

I-5 at Aurora-Donald Interchange (Exit 278)  
ODOT Key Number 19062  
Interchange Area Inventory Technical  
Memorandum

Prepared for  
Oregon Department of Transportation



May 2019

Prepared by  
**Parametrix**



# I-5 at Aurora-Donald Interchange (Exit 278) ODOT Key Number 19062 Interchange Area Inventory Technical Memorandum

*Prepared for*

**Oregon Department of Transportation**

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# TABLE OF CONTENTS

<b>1. INTRODUCTION AND BACKGROUND .....</b>	<b>1-1</b>
1.1 Introduction .....	1-1
1.1.1 Problem Statement .....	1-1
1.1.2 Study Area .....	1-2
<b>2. EXISTING CONDITIONS INVENTORY SUMMARY .....</b>	<b>2-1</b>
2.1 Land Use .....	2-1
2.1.1 Regulatory Framework.....	2-1
2.1.2 Existing Land Use and Zoning.....	2-4
2.1.3 Growth and Demographics .....	2-7
2.2 Transportation Facilities .....	2-9
2.2.1 Road Facilities.....	2-9
2.2.2 Pedestrian and Bicycle Facilities .....	2-12
2.2.3 Public Transit Facilities .....	2-13
2.3 Natural Resources.....	2-13
2.3.1 Physical Setting .....	2-13
2.3.2 Floodplains .....	2-13
2.3.3 Surface Waters and Wetlands.....	2-17
2.3.4 Biological Resources and Habitat.....	2-19
2.3.5 Open Space and Parks.....	2-20
2.4 Hazardous Materials.....	2-20
2.5 Cultural Resources .....	2-23
2.5.1 Historic Resources .....	2-23
2.5.2 Archaeological Resources .....	2-23
2.6 Section (4) and Section 6(f) .....	2-24

## LIST OF FIGURES

1-1 Study Area.....	1-3
2-1 Existing Land Use .....	2-5
2-2 Marion County Zoning .....	2-6
2-3 Study Area Demographics .....	2-8
2-4 Intersection Lane Configurations.....	2-11
2-5 FEMA Floodplains and Goal 5 Resources.....	2-15
2-6 Soils, Wetlands, and Streams.....	2-18
2-7 Hazardous Materials Details .....	2-22
2-8 Archaeological Resources .....	2-25

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# TABLE OF CONTENTS (CONTINUED)

## LIST OF TABLES

2-1	Summary of Documents and Project Relevance .....	2-1
2-2	Demographic Summary .....	2-7
2-3	Forecast Population .....	2-9
2-4	Roadway Jurisdiction and Functional Classifications.....	2-9
2-5	Nearest Access Points to East and West of Interchange .....	2-12

## APPENDICES

A	Land Use Policy Memorandum
B	Land Use Existing Conditions Memorandum
C	Transportation Memorandum
D	Natural Resources Memorandum
E	Parks and Recreation Memorandum
F	Hazardous Materials Memorandum
G	Historic Resources Memorandum
H	Archaeologic Resource Memorandum

# 1. INTRODUCTION AND BACKGROUND

## 1.1 Introduction

This Existing Conditions Inventory Memo supports an Interchange Area Management Plan (IAMP) for the Interstate 5 (I-5) at Aurora-Donald Interchange project. An IAMP is an Oregon Department of Transportation (ODOT) long-term (more than 20 years) transportation facility plan. A facility plan (per OAR 731-015) is a type or level of long-range transportation plan that is an element of the Oregon Transportation Plan (OTP), the State's transportation system plan (TSP). Facility plans are one of the three levels of plans implemented by ODOT. The OTP is the highest level with the most general goals and policy-level planning. The next level includes mode and topic plans such as the Oregon Highway Plan (OHP). The OHP is the system plan that establishes and refines transportation policies for the entire state highway transportation system. Facility plans apply these system policies to a specific area or segment of highway such as an interchange. The purpose of an IAMP is to establish an agreement with a local government about what transportation projects, solutions, or land use/policy actions are needed in an interchange area to improve the facility, balance and manage transportation and land use issues over time, and protect the State's investment.

### 1.1.1 Problem Statement

The I-5 at Aurora-Donald Interchange (Exit 278) was built with the interstate in the 1950s and is shown in Figure 1-1. Design criteria for the interstate, bridges, and on- and off-ramps have changed with higher typical travel speeds and increased traffic volumes. Not only do the age and outdated design of the interchange indicate a need for redesign, its functional performance is substandard as well. The Marion County 2005 Rural Transportation System Plan Sub-Area Plan for the interchange area describes that traffic volumes on the off-ramp from southbound I-5 to Ehlen Road, and on Bents Road approaching Ehlen Road, exceed the capacity of those intersections at certain hours of the day. Those intersections (see Figure 1-1) are functioning at a Level of Service (LOS) F, not meeting Marion County's or the OHP mobility target (volume to capacity ratio  $[v/c] = 0.85$ ). In addition to the intersection service levels, their proximity to each other (about 50 feet apart) creates a potentially unsafe situation. Congestion and operation problems at these two intersections have increased over the past 14 years since completion of the Marion County Rural TSP.

Another factor contributing to traffic congestion at this interchange is the land use within the interchange area. Two travel service centers draw a high volume of large trucks to the interchange; the trucks' frequent slow acceleration and turning movements impact county roads and I-5. Traffic frequently backs up on both off-ramps, and occasionally onto I-5. Traffic on the off-ramp from northbound I-5 is approaching capacity for the intersection with Ehlen Road, with similar mobility and safety concerns for the southbound off-ramp. The vehicle delays caused by these intersection deficiencies are detrimental to the mobility of freight, agricultural goods, and passengers in the region.

Both I-5 on-ramps have an uphill grade, causing slow-speed merging of trucks (and trailing traffic) onto I-5. The grade of Ehlen Road below I-5, with significant horizontal and vertical curves, restricts sight distance at both ramp terminals, creating unsafe conditions.

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### 1.1.2 Study Area

The IAMP study area shown on Figure 1-1 includes all land adjacent to potential project improvement areas, as well as land that is likely to affect or be affected by the interchange improvements. The I-5 at Aurora Donald Interchange (Exit 278) *management area* is co-located with the Marion County Interchange District (ID) Zone as shown on Figure 2-2. The county ID zone is smaller than the IAMP study area which was used for the existing conditions inventory and impact analysis. The management area helps to focus the development and evaluation of IAMP alternatives, as well as to delineate an area where implementation will apply.

The interchange is located at Exit 278 along I-5 between Donald to the west and Aurora to the east in Marion County, Oregon. Land within the study area is primarily flat, with the exception that Ehlen Road passes beneath I-5 below grade. The interchange is approximately 7 miles north of the Woodburn Interchange, 4 miles south of the Charbonneau Interchange, and 6 miles southwest of the City of Wilsonville. Several businesses are located within the immediate vicinity of the interchange, including two large truck stops, a recreational vehicle (RV) park, and a service station serving local, recreational, and interstate users. Additional businesses within the study area include truck services; such as truck washing, repair, and tire maintenance; RV storage; screen printing; custom home developers; auto parts retail; concrete accessories and supplies; countertop manufacturers; and agricultural supplies.





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**Parametrix**



Source: © Mapbox, © OpenStreetMap, Marion County

Study Area  
 Tax Lot

**Figure 1-1.**  
Study Area  
Donald Interchange

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## 2. EXISTING CONDITIONS INVENTORY SUMMARY

### 2.1 Land Use

#### 2.1.1 Regulatory Framework

The background policy review memorandum (see Appendix A) presents a review of existing plans, regulations, and policies that affect transportation planning in the IAMP study area. The review describes the relationships between the documents and planning in this area, identifying key issues to track through the IAMP development process.

Documents in this review establish transportation-related standards, targets, and guidelines, as well as transportation improvements with which the IAMP shall coordinate and be consistent. Other documents in this review—such as the County’s Rural TSP and Marion County Code (MCC)—may be subject to future recommended amendments in order to implement the IAMP. Once the IAMP and implementing ordinances are completed, the County may be requested to adopt key elements of the IAMP as a refinement to the County’s Rural TSP before the IAMP is considered by the Oregon Transportation Commission (OTC) for adoption. Upon adoption by the OTC, the IAMP becomes an amendment to the OHP.

Table 2-1 provides a list of the documents reviewed in Appendix A, the page in the Appendix A where the applicable information can be found, and a summary of the relevance they have to the Aurora-Donald IAMP.

