

**I-5 Interchange 33 (Central Point)  
Jackson County**

**Interchange Area Management Plan  
Technical Memorandum #2: Existing Conditions Analysis**

**Prepared for**

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## 2. EXISTING CONDITIONS ANALYSIS

This memorandum provides a summary of the existing transportation system and traffic conditions in the management area. It also discusses land use and environmental resources and identifies potential constraints found within the management area.

### Existing Transportation System Inventory

Interchange 33 is an urban interchange that currently functions as the main access to the City of Central Point in Jackson County as well as providing intermodal access to the Rogue Valley International-Medford Airport and developing industrial areas. The interchange ramps connect with East Pine Street, the primary east-west route through Central Point. Table 2-1 presents a summary of management area roadways and classifications.

**Table 2-1. Management Area Roadway Inventory**

Roadway/ Highway Name	Jurisdiction	ODOT/Federal Functional Classification	City/County Functional Classification	Posted Speed (mph)	No. of Lanes
Interstate 5					
Mainline	ODOT	Interstate, NHS, FR, TR <sup>1</sup>	-	65	4
Interchange 33 Ramps	ODOT	Interstate, NHS, FR, TR <sup>1</sup>	-	-	1-2
East Pine St. <sup>2</sup>					
West of 10 <sup>th</sup> St.	Central Point	Minor Arterial	Minor Arterial	25-35	4-5
10 <sup>th</sup> St. - SB Ramps	Jackson County	Minor Arterial	Principal Arterial	35	5
SB Ramps - Peninger Rd.	ODOT	Minor Arterial, NHS Intermodal Connector <sup>1</sup>	Principal Arterial	35	5
Peninger Rd. to East	Jackson County	Minor Arterial, NHS Intermodal Connector <sup>1</sup>	Intermodal Connector	35-45	5
7 <sup>th</sup> St.	Central Point	Local	Local	25 <sup>3</sup>	2
8 <sup>th</sup> St.	Central Point	Local	Local	25 <sup>3</sup>	2
9 <sup>th</sup> St.	Central Point	Local	Local	25 <sup>3</sup>	2
10 <sup>th</sup> St.	Central Point	Minor Arterial	Minor Arterial	25 <sup>3</sup>	2
Freeman Rd.	Central Point	Minor Arterial	Minor Arterial	35	2
Jewett School Rd.	Central Point	Local	Local	25 <sup>3</sup>	2
Peninger Rd.			-		
North of East Pine St.	Jackson County	Urban Collector/ Rural Major Collector	Urban Collector/ Rural Major Collector	45	2
South of East Pine St.	Central Point	Local	Local	25 <sup>3</sup>	2
Hamrick Rd.					
North of East Pine St.	Jackson County	Minor Arterial	Minor Arterial	40	2
South of East Pine St.	Jackson County	Local	Collector	25 <sup>3</sup>	2

Notes:

1. NHS: National Highway System; FR: State Freight Route; TR: Federally Designated Truck Route
2. The state functional classification maps denote East Pine Street as under state jurisdiction between the northbound and southbound ramp terminals, and under county jurisdiction outside of the ramp terminals.
3. No speed posted on these roadway sections; speed in table reflects default speeds based on functional classification.

The freeway, the interchange ramps, and the portion of East Pine Street east of the interchange are all part of the National Highway System (NHS). The freeway and its ramps are part of the interstate system while East Pine Street is classified as an intermodal connector<sup>1</sup> from I-5 eastward and southward to OR Highway 62 (OR 62).

Jurisdictional responsibility along East Pine Street varies by segment. Central Point maintains jurisdiction west of 10<sup>th</sup> Street. Jackson County maintains jurisdiction east of 10<sup>th</sup> Street except for the section between the southbound ramps and Peninger Road, which falls under ODOT jurisdiction.

The interchange itself has a standard diamond layout with approximately 1,200 feet between the northbound and southbound ramp terminals. The bridge over I-5 is five lanes wide with a sidewalk on the north side and bike lanes on both sides. Both the northbound and southbound ramp terminals have multi-lane approaches to East Pine Street.

The spacing of the ramp terminals and other access points along East Pine Street does not meet the ODOT ¼-mile spacing standard. Peninger Road, is located just 500 feet east of the northbound ramp with one driveway serving the truck stop and another 300 feet east of Peninger Road. East of Bear Creek, some driveway access points are located on the south side of East Pine Street but they are beyond the ¼-mile spacing. Jewett School Road is located just 400 feet from the southbound interchange ramps and the downtown grid system (starting with 10<sup>th</sup> Street) begins another 400 feet to the west of Jewett School Road. Some access control measures have already been implemented in this area so that few driveways connect directly onto East Pine Street.

The other roadways within the management area are largely urban in nature, with sidewalks but no marked bike lanes west of I-5. East of I-5, sidewalks are sparse, and if present, are located on the south side of East Pine Street.

## **Traffic Conditions**

The assessment of traffic conditions includes development of existing traffic volumes, assessment of traffic operations, and a review of historical crash patterns.

### ***Average Daily Traffic Volumes***

The average daily traffic (ADT) volumes for I-5 and the Interchange 33 ramps are currently available for the year 2009. The volumes are summarized in Table 2-2.

Volumes on I-5 are higher south of Interchange 33 than north of the interchange. This is consistent with the ADT volumes on the ramps, which show more traffic traveling to and from the south, towards Medford.

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<sup>1</sup> Intermodal Connectors are highways that provide access between major intermodal facilities and the other four subsystems making up the National Highway System. <http://www.fhwa.dot.gov/planning/nhs/>

**Table 2-2. Average Daily Traffic Volumes**

Location Description	Volume
<b>Interstate 5</b>	
North of Interchange 33	32,700 vpd
South of Interchange 33	34,700 vpd
<b>Interchange 33</b>	
Northbound Off-Ramp	6,100 vpd
Northbound On-Ramp	5,700 vpd
Southbound Off-Ramp	5,600 vpd
Southbound On-Ramp	7,200 vpd

vpd = vehicles per day

Source: 2009 Transportation Volume Tables, Oregon Department of Transportation

Traffic volumes on I-5 have been lower for the last three years than previous years, which is a reflection of the both local and national economic conditions. Volumes on I-5 through the Rogue Valley reached a high in 2006 and were lowest in 2008. The 2009 volumes are 1 to 3 percent higher than 2008 volumes through the Rogue Valley.

### **Turning Movement Counts**

Traffic counts, collected on March 31, April 20, and May 11, 2010, consisted of 16-hour turning movement classification counts<sup>2</sup> on I-5 and at the ramp terminals, three 4-hour turning movement classification counts, and four 4-hour turning movement counts along Pine Street. Table 2-3 below provides a list of all intersection count locations and includes the type of count.

**Table 2-3. Vehicle Count Locations and Types**

Location	Type of Count	Count Date
7th St. & East Pine St.	4-hour (14:00-18:00), turning movement	4/20/2010
8th St. & East Pine St.	4-hour (14:00-18:00), turning movement	4/20/2010
9th St. & East Pine St.	4-hour (14:00-18:00), turning movement	4/20/2010
10th St./Freeman Rd. & East Pine St.	4-hour (14:00-18:00), turning movement, classification	4/20/2010
Jewett School Rd. & East Pine St.	4-hour (14:00-18:00), turning movement	4/20/2010
I-5 SB Ramps & East Pine St.	16-hour (06:00 - 22:00), turning movement, classification	5/11/2010
I-5 NB Ramps & East Pine St.	16-hour (06:00 - 22:00), turning movement, classification	5/11/2010
Peninger Rd. & East Pine St.	4-hour (14:00-18:00), turning movement, classification	4/20/2010
Hamrick Rd. & East Pine St.	4-hour (14:00-18:00), turning movement, classification	4/20/2010
I-5 Mainline South of Interchange 33	16-hour (06:00 - 22:00), directional, classification	3/31/2010

<sup>2</sup> The classification counts included full Federal Highway Administration (FHWA) 13-class vehicle classifications.

The traffic volume data was examined to determine a common peak hour for each of the intersections, which is the one-hour period when the sum of volumes entering at all management area intersections is highest. The common peak hour for the intersections was found to occur between 4:30 and 5:30 PM. The peak hour at each intersection may or may not correspond to the common peak hour.

### ***Design Hourly Volumes***

ODOT generally requires that transportation facilities be analyzed under design hourly volumes (DHVs), known as 30th highest hour volumes. The 30th highest hour volumes are used in traffic operations analysis so that results are valid for all but a few hours of the year. The procedure for determining 30<sup>th</sup> highest hour volumes is specified in ODOT's Analysis Procedures Manual (APM)<sup>3</sup> and briefly described below.

The 30th highest hour traffic volumes are calculated by multiplying the peak hour volumes by a seasonal factor. The seasonal factor is determined from automatic traffic recorders (ATR), which are electronic counting sites on roadways that count vehicles continuously. It is desirable to obtain data from ATRs that either (1) are within the management area or (2) are on similar roadway types or within similar area types. The seasonal factors for the management area use a combination of freeway and other ATR locations that reflect both the commuter characteristics as well as the summer recreational characteristics of the area. The data used in calculating the seasonal factors is included in Appendix A.

Peak hour count data was seasonally adjusted, and volumes were balanced to achieve a uniform dataset for analysis. Because the counts were done in 2010 (the baseline analysis year), an annual growth adjustment was not applied. Figure 2-1 shows the existing balanced PM peak hour volumes developed for this project.

### ***Freight Traffic***

Trucks are a major component of traffic around Interchange 33, especially because of the truck stop located on the south side of East Pine Street just east of Peninger Road. Table 2-4 summarizes the truck percentages from the 16-hour counts at the interchange ramps and the peak hour counts along East Pine Street.

The count data shows that truck traffic as a percentage of overall traffic peaks on the segment of East Pine Street between the interchange and Peninger Street. The 16-hour counts show that 10.2 percent of the total traffic on this segment is truck traffic and that most of these trucks (75 percent) are tractor trailers. Truck traffic percentages are lowest west of the interchange, towards downtown Central Point. Truck percentages also drop off to the east, beyond Peninger Road and continue to diminish east of Hamrick Road. The mix of trucks west

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<sup>3</sup> Analysis Procedures Manual, Oregon Department of Transportation, Transportation Development Division Planning Section, Transportation Planning and Analysis Unit, Salem, Oregon, April, 2006, Section 4.3.

of the interchange and east of Peninger Road is also more evenly split between single unit vehicles and tractor trailers.

