	26	51	56	107	1,058
Internalization (0% AM, 12% PM)			*0*	*0*	*0*	*7*	*7*	*14*	*127*
Pass-by (34%)			*4*	*4*	*8*	*16*	*16*	*32*	*317*
Net Primary Trips			**17**	**19**	**36**	**39**	**41**	**80**	**853**

[3] Institute of Transportation Engineers, *Trip Generation Manual*, 10th Edition, 2017.

Trip Distribution

The directional distribution of site trips to and from the proposed development was estimated based on locations of likely trip origins and destinations and locations of major transportation facilities in the site vicinity. The following trip distribution was estimated and used for analysis:

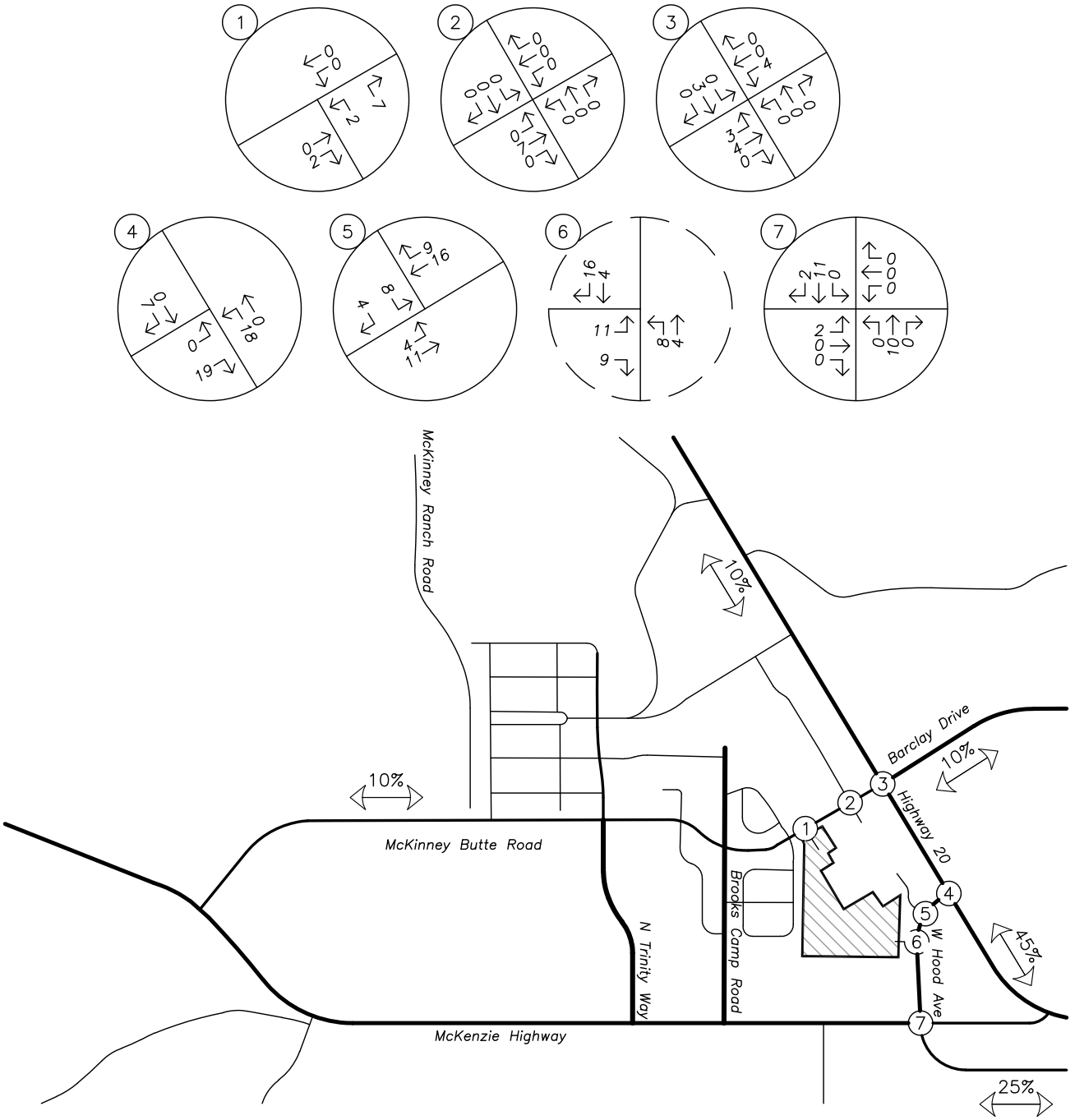
- Approximately 45 percent of site trips will travel to/from the east on US Highway 20
- Approximately 25 percent of site trips will travel to/from the south on W Hood Avenue
- Approximately 10 percent of site trips will travel to/from the west on McKinney Butte Road
- Approximately 10 percent of site trips will travel to/from the east on W Barclay Drive
- Approximately 10 percent of site trips will travel to/from the west on US Highway 20

The site trip distribution and assignment for primary trips are shown in Figure 4 on page 10 and in Figure 5 on page 11 for two full-access driveways on W Hood Avenue and for a restricted existing access on W Hood Avenue, respectively. The site trip distribution and assignment for pass-by trips are shown in Figure 6 on page 12 and in Figure 7 on page 13 for two full-access driveways on W Hood Avenue and for a restricted existing access on W Hood Avenue, respectively.

LEGEND

XX% PERCENT OF PRIMARY TRIPS

TRIP GENERATION			
	IN	OUT	TOTAL
AM	17	19	36
PM	39	41	80



TRIP DISTRIBUTION & ASSIGNMENT
Primary External Trips – Full Access at Intersection 5
PM Peak Hour

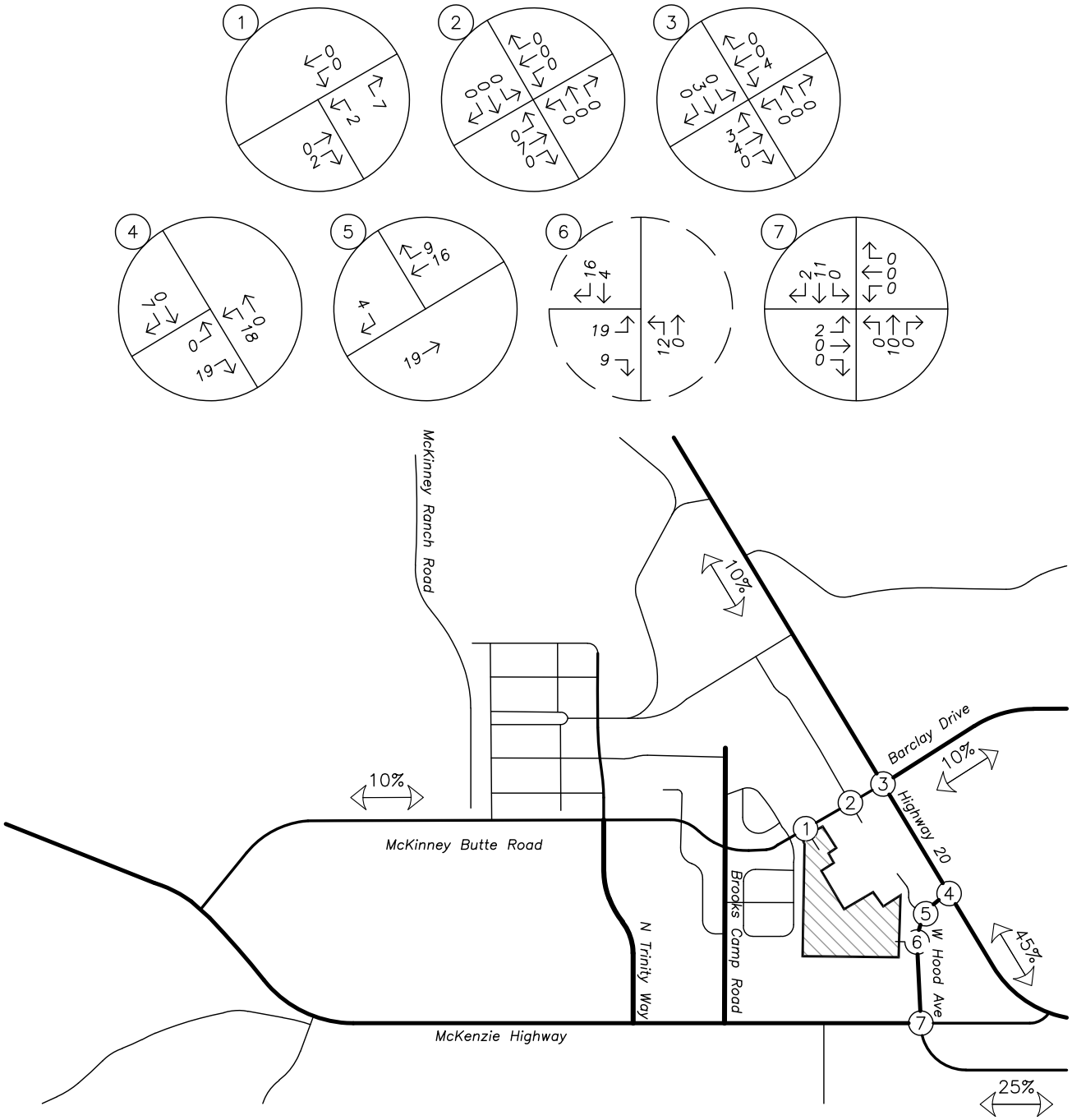
no scale

FIGURE 4

LEGEND

XX% PERCENT OF PRIMARY TRIPS

TRIP GENERATION			
	IN	OUT	TOTAL
AM	17	19	36
PM	39	41	80



TRIP DISTRIBUTION & ASSIGNMENT
Primary External Trips – Right-In/Right-Out at Intersection 5
PM Peak Hour

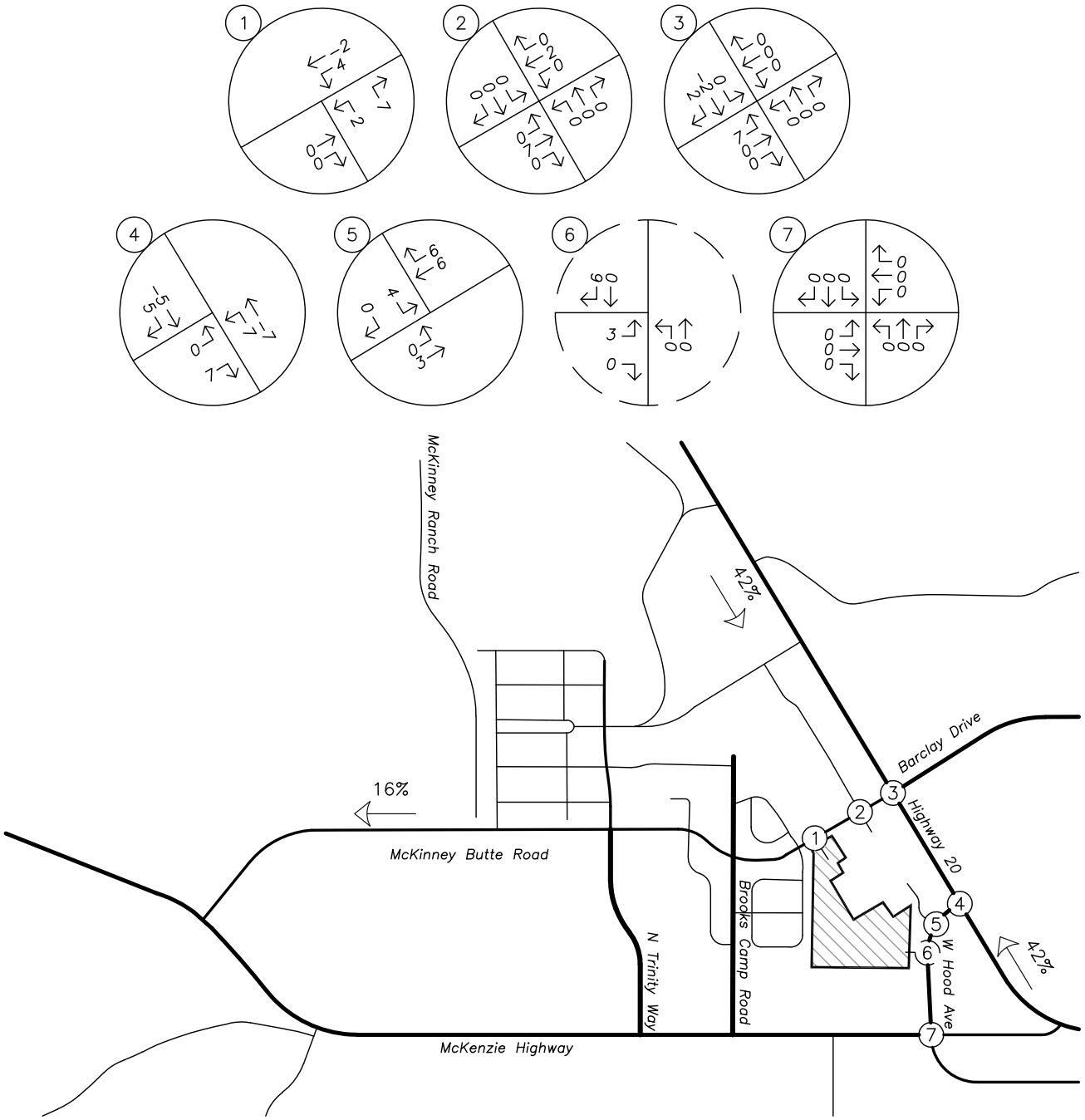
no scale

FIGURE 5

LEGEND

XX% PERCENT OF PASS-BY TRIPS

PASS-BY TRIP GENERATION			
	IN	OUT	TOTAL
AM	4	4	8
PM	16	16	32



TRIP DISTRIBUTION & ASSIGNMENT
Pass-By Trips - Full Access at Intersection 5
PM Peak Hour

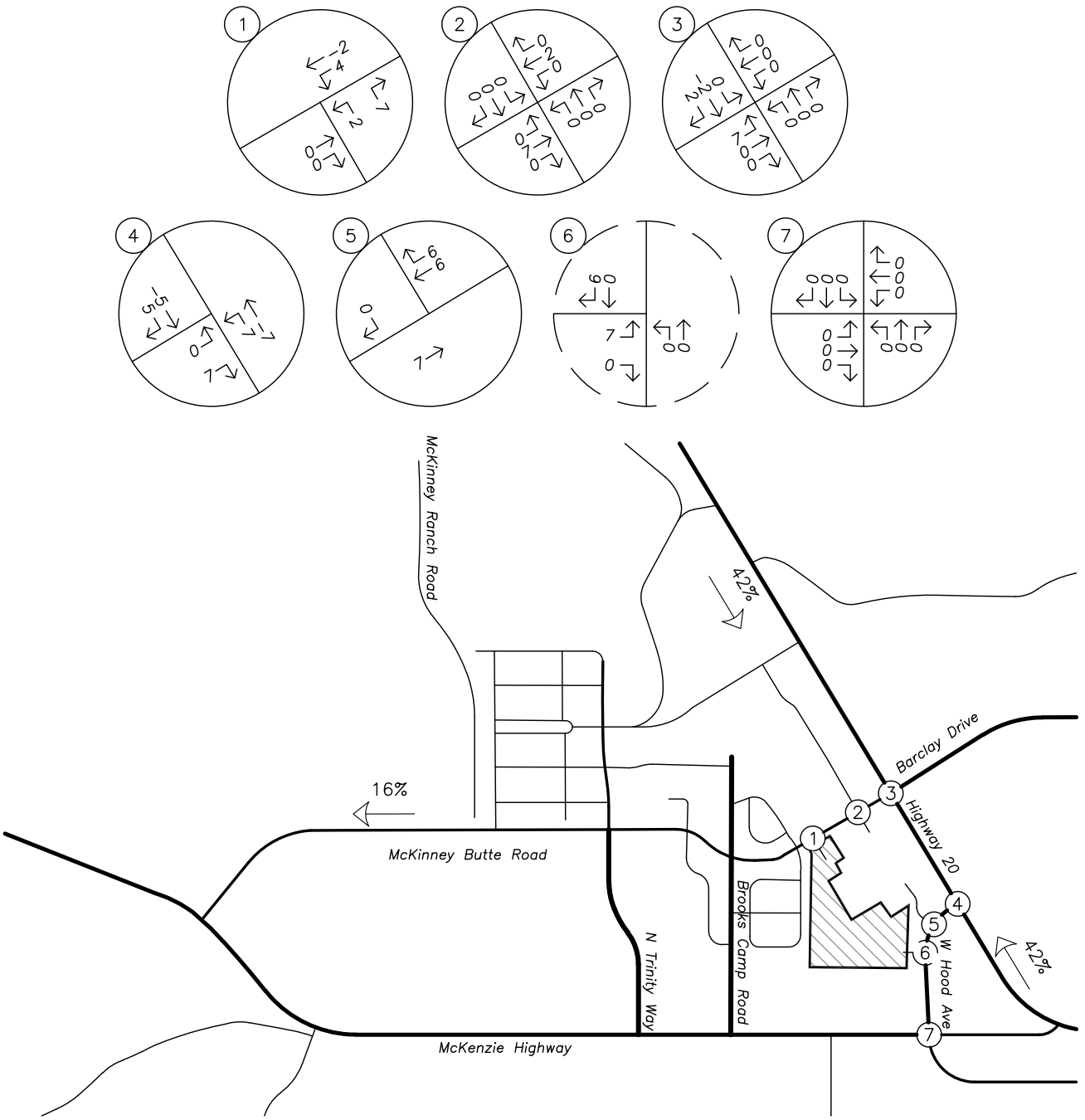
no scale

FIGURE 6

LEGEND

XX% PERCENT OF PASS-BY TRIPS

PASS-BY TRIP GENERATION			
	IN	OUT	TOTAL
AM	4	4	8
PM	16	16	32



TRIP DISTRIBUTION & ASSIGNMENT
Pass-By Trips - Right-In/Right-Out at Intersection 5
PM Peak Hour

no scale

FIGURE 7

Future Traffic Volumes

To provide analysis of the impact of the proposed development, an estimate of future traffic volumes is required. A growth rate must be applied to recorded traffic volumes to calculate future volumes.

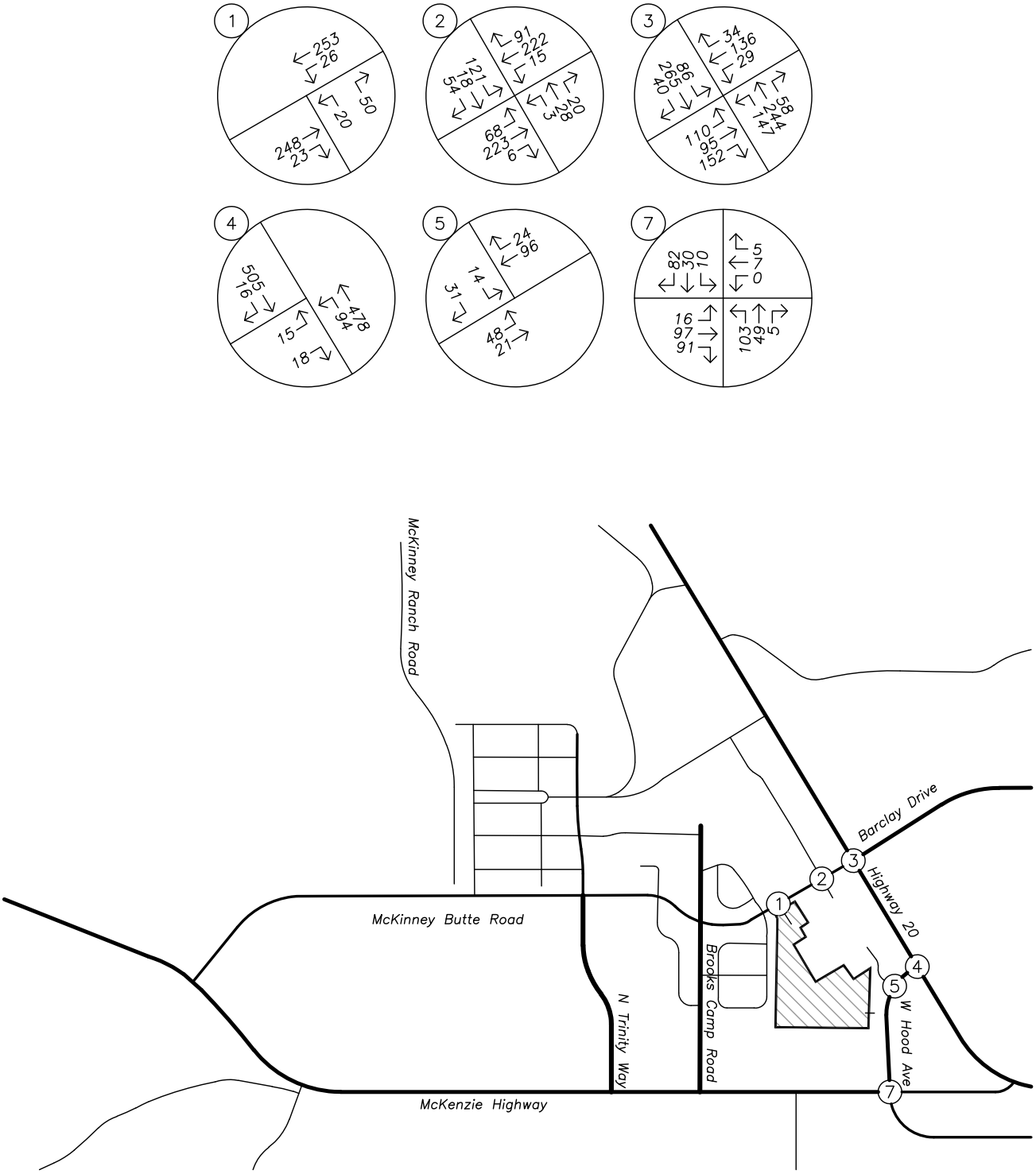
Since US Highway 20 and OR Highway 242 are under the jurisdiction of the Oregon Department of Transportation (ODOT), procedures described in ODOT's *Analysis Procedures Manual* were used to estimate future volumes. Traffic volumes were seasonally adjusted to reflect the 30th-highest hour in a typical year. Using a map of seasonal trends, this portion of US Highway 20 was determined to show a summer trend.

Growth rates for through traffic on US Highway 20 and OR Highway 242 were derived using ODOT's 2037 Future Volume Table. Using data corresponding to milepost 100.05 of ODOT highway number 016 and milepost 91.96 of ODOT highway number 015, linear growth rates of 1.09 and 1.01 were calculated for US Highway 20 and OR Highway 242, respectively. The growth rates and seasonal adjustment factor were applied to the appropriate ODOT highway through volumes over a 2-year period to determine year 2021 traffic volumes.

For non-ODOT facilities, a compounded growth rate of two percent per year was applied to the existing traffic volumes over a two-year period to determine year 2021 background volumes.

In addition to the expected background traffic growth in the site vicinity, the nearby McKenzie Meadows subdivision will impact future volumes at the study intersections. This development is proposed for the site west of McKinney Ranch Road and east of Sisters High School, on the north side of W McKinney Butte Road, and will include 150 single-family homes and 55 units of low-rise multi-family housing. Since this development will likely be contributing trips to the transportation system by 2021, the site trips it is projected to generate were included in 2021 background traffic volumes. A figure showing the site trips generated by this development that are expected to impact the study intersections is provided in the appendix.

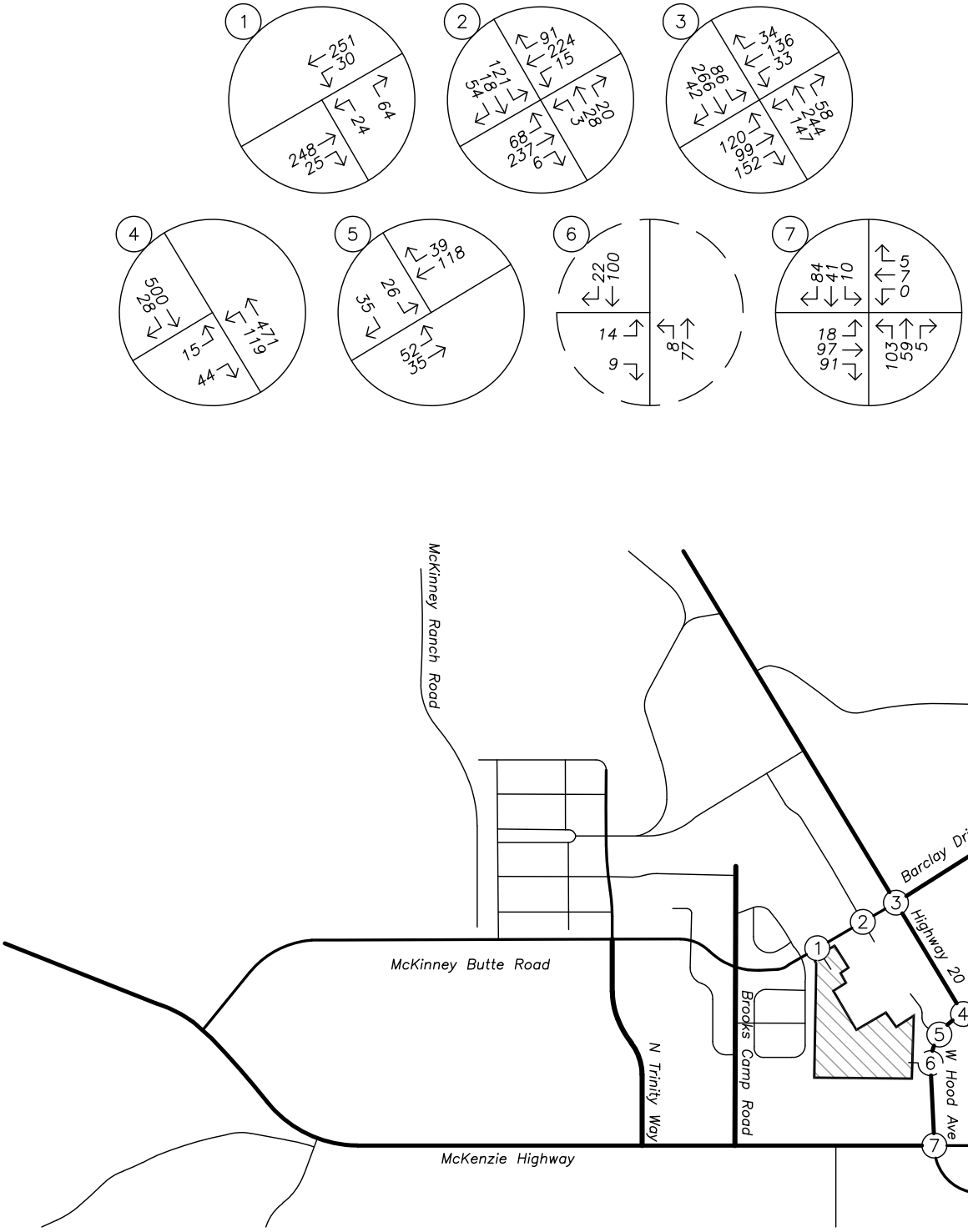
Figure 8 on page 15 shows the projected year 2021 background traffic volumes during the evening peak hour. Figure 9 on page 16 and Figure 10 on page 17 show year 2021 background traffic volumes plus net trips generated by the proposed development, with full access and restricted access at the intersection of W Hood Avenue at the existing site access, respectively.