**Table 2-1. Summary of Documents and Project Relevance**

Documents	Project Relevance	Page in Appx. A
<b>Federal and State Documents</b>		
FHWA Access to Interstate System Policy	ODOT is responsible for submitting the request for proposed access changes to their designated FHWA Division office for review. The IAMP must include all information required for submission under this policy.	4
2018–2021 Statewide Transportation Improvement Program (STIP)	Projects developed in the IAMP will be consistent with the associated STIP project. Funding phasing will be a consideration in the development of the IAMP. Recommendations to update the STIP to include associated interchange improvements will be included in the IAMP, as appropriate.	4-5
Oregon Statewide Planning Goals	All public involvement activities for the IAMP will be guided by and assessed according to Goal 1 (Citizen Involvement). Land use decisions will be coordinated and considered for their effect on future use and operations in the IAMP study area according to Goal 2 (Land Use). Preservation of exclusive farm use (EFU) land in the study area will be a consideration in planning, in conformance with Goal 3 (Agricultural Lands). To be in conformance with Goal 9 (Economic Development), the IAMP will	5-8

Documents	Project Relevance	Page in Appx. A
	demonstrate the ways in which the preferred alternative supports this goal and the economic development policies adopted in the County's comprehensive plans. Consideration of standards for existing land uses set by, but not limited to, Goals 3 (Agricultural Lands), 10 (Housing), 11 (Public Facilities Planning), and 12 (Transportation) will be included in the development of the IAMP; divergence from the standards of the listed goals may require a goal exemption.	
ODOT Title VI Guidance	The IAMP will address Title VI and Environmental Justice populations to ensure the planning project complies with related federal requirements.	8
ODOT IAMP Guidelines	The project team will use the IAMP Guidelines as a tool during development of the IAMP, particularly in terms of the implementation measures identified in the guidelines.	9-10
Oregon Transportation Plan	The Aurora-Donald IAMP will seek to maximize performance of the existing transportation system by, for example, the use of technology and system management before considering larger and costlier additions to the system.	10
Transportation Planning Rule (TPR) (OAR 660-012)	While OAR 734-051 regulates access management and not the TPR (OAR 660-012), the TPR provides the connection between local development codes and access management, coordinated land use review procedures, and other standards, allowances, and requirements to protect road operations and safety. Recommended implementation measures for the IAMP may entail local code amendments to ensure TPR provisions as well as IAMP recommendations are captured in the code.	10-11
Access Management Rule (OAR 734-051)	The Aurora-Donald IAMP will meet compliance with spacing standards in OAR 734-051, and its development will be consistent with the applicable criteria established for IAMPs in the rule.	11-14
Oregon Highway Plan (OHP)	The Aurora-Donald IAMP will be adopted as an amendment to the OHP, therefore it must align with all relevant policies summarized above. The planning process will include developing and analyzing alternatives for optimizing the function and capacity of the existing interchanges prior to selecting a package of improvements that will comprise a preferred alternative.	14-18
Oregon Highway Design Manual (HDM)	The IAMP alternatives will be consistent with the applicable HDM Standards for interchanges and state highways.	18
Oregon Bicycle and Pedestrian Plan	The IAMP will include considerations of the bicycle and pedestrian goals and strategies and their implementation avenues where possible.	18-19
Oregon State Rail Plan	There are no rail facilities within the study area, therefore, this plan is not relevant to the IAMP planning process.	19
Oregon Freight Plan	I-5 including the Aurora-Donald IAMP study area, is designated as a	20

<b>Documents</b>	<b>Project Relevance</b>	<b>Page in Appx. A</b>
(OFP)	strategic corridor in the OFP. Maintaining and enhancing efficiency of the truck and freight system in the study area will be integrated into the Aurora-Donald IAMP..	
Oregon Public Transportation Plan	The IAMP process will inform Cherriots Regional of the planning effort in the IAMP study area.	21
Oregon Aviation Plan	The Aurora-Donald IAMP will take into account potential improvements and limited expansions, where applicable, that may occur at the Aurora State Airport.	22
Oregon Transportation Safety Action Plan	The IAMP will include safety factors in its goals and objectives and in the assessment of project alternatives.	22-23
<b>Local Documents</b>		
Marion County Rural Transportation System Plan	The Rural TSP will be taken into consideration during the development of the IAMP, including the transportation standards and policies of the Rural TSP.	24-31
Marion County Comprehensive Plan	IAMP goals and policies will be consistent with relevant County transportation and other relevant topic’s goals and policies. In some cases where the existing County goals and policies are not consistent with recommended implementation measures, additions or amendments to the Comprehensive Plan may be prepared and proposed.	31-33
Marion County Rural Zoning Code – Title 17	The Marion County Rural Zoning Code provides information on land use standards and processes that may need to be included in the IAMP. A possible outcome of the IAMP planning process could be the need for local development requirements that preserve the function and capacity of the interchange while ensuring the safety of those who use it.	33-34
<b>Demographic Documents</b>		
Coordinated Population Forecast for Marion County, its Urban Growth Boundaries (UGB), and Area Outside UGBs 2017-1067	Forecast population growth in Marion County, Aurora, and Donald is described in these three documents, respectively. Forecast population will be considered in the future demand and capacity analysis for the Aurora-Donald Interchange.	35-37
Aurora Comprehensive Plan		37-38
Donald Comprehensive Plan		38-40

## 2.1.2 Existing Land Use and Zoning

The Aurora-Donald Interchange is located in unincorporated Marion County. There are a variety of uses in the study area ranging from agricultural and commercial to a recreational vehicle (RV) park. The commercial uses in the area are primarily for travelers using I-5 and include gas stations, travel stops, a truck wash, and auto repair shops. Additionally, there are a few businesses not associated with traveler (e.g., custom home sales). The IAMP study area is approximately 297 acres. The approximate coverage of current uses, based on the site's primary use, are as follows:

- Agriculture and open space – 210 acres
- Commercial – 77 acres
- Mobile home park – 10 acres

The Fargo Interchange Service District, established in 1992, provides sewer service to the study area. Provision of sewer service can accommodate more development, as it is typically an urban service, which should be a consideration in the analysis of future uses in the study area.

There are 41 tax lots located in the study area; not all the tax lots are entirely within the boundary of the study area (see Figure 1-1). The land use existing conditions memorandum in Appendix B includes an analysis of all of the tax lots noting acreage, building area, zoning, comprehensive plan designation, use, and ownership. Figure 2-1 shows existing land use in the study area as classified by current assessor's office data, supplemented by site visit observation.

The County's Rural Zoning Code includes two zones, Interchange District and Exclusive Farm Use, and two overlay districts, Airport and Limited Use, that cover the IAMP study area. Figure 2-2 shows the current zoning within the study area. Descriptions of the applicable zones and overlays in the study area are detailed below.

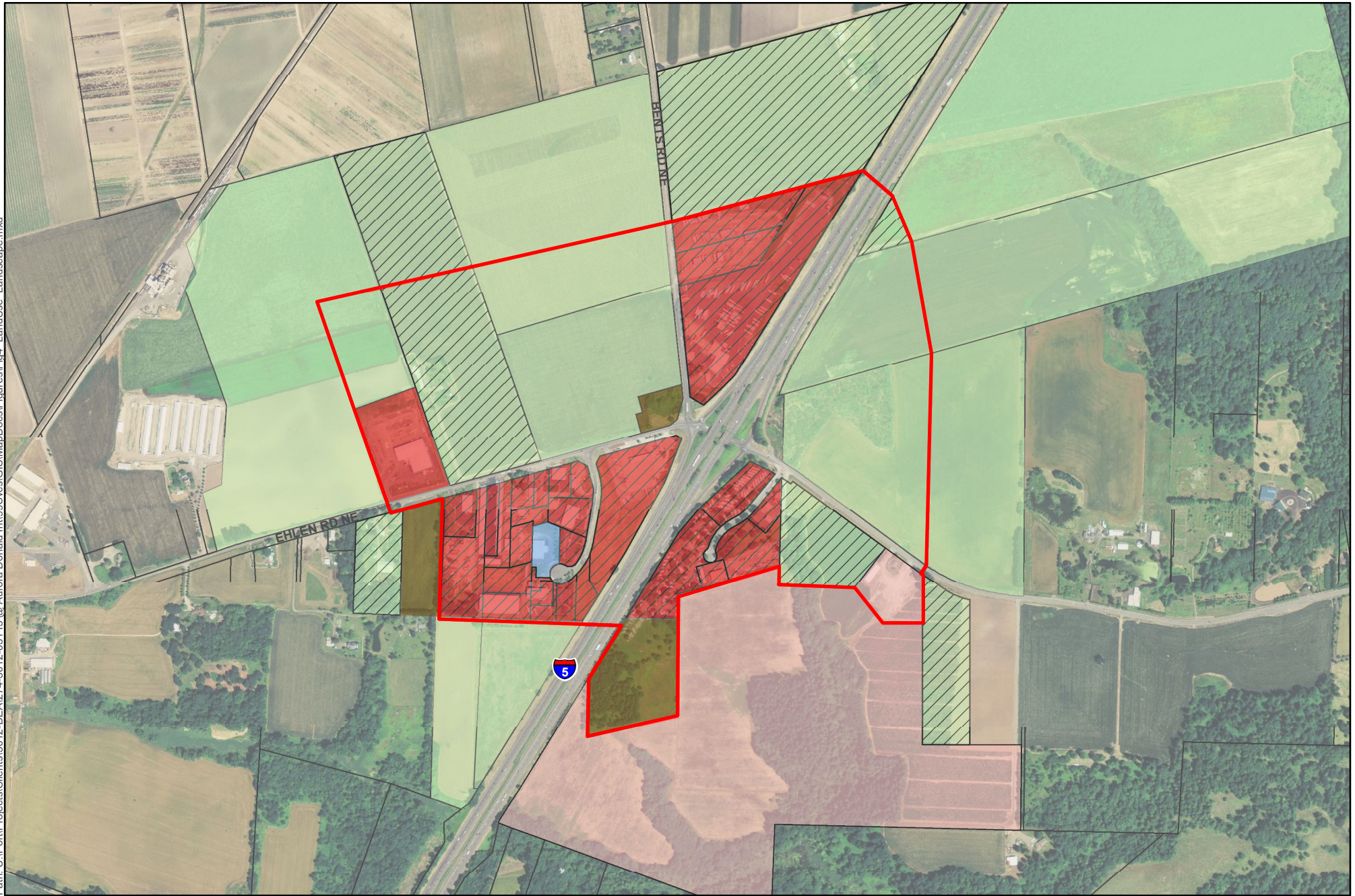
### *Interchange District Zone*

The purpose of the Interchange District zone (ID; MCC Chapter 17.150) is to "provide for the location of needed highway service commercial facilities at the interchanges between the controlled access highways and intersecting arterial roads." This zone generally allows commercial uses, industrial uses and RV parks. A full list of uses and development standards for the ID zone is provided in Appendix B.