**Table 2-4. Truck Percentages on Management Area Roadways**

Location	6:00 AM – 10:00 PM			4:30 PM – 5:30 PM		
	Single Unit	Tractor Trailer	Total	Single Unit	Tractor Trailer	Total
<b>East Pine Street</b>						
West of I-5 Southbound Ramps <sup>1</sup>	1.9%	1.4%	3.2%	0.5%	0.6%	1.1%
On I-5 Overpass <sup>1</sup>	2.2%	4.4%	6.6%	0.9%	2.9%	3.8%
East of I-5 Northbound Ramps <sup>1</sup>	2.5%	7.7%	10.2%	1.4%	5.2%	6.6%
East of Peninger Rd. <sup>2</sup>	-	-	-	2.5%	2.1%	4.6%
East of Hamrick Rd. <sup>2</sup>	-	-	-	1.8%	1.6%	3.5%
<b>Interchange 33 Ramps</b>						
I-5 Southbound Off-Ramp <sup>1</sup>	3.2%	13.9%	17.1%	2.6%	12.8%	15.5%
I-5 Southbound On-Ramp <sup>1</sup>	1.3%	7.0%	8.4%	0.9%	5.8%	6.7%
I-5 Northbound Off-Ramp <sup>1</sup>	1.8%	9.3%	11.1%	1.1%	5.3%	6.4%
I-5 Northbound On-Ramp <sup>1</sup>	2.7%	14.7%	17.5%	2.1%	9.2%	11.3%
<b>I-5 Mainline</b>						
Northbound <sup>3</sup>	2.7%	14.1%	16.8%	4.0%	19.3%	23.3%
Southbound <sup>3</sup>	2.4%	11.8%	14.2%	2.7%	19.0%	21.7%

Notes:

1. 16-hour (6:00-22:00), turning movement, classification collected on May 11, 2010
2. 4-hour (14:00-18:00), turning movement, classification collected on April 20, 2010
3. 16-hour (6:00-22:00), turning movement, classification collected on March 31, 2010

Source: Traffic counts collected March 31, April 20, and May 11, 2010.

Truck percentages are high on the freeway itself as well as on the interchange ramps. The 16-hour counts show that trucks account for 16.8 percent of the northbound freeway traffic and 14.2 percent of the southbound traffic. Trucks on the ramps to and from the north are more than 17 percent of the traffic on the I-5 southbound off-ramp and northbound on-ramp. Truck percentages are slightly lower to and from the south with 8.4 percent on the southbound on-ramp and 11.1 percent on the northbound off-ramp. On the mainline and all of the ramps, tractor trailers comprise between 80 and 85 percent of the trucks.

Similar truck patterns are evident during the peak hour as well although the overall truck percentages are generally lower than those calculated based on the 16-hour count totals. Truck activity generally peaks earlier in the day than overall traffic volumes. Truck peaks also vary during the day, depending on the location and movement. Observed peaks varied from the hour beginning at 6:00 AM to the hour beginning 4:30 PM.

## **Operational Criteria**

Transportation engineers have established various methods for measuring traffic operations of roadways and intersections. Most jurisdictions use either volume-to-capacity (v/c) ratio or level of service (LOS) to establish performance criteria. Both the LOS and v/c ratio concepts require consideration of factors that include traffic demand, capacity of the intersection or roadway, delay, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort, convenience, and operating cost.

### **Volume-to-Capacity (V/C) Ratio**

A comparison of traffic volume demand to intersection capacity is one method of evaluating how well an intersection is operating. This comparison is presented as a v/c ratio. A v/c ratio of less than 1.00 indicates that the volume is less than capacity. When it is closer to zero, traffic conditions are generally good, with little congestion and low delays for most intersection movements. As the v/c ratio approaches 1.00, traffic becomes more congested and unstable, with longer delays.

### **Level of Service (LOS)**

Level of service is also a widely recognized and accepted measure and descriptor of traffic operations. At both stop-controlled and signalized intersections, LOS is a function of control delay, which includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Six standards have been established, ranging from LOS A, where there is little or no delay, to LOS F, where there is delay of more than 50 seconds at unsignalized intersections, or more than 80 seconds at signalized intersections.

It should be noted that, although delays can sometimes be long for some movements at a STOP-controlled intersection, the v/c ratio may indicate that there is adequate capacity to process the demand for that movement. Similarly at signalized intersections, some movements, particularly side street approaches or left turns onto side streets, may experience longer delays because they receive only a small portion of the green time during a signal cycle, but their v/c ratio may be relatively low. For these reasons, it is important to examine both v/c ratio and LOS when evaluating overall intersection operations. Both are reported in the following section.

### **95<sup>th</sup> Percentile Queues**

In addition to the operational criteria that measure intersection performance, it is also important to examine queuing and where demand may exceed available storage. Queues that spill out of storage bays and into adjacent travel lanes impair intersection performance by reducing capacity and creating potential safety concerns. Queues may also extend from one intersection through another upstream intersection which also impairs performance. The 95<sup>th</sup> percentile queue length (meaning 95 percent of all queues will be shorter) is used for this analysis.

## Operational Standards

The Oregon Highway Plan (OHP)<sup>4</sup> has established several policies that enforce general objectives and approaches for maintaining highway mobility. Of these policies, the Highway Mobility Standards (Policy 1F) establish maximum v/c ratio standards for peak hour operating conditions for all highways in Oregon based on the location and classification of the highway segment being examined. The OHP policy also specifies that the v/c ratio standards be maintained for ODOT facilities through a 20-year horizon.

Both Central Point and Jackson County also have established performance standards. Central Point uses performance standards based on LOS while Jackson County standards are based on v/c ratio. The City TSP acknowledges the County's performance standards but includes the note that "all County roads will at some point come under the City's jurisdiction, and as such, the LOS mobility measure is used" in identifying system deficiencies. The County language also states that "where one or more approaches is maintained by a city or ODOT, the more restrictive of the County's or other agency's performance standards will be applied."

The freeway falls under state jurisdiction but jurisdictional responsibility along East Pine Street varies by segment. Central Point maintains jurisdiction west of 10<sup>th</sup> Street and Jackson County maintains jurisdiction east of 10<sup>th</sup> Street except for the section between the southbound ramps and Peninger Road, which falls under ODOT jurisdiction. The resulting operational standards applicable to the freeway and the management area intersections are shown in Table 2-5.

**Table 2-5. Management Area Performance Measures**

Location	Applicable Jurisdictional Performance Measures		
	ODOT <sup>1</sup>	Central Point <sup>2</sup>	Jackson County <sup>3</sup>
I-5 Mainline	V/C ≤ 0.80	-	-
7th St. & East Pine St.	-	LOS D or better	-
8th St. & East Pine St.	-	LOS D or better	-
9th St. & East Pine St.	-	LOS D or better	-
10th St./Freeman Rd. & East Pine St. <sup>4</sup>	-	LOS D or better	V/C ≤ 0.85
Jewett School Rd. & East Pine St. <sup>4</sup>	-	LOS D or better	V/C ≤ 0.85
I-5 SB Ramps & East Pine St.	V/C ≤ 0.85		
I-5 NB Ramps & East Pine St.	V/C ≤ 0.85		
Peninger Rd. & East Pine St. <sup>4</sup>	V/C ≤ 0.90		V/C ≤ 0.85
Hamrick Rd. & East Pine St.			V/C ≤ 0.85

Notes:

1. Table 6: Maximum volume to capacity ratios for peak hour operating conditions, 1999 Oregon Highway Plan, Amendment 05-16.
2. City of Central Point Transportation System Plan, 2008-2030, p. 26.
3. Jackson County Transportation System Plan, Ordinance 2005-3, p. 61.
4. Operations at these locations will be compared with multiple agency performance standards since these intersections involve roadways under one or more jurisdictions.

<sup>4</sup> Table 6: Maximum volume to capacity ratios for peak hour operating conditions, 1999 Oregon Highway Plan, Amendment 05-16, Oregon Department of Transportation.

## **Traffic Operations Analysis Procedures**

All operations were evaluated using the methodology outlined in the *2000 Highway Capacity Manual* (HCM) along with the procedures outlined in ODOT's Analysis Procedures Manual (APM). The Synchro/SimTraffic analysis software was selected to perform the intersection analysis since it can provide the v/c ratio and LOS output of an HCM analysis and consider the systematic interaction of the intersections with regard to queuing and delays.

Synchro is a macroscopic model similar to the Highway Capacity Software (HCS), and like the HCS, is based on the 2000 HCM. The Synchro model explicitly evaluates traffic operations under coordinated and uncoordinated systems of signalized and unsignalized intersections. The v/c ratios and LOS presented in this report are based on the Synchro model output.

SimTraffic animates traffic flow based on input volumes and signal timing and allows viewing of traffic flow under saturated traffic conditions where traffic may spill over from one intersection to another. It is particularly effective at evaluating closely spaced intersections. The SimTraffic model was run multiple times using different arrival patterns to determine how sensitive traffic operations are with subtle variations in traffic flows. The 95<sup>th</sup> percentile queues from the SimTraffic model are also considered in this report.

As noted above, the results from both Synchro and SimTraffic were considered in this document. Because these programs evaluate operations using different methodologies, the analysis results sometimes vary; however, the differences are generally minor unless saturated or congested conditions are present. Under saturated conditions, SimTraffic queuing and delays present results that reflect how congested intersections impact each other, while Synchro represents intersection performance in isolation and may reflect better performance results.

## **Existing Traffic Operations**

Traffic operations were evaluated at the nine management area intersections and the freeway segments where ramp traffic is entering (i.e., merging) or exiting (i.e., diverging) the mainline traffic stream. Operations are described in the following sections and the detailed analysis worksheets are presented in Appendix B.

### **Intersection Operations**

Table 2-6 summarizes the results of the traffic operations analysis and Figure 2-1 presents the v/c ratios and LOS performance by lane group for the area intersections. These findings reflect the signal timing plans recently implemented by ODOT in the East Pine Street corridor.

**Table 2-6. Existing (2010) Design Hour Intersection Operations**

Intersection	Critical Movement	V/C Ratio	LOS	Mobility Standard
7th St. & East Pine St.	SB L/T/R	0.48	E	LOS D
8th St. & East Pine St.	SB L/T/R	0.09	D	LOS D
9th St. & East Pine St.	NB L/T/R	0.12	B	LOS D
10th St./Freeman Rd. & East Pine St.	Overall	0.78	C	0.85/LOS D
Jewett School Rd. & East Pine St.	SB L/T/R	0.28	C	0.85/LOS D
I-5 SB Ramps & East Pine St.	Overall	0.52	A	0.85
I-5 NB Ramps & East Pine St.	Overall	0.53	B	0.85
Peninger Rd. & East Pine St.	Overall	0.71	B	0.85
Hamrick Rd. & East Pine St.	Overall	0.70	C	0.85

Acronyms: For intersection approaches NB = northbound, SB = southbound, EB = eastbound, and WB = westbound. At the intersection approach L = left-turn movement, T = through movement, and R right-turn movement. Some approaches have shared lanes where two or more travel movements may be permitted as indicated with a slash.

