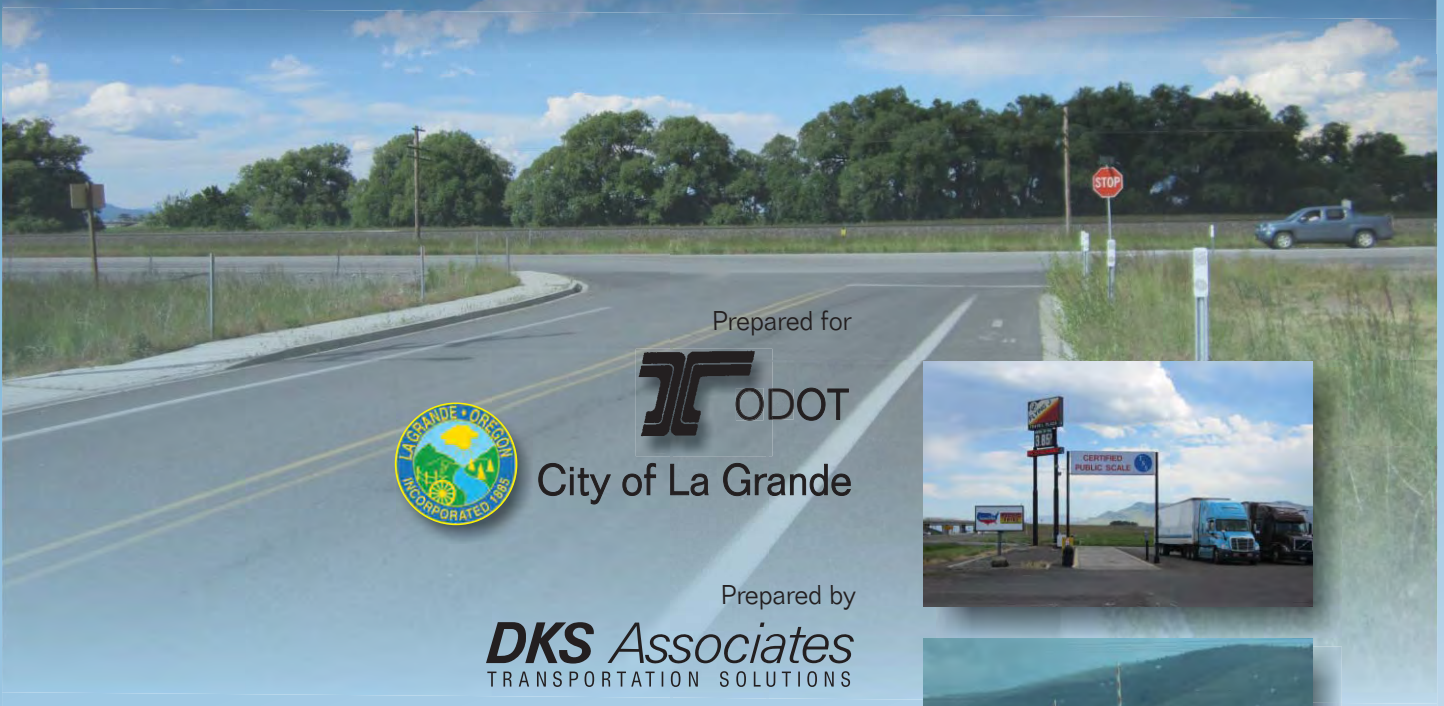
La Grande Transportation System Plan
Amendment



Prepared for

ODOT

City of La Grande

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In association with:

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PLANNING + DESIGN

May 2012

Acknowledgments

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This Project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), local government, and the State of Oregon funds.

The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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Executive Summary

An employment forecast for the City of La Grande[1] identified that the current Urban Growth Boundary (UGB) was not large enough to accommodate a 20-year supply of buildable land. Based upon employment forecasts and current land use patterns, the City expanded the UGB to include an additional 314 gross acres for development over the next 20 years. This included 220 gross acres for industrial development (two large-lot industrial parcels and several smaller lots), about 12 gross acres for Commercial Office, and 82 gross acres for other uses (for overnight lodging, industrial park and interchange commercial development).

Prior to developing the land within the UGB expansion area, the City must re-zone much of the acreage (280 of the 314 acres) to accommodate the types of land uses desired. Most of the acreage included in the UGB expansion is currently zoned for Exclusive Farm Use, although some areas are zoned for Heavy Industrial and Commercial Interchange uses.

The proposed zone changes include converting 232 acres of Exclusive Farm (A-1) uses to either Large Lot Industrial (I-3) or Business Park (BP) and 12 acres to La Grande Interchange Commercial (IC). Approximately 36 acres currently zoned by Union County for Heavy Industrial (I-2) will be re-zoned to La Grande Heavy Industrial (I-2). In addition, approximately 34 acres currently zoned by Union County for Interchange Commercial (C-2) uses will be re-zoned to La Grande Interchange Commercial (IC). The City's I-2 and IC zones generally correspond with the County's I-2 and C-2 zones, respectively.

Prior to establishing the needed zoning to allow for such development, the city is required to update all public facilities plans, including the 1999 TSP. In updating the TSP, the impact of the increased vehicle trip generation resulting from the proposed rezone on the surrounding transportation system was evaluated through the year 2031. The following transportation improvements are required to mitigate the impacts associated with the proposed re-zone of land within the UGB expansion area. The following two needs are directly related to the project:

- **US 30/McAlister Road:** The US 30/McAlister Road intersection would not be expected to meet the mobility target by 2031 with the re-zoned land
- **Pedestrian and Bicycle:** Pedestrian and bicycle facilities are needed to address the connectivity gaps identified within the existing network and to extend into the UGB expansion area

In addition, other important transportation improvements are needed to support development, but are generally not directly addressing deficiencies caused by the proposed re-zone of land within the UGB expansion area. This includes the projects listed in the "Future Roadway Improvements" section of this document and other freight, transit, low impact development and access spacing recommendations.

[1] City of La Grande Ordinance 3182, 2009, Johnson Reid

Why are we amending the La Grande Transportation System Plan?

The city of La Grande recently expanded its Urban Growth Boundary (UGB) by approximately 314 acres in response to an Economic Opportunities Analysis that identified a need for large lot industrial sites ranging from 25 to 100 acres in size. Much of the land included in the UGB expansion is currently zoned agriculture, but is intended to be rezoned to a new large lot industrial zone to allow for a mix of light and heavy industrial uses and made immediately available for economic development. Rezoning the land will require an amendment to the city of La Grande Comprehensive Plan.

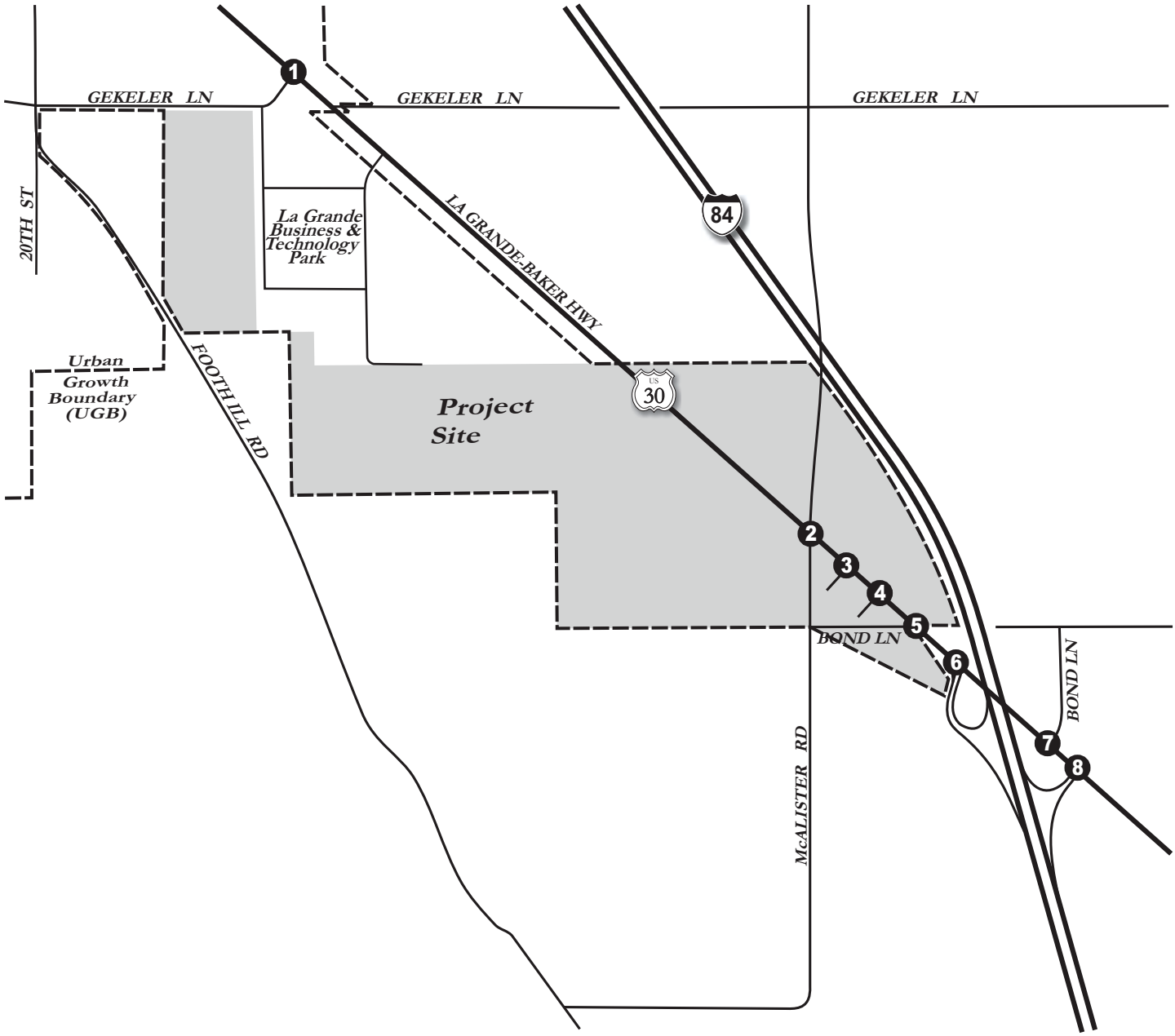
OAR 660-012-0060 (the Transportation Planning Rule, or TPR) requires that local governments put in place measures to mitigate significant affects to transportation facilities resulting from amendments to functional plans, comprehensive plans, or land use regulations.[3] One accepted measure is the amendment of the Transportation System Plan (TSP) to provide transportation facilities, improvements, or services adequate to support the proposed land uses.[4]

It was anticipated that the proposed rezone would have a significant effect on the surrounding transportation system and that performance standards adopted for state facilities would not be met. Therefore, the impact of the increased traffic resulting from the proposed rezone on the surrounding transportation system was evaluated through the year 2031. Any improvements needed to the transportation system to maintain adequate operations have been identified for incorporation into the TSP so that TPR requirements can be met.

For this exercise, the study area includes the area in southeast La Grande in the vicinity of the UGB expansion, as shown in Figure 1.

[3] OAR 660-012-0060(1)
[4] OAR 660-012-0060(2)(b)

NO SCALE



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Legend

1 - Study Intersection

- Project Site

Figure 1

STUDY AREA

Project Objectives

Several project objectives were identified to guide the development of the TSP Amendment, including:

- Timely planning to assure suitable placement and spacing of roads to support large lot industrial development for sites ranging from 25 to 100 acres in size; consistent with the City's Comprehensive Plan Goal 9 Economic Opportunities Analysis.
- A plan for La Grande and Union County to use as a tool to work with developers for orderly improvements consistent with the transportation facility's function, capacity and performance standards.
- A TSP that can safely and efficiently accommodate the large truck and multi-modal traffic that is expected in the 314 acre industrial area and vicinity of the Interstate 84/US 30 Interchange (Exit #265).
- A local street and trail network that provides multi-modal links between industrial and employment centers, community, natural resources, and supports expansion of the transit system.
- Utilize public involvement and technical analysis to develop an improvement plan.
- Prepare findings to meet Statewide Planning Goal 12 and Transportation System Planning Rule (TPR) Oregon Administrative Rule 660-012 requirements.
- Carry the plan and code forward through the adoption process as an amendment to the 1999 TSP.

TSP Amendment Process and Public Involvement

The TSP Amendment process, including public and elected official involvement opportunities, can be seen in Figure 2. Project newsletters were prepared and distributed to stakeholders during each of the five major steps of the project. As shown, there were generally five major steps in the process:

1) Developing project objectives
2) Reviewing existing transportation conditions
3) Identifying future needs through 2031 and evaluating solutions and projects to address the identified needs
4) Incorporating the solutions into a draft plan
5) Adoption phase of the final plan.

A Project Management Team (PMT) provided oversight in the Plan's development. Various organizations and elected officials comprised the PMT, including representatives from the City, Union County and Oregon Department of Transportation (ODOT).

Various stakeholders were given the opportunity to provide input on the existing transportation system in the study area and to contribute ideas for transportation system needs. The stakeholders included adjacent property owners, Community Connections, as well as members of the PMT. Stakeholders were given an opportunity to be interviewed about transportation conditions in the study and to tour the study area with project staff.

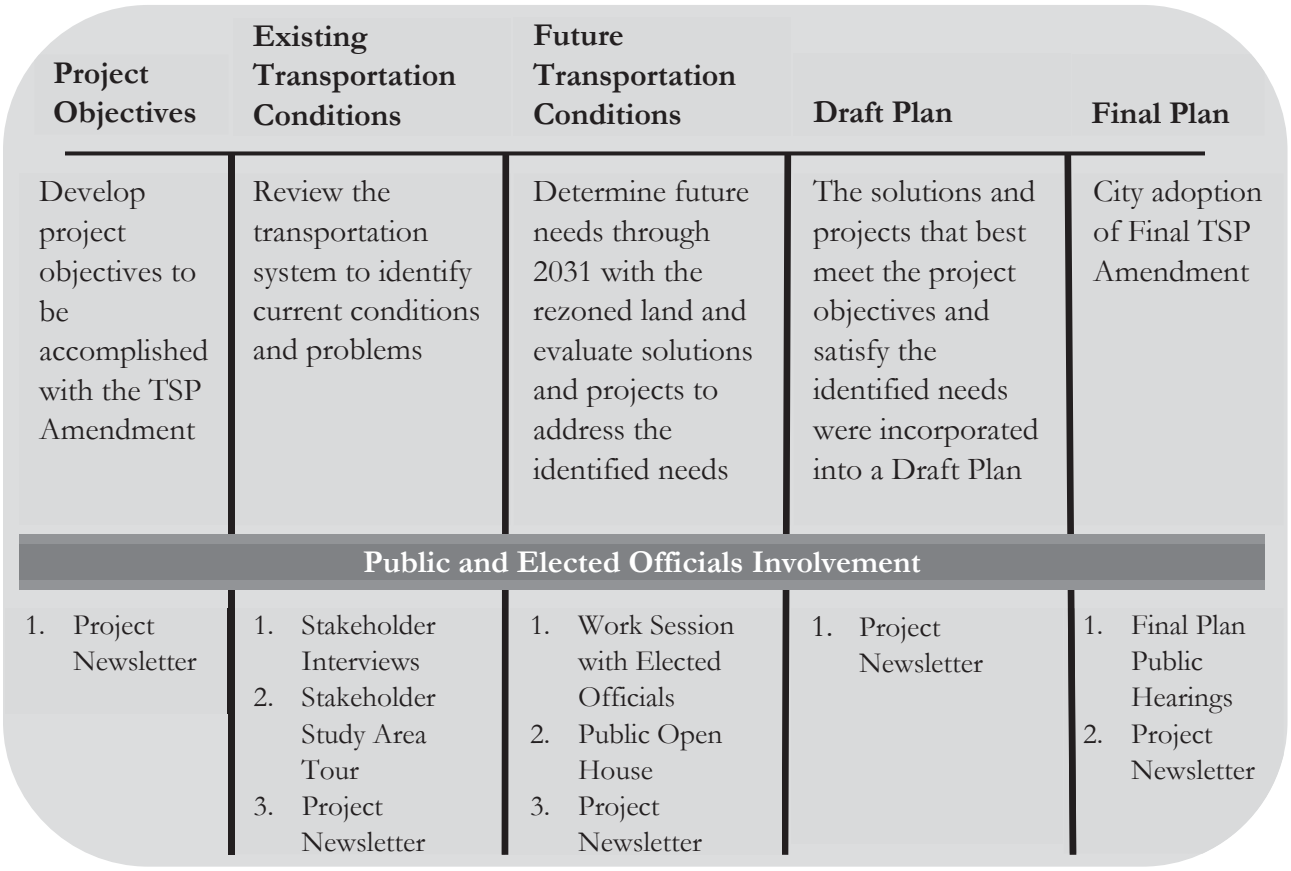

Figure 2: La Grande TSP Amendment Process and Public Involvement Opportunities

2011 Transportation Conditions

The transportation infrastructure in the study area was evaluated using a variety of measures in order to document the existing deficiencies of the transportation system. Information reviewed included safety of the roadways and intersections, motor vehicle operations, spacing of roadways and driveways and pedestrian, bicycle and transit facilities. For this exercise, the study area included the area in southeast La Grande in the vicinity of the UGB expansion, as shown in Figure 1 earlier in this document. For more detailed information, please refer to Appendix A: Technical Memorandum #1, La Grande Transportation System Plan Amendment– Existing Transportation Conditions (DKS Associates, 2011).

Safety of the roadways and intersections in the study area was assessed through collision data and field observations to identify deficiencies. The data along the roadways and intersections was reviewed to identify potential patterns for motor vehicle, pedestrian, and bicyclist collisions. The only safety deficiency noted in the study area was related to the at-grade railroad crossing located about 50 feet north of the US 30/McAlister Road intersection. When trucks or other large

vehicles pull up to the stop bar at the McAlister Road approach to US 30, the rear of the vehicle often extends into the railroad crossing. Recent observations by ODOT have found that this occurs frequently.

Collision data from the past three years (2007 to 2009) for all roadways in the study area was obtained from ODOT. Over the past three years, ten collisions, or an average of just over three per year, occurred in the study area. A majority of these (eight of the ten) were either angle or turning type. Of the remaining two collisions, one involved a vehicle rear-ending another, and the other involved a vehicle leaving the roadway and flipping.

The severity of the collisions was generally low, with eight of the ten involving either property damage only (no injuries) or minor injuries. There was one collision involving major injuries and another involving moderate injuries, but no fatalities occurred over the three-year period.

Pedestrian/Bicycle Collisions: There were no crashes involving pedestrians or bicyclists over the three-year period reviewed. However, a pedestrian was involved in a crash just to the west of Gekeler Lane in 2006 (prior to recent sidewalk construction), suffering major injuries. In addition, a pedestrian was struck by a vehicle along the shoulder of US 30 just to the southeast of the study area in 2008.

Intersection Collisions: The total number of crashes experienced at an intersection is typically proportional to the number of vehicles entering it. Therefore, a crash rate describing the frequency of crashes per million entering vehicles (MEV) is used to determine if the number of crashes should be considered high. Using this technique, a crash rate of 1.0 MEV or greater is commonly used to identify when further investigation is warranted.

As shown in Table 1, crash rates calculated (based on the past three years of data) at all eight intersections reviewed in the study area are well below the 1.0 MEV threshold, indicating the frequency of collisions is typical for the volume of traffic served. Several of the intersections, including US 30/Bond Lane (East), US 30/I-84 Eastbound Ramps, US 30/Bond Lane (West), US 30/South Flying J Driveway, and US 30/North Flying J Driveway had no collisions over the three year period.

Table 1: Intersection Collision Evaluation

Intersection	Total Collisions (2007 to 2010)	Collision Rate (MEV)
US 30/Gekeler Lane (West)	1	0.18
US 30/McAlister Road	4	0.55
US 30/North Flying J travel plaza Driveway	0	0.00
US 30/South Flying J travel plaza Driveway	0	0.00
US 30/Bond Lane (West)	0	0.00
US 30/I-84 Eastbound Ramps	0	0.00
US 30/Bond Lane (East)	0	0.00
US 30/I-84 Westbound Ramps	4	0.70

Note: MEV= Collisions per million entering vehicles

The US 30/I-84 Westbound Ramps intersection had the highest crash rate of the intersections reviewed, although well below the 1.0 MEV threshold, with four collisions over the three year period. All of the collisions at this intersection involved drivers failing to yield the right-of-way when making a turn. It was noted during field observations that adequate sight distance was available at this intersection.

Roadway Segment Collisions: Crash rates identifying the number of collisions per million vehicle-miles traveled were calculated for sections of US 30 through the study area, and compared to statewide average rates for similar facility types.[6] The reported crash rates are shown in Table 2.

Table 2: State Highway Collision Rate Comparison

Roadway (limits)	Crashes per Million Vehicles Miles 2007	2008	2009
Oregon Average Rate- Other Urban Principal Arterial	***2.38***	***2.37***	***2.35***
US 30 (Gekeler Lane West to ½ mile northwest of McAlister Road)	0.55	0.55	0.00
Oregon Average Rate- Rural Minor Arterial	***1.03***	***0.99***	***0.97***
US 30 (½ mile northwest of McAlister Road to I-84 Westbound Ramps)	1.42	0.71	0.71

Source: US 30 Collision Data (2007-2009), ODOT Crash Analysis and Reporting Unit

Both segments of US 30 experienced crash rates well below statewide averages, indicating that the frequency of crashes during these years was relatively low compared to similar highways. The exception was the segment of US 30 from just northwest of McAlister Road to the I-84 Westbound ramps during 2007, which had a crash rate above that of similar highways. This segment crash rate was generally being influenced by intersection crashes (all four in 2007 were at public street intersections). Crash rates dropped significantly in the following two years and were well below the statewide average rates. Therefore, no mitigation is recommended.

This analysis was supplemented by a review of ODOT Safety Priority Index System listings for locations in the study corridor ranked among the state's top ten percent of hazardous locations. The Safety Priority Index System (SPIS) is a method developed by ODOT for identifying hazardous locations on state highways, with the score based on three years of crash data, considering crash frequency, rate, and severity. ODOT bases its SPIS on 0.10-mile segments to account for variances in how crash locations are reported. This rating provides a general comparison of the overall safety of the highway based on crash information for all highway segments throughout the state.

According to ODOT 2010 SPIS ratings, there are no locations in the study area that rank among the top ten percent of state highways in Oregon.

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[6] *2009 State Highway Crash Rate Tables*. Retrieved July 2011 from ODOT website: http://www.oregon.gov/ODOT/TD/TDATA/car/CAR_Publications.shtml\

Motor vehicle operations in the study area were evaluated at the eight intersections reviewed along US 30 during the weekday p.m. peak hour (in August). The evaluation utilized *2000 Highway Capacity Manual* methodology[7] for unsignalized intersections. Detailed descriptions of the intersection performance measures, in addition to mobility targets for the study intersections can be found in Appendix A: Technical Memorandum #1, La Grande Transportation System Plan Amendment–Existing Transportation Conditions (DKS Associates, 2011).

During this period, all study area intersections operate within the adopted mobility targets (see Table 3). Overall, the intersections have a significant amount of reserve capacity to accommodate future growth.

Table 3: Existing (2011) Weekday Evening Peak Hour Intersection Operations

Intersection	Mobility Target (v/c)	Volume/ Capacity	Delay (seconds)	Level of Service
US 30/Gekeler Lane (West)	0.90	0.18	11.1	A/B
US 30/McAlister Road	0.90	0.26	13.8	A/B
US 30/North Flying J travel plaza Driveway	0.90	0.21	12.1	A/B
US 30/South Flying J travel plaza Driveway	0.90	0.23	11.6	A/B
US 30/Bond Lane (West)	0.90	0.24	12.0	A/B
US 30/I-84 Eastbound Ramps	0.75	0.24	11.8	A/B
US 30/Bond Lane (East)	0.75	0.24	11.0	A/B
US 30/I-84 Westbound Ramps	0.75	0.23	13.2	A/B

Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement
Level of Service = Level of Service of Major Street/Minor Street
Volume/Capacity (v/c) = Volume-to-Capacity Ratio of Worst Movement

Access spacing along study area roadways is managed through access spacing standards. Access management is a broad set of techniques that balance the need to provide efficient, safe, and timely travel with the ability to allow access to individual destinations. Proper implementation of access management techniques will promote reduced congestion and accident rates, and may lessen the need for additional highway capacity. ODOT has adopted access spacing standards that apply to US 30.

ODOT access spacing standards vary depending on the highway classification, posted speed, and area type. For District Highways with posted speeds of 55 miles per hour (US 30), ODOT spacing standards require a minimum of 700 feet between driveways and/or roadways. However, in interchange areas, ODOT spacing standards also require a minimum of 1,320 feet between interstate highway interchanges and full access or right-in/right-out driveways or intersections. Inside urban growth boundaries, right-in/right-out approaches on the side of the highway approaching the

[7] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.

interchange may be allowed within 990 feet of the ramp terminal.

An access inventory was conducted along US 30 from I-84 to Gekeler Lane, comparing the number of existing approaches (driveways and public streets) to applicable ODOT access spacing standards. Several driveways and public streets do not currently comply with the spacing standards, including Bond Lane (East), and Bond Lane (West).

Bond Lane (East) intersects US 30 between the I-84 Westbound and I-84 Eastbound Ramp intersections, and therefore does not comply with the 1,320 foot spacing from the interchange. In addition, Bond Lane (West) and the south driveway to the Flying J travel plaza are within 1,320 feet of the I-84 interchange (690 feet and 1,150 feet respectively).

Furthermore, several individual driveways do not comply with ODOT's 700-foot spacing standard. The north Flying J travel plaza driveway is about 530 feet to the southwest of McAlister Road, while four of the driveways on the south side of US 30 serving the US Forest Service building and adjacent industrial uses (between Gekeler Lane (West) and McAlister Road) are located within 700 feet of one another (also would not comply with anticipated 650-foot standard).

Pedestrian/Bicycle: Foothill Road, Gekeler Lane, and US 30 form the main routes of bicycle and pedestrian access in and out of the area. Together with several local streets, including the recent addition of the La Grande Business Park, create the context of the bicycle and pedestrian environment in the project area.

US 30 has an existing shoulder, ranging from 4 to 11 feet wide, shared by both bicycle and pedestrian users. While motor vehicle traffic volumes are not very high (5,000 to 6,500 vehicles per day), the posted speed is 55 miles per hour. There are few bicycle or pedestrian destinations located directly along the highway. However, US 30 is used by touring bicyclists traveling between La Grande and other cities who may benefit from an improved bike facility.

On the western edge of the project area, Foothill Road has no shoulder, lacking any accommodation for bicycle or pedestrian users. Because Foothill Road serves many bicyclists who use it to access mountain biking trails in the hills to the west, the 2007 La Grande Pedestrian & Bicycle Improvement Plan[8] proposed a new shoulder bikeway along this route. However, such improvements are not anticipated to occur in the near future as they would be outside of the City's jurisdiction and would be costly due to the cross slope of the hill the road traverses.

Sidewalk and bike lanes along Gekeler Lane near US 30

Along the northern boundary of the project area,

[8] La Grande Pedestrian and Bicycle Improvement Plan, June 2007, Alta Planning & Design

recently reconstructed Gekeler Lane has bike lanes on both sides of the street and a curb-tight sidewalk along its north side. These new facilities were identified as a priority project in the 2007 La Grande Pedestrian & Bicycle Improvement Plan. The Gekeler Lane sidewalk connects to the street grid of the new La Grande Business Park at the intersection with Prospect Drive. Prospect Drive and the other streets inside the business park have sidewalks on both sides of the street, set back from the curb by a landscaping strip (swale).

McAlister Road, south of US 30, is a gravel roadway

McAlister Road passes through the southeast corner of the project area. As a north-south through street that crosses I-84, the roadway is an important connection for bicycle travel in La Grande. However, south of Island City (Cove Avenue) there are no facilities for bicycles. With the recent UGB expansion, a segment of McAlister Road approximately one mile in length is anticipated to be constructed to urban standards including shoulders or designated bike lanes.

At the nexus of US 30, McAlister Road and Bond Lane, the Flying J travel plaza is a center of activity in the southeast corner of the project area. Though it is not a significant attractor for bicycle or pedestrian trips, marking pedestrian routes through the Flying J parking lot could improve the safety of internal circulation for customers and employees of the business.

Gekeler Slough, other waterways, and utility easements in the project area create corridors with potential development as multi-use paths. These corridors are assets that could create efficient, attractive off-street bicycle and pedestrian routes to complement the future street network of the project area. Previously, the Pedestrian & Bicycle Improvement Plan proposed a multi-use path along Gekeler Slough parallel to US 30, turning sharply to the west at the southern extent of the La Grande city limits, and then angling northwest to follow the east side of Foothill Road. While the previously proposed alignment should be reevaluated in light of the recent UGB expansion that is the focus of this project, the concept of a slough-aligned path will continue to be evaluated. In addition, the recently designated Grand Tour Scenic Byway just to the east of the study area provides an opportunity to link potential shared-use paths with this route.

Future Growth Assumptions

This section outlines key assumptions and methodologies used to help analyze future conditions with and without the proposed Comprehensive Plan amendment and identify any potential impacts to the transportation system. Areas of interest covered in this section include land use assumptions, trip generation, trip distribution, and background traffic growth. For more detailed information, please refer to Appendix B: Technical Memorandum #2, La Grande Transportation System Plan Amendment– Future Transportation Conditions (DKS Associates, 2012).

La Grande Economic Opportunities Analysis

An Economic Opportunities Analysis (EOA) for the City of La Grande[9] identified that the current Urban Growth Boundary (UGB) was not large enough to accommodate a 20-year supply of buildable land. As shown in Table 4, the EOA identified a need for nearly 200 net acres of Industrial, 12 net acres of Commercial Office, and 78 net acres of other uses. The EOA also identified a surplus of lands zoned for general retail of about 36 acres. Based upon the identified needs, the City expanded the UGB to include an additional 314 gross acres for development over the next 20 years. This included 220 gross acres for industrial development (two large-lot industrial parcels and several smaller lots), about 12 gross acres for Commercial Office, and 82 gross acres for other uses (for overnight lodging, industrial park and interchange commercial development).

Of the 314 gross acres brought into the UGB, only 239 net acres are developable when infrastructure, wetlands, streams and buffers are accounted for (the un-buildable land is summarized in Table 7 later in this document). Of the 75 undevelopable acres, 58 were intended for industrial development and 17 were intended for industrial park (business park) and interchange commercial development.

Table 4: EOA Land Use Needs and Accommodation in the UGB Expansion Area

Land Use	Identified Land Need in EOA* (Net acres)	UGB Expansion Land		Applicable La Grande Zoning
		Gross Acres	Net acres	
Commercial Office	**11.9**	11.9	**11.9**	Business Park (BP)
Commercial Retail	**-36.1**	-	**-**	-
Industrial	**198.6**	220.0	**162.2**	-
100+ acre lot	*120.0*	*121.0*	*96.7*	Large Lot Industrial (I-3)
50+ acre lot	*54.0*	*63.0*	*29.5*	Large Lot Industrial (I-3)
Small/Medium Industrial User	*24.6*	*36.0*	*36.0*	Existing Heavy Industrial (I-2) Uses
Other	**78.1**	82.1	**64.9**	-
Over Night Lodging	*3.0*	*3.0*	*3.0*	Interchange Commercial (IC)
Other Special Uses	*39.0*	*43.0*	*35.2*	Interchange Commercial (IC)
Other Special Uses	*36.1*	*36.1*	*26.7*	Business Park (BP)
Total Acreage	**252.5**	314.0	**239.0**	**-**

*La Grande Economic Opportunities Analysis, City of La Grande Ordinance 3182, Page 82

[9] La Grande Economic Opportunities Analysis, City of La Grande Ordinance 3182, 2009, Johnson Reid

Land Use Assumptions

Understanding the character of surrounding land uses is a key factor in developing a functional transportation system. The amount of land that is planned to be developed, the types of land uses, and how the land uses are mixed together have a direct relationship to the expected demands on the transportation system.

Prior to developing the land within the UGB expansion area, the City must re-zone much of the acreage (280 of the 314 acres gross acres) to accommodate the types of land uses desired. Most of the acreage included in the UGB expansion is currently zoned for Exclusive Farm Use, although some areas are zoned for Heavy Industrial and Commercial Interchange uses.[11]

The proposed zone changes (as shown in Table 5) include converting 232 acres of Exclusive Farm (A-1) uses to either Large Lot Industrial (I-3)[12] or Business Park (BP) and 12 acres to La Grande Interchange Commercial (IC). Approximately 36 acres currently zoned by Union County for Heavy Industrial (I-2) will be re-zoned to La Grande Heavy Industrial (I-2). In addition, approximately 34 acres currently zoned by Union County for Interchange Commercial (C-2) uses will be re-zoned to La Grande Interchange Commercial (IC). The City's I-2 and IC zones generally correspond with the County's I-2 and C-2 zones, respectively.

Figure 3 splits the study area into several sub-areas associated with the existing and proposed zoning shown in Table 5. The sub-areas were used throughout this document for reference purposes.

Table 5: Zoning Assumptions

Existing Zoning* (Union County)	Sub- area (see Figure 3)	Gross Size (acres)	Proposed Zoning (La Grande)
Exclusive Farm Use (A-1)	A	48	Business Park (BP)
Exclusive Farm Use (A-1)	B	121	Large Lot Industrial (I-3) (100+ acre lot)
Exclusive Farm Use (A-1)	C	63	Large Lot Industrial (I-3) (50+ acre lot)
Heavy Industrial Use (I-2)	D	36	Heavy Industrial Use (I-2)
Exclusive Farm Use (A-1)	E	12	Interchange Commercial (IC)
Commercial Interchange Zone (C-2)	F, G & H	34	Interchange Commercial (IC)**
Total Acreage		**314**	

*Source: Union County Development Code
**The City Interchange Commercial Zone (IC) zone generally corresponds with the County C-2 zone

[11] Union County Development Code
[12] The I-3 zone does not currently exist, but is proposed to be established to achieve the types of industrial development desired in this area.

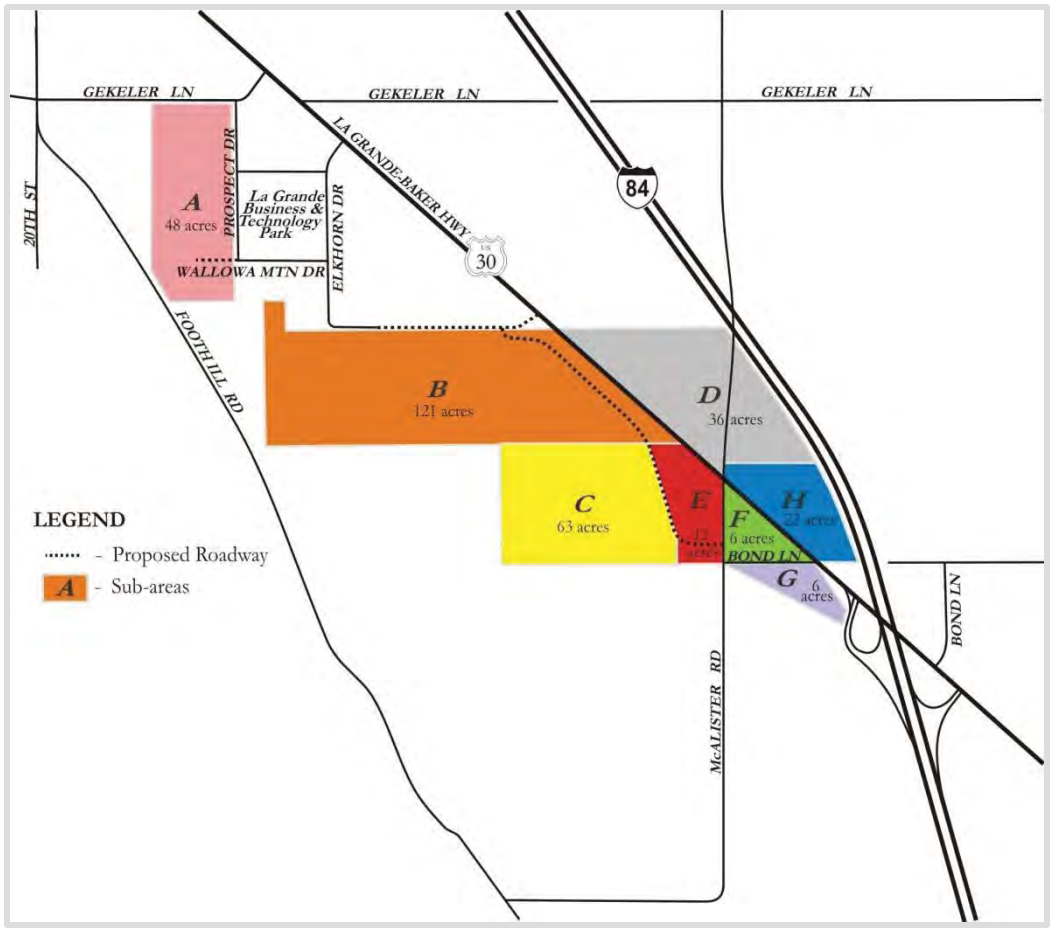

Figure 3: Study Area Sub-areas

Land Use Scenarios

To assess the potential impact on the transportation system from the proposed zone changes, the following two land use scenarios were analyzed and compared:

- **Existing Zoning Scenario (No-Build):** This scenario represents the base-case condition if no acreage was re-zoned. The existing zoning from Table 5 was assumed and can be seen in Figure 4.

- **Proposed Zoning Scenario (Build):** This scenario represents the conditions after the acreage is re-zoned using the proposed zoning shown in Table 5. The proposed zoning is illustrated in Figure 5.

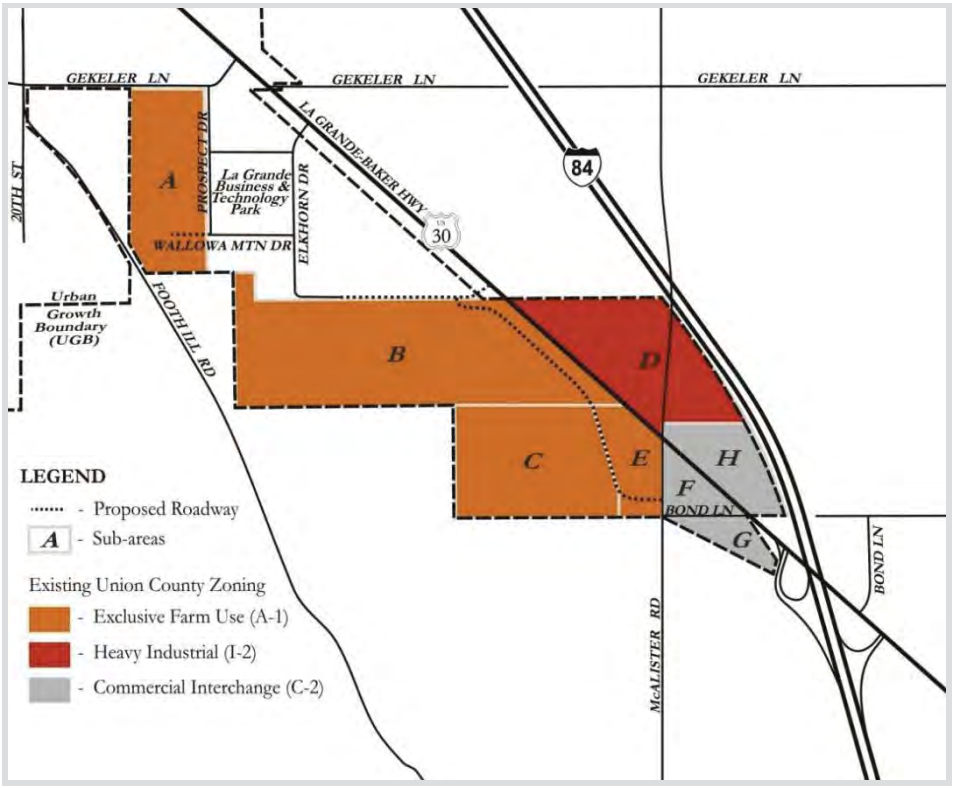

Figure 4: Existing Zoning in Study Area

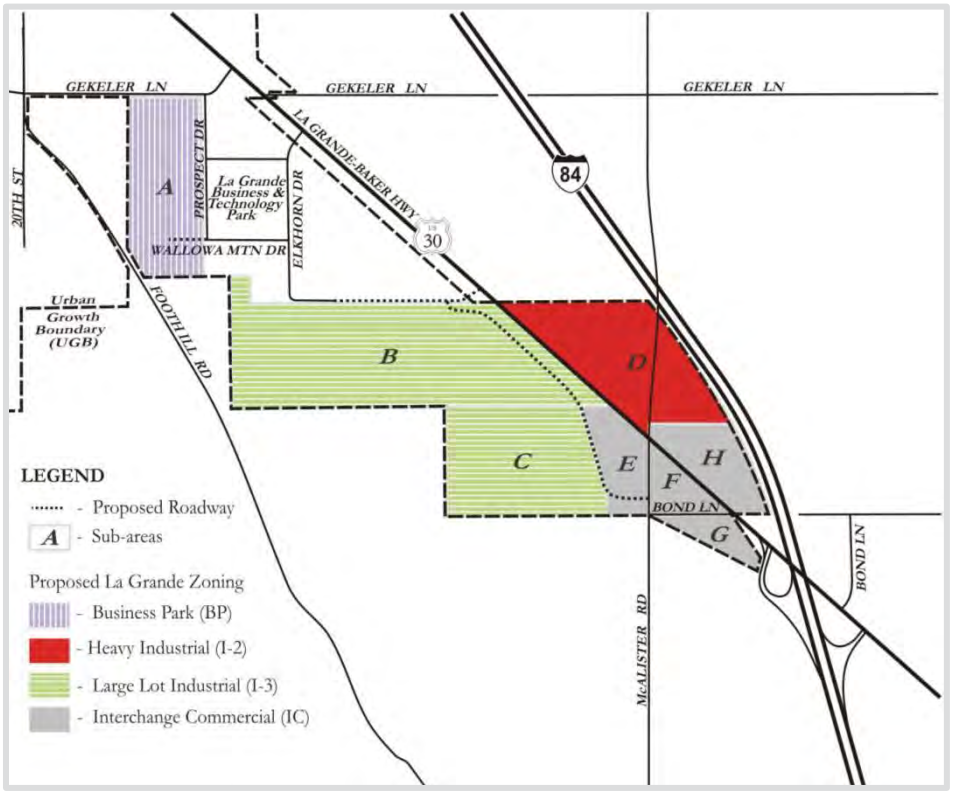

Figure 5: Proposed Zoning in Study Area

Trip Generation

With zoning and acreage established for each land use scenario, the vehicular trips generated were estimated by applying assumptions about development types and sizes to national surveys of trip generation for similar uses as reported by the Institute of Transportation Engineers (ITE).[13] As shown in Table 6, the existing and proposed zoning for the UGB expansion area were related to ITE land uses to develop trip generation estimates for each sub-area. The assumed ITE land uses may not necessarily reflect the actual development that occurs, but is intended to represent the reasonable worst-case trip generation potential for the land given the wide array of uses that would be allowed within the assumed zoning.

For instance, the trip generation estimates for the Large Lot Industrial (I-3) zone were estimated using the ITE Light Industrial land use. While many other types of development would be allowed within that zone, those represented by the ITE Light Industrial land use category would generally produce the highest amount of weekday p.m. peak hour trips.

Table 6: Relationship between Zoning and ITE Trip Generation Land Uses

Sub-area	Gross Size (acres)	Existing Zoning Scenario		Proposed Zoning Scenario	
		Zoning (Union County)	ITE Land Use/ ITE Code	Zoning (La Grande)	ITE Land Use/ ITE Code
A	48	Exclusive Farm (A-1)	N/A*	Business Park (BP)	Industrial Park/130
B	121	Exclusive Farm (A-1)	N/A*	Large Lot Industrial (I-3)	Light Industrial/ 110
C	63	Exclusive Farm (A-1)	N/A*	Large Lot Industrial (I-3)	Light Industrial/ 110
D	36	Heavy Industrial (I-2)	General Heavy Industrial/120	Heavy Industrial (I-2)	General Heavy Industrial/120
E	10	Exclusive Farm (A-1)	N/A*	Interchange Commercial (IC)	Gas/Service Station with Convenience Market/ 945
	2				General Retail-Commercial Services/ 820
F	6	Commercial Interchange (C-2)	N/A**	Interchange Commercial (IC)	N/A**
G	6	Commercial Interchange (C-2)	Hotel/ 310	Interchange Commercial (IC)	Hotel/ 310
			Fast-Food Restaurant with Drive-thru/ 934		Fast-Food Restaurant with Drive-thru/ 934
			High-Turnover Sit-down Restaurant/ 932		High-Turnover Sit-down Restaurant/ 932
H	22	Commercial Interchange (C-2)	General Retail-Commercial Services/ 820	Interchange Commercial (IC)	General Retail-Commercial Services/ 820

* Exclusive Farm Use is not a significant trip generator
**Existing Development- Flying J Travel Plaza

[13] Institute of Transportation Engineers (ITE), Trip Generation, 8th Edition

Similarly, the ITE Shopping Center land use category was used to represent a wide array of potential general retail and commercial service uses that could develop within the Interchange Commercial (IC) zone.

Development Assumptions

Several assumptions were utilized to determine the amount of buildable land and sizes of potential development on which to base trip generation estimates (see Table 7). First, the overall acreage of each sub-area was reduced to account for unbuildable areas such as public rights-of-way and infrastructure needs and designated wetlands. Anderson-Perry and Associates, as part of preparing the City of La Grande Storm Water Master Plan Amendments, performed a preliminary walk-through of the study area to map potential wetlands (see Appendix C). The walk-through determined that additional acreage in the study area, beyond the 19 acres documented in the National Wetlands Inventory, may not be suitable for development (approximately 16 additional acres on sub-area B and 19 acres on sub-area C).[14] Based on the National Wetlands Inventory and the preliminary walk-through, the impact of wetlands on developable land is significant in this area, resulting in about 54 of the total 314 acres (17 percent) assumed undevelopable without extensive mitigation. Since the Anderson-Perry and Associates walk-through was not official, a formal assessment of wetlands will likely be required when development is proposed in the UGB expansion area.

After the unbuildable acreage was removed from each sub-area, assumptions regarding development densities were utilized to estimate the net quantities of potential development. The development assumptions were based on floor area ratios (FAR) for the General Retail/Commercial Service land use (sub-areas E and H), employees per acre for Heavy Industrial, Light Industrial and Industrial Park land uses (sub-areas A, B, C and D), and comparable sites for the Gas/Service Station (sub-area E), Hotel (sub-area G), Fast-Food Restaurant (sub-area G), and High-Turnover Sit-Down Restaurant (sub-area G) land uses. The development density assumptions for the comparable sites were derived by reviewing similar land uses surrounding the I-84 interchange with OR 82 (Island Avenue) in La Grande. It should be noted that the net units of development assumed in each sub-area in Table 7 would not necessarily be contained within a single development, but in some cases could be distributed among a collection of smaller developments.

The Flying J Travel Plaza (sub-area F) is an existing development that was generating vehicle trips when the traffic count data was collected in 2011. No additional trips were assumed to be generated by this development under the Existing Zoning scenario. The existing Heavy Industrial land (sub-area D) is also an existing development that was generating an insignificant amount of vehicle trips when the traffic count data was collected in 2011. The site was assumed to be redeveloped to higher intensities and include reasonable worst-case uses. In addition, lands currently used for farming were assumed to generate an insignificant amount of trips.

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[14] The preliminary walk-through of the study area also identified additional acreage that is not included in the National Wetlands Inventory on sub-area H that could potentially be wetlands.

Table 7: Land Use Assumptions

ITE Land Use/ ITE Code (Sub-area)	Gross Size (acres)	Unbuildable Land (acres)*	Development Density	Net Units
Existing Zoning Scenario				
Exclusive Farm Use (A, B, C, E)	244	N/A	Will not generate significant vehicle trips	N/A
General Heavy Industrial/120**** (D)	36	0	10 employees per net acre[9]	360 employees
Flying J Travel Plaza (F)	6	N/A	Existing Development***	Existing Use
Hotel/ 310 (G)	6	N/A	Comparable Sites	100 rooms
Fast-Food Restaurant with Drive-thru/ 934 (G)		N/A	Comparable Sites	4,000 square feet
High-Turnover Sit-down Restaurant/ 932 (G)		N/A	Comparable Sites	5,000 square feet
General Retail-Commercial Services/ 820 (H)	22	5.0**	Floor Area Ratio 0.20[15]	148,000 square feet
Proposed Zoning Scenario				
Industrial Park/ 130 (A)	48	9.6**	10 employees per net acre[16]	384 employees
Light Industrial/ 110 (B)	121	24.3	10 employees per net acre[9]	967 employees
Light Industrial/ 110 (C)	63	33.5	10 employees per net acre[9]	295 employees
General Heavy Industrial/120 (D)	36	Same as Existing Zoning Scenario		
Gas/Service Station with Convenience Market/ 945 (E)	10	3.8	Comparable Sites	8 fueling positions
General Retail-Commercial Services/ 820 (E)	2	0	Floor Area Ratio 0.20[8]	17,000 square feet
Interchange Commercial (F,G,H)	34	Same as Existing Zoning Scenario		

*Unbuildable land includes acreage for right-of-way and infrastructure needs, wetlands, streams and buffers.
**Per La Grande Comprehensive Plan Ordinance 3182, 20 percent of these parcels were set aside for right-of-way and infrastructure needs as the sub-area develops.
***Existing development that was generating vehicle trips when the traffic count data was collected in 2011.
****This acreage is currently built-out but is assumed to be re-developed.

[15] City of La Grande Comprehensive Plan, Ordinance Number 3038
[16] Industrial and Other Employment Land Guidebook, Oregon Department of Land Conservation and Development

Net New Trips

The potential trip generation from full build-out of both land use scenarios was estimated for the weekday p.m. peak hour using the ITE land use codes as shown in Table 7. As shown in Table 8, the Existing Zoning scenario is expected to generate 643 (279 in/364 out) weekday p.m. peak hour trips. In comparison, Table 9 shows that the Proposed Zoning scenario is expected to generate 1,440 (475 in/965 out) weekday p.m. peak hour trips.

Table 8: Trip Generation for Existing Zoning Scenario

ITE Land Use (Sub-area)	ITE Code	Size (Units)	Weekday PM Peak Hour Trips In	Out	Total
Exclusive Farm Use- Will not generate significant vehicle trips (A)	-	-	-	-	-
Exclusive Farm Use- Will not generate significant vehicle trips (B)	-	-	-	-	-
Exclusive Farm Use- Will not generate significant vehicle trips (C)	-	-	-	-	-
General Heavy Industrial- Redevelopment on four small lots (D)	120	360 employees	29	115	144
Lot 1	*120*	*60 employees*	*5*	*19*	*24*
Lot 2	*120*	*40 employees*	*3*	*13*	*16*
Lot 3	*120*	*100 employees*	*8*	*32*	*40*
Lot 4	*120*	*160 employees*	*13*	*51*	*64*
Exclusive Farm Use- Will not generate significant vehicle trips (E)	-	-	-	-	-
Flying J Travel Plaza- Existing Development (F)	-	-	-	-	-
Hotel (G)	310	100 rooms	31	28	59
Fast-Food with Drive-thru (G)	934	4,000 square feet	70	65	135
High-Turnover Sit-down Restaurant (G)	932	5,000 square feet	33	23	56
General Retail/Commercial Services (H)	820	148,000 square feet	405	422	827
Total Trip Generation			**568**	**653**	**1,221**
Diverted Link Trips (Sub-areas G, and H)*					
Hotel- 80% (G)			24	24	48
Fast-Food with Drive-thru- 60% (G)			41	41	82
High-Turnover Sit-down Restaurant- 60% (G)			17	17	34
General Retail/Commercial Services- 50% (H)			207	207	414
Total Diverted Link Trips			**289**	**289**	**578**
Net New Trips (Total Trip Generation - Diverted Link Trips)			**279**	**364**	**643**

*See Appendix B: Technical Memorandum #2, La Grande Transportation System Plan Amendment– Future Transportation Conditions (DKS Associates, 2012) for more detail on diverted link trips.

Table 9: Trip Generation for Proposed Zoning Scenario

ITE Land Use (Sub-area)	ITE Code	Size (Units)	Weekday PM Peak Hour Trips		
			In	Out	Total
Industrial Park (A)	130	384 employees	40	162	202
Light Industrial- 100+ acre lot (B)	110	967 employees	71	267	338
Light Industrial- 50+ acre lot (C)	110	295 employees	30	113	143
Heavy Industrial- Redevelopment on four small lots (D)	120	360 employees	29	115	144
Lot 1	*120*	*60 employees*	*5*	*19*	*24*
Lot 2	*120*	*40 employees*	*3*	*13*	*16*
Lot 3	*120*	*100 employees*	*8*	*32*	*40*
Lot 4	*120*	*160 employees*	*13*	*51*	*64*
Gas/Service Station with Convenience Market) (E)	945	8 fueling positions	54	54	108
General Retail/Commercial Services (E)	820	17,000 square feet	95	99	194
Existing Development- Flying J Travel Plaza (F)	-	-	-	-	-
Hotel (G)	310	100 rooms	31	28	59
Fast Food with Drive-thru (G)	934	4,000 square feet	70	65	135
High-Turnover Sit-down Restaurant (G)	932	5,000 square feet	33	23	56
General Retail/Commercial Services (H)	820	148,000 square feet	405	422	827
Total Trip Generation			**858**	**1,348**	**2,206**
Diverted Link Trips (Sub-areas E, G, and H)*					
Gas/Service Station with Convenience Market- 84% (E)			45	45	90
General Retail/Commercial Services- 50% (E)			49	49	98
Hotel- 80% (G)			24	24	48
Fast-Food with Drive-thru- 60% (G)			41	41	82
High-Turnover Sit-down Restaurant- 60% (G)			17	17	34
General Retail/Commercial Services- 50% (H)			207	207	414
Total Diverted Link Trips			**383**	**383**	**766**
Net New Trips (Total Trip Generation - Diverted Link Trips)			**475**	**965**	**1,440**

*See Appendix B: Technical Memorandum #2, La Grande Transportation System Plan Amendment– Future Transportation Conditions (DKS Associates, 2012) for more detail on diverted link trips.

Background Traffic

In addition to the trips generated from the future development within the UGB expansion area, background traffic growth was documented in the form of citywide and regional growth. The background traffic growth was estimated by using ODOT's 2029 future volume tables. Average daily traffic (ADT) volumes on US 30 in 2007 and forecasted future 2029 volumes were used to determine a growth trend, which suggests that traffic volumes will increase approximately 1.1 percent annually. This represents a 22 percent increase in traffic volumes between the years 2011 and 2031, without any added traffic from the proposed re-zone within the UGB expansion area. The data used to calculate the growth rate is summarized in Table 10.

Table 10: Background Traffic Growth Rate

Location	2007	2029	Annual Growth Rate (Linear Growth)
US 30: 0.15 miles west of I-84	7,200	9,100	1.1%

Source: ODOT 2029 Future Volume Tables

Planned Developments

The trips generated from any planned developments in the area of the UGB expansion must also be accounted for. The only approved development in the area is the La Grande Business and Technology Park, located near the southwest corner of the US 30/Gekeler Lane intersection. This development is partially built out, with about six of the 68 acres developed. Assuming 14.9 employees per acre,[18] an additional 925 employees would be expected within the development. The associated trip generation (as shown in Table 11) correlates to an additional 433 (95 in/338 out) weekday p.m. peak hour trips. These trips will be added to the background traffic growth assumed for the area.

Table 11: La Grande Business and Technology Park Trip Generation

Land Use (ITE Description/ ITE Code)	Size (Emp.)*	PM Peak Hour		
		In	Out	Total
Business Park/770	925	95	338	433

*Emp=Employees

Trip Distribution

Trip distribution involves estimating how site generated traffic will leave and arrive at the proposed site. The trip distribution for the industrial and retail land uses was estimated based on regional population distribution and current traffic patterns. For the industrial land use, it is estimated that 10 percent of site generated traffic would arrive from the north along McAlister Road, 40 percent from the east using US 30 (5 percent) and I-84 (35 percent), and 50 percent from the west along US 30 (35 percent) and Gekeler Lane (15 percent).

For the retail land uses, it was assumed that fewer of the site generated primary trips (or trips that consider the site as their primary destination) would come from I-84, since most of those trips were accounted for as diverted link trips. For this reason, it was assumed that 60 percent of the traffic

[18] US 30: Gekeler Lane to I-84 Circulation and Access Management Plan, March 29, 2006

would arrive from the west on US 30 (40 percent) and Gekeler Lane (20 percent), 15 percent from the north along McAlister Road, and 25 percent from the east along US 30 (5 percent) and I-84 (20 percent).

The trip distribution for the La Grande Business and Technology Park was estimated based on reported traffic patterns from the site.[19] It was assumed that 75 percent of the traffic would arrive from the west on US 30 (55 percent) and Gekeler Lane (20 percent), 10 percent from the north along McAlister Road, and 15 percent from the east along US 30 (5 percent) and I-84 (10 percent). The assumed trip distribution for each land use group can be seen in Figure 6.

