



# Oregon

Theodore R. Kulongoski, Governor

**Department of Land Conservation and Development**

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## NOTICE OF ADOPTED AMENDMENT

September 18, 2007

TO: Subscribers to Notice of Adopted Plan or Land Use Regulation Amendments

FROM: Mara Ulloa, Plan Amendment Program Specialist

SUBJECT: Jefferson County Plan Amendment  
DLCD File Number 007-06



The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. Due to the size of amended material submitted, a complete copy has not been attached. Copies of the adopted plan amendment are available for review at DLCD offices in Salem, the applicable field office, and at the local government office.

Appeal Procedures\*

**DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: September 27, 2007**

This amendment was submitted to DLCD for review prior to adoption with less than the required 45-day notice. Pursuant to ORS 197.830 (2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

**\*NOTE: THE APPEAL DEADLINE IS BASED UPON THE DATE THE DECISION WAS MAILED BY LOCAL GOVERNMENT. A DECISION MAY HAVE BEEN MAILED TO YOU ON A DIFFERENT DATE THAN IT WAS MAILED TO DLCD. AS A RESULT YOUR APPEAL DEADLINE MAY BE EARLIER THAN THE DATE SPECIFIED ABOVE.**

Cc: Doug White, DLCD Community Services Specialist  
Matthew Crall, DLCD Transportation Planner  
Jon Jinings, Dlcd Regional Representative  
Sandy Mathewson, Jefferson County

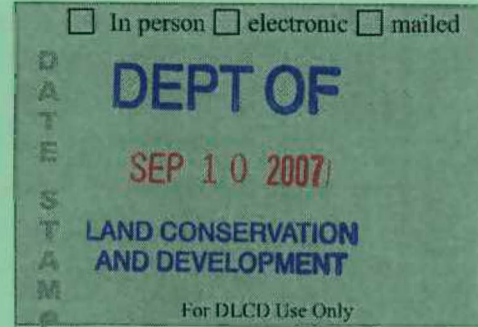
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FORM 2

# DLCD

## Notice of Adoption

THIS FORM **MUST BE MAILED** TO DLCD  
**WITHIN 5 WORKING DAYS AFTER THE FINAL DECISION**  
PER ORS 197.610, OAR CHAPTER 660 - DIVISION 18



Jurisdiction: *Jefferson County*

Local file number: *06-PA-09*

Date of Adoption: *9/05/07*

Date Mailed: *9/06/07*

Was a Notice of Proposed Amendment (Form 1) mailed to DLCD? **Select one** Date: *10/27/06*

Comprehensive Plan Text Amendment

Comprehensive Plan Map Amendment

Land Use Regulation Amendment

Zoning Map Amendment

New Land Use Regulation

Other:

Summarize the adopted amendment. Do not use technical terms. Do not write "See Attached".

*Adopted Transportation System Plan*

Does the Adoption differ from proposal? Please select one

*Revised TSP sent to DLCD 6/07/07  
Revisions made after that date are enclosed.*

Plan Map Changed from:

to:

Zone Map Changed from:

to:

Location:

Acres Involved:

Specify Density: Previous:

New:

Applicable statewide planning goals:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>
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Was an Exception Adopted?  YES  NO

Did DLCD receive a Notice of Proposed Amendment...

45-days prior to first evidentiary hearing?

Yes  No

If no, do the statewide planning goals apply?

Yes  No

If no, did Emergency Circumstances require immediate adoption?

Yes  No

DLCD file No. *007-06 (15670)*

Please list all affected State or Federal Agencies, Local Governments or Special Districts:

ODOT, Cities of Madras, Culver, Metolius

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Local Contact: *Sandy Mathewson* Phone: *(541) 475-4462* Extension: *4144*  
Address: *85 SE D St.* Fax Number: *541 325 5004*  
City: *Madras OR* Zip: *97741* E-mail Address: *sandy.mathewson@co.jefferson.or.us*

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### ADOPTION SUBMITTAL REQUIREMENTS

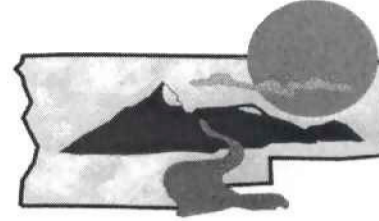
This form **must be mailed** to DLCD **within 5 working days after the final decision**  
per ORS 197.610, OAR Chapter 660 - Division 18.

1. Send this Form and TWO Complete Copies (documents and maps) of the Adopted Amendment to:  

**ATTENTION: PLAN AMENDMENT SPECIALIST**  
**DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT**  
**635 CAPITOL STREET NE, SUITE 150**  
**SALEM, OREGON 97301-2540**
2. Electronic Submittals: At least **one** hard copy must be sent by mail or in person, but you may also submit an electronic copy, by either email or FTP. You may connect to this address to FTP proposals and adoptions: [webserver.lcd.state.or.us](http://webserver.lcd.state.or.us). To obtain our Username and password for FTP, call Mara Ulloa at 503-373-0050 extension 238, or by emailing [mara.ulloa@state.or.us](mailto:mara.ulloa@state.or.us).
3. Please Note: Adopted materials must be sent to DLCD not later than **FIVE (5) working days** following the date of the final decision on the amendment.
4. Submittal of this Notice of Adoption must include the text of the amendment plus adopted findings and supplementary information.
5. The deadline to appeal will not be extended if you submit this notice of adoption within five working days of the final decision. Appeals to LUBA may be filed within **TWENTY-ONE (21) days** of the date, the Notice of Adoption is sent to DLCD.
6. In addition to sending the Notice of Adoption to DLCD, you must notify persons who participated in the local hearing and requested notice of the final decision.
7. **Need More Copies?** You can now access these forms online at <http://www.lcd.state.or.us/>. Please print on **8-1/2x11 green paper only**. You may also call the DLCD Office at (503) 373-0050; or Fax your request to: (503) 378-5518; or Email your request to [mara.ulloa@state.or.us](mailto:mara.ulloa@state.or.us) - ATTENTION: PLAN AMENDMENT SPECIALIST.

**JEFFERSON COUNTY**  
Community Development Department

85 S.E. "D" St. • Madras, Oregon 97741 • Ph: (541) 475-4462 • FAX: (541) 475-4270



MEMORANDUM

To: DLCD  
From: Sandy Mathewson, Senior Planner  
Re: Revisions to draft Transportation System Plan  
Date: September 6, 2007

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Jefferson County's draft Transportation System Plan (TSP) was mailed to you on 10/27/06. As a result of comments received from Matthew Crall, the TSP was substantially rewritten. A copy of the revised TSP was mailed to you on 6/07/07.

Attached are the pages of the TSP that were revised after 6/07/07. Language that was added is underlined, language that was deleted is in ~~striketrough~~.

## OBJECTIVES AND STRATEGIES

Statewide planning Goal 12 requires jurisdictions to provide and encourage a safe, convenient and economic transportation system. This section lists the objectives the County feels should be met in order to comply with that Goal, and strategies that will be used to meet the objectives. The strategies will be implemented through land use regulations contained in the Jefferson County Zoning Ordinance, road construction and access spacing standards contained in the Jefferson County Code, and specific transportation projects outlined in Sections 4 and 5. The objectives and strategies listed here are not intended to be mandatory approval criteria used in making land use decisions.

Objective 1: Provide a multi-modal transportation system that will accommodate traffic generated by increased development and population growth in the County without adversely impacting existing transportation facilities.

Strategies: 1.1 Require a Traffic Impact Study when traffic from a proposed new development could impact the existing transportation system. Prohibit new development that would result in levels of travel that would reduce the Level of Service of a road or intersection below LOS C unless the developer will construct improvements to the transportation system that will maintain that Level of Service.

1.2 Applications for Comprehensive Plan amendments, rezones or amendments to land use regulations ~~should~~ will be reviewed to verify that the allowed land uses will not change the functional classification of a road unless the TSP will either be amended to modify the function, capacity or performance standards of the transportation facility, or will be amended to provide transportation facilities, improvements or services adequate to support the proposed land uses.

Objective 2: Protect the ability of state highways to move people and goods through and within the County in a safe manner with minimal impediments to traffic flow.

2.1 Work with ODOT to increase safety and facilitate the smooth movement of traffic on state highways by limiting new access points, closing some existing road access to the highway, adding passing lanes, and providing turn lanes at intersections.

2.2 Coordinate with the City of Madras and ODOT to designate detour routes for use during emergency closures of Highways 97 and 26.

Objective 3: Make safety a primary consideration in the development of new transportation facilities and new access points on existing roads, and in the maintenance or modification of existing facilities.

Strategies: 3.1 Unsafe intersections with inadequate site distance or skewed geometry should be closed or modified to provide right-angle intersections with adequate sight distance when roads are upgraded or new development will significantly increase the number of vehicles using the intersection.

- 3.2 Maintain spacing standards between access points on roads in order to increase safety and minimize conflicts with traffic flow. The spacing will be based on the functional classification of the road.
- 3.3 Zoning Ordinance regulations ~~should~~ will continue to require the development and maintenance of clear-vision areas at intersections that will assure adequate sight distances.
- 3.4 Zoning Ordinance regulations ~~should~~ will require adequate emergency vehicle access to all development.
- 3.5 Promote the identification and development of emergency evacuation routes in the event of wildfire hazard or other emergency.

Objective 4: Plan, develop and maintain an interconnected transportation system that will link people with communities and recreational areas.

- Strategies:
- 4.1 New subdivisions ~~should~~ will be required to provide for the continuation of the existing road network where feasible or where needed to provide access to adjoining properties.
  - 4.2 Continue to classify roads in the County as arterials, collectors, and local roads based on their function and design, and adopt standards to maintain the road's capacity.
  - 4.3 Coordinate with cities in the planning, design and construction of roads to connect with the city's road network or that would serve future urban development.

Objective 5: Continue to protect and provide for alternative means of transportation.

- Strategies:
- 5.1 Zoning Ordinance regulations will protect present airport facilities from conflicting uses and development that would create hazards to aircraft.
  - 5.2 Encourage the preservation of rail corridors within the County. If improvements are planned, minimize conflicts with adjoining land uses and ensure that adequate vehicular mobility is provided.
  - 5.3 Paved shoulders will be required during the construction of new roads and the upgrading or maintenance of existing roads to provide for bicycle and pedestrian use.
  - 5.4 Support the Central Oregon Intergovernmental Council's efforts to meet the transportation needs of persons who are 60 and over, low income, and/or disabled, as outlined in the Jefferson County Coordinated Human Services Transportation Plan.

Objective 6: Find sources other than the County to cover the cost of transportation improvements.

## Road System Inventory and Existing Conditions

### 3.1 EXISTING ROAD SYSTEM

Roads serve the largest share of trips in Jefferson County. Motor vehicles, bicycles, pedestrians, transit, and freight transportation all rely on roads to some degree. Roads also provide vehicle, bicycle, pedestrian, and transit access to air and rail facilities.

The public road system within the county is primarily owned and maintained by the following agencies or jurisdictions:

- The **United States Forest Services (USFS)** owns and maintains roads within the Deschutes National Forest, located in the southwest area of the county, and the Ochoco National Forest, in the southeast edge of the county. Most of the roads are gravel. These roads are primarily used to access logging and recreational areas and provide emergency fire access. Roads under USFS jurisdiction are not included in the TSP.
- The **Oregon Department of Transportation (ODOT)** owns and maintains 95.37 miles of road within the County, including those that are the most heavily traveled. These highways provide regional mobility within the county and serve as major transportation links to other areas of the state.
- **Jefferson County** owns and maintains approximately 621 miles of road, of which approximately 267 miles are paved. The majority of the county roads are concentrated in the central north-south portion of the County, which contains the irrigated farm lands and the population centers. The majority of county roads have two travel lanes, no bike lanes, no sidewalks, and minimum shoulders.
- The **incorporated cities** of Madras, Metolius, and Culver own and maintain the majority of the streets within their city limits, although a few roads within city limits are maintained by ODOT or the County. City streets provide local access and serve local trips.
- There are a number of **public use and local access roads** within the County. These roads are available for use by the public, but are generally not maintained by the County or other public agency. For instance, the majority of roads in Crooked River Ranch are public roads which are maintained by a special road district.

~~Several subdivisions, including the unincorporated community of Crooked River Ranch and The Three Rivers Recreation Area and a few subdivisions~~ have access from **private roads**. Private roads are maintained by the property owners who use the road or by a homeowner's association.

**TABLE 3-3 MINOR COLLECTORS**

Road Name	County Road No.	Begin MP	Description	End MP	Description
E. Ashwood Road	111	2.00	End of Park	3.90	Prison
<u>NE Bean Drive</u>	<u>136</u>	<u>0.0</u>	<u>Ashwood Road</u>	<u>0.90</u>	<u>Loucks Road</u>
SW Bear Drive	147	4.60	S Highway 97	8.25	Irving Lane
SW Belmont Lane	113	0.50	Highway 361	7.00	End
NW Boise Drive	229	3.70	Highway 26 N	9.00	NW Juniper Lane
NE Buckley Lane	232	8.10	NE Clark Drive	9.30	NE Clemens Drive
SW Camp Sherman Road	610	12.58	Metolius River	18.00	Highway 20
NW Cherry Lane	222	1.00	Highway 26 N	1.70	Airport
SW Chinook Drive	999	14.60	Mustang Road	15.58	Clubhouse Road
SW Cinder Drive	315	12.94	Peninsula Drive	14.95	Shad Road
NE Clark Drive	761	2.50	Highway 97 N	8.10	Buckley Lane
NE Clemens Drive	232	9.30	Buckley Lane	10.40	Gateway
SW Colfax Lane	134	0.90	Highway 97 S	1.10	Highway 361
NE Columbia Drive	228	5.50	Highway 26 N	9.00	NW Juniper Lane
SE Crestview Lane	1705	0	S Adams Drive	5.60	Sagebrush Road
SW Dover Lane	114	1.90	Highway 97 S	2.20	Highway 361
SE Dussault Road	1701	0	Rancho Lane	1.00	Crestview Lane
<u>SW Feather Drive</u>	<u>140</u>	<u>8.00</u>	<u>Iris Lane</u>	<u>10.00</u>	<u>Irrigation canal</u>
NE Gateway Grade	210	1.50	Juniper Lane	2.50	Clemens Drive
SW Glass Drive	157	0.50	C Street	1.84	Birch Lane
SW Graham Road	310	18.87	Three Rivers gate	21.87	Montgomery Road
SW Haystack Road	106	9.25	Jericho Lane	10.96	Springer Road
SW Hill Road	421	13.50	Chinook Drive	14.48	Shad Road
NE Hilltop Lane	1801	1.32	Highway 97 N	2.00	Clark Drive
SW Huber Lane	121A	4.50	C Street, Culver	5.00	Feather Drive
SW Jericho Lane	124	1.50	Haystack Road	5.00	Feather Drive
NE Juniper Lane	210	0	N Adams Drive	2.00	Columbia Drive
NW Juniper Lane	210	0	N Adams Drive	1.00	Gateway Grade
SE Laurel Lane	421	0.20	Springer Road	4.64	Highway 26
SE Lone Pine Road	419	14.00	Highway 26 S	17.79	County line
NE Loucks Road	110	0.45	Highway 97 N	1.41	Brown Drive
SE McTaggart Road	152	0.60	Buff Street	2.14	Grizzly Road
SW Montgomery Road	310	21.87	Graham Road	27.46	Perry South
SW Old Culver Highway	144	10.00	Highway 97 S	16.90	Highway 97 S
SW Park Lane	122	2.00	Old Culver Highway	3.50	Highway 97 S





## 4.2 COUNTY ROAD IMPROVEMENT PROJECTS

Table 4-2 lists road projects involving County roads. The projects were identified to address four issues: road connectivity, traffic operation, safety, and pavement condition.

*Connectivity* projects provide links between existing roads or areas of the county.

*Operation* projects provide the capacity needed to accommodate future traffic volumes and improve traffic operations on the road. In some cases, existing roads need to be upgraded to higher road standards to accommodate re-routed traffic from other roads whose access to the state highway will be closed, as identified in the state highway projects listed in Table 4-1. These projects also will enhance traffic safety by improving the geometry and/or operation of the road.

*Pavement* projects are to improve the condition of the existing road.

### Consideration of Alternatives

All but three of the proposed projects listed in Table 4-2 involve existing roads, and should not require the acquisition of any additional right-of-way unless an existing road segment has inadequate right-of-way width or the road needs to be realigned to remove curves or to address grade issues. Many of the projects involve upgrades to existing roads in order to accommodate rerouted traffic from proposed highway intersection closures. Improvements and upgrades to the existing road system is the preferred alternative chosen by the County in order to minimize the costs associated with acquiring new rights-of-way, and to limit impacts to farm land.

In the case of project #49, the SW Deschutes Drive connection, additional right-of-way will be needed to fill in a 1¼ mile gap in the road between SW Ford Lane and SW Highland Lane. The new road segment will run north-south along the section line, aligned with the portions of SW Deschutes Drive to the north and south. Although a portion of the new road segment will cross an area of class 2 soils that are high-value farmland, alignment with the existing road will use the least amount of land and is the most feasible alternative.

The other two projects that will require additional right-of-way, project #46 Crooked River Ranch secondary access study, and project #47 SW Eureka Lane extension, are conceptual only. Any potential alignment of a future road will depend on design requirements, land use, and physical and environmental constraints. Identification and analysis of alternatives, refinement studies and public involvement will occur before either project is constructed.

The proposed projects to address pavement condition were identified as priorities apart from the regular maintenance program of the County. There are eight minor collector county roads with poor pavement condition or gravel/native surface, as listed in Table 3-5. Five of these roads have been identified as proposed pavement projects (NE Buckley Lane and NE Clark Drive, project #55; SE Laurel Lane and SE Springer Road, project #52; and SW Old Culver Highway, project #7). These five roads were selected to be upgraded because they contribute to the regional traffic flow. The other three minor collector roads with poor pavement condition or gravel/native surface (NE Pony Butte, SW Graham Road and SW Montgomery Road) either have a low ADT volume or would be cost prohibitive to pave because of their length and the lack of County road funds. One non-collector road was included on the list of pavement projects

### 4.3 PROJECTS TO ACCOMMODATE FUTURE URBAN GROWTH

Table 4-3 lists potential transportation projects that are in close proximity to the City of Madras. These projects are designed to facilitate traffic movement from future urban development; increase connectivity of future development to existing neighborhoods, commercial areas and highways; and provide guidelines for roadway alignments as future development occurs. These projects are unlikely to be constructed until the land is brought into the urban growth boundary or is annexed. However, identification of the projects is necessary in order to prevent conflicting uses from impeding future construction of the planned facilities. The projects were prioritized into short-, mid- and long-term based on a general assumption of the timeframe when various areas near the city will be urbanized.

The projects in Table 4-3 are all conceptual in nature and do not identify specific right-of-way locations. They include logical extensions and intersections of the existing road system to meet projected future needs. As indicated in Section 7.2, further refinement planning will need to take place prior to development of any of the projects. Such planning will likely be done by the city as the land is either developed or annexed into the city.

Several of the projects in Table 4-3 have been identified in the city TSP, as indicated in the Source column. The other projects were identified as a result of discussions between the City and the County during the preparation of the County TSP. The County will coordinate with the City on these projects, but will not take the lead in constructing the projects. In most cases, development and construction of the projects will be up to private developers or the City.

Figure 4-3 shows the general location of the projects.

**TABLE 4-3 PROJECTS TO ACCOMMODATE FUTURE URBAN GROWTH**

No.	Project Name	Project Description	Category	Source
<b>Short Term (0-5 years)</b>				
61	SE E Street Extension	Extend SE E Street east as a minor collector.	Connectivity	Madras TSP
62	SE J Street Extension	Extend SE J Street east as a major collector.	Connectivity	Madras TSP
63	NE Bean Drive Extension (South)	Extend NE Bean Drive south of E Ashwood Road (will become SE Bean Drive) as a major collector to intersect the SE E Street and SE J Street extensions (projects 61 and 62).	Connectivity	Madras TSP
<b>Mid-Term (5-10 years)</b>				
64	NE Kinkade Road Extension (See Figure 4-10)	Extend NE Kinkade Road north from the UGB as a major collector, to connect with the NE Bean Drive extension (project 67) and NE Boxwood Lane.	Connectivity	Madras TSP
65	NE Kinkade Road/NE Loucks Road Roundabout (See Figure 4-10)	Construct a roundabout at the future NE Kinkade Road/NE Loucks Road intersection to accommodate future traffic volume.	Operation	

## Other Transportation Systems

This section discusses transportation systems other than state highways and the County road system, including:

- Bicycle System;
- Pedestrian System;
- Public Transportation;
- Rail Service;
- Air Service; and
- Pipeline and Transmission System.

All of the TSP elements presented in this section are based on the requirements of the Oregon Transportation Planning Rule (TPR). The modal plans have been developed based on the existing and future conditions analysis, taking into consideration the interests of citizens, business owners, and governmental agencies as expressed by the Technical Advisory Committee and citizen input.

### 5.1 BICYCLE SYSTEM

Bicycles are legally classified as vehicles and can use all public roads in the County. However, the high speed and volume of traffic on major highways can be unsafe for non-auto users. As a result, roads with a low volume of traffic are preferred routes for bicycle use. For instance, the old alignment of US 97, where available and properly maintained, is often used by bicyclists for recreational purposes.

Bicycle travel can be a viable commuting option if bicycle lanes or paved shoulders are provided. However, in unincorporated areas of the county bicycling currently is primarily a form of recreation or exercise, rather than a viable mode of transportation, due to a lack of dedicated bicycle lanes or shoulder bikeways.