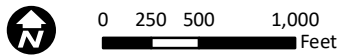
### *Exclusive Farm Use Zone*

The purpose of the Exclusive Farm Use zone (EFU; MCC Chapter 17.136) is to provide areas for continued practice of commercial agricultural areas that are generally well suited for large-scale farming. Non-farm uses in the EFU zone must abide by the criteria and standards in OAR 660-033-0130 to minimize impact from potentially conflicting non-farm uses. The minimum parcel size in the EFU zone is 80 acres; however, for non-farm uses, the minimum size standard states the parcel "shall only be as large as necessary to accommodate the use and any buffer area needed to ensure compatibility with adjacent farm use." A full list of uses and development standards for the EFU zone is provided in Appendix B.

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### Parametrix



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 Marion County, U.S. Fish and Wildlife (National Wetland Inventory),  
 United States Geological Survey (National Hydrography Dataset),  
 Oregon Biodiversity Information Center

Study Area

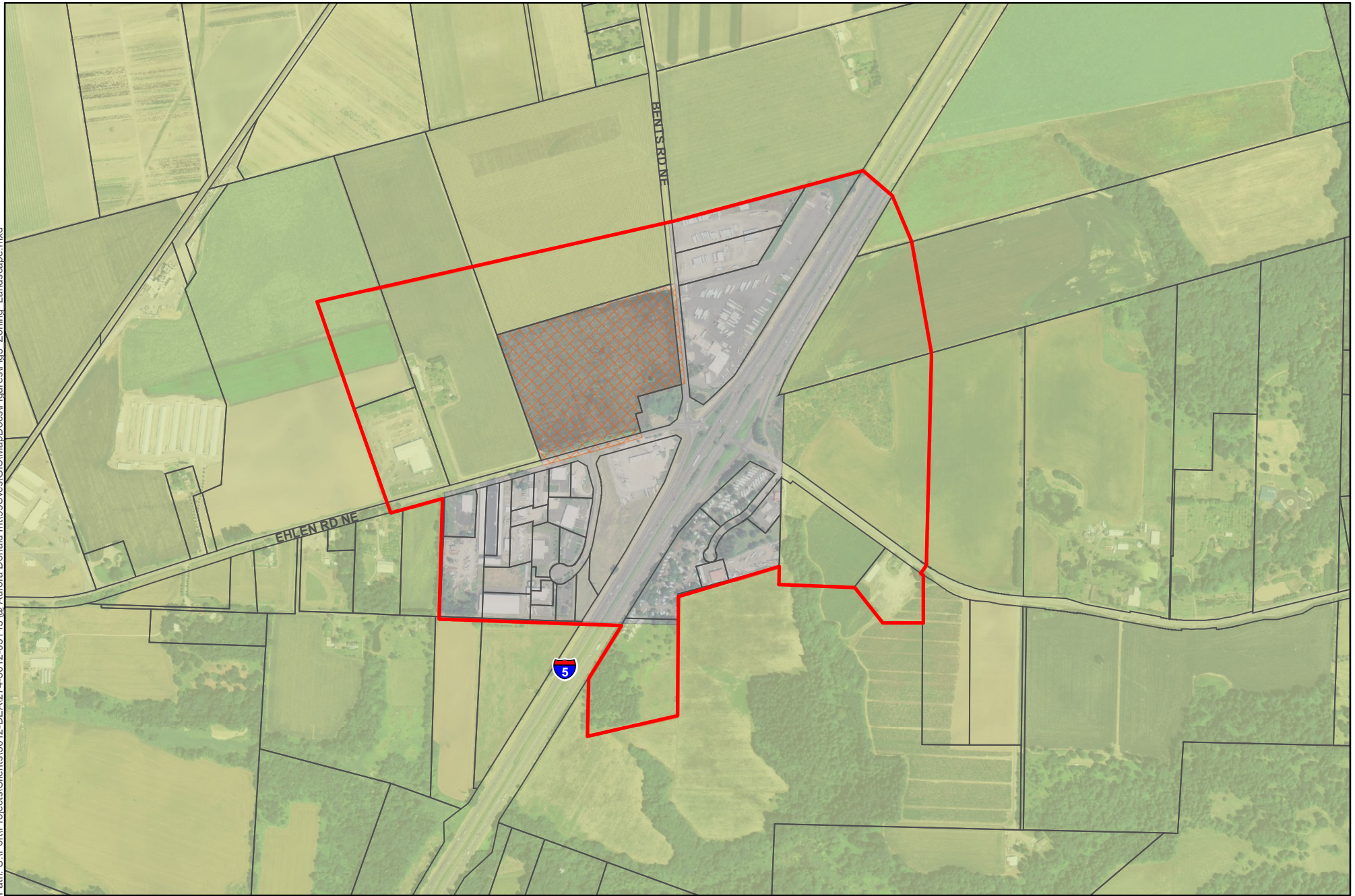
#### Land Use

- Commercial
- Commercial, Improved
- Industrial

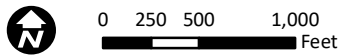
- Rural, Land Only
- Farm Land, Land Only
- Farm Land, Improved
- Specially Assessed Land, Improved

**Figure 2-1.**  
 Existing Land Use  
 Donald Interchange

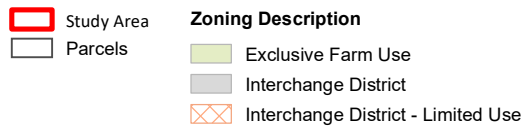
Marion County, Oregon



**Parametrix**



Source: © Mapbox, © OpenStreetMap,  
 Marion County, U.S. Fish and Wildlife (National Wetland Inventory),  
 United States Geological Survey (National Hydrography Dataset),  
 Oregon Biodiversity Information Center



**Figure 2-2.**

Marion County Zoning  
Donald Interchange

Marion County, Oregon



### *Airport Overlay Zone*

The Aurora State Airport is located 1.6 miles northeast of the interchange, and the Marion County Airport Overlay zone applies to the entire IAMP study area. The airport overlay has three districts: the Airport Development District, the Horizontal Surface District, and the Conical Surface District (see Figure 2-4 of Appendix B).

The purpose of the Airport Overlay Zone (MCC Chapter 17.177) is to minimize potential dangers or conflicts with use of aircraft at public airports based on the airport’s master plan. The provisions of the overlay are intended to comply with Federal Aviation Administration regulations and other applicable state and federal regulations for air navigation and related hazards. More information about the Airport Overlay Zone is provided in Appendix B.

### *Limited Use Overlay Zone*

One property in the IAMP study area is designated with the Limited Use Overlay Zone (LU; MCC Chapter 17.176); see Figure 2-2. The property is 28 acres with frontage on both Ehlen Road and Bents Road in the northwest quadrant of the interchange area. The general purpose of the LU Overlay Zone is to “reduce the list of permitted or conditional uses in a zone that are suitable for a particular location.” The Marion County Assessor’s property records indicate there are no permanent buildings or dwellings on the site. To avoid undesirable or conflicting uses, the LU Overlay Zone can be used to identify the appropriate uses for a property, or properties, by requiring conditional use permits for uses normally permitted in the zone. The LU Overlay designation may also be applied to comply with use limitations for a goal exception required by OAR 660-004.

The ID-LU property has a specific set of conditions of approval for the site detailed in a series of land use cases from Marion County and appeal rulings through the Oregon state Land Use Board of Appeals. Appendix B provides details of the conditions of approval. Generally, the uses for the site are limited to specific permitted accessory uses to the travel center/truck stop located to the east across Bents Road, and any development on the site is subject to the relocation of Bents Road to the west, such that it intersects Ehlen Road across from Bents Court.

## 2.1.3 Growth and Demographics

Demographic information related to historical and forecast population growth was evaluated to provide an understanding of forecast transportation needs. The study area includes three U.S. Census Bureau block groups. The following table summarizes demographic characteristics for these block groups (see Table 2-2 and Figure 2-3).

**Table 2-2. Demographic Summary**

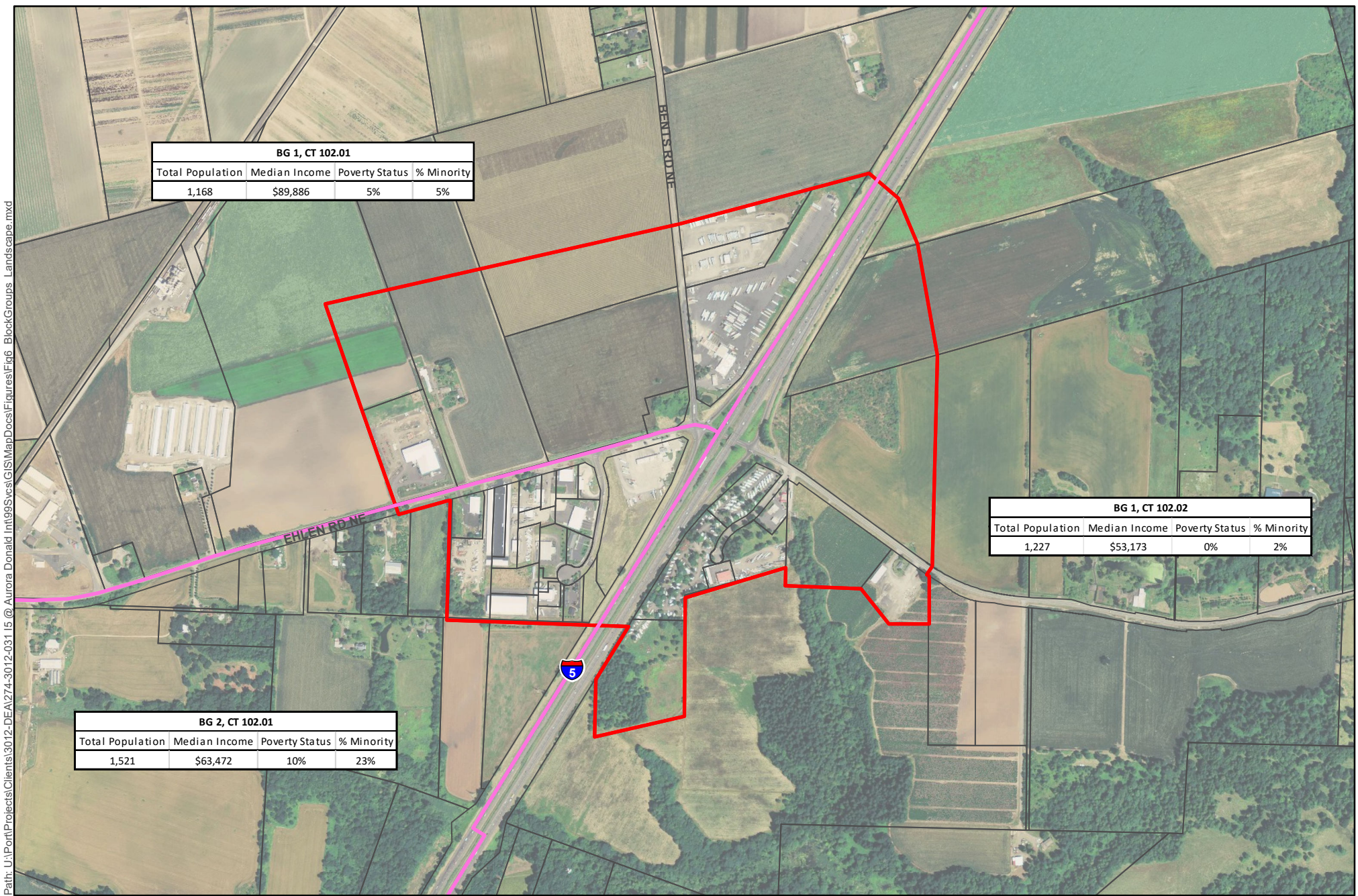
	<b>Total Population</b>	<b>Median Income</b>	<b>Poverty Status</b>	<b>Minority</b>
Marion County	330,453	\$53,828	16%	18%
BG 1, CT 102.01	1,168	\$89,886	5%	5%
BG 2, CT 102.01	1,521	\$63,472	10%	23%
BG 1, CT 102.02	1,227	\$53,173	0%	2%