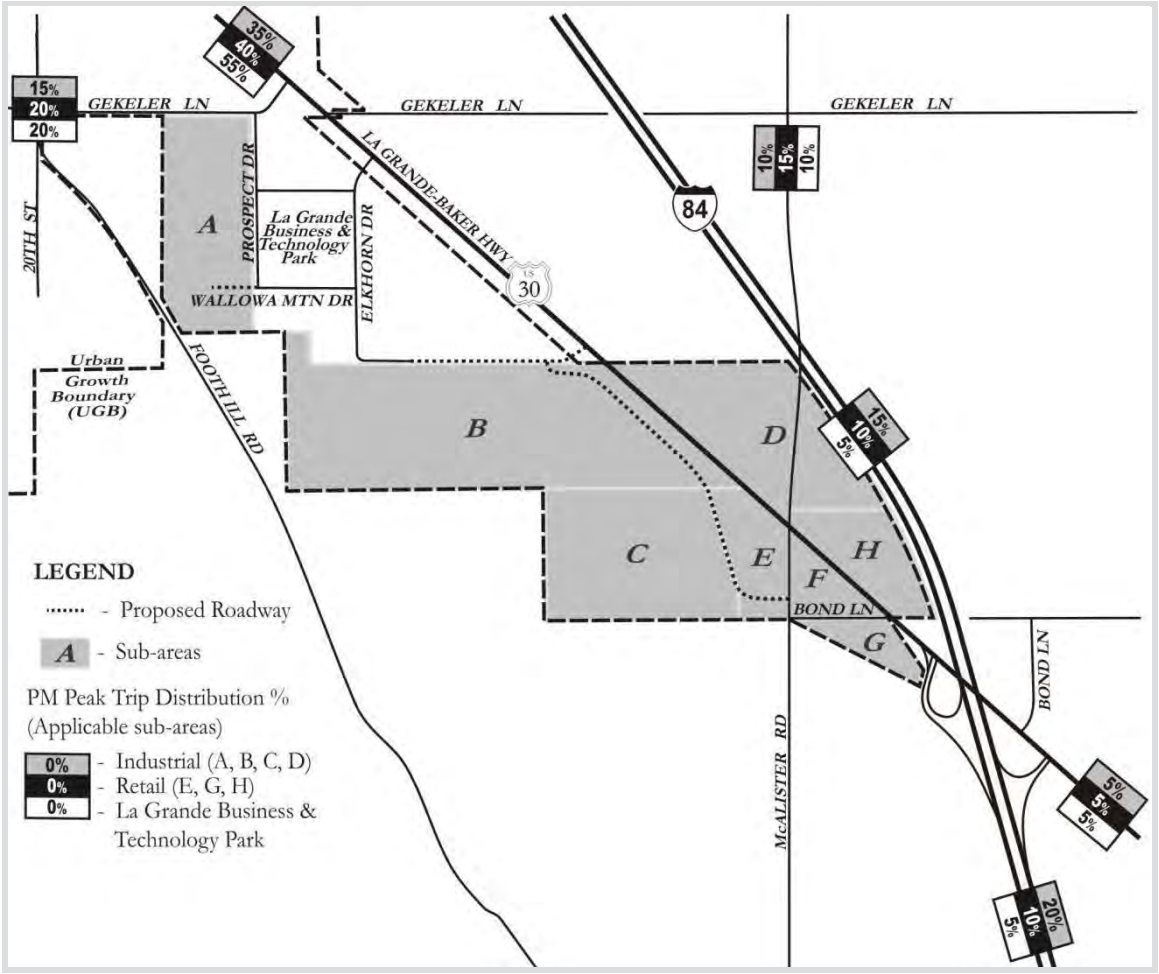


Figure 6: Trip Distribution

[19] US 30: Gekeler Lane to I-84 Circulation and Access Management Plan, March 29, 2006

Future Roadway Improvements

The following improvements were assumed to be in place by the planning horizon of 2031 to enhance the transportation network. Most of these improvements were identified in the US 30: Gekeler Lane to I-84 Circulation and Access Management Plan, which was adopted as an amendment into the La Grande and Union County Transportation System Plans.

- US 30/Gekeler Lane (West) intersection improvements to include a traffic signal, a south-eastbound right-turn deceleration lane and a north-eastbound left-turn lane.
- US 30/McAlister Road intersection improvements to include a traffic signal, south-eastbound and north-westbound right-turn deceleration lanes, and southbound left-turn lane. [20]
- US 30/Elkhorn Drive Intersection improvements to include a south-eastbound right-turn lane and north-westbound left-turn lane.[21]
- Extension of Elkhorn Drive from Wallowa Mountain Drive south and east to connect with US 30, south of the US Forest Service building. The US 30 intersection is to include a south-eastbound right-turn lane, a north-westbound left-turn lane and north-eastbound left and right-turn lanes.[22]
- Construct an access road on the west side of US 30, between McAlister Road and the Elkhorn Drive extension.

Additional improvements were assumed to be constructed as part of the primary roadway network of the La Business and Technology Park. These improvements would extend Elkhorn Drive south from Blue Mountain Drive to Wallowa Mountain Drive, Wallowa Mountain Drive west from the La Grande Business and Technology Park into sub-area A and Prospect Drive south from Blue Mountain Drive to Wallowa Mountain Drive. These roadways would serve as a primary connection for sub-area A to the surrounding roadway network.

It should also be noted that while not assumed to be in place within the 20-year planning horizon, a realignment of Gekeler Lane to the east to intersect US 30 opposite Gekeler Lane to the west has been proposed as a potential future project.

2031 Motor Vehicle Conditions

Future traffic operating conditions were analyzed at the study intersections to determine if the transportation network can support the additional traffic generated from the proposed re-zone within the UGB expansion area. If ODOT mobility targets are not met at study intersections along US 30, mitigation would be necessary to improve network performance. The study area intersection

[20] A southbound right-turn lane at this intersection was also recommended in the TSP but was determined to not be needed.
[21] A north-eastbound left-turn lane at this intersection was also recommended in the TSP but was determined to not be needed. Northwest leg of the intersection was assumed to have a 100-foot shadow area to allow two-stage left-turns from Elkhorn Drive.
[22] Northwest leg of the intersection was assumed to have a 100-foot shadow area to allow two-stage left-turns from Elkhorn Drive extension.

operations were evaluated for both the Existing Zoning and Proposed Zoning scenarios. By comparing the operations under both scenarios, it can be determined if the proposed zoning would cause any additional intersections to not meet mobility targets beyond those that did not meet the targets under current zoning.

The Existing Zoning scenario in 2031 includes the existing traffic volumes from the year 2011, plus the growth in background traffic. This scenario also included traffic growth from the La Grande Business and Technology Park, from redevelopment of sub-area D, and from build-out of sub-areas F, G and H. The Proposed Zoning scenario also includes the existing traffic volumes, the growth in background traffic, growth from the La Grande Business and Technology Park, from redevelopment of sub-area D and from build-out of sub-areas F, G and H. However, it also has the added growth associated with the re-zoning in sub-areas A, B, C and E. The 2031 traffic volumes for each scenario can be found in the Appendix B: Technical Memorandum #2, La Grande Transportation System Plan Amendment– Future Transportation Conditions (DKS Associates, 2012).

The future 2031 intersection operations for both the Existing Zoning and Proposed Zoning scenarios can be seen in Table 12. As shown, all intersections would meet ODOT's mobility targets during the weekday p.m. peak hour, with the exception of the US 30/McAlister Road intersection under the Proposed Zoning scenario. The proposed re-zone is expected to send additional traffic through this intersection, causing the operations to degrade below the mobility target.

In addition to the originally selected study intersections, operations were evaluated at the expected primary site access points for the UGB expansion and re-zone area. This includes the US 30 intersections with Elkhorn Drive and the Elkhorn Drive extension, the Gekeler Lane/Prospect Drive intersection and the McAlister Road/US 30 Frontage Road intersection. As shown in Table 12, each of the supplemental intersections is expected to operate well under both the Existing Zoning and Proposed Zoning scenarios.

Table 12: Future 2031 Weekday PM Peak Hour Intersection Operations***

Intersection	Mobility Target (v/c)	Existing Zoning Scenario			Proposed Zoning Scenario		
		Volume/ Capacity	Delay (secs.)	Level of Service	Volume/ Capacity	Delay (secs.)	Level of Service
US 30/ Gekeler Lane (West)*	0.90	0.48	15.6	B	0.65	19.5	B
US 30/McAlister Road*	0.90	0.77	34.6	C	**0.97**	54.7	D
US 30/North Flying J travel plaza Driveway	0.90	0.42	17.1	B/C	0.60	30.9	C/D
US 30/South Flying J travel plaza Driveway	0.90	0.45	16.4	B/C	0.63	28.2	C/D
US 30/Bond Lane (West)	0.90	0.44	21.6	B/C	0.66	45.0	B/E
US 30/I-84 Eastbound Ramps	0.75	0.43	19.7	A/C	0.69	34.8	A/D
US 30/Bond Lane (East)	0.75	0.36	13.2	A/B	0.43	14.6	A/B
US 30/I-84 Westbound Ramps	0.75	0.53	18.1	A/C	0.68	24.1	A/C
Supplemental Intersections							
US 30/Elkhorn Drive	0.90	0.37	16.1	A/C	0.57	27.0	A/D
US 30/Elkhorn Drive Extension	0.90	0.36	13.9	A/B	0.55	25.3	A/D
Gekeler Lane/Prospect Drive	0.95**	0.26	12.1	A/B	0.51	16.8	A/C
McAlister Road/Frontage Road	0.95**	0.02	8.8	A/A	0.24	11.6	A/B

Bolded and shaded indicates mobility target is not met
*A traffic signal was assumed at these intersections
** La Grande does not have an adopted standard, so the ODOT target for District/local interest roads was assumed for the analysis
***Intersection operations may differ slightly from Table 10 in Appendix B due to different assumed land use on Sub-area D (heavy industrial versus light industrial)

Signalized intersections:
Delay = Average Stopped Delay per Vehicle (sec) for All Movements
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection

Unsignalized intersections:
Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement

Queues at I-84 Ramp Terminals

An estimate of the 95th percentile vehicle queues at the I-84 eastbound and westbound ramp terminal intersections under 2031 conditions was made using SimTraffic modeling software. This was done to assess whether vehicles queues during the weekday p.m. peak period would encroach onto the mainline of I-84 or into the area of the ramp needed for deceleration from freeway speeds. The 95th percentile estimates the queue length that would not be exceeded in 95 percent of the queues formed during the peak hour. Queuing results are summarized in Table 13.

As shown, the 95th percentile queue at the northbound approach to the US 30/I-84 Eastbound Ramps intersection would be expected to exceed available storage in 2031 by about 50 feet (about two cars or one semi-truck length) under the proposed zoning scenario. A recommended approach to addressing this issue is discussed later in this document.

Table 13: Future (2031) Weekday PM Peak Hour I-84 Ramp Terminal Queuing

Ramp Terminal	Available Storage	95th Percentile Queue Existing Zoning / Proposed Zoning
US 30/I-84 Eastbound Ramps	470 feet*	175 feet / **525 feet**
US 30/I-84 Westbound Ramps	470 feet*	100 feet / 100 feet

Bolded and shaded indicates 95% vehicle queue exceeds available storage
*The ramp is 1,200 feet in length, but 730 feet is required for intersection stopping sight distance with a design speed of 70 miles per hour on I-84.

Recommended Transportation System Improvements

The following section summarizes recommendations to mitigate identified impacts associated with the proposed re-zone of land within the UGB expansion area. For more background information, please refer to Appendix B: Technical Memorandum #2, La Grande Transportation System Plan Amendment– Future Transportation Conditions (DKS Associates, 2012).

Summary of Transportation System Needs

Transportation improvements are required to mitigate the impacts associated with the proposed re-zone of land within the UGB expansion area (see Table 15 and Figure 10 later in this document). The following two needs are directly related to the project:

- **US 30/McAlister Road:** The US 30/McAlister Road intersection would not be expected to meet the mobility target by 2031 with the re-zoned land
- **Pedestrian and Bicycle:** Pedestrian and bicycle facilities are needed to address the connectivity gaps identified within the existing network and to extend into the UGB expansion area

In addition, other important transportation improvements are needed to support development, but are generally not directly addressing deficiencies caused by the proposed re-zone of land within the UGB expansion area. This includes the projects listed in the "Future Roadway Improvements" section earlier in this document and other freight, transit, low impact development and access spacing recommendations.

US 30/McAlister Road

The US 30/McAlister Road intersection was identified as being negatively impacted by projected growth from the proposed re-zone within the UGB expansion area by the planning horizon of 2031. Potential mitigation strategies were evaluated at this intersection to achieve acceptable operations during the weekday p.m. peak hour.ODOT's Highway Design Manual (HDM) mobility standards are applied to the evaluation of proposed highway improvements to ensure that new projects provide a design life of at least 20 years. To meet the HDM mobility standard ($v/c \leq 0.75$), a northbound left-turn lane, a second southbound left-turn lane, a north-westbound right-turn lane and a south-eastbound right-turn lane would be needed. This would allow the phasing for the signal

to be modified to include protected control for the northbound and southbound left-turn movements. The intersections operations with the recommended lane configurations can be seen in Table 14.

In addition, a second south-eastbound receiving lane for the dual southbound left-turn lanes would be needed along US 30. This could be accommodated by converting the existing south-eastbound right-turn deceleration lane running from McAlister Road to the I-84 Eastbound ramp terminal to a shared through/right-turn lane. It should be noted that there is adequate right-of-way to add a separate continuous south-eastbound right-turn lane, in addition to having two south-eastbound through lanes, across the frontage of the Flying J property in the future if needed for operational purposes. However, at this time it is recommended that the right-turns into the Flying J site be accommodated through a shared through/right-turn lane.

Furthermore, as improvements are made to the US 30/McAlister Road intersection, the alignment of the McAlister Road approaches should be corrected to provide a 90-degree angle with the highway. A conceptual drawing of this realignment is provided in Figure 7. The ultimate alignment of McAlister Road south of US 30 and the connection to the recommended US 30 Frontage Road will be determined based on the needs of the surrounding properties as they are developed. The recommended roadway improvements can be seen in Figure 10 later in this document.

Figure 7: Conceptual Realignment of McAlister Road

Table 14: 2031 Weekday PM Peak Hour Intersection Operations with Recommended Improvements

Intersection	OHP Mobility Target (v/c)*	HDM Mobility Standard (v/c)*	Volume/ Capacity	Delay (secs.)	Level of Service
US 30/ Gekeler Lane (West)**	-	0.75	0.65	19.5	B
US 30/McAlister Road***	-	0.75	0.67	42.3	D
US 30/North Flying J travel plaza Driveway***	-	0.75	0.45	16.0	B/C
US 30/South Flying J travel plaza Driveway***	-	0.75	0.46	14.8	B/B
US 30/Bond Lane (West)***	-	0.75	0.50	28.0	B/D
US 30/I-84 Eastbound Ramps	0.75	-	0.69	34.8	A/D
US 30/Bond Lane (East)	0.75	-	0.43	14.6	A/B
US 30/I-84 Westbound Ramps	0.75	-	0.68	24.1	A/C

Intersection	OHP Mobility Target (v/c)*	HDM Mobility Standard (v/c)*	Volume/ Capacity	Delay (secs.)	Level of Service
Supplemental Intersections					
US 30/Elkhorn Drive**	-	0.75	0.57	27.0	A/D
US 30/Elkhorn Drive Extension**	-	0.75	0.55	25.3	A/D
Gekeler Lane/Prospect Drive****	0.95	-	0.51	16.8	A/C
McAlister Road/Frontage Road****	0.95	-	0.24	11.6	A/B

* HDM mobility standard was only applied to US 30 intersections with recommended improvements, while the OHP mobility target was applied to intersections with no recommended improvements
** See "Future Roadway Improvements" section earlier in this document
*** Modified with the US 30/McAlister Road intersection improvements
**** La Grande does not have an adopted standard, so the ODOT target for District/local interest roads was assumed for the analysis

Pedestrian and Bicycle

There were many connectivity gaps identified within the existing pedestrian and bicycle network in the study area (see Technical Memorandum #1 in Appendix A). The recommended pedestrian and bicycle improvements can be seen in Figure 10 later in this document and are described below.

Sidewalks and Bike Facilities

Sidewalks and bike facilities would typically be constructed as part of roadway improvements within the study area. The proposed Industrial Collector roadway that would provide access to much of the site would include five-foot sidewalks and five-foot shoulders (see typical design in Figure 8). The shoulders are needed to facilitate the movement of large trucks through the industrial area, but could also be used by bicyclists as bike lanes if desired. While the east-west segment of the Industrial Collector roadway between Elkhorn Drive and US 30 would have sidewalks on both sides, sidewalks would only be needed on the west side of the segment paralleling US 30 because there would be no destinations on the east side.

In addition, the existing and planned roadways within the La Grande Business and Technology Park (including Wallowa Mountain Drive west of Antelope Drive, Prospect Drive south of Blue Mountain Drive, and Elkhorn Drive between Blue Mountain Drive and Wallowa Mountain Drive) incorporate five-foot sidewalks and wide roadways where bicycles can share the road with motor vehicles. Sidewalks and bike lanes would also be constructed on McAlister Road within the UGB when the proposed realignment occurs.

An example of a Shared-use Path

Shared-use Paths

An example of potential amenities along the Shared-use Path

Shared-use paths provide off-roadway facilities for pedestrian and bicycle travel. Depending on their location, they can serve both recreational and general travel needs. Walking and bicycling help develop and maintain "livable communities," make neighborhoods safer and friendlier, save on motorized transportation costs, and reduce transportation-related environmental impacts, auto emissions, and noise.

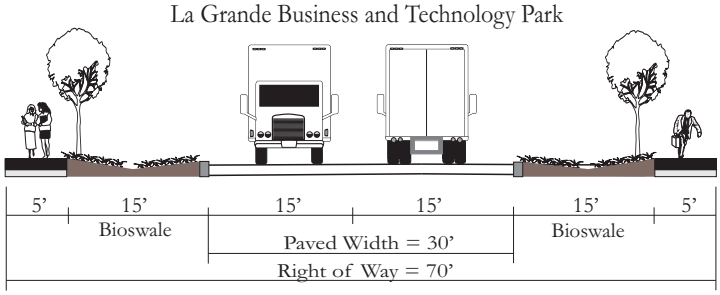
Shared-use path designs vary in surface types and widths. Harder surfaces are generally better for bicycle travel. Widths should provide ample space for both walking and biking and should also be able to accommodate maintenance vehicles. City of La Grande design standards for shared-use paths require a 12-foot paved width (eight feet if constrained) with two-foot shoulders.

In addition, a variety of amenities can make a path inviting to the user. These could include features such as interpretive signs, water fountains, benches, lighting, maps, art, and shelters.

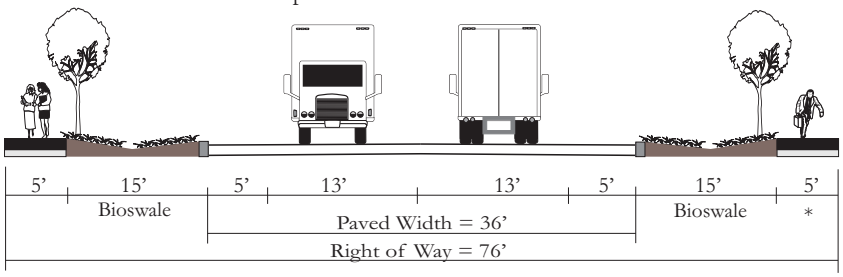
Two preliminary shared-use path alignments within the study area can be seen in Figure 10 later in this document. The first provides a parallel route along US 30 within the state right-of-way connecting a planned path to the north with McAlister Road. While no trailheads are shown on this alignment, opportunities could be explored to accommodate a small trailhead within the US Forest Service Ranger Station parking lot. Also, the design of path crossings with street intersections and driveways along US 30 should be carefully considered to protect pedestrian and bicyclist safety. A conceptual configuration for a path crossing has been provided in Figure 8.

The second alignment would start at a proposed trailhead near the intersection with Gekeler Lane and Foothill Road. From there it would run along the future drainage channel to the south (approximately ½-mile outside of the UGB), then turn east at the UGB to connect with the Elkhorn Drive extension. An additional connection to this path would be provided from the south end of Prospect Drive.

Minimum Size of Streets within
La Grande Business and Technology Park

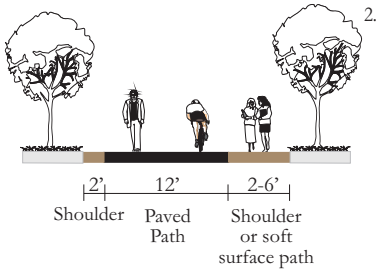


Proposed Industrial Collector Street



* No sidewalk on east side between Elkhorn Drive extension and McAlister Road

Shared-Use Paths [1.]



1. The width of the paved shared-use path may be reduced to a minimum of eight feet in physically constrained areas.
2. Trees are illustrative and not required.

Proposed Shared-use Path
Street/Driveway Crossing

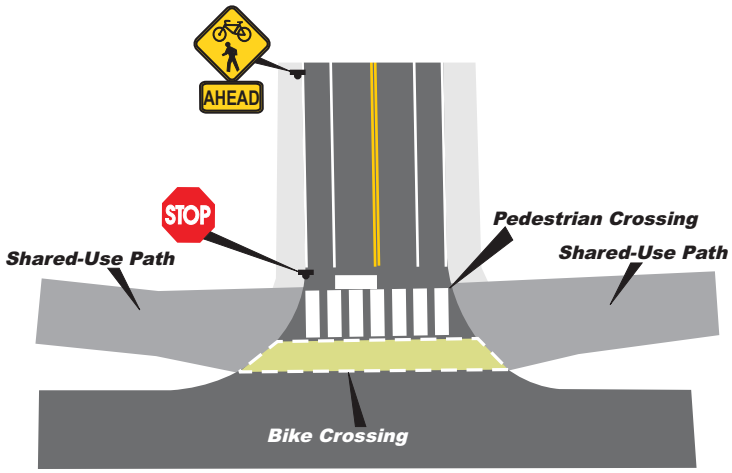


Figure 8

RECOMMENDED ROADWAY AND SHARED-USE PATH CROSS-SECTIONS

Freight

Streets that are intended to serve industrial areas and higher volumes of trucks are often designed differently than other streets in the city. Wider travel lanes and larger corner radii are two common elements used to facilitate larger vehicle movements.

For the proposed Industrial Collector roadway, concrete pavement is recommended instead of asphalt because it typically holds up better under heavy loads. In addition, 45-foot curb radii are recommended for intersections to facilitate the large vehicle movements. Figure 8 illustrates the assumed design for the primary roadway network within the study area. The paved surface of the Industrial Collector would be approximately 36 feet. The wide 13-foot lanes and five-foot shoulders facilitate large vehicle maneuvers.

ODOT has reported that there have been issues in the past during snow events with large vehicles navigating the tight-loop of the eastbound off-ramp to US 30. In addition, it was determined that by 2031 the 95th percentile vehicle queues could potentially exceed available storage on the ramp by about 50 feet.

A potential solution to both of these issues could be a widened loop that would provide a more gradual turn for large vehicles and increased vehicle storage to meet the expected queue demand through 2031. It should be noted that a wider loop ramp may require some additional right-of-way to the west of I-84. If the construction of a wider loop ramp is desired, the ultimate footprint for the improvement should be identified so future development does not preclude the needed expansion. Such an effort may be best conducted as part of an Interchange Area Management Plan. A concept drawing of a potential footprint for an improved loop ramp is shown in Appendix D.

Existing Transit

Many transit improvements have been made in La Grande since the adoption of the 1999 TSP. As a result, the transit element has become outdated and does not accurately reflect the current condition of transit provisions within the city. This section is intended to serve as an update to the Existing Transit section of the La Grande TSP.

Transit

Transit service is provided in La Grande by Northeast Oregon Public Transit via three fixed bus routes connecting La Grande to Baker City and Wallowa County, and an Americans with Disabilities Act (ADA) paratransit service. Northeast Oregon Public Transit is a division of Community Connection of Northeast Oregon.

Transit Access and Amenities

The Northeast Oregon Public Transit Hub, located on East Penn Avenue at Albany Street, offers a transfer point between the three Northeast Oregon Public Transit fixed bus routes and the regional bus service to other areas in Oregon and Washington. The transit center includes parking for motor vehicles and has a shelter and bench for riders.

There are eight bus stops in La Grande (shown in Figure 9) including stops at Walmart, Albertson's, Northeast Oregon Public Transit Hub, Riveria Activity Center, Max Square, Safeway, the Department of Human Services, and Eastern Oregon University. Of the eight bus stops, half offer benches and shelter. At any particular point in La Grande, a user is generally never more than one mile from a bus stop.

All Northeast Oregon Public Transit buses are equipped with either a ramp or a lift to allow wheelchair access. Riders are permitted to load bicycles inside the bus.

Local Transit Service

Bus service in La Grande is provided via the La Grande Trolley. The trolley runs from Walmart on Island Avenue in Island City to Eastern Oregon University in southwest La Grande. It operates Monday through Friday, 7:30 a.m. to 5:30 p.m. Key stops along this route include Riveria Activity Center, Max Square, and the Department of Human Services. The La Grande Trolley route can be seen in Figure 9. A second transit route between the hospital and Bi-Mart was recently terminated due to loss of funding.

Bus service is provided to Baker City via the Baker Bow route, which runs from the Community Connections office in Baker City to the Northeast Oregon Public Transit Hub in La Grande. Key destinations along this route include the Haines Mercantile Store in Haines and the North Powder Truck Stop in North Powder. The bus leaves the Northeast Oregon Public Transit Hub destined for Baker City at 8:15 a.m. and 5:25 p.m., and leaves Baker City destined for La Grande at 8:03 a.m. and 5:18 p.m. Monday through Friday.

Bus service is provided to Wallowa County via the Wallowa Link route, which follows OR 82 from Joseph to the Northeast Oregon Public Transit Hub in La Grande. Key destinations along this route include Enterprise, Lostine, Wallowa, Elgin, and Imbler. On Mondays the bus arrives in La Grande from Joseph at 10:00 a.m. and departs La Grande destined for Joseph at 2:00 p.m. On Thursdays, the bus arrives in La Grande from Joseph at 4:30 p.m. and departs La Grande destined for Joseph at 6:30 p.m. On Saturdays, the bus arrives in La Grande from Joseph at 10:00 a.m. and departs La Grande destined for Joseph at 12:30 p.m. Bus service is available for La Grande based medical and personal needs between the arrival and departure time from La Grande.

Bus service between La Grande, Union, and Cove is provided weekly. This route runs on US 30 through the project area and relies on volunteer drivers.

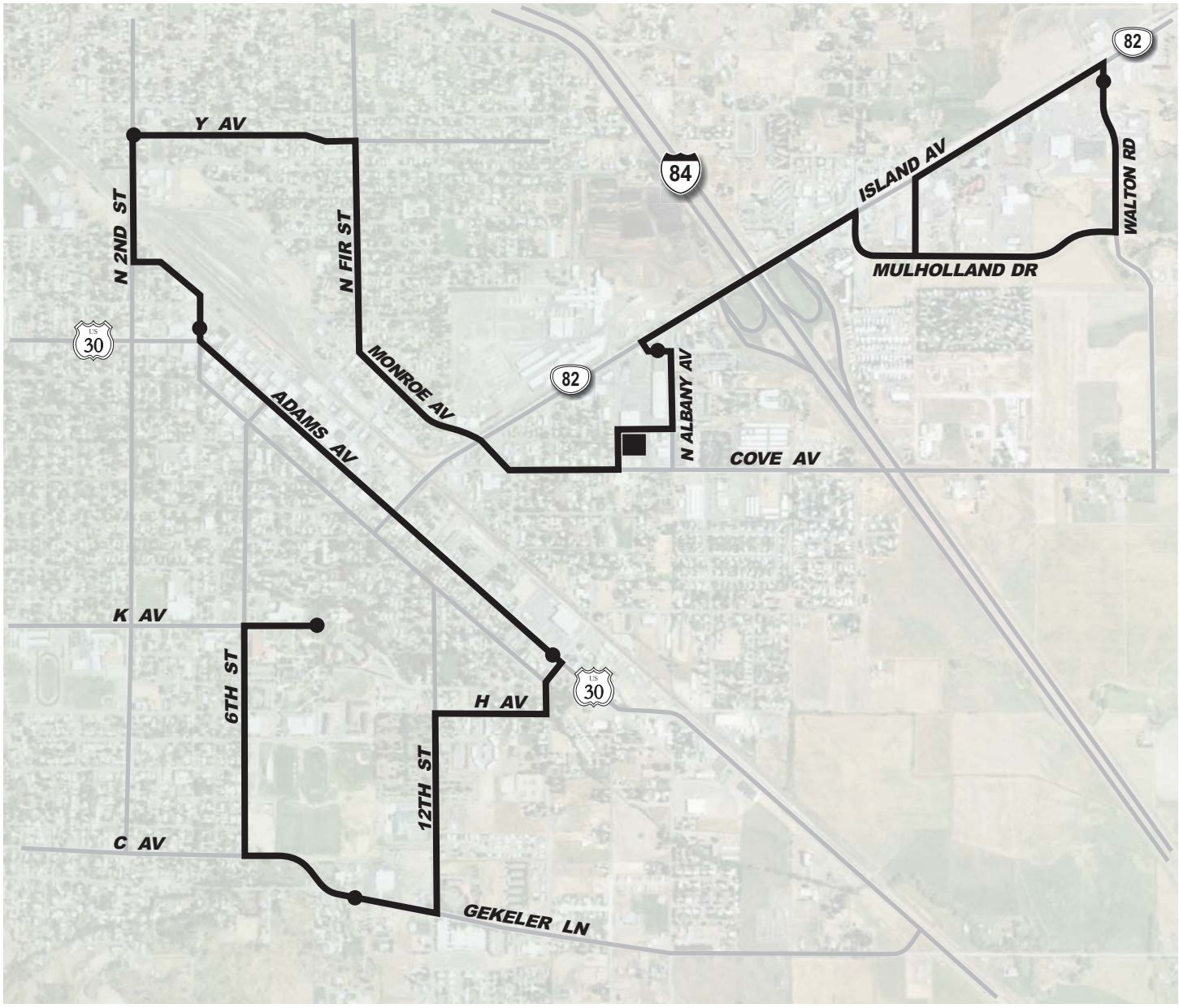
The Northeast Oregon Public Transit paratransit service **provides public transportation to persons with disabilities** who are unable to use regular fixed route buses. Curb to curb paratransit service, in wheelchair lift equipped mini-buses, is available Monday through Friday between 10:00 a.m. and 3:00 p.m.

Regional Transit Service

The Confederated Tribes of the Umatilla Indian Reservation offers free bus service (referred to as the La Grande Arrow) that connects La Grande to Pendleton. The route includes stops in La Grande at Eastern Oregon University and the Northeast Oregon Public Transit Hub, and offers service three times a day, Monday through Friday.

Greyhound offers bus service that connects La Grande to major cities across the United States. Riders may access Greyhound buses at the Northeast Oregon Public Transit Hub.

NO SCALE



DKS Associates
TRANSPORTATION SOLUTIONS

Legend

- Bus Route
- Bus Stop
- Northeast Oregon Public Transit Hub

Figure 9

EXISTING TRANSIT ROUTES

Future Transit

Although transit service is not currently provided in the study area, the expected increase in employment may create a demand for service in the future. If the La Grande Trolley route or another bus line was extended into the study area, much of the City would be accessible via transit. This could potentially decrease the amount of motor vehicle trips generated from the re-zone.

Transit service could be accommodated within the study area by adding bus stops to any of the proposed roadways. Bus pullouts would not be needed since speeds and traffic volumes are expected to be low. Pedestrian and bicycle access to transit service would be accommodated with the addition of sidewalks and bike lanes on proposed roadways and parallel shared-use paths.

When the employment associated with the proposed comprehensive plan amendment is built-out, consideration could be given to forming a transportation management association. Transportation management associations are nonprofit coalitions of local businesses and/or public agencies that work to strengthen partnerships with businesses to reduce traffic congestion and pollution by improving commuting options for their employees. They typically promote carpooling and the use of transit, walking, biking, work schedule changes and telecommuting, especially during the most congested time of the day. The transportation management association could also provide incentives to employees who utilize transit by subsidizing ridership.

Low Impact Development

Industrial site development can result in substantial impacts to water quality and quantity. While permitting requirements may reduce impacts, they are limited in addressing long term cumulative and operations impacts from the changes in land uses and cover. For this reason, low impact development strategies should be considered as part of future development to reduce impacts.

Low impact development uses a variety of site planning and engineering techniques to control runoff. Under new development conditions there is more flexibility as the hydrologic behavior can be included in planning the site and site features can de designed to be hydrologically functional.

Suitable techniques to control industrial development runoff can include; bio retention swales with amended soils, stormwater planters and pervious paving.

Stormwater Planter

The amount of impervious surface associated with the proposed comprehensive plan amendment was estimated to determine the impacts to water quality and infiltration rates for the surrounding area. Overall, a total of 8,286,854 square feet of impervious surfaces were estimated, with 2,683,753 square feet of buildings and 5,603,101 square feet of parking, driveways or other paved surfaces. In total, impervious surfaces are expected to cover nearly 190 acres.

Pervious Paving

Access Spacing

Based on the existing access inventory there were several identified roadways and driveways that did not comply with spacing standards (see Technical Memorandum #1). One of the public streets not meeting the interchange spacing standard was the US 30/Bond Lane (West) intersection. There may be a need in the future to potentially restrict turning movements at this intersection as the area develops to avoid safety and other operational issues.

It should be noted that the US 30: Gekeler Lane to I-84 Circulation and Access Management Plan that was previously adopted as an amendment into the La Grande and Union County Transportation System Plans had several access recommendations. Some of these recommendations were summarized in the "Future Roadway Improvements" section earlier in this document. Additional actions for driveway consolidation were recommended in the Plan and should be implemented as the surrounding properties develop or re-develop.

Flying J Access

A potential access configuration for the Flying J site was developed giving consideration to the transportation system improvements proposed for the surrounding area and the recommendation to consolidate the two driveways on US 30 upon redevelopment documented in the US 30: Gekeler Lane to I-84 Circulation and Access Management Plan. This potential configuration is shown in Appendix E.

When McAlister Road is realigned and the new frontage road is constructed to the west to provide access to the UGB expansion area, the Flying J frontage along McAlister Road will be improved and site access must be modified. To avoid turning conflicts with the intersections with US 30 and the new frontage road, one Flying J access point could be established directly opposite the new frontage road intersection. An optional second access point could be located in between the new frontage road and US 30.

Should the access points on US 30 be consolidated, consideration must be given to maintaining accessibility of on-site amenities. Where an access is removed, there may be an opportunity to add parking spaces. It should be noted that the site access configuration shown in Appendix E is for advanced planning purposes only and is not recommended for adoption as part of this plan.

Summary of Transportation System Recommendations

Transportation improvements needed to support future growth and new development within the UGB expansion area are summarized in Table 15.[23] Overall, an estimated $14,535,000 in transportation system improvements are expected to be needed to support the future growth in the UGB expansion area through 2031 (see Table 15). Most of these improvements (approximately $12.6 million of the $14.5 million) were previously identified in the La Grande TSP or the US 30: Gekeler Lane to I-84 Circulation and Access Management Plan, which was adopted as an amendment into the La Grande and Union County Transportation System Plans. More detail on the estimated project costs can be found in Appendix G. See the "Funding" section later in this document for a discussion on potential funding sources for implementing recommended transportation improvements. The recommended improvements can be seen in Figure 10, with the project numbers corresponding with those in Table 15.

Not all recommended improvements are required to be in place prior to developing land within the UGB expansion area. The need to construct the new Industrial Collector roadways (Elkhorn Drive extension and US 30 Frontage Road) will be driven by the need to access industrial development in Sub-areas B and C. The alignment shown represents the most efficient means of establishing connectivity between Gekeler Lane and McAlister Road so reliance on US 30 for circulation can be minimized. However, as actual development proposals occur, the alignment shown may be modified to better fit desired site plans.

Table 15 provides a general guide for the phasing of recommended transportation improvements. The year of need for each improvement was estimated based on an assumption of even and linear development growth over the planning period. Because this is often not how development actually occurs, other potential triggers have been provided for consideration. These include specific traffic volumes and groups of development that could drive the need for some improvements. These triggers should be reevaluated periodically as development in the area occurs since the timing of needed projects may change in response to future growth patterns.

While the improvements for the intersection on US 30 at McAlister Road are primarily shown to be driven by development in Sub-area H, the need to realign McAlister Road could require a significant amount of those improvements to happen with development on any property that needs to use McAlister Road for access. This is because McAlister Road south of US 30 is currently a gravel road and may require paving prior to use by a substantial amount of development. Therefore, the need to improve McAlister Road could be triggered by development in Sub-areas C, D, or G.

[23] A summary of the requested changes to the State highway system, including existing and planned cross-section widths, can be found in Appendix F. An illustration of the recommendations can also be seen in Figure 10.

Table 15: Recommended Transportation System Improvements and Phasing Strategy

Project #	Project Name	Project Description	Estimated Cost	Jurisdiction	Estimated Year of Need	Weekday P.M. Peak Hour Traffic Volume Trigger for Improvement	Anticipated Development Trigger
New Roadways							
1	Elkhorn Drive Extension to US 30	New Industrial Collector Street (see Figure 8) extension from the Elkhorn Drive/Wallowa Mountain Drive intersection to US 30 near M.P. 4.41. Add a north-eastbound left-turn lane with 300 feet of storage and a north-eastbound right-turn lane at the US 30/Elkhorn Drive Extension Intersection.	$2,905,000	City of La Grande	N/A	N/A	Sub-area B
2	US 30 Frontage Road	Construct a frontage road along the southwest side of US 30 connecting the Elkhorn Drive extension to McAlister Road as an Industrial Collector Street (see Figure 8). No sidewalk is required along the side of the road adjacent to the Gekeler Slough.	$3,930,000	City of La Grande	N/A	N/A	Sub-area C (possibly Sub-area B as well)
3	Prospect Drive Extension	Extend Prospect Drive south from Blue Mountain Drive to Wallowa Mountain Drive. Construct with the La Grande Business and Technology Park cross-section (see Figure 8).	$795,000	City of La Grande	N/A	N/A	Sub-area A
4	Wallowa Mountain Drive Extension	Extend Wallowa Mountain Drive west from Antelope Drive into sub-area A, west of Prospect Drive. Construct with the La Grande Business and Technology Park cross-section (see Figure 8).	$845,000	City of La Grande	N/A	N/A	La Grande Business and Technology Park (Possibly Sub-area A as well)
5	Elkhorn Drive Extension to	Extend Elkhorn Drive south from Blue Mountain Drive to Wallowa Mountain	$795,000	City of La	N/A	N/A	La Grande Business and

Project #	Project Name	Project Description	Estimated Cost	Jurisdiction	Estimated Year of Need	Weekday P.M. Peak Hour Traffic Volume Trigger for Improvement	Anticipated Development Trigger
	Wallowa Mountain Drive	Drive. Construct with the La Grande Business and Technology Park cross-section (see Figure 8).		Grande			Technology Park
Intersection Improvements							
6	Intersection of US 30/ Gekeler Lane (West)	Construct a north-eastbound left-turn lane with 175 feet of storage	$140,000	ODOT	2029	100 northeast left-turn movements	N/A
7		Construct a south-eastbound right-turn deceleration lane with 100 feet of storage	$80,000	ODOT	2022	40 southeast right-turn movements	N/A
8		Install a traffic signal	$370,000	ODOT	2029	100 northeast left-turn movements	N/A
9	Intersection of US 30/ Elkhorn Drive	Construct a south-eastbound right-turn lane with 50 feet of storage	$55,000	ODOT	2028	20 southeast right-turn movements	N/A
10		Construct a north-westbound left-turn lane with 100 feet of storage. Add a 100-foot shadow area to the northwest leg of the intersection to allow two-stage left-turns from Elkhorn Drive.	$210,000	ODOT	2016	Total of 650 vehicles per hour on US 30; or 25 northwest left-turn movements	N/A
11	Intersection of US 30/ Elkhorn Drive Extension	Construct a south-eastbound right-turn lane with 50 feet of storage	$55,000	ODOT	2026	20 southeast right-turn movements	Sub-area B
12		Construct a north-westbound left-turn lane with 100 feet of storage. Add a 100-foot shadow area to the northwest leg of the intersection to allow two-stage left-turns from the Elkhorn Drive Extension.	$210,000	ODOT	2016	Total of 650 vehicles per hour on US 30; or 20 northwest left-turn movements	Sub-area B
13	Intersection of US 30/ McAlister	Realign the McAlister Road approaches to provide a 90-degree angle with US 30 and re-construct McAlister Road to a Major	$1,435,000	ODOT/ City of La Grande	Mitigation for the railroad safety	200 southbound left-turn movements	Needed now to mitigate railroad safety/

Project #	Project Name	Project Description	Estimated Cost	Jurisdiction	Estimated Year of Need	Weekday P.M. Peak Hour Traffic Volume Trigger for Improvement	Anticipated Development Trigger
	Road	Collector cross-section south to Bond Lane (West). Add a northbound left-turn lane with 225 feet of storage at the US 30/McAlister Road intersection.			deficiency is an immediate need; 2022 for development driven improvements		Sub-area H*
		Install a traffic signal, interconnected with adjacent railroad crossing.	$975,000	ODOT			
		Construct dual 275-foot southbound left-turn lanes. Convert the existing south-eastbound right-turn deceleration lanes to the Flying J Travel Plaza and Bond Lane (West) to shared through-right turn lanes and drop the lane at the US 30/I-84 Eastbound Ramps intersection.	$410,000	ODOT			
		Construct a north-westbound right-turn deceleration lane with 150 feet of storage. Widen the north-westbound shoulder on US 30 to accommodate 700 feet of vehicles stopped by train crossings.	$145,000	ODOT			
14		Construct a south-eastbound through/right-turn lane with 100 feet of storage.	$80,000	ODOT	2030	375 southbound left-turn movements	Sub-area H
Shared-Use Paths							
15	US 30 Shared-Use Path	Construct a 12-foot wide shared-use path along the southwest side of US 30 from Gekeler Lane (East) to McAlister Road (see Figure 8 for the cross-section and Figure 10 for the conceptual alignment). Incorporate the crossing treatment shown in Figure 8 at driveways and streets. There is an optional shared-use path connection	$565,000	ODOT	-	-	-

Project #	Project Name	Project Description	Estimated Cost	Jurisdiction	Estimated Year of Need	Weekday P.M. Peak Hour Traffic Volume Trigger for Improvement	Anticipated Development Trigger
		to the US 30 Frontage Road midway between McAlister Road and the Elkhorn Drive extension.					
16	Gekeler to Elkhorn Shared-Use Path	Construct a 12-foot wide shared-use path from the Gekeler Lane (West)/Foothill Road intersection to the Elkhorn Drive Extension. Provide a 12-foot wide shared-use path connector to the south end of Prospect Drive (Figure 8 for the cross-section and Figure 10 for the conceptual alignment). Install a trailhead near the Gekeler Lane/Foothill Road intersection.	$485,000	City of La Grande	-	-	-
Planning Studies							
17	I-84 Eastbound Interchange Loop Study	Develop a design for widening the I-84 Eastbound interchange loop ramp to provide a more gradual turn for large vehicles and increased vehicle storage to meet expected queue demand. This may occur as part of an Interchange Area Management Plan (IAMP) or as a separate study.	$50,000	ODOT	-	-	-

* Need for McAlister Road intersection improvements could be triggered by other developments that would be required to improve the currently gravel segment south of US 30 for access.

Note: Inclusion in the plan is not a guarantee of funding. Suggestions for funding sources are indicated (ODOT, City, etc.), but do not assure the availability or approval of such improvements.

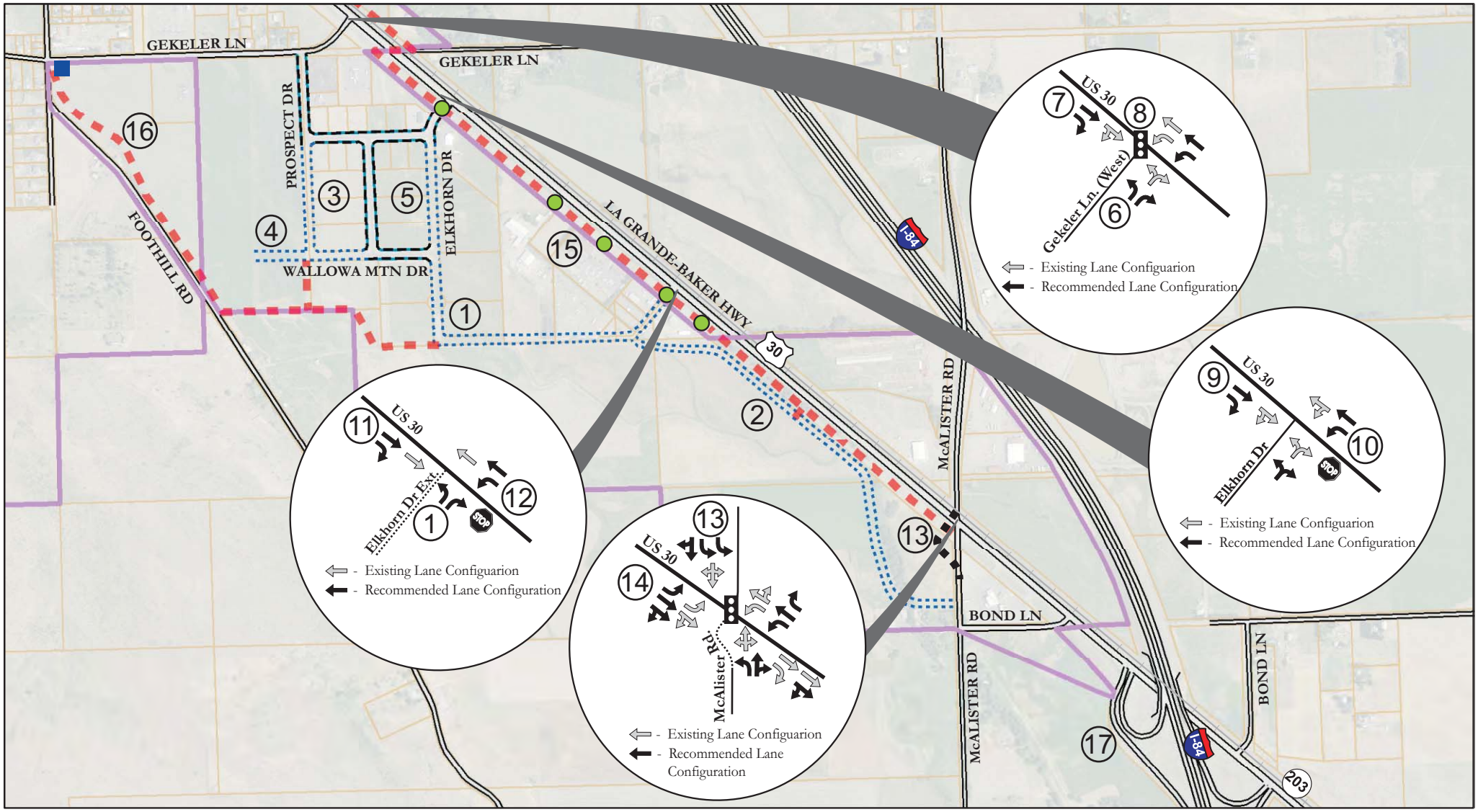


Figure 10: Recommended Roadway and Shared-use Path Improvements

City of La Grande

Transportation System Plan Amendment

Legend

Roadways

- Existing Roadway
- Existing La Grande Business and Technology Park Roadway
- Proposed Roadway

(#) Project Number (see Table 15)

Shared-Use Paths

- Proposed Shared-Use Path Alignment
- Proposed Shared-Use Path Trailhead
- Proposed Shared-Use Path Crossing Treatments (see Figure 8)

- Railroad
- La Grande Urban Growth Boundary

Funding

The La Grande Street and Road Fund includes revenues from the State Highway Trust Fund and various other service charges. State funds through the State Highway Trust Fund come from state motor vehicle fuel tax, vehicle registration fees, and truck weight-mile fees, and are distributed on a per capita basis. Cities and counties receive a share of State Highway Trust Fund monies. By statute, the money may be used for any road-related purpose, including walking, biking, bridge, street, signal, and safety improvements. A funding breakdown for the Street and Road Fund can be seen in Table 16.

The state gas tax funds have previously failed to keep up with cost increases and inflation. With increased fuel efficiency of vehicles and the State's emphasis on reducing vehicle miles traveled, the real revenue collected has gradually eroded over time. In an effort to offset the relative decline in contribution of state funds, the Oregon Jobs and Transportation Act (Oregon House Bill 2001) recently passed. House Bill 2001 (adopted by the 2009 legislature) increases transportation-related fees including the state gas tax and vehicle registration fees. Oregon vehicle registration fees are collected as a fixed amount at the time a vehicle is registered with the Department of Motor Vehicles. Vehicle registration fees in Oregon recently increased from $27 to $43 per vehicle per year for passenger cars, with similar increases for other vehicle types. The gas tax in Oregon increased on January 1, 2011 by six cents, to 30 cents per gallon. This was the first increase in the state gas tax since 1993.

Revenues: Current revenue sources for the Street and Road Fund are expected to provide over $18 million through 2031. According to the 2012 State Shared Revenue estimates[24], La Grande is expected to receive $475,000 in State gas tax and vehicle registration fee revenue this year. The increased transportation related fees from House Bill 2001 are expected to bring an additional $240,000 annually to La Grande. [25]

Because there is no index for cost inflation, the revenue level will increase proportionally with the City's population growth. However, as a conservative estimate,[26] the same levels ($475,000 and $240,000 per year) are assumed in the future. Through 2031, La Grande is expected to receive over $14 million in State gas tax and license fee revenue.

State law requires that a minimum of one percent of the State gas tax and vehicle registration funds received must be set aside for construction and maintenance of walking and bicycling facilities. In La Grande, this represents approximately $5,000 per year and $100,000 through 2031.

In addition, the City received approximately $216,000 in other revenues within the Street and Road Fund over the past three years. Keeping this revenue level consistent, this represents about $4.3

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[24] 2012 State Shared Revenue Estimates, League of Oregon Cities

[25] IBID

[26] The population growth rate in La Grande was assumed to be roughly the same as the cost inflation rate, therefore, existing revenues were maintained through 2031.

million through 2031.

Expenditures: Current expenditures for the Street and Road Fund are expected to top $17 million through 2031 (based on revenue and expenditures over the past two years). The majority of Street and Road Funds are spent on materials and services (nearly $11 million through 2031). In addition, over $6 million will be spent on personal services.

Funds for Transportation Improvements: A little over $1.2 million (including the existing balance of the fund) is expected to be available for street improvement needs after reducing the estimated expenditures for the fund through 2031. These funds can potentially be spent on street improvement needs. The net revenue of over $1.2 million for the Street and Road Fund is directly related to the House Bill 2001, which is expected to provide an additional $240,000 annually or about $4.8 million through 2031. The City had not seen most of these additional funds yet in the revenue and expenditure data over the past two years, since the gas tax increase went into effect on January 1, 2011 and with the recent increase to vehicle registration fees. Without HB 2001, the City would have little to no surplus in the Street and Road Fund.

Table 16: La Grande Street Funding Breakdown

Street and Road Fund	Annual Amount	Estimated Amount Through 2031
Estimated Revenue Sources	**$936,000**	**$18,720,000**
State Highway Trust Fund	*$475,000**	*$9,500,000*
*Oregon Jobs and Transportation Act (House Bill 2001)***	*$240,000**	*$4,800,000*
Bikeway/Walkway (1% of State Highway Trust Fund and House Bill 2001)	*$5,000**	*$100,000*
Other	*$216,000****	*$4,320,000*
Estimated Expenditures	**$885,000*****	**$17,700,000**
Materials and Supplies	*$548,000*	*$10,960,000*
Other	*$337,000*	*$6,740,000*
Net Revenues (Street Operations Revenues-Expenditures)		**$1,020,000**
Existing Fund Balance (2010-11 Fiscal Year)		**$185,000**
Total Funds for Street Improvement Needs (Net Revenue + Existing Balance)		**$1,205,000**

Source: La Grande Finance Department, General Ledger for Fiscal Years 2011 and 2012.
* Based on the 2012 State Shared Revenue Estimates by the League of Oregon Cities.
** New revenue from the increased gas tax and vehicle registration fees related to House Bill 2001.
***Based on average revenue or expenditures over the two-year period between 2010 and 2011.

La Grande is expected to have funding shortfall of approximately $13.3 million for the recommended transportation improvements in the UGB expansion area. The City may wish to consider expanding its funding options in order to provide a reasonable funding strategy so improvements can be constructed in a timely manner.

Potential Additional Funding Sources

Transportation funding options include local taxes, assessments and charges, and state and federal appropriations, grants, and loans. All of these resources can be constrained based on a variety of factors, including the willingness of local leadership and the electorate to burden citizens and businesses; the availability of local funds to be dedicated or diverted to transportation issues from other competing City programs; and the availability of state and federal funds. Nonetheless, it is important for the City to consider all opportunities for providing, or enhancing, funding for the transportation improvements included in the CIP.

Funding partnerships should be explored between La Grande, Union County, ODOT and developers for projects within the La Grande UGB expansion area. With an estimated $14,535,000 in transportation system improvements expected to be needed to support the future growth in the UGB expansion area through 2031, all stakeholders should work together to jointly fund the improvements as needed.

The following sources have been used by cities to fund the capital and maintenance aspects of their transportation programs. There may be means to begin to or further utilize these sources, as described below, to address existing or new needs identified in the Transportation System Plan.

System Development Charges

System development charges (SDC) are fees collected from new development and used as a funding source for all capacity adding projects for the transportation system. The funds collected can be used to construct or improve portions of roadways impacted by applicable development, such as the UGB expansion area. The SDC is collected from new development and is a one-time fee. The fee is based on the proposed land use and size, and is proportional to each land use's potential PM peak hour vehicle trip generation. The City of La Grande does not currently collect SDCs. The City may wish to pursue vehicle and/or pedestrian and bicycle SDC's to fund transportation projects for new developments. Most of the transportation improvements in the UGB expansion area would be 100 percent fundable through SDC's

General Fund Revenues

At the discretion of the City Council, the City can allocate General Fund revenues to pay for its Transportation program (General Fund revenues primarily include property taxes, use taxes, and any other miscellaneous taxes and fees imposed by the City). This allocation is completed as a part of the City's annual budget process, but the funding potential of this approach is constrained by competing community priorities set by the City Council. General Fund resources can fund any aspect of the program, from capital improvements to operations, maintenance, and administration. Additional revenues available from this source are only available to the extent that either General Fund revenues are increased or City Council directs and diverts funding from other City programs.

Local Fuel Tax

Twenty-two cities and two counties in Oregon have adopted local gas taxes by public vote ranging from one to five cents per gallon. The taxes are paid to the city monthly by distributors of fuel. The process for presenting such a tax to voters will need to be consistent with Oregon State law as well as the laws of the City. Several Eastern Oregon Cities along I-84 have a gas tax, including Pendleton (four cents per gallon), Stanfield (one cent per gallon), The Dalles (three cents per gallon) and Hood River (three cents per gallon). Pendleton's local gas tax of four cents per gallon brings an estimated $425,000 a year to the City. Since La Grande and Pendleton have similar populations and are both along I-84, it is estimated that the revenue would be similar in La Grande if a four cents per gallon local gas tax were to be adopted. In addition, the City would reap the benefits associated with through traffic along I-84 stopping in the City and paying the local gas tax. This means some of the costs for the transportation improvements in the City would be shared by non-residents. Through 2031, a four cents per gallon local gas tax could bring an estimated $8.5 million to the City.

Urban Renewal District

An Urban Renewal District (URD) would be a tax-funded district within the City. The URD would be funded with the incremental increases in property taxes that result from construction of applicable improvements. This type of tax increment financing has been used in Oregon since 1960. Use of the funding includes, but is not limited to, transportation. Improvements are funded by the incremental taxes, rather than fees.

Local Improvement Districts

Local Improvement Districts (LIDs) can be formed to fund capital transportation projects. LIDs provide a means for funding specific improvements that benefit a specific group of property owners. LIDs require owner/voter approval and a specific project definition. Assessments are placed against benefiting properties to pay for improvements. LIDs can be matched against other funds where a project has system wide benefit beyond benefiting the adjacent properties. Fees are paid through property tax bills. LIDs are often used for sidewalks and pedestrian amenities that provide local benefit to residents along the subject street. As shown in Table 17, an LID of about $401 per P.M. peak hour trip would be needed to generate $1 million for a project benefiting each of the properties in the UGB expansion area.

Table 17: Example of a Potential LID Fee

Sub-area	Total Weekday PM Peak Hour Trips	Potential LID Fee
A	202	$81,000
B	338	$136,000
C	143	$57,000
D	144	$58,000
E	302	$121,000
F	285*	$115,000
G	250	$100,000
H	827	$332,000
Total	**2,491**	**$1,000,000**

*Based on existing PM peak traffic count data

Debt Financing

While not a direct funding source, debt financing can be used to mitigate the immediate impacts of significant capital improvement projects and spread costs over the useful life of a project. Though interest costs are incurred, the use of debt financing can serve not only as a practical means of funding major improvements, but is also viewed as an equitable funding strategy, spreading the burden of repayment over existing and future customers who will benefit from the projects. The obvious caution in relying on debt service is that a funding source must still be identified to fulfill annual repayment obligations.

ODOT Immediate Opportunity Fund

The purpose of the Immediate Opportunity Fund is to support primary economic development in Oregon through the construction and improvement of streets. Specific economic development projects that affirm job retention and job creation opportunities are eligible to receive funds. Since the transportation improvements recommended in this plan are required to support development in the UGB expansion area, the City will likely become eligible to receive funding once an employer decides to locate to the area.

Implementation

The following documents the implementation measures required as part of the UGB amendment process:

- Adopt this plan as an amendment to the TSP. This amendment will include the infrastructure needed for the UGB expansion area, will serve as an update to the existing Transit system section of the TSP and will include a new Industrial Collector cross-section.
- Implement the US 30: Gekeler Lane to I-84 Circulation and Access Management Plan that was previously adopted as an amendment into the La Grande and Union County Transportation System Plans.
- Pursue and implement funding mechanisms so transportation improvements can be constructed in a timely manner.
- Adopt the recommended Development Code and Comprehensive Plan amendments. This will include the new Large Lot Industrial (I-3) zone.
- ODOT State Traffic Engineer approval is needed for any changes to the highway.
- Planning concept potentially reduces vehicle-carrying capacity of the highway; further evaluation of the project design will be required at the time of implementation to ensure compliance with ORS 366.215.
- Inclusion in the plan is not a guarantee of funding. Suggestions for funding sources are indicated (ODOT, City, etc.), but do not assure the availability or approval of such improvements.

Appendix:

La Grande Transportation System Plan Amendment

Appendix A:

Technical Memorandum #1, La Grande Transportation System Plan Amendment– Existing Transportation Conditions (DKS Associates, 2011)

TECHNICAL MEMORANDUM

DATE: October 20, 2011

TO: Project Team

FROM: John Bosket, P.E.
Kevin Chewuk

SUBJECT: **La Grande Transportation System Plan Amendment**
Existing Transportation Conditions

This memorandum provides a summary of the existing transportation conditions in the study area for the La Grande Transportation System Plan (TSP) amendment, providing answers to the following questions:

- Why are we amending the La Grande Transportation System Plan?
- What transportation infrastructure is currently available?
- What are the existing activity levels for each mode of transportation?
- How is the transportation system currently performing?