The *Oregon Bicycle and Pedestrian Plan* identifies the following categories of bicycle systems:

- *Shared Roadways*, where bicycles and motor vehicles share the same travel lanes. Generally safest in urban areas on roads with low speeds and low traffic volumes (less than 3000 ADT).
- *Shoulder Bikeways*, which are paved shoulders on roads, adjacent to vehicle travel lanes.
- *Bike Lanes*, where a portion of the road is specifically designated for use by bicyclists through the use of striping and signage. Bike lanes are most appropriate on urban arterials and on major collectors;
- *Multi-Use Paths*, which are separated from a road by an open space or barrier. Multi-use paths are often part of a community trail system used by walkers and joggers in addition to bicyclists, and may be in a different location than the road right-of-way since they serve a different purpose than the road system.

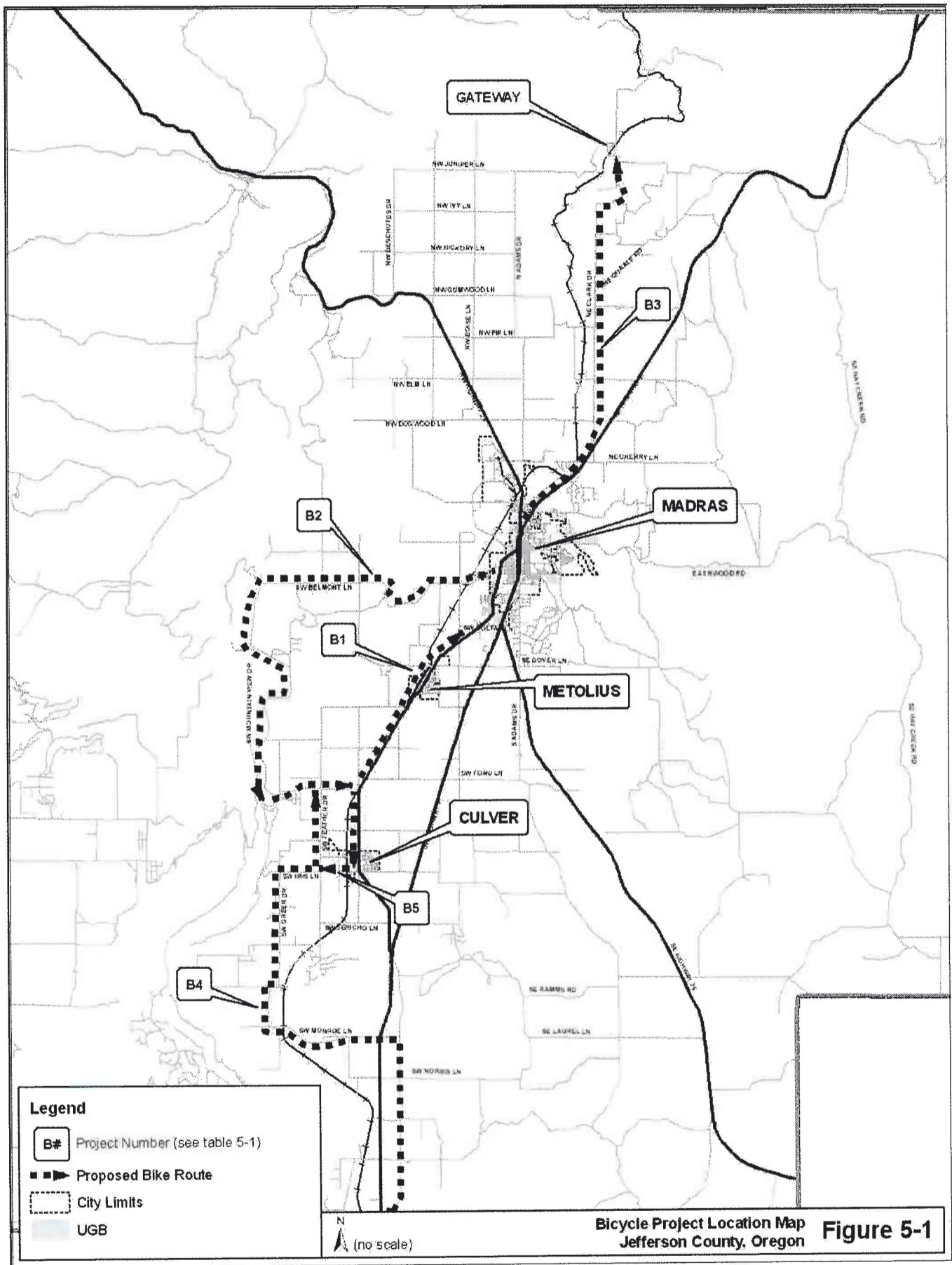
Generally, most roads in the rural parts of the county carry fewer than 3,000 ADT, which is consistent with ODOT guidelines for shared roadway bicycle use. However, most of the roads have minimal shoulder width, may have poor sight distance, are not signed to warn motorists of the potential for encountering bicyclists on the road, and tend to have high speed traffic, making them unsafe for bicyclists. In order to increase safety for bicyclists, county and public roads being constructed or upgraded should provide shoulder bikeways, while state highways and other arterials should include bike lanes. Currently, the only County roads that have adequate shoulder width for bikeways are Ashwood Road from the Madras city limits to the Deer Ridge correctional facility, and Chinook Drive from the Deschutes County line to Mustang Road in Crooked River Ranch. Willow Creek Trail in Madras is the main designated multi-use path in the county. There also is a multi-use path in Camp Sherman.

ORS 366.514 requires that bicycle trails be provided when a highway, road or street is being constructed, reconstructed or relocated, except when the cost would be disproportionate to the need or when sparse population in the area indicates an absence of need. Road standards contained in the Jefferson County Code require that 3 – 8 foot wide paved shoulders be provided when county and local access roads are being constructed or improved. This will gradually begin to create a safer bicycle system.

Based on public comments and future needs, ~~four~~ five mid-, and long-term bicycle and pedestrian projects have been identified. No short-term projects were identified due to lack of funding to complete the project. The projects were selected because they will utilize the existing right-of-way to establish a network of bicycle lanes and routes providing a safe, interconnected bicycle system for recreational use as well as encourage commuter use between Madras, Metolius and Culver. The projects were prioritized based on the desire to facilitate bicycle commuting between cities and provide recreational routes that would serve the greatest population. The County may also designate and sign bicycle routes in locations where a continuous road system does not exist, to provide route guidance to bicyclists. Table 5-1 shows the bicycle facility project list. Figure 5-1 shows the location of the projects.

**TABLE 5-1 BICYCLE FACILITY PROJECTS**

No.	Project Name	Project Description	Cost Estimate
<b>Mid-Term (5-10 years)</b>			
<b>B1</b>	Madras/Metolius/Culver Bicycle Connection	Widen shoulders on Culver Highway 361 to provide bicycle connection between Madras, Culver and Metolius. Install bicycle route signs.	\$3,800,000
<b>B2</b>	Westside Bicycle Loop	Construct bicycle lanes or wider shoulders on Gem Lane, Jordan Road, Mountain View Drive and Belmont Lane to provide a looped scenic bicycle route west of Madras. The project will also provide access to Lake Billy Chinook, although improvement of Jordan Road from the rim down to the lake to safely accommodate bicycle and pedestrian traffic may not be feasible.	\$7,300,000
<b>Long-Term (10-20 years)</b>			
<b>B3</b>	Madras to Town of Gateway Bicycle Route	Construct six foot shoulders on NE Clark Drive and the planned NE Clark Drive extension. Designate the road as a bicycle route from Madras to Gateway.	\$9,580,000
<b>B4</b>	Cove Palisades to Peter Skene Ogden Bicycle Connection	Designate SW Gem Lane, SW Feather Drive, SW Green Drive, SW Monroe Lane and Old Culver Highway 361 as a bicycle connection from the Cove Palisades State Park to Peter Skene Ogden Scenic Wayside.	\$4,500,000
<b>B5</b>	<u>Culver Loop</u>	<u>Construct six foot shoulders on SW Iris Lane between Feather Drive and Highway 361 to provide a looped route around Culver in conjunction with projects B1 and B4.</u>	<u>\$65,000</u>



## 5.2 PEDESTRIAN SYSTEM

In unincorporated areas of the county walking is mainly a form of recreation or exercise, rather than a viable mode of transportation. The high speed and volume of traffic on highways and major county roads are unsafe for pedestrian. Low-volume roads with paved shoulders are preferred routes for pedestrian use. In most cases, bikeways and bike lanes can be used by pedestrians as well as bicyclists, although multi-use paths may provide greater safety from vehicles.

The only dedicated pedestrian paths in the unincorporated area of the County are the walking path in Juniper Hills Park and a portion of the Willow Creek trail.

Pedestrian facilities suitable for walking to work, school and shopping occur inside urban growth boundaries rather than in rural areas of the County. Section 402.8(F) of the 2007 Jefferson County Zoning Ordinance states that sidewalks may be required when proposed development is within an urban growth boundary, when property is within one-fourth mile of a school, shopping center or other use likely to create pedestrian traffic, or when the surrounding area is developed with sidewalks or is zoned for commercial, industrial or urban residential uses. Section 12.18 of the Jefferson County Code states that roads within one mile of an urban growth boundary may be required to be developed in accordance with city standards when it is likely that the road would eventually become connected to the city street system. This could include requirements for curbs and sidewalks.

This combination of paved roadway shoulders in rural areas and sidewalks in urban or urbanizable areas form the County's pedestrian system plan.

## 5.3 PUBLIC TRANSPORTATION

Jefferson County does not provide public transportation services. There are few options in the County to meet the needs of people unable to drive vehicles. This includes some seniors, the developmentally or medically disabled, people who have lost driving privileges due to suspended or revoked licenses, and people who do not own vehicles for financial or other reasons.

Existing public transportation service includes a fixed-route bus service operated by CAC Transportation Inc., a private transportation group based in Bend, which provides twice daily service between Bend and the Portland airport, stopping in Madras. While this service is useful for those traveling to Portland, its schedule does not allow travel from Madras to Bend and return the same day.

The Central Oregon Council on Aging (COCOA), a charitable non-profit public benefit corporation, provides dial-a-ride service for senior citizens and persons with disabilities in Deschutes and Jefferson Counties. Service from Madras to Bend is provided once a week. People on the Oregon Health Plan can use a dial-a-ride service for medical appointments. The East Cascade Brokerage, based in Redmond, pools resources from the tri-county area to provide rides on request through a call-in service similar to dial-a-ride. However, their vans currently do not have the special equipment, such as wheelchair lifts, that are needed to serve some clients. Crooked River Ranch also operates a dial-a-ride van three days a week.

Public bus service and passenger rail service are not available in the county. Greyhound Bus service is available from Bend to Eugene, where connections can be made to cities along the I-5 corridor.

The County currently applies transportation and park system development charges to new developments in the County. The SDC ordinance was adopted in 1996. The transportation SDC has been set up at \$86.92/daily trip generated by new development in Crooked River Ranch and \$90.56/daily trip generated by new development in other unincorporated areas of the County. On an average, the County collects approximately \$89,000 in transportation SDCs annually. Current SDC dollars have been allocated to financing the construction of "J" Street, in collaboration with the City of Madras. SDCs will only be available for other transportation improvement projects after the financing of "J" Street is complete. With the current rate of SDC collection, the SDC fund is not anticipated to be available for other improvements until 2015.

### **Funding Needs**

Currently, all available County transportation system funding is spent on the maintenance of existing roads. Approximately \$180,000 is currently budgeted annually for upgrades to increase the level of service and reduce maintenance on existing roads. ~~Approximately \$136,000 is currently budgeted~~ has been accumulated for bicycle and pedestrian projects. When these figures are compared to the cost estimates for the transportation projects listed in Tables 4-2 and 5-1, it becomes clear that additional funding sources will be needed in order to complete any of the projects.

As shown in Tables 4-2 and 5-1, a total of approximately \$97 million would be needed for completion of the proposed county road and bicycle projects - short-term county road projects would cost approximately \$4.3 million, approximately \$49.3 million would be needed for the mid-term road and bicycle projects, and approximately \$43 million would be needed for the long-term road and bicycle projects.

The County currently does not have funding to pay for any of the road improvement projects. A number of the proposed road projects involve county roads that should be improved to accommodate rerouted traffic when an existing county road access to a highway is closed or in conjunction with intersection improvements. Funding from ODOT may be possible for some of these projects. Funding for projects to accommodate future urban development will be up to private developers or the City.

Funding for bicycle projects adjacent to a state highway will come from ODOT. Funding for other bicycle and pedestrian projects may come from the County or private developers. ORS 366.514 requires that at least one percent of the total amount of the funds received in any fiscal year from the State Highway Fund be spent on bicycle or pedestrian projects. The one percent does not have to be used every year, but may be accumulated for up to ten years. As of 2007 the County had \$136,000 in its bike/pedestrian project fund. In most cases, pedestrian facilities will take the form of widened roadway shoulders that will also serve as bicycle facilities. Funding constraints generally will not allow the County to develop separate pedestrian paths or provide sidewalks. However, developers will be encouraged to provide walking paths within new subdivisions.

Because of the lack of County funding, private developers will be required to contribute to road improvements when a new subdivision or other development will significantly increase traffic or otherwise adversely impact a road or intersection. Any requirement for privately-funded road improvements will be based on a direct nexus between the level of road impacts that will be caused by the development and the level of road improvements that are required.



### **Funding for Other Multi-Modal Projects**

Funding for any rail improvements would be the responsibility of Burlington Northern Santa Fe Railroad. Any transmission line improvements will also be privately funded. The Madras City-County Airport Layout Plan Report contains discusses funding for projects at that facility. Any needed improvements at private airports will be the responsibility of the airport owners.

### **6.3 POTENTIAL FUNDING SOURCES**

Annual revenue collected is spent on administrative tasks and the operation and maintenance of County facilities. The County does not have additional resources identified for capital improvement projects. Therefore, funding sources need to be explored to establish a capital funding program that addresses modernization, preservation, operations, and safety of the County's transportation infrastructure.

The following programs are funding sources that could potentially be established or enhanced to fund transportation infrastructure projects in the County.

#### **Statewide Transportation Improvement Program (STIP)**

Every two years, ODOT allocates funding to improvement projects on state and local facilities through its four-year funding program, the Statewide Transportation Improvement Program (STIP). The STIP has provisions for funding local projects that are outside ODOT jurisdiction. Local jurisdictions must apply for this funding. Historically, Jefferson County has not consistently received STIP funding. With adoption of the TSP, the County will be in a stronger position to pursue funding for projects listed in the TSP because these projects will comply with ODOT's the Transportation Planning Rule (TPR). However, it should be noted that simply being listed in the TSP does not guarantee STIP funding for any project.

#### **Updated System Development Charges (SDC)**

The current SDC program is based on an evaluation of transportation needs conducted in 1996. Since then, the transportation demand in the area has increased dramatically because of growth in Central Oregon. The SDC program charge should be based on the projected needs of the transportation system outside urban growth boundaries over a 20-year planning horizon. Once SDC eligible projects within the county have been identified and the total cost to implement the projects has been estimated, an SDC cost per trip assessment can be developed based on the trip generation potential of future development. As a result, the SDC program should be updated with the transportation project list presented in the TSP.

#### **Local Improvement District (LID)**

LIDs are created to finance road improvements through special assessment against benefited properties. A LID provides a mechanism to coordinate installation and funding of improvements between one or more property owners. LIDs may be formed when property owners petition the County for the purpose of constructing and funding public improvements in their neighborhood, or in some circumstances may be formed when the County determines that improvements are necessary.

### **Municipal Bonds**

Municipal bonds are debt issued to fund public infrastructure projects. When an investor buys bonds, he or she is lending money to fund the public project with an agreement that the seller of the bond agrees to repay the principal amount of the loan at a specified time. The interest that investors receive is exempt from some income taxes. Jefferson County has the potential to issue municipal bonds to secure funding for various transportation projects.

### **Various Taxes**

It is within county jurisdiction to levy taxes to fund public infrastructure projects that are needed to accommodate future growth in the County. The tax could be in the form of a local gas tax, ad valorem tax, or other form of tax.

### **Private Developers/Exactions**

Although nNone of the potential funding sources identified above are being pursued at this time, at various times in the past the County has used some of these sources to fund specific transportation improvements. For future projects, tThe most likely source of funding for transportation projects is will be private developers. Road standards in the Jefferson County Code require private developers to contribute to off-site road improvements when a new subdivision or other development will significantly increase traffic or otherwise adversely impact the existing transportation system. However, any requirement for privately-funded transportation improvements must be based on a direct nexus or rough proportionality between the level of impacts that will be caused by a development and the level of improvements that are required. Thus any transportation improvements required as a condition of approval for development are unlikely to cover the full cost of the improvements. Creative methods of completing a road project or improvement may be needed in such cases. For instance, the County may be able to contribute to the cost of a road improvement by providing rock and labor if a developer pays for the asphalt.

**BEFORE THE BOARD OF COMMISSIONERS OF THE STATE OF OREGON FOR  
THE COUNTY OF JEFFERSON**

**IN THE MATTER OF A COMPREHENSIVE )  
PLAN AMENDMENT TO ADOPT A ) Ordinance No. O-135-07  
TRANSPORTATION SYSTEM PLAN )**

**WHEREAS**, OAR 660-012-0015(4) requires counties to adopt Transportation System Plans (TSPs) as part of their comprehensive plans; and

**WHEREAS**, the County began work on a TSP in 2005 in conjunction with the Oregon Department of Transportation, and formed a Technical Advisory Committee made up of representatives from the cities of Madras and Culver, School District 509J and various county agencies to assist in the review of the TSP during its preparation; and

**WHEREAS**, public open houses were held on December 14, 2005, February 16, 2006 and April 26, 2006 to get citizen input; and

**WHEREAS**, a first draft of the TSP was sent to the Department of Land Conservation and Development in October 2006, and that agency's comments resulted in substantial revisions to the first draft; and

**WHEREAS**, the Jefferson County Planning Commission held public hearings to take testimony on the draft TSP on December 14, 2006, June 14, 2007 and July 12, 2007, after which they voted to recommend that the Board of Commissioners adopt the TSP; and

**WHEREAS**, the Jefferson County Board of Commissioners accepted testimony on the TSP at public hearings on August 1, 8 and 22, 2007, following which they voted unanimously to adopt the TSP.

**NOW THEREFORE**, the Jefferson County Board of Commissioners hereby **ORDAINS** as follows:

1. **Adoption of Findings**

The Board of Commissioners hereby finds that the TSP was prepared in accordance with the requirements of OAR 660-012 and complies with applicable statewide planning goals, state statutes, and Comprehensive Plan provisions, as set forth in the Findings of Fact in the attached Exhibit A

2. **Adoption of Comprehensive Plan Amendment**

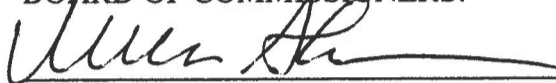
Jefferson County hereby **AMENDS** the Comprehensive Plan to adopt a Transportation System Plan as shown in Exhibit B, attached hereto and incorporated herein by this reference.

3. **Effective Date**

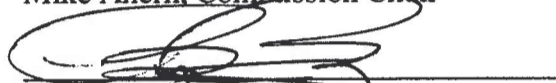
This decision will be effective on the date signed.

Dated this 5<sup>TH</sup> day of September, 2007.

BOARD OF COMMISSIONERS:



Mike Ahern, Commission Chair



Bill Bellamy, Commissioner



John Hatfield, Commissioner

Attest:



**Appeal Information**

Planning Casefile #06-PA-09

This decision may be appealed to the Land Use Board of Appeals within 21 days of the Jefferson County Board of Commissioners Decision. Oregon Revised Statute (ORS) 197.830 sets forth the review procedures. Copies of the Board of Commissioners decision and the state statute are available from the Community Development Department located at 85 SE "D" Street, Madras, Oregon 97741.

Board of Commissioners adoption date: September 5, 2007

The complete file is available for review at the Jefferson County Community Development Department. For further information, contact the Community Development Department. Phone (541) 475-4462.

**EXHIBIT A****FINDINGS OF FACT**

**Applicable criteria:** Jefferson County Comprehensive Plan Part 5, Amendments to the Comprehensive Plan; OAR 660-015, Statewide Planning Goals; OAR 660-012, Transportation Planning Rule.

A. The adoption of the Transportation System Plan (TSP) is a legislative amendment to the Comprehensive Plan. Part 5 of the Plan states the proposed amendment must:

1. *Comply with applicable Statewide Planning Goals, Oregon Revised Statutes and Administrative Rules; and*
2. *Be consistent with other Comprehensive Plan goals and policies.*

OAR 660-012-0025(2) also requires that findings of compliance with applicable statewide planning goals and acknowledged comprehensive plan policies and land use regulations shall be developed in conjunction with the adoption of a TSP.

B. **Findings of Compliance with Statewide Planning Goals:**

Statewide planning Goal 1 requires the opportunity for citizen involvement in all phases of the planning process. A Technical Advisory Committee made up of representatives from various agencies was involved in the preparation of the draft TSP. Three public open houses were held, on December 14, 2005, February 16, 2006 and April 26, 2006, to get citizen input during the preparation of the draft. Notice of the open houses was posted at various businesses and government offices throughout the County, and was published in the Madras Pioneer prior to each open house. Properly noticed public hearings were held before the Planning Commission and Board of Commissioners to take public testimony on the draft TSP. This complies with the citizen involvement requirements of Goal 1.

Goal 2 requires that the county have an established planning process so that land use decisions will be based on an adequate factual base, and allows for the revision of the Plan when public needs and desires change or when development occurs at a different rate than contemplated by the plan. The County followed established procedures in considering the adoption of the TSP.