TRAFFIC VOLUMES
2021 Background Conditions
PM Peak Hour

no scale

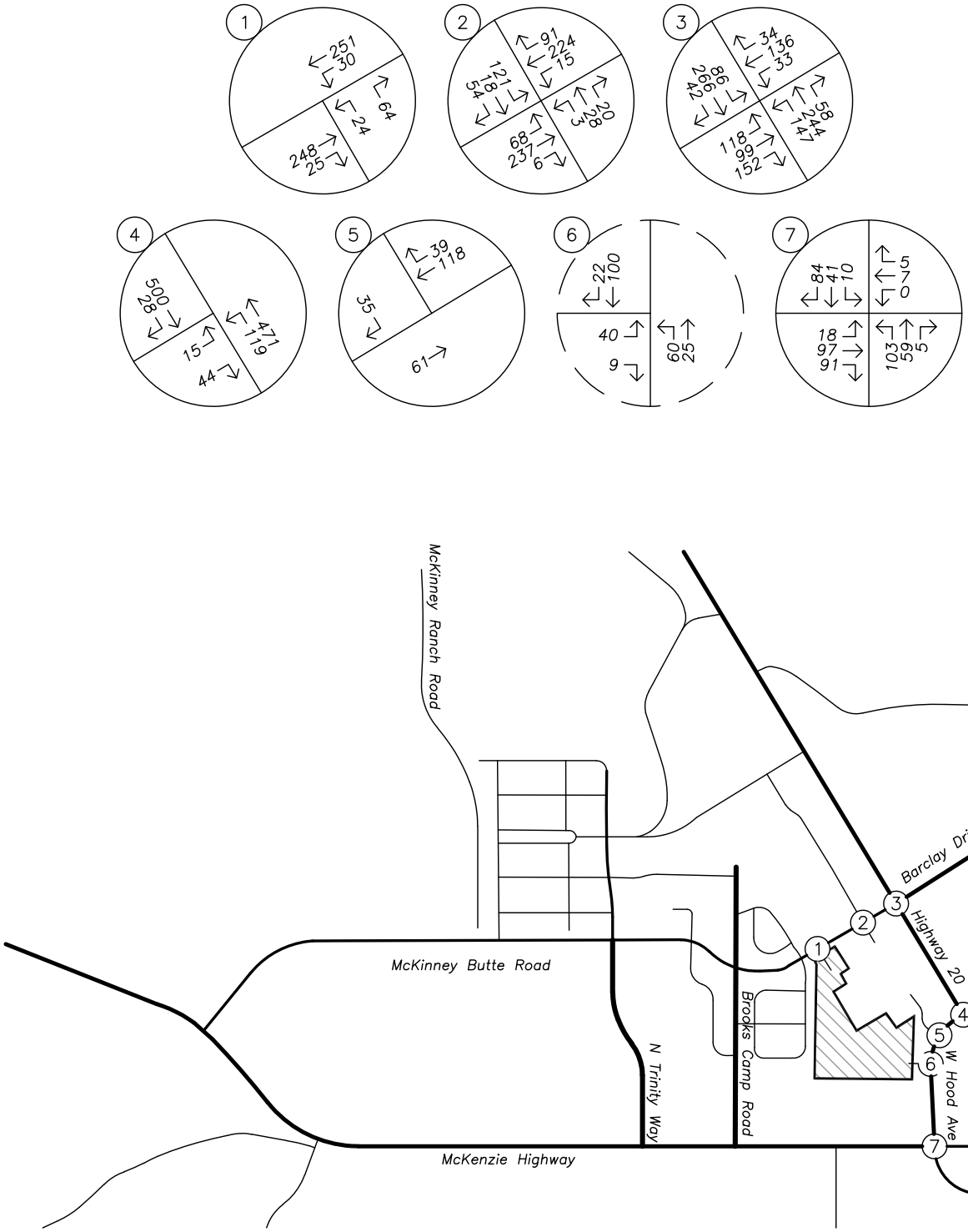
FIGURE 8



TRAFFIC VOLUMES
2021 Background + Site – Full Access at Intersection 5
PM Peak Hour

no scale

FIGURE 9



TRAFFIC VOLUMES
2021 Background + Site – Right-In/Right-Out at Intersection 5
PM Peak Hour

no scale

FIGURE 10

Operational Analysis

To determine the performance of the study intersections, a capacity analysis was conducted for the evening peak hour of 2:45 p.m. to 3:45 p.m. The analysis was conducted according to the intersection analysis methodology given in the *Highway Capacity Manual* (HCM).[4] The v/c ratio compares the actual traffic demand at an intersection to the potential capacity of the intersection to determine the proposed that is utilized by traffic.

Most of the study intersections are under the jurisdiction of ODOT. The applicable minimum operation standards for these facilities are established under the Oregon Highway Plan[1] and are based on the v/c ratio of the intersection. According to the Oregon Highway Plan, US Highway 20 is a freight route on a statewide highway, and has a maxmimum allowable v/c ratio of 0.85. The intersections of US Highway 20 at W McKinney Butte Road/W Barclay Drive and US Highway 20 at W Hood Avenue were analyzed according to this standard. OR Highway 242 is a district highway, and has a maximum allowable v/c ratio of 0.9. Since W Hood Avenue is under the jurisdiction of ODOT as part of OR Highway 242, the intersection of W Hood Avenue at the existing access, W Hood Avenue at the proposed access, and OR Highway 242 at W Hood Avenue were analyzed according to this standard.

The intersections of W McKinney Butte Road at the site access and W McKinney Butte Road at N Arrowleaf Trail, both two-way stop-controlled intersections, are under the jurisdiction of the City of Sisters. The City of Sisters 2018 Transportation Plan Refinement states that two-way stop-controlled intersections should have a v/c ratio no greater than 0.90.[5]

The results of the capacity analysis are shown in Table 4.

---

[4] Transportation Research Board, *Highway Capacity Manual*, 6th Edition, 2016.
[5] *Sisters Transportation System Plan Refinement*, June 2018. https://www.ci.sisters.or.us/sites/default/files/fileattachments/public_works/page/2281/final_sisters_tsp_refinement.pdf.

Table 4 – Intersection Capacity Analysis Summary

	Evening Peak Hour		
	LOS	**Delay (s)**	**v/c**
W McKinney Butte Road at Site Access			
2019 Existing Conditions	B	12	0.16
2021 Background Conditions	B	14	0.21
2021 Background Plus Site Conditions	B	15	0.27
W McKinney Butte Road at N Arrowleaf Trail			
2019 Existing Conditions	D	33	0.60
2021 Background Conditions	F	91	0.91
2021 Background Plus Site Conditions	F	103	0.96
US Highway 20 at W McKinney Butte Road/W Barclay Dr			
2019 Existing Conditions	A	8	0.38
2021 Background Conditions	B	11	0.55
2021 Background Plus Site Conditions	B	12	0.55
US Highway 20 at W Hood Avenue			
2019 Existing Conditions	C	22	0.09
2021 Background Conditions	D	31	0.11
2021 Background Plus Site Conditions	D	35	0.12
W Hood Avenue at Existing Access			
2019 Existing Conditions	A	10	0.07
2021 Background Conditions	A	10	0.08
2021 Background Conditions – Full Access	B	11	0.12
2021 Background Conditions – Restricted Access	A	10	0.06
W Hood Avenue at Proposed Access			
2021 Background Conditions – Full Access at Existing Access	A	10	0.04
2021 Background Conditions – Restricted Access at Existing Access	B	11	0.11
OR Highway 242 at W Hood Avenue			
2019 Existing Conditions	B	11	0.35
2021 Background Conditions	B	11	0.39
2021 Background Plus Site Conditions	B	11	0.38

LOS, Delay, and v/c ratio were reported for each intersection's worst-operating approach

As seen in Table 4 above, all intersections except the intersection of W McKinney Butte Road at N Arrowleaf Trail are projected to operate acceptably through the 2021 build-out year, with or without the addition of site trips from the proposed development. The intersection of W McKinney Butte Road at N Arrowleaf Trail is projected to exceed the City's maximum v/c ratio of 0.90 under 2021 background conditions. This is due primarily to a relatively high southbound left-turn volume from N Arrowleaf Trail onto W McKinney Butte Road to reach the roundabout. No planned projects or improvements to this intersection are listed in the City's TSP. The intersection operates acceptably for existing conditions, but delays increase in future years, regardless of development of the Threewind Master Plan. No mitigations are recommended at this intersection for the following reasons:

1. The close proximity of the roundabout serves to meter traffic arriving from the east. The standard calculation methodology for delay may not accurately model this operation and delays will likely be lower than what is calculated for future conditions.
2. This intersection serves as convenient access to the commercial areas to the north and the south. If turning movements are restricted, there would be significant out-of-direction travel.
3. Long delays will occur primarily during the peak hours and turn restrictions would force inefficient out-of-direction travel even during off-peak times when such a restriction is not necessary.
4. During peak hours when delays are long, drivers will self-select how they exit the commercial center. Highway traffic will likely choose to travel north on Arrowleaf Trail to Railway Avenue to make a right-turn onto Highway 20. Local traffic may choose a number of other routes to avoid Highway 20 and utilize the local street system.

Safety Analysis

The following sections comprise a traffic safety analysis for the proposed development, which includes warrant analysis and crash data analysis.

Warrant Analysis

Left-turn lane warrants and preliminary traffic signal warrants were examined for the study intersections where such treatments would be applicable.

Left-Turn Lane Warrants

Left-turn lane warrants were examined for the study intersections where such treatments would be applicable.

A left-turn refuge land is primarily a safety consideration for the major street, removing left-turning vehicles from the through traffic stream. The left-turn lane warrants were examined using methodologies provided in the National Cooperative Highway Research Program's (NCHRP) *Report 457*. Turn lane warrants were evaluated based on the number of advancing and opposing vehicles, number of turning vehicles, travel speed, and the number of through lanes.

Left-turn lane warrants are not projected to be met under any analysis scenario for any of the following two-way stop-controlled intersections:

- W McKinney Butte Road at Site Access
- W McKinney Butte Road at N Arrowleaf Trail
- W Hood Avenue at Proposed Access

The two-way stop-controlled intersections on US Highway 20 in the study area already have left-turn lanes. No new left-turn lanes are necessary or recommended.

Signal Warrants

Preliminary traffic signal warrants were examined for all study intersections except the intersection of US Highway 20 at W McKinney Butte Road/W Barclay Drive. Due to insufficient traffic volumes, traffic signal warrants are not projected to be met at the unsignalized study intersections under any of the analysis scenarios.

Crash Data Analysis

Using data obtained from ODOT's Online Crash Data System, a review was performed of the most recent five years of available crash data (January 2012 through December 2016) at the existing study intersections. The crash data were analyzed based on the type and severity of crashes. Crash severity is based on injuries sustained by people involved in the crash, and includes five categories:

1. PDO – property damage only
2. Injury C – possible injury or complain of pain
3. Injury B – non-incapacitating injury
4. Injury A – incapacitating injury (i.e. bleeding or broken bones)
5. Fatality

Crash rates were calculated under the common assumption that traffic counted during the evening peak hour represents ten percent of annual average daily traffic (AADT) at each intersection. Crash rates for each intersection are reported as crashes per million entering vehicles (CMEV. A crash rate higher than one to two CMEV may be indicative of design deficiencies or the need for mitigation Detailed crash data is provided in the appendix to this report.

The crash data is summarized in Table 5. It should be noted that all of the crashes in the analysis period occurred before construction of the existing roundabout at the intersection of US Highway 20 at W McKinney Butte Road/W Barclay Drive. Two of the crashes at this intersection resulted in incapacitating injuries. One involved a car and a motorcycle. Both of the two people on the motorcycle suffered the incapacitating injuries. The second crash involving incapacitating injuries occurred when a northbound vehicle did not yield right-of-way to a westbound vehicle and struck the westbound vehicle. All three occupants of the westbound vehicle suffered incapacitating injuries. The crash involving a bicycle occurred when a southbound vehicle struck an eastbound cyclist. The cyclist suffered a non-incapacitating injury.

No crashes at any of the other study intersections resulted in incapacitating injuries or involved pedestrians or cyclists.

Based on the analysis of crash data, there are no apparent safety hazards or design deficiencies at the study intersections. No safety mitigation is recommended.

Table 5 – Crash Data Summary

Intersection*	By Severity			By Modes Involved			Total Crashes	Crash Rate (CMEV)
	PDO†	Injury	Fatal	Ped	Bike	Car Only		
W McKinney Butte Road at Site Access	0	0	0	0	0	0	0	0
W McKinney Butte Road at N Arrowleaf Trail	1	1	0	0	0	2	2	0.16
US Highway 20 at W McKinney Butte	6	10	0	0	1	15	16	0.79
US Highway 20 at W Hood Avenue	1	1	0	0	0	2	2	0.13
W Hood Avenue at Existing Access	0	0	0	0	0	0	0	0
OR Highway 242 at W Hood Avenue	2	0	0	0	0	2	2	0.24

† "Property damage only," i.e. a crash in which no injury occurred

Sight Distance Analysis

Intersection sight distance was measured for the proposed site access intersection on W Hood Avenue. Sight distance was measured and evaluated in accordance with standards established in *A Policy on Geometric Design of Highways and Streets.*[6] According to AASHTO, the driver's eye is assumed to be 15 feet from the near edge of the nearest travel lane of the intersecting street and at a height of 3.5 feet above the minor-street approach pavement. The vehicle driver's eye-height along the major-street approach is assumed to be 3.5 feet above the cross-street pavement.

Based on the posted speed of 30 mph, the minimum recommended intersection sight distance is 335 feet. Sight distance to the north was measured to be approximately 365 feet, to the intersection of US Highway 20 at W Hood Avenue, as shown in Figure 11. Sight distance to the south was measured to be approximately 523 feet, to the intersection of OR Highway 242 at W Hood Avenue, as shown in Figure 12.

[6] American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 6th Edition, 2011.

Figure 11 – Sight Distance at Proposed Access, Looking North

Figure 12 – Sight Distance at Proposed Access, Looking South

W Hood Avenue Access Management

The proposed access to the site on W Hood Avenue is approximately 200 feet south of the existing Three Wind Shopping Center access. The ODOT spacing standard for district highways with an annual average daily traffic of 5,000 vehicles or less and a posted speed of 30 mph is 250 feet.[1] Because of the horizontal curve in the roadway, it is possible that vehicles would be traveling at speeds less than 30 mph. Traffic volumes on W Hood Avenue and at both of the driveways are relatively low.

The proposed driveway is across the street and offset from the existing driveway to the East Portal access. This East Portal site is currently for sale and owned by the Forest Service. Redevelopment potential of the property is limited since it is currently zoned Open Space. No redevelopment of the site was assumed for the purposes of this report.

As shown in Figure 13 below, there are currently back-to-back left-turn lanes striped on W Hood Avenue between the existing Three Wind Shopping Center access and the East Portal Access. The new street intersection along the southern property line of the subject site will access W Hood Avenue where the is currently a southbound left-turn lane for the East Portal driveway. Given the spacing of intersections after development of the Threewind Master Plan site, it is recommended that the existing left-turn lane striping on W Hood Avenue be removed and replaced with standard two-way left-turn lane striping.

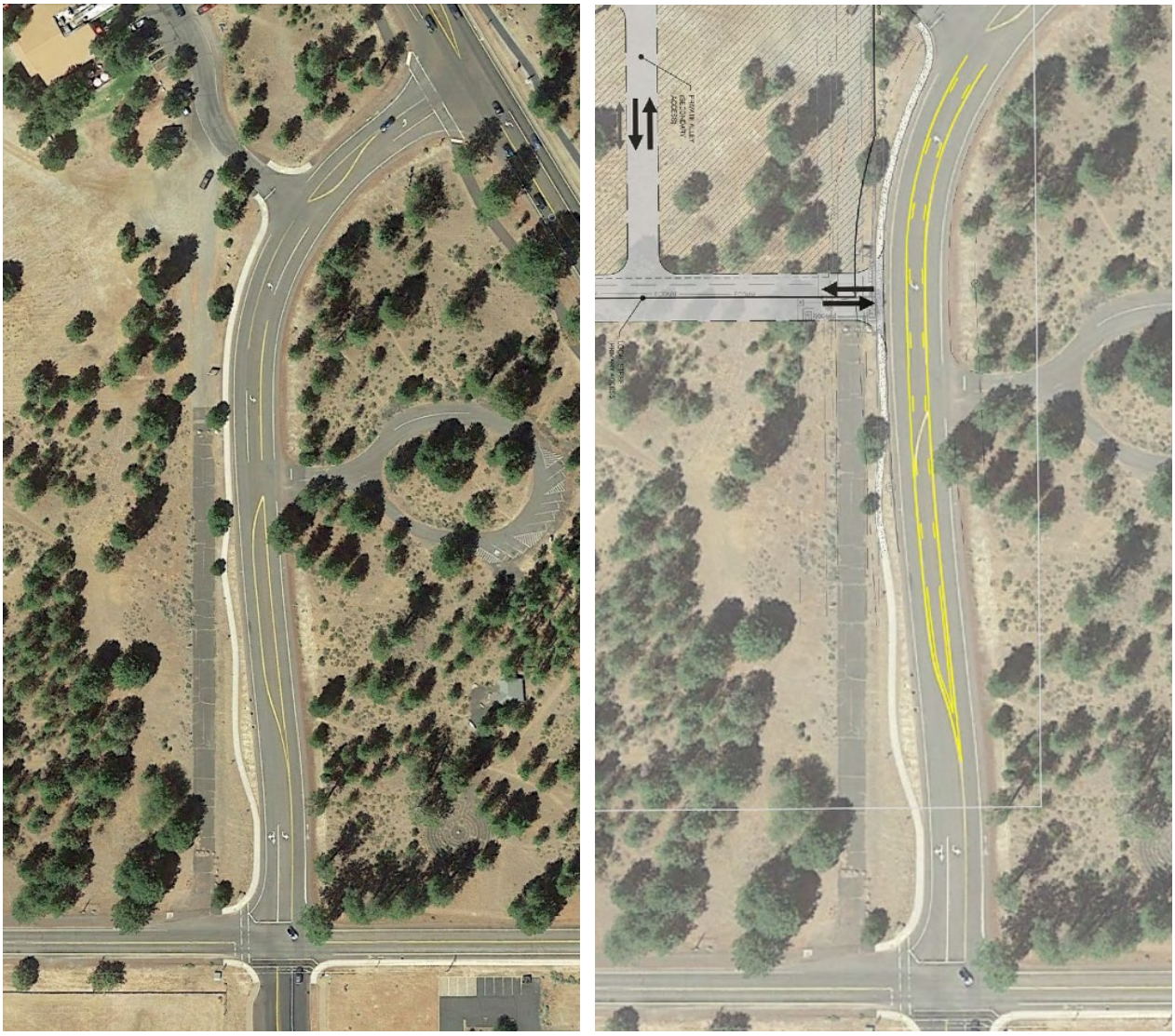


Figure 13 – Existing (left) and Proposed (right) Striping on W Hood Avenue

Based on the operational analysis of the intersection of US Highway 20 at W Hood Avenue, the projected 95th percentile queue length on the W Hood Avenue approach to US Highway 20 is only one vehicle, which is not enough to block the existing access to the site on W Hood Avenue. No operational issues are expected

at the existing site access on W Hood Avenue due to its proximity to US Highway 20, with or without the proposed development. As such, no turning movement restrictions are recommended at this time.

If operation at the existing access becomes a problem in the future, access restrictions can be reevaluated at that time, but no restriction is needed as a result of the Master Plan. If restriction of turning movements is entertained in the future, consideration should be given to allowing left turns into the driveway in order to minimize out-of-direction travel.

Internal Public/Private Street Intersection

The property to the south of the subject site, the Patterson Property, is zoned for residential development and could develop in the future. A preliminary trip generation and distribution analysis was completed for the Patterson Property. It was assumed that when the property develops, 7 single-family homes will be constructed per gross acre of site area, for a total of 91 dwellings on 13.1 acres. The site will likely have three access points: one on Brooks Camp Road, one on OR Highway 242, and one at the north property line that will connect at the four-legged intersection in the southern portion of the Threewind Master Plan development. The public street connection within Threewind will provide access to W Hood Avenue.

Using the *Trip Generation Manual*,[3] it was determined that during the evening peak hour, the Patterson Property could generate up to 57 entering trips and 33 exiting trips. Using the same trip distribution described in the Trip Distribution section of this report, it was estimated that a total of 41 of these trips would travel through the intersection on the Threewind Master Plan site during the evening peak hour. This volume, combined with the trips from the Threewind site, are still quite low. A standard two-way stop-controlled intersection will be sufficient to manage traffic at this intersection.

Conclusions

The intersection of W McKinney Butte Drive at N Arrowleaf Trail is projected to operate with a higher v/c ratio than the maximum allowable by the City of Sisters under year 2021 background conditions and year 2021 background plus site conditions. Because future delays will likely be less than what the model predicts for future conditions, mitigation would likely result in turning movement restrictions and out-of-direction travel, and local traffic may self-select other routes, no mitigation at this intersection is recommended. All other study intersections are projected to operate acceptably through the year 2021, with or without site trips generated by the proposed development.

Left-turn lane warrants are not projected to be met at any of the study intersections where they would be applicable.

Traffic signal warrants are not projected to be met at the unsignalized study intersections under any of the analysis scenarios due to insufficient traffic volumes.

Adequate sight distance is available at the location of the proposed site access intersection on W Hood Avenue.

Turning movement restriction at the existing site access on W Hood Avenue is not necessary or recommended in conjunction with the proposed Master Plan.

If and when the Patterson Property develops, two-way stop control would be sufficient to control the intersection between that property and the subject property.

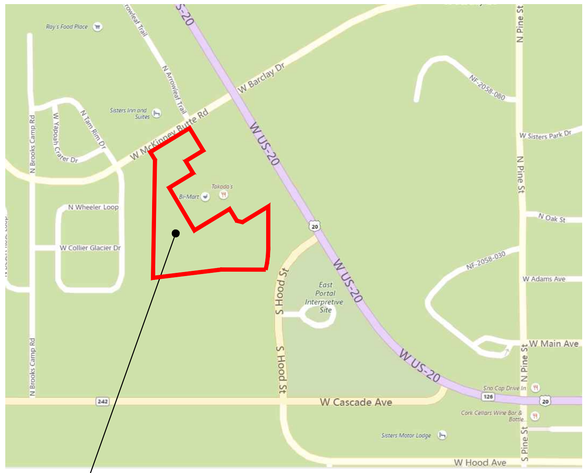
Appendix

THREEWIND MASTER PLAN

915 W McKINNEY BUTTE RD, SISTERS, OR 97759

TAX LOT 7200, MAP 151005DC

FEBRUARY, 2019



PROJECT SITE

VICINITY MAP

NTS

LEGEND

		EXISTING	PROPOSED	
ECABL	EXISTING CABLE			
EGAS	EXISTING GAS	SS		SANITARY SEWER MANHOLE
EIRRG	EXISTING IRRIGATION	SD DW	SD DW	STORM DRAIN MANHOLE, DRYWELL
OHW	EXISTING OVERHEAD LINES			
EPOWR	EXISTING POWER	WV GV	WV GV	WATER VALVE, GAS VALVE
EX SS	EXISTING SANITARY SEWER	ARV	ARV	AIR RELEASE VALVE
EX SD	EXISTING STORM DRAIN	BF	BF	BACKFLOW PREVENTER
ECOMM	EXISTING TELECOMMUNICATIONS	M G	G	WATER METER, GAS METER
EWAT	EXISTING WATER			FIRE HYDRANT
CABL	NEW CABLE			CATCH BASIN/CURB INLET
GAS	NEW GAS		CO	CLEAN OUT
IRRG	NEW IRRIGATION		R	RAIN DRAIN
POWR	NEW POWER			STREET LIGHT, PARKING LOT LIGHT
	NEW SANITARY SEWER			UTILITY POLE, GUY ANCHOR
SD	NEW STORM DRAIN	P	P	UTILITY VAULT
COMM	NEW TELECOMMUNICATIONS	E	E	ELECTRICAL PEDESTAL
	NEW WATER	C	C	CABLE PEDESTAL
	FENCE	T	T	TELECOMMUNICATIONS PEDESTAL
	EXISTING RIGHT-OF-WAY	R P	R P	IRON ROD, IRON PIPE
	EXISTING EDGE OF GRAVEL			
	EXISTING EDGE OF PAVEMENT			
	EXISTING CURB			
	NEW RIGHT-OF-WAY			
	NEW EDGE OF GRAVEL			
	NEW EDGE OF PAVEMENT			
	NEW CURB			

OWNER

THREEWIND PARTNERS LLC
1825 HAPPY LN
EUGENE, OR 97401

CIVIL ENGINEER & LAND SURVEYOR

H.A. M^c^COY ENGINEERING & SURVEYING
CONTACT: HAYES M^c^COY
1180 SW LAKE ROAD
SUITE 201
REDMOND, OR 97756
PH: 541-923-7554

SITE INFORMATION

TAX ASSESSORS MAP: TAX LOT #7200, MAP 151005DC

LEGAL DESCRIPTION: PARCEL 1, PARTITION PLAT 2014-26

PROPERTY SIZE: 7.48 ACRES

ZONING: HC

SHEET INDEX

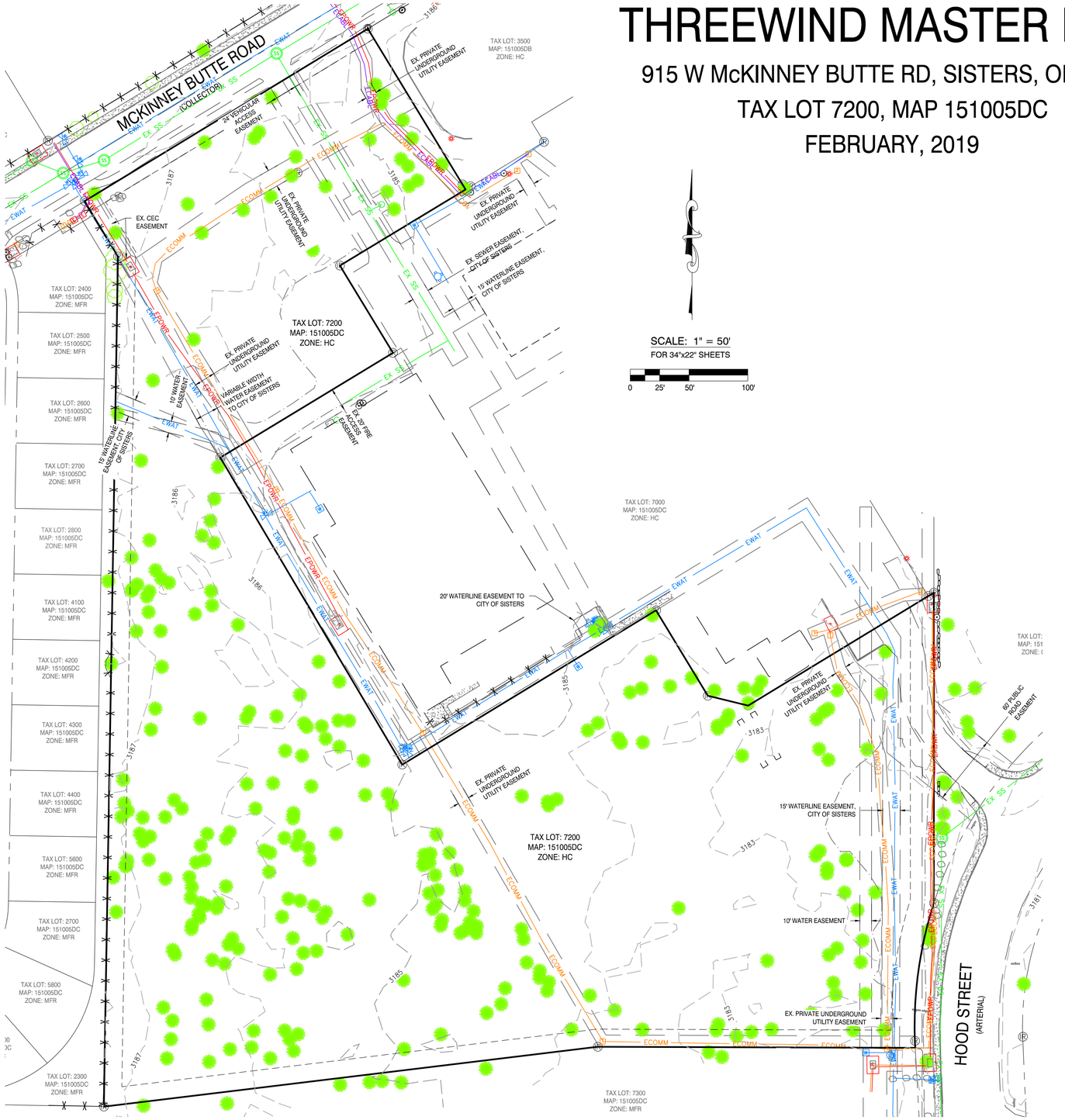
P1.0 COVER SHEET AND EX. CONDITIONS
P1.1 PRELIMINARY PLAT
P1.2 PRELIMINARY STREET SECTIONS AND DEVELOPMENT PLAN

VERTICAL DATUM

ELEVATIONS ARE BASED OFF OF DESCHUTES COUNTY BENCHMARK GIS 015, A 3 1/2" ALUMINUM CAP IN A MASS OF CONCRETE AT GROUND LEVEL, 26 FEET SOUTH OF THE CENTERLINE OF HWY. 242, 20 FEET NORTH OF WOOD POLE FENCE AND 140 FEET WEST OF TRINITY WAY.

LOCATE TICKETS = 18101846, 18101856, & 18101879

ALL UTILITY LOCATES WERE TIED DURING COURSE OF THIS SURVEY. H.A. M^c^COY ENGINEERING & SURVEYING, LLC MAKES NO GUARANTEE OF THE ACCURACY OF SAID MARKS.