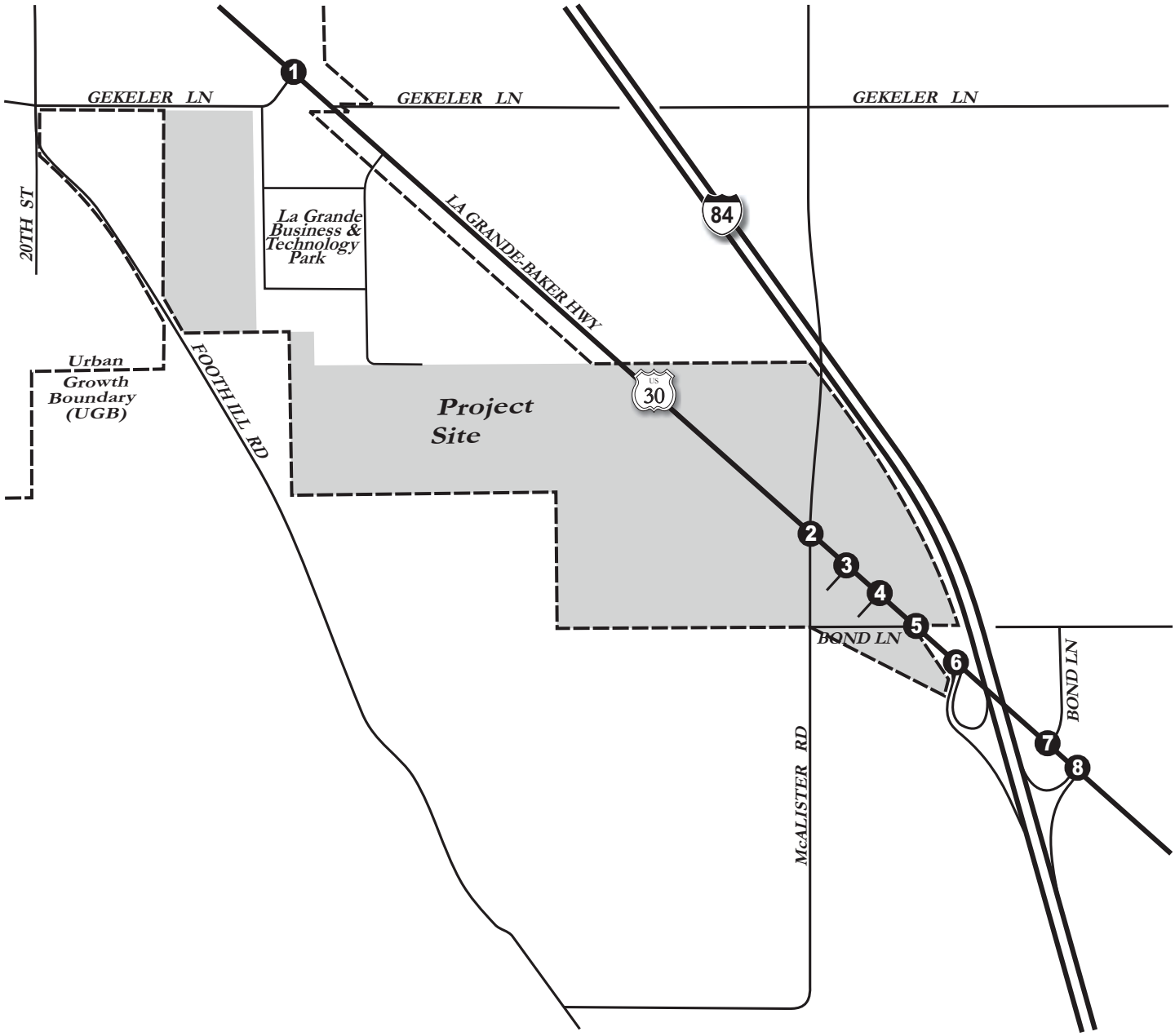
Why are we amending the La Grande Transportation System Plan?

The city of La Grande recently expanded its Urban Growth Boundary (UGB) by about 314 acres to include large lot industrial land for sites ranging from 25 to 100 acres in size. Much of this land is currently zoned agriculture, but is intended to be rezoned to light industrial and made immediately available for economic development. Prior to establishing the needed zoning to allow for such development, the city is required to update all public facilities plans, including the 1999 TSP.

In updating the TSP, the impact of the increased vehicle trip generation resulting from the proposed rezone on the surrounding transportation system will be evaluated through the year 2035. Any improvements needed to the transportation system to maintain adequate operations will be identified for incorporation into the TSP.

For this exercise, the study area includes the area in southeast La Grande in the vicinity of the UGB expansion, as shown in Figure 1.

NO SCALE



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TRANSPORTATION SOLUTIONS

Legend

1 - Study Intersection

- Project Site

Figure 1

STUDY AREA

What transportation infrastructure is currently available?

Evaluating the transportation impacts of the rezoned land requires an understanding of the current transportation facilities in this area. Much of the land included within and around the study area is currently used for agriculture, and until recently was located outside of the UGB. As a result, transportation facilities do exist but many are not constructed to urban standards. This section includes descriptions of existing infrastructure available to serve pedestrian, bicycle, motor vehicle, and rail modes of travel. An existing conditions base map is included in the appendix.

Roadways: The study area is currently well connected to the City of La Grande, in addition to the surrounding region, via US 30 (La Grande-Baker Highway) and I-84. These roadways are state facilities and provide for higher capacity motor vehicle movement through the study area. Access to I-84 is provided via the Exit 265 interchange on US 30 near Bond Lane. East of I-84, the La Grande-Baker Highway becomes OR 203 (no longer US 30). OR 203 connects the study area to the Union County Airport less than 2 miles to the southeast. For simplicity purposes, the La Grande-Baker Highway will be referred to as US 30 throughout this document since most of the study intersections are located west of the I-84 interchange. The major characteristics of the roadways in the study area are summarized in Table 1, with lane configurations and traffic controls for study intersections illustrated later in this memorandum in Figure 4.

Table 1: Study Area Roadway Characteristics

Roadway (limits)	Jurisdiction/ Classification*	Cross section	Posted Speed	Freight Route
I-84 (vicinity of Exit 265 Interchange)	ODOT/Interstate Highway	4 lanes	65 mph	Yes
US 30 (Gekeler Lane to McAlister Road)	ODOT/District Highway	2 to 3 lanes	55 mph	No
US 30 (McAlister Road to I-84 Westbound Ramps)	ODOT/District Highway	3 lanes	55 mph	No
McAlister Road (US 30 to Gekeler Lane)	Union County/ Rural Arterial	2 lanes	Not posted	No
McAlister Road (US 30 to Foothill Road)	Union County/ Rural Local	2 lanes	Not posted	No
Gekeler Lane (US 30 to Foothill Road)	City of La Grande/ Major Collector	2 lanes	35 mph	No
Foothill Road (Gekeler Lane to McAlister Road)	Union County/ Rural Local	2 lanes	Not posted	No

Source: *Oregon Highway Plan (OHP), Appendix D, Union County Transportation System Plan, Figure 3-1B, and La Grande Pedestrian and Bicycle Improvement Plan Table A-1.

Most of the non-state roadways in the study area connect to US 30, including Bond Lane, McAlister Road, and Gekeler Lane. The exception is Foothill Road, which is located west of the project site and connects to both Gekeler Lane and McAlister Road. These roadways generally have less capacity than the state highways.

Pedestrian/Bicycle: Foothill Road, Gekeler Lane, and US 30 form the main routes of bicycle and pedestrian access in and out of the area. Together with several local streets, including the recent addition of the La Grande Business Park, the existing conditions of these streets creates the context of the bicycle and pedestrian environment in the project area.

US 30 has an existing shoulder, ranging from 4 to 11 feet wide, shared by both bicycle and pedestrian users. While motor vehicle traffic volumes are not very high (5,000 to 6,500 vehicles per day), the posted speed is 55 miles per hour. There are few bicycle or pedestrian destinations located directly along the highway. However, US 30 is used by touring bicyclists traveling between La Grande and other cities who may benefit from an improved bike facility.

On the western edge of the project area, Foothill Road has no shoulder, lacking any accommodation for bicycle or pedestrian users. Because Foothill Road serves many bicyclists who use it to access mountain biking trails in the hills to the west, the 2007 La Grande Pedestrian & Bicycle Improvement Plan[1] proposed a new shoulder bikeway along this route. However, such improvements are not anticipated to occur in the near future as they would be outside of the City's jurisdiction and would be costly due to the cross slope of the hill the road traverses.

Along the northern boundary of the project area, recently reconstructed Gekeler Lane has bike lanes on both sides of the street and a curb-tight sidewalk along its north side. These new facilities were identified as a priority project in the 2007 La Grande Pedestrian & Bicycle Improvement Plan. The Gekeler Lane sidewalk connects to the street grid of the new La Grande Business Park at the intersection with Prospect Drive. Prospect Drive and the other streets inside the business park have sidewalks on both sides of the street, set back from the curb by a landscaping strip (swale).

Sidewalk and bike lanes along Gekeler Lane near US 30

[1] La Grande Pedestrian and Bicycle Improvement Plan, June 2007, Alta Planning & Design

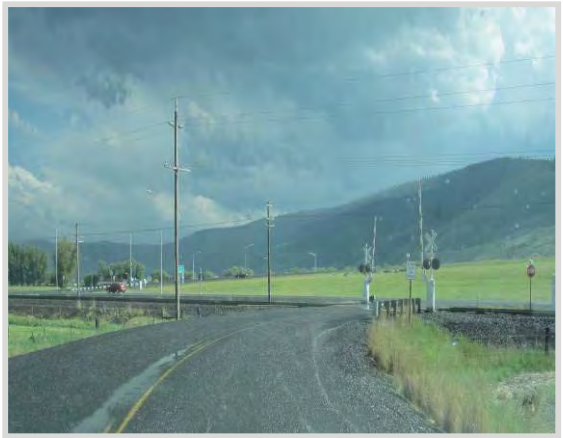
McAlister Road passes through the southeast corner of the project area. As a north-south through street that crosses I-84, the roadway is an important connection for bicycle travel in La Grande. However, south of Island City (Cove Avenue) there are no facilities for bicycles. With the recent UGB expansion, a segment of McAlister Road approximately one mile in length is anticipated to be constructed to urban standards including shoulders or designated bike lanes.

McAlister Road, south of US 30, is a gravel roadway

At the nexus of US 30, McAlister Road and Bond Lane, the Flying J travel plaza is a center of activity in the southeast corner of the project area. Though it is not a significant attractor for bicycle or pedestrian trips, marking pedestrian routes through the Flying J parking lot could improve the safety of internal circulation for customers and employees of the business.

Gekeler Slough, other waterways, and utility easements in the project area create corridors with potential development as multi-use paths. These corridors are assets that could create efficient, attractive off-street bicycle and pedestrian routes to complement the future street network of the project area. Previously, the Pedestrian & Bicycle Improvement Plan proposed a multi-use path along Gekeler Slough parallel to US 30, turning sharply to the west at the southern extent of the La Grande city limits, and then angling northwest to follow the east side of Foothill Road. While the previously proposed alignment should be reevaluated in light of the recent UGB expansion that is the focus of this project, the concept of a slough-aligned path will continue to be evaluated.

Rail: Railroad tracks are located in the study area, just north of US 30. The tracks are owned by Union Pacific Railroad, which estimates that nearly 40 freight trains pass through the study area each day. Gated at-grade railroad crossings are located at Bond Lane (East) and McAlister Road, while an at-grade un-gated crossing is located at Gekeler Lane (East).



A gated at-grade railroad crossing on Bond Lane just north of US 30

What are the existing activity levels for each mode of transportation?

Pedestrian, bicycle, motor vehicle, and freight activity at several intersections in the study area was reviewed during a 16-hour period (6:00 a.m. to 10:00 p.m.) on a typical weekday in the late spring of 2011.[2]

Pedestrians were generally non-existent during the 16-hour period. Pedestrians were only observed at the US 30/Bond Lane intersection, with two pedestrians traveling through the intersection during the 16-hour period.

Bicycle volumes were generally low throughout the study area. The US 30/McAlister Road intersection had the highest observed bicycle volumes with 15 bicyclists counted over the 16-hour period. About half of the observed bicycle activity at this intersection occurred during the midday period (12:00 p.m. to 1:00 p.m.), with the remaining bicyclists spread throughout the day. The remaining study intersections generally had less than five observed bicyclists over the 16-hour period.

Motor vehicle volumes were highest on US 30 between the I-84 westbound ramps and the Flying J travel plaza, with over 5,600 vehicles over the 16-hour period (see Figure 2). West of the Flying J travel plaza, US 30 motor vehicle volumes dropped nearly 30 percent, to around 4,200 vehicles. The peak hour of motor vehicle traffic occurred between 3:00 p.m. and 4:00 p.m.

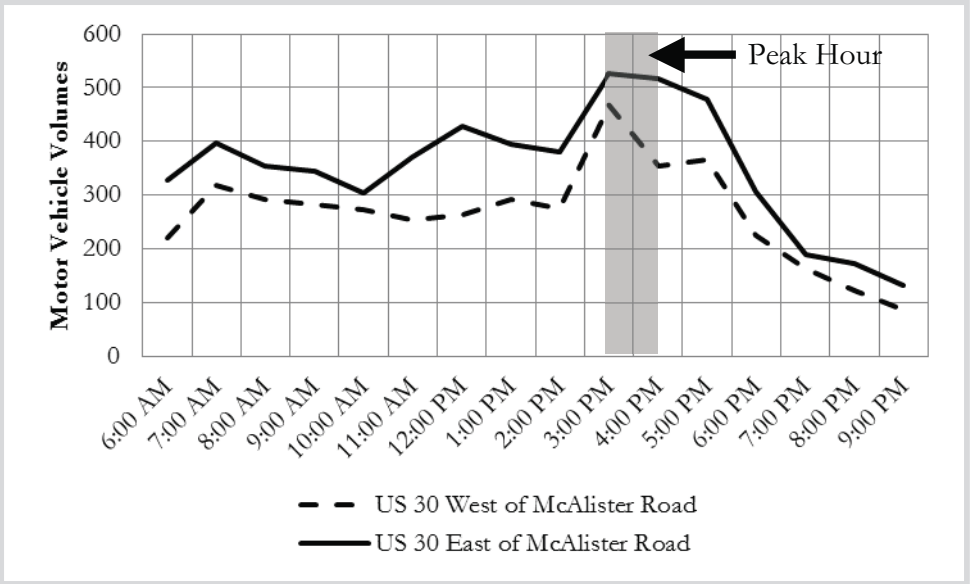


Figure 2: Hourly Motor Vehicle Volumes along US 30

[2] Based on counts conducted May 4th, May 5th, and May 9th, 2011.

Traffic counts taken during off peak times in the year (like those collected for this study) must often be adjusted to account for seasonal variations in travel. For this study, the methodology from the ODOT Analysis Procedures Manual[3] was applied to determine the 30th highest annual hour volume (30 HV) for the study intersections. The 30 HV is commonly used for design purposes and represents the level of congestion that is typically encountered during the peak travel month.

To determine when the 30th highest annual hour volumes occur, data is examined from Automatic Traffic Recorder (ATR) stations that record highway traffic volumes year-round. If no on-site ATR is present, one with similar characteristics can be identified using ODOT's ATR Characteristics Table. If these do not produce a similar ATR with average annual daily traffic volumes (AADT) within 10% of study area volumes, the seasonal trend method should be used. The seasonal trend method averages seasonal trend groupings from the ATR Characteristics Table.

For the study area, no ATR's are located on-site, and the ATR Characteristics Table did not produce matches within 10% of the study area AADT volumes. Therefore, the seasonal trend method was utilized to develop the seasonal factor.

An average of the "summer" and "commuter" trends from the seasonal trend table was utilized to reflect that there are typically only minor increases in traffic volumes around the I-84 interchange in the summer months. Applying the summer trend alone would yield too extreme of a factor for the study area.

An average of the summer and commuter trends resulted in a seasonal factor of 1.10, resulting in a 10 percent increase to the May counts collected. The adjusted weekday p.m. peak hour volumes developed for the study intersections are displayed in Figure 4.

Freight volumes were highest along US 30 between the I-84 eastbound ramps and the Flying J travel plaza (see Figure 3), with nearly 900 trucks counted during the 16-hour period. West of the Flying J travel plaza, US 30 freight volumes dropped significantly, generally ranging between 100 and 200 trucks over the 16-hour period.

Freight volumes along US 30 between I-84 and McAlister Road tended to peak between 3:00 p.m. and 4:00 p.m. (same as the overall motor vehicle peak hour). However, truck volumes were fairly consistent throughout the count period, generally ranging between 45 and 70 trucks each hour.

Freight volumes on US 30, between McAlister Road and Gekeler Lane also peaked between 3:00 p.m. and 4:00 p.m., although hourly volumes were much lower, generally ranging between from 0 to 30 trucks per hour.

[3] Analysis Procedures Manual, Oregon Department of Transportation, July 2009.

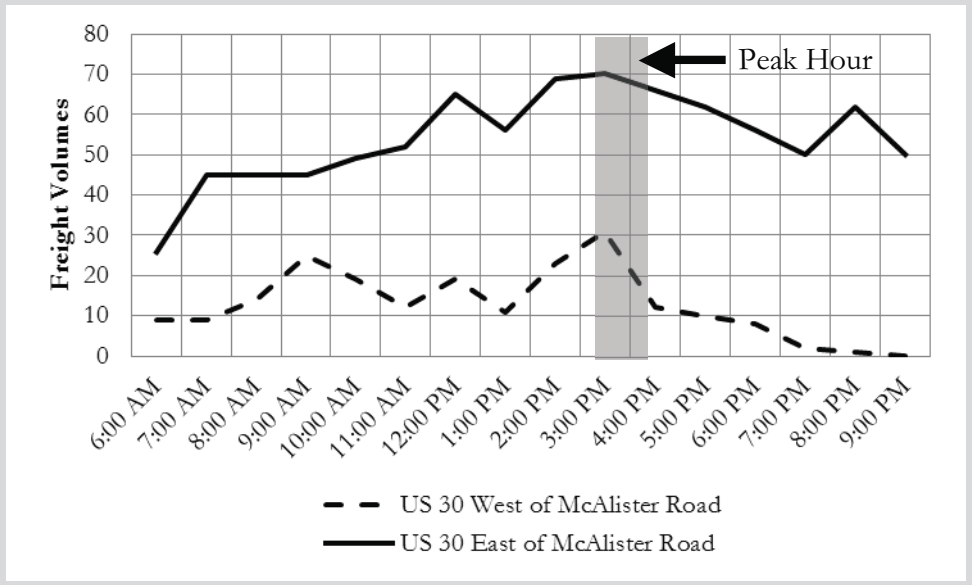
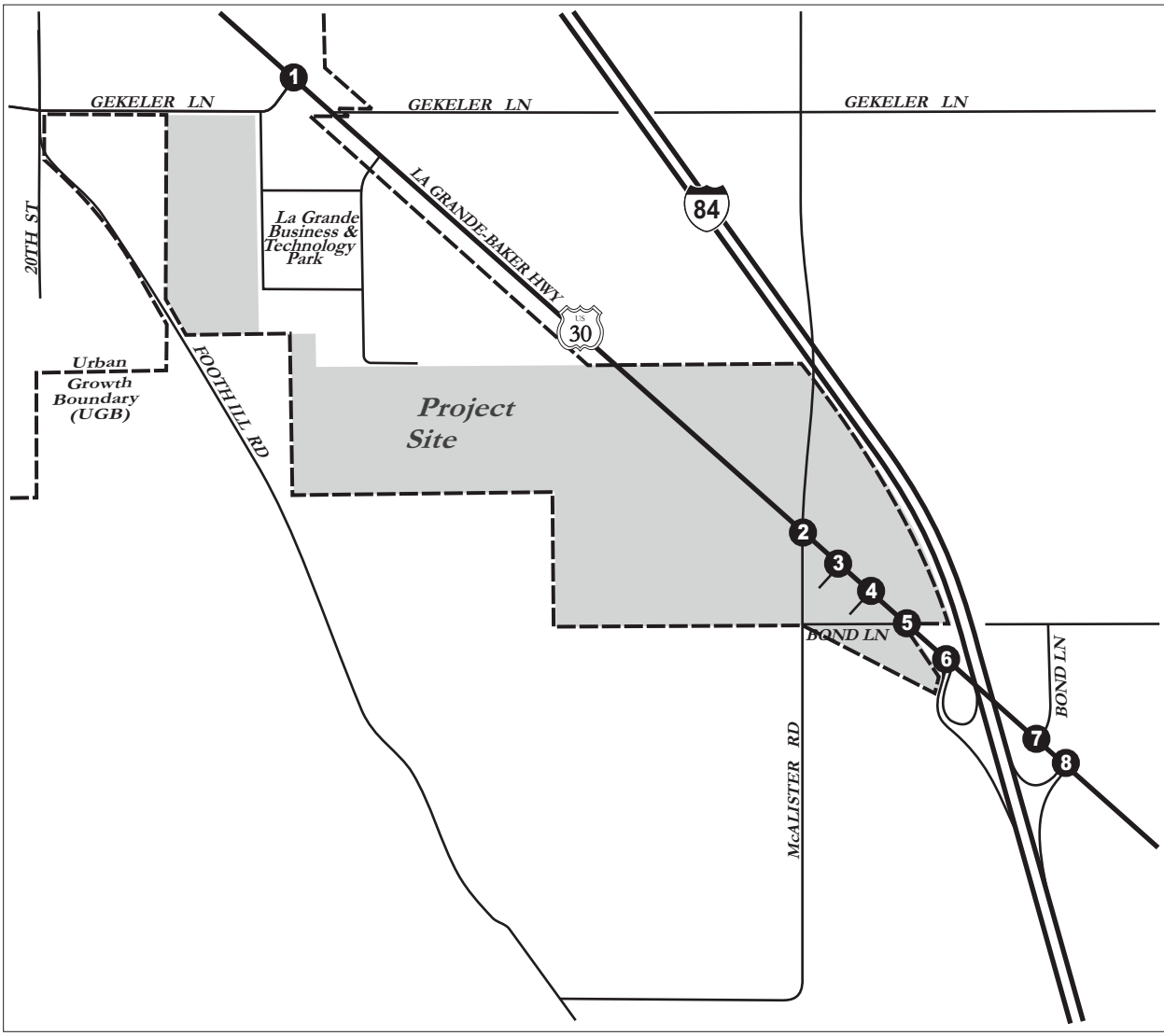


Figure 3: Hourly Freight Volumes along US 30

NO SCALE



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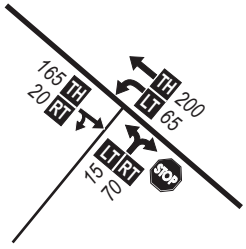
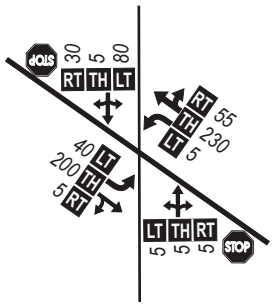
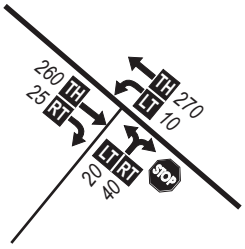
1 US 30/Gekeler Ln. (West)



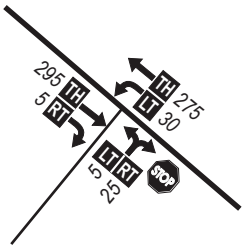
2 US 30/McAlister Rd.



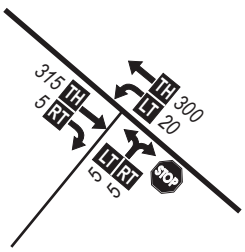
3 US 30/North Flying J (Driveway)



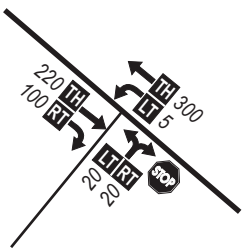
4 US 30/South Flying J (Driveway)



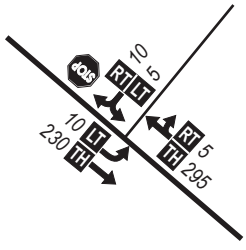
5 US 30/Bond Ln. (West)



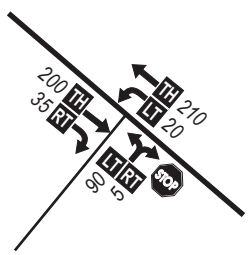
6 US 30/I-84 Eastbound Ramps



7 US 30/Bond Ln. (East)



8 US 30/I-84 Westbound Ramps



Legend

- 1 - Study Intersection
- ← - Lane Configuration
- 000 - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)
- STOP - Stop Sign
- Project Site

Figure 4

EXISTING (2011) WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

Much of the freight activity in the study area is generated by the existing Flying J travel plaza and light industrial businesses along US 30 and McAlister Road, with freight generally traveling between these businesses and I-84 via US 30. Interviews were conducted with representatives of two of the businesses (Eagle Freightliner and the Flying J travel plaza) and the general consensus was that there are currently no constraints or limitations to freight activity in the study area.

One minor issue noted was the delay that is experienced as a result of trains blocking McAlister Road. No right turn lane storage is available for northwest bound traffic on US 30 wanting to turn onto McAlister Road. When a train crosses McAlister Road, traffic could potentially queue back and block through traffic on US 30. The interview summaries are included in the appendix.

The Flying J travel plaza generates most of the freight activity in the study area

Snowfall during the winter has commonly created problems for truck freight travel through this area. There are times when snowfall on the interstate forces truck drivers to park and wait until the road is clear – either by choice or because ODOT has closed the freeway. When this occurs, the Flying J travel plaza and the shoulders of US 30 in the Exit 265 interchange area become a preferred place to park. When drivers choose to park along the highway shoulders it often creates a hazardous driving environment, especially when trucks are double-parked and blocking the travel lanes.

Accessing the Flying J travel plaza itself can be difficult under snowy conditions when drifting snow fills the adjacent ditches. When this happens the driveways cannot be accurately located and it creates the appearance of an open site frontage to the highway and McAlister Road. As a result, truck drivers miss the driveways and become stuck in ditches. Trucks also become stuck when drivers view the hidden ditches as wide shoulders and attempt to park on them.

The Flying J travel plaza is served by many access points: two to US 30 and somewhat undefined frontages along McAlister Road and Bond Lane that create no fewer than two more access points to each. Within the travel plaza, there are a number of services and amenities that impact how the many site access points are used. The south driveway to US 30 provides the best alignment with the truck fuel pumps, but is also close to the passenger car fuel pumps. The north driveway to US 30 is close to the passenger car fuel pumps and the restaurant parking. Accessing the site through the US 30 intersection with Bond Lane provides the best alignment with the

trucks scales at the southeast corner of the site. Together, the combination of access points and services create many possible routes for circulation, leading to a potential for conflicts between trucks and cars.

ODOT has reported that there have been problems with trucks pulling out in front of through traffic on US 30 from the Flying J site. In response, a continuous right turn lane was constructed in the eastbound direction on US 30 from McAlister Road to the I-84 Eastbound ramp terminal to provide a direct connection from the Flying J to I-84 without need to merge with the through lane. However, since this improvement, ODOT has continued to receive complaints regarding trucks pulling out in front of highway traffic.

How is the transportation system currently performing?

The transportation infrastructure in the study area was evaluated with a variety of measures in order to document the existing deficiencies of the transportation system. Information reviewed included safety of the roadways and intersections, motor vehicle operations, and spacing of roadways and driveways.

Safety of the roadways and intersections in the study area was assessed through collision data and field observations to identify deficiencies. The data along the roadways and intersections was reviewed to identify potential patterns for motor vehicle, pedestrian, and bicyclist collisions.

Collision data from the past three years (2007 to 2009) for all roadways in the study area was obtained from ODOT. Over the past three years, ten collisions, or an average of just over three per year, occurred in the study area. A majority of these (eight of the ten) were either angle or turning type. Of the remaining two collisions, one involved a vehicle rear-ending another, and the other involved a vehicle overturning.

The severity of the collisions was generally low, with eight of the ten involving either property damage only (no injuries) or minor injuries. There was one collision involving major injuries, one involving moderate injuries, and no fatalities over the past three years.

Pedestrian/Bicycle Collisions: There were no crashes involving pedestrians or bicyclists over the past three years in the study are (2007 to 2009). However, a pedestrian was involved in a crash just to the west of Gekeler Lane in 2006 (prior to recent sidewalk construction), suffering major injuries. In addition, a pedestrian was struck by a vehicle along the shoulder of OR 203 just to the southeast of the study area in 2008.

Intersection Collisions: The total number of crashes experienced at an intersection is typically proportional to the number of vehicles entering it. Therefore, a crash rate describing the frequency of crashes per million entering vehicles (MEV) is used to determine if the number of crashes should be considered high. Using this technique, a crash rate of 1.0

MEV or greater is commonly used to identify when further investigation is warranted.

As shown in Table 2, crash rates calculated (based on the past three years of data) at all eight intersections reviewed in the study area are well below the 1.0 MEV threshold, indicating the frequency of collisions is typical for the volume of traffic served. Several of the intersections, including US 30/Bond Lane (East), US 30/I-84 Eastbound Ramps, US 30/Bond Lane (West), US 30/South Truck Stop Driveway, and US 30/North Truck Stop Driveway had no collisions over the three year period.

The US 30/I-84 Westbound Ramps intersection had the highest crash rate of the intersections reviewed, although well below the 1.0 MEV threshold, with four collisions over the three year period. Both of the collisions at this intersection involved drivers failing to yield the right-of-way when making a turn. It was noted during field observations that adequate sight distance was available at this intersection.

Roadway Segment Collisions: Crash rates identifying the number of collisions per million vehicle-miles traveled were calculated for sections of US 30 through the study area, and compared to statewide average rates for similar facility types.[4] For comparison against statewide averages, US 30 was classified as a non-freeway principal arterial through an urban city area northwest of McAlister Road and a non-freeway minor arterial through a rural area southeast of McAlister Road. The reported crash rates are shown in Table 3.

Table 2: Intersection Collision Evaluation

Intersection	Total Collisions (2007 to 2010)	Collision Rate (MEV)
US 30/Gekeler Lane (West)	1	0.18
US 30/McAlister Road	4	0.55
US 30/North Flying J travel plaza Driveway	0	0.00
US 30/South Flying J travel plaza Driveway	0	0.00
US 30/Bond Lane (West)	0	0.00
US 30/I-84 Eastbound Ramps	0	0.00
US 30/Bond Lane (East)	0	0.00
US 30/I-84 Westbound Ramps	4	0.70

Note: MEV= Collisions per million entering vehicles

[4] *2009 State Highway Crash Rate Tables*. Retrieved July 2011 from ODOT website: http://www.oregon.gov/ODOT/TD/TDATA/car/CAR_Publications.shtml\

Table 3: State Highway Collision Rate Comparison

Roadway (limits)	Crashes per Million Vehicles Miles		
	2007	2008	2009
Oregon Average Rate- Other Urban Principal Arterial	*2.38*	*2.37*	*2.35*
US 30 (Gekeler Lane West to ½ mile northwest of McAlister Road)	0.55	0.55	0.00
Oregon Average Rate- Rural Minor Arterial	*1.03*	*0.99*	*0.97*
US 30 (½ mile northwest of McAlister Road to I-84 Westbound Ramps)	1.42	0.71	0.71

Source: US 30 Collision Data (2007-2009), ODOT Crash Analysis and Reporting Unit

Both segments of US 30 experienced crash rates well below statewide averages, indicating that the frequency of crashes during these years was relatively low compared to similar highways. The exception was the segment of US 30 from just northwest of McAlister Road to the I-84 Westbound ramps during 2007, which had a crash rate above that of similar highways. This segment crash rate was generally being influenced by intersection crashes (all four in 2007 were at public street intersections). Crash rates dropped significantly in the following two years and were well below the statewide average rates. Therefore, no mitigation may be needed.

This analysis was supplemented by a review of ODOT Safety Priority Index System listings for locations in the study corridor ranked among the state's top ten percent of hazardous locations. The Safety Priority Index System (SPIS) is a method developed by ODOT for identifying hazardous locations on state highways, with the score based on three years of crash data, considering crash frequency, rate, and severity. ODOT bases its SPIS on 0.10-mile segments to account for variances in how crash locations are reported. This rating provides a general comparison of the overall safety of the highway based on crash information for all highway segments throughout the state.

According to ODOT 2010 SPIS ratings, there are no locations in the study area that rank among the top ten percent of state highways in Oregon. Although the crash data has not indicated safety issues, there are safety concerns with truck movements on US 30 with through traffic traveling at high speeds and with parking along the roadway shoulder during snowfall events.

Motor vehicle operations in the study area were evaluated by analyzing the performance of intersections along US 30. Two common measures of intersection performance are level of service (LOS) and volume-to-capacity (v/c) ratios.

Level of service (LOS) is similar to a report card rating (A through F) and is based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.

Volume-to-capacity (V/C) ratios are decimal representations (between 0.0 and 1.0) of the proportion of capacity that is being used (i.e., the saturation) at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic flow rate by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.0, congestion increases and performance is degraded. If the ratio is greater than 1.0, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

Each of the reviewed intersections in the study area is under state jurisdiction (along US 30). ODOT has adopted mobility standards, establishing minimum acceptable performance levels during peak travel periods. These mobility standards are documented in the 1999 Oregon Highway Plan (OHP)[5] and are based on v/c ratios. The OHP Table 6 in Policy 1F specifies maximum allowable v/c ratios for each highway classification according to posted speeds and area types (i.e., inside/outside of the UGB, rural lands, or a freeway interchange).

ODOT is currently in the process of amending these mobility standards, with changes being effective January 1, 2012. The intent is to create more flexibility in evaluating system adequacy, where mobility standards will be changed to mobility "targets." In addition, v/c ratio targets for state facilities outside of the Metro area are expected to be changed to allow for slightly more congestion.

Through the study area, US 30 is classified as a District Highway with a posted speed of 55 mph. Five of the eight study intersections are located inside the UGB, while three are outside the UGB on rural lands. In addition, two of the intersections are also ramp terminals of the I-84 Exit 265 interchange. The following summarizes both the current mobility standards and anticipated mobility targets for the study intersections:

- A maximum v/c ratio of 0.80 is required for unsignalized intersections located inside the UGB. **[the new mobility target would be met at a v/c ratio of**

[5] *1999 Oregon Highway Plan* –Oregon Department of Transportation, amended July 2006.

0.90 or less]

- A v/c ratio of 0.75 is required for movements that are not required to stop at unsignalized intersections located outside the UGB and on rural lands. **[the new mobility target would be met at a v/c ratio of 0.85 or less]**
- A v/c ratio of 0.80 is required for movements that are required to stop at unsignalized intersections located outside the UGB. **[the new mobility target would be met at a v/c ratio of 0.85 or less]**
- A v/c ratio of 0.75 is required for the ramp terminals of freeway interchanges. **[the new mobility target would be met at a v/c ratio of 0.85 or less]**

The motor vehicle conditions in the study area were evaluated at the eight intersections reviewed during the 30 HV (i.e., weekday p.m. peak hour in August). The evaluation utilized *2000 Highway Capacity Manual* methodology[6] for unsignalized intersections.

During this period, all study area intersections operate within the adopted mobility standards, as well as the anticipated mobility targets (see Table 4). The intersections operate with v/c ratios of 0.26 or less for the stop controlled side streets. Overall, the intersections have a significant amount of reserve capacity to accommodate future growth.

Table 4: Existing Evening Peak Hour Intersection Operations

Intersection	Mobility Standard/ Target (v/c)	Volume/ Capacity	Delay (seconds)	Level of Service
US 30/Gekeler Lane (West)	0.80/0.90	0.18	11.1	A/B
US 30/McAlister Road	0.80/0.90	0.26	13.8	A/B
US 30/North Flying J travel plaza Driveway	0.80/0.90	0.21	12.1	A/B
US 30/South Flying J travel plaza Driveway	0.80/0.90	0.23	11.6	A/B
US 30/Bond Lane (West)	0.80/0.90	0.24	12.0	A/B
US 30/I-84 Eastbound Ramps	0.75/0.85	0.24	11.8	A/B
US 30/Bond Lane (East)	0.80/0.85	0.24	11.0	A/B
US 30/I-84 Westbound Ramps	0.75/0.85	0.23	13.2	A/B

Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement
Level of Service = Level of Service of Major Street/Minor Street
Volume/Capacity = Volume-to-Capacity Ratio of Worst Movement

[6] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.

Access spacing along study area roadways is managed through access spacing standards. Access management is a broad set of techniques that balance the need to provide efficient, safe, and timely travel with the ability to allow access to individual destinations. Proper implementation of access management techniques will promote reduced congestion and accident rates, and may lessen the need for additional highway capacity. ODOT has adopted access spacing standards that apply to US 30.

ODOT access spacing standards vary depending on the highway classification, posted speed, and area type. For District Highways with posted speeds of 55 miles per hour (US 30), ODOT spacing standards require a minimum of 700 feet between driveways and/or roadways. However, in interchange areas, ODOT spacing standards also require a minimum of 1,320 feet between interstate highway interchanges and full access or right-in/right-out driveways or intersections. Inside urban growth boundaries, right-in/right-out approaches on the side of the highway approaching the interchange may be allowed within 990 feet of the ramp terminal.

ODOT is currently in the process of amending their access spacing standards, with the new standards being effective January 1, 2012. The anticipated changes relevant to this project area would reduce access spacing requirements on US 30 (District Highway) to a minimum of 650 feet west of the Flying J site (AADT < 5,000). From the Flying J site to the east, where the AADT is greater than 5,000, access spacing standards would remain unchanged.

An access inventory was conducted along US 30 from I-84 to Gekeler Lane, comparing the number of existing approaches (driveways and public streets) to applicable ODOT access spacing standards. Several driveways and public streets do not currently comply with the spacing standards, including Bond Lane (East), and Bond Lane (West).

Bond Lane (East) intersects US 30 between the I-84 Westbound and I-84 Eastbound Ramp intersections, and therefore does not comply with the 1,320 foot spacing from the interchange. In addition, Bond Lane (West) and the south driveway to the Flying J travel plaza are within 1,320 feet of the I-84 interchange (690 feet and 1,150 feet respectively).

Furthermore, several individual driveways do not comply with ODOT's 700-foot spacing standard. The north Flying J travel plaza driveway is about 530 feet to the southwest of McAlister Road, while four of the driveways on the south side of US 30 serving the US Forest Service building and adjacent industrial uses (between Gekeler Lane (West) and McAlister Road) are located within 700 feet of one another (also would not comply with anticipated 650-foot standard).

Transit

Transit service is provided in La Grande by Northeast Oregon Public Transit via three fixed bus routes connecting La Grande to Baker City and Wallowa County, and an Americans with

Disabilities Act (ADA) paratransit service. Northeast Oregon Public Transit is a division of Community Connection of Northeast Oregon.

Transit Access and Amenities

The Northeast Oregon Public Transit Hub, located on East Penn Avenue at Albany Street, offers a transfer point between the three Northeast Oregon Public Transit fixed bus routes and the regional bus service to other areas in Oregon and Washington. The transit center includes parking for motor vehicles and has a shelter and bench for riders.

There are eight bus stops in La Grande (shown in Figure 5) including stops at Walmart, Albertson's, Northeast Oregon Public Transit Hub, Riveria Activity Center, Max Square, Safeway, the Department of Human Services, and Eastern Oregon University. Of the eight bus stops, half offer benches and shelter. At any particular point in La Grande, a user is generally never more than one mile from a bus stop.

All Northeast Oregon Public Transit buses are equipped with either a ramp or a lift to allow wheelchair access. Riders are permitted to load bicycles inside the bus.

Local Transit Service

Bus service in La Grande is provided via the La Grande Trolley. The trolley runs from Walmart on Island Avenue in Island City to Eastern Oregon University in southwest La Grande. It operates Monday through Friday, 7:30 a.m. to 5:30 p.m. Key stops along this route include Riveria Activity Center, Max Square, and the Department of Human Services. The La Grande Trolley route can be seen in Figure 5. A second transit route between the hospital and Bi-Mart was recently terminated due to loss of funding.

Bus service is provided to Baker City via the Baker Bow route, which runs from the Community Connections office in Baker City to the Northeast Oregon Public Transit Hub in La Grande. Key destinations along this route include the Haines Mercantile Store in Haines and the North Powder Truck Stop in North Powder. The bus leaves the Northeast Oregon Public Transit Hub destined for Baker City at 8:15 a.m. and 5:25 p.m., and leaves Baker City destined for La Grande at 8:03 a.m. and 5:18 p.m. Monday through Friday.

Bus service is provided to Wallowa County via the Wallowa Link route, which follows OR 82 from Joseph to the Northeast Oregon Public Transit Hub in La Grande. Key destinations along this route include Enterprise, Lostine, Wallowa, Elgin, and Imbler. On Mondays the bus arrives in La Grande from Joseph at 10:00 a.m. and departs La Grande destined for Joseph at 2:00 p.m. On Thursdays, the bus arrives in La Grande from Joseph at 4:30 p.m. and departs La Grande destined for Joseph at 6:30 p.m. On Saturdays, the bus arrives in La Grande from Joseph at 10:00 a.m. and departs La Grande destined for Joseph at 12:30 p.m. Bus service is available for La Grande based medical and personal needs between the arrival and departure time from La Grande.

Bus service between La Grande, Union, and Cove is provided weekly. This route runs on US 30 through the project area and relies on volunteer drivers.

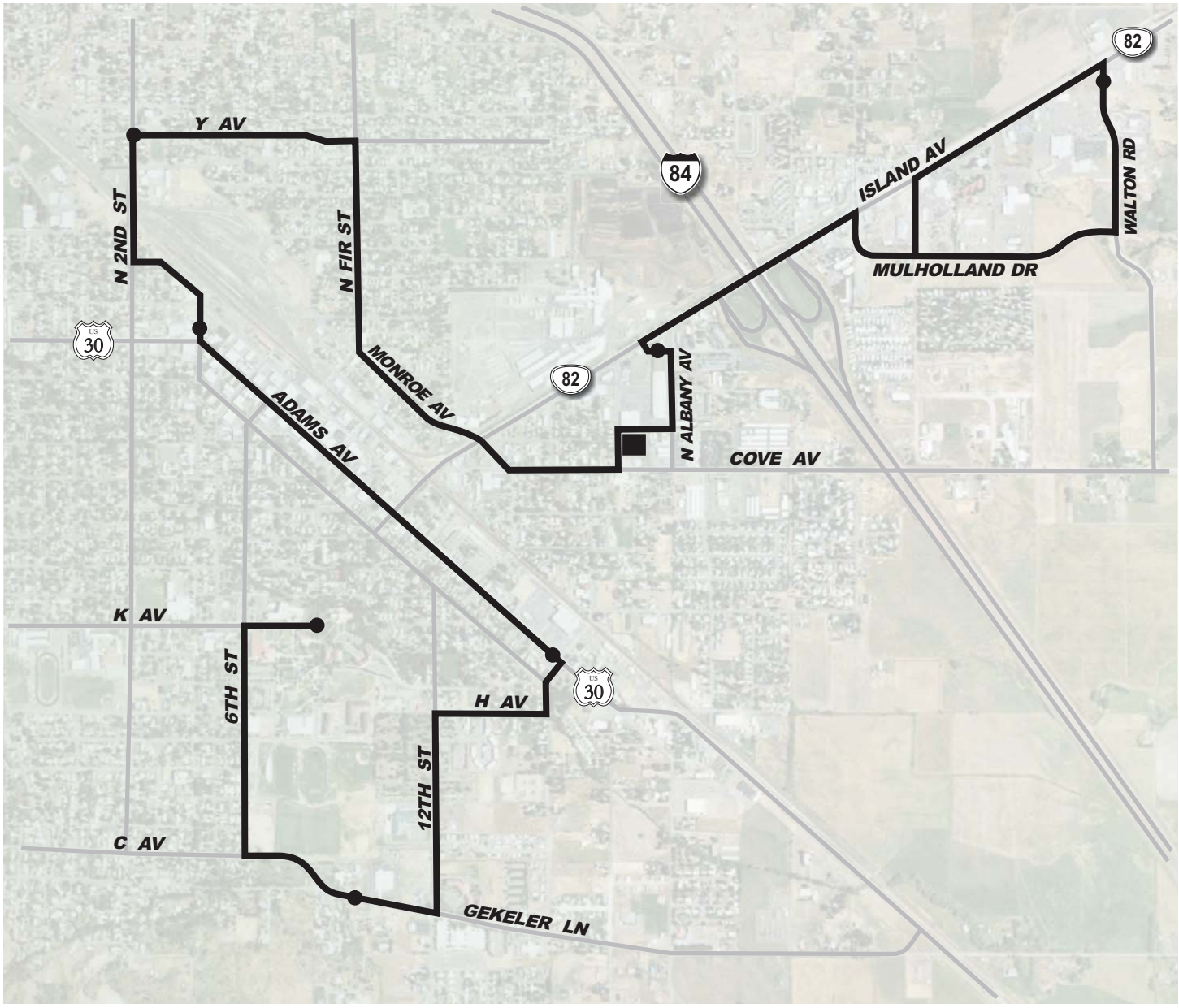
The Northeast Oregon Public Transit paratransit service provides **public transportation to persons with disabilities** who are unable to use regular fixed route buses. Curb to curb paratransit service, in wheelchair lift equipped mini-buses, is available Monday through Friday between 10:00 a.m. and 3:00 p.m.

Regional Transit Service

The Confederated Tribes of the Umatilla Indian Reservation offers free bus service (referred to as the La Grande Arrow) that connects La Grande to Pendleton. The route includes stops in La Grande at Eastern Oregon University and the Northeast Oregon Public Transit Hub, and offers service three times a day, Monday through Friday.

Greyhound offers bus service that connects La Grande to major cities across the United States. Riders may access Greyhound buses at the Northeast Oregon Public Transit Hub.

NO SCALE



DKS *Associates*
TRANSPORTATION SOLUTIONS

Legend

- Bus Route
- Bus Stop
- Northeast Oregon Public Transit Hub

Figure 5

EXISTING TRANSIT ROUTES

Project Area Surface Water Issues

There are a number of significant issues related to surface water throughout the project area that will impact how the site can be developed. Anderson Perry & Associates, Inc. has been contracted by the city to address on-site stormwater needs and has provided the following description of key issues.

> The UGB expansion in southwest La Grande has several significant surface water issues that can and may impact how this site may be developed and utilized. Currently two primary drainage systems pass through the proposed UGB expansion area: Gekeler Slough and Taylor Creek.[7] In both cases, the hydraulic capacity of the existing stream channels is very limited and flooding occurs when even medium water flows occur. The UGB expansion area is also located within the floodplain designated by the U.S. Army Corps of Engineers. Surface water issues impact properties within the City of La Grande, properties within the UGB expansion area (including the Flying J site), private properties, and properties located within Union County. Additional development, both within the City of La Grande and within the UGB expansion area, will ultimately impact both water quality and water quantity issues currently being experienced in this area.

Considerations in the comprehensive planning effort will be water quality, fish passage, streambed enhancements, hydraulic capacity, etc. Improvements to be evaluated include implementation of the proposed Taylor Creek and Gekeler Slough bypass identified in the City of La Grande's Surface Water Management Plan. A bypass channel may be constructed as shown on the map included in the appendix entitled, "Potential Surface Water Facility Needs." This channel would divert high flows into a storage pond area that would provide mitigation of high flows, water quality improvement, etc. These ponds would drain as flows decrease, which would allow most of the pond area to be utilized for farming operations. The areas identified on the map show where a possible storage pond or ponds could be sited. The area will be evaluated with the intent to select a site that will have the required 60 to 100 acres for the ponds. The actual location of the storage pond/ponds will also be dependent on the possibility of acquiring property and/or easements from property owners. A portion of the UGB expansion could be utilized for storage ponds depending on property availability.

The Gekeler Slough overflow bypass would also be evaluated. This bypass would run parallel to Highway 30 and take pressure off the existing Gekeler Slough system, which often experiences flows that exceed its hydraulic capacity. Additionally, an overflow bypass on the southeast portion of the urban growth study area will also be evaluated to route high flows away from the existing stream channel on the eastern side of the UGB expansion area.

[7] There are also 2 to 3 irrigation ditches in the project area that once acted as outlets for drainage. However, when they were no longer needed for irrigation purposes, several segments were buried by property owners.

Surface water issues within the UGB expansion area will also be evaluated as to how surface water issues within the UGB expansion area will be managed. Possible management options could include on-site storage or connection to existing or proposed surface water channel improvements.

Because the proposed improvements will cross jurisdictional boundaries, the planning effort will require appropriate permitting and oversight by regulatory agencies, private property owners, the City of La Grande, Union County, the Oregon Department of Transportation, etc. Careful planning and cooperation will be needed to come to a reasonable conclusion as to the improvements to be made and where they will be sited.

Potential Air Quality Issues

In the early 1990's La Grande was designated as a PM-10 (Particulate Matter) nonattainment area by the Environmental Protection Agency. The cause was largely attributed to a lack of paving requirements in the city resulting in frequent use of gravel parking lots and roads, in addition to wood burning within the city and on surrounding agricultural lands.

In response, the City of La Grande improved paving standards/requirements within the city and implemented a wood burning monitoring program. As a result, air quality improved and La Grande has been in attainment since the early 2000's.

Given that new development will be required to comply with standards/requirements put in place to protect air quality, development of the urban growth boundary expansion area is not anticipated to jeopardize the City's PM-10 attainment status.

Appendix B:

Technical Memorandum #2, La Grande Transportation System Plan Amendment– Future Transportation Conditions (DKS Associates, 2012)

TECHNICAL MEMORANDUM

DATE: February 17, 2012

TO: Project Team

FROM: John Bosket, P.E. – DKS Associates
Kevin Chewuk – DKS Associates

SUBJECT: **La Grande Transportation System Plan Amendment**
Task 3.1 - Future Transportation Conditions

This memorandum summarizes the future transportation conditions under two land use scenarios associated with a proposed La Grande Comprehensive Plan amendment. Included is documentation of the assumptions and methodologies, an analysis of future motor vehicle conditions and an identification of multi-modal constraints and opportunities to help determine if the transportation network can support the traffic growth associated with the Comprehensive Plan amendment.

Assumptions and Methodologies

This section will outline key assumptions and methodologies that will be used to help analyze future conditions with and without the proposed Comprehensive Plan amendment and identify any potential impacts at study intersections. Areas of interest covered in this section include land use assumptions, trip generation, trip distribution, and background traffic growth.

Land Use Assumptions

Understanding the character of surrounding land uses is a key factor in developing a functional transportation system. The amount of land that is planned to be developed, the types of land uses, and how the land uses are mixed together have a direct relationship to the expected demands on the transportation system.

An employment forecast for the City of La Grande[1] identified that the current Urban Growth Boundary (UGB) was not large enough to accommodate a 20-year supply of buildable land. Based upon employment forecasts and current land use patterns, the City expanded the UGB to include an additional 314 acres for development over the next 20 years. As shown in Table 1, this includes 268 acres of industrial land (two large-lot industrial parcels and several smaller lots), and 46 acres of commercial land.

[1] City of La Grande Ordinance 3182, 2009, Johnson Reid

Table 1: Expected Land Use Need

Land Use	Size (acres)
Industrial	268
100+ acre lot	*121*
50+ acre lot	*63*
Other Industrial	*84*
Commercial	46
Total Acreage	**314**

Prior to developing the land within the UGB expansion area, the City must re-zone much of the acreage (280 of the 314 acres) to accommodate the types of land uses desired. Most of the acreage included in the UGB expansion is currently zoned for Exclusive Farm Use, although some areas are zoned for Heavy Industrial and Commercial Interchange uses.[2]

The proposed zone changes (as shown in Table 2) include converting 244 acres of Exclusive Farm (A-1) uses and 36 acres of Heavy Industrial (I-2) to either Large Lot Industrial (I-3)[3] or Light Industrial (I-1). Approximately 34 acres currently zoned by Union County for Interchange Commercial (C-2) uses will be re-zoned to La Grande Interchange Commercial (IC). The City IC zone generally corresponds with the County C-2 zone.

Figure 1 splits the study area into several sub-areas associated with the existing and proposed zoning shown in Table 2. The sub-areas were used throughout this document for reference purposes.

Table 2: Zoning Assumptions

Existing Zoning* (Union County)	Sub-area (see Figure 1)	Gross Size (acres)	Proposed Zoning (La Grande)
Exclusive Farm Use (A-1)	A	48	Business Park (BP)
Exclusive Farm Use (A-1)	B	121	Large Lot Industrial (I-3) (100+ acre lot)
Exclusive Farm Use (A-1)	C	63	Large Lot Industrial (I-3) (50+ acre lot)
Heavy Industrial Use (I-2)	D	36	Light Industrial (I-1)
Exclusive Farm Use (A-1)	E	12	Interchange Commercial (IC)
Commercial Interchange Zone (C-2)	F, G & H	34	Interchange Commercial (IC)**
Total Acreage		**314**	

*Source: Union County Development Code
**The City Interchange Commercial Zone (IC) zone generally corresponds with the County C-2 zone

[2] Union County Development Code
[3] The I-3 zone does not currently exist, but is proposed to be established to achieve the types of industrial development desired in this area.

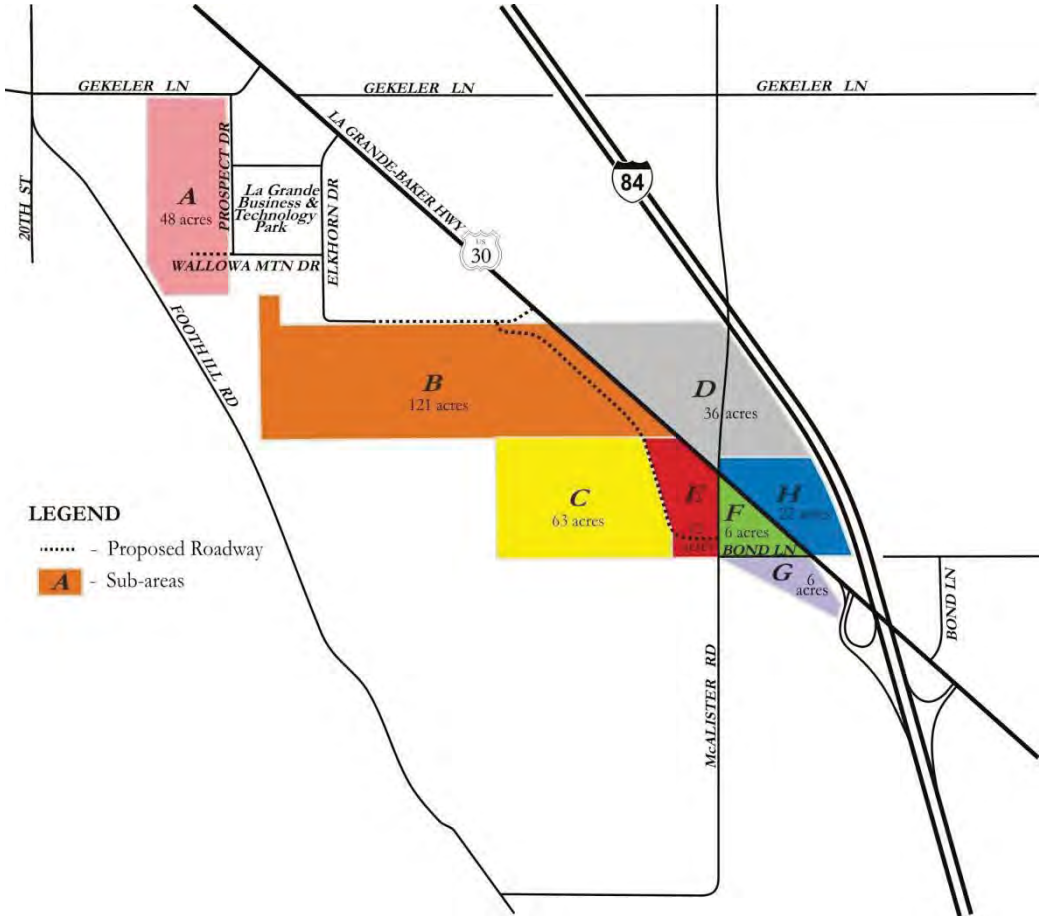


Figure 1: Study Area Sub-areas

Land Use Scenarios

To assess the potential impact on the transportation system from the proposed zone changes, the following two land use scenarios were analyzed and compared:

- **Existing Zoning Scenario (No-Build):** This scenario represents the base-case condition if no acreage was re-zoned. The existing zoning from Table 2 was assumed and can be seen in Figure 2.
- **Proposed Zoning Scenario (Build):** This scenario represents the conditions after the acreage is re-zoned using the proposed zoning shown in Table 2. The proposed zoning is illustrated in Figure 3.