Note: Shaded results indicate where mobility standards are not met

Source: *Synchro HCM Intersection Analysis Report*

Only one intersection, 7<sup>th</sup> Street at East Pine Street, has a critical movement that does not meet the applicable mobility standard. The critical southbound approach operates at LOS E during the peak hour because of the relatively high volume of left turns from southbound 7<sup>th</sup> Street to eastbound East Pine Street. The v/c ratio of 0.48 indicates that demand uses less than half the estimated capacity of the approach. Furthermore, a review of the traffic simulation indicates that delays at this intersection may be less severe than the LOS indicates because of gaps in traffic resulting from upstream and downstream traffic signals. Preliminary signal warrants were not evaluated at the unsignalized locations because existing operational deficiencies at these locations are minimal.

A review of Figure 2-1 shows that the overall intersection operations of the Peninger Road/East Pine Street intersection meet the applicable standards but the northbound left-through lane on Peninger Road experiences LOS E conditions with a v/c ratio of 0.86. This minor street approach serves the Pilot Travel Center and has a particularly high (more than 25 percent) volume of tractor-trailers.

The figure also shows that the westbound left-turn movement from East Pine Street to Freeman Road has a v/c ratio of 0.90 and experiences LOS D conditions. Simulations show that this movement often has long queues that extend out of the available storage lane and interfere with the adjacent through travel lane, as discussed below.

Table 2-7 summarizes intersection movements where the calculated 95<sup>th</sup> percentile queues either exceed available storage or extend past the nearest upstream intersection.

**Table 2-7. Existing (2010) 95<sup>th</sup> Percentile Queues Exceeding Available Storage**

Intersection	Approach & Movement	95 <sup>th</sup> Percentile Queue (ft.)	Available Storage	Percent Time Blocked <sup>1</sup>
10th St./Freeman Rd. & East Pine St.	WB L	300	150 <sup>5</sup>	41%
	WB T/R	450	350 <sup>2</sup>	22%
	NB L	150	125 <sup>3</sup>	3%
	SB L	225	100 <sup>3</sup>	16%
Jewett School Rd. & East Pine St.	WB T/R	325	300 <sup>2</sup>	7%
I-5 SB Ramps & East Pine St.	SB R	125	50 <sup>3</sup>	6%
I-5 NB Ramps & East Pine St.	WB R	125	65 <sup>3</sup>	2%
Peninger Rd. & East Pine St.	SB R	75	40 <sup>3</sup>	7%
Hamrick Rd. & East Pine St.	EB L	425	400 <sup>5</sup>	1%

Acronyms: For intersection approaches NB = northbound, SB = southbound, EB = eastbound, and WB = westbound. At the intersection approach L = left-turn movement, T = through movement, and R right-turn movement. Some approaches have shared lanes where two or more travel movements may be permitted as indicated with a slash.

Notes:

1. Percent time block reflects the percentage of time when the queue either extends out of a storage bay and interferes with the adjacent through travel lane or extends past the next upstream intersection.
2. Storage distance reflects spacing to the next public access point.
3. Storage distance reflects length of travel lane or turn bay.
4. Two-way, left-turn lane (TWLTL) without a designated turn bay.
5. Storage distance reflects length of turn bay but TWLTL allows additional storage space.

Source: *Synchro HCM Intersection Analysis Report*

The 10<sup>th</sup> Street/Freeman Rd. intersection has several approaches where the 95<sup>th</sup> percentile queue exceeds available storage and one approach where queues extend through an upstream intersection. The westbound left-turn lane on East Pine Street is striped to provide approximately 150 feet (8 vehicles) of storage but the traffic simulations show that queues frequently extend out of that storage lane. Some drivers may choose to queue up in the two-way, left-turn lane (TWLTL) but others spill into the through travel lane which causes queues to build up in the westbound through lane. These queues can extend past Jewett School Road, as reflected by the queue shown for the westbound through movement at that intersection. The 95<sup>th</sup> percentile queues for the southbound left-turn lane on 10<sup>th</sup> Street also frequently exceeds available turn bay storage.

The southbound right-turn lane on the I-5 southbound ramps at East Pine Street provides approximately 50 feet (2 vehicles) of storage but the traffic simulations show that queues frequently extend beyond the available storage lane and sometimes interfere with the adjacent left-through travel lane.

The westbound right-turn movement on East Pine Street at the I-5 northbound ramps has 95<sup>th</sup> percentile queues that occasionally extend into the adjacent through travel lane. Jackson County has plans to extend this right-turn lane all the way back to Peninger Road.

The southbound right-turn lane on Peninger Road has 95<sup>th</sup> percentile queues that sometimes block the adjacent left-through travel lane. This blockage occurs less than 10 percent of the

time during the PM peak hour but during events at the fairgrounds, long queues on Peninger can be problematic. The planned extension of the right-turn lane on East Pine Street from the I-5 northbound ramp to Peninger Road is intended to relieve this condition.

The left-turn lane on East Pine Street at Hamrick Road is the final location where queues occasionally extend out of the storage bay into the adjacent through travel lane. The very heavy turning volume is almost as great as the through movement on East Pine Street.

### **Merge and Diverge Operations**

It is also important to evaluate how the interchange ramps interact with the mainline highway traffic on I-5 through an analysis of the points where traffic enters or merges onto the highway and where it exits or diverges from the highway. These analyses were conducted in accordance with the methodology prescribed in ODOT's APM to determine v/c ratio performance. The results of the analysis are summarized in Table 2-8.

The merge and diverge analyses for the design hour between 4:30 and 5:30 PM show that the freeway and the merge and diverge points associated with the Interchange 33 ramps are currently operating well below the mobility standard of 0.80. An alternate hour was also analyzed in the southbound direction because the freeway volumes actually peak between 7:00 and 8:00 AM while the northbound peak coincides with the design hour period. The alternate hour analysis also shows that freeway operations meet the state's mobility standard.

**Table 2-8. Existing (2010) Freeway Operations**

Direction/Location	V/C Ratio <sup>1</sup>	
	Design Hour <sup>2</sup>	Alternate Hour <sup>3</sup>
<b><i>I-5 Northbound</i></b>		
Mainline South of IC 33	0.45	NA
Diverge: IC 33 Northbound Off-Ramp	0.33	NA
Mainline between Off and On-Ramps	0.31	NA
Merge: IC 33 Northbound On-Ramp	0.41	NA
Mainline North of IC 33	0.41	NA
<b><i>I-5 Southbound</i></b>		
Mainline North of IC 33	0.26	0.33
Diverge: IC 33 Southbound Off-Ramp	0.14	0.17
Mainline between Off and On-Ramps	0.19	0.25
Merge: IC 33 Southbound On-Ramp	0.30	0.42
Mainline South of IC 33	0.30	0.41

Notes:

1. The v/c ratios for the merge/diverge analysis are calculated based on the methodologies outlined in ODOT's Analysis Procedures Manual.
2. The design hour is the hour between 4:30 and 5:30 PM, which coincides with system peaking.
3. The alternate hour is the highest volume hour occurring on the freeway by direction; the peak volume in northbound direction coincides with the design hour but the peak volume in the southbound direction occurs between 7:00 and 8:00 AM.

Acronyms: IC = Interchange, NA = Not Applicable

## **Crash Analysis**

A crash analysis was conducted to determine whether any significant, documented safety issues exist within the management area and to identify measures at specific locations or general strategies for improving overall safety. As part of the crash analysis, historical crash data were reviewed, intersection and segment crash rates were calculated, and the state's Safety Priority Index System (SPIS) was examined.

### Crash History

The crash analysis included a review of crash history data supplied by the ODOT Crash Analysis and Reporting Unit for the period between January 1, 2006, and December 31, 2008, which were the three most recent full years for which crash data were available at the time of the analysis. The data is summarized in Table 2-9 and the reports are contained in Appendix C.

The ODOT database has 127 crashes in the management area including 22 crashes on mainline I-5. Of these crashes, almost half resulted in an injury although there were no fatal collisions.

For intersections, the rear end collisions (52) were the most common type followed by turning collisions (32). Rear end collisions commonly occur at signalized intersections because so many vehicles are required to stop with signalized traffic control. Turning collisions also occur at signalized intersections, even when protected left-turn phases are included.

The signalized intersections in the management area had the greatest number of collisions, with the exception of Penger Road which had only one recorded crash. The unsignalized intersections had very low crash rates because there are so many fewer vehicles stopping.

The intersection with the greatest number of coded collisions was the I-5 northbound ramps (30); however, some of these crashes may actually be associated with either the Penger Road or the southbound ramps intersections because the coding does not always clearly indicate the exact location in the vicinity of the freeway overpass. The crashes were most frequently rear end or turning collisions but there were also some other types. This is the only location with a pedestrian crash which involved a northbound vehicle turning right onto East Pine Street colliding with a pedestrian in the crosswalk.

The 10<sup>th</sup> Street/Freeman Road intersection had the next greatest number of crashes (29). Most were rear end collisions associated with the northbound approach of Freeman Road at East Pine Street. The cause and error coding for these crashes do not indicate why there are so many collisions on the Freeman Road approach but sharp roadway curvature that begins just 100 feet southeast of East Pine Street may be a contributing factor.

The southbound ramps had 19 crashes that involved mostly rear end and turning collisions.

Hamrick Street had 16 crashes with more turning collisions than rear end collisions; most of the turning collisions involved eastbound vehicles turning north onto Hamrick Road.