SCALE: 1" = 50'
FOR 34"x22" SHEETS
0 25' 50' 100'

EXISTING CONDITIONS

REGISTERED PROFESSIONAL ENGINEER — OREGON — HAYES A. McCOY — RENEWAL DATE: 12/31/20

DRAWING STATUS:	DATE:	No.	REVISION:	DATE:
1ST PRE-APP.	11/06/18	△		
2ND PRE-APP	12/04/18	△		
FINAL PRE-APP	02/12/19	△		
SUBMITTAL	03/22/19	△		
		△		
		△		
		△		

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PROJECT: THREEWIND MASTERPLAN

PROJECT LOCATION: SISTERS, OR

CLIENT: MAYES ARCHITECTURE

SHEET TITLE: COVER SHEET AND EX. CONDITIONS

JOB NO. 18-056
DRAWN BY: SCW
DRAWING: P1.0

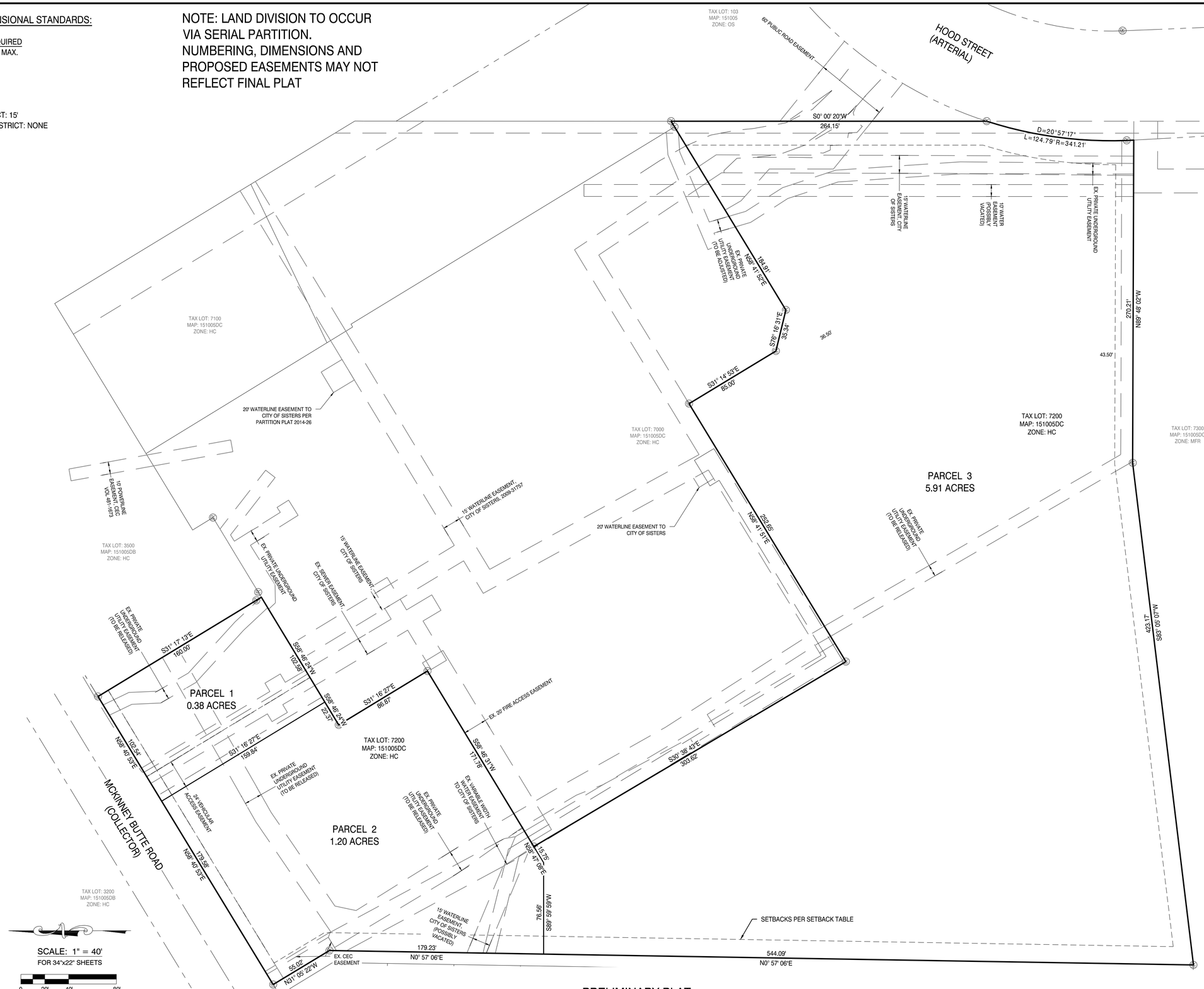
FILE: \\Fresno\WAS\HAM Engr\18-056 Threewind Master Plan\Planning\190311 - 18056-PLAN.dwg 3/12/2019 9:59 AM - Owner

HC ZONE MINIMUM DIMENSIONAL STANDARDS:

STANDARD	REQUIRED
BUILDING HEIGHT:	35' MAX.

MINIMUM BUILDING SETBACKS
ABUTTING HIGHWAY: 50'
ABUTTING ARTERIAL: 20'
ABUTTING LOCAL STREET: 10'
ABUTTING RESIDENTIAL DISTRICT: 15'
ABUTTING NON-RESIDENTIAL DISTRICT: NONE

NOTE: LAND DIVISION TO OCCUR VIA SERIAL PARTITION. NUMBERING, DIMENSIONS AND PROPOSED EASEMENTS MAY NOT REFLECT FINAL PLAT



PRELIMINARY PLAT

REGISTERED PROFESSIONAL ENGINEER — OREGON — HAYES A. McCOY — 12-31-20 — PRELIMINARY
RENEWAL DATE: 12/31/20

DRAWING STATUS:	DATE:	No.	REVISION:	DATE:
☐ 1ST PRE-APP.	11/06/18	△		
☐ 2ND PRE-APP	12/04/18	△		
☐ FINAL PRE-APP	02/12/19	△		
☒ SUBMITTAL	03/22/19	△		
☐		△		
☐		△		

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Hayes McCoy
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PROJECT: THREEWIND MASTERPLAN
PROJECT LOCATION: SISTERS, OR
CLIENT: MAYES ARCHITECTURE

SHEET TITLE: PRELIMINARY PLAT

JOB NO. 18-056
DRAWN BY: SCW
DRAWING: P1.1

FILE: \\Hrsrvs\MS\MM Engr\18-056 Threewind Master Plan\Planning\190311 - 18056-PLAN.dwg 3/12/2019 9:49 AM - Owner

HC ZONE MINIMUM DIMENSIONAL STANDARDS:

STANDARD	REQUIRED
BUILDING HEIGHT:	35' MAX.

MINIMUM BUILDING SETBACKS
ABUTTING HIGHWAY: 50'
ABUTTING ARTERIAL: 20'
ABUTTING LOCAL STREET: 10'
ABUTTING RESIDENTIAL DISTRICT: 15'
ABUTTING NON-RESIDENTIAL DISTRICT: NONE

MASTERPLAN MINIMUM DIMENSIONAL STANDARDS:

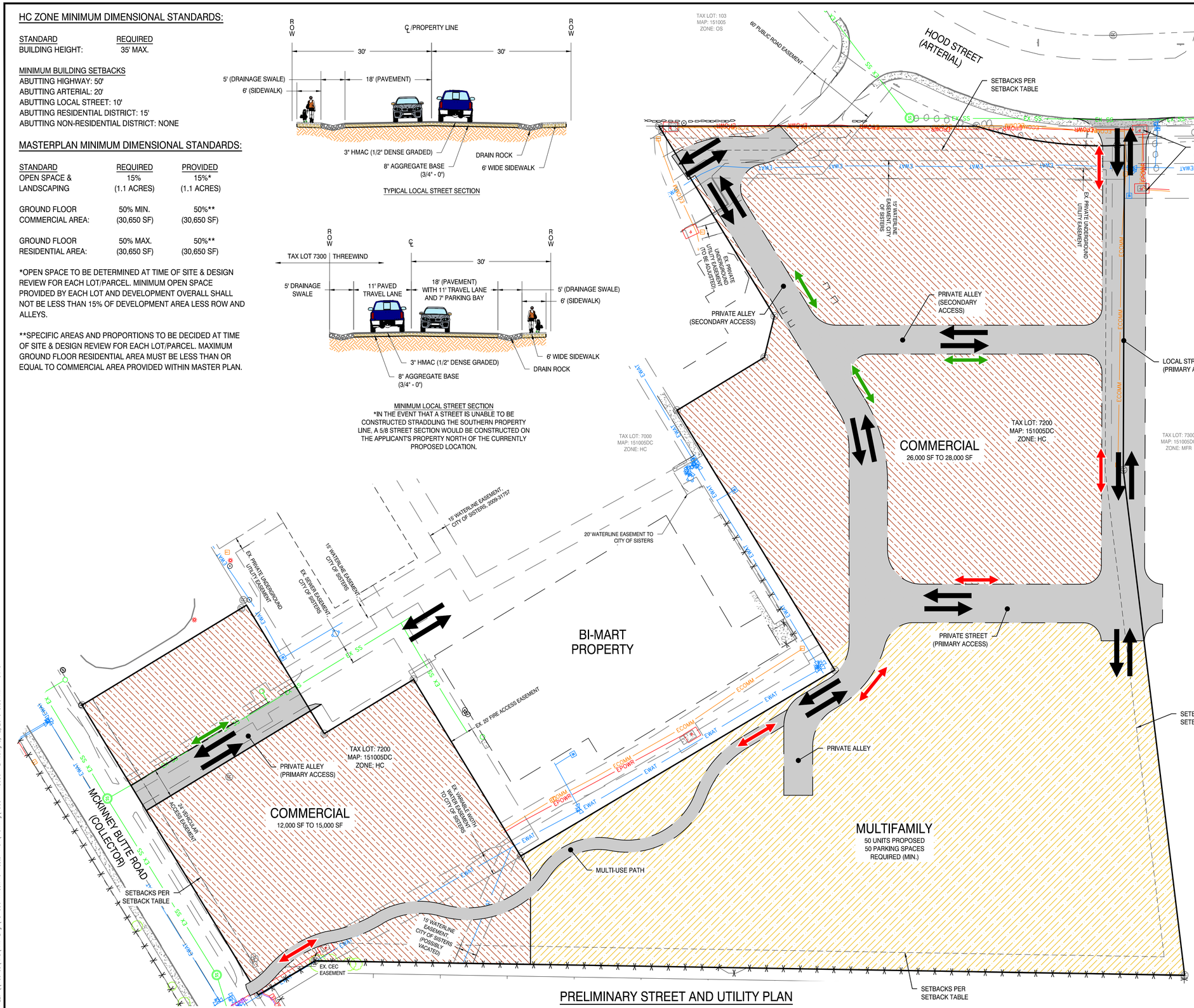
STANDARD	REQUIRED	PROVIDED
OPEN SPACE & LANDSCAPING	15% (1.1 ACRES)	15%* (1.1 ACRES)
GROUND FLOOR COMMERCIAL AREA:	50% MIN. (30,650 SF)	50%** (30,650 SF)
GROUND FLOOR RESIDENTIAL AREA:	50% MAX. (30,650 SF)	50%** (30,650 SF)

*OPEN SPACE TO BE DETERMINED AT TIME OF SITE & DESIGN REVIEW FOR EACH LOT/PARCEL. MINIMUM OPEN SPACE PROVIDED BY EACH LOT AND DEVELOPMENT OVERALL SHALL NOT BE LESS THAN 15% OF DEVELOPMENT AREA LESS ROW AND ALLEYS.

**SPECIFIC AREAS AND PROPORTIONS TO BE DECIDED AT TIME OF SITE & DESIGN REVIEW FOR EACH LOT/PARCEL. MAXIMUM GROUND FLOOR RESIDENTIAL AREA MUST BE LESS THAN OR EQUAL TO COMMERCIAL AREA PROVIDED WITHIN MASTER PLAN.

TYPICAL LOCAL STREET SECTION

MINIMUM LOCAL STREET SECTION
*IN THE EVENT THAT A STREET IS UNABLE TO BE CONSTRUCTED STRADDLING THE SOUTHERN PROPERTY LINE, A 5/8 STREET SECTION WOULD BE CONSTRUCTED ON THE APPLICANT'S PROPERTY NORTH OF THE CURRENTLY PROPOSED LOCATION.



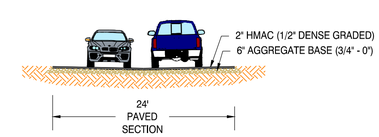
PRELIMINARY STREET AND UTILITY PLAN

TRAFFIC FLOW LEGEND

- VEHICULAR TRAFFIC FLOW DIRECTION
- MULT-USE TRAFFIC FLOW DIRECTION
- PEDESTRIAN TRAFFIC FLOW DIRECTION

HATCH LEGEND

- COMMERCIAL USE
- MULTI-FAMILY USE
- PAVEMENT



PRIVATE ALLEY SECTION
NTS

SCALE: 1" = 40'
FOR 34"x22" SHEETS
0 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER
OREGON
PE 56696PE
HAYES A. McCOY
RENEWAL DATE: 12/31/20
PRELIMINARY

No.	REVISION:	DATE:

DRAWING STATUS:	DATE:
1ST PRE-APP.	11/06/18
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FINAL PRE-APP	02/12/19
SUBMITTAL	03/22/19

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PROJECT: THREEWIND MASTERPLAN
PROJECT LOCATION: SISTERS, OR
CLIENT: MAYES ARCHITECTURE

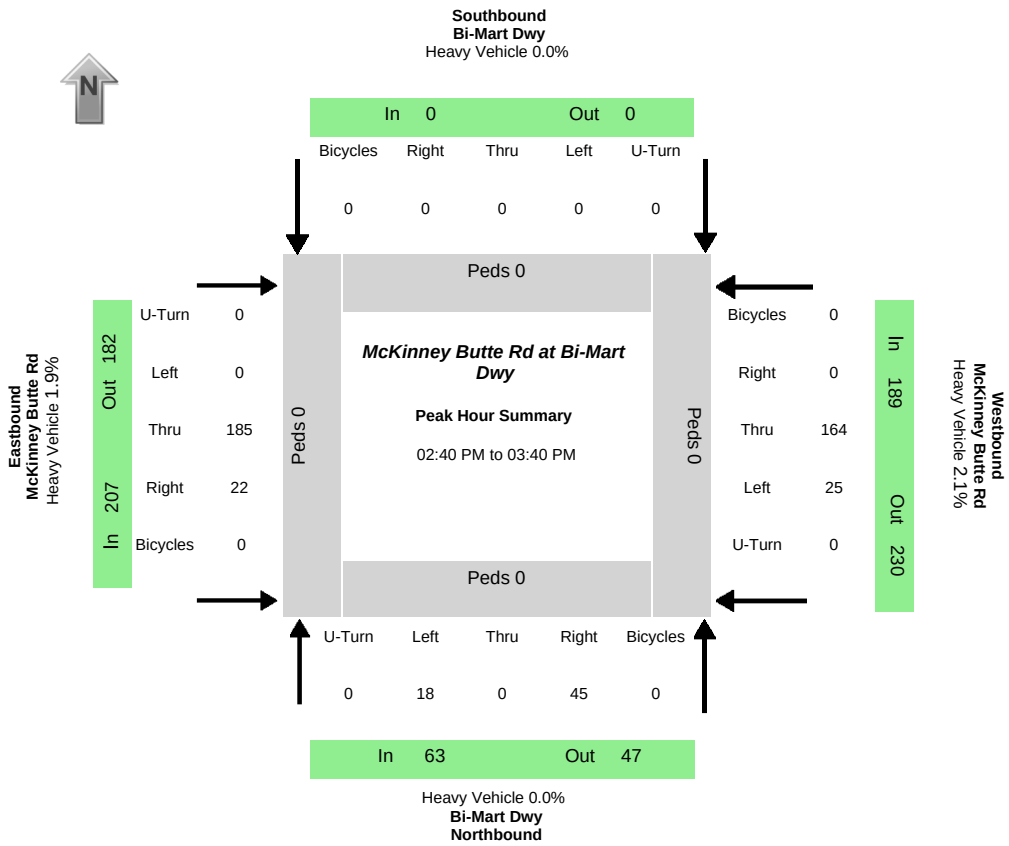
SHEET TITLE: PRELIMINARY STREET SECTIONS AND DEVELOPMENT PLAN

JOB NO. 18-056
DRAWN BY: SCW
DRAWING: P1.2

FILE: \\freenas\MAS\HAM Engr\18-056 ThreeWind Master Plan\Planning\190311-18056-PLAN.dwg 3/12/2019 9:59 AM - Owner

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*Bi-Mart Dwy*
E/W street	*McKinney Butte Rd*
City, State	Sisters OR
Site Notes	
Location	44.295102 - -121.561009
Start Date	Wednesday, December 12, 2018
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	02:40:00 PM
Peak 15 Min Start	03:10:00 PM
PHF (15-Min Int)	0.66



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
18	0	45	0	0	0	0	0	0	185	22	0	25	164	0	0	63	0	207	189	47	0	182	230

Percent Heavy Vehicles

0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	0.0%	0.0%	4.0%	1.8%	0.0%	0.0%	0.0%	0.0%	1.9%	2.1%	2.1%	0.0%	1.6%	1.7%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PHV - Pedestrians

in Crosswalk				
NB	SB	EB	WB	**Sum**
0	0	0	0	0

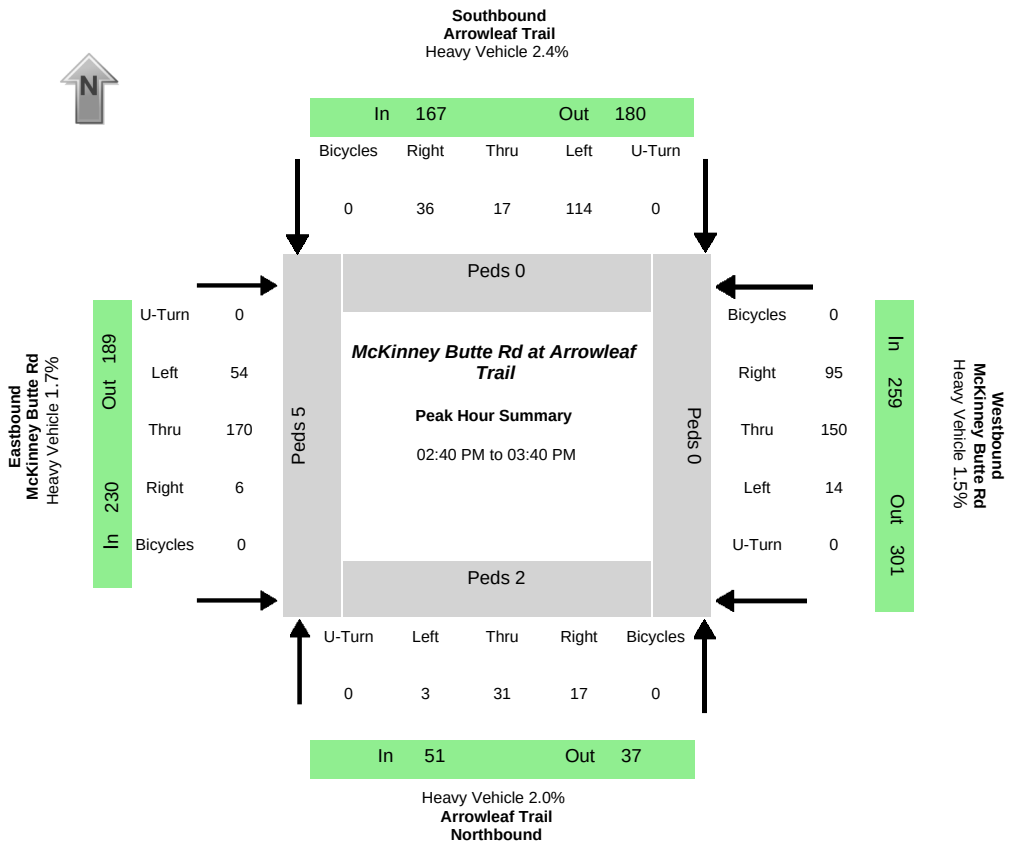
All Vehicle Volumes

	Northbound Bi-Mart Dwy				Southbound Bi-Mart Dwy				Eastbound McKinney Butte Rd				Westbound McKinney Butte Rd				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
02:00:00 PM	0	0	5	0	0	0	0	0	0	3	2	0	3	5	0	0		
02:05:00 PM	0	0	2	0	0	0	0	0	0	12	0	0	1	3	0	0		
02:10:00 PM	2	0	3	0	0	0	0	0	0	5	2	0	1	1	0	0	50	
02:15:00 PM	0	0	5	0	0	0	0	0	0	10	1	0	3	3	0	0	54	
02:20:00 PM	0	0	0	0	0	0	0	0	0	7	2	0	1	7	0	0	53	
02:25:00 PM	0	0	2	0	0	0	0	0	0	2	0	0	4	6	0	0	53	
02:30:00 PM	1	0	2	0	0	0	0	0	0	7	0	0	3	12	0	0	56	
02:35:00 PM	1	0	2	0	0	0	0	0	0	6	0	0	5	8	0	0	61	
02:40:00 PM	1	0	3	0	0	0	0	0	0	6	0	0	0	13	0	0	70	
02:45:00 PM	1	0	3	0	0	0	0	0	0	5	2	0	0	15	0	0	71	
02:50:00 PM	3	0	6	0	0	0	0	0	0	6	1	0	1	22	0	0	88	
02:55:00 PM	0	0	5	0	0	0	0	0	0	3	2	0	1	25	0	0	101	274
03:00:00 PM	3	0	4	0	0	0	0	0	0	6	1	0	3	17	0	0	109	290
03:05:00 PM	1	0	2	0	0	0	0	0	0	16	1	0	3	23	0	0	116	318
03:10:00 PM	1	0	2	0	0	0	0	0	0	31	1	0	3	12	0	0	130	354
03:15:00 PM	2	0	8	0	0	0	0	0	0	51	3	0	3	9	0	0	172	408
03:20:00 PM	1	0	4	0	0	0	0	0	0	29	4	0	3	6	0	0	173	438
03:25:00 PM	3	0	2	0	0	0	0	0	0	14	1	0	2	7	0	0	152	453
03:30:00 PM	1	0	3	0	0	0	0	0	0	11	2	0	2	8	0	0	103	455
03:35:00 PM	1	0	3	0	0	0	0	0	0	7	4	0	4	7	0	0	82	459
03:40:00 PM	2	0	6	0	0	0	0	0	0	9	0	0	0	4	0	0	74	457
03:45:00 PM	0	0	7	0	0	0	0	0	0	5	2	0	3	4	0	0	68	452
03:50:00 PM	2	0	4	0	0	0	0	0	0	9	2	0	2	9	0	0	70	441
03:55:00 PM	1	0	5	0	0	0	0	0	0	5	3	0	1	2	0	0	66	422

04:00:00 PM	1	0	3	0	0	0	0	0	0	9	1	0	2	2	0	0	63	406
04:05:00 PM	0	0	3	0	0	0	0	0	0	7	0	0	3	8	0	0	56	381
04:10:00 PM	3	0	5	0	0	0	0	0	0	9	1	0	3	7	0	0	67	359
04:15:00 PM	0	0	7	0	0	0	0	0	0	5	1	0	2	3	0	0	67	301
04:20:00 PM	0	0	6	0	0	0	0	0	0	4	3	0	1	8	0	0	68	276
04:25:00 PM	0	0	2	0	0	0	0	0	0	12	1	0	4	5	0	0	64	271
04:30:00 PM	3	0	5	0	0	0	0	0	0	9	1	0	0	9	0	0	73	271
04:35:00 PM	1	0	3	0	0	0	0	0	0	11	1	0	2	9	0	0	78	272
04:40:00 PM	1	0	4	0	0	0	0	0	0	13	0	0	2	9	0	0	83	280
04:45:00 PM	1	0	0	0	0	0	0	0	0	12	0	0	1	4	0	0	74	277
04:50:00 PM	1	0	1	0	0	0	0	0	0	10	1	0	1	7	0	0	68	270
04:55:00 PM	2	0	2	0	0	0	0	0	0	6	0	0	2	9	0	0	60	274
05:00:00 PM	1	0	1	0	0	0	0	0	0	3	0	0	1	4	0	0	52	266
05:05:00 PM	4	0	3	0	0	0	0	0	0	3	0	0	5	5	0	0	51	265
05:10:00 PM	1	0	8	0	0	0	0	0	0	11	1	0	1	9	0	0	61	268
05:15:00 PM	1	0	3	0	0	0	0	0	0	4	1	0	1	9	0	0	70	269
05:20:00 PM	2	0	4	0	0	0	0	0	0	4	0	0	3	0	0	0	63	260
05:25:00 PM	1	0	3	0	0	0	0	0	0	6	1	0	1	6	0	0	50	254
05:30:00 PM	1	0	2	0	0	0	0	0	0	5	0	0	0	8	0	0	47	243
05:35:00 PM	1	0	3	0	0	0	0	0	0	1	2	0	1	6	0	0	48	230
05:40:00 PM	2	0	2	0	0	0	0	0	0	14	1	0	2	8	0	0	59	230
05:45:00 PM	0	0	3	0	0	0	0	0	0	10	0	0	0	5	0	0	61	230
05:50:00 PM	1	0	1	0	0	0	0	0	0	8	0	0	2	5	0	0	64	226
05:55:00 PM	0	0	1	0	0	0	0	0	0	12	1	0	0	7	0	0	56	226

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*Arrowleaf Trail*
E/W street	*McKinney Butte Rd*
City, State	Sisters OR
Site Notes	
Location	44.295359 - -121.560495
Start Date	Wednesday, December 12, 2018
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	02:40:00 PM
Peak 15 Min Start	03:10:00 PM
PHF (15-Min Int)	0.75



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
3	31	17	0	114	17	36	0	54	170	6	0	14	150	95	0	51	167	230	259	37	180	189	301
Percent Heavy Vehicles																							
0.0%	3.2%	0.0%	0.0%	2.6%	0.0%	2.8%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	2.0%	1.1%	0.0%	2.0%	2.4%	1.7%	1.5%	0.0%	1.1%	2.1%	2.3%

PHV- Bicycles																	PHV - Pedestrians				
Northbound				Southbound				Eastbound				Westbound					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**	NB	SB	EB	WB	**Sum**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	0	7

All Vehicle Volumes

	Northbound Arrowleaf Trail				Southbound Arrowleaf Trail				Eastbound McKinney Butte Rd				Westbound McKinney Butte Rd				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
02:00:00 PM	0	1	1	0	13	2	5	0	4	4	0	0	1	3	6	0		
02:05:00 PM	1	0	2	0	13	0	1	0	1	12	1	0	0	2	5	0		
02:10:00 PM	0	1	1	0	12	0	0	0	2	6	0	0	0	2	6	0	108	
02:15:00 PM	0	0	2	0	2	0	1	0	4	11	0	0	3	5	5	0	101	
02:20:00 PM	1	1	1	0	12	3	0	0	2	5	0	0	1	7	8	0	104	
02:25:00 PM	0	1	1	0	6	0	4	0	1	3	0	0	0	6	5	0	101	
02:30:00 PM	0	4	2	0	11	2	3	0	2	7	0	0	2	12	6	0	119	
02:35:00 PM	0	0	1	0	8	1	2	0	1	7	0	0	1	11	6	0	116	
02:40:00 PM	0	4	0	0	6	0	1	0	1	7	1	0	2	12	11	0	134	
02:45:00 PM	0	4	1	0	8	1	5	0	2	6	0	0	3	10	7	0	130	
02:50:00 PM	1	1	3	0	10	1	3	0	6	6	0	0	2	19	9	0	153	
02:55:00 PM	1	3	2	0	8	1	3	0	3	4	1	0	1	22	7	0	164	507
03:00:00 PM	0	1	3	0	11	1	2	0	3	7	0	0	0	18	9	0	172	522
03:05:00 PM	0	2	0	0	10	0	1	0	4	12	2	0	0	25	2	0	169	542
03:10:00 PM	0	7	1	0	6	4	2	0	5	27	1	0	0	13	8	0	187	586
03:15:00 PM	0	3	1	0	10	0	6	0	14	44	1	0	0	6	7	0	224	645
03:20:00 PM	0	1	2	0	15	5	4	0	7	26	0	0	1	5	5	0	237	675
03:25:00 PM	0	0	1	0	11	2	5	0	6	10	0	0	2	4	11	0	215	700
03:30:00 PM	0	3	2	0	7	1	1	0	1	13	0	0	1	9	11	0	172	698
03:35:00 PM	1	2	1	0	12	1	3	0	2	8	0	0	2	7	8	0	148	707
03:40:00 PM	0	0	2	0	8	0	1	0	3	11	1	0	2	3	3	0	130	696
03:45:00 PM	1	1	2	0	16	3	3	0	6	6	0	0	1	3	8	0	131	699
03:50:00 PM	0	1	3	0	9	3	4	0	5	8	0	0	0	7	6	0	130	684
03:55:00 PM	1	0	2	0	8	1	0	0	2	7	1	0	2	2	5	0	127	659