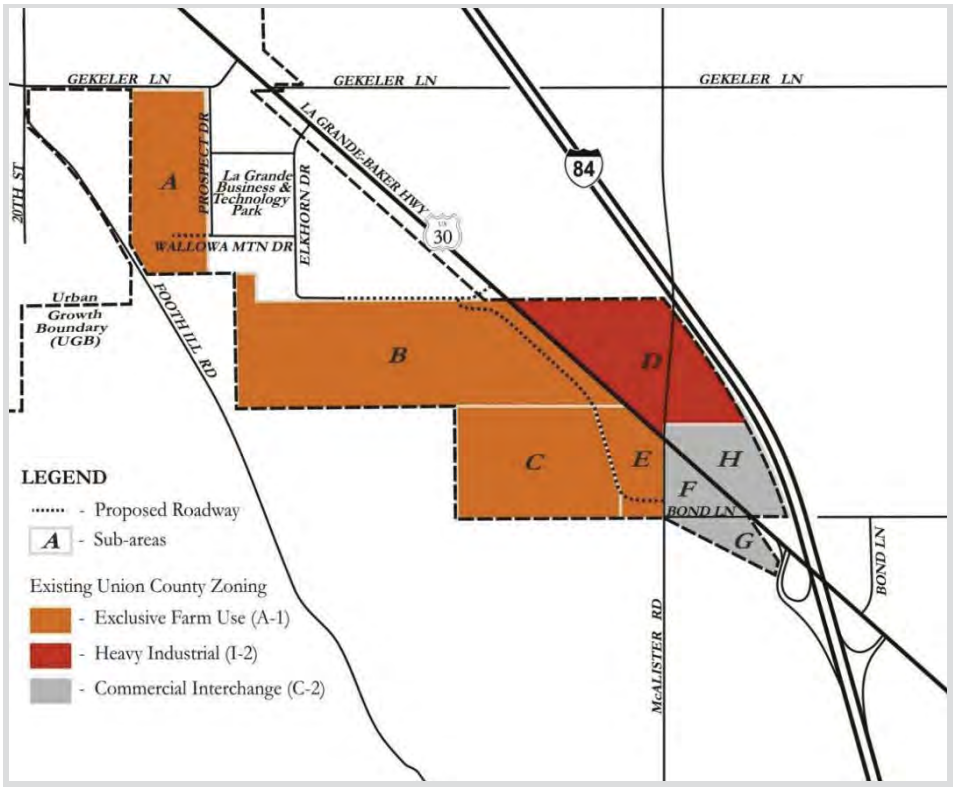


Figure 2: Existing Zoning in Study Area

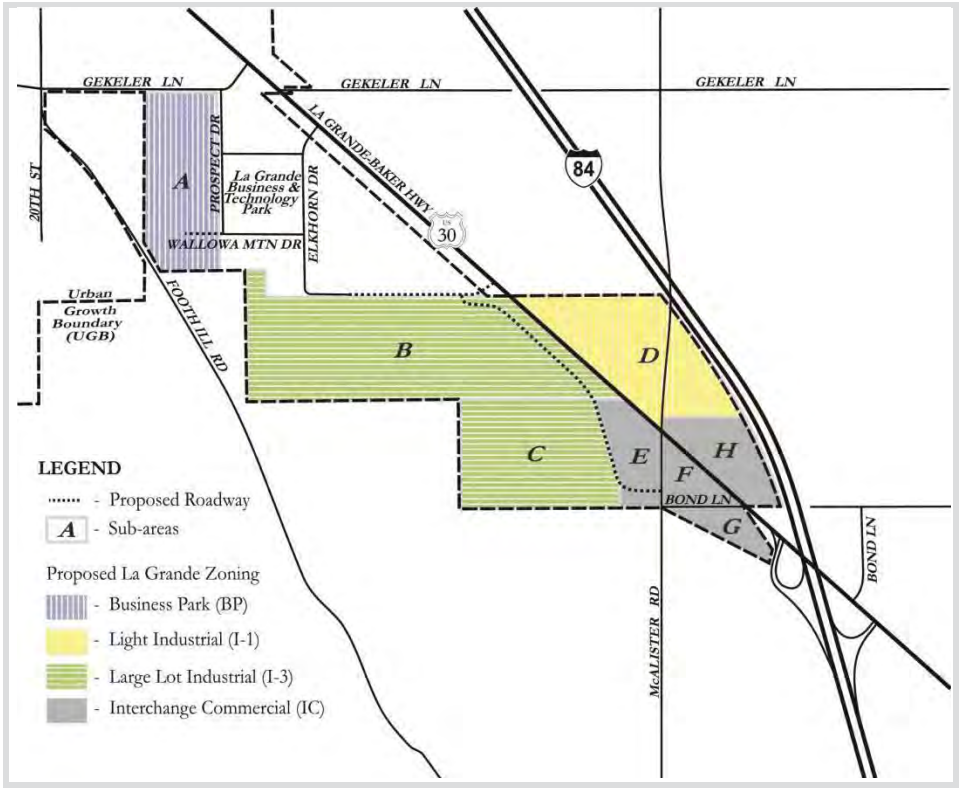


Figure 3: Proposed Zoning in Study Area

Trip Generation

With zoning and acreage established for each land use scenario, the vehicular trips generated were estimated by applying assumptions about development types and sizes to national surveys of trip generation for similar uses as reported by the Institute of Transportation Engineers (ITE).[4] As shown in Table 3, the existing and proposed zoning for the UGB expansion area were related to ITE land uses to develop trip generation estimates for each sub-area. The assumed ITE land uses may not necessarily reflect the actual development that occurs, but is intended to represent the reasonable worst-case trip generation potential for the land given the wide array of uses that would be allowed within the assumed zoning.

For instance, the trip generation estimates for the Large Lot Industrial (I-3) zone were estimated using the ITE Light Industrial land use. While many other types of development would be allowed within that zone, those represented by the

Table 3: Relationship between Zoning and ITE Trip Generation Land Uses

Sub-area	Gross Size (acres)	Existing Zoning Scenario		Proposed Zoning Scenario	
		Zoning (Union County)	ITE Land Use/ ITE Code	Zoning (La Grande)	ITE Land Use/ ITE Code
A	48	Exclusive Farm (A-1)	N/A*	Business Park (BP)	Industrial Park/130
B	121	Exclusive Farm (A-1)	N/A*	Large Lot Industrial (I-3)	Light Industrial/ 110
C	63	Exclusive Farm (A-1)	N/A*	Large Lot Industrial (I-3)	Light Industrial/ 110
D	36	Heavy Industrial (I-2)	General Heavy Industrial/120	Light Industrial (I-1)	Light Industrial/ 110
E	10	Exclusive Farm (A-1)	N/A*	Interchange Commercial (IC)	Gas/Service Station with Convenience Market/ 945
	2				General Retail-Commercial Services/ 820
F	6	Commercial Interchange (C-2)	N/A**	Interchange Commercial (IC)	N/A**
G	6	Commercial Interchange (C-2)	Hotel/ 310	Interchange Commercial (IC)	Hotel/ 310
			Fast-Food Restaurant with Drive-thru/ 934		Fast-Food Restaurant with Drive-thru/ 934
			High-Turnover Sit-down Restaurant/ 932		High-Turnover Sit-down Restaurant/ 932
H	22	Commercial Interchange (C-2)	General Retail-Commercial Services/ 820	Interchange Commercial (IC)	General Retail-Commercial Services/ 820

* Exclusive Farm Use is not a significant trip generator
**Existing Development- Flying J Travel Plaza

[4] Institute of Transportation Engineers (ITE), Trip Generation, 8th Edition

ITE Light Industrial land use category would generally produce the highest amount of weekday p.m. peak hour trips.

Similarly, the ITE Shopping Center land use category was used to represent a wide array of potential general retail and commercial service uses that could develop within the Interchange Commercial (IC) zone.

Development Assumptions

Several assumptions were utilized to determine the amount of buildable land and sizes of potential development on which to base trip generation estimates (see Table 4). First, the overall acreage of each sub-area was reduced to account for unbuildable areas such as public rights-of-way and infrastructure needs and designated wetlands. The impact of wetlands on developable land is significant in this area, resulting in about 54 of the total 314 acres (17 percent) being considered undevelopable without extensive mitigation.

After the unbuildable acreage was removed from each sub-area, assumptions regarding development densities were utilized to estimate the net quantities of potential development. The development assumptions were based on floor area ratios (FAR) for the General Retail/Commercial Service land use (sub-areas E and H), employees per acre for Light Industrial and Industrial Park land uses (sub-areas A, B, C and D), and comparable sites for the Gas/Service Station (sub-area E), Hotel (sub-area G), Fast-Food Restaurant (sub-area G), and High-Turnover Sit-Down Restaurant (sub-area G) land uses. The development density assumptions for the comparable sites were derived by reviewing similar land uses surrounding the I-84 interchange with OR 82 (Island Avenue) in La Grande. It should be noted that the net units of development assumed in each sub-area in Table 4 would not necessarily be contained within a single development, but in some cases could be distributed among a collection of smaller developments.

The General Heavy Industrial uses and Flying J Travel Plaza (sub-areas D and F) are existing developments that were generating vehicle trips when the traffic count data was collected in 2011. No additional trips were assumed to be generated by these developments under the Existing Zoning scenario. In addition, lands currently used for farming were assumed to generate an insignificant amount of trips.

Table 4: Land Use Assumptions

ITE Land Use/ ITE Code (Sub-area)	Gross Size (acres)	Unbuildable Land (acres)*	Development Density	Net Units
Existing Zoning Scenario				
General Heavy Industrial/120 (D)	36	0	Existing Development***	Existing Use
Exclusive Farm Use (A, B, C, E)	244	N/A	Will not generate significant vehicle trips	N/A
Flying J Travel Plaza (F)	6	N/A	Existing Development***	Existing Use
Hotel/ 310 (G)	6	N/A	Comparable Sites	100 rooms
Fast-Food Restaurant with Drive-thru/ 934 (G)		N/A	Comparable Sites	4,000 square feet
High-Turnover Sit-down Restaurant/ 932 (G)		N/A	Comparable Sites	5,000 square feet
General Retail-Commercial Services/ 820 (H)	22	5.0**	Floor Area Ratio 0.20[5]	148,000 square feet
Proposed Zoning Scenario				
Industrial Park/ 130 (A)	48	9.6**	10 employees per net acre[6]	384 employees
Light Industrial/ 110 (B)	121	24.3	10 employees per net acre[6]	967 employees
Light Industrial/ 110 (C)	63	33.5	10 employees per net acre[6]	295 employees
Light Industrial/ 110**** (D)	36	0	10 employees per net acre[6]	360 employees
Gas/Service Station with Convenience Market/ 945 (E)	10	3.8	Comparable Sites	8 fueling positions
General Retail-Commercial Services/ 820 (E)	2	0	Floor Area Ratio 0.20[5]	17,000 square feet
Interchange Commercial (F,G,H)	34	Same as Existing Zoning Scenario		

*Unbuildable land includes acreage for right-of-way and infrastructure needs, wetlands, streams and buffers.
**Per La Grande Comprehensive Plan Ordinance 3182, 20 percent of these parcels were set aside for right-of-way and infrastructure needs as the sub-area develops.
***Existing development that was generating vehicle trips when the traffic count data was collected in 2011.
****This acreage is currently built-out but is assumed to be re-developed.

[5] City of La Grande Comprehensive Plan, Ordinance Number 3038

Under the Proposed Zoning scenario, the existing Heavy Industrial land (sub-area D) is proposed to be re-zoned to Light Industrial. The trips generated by the existing development (which were already accounted for in the traffic count data collected in 2011) need to be removed to avoid double counting the trips. As shown in Table 5, the new zoning is expected to generate approximately 193 more weekday p.m. peak hour trips than the existing development (if the site is redeveloped with reasonable worst-case uses). These trips were added to the roadway network in the Proposed Zoning scenario.

Table 5: Existing Development Trip Reduction for Sub-area D

Land Use (ITE Description/ ITE Code)	Size (Emp.)*	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Trips Generated by Existing Development (Included in 2011 count data)				
Heavy Industrial (General Heavy Industrial/120)	**360**	**30**	**114**	**144**
Lot 1 (6 acres)	*60*	*5*	*19*	*24*
Lot 2 (4 acres)	*40*	*3*	*13*	*16*
Lot 3 (10 acres)	*100*	*8*	*32*	*40*
Lot 4 (16 acres)	*160*	*13*	*51*	*64*
Trips Generated by Proposed Zoning				
Light Industrial (General Light Industrial/110)	**360**	**71**	**266**	**337**
Lot 1 (6 acres)	*60*	*16*	*60*	*76*
Lot 2 (4 acres)	*40*	*15*	*55*	*70*
Lot 3 (10 acres)	*100*	*18*	*69*	*87*
Lot 4 (16 acres)	*160*	*22*	*82*	*104*
Net New Trips (Proposed Zoning – Existing Uses)		**41**	**152**	**193**

*Emp=Employees; Based on 10 employees per net acre

Diverted Link Trips

Diverted link trips are site trips made by vehicles already on a roadway in the vicinity but require a diversion to another roadway to gain access to the site. These vehicles do not consider the site as their primary destination, but would stop by on their way to another destination. The diverted link trips add traffic to roadways immediately adjacent to the site (e.g., US 30) but do not increase traffic on surrounding roadways (e.g., I-84).

By taking an average of the non-primary trips reported by ITE for multiple surveys with similar land uses, the following diverted link trip percentages were determined:[7]

- Gas/service station with convenience market- 84 percent
- Hotel- 80 percent
- Fast Food With Drive-Thru- 60 percent
- High Turnover Sit-Down Restaurant- 60 percent
- General Retail/Commercial Services- 50 percent

Of the diverted link trips, 70 percent were assumed to be routed between I-84 and the site, and 30 percent from vehicles between US 30 and the site. Tables 6 and 7 summarize the diverted link trips in sub-areas E, G and H.

[6] Industrial and Other Employment Land Guidebook, Oregon Department of Land Conservation and Development

[7] ITE Trip Generation Handbook, 2nd Edition, Chapter 5

Net New Trips

The potential trip generation from full build-out of both land use scenarios was estimated for the weekday p.m. peak hour using the ITE land use codes as shown in Table 3. The net new trips were estimated by discounting the trips associated with existing development for areas that are expected to re-develop (see Table 5) and accounting for the diverted link trips for the Gas/Service Station with Convenience Market, Hotel, Fast-Food with Drive-thru, High-Turnover Sit-Down Restaurant and General Retail/Commercial Services land uses.

As shown in Table 6, the Existing Zoning scenario is expected to generate 499 (250 in/249 out) weekday p.m. peak hour trips. In comparison, Table 7 shows that the Proposed Zoning scenario is expected to generate 1,489 (487 in/1,002 out) weekday p.m. peak hour trips.

Table 6: Trip Generation for Existing Zoning Scenario

ITE Land Use (Sub-area)	ITE Code	Size (Units)	Weekday PM Peak Hour Trips		
			In	Out	Total
Exclusive Farm Use- Will not generate significant vehicle trips (A)	-	-	-	-	-
Exclusive Farm Use- Will not generate significant vehicle trips (B)	-	-	-	-	-
Exclusive Farm Use- Will not generate significant vehicle trips (C)	-	-	-	-	-
General Heavy Industrial- Existing Development on 4 lots (D)	-	-	-	-	-
Exclusive Farm Use- Will not generate significant vehicle trips (E)	-	-	-	-	-
Flying J Travel Plaza- Existing Development (F)	-	-	-	-	-
Hotel (G)	310	100 rooms	31	28	59
Fast-Food with Drive-thru (G)	934	4,000 square feet	70	65	135
High-Turnover Sit-down Restaurant (G)	932	5,000 square feet	33	23	56
General Retail/Commercial Services (H)	820	148,000 square feet	405	422	827
Total Trip Generation			**539**	**538**	**1,077**
Diverted Link Trips (Sub-areas G, and H)					
Hotel- 80% (G)			24	24	48
Fast-Food with Drive-thru- 60% (G)			41	41	82
High-Turnover Sit-down Restaurant- 60% (G)			17	17	34
General Retail/Commercial Services- 50% (H)			207	207	414
Total Diverted Link Trips			**289**	**289**	**578**
Net New Trips (Total Trip Generation - Diverted Link Trips)			**250**	**249**	**499**

Table 7: Trip Generation for Proposed Zoning Scenario

ITE Land Use (Sub-area)	ITE Code	Size (Units)	Weekday PM Peak Hour Trips		
			In	Out	Total
Industrial Park (A)	130	384 employees	40	162	202
Light Industrial- 100+ acre lot (B)	110	967 employees	71	267	338
Light Industrial- 50+ acre lot (C)	110	295 employees	30	113	143
Light Industrial- Four small lots* (D)	110	360 employees	41	152	193
Lot 1	*110*	*60 employees*	*11*	*41*	*52*
Lot 2	*110*	*40 employees*	*12*	*42*	*54*
Lot 3	*110*	*100 employees*	*10*	*37*	*47*
Lot 4	*110*	*160 employees*	*8*	*32*	*40*
Gas/Service Station with Convenience Market) (E)	945	8 fueling positions	54	54	108
General Retail/Commercial Services (E)	820	17,000 square feet	95	99	194
Existing Development- Flying J Travel Plaza (F)	-	-	-	-	-
Hotel (G)	310	100 rooms	31	28	59
Fast Food with Drive-thru (G)	934	4,000 square feet	70	65	135
High-Turnover Sit-down Restaurant (G)	932	5,000 square feet	33	23	56
General Retail/Commercial Services (H)	820	148,000 square feet	405	422	827
Total Trip Generation			**870**	**1,385**	**2,255**
Diverted Link Trips (Sub-areas E, G, and H)					
Gas/Service Station with Convenience Market- 84% (E)			45	45	90
General Retail/Commercial Services- 50% (E)			49	49	98
Hotel- 80% (G)			24	24	48
Fast-Food with Drive-thru- 60% (G)			41	41	82
High-Turnover Sit-down Restaurant- 60% (G)			17	17	34
General Retail/Commercial Services- 50% (H)			207	207	414
Total Diverted Link Trips			**383**	**383**	**766**
Net New Trips (Total Trip Generation - Diverted Link Trips)			**487**	**1,002**	**1,489**

*See Table 5: Existing Development Reduction for Sub-area D

Background Traffic

In addition to the trips generated from the future development within the UGB expansion area, background traffic growth was documented in the form of citywide and regional growth. The background traffic growth was estimated by using ODOT's 2029 future volume tables. Average daily traffic (ADT) volumes on US 30 in 2007 and forecasted future 2029 volumes were used to determine a growth trend, which suggests that traffic volumes will increase approximately 1.1 percent annually. This represents a 22 percent increase in traffic volumes between the years 2011 and 2031, without any added traffic from the proposed re-zone within the UGB expansion area. The data used to calculate the growth rate is summarized in Table 8.

Table 8: Background Traffic Growth Rate

Location	2007	2029	Annual Growth Rate (Linear Growth)
US 30: 0.15 miles west of I-84	7,200	9,100	1.1%

Source: ODOT 2029 Future Volume Tables

Planned Developments

The trips generated from any planned developments in the area of the UGB expansion must also be accounted for. The only approved development in the area is the La Grande Business and Technology Park, located near the southwest corner of the US 30/Gekeler Lane intersection. This development is partially built out, with about six of the 68 acres developed. Assuming 14.9 employees per acre[8], an additional 925 employees would be expected within the development. The associated trip generation (as shown in Table 9) correlates to an additional 433 (95 in/338 out) weekday p.m. peak hour trips. These trips will be added to the background traffic growth assumed for the area.

Table 9: La Grande Business and Technology Park Trip Generation

Land Use (ITE Description/ ITE Code)	Size (Emp.)*	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Business Park/770	925	95	338	433

*Emp=Employees

Trip Distribution

Trip distribution involves estimating how site generated traffic will leave and arrive at the proposed site. The trip distribution for the industrial and retail land uses was estimated based on regional population distribution and current traffic patterns. For the industrial land use, it is estimated that 10 percent of site generated traffic would arrive from the north along McAlister Road, 40 percent from the east using US 30 (5 percent) and I-84 (35 percent), and 50 percent from the west along US 30 (35 percent) and Gekeler Lane (15 percent).

For the retail land uses, it was assumed that fewer of the site generated primary trips (or trips that consider the site as their primary destination) would come from I-84, since most of those trips were accounted for as diverted link trips. For

[8] US 30: Gekeler Lane to I-84 Circulation and Access Management Plan, March 29, 2006

this reason, it was assumed that 60 percent of the traffic would arrive from the west on US 30 (40 percent) and Gekeler Lane (20 percent), 15 percent from the north along McAlister Road, and 25 percent from the east along US 30 (5 percent) and I-84 (20 percent).

The trip distribution for the La Grande Business and Technology Park was estimated based on reported traffic patterns from the site.[9] It was assumed that 75 percent of the traffic would arrive from the west on US 30 (55 percent) and Gekeler Lane (20 percent), 10 percent from the north along McAlister Road, and 15 percent from the east along US 30 (5 percent) and I-84 (10 percent). The assumed trip distribution for each land use group can be seen in Figure 4.

Future Roadway Improvements

The following improvements were assumed to be in place by the planning horizon of 2031 to enhance the transportation network (see Figure 5). Most of these improvements were identified in the US 30: Gekeler Lane to I-84 Circulation and Access Management Plan, which was adopted as an amendment into the La Grande and Union County Transportation System Plans.

- US 30/Gekeler Lane intersection improvements to include a traffic signal, a south-eastbound right-turn deceleration lane and a north-eastbound left turn lane.
- US 30/McAlister Road intersection improvements to include a traffic signal, south-eastbound and north-westbound right-turn deceleration lanes, and southbound right-turn and left turn lanes.
- US 30/Elkhorn Drive Intersection improvements to include a south-eastbound right-turn lane, and north-westbound and north-eastbound left-turn lanes.[10]
- Extension of the southern end of Elkhorn Drive east to connect with US 30, south of the US Forest Service building. The US 30 intersection is to include a south-eastbound right-turn lane, a north-westbound left-turn lane and north-eastbound left and right-turn lanes.[11]
- Construct an access road on the west side of US 30, between McAlister Road and the Elkhorn Drive extension.

An additional improvement was assumed to be constructed as part of the primary roadway network of the UGB expansion and re-zone area. This improvement would extend Wallowa Mountain Drive west from the La Grande Business and Technology Park into sub-area A. This roadway would serve as a primary connection for sub-area A to the surrounding roadway network.

[9] US 30: Gekeler Lane to I-84 Circulation and Access Management Plan, March 29, 2006

[10] Northwest leg of the intersection was assumed to have a two-way left-turn lane to allow two-stage left-turns from Elkhorn Drive.

[11] Northwest leg of the intersection was assumed to have a two-way left-turn lane to allow two-stage left-turns from Elkhorn Drive extension.

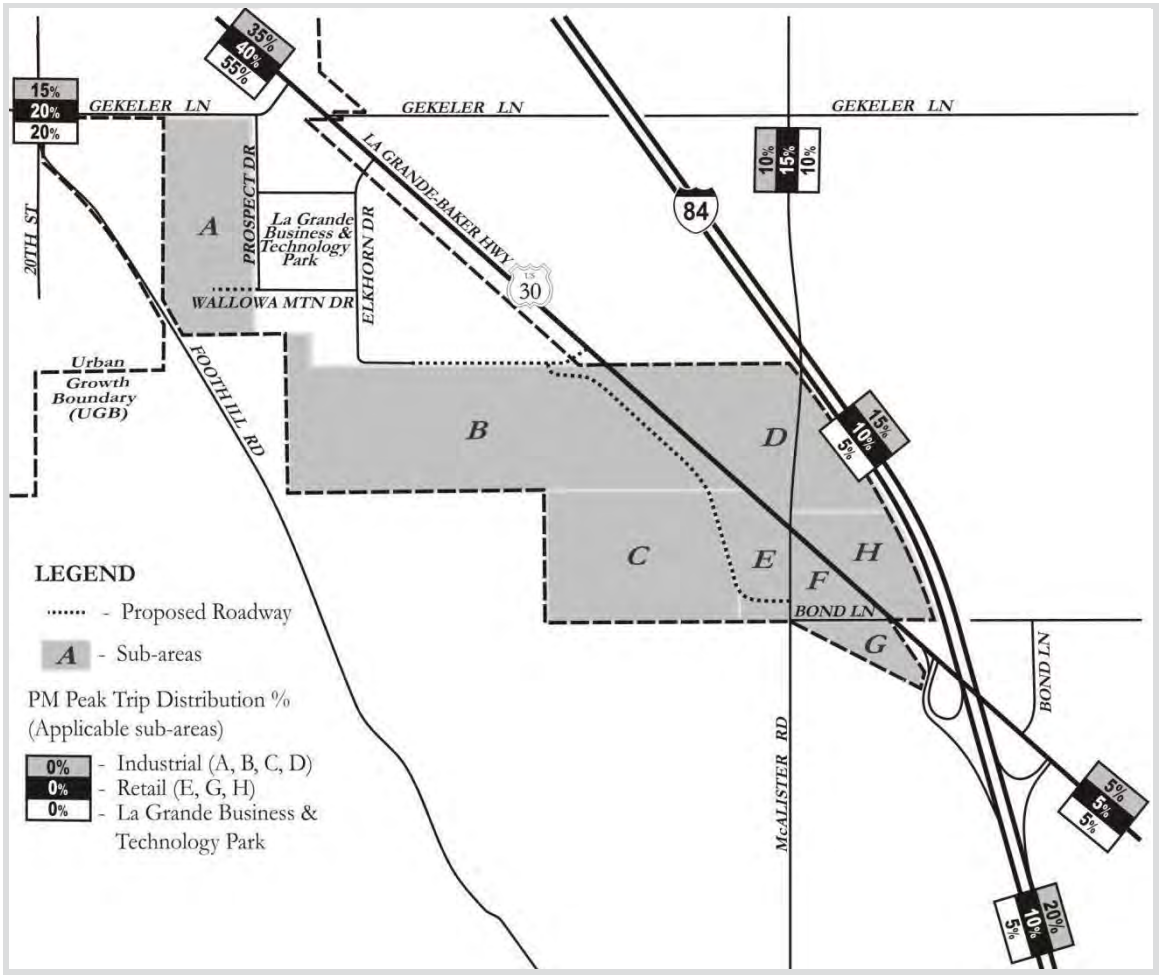


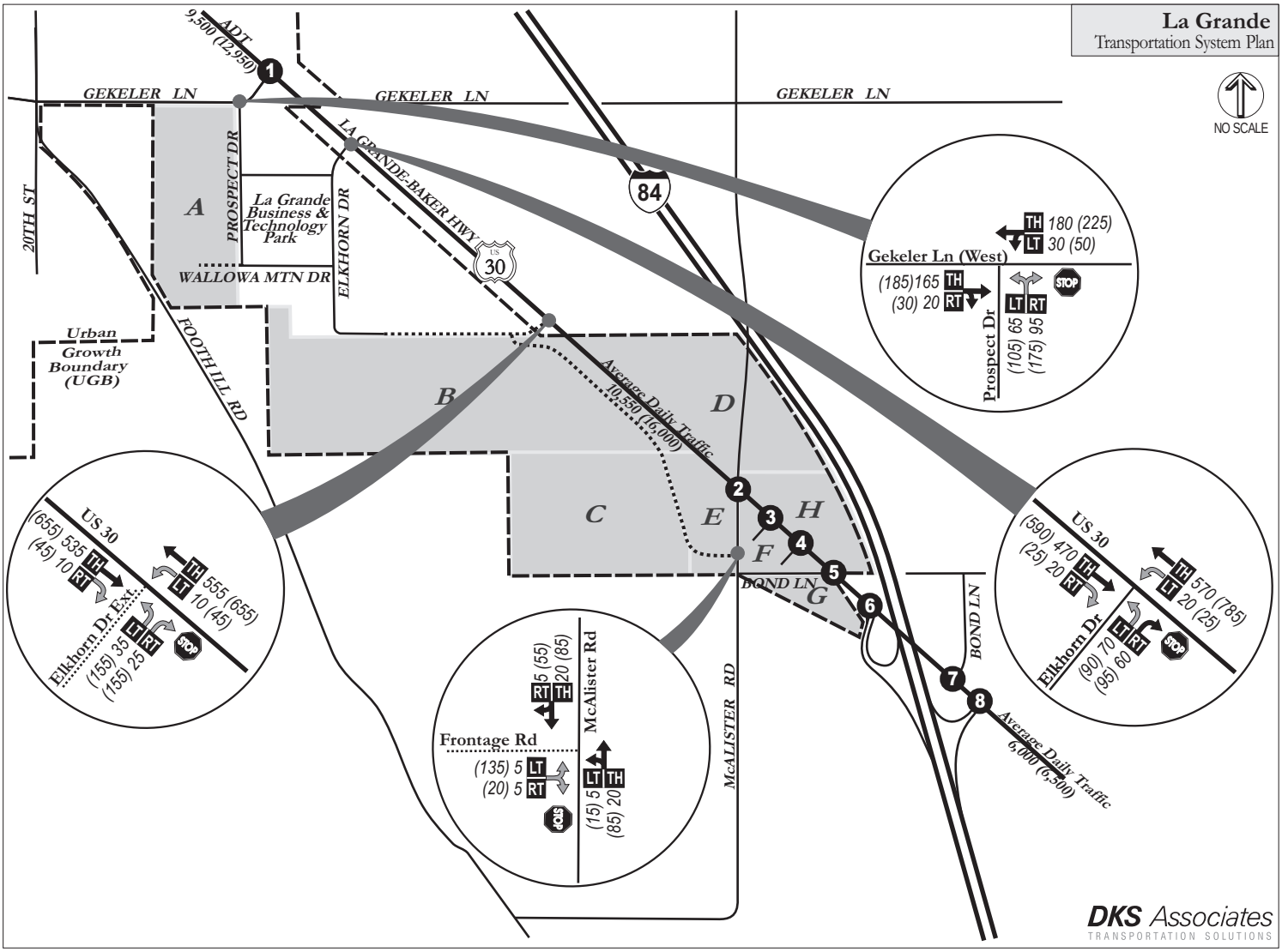
Figure 4: Trip Distribution

It should also be noted that while not assumed to be in place within the 20-year planning horizon, a realignment of Gekeler Lane to the east to intersect US 30 opposite Gekeler Lane to the west has been proposed as a potential future project.

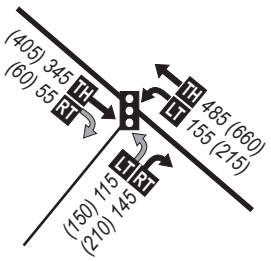
Future Motor Vehicle Conditions

The following section summarizes the future weekday p.m. peak hour transportation operating conditions for the planning horizon year of 2031. Future traffic operating conditions were analyzed at the study intersections to determine if the transportation network can support the additional traffic generated from the proposed re-zone within the UGB expansion area. If ODOT mobility targets are not met at study intersections along US 30, mitigation would be necessary to improve network performance.

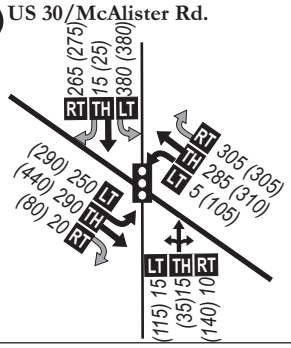
NO SCALE



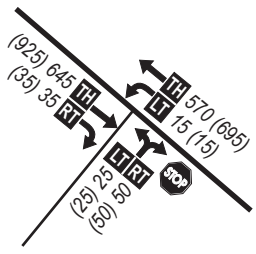
1 US 30/Gekeler Ln. (West)



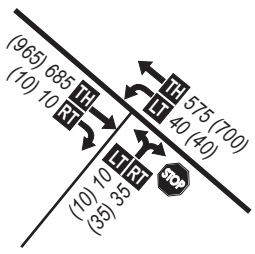
2 US 30/McAlister Rd.



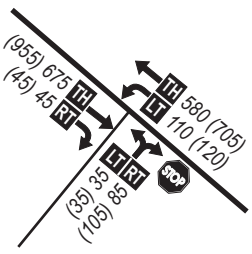
3 US 30/North Flying J (Driveway)



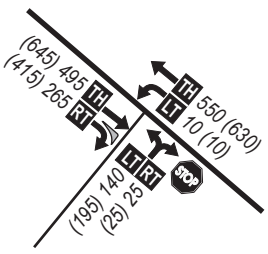
4 US 30/South Flying J (Driveway)



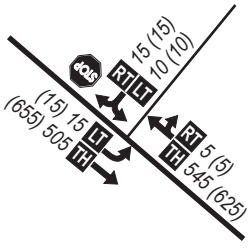
5 US 30/Bond Ln. (West)



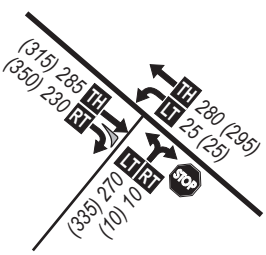
6 US 30/I-84 Eastbound Ramps



7 US 30/Bond Ln. (East)



8 US 30/I-84 Westbound Ramps



Legend

- 1 - Study Intersection
- Supplemental Intersection
- A - Sub-areas
- LT TH RT (Left•Thru•Right) - Volume Turn Movement
- STOP - Stop Sign
- Proposed Traffic Signal
- Proposed Roadway
- Existing Lane Configuration
- Planned Lane Configuration
- *Existing Zoning (Proposed Zoning)* - PM Peak Hour Traffic Volume

Figure 5

FUTURE (2031) WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

Signal Warrants

A signal warrant analysis was performed for the two unsignalized study intersections with planned traffic signals to determine if side street volumes will be high enough to justify (i.e., warrant) the construction of those signals by 2031. The two intersections with planned traffic signals include US 30/Gekeler Lane and US 30/McAlister Road. These two intersections are approximately 1.3 miles apart, which would meet ODOT signal spacing standards (0.5 miles).

For this analysis, TPAU's preliminary traffic signal warrant analysis form[14] was utilized. TPAU uses the MUTCD Signal Warrants 1, Case A and Case B, which deal primarily with high volumes on the intersecting minor street and high volumes on the major street. Meeting preliminary signal warrants does not guarantee that a signal shall be installed. Before a signal can be installed a field warrant analysis is conducted by the Region. If warrants are met, the State Traffic Engineer will make the final decision on the installation of a signal.

The result of the analysis found that a traffic signal would be warranted at both intersections by 2031 under the Existing Zoning and Proposed Zoning scenarios.

Further analysis also found that a signal would be warranted in the future at the US 30/I-84 Eastbound ramp terminal. This intersection is approximately 2,000 feet from the proposed signal at McAlister Road, which would not comply with ODOT's signal spacing standards. However, at that distance these signals would be expected to operate well together.

2031 Intersection Operations

The study area intersection operations were evaluated for both the Existing Zoning and Proposed Zoning scenarios. By comparing the operations under both scenarios, it can be determined if the proposed zoning would cause any additional intersections to not meet mobility targets beyond those that did not meet the targets under current zoning.

The Existing Zoning scenario in 2031 includes the existing traffic volumes from the year 2011, plus the growth in background traffic. This scenario also included traffic growth from the La Grande Business and Technology Park and from build-out of sub-areas F, G and H. The Proposed Zoning scenario also includes the existing traffic volumes, the growth in background traffic, growth from the La Grande Business and Technology Park and from build-out of sub-areas F, G and H. However, it also has the added growth associated with the re-zoning in sub-areas A, B, C, D and E. The 2031 traffic volumes for each scenario are shown in Figure 5.

The future 2031 intersection operations for both the Existing Zoning and Proposed Zoning scenarios can be seen in Table 10. As shown, all intersections would meet ODOT's mobility targets during the weekday p.m. peak hour, with the exception of the US 30/McAlister Road intersection under the Proposed Zoning scenario. The proposed re-zone is

[14] Analysis Procedures Manual, TPAU

expected to send additional traffic through this intersection, causing the operations to degrade below the mobility target.

In addition to the originally selected study intersections, operations were evaluated at the expected primary site access points for the UGB expansion and re-zone area. This includes the US 30 intersections with Elkhorn Drive and the Elkhorn Drive extension, the Gekeler Lane/Prospect Drive intersection and the McAlister Road/US 30 Frontage Road intersection. As shown in Table 10, each of the supplemental intersections is expected to operate well under both the Existing Zoning and Proposed Zoning scenarios.

Queues at I-84 Ramp Terminals

An estimate of the 95th percentile vehicle queues at the I-84 eastbound and westbound ramp terminal intersections under 2031 conditions was made using SimTraffic modeling software. This was done to assess whether vehicles queues during the weekday p.m. peak period would encroach onto the mainline of I-84 or into the area of the ramp needed for deceleration from freeway speeds. The 95th percentile estimates the queue length that would not be exceeded in 95 percent of the queues formed during the peak hour. Queuing results are summarized in Table 11.

As shown, the 95th percentile queue at the northbound approach to the US 30/I-84 Eastbound Ramps intersection would be expected to exceed available storage in 2031 by about 50 feet (about two cars or one semi-truck length) under the proposed zoning scenario. A recommended approach to addressing this issue is discussed later in this document.

Table 10: Future 2031 Weekday PM Peak Hour Intersection Operations

Intersection	Mobility Target (v/c)	Existing Zoning Scenario			Proposed Zoning Scenario		
		Volume/ Capacity	Delay (secs.)	Level of Service	Volume/ Capacity	Delay (secs.)	Level of Service
US 30/ Gekeler Lane (West)*	0.90	0.45	15.3	B	0.66	19.7	B
US 30/McAlister Road*	0.90	0.72	31.6	C	**1.00**	56.4	E
US 30/North Flying J travel plaza Driveway	0.90	0.39	16.1	B/C	0.61	32.5	C/D
US 30/South Flying J travel plaza Driveway	0.90	0.42	15.6	B/C	0.64	29.5	C/D
US 30/Bond Lane (West)	0.90	0.41	20.2	B/C	0.67	47.0	B/E
US 30/I-84 Eastbound Ramps	0.75	0.41	18.8	A/C	0.70	35.7	A/E
US 30/Bond Lane (East)	0.75	0.36	13.1	A/B	0.43	14.7	A/B
US 30/I-84 Westbound Ramps	0.75	0.52	17.7	A/C	0.70	24.8	A/C
Supplemental Intersections							
US 30/Elkhorn Drive	0.90	0.34	15.2	A/C	0.53	19.4	A/C
US 30/Elkhorn Drive Extension	0.90	0.34	14.2	A/B	0.57	25.9	A/D
Gekeler Lane/Prospect Drive	0.95**	0.25	11.9	A/B	0.51	16.8	A/C
McAlister Road/Frontage Road	0.95**	0.02	8.8	A/A	0.24	11.6	A/B

Bolded and shaded indicates mobility target is not met
*A traffic signal was assumed at these intersections
** La Grande does not have an adopted standard, so the ODOT target for District/local interest roads was assumed for the analysis

Signalized intersections:
Delay = Average Stopped Delay per Vehicle (sec) for All Movements
LOS = Level of Service of Intersection
V/C = Volume-to-Capacity Ratio of Intersection

Unsignalized intersections:
Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement
LOS = Level of Service of Major Street/Minor Street
V/C = Volume-to-Capacity Ratio of Worst Movement

Table 11: Future (2031) Weekday PM Peak Hour I-84 Ramp Terminal Queuing

Ramp Terminal	Available Storage	95th Percentile Queue Existing Zoning / Proposed Zoning
US 30/I-84 Eastbound Ramps	470 feet*	175 feet / **525 feet**
US 30/I-84 Westbound Ramps	470 feet*	100 feet / 100 feet

Bolded and shaded indicates 95% vehicle queue exceeds available storage
*The ramp is 1,200 feet in length, but 730 feet is required for intersection stopping sight distance with a design speed of 70 miles per hour on I-84.

Opportunities

The following section summarizes recommendations to mitigate identified impacts associated with the proposed re-zone of land within the UGB expansion area.

Motor Vehicle

The US 30/McAlister Road intersection was identified as being negatively impacted by projected growth from the proposed re-zone within the UGB expansion area by the planning horizon of 2031. Potential mitigation strategies were evaluated at this intersection to achieve acceptable operations during the weekday p.m. peak hour.

Both the mobility standards from the Highway Design Manual (HDM) and the mobility targets in the Oregon Highway Plan (OHP) were reviewed at this intersection. Typically, the HDM mobility standard is applied to the evaluation of highway improvements to ensure that new projects have a minimum of 20 year design life and the OHP mobility target is used in the assessment of development proposals and determining when facilities will be in need of mitigation.

To meet the HDM mobility standard (v/c $\leq$ 0.75), a northbound left-turn lane and a second southbound left-turn lane would be needed. This would allow the phasing for the signal to be modified to include protected control for the northbound and southbound left turn movements.

In addition, a second eastbound receiving lane for the dual southbound left-turn lanes would be needed along US 30. This could be accommodated by converting the existing south-eastbound right-turn deceleration lane running from just west of McAlister Road to the I-84 Eastbound ramp terminal to a shared through/right-turn lane. However, ODOT has expressed that they want to maintain a separate continuous right turn lane across the frontage of the Flying J property. Therefore, this would require the construction of a new turn lane from just west of McAlister Road to Bond Lane (West) of approximately 1,300 feet.

Furthermore, as improvements are made to the US 30/McAlister Road intersection, the alignment of the McAlister Road approaches should be corrected to provide a 90-degree angle with the highway. A conceptual drawing of this realignment is provided in Figure 6.

Overall, the cost of these mitigations would likely be significant and the large railroad crossing along McAlister Road may not be preferred for safety reasons.

An alternative solution would be to apply the mobility target from the OHP. To meet the mobility target of the OHP (v/c $\leq$ 0.90) only the northbound left-turn lane on McAlister Road would be needed. The phasing for the signal could then be modified to include protected-permissive control[15] for the northbound and southbound left turn movements. This alternative would offer a more affordable option (no second southbound left turn lane or new 1,300-foot right turn lane on US 30), a smaller railroad crossing on

[15] Intersection meets criteria for Protected/ Permissive Left-Turn Phasing, Traffic Signal Policy and Guidelines, ODOT

McAlister Road and a level of mobility that would still meet the targets in the OHP.

Figure 6: Proposed Realignment of McAlister Road

In addition, some of the planned improvements at the US 30/McAlister Road intersection detailed in the Future Roadway Improvements section earlier in this document, were evaluated to determine if they are justified. Justification for right-turn deceleration lanes at signalized intersections is generally determined based on capacity needs.[16] Since, both of these intersections warrant the installation of a traffic signal, they were reevaluated without the planned right-turn lanes.

Based upon capacity needs, the planned southbound right-turn lane at the US 30/McAlister Road intersection is not justified. The north-westbound right turn lane is justified due to capacity needs. In addition, this right turn lane provides safety benefits by providing a place to store vehicles when railroad crossings temporarily close the McAlister Road approach. Keeping those vehicles out of the US 30 mainline could prevent rear-end collisions. The planned south-eastbound right-turn lane is not justified based on capacity needs for the OHP solution, but would be for the HDM solution.

Furthermore, widening the southbound McAlister Road approach to US 30 from one to three lanes (to include right-turn and left-turn lanes) across the railroad tracks would require modifications to the existing railroad gate. A typical railroad gate must cover 90 percent of the roadway surface and is generally not more than 35 feet wide. Widening the approach would require around 44 feet of roadway surface, meaning 40 feet must be covered by the gate (44 feet x 90 percent). The approach would likely require two separate gates with a gate island in the middle to cover the roadway surface. This would significantly increase the cost of improvements.

[16] Analysis Procedure Manual, ODOT

In summary, there are two alternative lane configurations for mitigating the US 30/McAlister Road intersection that are shown in Figure 7, with corresponding operations shown in Table 12. One alternative is designed to meet the HDM mobility standards with the other designed to meet the OHP mobility targets at less cost. However, further discussion during this planning effort that considers the differences in costs and relative benefits of improvements will be required before a design can be chosen.

Table 12: 2031 US 30/McAlister Road Intersection Operations with Recommended Modifications

		PM Peak Hour	
	Volume/ Capacity	Delay (sec)	Level of Service
HDM Solution			
With Recommended Modifications*	0.69	43.8	D
OHP Solution			
With Recommended Modifications*	0.89	50.7	D

*See Figure 7.

At the US 30/Gekeler Lane (West) intersection, the planned south-eastbound right-turn lane and separate left and right-turn lanes on the Gekeler Lane approach to US 30 would not be justified based on capacity needs. With the planned traffic signal, the approach would have enough capacity without these improvements. However, the traffic signal would not be needed until approximately 2029. Since the planned traffic signal may be a long way off, these improvements would offer a good interim solution and would provide safety benefits. Therefore, it is recommended that these planned improvements be maintained. The recommended lane configurations for the intersection can be seen in the Figure 8.

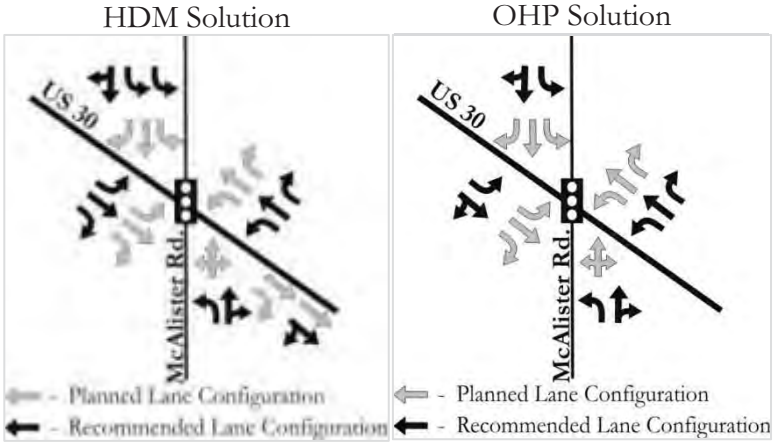


Figure 7: US 30/McAlister Road Recommended Lane Configurations

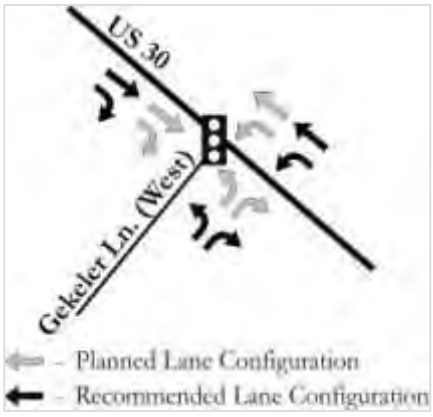


Figure 8: US 30/Gekeler Lane (West) Recommended Lane Configurations

Supplemental Intersections

Since the US 30/Elkhorn Drive and US 30/Elkhorn Drive extension intersections are expected to meet mobility targets through 2031, the planned improvements detailed in the Future Roadway Improvements section earlier in this document were evaluated to determine if the intersections would still be expected to meet mobility targets and safely accommodate traffic if less capacity were constructed than planned.

The planned improvements to add south-eastbound right-turn and north-westbound and north-eastbound left-turn lanes at the US 30/Elkhorn Drive intersection were reviewed. It was determined that the south-eastbound right-turn lane and north-eastbound left-turn lanes would provide little capacity benefit to the intersection. However, the south-eastbound right-turn lane would meet warrants for a deceleration lane and would provide safety benefits by providing a place for decelerating right turning vehicles to move out of the path of through traffic. Keeping those vehicles out of the US 30 mainline could prevent rear-end collisions. In addition, the north-westbound left-turn lane would provide a significant capacity and safety enhancement at the intersection.

Without the planned north-eastbound left-turn lane, the intersection would be expected to still meet the mobility target and operate with a v/c ratio of 0.57 (as shown in Table 13). The recommended lane configurations for the intersection can be seen in the Figure 9.

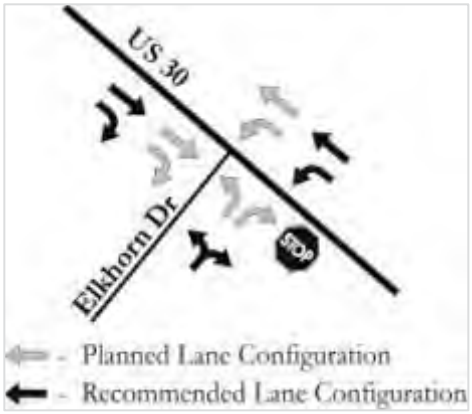


Figure 9: US 30/Elkhorn Drive Recommended Lane Configurations

Table 13: 2031 US 30/Elkhorn Drive Intersection Operations with Recommended Modifications

	PM Peak Hour		
	Volume/ Capacity	Delay (sec)	Level of Service
With Recommended Modifications*	0.57	27.8	A/D

*See Figure 9.

In addition, the south-eastbound right-turn lane at the US 30/Elkhorn Drive extension intersection was determined to provide little capacity benefit, but would improve safety at the intersection. The approach would meet warrants for a right-turn deceleration lane and would provide safety benefits by providing a place for decelerating right turning vehicles to move out of the path of through traffic. The recommended lane configurations for the intersection can be seen in Figure 10.

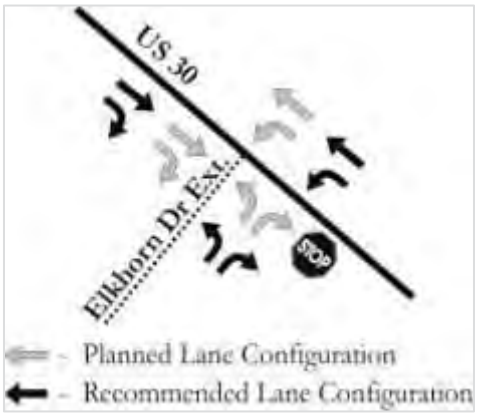


Figure 10: US 30/Elkhorn Drive Extension Recommended Lane Configurations

Pedestrian/Bicycle

There were many connectivity gaps identified within the existing pedestrian and bicycle network in the study area (see Technical Memorandum #1). The proposed pedestrian and bicycle improvements can be seen in Figure 11 and are described below.

Sidewalks and Bike Facilities

Sidewalks and bike facilities would typically be constructed as part of roadway improvements within the study area. The proposed Industrial Collector roadway that would provide access to much of the site would include five-foot sidewalks and five-foot shoulders (see typical design in Figure 12). The shoulders are needed to facilitate the movement of large trucks through the industrial area, but could also be used by bicyclists as bike lanes if desired. While the east-west segment of the Industrial Collector roadway between Elkhorn Drive and US 30 would have sidewalks on both sides, sidewalk would only be needed on the west side of the segment paralleling US 30 because there would be no destinations on the east side.

In addition, the existing and planned roadways within the La Grande Business and Technology Park (including Wallowa Mountain Drive west of Antelope Drive, Prospect Drive south of Blue Mountain Drive, and Elkhorn Drive between Blue Mountain Drive and Wallowa Mountain Drive) incorporate five-foot sidewalks and wide roadways where bicycles can share the road with motor vehicles. Sidewalks and bike lanes would also be constructed on McAlister Road within the UGB when the proposed realignment occurs.

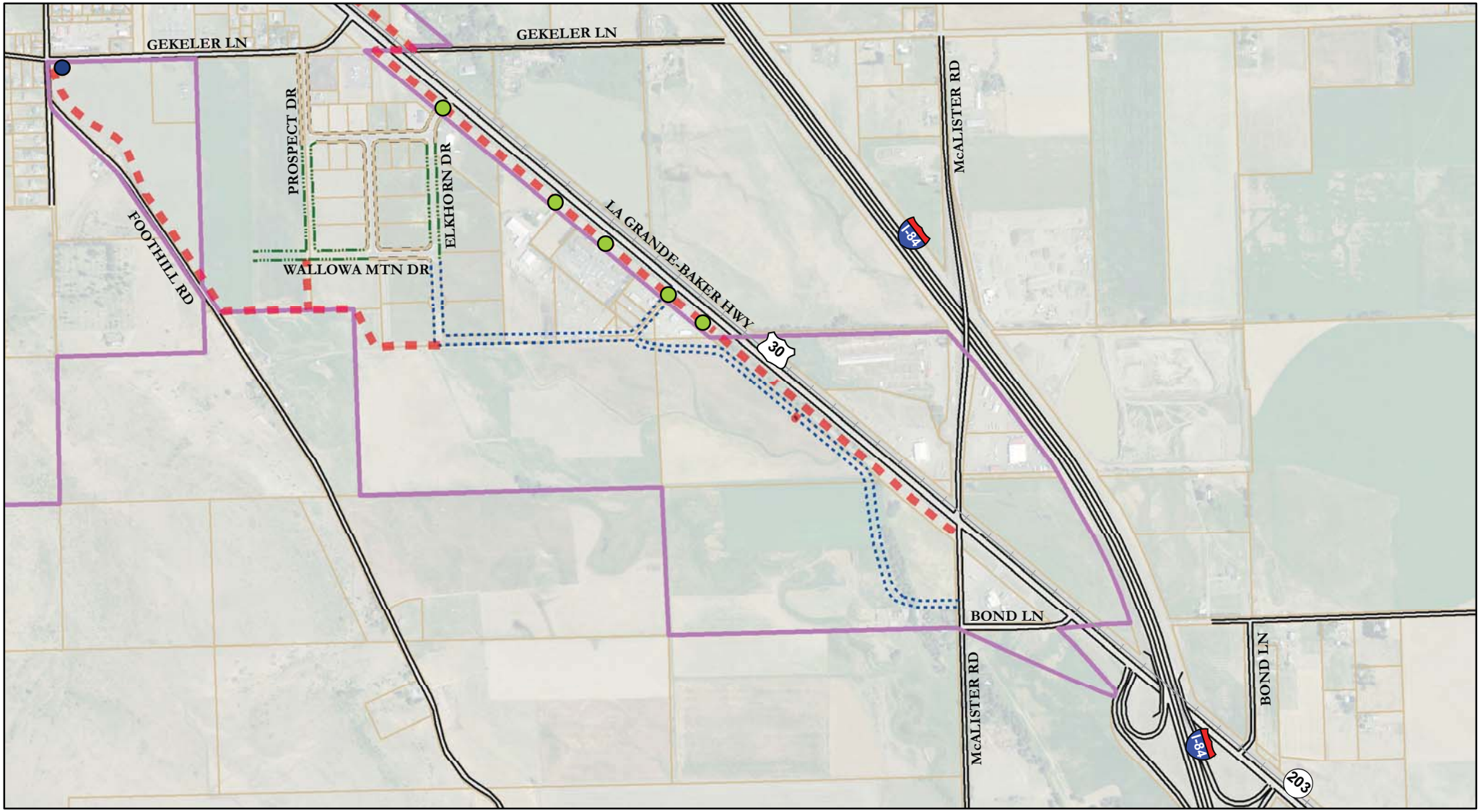


Figure 11: Proposed Roadway and Shared-use Path Alignments

City of La Grande

Transportation System Plan Amendment

Legend

Roadways

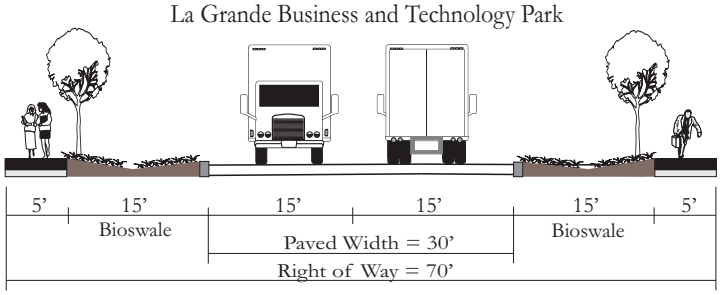
- Existing Roadway
- Existing La Grande Business and Technology Park Roadway
- Proposed La Grande Business and Technology Park Roadway
- Proposed Industrial Collector Roadway

Shared-Use Paths

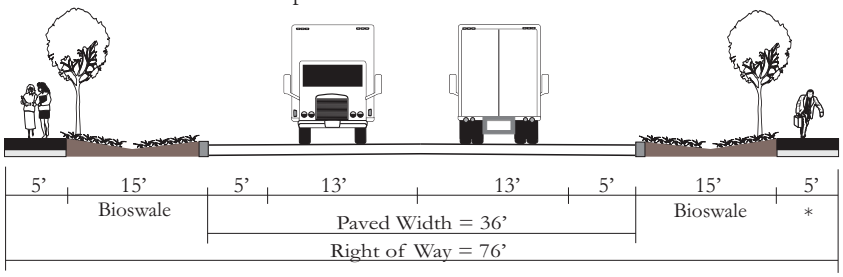
- Proposed Shared-Use Path Alignment
- Proposed Shared-Use Path Trailhead
- Proposed Shared-Use Path Crossing Treatments

- Railroad
- La Grande Urban Growth Boundary

Minimum Size of Streets within
La Grande Business and Technology Park

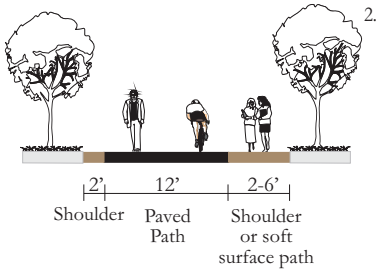


Proposed Industrial Collector Street



* No sidewalk on east side between Elkhorn Drive extension and McAlister Road

Shared-Use Paths [1.]



1. The width of the paved shared-use path may be reduced to a minimum of eight feet in physically constrained areas.
2. Trees are illustrative and not required.

Proposed Shared-use Path
Street/Driveway Crossing

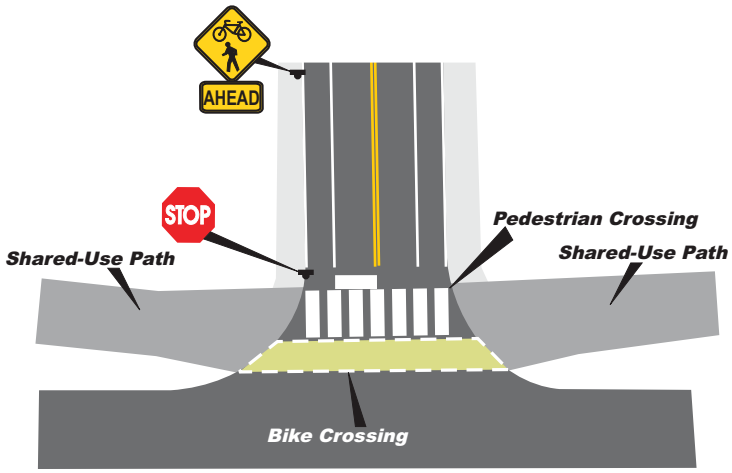


Figure 12

PROPOSED ROADWAY AND SHARED-USE PATH CROSS-SECTIONS

Shared-use Paths

Shared-use paths provide off-roadway facilities for pedestrian and bicycle travel. Depending on their location, they can serve both recreational and general travel needs. Walking and bicycling help develop and maintain "livable communities," make neighborhoods safer and friendlier, save on motorized transportation costs, and reduce transportation-related environmental impacts, auto emissions, and noise.

Shared-use path designs vary in surface types and widths. Harder surfaces are generally better for bicycle travel. Widths should provide ample space for both walking and biking and should also be able to accommodate maintenance vehicles. City of La Grande design standards for shared-use paths require a 12-foot paved width (eight feet if constrained) with two-foot shoulders.

In addition, a variety of amenities can make a path inviting to the user. These could include features such as interpretive signs, water fountains, benches, lighting, maps, art, and shelters.

Two preliminary shared-use path alignments within the study area can be seen in Figure 11. The first provides a parallel route along US 30 within the state right-of-way connecting a planned path to the north with McAlister Road. While no trailheads are shown on this alignment, opportunities could be explored to accommodate a small trailhead within the US Forest Service Ranger Station parking lot. Also, the design of path crossings with street intersections and driveways along US 30 should be carefully considered to protect pedestrian and bicyclist safety. A conceptual configuration for a path crossing has been provided in Figure 12.

An example of a Shared-use Path

An example of potential amenities along the Shared-use Path

The second alignment would start at a trailhead near the intersection with Gekeler Lane and Foothill Road. From there it would run along the future drainage channel to the south (approximately ½-mile outside of the UGB), then turn east at the UGB to connect with the Elkhorn Drive

extension. An additional connection to this path would be provided from the south end of Prospect Drive.

Freight

Streets that are intended to serve industrial areas and higher volumes of trucks are often designed differently than other streets in the city. Wider travel lanes and larger corner radii are two common elements used to facilitate larger vehicle movements.

For the proposed Industrial Collector roadway, concrete pavement is recommended instead of asphalt because it typically holds up better under heavy loads. In addition, 45-foot curb radii are recommended for intersections to facilitate the large vehicle movements. Figure 12 illustrates the assumed design for the primary roadway network within the study area. The paved surface of the Industrial Collector would be approximately 36 feet. The wide 13-foot lanes and five-foot shoulders facilitate large vehicle maneuvers.

ODOT has reported that there have been issues in the past during snow events with large vehicles navigating the tight-loop of the eastbound off-ramp to US 30. In addition, it was determined that by 2031 the 95th percentile vehicle queues could potentially exceed available storage on the ramp by about 50 feet.