**Table 2-9. Management Area Crash Summary (2006-2008)**

Intersection	Total	% of Total	Severity			Crash Type								3-Year Intersection/Segment Crash Rate
			PDO	Injury	Fatal	Rear End	Turning	Angle	Backing	Fixed Object	Sideswipe - Overtaking	Non Collision	Pedestrian	
East Pine St.														
7th St.	1	1%	0	1	0	1	0	0	0	0	0	0	0	0.06
8th St.	1	1%	1	0	0	1	0	0	0	0	0	0	0	0.06
9th St.	2	2%	2	0	0	0	1	1	0	0	0	0	0	0.12
10th St./Freeman Rd.	29	23%	16	13	0	21	4	2	1	0	0	1	0	0.96
I-5 SB Ramps	19	15%	8	11	0	9	6	1	1	1	0	1	0	0.64
I-5 NB Ramps	30	24%	13	17	0	15	11	1	1	0	1	0	1	0.91
Peninger Rd.	1	1%	1	0	0	0	0	0	1	0	0	0	0	0.03
Hamrick Rd.	16	13%	8	8	0	5	10	0	1	0	0	0	0	0.63
Non-Intersection	4	3%	2	2	0	1	2	0	0	1	0	0	0	-
<b>Subtotal</b>	<b>103</b>	<b>81%</b>	<b>51</b>	<b>52</b>	<b>0</b>	<b>53</b>	<b>34</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>4.02</b>
I-5 Ramps (Non-Intersection)														
NB Off-Ramp	1	1%	1	0	0	0	0	0	0	1	0	0	0	-
SB On-Ramp	1	1%	0	1	0	0	0	0	0	0	0	1	0	-
<b>Subtotal</b>	<b>2</b>	<b>2%</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>-</b>
I-5 Mainline														
Northbound	8	6%	6	2	0	2	0	0	0	4	2	0	0	0.18
Southbound	14	11%	7	7	0	3	1	0	0	6	3	1	0	0.30
<b>Subtotal</b>	<b>22</b>	<b>17%</b>	<b>13</b>	<b>9</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0.24</b>
<b>Totals</b>	<b>127</b>	<b>100%</b>	<b>65</b>	<b>62</b>	<b>0</b>	<b>58</b>	<b>35</b>	<b>5</b>	<b>5</b>	<b>13</b>	<b>6</b>	<b>4</b>	<b>1</b>	
Percent of Total Crashes			52%	48%	0%	45%	28%	4%	4%	10%	5%	3%	1%	

Source: ODOT Transportation Development Division, Transportation Data Section, Crash Analysis and Reporting Unit

Six crashes were not associated with intersections but occurred on either East Pine Street or on one of the freeway ramps. The crashes on East Pine Street involved vehicles using driveways or hitting parked vehicles. The crashes on the ramps involved only a single vehicle.

Mainline I-5 had 22 crashes between milepoints 31.5 and 34.5. One half of these crashes involved only a single vehicle while the other half were multi-vehicle crashes, primarily sideswipe overtaking and rear end collisions. Almost 60 percent of the freeway crashes resulted in an injury.

### Crash Rates

Crash rates were calculated for the study area intersections and for the East Pine Street and I-5 mainline segments. At intersections, the crash rate is calculated as the number of crashes per million vehicles entering the intersection. Intersections with a crash rate greater than 1.0

crashes per million entering vehicles (crashes/mev) generally warrant closer investigation but are not necessarily indicative of safety concern. For segments, the crash rate is calculated as the number of crashes per million vehicle miles traveled (crashes/mvm). The East Pine Street corridor is compared to the average rate over the same period for an Urban-Non-Freeway/Minor Arterial while mainline I-5 is compared to Urban-Interstate Freeway.

Two intersections had crash rates approaching the 1.0 threshold. The 10<sup>th</sup> Street/Freeman Road intersection with East Pine Street had an intersection crash rate estimated at 0.96. Most or the reported crashes were rear end collisions associated with the northbound approach of Freeman Road at East Pine Street and, as noted above, may be associated with the sharp roadway curvature that begins just 100 feet southeast of East Pine Street. The I-5 northbound ramps had an intersection crash rate of 0.91. About half of the collisions involved vehicles turning to or from the freeway ramps but the other half involved two vehicles traveling straight on East Pine Street.

The segment crash rate for I-5 in the northbound direction is estimated at 0.18, while the southbound direction is estimated at 0.30. Both northbound and southbound segment crash rates are below the statewide average of 0.54 for a similar facility (urban, interstate freeway).

A segment crash rate was also evaluated for East Pine Street between 7<sup>th</sup> Street and Hamrick Road, a distance of about one mile. Included in the calculation are all the intersection crashes as well as the non-intersection crashes for the segment length. The resulting segment crash rate is approximately 4.02 and in excess of the statewide average for a similar facility (urban, non-freeway/minor arterial) value of 2.51. The shorter length of the segment, presence of four closely-spaced signalized intersections, and inclusion of the I-5 ramp terminals may contribute to the higher crash rate. ODOT has recently implemented new signal timing plans for the East Pine Street corridor which could help reduce the segment crash rate but data is not available to assess the effect of these changes.

### Safety Priority Index System (SPIS)

The SPIS is a method used in Oregon to identify safety problem areas along state highways. Highways are evaluated in approximately one-tenth mile increments (often grouped into larger segments). Each year these segments are ranked by assigning a SPIS score based on the frequency and severity crashes observed, while taking traffic volume into account. When a segment is ranked in the top 10% of the index, a crash analysis is typically warranted and corrective actions are considered. There are no segments identified in the top 10% of the most recent (2008) SPIS rankings within the management area.

## Land Use Summary

This section summarizes existing land use conditions and potential design constraints found within the management area. Figure 2-2 shows the Comprehensive Plan designations for the management area, and Figure 2-3 shows the zoning designations. The information in this section is taken primarily from published documents, maps, GIS data, the Jackson County website, and other Internet websites.

### ***East of Interstate 5***

In general, the area east of I-5 in the management area has tracts of undeveloped and less densely developed land, with pockets of denser development closer to Table Rock Road and a small area adjacent and south of the Interchange. The Jackson County Exposition Park (fairgrounds) occupies the large parcel of land immediately east of I-5 and north of East Pine Street. The fairgrounds are outside of Central Point city limits and thus are under Jackson County jurisdiction. The underlying zoning for the fairgrounds is Rural Residential. The Bear Creek Greenway borders the fairgrounds to the east adjacent to lower-density residential properties and pockets of denser residential areas past the rural residential areas. The eastern edge of the management area north of East Pine Street and adjacent to the City of Medford boundaries is designated industrial. Directly adjacent and along East Pine Street, the zoning is designated commercial and Central Point Tourist and Office (C-4). The C-4 district purpose is to provide tourist and entertainment facilities to serve residents and tourists passing through the area. Adjacent to the Interchange south of East Pine Street are commercial uses that support the traveling public, such as a truck stop, gas stations and hotels with a few undeveloped parcels intermixed. The Bear Creek Greenway also passes through this area, with lands to the east designated industrial.

### ***West of Interstate 5***

The area west of I-5 includes most of Central Point's historical downtown, which has a tighter street grid network and denser development than the west side of I-5. However, there still are pockets of small parcels of undeveloped lots south of East Pine Street between Freeman Road and I-5. East Pine Street itself is a commercial strip with mixed uses a block behind it, followed by residential development that gets less dense as one moves away from the downtown core. Jewett Elementary School is adjacent to I-5 and the southbound off-ramp of the interchange north of East Pine Street. Areas zoned Central Point Tourist (C4) are located adjacent to the southwest and southeast quadrants of Interchange 33, with a smaller area designated at the northwest quadrant adjacent to the elementary school.

Along OR 99, on the western edge of the management area, is a Transit Orientated Development (TOD) district. The intent of the TOD district and corridor is to "promote efficient and sustainable land development and the increased use of transit as required by the Oregon Transportation Planning Rule."

## **Potential Design Constraints**

Within the City of Central Point, transportation improvements within existing right-of-way are permitted outright in any district. Additional standards may apply in the base district if projects include parcels outside of existing right-of-way. Furthermore, transportation projects may need to meet additional permitting requirements other than those associated with the base district zoning such as the Bear Creek Greenway overlay and Historic Preservation overlay. Within the jurisdiction of Jackson County, permitting and design requirements for transportation improvements vary depending on the type of improvement and zoning designation. Overlays with their own criteria and potential constraints in Jackson County include the Bear Creek Greenway, Historic Resources, Archaeological Sites, Floodplain, and Airport Approach (AA) and Airport Concern (AC) Overlays. Further potential topographical and regulatory design restraints are associated with the Bear Creek and Mingus Creek floodplains and wetlands and any other jurisdictional waters in the management area.

## **Community Features**

Community features within the management area are listed below and are shown in Figure 2-3. Jackson County and City of Central Point Zoning Designations Figure 2-4. Features in the area immediately adjacent to the Interchange or I-5 include:

- Jackson County Fairgrounds, 1 Peninger Street
- Rogue Valley Family Fun Center, 1A Peninger Street
- Jewett Elementary School, 1001 Manzanita Street

Community features within or near the management area include:

- Central Point Senior Citizens, 123 North 2nd Street
- City Hall, 140 S. 3rd Street, Central Point
- Central Point Library, 116 S. 3rd Street
- Joel Tanzi Skate Park, 403 South 4th Street, Central Point (.25 acres)
- Robert Pfaff Park, 635 Manzanita Street, Central Point (1.5 acres) Summerfied Park, off Upton Road along the overpass (approximately 2 acres)
- Shepherd of the Valley Catholic Church, 600 Beebe Road
- International Lutheran Laymens, 555 Freeman Road
- Rainbows End Preschool and Daycare, 511 South 4th Street
- Jackson County School District Administrative Offices, 450 South 4th Street
- Central Point Elementary School, 450 South 4th Street, Central Point
- Noah's Ark Early Learning Center, 305 Oak Street
- Grace Church of Central Point, 100 Oak Street
- Hope Christian Church, 325 Oak Street
- Southern Oregon Drug Awareness, 604 South 2nd Street

- Calvary Temple, 513 East Pine Street
- Central Point Assembly, 310 North 10th Street
- Crater School of Business Innovation and Science, 655 North 3rd Street
- Gloria Dei Lutheran Church, 745 North 10th Street
- Sunshine Early Learning Center, 500 North 10th Street

### **Section 4(f) Resources**

Section 4(f) refers to a part of federal law that protects public parks, recreation lands, wildlife and waterfowl refuges, and public or private historic sites. Section 4(f) applies only to Departments of Transportation (DOTs) and their agencies. Highway projects that use public parks must fulfill the requirements of Title 23, USC Section 138, Section 4(f) of the Department of Transportation Act of 1966, as amended.

A “use” that is subject to the provisions of Section 4(f) occurs:

- When land is permanently incorporated into a transportation facility
- When there is a temporary occupancy of land that is adverse in terms of the statute’s preservationist purpose
- When there is constructive use of the land

Federal and statewide transportation departments must demonstrate that a proposed project will not “use” the publicly owned parks and recreation land, where “use” can mean either actual conversion of recreation lands into a transportation use, or a “constructive use,” where off-site impacts of the transportation project substantially impair the site’s vital functions. Findings of “no feasible and prudent alternatives” and “all possible planning to minimize harm” must be well-documented and supported. A feasible alternative is an alternative that is possible to engineer, design, and build. To find that an alternative that avoids a 4(f) resource is not “prudent,” one must find that there are unique problems or unusual factors involved with the use of such an alternative. This means that the cost; the social, economic, and environmental impacts; and/or the community disruption resulting from such alternatives reach extraordinary magnitudes.