B19013: Median household income in the past 12 months (in 2017 inflation-adjusted dollars), households.

C17002: Ratio of Income to Poverty Level in the past 12 months, population for whom poverty status is determined.

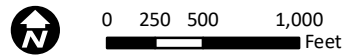
B02001: Race, total population.

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates



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**Parametrix**



Source: © Mapbox, © OpenStreetMap, Marion County, U.S. Fish and Wildlife (National Wetland Inventory), United States Geological Survey (National Hydrography Dataset), Oregon Biodiversity Information Center

- Study Area
- Block Group Boundary (2018)
- Parcels

Source: U.S. Census Bureau, 2013-2017 American Community Survey, 5-Year Estimates

**Figure 2-3.**  
Study Area Demographics  
Donald Interchange

Marion County, Oregon

Portland State University’s Population Research Center conducted a Coordinated Population Forecast for Marion County, areas within urban growth boundaries (UGB) for Aurora and Donald, and unincorporated areas outside UGBs for the time period from 2017 to 2067. The study shows that Marion County’s population has been steadily growing from 2000 to 2010 with an average annual growth rate of 1 percent. The City of Donald has the highest average annual growth rate of 4.9 percent between 2000 and 2010. The study also forecast that Marion County will grow at a faster pace in the near term (2017 to 2035) than in the long term (beyond 2036).

The PSU study reports forecast populations as shown in Table 2-3. Detailed information from this study and the Cities of Donald and Aurora are included in Appendix B.

**Table 2-3. Forecast Population**

	2035	2067
Marion County	405,352	513,142
Aurora UGB	1,321	1,622
Donald UGB	1,555	2,150

Source: Population Research Center

## 2.2 Transportation Facilities

### 2.2.1 Road Facilities

The ownership, functional classification, and other special designations of area roadways are listed in Table 2-4. The functional classifications of the primary roadways in the study area (I-5 and Ehlen Road) suggest that the primary objective of these corridors is to efficiently move high volumes of traffic over long distances. Federal and state designations of I-5 as a truck/freight route highlight the national and local importance of accommodating the movement of large vehicles, which is consistent with many of the land uses present in the interchange area.

**Table 2-4. Roadway Jurisdiction and Functional Classifications**

Roadway Name	Jurisdiction	Functional Classification	Other Designations
Interstate 5 (I-5)	Oregon Dept. of Transportation	Interstate Highway	National Highway System (NHS) National Network (Federally designated Truck Route) State Freight Route Reduction Review Route
Ehlen Rd.	Marion County	Principal Arterial (west of I-5) Arterial (east of I-5)	Primary Detour Route (west of I-5) Primary and Alternate Detour Route (east of I-5)
Bents Rd.	Marion County	Minor Collector	
Bents Ct.	Marion County	Local Road	
Dolores Wy.	Marion County	Local Road	

Sources: 1999 Oregon Highway Plan, as amended May 2015. Marion County Rural Transportation System Plan, 2005.

### **Interchange Conditions and Geometric Characteristics**

Typical geometric characteristics of area roadways are listed in Appendix C, Table 2. All roadways have one travel lane in each direction. The only turn lanes in the study area are at the intersection on Ehlen Road with Bents Court, where there is a westbound left-turn lane on Ehlen Road and separate northbound left- and right-turn lanes on Bents Court. The wide flared ends of the I-5 northbound and southbound off-ramps as they meet Ehlen Road are often used as if they were separate left- and right-turn lanes, but they are not formally designed or striped as such. Intersection lane configurations are illustrated in Figure 2-4.

### **Traffic Controls**

Traffic control types present in the study area are illustrated in Figure 2-4, including locations of stop signs and posted speeds. There are no traffic signals in the study area, and all minor street approaches are stop-controlled. Consistent with the functional classifications, posted speeds on I-5 and Ehlen Road remain fairly high, with the posted speed on Ehlen Road only dropping to 35 mph through the interchange area. Even though Bents Road is classified as a minor collector, the posted speed remains high at 55 mph, with a 45 mph transition area east of the Papé Machinery store.

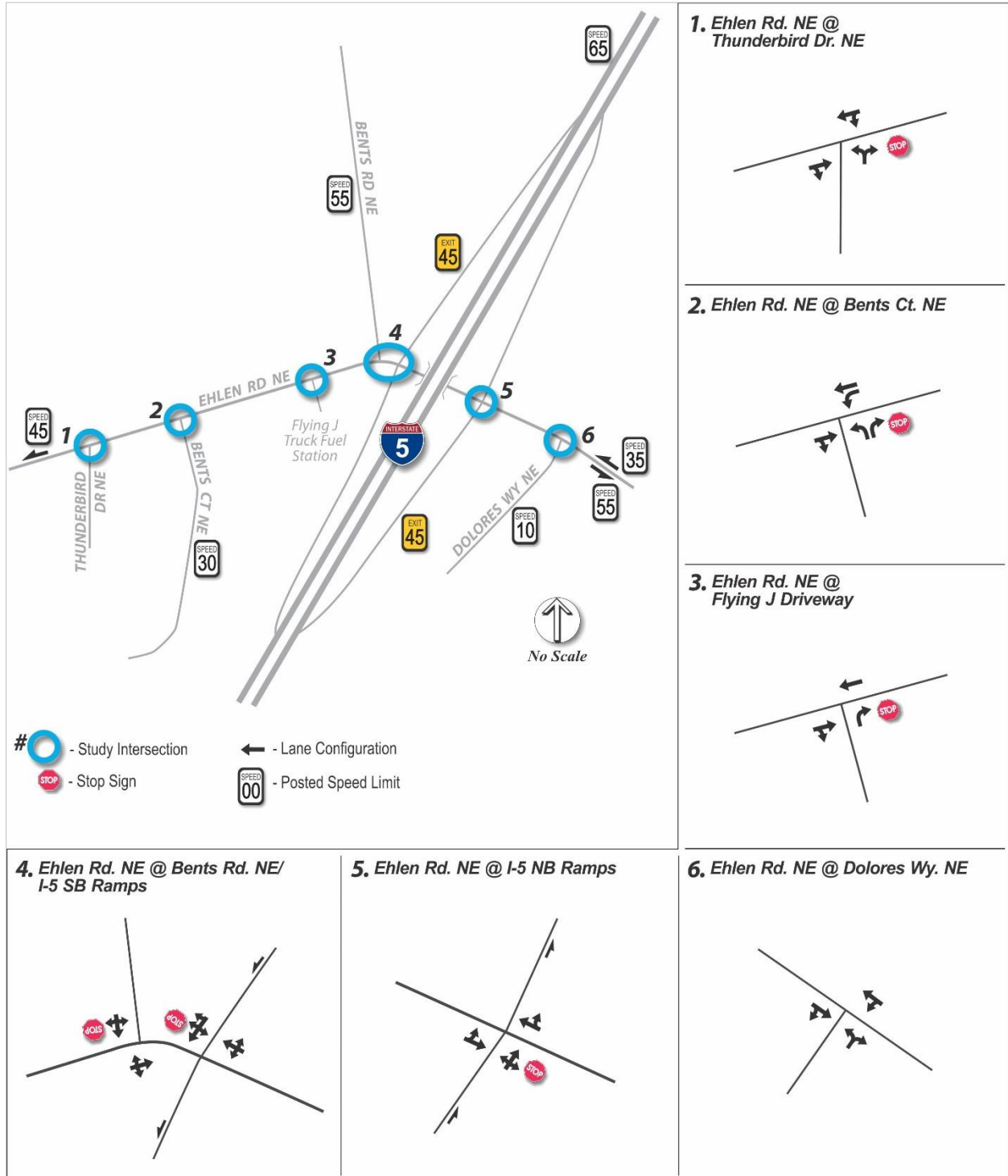
There is a traffic separator in the median of Ehlen Road, approximately 2 feet wide and 350 feet long, that prohibits left turns to and from the Flying J Travel Center driveway on the south side of the road.