A potential solution to both of these issues could be a widened loop that would provide a more gradual turn for large vehicles and increased vehicle storage to meet the expected queue demand through 2031. It should be noted that a wider loop ramp may require some additional right-of-way to the west of I-84. If the construction of a wider loop ramp is

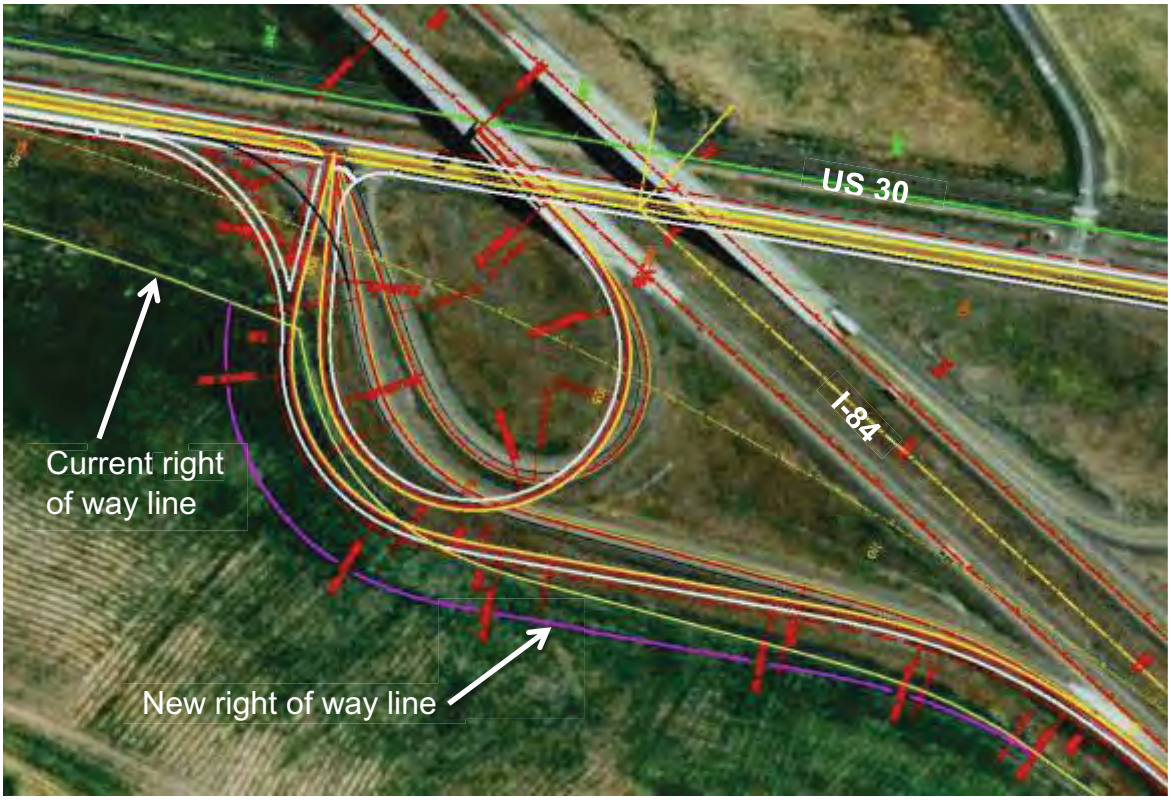


Figure 13: Potential footprint of improved I-84 Eastbound loop ramp

desired, the ultimate footprint for the improvement should be identified so future development does not preclude the needed expansion. Such an effort may be best conducted as part of an Interchange Area Management Plan. A concept drawing of a potential footprint for an improved loop ramp is shown in Figure 13.

Transit

Although transit service is not currently provided in the study area, the expected increase in employment may create a demand for service in the future. If the La Grande Trolley route or another bus line was extended into the study area, much of the City would be accessible via transit. This could potentially decrease the amount of motor vehicle trips generated from the re-zone.

Transit service could be accommodated within the study area by adding bus stops to any of the proposed roadways. Bus pullouts would not be needed since speeds and traffic volumes are expected to be low. Pedestrian and bicycle access to transit service would be accommodated with the addition of sidewalks and bike lanes on proposed roadways and parallel shared-use paths.

When the employment associated with the proposed comprehensive plan amendment is built-out, consideration could be given to forming a transportation management association. Transportation management associations are nonprofit coalitions of local businesses and/or public agencies that work to strengthen partnerships with businesses to reduce traffic congestion and pollution by improving commuting options for their employees. They typically promote carpooling and the use of transit, walking, biking, work schedule changes and telecommuting, especially during the most congested time of the day. The transportation management association could also provide incentives to employees who utilize transit by subsidizing ridership.

Low Impact Development

Industrial site development can result in substantial impacts to water quality and quantity. While permitting requirements may reduce impacts, they are limited in addressing long term cumulative and operations impacts form the changes in land uses and cover.

Low impact development uses a variety of site planning and engineering techniques to control runoff. Under new development conditions there is more flexibility as the hydrologic behavior can be included in planning the site and site features can de designed to be hydrologically functional.

Suitable techniques to control industrial development runoff can include; bio retention swales with amended soils, stormwater planters and pervious paving.

The amount of impervious surface associated with the proposed comprehensive plan amendment was estimated to determine the impacts to water quality and infiltration rates for the surrounding area. Overall, a total of 8,077,418 square feet of impervious surfaces were estimated, with 2,675,782 square feet of buildings and 5,401,636

square feet of parking, driveways or other paved surfaces. In total, impervious surfaces are expected to cover nearly 185 acres.

Pervious Paving

Stormwater Planter

Access Spacing

Based on the existing access inventory there were several identified roadways and driveways that did not comply with spacing standards (see Technical Memorandum #1). One of the public streets not meeting the interchange spacing standard was the US 30/Bond Lane (West) intersection. As an option to reduce potential conflicts in the interchange area, the left turn movement out of the Bond Lane approach could be prohibited.

The expected volume for the eastbound left movement under the 2031 Planned Zoning scenario is only 35 vehicles in the p.m. peak hour. These vehicles would be re-routed to the US 30/McAlister Road intersection with minimal out-of-direction travel. This restriction should generally not occur until the US 30/McAlister Road intersection is signalized to avoid further degradation to the operations of the intersection. However, it is recommended that decisions to modify access such as this be included as part of a future Interchange Area Management Plan.

Flying J Access

A potential access configuration for the Flying J site was developed giving consideration to the transportation system improvements proposed for the surrounding area and the recommendation to consolidate the two driveways on US 30 upon redevelopment documented in the US 30: Gekeler Lane to I-84 Circulation and Access Management Plan. This potential configuration is shown in Figure 14.

When McAlister Road is realigned and the new frontage road is constructed to the west to provide access to the UGB expansion area, the Flying J frontage along McAlister Road will be improved and site access must be modified. To avoid turning conflicts with the intersections with US 30 and the new frontage road, one Flying J access point could be established directly opposite the new frontage road

intersection. An optional second access point could be located in between the new frontage road and US 30.

Should the access points on US 30 be consolidated, consideration must be given to maintaining accessibility of on-site amenities. Where an access is removed, there may be an opportunity to add parking spaces.

It should be noted that the site access configuration shown in Figure 14 is for advanced planning purposes only and is not recommended for adoption as part of this plan. However, long-term site access and circulation to the Flying J and other properties in the area should be addressed in the future through an Interchange Area Management Plan.

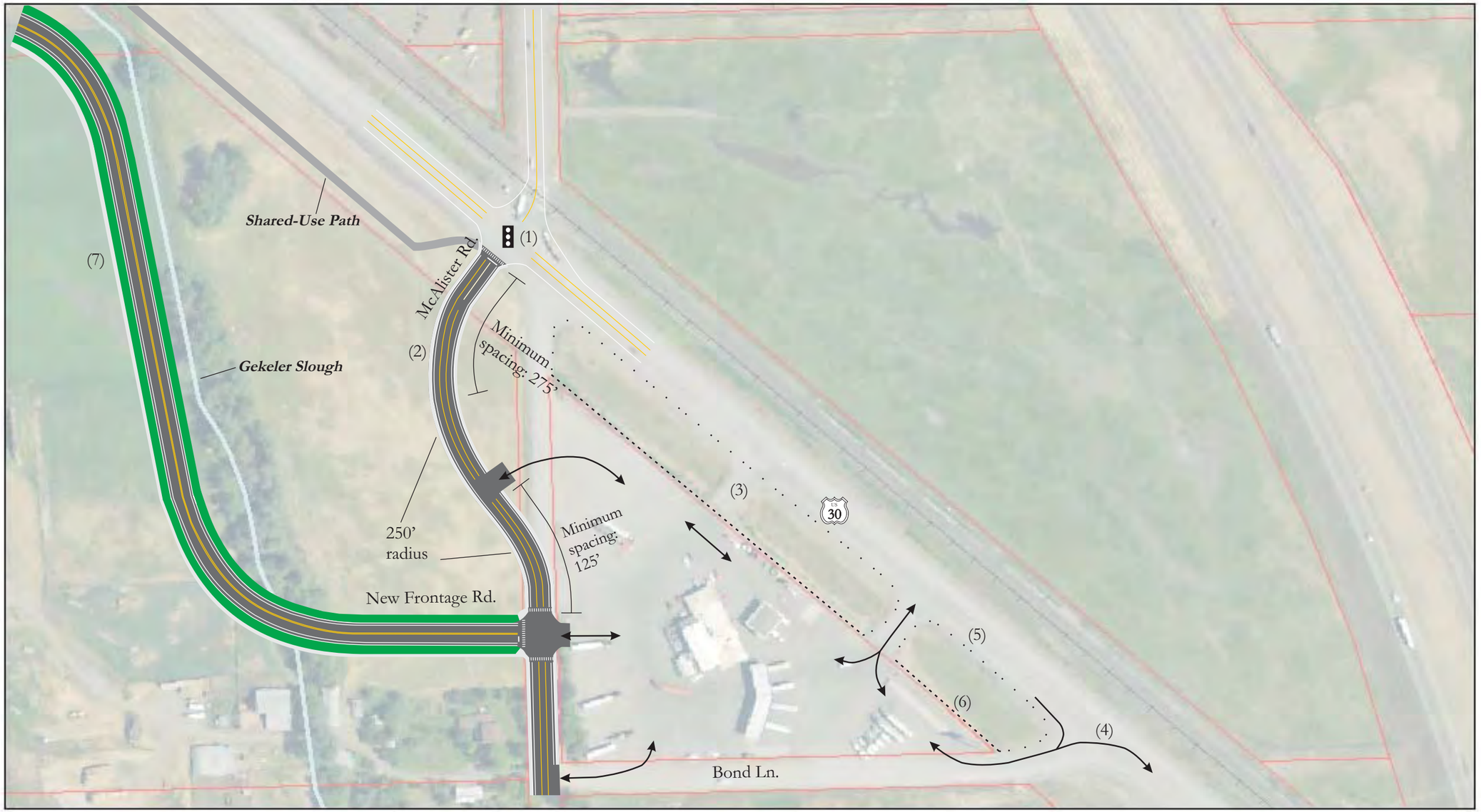


Figure 14: Proposed Improvements Surrounding Flying J Site and Optional Access Configuration

City of La Grande
Transportation System Plan Amendment

Legend

(1) New traffic signal
(2) Realigned and widened McAlister Road to improve large vehicle maneuvers
(3) Close driveway to improve flow to and from signal and increase parking
(4) Right-in/right-out/left-in only to increase safety and mobility
(5) Delineation posts to outline ditch
(6) Fence to outline access points
(7) Construction of a US 30 frontage road

Taxlots
Railroad
Bioswale
Sidewalk
Vehicle Path

Concept Drawing
Not for Design

NO SCALE

Summary of Recommended Improvements

Transportation improvements needed to support future growth and new development within the UGB expansion area are summarized below.

- **Elkhorn Drive Extension to US 30 and US 30 Frontage Road to McAlister Road:** Construct new roadways within the UGB expansion area to provide access to new development. This would include an extension of Elkhorn Drive from the business park back to US 30 and a frontage road along US 30 connecting the Elkhorn Drive extension to McAlister Road. Both new roads would be constructed as collector streets according to the typical design shown in Figure 12.
- **Shared-Use Path Alignments:** Expand on the shared-use path alignments already planned for in the City's TSP. Planned alignments would connect Gekeler Lane to the Elkhorn Drive extension and create a parallel route to US 30 from the Elkhorn Drive extension to the north. New alignments proposed would extends the parallel route along US 30 further south to McAlister Road and would provide a short connector from the south end of Prospect Drive to the planned path connecting Gekeler Lane to the Elkhorn Drive extension.
- **US 30/Gekeler Lane**: Construct a traffic signal, a south-eastbound right-turn deceleration lane with 100 feet of storage and a north-eastbound left turn lane with 175 feet of storage.
- **US 30/Elkhorn Drive**: Construct a south-eastbound right-turn lane with 50 feet of storage, and a north-westbound left-turn lane with 100 feet of storage. The northwest leg of the intersection was assumed to have a two-way left-turn lane to allow two-stage left-turns from Elkhorn Drive.
- **US 30/Elkhorn Drive Extension**: Construct a south-eastbound right-turn lane with 50 feet of storage, a north-westbound left-turn lane with 100 feet of storage, a north-eastbound left-turn lane with 300 feet of storage and a north-eastbound right-turn lane. The northwest leg of the intersection was assumed to have a two-way left-turn lane to allow two-stage left-turns from the Elkhorn Drive Extension.
- **US 30/McAlister Road**: Construct a traffic signal, realignment of the McAlister Road approaches to provide a 90-degree angle with US 30, a north-westbound right-turn deceleration lane with 200 feet of storage, a northbound left-turn lane with 175 feet of storage and a southbound left-turn lane with 250 feet of storage. In addition, the north-westbound shoulder on US 30 should be widened to accommodate 700 feet of vehicles stopped by train crossings. However, only the first 200 feet

would be striped as a right-turn lane.

Another (ODOT-supported) option proposed for improving the US 30/McAlister Road intersection would be to add a traffic signal, a north-westbound right-turn deceleration lane with 150 feet of storage, a northbound left-turn lane with 225 feet of storage, a south-eastbound right turn lane with 100 feet of storage, and dual 275-foot southbound left-turn lanes. Again, the north-westbound shoulder on US 30 should be widened to accommodate 700 feet of vehicles stopped by train crossings. However, only the first 150 feet would be striped as a right-turn lane.

To accommodate the second southbound left turn lane from McAlister Road, a second south-eastbound receiving lane would be needed along US 30. This would require the construction of a new turn lane from just west of McAlister Road to Bond Lane (West) of approximately 1,300 feet. Alternatively, the second south-eastbound lane on US 30 could be accommodated by converting the existing south-eastbound right-turn deceleration lanes to the Flying J Travel Plaza and Bond Lane (West) to shared through-right turn lanes and dropping the lane at the US 30/I-84 Eastbound Ramps intersection.

- **Interchange Area Management Plan:** It is recommended that an Interchange Area Management Plan (IAMP) be completed for the I-84/US 30 interchange to directly address the long-range needs for safe and efficient operation of the interchange and surrounding area. That plan should include a preliminary design of needed interchange enhancements (such as a widened eastbound loop ramp) and an access management plan that revisits the US 30: Gekeler Lane to I-84 Circulation and Access Management Plan in consideration of the added traffic from the UGB expansion area.

Potential Phasing of Improvements

Not all recommended improvements are required to be in place prior to developing land within the UGB expansion area. The need to construct the new Industrial Collector roadway (Elkhorn Drive extension and US 30 Frontage Road) will be driven by the need to access industrial development in Sub-areas B and C. The alignment shown represents the most efficient means of establishing connectivity between Gekeler Lane and McAlister Road so reliance on US 30 for circulation can be minimized. However, as actual development proposals occur, the alignment shown may be modified to better fit desired site plans.

Table 14 provides a general guide for the phasing of recommended transportation improvements. The year of need for each improvement was estimated based on an assumption of even and linear development growth over the planning period. Because this is often not how development actually occurs, other potential triggers have been provided for consideration. These include specific

traffic volumes and groups of development that could drive the need for some improvements.

While the improvements for the intersection on US 30 at McAlister Road are primarily shown to be driven by development in Sub-area H, the need to realign McAlister Road could require a significant amount of those improvements to happen with development on any property that needs to use McAlister Road for access. This is because McAlister Road south of US 30 is currently a gravel road and may require paving prior to use by a substantial amount of development. Therefore, the need to improve McAlister Road could be triggered by development in Sub-areas C, D, or G.

Table 14: Potential Phasing of Transportation Improvements

Estimated Year of Need	Location	Project Needed	Weekday P.M. Peak Hour Traffic Volume Trigger for Improvement	Anticipated Development Trigger
N/A	Elkhorn Drive Extension	New Industrial Collector Street connecting Elkhorn Drive to US 30	N/A	Sub-area B
N/A	Intersection of US 30/Elkhorn Drive Extension	North-eastbound left-turn lane	N/A	Sub-area B
N/A	US 30 Frontage Road	New Industrial Collector Street connecting the Elkhorn Drive extension to McAlister Road	N/A	Sub-area C (possibly Sub-area B as well)
2016	Intersection of US 30/Elkhorn Drive	North-westbound left-turn lane	Total of 650 vehicles per hour on US 30; or 25 northwest left-turn movements	N/A
2016	Intersection of US 30/Elkhorn Drive Extension	North-westbound left-turn lane	Total of 650 vehicles per hour on US 30; or 20 northwest left-turn movements	Sub-area B
2022	Intersection of US 30/Gekeler Lane	South-eastbound right-turn lane	40 southeast right-turn movements	N/A
2022	Intersection of US 30/McAlister Road	North-westbound right-turn lane and supplemental shoulder widening	200 southbound left-turn movements	Sub-area H**
2022		Northbound left-		

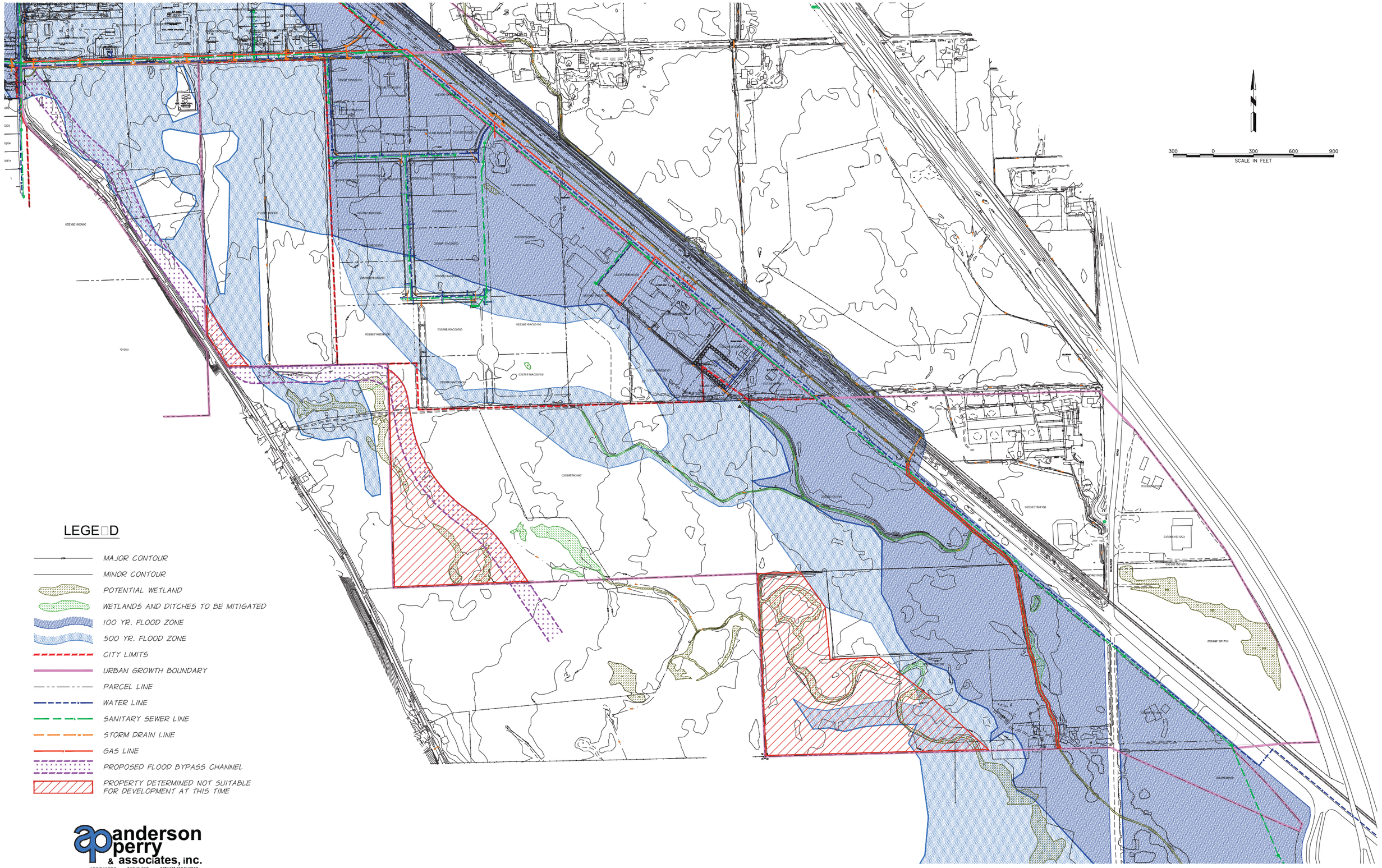
		turn lane		
2022		Southbound left-turn lane(s)*		
2022		Realignment of McAlister Road		
2022		Traffic Signal		
2022		New turn lane from just west of McAlister Road to Bond Lane (West) of approximately 1,300 feet*		
2026	Intersection of US 30/Elkhorn Drive Extension	South-eastbound right-turn lane	20 southeast right-turn movements	Sub-area B
2028	Intersection of US 30/Elkhorn Drive	South-eastbound right-turn lane	20 southeast right-turn movements	N/A
2029	Intersection of US 30/Gekeler Lane	North-eastbound left turn lane	100 northeast left-turn movements	N/A
2029		Traffic signal	100 northeast left-turn movements	N/A
2030	Intersection of US 30/McAlister Road	South-eastbound right-turn lane*	375 southbound left-turn movements	Sub-area H

* Needed if HDM-compliant mitigation is constructed.

** Need for McAlister Road intersection improvements could be triggered by other developments that would be required to improve the currently gravel segment south of US 30 for access.

Appendix C:

Potential Wetland Map (Anderson-Perry and Associates, 2012)



LEGE□D

- MAJOR CONTOUR
- MINOR CONTOUR
- POTENTIAL WETLAND
- WETLANDS AND DITCHES TO BE MITIGATED
- 100 YR. FLOOD ZONE
- 500 YR. FLOOD ZONE
- CITY LIMITS
- URBAN GROWTH BOUNDARY
- PARCEL LINE
- WATER LINE
- SANITARY SEWER LINE
- STORM DRAIN LINE
- GAS LINE
- PROPOSED FLOOD BYPASS CHANNEL
- PROPERTY DETERMINED NOT SUITABLE FOR DEVELOPMENT AT THIS TIME

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engineering · surveying · natural resources
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Appendix D:

Potential Footprint of improved I-84 Eastbound Loop Ramp (ODOT, 2012)

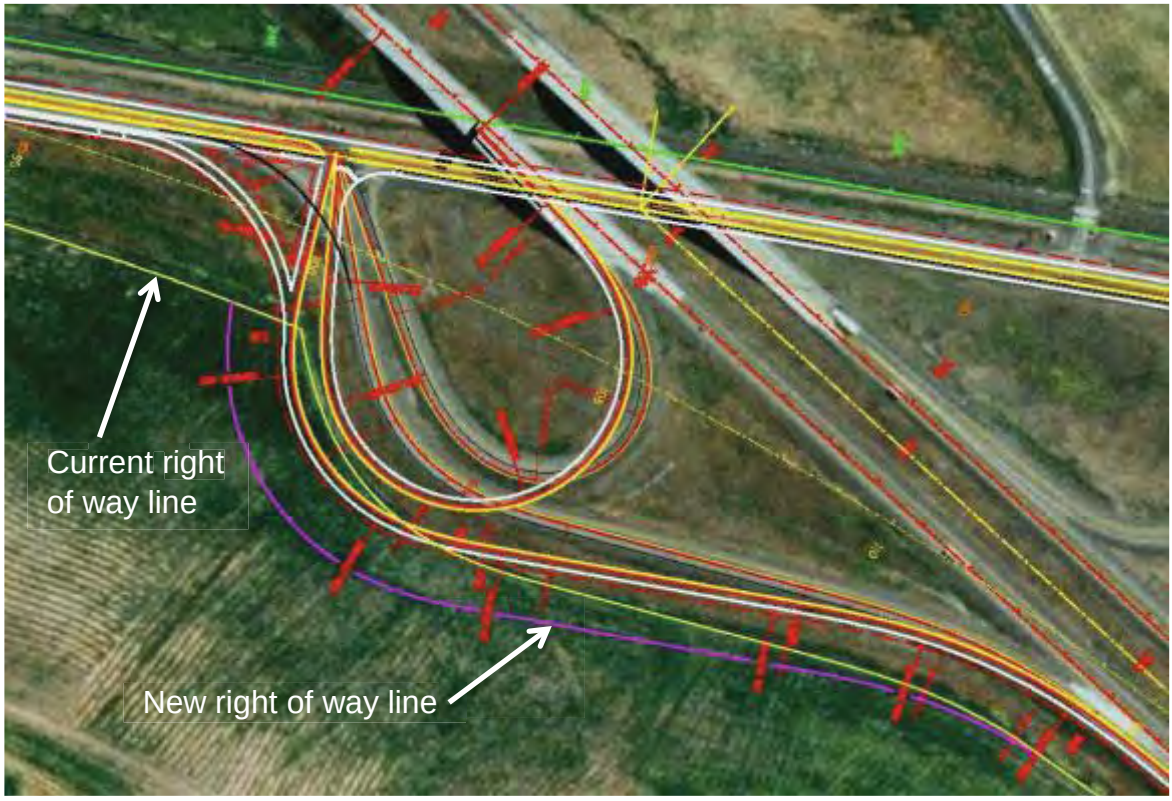
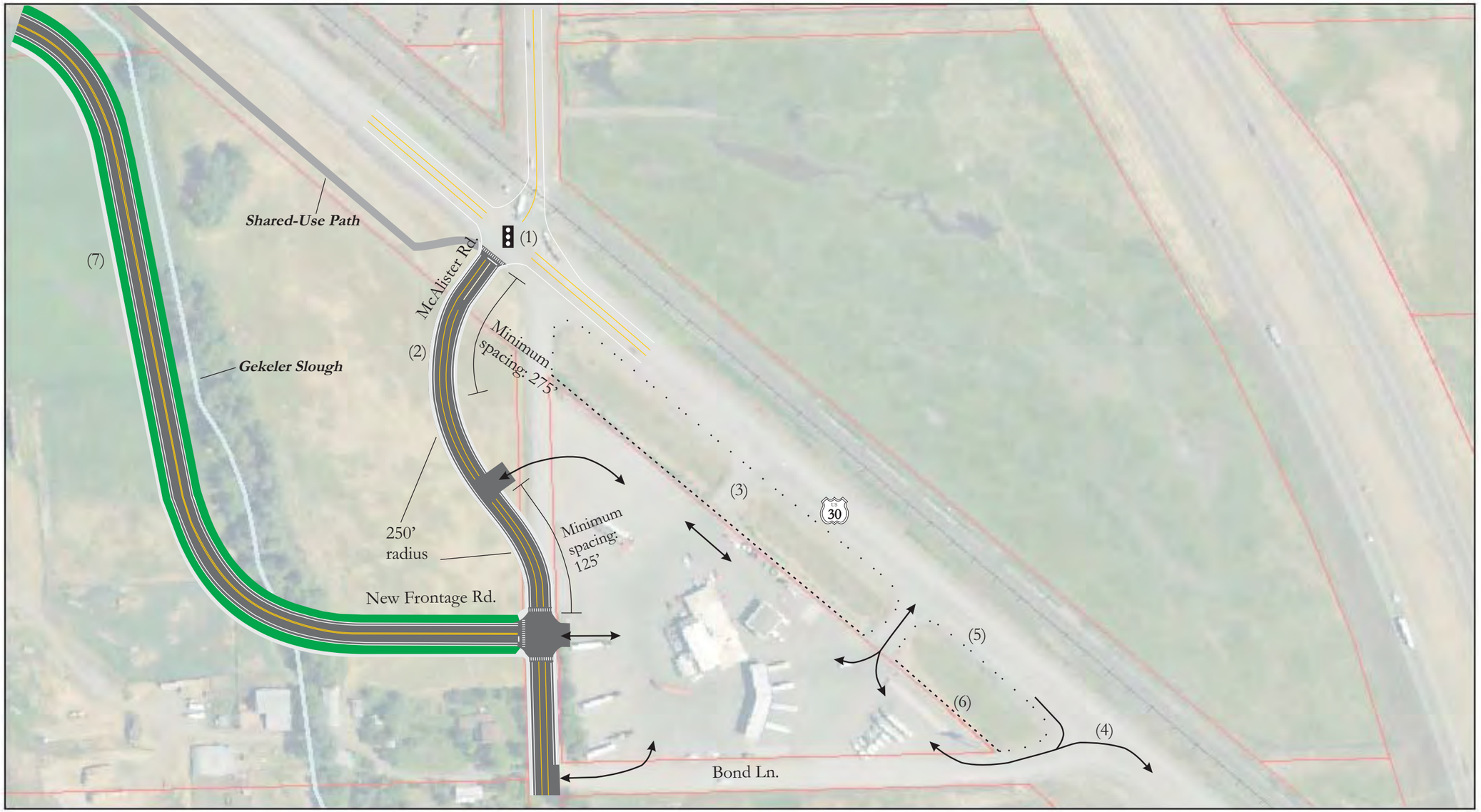


Figure D1: Potential footprint of improved I-84 Eastbound loop ramp

Appendix E:

Proposed Improvements Surrounding Flying J Site and Conceptual Access Configuration (DKS Associates, 2012)



Proposed Improvements Surrounding Flying J Site and Optional Access Configuration

City of La Grande

Transportation System Plan Amendment

Legend

(1) New traffic signal

(2) Realigned and widened McAlister Road to improve large vehicle maneuvers

(3) Close driveway to improve flow to and from signal and increase parking

(4) Right-in/right-out/left-in only to increase safety and mobility

(5) Delineation posts to outline ditch

(6) Fence to outline access points

(7) Construction of a US 30 frontage road

Taxlots

Railroad

Bioswale

Sidewalk

Vehicle Path

Concept Drawing
Not for Design

NO SCALE

Appendix F:

Requested Changes to the State Highway System

Table F1: Requested Changes to the State Highway System

Location	Requested Changes	US 30 Cross-section	
		Existing	Requested
Intersection of US 30/ Gekeler Lane (West)	Construct a north-eastbound left-turn lane with 175 feet of storage	South-eastbound 12' through/right-turn lane, and 11' shoulder, North-westbound 16' left-turn lane, 12' through lane and 11' shoulder., Total roadway width: 62'	South-eastbound 12' through lane, 12' right-turn lane and 4' shoulder, North-westbound 16' left-turn lane, 12' through lane and 11' shoulder., Total roadway width: 67'
	Construct a south-eastbound right-turn deceleration lane with 100 feet of storage		
	Install a traffic signal		
Intersection of US 30/ Elkhorn Drive	Construct a south-eastbound right-turn lane with 50 feet of storage	South-eastbound 12' through/right-turn lane, and 11' shoulder, North-westbound 12' through/left-turn lane and 11' shoulder., Total roadway width: 46'	South-eastbound 12' through lane, 12' right-turn lane and 4' shoulder, North-westbound 16' left-turn lane, 12' through lane and 11' shoulder., Total roadway width: 67'
	Construct a north-westbound left-turn lane with 100 feet of storage. Add a 100-foot shadow area to the northwest leg of the intersection to allow two-stage left-turns from Elkhorn Drive.		
Intersection of US 30/ Elkhorn Drive Extension	Construct a south-eastbound right-turn lane with 50 feet of storage	South-eastbound 12' through lane, and 11' shoulder, North-westbound 12' through lane and 11' shoulder., Total roadway width: 46'	South-eastbound 12' through lane, 12' right-turn lane and 4' shoulder, North-westbound 16' left-turn lane, 12' through lane and 11' shoulder., Total roadway width: 67'
	Extend Elkhorn Drive from the Elkhorn Drive/Wallowa Mountain Drive intersection to US 30 near M.P. 4.41. Add a north-eastbound left-turn lane with 300 feet of storage and a north-eastbound right-turn lane at the US 30/Elkhorn Drive Extension Intersection.		
	Construct a north-westbound left-turn lane with 100 feet of storage. Add a 100-foot shadow area to the northwest leg of the intersection to allow two-stage left-turns from the Elkhorn Drive Extension.		
Intersection of US 30/ McAlister Road	Realign the McAlister Road approaches to provide a 90-degree angle with US 30.	South-eastbound 14' left-turn lane, 12' through/right-turn lane, and 4' shoulder, North-westbound 14' left-turn lane, 12' through/right-turn lane and 16' shoulder. Total roadway width: 58'	South-eastbound 14' left-turn lane, 12' through lane, 12' right-turn lane, and 4' shoulder, North-westbound 14' left-turn lane, 12' through lane, 12' right-turn lane and 4' shoulder. Total roadway width: 70'
	Add a northbound left-turn lane with 225 feet of storage		
	Install a traffic signal, interconnected with adjacent railroad crossing.		
	Construct dual 275-foot southbound left-turn lanes. Convert the existing south-eastbound right-turn deceleration lanes to the Flying J Travel Plaza and Bond Lane (West) to shared through-right turn lanes and drop the lane at the US 30/I-84 Eastbound Ramps intersection.		
	Construct a north-westbound right-turn deceleration lane with 150 feet of storage. Widen the north-westbound shoulder on US 30 to accommodate 700 feet of vehicles stopped by train crossings.		
	Construct a south-eastbound through/right-turn lane with 100 feet of storage.		

Appendix G:

Transportation Improvement Planning Cost Estimates (DKS Associates, 2012)

La Grande TSP Amendment
Cost Estimate Summary

Project: 1)	US 30/Gekeler Lane: South-eastbound Right Turn Lane	
Distance	150	ft
Elevated Distance		ft
Pavement width	18	ft
Sidewalk Width (total)		ft
Roadway width	18	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST
Remove Pavement	900	SF	$ 0.33	$	297
Clear & Grub	900	SF	$ 0.05	$	45
Remove Curb	0	LF	$ 10.00	$	-
Remove Sidewalk	0	SF	$ 1.50	$	-
Grading	0	SF	$ 1.25	$	-
Pavement	2700	SF	$ 8.00	$	21,600
Bike lanes	0	SF	$ 8.00	$	-
Pavement Elevated/Subgrade	0	SF	$ 200.00	$	-
Sidewalk	0	SF	$ 4.00	$	-
Curb and gutter		LF	$ 14.00	$	-
Landscaping	150	LF	$ 12.00	$	1,800
Wall	0	LF	$ 120.00	$	-
Lighting	150	LF	$ 60.00	$	9,000
Full Drainage	150	LF	$ 100.00	$	15,000
Drainage Modifications	0	LF	$ 25.00	$	-
Driveway Adjustments	0	Driveways	$ 2,000.00	$	-
Traffic Signal Installation	0	EA	$ 250,000.00	$	-
Roundabouts	0	EA	$500,000	$	-
Traffic Signal Modification	0	Unit	$ 50,000.00	$	-
Signing and Striping	0	EA	$ 500.00	$	-
Signing and Striping	150	LF	$ 1.50	$	225
SUBTOTAL				$	47,967
Traffic Control			10%	$	4,797
Mobiliization			10%	$	4,797
Design/Administration/Management			15%	$	7,195
Contingency			25%	$	11,992
Project Development			5%	$	2,398
Sales Tax			0.0%	$	-
Right Of Way	0	SF	$ 11.00	$	-

PROJECT COST:	**$**	**79,146**
	$	**80,000** rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 2) US 30/Elkhorn Drive Extension: North-westbound Left-Turn Lane

Distance	400	ft
Elevated Distance		ft
Pavement width	18	ft
Sidewalk Width (total)		ft
Roadway width	18	ft

Project Description:

	UNITS		UNIT COSTS	ESTIMATED COST
Remove Pavement	2400	SF	$ 0.33	$ 792
Clear & Grub	2400	SF	$ 0.05	$ 120
Remove Curb		LF	$ 10.00	$ -
Remove Sidewalk		SF	$ 1.50	$ -
Grading	0	SF	$ 1.25	$ -
Pavement	7200	SF	$ 8.00	$ 57,600
Bike lanes		SF	$ 8.00	$ -
Pavement Elevated/Subgrade	0	SF	$ 200.00	$ -
Sidewalk		SF	$ 4.00	$ -
Curb and gutter		LF	$ 14.00	$ -
Landscaping	400	LF	$ 12.00	$ 4,800
Wall	0	LF	$ 120.00	$ -
Lighting	400	LF	$ 60.00	$ 24,000
Full Drainage	400	LF	$ 100.00	$ 40,000
Drainage Modifications	0	LF	$ 25.00	$ -
Driveway Adjustments	0	Driveways	$ 2,000.00	$ -
Traffic Signal Installation	0	EA	$ 250,000.00	$ -
Roundabouts	0	EA	$500,000	$ -
Traffic Signal Modification	0	Unit	$ 50,000.00	$ -
Signing and Striping	0	EA	$ 500.00	$ -
Signing and Striping	400	LF	$ 1.50	$ 600
SUBTOTAL				$ 127,912
Traffic Control			10%	$ 12,791
Mobiliization			10%	$ 12,791
Design/Administration/Management			15%	$ 19,187
Contingency			25%	$ 31,978
Project Development			5%	$ 6,396
Sales Tax			0.0%	$ -
Right Of Way	0	SF	$ 11.00	$ -

PROJECT COST: $ 211,055

$ 210,000 rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 2) US 30/Gekeler Lane: North-eastbound Left-Turn Lane

Distance	200	ft
Elevated Distance		ft
Pavement width	18	ft
Sidewalk Width (total)		ft
Roadway width	18	ft

Project Description:

	UNITS		UNIT COSTS	ESTIMATED COST
Remove Pavement	1200	SF	$ 0.33	$ 396
Clear & Grub	1200	SF	$ 0.05	$ 60
Remove Curb	200	LF	$ 10.00	$ 2,000
Remove Sidewalk	1200	SF	$ 1.50	$ 1,800
Grading	0	SF	$ 1.25	$ -
Pavement	3600	SF	$ 8.00	$ 28,800
Bike lanes	1200	SF	$ 8.00	$ 9,600
Pavement Elevated/Subgrade	0	SF	$ 200.00	$ -
Sidewalk	1200	SF	$ 4.00	$ 4,800
Curb and gutter	200	LF	$ 14.00	$ 2,800
Landscaping	200	LF	$ 12.00	$ 2,400
Wall	0	LF	$ 120.00	$ -
Lighting	200	LF	$ 60.00	$ 12,000
Full Drainage	200	LF	$ 100.00	$ 20,000
Drainage Modifications	0	LF	$ 25.00	$ -
Driveway Adjustments	0	Driveways	$ 2,000.00	$ -
Traffic Signal Installation	0	EA	$ 250,000.00	$ -
Roundabouts	0	EA	$500,000	$ -
Traffic Signal Modification	0	Unit	$ 50,000.00	$ -
Signing and Striping	0	EA	$ 500.00	$ -
Signing and Striping	200	LF	$ 1.50	$ 300
SUBTOTAL				$ 84,956
Traffic Control			10%	$ 8,496
Mobiliization			10%	$ 8,496
Design/Administration/Management			15%	$ 12,743
Contingency			25%	$ 21,239
Project Development			5%	$ 4,248
Sales Tax			0.0%	$ -
Right Of Way	0	SF	$ 11.00	$ -

PROJECT COST:	**$ 140,177**
	$ 140,000 rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 3) US 30/Gekeler Lane: Traffic Signal

Distance	ft
Elevated Distance	ft
Pavement width	ft
Sidewalk Width (total)	ft
Roadway width	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST	
Remove Pavement	0	SF	$ 0.33	$	-	
Clear & Grub	0	SF	$ 0.05	$	-	
Remove Curb	0	LF	$ 10.00	$	-	
Remove Sidewalk	0	SF	$ 1.50	$	-	
Grading	0	SF	$ 1.25	$	-	
Pavement	0	SF	$ 8.00	$	-	
Bike lanes	0	SF	$ 8.00	$	-	
Pavement Elevated/Subgrade	0	SF	$ 200.00	$	-	
Sidewalk	0	SF	$ 4.00	$	-	
Curb and gutter	0	LF	$ 14.00	$	-	
Landscaping	0	LF	$ 12.00	$	-	
Wall	0	LF	$ 120.00	$	-	
Lighting	0	LF	$ 60.00	$	-	
Full Drainage	0	LF	$ 100.00	$	-	
Drainage Modifications	0	LF	$ 25.00	$	-	
Driveway Adjustments	0	Driveways	$ 2,000.00	$	-	
Traffic Signal Installation	1	EA	$ 225,000.00	$	225,000	will require only 3 mast arms
Roundabouts	0	EA	$500,000	$	-	
Traffic Signal Modification	0	Unit	$ 50,000.00	$	-	
Signing and Striping	0	EA	$ 500.00	$	-	
Signing and Striping	0	LF	$ 1.50	$	-	
SUBTOTAL				$	225,000	
Traffic Control			10%	$	22,500	
Mobiliization			10%	$	22,500	
Design/Administration/Management			15%	$	33,750	
Contingency			25%	$	56,250	
Project Development			5%	$	11,250	
Sales Tax			0.0%	$	-	
Right Of Way	0	SF	$ 11.00	$	-	

PROJECT COST: $ 371,250

$ 370,000 rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 1)	US 30/Elkhorn Drive: South-eastbound Right Turn Lane	
Distance	100	ft
Elevated Distance		ft
Pavement width	18	ft
Sidewalk Width (total)		ft
Roadway width	18	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST
Remove Pavement	600	SF	$ 0.33	$	198
Clear & Grub	600	SF	$ 0.05	$	30
Remove Curb	0	LF	$ 10.00	$	-
Remove Sidewalk	0	SF	$ 1.50	$	-
Grading	0	SF	$ 1.25	$	-
Pavement	1800	SF	$ 8.00	$	14,400
Bike lanes	0	SF	$ 8.00	$	-
Pavement Elevated/Subgrade	0	SF	$ 200.00	$	-
Sidewalk	0	SF	$ 4.00	$	-
Curb and gutter		LF	$ 14.00	$	-
Landscaping	100	LF	$ 12.00	$	1,200
Wall	0	LF	$ 120.00	$	-
Lighting	100	LF	$ 60.00	$	6,000
Full Drainage	100	LF	$ 100.00	$	10,000
Drainage Modifications	0	LF	$ 25.00	$	-
Driveway Adjustments	0	Driveways	$ 2,000.00	$	-
Traffic Signal Installation	0	EA	$ 250,000.00	$	-
Roundabouts	0	EA	$500,000	$	-
Traffic Signal Modification	0	Unit	$ 50,000.00	$	-
Signing and Striping	0	EA	$ 500.00	$	-
Signing and Striping	100	LF	$ 1.50	$	150
SUBTOTAL				$	31,978
Traffic Control			10%	$	3,198
Mobiliization			10%	$	3,198
Design/Administration/Management			15%	$	4,797
Contingency			25%	$	7,995
Project Development			5%	$	1,599
Sales Tax			0.0%	$	-
Right Of Way	0	SF	$ 11.00	$	-

PROJECT COST:	**$**	**52,764** rounded
	$	**55,000**

La Grande TSP Amendment
Cost Estimate Summary

Project: 2) US 30/Elkhorn Drive: North-westbound Left-Turn Lane

Distance	400	ft
Elevated Distance		ft
Pavement width	18	ft
Sidewalk Width (total)		ft
Roadway width	18	ft

Project Description:

	UNITS		UNIT COSTS	ESTIMATED COST
Remove Pavement	2400	SF	$ 0.33	$ 792
Clear & Grub	2400	SF	$ 0.05	$ 120
Remove Curb		LF	$ 10.00	$ -
Remove Sidewalk		SF	$ 1.50	$ -
Grading	0	SF	$ 1.25	$ -
Pavement	7200	SF	$ 8.00	$ 57,600
Bike lanes		SF	$ 8.00	$ -
Pavement Elevated/Subgrade	0	SF	$ 200.00	$ -
Sidewalk		SF	$ 4.00	$ -
Curb and gutter		LF	$ 14.00	$ -
Landscaping	400	LF	$ 12.00	$ 4,800
Wall	0	LF	$ 120.00	$ -
Lighting	400	LF	$ 60.00	$ 24,000
Full Drainage	400	LF	$ 100.00	$ 40,000
Drainage Modifications	0	LF	$ 25.00	$ -
Driveway Adjustments	0	Driveways	$ 2,000.00	$ -
Traffic Signal Installation	0	EA	$ 250,000.00	$ -
Roundabouts	0	EA	$500,000	$ -
Traffic Signal Modification	0	Unit	$ 50,000.00	$ -
Signing and Striping	0	EA	$ 500.00	$ -
Signing and Striping	400	LF	$ 1.50	$ 600
SUBTOTAL				$ 127,912
Traffic Control			10%	$ 12,791
Mobiliization			10%	$ 12,791
Design/Administration/Management			15%	$ 19,187
Contingency			25%	$ 31,978
Project Development			5%	$ 6,396
Sales Tax			0.0%	$ -
Right Of Way	0	SF	$ 11.00	$ -
PROJECT COST:				**$ 211,055**
				$ 210,000 rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 1)	US 30/Elkhorn Drive Extension: South-eastbound Right-Turn Lane	
Distance	100	ft
Elevated Distance		ft
Pavement width	18	ft
Sidewalk Width (total)		ft
Roadway width	18	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST
Remove Pavement	600	SF	$ 0.33	$	198
Clear & Grub	600	SF	$ 0.05	$	30
Remove Curb	0	LF	$ 10.00	$	-
Remove Sidewalk	0	SF	$ 1.50	$	-
Grading	0	SF	$ 1.25	$	-
Pavement	1800	SF	$ 8.00	$	14,400
Bike lanes	0	SF	$ 8.00	$	-
Pavement Elevated/Subgrade	0	SF	$ 200.00	$	-
Sidewalk	0	SF	$ 4.00	$	-
Curb and gutter		LF	$ 14.00	$	-
Landscaping	100	LF	$ 12.00	$	1,200
Wall	0	LF	$ 120.00	$	-
Lighting	100	LF	$ 60.00	$	6,000
Full Drainage	100	LF	$ 100.00	$	10,000
Drainage Modifications	0	LF	$ 25.00	$	-
Driveway Adjustments	0	Driveways	$ 2,000.00	$	-
Traffic Signal Installation	0	EA	$ 250,000.00	$	-
Roundabouts	0	EA	$500,000	$	-
Traffic Signal Modification	0	Unit	$ 50,000.00	$	-
Signing and Striping	0	EA	$ 500.00	$	-
Signing and Striping	100	LF	$ 1.50	$	150
SUBTOTAL				$	31,978
Traffic Control			10%	$	3,198
Mobiliization			10%	$	3,198
Design/Administration/Management			15%	$	4,797
Contingency			25%	$	7,995
Project Development			5%	$	1,599
Sales Tax			0.0%	$	-
Right Of Way	0	SF	$ 11.00	$	-

PROJECT COST:	**$**	**52,764** rounded
	$	**55,000**

La Grande TSP Amendment
Cost Estimate Summary

Project: 1) US 30/McAlister Road: South-eastbound Right-Turn Lane

Distance	150	ft
Elevated Distance		ft
Pavement width	18	ft
Sidewalk Width (total)		ft
Roadway width	18	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST
Remove Pavement	900	SF	$ 0.33	$	297
Clear & Grub	900	SF	$ 0.05	$	45
Remove Curb	0	LF	$ 10.00	$	-
Remove Sidewalk	0	SF	$ 1.50	$	-
Grading	0	SF	$ 1.25	$	-
Pavement	2700	SF	$ 8.00	$	21,600
Bike lanes	0	SF	$ 8.00	$	-
Pavement Elevated/Subgrade	0	SF	$ 200.00	$	-
Sidewalk	0	SF	$ 4.00	$	-
Curb and gutter		LF	$ 14.00	$	-
Landscaping	150	LF	$ 12.00	$	1,800
Wall	0	LF	$ 120.00	$	-
Lighting	150	LF	$ 60.00	$	9,000
Full Drainage	150	LF	$ 100.00	$	15,000
Drainage Modifications	0	LF	$ 25.00	$	-
Driveway Adjustments	0	Driveways	$ 2,000.00	$	-
Traffic Signal Installation	0	EA	$ 250,000.00	$	-
Roundabouts	0	EA	$500,000	$	-
Traffic Signal Modification	0	Unit	$ 50,000.00	$	-
Signing and Striping	0	EA	$ 500.00	$	-
Signing and Striping	150	LF	$ 1.50	$	225
SUBTOTAL				$	47,967
Traffic Control			10%	$	4,797
Mobiliization			10%	$	4,797
Design/Administration/Management			15%	$	7,195
Contingency			25%	$	11,992
Project Development			5%	$	2,398
Sales Tax			0.0%	$	-
Right Of Way	0	SF	$ 11.00	$	-

PROJECT COST:	**$**	**79,146** rounded
	$	**80,000**

La Grande TSP Amendment
Cost Estimate Summary

Project: 2) US 30/McAlister Road: North-westbound Right-Turn Lane

Distance	200	ft
Elevated Distance		ft
Pavement width	18	ft
Sidewalk Width (total)		ft
Roadway width	18	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST	
Remove Pavement	1200	SF	$ 0.33	$	396	
Clear & Grub	1200	SF	$ 0.05	$	60	
Remove Curb	0	LF	$ 10.00	$	-	
Remove Sidewalk	0	SF	$ 1.50	$	-	
Grading	0	SF	$ 1.25	$	-	
Pavement	6600	SF	$ 8.00	$	52,800	Includes 500 ft. of shoulder widening
Bike lanes	0	SF	$ 8.00	$	-	
Pavement Elevated/Subgrade	0	SF	$ 200.00	$	-	
Sidewalk	0	SF	$ 4.00	$	-	
Curb and gutter		LF	$ 14.00	$	-	
Landscaping	200	LF	$ 12.00	$	2,400	
Wall	0	LF	$ 120.00	$	-	
Lighting	200	LF	$ 60.00	$	12,000	
Full Drainage	200	LF	$ 100.00	$	20,000	
Drainage Modifications	0	LF	$ 25.00	$	-	
Driveway Adjustments	0	Driveways	$ 2,000.00	$	-	
Traffic Signal Installation	0	EA	$ 250,000.00	$	-	
Roundabouts	0	EA	$500,000	$	-	
Traffic Signal Modification	0	Unit	$ 50,000.00	$	-	
Signing and Striping	0	EA	$ 500.00	$	-	
Signing and Striping	200	LF	$ 1.50	$	300	
SUBTOTAL				$	87,956	
Traffic Control			10%	$	8,796	
Mobiliization			10%	$	8,796	
Design/Administration/Management			15%	$	13,193	
Contingency			25%	$	21,989	
Project Development			5%	$	4,398	
Sales Tax			0.0%	$	-	
Right Of Way	0	SF	$ 11.00	$	-	

PROJECT COST:	**$ 145,127**	rounded
	$ 145,000	

La Grande TSP Amendment
Cost Estimate Summary

Project: 3)	US 30/McAlister Road: Dual Southbound Left-Turn Lanes	
Distance	350	ft
Elevated Distance		ft
Pavement width	56	ft
Bikelane Width (total)	10	ft
Sidewalk Width (total)	10	ft
Roadway width	82	ft

Project Description:

	UNITS		UNIT COSTS	ESTIMATED COST	
Remove Pavement	4200	SF	$ 0.33	$ 1,386	
Clear & Grub	4200	SF	$ 0.05	$ 210	
Remove Curb	0	LF	$ 10.00	$ -	
Remove Sidewalk	0	SF	$ 1.50	$ -	
Grading	0	SF	$ 1.25	$ -	
Pavement	16100	SF	$ 8.00	$ 128,800	
Bike lanes	3500	SF	$ 8.00	$ 28,000	
Pavement Elevated/Subgrade	0	SF	$ 200.00	$ -	
Sidewalk	3500	SF	$ 4.00	$ 14,000	
Curb and gutter	700	LF	$ 14.00	$ 9,800	
Landscaping	700	LF	$ 12.00	$ 8,400	
Wall	0	LF	$ 120.00	$ -	
Lighting	350	LF	$ 60.00	$ 21,000	
Full Drainage	350	LF	$ 100.00	$ 35,000	
Drainage Modifications	0	LF	$ 25.00	$ -	
Driveway Adjustments	0	Driveways	$ 2,000.00	$ -	
Traffic Signal Installation	0	EA	$ 250,000.00	$ -	
Roundabouts	0	EA	$500,000	$ -	
Traffic Signal Modification	0	Unit	$ 50,000.00	$ -	
Signing and Striping	0	EA	$ 500.00	$ -	
Signing and Striping	1650	LF	$ 1.50	$ 2,475	Includes conversion of US 30 turn lane to through/right turn lane for 1,300 LF
SUBTOTAL				$ 249,071	
Traffic Control			10%	$ 24,907	
Mobiliization			10%	$ 24,907	
Design/Administration/Management			15%	$ 37,361	
Contingency			25%	$ 62,268	
Project Development			5%	$ 12,454	
Sales Tax			0.0%	$ -	
Right Of Way	0	SF	$ 11.00	$ -	

PROJECT COST:	**$ 410,967**
	$ 410,000 rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 4) US 30/McAlister Road: Traffic Signal
Distance ft
Elevated Distance ft
Pavement width ft

Sidewalk Width (total) ft
Roadway width ft

Project Description:

	UNITS		UNIT COSTS	ESTIMATED COST
Remove Pavement	0	SF	$ 0.33	$ -
Clear & Grub	0	SF	$ 0.05	$ -
Remove Curb	0	LF	$ 10.00	$ -
Remove Sidewalk	0	SF	$ 1.50	$ -
Grading	0	SF	$ 1.25	$ -
Pavement	0	SF	$ 8.00	$ -
Bike lanes	0	SF	$ 8.00	$ -
Pavement Elevated/Subgrade	0	SF	$ 200.00	$ -
Sidewalk	0	SF	$ 4.00	$ -
Curb and gutter	0	LF	$ 14.00	$ -
Landscaping	0	LF	$ 12.00	$ -
Wall	0	LF	$ 120.00	$ -
Lighting	0	LF	$ 60.00	$ -
Full Drainage	0	LF	$ 100.00	$ -
Drainage Modifications	0	LF	$ 25.00	$ -
Driveway Adjustments	0	Driveways	$ 2,000.00	$ -
Traffic Signal Installation	1	EA	$ 250,000.00	$ 250,000
Signalized RR X-ing with Cantilever	1	EA	$340,000	$ 340,000
Traffic Signal Modification	0	Unit	$ 50,000.00	$ -
Signing and Striping	0	EA	$ 500.00	$ -
Signing and Striping	0	LF	$ 1.50	$ -
SUBTOTAL				$ 590,000
Traffic Control			10%	$ 59,000
Mobiliization			10%	$ 59,000
Design/Administration/Management			15%	$ 88,500
Contingency			25%	$ 147,500
Project Development			5%	$ 29,500
Sales Tax			0.0%	$ -
Right Of Way	0	SF	$ 11.00	$ -
PROJECT COST:				**$ 973,500**
				$ 975,000 rounded

Project: 5) McAlister Road Realignment

Distance	1050	ft	
Elevated Distance		ft	
Pavement width	44	ft	Assumed La Grande Major Collector cross-section with 12 ft. center turn lane to Bond Lane (West)
Bikelane Width (total)	10	ft	
Sidewalk Width (total)	10	ft	
Roadway width	70	ft	

Project Description:

	UNITS		UNIT COSTS	ESTIMATED COST	
Remove Pavement	0	SF	$ 0.33	$ -	
Clear & Grub	10800	SF	$ 0.05	$ 540	
Remove Curb	0	LF	$ 10.00	$ -	
Remove Sidewalk	0	SF	$ 1.50	$ -	
Grading	0	SF	$ 1.25	$ -	
Pavement	35700	SF	$ 8.00	$ 285,600	
Bike lanes	10500	SF	$ 8.00	$ 84,000	
Pavement Elevated/Subgrade	0	SF	$ 200.00	$ -	
Sidewalk	10500	SF	$ 4.00	$ 42,000	
Curb and gutter	2100	LF	$ 14.00	$ 29,400	
Landscaping	2100	LF	$ 12.00	$ 25,200	
Wall	0	LF	$ 120.00	$ -	
Lighting	1050	LF	$ 60.00	$ 63,000	
Full Drainage	1050	LF	$ 100.00	$ 105,000	
Drainage Modifications	0	LF	$ 25.00	$ -	
Driveway Adjustments	2	Driveways	$ 2,000.00	$ 4,000	
Traffic Signal Installation	0	EA	$ 225,000.00	$ -	
Roundabouts	0	EA	$500,000	$ -	
Traffic Signal Modification	0	Unit	$ 50,000.00	$ -	
Signing and Striping	0	EA	$ 500.00	$ -	
Signing and Striping	1050	LF	$ 1.50	$ 1,575	
SUBTOTAL				$ 640,315	
Traffic Control			10%	$ 64,032	
Mobiliization			10%	$ 64,032	
Design/Administration/Management			15%	$ 96,047	
Contingency			30%	$ 192,095	
Project Development			5%	$ 32,016	
Sales Tax			0.0%	$ -	
Right Of Way	31500	SF	$ 11.00	$ 346,500	600 LF of City/ODOT ROW

PROJECT COST:	**$ 1,435,036**	
	$ 1,435,000	rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 1) Elkhorn Drive Extension from Wallowa Mountain Drive to US 30