Section 4(f) resource lands within the management area consist of the Summerfield Park, Joel Tanzi Skate Park, and Robert Pfaff Park as well as the historic structures discussed previously in “Historic and Archaeological Resources,” and the Bear Creek Greenway. The Bear Creek Greenway, shown in Figure 2-5. Natural Resources, is a linear park that follows the lush Bear Creek streambed from Ashland to Central Point. The multi-use path, which follows the creek within the Bear Creek Greenway, was designated as a National Scenic Trail in 1975 and is part of the Oregon Recreational Trail system. The Bear Creek Greenway is spread out over 600 acres of pristine southern Oregon landscape and will one day include a continuous 21-mile path from Oak Street in Ashland to the Seven Oaks Interchange in Central Point.

In addition, structures eligible or potentially eligible for inclusion on the NRHP within the management area but not yet identified are potential candidates for Section 4(f) status. A Section 4(f) evaluation will require ODOT to assess all reasonable alternatives that adversely affect protected lands. If every potential alternative that can meet the purpose and need for the project would impact some 4(f) property, then the alternative with the least impact must be selected unless it is not feasible and prudent.

## **Natural and Historic Resources**

Environmental conditions are assessed to determine constraints within the management area. Sources of information for this section were primarily from published documents and maps, Geographic Information System (GIS) maps, and conversations with knowledgeable officials from the Oregon Department of Transportation (ODOT) and Jackson County.

### ***Goal 5 Resources***

Statewide Planning Goal 5 requires local jurisdictions to inventory riparian corridors, wetlands, wildlife habitat, scenic waterways, and other natural resources.

Bear Creek, which is indicated in Figure 2-5, is a key riparian resource that provides valuable habitat for wildlife and that spans the management area north to south east of the Interchange. Bear Creek is a tributary of the Rogue River, beginning south of downtown Ashland at the confluence of Emigrant Creek and Neil Creek and flowing north until it converges with the Rogue River near Gold Hill.

To comply with Goal 5 requirements for riparian corridors, the City of Central Point Zoning Ordinance and Jackson County Land Development Ordinance adopted a Bear Creek Greenway district intended to provide for environmental preservation and limited development within the district. Further discussion of Bear Creek is provided in the “Wetlands and Waters” subsection.

### ***FEMA Floodplain/Floodway***

The Federal Emergency Management Agency (FEMA), acting through the local planning authority, regulates development within floodplains. There are two printed FEMA Flood Insurance Rate Map panels that include portions of the management area (Community-Panel No. 4155890402B, 1982, and 4100920001C, 1982). FEMA Map Panel No. 4155890402B documents Bear Creek floodway from north to south just east of the interchange. On the west side of the interchange, FEMA Map Panel No. 4100920001C documents Mingus Creek and its floodway, north to south. Designated flood areas within the management area are listed in Table 2-10. Jackson County-designated Flood Hazard Areas within the management area, corresponding with the FEMA 100-year floodplain, are displayed in Figure 2-5.

**Table 2-10. Federal Emergency Management Agency (FEMA) Designated Flood Areas**

<b>Zone</b>	<b>Description</b>
A-12	Areas of 100-year flood; base flood elevations and no base flood elevation have been determined.
A	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
B	Areas between limits of the 100-year flood and the 500-year flood, or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees for the base flood.
C	Areas of minimal flooding (outside of 500-year floodplain).

Source: Federal Emergency Management Agency

## **Wetlands and Waters**

Bear Creek runs north to south just east of the Interchange. Within the management area, there is a string of freshwater ponds associated with Bear Creek both north and south of East Pine Street. There are also wetlands in these areas. Riverine and Palustrine wetlands are located north of East Pine Street on the west side of Bear Creek, south of East Pine Street on the west bank of Bear Creek, and on the east bank of Bear Creek. There is a small Palustrine wetland located at a point short of where Mingus Creek passes under East Pine Street (see Figure 2-5).

Bear Creek is designated as Essential Salmonid Habitat (ESH) by the Oregon Department of State Lands (DSL). Bear Creek supports runs of Chinook, coho salmon, and steelhead. The U.S. Environmental Protection Agency lists Bear Creek as a “303(d)” stream because of its summer temperatures. Mingus Creek is not designated as ESH or listed as 303(d), nor does it support any salmon or steelhead runs.

## **Threatened and Endangered Species**

The Oregon Natural Heritage Information Center (ORNHIC) database documents the federally listed and state-listed threatened or endangered species. The State of Oregon and the federal government maintain separate lists of Threatened and Endangered (T & E) species. These are species that are determined to be at some degree of risk of becoming extinct. The ORNHIC information, based on reported historical sightings in the vicinity of the management area, is summarized in Table 2-11. One species, the coho salmon, is listed as a threatened species in the area.

**Table 2-11. ORNHIC-Identified Listed, Threatened, or Endangered Species**

Common Name	Scientific Name	Federal Status	State Status
<b>Invertebrate Animal</b>			
Slender meadow-foam	<i>Limnanthes gracilis ssp. gracilis</i>	Species of Concern	-
<b>Vertebrate Animal</b>			
Tricolored blackbird	<i>Agelaius tricolor</i>	Species of Concern	-
Coho salmon (Southern Oregon/Northern California Coasts Evolutionarily Significant Unit [ESU])	<i>Oncorhynchus kisutch pop. 2</i>	Listed Threatened	Vulnerable Sensitive
Steelhead (Klamath Mountains Province ESU, summer run)	<i>Oncorhynchus mykiss pop. 24</i>	-	Vulnerable Sensitive
Chinook salmon (Southern Oregon/Northern California Coast ESU, fall run)	<i>Oncorhynchus tshawytscha pop. 26</i>	-	Vulnerable Sensitive

Source: Oregon Natural Heritage Information Center, 2009

Under federal law, the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) share responsibility for implementing the federal Endangered Species Act (ESA) of 1973 (Public Law 93-205, 16 United States Code [[USC] § 1531), as amended. In general, USFWS has oversight for land and freshwater species, and NOAA has oversight for marine and anadromous species. In addition to information about species already listed, the USFWS Oregon Field Office maintains a list of Species of Concern, as defined below.

Once listed as threatened or endangered, a species is afforded the full range of protections available under the ESA, including prohibitions on killing, harming or otherwise “taking” a species. In some instances, species listing can be avoided by the development of Candidate Conservation Agreements that may remove threats facing the candidate species.

A species is listed by the federal government under one of two categories, endangered or threatened, depending on its status and the degree of threat it faces. An “endangered species” is one that is in danger of extinction throughout all or a significant portion of its range. A “threatened species” is one that is likely to become endangered in the foreseeable future throughout all or a significant portion of its range. “Species of Concern” is an informal term under the federal listing that is not specifically defined in the federal ESA. The term commonly refers to species that are declining or appear to be in need of conservation.

Under state law (ORS 496.171-496.192) the Fish and Wildlife Commission, through the Oregon Department of Fish and Wildlife (ODFW), maintains the list of native wildlife species in Oregon that have been determined to be either “threatened” or “endangered” according to criteria set forth by rule (OAR 635-100-0105). Plant listings are handled through the Oregon Department of Agriculture and follow the same format as federal listing as either threatened, endangered,

or candidate species, while most invertebrate listings are conducted through the Oregon Natural Heritage Program.

Under Oregon's Sensitive Species Rule (OAR 635-100-040), a "sensitive" species classification was created that focuses fish and wildlife management and research activities on species that need conservation attention. "Sensitive" refers to naturally reproducing fish and wildlife species, subspecies, or populations that are facing one or more threats to their populations and/or habitats. Implementation of appropriate conservation measures to address the threats may prevent species, subspecies or populations from declining to the point of qualifying for threatened or endangered status.

Sensitive species are assigned one of two subcategories. "Critical" sensitive species are imperiled with extirpation from a specific geographical area of the state because of small population sizes, habitat loss or degradation, and/or immediate threats. Critical sensitive species may decline to the point of qualifying for threatened or endangered status if conservation actions are not taken. "Vulnerable" sensitive species are facing one or more threats to their populations and/or habitats. Although not currently imperiled with extirpation from a specific geographical area of the state, vulnerable species could, however, become so if there are continued or increased threats to populations and/or habitats.

### ***Air Quality***

Under the 1990 Clean Air Act Amendments, the Rogue Valley (Jackson County, Ashland, Phoenix, Talent, Medford, Jacksonville, Central Point, White City, and Eagle Point) became a nonattainment area for particulate matter (PM<sub>10</sub>). These communities share a common airshed, known as the Medford-Ashland Air Quality Maintenance Area (AQMA). During the 1980s, particulate pollution in the Medford-Ashland AQMA reached some of the highest levels in the nation and violated the federal air quality health standards also known as National Ambient Air Quality Standard (NAAQS). The area was designated a "Nonattainment Area," meaning that the geographic area had not consistently met the clean air levels set by the U.S. Environmental Protection Agency in the NAAQS. After implementation of a plan to reduce particulate pollution, the area within the AQMA was redesignated from non-attainment to attainment in 2005.

Carbon monoxide (CO) emissions from transportation sources are tied exclusively to tailpipe emissions and are generated from the combustion of fuel. Vehicle tailpipes emit the highest concentrations of CO when idling or traveling at low speeds. Emission rates decrease as speeds increase, reaching a minimum rate between 45 miles per hour (mph) and 50 mph, and gradually increase again as the vehicle speed surpasses 50 mph.

Particulate matter (PM) is a complex mixture of extremely small particles and liquid droplets that is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. The EPA monitors particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through

the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. The EPA divides particle pollution into two categories differentiated by size, assigning them a notation of PM<sub>10</sub> or PM<sub>2.5</sub>:

1. PM<sub>10</sub> (larger than 2.5 micrometers and smaller than 10 micrometers in diameter) are coarse particles, generally found near roadways and dusty industries.
2. PM<sub>2.5</sub> (smaller than 2.5 micrometers in diameter) are fine particles that can form when gases that are emitted from power plants, industries, and automobiles react in the air. They are also directly emitted from sources such as forest fires. Essentially, the smaller and lighter the particle is, the longer it will stay in the air.