On-street parking is not designated on any study area roadway, but trucks have been observed parking on the shoulders of the I-5 ramps. *No Parking* signs have been posted on Bents Court, Bents Road, and Ehlen Road (west of I-5).

### **Access**

Oregon Administrative Rule (OAR) 734-051 defines the State's role in managing access to highway facilities in order to maintain functional use and safety and to preserve public investment. The rule includes spacing standards for varying types of state roadways and criteria for granting right of access and approach locations onto state highway facilities. Amendments to OAR 734-051 have been adopted in 2010, 2011, 2012 and 2013. Senate Bill 408, which passed in the 2013 legislative session and became effective January 1, 2014 and addressed three priorities: existing approaches (private driveways) without ODOT's written permission; access management in highway facility plans; and access management in highway project delivery.

The Aurora-Donald IAMP will meet compliance with spacing standards in OAR 734-051 and its development will be consistent with the applicable criteria established for facility plans and project delivery in the rule. To be consistent with the direction provided in Senate Bill 408, the development and evaluation of alternatives should acknowledge the impacts and benefits of property access, as measured by adopted local land use designations (allowed uses) and economic development objectives of the property owners. The IAMP access management plan should "include level of detail sufficient to inform affected real property owners of the potential for the modification, relocation or closure of existing private approaches within the area (§4(3)(c))." The location of local streets that intersect with the state highway system in the vicinity of the subject interchanges will be evaluated as the project progresses.



**Figure 2-4. Intersection Lane Configurations**

(Source: DKS Technical Report, Appendix C)

Within the study area, Ehlen Road has 16 private access points (driveways) and 3 public access points (streets), in addition to the two interchange ramp terminals. Many of the private access points appear to serve low volumes of traffic and 6 of them are only for field access. ODOT’s interchange crossroad access spacing standards requirements are listed below (all distances measured from the nearest ramp terminal):<sup>1</sup>

- 1,320 feet to the first approach on the right (when driving away from the interchange), right-in/right-out only
- 1,320 feet to the first intersection where left turns are allowed
- 1,320 feet between the last approach road (when driving toward the interchange) and the start of the taper for the on-ramp

Table 2-5 describes the closest public and private access points along Ehlen Road relative to the I-5 ramp terminals to the east and west. Appendix C provides a detailed table with distances to all access points.

**Table 2-5. Nearest Access Points to East and West of Interchange**

Distance from Nearest I-5 Ramp Terminal (ft)	Side of Road	Width (ft)	Turn Movements	Tax Lot Number Directly Served	Type of Use
<b>East of I-5</b>					
325	South	34	Unrestricted	NA	Dolores Wy.
200	North	45	Unrestricted	041W10 00600	Field access
<b>West of I-5</b>					
75	North	45	Unrestricted	NA	Bents Rd.
475	South	175	Right-in/right-out only	041W09DD00600	Flying J Travel Center

### 2.2.2 Pedestrian and Bicycle Facilities

Most facilities present for people walking and biking are in the form of roadway shoulders. The Marion County Rural TSP shows Ehlen Road as a corridor with shoulders more than 4 feet wide, but widths vary throughout the study area. Bents Road also has paved shoulders, but they are generally less than 4 feet wide.

There are two locations where sidewalks are present. One is on the east side of Dolores Way, and the other is along both side of Bents Court. The sidewalks on Bents Court have ramps, which appear to be ADA-compliant.

<sup>1</sup> 1999 Oregon Highway Plan, as amended May 2015, Appendix C Table 17: Minimum Spacing Standards Applicable To Freeway Interchanges with Two-Lane Crossroads, p. 213.

### 2.2.3 Public Transit Facilities

There are no transit stops within the study area. Cherriots Regional/SMART Route 1X (an express route) travels through the area on I-5, connecting Salem and Wilsonville, Mondays through Fridays (approximately 5:45 a.m. to 8:00 p.m.). Similarly, the Oregon POINT bus, Greyhound, and the Bolt Bus also travel along I-5, but do not stop in the study area.

While there are no transit stops within the study area, this interchange area was identified by Marion County as a possible future site for a park and ride.<sup>2</sup>

## 2.3 Natural Resources

### 2.3.1 Physical Setting

The subject property is located in the northern end of the Willamette Valley, which is characterized by relatively low topographic relief with some areas of buttes and valleys containing moderate slopes. The valley is bordered to the east by the foothills of the Cascade Mountains, to the west by the Oregon Coast Range, and to the south by the Calapooya Mountains. The Willamette River meanders through the valley from south to north. Faults exist on the eastern and western margins of the Willamette River basin.

Sedimentary deposits have filled the Willamette Valley and generally consist of conglomerate, gravel, sand, silt, and some clay from volcanic, fluvial, and lacustrine material. Quaternary alluvial deposits cover much of the surface within the vicinity of the subject property area. These sedimentary deposits overlie Miocene basalt flows of the Columbia River Basalt Group. The Columbia River Basalt Group overlies lava flows and volcanic breccias of Oligocene age (Ma et al. 2009).<sup>3</sup>

The study area is located at an elevation of approximately 193 feet above mean sea level. Topography within the study area is primarily flat, with the exception that Ehlen Road passes beneath I-5 below grade. The surrounding Willamette Valley also primarily consists of low topographic relief but includes many gently sloping hills and valleys. Shallow soil in the area consists of fine-grained soils that include silts, loams, and clays. Depth to groundwater in the vicinity of the project area is expected to range from approximately 20 to 40 feet below ground surface. Groundwater flow in this portion of the Willamette Valley is highly variable and can be significantly impacted by local creeks and rivers. The nearest surface water body is Senecal Creek, approximately 0.5 mile to the south. The Willamette River lies approximately 3 miles to the northwest.

### 2.3.2 Floodplains

There are no Federal Emergency Management (FEMA)-mapped floodplains with the study area (see Figure 2-5).

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<sup>2</sup> Marion County Rural Transportation System Plan 2005 Update.  
<https://www.co.marion.or.us/PW/Engineering/rtsp> Accessed January 7, 2019.

<sup>3</sup> Ma, L., I. Madin, K. Olson, R. Watzig, R. Wells, and A. Niem, et al. 2009. Oregon Geologic Data Compilation - Release 5, (statewide). Oregon Department of Geology and Mineral Industries.

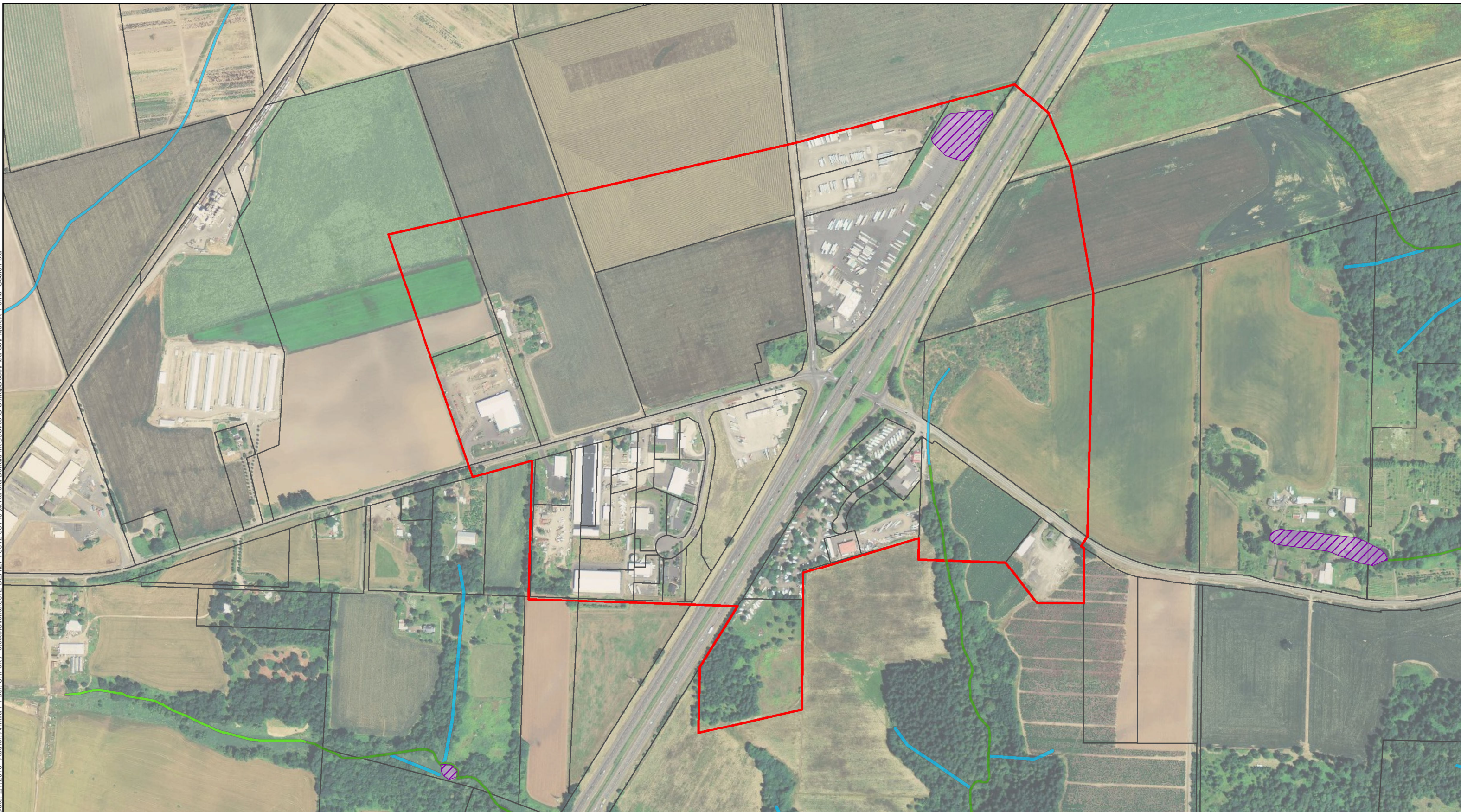
*I-5 at Aurora-Donald Interchange (Exit 278) ODOT Key Number 19062  
Interchange Area Inventory Technical Memorandum*

Oregon Department of Transportation

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Date: 2/7/2019 Author: Amittian Path: U:\PortProjects\Clients\3012-DEA\274-3012-031\_15 @ Aurora Donald Int\99S\Srcs\GIS\MapDocs\Figures\FigureX\_Fema\_Goal5.mxd



**Parametrix**

0 250 500 1,000 Feet

Source: © Mapbox, © OpenStreetMap, Marion County, Federal Emergency Management Agency (FEMA)

The mapped vicinity is identified as an area of minimal flood hazard by the Federal Emergency Management Agency (FEMA). There are no Goal 5 resources besides wetlands within the project vicinity.