Distance	3050	ft
Elevated Distance		ft
Pavement width	36	ft
Bikelane Width (total)	10	ft
Sidewalk Width (total)	10	ft
Roadway width	76	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST	
Remove Pavement	0	SF	$	0.33	$	-
Clear & Grub	0	SF	$	0.05	$	-
Remove Curb	0	LF	$	10.00	$	-
Remove Sidewalk	0	SF	$	1.50	$	-
Grading	0	SF	$	1.25	$	-
Pavement	83200	SF	$	8.00	$	665,600
Bike lanes/Shoulder	30500	SF	$	8.00	$	244,000
Pavement Elevated/Subgrade	0	SF	$	200.00	$	-
Sidewalk	30500	SF	$	4.00	$	122,000
Curb and gutter	6100	LF	$	14.00	$	85,400
Landscaping	6100	LF	$	12.00	$	73,200
Wall	0	LF	$	120.00	$	-
Lighting	3050	LF	$	60.00	$	183,000
Full Drainage	3050	LF	$	100.00	$	305,000
Drainage Modifications	0	LF	$	25.00	$	-
Driveway Adjustments	3	Driveways	$	2,000.00	$	6,000
Roundabouts	0	EA		$500,000	$	-
Traffic Signal Modification	0	Unit	$	50,000.00	$	-
Signing and Striping	0	EA	$	500.00	$	-
Signing and Striping	3050	LF	$	1.50	$	4,575
SUBTOTAL					$	1,688,775
Traffic Control				5%	$	84,439
Mobiliization				10%	$	168,878
Design/Administration/Management				15%	$	253,316
Contingency				30%	$	506,633
Project Development				5%	$	84,439
Sales Tax				0.0%	$	-
Right Of Way	118940	SF	$	1.00	$	118,940

Includes cost for 12 ft wide north-eastbound left-turn lane on Elkhorn Drive Extension at US 30

1,485 LF of City/ODOT ROW

PROJECT COST:	**$**	**2,905,419**
	$	**2,905,000** rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 1) US 30 Frontage Road from Elkorn Drive Extension to McAlister Road

Distance	4300	ft
Elevated Distance		ft
Pavement width	36	ft
Bikelane Width (total)	10	ft
Sidewalk Width (total)	10	ft
Roadway width	76	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST	
Remove Pavement	0	SF	$	0.33	$	-
Clear & Grub	0	SF	$	0.05	$	-
Remove Curb	0	LF	$	10.00	$	-
Remove Sidewalk	0	SF	$	1.50	$	-
Grading	0	SF	$	1.25	$	-
Pavement	111800	SF	$	8.00	$	894,400
Bike lanes/Shoulder	43000	SF	$	8.00	$	344,000
Pavement Elevated/Subgrade	0	SF	$	200.00	$	-
Sidewalk	25500	SF	$	4.00	$	102,000	Assumed sidewalks on both sides for 800 ft. near Gekeler Road Extension
Curb and gutter	8600	LF	$	14.00	$	120,400
Landscaping	8600	LF	$	12.00	$	103,200
Wall	0	LF	$	120.00	$	-
Lighting	4300	LF	$	60.00	$	258,000
Full Drainage	4300	LF	$	100.00	$	430,000
Drainage Modifications	0	LF	$	25.00	$	-
Driveway Adjustments	0	Driveways	$	2,000.00	$	-
Roundabouts	0	EA		$500,000	$	-
Traffic Signal Modification	0	Unit	$	50,000.00	$	-
Signing and Striping	0	EA	$	500.00	$	-
Signing and Striping	4300	LF	$	1.50	$	6,450
SUBTOTAL					$	2,258,450	
Traffic Control				5%	$	112,923
Mobiliization				10%	$	225,845
Design/Administration/Management				15%	$	338,768
Contingency				30%	$	677,535
Project Development				5%	$	112,923
Sales Tax				0.0%	$	-
Right Of Way	205200	SF	$	1.00	$	205,200	1,600 LF of ODOT ROW
PROJECT COST:					**$**	**3,931,643**	
					$	**3,930,000**	rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 1)	Wallowa Mountain Drive Extension	
Distance	1000	ft
Elevated Distance		ft
Pavement width	30	ft
Bikelane Width (total)	0	ft
Sidewalk Width (total)	10	ft
Roadway width	71	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST	
Remove Pavement	0	SF	$ 0.33	$	-	
Clear & Grub	0	SF	$ 0.05	$	-	
Remove Curb	0	LF	$ 10.00	$	-	
Remove Sidewalk	0	SF	$ 1.50	$	-	
Grading	0	SF	$ 1.25	$	-	
Pavement	30000	SF	$ 8.00	$	240,000	
Bike lanes/Shoulder	0	SF	$ 8.00	$	-	
Pavement Elevated/Subgrade	0	SF	$ 200.00	$	-	
Sidewalk	10000	SF	$ 4.00	$	40,000	
Curb and gutter	2000	LF	$ 14.00	$	28,000	
Landscaping	2000	LF	$ 12.00	$	24,000	
Wall	0	LF	$ 120.00	$	-	
Lighting	1000	LF	$ 60.00	$	60,000	
Full Drainage	1000	LF	$ 100.00	$	100,000	
Drainage Modifications	0	LF	$ 25.00	$	-	
Driveway Adjustments	0	Driveways	$ 2,000.00	$	-	
Roundabouts	0	EA	$500,000	$	-	
Traffic Signal Modification	0	Unit	$ 50,000.00	$	-	
Signing and Striping	0	EA	$ 500.00	$	-	
Signing and Striping	1000	LF	$ 1.50	$	1,500	
SUBTOTAL				$	493,500	
Traffic Control			5%	$	24,675	
Mobiliization			10%	$	49,350	
Design/Administration/Management			15%	$	74,025	
Contingency			30%	$	148,050	
Project Development			5%	$	24,675	
Sales Tax			0.0%	$	-	
Right Of Way	30175	SF	$ 1.00	$	30,175	575 LF of City ROW
		PROJECT COST:		**$**	**844,450**	
				$	**845,000**	rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 1)	Prospect Drive Extension	
Distance	975	ft
Elevated Distance		ft
Pavement width	30	ft
Bikelane Width (total)	0	ft
Sidewalk Width (total)	10	ft
Roadway width	71	ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST	
Remove Pavement	0	SF	$	0.33	$	-
Clear & Grub	0	SF	$	0.05	$	-
Remove Curb	0	LF	$	10.00	$	-
Remove Sidewalk	0	SF	$	1.50	$	-
Grading	0	SF	$	1.25	$	-
Pavement	29250	SF	$	8.00	$	234,000
Bike lanes/Shoulder	0	SF	$	8.00	$	-
Pavement Elevated/Subgrade	0	SF	$	200.00	$	-
Sidewalk	9750	SF	$	4.00	$	39,000
Curb and gutter	1950	LF	$	14.00	$	27,300
Landscaping	1950	LF	$	12.00	$	23,400
Wall	0	LF	$	120.00	$	-
Lighting	975	LF	$	60.00	$	58,500
Full Drainage	975	LF	$	100.00	$	97,500
Drainage Modifications	0	LF	$	25.00	$	-
Driveway Adjustments	0	Driveways	$	2,000.00	$	-
Roundabouts	0	EA		$500,000	$	-
Traffic Signal Modification	0	Unit	$	50,000.00	$	-
Signing and Striping	0	EA	$	500.00	$	-
Signing and Striping	975	LF	$	1.50	$	1,463
SUBTOTAL					$	481,163
Traffic Control				5%	$	24,058
Mobiliization				10%	$	48,116
Design/Administration/Management				15%	$	72,174
Contingency				30%	$	144,349
Project Development				5%	$	24,058
Sales Tax				0.0%	$	-
Right Of Way	0	SF	$	20.00	$	- City ROW

PROJECT COST:	**$**	**793,918**	
	$	**795,000**	rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 1)	Elkhorn Extension to Wallowa Mountain Dr	
Distance	975	ft
Elevated Distance		ft
Pavement width	30	ft
Bikelane Width (total)	0	ft
Sidewalk Width (total)	10	ft
Roadway width	71	ft

Project Description:

	UNITS			UNIT COSTS		ESTIMATED COST	
Remove Pavement	0	SF	$	0.33	$	-	
Clear & Grub	0	SF	$	0.05	$	-	
Remove Curb	0	LF	$	10.00	$	-	
Remove Sidewalk	0	SF	$	1.50	$	-	
Grading	0	SF	$	1.25	$	-	
Pavement	29250	SF	$	8.00	$	234,000	
Bike lanes/Shoulder	0	SF	$	8.00	$	-	
Pavement Elevated/Subgrade	0	SF	$	200.00	$	-	
Sidewalk	9750	SF	$	4.00	$	39,000	
Curb and gutter	1950	LF	$	14.00	$	27,300	
Landscaping	1950	LF	$	12.00	$	23,400	
Wall	0	LF	$	120.00	$	-	
Lighting	975	LF	$	60.00	$	58,500	
Full Drainage	975	LF	$	100.00	$	97,500	
Drainage Modifications	0	LF	$	25.00	$	-	
Driveway Adjustments	0	Driveways	$	2,000.00	$	-	
Roundabouts	0	EA		$500,000	$	-	
Traffic Signal Modification	0	Unit	$	50,000.00	$	-	
Signing and Striping	0	EA	$	500.00	$	-	
Signing and Striping	975	LF	$	1.50	$	1,463	
SUBTOTAL					$	481,163	
Traffic Control				5%	$	24,058	
Mobiliization				10%	$	48,116	
Design/Administration/Management				15%	$	72,174	
Contingency				30%	$	144,349	
Project Development				5%	$	24,058	
Sales Tax				0.0%	$	-	
Right Of Way	0	SF	$	20.00	$	-	City ROW

PROJECT COST:	**$**	**793,918**
	$	**795,000** rounded

La Grande TSP Amendment
Cost Estimate Summary

Project: 1)	US 30 Shared-Use Path	
Distance	6900	ft
Elevated Distance		ft
Pavement width		ft
Bikelane Width (total)		ft
Sidewalk Width (total)	12	ft
Roadway width		ft

Project Description:

	UNITS		UNIT COSTS		ESTIMATED COST
Remove Pavement	0	SF	$	0.33	$ -
Clear & Grub	0	SF	$	0.05	$ -
Remove Curb	0	LF	$	10.00	$ -
Remove Sidewalk	0	SF	$	1.50	$ -
Grading	0	SF	$	1.25	$ -
Pavement	0	SF	$	8.00	$ -
Bike lanes/Shoulder	0	SF	$	8.00	$ -
Pavement Elevated/Subgrade	0	SF	$	200.00	$ -
Sidewalk	82800	SF	$	4.00	$ 331,200
Curb and gutter		LF	$	14.00	$ -
Landscaping		LF	$	12.00	$ -
Wall	0	LF	$	120.00	$ -
Lighting	0	LF	$	60.00	$ -
Full Drainage		LF	$	100.00	$ -
Drainage Modifications	0	LF	$	25.00	$ -
Driveway Adjustments	0	Driveways	$	2,000.00	$ -
Roundabouts	0	EA		$500,000	$ -
Traffic Signal Modification	0	Unit	$	50,000.00	$ -
Signing and Striping	0	EA	$	500.00	$ -
Signing and Striping	6900	LF	$	1.50	$ 10,350
SUBTOTAL					$ 341,550
Traffic Control				5%	$ 17,078
Mobiliization				10%	$ 34,155
Design/Administration/Management				15%	$ 51,233
Contingency				30%	$ 102,465
Project Development				5%	$ 17,078
Sales Tax				0.0%	$ -
Right Of Way	0	SF	$	20.00	$ -

PROJECT COST:	**$**	**563,558** rounded
	$	**565,000**

La Grande TSP Amendment
Cost Estimate Summary

Project: 1)	Gekeler to Elkhorn Shared-Use Path	
Distance	5200	ft
Elevated Distance		ft
Pavement width		ft
Bikelane Width (total)		ft
Sidewalk Width (total)	12	ft
Roadway width		ft

Project Description:

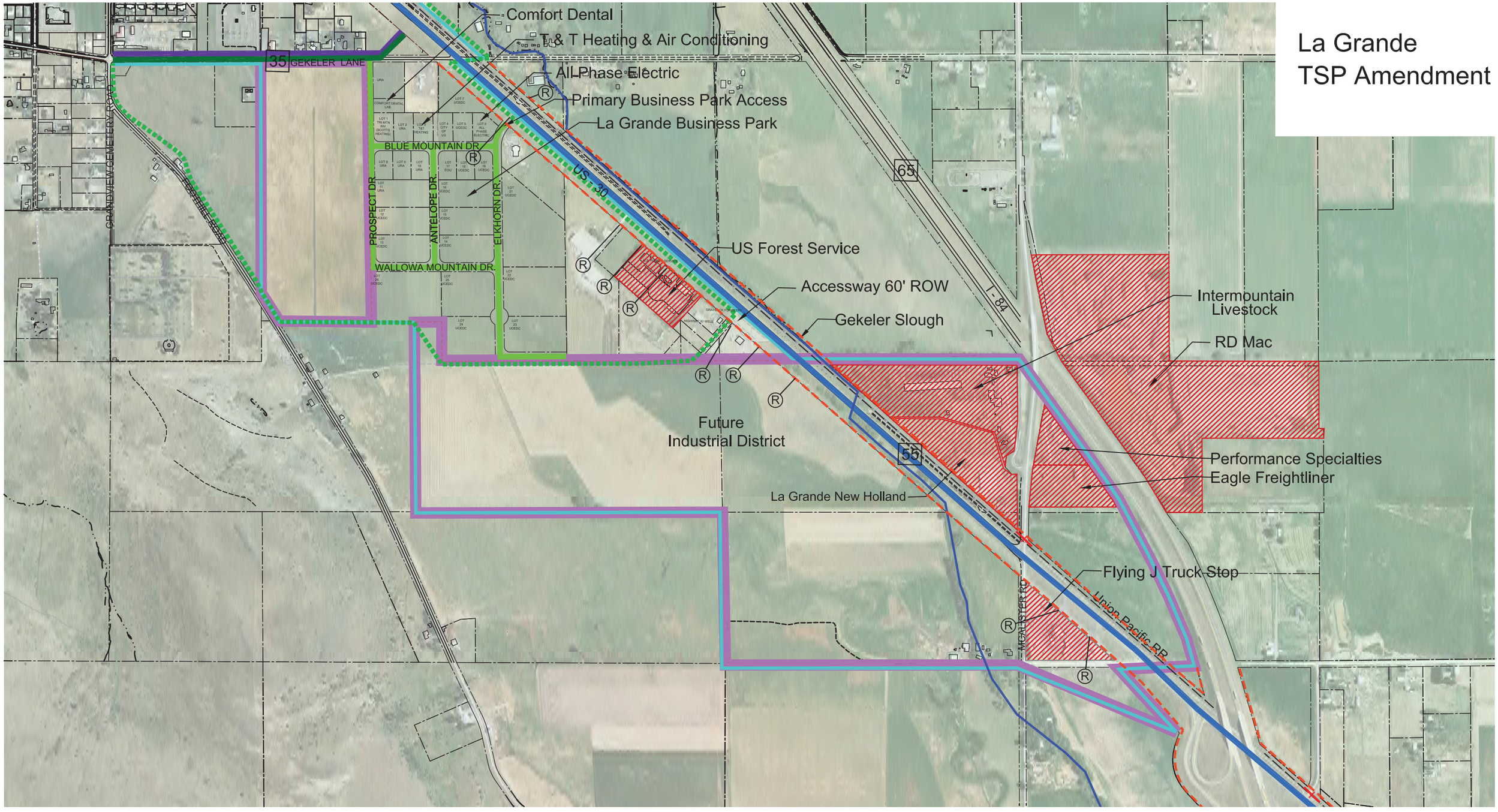
	UNITS		UNIT COSTS		ESTIMATED COST
Remove Pavement	0	SF	$	0.33	$ -
Clear & Grub	0	SF	$	0.05	$ -
Remove Curb	0	LF	$	10.00	$ -
Remove Sidewalk	0	SF	$	1.50	$ -
Grading	0	SF	$	1.25	$ -
Pavement	0	SF	$	8.00	$ -
Bike lanes/Shoulder	0	SF	$	8.00	$ -
Pavement Elevated/Subgrade	0	SF	$	200.00	$ -
Sidewalk	62400	SF	$	4.00	$ 249,600
Curb and gutter		LF	$	14.00	$ -
Landscaping		LF	$	12.00	$ -
Wall	0	LF	$	120.00	$ -
Lighting	0	LF	$	60.00	$ -
Full Drainage		LF	$	100.00	$ -
Drainage Modifications	0	LF	$	25.00	$ -
Driveway Adjustments	0	Driveways	$	2,000.00	$ -
Roundabouts	0	EA		$500,000	$ -
Traffic Signal Modification	0	Unit	$	50,000.00	$ -
Signing and Striping	0	EA	$	500.00	$ -
Signing and Striping	5200	LF	$	1.50	$ 7,800
SUBTOTAL					$ 257,400
Traffic Control				5%	$ 12,870
Mobiliization				10%	$ 25,740
Design/Administration/Management				15%	$ 38,610
Contingency				30%	$ 77,220
Project Development				5%	$ 12,870
Sales Tax				0.0%	$ -
Right Of Way	62400	SF	$	1.00	$ 62,400

PROJECT COST:	**$**	**487,110** rounded
	$	**485,000**

Appendix H:

Technical Data for Existing Conditions and Future Conditions Memorandums (DKS Associates, 2012)

La Grande TSP Amendment



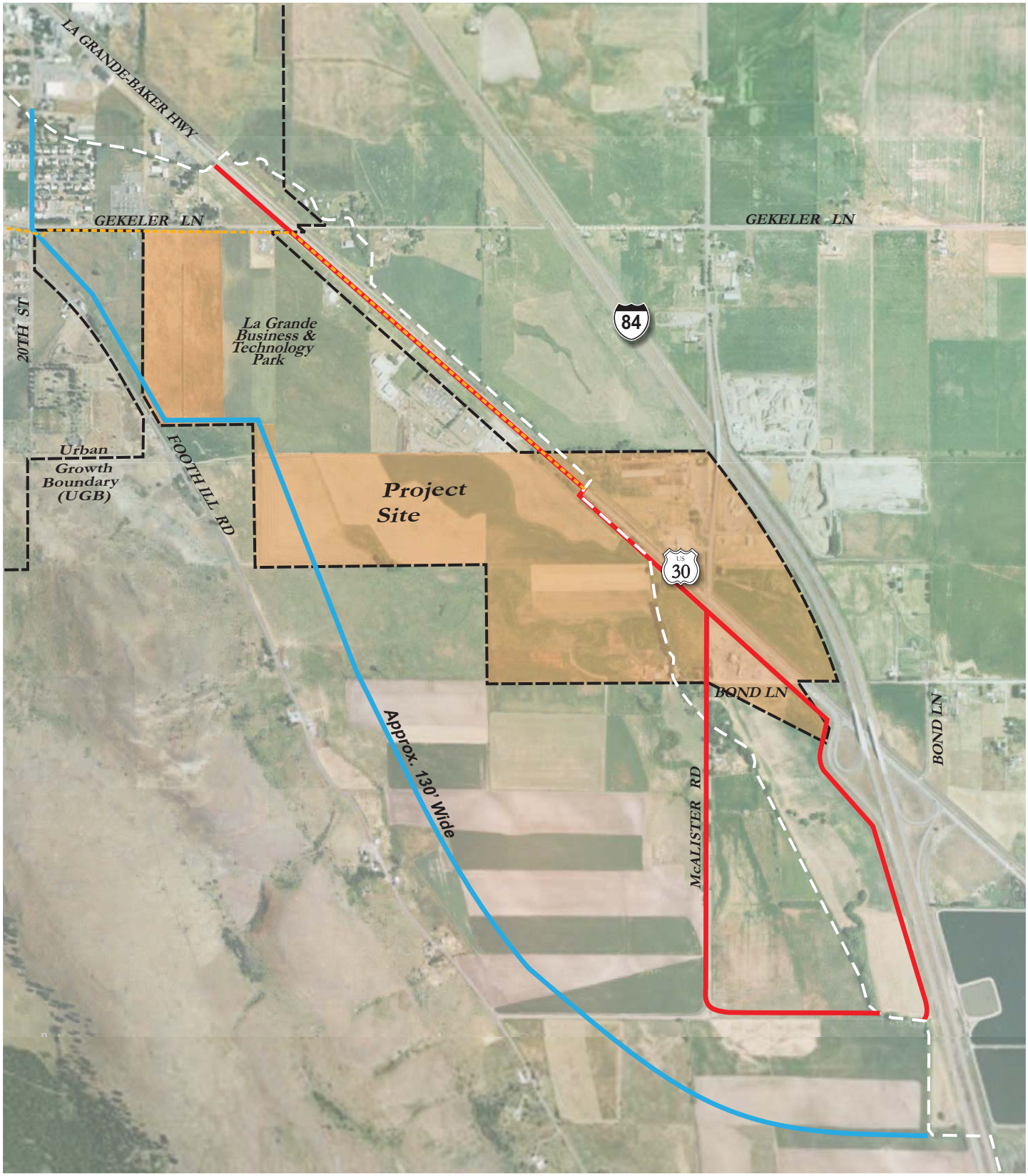
Existing Conditions Base Map

Legend

- Tax Lots
- City Limits
- Urban Growth Boundary
- Project Boundary
- Existing North Side Sidewalk (Gekeler Lane)
- Existing Sidewalks, Both Sides (Business Park)
- Planned Multi-use Path
- Existing Shoulder Bikeway (US 30)
- Existing Bike Lane (Gekeler Lane)
- Access Control along US 30
- 55 Posted Speed Limit
- Gated Railroad Crossing
- Railroad
- Ⓡ Reservation of Access

Scale in Feet: 0 250 500 1000

N



La Grande UGB Expansion Area: Potential Surface Water Facility Needs

anderson perry & associates, inc.

DKS Associates
TRANSPORTATION SOLUTIONS

Legend

- Project Boundary
- Existing Gekeler Slough
- Existing Taylor Creek
- Urban Growth Boundary
- Possible Location for Proposed Taylor Creek and Gekeler Slough Bypass
- Proposed and/or Possible Locations for Gekeler Slough Overflow

N

The City recently expanded the Urban Growth Boundary by about 314 acres between Gekeler Lane and I-84/US 30 interchange and intends to rezone much of the acreage from agriculture to light industrial land. The rezoning will allow for new industrial developments and job creation. As part of the rezoning process, the City must update the 1999 Transportation System Plan to account for the projected traffic increase generated by the Urban Growth Boundary Expansion. This will include evaluating existing capacities of the area transportation system with and without the rezoned land, estimate traffic generated from the rezoned land, and developing needed mitigation measures to handle the increased traffic.

Business Name: Flying J Truck Stop Owner Name: Brian Waldrop

Date: May 17, 2011

- What time of day or days of the week does your company operate?

  Operates 24-7

- How many and what type of heavy vehicles (or trucks with at least 6-tires) does your company generate?

  A few hundred trucks a day, with all different types are generated.

- What times of day are the heavy vehicles generated?

  Trucks are generated throughout the day.

- What constraints exist for heavy vehicles in the area, if any?

  Generally there are no problems getting from the interchange to the site. However, trucks experience some congestion at the I-84 interchange at various times during the day.

- What are your access needs for heavy vehicles?

  Needs 2 driveways with Bond Lane and McAllister Road.

- How does your company use the I-84/US 30 interchange?

  It is the main access for truckers. Other truck or local traffic comes from the east along US 30, or from the north via McAllister Road.

The City recently expanded the Urban Growth Boundary by about 314 acres between Gekeler Lane and I-84/US 30 interchange and intends to rezone much of the acreage from agriculture to light industrial land. The rezoning will allow for new industrial developments and job creation. As part of the rezoning process, the City must update the 1999 Transportation System Plan to account for the projected traffic increase generated by the Urban Growth Boundary Expansion. This will include evaluating existing capacities of the area transportation system with and without the rezoned land, estimate traffic generated from the rezoned land, and developing needed mitigation measures to handle the increased traffic.

Business Name: Eagle Freight Owner Name: Mark Brault

Date: June 14, 2011

- What time of day or days of the week does your company operate?

  Operates 7 days a week. Hours of operations are 7 a.m. to 8 p.m. Monday through Friday, and 7 a.m. to 5 p.m. Saturday and Sunday

- How many and what type of heavy vehicles (or trucks with at least 6-tires) does your company generate?

  They are a heavy truck dealership, so have customers coming in for service or repair off the freeway. They average about 11 or 12 in and out per day for service/repairs and 2 or 3 deliveries each day.

- What times of day are the heavy vehicles generated?

  Trucks are generated throughout the day, and are widely variable.

- What constraints exist for heavy vehicles in the area, if any?

  Generally there are no problems getting from the interchange to the site. However, trucks are often blocked by trains on McAllister.

- What are your access needs for heavy vehicles?

  The business needs 2 driveways for large truck circulation. They currently have 2 driveways, but one is shared with the adjacent property.

- How does your company use the I-84/US 30 interchange?

  The interchange is the main route to get to the site. Parts are delivered from Baker to the site via the interchange. The interchange is also used 4 to 5 times a day to get to their other facilities, and is used limited by employees to get to work (most come from La Grande).

Summary of Traffic Count
Transportation Development Division

Site: 31052011
County: Union
City: La Grande
Milepoint: 3.68
Count Number: 1.00

Date: 5/9/2011
Hours: 6:00 AM-10:00 PM
Highway #: 066
hwy(US30) @ Gekeler Lane
Location: site 2801 n leg site 2802
Weather: Clear

	Summary By Movements								Entering Volumes		
Time of Day	SE-W	SE-NW	W-SE	W-NW	NW-SE	NW-W		TOTAL	South-East	West	North-West
6:00	2	8	9	1	7	0		27	10	10	7
6:15	9	7	8	0	28	1		53	16	8	29
6:30	4	14	17	0	60	0		95	18	17	60
6:45	7	22	10	0	35	1		75	29	10	36
7:00	7	15	9	2	28	1		62	22	11	29
7:15	22	22	8	2	22	3		79	44	10	25
7:30	31	33	10	1	27	2		104	64	11	29
7:45	46	31	8	0	20	3		108	77	8	23
8:00	21	27	6	2	21	2		79	48	8	23
8:15	19	31	6	3	12	2		73	50	9	14
8:30	17	24	15	3	22	0		81	41	18	22
8:45	17	34	7	3	19	2		82	51	10	21
9:00	83	97	37	11	87	5		320	180	48	92
9:15	0	0	0	0	0	0		0	0	0	0
9:30	0	0	0	0	0	0		0	0	0	0
9:45	0	0	0	0	0	0		0	0	0	0
10:00	43	107	39	8	82	15		294	150	47	97
10:15	0	0	0	0	0	0		0	0	0	0
10:30	0	0	0	0	0	0		0	0	0	0
10:45	0	0	0	0	0	0		0	0	0	0
11:00	7	33	4	2	27	2		75	40	6	29
11:15	12	26	10	4	29	1		82	38	14	30
11:30	14	39	10	4	32	1		100	53	14	33
11:45	13	32	16	0	22	2		85	45	16	24
12:00	8	35	12	2	39	4		100	43	14	43
12:15	8	24	12	4	34	1		83	32	16	35
12:30	15	32	13	2	25	0		87	47	15	25
12:45	22	25	7	3	31	2		90	47	10	33
13:00	38	120	29	12	104	8		311	158	41	112
13:15	0	0	0	0	0	0		0	0	0	0
13:30	0	0	0	0	0	0		0	0	0	0
13:45	0	0	0	0	0	0		0	0	0	0
14:00	46	99	45	13	111	7		321	145	58	118
14:15	0	0	0	0	0	0		0	0	0	0
14:30	0	0	0	0	0	0		0	0	0	0
14:45	0	0	0	0	0	0		0	0	0	0
15:00	4	27	23	2	32	5		93	31	25	37
15:15	12	29	15	3	39	4		102	41	18	43
15:30	26	82	11	5	43	4		171	108	16	47
15:45	11	32	13	3	33	5		97	43	16	38
16:00	15	46	11	1	26	2		101	61	12	28
16:15	7	39	19	3	37	4		109	46	22	41
16:30	15	30	25	0	43	2		115	45	25	45
16:45	10	32	15	1	27	1		86	42	16	28
17:00	21	27	27	2	42	1		120	48	29	43
17:15	14	21	20	3	32	1		91	35	23	33
17:30	7	23	12	2	31	1		76	30	14	32
17:45	7	24	16	2	19	2		70	31	18	21
18:00	15	29	21	0	21	2		88	44	21	23
18:15	9	22	5	3	14	1		54	31	8	15
18:30	7	13	4	0	20	0		44	20	4	20
18:45	3	13	5	0	7	0		28	16	5	7
19:00	22	37	17	5	51	6		138	59	22	57
19:15	0	0	0	0	0	0		0	0	0	0
19:30	0	0	0	0	0	0		0	0	0	0
19:45	0	0	0	0	0	0		0	0	0	0
20:00	21	40	17	5	25	1		109	61	22	26
20:15	0	0	0	0	0	0		0	0	0	0
20:30	0	0	0	0	0	0		0	0	0	0
20:45	0	0	0	0	0	0		0	0	0	0
21:00	16	16	14	2	14	0		62	32	16	14
21:15	0	0	0	0	0	0		0	0	0	0
21:30	0	0	0	0	0	0		0	0	0	0
21:45	0	0	0	0	0	0		0	0	0	0
Total Count	753	1519	637	124	1480	107		4620	2272	761	1587
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1	1.1
24hr Volume	829	1671	701	137	1628	118		5082	2500	838	1746

Summary of Traffic Count
Transportation Development Division

Site: 31062011
County: Union
City: La Grande

Milepoint: 4.93
Count Number: 1.00

Date: 5/5/2011
Hours: 6:00 AM-10:00 PM
Highway #: 066
McAlister Rd. site 2801 - north leg
Location: site 2802 - south leg
Weather: Clear

	Summary By Movements														Entering Volumes			
Time of Day	N-SE	N-S	N-NW	SE-N	SE-S	SE-NW	S-N	S-SE	S-NW	NW-N	NW-SE	NW-S		TOTAL	North	South-East	South	North-West
6:00	10	0	1	10	0	7	0	0	0	0	10	1		39	11	17	0	11
6:15	7	0	0	17	0	14	0	0	0	2	16	0		56	7	31	0	18
6:30	14	1	3	7	0	29	0	0	0	4	54	0		112	18	36	0	58
6:45	15	0	2	28	1	35	0	2	0	3	36	2		124	17	64	2	41
7:00	12	2	3	13	0	23	0	0	0	1	31	2		87	17	36	0	34
7:15	10	1	10	17	0	44	0	1	0	3	22	0		108	21	61	1	25
7:30	12	1	13	8	0	45	0	0	0	5	13	0		97	26	53	0	18
7:45	9	1	12	15	0	56	0	0	2	7	27	0		129	22	71	2	34
8:00	9	0	12	7	0	37	0	0	0	10	23	0		98	21	44	0	33
8:15	10	0	3	11	0	28	0	0	0	4	17	1		74	13	39	0	22
8:30	28	1	8	23	0	43	1	1	0	3	34	0		142	37	66	2	37
8:45	16	0	4	11	1	38	1	0	0	6	22	0		99	20	50	1	28
9:00	47	2	27	59	1	139	3	0	2	21	91	2		394	76	199	5	114
9:15	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
9:30	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
9:45	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
10:00	50	4	16	52	1	129	3	1	1	16	110	1		384	70	182	5	127
10:15	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
11:00	15	1	13	18	0	20	1	1	1	7	19	0		96	29	38	3	26
11:15	16	0	4	13	0	26	0	0	0	7	18	2		86	20	39	0	27
11:30	13	2	2	18	0	36	1	0	1	5	25	1		104	17	54	2	31
11:45	13	0	7	22	1	28	1	0	0	4	28	0		104	20	51	1	32
12:00	13	0	4	9	1	32	0	0	0	6	22	0		87	17	42	0	28
12:15	15	0	3	11	1	23	1	0	0	6	35	0		95	18	35	1	41
12:30	16	2	5	7	1	38	1	0	0	4	26	1		101	23	46	1	31
12:45	12	0	5	10	1	23	0	0	0	7	24	0		82	17	34	0	31
13:00	52	5	23	58	4	129	4	2	5	18	115	3		418	80	191	11	136
13:15	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
14:00	74	4	25	44	1	111	4	0	2	28	108	2		403	103	156	6	138
14:15	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
15:00	23	0	5	11	0	33	0	0	0	11	43	1		127	28	44	0	55
15:15	12	1	3	9	0	39	0	0	0	9	48	0		121	16	48	0	57
15:30	14	0	8	14	0	93	1	0	1	7	48	1		187	22	107	2	56
15:45	23	0	11	15	1	50	0	0	1	6	48	2		157	34	66	1	56
16:00	20	2	2	20	0	55	0	0	1	5	27	1		133	24	75	1	33
16:15	17	0	7	15	0	32	0	1	0	10	35	0		117	24	47	1	45
16:30	21	3	7	15	1	35	0	0	0	2	48	2		134	31	51	0	52
16:45	16	1	6	15	0	33	0	0	0	2	42	1		116	23	48	0	45
17:00	32	1	8	21	1	43	0	0	2	7	41	2		158	41	65	2	50
17:15	30	0	3	13	0	47	1	0	0	6	58	1		159	33	60	1	65
17:30	32	0	4	8	2	32	0	0	0	8	37	0		123	36	42	0	45
17:45	27	2	4	6	0	20	0	0	3	4	33	3		102	33	26	3	40
18:00	16	0	4	12	1	19	1	0	0	12	34	0		99	20	32	1	46
18:15	13	1	3	8	0	29	0	0	0	4	30	0		88	17	37	0	34
18:30	7	2	6	18	0	21	1	0	0	6	16	0		77	15	39	1	22
18:45	9	0	6	12	0	18	1	1	2	0	14	1		64	15	30	4	15
19:00	31	1	14	35	0	70	1	1	0	12	66	1		232	46	105	2	79
19:15	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
19:30	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
19:45	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
20:00	27	2	7	17	3	54	0	0	2	13	44	2		171	36	74	2	59
20:15	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
20:30	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
20:45	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
21:00	15	0	2	15	1	30	0	1	0	11	42	1		118	17	46	1	54
21:15	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
21:30	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
21:45	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
Total Count	873	43	315	767	24	1886	27	12	26	312	1680	37		6002	1231	2677	65	2029
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1	1.1	1.1
24hr Volume	961	48	347	844	27	2075	30	14	29	344	1848	41		6603	1355	2945	72	2232

Summary of Traffic Count
Transportation Development Division

Site: 31042011
County: Union
City: La Grande
Milepoint: 4.97
Count Number: 1.00

Date: 5/4/2011
Hours: 6:00 AM-10:00 PM
Highway #: 066
Hwy(US30) @ north
Location: driveway to truck stop
Weather: Clear

	Summary By Movements							Entering Volumes		
Time of Day	SE-W	SE-NW	W-SE	W-NW	NW-SE	NW-W	TOTAL	South-East	West	North-West
6:00	2	13	6	3	15	4	43	15	9	19
6:15	5	31	1	1	18	6	62	36	2	24
6:30	2	41	5	3	60	10	121	43	8	70
6:45	1	55	7	7	53	4	127	56	14	57
7:00	0	31	7	2	37	7	84	31	9	44
7:15	1	36	7	3	26	6	79	37	10	32
7:30	1	52	4	4	21	3	85	53	8	24
7:45	1	68	0	2	30	9	110	69	2	39
8:00	0	45	3	0	23	3	74	45	3	26
8:15	2	42	5	2	34	5	90	44	7	39
8:30	3	46	10	7	43	6	115	49	17	49
8:45	1	47	13	2	36	5	104	48	15	41
9:00	5	180	12	15	126	14	352	185	27	140
9:15	0	0	0	0	0	0	0	0	0	0
9:30	0	0	0	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0	0	0	0
10:00	0	182	22	10	141	18	373	182	32	159
10:15	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0
11:00	6	36	9	2	35	2	90	42	11	37
11:15	3	36	12	1	29	5	86	39	13	34
11:30	2	50	13	2	33	6	106	52	15	39
11:45	2	49	5	3	34	6	99	51	8	40
12:00	1	43	9	0	31	4	88	44	9	35
12:15	1	31	7	2	47	4	92	32	9	51
12:30	1	37	8	3	37	3	89	38	11	40
12:45	1	32	8	3	33	2	79	33	11	35
13:00	5	178	28	14	158	10	393	183	42	168
13:15	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0
14:00	4	141	36	11	177	12	381	145	47	189
14:15	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0
15:00	2	40	10	3	63	3	121	42	13	66
15:15	1	47	9	2	52	4	115	48	11	56
15:30	2	106	7	5	60	6	186	108	12	66
15:45	0	56	8	6	59	8	137	56	14	67
16:00	2	73	8	4	42	7	136	75	12	49
16:15	1	44	5	1	48	2	101	45	6	50
16:30	3	53	3	0	67	8	134	56	3	75
16:45	1	38	5	9	52	3	108	39	14	55
17:00	1	62	6	4	69	5	147	63	10	74
17:15	2	55	7	3	83	3	153	57	10	86
17:30	4	45	3	2	66	4	124	49	5	70
17:45	1	25	4	0	54	6	90	26	4	60
18:00	2	28	3	2	44	4	83	30	5	48
18:15	1	34	4	5	35	9	88	35	9	44
18:30	0	36	3	2	18	5	64	36	5	23
18:45	2	26	4	3	22	1	58	28	7	23
19:00	4	94	17	10	87	10	222	98	27	97
19:15	0	0	0	0	0	0	0	0	0	0
19:30	0	0	0	0	0	0	0	0	0	0
19:45	0	0	0	0	0	0	0	0	0	0
20:00	2	60	16	10	65	5	158	62	26	70
20:15	0	0	0	0	0	0	0	0	0	0
20:30	0	0	0	0	0	0	0	0	0	0
20:45	0	0	0	0	0	0	0	0	0	0
21:00	1	40	28	7	49	8	133	41	35	57
21:15	0	0	0	0	0	0	0	0	0	0
21:30	0	0	0	0	0	0	0	0	0	0
21:45	0	0	0	0	0	0	0	0	0	0
Total Count	82	2464	387	180	2312	255	5680	2546	567	2567
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
24hr Volume	91	2711	426	198	2544	281	6248	2801	624	2824

Summary of Traffic Count
Transportation Development Division

Site: 31022011
County: Union
City: La Grande
Milepoint: 5.04
Count Number: 1.00

Date: 5/5/2011
Hours: 6:00 AM-10:00 PM
Highway #: 066
Hwy(US30) @ center
Location: driveway to truck stop
Weather: Clear

	Summary By Movements								Entering Volumes		
Time of Day	SE-W	SE-NW	W-SE	W-NW	NW-SE	NW-W		TOTAL	South-East	West	North-West
6:00	3	14	3	1	23	0		44	17	4	23
6:15	3	36	6	0	17	2		64	39	6	19
6:30	4	41	8	0	63	2		118	45	8	65
6:45	4	49	5	1	62	0		121	53	6	62
7:00	5	33	2	1	41	1		83	38	3	42
7:15	5	57	8	0	33	0		103	62	8	33
7:30	4	52	2	1	23	0		82	56	3	23
7:45	2	73	7	0	36	1		119	75	7	37
8:00	5	46	9	0	29	0		89	51	9	29
8:15	4	45	7	1	39	0		96	49	8	39
8:30	8	50	5	0	55	1		119	58	5	56
8:45	5	44	10	2	48	0		109	49	12	48
9:00	16	184	19	1	136	0		356	200	20	136
9:15	0	0	0	0	0	0		0	0	0	0
9:30	0	0	0	0	0	0		0	0	0	0
9:45	0	0	0	0	0	0		0	0	0	0
10:00	41	169	24	3	165	1		403	210	27	166
10:15	0	0	0	0	0	0		0	0	0	0
10:30	0	0	0	0	0	0		0	0	0	0
10:45	0	0	0	0	0	0		0	0	0	0
11:00	10	39	9	1	42	0		101	49	10	42
11:15	5	40	4	0	40	0		89	45	4	40
11:30	5	50	5	1	45	0		106	55	6	45
11:45	11	48	6	0	39	0		104	59	6	39
12:00	3	40	7	2	40	1		93	43	9	41
12:15	8	32	4	1	54	0		99	40	5	54
12:30	5	42	6	0	45	1		99	47	6	46
12:45	2	35	2	0	40	1		80	37	2	41
13:00	16	176	15	2	183	6		398	192	17	189
13:15	0	0	0	0	0	0		0	0	0	0
13:30	0	0	0	0	0	0		0	0	0	0
13:45	0	0	0	0	0	0		0	0	0	0
14:00	33	141	16	4	207	2		403	174	20	209
14:15	0	0	0	0	0	0		0	0	0	0
14:30	0	0	0	0	0	0		0	0	0	0
14:45	0	0	0	0	0	0		0	0	0	0
15:00	5	42	2	0	76	0		125	47	2	76
15:15	8	43	3	3	59	2		118	51	6	61
15:30	7	106	6	0	64	1		184	113	6	65
15:45	7	54	10	1	66	0		138	61	11	66
16:00	7	73	4	1	50	0		135	80	5	50
16:15	5	43	5	0	54	0		107	48	5	54
16:30	7	54	8	0	68	0		137	61	8	68
16:45	4	38	6	1	58	0		107	42	7	58
17:00	7	62	2	0	75	0		146	69	2	75
17:15	4	54	2	0	92	0		152	58	2	92
17:30	4	47	7	0	69	0		127	51	7	69
17:45	6	26	8	0	57	0		97	32	8	57
18:00	4	28	5	1	50	0		88	32	6	50
18:15	2	36	3	0	38	0		79	38	3	38
18:30	5	36	8	0	21	0		70	41	8	21
18:45	5	25	1	3	26	0		60	30	4	26
19:00	12	96	12	1	100	2		223	108	13	102
19:15	0	0	0	0	0	0		0	0	0	0
19:30	0	0	0	0	0	0		0	0	0	0
19:45	0	0	0	0	0	0		0	0	0	0
20:00	26	62	14	3	80	1		186	88	17	81
20:15	0	0	0	0	0	0		0	0	0	0
20:30	0	0	0	0	0	0		0	0	0	0
20:45	0	0	0	0	0	0		0	0	0	0
21:00	24	38	5	0	71	4		142	62	5	75
21:15	0	0	0	0	0	0		0	0	0	0
21:30	0	0	0	0	0	0		0	0	0	0
21:45	0	0	0	0	0	0		0	0	0	0
Total Count	356	2499	300	36	2679	29		5899	2855	336	2708
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1	1.1
24hr Volume	392	2749	330	40	2947	32		6489	3141	370	2979

Summary of Traffic Count
Transportation Development Division

Site: 31032011
County: Union
City: La Grande
Milepoint: 5.12
Count Number: 1.00

Date: 5/5/2011
Hours: 6:00 AM-10:00 PM
Highway #: 066
Hwy(US30) @ south
Location: driveway to truck stop
Weather: Clear

	Summary By Movements								Entering Volumes		
Time of Day	SE-W	SE-NW	W-SE	W-NW	NW-SE	NW-W		TOTAL	South-East	West	North-West
6:00	0	20	0	0	28	0		48	20	0	28
6:15	0	38	3	0	24	0		65	38	3	24
6:30	1	52	0	0	78	0		131	53	0	78
6:45	1	40	3	0	49	0		93	41	3	49
7:00	0	39	1	0	47	0		87	39	1	47
7:15	4	61	0	0	39	0		104	65	0	39
7:30	1	62	0	0	25	0		88	63	0	25
7:45	2	81	0	0	47	0		130	83	0	47
8:00	3	49	0	0	32	0		84	52	0	32
8:15	5	54	0	0	51	0		110	59	0	51
8:30	2	54	1	0	61	0		118	56	1	61
8:45	1	52	1	0	57	0		111	53	1	57
9:00	14	202	3	0	154	1		374	216	3	155
9:15	0	0	0	0	0	0		0	0	0	0
9:30	0	0	0	0	0	0		0	0	0	0
9:45	0	0	0	0	0	0		0	0	0	0
10:00	5	216	3	0	181	1		406	221	3	182
10:15	0	0	0	0	0	0		0	0	0	0
10:30	0	0	0	0	0	0		0	0	0	0
10:45	0	0	0	0	0	0		0	0	0	0
11:00	4	48	1	0	47	0		100	52	1	47
11:15	5	44	0	0	45	0		94	49	0	45
11:30	3	59	0	0	48	0		110	62	0	48
11:45	4	60	0	0	43	0		107	64	0	43
12:00	4	41	3	0	51	0		99	45	3	51
12:15	1	40	0	0	52	0		93	41	0	52
12:30	2	45	0	0	48	0		95	47	0	48
12:45	6	44	2	0	48	0		100	50	2	48
13:00	23	191	2	1	198	0		415	214	3	198
13:15	0	0	0	0	0	0		0	0	0	0
13:30	0	0	0	0	0	0		0	0	0	0
13:45	0	0	0	0	0	0		0	0	0	0
14:00	15	190	0	1	220	0		426	205	1	220
14:15	0	0	0	0	0	0		0	0	0	0
14:30	0	0	0	0	0	0		0	0	0	0
14:45	0	0	0	0	0	0		0	0	0	0
15:00	3	52	0	0	74	0		129	55	0	74
15:15	6	48	0	0	66	0		120	54	0	66
15:30	2	115	1	0	67	0		185	117	1	67
15:45	3	56	2	0	75	0		136	59	2	75
16:00	3	83	0	0	51	0		137	86	0	51
16:15	1	47	2	0	65	0		115	48	2	65
16:30	6	57	1	0	75	0		139	63	1	75
16:45	2	46	0	0	61	0		109	48	0	61
17:00	3	77	1	0	86	0		167	80	1	86
17:15	3	54	0	0	84	0		141	57	0	84
17:30	3	47	1	0	76	0		127	50	1	76
17:45	6	33	2	0	65	0		106	39	2	65
18:00	5	34	0	0	49	0		88	39	0	49
18:15	3	37	0	0	41	0		81	40	0	41
18:30	0	40	0	0	30	0		70	40	0	30
18:45	2	26	0	0	28	0		56	28	0	28
19:00	18	112	0	0	108	0		238	130	0	108
19:15	0	0	0	0	0	0		0	0	0	0
19:30	0	0	0	0	0	0		0	0	0	0
19:45	0	0	0	0	0	0		0	0	0	0
20:00	8	86	1	0	95	1		191	94	1	96
20:15	0	0	0	0	0	0		0	0	0	0
20:30	0	0	0	0	0	0		0	0	0	0
20:45	0	0	0	0	0	0		0	0	0	0
21:00	10	63	3	1	75	2		154	73	4	77
21:15	0	0	0	0	0	0		0	0	0	0
21:30	0	0	0	0	0	0		0	0	0	0
21:45	0	0	0	0	0	0		0	0	0	0
Total Count	193	2895	37	3	2944	5		6077	3088	40	2949
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1	1.1
24hr Volume	213	3185	41	4	3239	6		6685	3397	44	3244

Summary of Traffic Count
Transportation Development Division

Site: 31082011
County: Union
City: La Grande

Milepoint: 265.00
Count Number: 1.00

Date: 5/9/2011
Hours: 6:00 AM-10:00 PM
Highway #: 006
I-84 e/b on/off ramps @
Location: US30
Weather: Clear

	Summary By Movements								Entering Volumes		
Time of Day	SE-W	SE-NW	W-SE	W-NW	NW-SE	NW-W		TOTAL	South-East	West	North-West
6:00	0	17	3	1	7	7		35	17	4	14
6:15	0	29	1	4	25	10		69	29	5	35
6:30	0	37	4	2	79	4		126	37	6	83
6:45	0	40	3	0	55	11		109	40	3	66
7:00	0	27	2	0	30	19		78	27	2	49
7:15	0	63	3	0	24	13		103	63	3	37
7:30	1	74	0	2	25	12		114	75	2	37
7:45	1	76	1	2	20	9		109	77	3	29
8:00	1	56	3	0	28	12		100	57	3	40
8:15	0	56	3	2	25	9		95	56	5	34
8:30	0	45	5	2	32	13		97	45	7	45
8:45	2	43	1	2	21	9		78	45	3	30
9:00	3	187	8	7	98	53		356	190	15	151
9:15	0	0	0	0	0	0		0	0	0	0
9:30	0	0	0	0	0	0		0	0	0	0
9:45	0	0	0	0	0	0		0	0	0	0
10:00	0	142	9	11	109	42		313	142	20	151
10:15	0	0	0	0	0	0		0	0	0	0
10:30	0	0	0	0	0	0		0	0	0	0
10:45	0	0	0	0	0	0		0	0	0	0
11:00	0	53	5	4	36	11		109	53	9	47
11:15	0	48	0	3	27	8		86	48	3	35
11:30	1	53	1	2	20	16		93	54	3	36
11:45	0	45	2	2	31	11		91	45	4	42
12:00	1	60	2	2	43	14		122	61	4	57
12:15	0	42	3	2	50	19		116	42	5	69
12:30	0	44	4	3	39	13		103	44	7	52
12:45	1	47	3	5	30	16		102	48	8	46
13:00	1	182	11	18	132	63		407	183	29	195
13:15	0	0	0	0	0	0		0	0	0	0
13:30	0	0	0	0	0	0		0	0	0	0
13:45	0	0	0	0	0	0		0	0	0	0
14:00	4	165	10	10	153	53		395	169	20	206
14:15	0	0	0	0	0	0		0	0	0	0
14:30	0	0	0	0	0	0		0	0	0	0
14:45	0	0	0	0	0	0		0	0	0	0
15:00	0	46	2	7	39	13		107	46	9	52
15:15	0	53	3	5	42	23		126	53	8	65
15:30	1	110	5	1	41	24		182	111	6	65
15:45	2	43	4	5	53	21		128	45	9	74
16:00	1	75	1	5	37	13		132	76	6	50
16:15	1	61	3	7	43	22		137	62	10	65
16:30	0	49	4	2	62	24		141	49	6	86
16:45	0	47	4	4	49	16		120	47	8	65
17:00	0	57	6	6	56	21		146	57	12	77
17:15	0	38	3	6	67	25		139	38	9	92
17:30	0	29	3	3	61	17		113	29	6	78
17:45	1	46	2	4	31	12		96	47	6	43
18:00	0	49	4	8	41	12		114	49	12	53
18:15	0	32	2	4	24	18		80	32	6	42
18:30	0	26	6	6	27	6		71	26	12	33
18:45	1	14	4	6	20	14		59	15	10	34
19:00	0	64	6	29	57	39		195	64	35	96
19:15	0	0	0	0	0	0		0	0	0	0
19:30	0	0	0	0	0	0		0	0	0	0
19:45	0	0	0	0	0	0		0	0	0	0
20:00	0	75	9	22	39	37		182	75	31	76
20:15	0	0	0	0	0	0		0	0	0	0
20:30	0	0	0	0	0	0		0	0	0	0
20:45	0	0	0	0	0	0		0	0	0	0
21:00	0	54	3	19	34	24		134	54	22	58
21:15	0	0	0	0	0	0		0	0	0	0
21:30	0	0	0	0	0	0		0	0	0	0
21:45	0	0	0	0	0	0		0	0	0	0
Total Count	23	2599	161	235	1962	828		5808	2622	396	2790
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1	1.1
24hr Volume	26	2859	178	259	2159	911		6389	2885	436	3069

Summary of Traffic Count
Transportation Development Division

Site: 31012011
County: Union
City: La Grande
Milepoint: 5.20
Count Number: 1.00

Date: 5/9/2011
Hours: 6:00 AM-10:00 PM
Highway #: 066
66(US30) @ Bond Lane
Location: site 2803 southeast leg
Weather: Clear

	Summary By Movements							Entering Volumes		
Time of Day	N-SE	N-NW	SE-N	SE-NW	NW-N	NW-SE	TOTAL	North	South-East	North-West
6:00	0	1	0	17	0	9	27	1	17	9
6:15	0	0	0	28	0	27	55	0	28	27
6:30	0	0	0	36	0	73	109	0	36	73
6:45	1	2	0	37	0	63	103	3	37	63
7:00	0	2	0	26	1	30	59	2	26	31
7:15	0	1	0	62	2	23	88	1	62	25
7:30	0	1	0	74	1	23	99	1	74	24
7:45	1	1	0	77	0	21	100	2	77	21
8:00	0	1	0	58	2	31	92	1	58	33
8:15	1	2	0	61	2	24	90	3	61	26
8:30	0	2	0	42	0	33	77	2	42	33
8:45	0	0	0	46	2	22	70	0	46	24
9:00	0	9	0	182	5	97	293	9	182	102
9:15	0	0	0	0	0	0	0	0	0	0
9:30	0	0	0	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0	0	0	0
10:00	0	4	1	190	4	119	318	4	191	123
10:15	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0
11:00	0	6	0	46	2	34	88	6	46	36
11:15	0	1	1	46	2	26	76	1	47	28
11:30	0	1	0	57	0	22	80	1	57	22
11:45	0	0	0	45	3	27	75	0	45	30
12:00	0	1	0	61	0	44	106	1	61	44
12:15	0	3	0	38	2	43	86	3	38	45
12:30	0	1	0	45	2	46	94	1	45	48
12:45	0	2	0	48	1	31	82	2	48	32
13:00	0	4	1	179	3	147	334	4	180	150
13:15	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0
14:00	3	3	1	165	7	146	325	6	166	153
14:15	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0
15:00	0	1	0	45	1	41	88	1	45	42
15:15	0	2	0	52	2	44	100	2	52	46
15:30	0	3	0	107	2	41	153	3	107	43
15:45	0	0	0	48	1	58	107	0	48	59
16:00	0	2	0	74	2	37	115	2	74	39
16:15	0	2	0	62	1	45	110	2	62	46
16:30	0	3	0	45	2	61	111	3	45	63
16:45	0	2	0	44	2	50	98	2	44	52
17:00	0	0	0	60	4	54	118	0	60	58
17:15	0	1	0	37	1	71	110	1	37	72
17:30	0	3	0	25	2	61	91	3	25	63
17:45	0	2	0	42	1	34	79	2	42	35
18:00	0	0	0	50	0	43	93	0	50	43
18:15	0	0	0	32	2	24	58	0	32	26
18:30	0	0	0	25	0	34	59	0	25	34
18:45	0	1	0	15	1	22	39	1	15	23
19:00	0	1	0	63	5	62	131	1	63	67
19:15	0	0	0	0	0	0	0	0	0	0
19:30	0	0	0	0	0	0	0	0	0	0
19:45	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	75	5	47	127	0	75	52
20:15	0	0	0	0	0	0	0	0	0	0
20:30	0	0	0	0	0	0	0	0	0	0
20:45	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	50	0	36	86	0	50	36
21:15	0	0	0	0	0	0	0	0	0	0
21:30	0	0	0	0	0	0	0	0	0	0
21:45	0	0	0	0	0	0	0	0	0	0
Total Count	6	71	4	2617	75	2026	4799	77	2621	2101
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
24hr Volume	7	79	5	2879	83	2229	5279	85	2884	2312

Summary of Traffic Count
Transportation Development Division

Site: 31072011
County: Union
City: La Grande
Milepoint: 264.46
Count Number: 1.00

Date: 5/9/2011
Hours: 6:00 AM-10:00 PM
Highway #: 006
I-84 w/b on/off ramps @
Location: US30
Weather: Clear

	Summary By Movements								Entering Volumes		
Time of Day	SE-W	SE-NW	W-SE	W-NW	NW-SE	NW-W		TOTAL	South-East	West	North-West
6:00	1	12	0	7	10	0		30	13	7	10
6:15	2	20	0	9	22	3		56	22	9	25
6:30	3	26	1	8	78	4		120	29	9	82
6:45	3	28	3	7	57	4		102	31	10	61
7:00	5	20	0	9	23	7		64	25	9	30
7:15	3	36	0	22	19	4		84	39	22	23
7:30	9	52	0	22	19	5		107	61	22	24
7:45	5	57	1	25	18	4		110	62	26	22
8:00	2	33	1	17	21	9		83	35	18	30
8:15	5	39	1	16	18	7		86	44	17	25
8:30	2	30	1	15	29	6		83	32	16	35
8:45	4	25	0	17	19	3		68	29	17	22
9:00	10	116	3	70	76	19		294	126	73	95
9:15	0	0	0	0	0	0		0	0	0	0
9:30	0	0	0	0	0	0		0	0	0	0
9:45	0	0	0	0	0	0		0	0	0	0
10:00	5	110	0	68	89	25		297	115	68	114
10:15	0	0	0	0	0	0		0	0	0	0
10:30	0	0	0	0	0	0		0	0	0	0
10:45	0	0	0	0	0	0		0	0	0	0
11:00	0	33	0	16	33	5		87	33	16	38
11:15	2	32	0	15	19	7		75	34	15	26
11:30	1	36	2	19	18	2		78	37	21	20
11:45	5	28	1	19	26	4		83	33	20	30
12:00	0	32	2	26	34	9		103	32	28	43
12:15	3	21	0	19	40	11		94	24	19	51
12:30	2	28	0	16	32	7		85	30	16	39
12:45	2	30	0	18	25	7		82	32	18	32
13:00	5	108	2	71	114	27		327	113	73	141
13:15	0	0	0	0	0	0		0	0	0	0
13:30	0	0	0	0	0	0		0	0	0	0
13:45	0	0	0	0	0	0		0	0	0	0
14:00	7	97	4	70	122	32		332	104	74	154
14:15	0	0	0	0	0	0		0	0	0	0
14:30	0	0	0	0	0	0		0	0	0	0
14:45	0	0	0	0	0	0		0	0	0	0
15:00	1	25	0	20	33	4		83	26	20	37
15:15	0	28	1	23	36	8		96	28	24	44
15:30	7	90	0	16	40	4		157	97	16	44
15:45	6	28	2	16	50	7		109	34	18	57
16:00	1	55	0	19	28	7		110	56	19	35
16:15	3	41	0	21	43	1		109	44	21	44
16:30	3	23	0	22	55	8		111	26	22	63
16:45	3	29	1	18	42	10		103	32	19	52
17:00	1	32	0	24	52	6		115	33	24	58
17:15	1	18	0	18	59	11		107	19	18	70
17:30	0	19	0	11	57	6		93	19	11	63
17:45	0	23	1	21	28	5		78	23	22	33
18:00	0	30	0	17	39	6		92	30	17	45
18:15	0	14	0	17	17	4		52	14	17	21
18:30	0	12	0	14	28	5		59	12	14	33
18:45	1	12	0	3	20	3		39	13	3	23
19:00	3	35	0	27	49	9		123	38	27	58
19:15	0	0	0	0	0	0		0	0	0	0
19:30	0	0	0	0	0	0		0	0	0	0
19:45	0	0	0	0	0	0		0	0	0	0
20:00	1	31	0	37	34	12		115	32	37	46
20:15	0	0	0	0	0	0		0	0	0	0
20:30	0	0	0	0	0	0		0	0	0	0
20:45	0	0	0	0	0	0		0	0	0	0
21:00	2	12	0	41	20	15		90	14	41	35
21:15	0	0	0	0	0	0		0	0	0	0
21:30	0	0	0	0	0	0		0	0	0	0
21:45	0	0	0	0	0	0		0	0	0	0
Total Count	119	1606	27	986	1691	342		4771	1725	1013	2033
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1	1.1
24hr Volume	131	1767	30	1085	1861	377		5249	1898	1115	2237