Goal 3 requires preservation of agricultural lands. Goal 4 requires conservation of forest lands. OAR 660-012, the Transportation Planning Rule; OAR 660-033, Agricultural Lands; and OAR 660-004, Forest Lands contain requirements for transportation facilities and improvements on farm and forest land. These requirements are implemented through the Jefferson County Zoning Ordinance. The Board finds that Goals 3 and 4 are not directly applicable to the adoption of a TSP.

Goal 5 requires the protection of natural resources, scenic and historic areas and open spaces. None of the transportation projects outlined in the TSP affect Goal 5 resources,

approval criteria. The goals and policies are implemented through other measures, primarily by regulations in the Zoning Ordinance.

Policies to meet Goal 1 require citizen participation in the land use planning process. Public open houses were held during the drafting stage of the TSP, and public hearings before both the Planning Commission and Board of Commissioners were held prior to adoption of the TSP. This complies with the Comprehensive Plan policies for citizen participation.

Policy 3 of Goal 2 requires the County to coordinate with other governmental agencies, special districts and the Confederated Tribes. The County worked closely with ODOT in preparing the TSP. Various other agencies and cities had representatives on the Technical Advisory Committee that assisted in the review of draft documents.

Policies to meet Goals 3 and 4 require the protection of agricultural and forest lands. The transportation projects proposed in the TSP predominantly involve improvements to existing rights-of-way or new roads that will serve urban development. Consequently, there will be minimal impact to agricultural or forest lands.

Policies to implement Goal 5 are intended to protect natural and historic resources. None of the transportation projects proposed in the TSP are located on land that contains a designated Goal 5 resource.

The TSP is implemented through various Zoning Ordinance and County Code road standards. These standards require on-site water retention when new roads are developed, and require roads to meet emergency vehicle access standards. This is in accordance with Comprehensive Plan policies that implement Goals 6 and 7, which require that air, water and land resource quality be protected and natural hazards be minimized.

Policy 1.3 of Goal 8 states that development of bicycle, equestrian and hiking trails and facilities should be encouraged. The TSP contains plans for bicycle and pedestrian projects to accommodate these modes of transportation.

The TSP is consistent with the policies that implement Goals 9 and 10 because provisions in the TSP for maintaining a safe and efficient transportation system will facilitate economic development and new housing.

None of the policies to implement Goals 11, 13 or 14 are applicable to the TSP.

The TSP is in conformance with the policies to implement Goal 12. These policies are also implemented through Zoning Ordinance and County Code road standards.

**D. Findings of Compliance with Goal 12**

Goal 12 states that a transportation plan shall:

- 1) *consider all modes of transportation including mass transit, air water, pipeline, rail, highway, bicycle and pedestrian;*

- 2) *be based upon an inventory of local, regional and state transportation needs;*
- 3) *consider the differences in social consequences that would result from utilizing differing combinations of transportation modes;*
- 4) *avoid principal reliance upon any one mode of transportation;*
- 5) *minimize adverse social, economic and environmental impacts and costs;*
- 6) *conserve energy;*
- 7) *meet the needs of the transportation disadvantaged by improving transportation services;*
- 8) *facilitate the flow of goods and services so as to strengthen the local and regional economy; and*
- 9) *conform with local and regional comprehensive land use plans.*

Section 5 of the TSP addresses bicycle, pedestrian, public transportation, rail, air, pipeline and transmission systems. Sections 3 and 4 address the road system. The various transportation systems are inventoried by describing existing facilities, and needed improvements are identified. Although Goal 12 states that reliance on only one mode of transportation should be avoided, because of the relatively small population in the county reliance on automobile travel at this point in time is unavoidable. Nevertheless, the TSP contains provisions for future improvements to create a more viable bicycle and pedestrian network, and supports improvements to public transportation services. The projects outlined in Section 4 have been proposed in order to maintain and facilitate the flow of traffic, including goods, within and through the county. The TSP conforms to the Comprehensive Plan, as discussed in Finding C.

Goal 12 contains the following planning guidelines for developing a TSP:

1. *All current area-wide transportation studies and plans should be revised in coordination with local and regional comprehensive plans and submitted to local and regional agencies for review and approval.*
2. *Transportation systems, to the fullest extent possible, should be planned to utilize existing facilities and rights-of-way within the state provided that such use is not inconsistent with the environmental, energy, land-use, economic or social policies of the state.*
3. *No major transportation facility should be planned or developed outside urban boundaries on Class 1 and II agricultural land, as defined by the U.S. Soil Conservation Service unless no feasible alternative exists.*
4. *Major transportation facilities should avoid dividing existing economic farm units and urban social units unless no feasible alternative exists.*
5. *Population densities and peak hour travel patterns of existing and planned developments should be considered in the choice of transportation modes for trips taken by persons. While high density developments with concentrated trip origins and destinations should be designed to be principally served by mass transit, low-density developments with dispersed origins and destinations should be principally served by the auto.*
6. *Plans providing for a transportation system should consider as a major determinant the carrying capacity of the air, land and water resources of the planning area. The land conservation and development actions provided for by such plans should not exceed the carrying capacity of such resources.*

The TSP was reviewed by various local and state agencies and jurisdictions during its preparation. The vast majority of the transportation projects identified in Sections 4 and 5 involve existing facilities and rights-of-way. Only one of the proposed projects (project #49, the SW Deschutes Drive connection) that would require acquiring additional right-of-way involves an area of Class II soil. This project also would divide an existing farm. The project involves completing a gap in an existing road, so no feasible alternative alignment exists. There are no high-density developments in the unincorporated areas of the county, so no provisions for mass transit are warranted or feasible. Because of the relatively small population and dispersed development in the unincorporated areas of the county, the TSP recognizes that automobile travel will be the principal form of transportation during the 20-year planning period for the TSP.

Goal 12 contains the following guidelines for how the TSP should implement the goal:

1. *The number and location of major transportation facilities should conform to applicable state or local land use plans and policies designed to direct urban expansion to areas identified as necessary and suitable for urban development. The planning and development of transportation facilities in rural areas should discourage urban growth while providing transportation service necessary to sustain rural and recreational uses in those areas so designated in the comprehensive plan.*
2. *Plans for new or for the improvement of major transportation facilities should identify the positive and negative impacts on: (1) local land use patterns, (2) environmental quality, (3) energy use and resources, (4) existing transportation systems and (5) fiscal resources in a manner sufficient to enable local governments to rationally consider the issues posed by the construction and operation of such facilities.*
3. *Lands adjacent to major mass transit stations, freeway interchanges, and other major air, land and water terminals should be managed and controlled so as to be consistent with and supportive of the land use and development patterns identified in the comprehensive plan of the jurisdiction within which the facilities are located.*
4. *Plans should provide for a detailed management program to assign respective implementation roles and responsibilities to those governmental bodies operating in the planning area and having interests in carrying out the goal.*

The TSP does not propose any new major transportation facilities, and there are no mass transit stations, freeway interchanges or other major air, land or water terminals in the county. "Major" is defined in OAR 660-012-0005(11) as "in general, those facilities or developments which, considering the size of the urban or rural area and the range of size, capacity or service level of similar facilities or developments in the area, are either larger than average, serve more than neighborhood needs or have significant land use or traffic impacts on more than the immediate neighborhood." The TSP proposes transportation improvements that are adequate to continue to meet the transportation needs of rural areas of the county. However, it also includes conceptual plans for projects to accommodate future urban growth around the City of Madras. These projects, if eventually developed, will likely not be constructed until the land is brought into the



urban growth boundary or urban reserve. Section 4 of the TSP breaks the projects into categories based on the governmental body most likely to be responsible for implementing the project – ODOT, the City of Madras, or the County.

**E. Findings in response to issues raised**

Craig Soule submitted comments asserting that the TSP identified an area adjacent to Crooked River Ranch for development of a secondary emergency access road, including a bridge over the Crooked River, and indicated that this would not be consistent with the wild and scenic river designation and would negatively affect golden eagle nests in the vicinity. The Board finds that the project in question (#46) involves only a study of alternatives and engineering feasibility of a secondary emergency access. No actual road construction project has been identified or proposed. Part of the study would need to include the potential impacts to the river and Goal 5 resources.

The City of Culver submitted comments requesting that an additional bicycle/pedestrian project be added to the TSP in order to form a looped bike path around the city. The TSP was modified to include this project (bicycle facility project #B5).

H. Brad Halvorsen submitted comments in opposition to several proposed road projects north of Madras, including closing the Meadowlark Lane access to Highway 97 and projects that would increase traffic on Brown Drive. ODOT has identified the northern Meadowlark Lane and Brown Drive intersections with Highway 97 as a safety concern. The County supports limiting the number of access points on the highway in order to increase safety and traffic flow. While closing Brown Drive access to the highway will result in increased traffic on Brown Drive, it will not exceed the carrying capacity of the road. Much of the additional traffic would likely take the proposed connection from Brown Drive to Boxwood Lane to Kinkade Road, limiting the amount of additional traffic that would use the southern portion of Brown Drive.

Floyd Paye testified that Meadowlark Lane access to Highway 97 should not be closed, wants Brown Drive to be improved, and is opposed to any conceptual road project that would go through his property. Pam Furman also testified in opposition to the proposed extension of Boxwood Lane to connect with the Kinkade Road extension. The Board finds that any extension of Boxwood Lane is conceptual only at this point, and would not occur until warranted by future urban development. The actual location and alignment would be determined as part of a future planning process, which would include the opportunity for involvement and comments from affected property owners.

Tim Whitaker of School District 509J testified about concerns about the diameter of roundabouts and cul-de-sacs and street width as these pertain to school bus maneuverability. The Board finds that the road standards in the Jefferson County Code, which were previously adopted by separate ordinance, require roads to be constructed with widths to accommodate school buses.

DLCD submitted comments on the initial draft TSP by letter dated January 17, 2007. As a result of these comments the initial draft was substantially revised. The revised draft was forwarded to DLCD, who submitted additional comments by letter dated July 9,

2007. A few additional minor revisions were made to address these comments, including minor changes to the definition of shared roadways; clarification that the County is not currently pursuing alternative funding sources although it has done so in the past; clarification that \$180,000 is budgeted annually for upgrades to existing roads and \$136,000 is the current accumulated total for bicycle and pedestrian projects; an edit to reflect that the Transportation Planning Rule is not an ODOT rule; revision of strategies to contain definite language like “will” rather than “should”; addition of a strategy supporting the Central Oregon Intergovernmental Council’s efforts to meet transportation needs of the disadvantaged; and clarification that future refinement planning will need to take place prior to development of the projects to accommodate future urban growth listed in Table 4-3.

The DLCD letters requested that changes be made to several sections of the Zoning Ordinance in order to address bicycle and pedestrian requirements of OAR 660-012-0045(3). The Zoning Ordinance was adopted December 27, 2006 after six months of hearings. 45-days notice was provided to DLCD prior to the first hearing. DLCD did not submit any comments on the Zoning Ordinance prior to or during the hearing process. The Zoning Ordinance is currently under appeal to LUBA. DLCD did not appeal the Ordinance. The Board finds that DLCD had ample opportunity to submit its comments on whether the Zoning Ordinance complies with the Transportation Planning Rule prior to its adoption, and is not willing to amend the Ordinance while it is under appeal.

# **Jefferson County Transportation System Plan**

Adopted September 5, 2007

## Preface

This project was funded by the Oregon Department of Transportation (ODOT) and Jefferson County. This document does not necessarily reflect the views or policies of the State of Oregon.

The development of this Transportation System Plan (TSP) was guided by the Jefferson County Public Works and Community Development Departments, ODOT, a Technical Advisory Committee (TAC), and the Consultant Team identified below.

### Jefferson County Management Team

Chris Gannon Community Development Director	Mike McHaney Public Works Director
--	---------------------------------------

### ODOT Management Team

Jim Bryant  
Project Manager

### Technical Advisory Committee (TAC)

Joel McCaroll ODOT, Region Traffic Manager	David Boyd ODOT, Region Access Management Engineer
Pat Creedican ODOT, District 10 Manager	Swede Hay ODOT, Rail Unit
Cary Goodman ODOT, Freight Unit	Peter Schuytema ODOT, TAPU
Jon Jinings DLCD, Field Representative	Sandy Mathewson Jefferson County, Senior Planner
Richard Black Jefferson County, Engineer	Dan Harnden City of Culver, Mayor
Jack Jones Jefferson County, Sheriff	Tom Adams City of Madras, Police Chief
Tim Whitaker Jefferson County, School District 509 J	Chuck McGraw City of Madras Planning Director
Gus Burrell City of Madras Public Works Director	Mike Morgan City of Madras Administrator

The Technical Advisory Committee members devoted a substantial amount of time and effort to the development of the Transportation System Plan (TSP), and their participation was instrumental in the development of the report.

### Consultant Team:

<i>Kittelson &amp; Associates, Inc.</i>	<i>Angelo Eaton &amp; Associates, Inc.</i>
Sagar Onta, P.E.	Darci Rudzinski, AICP
Elizabeth Wemple, P.E.	Frank Angelo, Principal
Julia Knudsen	
Dave Daly	

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**Section 1**  
**Introduction**

## Introduction

### 1.1 OVERVIEW

Jefferson County, in conjunction with the Oregon Department of Transportation (ODOT), initiated a study of the county's transportation system in 2005. This Transportation System Plan (TSP) will guide the management and development of appropriate transportation facilities within the county over a twenty year planning period, until 2027. The TSP incorporates the county's vision for its transportation system, while remaining consistent with state, regional, and local plans. The plan implements Goal 12, Transportation, in the County's Comprehensive Plan.

Goal 12 requires cities, counties, metropolitan planning organizations, and ODOT to provide and encourage a safe, convenient, and economic transportation system. This is accomplished through development of TSPs based on inventories of local, regional and state transportation needs. Goal 12 states that transportation plans shall:

- *consider all modes of transportation, including pedestrian, bicycle, highway, rail, mass transit, air, water, and pipeline*
- *be based upon an inventory of local, regional, and state transportation needs*
- *consider the differences in social consequences that would result from utilizing differing combinations of transportation modes*
- *avoid principal reliance on any one mode of transportation*
- *minimize adverse social, economic, and environmental impacts and costs and conserve energy*
- *meet the needs of the transportation disadvantaged*
- *facilitate the flow of goods and services so as to strengthen the local and regional economy*
- *conform with local and regional comprehensive land use plans*

In April 1991, the Land Conservation and Development Commission (LCDC), with the concurrence of ODOT, adopted the Transportation Planning Rule (TPR), OAR 660 Division 12. OAR 660-012-0055(2) requires counties to complete and adopt a TSP and implementing measures by May 8, 1997. However, counties with a population under 25,000 may receive a whole or partial exemption from the TPR requirements. Jefferson County's population is approximately 22,000. The County did not request an exemption, and hired an engineering firm who completed a draft TSP in 1996. The County was not satisfied with the draft, and it was not adopted.



## 1.2 PLAN REQUIREMENTS

Pursuant to OAR 660-012-0015, the County's TSP must "establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional TSPs and adopted elements of the state TSP." This TSP is consistent with these requirements. Although not required by the TPR for areas outside of urban growth boundaries (UGBs), this TSP also includes a review of the County's transportation financing capability to help identify future unfunded transportation needs and potential revenue sources.

OAR 660-012-0020 contains the requirements for TSPs, as set forth below. Some of the requirements do not apply to Jefferson County's TSP because the County's population is less than 25,000, the County is not part of a Metropolitan Planning Organization (MPO), and does not have intercity transit service. Subsections of the OAR that are not applicable to the County's TSP are identified by an asterisk.

- (1) A TSP shall establish a coordinated network of transportation facilities adequate to serve state, regional and local transportation needs.
- (2) The TSP shall include the following elements:
  - (a) A determination of transportation needs as provided in OAR 660-012-0030;
  - (b) A road plan for a system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections. Functional classifications of roads in regional and local TSPs shall be consistent with functional classifications of roads in state and regional TSPs and shall provide for continuity between adjacent jurisdictions. The standards for the layout of local streets shall provide for safe and convenient bike and pedestrian circulation necessary to carry out OAR 660-012-0045(3)(b). New connections to arterials and state highways shall be consistent with designated access management categories. The intent of this requirement is to provide guidance on the spacing of future extensions and connections along existing and future streets which are needed to provide reasonably direct routes for bicycle and pedestrian travel. The standards for the layout of local streets shall address:
    - (A) Extensions of existing streets;
    - (B) Connections to existing or planned streets, including arterials and collectors; and
    - (C) Connections to neighborhood destinations.
  - (c) A public transportation plan which:
    - (A) Describes public transportation services for the transportation disadvantaged and identifies service inadequacies;
    - (B) Describes intercity bus and passenger rail service and identifies the location of terminals;
    - \* (C) For areas within an urban growth boundary which have public transit service, identifies existing and planned transit trunk routes, exclusive transit ways, terminals and major transfer stations, major transit stops, and park-and-ride stations. Designation of stop or station locations may allow for minor adjustments in the location of stops to provide for efficient transit or traffic operation or to provide convenient pedestrian access to adjacent or nearby uses.
    - \* (D) For areas within an urban area containing a population greater than 25,000 persons, not currently served by transit, evaluates the feasibility of developing a public transit system at buildout. Where a transit system is determined to be feasible, the plan shall meet the requirements of paragraph (2)(c)(C) of this rule.
  - (d) A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area. The network and list of facility improvements shall be consistent with the requirements of ORS 366.514;
  - (e) An air, rail, water and pipeline transportation plan which identifies where public use airports, mainline and branchline railroads and railroad facilities, port facilities, and

major regional pipelines and terminals are located or planned within the planning area. For airports, the planning area shall include all areas within airport imaginary surfaces and other areas covered by state or federal regulations;

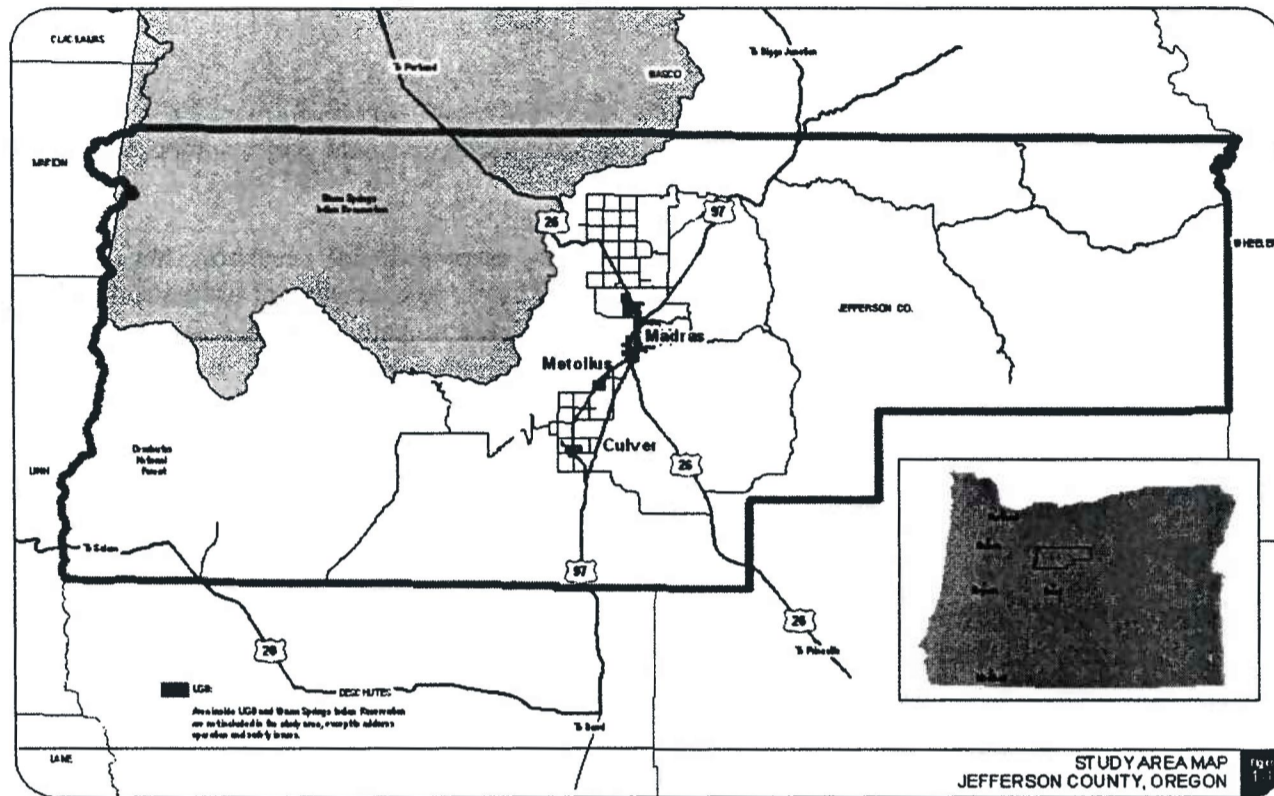
- \* (f) For areas within an urban area containing a population greater than 25,000 persons a plan for transportation system management and demand management;
  - \* (g) A parking plan in MPO areas as provided in OAR 660-012-0045(5)(c);
  - (h) Policies and land use regulations for implementing the TSP as provided in OAR 660-012-0045;
  - \* (i) For areas within an urban growth boundary containing a population greater than 2,500 persons, a transportation financing program as provided in OAR 660-012-0040.
- (3) Each element identified in subsections (2)(b)-(d) of this rule shall contain:
- (a) An inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity and condition:
    - (A) The transportation capacity analysis shall include information on:
      - (i) The capacities of existing and committed facilities;
      - (ii) The degree to which those capacities have been reached or surpassed on existing facilities; and
      - (iii) The assumptions upon which these capacities are based.
    - (B) For state and regional facilities, the transportation capacity analysis shall be consistent with standards of facility performance considered acceptable by the affected state or regional transportation agency;
    - (C) The transportation facility condition analysis shall describe the general physical and operational condition of each transportation facility (e.g., very good, good, fair, poor, very poor).
  - (b) A system of planned transportation facilities, services and major improvements. The system shall include a description of the type or functional classification of planned facilities and services and their planned capacities and performance standards.