Analysis by the Rogue Valley Metropolitan Planning Organization (RVMPO) has found that through the horizon of the 2009-2034 Regional Transportation Plan and the 2010 Metropolitan Transportation Improvement Plan (MTIP), and in intervening years, emissions from transportation will not exceed current federal and state air quality standards.

### ***Hazardous Materials***

A search through web-based databases was conducted to review the available federal and state records for identified hazardous waste sites within the management area. The federal databases reviewed include the National Priority List (NPL) and the Comprehensive Environmental National Response, Compensation, and Liability Information System (CERCLIS). Neither of the databases listed any such sites in the management area. The state databases reviewed include the Oregon Department of Environmental Quality (DEQ) Facility Profiler and the Fire Marshal's Database.

The identified hazardous waste sites found in the DEQ Profiler search in the management area are listed and shown geographically in Figure 2-6. The figure lists facilities that are permitted, regulated, and/or have had hazardous materials incidents, by the Oregon DEQ. The identified sites within the management area primarily are either permitted underground storage tanks (USTs) or leaking underground storage tanks (LUSTs) associated with gas stations that may service users of I-5. There are also several hazardous waste generators sites, environmental clean-up sites (ECSI), and air and water quality permitted sites within the management area. Multiple sites listed in the Oregon State Fire Marshal's (OSFM) Hazardous Materials Incidents log were found within the management area and are also geographically displayed on Figure 2-6. The sites include the following substance leaks: gas, propane, hydraulic fluid, and red phosphorus. In general, the hazardous sites appear to be consistent, both in type and quantity, with urbanized interstate corridors. Because the area is urbanized and most of it has been previously disturbed by transportation and other urban uses, more detailed site specific hazardous materials surveys will be necessary once specific transportation improvements are identified.

### ***Historic and Archaeological Resources***

Under Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665), 16 USC 470-470m, and under federal regulations governing the protection of historic and cultural

resources (36 Code of Federal Regulations [CFR] 800), federal agencies, and the state and local agencies to which the federal agency has delegated responsibility, are directed to avoid undertakings that adversely affect properties that are included in or are eligible for inclusion in the National Register of Historic Places (NRHP). The NRHP identifies and documents (in partnership with state, federal, and tribal preservation programs) districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. This section summarizes NRHP resources near the management area, as well as other historic, prehistoric, and cultural resources.

The State Historic Preservation Office (SHPO) database shows that five archaeological surveys have been conducted that either overlap or are completely within the management area. No cultural resources are shown to have been identified within the management area. However, the majority of the management area has not been surveyed for cultural resources.

For the management area, the SHPO database shows historical resources listed on the NRHP and resources that are not listed on the register but are identified as potentially eligible for inclusion on the register or are identified resources but not yet reviewed. The identified resources are:

**Listed on National Register of Historic Places:**

- Central Point Public School, 450 S. 4<sup>th</sup> Street: Constructed – 1908, original use – school, style –Beaux Arts style.
- Welch, Mathias, House, 162 N. 2<sup>nd</sup> Street: Constructed – 1888, original use – single dwelling, style – Italianate.
- Fiero, Conro House “Woodlawn Acres,” 4615 Hamrick Road: Constructed – 1910, original use – single dwelling, style – craftsman (this resources was destroyed by a fire on 01/11/2010).
- Faber, Edward Charles, House, 445 Manzanita Street: Constructed – 1910, original use – single dwelling, style – Queen Anne.
- Merritt, John W., Store and Residence, 117 East Pine Street, Constructed – 1888, original use – Department Store, style – Italianate.

**Listed in Oregon Historic Sites Database as either “undetermined” or “eligible/significant” for listing on Register:**

- Cowley Building, 222 East Pine Street: Constructed – 1911, original use – general commercial, style – not determined.
- Beebe, Adelpia W. and Mary S. House, 718 Beebe Road: Constructed – 1885, original use – farmstead, style – Gothic revival.
- Unnamed Resource, 239 Freeman Road: Constructed – 1920, original use – home, style – Bungalow.
- Central Point Presbyterian Church, 100 Oak: Constructed – 1915, original use – religious facility, style – Craftsman.

There may be additional historical and archeological resources in the management area that have not been identified or entered into the SHPO database, especially considering that the western portion of the management area is in Central Point's historical downtown. Historical and cultural resources surveys by professionals should be conducted during the development of specific transportation improvement projects to ensure there are no impacts to protected resources.

Attachments:

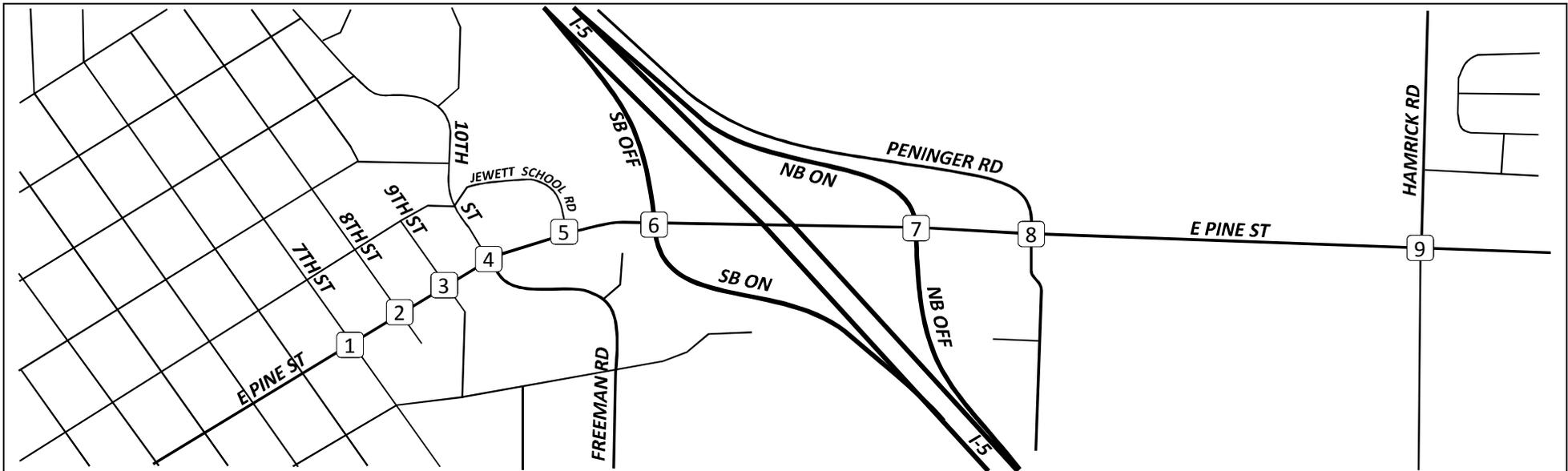
- Figure 2-1. Existing (2010) Design Hour Traffic Volumes and Operations
- Figure 2-2. Jackson County and City of Central Point Comprehensive Plans
- Figure 2-3. Jackson County and City of Central Point Zoning Designations
- Figure 2-4. Community and Historical Resources
- Figure 2-5. Natural Resources
- Figure 2-6. Hazardous Material Sites

Appendix A. Seasonal Adjustment Factors\*

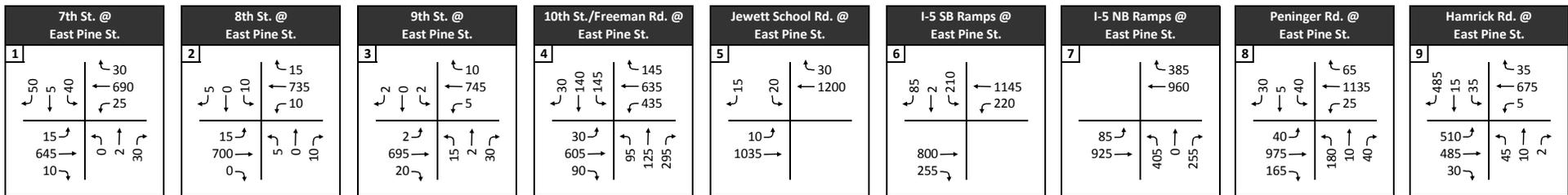
Appendix B. Traffic Operations Worksheets\*

Appendix C. ODOT Crash Analysis Reports (January 1, 2005 through December 31, 2007)\*