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	165	20	65	200	15	70
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Hourly flow rate (vph)	243	29	96	294	22	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			272		743	257
vC1, stage 1 conf vol					257	
vC2, stage 2 conf vol					485	
vCu, unblocked vol			272		743	257
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)					5.5	
tF (s)			2.2		3.6	3.3
p0 queue free %			93		96	87
cM capacity (veh/h)			1280		506	779

Direction, Lane #	SE 1	NW 1	NW 2	NE 1
Volume Total	272	96	294	125
Volume Left	0	96	0	22
Volume Right	29	0	0	103
cSH	1700	1280	1700	711
Volume to Capacity	0.16	0.07	0.17	0.18
Queue Length 95th (ft)	0	6	0	16
Control Delay (s)	0.0	8.0	0.0	11.1
Lane LOS		A		B
Approach Delay (s)	0.0	2.0		11.1
Approach LOS				B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	5	5	5	80	5	30	40	200	5	5	230	55
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	6	6	6	101	6	38	51	253	6	6	291	70
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	703	731	256	703	699	326	361			259		
vC1, stage 1 conf vol	358	358		339	339							
vC2, stage 2 conf vol	345	373		364	361							
vCu, unblocked vol	703	731	256	703	699	326	361			259		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.4	4.2			4.6		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.3			2.7		
p0 queue free %	99	99	99	80	99	94	96			99		
cM capacity (veh/h)	496	489	787	519	514	686	1176			1071		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	19	146	51	259	6	361
Volume Left	6	101	51	0	6	0
Volume Right	6	38	0	6	0	70
cSH	563	554	1176	1700	1071	1700
Volume to Capacity	0.03	0.26	0.04	0.15	0.01	0.21
Queue Length 95th (ft)	3	26	3	0	0	0
Control Delay (s)	11.6	13.8	8.2	0.0	8.4	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	11.6	13.8	1.3		0.1	
Approach LOS	B	B				

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	43.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	260	25	10	270	20	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	347	33	13	360	27	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			380		733	347
vC1, stage 1 conf vol					347	
vC2, stage 2 conf vol					387	
vCu, unblocked vol			380		733	347
tC, single (s)			4.7		6.4	6.8
tC, 2 stage (s)					5.4	
tF (s)			2.7		3.5	3.8
p0 queue free %			99		95	91
cM capacity (veh/h)			921		580	589

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	347	33	13	360	80
Volume Left	0	0	13	0	27
Volume Right	0	33	0	0	53
cSH	1700	1700	921	1700	586
Volume to Capacity	0.20	0.02	0.01	0.21	0.14
Queue Length 95th (ft)	0	0	1	0	12
Control Delay (s)	0.0	0.0	9.0	0.0	12.1
Lane LOS			A		B
Approach Delay (s)	0.0		0.3		12.1
Approach LOS					B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	295	5	30	275	5	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	383	6	39	357	6	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			390		818	383
vC1, stage 1 conf vol					383	
vC2, stage 2 conf vol					435	
vCu, unblocked vol			390		818	383
tC, single (s)			4.5		6.4	6.6
tC, 2 stage (s)					5.4	
tF (s)			2.6		3.5	3.6
p0 queue free %			96		99	95
cM capacity (veh/h)			985		537	592

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	383	6	39	357	39
Volume Left	0	0	39	0	6
Volume Right	0	6	0	0	32
cSH	1700	1700	985	1700	582
Volume to Capacity	0.23	0.00	0.04	0.21	0.07
Queue Length 95th (ft)	0	0	3	0	5
Control Delay (s)	0.0	0.0	8.8	0.0	11.6
Lane LOS			A		B
Approach Delay (s)	0.0		0.9		11.6
Approach LOS					B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	5	5	315	5	20	300
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	6	6	409	6	26	390
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	851	409			416	
vC1, stage 1 conf vol	409					
vC2, stage 2 conf vol	442					
vCu, unblocked vol	851	409			416	
tC, single (s)	6.4	6.9			5.0	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.9			3.0	
p0 queue free %	99	99			97	
cM capacity (veh/h)	528	523			786	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	13	409	6	26	390
Volume Left	6	0	0	26	0
Volume Right	6	0	6	0	0
cSH	526	1700	1700	786	1700
Volume to Capacity	0.02	0.24	0.00	0.03	0.23
Queue Length 95th (ft)	2	0	0	3	0
Control Delay (s)	12.0	0.0	0.0	9.7	0.0
Lane LOS	B			A	
Approach Delay (s)	12.0	0.0		0.6	
Approach LOS	B				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	20	20	220	100	5	300
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	27	27	293	133	7	400
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	707	293			293	
vC1, stage 1 conf vol	293					
vC2, stage 2 conf vol	413					
vCu, unblocked vol	707	293			293	
tC, single (s)	7.1	6.3			4.1	
tC, 2 stage (s)	6.1					
tF (s)	4.1	3.4			2.2	
p0 queue free %	94	96			99	
cM capacity (veh/h)	480	734			1280	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	53	293	133	7	400
Volume Left	27	0	0	7	0
Volume Right	27	0	133	0	0
cSH	580	1700	1700	1280	1700
Volume to Capacity	0.09	0.17	0.08	0.01	0.24
Queue Length 95th (ft)	8	0	0	0	0
Control Delay (s)	11.8	0.0	0.0	7.8	0.0
Lane LOS	B			A	
Approach Delay (s)	11.8	0.0		0.1	
Approach LOS	B				

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	27.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	10	230	295	5	5	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	14	315	404	7	7	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	411				750	408
vC1, stage 1 conf vol					408	
vC2, stage 2 conf vol					342	
vCu, unblocked vol	411				750	408
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	98
cM capacity (veh/h)	1159				574	648

Direction, Lane #	SE 1	SE 2	NW 1	SW 1
Volume Total	14	315	411	21
Volume Left	14	0	0	7
Volume Right	0	0	7	14
cSH	1159	1700	1700	621
Volume to Capacity	0.01	0.19	0.24	0.03
Queue Length 95th (ft)	1	0	0	3
Control Delay (s)	8.1	0.0	0.0	11.0
Lane LOS	A			B
Approach Delay (s)	0.3		0.0	11.0
Approach LOS				B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	90	5	200	35	20	210
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	127	7	282	49	28	296
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	634	282			282	
vC1, stage 1 conf vol	282					
vC2, stage 2 conf vol	352					
vCu, unblocked vol	634	282			282	
tC, single (s)	6.7	6.2			4.2	
tC, 2 stage (s)	5.7					
tF (s)	3.8	3.3			2.3	
p0 queue free %	78	99			98	
cM capacity (veh/h)	563	762			1215	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	134	282	49	28	296
Volume Left	127	0	0	28	0
Volume Right	7	0	49	0	0
cSH	571	1700	1700	1215	1700
Volume to Capacity	0.23	0.17	0.03	0.02	0.17
Queue Length 95th (ft)	23	0	0	2	0
Control Delay (s)	13.2	0.0	0.0	8.0	0.0
Lane LOS	B			A	
Approach Delay (s)	13.2	0.0		0.7	
Approach LOS	B				

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

066 LA GRANDE-BAKER

OR 203 La Grande-Baker Highway (Hwy 066) Mainline MP 3.45 to MP 5.67
January 1, 2007 through December 31, 2010

SER# / INVEST	S P E D	A L C	D R S L	S C H	W O R K	DATE / DAY / TIME	COUNTY / CITY / URBAN AREA	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN # / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00278	N	N	N		11/04/2008	UNION	1 14		INTER	CROSS	N		N	RAIN	O-1TURN	01	NONE 0	STRGHT											02
NONE					Tue		0 0		CN		UNKNOWN		N	WET	TURN		PRVTE	N S									000		00
					7A	LAGRANDE UA	3.68		01	0			N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	53	F	OR-Y OR<25		000	000		00
																02	NONE 0	TURN-L											
																	PRVTE	S W									000		00
																	PSNGR CAR		01	DRVR	NONE	18	M	OR-Y OR<25		004	000		02
00039	N	N	N	N	N	02/12/2007	UNION	1 14		STRGHT		N		N	CLR	S-1TURN	01	NONE 0	STRGHT											08,32
STATE						Mon		0 0		UN	(NONE)	UNKNOWN		N	DRY	TURN		PRVTE	N S								000		00
						5P	LAGRANDE UA	3.71		03	(02)			N	DUSK	INJ		PSNGR CAR		01	DRVR	INJA	67	M	OR-Y OR>25		000	000		00
																				02	PSNG	INJB	68	F			000	000		00
																02	NONE 0	U-TURN											
																	PRVTE	N N									000		00
																	PSNGR CAR		01	DRVR	INJB	17	M	OR-Y OR<25		008,052	000		08,32
																			02	PSNG	INJB	19	F			000	000		00
																			03	PSNG	INJC	18	M			000	000		00
																			04	PSNG	INJC	18	M			000	000		00
																			05	PSNG	INJB	16	F			000	000		00
00018	N	N	N	N	N	02/11/2010	UNION	1 14		STRGHT		N		N	CLD	S-1STOP	01	NONE 0	STRGHT										013	32,27
STATE						Thu		0 0		UN	(NONE)	UNKNOWN		N	DRY	REAR		PRVTE	S N								000	013	00
						11A	LAGRANDE UA	4.18		04	(02)			Y	DAY	PDO		PSNGR CAR		01	DRVR	NONE	54	M	OR-Y OR<25		052,016,026	038		32,27
																02	NONE 0	STOP											
																	PRVTE	S N									011		00
																	PSNGR CAR		01	DRVR	NONE	49	M	OR-Y OR<25		000	000		00
																03	NONE 0	STOP											
																	PRVTE	S N									012		00
																	PSNGR CAR		01	DRVR	NONE	31	M	OR-Y OR<25		000	000		00
00203	N	N	N		10/31/2010	UNION	1 06		STRGHT		N		N	CLR	S-1TURN	01	NONE 0	U-TURN											02
NO RPT					Sun		0 0		UN	(NONE)	UNKNOWN		N	DRY	TURN		PRVTE	E E									051		00
					6P		4.50		04	(02)			N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	37	M	OTH-Y N-RES		008	000		02
																			02	PSNG	NO<5	04	M			000	000		00
																02	NONE 0	STRGHT											
																	PRVTE	E W									000		00
																	PSNGR CAR		01	DRVR	NONE	47	M	OR-Y OR<25		000	000		00
																			02	PSNG	INJC	18	M			000	000		00

066 LA GRANDE-BAKER

OR 203 La Grande-Baker Highway (Hwy 066) Mainline MP 3.45 to MP 5.67
January 1, 2007 through December 31, 2010

SER# / INVEST	SPEED	ALC	DRUGS	SCHL	WORK	DATE / DAY / TIME	COUNTY / CITY / URBAN AREA	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN # / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00302	Y	N	N	N	N	12/28/2007	UNION	1 06			INTER	3-LEG	N	Y	RAIN	OVERTURN	01	NONE 0	TURN-L											079,124	01
STATE						Fri		0 0			S		UNKNOWN	N	ICE	NCOL		PRVTE	E S										000	079,124	00
						2P		4.93			05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	36	F	OR-Y OR<25		047,080	017		01
00043	Y	N	N	N	N	01/22/2008	UNION	1 06			INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											124	03,01
STATE						Tue		0 0			CN		STOP SIGN	N	ICE	ANGL		PRVTE	N S										000	124	00
						11A		4.93			01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	26	F	OR-Y OR<25		021	017		01,03
																	02	NONE 0	STRGHT												
																		PRVTE	SE NW										000		00
																		PSNGR CAR		01	DRVR	NONE	58	M	OR-Y OR<25		000	000		00
00167	N	N	N	N	N	05/20/2008	UNION	1 06			INTER	CROSS	N	N	CLD	ANGL-OTH	01	NONE 0	TURN-L												02
STATE						Tue		0 0			CN		UNKNOWN	N	WET	TURN		PRVTE	E S										000		00
						4P		4.93			01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	52	F	OR-Y OR<25		028	000		02
																	02	NONE 0	STRGHT												
																		PRVTE	N S										000		00
																		PSNGR CAR		01	DRVR	NONE	31	F	OR-Y OR>25		000	000		00
00087	N	N	N	N	N	05/26/2007	UNION	1 06			INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT												03
STATE						Sat		0 0			CN		STOP SIGN	N	DRY	ANGL		PRVTE	S N										000		00
						9P		4.93			02	0		N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	22	M	OR-Y OR<25		000	000		00
																	02	NONE 0	STRGHT												
																		PRVTE	E W										000		00
																		PSNGR CAR		01	DRVR	NONE	19	M	OTH-Y N-RES		021	000		03
00088	N	N	N	N	N	03/17/2009	UNION	1 06			INTER	3-LEG	N	N	CLR	O-1TURN	01	NONE 0	STRGHT												02
STATE						Tue		0 0			CN		UNKNOWN	N	DRY	TURN		PRVTE	N S										000		00
						11A		5.62			01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	67	F	OR-Y OR<25		000	000		00
																	02	NONE 0	TURN-L												
																		PRVTE	S W										000		00
																		PSNGR CAR		01	DRVR	NONE	84	M	OR-Y OR<25		004	000		02
00171	N	N	N	N	N	08/18/2007	UNION	1 06			INTER	4-LEG	N	N	CLR	O-1TURN	01	NONE 0	STRGHT												02
STATE						Sat		0 0			CN		UNKNOWN	N	DRY	TURN		PRVTE	W E										000		00
						9A		5.62			03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	35	M	OR-Y OR<25		000	000		00
																	02	NONE 0	TURN-L												
																		PRVTE	E S										000		00
																		PSNGR CAR		01	DRVR	NONE	44	F	OR-Y OR>25		004	000		02

066 LA GRANDE-BAKER

OR 203 La Grande-Baker Highway (Hwy 066) Mainline MP 3.45 to MP 5.67
January 1, 2007 through December 31, 2010

SER# / INVEST	SPEED	ALCHL	DRUGS	WORK ZONE	DATE / DAY / TIME	COUNTY / CITY / URBAN AREA	RD# COMPNT / MLG TYP / MILEPNT	FC / CONN # / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00211	N	N	N	N	09/17/2009	UNION	1 06		INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										082	02
STATE					Thu		0 0		CN		STOP SIGN	N	DRY	TURN		PRVTE	N S									001		00
					12P		5.62		03	0		N	DAY	INJ		SEMI TOW		01	DRVR	NONE	48	M	OR-Y OR>25		000	000	082	00
															02	NONE 0	TURN-L											
																PRVTE	W N									015		00
																PSNGR CAR		01	DRVR	INJB	56	F	OR-Y OR<25		028	000	082	02
00218	N	N	N	N	10/20/2007	UNION	1 06		INTER	4-LEG	N	N	CLD	ANGL-OTH	01	NONE 0	TURN-R										082	02
STATE					Sat		0 0		CN		STOP SIGN	N	WET	TURN		PRVTE	S E									015		00
					7P		5.62		04	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	50	F	OR-Y OR<25		028	000	082	02
															02	NONE 0	STRGHT											
																PRVTE	W E									000		00
																PSNGR CAR		01	DRVR	NONE	37	F	OR-Y OR<25		000	000		00
																		02	PSNG	NO<5	02	F			000	000		00

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 (CITATION ISSUED)
33	RECKLESS	RECKLESS DRIVING (CITATION ISSUED)
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 WITH INSUFFICIENT CLEARANCE OR 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 (VEHICLE IS 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	DIS POL	DISREGARDING POLICE (ELUDING)
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER CORRECTING
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 ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

OR 203 La Grande-Baker Highway (Hwy 066) Mainline MP 3.45 to MP 5.67
January 1, 2007 through December 31, 2010

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2010														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	0	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	0	1	0	0	0
2010 TOTAL	0	1	1	2	0	1	0	2	0	1	1	0	0	0
YEAR: 2009														
TURNING MOVEMENTS	0	1	1	2	0	1	1	2	0	2	0	2	0	0
2009 TOTAL	0	1	1	2	0	1	1	2	0	2	0	2	0	0
YEAR: 2008														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	0	0	2	2	0	2	0	0
2008 TOTAL	0	1	2	3	0	1	0	0	3	3	0	3	0	0
YEAR: 2007														
ANGLE	0	0	1	1	0	0	0	1	0	0	1	1	0	0
NON-COLLISION	0	0	1	1	0	0	0	0	1	1	0	1	0	1
TURNING MOVEMENTS	0	1	2	3	0	7	0	2	1	1	2	2	0	0
2007 TOTAL	0	1	4	5	0	7	0	3	2	2	3	4	0	1
FINAL TOTAL	0	4	8	12	0	10	1	7	5	8	4	9	0	1

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

2010 SEASONAL TREND TABLE (Printed: 07/07/10)			Peak Period Seasonal Factor		seasonal factor
TREND	1-May	15-May		5-May	
INTERSTATE URBANIZED	0.94	0.94	0.91	0.9378	1.036
INTERSTATE NONURBANIZED	1.03	1.00	0.84	1.0187	1.215
COMMUTER	0.93	0.93	0.90	0.9281	1.029
COASTAL DESTINATION	1.06	1.04	0.82	1.0511	1.288
COASTAL DESTINATION ROUTE	1.15	1.09	0.76	1.1285	1.480
AGRICULTURE	0.96	0.94	0.87	0.9548	1.100
RECREATIONAL SUMMER	1.22	1.03	0.74	1.1546	1.570
RECREATIONAL SUMMER WINTER	1.64	1.60	0.85	1.6296	1.910
RECREATIONAL WINTER	2.26	2.80	0.89	2.4385	2.746
SUMMER	0.99	0.95	0.83	0.9753	1.177
SUMMER < 2500	0.96	0.90	0.80	0.9431	1.183

***Seasonal Trend Table factors are based on previous year ATR data and the table is updated year**

Average of commuter and summer 1.103

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	345	55	155	485	115	145
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Width	12	12	14	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1667	1417	1689	1667	1583	1417
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1667	1417	1689	1667	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	383	61	172	539	128	161
RTOR Reduction (vph)	0	29	0	0	0	137
Lane Group Flow (vph)	383	32	172	539	128	24
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Actuated Green, G (s)	40.5	40.5	12.6	57.1	11.4	11.4
Effective Green, g (s)	40.5	40.5	12.6	57.1	11.4	11.4
Actuated g/C Ratio	0.53	0.53	0.16	0.75	0.15	0.15
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	883	750	278	1244	236	211
v/s Ratio Prot	0.23		c0.10	c0.32	c0.08	
v/s Ratio Perm		0.02				0.02
v/c Ratio	0.43	0.04	0.62	0.43	0.54	0.11
Uniform Delay, d1	11.0	8.7	29.7	3.6	30.1	28.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.1	4.1	1.1	2.5	0.2
Delay (s)	12.5	8.8	33.8	4.7	32.7	28.4
Level of Service	B	A	C	A	C	C
Approach Delay (s)	12.0			11.8	30.3	
Approach LOS	B			B	C	

Intersection Summary			
HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	15	15	10	380	15	265	250	290	20	5	285	305
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	14	12	12	14	12	12	14	12	12	14	12	12
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.97		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1582		1689	1430		1689	1667	1417	1689	1667	1417
Flt Permitted		0.87		0.73	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1397		1294	1430		1689	1667	1417	1689	1667	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	17	11	422	17	294	278	322	22	6	317	339
RTOR Reduction (vph)	0	7	0	0	184	0	0	0	11	0	0	231
Lane Group Flow (vph)	0	38	0	422	127	0	278	322	11	6	317	108
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4					2			6
Actuated Green, G (s)		38.0		38.0	38.0		19.1	50.5	50.5	0.9	32.3	32.3
Effective Green, g (s)		38.0		38.0	38.0		19.1	50.5	50.5	0.9	32.3	32.3
Actuated g/C Ratio		0.37		0.37	0.37		0.19	0.50	0.50	0.01	0.32	0.32
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		524		485	536		318	830	706	15	531	451
v/s Ratio Prot					0.09		c0.16	0.19		0.00	c0.19	
v/s Ratio Perm		0.03		c0.33					0.01			0.08
v/c Ratio		0.07		0.87	0.24		0.87	0.39	0.02	0.40	0.60	0.24
Uniform Delay, d1		20.4		29.4	21.8		40.0	15.8	12.9	50.0	29.1	25.5
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1		18.8	1.0		22.3	0.3	0.0	16.6	4.9	1.3
Delay (s)		20.4		48.2	22.8		62.3	16.1	12.9	66.6	34.0	26.7
Level of Service		C		D	C		E	B	B	E	C	C
Approach Delay (s)		20.4			37.4			36.7			30.6	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	645	35	15	570	25	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	717	39	17	633	28	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	560					
pX, platoon unblocked			0.69		0.69	0.69
vC, conflicting volume			756		1383	717
vC1, stage 1 conf vol					717	
vC2, stage 2 conf vol					667	
vCu, unblocked vol			418		1330	362
tC, single (s)			4.7		6.4	6.8
tC, 2 stage (s)					5.4	
tF (s)			2.7		3.5	3.8
p0 queue free %			97		92	86
cM capacity (veh/h)			612		353	397

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	717	39	17	633	83
Volume Left	0	0	17	0	28
Volume Right	0	39	0	0	56
cSH	1700	1700	612	1700	381
Volume to Capacity	0.42	0.02	0.03	0.37	0.22
Queue Length 95th (ft)	0	0	2	0	21
Control Delay (s)	0.0	0.0	11.1	0.0	17.1
Lane LOS			B		C
Approach Delay (s)	0.0		0.3		17.1
Approach LOS					C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	685	10	40	575	10	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	761	11	44	639	11	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	950					
pX, platoon unblocked			0.70		0.70	0.70
vC, conflicting volume			772		1489	761
vC1, stage 1 conf vol					761	
vC2, stage 2 conf vol					728	
vCu, unblocked vol			465		1484	449
tC, single (s)			4.5		6.4	6.6
tC, 2 stage (s)					5.4	
tF (s)			2.6		3.5	3.6
p0 queue free %			93		97	90
cM capacity (veh/h)			647		318	381

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	761	11	44	639	50
Volume Left	0	0	44	0	11
Volume Right	0	11	0	0	39
cSH	1700	1700	647	1700	365
Volume to Capacity	0.45	0.01	0.07	0.38	0.14
Queue Length 95th (ft)	0	0	6	0	12
Control Delay (s)	0.0	0.0	11.0	0.0	16.4
Lane LOS			B		C
Approach Delay (s)	0.0		0.7		16.4
Approach LOS					C

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	35	85	675	45	110	580
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	94	750	50	122	644
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1639	750			800	
vC1, stage 1 conf vol	750					
vC2, stage 2 conf vol	889					
vCu, unblocked vol	1639	750			800	
tC, single (s)	6.4	6.4			4.3	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.4			2.4	
p0 queue free %	86	76			84	
cM capacity (veh/h)	276	391			749	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	133	750	50	122	644
Volume Left	39	0	0	122	0
Volume Right	94	0	50	0	0
cSH	349	1700	1700	749	1700
Volume to Capacity	0.38	0.44	0.03	0.16	0.38
Queue Length 95th (ft)	44	0	0	15	0
Control Delay (s)	21.6	0.0	0.0	10.7	0.0
Lane LOS	C			B	
Approach Delay (s)	21.6	0.0		1.7	
Approach LOS	C				

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	140	25	495	265	10	550
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	156	28	550	294	11	611
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1183	550			550	
vC1, stage 1 conf vol	550					
vC2, stage 2 conf vol	633					
vCu, unblocked vol	1183	550			550	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.4			2.2	
p0 queue free %	62	95			99	
cM capacity (veh/h)	411	525			1030	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	183	550	294	11	611
Volume Left	156	0	0	11	0
Volume Right	28	0	294	0	0
cSH	425	1700	1700	1030	1700
Volume to Capacity	0.43	0.32	0.17	0.01	0.36
Queue Length 95th (ft)	53	0	0	1	0
Control Delay (s)	19.7	0.0	0.0	8.5	0.0
Lane LOS	C			A	
Approach Delay (s)	19.7	0.0		0.2	
Approach LOS	C				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	15	505	545	5	10	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	561	606	6	11	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	611				1203	608
vC1, stage 1 conf vol					608	
vC2, stage 2 conf vol					594	
vCu, unblocked vol	611				1203	608
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				97	97
cM capacity (veh/h)	978				421	499

Direction, Lane #	SE 1	SE 2	NW 1	SW 1
Volume Total	17	561	611	28
Volume Left	17	0	0	11
Volume Right	0	0	6	17
cSH	978	1700	1700	465
Volume to Capacity	0.02	0.33	0.36	0.06
Queue Length 95th (ft)	1	0	0	5
Control Delay (s)	8.7	0.0	0.0	13.2
Lane LOS	A			B
Approach Delay (s)	0.3		0.0	13.2
Approach LOS				B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	270	10	285	230	25	280
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	300	11	317	256	28	311
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	683	317			317	
vC1, stage 1 conf vol	317					
vC2, stage 2 conf vol	367					
vCu, unblocked vol	683	317			317	
tC, single (s)	6.5	6.2			4.2	
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.3			2.3	
p0 queue free %	48	98			98	
cM capacity (veh/h)	578	729			1179	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	311	317	256	28	311
Volume Left	300	0	0	28	0
Volume Right	11	0	256	0	0
cSH	582	1700	1700	1179	1700
Volume to Capacity	0.53	0.19	0.15	0.02	0.18
Queue Length 95th (ft)	79	0	0	2	0
Control Delay (s)	18.1	0.0	0.0	8.1	0.0
Lane LOS	C			A	
Approach Delay (s)	18.1	0.0		0.7	
Approach LOS	C				

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	470	20	20	570	70	60
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	522	22	22	633	78	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (ft)	1179					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			544		1200	522
vC1, stage 1 conf vol					522	
vC2, stage 2 conf vol					678	
vCu, unblocked vol			463		1175	439
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		81	88
cM capacity (veh/h)			998		406	564

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	522	22	22	633	144
Volume Left	0	0	22	0	78
Volume Right	0	22	0	0	67
cSH	1700	1700	998	1700	466
Volume to Capacity	0.31	0.01	0.02	0.37	0.31
Queue Length 95th (ft)	0	0	2	0	33
Control Delay (s)	0.0	0.0	8.7	0.0	16.1
Lane LOS			A		C
Approach Delay (s)	0.0		0.3		16.1
Approach LOS					C

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	535	10	10	555	35	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	594	11	11	617	39	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			606		1233	594
vC1, stage 1 conf vol					594	
vC2, stage 2 conf vol					639	
vCu, unblocked vol			606		1233	594
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		90	94
cM capacity (veh/h)			958		406	499

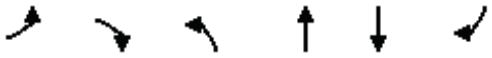
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total	594	11	11	617	39	28
Volume Left	0	0	11	0	39	0
Volume Right	0	11	0	0	0	28
cSH	1700	1700	958	1700	406	499
Volume to Capacity	0.35	0.01	0.01	0.36	0.10	0.06
Queue Length 95th (ft)	0	0	1	0	8	4
Control Delay (s)	0.0	0.0	8.8	0.0	14.8	12.6
Lane LOS			A		B	B
Approach Delay (s)	0.0		0.2		13.9	
Approach LOS					B	

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	165	20	30	180	65	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	183	22	33	200	72	106
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				645		
pX, platoon unblocked						
vC, conflicting volume			206		461	194
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			206		461	194
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		87	87
cM capacity (veh/h)			1348		539	839

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	206	233	178
Volume Left	0	33	72
Volume Right	22	0	106
cSH	1700	1348	685
Volume to Capacity	0.12	0.02	0.26
Queue Length 95th (ft)	0	2	26
Control Delay (s)	0.0	1.3	12.1
Lane LOS		A	B
Approach Delay (s)	0.0	1.3	12.1
Approach LOS			B

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	5	5	20	20	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	6	22	22	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					710	
pX, platoon unblocked						
vC, conflicting volume	58	25	28			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	58	25	28			
tC, single (s)	6.5	6.4	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	99	99	100			
cM capacity (veh/h)	914	1015	1505			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	28	28
Volume Left	6	6	0
Volume Right	6	0	6
cSH	962	1505	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	1.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	1.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	405	60	215	660	150	210
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Width	12	12	14	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1591	1417	1612	1591	1511	1352
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1591	1417	1612	1591	1511	1352
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	450	67	239	733	167	233
RTOR Reduction (vph)	0	35	0	0	0	192
Lane Group Flow (vph)	450	32	239	733	167	41
Heavy Vehicles (%)	10%	5%	10%	10%	10%	10%
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Actuated Green, G (s)	37.4	37.4	15.8	57.2	13.9	13.9
Effective Green, g (s)	37.4	37.4	15.8	57.2	13.9	13.9
Actuated g/C Ratio	0.47	0.47	0.20	0.72	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	752	670	322	1151	266	238
v/s Ratio Prot	0.28		c0.15	c0.46	c0.11	
v/s Ratio Perm		0.02				0.03
v/c Ratio	0.60	0.05	0.74	0.64	0.63	0.17
Uniform Delay, d1	15.3	11.2	29.7	5.6	30.2	27.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.1	8.9	2.7	4.6	0.3
Delay (s)	18.8	11.4	38.6	8.3	34.8	28.1
Level of Service	B	B	D	A	C	C
Approach Delay (s)	17.9			15.8	30.9	
Approach LOS	B			B	C	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	79.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	115	35	140	380	25	275	290	440	80	105	310	305
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	14	12	12	14	12	12	14	12	12	14	12	12
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.93		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1364		1612	1317		1612	1522	1293	1612	1667	1417
Flt Permitted		0.66		0.54	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		914		912	1317		1612	1522	1293	1612	1667	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	128	39	156	422	28	306	322	489	89	117	344	339
RTOR Reduction (vph)	0	33	0	0	165	0	0	0	59	0	0	264
Lane Group Flow (vph)	0	290	0	422	169	0	322	489	30	117	344	75
Heavy Vehicles (%)	20%	20%	15%	10%	10%	15%	10%	15%	15%	10%	5%	5%
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4					2			6
Actuated Green, G (s)		46.0		46.0	46.0		20.0	33.6	33.6	8.4	22.0	22.0
Effective Green, g (s)		46.0		46.0	46.0		20.0	33.6	33.6	8.4	22.0	22.0
Actuated g/C Ratio		0.46		0.46	0.46		0.20	0.34	0.34	0.08	0.22	0.22
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		2.5		2.5	2.5		2.5	3.0	3.0	2.5	3.0	3.0
Lane Grp Cap (vph)		420		420	606		322	511	434	135	367	312
v/s Ratio Prot					0.13		c0.20	c0.32		0.07	0.21	
v/s Ratio Perm		0.32		c0.46					0.02			0.05
v/c Ratio		0.69		1.00	0.28		1.00	0.96	0.07	0.87	0.94	0.24
Uniform Delay, d1		21.3		27.0	16.7		40.0	32.5	22.6	45.2	38.3	32.1
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		4.3		45.1	1.1		50.2	28.9	0.1	40.0	33.5	1.8
Delay (s)		25.6		72.1	17.9		90.2	61.4	22.6	85.2	71.8	33.9
Level of Service		C		E	B		F	E	C	F	E	C
Approach Delay (s)		25.6			48.1			67.9			57.7	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM Average Control Delay	54.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	925	35	15	695	25	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1028	39	17	772	28	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	560					
pX, platoon unblocked			0.52		0.52	0.52
vC, conflicting volume			1067		1833	1028
vC1, stage 1 conf vol					1028	
vC2, stage 2 conf vol					806	
vCu, unblocked vol			660		2146	585
tC, single (s)			4.7		6.4	6.8
tC, 2 stage (s)					5.4	
tF (s)			2.7		3.5	3.8
p0 queue free %			95		88	75
cM capacity (veh/h)			364		225	218

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	1028	39	17	772	83
Volume Left	0	0	17	0	28
Volume Right	0	39	0	0	56
cSH	1700	1700	364	1700	220
Volume to Capacity	0.60	0.02	0.05	0.45	0.38
Queue Length 95th (ft)	0	0	4	0	42
Control Delay (s)	0.0	0.0	15.4	0.0	30.9
Lane LOS			C		D
Approach Delay (s)	0.0		0.3		30.9
Approach LOS					D

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	965	10	40	700	10	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1072	11	44	778	11	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	950					
pX, platoon unblocked			0.53		0.53	0.53
vC, conflicting volume			1083		1939	1072
vC1, stage 1 conf vol					1072	
vC2, stage 2 conf vol					867	
vCu, unblocked vol			717		2324	697
tC, single (s)			4.5		6.4	6.6
tC, 2 stage (s)					5.4	
tF (s)			2.6		3.5	3.6
p0 queue free %			89		94	81
cM capacity (veh/h)			388		201	205

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	1072	11	44	778	50
Volume Left	0	0	44	0	11
Volume Right	0	11	0	0	39
cSH	1700	1700	388	1700	204
Volume to Capacity	0.63	0.01	0.11	0.46	0.24
Queue Length 95th (ft)	0	0	10	0	23
Control Delay (s)	0.0	0.0	15.5	0.0	28.2
Lane LOS			C		D
Approach Delay (s)	0.0		0.8		28.2
Approach LOS					D

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	35	105	955	45	120	705
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	117	1061	50	133	783
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2111	1061			1111	
vC1, stage 1 conf vol	1061					
vC2, stage 2 conf vol	1050					
vCu, unblocked vol	2111	1061			1111	
tC, single (s)	6.5	6.4			4.3	
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.4			2.4	
p0 queue free %	80	55			76	
cM capacity (veh/h)	194	256			566	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	156	1061	50	133	783
Volume Left	39	0	0	133	0
Volume Right	117	0	50	0	0
cSH	237	1700	1700	566	1700
Volume to Capacity	0.66	0.62	0.03	0.24	0.46
Queue Length 95th (ft)	102	0	0	23	0
Control Delay (s)	45.0	0.0	0.0	13.3	0.0
Lane LOS	E			B	
Approach Delay (s)	45.0	0.0		1.9	
Approach LOS	E				

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	195	25	645	415	10	630
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	217	28	717	461	11	700
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1439	717			717	
vC1, stage 1 conf vol	717					
vC2, stage 2 conf vol	722					
vCu, unblocked vol	1439	717			717	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.4			2.2	
p0 queue free %	38	93			99	
cM capacity (veh/h)	348	421			893	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	244	717	461	11	700
Volume Left	217	0	0	11	0
Volume Right	28	0	461	0	0
cSH	355	1700	1700	893	1700
Volume to Capacity	0.69	0.42	0.27	0.01	0.41
Queue Length 95th (ft)	122	0	0	1	0
Control Delay (s)	34.8	0.0	0.0	9.1	0.0
Lane LOS	D			A	
Approach Delay (s)	34.8	0.0		0.1	
Approach LOS	D				

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	15	655	625	5	10	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	728	694	6	11	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	700				1458	697
vC1, stage 1 conf vol					697	
vC2, stage 2 conf vol					761	
vCu, unblocked vol	700				1458	697
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				97	96
cM capacity (veh/h)	906				355	444

Direction, Lane #	SE 1	SE 2	NW 1	SW 1
Volume Total	17	728	700	28
Volume Left	17	0	0	11
Volume Right	0	0	6	17
cSH	906	1700	1700	404
Volume to Capacity	0.02	0.43	0.41	0.07
Queue Length 95th (ft)	1	0	0	6
Control Delay (s)	9.0	0.0	0.0	14.6
Lane LOS	A			B
Approach Delay (s)	0.2		0.0	14.6
Approach LOS				B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	335	10	315	350	25	295
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	372	11	350	389	28	328
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	733	350			350	
vC1, stage 1 conf vol	350					
vC2, stage 2 conf vol	383					
vCu, unblocked vol	733	350			350	
tC, single (s)	6.5	6.2			4.2	
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.3			2.3	
p0 queue free %	33	98			98	
cM capacity (veh/h)	558	698			1145	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	383	350	389	28	328
Volume Left	372	0	0	28	0
Volume Right	11	0	389	0	0
cSH	561	1700	1700	1145	1700
Volume to Capacity	0.68	0.21	0.23	0.02	0.19
Queue Length 95th (ft)	131	0	0	2	0
Control Delay (s)	24.1	0.0	0.0	8.2	0.0
Lane LOS	C			A	
Approach Delay (s)	24.1	0.0		0.6	
Approach LOS	C				

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	590	25	25	785	90	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	656	28	28	872	100	106
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (ft)	1179					
pX, platoon unblocked			0.85		0.85	0.85
vC, conflicting volume			683		1583	656
vC1, stage 1 conf vol					656	
vC2, stage 2 conf vol					928	
vCu, unblocked vol			535		1598	502
tC, single (s)			4.2		6.5	6.4
tC, 2 stage (s)					5.5	
tF (s)			2.3		3.6	3.4
p0 queue free %			97		66	77
cM capacity (veh/h)			841		298	460

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	656	28	28	872	206
Volume Left	0	0	28	0	100
Volume Right	0	28	0	0	106
cSH	1700	1700	841	1700	364
Volume to Capacity	0.39	0.02	0.03	0.51	0.57
Queue Length 95th (ft)	0	0	3	0	83
Control Delay (s)	0.0	0.0	9.4	0.0	27.0
Lane LOS			A		D
Approach Delay (s)	0.0		0.3		27.0
Approach LOS					D

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	655	45	45	655	155	155
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	728	50	50	728	172	172
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			778		1556	728
vC1, stage 1 conf vol					728	
vC2, stage 2 conf vol					828	
vCu, unblocked vol			778		1556	728
tC, single (s)			4.2		6.5	6.4
tC, 2 stage (s)					5.5	
tF (s)			2.3		3.6	3.4
p0 queue free %			94		45	57
cM capacity (veh/h)			804		310	403

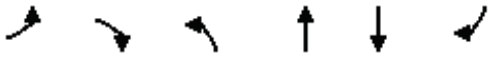
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total	728	50	50	728	172	172
Volume Left	0	0	50	0	172	0
Volume Right	0	50	0	0	0	172
cSH	1700	1700	804	1700	310	403
Volume to Capacity	0.43	0.03	0.06	0.43	0.55	0.43
Queue Length 95th (ft)	0	0	5	0	79	52
Control Delay (s)	0.0	0.0	9.8	0.0	30.1	20.5
Lane LOS			A		D	C
Approach Delay (s)	0.0		0.6		25.3	
Approach LOS					D	

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	185	30	50	225	105	175
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	206	33	56	250	117	194
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				645		
pX, platoon unblocked						
vC, conflicting volume			239		583	222
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			239		583	222
tC, single (s)			4.2		6.4	6.4
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.4
p0 queue free %			96		74	75
cM capacity (veh/h)			1282		449	786

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	239	306	311
Volume Left	0	56	117
Volume Right	33	0	194
cSH	1700	1282	613
Volume to Capacity	0.14	0.04	0.51
Queue Length 95th (ft)	0	3	72
Control Delay (s)	0.0	1.8	16.8
Lane LOS		A	C
Approach Delay (s)	0.0	1.8	16.8
Approach LOS			C

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	135	20	15	85	85	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	150	22	17	94	94	61
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					730	
pX, platoon unblocked						
vC, conflicting volume	253	125	156			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	253	125	156			
tC, single (s)	6.5	6.4	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	79	98	99			
cM capacity (veh/h)	700	892	1349			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	172	111	156
Volume Left	150	17	0
Volume Right	22	0	61
cSH	720	1349	1700
Volume to Capacity	0.24	0.01	0.09
Queue Length 95th (ft)	23	1	0
Control Delay (s)	11.6	1.2	0.0
Lane LOS	B	A	
Approach Delay (s)	11.6	1.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	115	35	140	380	25	275	290	440	80	105	310	305
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	14	12	12	14	12	12	14	12	12	14	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.88		1.00	0.86		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1542	1339		3128	1372		1612	2825		1612	1667	1417
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1542	1339		3128	1372		1612	2825		1612	1667	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	128	39	156	422	28	306	322	489	89	117	344	339
RTOR Reduction (vph)	0	118	0	0	242	0	0	12	0	0	0	235
Lane Group Flow (vph)	128	77	0	422	92	0	322	566	0	117	344	104
Heavy Vehicles (%)	15%	15%	15%	10%	10%	10%	10%	15%	15%	10%	5%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	13.1	17.5		18.8	23.2		25.9	47.6		12.6	34.3	34.3
Effective Green, g (s)	12.1	17.5		17.8	23.2		25.9	47.6		12.6	34.3	34.3
Actuated g/C Ratio	0.11	0.16		0.16	0.21		0.23	0.43		0.11	0.31	0.31
Clearance Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)	167	210		499	285		374	1206		182	513	436
v/s Ratio Prot	0.08	0.06		c0.13	c0.07		c0.20	0.20		0.07	c0.21	
v/s Ratio Perm												0.07
v/c Ratio	0.77	0.37		0.85	0.32		0.86	0.47		0.64	0.67	0.24
Uniform Delay, d1	48.3	42.0		45.5	37.5		41.1	22.9		47.3	33.7	28.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.0	0.8		12.3	3.0		17.8	0.3		6.7	6.8	1.3
Delay (s)	66.3	42.8		57.8	40.4		58.9	23.2		54.0	40.5	30.1
Level of Service	E	D		E	D		E	C		D	D	C
Approach Delay (s)		52.1			50.1			36.0			38.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	42.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	111.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	925	35	15	695	25	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1028	39	17	772	28	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	560					
pX, platoon unblocked			0.88		0.88	0.88
vC, conflicting volume			1067		1853	533
vC1, stage 1 conf vol					1047	
vC2, stage 2 conf vol					806	
vCu, unblocked vol			814		1703	211
tC, single (s)			5.3		6.9	8.0
tC, 2 stage (s)					5.9	
tF (s)			2.8		3.6	3.9
p0 queue free %			96		89	90
cM capacity (veh/h)			463		260	576

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	685	381	17	772	83
Volume Left	0	0	17	0	28
Volume Right	0	39	0	0	56
cSH	1700	1700	463	1700	410
Volume to Capacity	0.40	0.22	0.04	0.45	0.20
Queue Length 95th (ft)	0	0	3	0	19
Control Delay (s)	0.0	0.0	13.1	0.0	16.0
Lane LOS			B		C
Approach Delay (s)	0.0		0.3		16.0
Approach LOS					C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	965	10	40	700	10	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1072	11	44	778	11	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	950					
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			1083		1944	542
vC1, stage 1 conf vol					1078	
vC2, stage 2 conf vol					867	
vCu, unblocked vol			897		1842	303
tC, single (s)			4.9		6.9	7.7
tC, 2 stage (s)					5.9	
tF (s)			2.6		3.6	3.7
p0 queue free %			91		95	93
cM capacity (veh/h)			502		230	544

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	715	369	44	778	50
Volume Left	0	0	44	0	11
Volume Right	0	11	0	0	39
cSH	1700	1700	502	1700	418
Volume to Capacity	0.42	0.22	0.09	0.46	0.12
Queue Length 95th (ft)	0	0	7	0	10
Control Delay (s)	0.0	0.0	12.9	0.0	14.8
Lane LOS			B		B
Approach Delay (s)	0.0		0.7		14.8
Approach LOS					B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	35	105	955	45	120	705
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	117	1061	50	133	783
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2136	556			1111	
vC1, stage 1 conf vol	1086					
vC2, stage 2 conf vol	1050					
vCu, unblocked vol	2136	556			1111	
tC, single (s)	7.0	7.2			4.5	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.4	
p0 queue free %	76	74			75	
cM capacity (veh/h)	161	443			530	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	156	707	404	133	783
Volume Left	39	0	0	133	0
Volume Right	117	0	50	0	0
cSH	308	1700	1700	530	1700
Volume to Capacity	0.50	0.42	0.24	0.25	0.46
Queue Length 95th (ft)	67	0	0	25	0
Control Delay (s)	28.0	0.0	0.0	14.1	0.0
Lane LOS	D			B	
Approach Delay (s)	28.0	0.0		2.0	
Approach LOS	D				

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	195	25	645	415	10	630
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	217	28	717	461	11	700
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1439	717			717	
vC1, stage 1 conf vol	717					
vC2, stage 2 conf vol	722					
vCu, unblocked vol	1439	717			717	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.4			2.2	
p0 queue free %	38	93			99	
cM capacity (veh/h)	348	421			893	

Direction, Lane #	NB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	244	717	461	11	700
Volume Left	217	0	0	11	0
Volume Right	28	0	461	0	0
cSH	355	1700	1700	893	1700
Volume to Capacity	0.69	0.42	0.27	0.01	0.41
Queue Length 95th (ft)	122	0	0	1	0
Control Delay (s)	34.8	0.0	0.0	9.1	0.0
Lane LOS	D			A	
Approach Delay (s)	34.8	0.0		0.1	
Approach LOS	D				

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection: 1: Gekeler Lane & US 30

Movement	SE	SE	NW	NW	NE	NE
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	238	59	170	220	162	149
Average Queue (ft)	91	17	101	74	74	43
95th Queue (ft)	190	47	164	161	138	100
Link Distance (ft)	523			434		368
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200	200		200	
Storage Blk Time (%)	0			0	0	
Queuing Penalty (veh)	0			0	0	

Intersection: 2: McAlister Road & US 30

Movement	NB	SB	SB	SB	SE	SE	SE	B26	NW	NW	NW
Directions Served	LTR	L	T	R	L	T	R	T	L	T	R
Maximum Queue (ft)	91	222	480	182	222	627	48	125	19	302	223
Average Queue (ft)	27	163	96	64	165	179	3	12	2	134	58
95th Queue (ft)	67	248	378	123	256	468	34	124	12	243	157
Link Distance (ft)	606		1394			590		2643		450	
Upstream Blk Time (%)						2					
Queuing Penalty (veh)						11					
Storage Bay Dist (ft)		200		200	200		200		200		200
Storage Blk Time (%)		8		0	12	1				2	0
Queuing Penalty (veh)		19		0	39	1				6	0

Intersection: 3: North Truck Stop Driveway & US 30

Movement	NW	NE
Directions Served	L	LR
Maximum Queue (ft)	70	138
Average Queue (ft)	10	52
95th Queue (ft)	42	106
Link Distance (ft)		257
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	200	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: South Truck Stop Driveway & US 30

Movement	SE	NW	NE
Directions Served	T	L	LR
Maximum Queue (ft)	9	104	103
Average Queue (ft)	0	22	35
95th Queue (ft)	5	70	75
Link Distance (ft)	335		160
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)		200	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Bond Lane (West) & US 30

Movement	NB	SE	SE	NW
Directions Served	LR	T	R	L
Maximum Queue (ft)	267	5	18	138
Average Queue (ft)	83	0	1	43
95th Queue (ft)	189	4	8	99
Link Distance (ft)	1060	459		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			200	200
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 6: I-84 Eastbound Ramps & US 30-OR203/US 30

Movement	NB	NW
Directions Served	LR	L
Maximum Queue (ft)	211	32
Average Queue (ft)	87	2
95th Queue (ft)	175	15
Link Distance (ft)	470	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		200
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: US 30-OR203 & Bond Lane (East)

Movement	SE	SW
Directions Served	L	LR
Maximum Queue (ft)	32	46
Average Queue (ft)	7	18
95th Queue (ft)	27	42
Link Distance (ft)		1200
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	200	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: I-84 Westbound Ramps & OR 203/US 30-OR203

Movement	NB	SE	SE	NW	NW
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	91	16	59	43	10
Average Queue (ft)	56	1	2	7	0
95th Queue (ft)	87	11	21	30	7
Link Distance (ft)	29	357			1310
Upstream Blk Time (%)	56				
Queuing Penalty (veh)	53				
Storage Bay Dist (ft)			300	200	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Elkhorn Drive & US 30

Movement	SE	NW	NE	NE
Directions Served	R	L	L	R
Maximum Queue (ft)	5	35	139	62
Average Queue (ft)	0	10	50	31
95th Queue (ft)	4	33	102	55
Link Distance (ft)				383
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	200	200	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Elkhorn Drive Extension & US 30

Movement	NW	NE	NE
Directions Served	L	L	R
Maximum Queue (ft)	35	68	62
Average Queue (ft)	5	24	16
95th Queue (ft)	24	54	44
Link Distance (ft)			591
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	200	200	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Prospect Drive & Gekeler Lane

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	61	110
Average Queue (ft)	7	49
95th Queue (ft)	35	84
Link Distance (ft)	161	510
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: McAlister Road & Frontage Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	68
Average Queue (ft)	14
95th Queue (ft)	47
Link Distance (ft)	380
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 1: Gekeler Lane & US 30

Movement	SE	SE	NW	NW	NE	NE	B22
Directions Served	T	R	L	T	L	R	T
Maximum Queue (ft)	488	222	224	338	209	309	55
Average Queue (ft)	238	36	146	157	107	101	4
95th Queue (ft)	459	129	230	290	193	239	41
Link Distance (ft)	523			434		368	160
Upstream Blk Time (%)	3			0		2	0
Queuing Penalty (veh)	0			1		7	1
Storage Bay Dist (ft)		200	200		200		
Storage Blk Time (%)	12	0	2	2	1	3	
Queuing Penalty (veh)	8	0	15	4	2	5	

Intersection: 2: McAlister Road & US 30

Movement	NB	SB	SB	SB	SE	SE	SE	B26	NW	NW	NW
Directions Served	LTR	L	T	R	L	T	R	T	L	T	R
Maximum Queue (ft)	544	224	1433	224	225	713	225	2658	224	461	225
Average Queue (ft)	293	213	1029	143	215	671	26	2473	105	244	95
95th Queue (ft)	505	245	1790	247	243	690	140	3240	219	448	236
Link Distance (ft)	626		1394			590		2643		450	
Upstream Blk Time (%)			10			60		41		4	
Queuing Penalty (veh)			0			559		383		35	
Storage Bay Dist (ft)		200		200	200		200		200		200
Storage Blk Time (%)		40	0	8	52	21	0		6	10	0
Queuing Penalty (veh)		143	0	35	309	86	0		43	45	2

Intersection: 3: North Truck Stop Driveway & US 30

Movement	SE	NW	NW	NE
Directions Served	T	L	T	LR
Maximum Queue (ft)	7	128	295	278
Average Queue (ft)	0	13	32	129
95th Queue (ft)	5	57	176	276
Link Distance (ft)	450		335	257
Upstream Blk Time (%)			2	13
Queuing Penalty (veh)			16	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)			3	
Queuing Penalty (veh)			0	

Intersection: 4: South Truck Stop Driveway & US 30

Movement	SE	SE	NW	NW	NE
Directions Served	T	R	L	T	LR
Maximum Queue (ft)	21	12	106	120	122
Average Queue (ft)	1	0	30	15	44
95th Queue (ft)	10	9	80	140	94
Link Distance (ft)	335			459	160
Upstream Blk Time (%)				1	
Queuing Penalty (veh)				7	
Storage Bay Dist (ft)		200	200		
Storage Blk Time (%)				1	
Queuing Penalty (veh)				1	

Intersection: 5: Bond Lane (West) & US 30

Movement	NB	SE	SE	NW	NW
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	1075	28	31	183	138
Average Queue (ft)	724	1	1	69	9
95th Queue (ft)	1265	15	12	144	127
Link Distance (ft)	1060	459			689
Upstream Blk Time (%)	25				0
Queuing Penalty (veh)	0				1
Storage Bay Dist (ft)			200	200	
Storage Blk Time (%)				1	1
Queuing Penalty (veh)				5	1

Intersection: 6: I-84 Eastbound Ramps & US 30-OR203/US 30

Movement	NB	NW	NW
Directions Served	LR	L	T
Maximum Queue (ft)	531	32	40
Average Queue (ft)	496	5	1
95th Queue (ft)	522	23	29
Link Distance (ft)	470		1094
Upstream Blk Time (%)	92		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		200	
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 7: US 30-OR203 & Bond Lane (East)

Movement	SE	SW
Directions Served	L	LR
Maximum Queue (ft)	32	43
Average Queue (ft)	6	18
95th Queue (ft)	25	42
Link Distance (ft)		1200
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	200	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: I-84 Westbound Ramps & OR 203/US 30-OR203

Movement	NB	SE	NW
Directions Served	LR	R	L
Maximum Queue (ft)	100	80	66
Average Queue (ft)	63	9	9
95th Queue (ft)	89	45	37
Link Distance (ft)	29		
Upstream Blk Time (%)	76		
Queuing Penalty (veh)	77		
Storage Bay Dist (ft)		300	200
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Elkhorn Drive & US 30

Movement	SE	SE	B25	NW	NE	NE
Directions Served	T	R	T	L	L	R
Maximum Queue (ft)	382	225	309	51	224	421
Average Queue (ft)	148	19	85	12	131	278
95th Queue (ft)	436	120	299	39	286	531
Link Distance (ft)	299		238			383
Upstream Blk Time (%)	15		8			50
Queuing Penalty (veh)	106		52			0
Storage Bay Dist (ft)		200		200	200	
Storage Blk Time (%)	18	0			31	35
Queuing Penalty (veh)	5	0			32	35

Intersection: 10: Elkhorn Drive Extension & US 30

Movement	SE	SE	B37	NW	NE	NE
Directions Served	T	R	T	L	L	R
Maximum Queue (ft)	435	225	2254	87	225	639
Average Queue (ft)	323	25	1303	23	87	592
95th Queue (ft)	598	140	2921	60	260	685
Link Distance (ft)	335		2237			591
Upstream Blk Time (%)	43		21			93
Queuing Penalty (veh)	337		162			0
Storage Bay Dist (ft)		200		200	200	
Storage Blk Time (%)	44	0			22	77
Queuing Penalty (veh)	25	0			43	153

Intersection: 11: Prospect Drive & Gekeler Lane

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	12	116	238
Average Queue (ft)	0	20	99
95th Queue (ft)	4	75	180
Link Distance (ft)		160	542
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: McAlister Road & Frontage Road

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	136	55	5
Average Queue (ft)	61	4	0
95th Queue (ft)	105	26	4
Link Distance (ft)	569	146	626
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Gekeler Lane & US 30

Movement	SE	SE	NW	NW	NE	NE
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	388	185	221	411	198	198
Average Queue (ft)	173	33	138	148	94	71
95th Queue (ft)	308	99	220	303	169	145
Link Distance (ft)	520			435		543
Upstream Blk Time (%)				0		
Queuing Penalty (veh)				2		
Storage Bay Dist (ft)		200	200		200	
Storage Blk Time (%)	5	0	3	1	0	0
Queuing Penalty (veh)	3	0	19	3	1	0

Intersection: 2: McAlister Road & US 30

Movement	NB	NB	SB	SB	SE	SE	B26	NW	NW	NW
Directions Served	L	TR	L	TR	L	TR	T	L	T	R
Maximum Queue (ft)	202	311	224	1463	225	723	2658	224	394	224
Average Queue (ft)	78	114	221	1424	211	685	2414	104	177	69
95th Queue (ft)	158	255	228	1442	254	706	3235	214	365	195
Link Distance (ft)		621		1403		604	2643		450	
Upstream Blk Time (%)				49		60	38		2	
Queuing Penalty (veh)				0		513	317		17	
Storage Bay Dist (ft)	200		200		200			200		200
Storage Blk Time (%)	0	3	57	8	50	24		5	3	0
Queuing Penalty (veh)	1	4	185	29	273	72		29	14	1

Intersection: 3: North Truck Stop Driveway & US 30

Movement	NW	NW	NE
Directions Served	L	T	LR
Maximum Queue (ft)	78	139	262
Average Queue (ft)	15	18	115
95th Queue (ft)	57	137	275
Link Distance (ft)		335	257
Upstream Blk Time (%)		2	16
Queuing Penalty (veh)		11	0
Storage Bay Dist (ft)	200		
Storage Blk Time (%)		2	
Queuing Penalty (veh)		0	

Intersection: 4: South Truck Stop Driveway & US 30

Movement	SE	NW	NW	NE
Directions Served	T	L	T	LR
Maximum Queue (ft)	7	143	118	147
Average Queue (ft)	0	34	15	44
95th Queue (ft)	5	93	141	99
Link Distance (ft)	335		459	160
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			1	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		0	1	
Queuing Penalty (veh)		1	0	

Intersection: 5: Bond Lane (West) & US 30

Movement	NB	SE	SE	NW	NW
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	655	33	20	138	21
Average Queue (ft)	381	1	1	62	2
95th Queue (ft)	657	15	10	121	18
Link Distance (ft)	1060	459			689
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			200	200	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: I-84 Eastbound Ramps & US 30-OR203/US 30

Movement	NB	NW
Directions Served	LR	L
Maximum Queue (ft)	542	32
Average Queue (ft)	499	4
95th Queue (ft)	525	22
Link Distance (ft)	470	
Upstream Blk Time (%)	94	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		200
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: US 30-OR203 & Bond Lane (East)

Movement	SE	SW
Directions Served	L	LR
Maximum Queue (ft)	31	67
Average Queue (ft)	6	18
95th Queue (ft)	25	50
Link Distance (ft)		1200
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	200	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: I-84 Westbound Ramps & OR 203/US 30-OR203

Movement	NB	SE	NW
Directions Served	LR	R	L
Maximum Queue (ft)	90	69	38
Average Queue (ft)	61	8	7
95th Queue (ft)	89	40	28
Link Distance (ft)	29		
Upstream Blk Time (%)	68		
Queuing Penalty (veh)	64		
Storage Bay Dist (ft)		300	200
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Elkhorn Drive & US 30

Movement	SE	SE	B25	NW	NE
Directions Served	T	R	T	L	LR
Maximum Queue (ft)	208	56	151	61	435
Average Queue (ft)	17	2	3	15	322
95th Queue (ft)	133	36	45	46	529
Link Distance (ft)	299		238		382
Upstream Blk Time (%)	1		0		49
Queuing Penalty (veh)	7		3		0
Storage Bay Dist (ft)		200		200	
Storage Blk Time (%)	2	0			
Queuing Penalty (veh)	0	0			

Intersection: 10: Elkhorn Drive Extension & US 30

Movement	SE	SE	B37	NW	NE	NE
Directions Served	T	R	T	L	L	R
Maximum Queue (ft)	448	225	2087	86	225	651
Average Queue (ft)	298	32	723	26	115	605
95th Queue (ft)	590	159	1966	67	293	636
Link Distance (ft)	335		2249			591
Upstream Blk Time (%)	37		3			94
Queuing Penalty (veh)	249		20			0
Storage Bay Dist (ft)		200		200	200	
Storage Blk Time (%)	39	0			33	67
Queuing Penalty (veh)	19	0			66	116

Intersection: 11: McAlister Road & Frontage Road

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	110	42	12
Average Queue (ft)	59	4	1
95th Queue (ft)	96	24	9
Link Distance (ft)	563	147	621
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Prospect Drive & Gekeler Lane

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	13	92	275
Average Queue (ft)	0	16	100
95th Queue (ft)	6	61	211
Link Distance (ft)		543	537
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: McAlister Road & US 30