OAR 660-012-0045, Implementation of the Transportation System Plan, requires that local governments adopt land use regulations consistent with state and federal requirements "to protect transportation facilities, corridors, and sites for their identified functions." The County Zoning Ordinance has been amended to comply with these requirements. Standards related to road construction and access spacing is contained in the Jefferson County Code, which are attached as Appendix III.

### 1.3 PLANNING AREA

Figure 1-1 shows a map of Jefferson County. The TSP covers all unincorporated areas of the county, except lands within the boundary of the Confederated Tribes of the Warm Springs Reservation of Oregon.

The study of County roads and intersections was generally limited to those with the highest classifications – collectors and arterials – as well as state highways. However, local road issues such as road connectivity, design standards and safety issues are also discussed where appropriate.



#### 1.4 PUBLIC INVOLVEMENT

A Technical Advisory Committee (TAC) guided the planning process for the TSP. The TAC was made up of representatives from relevant state agencies, local jurisdictions, local school districts, the Sheriff's Department and the Jefferson County Rural Fire Protection District. A full list of the TAC members is provided in the preface. The TAC was responsible for reviewing the technical aspects of the TSP and evaluating it from a policy perspective. This work included reviewing the TSP goals and policies, as well as the transportation evaluation criteria.

Three public open houses were used to inform citizens and businesses in the county of the TSP project goals and process and to obtain information from the community on transportation issues and concerns, which was incorporated into the TSP. Public hearings before the Jefferson County Planning Commission and Board of Commissioners were also held prior to adoption of the TSP.

#### 1.5 TSP ORGANIZATION AND METHODOLOGY

Development of the TSP began with a review of the local, regional, and statewide plans and policies that guide land use and transportation planning in the County. The review provided a policy framework for the County's transportation planning process. The TSP was developed to

be consistent with all current adopted plans and policies. The documents that were reviewed are listed and briefly summarized in **Appendix 1**.

Objectives for the TSP were identified, and strategies were formulated to meet those objectives, as outlined in **Section 2**.

A technical analysis of the existing road system was performed, which allowed for an objective assessment of the system's existing physical characteristics, operational performance, safety, and general function, as outlined in **Section 3**.

Upon completion of the existing conditions analysis, implementing measures and a list of projects were identified to address road system needs. There was extensive coordination between the county and ODOT to identify transportation needs related to state highways, and between the county and City of Madras to identify projects to accommodate anticipated future growth near the city. The projects and implementing measures are contained in **Section 4**.

**Section 5** contains the existing system analysis and transportation plans for other transportation modes, including bicycle, pedestrian, public transportation, air, rail, and pipeline and transmission systems.

**Section 6**, Transportation Financing Plan, provides an analysis and summary of existing transportation system funding sources, and alternative sources which potentially could be used to pay for the identified transportation system improvements.

**Section 7** explains how the TSP will be implemented and amended.

**Appendix II** contains the Jefferson County Coordinated Human Services Transportation Plan, which is the public transportation component of the TSP. This Plan was adopted by separate ordinance and is included in the TSP for reference purposes only.

**Appendix III** contains the road construction and spacing standards from the Jefferson County Code, which are part of the means the County will use to implement the TSP. The road standards were adopted by separate ordinance and are included in the TSP for reference purposes only.

**Section 2**

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**Objectives and Strategies**

## OBJECTIVES AND STRATEGIES

Statewide planning Goal 12 requires jurisdictions to provide and encourage a safe, convenient and economic transportation system. This section lists the objectives the County feels should be met in order to comply with that Goal, and strategies that will be used to meet the objectives. The strategies will be implemented through land use regulations contained in the Jefferson County Zoning Ordinance, road construction and access spacing standards contained in the Jefferson County Code, and specific transportation projects outlined in Sections 4 and 5. The objectives and strategies listed here are not intended to be mandatory approval criteria used in making land use decisions.

**Objective 1:** Provide a multi-modal transportation system that will accommodate traffic generated by increased development and population growth in the County without adversely impacting existing transportation facilities.

**Strategies:** 1.1 Require a Traffic Impact Study when traffic from a proposed new development could impact the existing transportation system. Prohibit new development that would result in levels of travel that would reduce the Level of Service of a road or intersection below LOS C unless the developer will construct improvements to the transportation system that will maintain that Level of Service.

1.2 Applications for Comprehensive Plan amendments, rezones or amendments to land use regulations will be reviewed to verify that the allowed land uses will not change the functional classification of a road unless the TSP will either be amended to modify the function, capacity or performance standards of the transportation facility, or will be amended to provide transportation facilities, improvements or services adequate to support the proposed land uses.

**Objective 2:** Protect the ability of state highways to move people and goods through and within the County in a safe manner with minimal impediments to traffic flow.

2.1 Work with ODOT to increase safety and facilitate the smooth movement of traffic on state highways by limiting new access points, closing some existing road access to the highway, adding passing lanes, and providing turn lanes at intersections.

2.2 Coordinate with the City of Madras and ODOT to designate detour routes for use during emergency closures of Highways 97 and 26.

**Objective 3:** Make safety a primary consideration in the development of new transportation facilities and new access points on existing roads, and in the maintenance or modification of existing facilities.

**Strategies:** 3.1 Unsafe intersections with inadequate sight distance or skewed geometry should be closed or modified to provide right-angle intersections with adequate sight distance when roads are upgraded or new development will significantly increase the number of vehicles using the intersection.

- 3.2 Maintain spacing standards between access points on roads in order to increase safety and minimize conflicts with traffic flow. The spacing will be based on the functional classification of the road.
- 3.3 Zoning Ordinance regulations will continue to require the development and maintenance of clear-vision areas at intersections that will assure adequate sight distances.
- 3.4 Zoning Ordinance regulations will require adequate emergency vehicle access to all development.
- 3.5 Promote the identification and development of emergency evacuation routes in the event of wildfire hazard or other emergency.

Objective 4: Plan, develop and maintain an interconnected transportation system that will link people with communities and recreational areas.

- Strategies:
- 4.1 New subdivisions will be required to provide for the continuation of the existing road network where feasible or where needed to provide access to adjoining properties.
  - 4.2 Continue to classify roads in the County as arterials, collectors, and local roads based on their function and design, and adopt standards to maintain the road's capacity.
  - 4.3 Coordinate with cities in the planning, design and construction of roads to connect with the city's road network or that would serve future urban development.

Objective 5: Continue to protect and provide for alternative means of transportation.

- Strategies:
- 5.1 Zoning Ordinance regulations will protect present airport facilities from conflicting uses and development that would create hazards to aircraft.
  - 5.2 Encourage the preservation of rail corridors within the County. If improvements are planned, minimize conflicts with adjoining land uses and ensure that adequate vehicular mobility is provided.
  - 5.3 Paved shoulders will be required during the construction of new roads and the upgrading or maintenance of existing roads to provide for bicycle and pedestrian use.
  - 5.4 Support the Central Oregon Intergovernmental Council's efforts to meet the transportation needs of persons who are 60 and over, low income, and/or disabled, as outlined in the Jefferson County Coordinated Human Services Transportation Plan.

Objective 6: Find sources other than the County to cover the cost of transportation improvements.

- Strategies:
- 6.1 Developers and property owners served by the road will be responsible for the construction and ongoing maintenance of new public and private roads.
  - 6.2 Require developers to make off-site transportation improvements by upgrading substandard roads and intersections that will be impacted by a new subdivision or other development. Improvements that are required will be based on a direct nexus between the level of road impacts that will be caused by increased traffic generated by the development and the level of transportation facility improvements that are required.
  - 6.3 Urban Growth Boundary expansions should be accompanied by an agreement to transfer jurisdiction of County roads within the UGB to the city.



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**Section 3**

**Existing Road System  
Inventory And Conditions**

## Road System Inventory and Existing Conditions

### 3.1 EXISTING ROAD SYSTEM

Roads serve the largest share of trips in Jefferson County. Motor vehicles, bicycles, pedestrians, transit, and freight transportation all rely on roads to some degree. Roads also provide vehicle, bicycle, pedestrian, and transit access to air and rail facilities.

The public road system within the county is primarily owned and maintained by the following agencies or jurisdictions:

- The **United States Forest Services (USFS)** owns and maintains roads within the Deschutes National Forest, located in the southwest area of the county, and the Ochoco National Forest, in the southeast edge of the county. Most of the roads are gravel. These roads are primarily used to access logging and recreational areas and provide emergency fire access. Roads under USFS jurisdiction are not included in the TSP.
- The **Oregon Department of Transportation (ODOT)** owns and maintains 95.37 miles of road within the County, including those that are the most heavily traveled. These highways provide regional mobility within the county and serve as major transportation links to other areas of the state.
- **Jefferson County** owns and maintains approximately 621 miles of road, of which approximately 267 miles are paved. The majority of the county roads are concentrated in the central north-south portion of the County, which contains the irrigated farm lands and the population centers. The majority of county roads have two travel lanes, no bike lanes, no sidewalks, and minimum shoulders.
- The **incorporated cities** of Madras, Metolius, and Culver own and maintain the majority of the streets within their city limits, although a few roads within city limits are maintained by ODOT or the County. City streets provide local access and serve local trips.
- There are a number of **public use and local access roads** within the County. These roads are available for use by the public, but are generally not maintained by the County or other public agency. For instance, the majority of roads in Crooked River Ranch are public roads which are maintained by a special road district.

The Three Rivers Recreation Area and a few subdivisions have access from **private roads**. Private roads are maintained by the property owners who use the road or by a homeowner's association.

### 3.2 STATE HIGHWAY SYSTEM

The Oregon Department of Transportation (ODOT) owns and maintains 95.37 miles of road within Jefferson County. State highways are more heavily traveled than other roads, provide regional mobility within the county, and serve as major transportation links to other areas of the state.

The following state highways lie within the County and are maintained by ODOT:

- **US 97 (The Dalles-California Highway 004)** is the main north-south route through central Oregon. It runs from the Washington state line near the Biggs Junction with Interstate 84, through the Cities of Madras, Bend, and Klamath Falls to the California state line. Approximately 36 miles of US 97 are located in Jefferson County. Highway 97 is mostly a two-lane facility providing regional mobility from the Wasco County line in the north to the Deschutes County line in the south. The highway also serves as a secondary north-south route for I-5. US 97 is approximately 10 miles shorter than the I-5 route between the California border and the Willamette Valley. In southern Oregon, US 97 passes through the Siskiyou Mountains at a lower elevation than the I-5 pass, making this a desirable secondary truck route, especially in the winter months. Several sections of the highway have passing lanes to accommodate heavy truck traffic. The 1999 Oregon Highway Plan (OHP) classifies US 97 as a statewide highway, expressway and freight route.
- **US 26 (Warm Springs Highway 053 and Madras-Prineville Highway 360)** is a two-lane highway that provides regional mobility between the northern Oregon Coast and the Oregon-Idaho border. Within Jefferson County US 26 is divided into two highways; Warm Springs Highway 053 and Madras-Prineville Highway 360. Highway 053 provides a connection from the Wasco County line to the southern fork of US 26 and US 97 south of Madras and is approximately 21 miles in length. It is classified as a statewide highway, expressway and freight route. Highway 360 connects from the southern fork of US 26 and US 97 to the Crook County line and is approximately 16 miles long. It is classified as a regional highway and freight route. US 26 is the main route for recreational and freight traffic from the Portland metro area to Central Oregon.
- **US 20 (Santiam Highway 126)** is a two-lane highway that provides east-west regional mobility through Central Oregon. This road serves as a secondary east-west route to I-84; however, the Santiam Pass through the Cascade mountain range makes this route less desirable for travelers during inclement weather conditions. Approximately 10 miles of US 20 is in the southwest corner of the County running through the Camp Sherman area from the Linn County line into Deschutes County. The road is classified as a statewide highway and freight route in the OHP.
- **Culver Highway 361** serves as the major route between the City of Madras and the cities of Metolius and Culver. The highway also provides access from Highway 97 to the Cove Palisades State Park-Lake Billy Chinook Recreation Area. Highway 361 is approximately 12 miles long and runs north-south roughly parallel to and west of US 97, from Madras through the Cities of Metolius and Culver. South of Culver the highway intersects US 97 just north of Juniper Butte. The road is classified as a district highway in the OHP.

- **Antelope Highway 293** provides the connection from US 97 to the City of Antelope in Wasco County. Only 0.71 miles of the highway is located within the county. It is classified as a district highway in the OHP.

### Freight Truck Transportation

Many of Oregon's goods and products are shipped by truck. The 1993 Oregon Commodity Flow Study found that 64 percent of the total freight value, and 76 percent of the total freight tonnage, is shipped by truck. When road and bridge infrastructure is unable to support truck movements, trucks must detour around the restricted roads, which adds to the cost of freight shipments.

Oregon has designated a State Highway Freight System that serves the majority of the intrastate and interstate freight movements. US 97 and US 26 to Madras and US 20 are the only highways on the state freight system in the county. These highways provide vital freight movement in Central Oregon. US 97 also serves as a secondary route for I-5 truck traffic, especially in winter months when the Siskiyou pass on I-5 becomes hazardous due to ice and snow conditions.

ODOT tracks truck volume percentages data for state facilities. The data is obtained from permanent Automatic Traffic Recorder (ATR) stations located across the State. The data shows that US 97 and US 26 carry between 14 and 19 percent truck traffic.

### Highway Functional Classifications

ODOT classifies highways based on the 1999 Oregon Highway Plan. ODOT classifications are mainly based on the significance of the highway in the statewide transportation system. "Statewide Highway" is given the highest priority and is considered to be a road of statewide significance. "Regional Highway" and "District Highway" provide regional and district level mobility, respectively. The state highway classifications are provided in Table 3-1.

**TABLE 3-1 STATE HIGHWAY CLASSIFICATION**

Highway	Mile Post within County	Classification	NHS	Freight Route	Scenic Byways
US 97 - The Dalles-California Highway 04	74.25 - 112.86	Statewide	Yes	Yes	No
US 26 - Warm Springs Highway 053	96.48 - 117.58	Statewide	Yes	Yes	No
Madras-Prineville Highway 360	0.00 - 16.30	Statewide	No	Yes	No
US 20 - Santiam Highway 126	80.77 - 90.85	Statewide	Yes	Yes	Yes
Culver Highway 361	0.00 - 11.62	District	No	No	No
Antelope Highway 293	0.00 - 0.71	District	No	No	No

NHS: National Highway System

### Highway Safety

In 1986 ODOT developed the Safety Priority Index System (SPIS) to identify potential safety problems on Oregon's state highways. The SPIS helps to identify areas where funds apportioned for safety issues can be spent in a manner that will achieve the highest benefit. ODOT defines a SPIS site

as a 0.10 mile section of roadway that has three or more crashes or one or more fatal crashes over a three year period. The priority index of the roadway segments are based on frequency, severity, and crash rate. The current 2001 – 2003 SPIS rankings show two sites in unincorporated Jefferson County outside the Warm Springs Reservation - US 26 at Dover Lane, and US 97 at Milepost 106.00 (between US 97/Culver Highway 361 and SW Monroe Lane).

Based on safety data provided by the ODOT Transportation Data Section, which conducts safety crash rate analyses on state highway segments, US 20 was found to have higher than statewide average crash rates for similar facilities. This can likely be attributed to the mountainous terrain as US 20 passes through the Willamette National Forest and the Santiam Pass.

Historic crash data for the five-year period from 2000 to 2004 were examined to determine whether safety deficiencies exist at intersections of county roads and state highways. The data were analyzed at the intersection level to identify crash trends and potential safety deficiencies. The data show that the following intersections have the highest number of crashes:

- Dover Lane/US 97
- Jericho Lane/US 97
- US 97/US 26 south of Madras
- Culver Highway 361/US 97
- Culver Highway 361/Iris Lane

The majority of crash types were rear-end collision, angle and turning crashes at intersections. These types of accidents are common in high-speed rural environments where intersections are not signalized, adequate sight distance is not available for vehicles entering the highway, or an adequate deceleration or turn pocket is not available for vehicles exiting the highway.

Some intersections of county roads with state highways have skewed geometry, which creates negative operational and safety conditions. Increases in traffic volumes expected to occur in the future could potentially increase the safety risks at these locations. Based on field visits conducted in September 2005, potential safety issues have been identified at the following intersections because of the skewed intersection geometry:

- US 26/NW Gumwood Drive (both intersections)
- US 26/NW Columbia Drive
- US 26/NW Boise Drive
- US 97/SW Bear Drive
- US 97/SW Culver Highway
- US 97/NE Old US 97
- SW Culver Highway 361/SW Gem Lane
- SW Culver Highway 361/SW Iris Lane/SW Elbe Drive

### Highway Traffic Capacity

Traffic volume is anticipated to grow in direct proportion to the projected population growth. For the County as a whole, population is expected to grow 3.2 percent a year until 2011, and 2.5 percent a year until 2026. The City of Madras is expected to grow at a faster rate of 4.5 percent a year until 2011, and 4.0 percent until 2026. Consequently, it is expected that there will be a greater increase in traffic volume on US 97 south of Madras than on other roads in the County since that highway segment serves traffic from Madras and the surrounding areas, as well as regional traffic to and from Deschutes County.

ODOT future volume forecasts also provide an estimate of the future traffic growth on state highways. The future volume growth rates for different sections of the highways vary based on the function and characteristics of the highway.

Based on the forecast traffic volume, most of the rural highway segments in the County will operate acceptably, with the exception of the segment of US 97 south of US 26 (MP 97.19) to the Jefferson-Deschutes County line. This roadway segment carries the highest volume of traffic in Jefferson County and is anticipated to carry approximately 22,400 to 26,700 daily vehicles in 2025. Operational improvements on this segment of the highway will be needed in the future to meet County and ODOT mobility standards.

Operation analyses were also conducted for certain highway intersections. The US 97/US 26-South intersection is anticipated to operate over a volume to capacity (v/c) of 1.0 by 2025 unless improvements are made. [V/c is a measure of traffic demand (volume) on a transportation facility compared to its traffic-carrying capacity. For example, a v/c ration of 0.7 indicates that a traffic facility is operating at 70 percent of its capacity.]

## 3.3 COUNTY ROAD SYSTEM

### County Road Functional Classifications

The County classifies roads based on their functional role in the county's transportation system. The function and role of the road can be described in terms of the character of service the road provides. In general, the functional classification of a road is based on the varying degree of its two primary functions: 1) providing regional mobility, and 2) promoting local accessibility. A road's functional classification determines its intended purpose, the amount and character of traffic it is expected to carry, the degree to which non-auto travel is emphasized, and the road's design standards, including right-of-way width, travel surface width, posted/design speed, access spacing requirements, and whether pedestrian and bicycle facilities are provided. The classification considers the adjacent land uses and the kinds of transportation modes that should be accommodated. The public right-of-way must also provide sufficient space for utilities to serve adjacent land uses.

Roads in the County are classified as Arterials, Major Collectors, Minor Collectors, and Local Roads. Table 3-2 provides a description of each category.

**TABLE 3-2 COUNTY ROAD FUNCTIONAL CLASSIFICATIONS**

Functional Classification	Description	Typical ADT Range
Arterial	Arterials are the highest class of road. Their primary function is to carry high levels of regional through vehicular traffic at high speeds, serve interstate movement of freight, and emphasize traffic movement over local land access. Arterials are characterized by full access control, with access limited to interchanges and widely spaced access points. Arterials may have medians. Pedestrian and bicycle traffic is discouraged or prohibited.	5,500 - 7,500
Major Collector	Major collectors are the intermediate road class, carrying lower traffic volumes at slower speeds than arterials. Their primary function is to collect traffic from the local street system and distribute it to the arterial street system. Major collectors provide some access to adjacent properties, but where possible should provide extended continuous stretches of road to facilitate traffic circulation.	2,500 – 6,000
Minor Collector	The primary function of a minor collector is to connect traffic to arterials and major collectors. Minor collectors have slower speeds than major collectors and arterials, and may provide more local land access.	500 – 2,500
Local Road	Local roads are the lowest road class. Their primary function is to provide direct access to adjacent land. Local roads are characterized by low traffic volumes.	0 - 600

The only arterials in the County are state highways. Existing major and minor collectors are listed in Tables 3-3 and 3-4, and are shown in Figures 3-1 and 3-2.