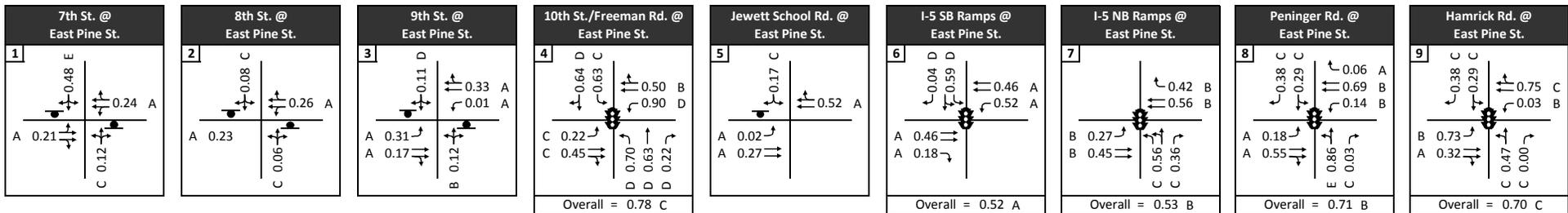
\*Available upon request



**Existing (2010) Design Hourly Volumes**



**Existing (2010) Traffic Operations**



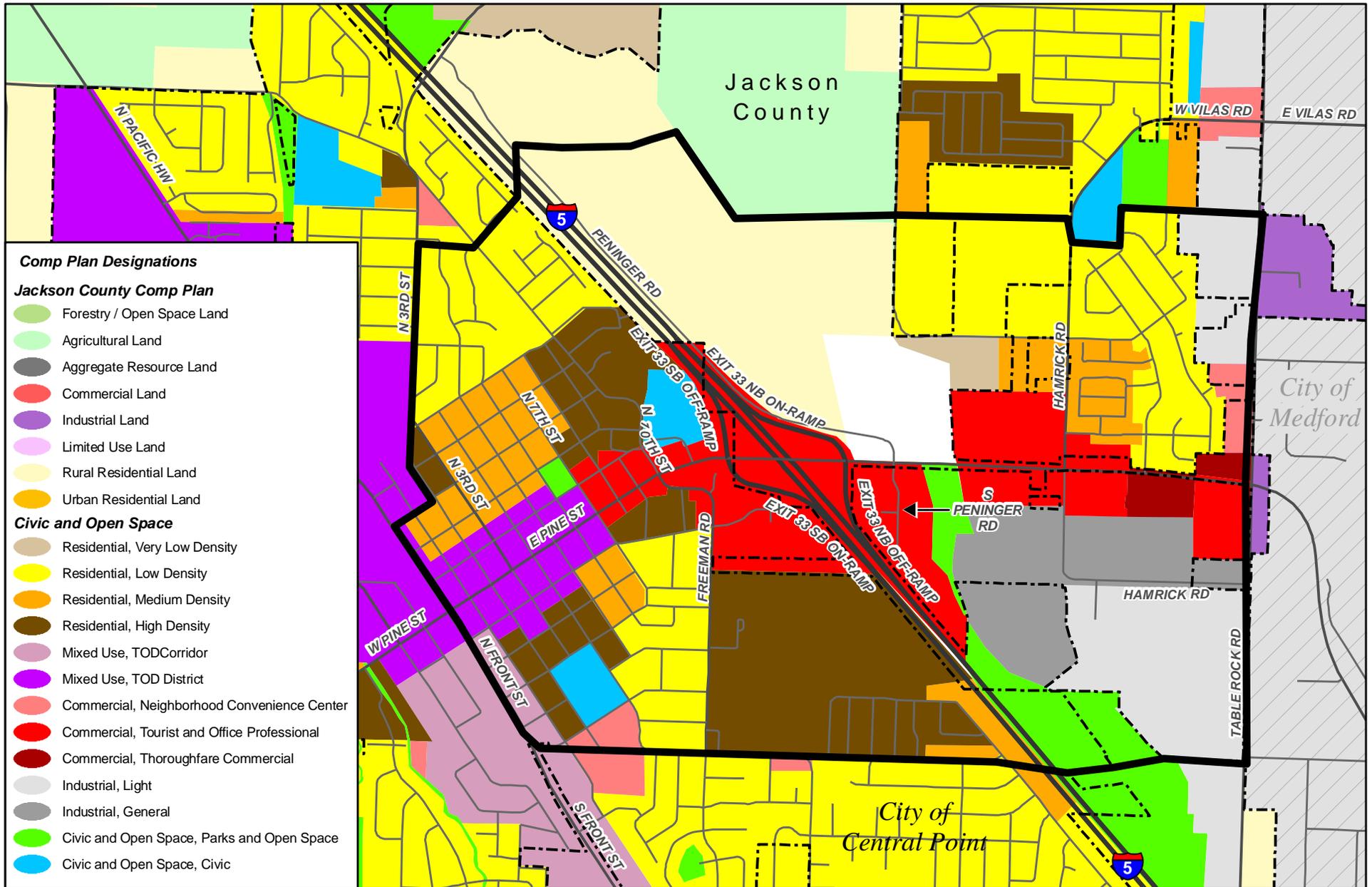
**Legend**

- Turning Movement
- 00 Turning Movement Volume
- Lane Group
- 0.00 Volume-to-Capacity (V/C) Ratio
- A Level of Service (LOS)
- Traffic Signal
- STOP Sign



**DRAFT Figure 2-1**  
**Existing (2010) Design Hour**  
**Traffic Volumes and Operations**

I-5 Interchange 33 (Central Point)  
 Interchange Area Management Plan  
 Jackson County



- Comp Plan Designations**
- Jackson County Comp Plan**
- Forestry / Open Space Land
  - Agricultural Land
  - Aggregate Resource Land
  - Commercial Land
  - Industrial Land
  - Limited Use Land
  - Rural Residential Land
  - Urban Residential Land
- Civic and Open Space**
- Residential, Very Low Density
  - Residential, Low Density
  - Residential, Medium Density
  - Residential, High Density
  - Mixed Use, TOD Corridor
  - Mixed Use, TOD District
  - Commercial, Neighborhood Convenience Center
  - Commercial, Tourist and Office Professional
  - Commercial, Thoroughfare Commercial
  - Industrial, Light
  - Industrial, General
  - Civic and Open Space, Parks and Open Space
  - Civic and Open Space, Civic

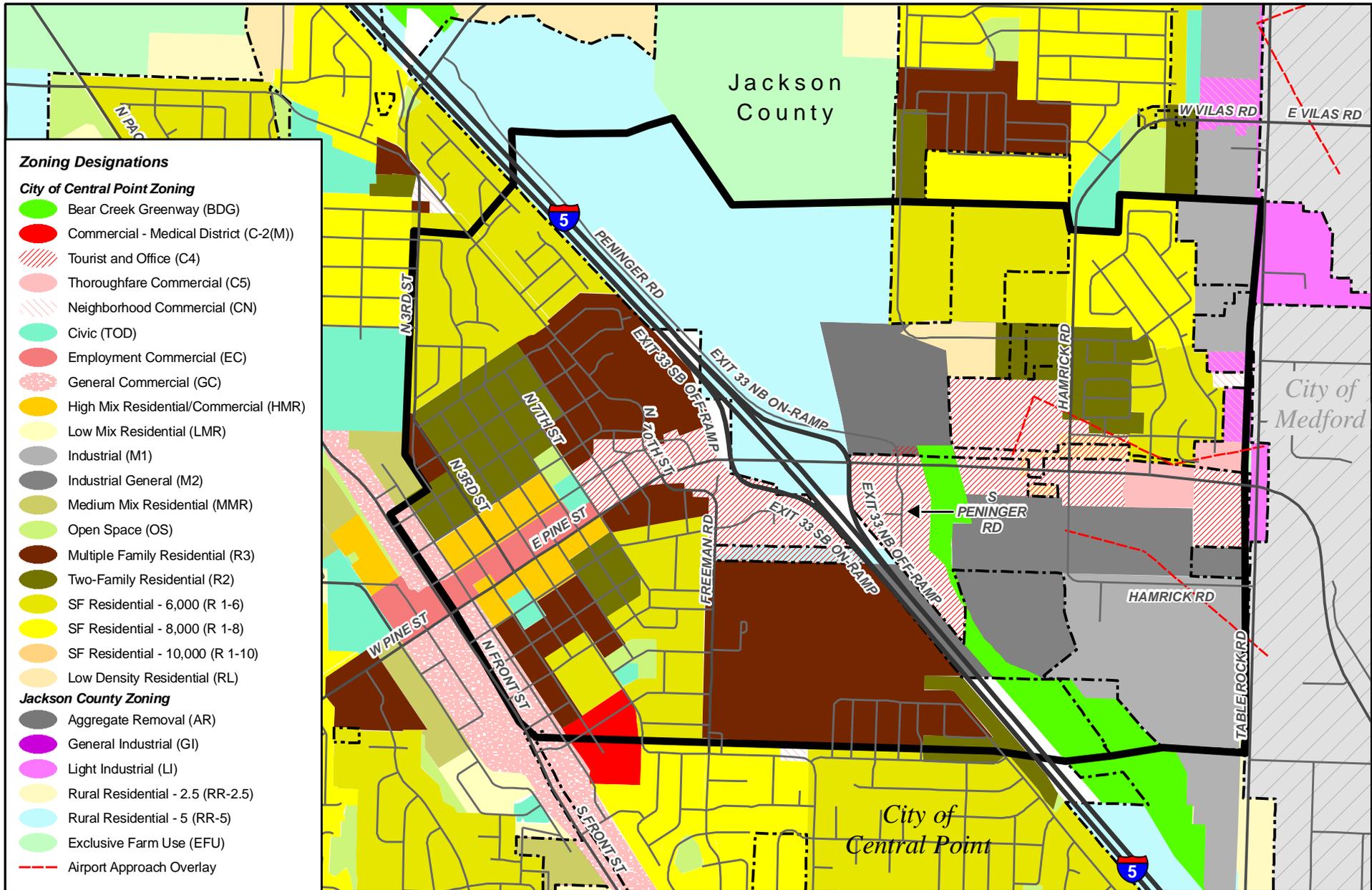
1,500
0
1,500  
Feet

**Source Data:** Jackson County GIS Data,  
 City of Central Point, Comprehensive Land Use Plan 2008-2030

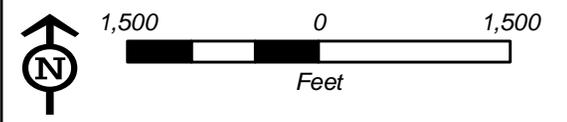
**Legend**

- City Limits
- Study Area Boundary

**DRAFT Figure 2-2**  
**Jackson County and City of Central Point**  
**Comprehensive Plans**  
**I-5 Interchange 33 (Central Point)**  
**Interchange Area Management Plan**  
**Jackson County**