Movement	NB	NB	SB	SB	SB	SE	SE	SE	B26	NW	NW	NW
Directions Served	L	TR	L	L	TR	L	T	R	T	L	T	R
Maximum Queue (ft)	223	337	212	224	1031	224	704	150	2661	192	324	224
Average Queue (ft)	115	107	139	170	388	217	676	12	2505	58	128	43
95th Queue (ft)	209	240	223	257	1051	238	692	86	3149	139	249	139
Link Distance (ft)		600			1398		596		2643		431	
Upstream Blk Time (%)					1		59		37		1	
Queuing Penalty (veh)					0		501		312		9	
Storage Bay Dist (ft)	200		200	200		200		200		200		200
Storage Blk Time (%)	2	2	2	7	10	56	14	0		0	2	0
Queuing Penalty (veh)	4	3	6	22	41	308	56	0		2	9	1

Oregon Department of Transportation

Transportation Development Branch

Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	US 30	**Minor Street:**	Gekeler Lane
Project:	La Grande TSP Amend.	**City/County:**	La Grande
Year:	2031	**Alternative:**	PM Peak- Existing Zoning

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
Case B: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

		100 percent of standard warrants
x		70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	6,200	9,750	
	Minor	1	1,850	1,150	No
Case B	Major	1	9,300	9,750	
	Minor	1	950	1,150	Yes

Analyst and Date: 11/10/11 | Reviewer and Date:

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigation must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

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

Oregon Department of Transportation

Transportation Development Branch

Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	US 30	**Minor Street:**	McAlister Road
Project:	La Grande TSP Amend.	**City/County:**	La Grande
Year:	2031	**Alternative:**	PM Peak- Existing Zoning

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
Case B: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

		100 percent of standard warrants
x		70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	6,200	11,300	Yes
	Minor	1	1,850	3,500	
Case B	Major	1	9,300	11,300	Yes
	Minor	1	950	3,500	

Analyst and Date: 11/10/11 | Reviewer and Date:

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigation must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

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

JRW
1-31-12

Exhibit 7-25 Preliminary Traffic Signal Warrant Analysis Form

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street: OR 30	**Minor Street:** I-84 EB OFF RAMP
Project: LA GRANDE TSP Amend.	**City/County:** UNION
Year: 2012	**Alternative:**

Preliminary Signal Warrant Volumes

Number of Approach Lanes		ADT on Major Street Approaching From Both Directions		ADT on Minor Street, Highest Approaching Volume	
Major Street	Minor Street	Percent of Standard Warrants		Percent of Standard Warrants	
		100	70	100	70
Case A: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
Case B: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250
	5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)				
	100 percent of standard warrants				
	70 percent of standard warrants[2]				

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	6200	13,100	YES
	Minor	1	1850	2000	YES
Case B	Major	1	9300	13100	YES
	Minor	1	1350	2000	YES
Analyst and Date:			Reviewer and Date: Jeff Wise, 1-25-12		

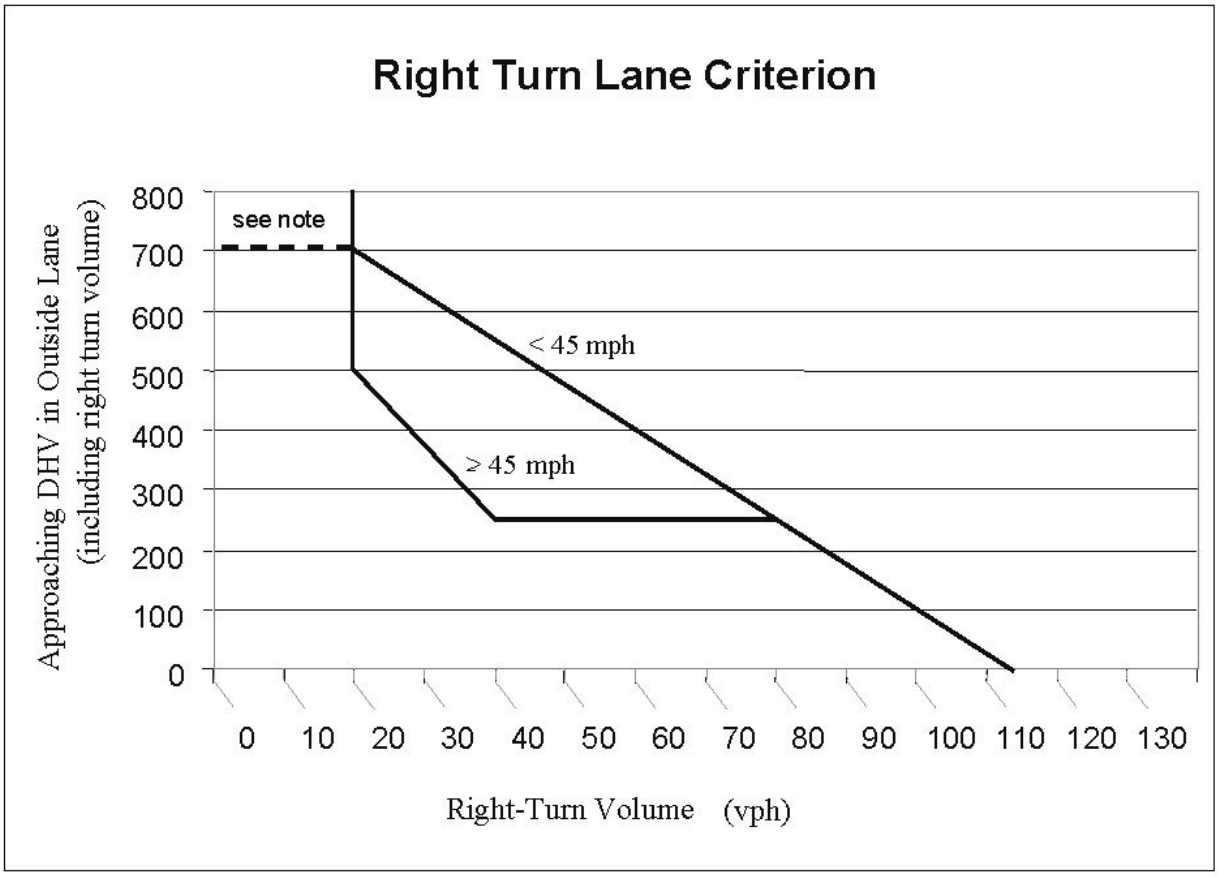
[1] Meeting preliminary signal warrants does not guarantee that a signal will be installed. When preliminary signal warrants are met, project analysts need to coordinate with Region Traffic to initiate the traffic signal engineering investigation as outlined in the Traffic Manual. Before a signal can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

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

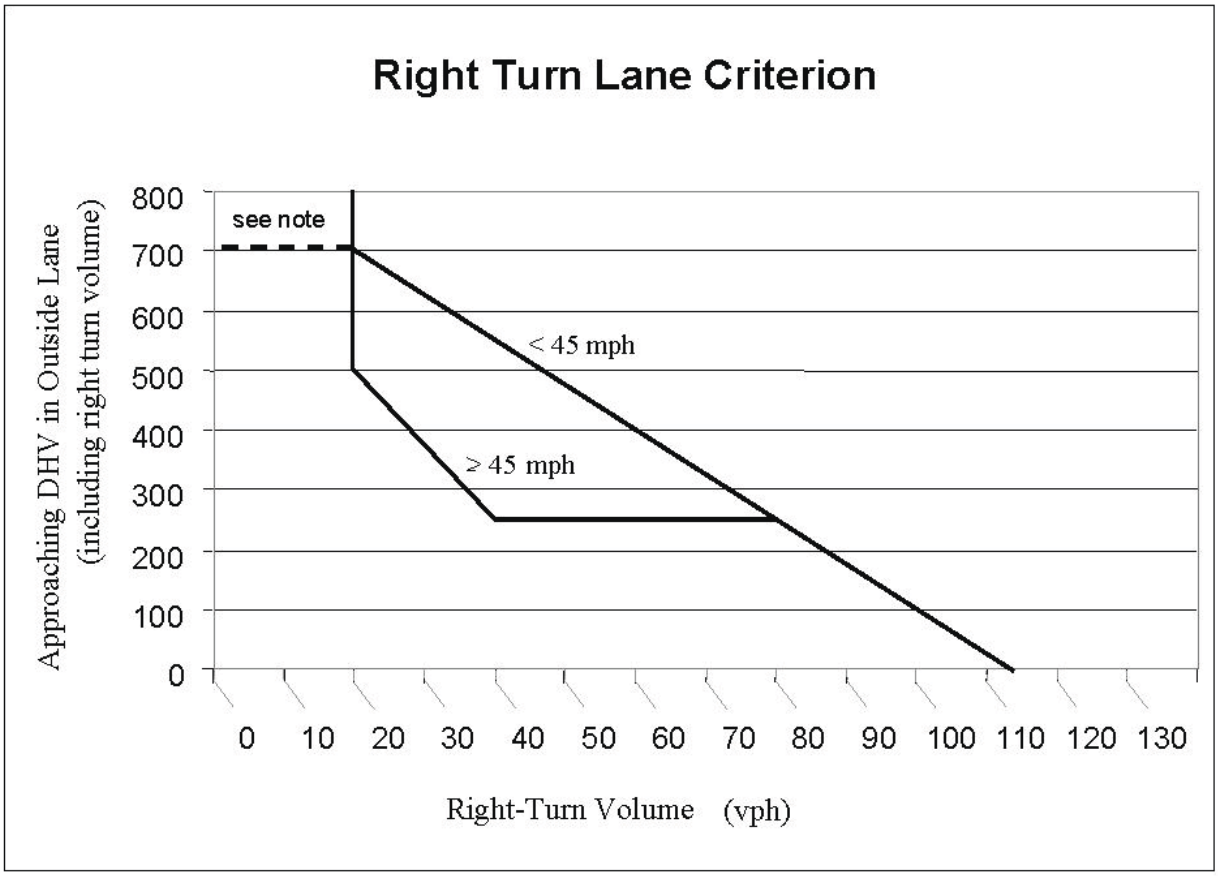
MAJOR
670
+640
1310 PKHR
13,100 ADT

MINOR
200 PKHR
2000 ADT

Volumes From 1-10-12 "Draft Technical Memo" LaGrande TSP Ammendment. Peak Hour Volumes with proposed zoning. Used 70% of Standard Warrant due to current posted speed of 55.



Intersection	US 30/Elkhorn Drive
Scenario	Proposed Zoning Scenario
Approaching DHV in Outside Lane	635
Right-Turn Volume	25
Warrant Met?	Yes



Intersection	US 30/Elkhorn Drive Extension
Scenario	Proposed Zoning Scenario
Approaching DHV in Outside Lane	715
Right-Turn Volume	50
Warrant Met?	Yes

Appendix I:

5.4: Adoption Final Code and Comprehensive Plan Amendments (Otak, 2012)

Memorandum

17355 SW Boones Ferry Rd.
Lake Oswego, OR 97035
Phone (503) 635-3618
Fax (503) 635-5395

To: Michael Boquist, City of La Grande

From: Jennifer Mannhard, AICP, Otak
Tom Litster, Otak

Copies: Cheryl Jarvis-Smith, ODOT TGM Program
John Bosket, DKS Associates

Date: May 25, 2012

Subject: 5.4: Adoption Final Code and Comprehensive Plan Amendments

Project No.: 16063 La Grande TSP Amendment

The City of La Grande recently completed an *Economic Opportunities Analysis Report* (EOA) in order to update the "Goal 9-Economic Development" section of the city's Comprehensive Plan. This analysis identified the amount of land needed to accommodate employment growth for future economic development of the City and Union County over the next 20 years.

According to the EOA, the land needs analysis forecasts a need for 252.5 gross acres of land for commercial and industrial land uses for the 2008-2028 time period. In 2009, 314 acres were added to the City's Urban Growth Boundary to accommodate these planned land uses. At the time, 114 acres of the total 314 were undevelopable, committed, or fully developed and not available as vacant buildable land. The remaining 200 acres satisfied the land need of 252.5 gross acres.

Further, of this forecasted land need, La Grande's economic growth is expected to generate need for a minimum of five industrial sites (210 gross acres) by 2028. The City currently has zero medium or large developable industrial sites. Given the documented site need and existing inventory, the EOA determined La Grande will require one additional "Medium User" industrial site (10-50 acres), one additional "Large User" industrial site (50-100 acres), and one additional "Regional Anchor" industrial site (100+ acres) by 2028.

The purpose of this memorandum is to review current development code policies and provisions, and make recommendations as to zoning and development standards for these new large-lot industrial areas called for under section Goal 9 of the Comprehensive Plan.

Current Policies and Provisions

The City of La Grande's Comprehensive Plan calls for industrial land use in order to provide areas within the city for manufacturing and processing. These activities are essential for the maintenance and growth of employment and the city's economy.

The development code divides industrial land use into three zones as follows:

- *Light Industrial (I-1)* – for the purpose of manufacturing, storage, sorting, and wholesaling distribution.
- *Heavy Industrial (I-2)* – for the purpose of fabrication, processing, and movement of raw materials where the potential impacts of noise, odor, vibration, and/or heat are likely to affect adjacent land uses.
- *Business Park (BP)* – for the purpose of light manufacturing, warehousing, commercial, and office uses in a park-like setting.

In all three zones, lots with existing areas of 2-½ acres or more are governed by a Master Plan in order to "maximize the long-term potential for commercial and industrial employment in accordance with Goal 9 of the Comprehensive Plan." Other property development standards are stated in Chapter 5 (Special Site Standards) of the development code. In addition to these development standards, the Business Park zone also has performance standards that regulate air pollution, incineration, landscaping, lighting, noise, storm water, vibration, and wastes.

Special site standards for industrial properties include provisions for:

- *Building setbacks and yards* – there are no required front, side, or rear yard setbacks except where the property abuts a residential zone, in which case a 20-foot minimum side and rear yard setback is required.
- *Building heights* – the maximum building height is 50 feet in the Light Industrial zone and is 60 feet in the Heavy Industrial zone.
- *Fences, hedges, and walls* – may be constructed to a height of six feet and is required when the property abuts a residential use. Outdoor storage areas must be screened to the height of the stored material but not to exceed 12 feet tall.
- *Landscaping* – five percent of the total developed site area or of an addition's total square footage must be landscaped.
- *Parking and loading* – off-street parking and bicycle parking requirements are listed per use type and range from one space per 400 – 1,000 square feet of gross floor area depending on use.
- *Signs* – most signs are freestanding and have a maximum of 150 square feet and 35-foot height limit with an 8-foot pedestrian clearance. Roof signs are allowed within requirements where no

other sign types provide effective identification. Wall signs are also permitted at a size of three square feet per one lineal foot of building frontage.

Comparison to the Model Code

As a basis of comparison, we reviewed La Grande's industrial provisions against Oregon's Model Development Code & User's Guide for Small Cities, 2nd Edition, published by the Oregon Transportation and Growth Management Program. La Grande's development standards appear to be effective and in support of quality development. Key differences between La Grande's development standards and the Model Code are in the required setbacks, maximum building heights, and landscaping requirements. The Model Code requires larger setbacks, calling for front and rear yard setbacks of 20 feet for heavy industrial and 10 feet for light industrial, as well as a 40-foot rear setback for properties abutting a residential lot. In addition, the Model Code limits building heights for industrial uses to 35 feet. It also calls for landscaping over 0 - 20 percent of the lot area for a heavy industrial uses, and 10 - 20 percent of the lot area for light industrial uses as opposed to the 5 percent required by the La Grande Development Code.

Recommendations:

1. Create a new Large-Lot Industrial (I-3) zone.

   A. PURPOSE: The purpose of this zone is to provide for large areas of land that are needed for medium to large industries with siting demands of 20 acres or greater that engage in indoor/outdoor processes relating to manufacturing, remanufacturing, fabricating, processing, storage and wholesaling distribution of materials, including raw materials; and, where potential impacts of noise, odor, vibration, glare and/or heat are least likely to affect adjacent land uses. The Large Lot Industrial Zone is intended to implement the Goal 9 Chapter of the Comprehensive Plan by drawing on the areas diverse resource base.

   B. PERMITTED USES:
      1. Accessory Uses – Garages, Sheds, and Signs
      2. Agricultural – Storage, Processing, Packaging and Distribution
      3. Automotive and Equipment: Heavy Equipment Manufacturing – Boats, Farm Equipment, Heavy Construction Equipment, Recreational Vehicles or Trailers
      4. Essential Services – Streets, Roads, Alleys, Public Right-Of-Ways, Trails, Pipelines, Power Lines, Distribution Feeders and Poles
      5. General Industrial – Data Centers, Manufacturing, Compounding, Processing, Assembling, Packaging, Treatment or Fabrication of Materials
      6. Heavy Industrial: Processing of Raw Materials (meeting development standards below)
      7. Wholesaling and Distribution: Wholesale Distributors, Including Open Storage in Association with an Authorized Manufacturing Operation.

C. CONDITIONAL USES:
1. Extensive Impact Services and Utilities – Communication Structures, Electrical Transmission Lines, Substations and Electrical Generation Facilities
2. Heavy Industrial: Processing of Raw Materials (uses not meeting development standards below)
3. Solid Waste Transfer Facility

D. PROPERTY DEVELOPMENT STANDARDS:
1. Minimum Lot Area – Large acreage sites as specified in the Goal 9 Policies of the Comprehensive Plan. For all lots, along with subdivisions, partitions and lot line adjustments, an approved Master Plan shall govern proposed uses, development patterns, and parcel sizes. The Master Plan shall be used to maximize the long-term potential for industrial employment in accordance with Goal 9 of the Comprehensive Plan, and shall provide for the maximum use of the lots reasonably feasible consistent with all other applicable requirements of law.
2. Lot Size and Shape - See Chapter 5, Article 5.2.
3. Building Setbacks and Yards - See Chapter 5, Article 5.3.
4. Distance Between Buildings - See Chapter 5, Article 5.3.
5. Building Heights - See Chapter 5, Article 5.4.
6. Fences, Hedges and Walls - See Chapter 5, Article 5.5.
7. Landscaping - See Chapter 5, Article 5.6.
8. Parking and Loading - See Chapter 5, Article 5.7.
9. Signs - See Chapter 5, Article 5.8.
10. Vehicular Access and Circulation - See Chapter 6, Article 6.2.
11. Business Initiation Form – See Chapter 8, Article 8.2.
12. Temporary Use - See Chapter 8, Article 8.3.
13. Heavy Industrial – Processing of Raw Materials as a Permitted Use:

    Where Heavy Industrial Uses can meet the following environmental limitations they can be processed as Permitted Uses. Those Heavy Industrial Uses exceeding the following environmental limitation shall be processed as Conditional Uses listed in subsection C above.

    A. External air emissions and water discharges from the proposed use(s) will not create external or subsurface impacts beyond the subject property boundary.
    B. Noise impacts will not exceed DEQ noise standards measured at the nearest conflicting use(s).
    C. Open burning and on site solid waste disposal would be prohibited.

2. Modify the Business Park (BP) zone.

Permitted and Conditional Uses: The uses should be modified to allow eating and drinking establishments as a permitted use. Also include sales outlets that are accessory to the parent industrial use that resides on the same property or in the same building as a permitted use within the zone.

3. Apply existing Interchange Commercial zoning to specific properties fronting Highway 30 (see Development Alternatives A-C).

4. Model Code provision to consider: The "pedestrian access and circulation" provisions within the Model Code Community Design Standards should be considered to improve the light industrial and business park zones to provide pedestrian connectivity between developments, development phases, or public sidewalks and pathways.

Summary of Development Alternatives

Three conceptual development scenarios have been prepared, illustrating potential lot sizes, configurations and locations for industrial uses included in the proposed I-3 zoning, additional parcels for the La Grande Business Park, and application of the Interchange Commercial zone to properties near the Flying J truck stop (see Figures 2 through 4). Each alternative also provides industrial sites, along with either three or four smaller parcels as additions to the La Grande Business Park. Floor area ratios (FAR) of 0.25 and 0.30 were assumed along with a lot coverage of 80 percent, both of which are typical of this type of development.

In each alternative there are opportunities for new commercial properties along Highway 30, McAlister Road, and Bond Lane. This commercial development would be consistent with the Comprehensive Plan's Goal 9 policies that encourage grouping uses in a manner that facilitates customer involvement with more than one business during a single trip, and locates highway-oriented businesses at arterial intersections.

Each alternative also includes a new Industrial Collector Street connecting Highway 30, by way of McAlister Road, to Gekeler Lane. The last part of this connection would utilize the existing street system of the business park (see Figure 5). Within the proposed right-of-way, stormwater management can be accommodated in bio-swales, similar to the business park. Additional on-site low impact development strategies might be considered and encouraged as part of the city's overall stormwater management plan.

Bicycle connections, including potential trailheads with regional or city-wide significance, can also be accommodated (see Subarea Concept Map and Figure 1). At this time, transit service to these development sites is not anticipated, and transit facilities have not been specifically shown. However, nothing in the proposed location or cross-section of the collector street would prohibit future transit service if warranted by potential ridership levels. At the stop locations, a modification of the bio-swale design would be required to accommodate passenger waiting and boarding.

Each of the new parcels is impacted by the Gekeler Slough, wetlands and areas now deemed not suitable for development (see footnote 1). With regard to meeting the 2009 EOA goals, these features could be seen as limiting the potential for development of industrial uses, which typically

feature large, one-story buildings surrounded by significant amounts of paved parking, loading, and circulation. The Gekeler Slough is a valuable natural resource, and a part of the City's overall stormwater master plan. It should not be compromised or degraded as functioning piece of green infrastructure and potential site amenity for development. The remaining drainageways and wetland areas should be examined during development applications to determine the specific impacts and constraints along with opportunities for acceptable mitigation that is also financially feasible for development interests.

Alternative A. This alternative provides two new industrial sites (Lots 4 and 5) and three additional parcels for the business park (Lots 1-3). The industrial lots are typical configurations for this type of development, but are impacted by non-buildable lands. Lot 5 has limited street frontage and exposure relative to Lot 4. The additional business park parcels are impacted by a remnant drainageway that bisects them, potentially making building and parking configurations difficult. Lot 3 would require a new street for access.

The industrial collector street intersects McAlister Road north of Bond Lane, and north of the existing homestead. This alignment defines an Interchange Commercial parcel north of the collector and second parcel to the south. Additional Interchange Commercial properties are south of Bond Lane and east of Highway 30. The property south of Bond Lane could be developed as an expansion of the Flying J truck stop or complementary uses. This alignment for the collector street would support closing Bond Lane as a Highway 30 access management strategy in order to reduce vehicle conflict points and improve safety.

Alternative B. This alternative illustrates a different configuration for the two industrial sites, and provides four rather than three new business park parcels. Lot 6 is the largest of the industrial lots among the three alternatives; it also has an extensive street frontage. However, this configuration has an internal corner along the south and west property lines that is relatively inefficient for the layout of buildings and parking areas. Lot 5 has limited street frontage and a configuration that would not be optimal for this type of development. Three of the four business park parcels (Lots 2-4) effectively use the drainageway as a boundary between their properties rather than bisecting the developable portions of the property. This maximizes their individual developable areas. This shared drainageway boundary could potentially be used as a low impact development feature, handling stormwater generated by on-site parking areas. Lot 1 remains unchanged from Alternative A.

The alignment of the proposed industrial collector is slightly different than Alternative A. It would require that Bond Lane remain open, and be extended to make the intersection with the proposed collector street. This alignment provides slightly more developable land for Lot 8 of interchange commercial properties, and provides that lot with an additional street frontage.

Alternative C. This alternative is essentially a hybrid of Alternatives A and B, retaining what may be the most beneficial features of those alternatives. Configurations of the industrial lots are more rectilinear, and therefore more typical and adaptable, although it is still impacted by non-buildable lands. The business park lots are more efficiently configured for maximum developable area and Bond Lane could be closed in the future into to improve safety for Highway 30.

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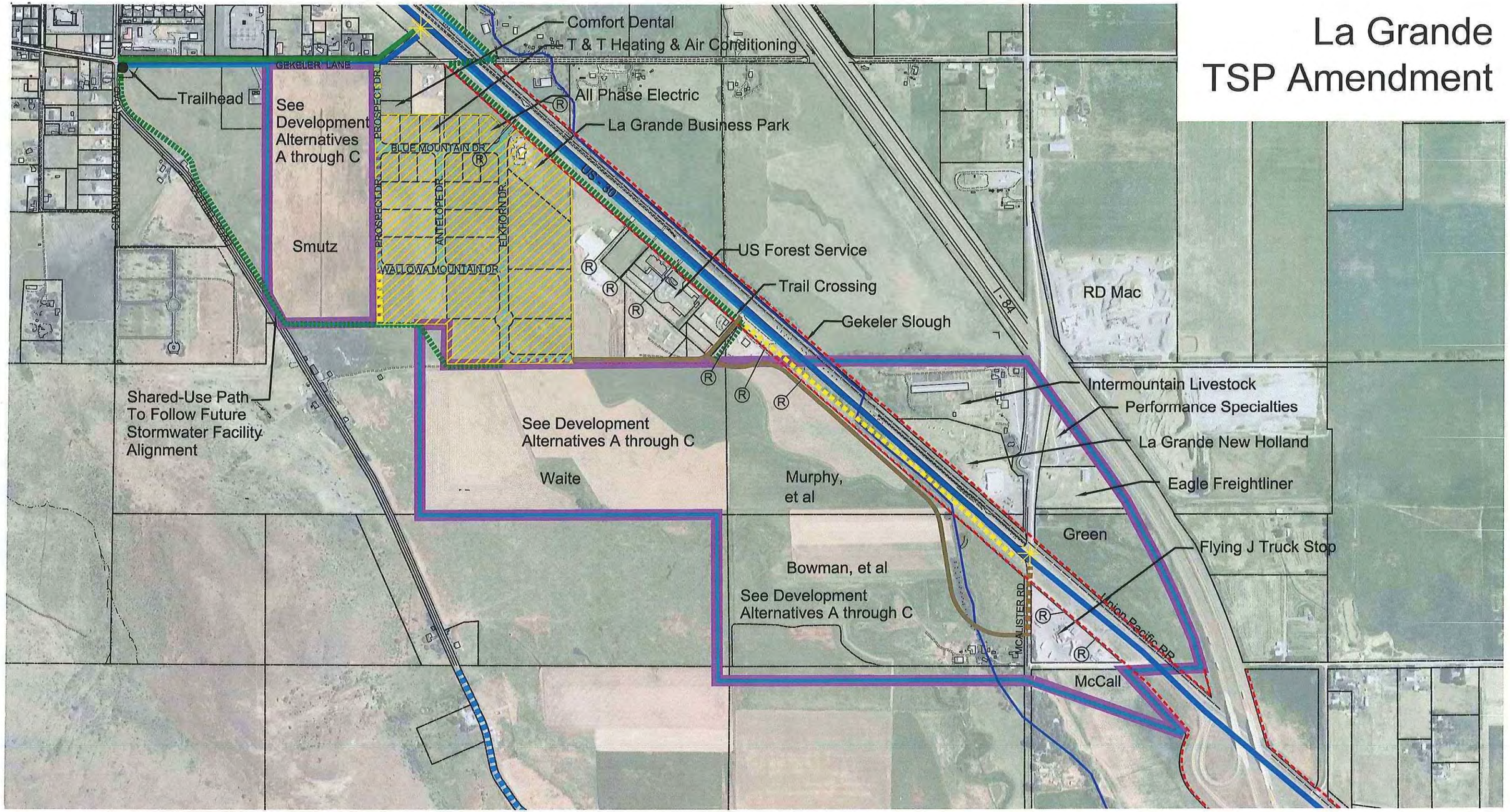

Subarea Concept Map

Legend

- Tax Lots
- City Limits
- Urban Growth Boundry
- Project Boundary
- Existing Sidewalks
- Potential Additional Shared-use Path Alignment
- Planned Shared-Use Path
- Existing Shoulder Bikeway (US 30)
- Potential Bike Lane
- Access Control along US 30
- LaGrande Business Park
- Existing La Grande Business & Technology Street with Sidewalks
- Planned La Grande Business & Technology Street with Sidewalks
- Future Roadway
- Potential Trailhead Location (See Figure 6)
- Future Signal
- Railroad
- Ⓡ Reservation of Access

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FIGURE 1

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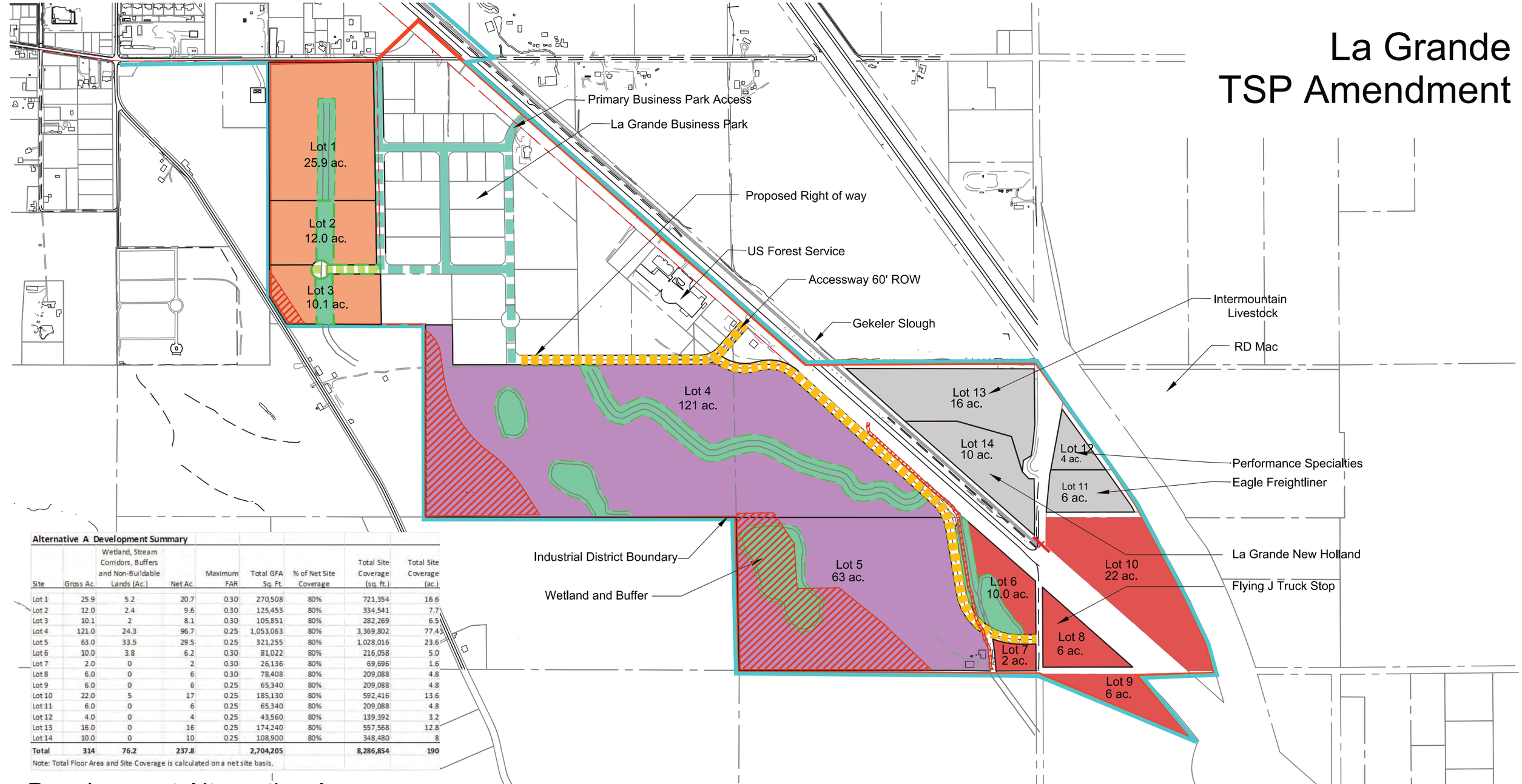

Alternative A Development Summary

Site	Gross Ac.	Wetland, Stream Corridors, Buffers and Non-Buildable Lands (Ac.)	Net Ac.	Maximum FAR	Total GFA Sq. Ft.	% of Net Site Coverage	Total Site Coverage (sq. ft.)	Total Site Coverage (ac.)
Lot 1	25.9	5.2	20.7	0.30	270,508	80%	721,354	16.6
Lot 2	12.0	2.4	9.6	0.30	125,453	80%	334,541	7.7
Lot 3	10.1	2	8.1	0.30	105,851	80%	282,269	6.5
Lot 4	121.0	24.3	96.7	0.25	1,053,063	80%	3,369,802	77.4
Lot 5	63.0	33.5	29.5	0.25	321,255	80%	1,028,016	23.6
Lot 6	10.0	3.8	6.2	0.30	81,022	80%	216,058	5.0
Lot 7	2.0	0	2	0.30	26,136	80%	69,696	1.6
Lot 8	6.0	0	6	0.30	78,408	80%	209,088	4.8
Lot 9	6.0	0	6	0.25	65,340	80%	209,088	4.8
Lot 10	22.0	5	17	0.25	185,130	80%	592,416	13.6
Lot 11	6.0	0	6	0.25	65,340	80%	209,088	4.8
Lot 12	4.0	0	4	0.25	43,560	80%	139,392	3.2
Lot 13	16.0	0	16	0.25	174,240	80%	557,568	12.8
Lot 14	10.0	0	10	0.25	108,900	80%	348,480	8
Total	**314**	**76.2**	**237.8**		**2,704,205**		**8,286,854**	**190**

Note: Total Floor Area and Site Coverage is calculated on a net site basis.

Development Alternative A

Legend

- Tax Lots
- City Limits
- Urban Growth Boundary
- Project Boundary
- Business Park Additions
- Light Industrial
- Heavy Industrial
- Wetland and Stream Corridor Buffer
- Proposed I-3 Zoning
- Interchange Commercial
- Property determined not suitable for development at this time.

Source: Anderson Perry Stormwater Master Plan Update

- Proposed Industrial Collector Street (See Section A)
- Existing La Grande Business and Technology Streets (See Section B)
- Planned La Grande Business and Technology Streets (See Section B)
- Proposed La Grande Business and Technology Streets (See Section B)

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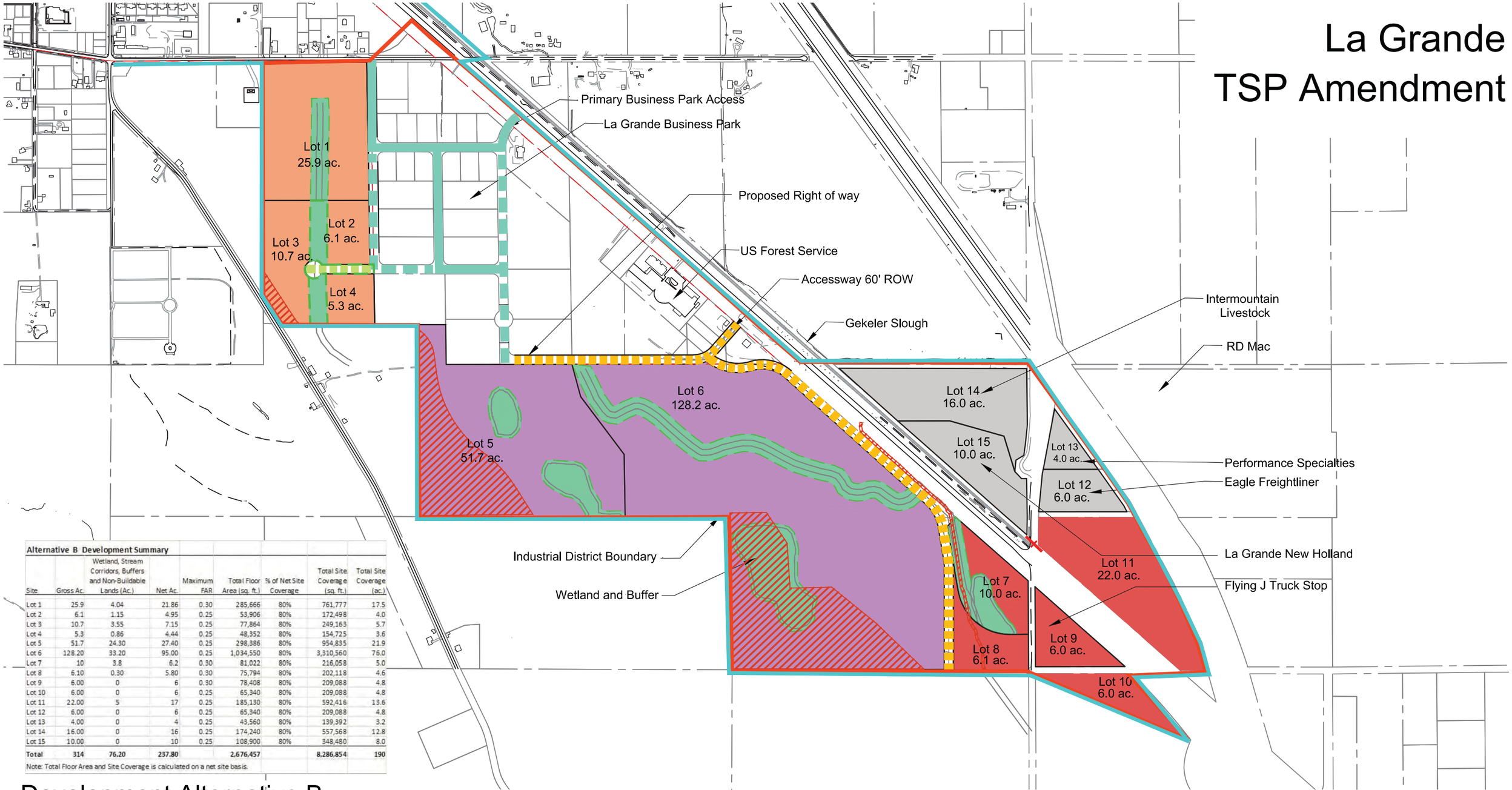
FIGURE 2

La Grande TSP Amendment



Alternative B Development Summary

Site	Gross Ac.	Wetland, Stream Corridors, Buffers and Non-Buildable Lands (Ac.)	Net Ac.	Maximum FAR	Total Floor Area (sq. ft.)	% of Net Site Coverage	Total Site Coverage (sq. ft.)	Total Site Coverage (ac.)
Lot 1	25.9	4.04	21.86	0.30	285,666	80%	761,777	17.5
Lot 2	6.1	1.15	4.95	0.25	53,906	80%	172,498	4.0
Lot 3	10.7	3.55	7.15	0.25	77,864	80%	249,163	5.7
Lot 4	5.3	0.86	4.44	0.25	48,352	80%	154,725	3.6
Lot 5	51.7	24.30	27.40	0.25	298,386	80%	954,835	21.9
Lot 6	128.20	33.20	95.00	0.25	1,034,550	80%	3,310,560	76.0
Lot 7	10	3.8	6.2	0.30	81,022	80%	216,058	5.0
Lot 8	6.10	0.30	5.80	0.30	75,794	80%	202,118	4.6
Lot 9	6.00	0	6	0.30	78,408	80%	209,088	4.8
Lot 10	6.00	0	6	0.25	65,340	80%	209,088	4.8
Lot 11	22.00	5	17	0.25	185,130	80%	592,416	13.6
Lot 12	6.00	0	6	0.25	65,340	80%	209,088	4.8
Lot 13	4.00	0	4	0.25	43,560	80%	139,392	3.2
Lot 14	16.00	0	16	0.25	174,240	80%	557,568	12.8
Lot 15	10.00	0	10	0.25	108,900	80%	348,480	8.0
Total	**314**	**76.20**	**237.80**		**2,676,457**		**8,286,854**	**190**

Note: Total Floor Area and Site Coverage is calculated on a net site basis.

Development Alternative B

Legend

- Tax Lots
- City Limits
- Urban Growth Boundary
- Project Boundary
- Business Park Additions
- Light Industrial
- Heavy Industrial
- Wetland and Stream Corridor Buffer
- Proposed I-3 Zoning
- Interchange Commercial
- Property determined not suitable for development at this time.
  Source: Anderson Perry Stormwater Master Plan Update
- Proposed Industrial Collector Street (See Section A)
- Existing La Grande Business and Technology Streets (See Section B)
- Planned La Grande Business and Technology Streets (See Section B)
- Proposed La Grande Business and Technology Streets (See Section B)

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FIGURE 3

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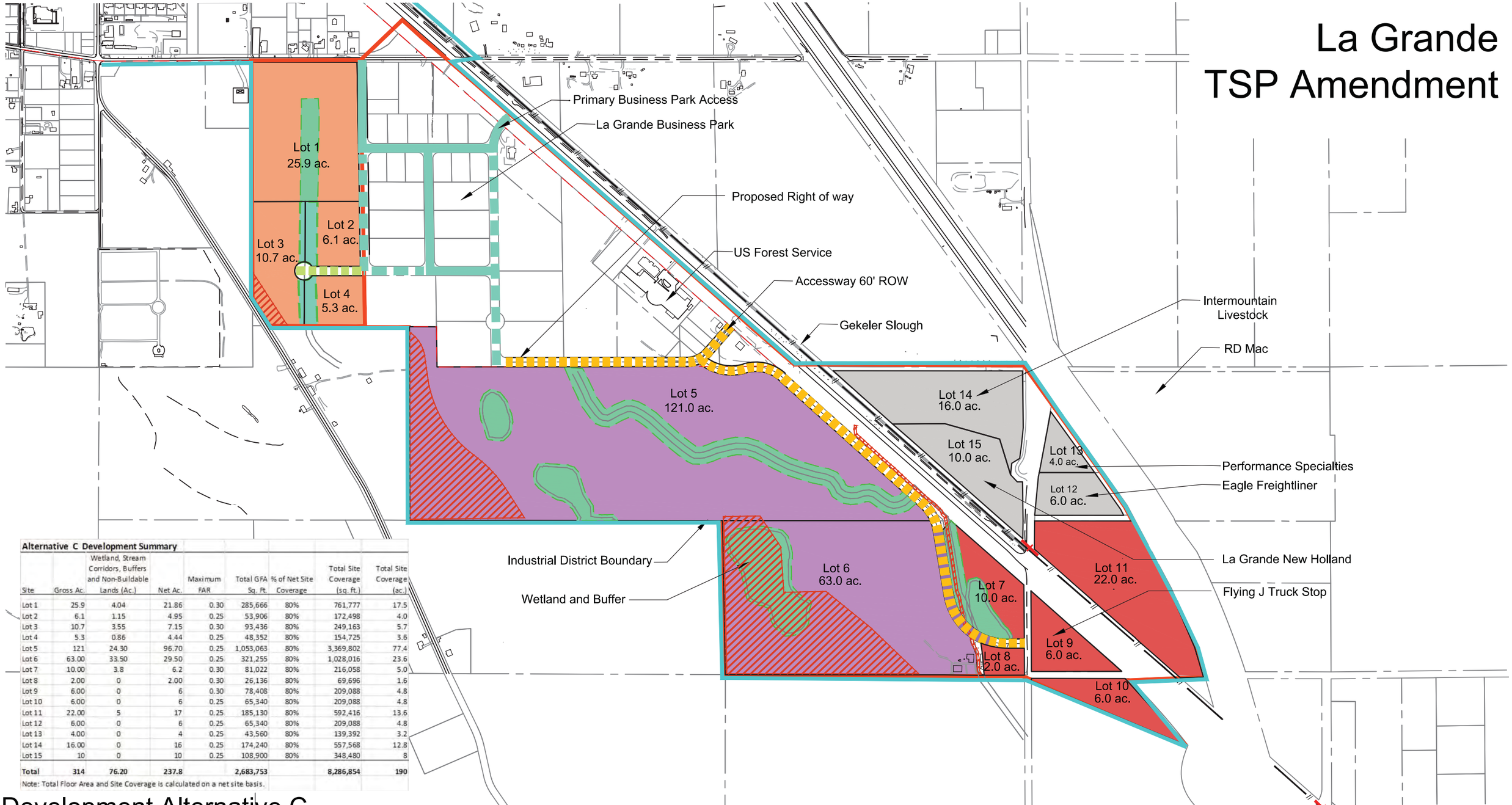

Alternative C Development Summary

Site	Gross Ac.	Wetland, Stream Corridors, Buffers and Non-Buildable Lands (Ac.)	Net Ac.	Maximum FAR	Total GFA Sq. Ft.	% of Net Site Coverage	Total Site Coverage (sq. ft.)	Total Site Coverage (ac.)
Lot 1	25.9	4.04	21.86	0.30	285,666	80%	761,777	17.5
Lot 2	6.1	1.15	4.95	0.25	53,906	80%	172,498	4.0
Lot 3	10.7	3.55	7.15	0.30	93,436	80%	249,163	5.7
Lot 4	5.3	0.86	4.44	0.25	48,352	80%	154,725	3.6
Lot 5	121	24.30	96.70	0.25	1,053,063	80%	3,369,802	77.4
Lot 6	63.00	33.50	29.50	0.25	321,255	80%	1,028,016	23.6
Lot 7	10.00	3.8	6.2	0.30	81,022	80%	216,058	5.0
Lot 8	2.00	0	2.00	0.30	26,136	80%	69,696	1.6
Lot 9	6.00	0	6	0.30	78,408	80%	209,088	4.8
Lot 10	6.00	0	6	0.25	65,340	80%	209,088	4.8
Lot 11	22.00	5	17	0.25	185,130	80%	592,416	13.6
Lot 12	6.00	0	6	0.25	65,340	80%	209,088	4.8
Lot 13	4.00	0	4	0.25	43,560	80%	139,392	3.2
Lot 14	16.00	0	16	0.25	174,240	80%	557,568	12.8
Lot 15	10	0	10	0.25	108,900	80%	348,480	8
Total	**314**	**76.20**	**237.8**		**2,683,753**		**8,286,854**	**190**

Note: Total Floor Area and Site Coverage is calculated on a net site basis.

Development Alternative C

Legend

- Tax Lots
- City Limits
- Urban Growth Boundary
- Project Boundary
- Business Park Additions
- Light Industrial
- Heavy Industrial
- Wetland and Stream Corridor Buffer
- Proposed I-3 Zoning
- Interchange Commercial
- Property determined not suitable for development at this time.
  Source: Anderson Perry Stormwater Master Plan Update
- Proposed Industrial Collector Street (See Section A)
- Existing La Grande Business and Technology Streets (See Section B)
- Planned La Grande Business and Technology Streets (See Section B)
- Proposed La Grande Business and Technology Streets (See Section B)

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FIGURE 4

La Grande TSP Amendment

SECTION A

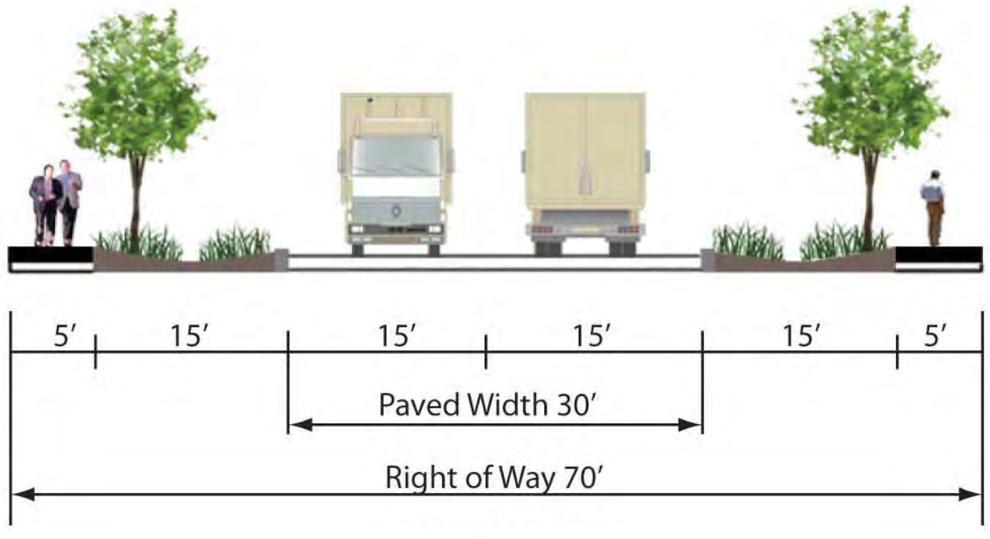
Proposed Industrial Collector Street

*No sidewalk on east side between Elkhorn Drive Extension and McAlister Road

Bioswale at Road with Development

SECTION B

La Grande Business and Technology Street



Shoulder and Bioswale*

Bioswale at Road

Streets and Bioswales

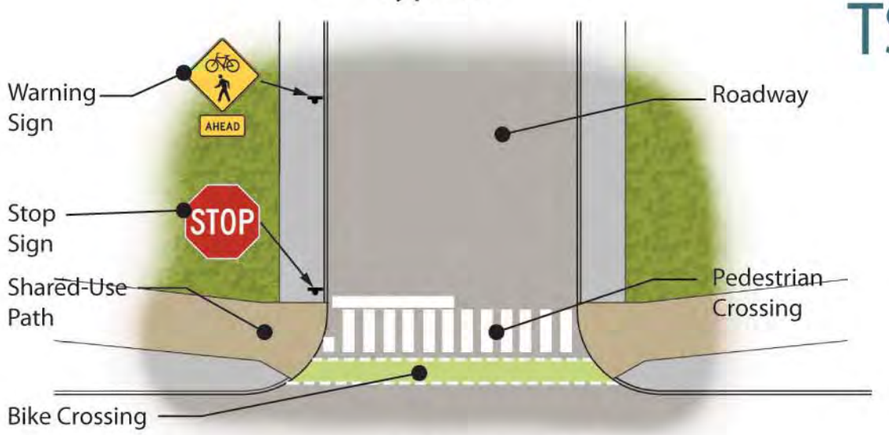
*Image: Benjamin Brink The Oregonian

FIGURE 5

La Grande TSP Amendment

SECTION C
Shared-Use Path

Shared-Use Path Crossing Typical



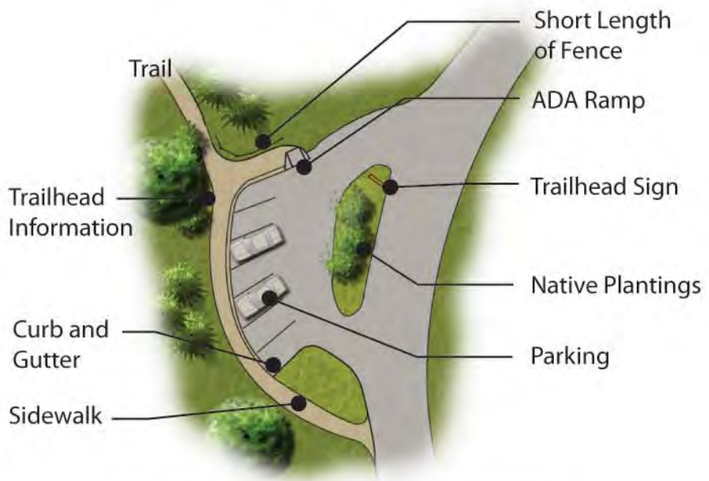
Location(s) to be determined.

Shared-Use Path Crossing*

SECTION D
Shared-Use Path Highway 30

*May be reduced to a minimum of 8′ in physically constrained areas.

Shared-Use Path Trailhead with Small Parking Area



See Sub Area Concept map for locations.

Shared-Use Path*

Trailhead

Shared-Use Paths

*Image: Crossing: California Active Communities, Ryan Snyder; Shared-Use Path: Michael McKisson, tucsonvelo.com

La Grande TSP Amendment

Opportunities at Parking Lots

Employee and Visitor Parking

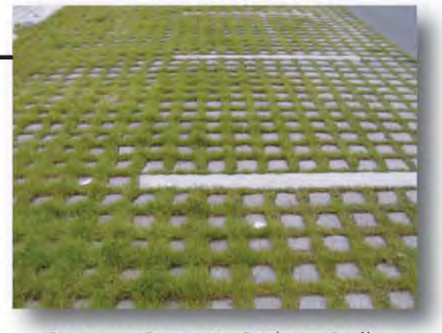
Connect Infiltration Basins Together for Greater Capacity

Employee and Visitor Parking

Deciduous Tree Canopy

Swales between Parking Stalls

Reduce Paving with Smaller Stall Dimensions:
- Standard: 8.5' x 15.5'
- Compact: 7.75' x 13.5'



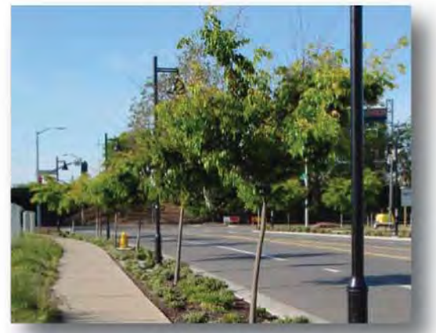
Pervious Pavers in Parking Stalls

Permeable Paving

Stormwater Detention/Treatment

Opportunities at Streets

Curb Cuts Direct Water to Bioswale



Planter Strip

Tree Canopy*

Low-Impact Development for Transportation

*Image: BendBulletin.com

FIGURE 7

Appendix J:

Transportation Improvement Evaluation Matrix

Several evaluation criteria were developed to prioritize the recommended transportation improvements for La Grande. The criteria were applied in an effort to rank projects against each other as an indication of their relative importance. It should be noted that the purpose of this exercise is to understand the relative priority of the transportation improvements, and not to determine the ranking in which projects should be constructed. Funding priorities are difficult to establish with the transportation improvements associated with the UGB expansion area since they are generally tied to new development. Once adjacent sites develop the improvements are needed, regardless of how well particular projects met the evaluation criteria. Specific evaluation criteria used in this Plan include the following:

- Relevance to Project Objectives: How well does the project accomplish project objectives?
- Adequacy of existing facility: Is the existing facility sub-standard or non-existent?
- Estimated Cost: How much is the improvement expected to cost?
- Fundability: How likely would it be for the project to get funding?
- Improvement Complexity: Is the improvement difficult to implement?
- Consensus: Are stakeholders in agreement on the project?
- Expected Usage: How much usage is the improvement expected to receive?

Using the above criteria, the project team ranked each transportation improvements on a scale from one to three, with three being the best and one being the worst.

Table J1: Transportation Improvement Evaluation Matrix

Project #	Project Name	Project Description	Objectives	Need	Cost	Fundable	Complexity	Consensus	Usage	Total
1	Elkhorn Drive Extension to US 30	New Industrial Collector Street (see Figure 9) extension from the Elkhorn Drive/Wallowa Mountain Drive intersection to US 30 near M.P. 4.41. Add a north-eastbound left-turn lane with 300 feet of storage and a north-eastbound right-turn lane at the US 30/Elkhorn Drive Extension Intersection.	3	2	1	1	1	3	3	14
2	US 30 Frontage Road	Construct a frontage road along the southwest side of US 30 connecting the Elkhorn Drive extension to McAlister Road as an Industrial Collector Street (see Figure 9). No sidewalk is required along the side of the road adjacent to the Gekeler Slough.	3	2	1	1	1	1	1	10
3	Prospect Drive Extension	Extend Prospect Drive south from Blue Mountain Drive to Wallowa Mountain Drive. Construct with the La Grande Business and Technology Park cross-section (see Figure 9).	1	2	2	2	2	3	3	15
4	Wallowa Mountain Drive Extension	Extend Wallowa Mountain Drive west from Antelope Drive into sub-area A, west of Prospect Drive. Construct with the La Grande Business and Technology Park cross-section (see Figure 9).	1	2	2	2	2	3	2	14
5	Elkhorn Drive Extension to Wallowa Mountain Drive	Extend Elkhorn Drive south from Blue Mountain Drive to Wallowa Mountain Drive. Construct with the La Grande Business and Technology Park cross-section (see Figure 9).	1	2	2	2	2	3	1	13
6	Intersection of US 30/ Gekeler Lane (West)	Construct a north-eastbound left-turn lane with 175 feet of storage	2	1	3	3	2	2	1	14
7		Construct a south-eastbound right-turn deceleration lane with 100 feet of storage	2	1	3	3	3	1	1	14
8		Install a traffic signal	3	2	3	3	2	2	2	17
9	Intersection of US 30/ Elkhorn Drive	Construct a south-eastbound right-turn lane with 50 feet of storage	2	1	3	3	3	1	1	14
10		Construct a north-westbound left-turn lane with 100 feet of storage. Add a 100-foot shadow area to the northwest leg of the intersection to allow two-stage left-turns from Elkhorn Drive.	3	3	3	3	2	2	1	17
11	Intersection of US 30/	Construct a south-eastbound right-turn lane with 50 feet of storage	3	2	3	3	3	1	1	16

12	Elkhorn Drive Extension	Construct a north-westbound left-turn lane with 100 feet of storage. Add a 100-foot shadow area to the northwest leg of the intersection to allow two-stage left-turns from the Elkhorn Drive Extension.	3	3	3	3	2	2	3	19
13	Intersection of US 30/McAlister Road	Realign the McAlister Road approaches to provide a 90-degree angle with US 30 and re-construct McAlister Road to a Major Collector cross-section south to Bond Lane (West). Add a northbound left-turn lane with 225 feet of storage at the US 30/McAlister Road intersection.	3	3	1	1	1	3	2	14
		Install a traffic signal, interconnected with adjacent railroad crossing.	3	3	3	3	2	3	3	20
		Construct dual 275-foot southbound left-turn lanes. Convert the existing south-eastbound right-turn deceleration lanes to the Flying J Travel Plaza and Bond Lane (West) to shared through-right turn lanes and drop the lane at the US 30/I-84 Eastbound Ramps intersection.	3	3	3	3	1	1	3	17
		Construct a north-westbound right-turn deceleration lane with 150 feet of storage. Widen the north-westbound shoulder on US 30 to accommodate 700 feet of vehicles stopped by train crossings.	3	3	3	3	2	2	3	19
14		Construct a south-eastbound through/right-turn lane with 100 feet of storage.	3	3	3	3	3	1	2	18
15	US 30 Shared-Use Path	Construct a 12-foot wide shared-use path along the southwest side of US 30 from Gekeler Lane (East) to McAlister Road (see Figure 8 for the conceptual alignment and Figure 9 for the cross-section). Incorporate the crossing treatment shown in Figure 9 at driveways and streets. There is an optional shared-use path connection to the US 30 Frontage Road midway between McAlister Road and the Elkhorn Drive extension.	3	3	3	3	3	2	2	19
16	Gekeler to Elkhorn Shared-Use Path	Construct a 12-foot wide shared-use path from the Gekeler Lane (West)/Foothill Road intersection to the Elkhorn Drive Extension. Provide a 12-foot wide shared-use path connector to the south end of Prospect Drive (Figure 8 for the conceptual alignment and Figure 9 for the cross-section). Install a trailhead near the Gekeler Lane/Foothill Road intersection.	3	3	2	2	2	2	1	15