**TABLE 3-3 MAJOR COLLECTORS**

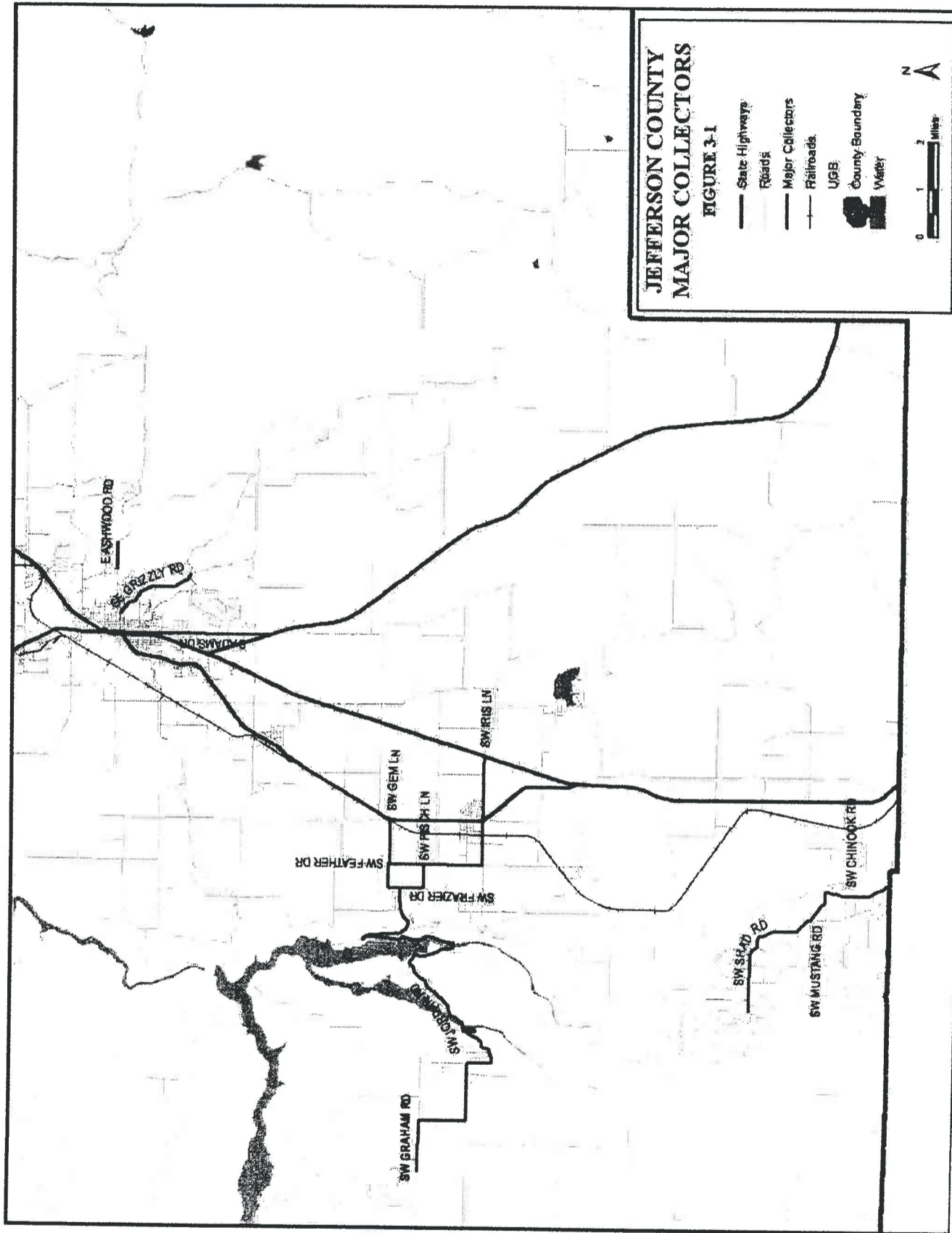
Road Name	County Road No.	Begin MP	Description	End MP	Description
S. Adams Drive	148	1.00	J Street	3.40	Highway 26
E. Ashwood Road	111	1.50	Bean Drive	2.00	End of park
SW Chinook Drive	315	18.52	Mustang	20.20	County line
SW Feather Drive	140	6.00	Gem Lane	8.00	Iris Lane
SW Fisch Lane	132	5.00	Feather Drive	5.50	Frazier Drive
SW Frazier Drive	104	6.25	Gem Lane	7.00	Fisch Lane
SW Gem Lane	118	3.95	Highway 361	5.50	Frazier Drive
SW Graham Road	310	17.37	Jordan Road	18.90	Three Rivers gate
SW Grizzly Road	109	0.75	B Street	1.59	McTaggart Road
SW Iris Lane	122	2.58	US 97	5.00	Feather Drive
SW Jordan Road	310	5.50	Frazier Drive	17.40	Graham Road
SW Mustang Road	315	5.40	Chinook Drive	6.50	Shad Road
SW Shad Road	315	5.40	Mustang Road	8.00	Cinder Drive

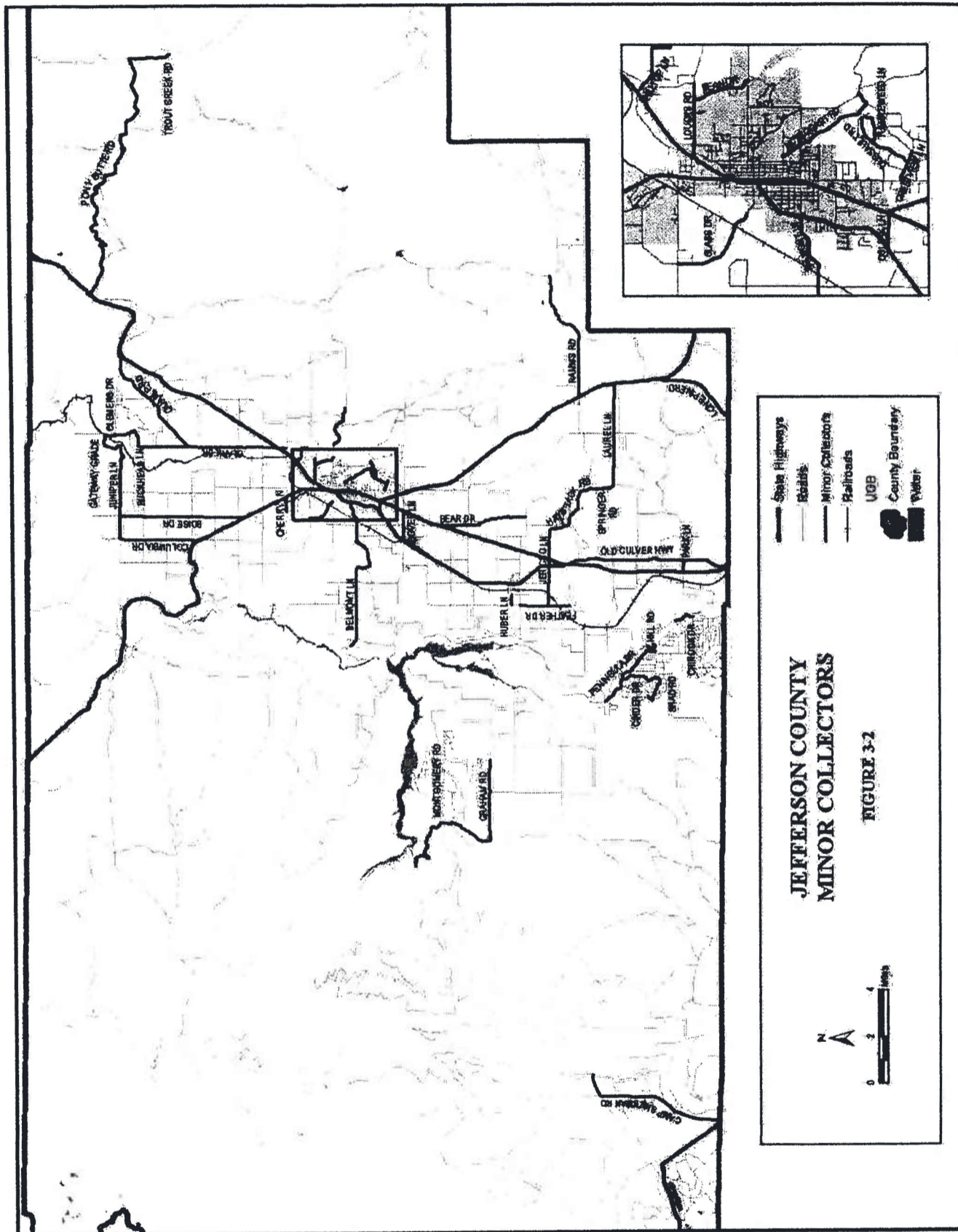
TABLE 3-3 MINOR COLLECTORS

Road Name	County Road No.	Begin MP	Description	End MP	Description
E. Ashwood Road	111	2.00	End of Park	3.90	Prison
NE Bean Drive	136	0.0	Ashwood Road	0.90	Loucks Road
SW Bear Drive	147	4.60	S Highway 97	8.25	Irving Lane
SW Belmont Lane	113	0.50	Highway 361	7.00	End
NW Boise Drive	229	3.70	Highway 26 N	9.00	NW Juniper Lane
NE Buckley Lane	232	8.10	NE Clark Drive	9.30	NE Clemens Drive
SW Camp Sherman Road	610	12.58	Metolius River	18.00	Highway 20
NW Cherry Lane	222	1.00	Highway 26 N	1.70	Airport
SW Chinook Drive	999	14.60	Mustang Road	15.58	Clubhouse Road
SW Cinder Drive	315	12.94	Peninsula Drive	14.95	Shad Road
NE Clark Drive	761	2.50	Highway 97 N	8.10	Buckley Lane
NE Clemens Drive	232	9.30	Buckley Lane	10.40	Gateway
SW Colfax Lane	134	0.90	Highway 97 S	1.10	Highway 361
NE Columbia Drive	228	5.50	Highway 26 N	9.00	NW Juniper Lane
SE Crestview Lane	1705	0	S Adams Drive	5.60	Sagebrush Road
SW Dover Lane	114	1.90	Highway 97 S	2.20	Highway 361
SE Dussault Road	1701	0	Rancho Lane	1.00	Crestview Lane
SW Feather Drive	140	8.00	Iris Lane	10.00	Irrigation canal
NE Gateway Grade	210	1.50	Juniper Lane	2.50	Clemens Drive
SW Glass Drive	157	0.50	C Street	1.84	Birch Lane
SW Graham Road	310	18.87	Three Rivers gate	21.87	Montgomery Road
SW Haystack Road	106	9.25	Jericho Lane	10.96	Springer Road
SW Hill Road	421	13.50	Chinook Drive	14.48	Shad Road
NE Hilltop Lane	1801	1.32	Highway 97 N	2.00	Clark Drive
SW Huber Lane	121A	4.50	C Street, Culver	5.00	Feather Drive
SW Jericho Lane	124	1.50	Haystack Road	5.00	Feather Drive
NE Juniper Lane	210	0	N Adams Drive	2.00	Columbia Drive
NW Juniper Lane	210	0	N Adams Drive	1.00	Gateway Grade
SE Laurel Lane	421	0.20	Springer Road	4.64	Highway 26
SE Lone Pine Road	419	14.00	Highway 26 S	17.79	County line
NE Loucks Road	110	0.45	Highway 97 N	1.41	Brown Drive
SE McTaggart Road	152	0.60	Buff Street	2.14	Grizzly Road
SW Montgomery Road	310	21.87	Graham Road	27.46	Perry South
SW Old Culver Highway	144	10.00	Highway 97 S	16.90	Highway 97 S
SW Park Lane	122	2.00	Old Culver Highway	3.50	Highway 97 S



SW Peninsula Drive	315	9.00	Waterhole Place	15.20	Shad Road
NE Pony Butte Road	410	8.40	Highway 97 N	20.91	Trout Creek Road
NE Quale Road	236	2.00	Clark Drive	7.39	Highway 97 N
SE Ramms Road	412	4.13	Highway 26 S	9.83	Grizzly Road
SW Shad Road	315	8.00	Cinder Drive	9.50	Sundown Canyon Rd.
SE Springer Road	106	10.96	Haystack Road	13.37	Laurel Lane
NE Trout Creek Road	515	7.89	Pony Butte Road	9.64	Gosner Road
SE Tumbleweed Lane	1703	0.50	Dussault Road	0.85	Rancho Lane





### Level of Service

County roads currently operate at an acceptable Level of Service (LOS). LOS is a measure of roadway congestion, which affects traffic speed and travel time. There are six LOS grades, ranging from LOS A, which is best, to LOS F, which is the worst or most congested. LOS can be applied to intersections as well as roads, as a measurement of queuing time. LOS grades are described as follows:

- LOS A describes a condition of free-flowing traffic, with low volumes and high speeds.
- LOS B is a reasonably free flow of traffic, with speeds beginning to be somewhat restricted by traffic conditions.
- LOS C has a stable traffic flow, but a higher volume of traffic which may limit the ability to pass, and speeds may be more restricted.
- LOS D is approaching unstable traffic flows, and speed is considerably affected, such as can occur on an urban highway during commuting times.
- LOS E has an unstable or irregular traffic flow, lower or varying speeds that rarely reach the posted speed limit, and traffic volume at or near the capacity of the road.
- LOS F is a forced traffic flow, heavy volume and stop and go traffic. Because of stoppages, the road can fall below its traffic-carrying capacity.

The County's aim is to have all roads and intersections operate at LOS C or better.

### Pavement Condition

The Public Works Department maintains a pavement condition and surface type database for county roads. Based on the 2006 database, the county has a total of 121.01 miles of gravel road and 233.47 miles of road that are either gravel or native surface. Approximately 267 miles of County roads are paved. The database was analyzed to identify roads that are either in very poor pavement condition or have a gravel/native surface. None of the major collectors in the County meet either of the two conditions. However, several minor collectors have either very poor pavement condition or have a gravel/native surface type. Table 3-5 lists the high volume minor collectors that have either very poor pavement condition or a gravel/native surface. Low volume minor collectors have not been reviewed for pavement condition since they carry a low volume of traffic.

**TABLE 3-5 MINOR COLLECTOR ROADS WITH POOR PAVEMENT CONDITION OR GRAVEL/NATIVE SURFACE**

Road	Mile Post	Length	Surface
NE Buckley Lane	8.1 - 9.3	1.2	Asphalt
NE Clark Drive	2.7 - 8.1	5.4	Asphalt
NE Pony Butte Road	8.4 - 20.91	12.51	Asphalt
SE Laurel Lane	0.2 - 4.64	4.44	Gravel
SW Graham Road	18.87 - 21.87	3	Gravel
SW Montgomery Road	24.61 - 34.77	10.16	Gravel
SW Old Culver Highway	14.5 - 16.9	2.4	Asphalt
SE Springer Road	10.96 - 13.37	2.41	Gravel

**Section 4**

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Road System Plan  
And Projects

## Road System Plan and Projects

The road improvement projects listed in this section reflect the anticipated operations and circulation needs through the year 2025, and provide guidance on how to facilitate that travel over the next 20 years. Ideally, the TSP and identified projects should be reviewed every five years and updated as needed.

Various road improvement projects have been proposed to provide new road connections, to improve roads to accommodate future traffic volumes, to improve the geometry and address the safety needs of an intersection or section of road, and to conduct corridor refinement planning to narrow down potential options. The projects have been broken down into three categories:

- Highway Projects, outlined in Table 4-1
- County Road Improvement Projects, outlined in Table 4-2
- Projects to Accommodate Future Urban Growth, outlined in Table 4-3.

Figures 4-1 to 4-4 show the location of the projects. Figures 4-5 to 4-16 provide conceptual drawings of some of the projects.

### 4.1 HIGHWAY PROJECTS

Highway improvement projects identified by ODOT have been proposed to accommodate future traffic volumes, to control access to state highways in order to improve mobility, to improve the geometry and address the safety needs of the intersection or section of the road, and to conduct corridor refinement planning to narrow down potential options. The projects are outlined in Table 4-1.

A primary purpose of the highway projects is to improve traffic operation and safety. Traffic operations are improved by projects that provide the capacity needed to accommodate future traffic volumes and improve traffic operations on the road. Traffic operation analyses were conducted for rural highway segments and at key intersections along state routes in the county. The analyses were conducted in accordance with the *2000 Highway Capacity Manual* to identify specific future capacity and operation needs. Based on the results of the analysis, conceptual road and/or intersection improvements were identified, including the construction of passing lanes, turning lanes and turning refuges.

Projects have been proposed to enhance traffic safety by improving the geometry and/or operation of the road, especially at intersections. With the anticipated increase in traffic volume on the major highways in the future, safety issues resulting from the intersection of County roads and state highways will not only continue to be a major concern, but safety risks could potentially increase at current locations of concern if new development increases traffic trying to enter or exist the highway. The listed safety projects aim to address three main safety concerns on state highways: 1) sections of highway without passing lanes; 2) intersections with skewed geometry; and 3) lack of proper turn lanes at intersections with relatively high turning

movements. All projects on US 97 south of Madras provide interim measures to improve safety and operation of the highway before the highway is widened to four lanes in the long-term future.

In most cases, improvements to an intersection, such as the construction of turn lanes, will be coupled with the closure of county road access to the highway at a nearby intersection. This will increase safety and improve traffic flow on the highway. Accident history, ADT on county roads, cross connectivity of county roads across the highway, sight distance at intersections, existing or future location of passing lanes, and feedback from the Technical Advisory Committee were considered when determining which intersections should be improved and which should be closed. In some cases, county roads should be upgraded to higher road standards to accommodate re-routed traffic from other roads whose access to the state highway will be closed. These associated county road projects are listed in Table 4-2.

### Consideration of Alternatives

The vast majority of the highway projects involve work within the existing right-of-way, either closing or upgrading intersections or adding travel or passing lanes. ODOT has determined that these improvements to the existing highway facility can reasonably be expected to meet highway capacity and safety needs during the near term.

A few of the highway projects will likely require the acquisition of additional right-of-way for a realignment of the existing highway facility. These projects include the US 97 truck bypass (project #13) and US 97/US 26 North and South interchange studies (projects #18 and #42). These projects will require the identification and analysis of alternatives, development of refinement plans, and a significant public involvement effort prior to any construction. Further refinement planning will also be needed for project #17, the Culver Highway 361/SW Jericho Lane safety improvements and project #25, the Culver Highway 361/SW Bear Drive safety improvements.

Preliminary alternatives have been identified for the US 97 truck bypass. Figure 4-9 illustrates these alternatives. The Figure is followed by Table 4-4, which provides the advantages and disadvantages of each alternative. The concept that currently appears to have the most advantages is Alternative 1C and Alternative 2. Alternative 1C connects to the existing US 97/US 26 North intersection. It then follows 1<sup>st</sup> Street and the Culver Highway. Alternative 2 follows the existing alignment of Culver Highway until SW Loafers Lane, after which it diverts to intersect with US 97 near the existing US 97/US 26 South intersection. The new intersection with US 97 would ultimately be a grade separated interchange. Further detailed conceptual analysis and feasibility studies will need to be conducted to determine the impact of the proposed truck by-pass and identify the preferred alternative.

Table 4-1 provides the following information on the highway improvement projects:

- Project number (referenced to Figures 4-1 through 4-4)
- Project name
- Project description (briefly describes the project)

- Source (indicates if the project is identified in the Statewide Transportation Improvement Program (STIP) or Safety Priority Index System (SPIS) or Madras TSP. If no source is identified, the project was identified as part of the cooperative planning for the TSP.)

The road improvement projects are categorized into short-, mid-, and long-term projects. Short-term projects include those improvements or deficiencies that could be addressed within the next five years. Mid-term projects include those projects that may be addressed within five to 10 years. Long-term projects will continue to be considered during planning projects, but will most likely not be implemented until after 2016 unless a specific development proposal that would cause a significant increase in traffic results in developer-financed improvements. The time-frame for the projects was primarily determined by ODOT.

**TABLE 4-1 HIGHWAY PROJECT LIST**

No.	Project Name	Project Description	Source
<b>Short Term (0-5 years)</b>			
1	US 97/SW Iris Lane Intersection Improvements	Construct NBLT, SBLT, and SBRT lanes at the US 97/SW Iris Lane intersection.	STIP
2	SW Highland Lane Closures	Close SW Highland Lane on east and west sides of intersection with US 97 in conjunction with improvements at US 97/SW Iris Lane intersection (project 1). Alternate highway access will be provided via SW Iris Lane and SW Ford Lane.	
3	US 97/SW Jericho Lane Intersection Improvements	Construct NBLT, NBRT, SBLT, and SBRT lanes at the US 97/SW Jericho Lane intersection.	STIP
4	Culver Highway 361/US 97/Old Culver Highway Intersection Improvements (See Figure 4-5)	Close Culver Highway 361 on west side of intersection with US 97 in conjunction with intersection improvements at US 97/SW Jericho Lane (project 3). Convert Old Culver Highway on east side of US 97 to a right-out and left-in access.	SPIS List
5	US 97/SW Dover Lane Intersection Improvements	Construct NBLT, NBRT, SBLT, and SBRT lanes at the US 97/SW Dover Lane intersection.	SPIS List
6	US 26/SE Dover Lane Intersection Improvements	Install larger STOP signs, thermal plastic stop bar, and guide signs for Madras and Prineville to improve visibility of intersection and desired routes. Add appropriate channelization for turning vehicles.	SPIS List
7	Old Culver Highway Emergency Detour Route	Upgrade Old Culver Highway as Emergency Detour Route in case of closure of US 97.	
8	NW Gumwood Lane Closure (See Figure 4-6)	Close NW Gumwood Lane access on US 26 just east of Deschutes Drive.	Draft STIP
9	NW Gumwood Lane Closure (See Figure 4-7)	Close NW Gumwood Lane access on US 26 just west of Columbia Drive in conjunction with intersection improvements at US 26/NW Columbia Drive.	Draft STIP
10	US 26/NW Columbia Drive Intersection Improvements (See Figure 4-7)	Close NW Columbia Drive access to US 26 on south side of highway. Realign NW Columbia Drive access to US 26 on north side of highway to intersect at right-angle.	
11	US 97/NE Cherry Lane Intersection Improvements	Realign or close Cherry Lane access to US 97 on the east side of the highway. Add appropriate channelization for vehicles turning west.	Draft STIP
12	Culver Highway 361/SW Gem Lane Improvements (See Figure 4-8)	Provide larger turn radius on Culver Highway 361, realign SW Elbe Drive to the west of the intersection to improve geometry and queue distance from rail crossing.	