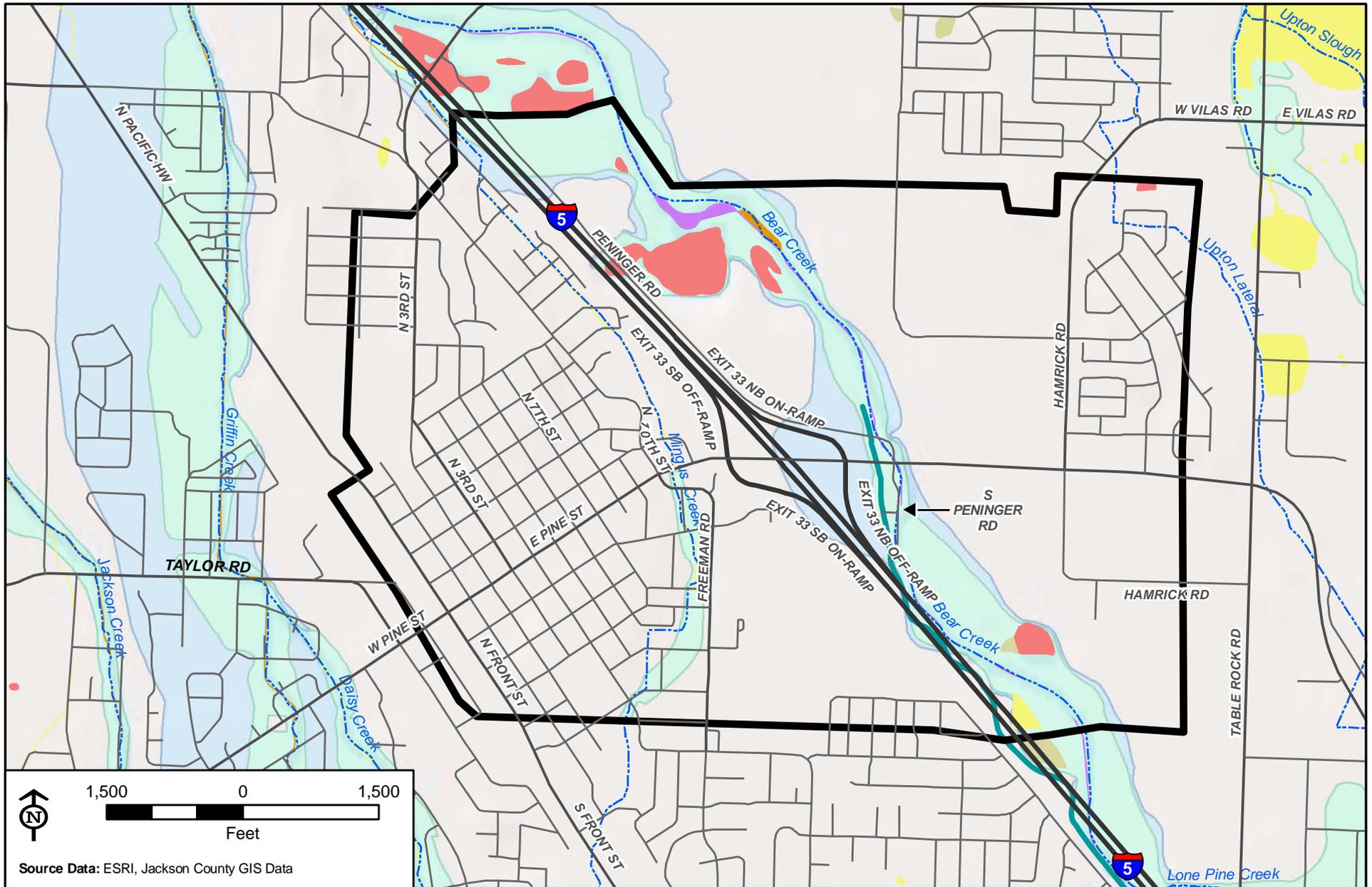
- Zoning Designations**
- City of Central Point Zoning**
- Bear Creek Greenway (BDG)
  - Commercial - Medical District (C-2(M))
  - Tourist and Office (C4)
  - Thoroughfare Commercial (C5)
  - Neighborhood Commercial (CN)
  - Civic (TOD)
  - Employment Commercial (EC)
  - General Commercial (GC)
  - High Mix Residential/Commercial (HMR)
  - Low Mix Residential (LMR)
  - Industrial (M1)
  - Industrial General (M2)
  - Medium Mix Residential (MMR)
  - Open Space (OS)
  - Multiple Family Residential (R3)
  - Two-Family Residential (R2)
  - SF Residential - 6,000 (R 1-6)
  - SF Residential - 8,000 (R 1-8)
  - SF Residential - 10,000 (R 1-10)
  - Low Density Residential (RL)
- Jackson County Zoning**
- Aggregate Removal (AR)
  - General Industrial (GI)
  - Light Industrial (LI)
  - Rural Residential - 2.5 (RR-2.5)
  - Rural Residential - 5 (RR-5)
  - Exclusive Farm Use (EFU)
  - Airport Approach Overlay



- Legend**
- City Limits
  - Study Area Boundary

**DRAFT Figure 2-3**  
**Jackson County and City of Central Point**  
**Zoning Designations**  
 I-5 Interchange 33 (Central Point)  
 Interchange Area Management Plan  
 Jackson County





Source Data: ESRI, Jackson County GIS Data

**Legend**

- Study Area Boundary
- 100-Year Floodplain
- 500-Year Floodplain

- Rivers/Streams
- Bear Creek
- Greenway

**Wetlands (Cowardin)**

- Palustrine, Aquatic Bed
- Palustrine, Emergent
- Palustrine, Forest
- Palustrine, Scrub-Shrub
- Palustrine, Other
- Riverine, Upper Perennial
- Riverine, Intermittent

**DRAFT Figure 2-5**

**Natural Resources**

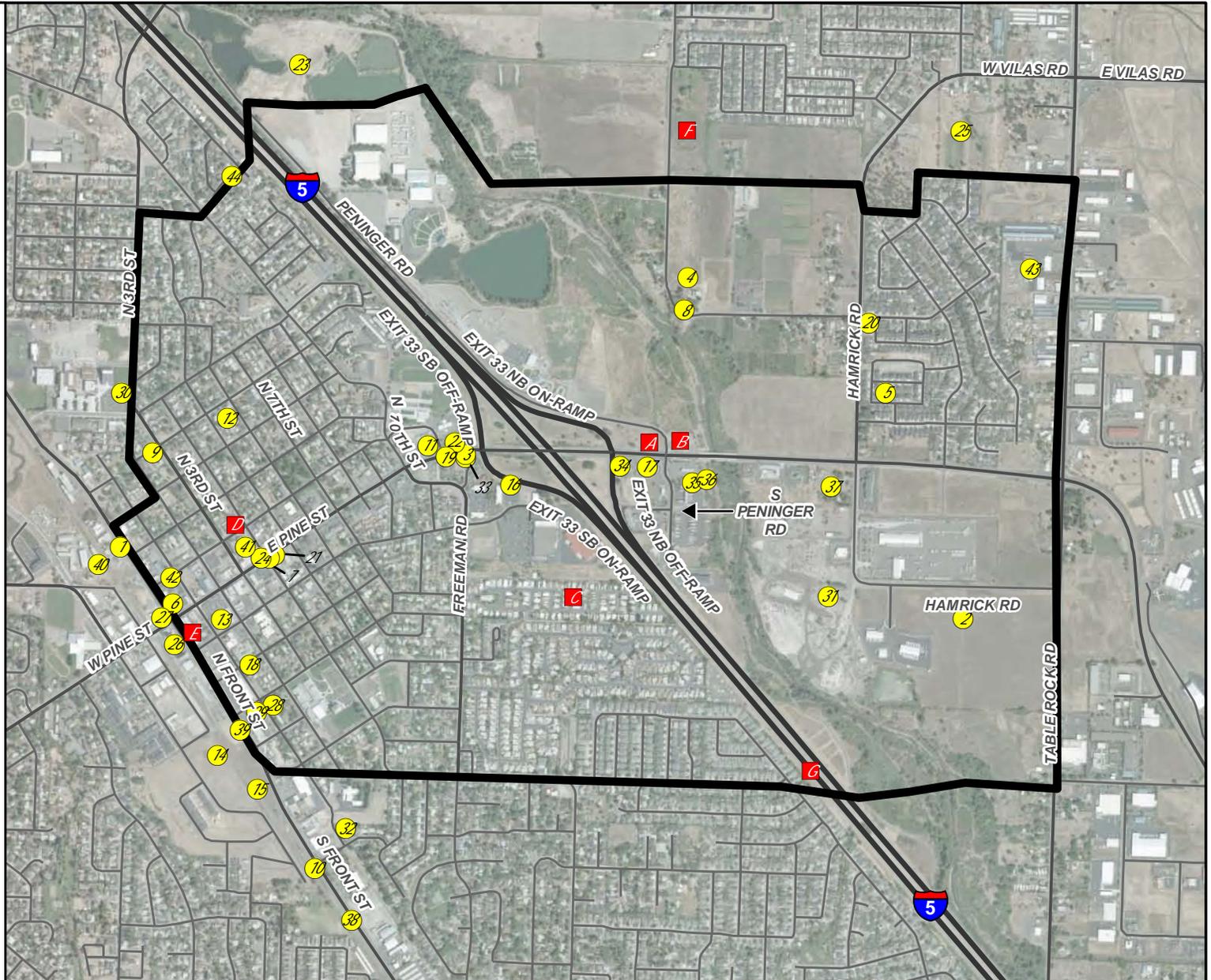
I-5 Interchange 33 (Central Point)  
Interchange Area Management Plan  
Jackson County

**HAZARDOUS MATERIALS SITES**

- 1 234 FRONT STREET
- 2 AIRPORT ORCHARD
- 3 ARS-FRESNO LLC
- 4 BEEBE ROAD
- 5 BEEBEWOOD ESTATES
- 6 BI-MOR STATIONS #7
- 7 BROCK PROPERTY (B & R TAX SERVICE INC.)
- 8 BROOKSTONE RANCH PUD
- 9 BUS BARN
- 10 C & M WESTERN INC.
- 11 CENTRAL POINT BP
- 12 CENTRAL POINT CITY SHOP
- 13 CENTRAL POINT CLEANERS
- 14 CENTRAL POINT LUMBER
- 15 CENTRAL POINT LUMBER CO.
- 16 CENTRAL POINT TIGER MART #2774
- 17 CHEVRON USA INC SS 98337
- 18 COLVIN OIL CO. JEFFERSON STATE
- 19 COLVIN OIL COMPANY
- 20 DECARLO HOMES OIL RELEASE
- 21 EAST PINE STREET GROUNDWATER
- 22 EQUILON ENTERPRISES LLC
- 23 EXPO PONDS
- 24 FORMER CENTRAL POINT POST OFFICE HOT
- 25 FOUR SEASON'S SUBDIVISION
- 26 GRANGE CO-OP
- 27 GRANGE CO-OP CARDTROL
- 28 GRANGE COOP HOT
- 29 GRANGE COOPERATIVE SUPPLY ASSOCIATION
- 30 HARRIS M HOT
- 31 LTM INCORPORATED
- 32 MARBLE DESIGNS INC.
- 33 PACIFIC NW BELL - CENTRAL POINT
- 34 PANOCO INC #27
- 35 PILOT TRAVEL CENTER #391
- 36 PILOT TRAVEL CENTERS LLC
- 37 PINE STREET DEMO
- 38 PROVIDENCE
- 39 ROGUE CREAMERY
- 40 TWIN CREEKS CROSSING/THE NORTH VILLAGE
- 41 U S WEST COMMUNICATIONS
- 42 UNION PACIFIC RAILROAD
- 43 VIKING FREIGHT INC
- 44 WYSS DOMESTIC UST

**FIRE MARSHAL SITES**

- A 1500 E PINE ST
- B 1550 E PINE ST
- C 301 FREEMAN RD
- D 347 MANZANITA ST
- E 43 N FRONT ST
- F 4922 GEBHARD RD
- G I-5 SB AT MP 32



**Source Data:** Jackson County GIS Data  
Microsoft Aerial Photograph (2001-2009)

- Legend**
- Study Area Boundary
  - Hazardous Material Sites
  - Fire Marshal Sites

**DRAFT Figure 2-6**  
**Hazardous Materials Sites**  
**I-5 Interchange 33 (Central Point)**  
**Interchange Area Management Plan**  
**Jackson County**