04:00:00 PM	0	0	0	0	13	0	2	0	2	9	1	0	1	2	7	0	114	641
04:05:00 PM	0	1	1	0	12	2	3	0	5	4	1	0	1	8	12	0	118	633
04:10:00 PM	0	5	1	0	13	1	3	0	3	11	0	0	0	7	10	0	141	613
04:15:00 PM	1	1	0	0	14	3	3	0	8	4	0	0	0	1	6	0	145	562
04:20:00 PM	0	0	1	0	14	0	1	0	3	6	1	0	1	8	8	0	138	534
04:25:00 PM	0	0	1	0	15	1	3	0	3	10	1	0	1	6	7	0	132	530
04:30:00 PM	0	1	0	0	12	2	4	0	4	10	0	0	0	5	9	0	138	528
04:35:00 PM	0	2	1	0	7	2	5	0	4	9	1	0	1	6	6	0	139	525
04:40:00 PM	0	0	0	0	7	1	2	0	2	15	0	0	0	9	4	0	131	531
04:45:00 PM	0	3	1	0	8	0	1	0	1	11	0	0	1	4	5	0	119	516
04:50:00 PM	0	0	1	0	11	1	2	0	3	8	0	0	2	6	7	0	116	511
04:55:00 PM	0	1	2	0	10	1	3	0	3	5	0	0	1	8	2	0	112	516
05:00:00 PM	0	0	3	0	7	3	1	0	3	1	0	0	1	4	11	0	111	513
05:05:00 PM	0	1	2	0	8	3	2	0	3	3	0	0	1	8	12	0	113	506
05:10:00 PM	0	1	0	0	10	1	2	0	4	13	2	0	0	8	8	0	126	501
05:15:00 PM	1	1	2	0	11	1	4	0	3	4	0	0	0	5	6	0	130	498
05:20:00 PM	0	0	0	0	5	1	2	0	3	5	0	0	0	1	5	0	109	477
05:25:00 PM	0	0	0	0	13	2	2	0	5	4	0	0	0	5	9	0	100	469
05:30:00 PM	0	0	0	0	8	0	2	0	4	3	0	0	0	6	6	0	91	451
05:35:00 PM	0	1	1	0	10	0	3	0	1	3	0	0	4	4	3	0	99	437
05:40:00 PM	0	1	1	0	3	0	1	0	4	12	0	0	0	9	6	0	96	434
05:45:00 PM	0	3	2	0	11	1	2	0	4	8	1	0	1	3	3	0	106	438
05:50:00 PM	0	0	2	0	6	0	2	0	1	8	0	0	1	5	5	0	106	427
05:55:00 PM	0	3	2	0	6	0	4	0	3	8	2	0	0	3	3	0	103	425

Study Name **Hwy 20 at McKinney Butte or W Barclay Dr**
Start Date **12/12/2018**
Start Time **2:00 PM**
Site Code

Location **44.295756** **-121.559593**

	W US 20 Northbound				W US 20 Southbound				W McKinney Butte Rd Eastbound				W Barclay Dr Westbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
2:00 PM	11	54	0	0	19	43	3	0	24	8	31	0	7	10	13	0
2:15 PM	18	47	0	0	14	47	4	0	16	10	13	0	3	18	7	0
2:30 PM	24	57	0	0	10	59	1	0	15	10	24	0	6	34	14	0
2:45 PM	33	38	3	0	17	50	3	0	18	12	18	0	7	42	7	0
3:00 PM	32	51	3	0	20	72	9	0	21	23	31	0	5	34	7	0
3:15 PM	15	52	5	0	28	53	5	0	34	43	39	0	7	19	9	0
3:30 PM	17	57	2	0	18	40	5	0	23	8	33	0	9	24	10	0
3:45 PM	14	48	2	0	15	63	4	0	19	16	26	0	7	17	11	0
4:00 PM	21	63	2	0	14	55	5	0	19	6	33	0	8	21	10	0
4:15 PM	10	44	4	0	15	45	5	0	25	8	28	0	9	22	4	0
4:30 PM	13	41	6	0	17	55	6	0	20	9	29	0	7	17	8	0
4:45 PM	18	30	1	0	14	60	4	0	25	9	24	0	5	14	6	0
5:00 PM	24	39	4	0	5	57	6	0	16	11	18	0	6	23	8	0
5:15 PM	18	28	2	0	6	46	2	0	15	4	25	0	3	10	8	0
5:30 PM	21	32	1	0	5	46	2	0	9	9	22	0	1	17	13	0
5:45 PM	9	28	1	0	12	37	1	0	21	11	19	0	3	12	5	0

Study Name **Hwy 20 at McKinney Butte or W Barclay Dr**
Start Date **12/12/2018**
Start Time **2:00 PM**
Site Code

Location **44.295756** **-121.559593**

	W US 20 Northbound				W US 20 Southbound				W McKinney Butte Rd Eastbound				W Barclay Dr Westbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
2:00 PM	0	4	0	0	1	4	0	1	0	0	1	0	0	0	0	0
2:15 PM	0	6	0	0	1	3	0	0	2	0	1	0	0	0	0	0
2:30 PM	1	7	0	0	0	2	0	0	2	0	0	0	0	1	1	0
2:45 PM	1	6	0	0	1	7	0	0	1	0	0	0	2	2	0	0
3:00 PM	0	5	1	0	0	6	0	1	0	0	0	0	3	1	3	0
3:15 PM	0	6	0	0	2	5	1	0	2	2	1	0	1	0	1	0
3:30 PM	0	4	0	0	0	7	0	1	1	0	1	0	1	0	0	0
3:45 PM	0	3	0	0	0	7	0	1	1	0	1	0	0	0	1	0
4:00 PM	1	1	0	0	0	4	0	0	2	0	3	0	1	0	0	0
4:15 PM	0	7	0	0	0	1	1	0	1	0	1	0	0	0	0	0
4:30 PM	0	0	0	0	0	5	1	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	4	0	0	1	0	0	0	0	0	1	0
5:00 PM	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	0
5:15 PM	0	3	0	0	0	3	0	0	0	0	0	0	1	0	1	0
5:30 PM	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	5	0	0	0	5	0	0	0	0	1	0	0	1	0	0

Study Name **Hwy 20 at McKinney Butte or W Barclay Dr**
Start Date **12/12/2018**
Start Time **2:00 PM**
Site Code

Location **44.295756** **-121.559593**

	W US 20 Northbound				W US 20 Southbound				W McKinney Butte Rd Eastbound				W Barclay Dr Westbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name **Hwy 20 at McKinney Butte or W Barclay Dr**
Start Date **12/12/2018**
Start Time **2:00 PM**
Site Code

Location **44.295756** **-121.559593**

	W US 20 Northbound		W US 20 Southbound		W McKinney Butte Rd Eastbound		W Barclay Dr Westbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
2:00 PM	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0
2:30 PM	0	0	1	0	0	0	1	0
2:45 PM	0	0	0	0	0	0	0	0
3:00 PM	0	0	1	0	0	0	0	0
3:15 PM	2	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	1	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	1

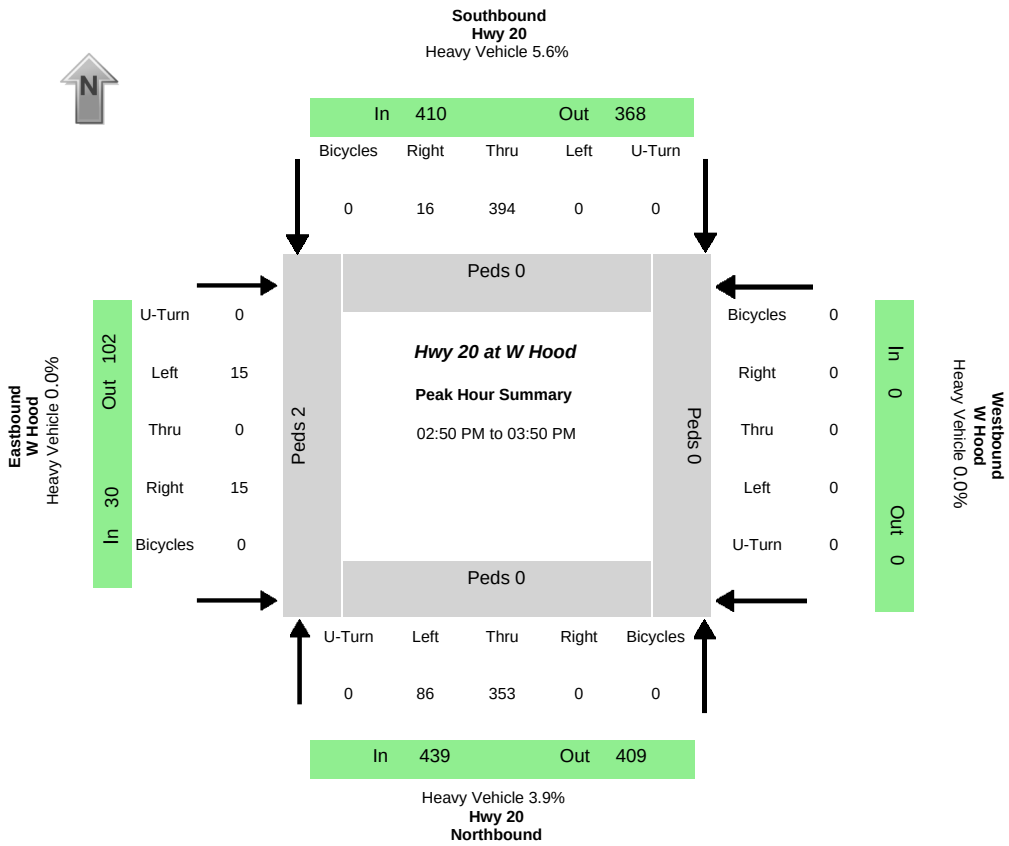
Study Name **Hwy 20 at McKinney Butte or W Barclay Dr**
Start Date **12/12/2018**
Start Time **2:00 PM**
Site Code

Location **44.295756** **-121.559593**

	W US 20 Northbound				W US 20 Southbound				W McKinney Butte Rd Eastbound				W Barclay Dr Westbound					
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Hour sums	15-min sums
2:00 PM	11	58	0	0	20	47	3	1	24	8	32	0	7	10	13	0	980	234
2:15 PM	18	53	0	0	15	50	4	0	18	10	14	0	3	18	7	0	1074	210
2:30 PM	25	64	0	0	10	61	1	0	17	10	24	0	6	35	15	0	1194	268
2:45 PM	34	44	3	0	18	57	3	0	19	12	18	0	9	44	7	0	1187	268
3:00 PM	32	56	4	0	20	78	9	1	21	23	31	0	8	35	10	0	1175	328
3:15 PM	15	58	5	0	30	58	6	0	36	45	40	0	8	19	10	0	1116	330
3:30 PM	17	61	2	0	18	47	5	1	24	8	34	0	10	24	10	0	1016	261
3:45 PM	14	51	2	0	15	70	4	1	20	16	27	0	7	17	12	0	989	256
4:00 PM	22	64	2	0	14	59	5	0	21	6	36	0	9	21	10	0	950	269
4:15 PM	10	51	4	0	15	46	6	0	26	8	29	0	9	22	4	0	903	230
4:30 PM	13	41	6	0	17	60	7	0	20	9	29	0	7	17	8	0	848	234
4:45 PM	18	31	1	0	14	64	4	0	26	9	24	0	5	14	7	0	800	217
5:00 PM	24	42	4	1	5	57	6	1	16	11	18	0	6	23	8	0	755	222
5:15 PM	18	31	2	0	6	49	2	0	15	4	25	0	4	10	9	0		175
5:30 PM	21	35	1	0	5	51	2	0	9	9	22	0	1	17	13	0		186
5:45 PM	10	33	1	0	12	42	1	0	21	11	20	0	3	13	5	0		172

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*Hwy 20*
E/W street	*W Hood*
City, State	Sisters OR
Site Notes	
Location	44.293625 - -121.557933
Start Date	Wednesday, December 12, 2018
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	02:50:00 PM
Peak 15 Min Start	03:05:00 PM
PHF (15-Min Int)	0.89



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
86	353	0	0	0	394	16	0	15	0	15	0	0	0	0	0	439	410	30	0	409	368	102	0

Percent Heavy Vehicles

1.2%	4.5%	0.0%	0.0%	0.0%	4.8%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.9%	5.6%	0.0%	0.0%	4.6%	4.3%	4.9%	0.0%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**
0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0

PHV - Pedestrians

in Crosswalk				
NB	SB	EB	WB	**Sum**
0	0	2	0	2

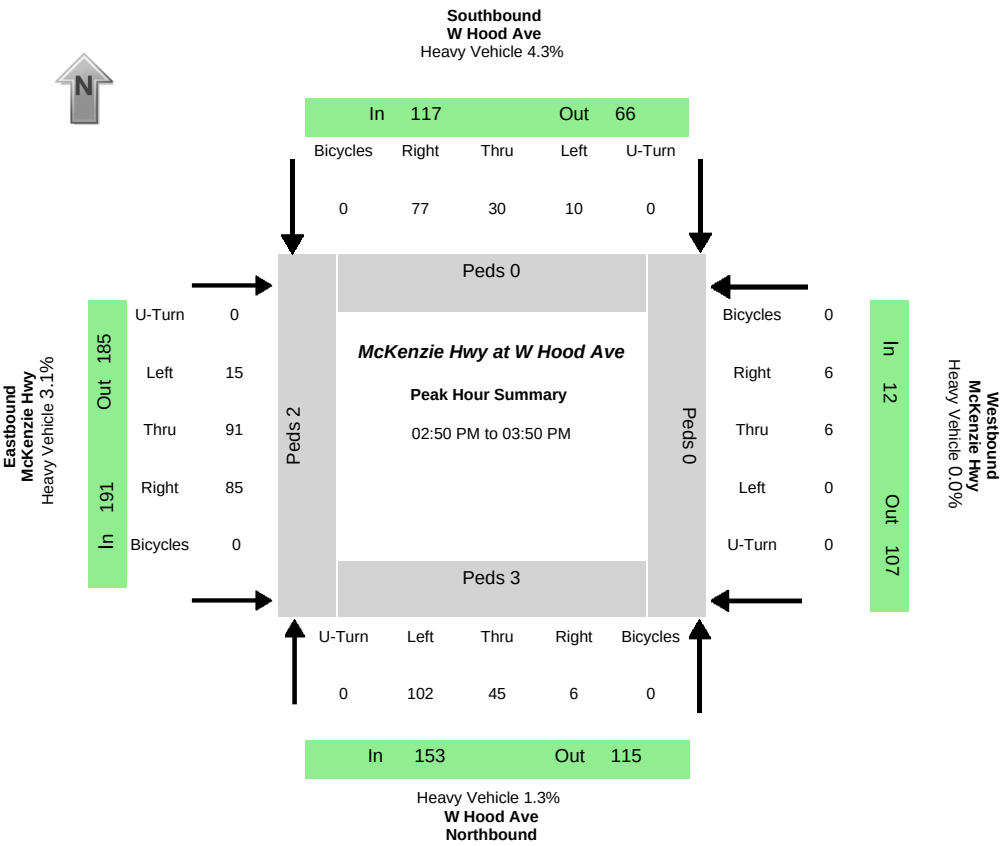
All Vehicle Volumes

	Northbound Hwy 20				Southbound Hwy 20				Eastbound W Hood				Westbound W Hood				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
02:00:00 PM	1	25	0	0	0	29	0	0	3	0	1	0	0	0	0	0		
02:05:00 PM	4	17	0	0	0	26	1	0	1	0	2	0	0	0	0	0		
02:10:00 PM	6	26	0	0	0	24	3	0	4	0	1	0	0	0	0	0	174	
02:15:00 PM	7	22	0	0	0	20	0	0	1	0	4	0	0	0	0	0	169	
02:20:00 PM	2	27	0	0	0	42	0	0	1	0	2	0	0	0	0	0	192	
02:25:00 PM	3	30	0	0	0	10	0	0	0	0	2	0	0	0	0	0	173	
02:30:00 PM	2	28	0	0	0	26	2	0	1	0	2	0	0	0	0	0	180	
02:35:00 PM	2	35	0	0	0	37	1	0	2	0	1	0	0	0	0	0	184	
02:40:00 PM	4	27	0	0	0	31	1	0	1	0	3	0	0	0	0	0	206	
02:45:00 PM	6	20	0	0	0	30	0	0	0	0	2	0	0	0	0	0	203	
02:50:00 PM	12	34	0	0	0	27	2	0	2	0	2	0	0	0	0	0	204	
02:55:00 PM	15	40	0	0	0	23	6	0	0	0	4	0	0	0	0	0	225	778
03:00:00 PM	5	22	0	0	0	24	1	0	0	0	1	0	0	0	0	0	220	772
03:05:00 PM	6	29	0	0	0	39	0	0	2	0	1	0	0	0	0	0	218	798
03:10:00 PM	9	36	0	0	0	48	1	0	5	0	0	0	0	0	0	0	229	833
03:15:00 PM	7	27	0	0	0	33	0	0	0	0	3	0	0	0	0	0	246	849
03:20:00 PM	5	25	0	0	0	36	1	0	2	0	0	0	0	0	0	0	238	844
03:25:00 PM	5	32	0	0	0	32	0	0	0	0	1	0	0	0	0	0	209	869
03:30:00 PM	6	26	0	0	0	22	2	0	1	0	0	0	0	0	0	0	196	865
03:35:00 PM	4	31	0	0	0	38	1	0	1	0	2	0	0	0	0	0	204	864
03:40:00 PM	10	28	0	0	0	36	1	0	1	0	1	0	0	0	0	0	211	874
03:45:00 PM	2	23	0	0	0	36	1	0	1	0	0	0	0	0	0	0	217	879
03:50:00 PM	3	15	0	0	0	33	0	0	4	0	4	0	0	0	0	0	199	859
03:55:00 PM	1	28	0	0	0	32	0	0	0	0	2	0	0	0	0	0	185	834

04:00:00 PM	6	31	0	0	0	28	1	0	1	0	3	0	0	0	0	0	192	851
04:05:00 PM	4	35	0	0	0	42	2	0	2	0	0	0	0	0	0	0	218	859
04:10:00 PM	4	20	0	0	0	31	2	0	1	0	3	0	0	0	0	0	216	821
04:15:00 PM	3	24	0	0	0	23	2	0	3	0	2	0	0	0	0	0	203	808
04:20:00 PM	6	23	0	0	0	30	0	0	1	0	2	0	0	0	0	0	180	801
04:25:00 PM	2	19	0	0	0	33	1	0	0	0	1	0	0	0	0	0	175	787
04:30:00 PM	7	24	0	0	0	28	2	0	3	0	3	0	0	0	0	0	185	797
04:35:00 PM	1	18	0	0	0	31	2	0	0	0	4	0	0	0	0	0	179	776
04:40:00 PM	5	17	0	0	0	39	0	0	0	0	0	0	0	0	0	0	184	760
04:45:00 PM	3	15	0	0	0	25	4	0	1	0	2	0	0	0	0	0	167	747
04:50:00 PM	4	20	0	0	0	30	0	0	0	0	2	0	0	0	0	0	167	744
04:55:00 PM	2	23	0	0	0	40	0	0	0	0	0	0	0	0	0	0	171	746
05:00:00 PM	7	27	0	0	0	33	0	0	4	0	1	0	0	0	0	0	193	748
05:05:00 PM	2	15	0	0	0	20	1	0	0	0	0	0	0	0	0	0	175	701
05:10:00 PM	1	25	0	0	0	21	3	0	1	0	0	0	0	0	0	0	161	691
05:15:00 PM	1	26	0	0	0	36	2	0	2	0	2	0	0	0	0	0	158	703
05:20:00 PM	6	11	0	0	0	31	1	0	0	0	1	0	0	0	0	0	170	691
05:25:00 PM	3	14	0	0	0	14	0	0	0	0	2	0	0	0	0	0	152	668
05:30:00 PM	4	14	0	0	0	27	1	0	1	0	0	0	0	0	0	0	130	648
05:35:00 PM	5	24	0	0	0	25	2	0	0	0	3	0	0	0	0	0	139	651
05:40:00 PM	2	26	0	0	0	22	0	0	0	0	0	0	0	0	0	0	156	640
05:45:00 PM	3	17	0	0	0	17	0	0	1	0	4	0	0	0	0	0	151	632
05:50:00 PM	4	12	0	0	0	25	0	0	1	0	4	0	0	0	0	0	138	622
05:55:00 PM	5	19	0	0	0	24	0	0	0	0	1	0	0	0	0	0	137	606

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*W Hood Ave*
E/W street	*McKenzie Hwy*
City, State	Sisters OR
Site Notes	
Location	44.291311 - -121.558599
Start Date	Wednesday, December 12, 2018
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	02:50:00 PM
Peak 15 Min Start	03:05:00 PM
PHF (15-Min Int)	0.69



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
102	45	6	0	10	30	77	0	15	91	85	0	0	6	6	0	153	117	191	12	115	66	185	107

Percent Heavy Vehicles

2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.5%	0.0%	0.0%	0.0%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	4.3%	3.1%	0.0%	5.2%	0.0%	3.8%	0.0%

PHV- Bicycles																	PHV - Pedestrians				
Northbound				Southbound				Eastbound				Westbound					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**	NB	SB	EB	WB	**Sum**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	5

All Vehicle Volumes

	Northbound W Hood Ave				Southbound W Hood Ave				Eastbound McKenzie Hwy				Westbound McKenzie Hwy				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
02:00:00 PM	5	4	1	0	0	2	0	0	0	3	2	0	0	0	1	0		
02:05:00 PM	5	1	1	0	0	2	2	0	1	5	3	0	0	0	0	0		
02:10:00 PM	7	8	0	0	0	3	3	0	0	4	5	0	0	0	1	0	69	
02:15:00 PM	7	4	0	0	2	1	2	0	0	2	3	0	1	0	0	0	73	
02:20:00 PM	4	5	0	0	1	4	1	0	1	5	4	0	0	0	0	0	78	
02:25:00 PM	6	3	0	0	1	3	3	0	0	9	3	0	0	0	0	0	75	
02:30:00 PM	6	4	0	0	0	0	2	0	1	2	3	0	0	0	0	0	71	
02:35:00 PM	3	4	0	0	1	4	3	0	0	5	4	0	0	0	1	0	71	
02:40:00 PM	5	5	0	0	2	2	5	0	0	5	1	0	0	0	1	0	69	
02:45:00 PM	4	2	0	0	1	0	5	0	1	2	2	0	0	1	0	0	69	
02:50:00 PM	10	4	1	0	2	1	16	0	1	6	5	0	0	0	2	0	92	
02:55:00 PM	9	8	0	0	1	3	8	0	0	4	6	0	0	1	0	0	106	319
03:00:00 PM	12	4	1	0	0	1	15	0	1	5	3	0	0	0	1	0	131	344
03:05:00 PM	20	3	1	0	1	3	1	0	4	18	10	0	0	0	0	0	144	385
03:10:00 PM	10	10	0	0	1	4	8	0	4	7	12	0	0	1	0	0	161	411
03:15:00 PM	3	4	1	0	1	1	7	0	2	13	22	0	0	0	0	0	172	443
03:20:00 PM	7	1	0	0	0	4	6	0	0	8	8	0	0	0	1	0	146	453
03:25:00 PM	8	0	0	0	0	2	3	0	0	11	7	0	0	0	0	0	120	456
03:30:00 PM	4	2	1	0	0	5	3	0	1	5	2	0	0	1	0	0	90	462
03:35:00 PM	6	4	0	0	3	1	3	0	0	4	7	0	0	0	1	0	84	466
03:40:00 PM	6	1	0	0	0	1	4	0	1	2	3	0	0	2	0	0	73	460
03:45:00 PM	7	4	1	0	1	4	3	0	1	8	0	0	0	1	1	0	80	473
03:50:00 PM	12	11	1	0	1	1	1	0	0	6	5	0	0	1	0	0	90	464
03:55:00 PM	6	8	1	0	0	3	1	0	2	3	2	0	0	1	1	0	98	452

04:00:00 PM	9	1	0	0	1	0	4	0	0	5	2	0	0	0	1	0	90	432
04:05:00 PM	3	7	0	0	1	3	3	0	0	6	2	0	0	0	0	0	76	396
04:10:00 PM	6	4	0	0	0	5	4	0	1	8	4	0	0	1	0	0	81	372
04:15:00 PM	4	4	2	0	2	4	2	0	1	1	4	0	0	1	1	0	84	344
04:20:00 PM	6	1	1	0	1	0	3	0	0	2	1	0	1	0	2	0	77	327
04:25:00 PM	3	2	0	0	1	1	4	0	0	5	1	0	0	0	0	0	61	313
04:30:00 PM	7	5	1	0	0	5	3	0	0	3	3	0	0	0	1	0	63	317
04:35:00 PM	6	6	0	0	0	3	2	0	0	3	4	0	0	1	0	0	70	313
04:40:00 PM	6	1	1	0	0	0	4	0	0	4	7	0	0	0	0	0	76	316
04:45:00 PM	4	5	0	0	2	5	2	0	0	8	8	0	0	0	1	0	83	320
04:50:00 PM	4	1	0	0	1	0	4	0	0	2	4	0	0	0	1	0	75	298
04:55:00 PM	9	2	0	0	0	4	0	0	0	3	4	0	0	0	0	0	74	292
05:00:00 PM	6	5	0	0	3	3	3	0	0	3	3	0	0	0	2	0	67	297
05:05:00 PM	6	4	0	0	0	4	5	0	1	1	5	0	0	1	0	0	77	299
05:10:00 PM	3	1	0	0	0	3	2	0	1	2	6	0	0	0	0	0	73	284
05:15:00 PM	4	4	0	0	0	3	1	0	1	6	1	0	0	0	0	0	65	278
05:20:00 PM	9	3	0	0	1	3	6	0	0	1	1	0	0	1	0	0	63	285
05:25:00 PM	6	0	0	0	0	5	1	0	3	2	2	0	0	0	0	0	64	287
05:30:00 PM	3	3	0	0	0	2	4	0	1	1	4	0	0	0	0	0	62	277
05:35:00 PM	12	1	0	0	0	3	3	0	0	3	2	0	0	0	0	0	61	276
05:40:00 PM	2	2	0	0	0	4	1	0	0	1	2	0	0	0	0	0	54	265
05:45:00 PM	7	2	0	0	0	0	3	0	2	12	4	0	0	2	0	0	68	262
05:50:00 PM	7	1	0	0	0	0	3	0	4	8	2	0	0	0	0	0	69	270
05:55:00 PM	3	3	0	0	0	2	3	0	1	7	7	0	0	0	0	0	83	274

1e

TRIP GENERATION CALCULATIONS

Land Use: Multifamily Housing (Mid-Rise)
Land Use Code: 221
Setting/Location General Urban/Suburban
Variable: Dwelling Units
Variable Value: 50

AM PEAK HOUR

Trip Rate: 0.36

	Enter	Exit	Total
Directional Distribution	26%	74%	
Trip Ends	**5**	**13**	**18**

PM PEAK HOUR

Trip Rate: 0.44

	Enter	Exit	Total
Directional Distribution	61%	39%	
Trip Ends	**13**	**9**	**22**

WEEKDAY

Trip Rate: 5.44

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**136**	**136**	**272**

SATURDAY

Trip Rate: 4.91

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**123**	**123**	**246**

Source: TRIP GENERATION, Tenth Edition

1e

TRIP GENERATION CALCULATIONS

Land Use: Shopping Center
Land Use Code: 820
Setting/Location General Urban/Suburban
Variable: 1,000 Sq. Ft. GFA
Variable Value: 20

AM PEAK HOUR

Trip Rate: 0.94

	Enter	Exit	Total
Directional Distribution	62%	38%	
Trip Ends	**12**	**7**	**19**

PM PEAK HOUR

Trip Rate: 3.81

	Enter	Exit	Total
Directional Distribution	48%	52%	
Trip Ends	**36**	**40**	**76**

WEEKDAY

Trip Rate: 37.75

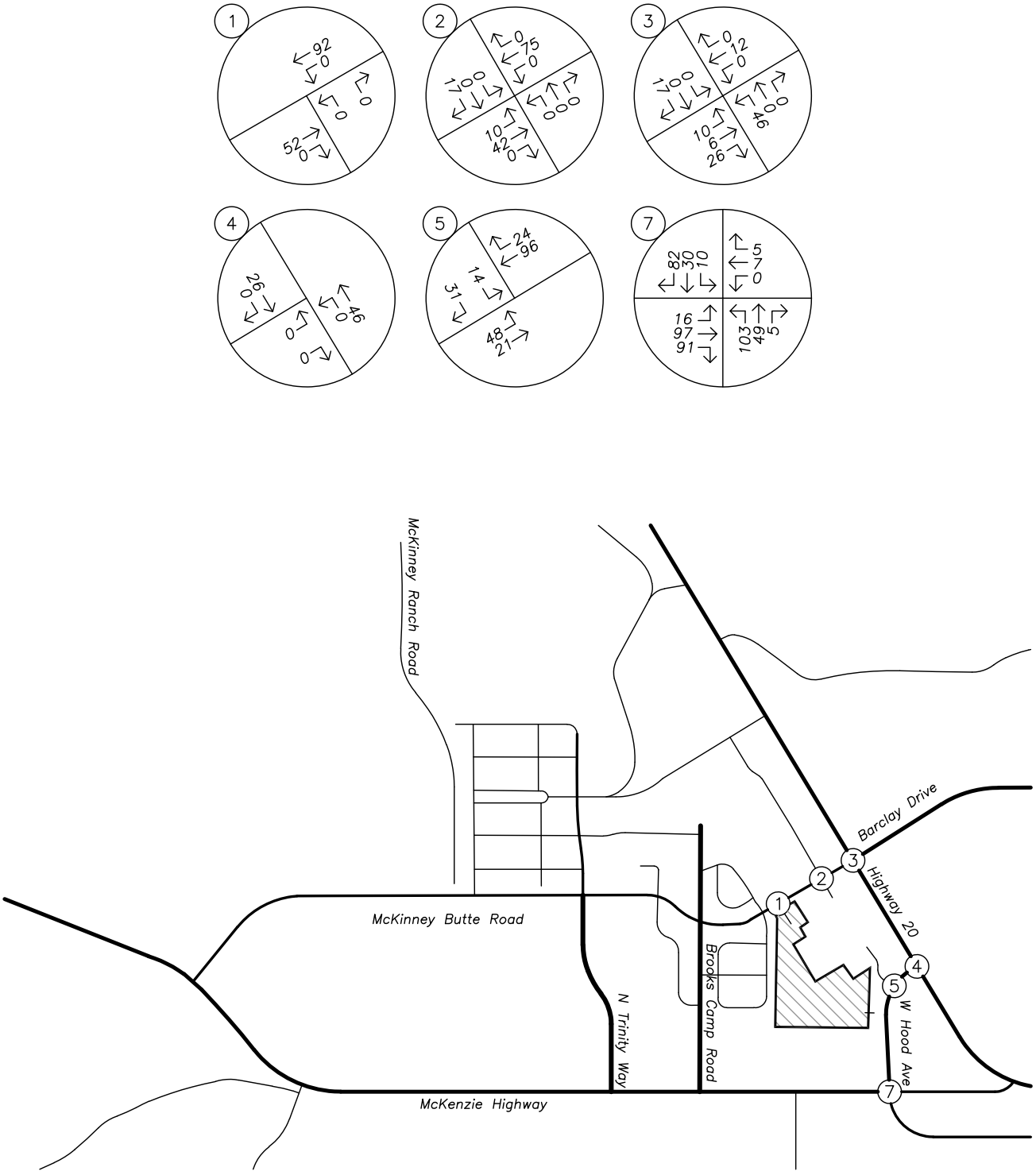
	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**378**	**378**	**756**

SATURDAY

Trip Rate: 46.12

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**461**	**461**	**922**

Source: TRIP GENERATION, Tenth Edition



TRAFFIC VOLUMES
In-Process Trips
PM Peak Hour

no scale

LEVEL OF SERVICE

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

Level of service A: Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.