- Study Area
- Tax Lot
- Marion County Wetland Overlay
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

**Figure 2-5.**  
FEMA Floodplains and Goal 5 Resources  
Donald Interchange

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### 2.3.3 Surface Waters and Wetlands

#### **Surface Waters**

One mapped stream is located within the study area. This unnamed stream (Reach Code 17090009010504) is a tributary to Senecal Creek, which flows approximately 2,000 feet south of the study area boundary. The unnamed stream is classified in the National Wetlands Inventory as a riverine (R4SBC) reach near Ehlen Road and as a freshwater forested/shrub wetland (PFO1C) reach between the upstream reach and its confluence with Senecal Creek.

Roadside ditches are present along much of Ehlen Road and Bents Road in all quadrants of the study area (see Photos 1 through 6 in Appendix D). Other than the tributary to Senecal Creek, the flow pattern from these ditches is unknown at this time. One stormwater pond apparently associated with the Travel Centers of America fueling station is present within the northwest quadrant (see Photo 7 in Appendix D). A pond of unknown origin, apparently associated with Westside Concrete Accessories, is present in the southwest quadrant (see Photo 8 in Appendix D).

Further investigation of the jurisdictional status of these streams, ditches, and waterbodies will be conducted in spring 2019.

#### **Wetlands**

According to the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (2018)<sup>4</sup>, a freshwater pond polygon is located near the north-central extent of the study area. Based on recent aerial photos, this location is now a paved parking area for tractor-trailers (see Figure 2-6). No local wetland inventory has been prepared for this area.

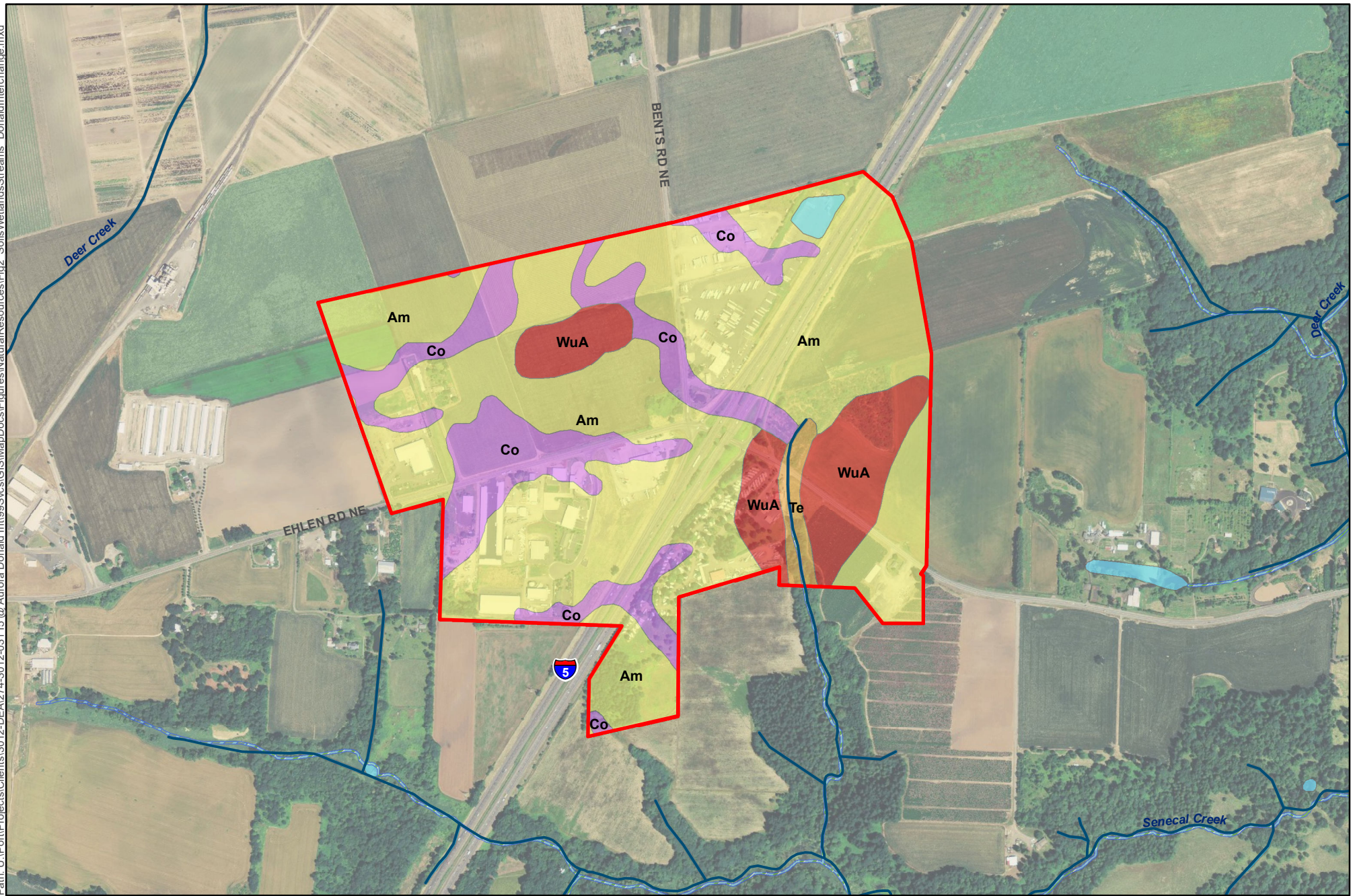
The undeveloped portions of the study area potentially exhibit the hydrology needed for wetland formation; however, typical wetland vegetation does not appear to be present. Approximately 18 percent of the study area is classified as Concord silt loam which is rated as a hydric soil (NRCS 2019)<sup>5</sup> (see Figure 2-6). The remaining soils are not classified as hydric.

Given the proportions of hydric and impermeable soils within the study area, further investigation of jurisdictional wetlands is required. Wetland determinations and rare plant surveys are scheduled between March and June 2019. Additional detail is provided in Appendix D.

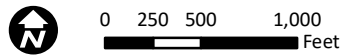
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<sup>4</sup> USFWS National Wetlands Inventory, <https://www.fws.gov/wetlands/data/mapper.html>

<sup>5</sup> Natural Resources Conservation Service Web Soil Survey, <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>



**Parametrix**



Source: © Mapbox, © OpenStreetMap, Marion County, U.S. Fish and Wildlife (National Wetland Inventory), United States Geological Survey (National Hydrography Dataset), Oregon Biodiversity Information Center

Study Area  
 Stream/River

**NWI Wetlands**

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

**Mapunit Symbol, Mapunit Name**

- Am: Amity silt loam
- Co: Concord silt loam
- Te: Terrace escarpments
- WuA: Woodburn silt loam, 0 to 3 percent slopes

**Figure 2-6.**

Soils, Wetlands, and Streams  
 Donald Interchange

Marion County, Oregon

## 2.3.4 Biological Resources and Habitat

### **Habitat**

During a site visit conducted on January 22, 2019, the study area was predominantly agricultural with development consisting of roadways and fueling stations along with small areas of long-term residential camping and commercial and light-industrial development. The agricultural fields consisted of a low grassy groundcover in the northwestern quadrant of the study area (Photo 1 in Appendix D) and unidentified tree saplings amongst low grassy groundcover in the northeastern quadrant (Photos 2 and 3 in Appendix D). A small grove of hardwood and conifer trees was present between the field and I-5 in the northeastern quadrant. The fields in the southeastern quadrant consisted of low grassy groundcover, while the drainage area of the tributary to Senecal Creek appeared to be dominated by Douglas-fir (*Pseudotsuga menziesii*) and invasive English ivy (*Hedera helix*) and Armenian (Himalayan) blackberry (*Rubus armeniacus*) (Photos 4 and 5 in Appendix D). A small grove of 24- to 36-inch-diameter Douglas-fir trees is located adjacent to the camping area (Photo 6 in Appendix D). Much of the southwestern quadrant consisted of developed areas with ornamental vegetation and grassy lawns.

### **Special Status Species**

A review of existing information related to fish and wildlife distribution and habitat within and surrounding the study area included the following:

- USFWS Information Planning and Conservation (IPaC) database<sup>6</sup> – Trust Resources Report
- USFWS Environmental Conservation Online System (ECOS) Critical Habitat for Threatened and Endangered Species<sup>7</sup>
- StreamNet: Fish Data for the Northwest<sup>8</sup> Interactive Mapper

In addition, the Oregon Biodiversity Information Center<sup>9</sup> produced a database search for rare, threatened, and endangered plant and animal records for species that may occur within a 2-mile radius of the study area. The ORBIC database search showed two federally listed species: Upper Willamette River (UWR) Chinook salmon (*Oncorhynchus tshawytscha*) and UWR steelhead (*O. mykiss*).