No.	Project Name	Project Description	Source
13	US 97 Truck Bypass Study (See Figure 4-9)	Conduct pre-NEPA analysis and environmental assessments on alternative alignments of future US 97 by-pass to divert truck traffic from downtown Madras.	Madras TSP
14	US 97 Passing Lanes - South of SW Dover Lane	Provide passing lanes south of SW Dover Lane and connect to SW Eureka Lane.	US 97 Corridor Strategy
15	US 97 Passing Lanes - South of SW Norris Lane to Deschutes County Line	Provide passing lanes south of SW Norris Lane (south of bridge) to SW Park Lane.	US 97 Corridor Strategy
16	US 97 Passing Lane - From SW Ford Lane to SW Highland Lane	Provide passing lanes on US 97 from SW Ford Lane to SW Highland Lane.	US 97 Corridor Strategy
17	Culver Highway 361/SW Jericho Lane Safety Improvements	Identify safety issues and provide appropriate mitigations.	STIP
18	US 97/US 26 South Interchange Study	Prepare Interchange Area Management Plan (IAMP) for the future interchange at the US 97/US 26 south intersection with the proposed US 97 truck bypass.	
<b>Mid-Term (5-10 years)</b>			
19	NE Bean Drive/US 97 Intersection (See Figure 4-10)	Construct a new channelized intersection on US 97 in conjunction with the extension of NE Bean Drive and the new NE Meadowlark Lane connection (projects 67 and 70) and the closure of NE Meadowlark Lane and NE Brown Drive (projects 20 and 21).	
20	US 97/NE Meadowlark Lane Closure (See Figure 4-11)	Close the northern NE Meadowlark Lane access to US 97 on the east and west sides of the highway in conjunction with construction of a new intersection to the south at NE Bean Drive extension (see projects 67 and 70).	
21	US 97/NE Brown Drive Closure (See Figure 4-11)	Close the NE Brown Drive access to US 97.	
22	US 97/NE Cora Drive Closure (See Figure 4-12)	Close the NE Cora Drive access to US 97.	
23	US 97/NE Clark Drive Intersection Improvements (See Figure 4-12)	Realign NE Clark Drive to intersect US 97 at right-angle and provide appropriate channelization for turning vehicles.	
24	US 97/US 26 North Capacity Improvements	Add dual westbound left-turn lanes and a NBRT lane overlap at the US 97/US 26 intersection.	
25	Culver Highway 361/SW Bear Drive Safety Improvements	Evaluate the Culver Highway 361/SW Bear Drive intersection to identify safety issues and provide appropriate mitigations.	
26	SW Eureka Lane Closure (See Figure 4-13)	Close SW Eureka Lane access to US 97 on the west side of the highway.	
27	US 97/SW Bear Drive Intersection Improvements (See Figure 4-13)	Realign SW Bear Drive on the west side of US 97 to intersect at right-angles with the highway. Realign and extend SW Bear Drive on the east side of US 97 to intersect at right-angles with the highway, in line with the intersection of SW Bear Drive on the west side of highway.	
28	SW Falcon Lane Closures	Close SW Falcon Lane access to US 97 on east side of highway. Alternate access will be provided via SW Ford Lane and SW Bear Drive.	
29	US 97/SW Ford Lane Intersection Improvements	Add appropriate intersection channelization to accommodate turning vehicles at the intersection of US 97/SW Ford Lane.	

No.	Project Name	Project Description	Source
30	Culver Highway 361/SW Iris Lane/SW Elbe Drive Intersection Improvements (See Figure 4-14)	Realign SW Elbe Drive to intersect at right-angle to Culver Highway 361, south of SW Iris Lane. Construct a roundabout at Culver Highway 361/SW Iris Lane intersection.	
31	SW Norris Lane Closure	Close SW Norris Lane access to US 97 on east and west sides of highway. Alternate highway access will be provided via SW Monroe Lane, SW Park Lane and Old Culver Highway.	
32	SW Opal Lane Closures	Close SW Opal Lane access to US 97 on east side of highway. Alternate highway access will be provided via SW Park Lane and Old Culver Highway.	
33	US 20 Safety Improvements	Conduct safety audit of the highway section within the county.	
<b>Long-Term (10-20 years)</b>			
34	US 26/NW Fir Lane Intersection Improvements	Provide SBRT and NBRT slip lanes at the US 26/NW Fir Lane intersection.	
35	US 26/NW Boise Drive Intersection Improvements (See Figure 4-15)	Close NW Elm Lane access to US 26 on east side of highway. Convert NW Boise Drive to one T-intersection. Close NW Boise Drive access to US 26 on south side of highway.	
36	US 26/NW Dogwood Lane Intersection Improvements	Provide NBLT, NBRT, SBLT, and NBRT slip lanes at US 26/NW Dogwood Lane intersection.	
37	US 26/S Adams Drive Intersection Improvements (See Figure 4-16)	Realign S Adams Drive access to US 26 on south side of highway to intersect US 26 at a right-angle. Close S Adams Drive access to US 26 on north side of highway.	
38	Culver Highway 361/SW Deschutes Drive Intersection Improvements	Realign SW Deschutes Drive to intersect Culver Highway 361 at right-angle.	
39	US 97/NE Quaaale Road Intersection Improvements (See Figure 4-17)	Realign NE Quaaale Road to intersect US 97 at right-angle and add appropriate channelization for turning vehicles.	
40	US 97/Old US 97 Intersection Improvements (See Figure 4-17)	Realign Old US 97 to intersect US 97 at right-angle and add appropriate channelization for turning vehicles.	
41	US 97/US 293 Highway Intersection Improvements	Provide proper channelization at the intersection to accommodate turning vehicles.	
42	US 26/US 97 North Interchange Study	Evaluate the need for an interchange at the north intersection of US 26/US 97.	
43	US 97 Widening	Widen US 97 to four lanes from Madras to Deschutes County line. Provide appropriate channelization at intersections with major collectors.	

STIP: Statewide Transportation Improvement Program

SPIS List: 2001 – 2003 Safety Priority Index System

NBLT: Northbound Left Turn

SBLT: Southbound Left Turn

NBRT: Northbound Right Turn

SBRT: Southbound Right Turn

## 4.2 COUNTY ROAD IMPROVEMENT PROJECTS

Table 4-2 lists road projects involving County roads. The projects were identified to address four issues: road connectivity, traffic operation, safety, and pavement condition.

*Connectivity* projects provide links between existing roads or areas of the county.

*Operation* projects provide the capacity needed to accommodate future traffic volumes and improve traffic operations on the road. In some cases, existing roads need to be upgraded to higher road standards to accommodate re-routed traffic from other roads whose access to the state highway will be closed, as identified in the state highway projects listed in Table 4-1. These projects also will enhance traffic safety by improving the geometry and/or operation of the road.

*Pavement* projects are to improve the condition of the existing road.

### Consideration of Alternatives

All but three of the proposed projects listed in Table 4-2 involve existing roads, and should not require the acquisition of any additional right-of-way unless an existing road segment has inadequate right-of-way width or the road needs to be realigned to remove curves or to address grade issues. Many of the projects involve upgrades to existing roads in order to accommodate rerouted traffic from proposed highway intersection closures. Improvements and upgrades to the existing road system is the preferred alternative chosen by the County in order to minimize the costs associated with acquiring new rights-of-way, and to limit impacts to farm land.

In the case of project #49, the SW Deschutes Drive connection, additional right-of-way will be needed to fill in a 1¼ mile gap in the road between SW Ford Lane and SW Highland Lane. The new road segment will run north-south along the section line, aligned with the portions of SW Deschutes Drive to the north and south. Although a portion of the new road segment will cross an area of class 2 soils that are high-value farmland, alignment with the existing road will use the least amount of land and is the most feasible alternative.

The other two projects that will require additional right-of-way, project #46 Crooked River Ranch secondary access study, and project #47 SW Eureka Lane extension, are conceptual only. Any potential alignment of a future road will depend on design requirements, land use, and physical and environmental constraints. Identification and analysis of alternatives, refinement studies and public involvement will occur before either project is constructed.

The proposed projects to address pavement condition were identified as priorities apart from the regular maintenance program of the County. There are eight minor collector county roads with poor pavement condition or gravel/native surface, as listed in Table 3-5. Five of these roads have been identified as proposed pavement projects (NE Buckley Lane and NE Clark Drive, project #55; SE Laurel Lane and SE Springer Road, project #52; and SW Old Culver Highway, project #7). These five roads were selected to be upgraded because they contribute to the regional traffic flow. The other three minor collector roads with poor pavement condition or gravel/native surface (NE Pony Butte, SW Graham Road and SW Montgomery Road) either have a low ADT volume or would be cost prohibitive to pave because of their length and the lack of County road funds. One non-collector road was included on the list of pavement projects

(NW Hickory Lane, project #51) because it currently is in poor condition and it provides one of the few, widely spaced east – west connections in the area.

Table 4-2 provides the following information:

- Project number (referenced to Figures 4-1 through 4-4)
- Project name
- Project description (briefly describes the project)
- Project category (categorizes the project based on the major issue that it addresses).
- Cost Estimate (provides a preliminary cost estimate based on 2005 material prices, but not including right-of-way or structure cost)

The project description in Table 4-2 indicates that some projects are in conjunction with associated highway access closures or intersection improvements. However, the county road projects and highway projects will not necessarily be completed at the same time. Each project will be completed when and if funding becomes available.

The projects were categorized into short-, mid- and long-term based on the timeframe for associated highway projects, safety, and the amount of traffic served by the road.

**TABLE 4-2 COUNTY ROAD PROJECTS**

No.	Project Name	Project Description	Category	Cost Estimate
<b>Short Term (0-5 years)</b>				
44	SW Columbia Drive Improvements	Upgrade SW Columbia Drive between SW Highland Drive and SW Iris Lane to accommodate re-routed traffic from Highland Drive/US 97 closure (project 2).	Operation	\$2,100,000
45	SW Deschutes Drive Improvements (south of SW Highland Drive)	Upgrade SW Deschutes Drive to minor collector road standards between SW Highland Drive and SW Iris Lane to accommodate re-routed traffic from Highland Drive/US 97 closure (project 2).	Operation	\$2,100,000
46	Crooked River Ranch Secondary Access Study	Conduct alternatives analysis and engineering feasibility study to identify possible secondary emergency access to Crooked River Ranch.	Connectivity	\$150,000
<b>Mid-Term (5-10 years)</b>				
47	SW Eureka Lane Extension (See Figure 4-13)	Construct a frontage road parallel to and east of US 97 from SW Eureka Lane to connect with future SW Bear Drive extension to provide alternative access to US 97 (projects 26 and 27).	Connectivity, Operation	\$1,000,000
48	SW Bear Drive Improvements (See Figure 4-13)	Upgrade SW Bear Drive between SW Eureka Lane and SW Ford Drive to accommodate re-routed traffic from access closures on US 97 (projects 26, 27, and 28).	Operation	\$2,100,000
49	SW Deschutes Drive Connection	Acquire right-of-way and construct SW Deschutes Drive to minor collector road standards from SW Ford Lane to SW Highland Lane to provide an additional north-south road connection west of US 97.	Connectivity, Operation	\$3,000,000

No.	Project Name	Project Description	Category	Cost Estimate
50	SW Ford Lane Improvements	Upgrade SW Ford Lane between Culver Highway 361 and US 97 to minor collector road standards, potentially in conjunction with US 97/SW Ford Lane intersection improvements (project 29).	Operation	\$2,100,000
51	NW Hickory Lane Paving	Pave NW Hickory Lane from NW Danube Drive to NW Boise Drive.	Pavement, Operation	\$1,500,000
52	SE Laurel Lane/SE Springer Road/SE Haystack Reservoir Road Paving	Upgrade and pave SE Laurel Lane, SE Springer Road and SE Haystack Reservoir Road from US 26 to SW Southside Road to improve the connection from US 97 to US 26.	Pavement, Operation, Connectivity	\$10,260,000
53	Camp Sherman Road Improvements	Upgrade Camp Sherman Road to minor collector road standards.	Operation	\$9,240,000
54	NW Columbia Drive Improvements	Upgrade NW Columbia Drive from NW Fir Lane to NW Dogwood Lane and north of US 26 to Juniper Lane, potentially in conjunction with US 26/NW Columbia Drive intersection improvements (project 10).	Operation	\$4,100,000
55	NE Clark Drive/NE Buckley Lane Paving	Upgrade NE Clark Drive and NE Buckley Lane from US 97 to the Town of Gateway.	Pavement, Connectivity	\$2,950,000
56	SW Park Lane Improvements	Upgrade SW Park between US 97 and Old Culver Highway potentially in conjunction with access closures at SW Norris Lane and SW Opal Lane (projects 31 and 32).	Operation	\$2,000,000
<b>Long-Term (10-20 years)</b>				
57	North Adams Drive Improvements	Upgrade N Adams Drive from NE Juniper Lane to NE Cherry Lane to minor collector road standards.	Operation	\$14,350,000
58	NW Fir Lane Improvements	Upgrade NW Fir Lane from NW Columbia Drive to N Adams Drive, potentially in conjunction with US 26/NW Fir Lane intersection improvements (project 34).	Operation	\$4,100,000
59	NW Dogwood Lane Improvements	Upgrade NW Dogwood Lane from NW Columbia Drive to NE Clark Drive to minor collector road standards, potentially in conjunction with US 26/NW Dogwood Lane intersection improvements (project 36).	Operation	\$8,250,000
60	SW Deschutes Drive Improvements (north of SW Ford Lane)	Upgrade SW Deschutes Drive to minor collector road standards between SW Highland Drive and Culver Highway 361, potentially in conjunction with Highway 361/SW Deschutes Drive intersection improvements (project 38).	Operation	\$2,100,000

### 4.3 PROJECTS TO ACCOMMODATE FUTURE URBAN GROWTH

Table 4-3 lists potential transportation projects that are in close proximity to the City of Madras. These projects are designed to facilitate traffic movement from future urban development; increase connectivity of future development to existing neighborhoods, commercial areas and highways; and provide guidelines for roadway alignments as future development occurs. These projects are unlikely to be constructed until the land is brought into the urban growth boundary or is annexed. However, identification of the projects is necessary in order to prevent conflicting uses from impeding future construction of the planned facilities. The projects were prioritized into short-, mid- and long-term based on a general assumption of the timeframe when various areas near the city will be urbanized.

The projects in Table 4-3 are all conceptual in nature and do not identify specific right-of-way locations. They include logical extensions and intersections of the existing road system to meet projected future needs. As indicated in Section 7.2, further refinement planning will need to take place prior to development of any of the projects. Such planning will likely be done by the city as the land is annexed.

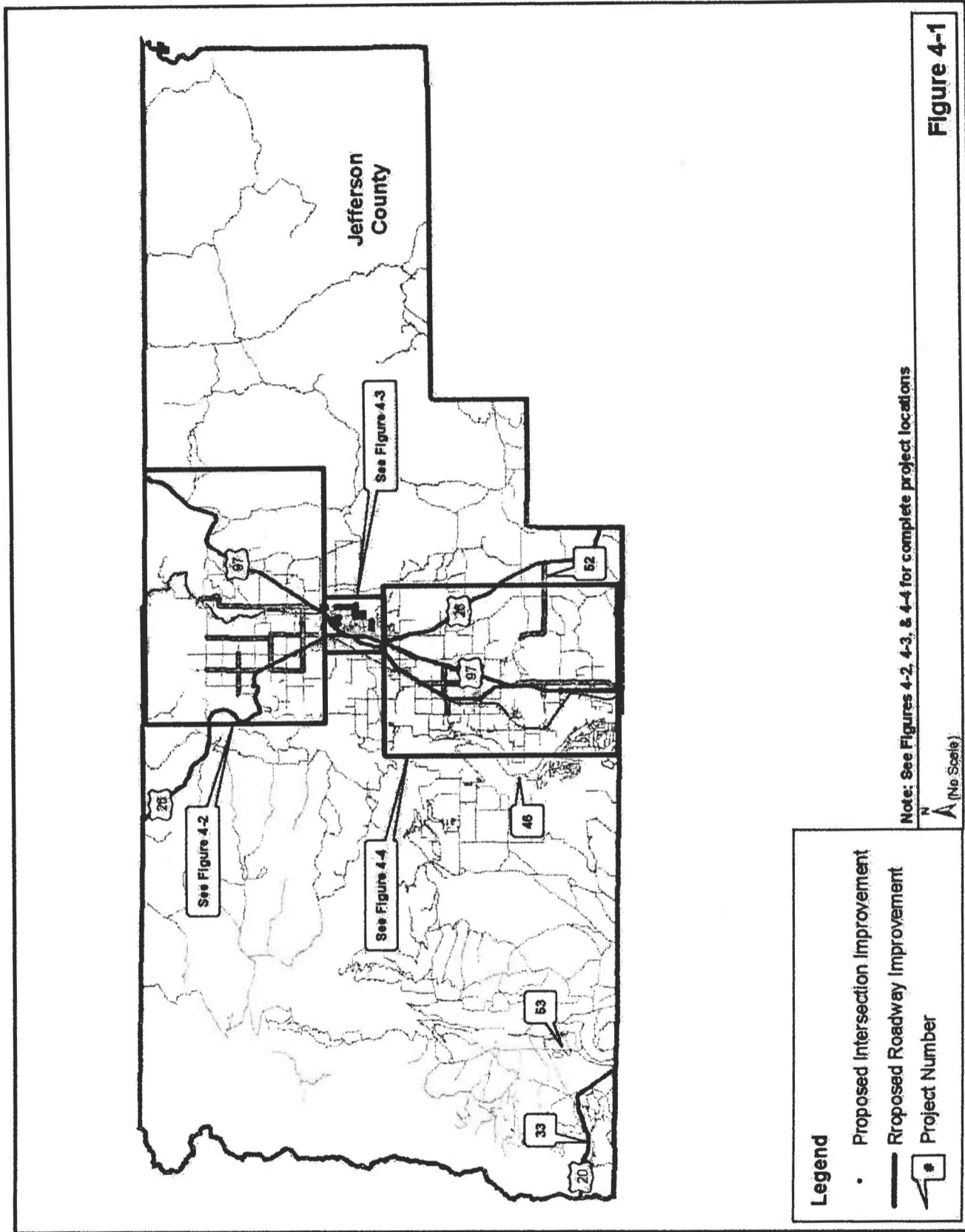
Several of the projects in Table 4-3 have been identified in the city TSP, as indicated in the Source column. The other projects were identified as a result of discussions between the City and the County during the preparation of the County TSP. The County will coordinate with the City on these projects, but will not take the lead in constructing the projects. In most cases, development and construction of the projects will be up to private developers or the City.

Figure 4-3 shows the general location of the projects.