Level of service B: Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.

Level of service C: Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.

Level of service D: Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.

Level of service E: Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.

Level of service F: Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	<10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	<10
B	10-15
C	15-25
D	25-35
E	35-50
F	>50

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	188	22	25	155	19	48
Future Vol, veh/h	188	22	25	155	19	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	285	33	38	235	29	73

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	318	0	613	302
Stage 1	-	-	-	-	302	-
Stage 2	-	-	-	-	311	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1242	-	456	738
Stage 1	-	-	-	-	750	-
Stage 2	-	-	-	-	743	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1242	-	440	738
Mov Cap-2 Maneuver	-	-	-	-	440	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	743	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	619	-	-	1242	-
HCM Lane V/C Ratio	0.164	-	-	0.03	-
HCM Control Delay (s)	12	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	174	6	14	141	87	3	27	19	116	17	36
Future Vol, veh/h	56	174	6	14	141	87	3	27	19	116	17	36
Conflicting Peds, #/hr	0	0	2	2	0	0	5	0	0	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	75	232	8	19	188	116	4	36	25	155	23	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	242	0	0	713	730	238	701	676	251
Stage 1	-	-	-	-	-	-	388	388	-	284	284	-
Stage 2	-	-	-	-	-	-	325	342	-	417	392	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1257	-	-	1324	-	-	347	349	801	353	375	788
Stage 1	-	-	-	-	-	-	636	609	-	723	676	-
Stage 2	-	-	-	-	-	-	687	638	-	613	606	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1257	-	-	1321	-	-	287	318	799	292	342	784
Mov Cap-2 Maneuver	-	-	-	-	-	-	287	318	-	292	342	-
Stage 1	-	-	-	-	-	-	591	566	-	673	664	-
Stage 2	-	-	-	-	-	-	609	627	-	517	563	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0.4	15.4	28.4
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	411	1257	-	-	1321	-	-	298	784
HCM Lane V/C Ratio	0.159	0.059	-	-	0.014	-	-	0.595	0.061
HCM Control Delay (s)	15.4	8	0	-	7.8	0	-	33.4	9.9
HCM Lane LOS	C	A	A	-	A	A	-	D	A
HCM 95th %tile Q(veh)	0.6	0.2	-	-	0	-	-	3.6	0.2

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	337	200	342	355
Demand Flow Rate, veh/h	347	214	366	387
Vehicles Circulating, veh/h	394	461	309	290
Vehicles Exiting, veh/h	283	214	432	385
Ped Vol Crossing Leg, #/h	2	2	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.3	7.2	7.8	8.0
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	347	214	366	387
Cap Entry Lane, veh/h	923	862	1007	1027
Entry HV Adj Factor	0.972	0.934	0.933	0.918
Flow Entry, veh/h	337	200	342	355
Cap Entry, veh/h	897	805	940	943
V/C Ratio	0.376	0.248	0.364	0.377
Control Delay, s/veh	8.3	7.2	7.8	8.0
LOS	A	A	A	A
95th %tile Queue, veh	2	1	2	2

Intersection	
Int Delay, s/veh	1.5

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	90	350	388	15	14	17
Future Vol, veh/h	90	350	388	15	14	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	275	-	-	-	52	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	4	4	6	6	2	2
Mvmt Flow	101	393	436	17	16	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	453	0	-	0	1040	445
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	595	-
Critical Hdwy	4.14	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.236	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1097	-	-	-	255	613
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	551	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1097	-	-	-	232	613
Mov Cap-2 Maneuver	-	-	-	-	232	-
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	551	-

Approach	NB	SB	NE
HCM Control Delay, s	1.8	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	232	613	1097	-	-	-
HCM Lane V/C Ratio	0.068	0.031	0.092	-	-	-
HCM Control Delay (s)	21.6	11.1	8.6	-	-	-
HCM Lane LOS	C	B	A	-	-	-
HCM 95th %tile Q(veh)	0.2	0.1	0.3	-	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	13	30	46	18	84	23
Future Vol, veh/h	13	30	46	18	84	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	18	42	65	25	118	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	289	134	150	0	-	0
Stage 1	134	-	-	-	-	-
Stage 2	155	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	702	915	1431	-	-	-
Stage 1	892	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	670	915	1431	-	-	-
Mov Cap-2 Maneuver	670	-	-	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	873	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	9.7	5.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1431	-	824	-	-
HCM Lane V/C Ratio	0.045	-	0.073	-	-
HCM Control Delay (s)	7.6	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	85	87	0	6	5	99	43	5	10	26	79
Future Vol, veh/h	15	85	87	0	6	5	99	43	5	10	26	79
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	3	3	3	2	2	2	2	2	2	4	4	4
Mvmt Flow	22	123	126	0	9	7	143	62	7	14	38	114
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Righ	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	10.2	8.2	9.9	9.1
HCM LOS	B	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	8%	0%	100%	0%
Vol Thru, %	0%	90%	45%	55%	0%	25%
Vol Right, %	0%	10%	47%	45%	0%	75%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	99	48	187	11	10	105
LT Vol	99	0	15	0	10	0
Through Vol	0	43	85	6	0	26
RT Vol	0	5	87	5	0	79
Lane Flow Rate	143	70	271	16	14	152
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.235	0.103	0.351	0.022	0.024	0.21
Departure Headway (Hd)	5.893	5.315	4.658	4.977	6.009	4.973
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	605	670	770	712	592	715
Service Time	3.663	3.085	2.705	3.057	3.783	2.745
HCM Lane V/C Ratio	0.236	0.104	0.352	0.022	0.024	0.213
HCM Control Delay	10.5	8.7	10.2	8.2	8.9	9.1
HCM Lane LOS	B	A	B	A	A	A
HCM 95th-tile Q	0.9	0.3	1.6	0.1	0.1	0.8

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	248	23	26	253	20	50
Future Vol, veh/h	248	23	26	253	20	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	376	35	39	383	30	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	411	0	855	394
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	461	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1148	-	329	655
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	635	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1148	-	315	655
Mov Cap-2 Maneuver	-	-	-	-	315	-
Stage 1	-	-	-	-	652	-
Stage 2	-	-	-	-	635	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	14.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	501	-	-	1148	-
HCM Lane V/C Ratio	0.212	-	-	0.034	-
HCM Control Delay (s)	14.1	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Intersection	
Int Delay, s/veh	17.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	68	223	6	15	222	91	3	28	20	121	18	54
Future Vol, veh/h	68	223	6	15	222	91	3	28	20	121	18	54
Conflicting Peds, #/hr	0	0	2	2	0	0	5	0	0	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	91	297	8	20	296	121	4	37	27	161	24	72

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	417	0	0	307	0	0	935	942	303	912	886	362
Stage 1	-	-	-	-	-	-	485	485	-	397	397	-
Stage 2	-	-	-	-	-	-	450	457	-	515	489	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1142	-	-	1254	-	-	246	263	737	255	284	683
Stage 1	-	-	-	-	-	-	563	552	-	629	603	-
Stage 2	-	-	-	-	-	-	589	568	-	543	549	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1142	-	-	1252	-	-	185	232	736	197	251	680
Mov Cap-2 Maneuver	-	-	-	-	-	-	185	232	-	197	251	-
Stage 1	-	-	-	-	-	-	508	498	-	569	590	-
Stage 2	-	-	-	-	-	-	492	556	-	438	495	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0.4	19.8	68.4
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	311	1142	-	-	1252	-	-	203	680
HCM Lane V/C Ratio	0.219	0.079	-	-	0.016	-	-	0.913	0.106
HCM Control Delay (s)	19.8	8.4	0	-	7.9	0	-	90.7	10.9
HCM Lane LOS	C	A	A	-	A	A	-	F	B
HCM 95th %tile Q(veh)	0.8	0.3	-	-	0	-	-	7.3	0.4

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	397	221	498	434
Demand Flow Rate, veh/h	409	237	532	473
Vehicles Circulating, veh/h	459	590	340	370
Vehicles Exiting, veh/h	384	282	528	457
Ped Vol Crossing Leg, #/h	2	2	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.5	9.0	11.3	10.7
Approach LOS	B	A	B	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	409	237	532	473
Cap Entry Lane, veh/h	864	756	976	946
Entry HV Adj Factor	0.970	0.934	0.936	0.917
Flow Entry, veh/h	397	221	498	434
Cap Entry, veh/h	838	706	913	867
V/C Ratio	0.473	0.314	0.545	0.500
Control Delay, s/veh	10.5	9.0	11.3	10.7
LOS	B	A	B	B
95th %tile Queue, veh	3	1	3	3

Intersection	
Int Delay, s/veh	1.4

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	94	478	505	16	15	18
Future Vol, veh/h	94	478	505	16	15	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	275	-	-	-	52	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	4	4	6	6	2	2
Mvmt Flow	106	537	567	18	17	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	585	0	-	0	1325	576
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	749	-
Critical Hdwy	4.14	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.236	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	980	-	-	-	172	517
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	467	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	980	-	-	-	153	517
Mov Cap-2 Maneuver	-	-	-	-	153	-
Stage 1	-	-	-	-	501	-
Stage 2	-	-	-	-	467	-

Approach	NB	SB	NE
HCM Control Delay, s	1.5	0	20.9
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	153	517	980	-	-	-
HCM Lane V/C Ratio	0.11	0.039	0.108	-	-	-
HCM Control Delay (s)	31.4	12.2	9.1	-	-	-
HCM Lane LOS	D	B	A	-	-	-
HCM 95th %tile Q(veh)	0.4	0.1	0.4	-	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	14	31	48	21	96	24
Future Vol, veh/h	14	31	48	21	96	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	20	44	68	30	135	34

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	318	152	169	0	-	0
Stage 1	152	-	-	-	-	-
Stage 2	166	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	675	894	1409	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	643	894	1409	-	-	-
Mov Cap-2 Maneuver	643	-	-	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	9.9	5.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1409	-	797	-	-
HCM Lane V/C Ratio	0.048	-	0.08	-	-
HCM Control Delay (s)	7.7	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	97	91	0	7	5	103	49	5	10	30	82
Future Vol, veh/h	16	97	91	0	7	5	103	49	5	10	30	82
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	3	3	3	2	2	2	2	2	2	4	4	4
Mvmt Flow	23	141	132	0	10	7	149	71	7	14	43	119
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Righ	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	10.8	8.3	10.1	9.4
HCM LOS	B	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	8%	0%	100%	0%
Vol Thru, %	0%	91%	48%	58%	0%	27%
Vol Right, %	0%	9%	45%	42%	0%	73%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	54	204	12	10	112
LT Vol	103	0	16	0	10	0
Through Vol	0	49	97	7	0	30
RT Vol	0	5	91	5	0	82
Lane Flow Rate	149	78	296	17	14	162
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.248	0.118	0.389	0.025	0.025	0.229
Departure Headway (Hd)	5.981	5.41	4.736	5.11	6.106	5.083
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	596	656	754	691	581	698
Service Time	3.768	3.197	2.794	3.209	3.895	2.871
HCM Lane V/C Ratio	0.25	0.119	0.393	0.025	0.024	0.232
HCM Control Delay	10.8	8.9	10.8	8.3	9.1	9.4
HCM Lane LOS	B	A	B	A	A	A
HCM 95th-tile Q	1	0.4	1.9	0.1	0.1	0.9

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	248	25	30	251	24	64
Future Vol, veh/h	248	25	30	251	24	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	376	38	45	380	36	97

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	414	0	865	395
Stage 1	-	-	-	-	395	-
Stage 2	-	-	-	-	470	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1145	-	324	654
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	629	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1145	-	308	654
Mov Cap-2 Maneuver	-	-	-	-	308	-
Stage 1	-	-	-	-	647	-
Stage 2	-	-	-	-	629	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	501	-	-	1145	-
HCM Lane V/C Ratio	0.266	-	-	0.04	-
HCM Control Delay (s)	14.8	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	18.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	68	237	6	15	224	91	3	28	20	121	18	54
Future Vol, veh/h	68	237	6	15	224	91	3	28	20	121	18	54
Conflicting Peds, #/hr	0	0	2	2	0	0	5	0	0	0	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	60
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	91	316	8	20	299	121	4	37	27	161	24	72

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	420	0	0	326	0	0	957	964	322	934	908	365
Stage 1	-	-	-	-	-	-	504	504	-	400	400	-
Stage 2	-	-	-	-	-	-	453	460	-	534	508	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1139	-	-	1234	-	-	237	255	719	246	275	680
Stage 1	-	-	-	-	-	-	550	541	-	626	602	-
Stage 2	-	-	-	-	-	-	586	566	-	530	539	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1139	-	-	1232	-	-	177	224	718	188	242	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	224	-	188	242	-
Stage 1	-	-	-	-	-	-	495	487	-	565	589	-
Stage 2	-	-	-	-	-	-	489	554	-	425	485	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.4	20.5	77.5
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	300	1139	-	-	1232	-	-	194	677
HCM Lane V/C Ratio	0.227	0.08	-	-	0.016	-	-	0.955	0.106
HCM Control Delay (s)	20.5	8.4	0	-	8	0	-	103.4	10.9
HCM Lane LOS	C	A	A	-	A	A	-	F	B
HCM 95th %tile Q(veh)	0.9	0.3	-	-	0	-	-	7.8	0.4

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	412	226	498	439
Demand Flow Rate, veh/h	424	243	532	479
Vehicles Circulating, veh/h	468	601	355	376
Vehicles Exiting, veh/h	387	286	537	468
Ped Vol Crossing Leg, #/h	2	2	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.0	9.3	11.6	11.0
Approach LOS	B	A	B	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	424	243	532	479
Cap Entry Lane, veh/h	856	748	961	940
Entry HV Adj Factor	0.971	0.932	0.936	0.917
Flow Entry, veh/h	412	226	498	439
Cap Entry, veh/h	831	696	899	862
V/C Ratio	0.495	0.325	0.554	0.509
Control Delay, s/veh	11.0	9.3	11.6	11.0
LOS	B	A	B	B
95th %tile Queue, veh	3	1	3	3

Intersection	
Int Delay, s/veh	1.9

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	119	471	500	28	15	44
Future Vol, veh/h	119	471	500	28	15	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	275	-	-	-	52	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	4	4	6	6	2	2
Mvmt Flow	134	529	562	31	17	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	593	0	-	0	1375	578
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	797	-
Critical Hdwy	4.14	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.236	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	973	-	-	-	160	516
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	444	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	973	-	-	-	138	516
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	484	-
Stage 2	-	-	-	-	444	-

Approach	NB	SB	NE
HCM Control Delay, s	1.9	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	138	516	973	-	-	-
HCM Lane V/C Ratio	0.122	0.096	0.137	-	-	-
HCM Control Delay (s)	34.7	12.7	9.3	-	-	-
HCM Lane LOS	D	B	A	-	-	-
HCM 95th %tile Q(veh)	0.4	0.3	0.5	-	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	26	35	52	35	118	39
Future Vol, veh/h	26	35	52	35	118	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	37	49	73	49	166	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	389	194	221	0	-	0
Stage 1	194	-	-	-	-	-
Stage 2	195	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	615	847	1348	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	582	847	1348	-	-	-
Mov Cap-2 Maneuver	582	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	838	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	10.8	4.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1348	-	709	-	-
HCM Lane V/C Ratio	0.054	-	0.121	-	-
HCM Control Delay (s)	7.8	-	10.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	9	8	77	100	22
Future Vol, veh/h	14	9	8	77	100	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	20	13	11	108	141	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	287	157	172	0	-	0
Stage 1	157	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	703	889	1405	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	697	889	1405	-	-	-
Mov Cap-2 Maneuver	697	-	-	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1405	-	761	-	-
HCM Lane V/C Ratio	0.008	-	0.043	-	-
HCM Control Delay (s)	7.6	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	97	91	0	7	5	103	59	5	10	41	84
Future Vol, veh/h	18	97	91	0	7	5	103	59	5	10	41	84
Peak Hour Factor	0.92	0.69	0.69	0.69	0.69	0.92	0.69	0.92	0.69	0.92	0.92	0.92
Heavy Vehicles, %	2	3	3	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	141	132	0	10	5	149	64	7	11	45	91
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	10.5	8.2	10	9
HCM LOS	B	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	9%	0%	100%	0%
Vol Thru, %	0%	92%	47%	58%	0%	33%
Vol Right, %	0%	8%	44%	42%	0%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	64	206	12	10	125
LT Vol	103	0	18	0	10	0
Through Vol	0	59	97	7	0	41
RT Vol	0	5	91	5	0	84
Lane Flow Rate	149	71	292	16	11	136
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.246	0.106	0.376	0.022	0.018	0.191
Departure Headway (Hd)	5.922	5.362	4.636	5.002	6.036	5.056
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	603	663	774	708	589	704
Service Time	3.696	3.136	2.685	3.086	3.815	2.833
HCM Lane V/C Ratio	0.247	0.107	0.377	0.023	0.019	0.193
HCM Control Delay	10.6	8.8	10.5	8.2	8.9	9
HCM Lane LOS	B	A	B	A	A	A
HCM 95th-tile Q	1	0.4	1.8	0.1	0.1	0.7

Intersection	
Int Delay, s/veh	1.3

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	35	0	61	118	39
Future Vol, veh/h	0	35	0	61	118	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	0	49	0	86	166	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	194	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	847	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	847	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NET	SELn1	SWT	SWR
Capacity (veh/h)	-	847	-	-
HCM Lane V/C Ratio	-	0.058	-	-
HCM Control Delay (s)	-	9.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	9	60	25	100	22
Future Vol, veh/h	40	9	60	25	100	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	56	13	85	35	141	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	362	157	172	0	-	0
Stage 1	157	-	-	-	-	-
Stage 2	205	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	637	889	1405	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	829	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	598	889	1405	-	-	-
Mov Cap-2 Maneuver	598	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	829	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	5.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1405	-	636	-	-
HCM Lane V/C Ratio	0.06	-	0.109	-	-
HCM Control Delay (s)	7.7	0	11.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Left-Turn Lane Warrant Analysis

Project: 18187 - Threewind Master Plan
Intersection: W McKinney Butte Road at Site Access
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions

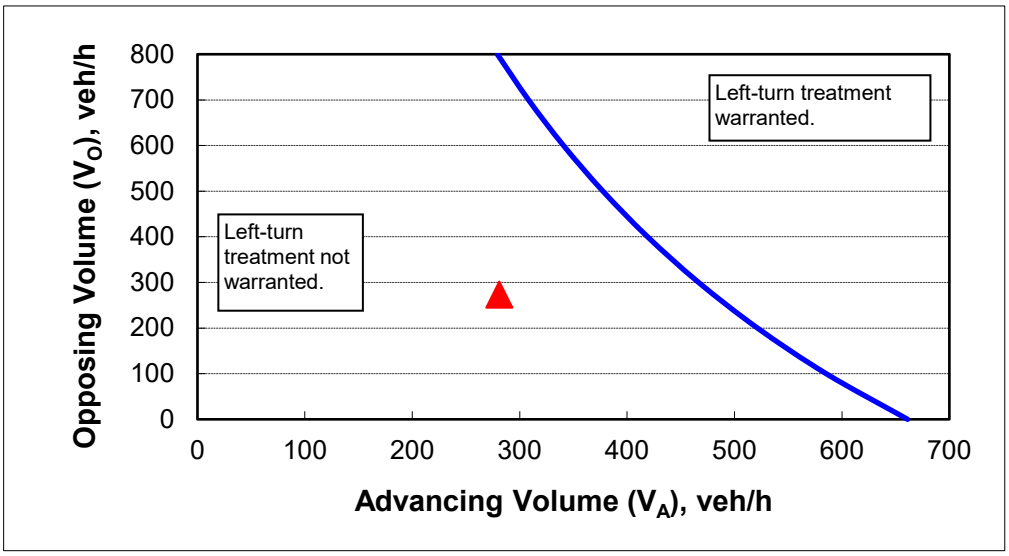
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	25
Left-turns in advancing volume (V_A), veh/hr:	30
Advancing volume (V_A), veh/h:	281
Opposing volume (V_O), veh/h:	273

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	481
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS (2-Lane Roadway)

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

Project: 18187 - Threewind Master Plan
Intersection: EB W McKinney Butte Road at N Arrowleaf Trail
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions

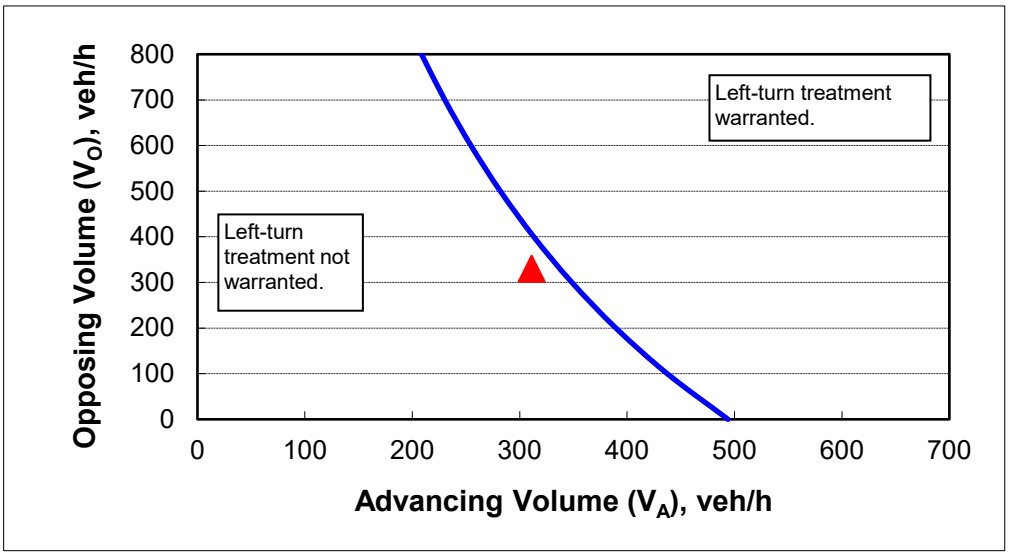
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	25
Left-turns in advancing volume (V_A), veh/hr:	68
Advancing volume (V_A), veh/h:	311
Opposing volume (V_O), veh/h:	330

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	337
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS (2-Lane Roadway)

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

Project: 18187 - Threewind Master Plan
Intersection: W Hood Avenue at Proposed Access - Non-Restricted Existing Access
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions

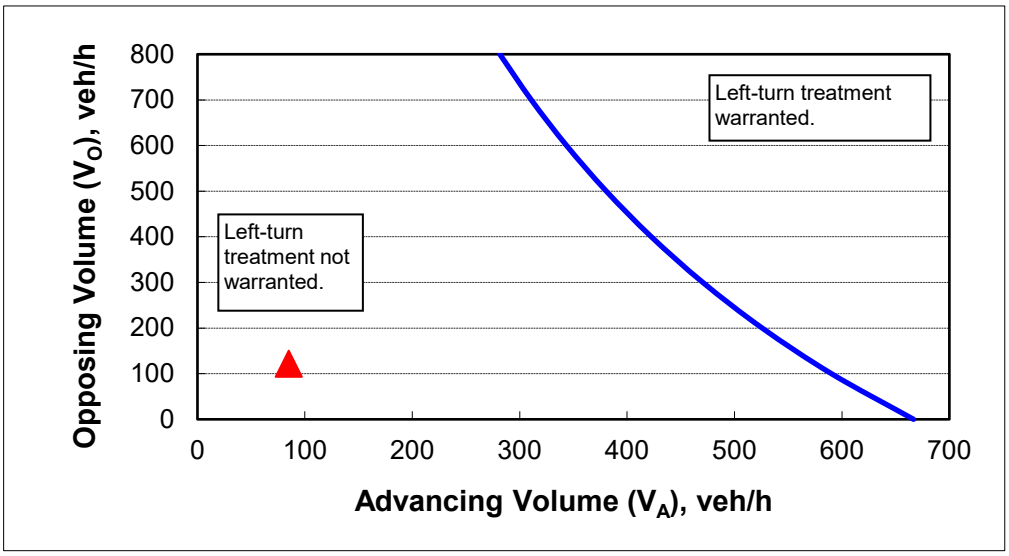
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	30
Left-turns in advancing volume (V_A), veh/hr:	8
Advancing volume (V_A), veh/h:	85
Opposing volume (V_O), veh/h:	122

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	575
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS (2-Lane Roadway)

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

Project: 18187 - Threewind Master Plan
Intersection: W Hood Avenue at Proposed Access - Restricted Existing Access
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions

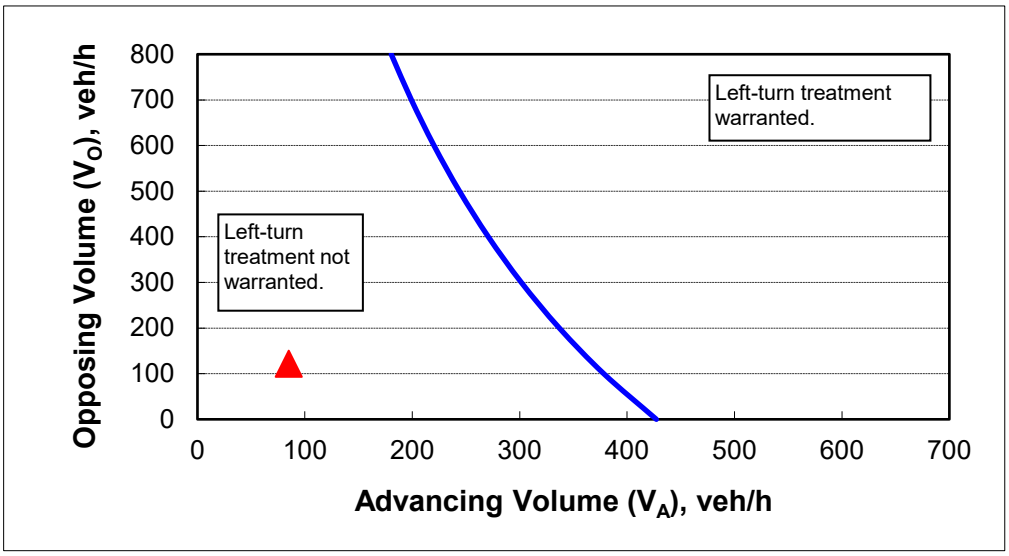
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	30
Left-turns in advancing volume (V_A), veh/hr:	60
Advancing volume (V_A), veh/h:	85
Opposing volume (V_O), veh/h:	122

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	369
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS (2-Lane Roadway)

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Traffic Signal Warrant Analysis

1e

Project: 18187 - Threewind Master Plan
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions

Major Street:	W McKinney Butte Drive	Minor Street:	Site Access
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	554	PM Peak Hour Volumes:	72

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	5,540	6,200	
Minor Street*	720	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	5,540	9,300	
Minor Street*	720	950	**No**
Combination Warrant			
Major Street	5,540	7,440	
Minor Street*	720	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: 18187 - Threewind Master Plan
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions

Major Street:	W McKinney Butte Drive	Minor Street:	N Arrowleaf Trail
Number of Lanes:	1	Number of Lanes:	2
PM Peak Hour Volumes:	641	PM Peak Hour Volumes:	180

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	6,410	6,200	
Minor Street*	1,800	2,500	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	6,410	9,300	
Minor Street*	1,800	1,250	**No**
Combination Warrant			
Major Street	6,410	7,440	
Minor Street*	1,800	2,000	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: 18187 - Threewind Master Plan
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions

Major Street:	US Highway 20	Minor Street:	W Hood Ave
Number of Lanes:	1	Number of Lanes:	2
PM Peak Hour Volumes:	1118	PM Peak Hour Volumes:	48

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	11,180	6,200	
Minor Street*	480	2,500	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	11,180	9,300	
Minor Street*	480	1,250	**No**
Combination Warrant			
Major Street	11,180	7,440	
Minor Street*	480	2,000	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: 18187 - Threewind Master Plan
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions - Non-Restricted Existing Access

Major Street:	W Hood Ave	Minor Street:	Existing Access
Number of Lanes:	2	Number of Lanes:	1
PM Peak Hour Volumes:	244	PM Peak Hour Volumes:	52

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	2,440	7,400	
Minor Street*	520	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	2,440	11,100	
Minor Street*	520	950	**No**
Combination Warrant			
Major Street	2,440	8,880	
Minor Street*	520	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: 18187 - Threewind Master Plan
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions - Restricted Existing Access

Major Street:	W Hood Ave	Minor Street:	Existing Access
Number of Lanes:	2	Number of Lanes:	1
PM Peak Hour Volumes:	218	PM Peak Hour Volumes:	26

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	2,180	7,400	
Minor Street*	260	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	2,180	11,100	
Minor Street*	260	950	**No**
Combination Warrant			
Major Street	2,180	8,880	
Minor Street*	260	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: 18187 - Threewind Master Plan
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions - Non-Restricted Existing Access

Major Street:	W Hood Ave	Minor Street:	Proposed Access
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	207	PM Peak Hour Volumes:	21

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	2,070	6,200	
Minor Street*	210	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	2,070	9,300	
Minor Street*	210	950	**No**
Combination Warrant			
Major Street	2,070	7,440	
Minor Street*	210	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

1e

Project: 18187 - Threewind Master Plan
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions - Restricted Existing Access

Major Street:	W Hood Ave	Minor Street:	Proposed Access
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	207	PM Peak Hour Volumes:	47

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	2,070	6,200	
Minor Street*	470	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	2,070	9,300	
Minor Street*	470	950	**No**
Combination Warrant			
Major Street	2,070	7,440	
Minor Street*	470	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

1e

Project: 18187 - Threewind Master Plan
Date: 3/18/2019
Scenario: 2021 Background Plus Site Conditions

Major Street:	W Hood Ave	Minor Street:	OR Highway 242
Number of Lanes:	2	Number of Lanes:	1
PM Peak Hour Volumes:	302	PM Peak Hour Volumes:	183

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	3,020	7,400	
Minor Street*	1,830	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	3,020	11,100	
Minor Street*	1,830	950	**No**
Combination Warrant			
Major Street	3,020	8,880	
Minor Street*	1,830	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP ANOTHER VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF-ROAD
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS--RAG	DISREGARDED R-A-G TRAFFIC SIGNAL.
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST CLOTHING NOT VISIBLE
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1TURN	FROM OPPOSITE DIRECTION - ONE TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	FAILED TO DIM LIGHTS (UNTIL 4/1/97) / INATTENTION (AFTER 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY (DELIBERATELY TRAVELING ON WRONG SIDE)
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAYON RD	STANDING OR LYING IN ROADWAY
073	ELUDING	ELUDING
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVERCORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	PED INV	PEDESTRIAN INVOLVED (NON-PEDESTRIAN ACCIDENT)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	BIKE INV	TRICYCLE-BICYCLE INVOLVED
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE (OCCUPANTS ONLY)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BARS OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING (ON BRIDGE AND APPROACH)
047	BR ABUT	BRIDGE ABUTMENT (APPROACH ENDS)
048	BR COLMN	BRIDGE PILLAR OR COLUMN (EVEN THOUGH STRUCK PROTECTIVE GUARD RAIL FIRST)
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, ROCKS OFF OR ON ROAD, FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	SPEED BUMP, OTHER BUMP, POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	HOLE	CHUCKHOLE IN ROAD, LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ F MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY OTHER MOVING OR FLYING OBJECT
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTH ACDT	ACCIDENT RELATED TO ANOTHER SEPARATE ACCIDENT
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE (ON PAR OR REPORT)
093	CELL-POL	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL-WTN	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	UNKNOWN TYPE OF FIXED OBJECT
101	OTHER OBJ	OTHER OR UNKNOWN OBJECT, NOT FIXED
104	OUTSIDE V	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS AND/OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS AND/OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR/TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE
125	SHLDR	SHOULDER GAVE WAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYA
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OB
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
01	PSNGR CAR	PASSENGER CAR, PICKUP, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, MOTOR SCOOTER, OR MOTOR BICYCLE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF SISTERS, DESCHUTES COUNTY

MCKINNEY BUTTE RD at ARROWLEAF TRAIL, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

1 - 2 of 2 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S H L	W C H K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01671	N	N	N	N	N	12/13/2012	09	ARROWLEAF TRAIL	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE	STRGHT											07
COUNTY						TH	0	MCKINNEY BUTTE RD	W		UNKNOWN	N	DRY	REAR		PRVTE	SW-NE									000		00
N						1P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	17	M	OR-Y		026	000		07
N						44 17 43.2650993	-121 33 37.7758587																OR<25					
															02	NONE 0	STOP											
																PRVTE	SW-NE									011		00
																PSNGR CAR		01	DRVR	INJC	40	F	OR-Y		000	000		00
																							OR<25					
00499	N	N	N			04/23/2013	09	ARROWLEAF TRAIL	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L											02
NONE						TU	0	MCKINNEY BUTTE RD	CN		STOP SIGN	N	DRY	TURN		PRVTE	NW-NE									000		00
N						4P			02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	54	F	OR-Y		028	000		02
N						44 17 43.265076	-121 33 37.7758439																OR<25					
															02	NONE 0	STRGHT											
																PRVTE	SW-NE									000		00
																PSNGR CAR		01	DRVR	NONE	00	M	UNK		000	000		00
																							UNK					

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF SISTERS, DESCHUTES COUNTY

SANTIAM HY at BARCLAY WAY, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

1 - 4 of 8 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00625	N	N	N			05/13/2012	08	BARCLAY WAY	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						SU	0	SANTIAM HY	NE		STOP SIGN	N	DRY	REAR		PRVTE	NE-SW									000		00
N						3P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	61	M	OR-Y		026	000		07
N						44 17 44.7202594	-121 33 34.7482421																OR<25					
															02	NONE 0	STOP											
																PRVTE	NE-SW									011		00
																PSNGR CAR		01	DRVR	NONE	38	M	OR-Y OR<25		000	000		00
02337	N	N	N	N	N	12/26/2016	02	BARCLAY WAY	INTER	CROSS	N	Y	CLR	FIX OBJ	01	NONE 9	STRGHT										058,092	26
COUNTY						MO		SANTIAM HY	NW		STOP SIGN	N	ICE	FIX		N/A	SE-NW									007		00
N						4P			05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						44 17 44.72	-121 33 34.75	001600100S00															UNK					
01792	N	N	N	N	N	12/23/2012	02	BARCLAY WAY	INTER	CROSS	N	N	SNOW	ANGL-OTH	01	NONE 0	STRGHT										124	02
NO RPT						SU		SANTIAM HY	CN		STOP SIGN	N	ICE	ANGL		PRVTE	NE-SW									000	124	00
N						9A			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	74	F	OR-Y		028	000		02
N						44 17 44.7202594	-121 33 34.7482421	001600100S00															OR<25					
															02	NONE 0	STRGHT											
																PRVTE	NW-SE									000		00
																PSNGR CAR		01	DRVR	INJB	67	M	OR-Y OR<25		000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE									000		00
																PSNGR CAR		02	PSNG	INJC	72	F			000	000		00
00553	N	N	N			05/05/2013	02	BARCLAY WAY	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						SU		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	NE-SW									000		00
N						12P			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	65	F	OR-Y		028	000		02
N						44 17 44.7192239	-121 33 34.7473079	001600100S00															OR<25					
															02	NONE 0	STRGHT											
																PRVTE	NW-SE									000		00
																MTRCYCLE		01	DRVR	INJA	57	M	OR-Y OR<25		000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE									000		00
																MTRCYCLE		02	PSNG	INJA	59	F			000	000		00
00737	N	N	N	N	N	06/12/2013	02	BARCLAY WAY	INTER		N	N	CLR	ANGL-OTH	01	NONE	STRGHT										082	02
COUNTY						WE		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	S -N									000		00
N						3P			02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	84	F	OR-Y		028	000	082	02
N						44 17 44.7192239	-121 33 34.7473079	001600100S00															OR<25					

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SER# / INVEST / RD DPT / UNLOC?	S P E D	A	R U G L	S C S	W O H K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
															02	NONE 0	STRGHT											
																PRVTE	E -W								000		00
																PSNGR CAR		01	DRVR	INJA	35	F	OR-Y		000	000	082	00
																							OR<25					
															02	NONE 0	STRGHT											
																PRVTE	E -W								000		00
																PSNGR CAR		02	PSNG	INJA	12	M			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	E -W								000		00
																PSNGR CAR		03	PSNG	INJA	08	F			000	000		00
00981	N	N	N	N	N	07/27/2013	02	BARCLAY WAY	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										010	02
COUNTY						SA		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	NE-SW									000		00
N						12P			03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		028	000		02
N						44 17	-121 33	001600100S00															OR<25					
						44.7192239	34.7473079																					
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		01	DRVR	INJB	34	M	OR-Y		000	000		00
																							OR<25					
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		02	PSNG	INJB	34	F			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		03	PSNG	INJB	01	M			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		04	PSNG	INJB	07	M			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		05	PSNG	NO<5	04	F			000	000		00
01224	N	N	N	N	N	09/07/2013	02	BARCLAY WAY	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						SA		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	SW-NE									000		00
N						12P			02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	48	F	OR-Y		028	000		02
N						44 17	-121 33	001600100S00															OR<25					
						44.7192239	34.7473079																					
															02	NONE 0	STRGHT											
																PRVTE	SE-NW								000		00
																PSNGR CAR		01	DRVR	NONE	30	M	OR-Y		000	000		00
																							OR<25					

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CITY OF SISTERS, DESCHUTES COUNTY

SANTIAM HY at BARCLAY WAY, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

8 - 8 of 8 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01738	N	N	N	N	N	12/07/2013	02	BARCLAY WAY	INTER	CROSS	N	N	SNOW	ANGL-OTH	01	NONE 0	STRGHT											02
CITY						SA		SANTIAM HY	CN		STOP SIGN	N	ICE	ANGL		PRVTE	SW-NE									000		00
N						11A			04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	66	M	OR-Y		028	000		02
N						44 17 44.7192239	-121 33 34.7473079	001600100S00															OR<25					
															02	NONE 0	STRGHT											
																PRVTE	SE-NW									000		00
																PSNGR CAR		01	DRVR	NONE	60	M	OR-Y		000	000		00
																							OR<25					

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1 - 4 of 14 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A C / L D / G C / S / L / W O R K	DATE / DAY / TIME / LAT / LONG	COUNTY / CITY / URBAN AREA	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE		MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
01264	N N N N N	08/24/2014	DESCHUTES	1	02		STRGHT		N	N	CLR	S-1STOP	01	NONE	0	STRGHT											07
COUNTY		SU	SISTERS	MN	0	SANTIAM HY	NW	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE		NW-SE									000		00
N		3P		99.93		MCKINNEY BUTTE RD	03			N	DAY	PDO		PSNGR CAR			01	DRVR	NONE	52	M	OR-Y		026	000		07
N		44 17 45.23	-121 33 35.18			001600100S00		(02)														OR<25					
													02	NONE	0	STOP											
														PRVTE		NW-SE									011		00
														PSNGR CAR			01	DRVR	NONE	41	M	OR-Y		000	000		00
																						OR<25					
													02	NONE	0	STOP											
														PRVTE		NW-SE									011		00
														PSNGR CAR			02	PSNG	NO<5	03	F			000	000		00
01415	N N N	08/21/2016	DESCHUTES	1	02		STRGHT		Y	N	CLR	S-1STOP	01	NONE	0	STRGHT											29
NONE		SU	SISTERS	MN	0	SANTIAM HY	NW	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE		NW-SE									000		00
N		3P		99.93		MCKINNEY BUTTE RD	03			N	DAY	INJ		PSNGR CAR			01	DRVR	NONE	16	M	OR-Y		026	000		29
N		44 17 45.23	-121 33 35.18			001600100S00		(02)														OR<25					
													02	NONE	0	STOP											
														PRVTE		NW-SE									011		00
														PSNGR CAR			01	DRVR	NONE	69	F	OR-Y		000	000		00
																						OR>25					
													02	NONE	0	STOP											
														PRVTE		NW-SE									011		00
														PSNGR CAR			02	PSNG	INJC	70	M			000	000		00
00848	N N N N N	07/03/2013	DESCHUTES	1	02		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0	STRGHT											07
COUNTY		WE	SISTERS	MN	0	MCKINNEY BUTTE RD	SE		UNKNOWN	N	DRY	REAR		PRVTE		SE-NW									000		00
N		11A		99.94		SANTIAM HY	06	0		N	DAY	INJ		PSNGR CAR			01	DRVR	NONE	74	M	OR-Y		026	000		07
N		44 17 44.7192239	-121 33 34.7473079			001600100S00																OR<25					
													02	NONE		STOP											
														PRVTE		SE-NW									012		00
														PSNGR CAR			01	DRVR	INJB	40	M	OR-Y		000	000		00
																						OR<25					
02337	N N N N N	12/26/2016	DESCHUTES	1	02		INTER	CROSS	N	Y	CLR	FIX OBJ	01	NONE	9	STRGHT										058,092	26
COUNTY		MO	SISTERS	MN	0	BARCLAY WAY	NW		STOP SIGN	N	ICE	FIX		N/A		SE-NW									007		00
N		4P		99.94		SANTIAM HY	05	0		N	DAY	PDO		PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000		00
N		44 17 44.72	-121 33 34.75			001600100S00																UNK					
01792	N N N N N	12/23/2012	DESCHUTES	1	02		INTER	CROSS	N	N	SNOW	ANGL-OTH	01	NONE	0	STRGHT										124	02
NO RPT		SU	SISTERS	MN	0	BARCLAY WAY	CN		STOP SIGN	N	ICE	ANGL		PRVTE		NE-SW									000	124	00
N		9A		99.94		SANTIAM HY	01	0		N	DAY	INJ		PSNGR CAR			01	DRVR	INJB	74	F	OR-Y		028	000		02
N		44 17 44.7202594	-121 33 34.7482421			001600100S00																OR<25					

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SER# / INVEST / RD DPT / UNLOC?	S P E D	R A L C	S U G S	C H L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																02	NONE 0	STRGHT											
																	PRVTE	NW-SE								000		00
																	PSNGR CAR		01	DRVR	INJB	67	M	OR-Y	000	000		00
																								OR<25				
																02	NONE 0	STRGHT											
																	PRVTE	NW-SE								000		00
																	PSNGR CAR		02	PSNG	INJC	72	F		000	000		00
00553	N	N	N			05/05/2013	DESCHUTES	1 02		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						SU	SISTERS	MN 0	BARCLAY WAY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	NE-SW								000		00
N						12P		99.94	SANTIAM HY	01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	65	F	OR-Y	028	000		02
N						44 17 44.7192239	-121 33 34.7473079		001600100S00															OR<25				
																02	NONE 0	STRGHT											
																	PRVTE	NW-SE								000		00
																	MTRCYCLE		01	DRVR	INJA	57	M	OR-Y	000	000		00
																								OR<25				
																02	NONE 0	STRGHT											
																	PRVTE	NW-SE								000		00
																	MTRCYCLE		02	PSNG	INJA	59	F		000	000		00
00737	N	N	N	N	N	06/12/2013	DESCHUTES	1 02		INTER		N	N	CLR	ANGL-OTH	01	NONE	STRGHT									082	02
COUNTY						WE	SISTERS	MN 0	BARCLAY WAY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	S -N								000		00
N						3P		99.94	SANTIAM HY	02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	84	F	OR-Y	028	000	082	02
N						44 17 44.7192239	-121 33 34.7473079		001600100S00															OR<25				
																02	NONE 0	STRGHT											
																	PRVTE	E -W								000		00
																	PSNGR CAR		01	DRVR	INJA	35	F	OR-Y	000	000	082	00
																								OR<25				
																02	NONE 0	STRGHT											
																	PRVTE	E -W								000		00
																	PSNGR CAR		02	PSNG	INJA	12	M		000	000		00
																02	NONE 0	STRGHT											
																	PRVTE	E -W								000		00
																	PSNGR CAR		03	PSNG	INJA	08	F		000	000		00
01224	N	N	N	N	N	09/07/2013	DESCHUTES	1 02		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						SA	SISTERS	MN 0	BARCLAY WAY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	SW-NE								000		00
N						12P		99.94	SANTIAM HY	02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	48	F	OR-Y	028	000		02
N						44 17 44.7192239	-121 33 34.7473079		001600100S00															OR<25				
																02	NONE 0	STRGHT											
																	PRVTE	SE-NW								000		00
																	PSNGR CAR		01	DRVR	NONE	30	M	OR-Y	000	000		00
																								OR<25				

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SER# / INVEST / RD DPT / UNLOC?	S P E D / A C / G S / H L / W K / O R	DATE / DAY / TIME	COUNTY / CITY / URBAN AREA	RD# / COMPNT / MLG	FC / TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
00353	N N N N N	03/06/2012	DESCHUTES	1	02		INTER	CROSS	N	N	CLR	BIKE	01	NONE 0	STRGHT											02
COUNTY		TU	SISTERS	MN	0	MCKINNEY BUTTE RD	CN		STOP SIGN	N	DRY	ANGL		PRVTE	N -S									000		00
N		10P		99.94		SANTIAM HY	03	0		N	DARK	INJ		PSNGR CAR		01	DRVR	NONE	80	M	OR-Y		027	000		02
N		44 17 44.7202594	-121 33 34.7482421			001600100S00															OR<25					
															- STRGHT W E	01	BIKE	INJB	47	M		I INRD	000	000		00
00981	N N N N N	07/27/2013	DESCHUTES	1	02		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										010	02
COUNTY		SA	SISTERS	MN	0	BARCLAY WAY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	NE-SW									000		00
N		12P		99.94		SANTIAM HY	03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		028	000		02
N		44 17 44.7192239	-121 33 34.7473079			001600100S00															OR<25					
													02	NONE 0	STRGHT											
														PRVTE	NW-SE									000		00
														PSNGR CAR		01	DRVR	INJB	34	M	OR-Y		000	000		00
																					OR<25					
													02	NONE 0	STRGHT											
														PRVTE	NW-SE									000		00
														PSNGR CAR		02	PSNG	INJB	34	F			000	000		00
													02	NONE 0	STRGHT											
														PRVTE	NW-SE									000		00
														PSNGR CAR		03	PSNG	INJB	01	M			000	000		00
													02	NONE 0	STRGHT											
														PRVTE	NW-SE									000		00
														PSNGR CAR		04	PSNG	INJB	07	M			000	000		00
													02	NONE 0	STRGHT											
														PRVTE	NW-SE									000		00
														PSNGR CAR		05	PSNG	NO<5	04	F			000	000		00
01084	N N N N N	08/17/2012	DESCHUTES	1	02		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY		FR	SISTERS	MN	0	MCKINNEY BUTTE RD	CN		STOP SIGN	N	DRY	ANGL		PRVTE	SW-NE									000		00
N		7P		99.94		SANTIAM HY	04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	70	M	OR-Y		028	000		02
N		44 17 44.7202594	-121 33 34.7482421			001600100S00															OR<25					
													01	NONE 0	STRGHT											
														PRVTE	SW-NE									000		00
														PSNGR CAR		02	PSNG	INJC	79	M			000	000		00

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SER# / INVEST / RD DPT / UNLOC?	S P E D / E A L / D C S	R S W / U C O / G H R / S L K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
													01	NONE 0	STRGHT											
														PRVTE	SW-NE									000		00
														PSNGR CAR		03	PSNG	INJC	00	F			000	000		00
													01	NONE 0	STRGHT											
														PRVTE	SW-NE									000		00
														PSNGR CAR		04	PSNG	INJC	69	F			000	000		00
													02	NONE 0	STRGHT											
														PRVTE	SE-NW									000		00
														PSNGR CAR		01	DRVR	INJC	33	M	OR-Y OR<25		000	000		00
01738	N	N N N N	12/07/2013	DESCHUTES	1 02		INTER	CROSS	N	N	SNOW	ANGL-OTH	01	NONE 0	STRGHT											02
CITY			SA	SISTERS	MN 0	BARCLAY WAY	CN		STOP SIGN	N	ICE	ANGL		PRVTE	SW-NE									000		00
N			11A		99.94	SANTIAM HY	04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	66	M	OR-Y		028	000		02
N			44 17 44.7192239	-121 33 34.7473079		001600100S00															OR<25					
													02	NONE 0	STRGHT											
														PRVTE	SE-NW									000		00
														PSNGR CAR		01	DRVR	NONE	60	M	OR-Y OR<25		000	000		00
01331	N	N N N N	09/13/2015	DESCHUTES	1 02		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
STATE			SU	SISTERS	MN 0	SANTIAM HY	SE	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	NW-SE									000		00
N			4P		99.96	MCKINNEY BUTTE RD	03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	73	M	OR-Y		026	000		07
N			44 17 43.86	-121 33 34.02		001600100S00		(02)													OR<25					
													01	NONE 0	STRGHT											
														PRVTE	NW-SE									000		00
														PSNGR CAR		02	PSNG	INJC	68	F			000	000		00
													02	NONE 0	STOP											
														PRVTE	NW-SE									011		00
														PSNGR CAR		01	DRVR	NONE	57	M	OR-Y OR<25		000	000		00
													02	NONE 0	STOP											
														PRVTE	NW-SE									011		00
														PSNGR CAR		02	PSNG	INJC	11	F			000	000		00
00473	N	N N N N	04/13/2015	DESCHUTES	1 02		STRGHT		Y	N	CLR	O-STRGHT	01	NONE 0	STRGHT											02
COUNTY			MO	SISTERS	MN 0	SANTIAM HY	SE	(NONE)	L-TURN REF	N	DRY	HEAD		PRVTE	SE-NW									000		00
N			8P		99.97	MCKINNEY BUTTE RD	08			N	DARK	INJ		PSNGR CAR		01	DRVR	INJC	23	F	OR-Y		000	000		00
N			44 17 43.45	-121 33 33.66		001600100S00		(03)													OR<25					
													02	NONE 0	STRGHT											
														PRVTE	NW-SE									000		00
														PSNGR CAR		01	DRVR	NONE	64	F	OTH-Y OR<25		028,015,007	000		02

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF SISTERS, DESCHUTES COUNTY

SANTIAM HY at BARCLAY WAY, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

1 - 4 of 8 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00625	N	N	N			05/13/2012	08	BARCLAY WAY	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						SU	0	SANTIAM HY	NE		STOP SIGN	N	DRY	REAR		PRVTE	NE-SW									000		00
N						3P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	61	M	OR-Y		026	000		07
N						44 17 44.7202594	-121 33 34.7482421																OR<25					
															02	NONE 0	STOP											
																PRVTE	NE-SW									011		00
																PSNGR CAR		01	DRVR	NONE	38	M	OR-Y OR<25		000	000		00
02337	N	N	N	N	N	12/26/2016	02	BARCLAY WAY	INTER	CROSS	N	Y	CLR	FIX OBJ	01	NONE 9	STRGHT										058,092	26
COUNTY						MO		SANTIAM HY	NW		STOP SIGN	N	ICE	FIX		N/A	SE-NW									007		00
N						4P			05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						44 17 44.72	-121 33 34.75	001600100S00															UNK					
01792	N	N	N	N	N	12/23/2012	02	BARCLAY WAY	INTER	CROSS	N	N	SNOW	ANGL-OTH	01	NONE 0	STRGHT										124	02
NO RPT						SU		SANTIAM HY	CN		STOP SIGN	N	ICE	ANGL		PRVTE	NE-SW									000	124	00
N						9A			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	74	F	OR-Y		028	000		02
N						44 17 44.7202594	-121 33 34.7482421	001600100S00															OR<25					
															02	NONE 0	STRGHT											
																PRVTE	NW-SE									000		00
																PSNGR CAR		01	DRVR	INJB	67	M	OR-Y OR<25		000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE									000		00
																PSNGR CAR		02	PSNG	INJC	72	F			000	000		00
00553	N	N	N			05/05/2013	02	BARCLAY WAY	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						SU		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	NE-SW									000		00
N						12P			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	65	F	OR-Y		028	000		02
N						44 17 44.7192239	-121 33 34.7473079	001600100S00															OR<25					
															02	NONE 0	STRGHT											
																PRVTE	NW-SE									000		00
																MTRCYCLE		01	DRVR	INJA	57	M	OR-Y OR<25		000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE									000		00
																MTRCYCLE		02	PSNG	INJA	59	F			000	000		00
00737	N	N	N	N	N	06/12/2013	02	BARCLAY WAY	INTER		N	N	CLR	ANGL-OTH	01	NONE	STRGHT										082	02
COUNTY						WE		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	S -N									000		00
N						3P			02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	84	F	OR-Y		028	000	082	02
N						44 17 44.7192239	-121 33 34.7473079	001600100S00															OR<25					