The ORBIC database search revealed three special status species recorded within a 2-mile radius of the study area:

- Western painted turtle (*Chrysemys picta bellii*) – Federal: None; Oregon: Sensitive - Critical
- Oregon giant earthworm (*Driloleirus macelfreshi*) – Federal: Species of Concern; ORBIC: Sensitive<sup>10</sup>

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<sup>6</sup> <https://ecos.fws.gov/ipac/>

<sup>7</sup> <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>

<sup>8</sup> <https://www.streamnet.org/>

<sup>9</sup> <https://inr.oregonstate.edu/orbic>

<sup>10</sup> The status of Oregon giant earthworm and the fungus *Tuber quercicola* are from those listed in the ORBIC (2019) report. Recent reclassifications show no official status for these species, other than federal species of concern and

- Fungus (*Tuber quercicola*) – Federal: None; ORBIC: Review

Based on the off-site data collection efforts and a January 22, 2019, site visit to assess species presence and habitat conditions within the study area, suitable habitat for Oregon special status species is not present within the study area, and no State of Oregon special status species are known or expected to occur in the study area.

There are no critical habitats designated within the study area, and no ESA-listed species occur in the study area (see Table 1 in Appendix D). Given the slight potential for rare plants to be present in portions of the study area, a plant survey is proposed to occur in spring and summer 2019. Additional analysis of potential use of portions of the study area by streaked horned larks will also be conducted.

Consultation with the National Marine Fisheries Service through the Federal Aid Highway Program programmatic biological opinion process will be required. The consultation would consider potential effects due to changes in base and peak stream flows caused by new impervious surface and potential impacts to water quality within the study area as well as in waters downstream of the study area discharges (including Senecal Creek, Mill Creek, the Pudding River, the Willamette River, and the Columbia River).

#### **Critical Habitat**

The nearest critical habitat, not including the salmonid critical habitat in the Pudding River, is that of Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*) located approximately 25 miles west of the study area, and of Fender's blue butterfly (*Icaricia icarioides fenderi*) located approximately 26 miles to the south (USFWS ECOS). Therefore, critical habitats under the jurisdiction of USFWS would not be impacted by the proposed project.

Additional detail for biological resources and habitats is provided in Appendix D.

### **2.3.5 Open Space and Parks**

The Aurora Acres RV Resort and associated grassy forested open space and picnic area are within the study area. The RV park and open space area are in private ownership. There are no publicly owned parks or other recreation resources, including trails and wildlife refuges within the study area or within one mile of the study area. The interchange is one of many ways to access Champoeg State Park, approximately 4 miles to the west of I-5, but interchange improvements will not affect the park. Additionally, there are no planned parks or recreation projects within or near the study area identified in the 2010 Marion County Parks Master Plan (see Appendix E).

## **2.4 Hazardous Materials**

Parametrix conducted a Level I HMCS for the I-5 at Aurora-Donald Interchange (Exit 278) project (ODOT Key No. 19062) in general accordance with ODOT and AASHTO guidance. Full details along with associated site photos can be found in Appendix F of this report. The hazardous materials corridor study was conducted to identify potential sources of hazardous substances and/or petroleum products that may include an existing release, a past release, or a material threat of a release of hazardous substances

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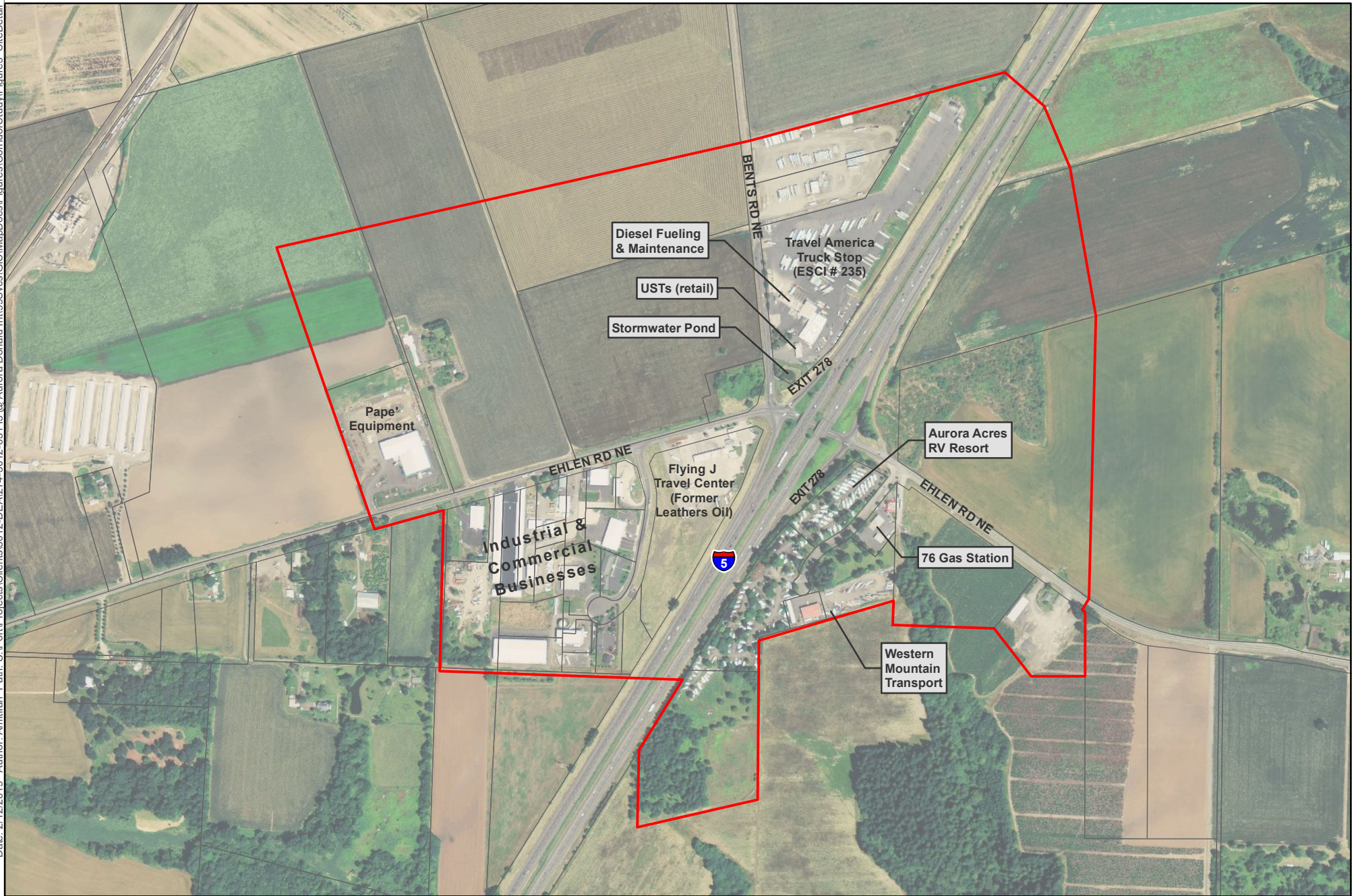
ORBIC status of "Threatened or Endangered throughout Range" for the earthworm, and ORBIC status of "Review" for the *T. quercicola* (ORBIC 2016).

to soil, groundwater, or surface water, and evaluate if the releases could affect the environment or create significant construction impacts.

A review of historical information indicated that the project corridor was generally undeveloped until the 1950s when I-5 was constructed, including the on- and off-ramps at Exit 278. Several businesses are located within the immediate vicinity of the interchange, including two large truck stops, an RV park, and a service station. These facilities were generally developed in the 1980s. Recognized environmental conditions (RECs) identified during the historical data review include the operation of the fueling areas and associated activities adjacent to the interchange for more than 35 years (see Figure 2-7 and Appendix F).

- Several sites in the vicinity of the project corridor were identified on regulatory databases, including on the Oregon Department of Environmental Quality's (DEQ) Environmental Cleanup Site Information (ECSI) and Leaking Underground Storage Tank (LUST) databases, and the Spills database. Three sites were identified as having the potential to have impacted the project corridor and were identified as RECs.
  - The Travel Center of America truck stop is located immediately to the northwest of the interchange. The site has had known past releases to soil, groundwater, and surface water. The property is listed on DEQ's ECSI and LUST databases, and has had a number of spill incidents and known stormwater impacts. Based on the past incidents and operational practices, as well as its close proximity to the interchange area, there is some potential for residual subsurface conditions on or near the property that could impact future constructions activities. Thus, the Travel Center of America site represents a REC to the project corridor.
  - The Leathers Oil site is located at the current Flying J/Pilot Travel Center property to the southwest of the interchange. The property is listed on DEQ's LUST database and has had a number of spill incidents. Investigation and remedial actions have included UST decommissioning, groundwater monitoring, and on-site soil treatment/disposal. The site received a No Further Action (NFA) decision from DEQ in 2014. However, based on the extensive history of environmental issues at the property, proximity to the project corridor, and known residual contamination, the presence of the former Leathers Oil site is considered a potential REC to the project corridor.
  - In addition to the above facilities, one spill site was identified as a REC and is listed on DEQ's ECSI database. This is the Younger I-5@Donald near MP278 site. In September 1997, approximately 1,700 gallons of diesel and 4,000 gallons of gasoline were released as a result of an accident and fire on a cargo truck and trailer on I-5 near Exit 278. Investigation and monitoring was conducted under oversight from DEQ in the late 1990s. The site subsequently received an NFA determination from DEQ in 2001. However, based on the spill volume and extent, there is some potential for residual soil contamination in the vicinity of the road shoulder or other areas. While the potential impact is likely low, the past release incident represents a potential REC to the project corridor.