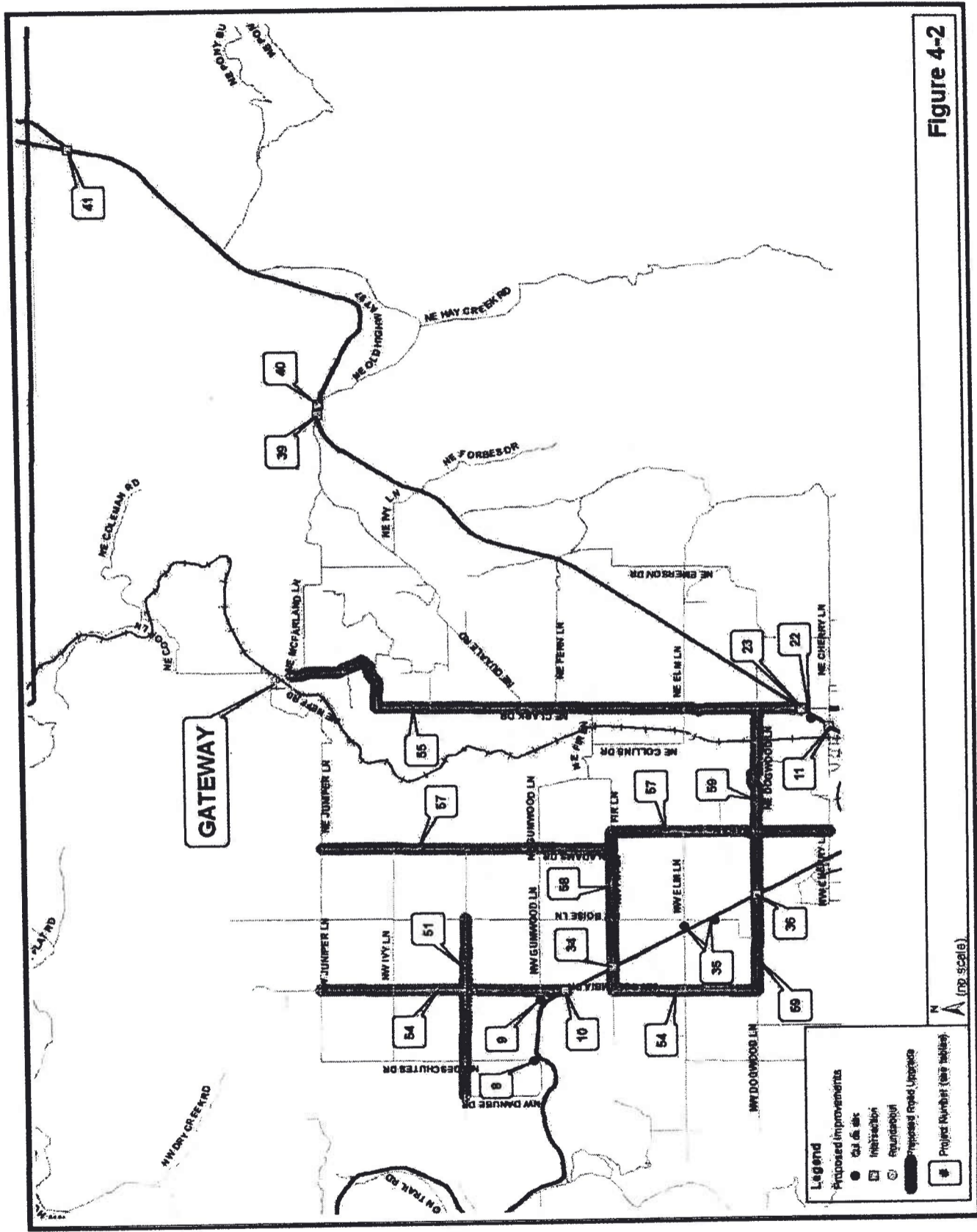
**TABLE 4-3 PROJECTS TO ACCOMMODATE FUTURE URBAN GROWTH**

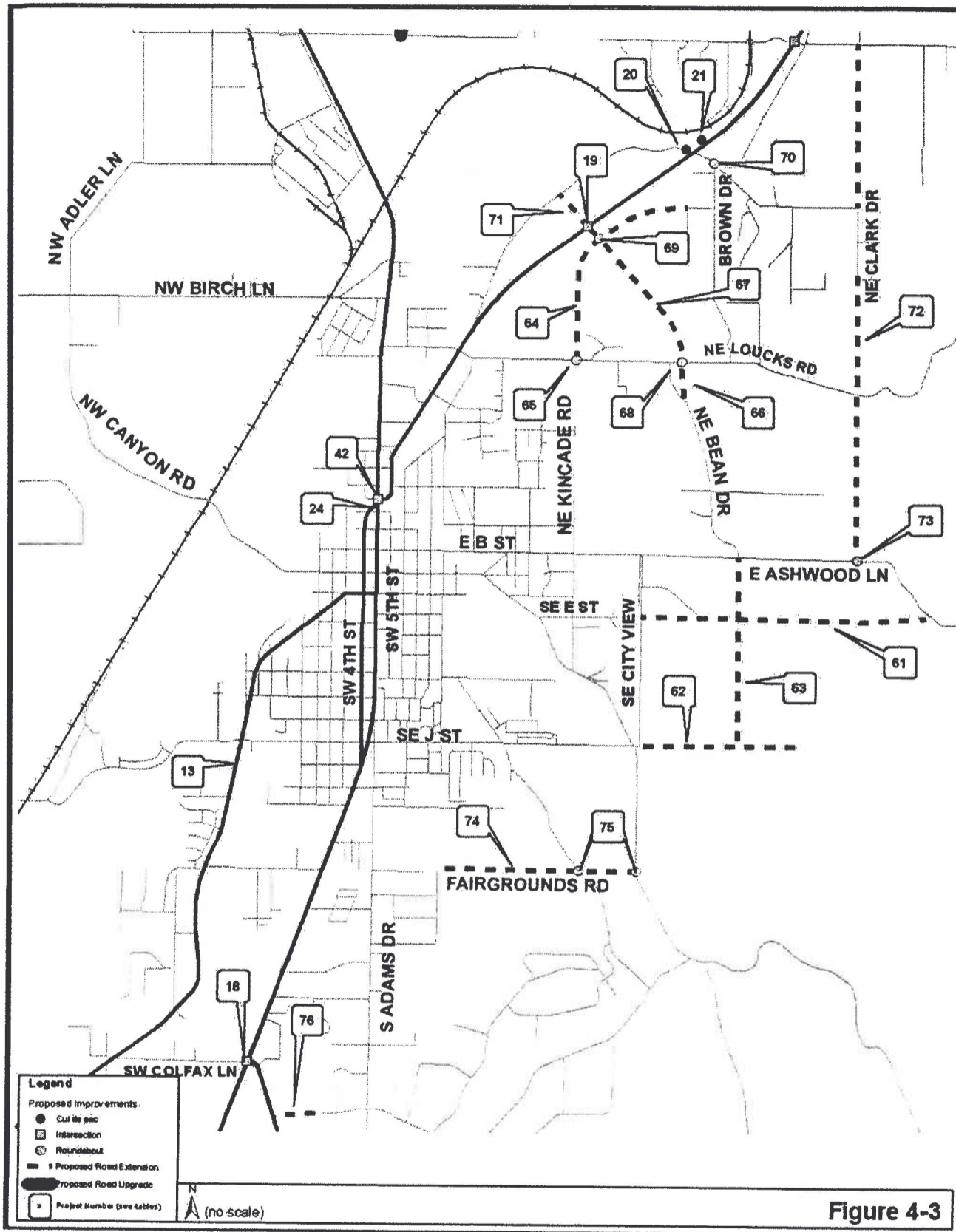
No.	Project Name	Project Description	Category	Source
<b>Short Term (0-5 years)</b>				
61	SE E Street Extension	Extend SE E Street east as a minor collector.	Connectivity	Madras TSP
62	SE J Street Extension	Extend SE J Street east as a major collector.	Connectivity	Madras TSP
63	NE Bean Drive Extension (South)	Extend NE Bean Drive south of E Ashwood Road (will become SE Bean Drive) as a major collector to intersect the SE E Street and SE J Street extensions (projects 61 and 62).	Connectivity	Madras TSP
<b>Mid-Term (5-10 years)</b>				
64	NE Kinkade Road Extension (See Figure 4-10)	Extend NE Kinkade Road north from the UGB as a major collector, to connect with the NE Bean Drive extension (project 67) and NE Boxwood Lane.	Connectivity	Madras TSP
65	NE Kinkade Road/NE Loucks Road Roundabout (See Figure 4-10)	Construct a roundabout at the future NE Kinkade Road/NE Loucks Road intersection to accommodate future traffic volume.	Operation	

No.	Project Name	Project Description	Category	Source
66	NE Bean Drive Realignment, Improvements (See Figure 4-10)	Realign NE Bean Drive on the south side of Loucks Road to remove curve by cemetery, improve as a major collector.	Operation	
67	NE Bean Drive Extension (North) (See Figure 4-10)	Extend NE Bean Drive north of Loucks Road as a major collector, to connect with US 97 at a new intersection (project 19).	Connectivity	
68	NE Loucks Road/NE Bean Drive Roundabout (See Figure 4-10)	Construct a roundabout at the future NE Loucks Road/NE Bean Drive intersection to accommodate future traffic volume.	Operation	
69	NE Kinkade Road/NE Bean Drive Roundabout (See Figure 4-10)	Construct a roundabout at the future NE Kinkade Road/NE Bean Drive intersection to accommodate future traffic volume.	Operation	
70	NE Hilltop Lane/NE Brown Drive/NE Meadowlark Lane Roundabout (See Figure 4-10)	Construct a roundabout at the NE Hilltop Lane/NE Meadowlark Lane/NE Brown Drive intersection to accommodate future traffic volume.	Operation	
71	NE Meadowlark Lane/US 97 Connection (See Figure 4-10)	Construct a new road on the west side of US 97 to NE Meadowlark Lane, connecting with the proposed new intersection of US 97 with NE Bean Drive (project 67).	Connectivity, Operation	
72	NE Clark Drive Extension to NE Loucks Road	Extend NE Clark Drive from US 97 to E Ashwood Road as a major collector.	Connectivity	
73	NE Clark Drive/E Ashwood Road Roundabout	Construct a roundabout at the intersection of NE Clark Drive/E Ashwood Road to accommodate future traffic volume.	Operation	
74	SE Fairgrounds Road Extension (East)	Extend SE Fairgrounds Road east, from the UGB to SE Grizzly Road, as a major collector.	Connectivity	
75	SE Fairgrounds Road Roundabouts	Construct roundabouts at the future SE Fairgrounds Road/SE McTaggart Road and SE Fairgrounds Road/SE Grizzly Road intersections.	Operation	
<b>Long-Term (10-20 years)</b>				
76	SE Crestview Lane Extension	Extend SE Crestview Lane from S Adams Drive to US 26 as a minor collector.	Connectivity	









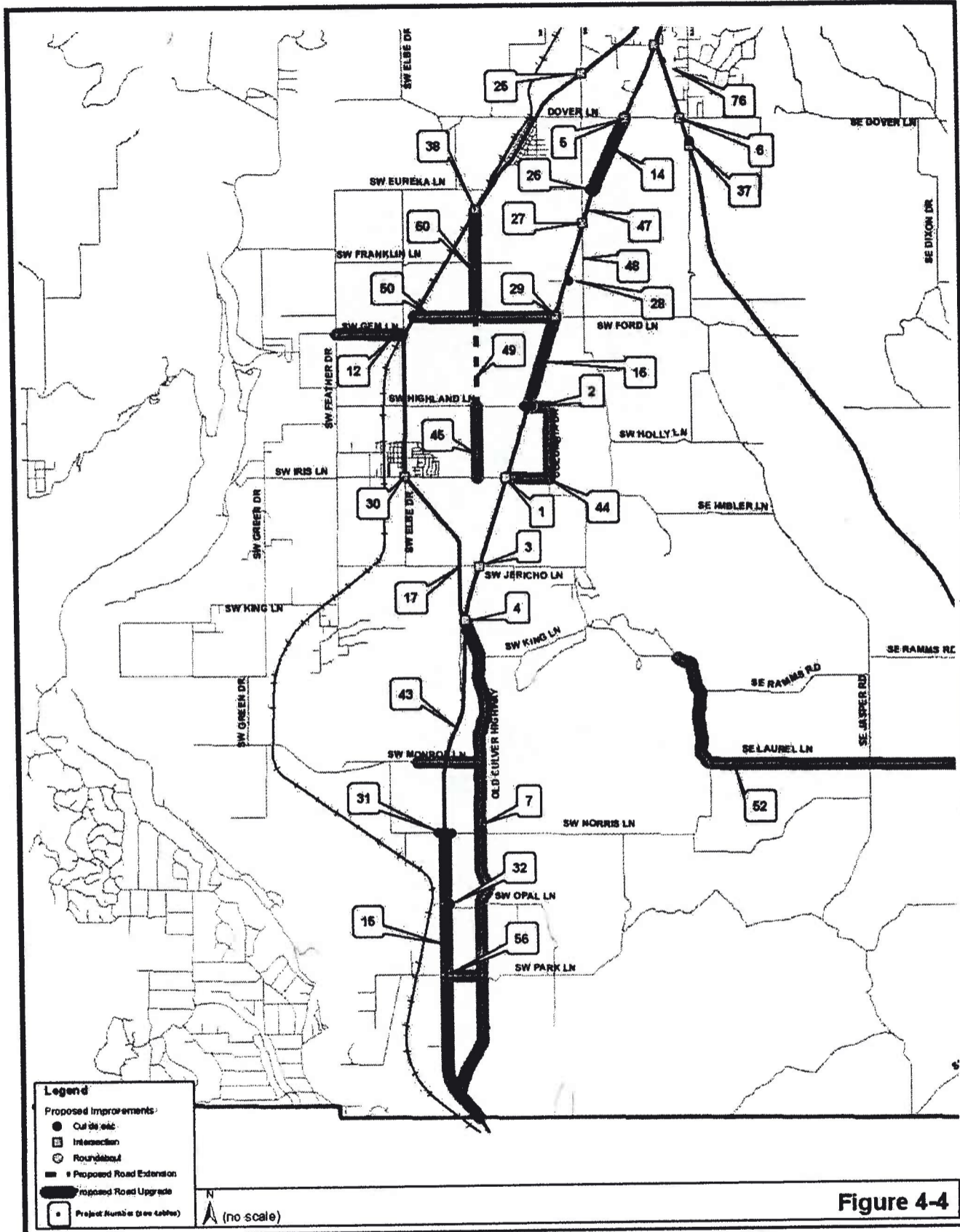
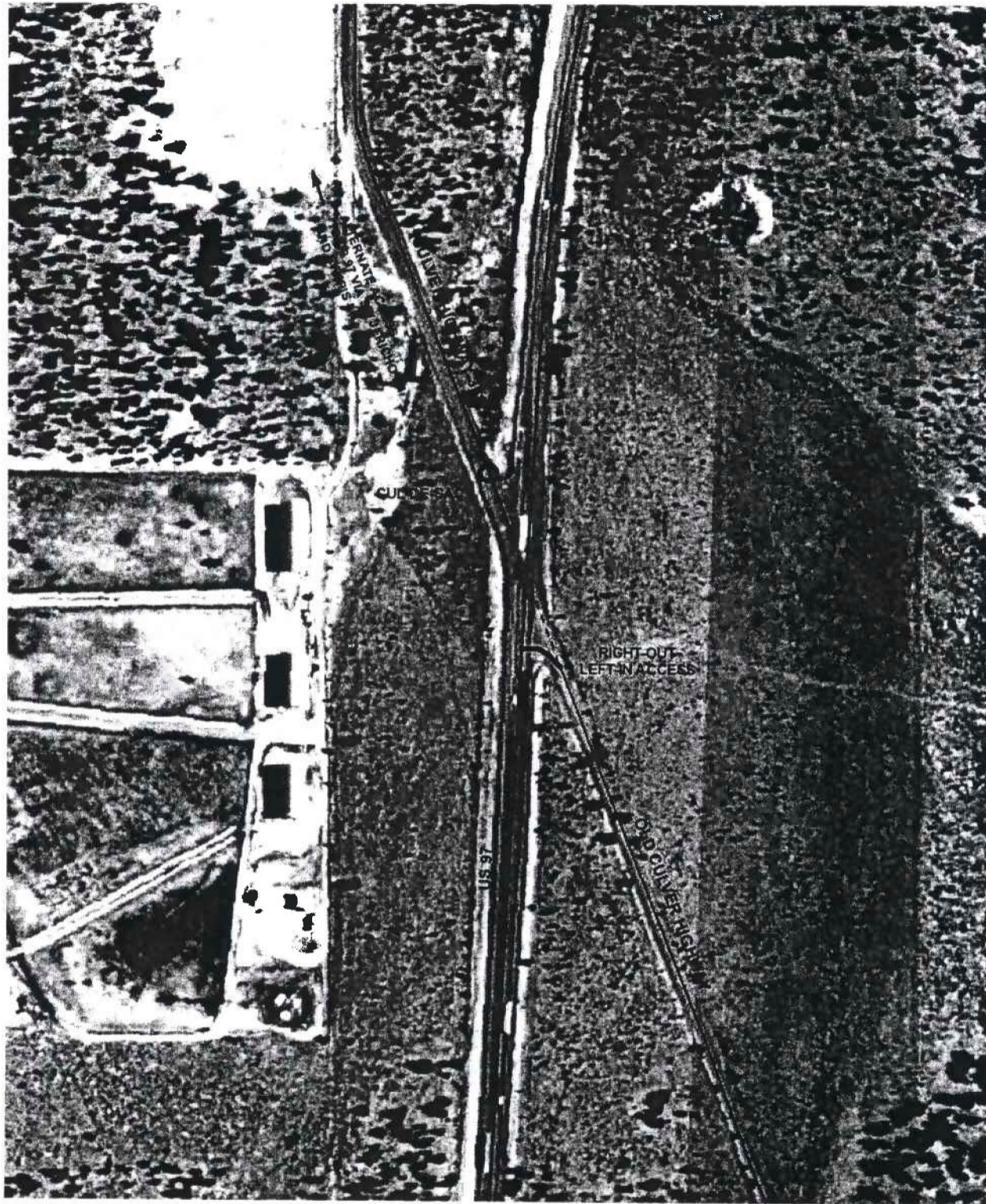
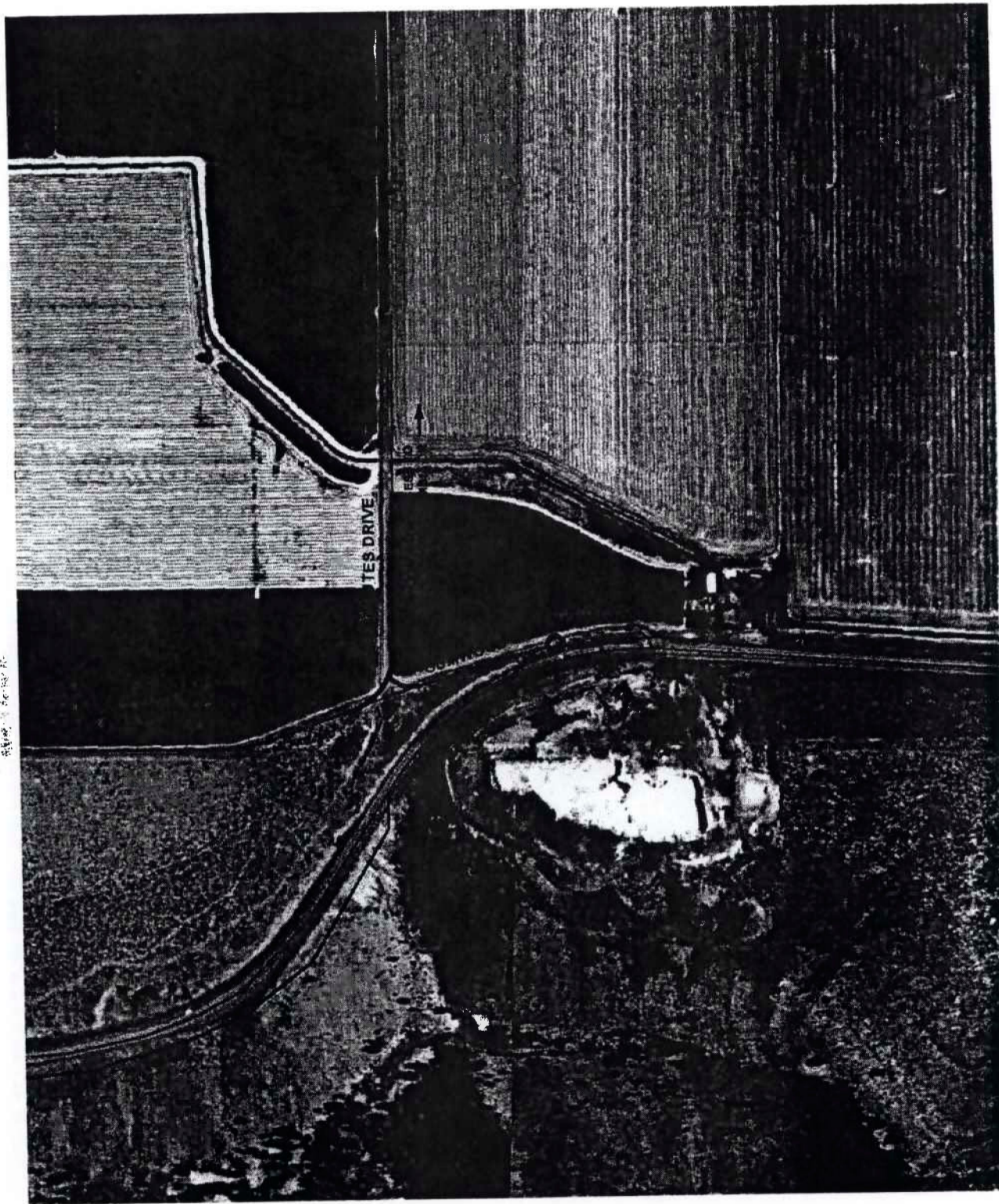