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SER# / INVEST / RD DPT / UNLOC?	S P E D	A	R U G L	S C S	W O H K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
															02	NONE 0	STRGHT											
																PRVTE	E -W								000		00
																PSNGR CAR		01	DRVR	INJA	35	F	OR-Y		000	000	082	00
																							OR<25					
															02	NONE 0	STRGHT											
																PRVTE	E -W								000		00
																PSNGR CAR		02	PSNG	INJA	12	M			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	E -W								000		00
																PSNGR CAR		03	PSNG	INJA	08	F			000	000		00
00981	N	N	N	N	N	07/27/2013	02	BARCLAY WAY	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										010	02
COUNTY						SA		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	NE-SW									000		00
N						12P			03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		028	000		02
N						44 17	-121 33	001600100S00															OR<25					
						44.7192239	34.7473079																					
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		01	DRVR	INJB	34	M	OR-Y		000	000		00
																							OR<25					
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		02	PSNG	INJB	34	F			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		03	PSNG	INJB	01	M			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		04	PSNG	INJB	07	M			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	NW-SE								000		00
																PSNGR CAR		05	PSNG	NO<5	04	F			000	000		00
01224	N	N	N	N	N	09/07/2013	02	BARCLAY WAY	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						SA		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	SW-NE									000		00
N						12P			02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	48	F	OR-Y		028	000		02
N						44 17	-121 33	001600100S00															OR<25					
						44.7192239	34.7473079																					
															02	NONE 0	STRGHT											
																PRVTE	SE-NW								000		00
																PSNGR CAR		01	DRVR	NONE	30	M	OR-Y		000	000		00
																							OR<25					

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CITY OF SISTERS, DESCHUTES COUNTY

SANTIAM HY at BARCLAY WAY, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

8 - 8 of 8 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01738	N	N	N	N	N	12/07/2013	02	BARCLAY WAY	INTER	CROSS	N	N	SNOW	ANGL-OTH	01	NONE 0	STRGHT											02
CITY						SA		SANTIAM HY	CN		STOP SIGN	N	ICE	ANGL		PRVTE	SW-NE									000		00
N						11A			04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	66	M	OR-Y		028	000		02
N						44 17 44.7192239	-121 33 34.7473079	001600100S00															OR<25					
															02	NONE 0	STRGHT											
																PRVTE	SE-NW									000		00
																PSNGR CAR		01	DRVR	NONE	60	M	OR-Y		000	000		00
																							OR<25					

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF SISTERS, DESCHUTES COUNTY

SANTIAM HY at MCKINNEY BUTTE RD, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

1 - 3 of 4 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00848	N	N	N	N	N	07/03/2013	02	MCKINNEY BUTTE RD	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
COUNTY						WE		SANTIAM HY	SE		UNKNOWN	N	DRY	REAR		PRVTE	SE-NW									000		00
N						11A			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	74	M	OR-Y		026	000		07
N						44 17 44.7192239	-121 33 34.7473079	001600100S00															OR<25					
															02	NONE	STOP											
																PRVTE	SE-NW									012		00
																PSNGR CAR		01	DRVR	INJB	40	M	OR-Y		000	000		00
																							OR<25					
00503	N	N	N			04/18/2015	07	MCKINNEY BUTTE RD	INTER	CROSS	N	N	CLR	O-1STOP	01	NONE 0	BACK											10
NONE						SA	0	SANTIAM HY	SW		STOP SIGN	N	DRY	BACK		UNKN	NE-SW									000		00
N						12P			06	0		N	DAY	PDO		UNKNOWN		01	DRVR	NONE	00	M	OR-Y		011	000		10
N						44 17 44.72	-121 33 34.75																OR-?					
															02	NONE 0	STOP											
																PRVTE	SW-NE									011		00
																PSNGR CAR		01	DRVR	NONE	32	M	OR-Y		000	000		00
																							OR<25					
00353	N	N	N	N	N	03/06/2012	02	MCKINNEY BUTTE RD	INTER	CROSS	N	N	CLR	BIKE	01	NONE 0	STRGHT											02
COUNTY						TU		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	N -S									000		00
N						10P			03	0		N	DARK	INJ		PSNGR CAR		01	DRVR	NONE	80	M	OR-Y		027	000		02
N						44 17 44.7202594	-121 33 34.7482421	001600100S00															OR<25					
																	- STRGHT	01	BIKE	INJB	47	M		I INRD	000	000		00
																	W E											
01084	N	N	N	N	N	08/17/2012	02	MCKINNEY BUTTE RD	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						FR		SANTIAM HY	CN		STOP SIGN	N	DRY	ANGL		PRVTE	SW-NE									000		00
N						7P			04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	70	M	OR-Y		028	000		02
N						44 17 44.7202594	-121 33 34.7482421	001600100S00															OR<25					
															01	NONE 0	STRGHT											
																PRVTE	SW-NE									000		00
																PSNGR CAR		02	PSNG	INJC	79	M			000	000		00
															01	NONE 0	STRGHT											
																PRVTE	SW-NE									000		00
																PSNGR CAR		03	PSNG	INJC	00	F			000	000		00
															01	NONE 0	STRGHT											
																PRVTE	SW-NE									000		00
																PSNGR CAR		04	PSNG	INJC	69	F			000	000		00

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CITY OF SISTERS, DESCHUTES COUNTY

SANTIAM HY at MCKINNEY BUTTE RD, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

4 - 4 of 4 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A	L	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
																02	NONE 0	STRGHT											
																	PRVTE	SE-NW									000		00
																	PSNGR CAR		01	DRVR	INJC	33	M	OR-Y		000	000		00
																								OR<25					

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF SISTERS, DESCHUTES COUNTY

SANTIAM HY at HOOD AVE, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00419	N	N	N	N	N	04/04/2015	02	W HOOD AVE	INTER	3-LEG	N	N	CLD	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						SA		SANTIAM HY	CN		STOP SIGN	N	DRY	TURN		PRVTE	W -E									000		00
N						3P			04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	55	M	OR-Y		000	000		00
N						44 17 37.19	-121 33 28.32	001600100S00															OR<25					
															02	NONE 0	TURN-L											
																PRVTE	SW-W									000		00
																MOTRHOME		01	DRVR	NONE	63	F	OR-Y		028	000		02
																							OR<25					

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

015: MCKENZIE

Highway 015 ALL ROAD TYPES, MP 92.02 to 92.04 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P / E / E / D	A / C	D R / U / G / S	S / G / L	W / H / L	O / R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
01392	N	N	N	N	N	N	08/19/2016	DESCHUTES	1	02		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	29,27
COUNTY							FR	SISTERS	MN	Z	SANTIAM HY	SE	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	NW-SE								000		00
N							1P		92.04		W HOOD AVE	03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	70	F	OR-Y		026,016	000		29,27
N							44 17 36.79	-121 33 27.94			0015001Z2S00		(02)													OR>25					
																		02	NONE 0	STOP											
																			PRVTE	NW-SE								011	013	00
																			PSNGR CAR		01	DRVR	INJB	28	F	OR-Y		000	000		00
																										OR>25					
																		03	NONE 0	STOP											
																			PRVTE	NW-SE								022		00
																			PSNGR CAR		01	DRVR	NONE	53	F	OR-Y		000	000		00
																										OR>25					

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

016: SANTIAM

Highway 016 ALL ROAD TYPES, MP 100.11 to 100.12 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P / E / D	A / C	D R / U / G / S	S / C / H / L	W / O / R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
00419	N	N	N	N	N	04/04/2015	DESCHUTES	1 02		INTER	3-LEG	N	N	CLD	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY						SA	SISTERS	MN 0	W HOOD AVE	CN		STOP SIGN	N	DRY	TURN		PRVTE	W -E									000		00
N						3P		100.12	SANTIAM HY	04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	55	M	OR-Y		000	000		00
N						44 17 37.19	-121 33 28.32		001600100S00															OR<25					
																02	NONE 0	TURN-L											
																	PRVTE	SW-W									000		00
																	MOTRHOME		01	DRVR	NONE	63	F	OR-Y		028	000		02
																								OR<25					

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF SISTERS, DESCHUTES COUNTY

MCKENZIE HY at CASCADE AVE, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

SER# INVEST RD DPT UNLOC?	S P E D	A L C	D R U G S	S C H L	W O R K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	SPCL USE TRLR QTY OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF SISTERS, DESCHUTES COUNTY

MCKENZIE HY at HOOD AVE, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

1 - 5 of 5 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	SPE / ALCDS / DRLGK / WOR	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	AGE	SEX	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00786	N N N	06/21/2013	02	E HOOD AVE	INTER	3-LEG	N	N	CLR	PED	01	NONE	STRGHT											19,02
COUNTY		FR		MCKENZIE HY	SE		REG-SIGN	N	DRY	PED		PRVTE	NW-SE									000		00
N		9P			06	0		N	DARK	INJ		PSNGR CAR		01	DRVR	NONE	75	M	OR-Y		029	000		02
N		44 17 26.4725519	-121 32 41.350596	001500100S00															OR<25					
													- STRGHT	01	PED	INJC	24	M		I XWLK	000	000		19
													N S											
01596	Y Y N N N	10/23/2014	07	W HOOD AVE	INTER	CROSS	N	Y	RAIN	FIX OBJ	01	NONE 0	TURN-R										058,100	08,01,33
COUNTY		TH		MCKENZIE HY	W		STOP SIGN	N	WET	FIX		PRVTE	N -W									015	058,100	00
N		1A			05	0		N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	44	F	OR-Y		002,047,051	017		08,01,33
N		44 17 28.76	-121 33 30.9	001500100S00															OR<25					
02258	Y N N	12/15/2016	07	E HOOD AVE	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 9	STRGHT										124	29,01
NONE		TH	0	MCKENZIE HY	W		STOP SIGN	N	ICE	REAR		N/A	W -E									006		00
N		2P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		44 17 26.47	-121 32 41.35																UNK					
											02	NONE 9	STOP											
												N/A	W -E									011		00
												PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																			UNK					
91253	N N N	09/15/2013	02	E HOOD AVE	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE		SU		MCKENZIE HY	NW		STOP SIGN	N	DRY	REAR		PRVTE	NW-SE									000		00
N		2P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	UNK		026	000		07
N		44 17 26.4725519	-121 32 41.350596	001500100S00															UNK					
											02	NONE 0	STOP											
												PRVTE	NW-SE									011		00
												PSNGR CAR		01	DRVR	NONE	25	M	OR-Y		000	000		00
																			OR<25					
01075	N N N N N	07/20/2014	02	E HOOD AVE	INTER	3-LEG	N	N	CLD	S-1STOP	01	NONE 0	STRGHT											07
COUNTY		SU		MCKENZIE HY	NW		STOP SIGN	N	DRY	REAR		PRVTE	NW-SE									000		00
N		3P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	43	F	OR-Y		026	000		07
N		44 17 26.47	-121 32 41.35	001500100S00															OR<25					
											02	NONE 0	STOP											
												PRVTE	NW-SE									011		00
												PSNGR CAR		01	DRVR	INJC	20	F	OR-Y		000	000		00
																			OR<25					

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015: MCKENZIE

Highway 015 ALL ROAD TYPES, MP 91.87 to 92.08 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

1 - 5 of 5 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P / E / D / C	D R / A / G / S	S / U / L	W / C / H / L	O / R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP / LRS	CONN# / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01596	Y	Y	N	N	N	10/23/2014	DESCHUTES	1	07		INTER	CROSS	N	Y	RAIN	FIX OBJ	01	NONE 0	TURN-R										058,100	08,01,33
COUNTY						TH	SISTERS	MN	0	W HOOD AVE	W		STOP SIGN	N	WET	FIX		PRVTE	N -W									015	058,100	00
N						1A		92.05		MCKENZIE HY	05	0		N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	44	F	OR-Y		002,047,051	017		08,01,33
N						44 17 28.76	-121 33 30.9			001500100S00															OR<25					
00497	N	N	N	N	N	03/28/2016	DESCHUTES	1	07		CURVE		N	Y	CLR	FIX OBJ	01	NONE 9	STRGHT										079,126	40
COUNTY						MO	SISTERS	MN	Z	W HOOD AVE	SW	(NONE)	UNKNOWN	N	DRY	FIX		N/A	SW-NE									006		00
Y						7A		92.00		SANTIAM HY	01			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						44 17 36.32	-121 33 30.12			0015001Z2S00		(02)													UNK					
01357	N	N	N	N	N	10/14/2012	DESCHUTES	1	07		STRGHT		N	N	CLR	BIKE													110	27
CITY						SU		MN	Z	00401	W	(NONE)	UNKNOWN	N	DRY	REAR			-											
N						7A		92.00		01502	07			N	DAY	INJ			STRGHT	01	BIKE	INJB	14	M		BKPATH	016	017	110	27
N						44 17 36.3219727	-121 33 30.1239851			0015001Z2S00		(02)							W E											
																	01	NONE 0	STRGHT											
																		PRVTE	W -E									006		00
																		PSNGR CAR		01	DRVR	NONE	79	F	OR-Y		000	000		00
																									OR<25					
01392	N	N	N	N	N	08/19/2016	DESCHUTES	1	02		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	29,27
COUNTY						FR	SISTERS	MN	Z	SANTIAM HY	SE	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	NW-SE									000		00
N						1P		92.04		W HOOD AVE	03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	70	F	OR-Y		026,016	000		29,27
N						44 17 36.79	-121 33 27.94			0015001Z2S00		(02)													OR>25					
																	02	NONE 0	STOP											
																		PRVTE	NW-SE									011	013	00
																		PSNGR CAR		01	DRVR	INJB	28	F	OR-Y		000	000		00
																									OR>25					
																	03	NONE 0	STOP											
																		PRVTE	NW-SE									022		00
																		PSNGR CAR		01	DRVR	NONE	53	F	OR-Y		000	000		00
																									OR>25					
00284	N	N	N			03/05/2015	DESCHUTES	1	07	1	INTER	CROSS	N	N	CLR	S-1TURN	01	NONE 1	TURN-R											08
NONE						TH	SISTERS	CN	0	W HOOD AVE	S		STOP SIGN	N	DRY	TURN		PRVTE	S -E									000		00
N						3P		92.05		CASCADE AVE CONN	06	0		N	DAY	PDO		SEMI TOW		01	DRVR	NONE	62	M	OR-Y		006,002	000		08
N						44 17 28.76	-121 33 30.9			0015AK100S00															OR>25					
																	02	NONE 0	STOP											
																		PRVTE	S -N									011		00
																		PSNGR CAR		01	DRVR	NONE	57	M	OR-Y		000	000		00
																									OR<25					

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF SISTERS, DESCHUTES COUNTY

HOOD AVE at CASCADE AVE CONN, City of Sisters, Deschutes County, 01/01/2012 to 12/31/2016

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
00284	N	N	N			03/05/2015	07	W HOOD AVE	INTER	CROSS	N	N	CLR	S-1TURN	01	NONE 1	TURN-R											08
NONE						TH		CASCADE AVE CONN	S		STOP SIGN	N	DRY	TURN		PRVTE	S -E									000		00
N						3P			06	0		N	DAY	PDO		SEMI TOW		01	DRVR	NONE	62	M	OR-Y		006,002	000		08
N						44 17 28.76	-121 33 30.9	0015AK100S00															OR>25					
															02	NONE 0	STOP											
																PRVTE	S -N									011		00
																PSNGR CAR		01	DRVR	NONE	57	M	OR-Y		000	000		00
																							OR<25					

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EXHIBIT D: PUBLIC NOTICE & COMMENTS

Public Notice & Comments: Notice of the proposed Master Planned Development, Comprehensive Plan Map & Zoning Map Amendment, Tentative Subdivision, and Development Agreement was posted in accordance with SDC 4.1.500.B. Public comments related to file number MP 19-01, that were received at the time of completion of this staff report, are included in this report. Public comments that are received after the completion of this staff report will be part of the public record and added to the project file.

From: Annie Marland
To: Nicole Mardell
Subject: FILE # MP 19-01 Three Wins
Date: Monday, February 3, 2020 3:54:45 PM

I live at 498 N. Wheeler Loop, Brooks Camp Village.

I have a great concern about the road that will be going in, about 30 feet behind my yard and fence. McKinney Butte is right next to the north side of my house.

I understand the need for fire access to the back of the buildings. However, the road will go all the way to the apartments which means endless cars going behind my home to the apartments.

I want to know if this includes delivery trucks. I will have to put up with apartment traffic and dust. Sitting on my deck during the day and evening will be nothing but noise.

Do not let that road go through to the apartments as two other access roads show on the plans as Hood St. and 242.

Thank you
Annie Marland

Annie Marland
498 N. Wheeler Loop
Sisters OR 97759
--
Annie Marland
541-549-7006
annie72sisters@gmail.com

--
Annie Marland
541-549-7006
annie72sisters@gmail.com

EXHIBIT E: AGENCY REVIEW COMMENTS

Notices were sent to City Departments and other affected agencies for comment. The following Department and Agency comments were received:

PUBLIC WORKS (PAUL BERTAGNA)/ENGINEERING (ERIK HUFFMAN & JOE BESSMAN):

See attached.

ODOT

See attached.

SISTERS/CAMP SHERMAN FIRE DISTRICT (DOUG GREEN):

No comments receive, however, staff has been advised that the plans are reflective of discussions held between the applicant and Mr. Green. The Fire District will have another opportunity to comment during site plan review.

CENTRAL OREGON ELECTRIC COOPERATIVE (PARNELI PERKINS):

CEC is willing and able to serve the location with rates and policies of Central Electric Cooperative. This service may require system upgrades to facilities in the area.

REPUBLIC DISPOSAL SERVICES (ABIE BURKUS):

No comments received.

520 E. Cascade Ave.
P.O. Box 39
Sisters, OR 97759

(541) 323-5212
Fax: (541)549-0561
www.sisters.or.us

CITY OF SISTERS

Public Works Department

TO: Patrick Davenport, Nicole Mardell

FROM: Erik Huffman, City Engineer

DATE: December 13, 2019

SUBJECT: Threewind Master Plan. – Preliminary Engineering Review

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Subject property includes Parcels 1, 2 and 3 of Partition Plat 2019-21. Improvements planned on parcel 2 have been approved prior to this master plan.

Streets Review:

Internal Street and Pedestrian Circulation

Existing Conditions
A 30 foot wide public access easement exists through the property, connecting through to McKinney Butte Road. The property is also adjacent to Hood Ave (Hwy 242).

Proposed Improvements
Internal vehicular and pedestrian connectivity shown on site plan submitted.

Additional Requirements

- Prior to occupancy of any building on Parcel 3 of PP 2019-21, the developer shall construct a public street including sidewalks to city street standards, or a portion of a public street as approved by the City Engineer, connected to Hwy 242 and extending to the southerly terminus of the public access easement granted in PP 2019-21.
- Prior to construction of the public street connected to Hwy 242, the developer shall obtain all permits necessary from ODOT to connect the roadway to Hwy 242.
- Prior to occupancy of any building on Parcel 3 of PP 2019-21, the developer shall construct a minimum 24 foot wide paved vehicular route and minimum 5' pedestrian facility meeting PROWAG standards within the public access easement granted in PP 2019-21.
- Prior to occupancy of the building depicted on the submitted site plan as a 7,000 SF Commercial building, a vehicular connection shall be established connecting the parking area for said building to the public way and adjacent public vehicular access easement shown as Red Crater Way on PP 2014-26.
- Prior to occupancy of the building depicted on the submitted site plan as a 7,000 SF Commercial building, a sidewalk meeting PROWAG standards shall be constructed along westerly side of the public way and adjacent public vehicular access easement shown as Red Crater Way on PP 2014-26.
- Prior to occupancy of each site or building on the property, pedestrian facilities meeting PROWAG requirements shall be constructed and connected to each site or building within the property. Pedestrian facilities to be construction within the property shall at a minimum include the pedestrian facilities and connections shown on the attached sketch with connections at the public street connection to Hwy 242 and to Red Crater Way.

- Prior to occupancy of each site or building on the property, concrete driveway aprons shall be constructed, at a minimum, as shown in the attached sketch.
- Prior to occupancy of the building depicted on the submitted site plan as a 3,200 SF Commercial building on Parcel 1, a pedestrian facility must be constructed which connects the building to public pedestrian facilities on McKinney Butte Road.

Water Review:

Existing Conditions
12" water mains exist along the northerly and easterly boundaries of Parcel 3 of PP 2019-21.

Proposed Improvements
Water service plans for Parcel 1 and Parcel 2 have been submitted separately to the City and approved. No specific water system improvements for Parcel 3 are shown on submitted documents.

Additional Requirements:

- Prior to occupancy of any building on Parcel 1 or Parcel 2, water service connections shall be constructed as shown on their approved construction plans.
- Prior to occupancy of any building on Parcel 3, a water main extension shall be constructed along the required public street extension from Hwy 242 to the terminus of the public access easement granted in PP 2019-21. The minimum water main size shall be 8 inches, and shall be sized to appropriately serve the development on the site. Prior to determination of the water main size, the developer shall submit water flow calculations, stamped by a Professional Engineer, indicating the anticipated flows at each building the development.
- All water infrastructure shall be constructed per City of Sisters standards.
- No more than one domestic water service and meter shall serve each lot of record unless otherwise approved by the Public Works Director.
- Any public water mains, fire hydrants, water meters, or other public water infrastructure necessary for development that is proposed to lie outside of public right of way shall require a minimum 20-foot wide easement and shall be designed to provide unobstructed City access to water infrastructure meeting City standards and Public Works requirements.

Sewer Review:

Existing Conditions
An 8" sewer main exists in Hwy 242. An 8" sewer main exists along a public easement between parcels 1 and 2.

Proposed Improvements
Sewer service plan for Parcel 2 has been submitted separately to the City and approved.

Additional Requirements

- Prior to occupancy of any building on Parcel 2, sewer service connection shall be constructed as shown on their approved construction plan.
- Prior to occupancy of any building on Parcel 1, sewer service connection shall be constructed to connect to the 8-inch sewer main along the boundary between Parcels 1 and 2.
- Prior to occupancy of any building on Parcel 3, a sewer main shall be constructed along the required public street extension from Hwy 242 to the terminus of the public access easement granted in PP 2019-21. The minimum sewer main size shall be 8 inches.
- All sewer infrastructure shall be constructed per City of Sisters standards.
- Any public sewer mains, service laterals, or other public sewer infrastructure necessary for development that is proposed to lie outside of public right of way shall require a minimum 20-foot wide easement and shall be designed to provide unobstructed City access to sewer infrastructure meeting City standards and Public Works requirements.

Site Grading and Drainage:

The following general requirements apply.

- All site drainage shall be maintained on site and shall not drain onto public streets or neighboring properties. Storm water runoff from private property shall not impact public right-of-way or easements unless otherwise approved by the Public Works Director or City Engineer.
- Stormwater facilities that are intended to cross property lines will require reciprocal stormwater easement with adjoining property.
- Site grading and drainage plans shall be submitted for Engineering review and shall be subject to City and Central Oregon Stormwater Manual (COSM) design, construction, and testing standards.
- Stormwater calculations shall be provided to the City of Sisters for review and approval as part of the grading and drainage plan submittal.
- Proposed site drainage facilities and stormwater systems shall be designed for a 25 year/24 hour storm event (2.8 inches) and have appropriate pretreatment per City standards. Infiltration rates must be supported by a Geotech report or other verifiable documentation.
- New on-site private drywells and other underground injection control (UIC) systems not part of the public drainage system must be registered and approved by the Oregon Department of Environmental Quality (DEQ) prior to construction or building permit issuance.

Construction Plans:

- Upon land use approval or building permit application, construction plans that include all proposed and/or required public improvements, water/sewer service connections shall be submitted to the City for review and approval.

- Construction plans indicating details for all public improvements and stormwater improvements shall be included in the plan set for City review.

- Prior to building permit issuance, developer shall provide a performance guarantee of 120% of the approved cost estimate for installation of all public improvements. Including but not limited to fire line improvements and driveway access improvements.

Date:	December 13, 2019
To:	Patrick Davenport and Paul Bertagna, City of Sisters
Cc:	Erik Huffman, PE, BECON
From:	Joe Bessman, PE
Project Reference No.:	1237
Project Name:	Three Winds Master Plan – Site Plan and Transportation Impact Study Review

This memorandum summarizes our comments on the proposed site plan for the Three Winds development and the Master Plan Transportation Impact Study.

Site Plan Review

The site plan was reviewed for connectivity, site circulation, access, and ability to serve all modes of travel.

Connectivity Goals and Plans

The site plan was reviewed with consideration given to the broader area and connectivity needs. Today, the northwest portion of Sisters is reliant on access to US 20 for connections to the downtown core and has seasonal impacts from schools and tourism. The connectivity layout for the area is intended to support new local options that will provide low-speed access to and through area businesses that can connect to surrounding roads while avoiding the highway system.

At the time of the City's Transportation System Plan Update, new connections for the Forest Service lands surrounding the northwest side of Sisters were not contemplated, yet new connections from these lands were included within the adopted plan. Figure 1 depicts Figure 7-6 of the City's Transportation System Plan showing the local street needs within the vicinity of the Three Winds site. These include connections to Brooks Camp Court, Hood Street, and OR 242. Although these connections are shown in the TSP on the lot just south of the subject site, effort should be made to support these area connections and leverage these routes for local access. An additional connection between McKinney Butte Road and OR 242, and between Brooks Camp Road and Hood Avenue increase connectivity in the area and reduces demands on the surrounding

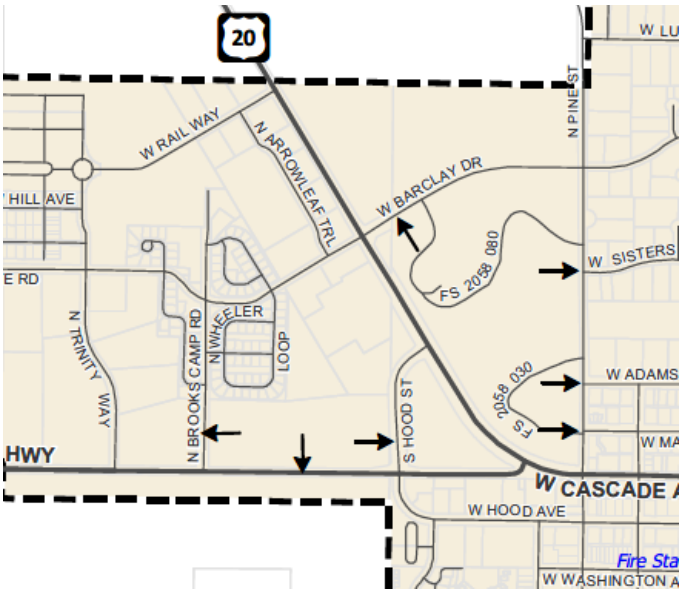

Figure 1. Excerpt from the City's Transportation System Plan Update (Figure 7-6).

roadways, particularly the constrained highway segment.

Vehicle and multi-modal connections should also be provided between the proposed site and the existing Three Winds Shopping Center to the northeast, to the extent practical given the parcel lot and existing location of buildings.

The conceptual site plan dated July 18, 2019 depicts a drive aisle connection near McKinney Butte Road and a one-way alley connection on the east side of the site to the existing shopping center driveway on Hood Avenue. Improved connectivity would reduce vehicular reliance on the exterior roadways and allows for future flexibility to restrict turning movements at the shopping center driveway on Hood Avenue, if needed. Similarly, providing more direct pedestrian routes between the proposed multi-family development and the Three Winds Shopping Center will reduce vehicle trips on the public streets.

Site Circulation

The submitted site plan, dated July 18, 2019, partially addresses these area connectivity needs while balancing site constraints. The layout includes a main east-west driveway along the southern property boundary connecting to Hood Street. From this driveway, motorists have multiple options to connect to the commercial portion of the site or continue straight into the multi-family housing section of the site toward the west.

A separate north-south drive aisle connects the southern edge of the site north to McKinney Butte Road. As shown, if a motorist were to follow this drive aisle they would end up at a one-way alley as the primary route is unclear. As shown the current site plan maximizes the development potential of the site but makes the site circulation confusing for motorists. The drive aisles should be designed in such a way that it is clear to the motorists how to enter and exit the site and should define the main drive aisles to avoid mixing main travel routes with parking maneuvers. Minor changes could be provided to form this internal local "spine" system for ease of wayfinding. The connections do not need to be straight as shown in Figure 2, but drivers should not be forced to turn to maintain this route.