A site reconnaissance was conducted in January 2019. No significant RECs, other than those identified above, were documented during the site reconnaissance.



Parametrix



0 250 500 1,000  
Feet

- Study Area
- Tax Lot

Figure 2-7.  
Hazardous Materials Details  
Donald Interchange



## Recommendations

The following recommendations are based on the conclusions of the hazardous materials corridor study:

- The completion of a Level 2 Preliminary Site Investigation (PSI) should be considered for the project corridor. Specifically, the presence of known and potential environmental issues identified at the Travel Center of America and Flying J properties have some potential to have impacted subsurface conditions in the corridor and future construction and/or acquisition areas. The Level 2 PSI should include characterization of soil and/or groundwater in areas potentially impacted by construction, particularly along the south and east boundaries of the Travel Center of America and along the north and east boundaries of Flying J property. However, it may be prudent to delay the scoping and completion of a Level 2 PSI until the interchange alternative is selected and a better understanding of property acquisition, design, and construction depths and limits are known. This will allow for scoping of appropriate drilling locations and sampling depths to facilitate characterization of subsurface conditions to support future construction activities, soil management, and worker health and safety.
- Based on the environmental record search, historical data review, and site reconnaissance, potential RECs in connection with the proposed construction activities were identified. These include past spills or releases, the presence of gas stations nearby, and past reported contamination of drainage ditches in adjacent roadways. There is potential for soil beneath the road shoulders to contain contamination associated with these past incidents and/or current vehicle use and stormwater runoff. In accordance with ODOT standards, including Geo-Environmental Section Directive GE 14-01(D), it is recommended that limited soil sampling be conducted on the road shoulders to support potential excavation and construction activities. Excess soils during construction will need to be handled, managed and reused/disposed in accordance with ODOT policy.

## 2.5 Cultural Resources

### 2.5.1 Historic Resources

The Oregon Historic Sites Database (accessed through the State Historic Preservation Office [SHPO] website) lists historic Oregon properties included in the National Register of Historic Places (NRHP) and historic resources that have been previously identified. The database was queried to determine if historic resources are present within the study area. While many historic sites are mapped adjacent to the project vicinity, none is mapped within the study area. The Aurora-Donald IAMP area is not part of a National Historic District. See Appendix G for the Historic Resources Technical Memorandum.

### 2.5.2 Archaeological Resources

An archaeological resources review of the study area identified both pre-European and historic-period use within and near the study area. The study area was inhabited by members of the Ahantchuyuk tribe, referred to as the French Prairie Indians or Pudding River Indians, a band within the Kalapuya. They practiced a subsistence round of seasonal fishing, hunting, and management of prairies, thus areas within the former prairie and creeks and wet meadows within the study area could have been occupied by groups during various times of the year.

A General Land Office map from 1852 indicates a portion of Ehlen Road (on the east side of present day I-5) was roughly in place as a wagon road, and much of the land to the northeast, within and near the study area, belonged to a French-Canadian trapper and his Chinook wife, with a building near present day Bents Road. By 1878, the Ehlen Road alignment was established largely where it is today, and members of the Aurora Colony were the primary land owners, with C.H. Ehlen listed as a primary owner.

Bents Road is first visible on a United States Geological Survey (USGS) map from 1923, and by 1936 an aerial image shows clusters of farmstead buildings within the study area. Finally, a USGS map from 1956 shows I-5 had been constructed and shows Bents Road displayed with its former name, Fargo (see Appendix H for maps and aerials).

A literature review identified one mapped archaeological resource within the study area. However, the location and potential physical remains of the resource have not been field verified, and the site has not been evaluated for listing in the NRHP.

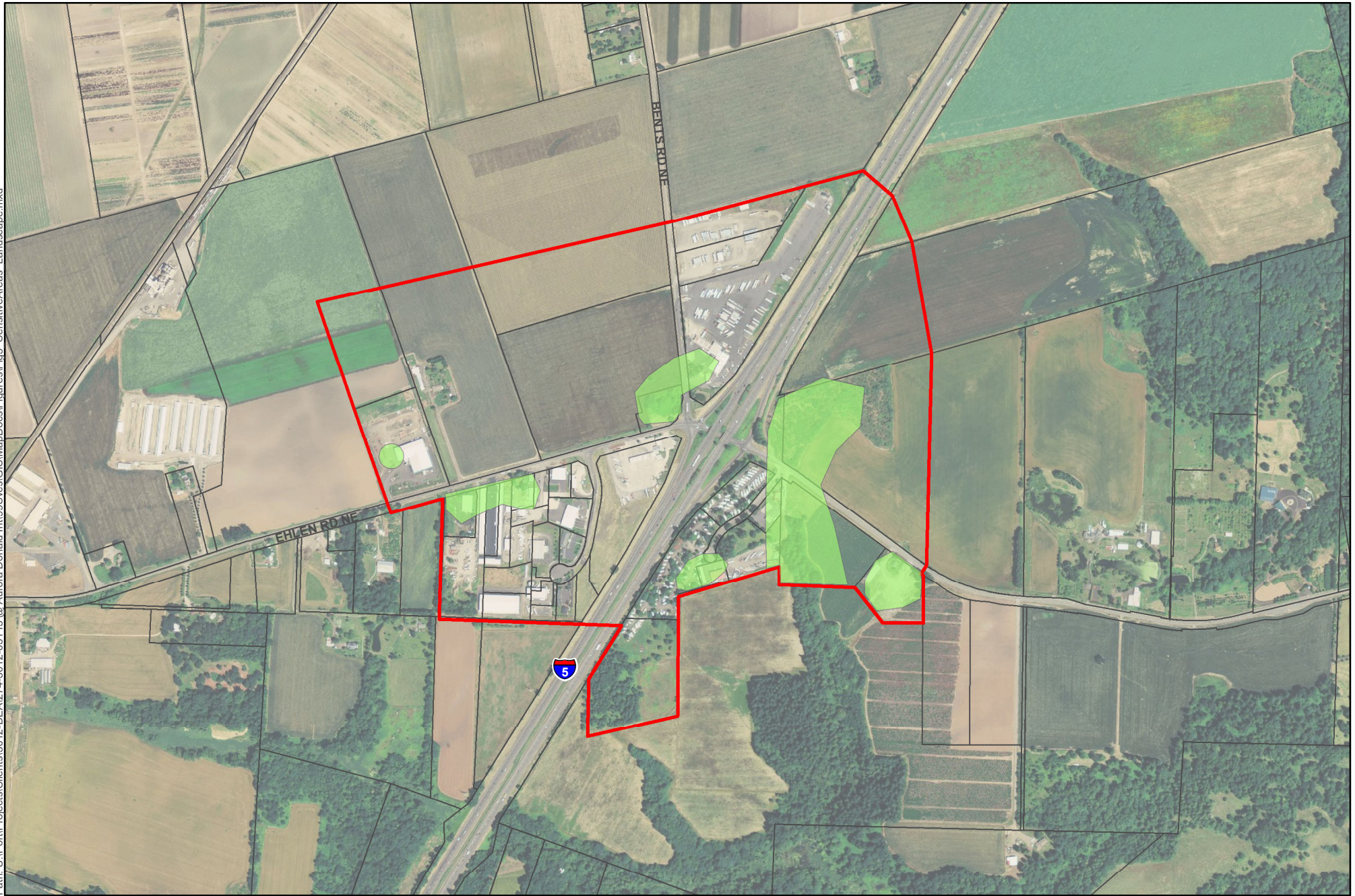
No surveys for archaeological resources have been conducted in the study area. Based on the cultural and environmental setting of the study area, the likelihood of encountering archaeological deposits during project work is high. The potential for scattered archaeological resources throughout the surrounding remainder of the study area is moderately high. Figure 2-8 indicates the locations with the highest likelihood of containing concentrations of archaeological resources. As part of the Aurora-Donald Project, pedestrian field surveys will occur within all areas to be disturbed, and subsurface exploratory probing be focused in high probability locations identified during the pedestrian survey and through research. Appendix H provides detailed descriptions of the archaeological literature review and historic development in the study area.

## 2.6 Section (4) and Section 6(f)

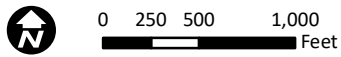
Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 prohibits the Federal Transportation Administration and other USDOT agencies from using land from publicly owned parks, recreation areas (including recreational trails), wildlife and water fowl refuges, or public and private historic properties, unless there is no feasible and prudent alternative to that use and the action includes all possible planning to minimize harm to the property resulting from such a use.

There are no historic properties within the study area. And, although the Aurora Acres RV Resort is within the study area, to be considered a Section 4(f) Property a park must be of national, state, or local significance and be publicly owned. The RV park is in private ownership. Thus, there are no recreation or historic Section 4(f) resources within the study area (see Appendix E). The cultural resources subsurface investigation has not yet been conducted. Section 4(f) applies to archeological sites that are on or eligible for the NRHP and that warrant preservation in place, including those sites discovered during construction, thus if any such archaeological sites are discovered, a Section 4(f) evaluation may be necessary.




Section 6(f) of the Land and Water Conservation Fund Act (LWCF) protects land acquired or improved with LWCF grants. Parcels purchased with LWCF grants require additional work to convert the land to a transportation use. As there are no public recreation resources within the study area, there are no properties subject to Section 6(f) funds.



**Parametrix**



Source: © Mapbox, © OpenStreetMap, Marion County, U.S. Fish and Wildlife (National Wetland Inventory), United States Geological Survey (National Hydrography Dataset), Oregon Biodiversity Information Center

-  Study Area
-  Sensitive Area
-  Parcels

**Figure 2-8.**  
Archaeological Resources  
Donald Interchange

Marion County, Oregon

*I-5 at Aurora-Donald Interchange (Exit 278) ODOT Key Number 19062  
Interchange Area Inventory Technical Memorandum*

Oregon Department of Transportation

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