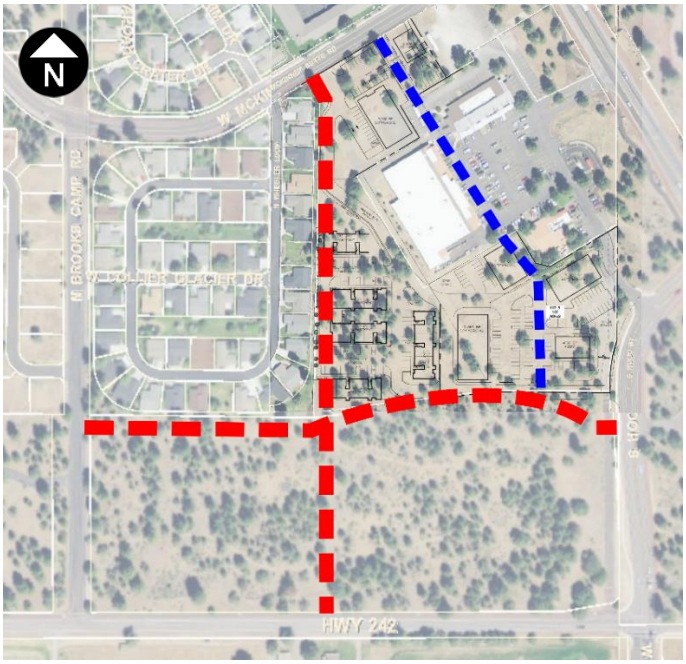

Figure 2. Primary Local Street Connections
Red: Local Street Connections
Blue: Secondary Local Connections

A potential layout for the area is shown in Figure 2, where the local road connections to McKinney Butte Road and Hood Avenue serve as the main drive aisles. Parking aisles or apartment driveways can be connected to these roads to serve the adjacent developments. This layout meets driver expectations and supports area connectivity needs.

Within the layout it is critical that intersections occur with perpendicular (or nearly perpendicular) angles to maximize driver views, and that intersections that are large and undefined be avoided. Figure 3

highlights some of the intersections of concern within the current site layout. These types of intersections make it unclear where motorists should position or where they are turning. This leads to driver confusion, site congestion, longer pedestrian crossing distances, and can make travel conditions less safe.

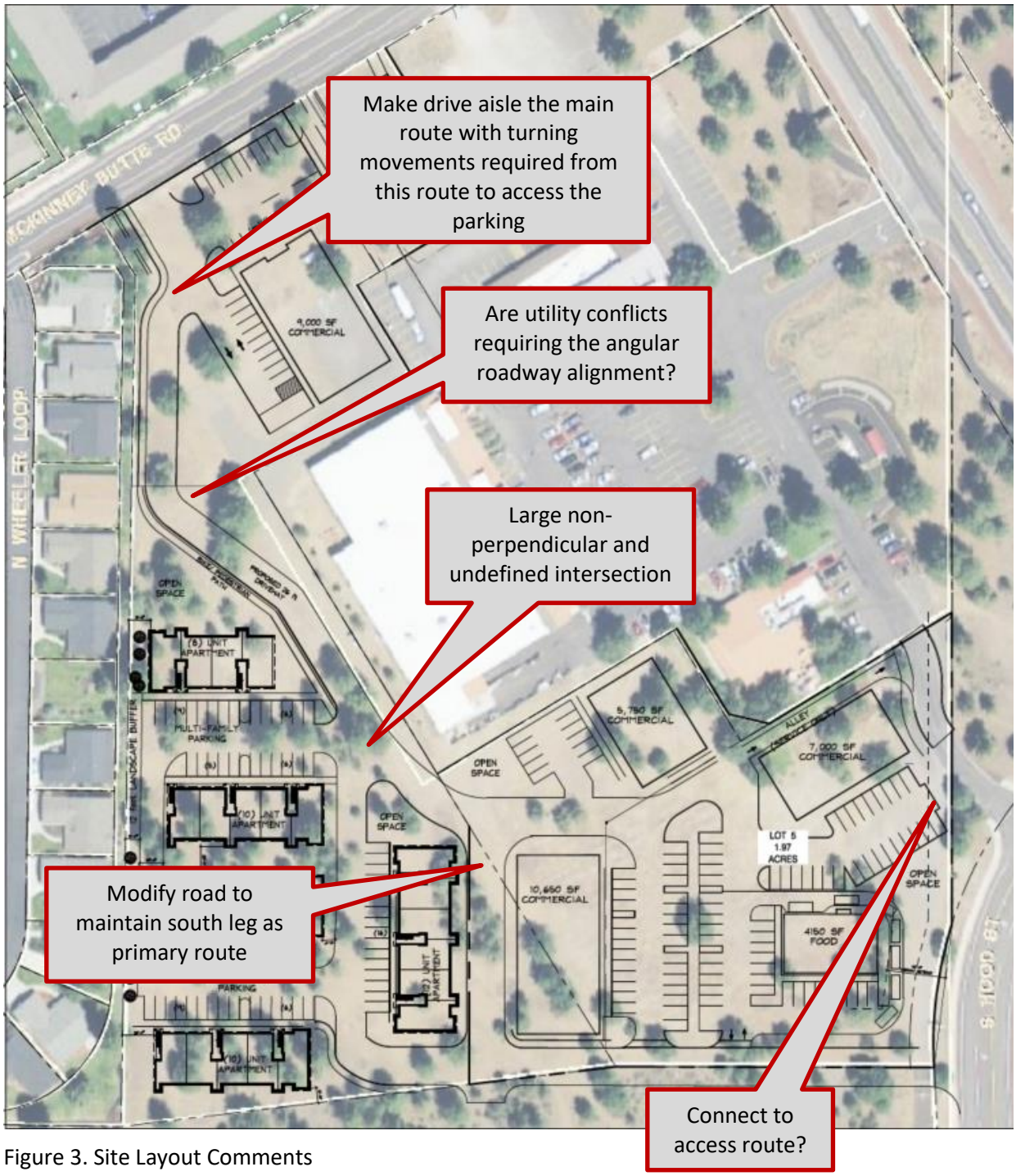

Figure 3. Site Layout Comments

Figure 3 also shows a drive-through food use in the southeast corner of the site with a drive-through lane that extends around the building. This layout provides no storage depth near the access onto the new

east-west street, effectively requiring a "U-turn" maneuver for vehicles entering from the east. This layout will need to be reviewed to ensure that vehicles can perform this maneuver.

The one-way alley connection near the 7,000 square-foot pad building also adds to the confusion within this site layout, as the area's only one-way street. If allowed with building setbacks shifting this building north and widening the parking area to the south to support two-way travel would provide better connectivity and wayfinding and would also prevent drivers from having to back out of the parking if there were no available stalls.

Most critically, the layout shown does not support pedestrian connections between buildings or through the site. Just as important as the north-south and east-west roadway connections are to support area circulation, clear pedestrian routes are also needed throughout this site. Connecting the multifamily uses with the commercial, and with the surrounding public sidewalk system will help reduce area congestion. The pedestrian routes must provide accessible crossings at all intersections and to each building entrance.

Vehicular Site Access

The site plan from July 18, 2019 depicts two new accesses to the site and an alley connecting to the existing shopping center access on Hood Avenue. The new access on McKinney Butte Road meets the City's minimum access spacing of 100 feet from Wheeler Loop and has already been approved as part of the prior site plan submittal. This access should be modified to allow the connection to the south to serve as the primary route into the southern portion of the master plan, rather than requiring motorists to turn onto a separate roadway to access the remainder of the site.

S Hood Street is a State Highway and will require access approval through ODOT. ODOT has been notified of this application and has separately provided comments. The City is supportive of the connection to Hood Street, and while a direct alignment with the viewpoint entrance would be ideal and would avoid conflicts in the left-turn lane, we recognize that this location is south of the Three Winds Master Plan boundary. Further discussions with ODOT will be necessary to identify how these accesses could be realigned in the future.

Finally, a third vehicular connection is provided to the BiMart entrance via a one-way alley. As previously noted, shifting the building north to support a wider drive aisle in the parking module to the south with two-way travel would be preferable. This would better connect the two adjacent uses without requiring travel on S Hood Street for internal circulation between commercial uses.

Pedestrian Access

As previously noted, the conceptual site plan shows sidewalks on the west side of the site adjacent to the apartments, but no connections to the commercial portions of the site. As applications are received for development of the site, pedestrian facilities will need to be provided throughout connecting the apartments with the commercial areas and sidewalks on the north side of the main east-west driveway to Hood Street. The master plan should identify the overall pedestrian routes into and through the property so that individual applications understand the connectivity needs that will be necessary.

Transportation Impact Study Review

The Transportation Impact Study is dated March 18, 2019 and was prepared by Lancaster Engineering with Todd Mobley listed as the engineer of record. Key review comments are presented below:

- The study was prepared using December 12, 2018 traffic counts that were collected throughout the study area. The counts include the impact of area schools and reflect the peak hour between 2:00 p.m. and 6:00 p.m. to capture the school peak.
- The existing traffic volumes were seasonally adjusted along US 20 to reflect ODOT design hour conditions. Review of Figure 3 shows that only about 200 vehicles are using US 20 in either direction with the seasonally adjusted volumes. As commented within prior area analyses, please provide details of the seasonal factors applied as these volumes are considerably lower than historical counts collected in the area and do not appear to include seasonal factors.
- The trip generation estimates prepared for the site apply multifamily housing and shopping center land use classifications. While it is our understanding that the specific tenants are not known, individual retail tenants could be more or less intense than these generalized assumptions and may require additional review as part of individual site plan applications and SDC assessments. In the absence of specific tenants and for master plan purposes this approach seems reasonable at this stage of the application and is unlikely to change overall findings and recommendations.
- The master plan assumes full site build-out would occur in 2021. This seems like an aggressive build-out schedule given that master plan uses are not yet known. With the application premised on 2018 counts and inclusive of only two years of growth this effectively assumes a winter 2020 build-out.
- The forecasting section of the report identifies linear growth rates of 9% annually on US 20 and 1% annually on OR 242. At the time of the traffic counts OR 242 was closed for the season west of the area and volume forecasts are not reliable for any type of design condition. Further, an annual growth rate of 9% identified through ODOT's 2037 future volume tables for US 20 does not reflect any type of historical or reasonable growth rate and should be revised in consultation with ODOT.
- The operations analysis shows that despite these comments the McKinney Butte/Arrowleaf Trail intersection continues to show failing conditions during the school peaks, similar to other studies in the area. This is reflective of area traffic consolidation surrounding the new roundabout and highlights the need for the connectivity identified within the site plan review so that the cited "self-selection" of access routes remains a viable option. I agree that additional turning restrictions should not be implemented.
- The applicant's review of area safety, sight distance, signal warrants, and turn lane warrants appears appropriate and we agree with the findings.
- The applicant recommends restriping of Hood Avenue with a continuous two-way left-turn lane. This restriping removes conflicts that would otherwise occur within the center median along this road. With the low traffic volumes into the East Portal and unknown long-term use of this area I support this recommendation. However, as a State-owned highway this will need to be coordinated with and approved by ODOT as part of an access application.
- The applicant's review of the US 20/Hood Avenue intersection shows only a single-vehicle queue and that no changes are necessary or blockages anticipated. Seasonal volumes are much higher than those shown in the traffic report and field observations commonly show longer queues for left-turns entering the highway. It is recommended that with the additional demands on this approach that the applicant also restripe Hood Avenue to extend the left-turn storage bay to the BiMart access. This will help prevent left-turning traffic from blocking the higher volume of drivers turning right.

The comments provided herein reflect similar comments provided on the BiMart site and relate to the long-term area needs. While there may be necessary updates to the traffic forecasts along the highway, the general area needs and improvements are not expected to be affected by these changes. As highway delays increase (particularly in the summer months) the provision of local circulation and connections for pedestrians, cyclists, and motorists will help provide drivers with options that avoid reliance on the highway system.

Thank you for the opportunity to review these materials, please let me know if you have any questions on these comments at (503) 997-4473 or via email at joe@transightconsulting.com.

From:	MOREHOUSE Donald
To:	Nicole Mardell
Cc:	SMITH Aaron K; SCHOLTES James M
Subject:	RE: MP 19-01 (Threewind)
Date:	Thursday, February 6, 2020 8:57:22 AM
Attachments:	image001.png

Nicole,

That looks good to me, thanks.

Don Morehouse
Senior Transportation Planner
ODOT Region 4
Desk: (541) 388-6046
Cell: (541) 233-6558
Donald.Morehouse@odot.state.or.us

From: Nicole Mardell <nmardell@ci.sisters.or.us>
Sent: Thursday, February 6, 2020 8:48 AM
To: MOREHOUSE Donald <Donald.MOREHOUSE@odot.state.or.us>
Subject: RE: MP 19-01 (Threewind)

Hi Don,

To ensure we're not requesting off-site improvements without a rational nexus to our development code, we are including the following condition of approval that we believe meets the intent of the realignment condition included in your letter. Of course, the original condition and the letter you submitted will be included in the staff report and record for planning commission review.

During the permitting process, the applicant will coordinate with the City, ODOT, and USFS (or future owner of the East Portal Property), to realign the existing entrance to the East Portal with the new entrance serving the proposed development. The proportional share of cost and specific actions required by the applicant will be determined during the permitting process.

Best,
Nicole

Nicole Mardell, LEED GA
Principal Planner
City of Sisters | Community Development Dept.
PO Box 39 | 520 E. Cascade Ave., Sisters, OR 97759
Direct: 541-323-5208 | City Hall: 541-549-6022
nmardell@ci.sisters.or.us | www.ci.sisters.or.us

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Public Records Law. This email is also subject to the City's Public Records Retention Schedule.

From: MOREHOUSE Donald <Donald.MOREHOUSE@odot.state.or.us>
Sent: Wednesday, February 5, 2020 4:21 PM
To: Nicole Mardell <nmardell@ci.sisters.or.us>
Cc: SMITH Aaron K <Aaron.K.SMITH@odot.state.or.us>; SCHOLTES James M <James.M.SCHOLTES@odot.state.or.us>; KNITOWSKI David <David.KNITOWSKI@odot.state.or.us>
Subject: MP 19-01 (Threewind)

Hi Nicole,

Here is the ODOT response letter attached to this email. Let me know if you have any further questions, thanks.

Don Morehouse
Senior Transportation Planner
ODOT Region 4
Desk: (541) 388-6046
Cell: (541) 233-6558
Donald.Morehouse@odot.state.or.us

Oregon
Kate Brown, Governor

Oregon Department of Transportation
Region 4 Headquarters
63055 N. Highway 97
Bend, OR 97703
(541) 388-6180
FAX (541 388-6231

DATE: 2/5/20

NICOLE MARDELL, PRINCIPAL PLANNER
CITY OF SISTERS COMMUNITY DEVELOPMENT
520 EAST CASCADE
PO BOX 39
SISTERS, OR 97759

Project Name: Threewind Mixed-Use Development	**Applicant:** Threewind Partners, LLC
Jurisdiction: City of Sisters	**Jurisdiction Case #:** MP 19-01
Site Address: 801 W. Hood Avenue, Sisters	**Legal Description:** 151005DC0 **Tax Lot(s):** 7202
State Highway: US 20 and OR 242	**Milepost:** 100 (US 20) 91.99 and 91.92 (OR 242)

ODOT Response

Thank you for sending agency notice of a request for approval of a Master Planned Development (Type III), to enable the construction of 50 multi-family units covering 26,800 square feet of building area, 26,800 square feet of commercial space and supporting infrastructure. Here are the ODOT comments:

- The trip generation estimate from the March 18, 2019 TIS was reviewed under the Access Management Rule (Division 51) Change of Use Rule and it was determined that the proposed development does constitute a change of use. This will require an Application for State Highway Approach for the current access along US 20, the current access (over the USFS property) along OR 242 (Hood Avenue), and the proposed access along OR 242 (Hood Avenue).

- ODOT recommends that the City of Sisters include the following condition of approval: ***The existing access along OR 242 (Hood Avenue) to the East Portal must be realigned to match up with the proposed access along OR 242 (Hood Avenue).***

Permits and Agreements to Work in State Right of Way

☒ An Application for State Highway Approach must be obtained for the current access along US 20, the current access (over the USFS property) along OR 242 (Hood Avenue) and the

proposed access along OR 242 (Hood Avenue). Please contact Permit Specialist, Aaron Smith, at 541-388-6054 to obtain these.

☒ An ODOT Miscellaneous/Construction Permit must be obtained for all work in the highway right of way. Please contact Permit Specialist, Aaron Smith, at 541-388-6054 to obtain this.

☒ A drainage study prepared by an Oregon Registered Professional Engineer is usually required by ODOT if the development has the potential to impact ODOT highway drainage, to assure life, safety and that Oregon Drainage Law is being upheld. The applicant must provide ODOT District 10 with a preliminary drainage plan showing impacts (or lack of impacts) to the highway right of way. If it can be determined from preliminary drawings there will be no impacts to the highway drainage system then a drainage study will not be required. If a drainage study is required, all requirements for drainage studies can be found in the ODOT Hydraulics Manual.

You may contact me at 541-388-6046 if you have any further questions or require additional information on our response to this proposal.

Thank you,

Don Morehouse
Senior Transportation Planner, Development Review

Please send any further project related correspondence to:

ODOT Region 4 Planning
Development Review
63055 N. Highway 97, Bldg M
Bend, OR 97703

Donald.Morehouse@odot.state.or.us

Development Review Planner: Don Morehouse	541.388.6046
Region 4 Traffic Manager: Mark Barrett	541.388.6120
District Contact: Aaron Smith	541.388.6054

EXHIBIT F: STAFF RECOMMENDED CONDITIONS OF APPROVAL

Staff Recommended *DRAFT* Conditions of Approval for MP 19-01

Based on the submitted plans and foregoing findings, Staff recommends that the Planning Commission recommend that the City Council approve the land use applications in files MP 19-01 subject to the following conditions of approval. **All conditions shall be met with each site plan application** unless otherwise stated within each condition of approval.

Planning

1. Approval is based on the submitted plans and application materials. Significant changes will require a modification of the Master Plan or submission of a new application depending upon the scope of the change.
2. Development of any uses or structures on the property will require Site Plan review under then current applicable approval criteria. Additional conditions of approval may be imposed as part of Site Plan Review.
3. Multi-family dwelling structures with facades greater than 20 lineal feet must comply with SDC 4.5.400.
4. All dwelling units shall be provided with internal laundry facilities or an accessory laundry building shall be provided on site.
5. Garbage and recycling collection areas must comply with SDC 4.5.400(G).
6. A minimum of 15% of open space must be provided, which must be specifically identified on all site plans. If the subject property is divided, required open space must be established as common areas with appropriate CCRs to ensure maintenance of common areas.
7. The applicant shall record a deed restriction on the subject property and all future lots and parcels created, noting inclusion of the property in the approved Master Planned Development.
8. All site plan applications for residential development must include the location and design of the recreational amenities, which must be delivered on a schedule proportionate to the development proposed (i.e. a site plan for a 10 unit development must provide 1 amenity, a site plan for 20 units must provide 2 amenities, etc.) and be completed prior to issuance of a certificate of occupancy for the associated multi-family structure.
9. All structures must include architectural features that complement and enhance positive characteristics of the site and surrounding area. Setbacks from streets shall be staggered or buildings otherwise provided with architectural features that assure variety and interest along the street. The development shall comply with the 1880's Western Frontier Design Theme.
10. Prior to submission of the initial site plan application, applicant will submit a revised master plan map showing landscaping buffers compliant with Table 2.5.2 and SDC 2.5.300(E).
11. All development must be consistent with the proposed pedestrian facilities.
12. Performance Bond for Major Retail Development: Prior to building issuance, the applicant shall provide a surety bond of 120 % of an estimate of the funds to cover the cost of complete building demolition and maintenance of the vacant building site if the primary building is ever vacated or abandoned, and remains vacant or abandoned for a period of more than 24 consecutive months following primary business closure.
13. All driveways, parking areas, aisles and turn-arounds must have on-site collection or infiltration of surface waters to eliminate sheet flow of such waters onto public rights-of-way and abutting property. Surface water facilities shall be constructed in conformance with City standards. Swales may be considered to control surface water.
14. No additional driveway connections to W. Hood are permitted.
15. Driveways shall conform to the specification in SDC 3.1.300(J).

16. At the time of Site Plan Review application, the applicant shall develop and submit engineering plans including the design of sewer, water, and streets to serve the site. No development may occur unless the required public facilities are in place or are guaranteed in conformance with the provisions of this Code.
17. Construction of all public improvements provided on site must conform to the Public Works Construction Standards, latest edition.
18. Street naming shall conform to Chapter 12.20 of the Sisters Municipal Code and the Procedures for naming new roads (SMC Chapter 12.20.030) shall be followed.
19. No signs, other than ordinary street and safety signs, shall be installed until a Comprehensive Sign Plan is approved in accordance with SDC 4.5.800. Sign permits shall also be required for individual signs.
20. Prior to building permit issuance, applicant shall provide approval of ODOT application for Access Permit for each access proposed onto a state facility.
21. During the permitting process, the applicant will coordinate with the City, ODOT, and USFS (or future owner of the East Portal Property), to realign the existing entrance to the East Portal with the new entrance serving the proposed development. The proportional share of cost and specific actions required by the applicant will be determined during the permitting process.

Public Works & Engineering

22. Prior to occupancy of any building on Parcel 3 of PP 2019-21, the developer shall construct the proposed public street including sidewalks to city street standards along the southern boundary or a portion of a public street as approved by the City Engineer, connected to Hwy 242 and extending to the southerly terminus of the public access easement granted in PP 2019-21. This condition carries over from the recent final plat decision (FP 19-05).
23. Prior to construction of the public street connected to Hwy 242, the developer shall obtain all permits necessary from ODOT to connect the roadway to Hwy 242.
24. Prior to occupancy of any building on Parcel 3 of PP 2019-21, the developer shall construct a minimum 24-foot-wide paved vehicular route and minimum 5' pedestrian facility meeting PROWAG standards within the public access easement granted in PP 2019-21.
25. Prior to occupancy of the building depicted on the submitted site plan as a 7,000 SF commercial building, a vehicular connection shall be established connecting the parking area from said building to the public way and adjacent public vehicular access easement shown as Red Crater Way on PP 2014-26.
26. Prior to occupancy of each site or building on the property, pedestrian facilities meeting PROWAG requirements shall be constructed and connected to each site or building within the property. Pedestrian facilities to be constructed within the property shall at a minimum include the pedestrian facilities and connections shown on the attached sketch with connections at the public street to Hwy 242 and to Red Crater Way.
27. Prior to occupancy of each site or building on the property, concrete driveway aprons shall be constructed at a minimum as shown in the attached sketch.

Water

28. Prior to occupancy of any building on Parcel 3, a water main extension shall be constructed along the required public street extension from Hwy 242 to the terminus of the public access easement granted in PP 2019-21. The minimum water main size shall be 8 inches, and shall be sized to appropriately serve the development on the site. Prior to determination of the water main size, the developer shall submit water flow calculations, stamped by a Professional Engineer, indicating the anticipated flows at each building the development.

29. No more than one domestic water service and meter shall serve each lot of record unless otherwise approved by the Public Works Director.
30. Any public water mains, fire hydrants, water meters, or other public water infrastructure necessary for development that is proposed to lie outside of a public right of way shall require a minimum 20-foot wide easement and shall be designed to provide unobstructed City access to water infrastructure meeting City standards and Public Works requirements.

Sewer

31. Prior to occupancy of any building on Parcel 3, a sewer main shall be constructed along the required public street extension from Hwy 242 to the terminus of the public access easement granted in PP 2019-21. The minimum sewer main size shall be 8 inches.
32. Any public sewer mains, service laterals, or other public sewer infrastructure necessary for development that is proposed to lie outside of public right of way shall require a minimum 20-foot wide easement and shall be designed to provide unobstructed City access to sewer infrastructure meeting City standards and Public Works requirements.

Grading and Drainage

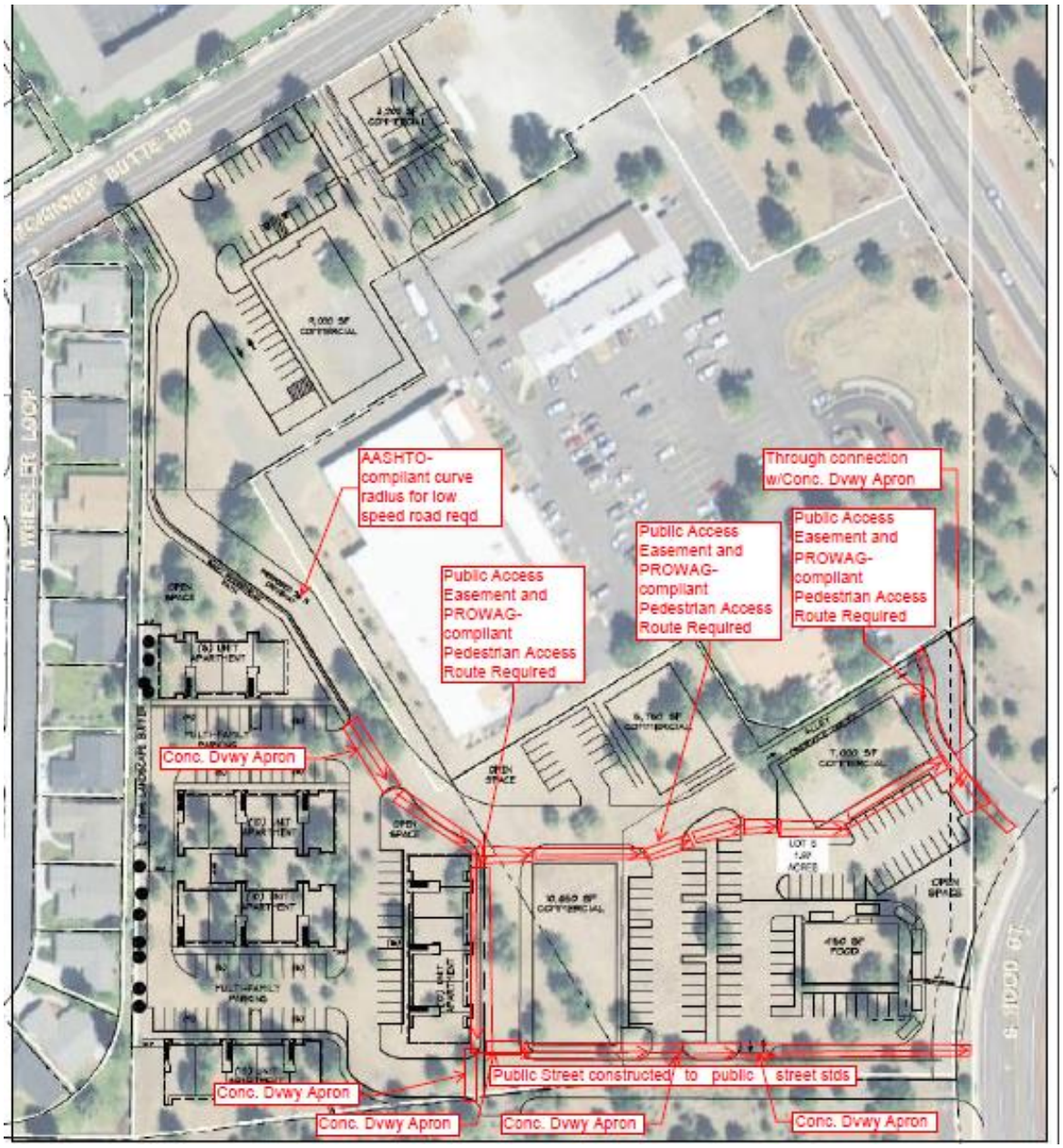
33. All site drainage shall be maintained on site and shall not drain onto public streets or neighboring properties. Storm water runoff from private property shall not impact public right-of-way or easements unless otherwise approved by the Public Works Director or City Engineer.
34. Stormwater facilities that are intended to cross property lines will require reciprocal stormwater easement with adjoining property.
35. Site grading and drainage plans shall be submitted for Engineering review and shall be subject to City and Central Oregon Stormwater Manual (COSM) design, construction, and testing standards.
36. Stormwater calculations shall be provided to the City of Sisters for review and approval as part of the grading and drainage plan submittal.
37. Proposed site drainage facilities and stormwater systems shall be designed for a 25 year/24 hour storm event (2.8 inches) and have appropriate pretreatment per City standards. Infiltration rates must be supported by a Geotech report or other verifiable documentation.
38. New on-site private drywells and other underground injection control (UIC) systems not part of the public drainage system must be registered and approved by the Oregon Department of Environmental Quality (DEQ) prior to construction or building permit issuance.

Construction Plans

39. Upon Site Plan approval or building permit application, construction plans that include all proposed and/or required public improvements, water/sewer service connections shall be submitted to the City for review and approval.
40. Construction plans indicating details for all public improvements and stormwater improvements shall be included in the plan set for City review.
41. Prior to building permit issuance, developer shall provide a performance guarantee of 120% of the approved cost estimate for installation of all public improvements. Including but not limited to fire line improvements and driveway access improvements.

Expiration of Approval

The Master Plan approved herein expires 3 years from the date this decision becomes final unless extended in accordance with the Sisters Development Code. All site plans must be submitted prior to expiration of the Master Plan.



----------*END OF CONDITIONS*----------