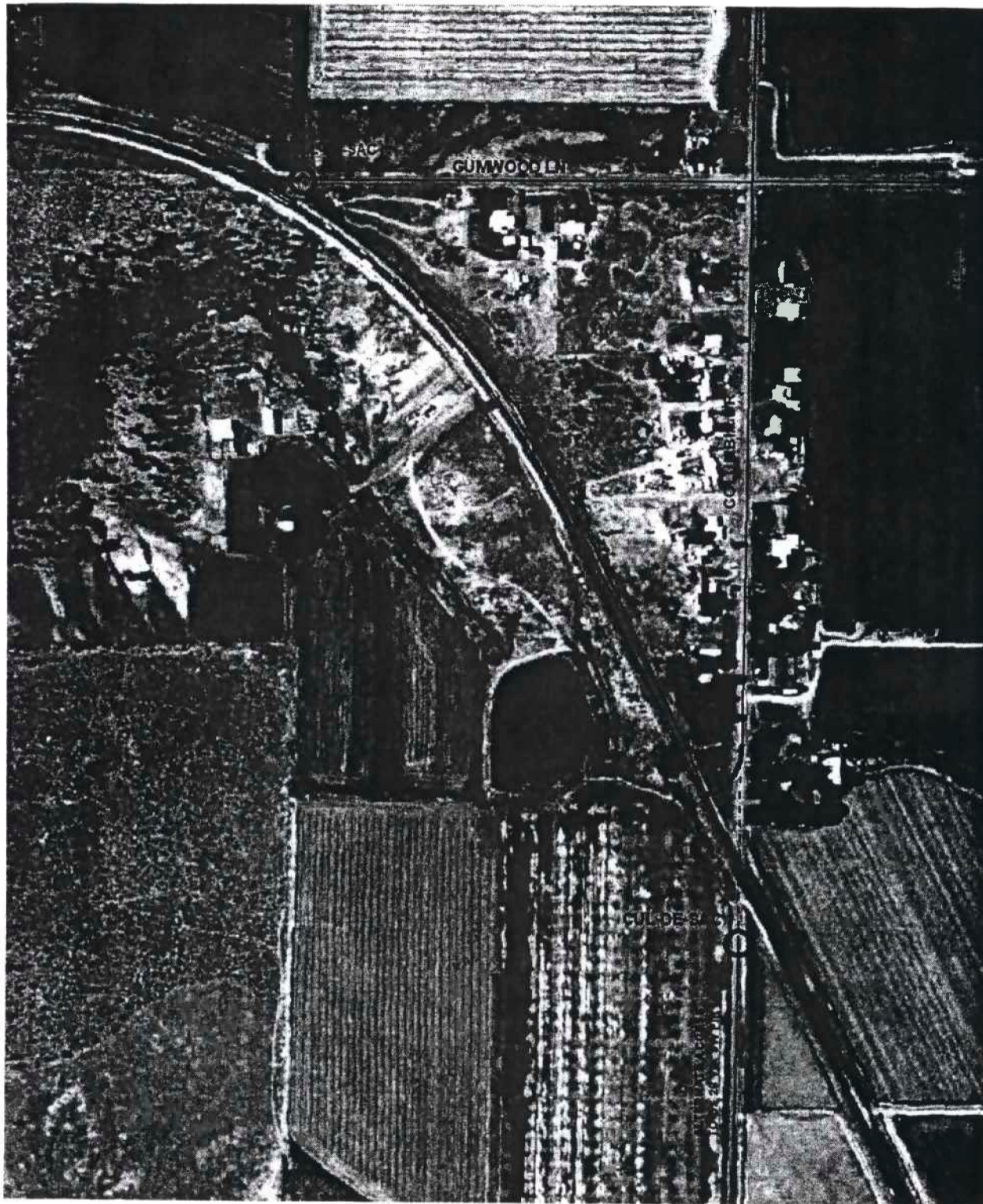
Figure 4-4



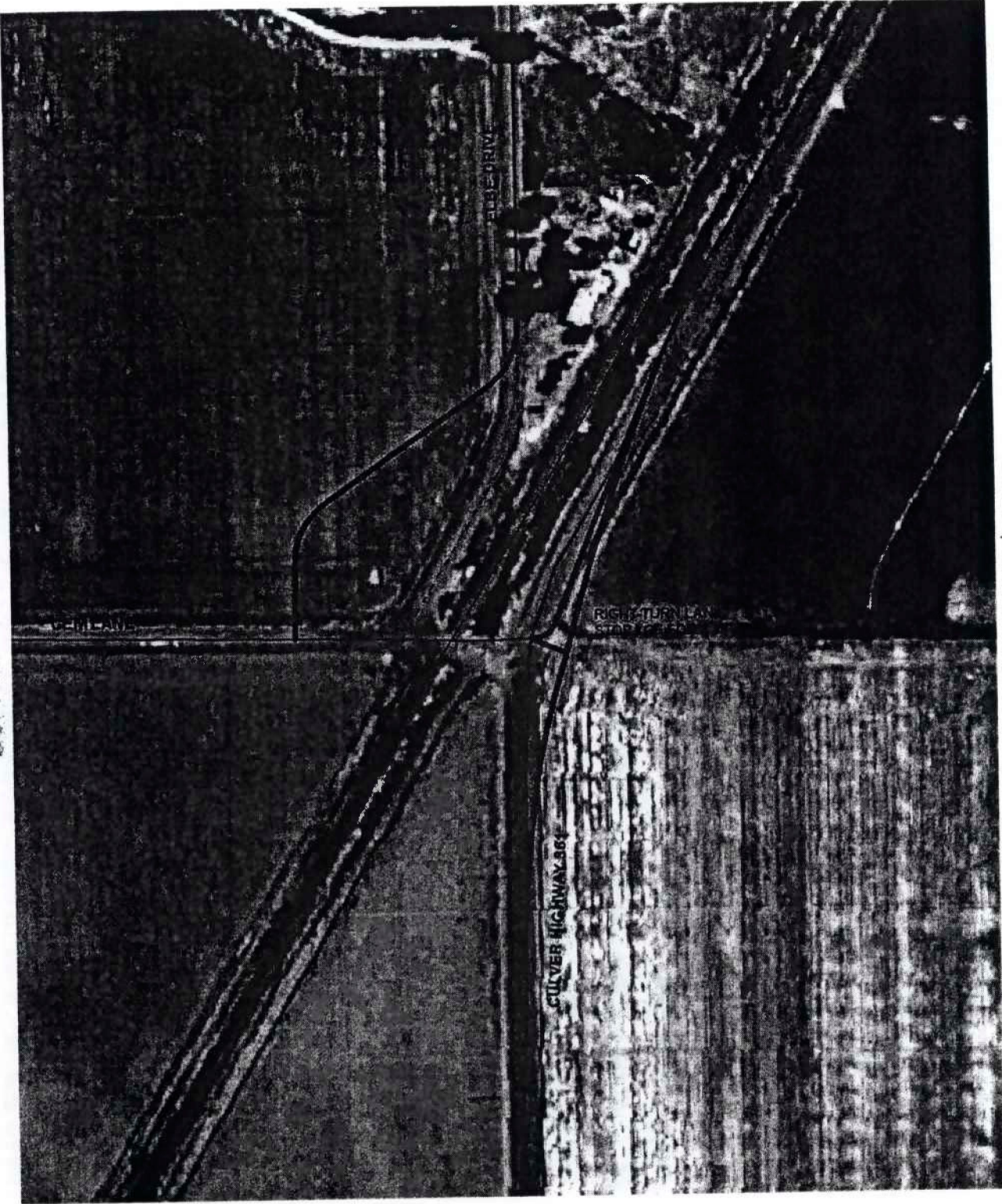
**Figure 4-5**  
**Project 4**  
**Culver Highway 361/US 97/Old Culver Highway Intersection Improvements**



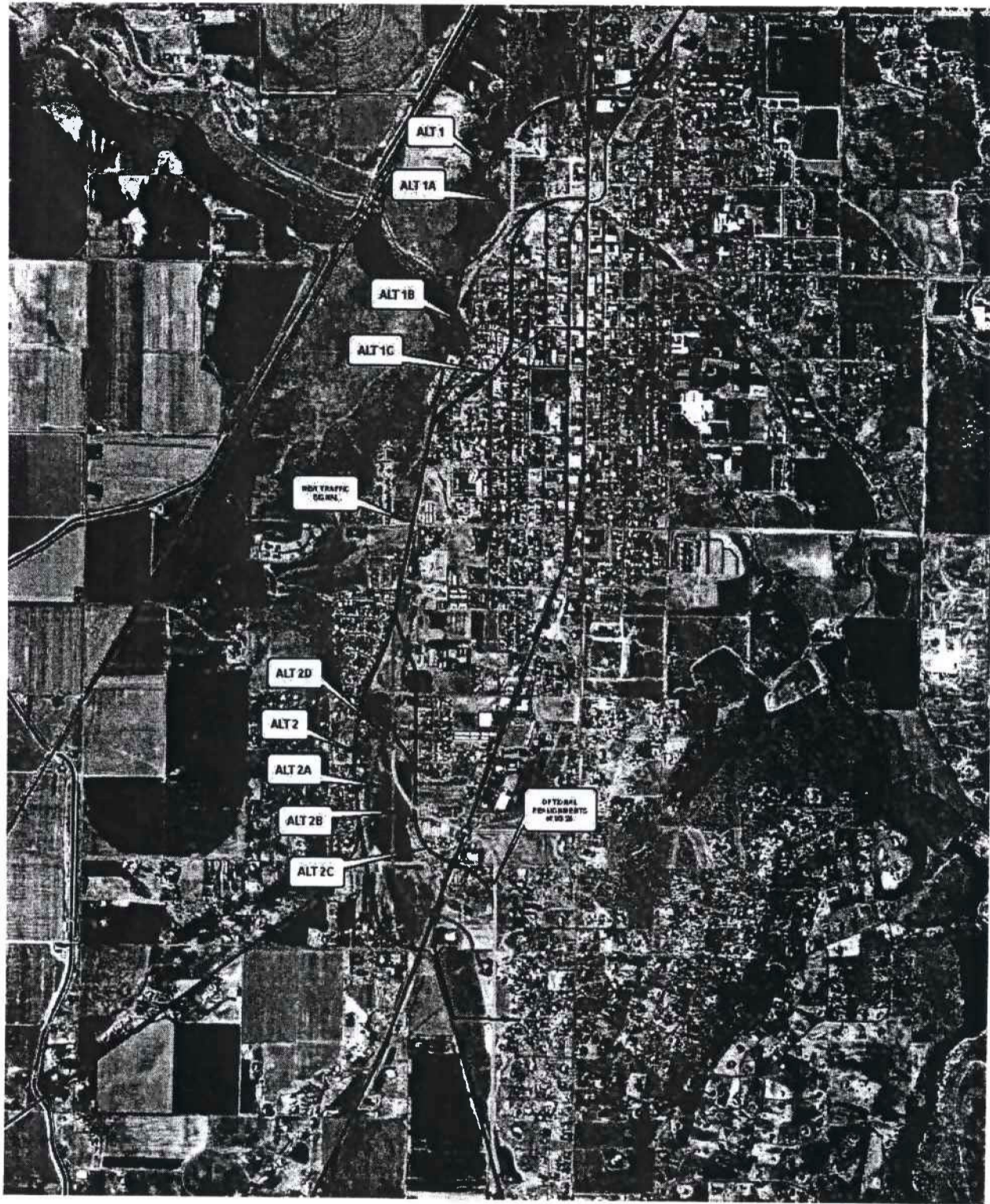
**Figure 4-6**  
**Project 8**  
**NW Gumwood Lane Closure**



**Figure 4-7**  
**Projects 9 and 10**  
**NW Gumwood Lane Closure; US 26/NW Columbia Drive Intersection Improvements**



**Figure 4-8**  
**Project 12**  
**Culver Highway 361/SW Gem Lane Improvements**



**Figure 4-9**  
**Project 13**  
**US 97 Truck Bypass Alternatives**



TABLE 4-4 US 97 TRUCK BY-PASS ALTERNATIVES (project #13)

ALTERNATIVE	DESCRIPTION	ADVANTAGES	DISADVANTAGES
1	Maintain the original alignment shown in Madras TSP	<ul style="list-style-type: none"> <li>• Less impact on existing land uses</li> <li>• Excellent mobility for truck traffic</li> <li>• New alignment provides opportunity for access management</li> </ul>	<ul style="list-style-type: none"> <li>• Impact on developable properties</li> <li>• Interchange impact on existing properties</li> <li>• High construction cost due to grade issues</li> <li>• Requires acquiring significant right-of-way</li> </ul>
1A	Move the original alignment to the east to avoid grade issues	<ul style="list-style-type: none"> <li>• Less impact on existing land uses</li> <li>• Excellent mobility for truck traffic</li> <li>• New alignment provides opportunity for access management</li> </ul>	<ul style="list-style-type: none"> <li>• Impact on developable properties</li> <li>• Interchange impact on existing properties</li> <li>• Requires acquiring significant right-of-way</li> </ul>
1B	Extend US 97 west as the fourth leg of the US 26/US 97 intersection and align at the base of the hill	<ul style="list-style-type: none"> <li>• Minimal impact on existing properties</li> <li>• New alignment provides opportunity for access management</li> </ul>	<ul style="list-style-type: none"> <li>• Signalized intersection decreases mobility relative to Alt. 1 and 1A</li> <li>• Requires acquiring significant right-of-way</li> <li>• Impacts properties north of the existing Culver Highway 361/G Street intersection</li> </ul>
1C	Extend US 97 as the fourth leg of the US 26/US 97 intersection. Use 1 <sup>st</sup> Street and the Existing Culver Highway 361.	<ul style="list-style-type: none"> <li>• Utilizes the existing right-of-way</li> </ul>	<ul style="list-style-type: none"> <li>• Major impact on the properties adjacent to 1<sup>st</sup> Street and Culver Highway 361</li> <li>• Requires closing existing driveways</li> <li>• Noise and vibration impact on adjacent residential properties</li> <li>• Requires acquiring significant right-of-way</li> </ul>
2	Follow the existing Culver Highway 361 alignment and connect to the existing US 26/US 97 south intersection	<ul style="list-style-type: none"> <li>• Utilizes existing right-of-way except on the south section</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts existing properties on Culver Highway 361</li> <li>• Requires closing existing driveways</li> <li>• South section is outside UGB</li> <li>• Noise and vibration impact on adjacent residential properties</li> </ul>
2A	New alignment begins south of the substation and creates a new intersection with US 97/US 26	<ul style="list-style-type: none"> <li>• Minimal impact on properties along Culver Highway 361</li> <li>• Better mobility due to more increased access control</li> <li>• New and improved intersection with US 97/US 26</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts the ballpark located north of Fairgrounds Road</li> <li>• Right-of-way impact on properties south of Fairgrounds</li> <li>• South section is outside UGB</li> <li>• Requires realignment of US 26 east of US 97</li> </ul>

<b>2B</b>	Realignment of Alternative 2A providing a different connect to US 97	<ul style="list-style-type: none"> <li>• Less new construction required than Alternative 2A</li> <li>• Realignment of US 26 east of US 97 can be optional</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts the ballpark located north of Fairgrounds Road</li> <li>• Right-of-way impact on properties south of Fairgrounds</li> <li>• Without optional realignment of US 26, no route continuity</li> </ul>
<b>2C</b>	Uses the Marie Street alignment	<ul style="list-style-type: none"> <li>• No impact outside UGB</li> <li>• No impact on the ballpark</li> <li>• Realignment of US 26 east of US 97 can be optional</li> </ul>	<ul style="list-style-type: none"> <li>• Impact to properties on Marie Street</li> <li>• Impact on properties north of Fairgrounds Road opposite Marie Street</li> <li>• New right-of-way is required from the properties south of fairgrounds</li> <li>• Without optional realignment of US 26, no route continuity</li> </ul>
<b>2D</b>	Connection to Marie Street	<ul style="list-style-type: none"> <li>• Does not impact the developed sections of Marie Street</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts the ballpark located north of Fairgrounds Road</li> <li>• New right-of-way is required from the properties south of fairgrounds</li> <li>• Without optional realignment of US 26, no route continuity</li> </ul>

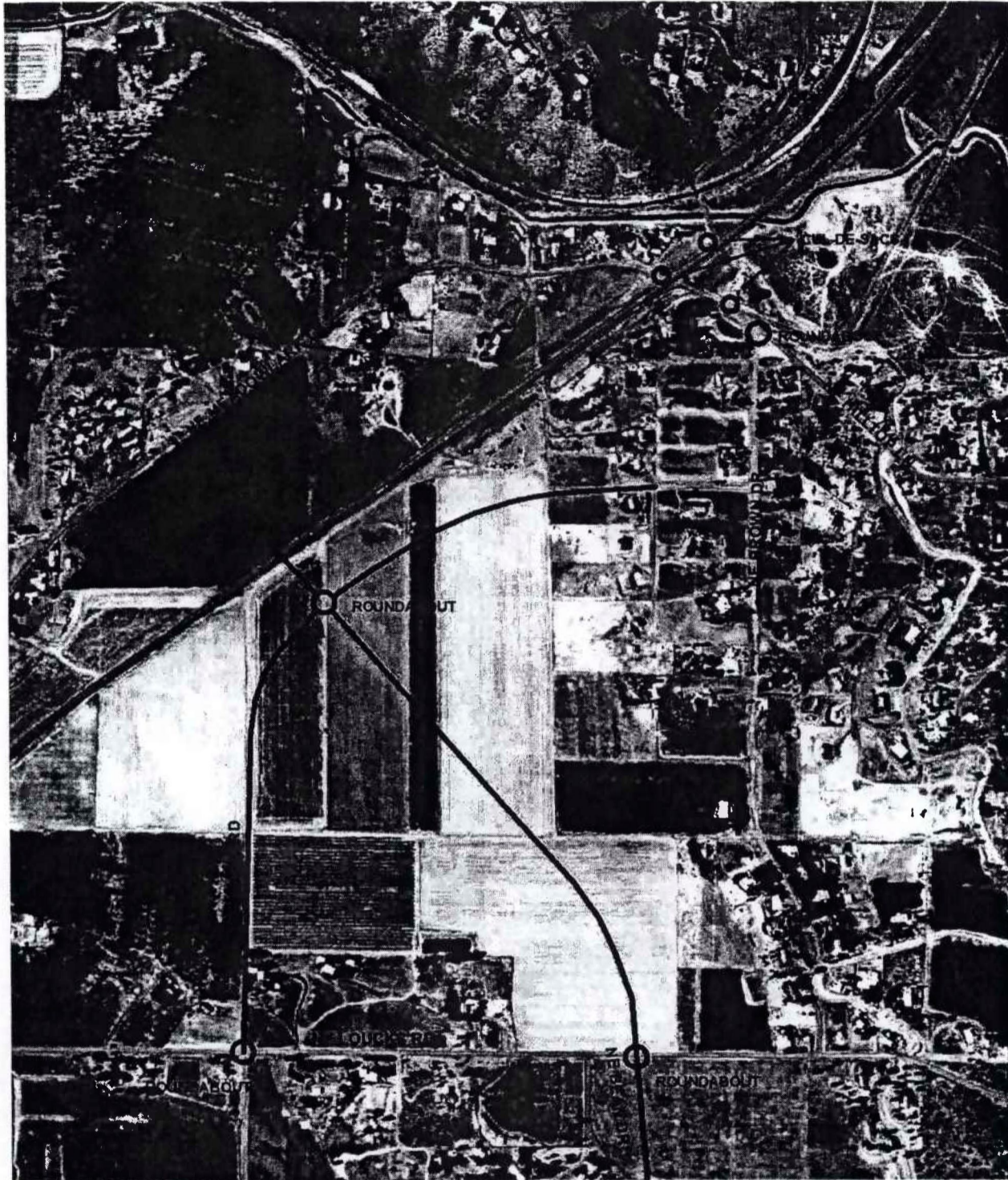
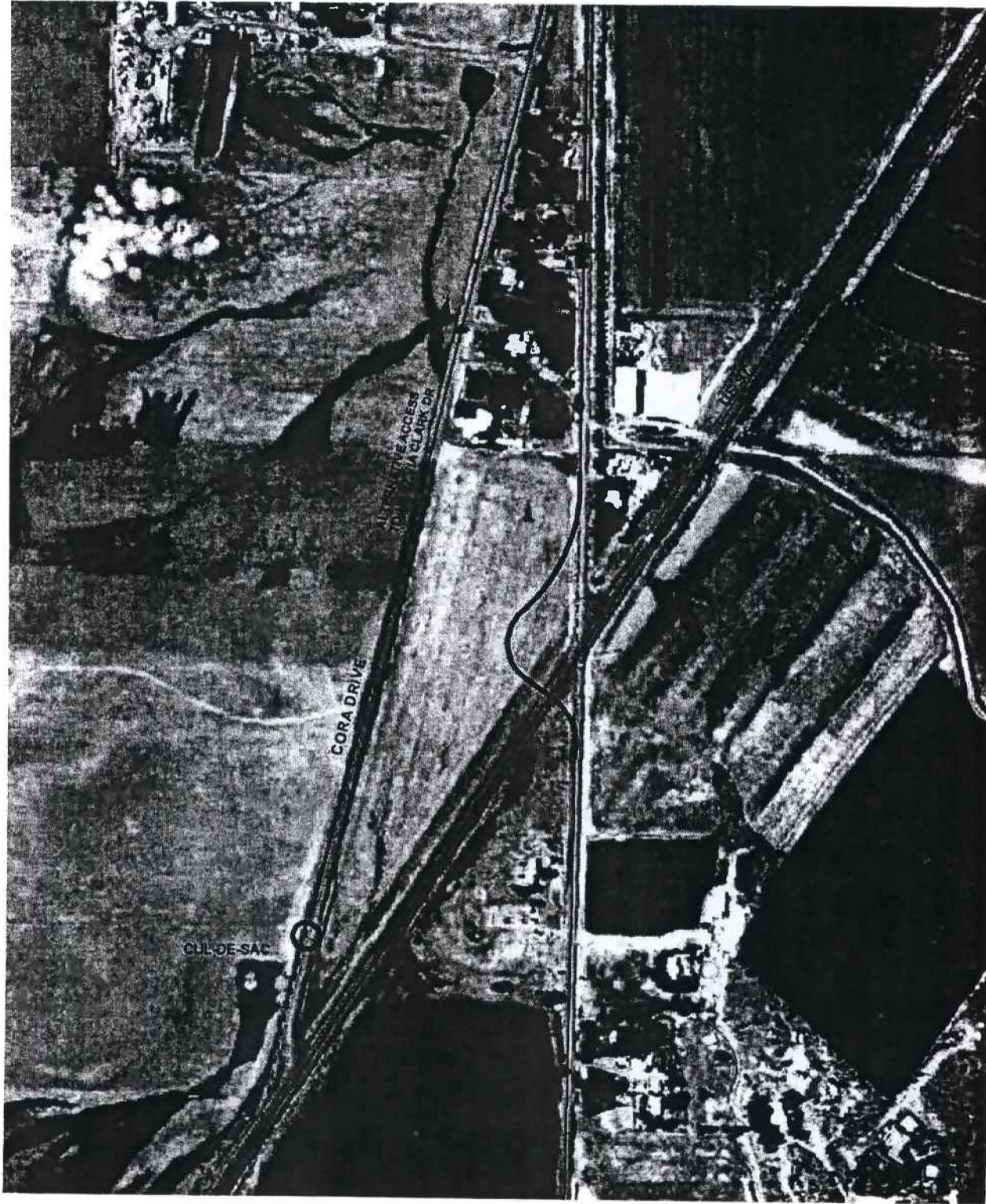


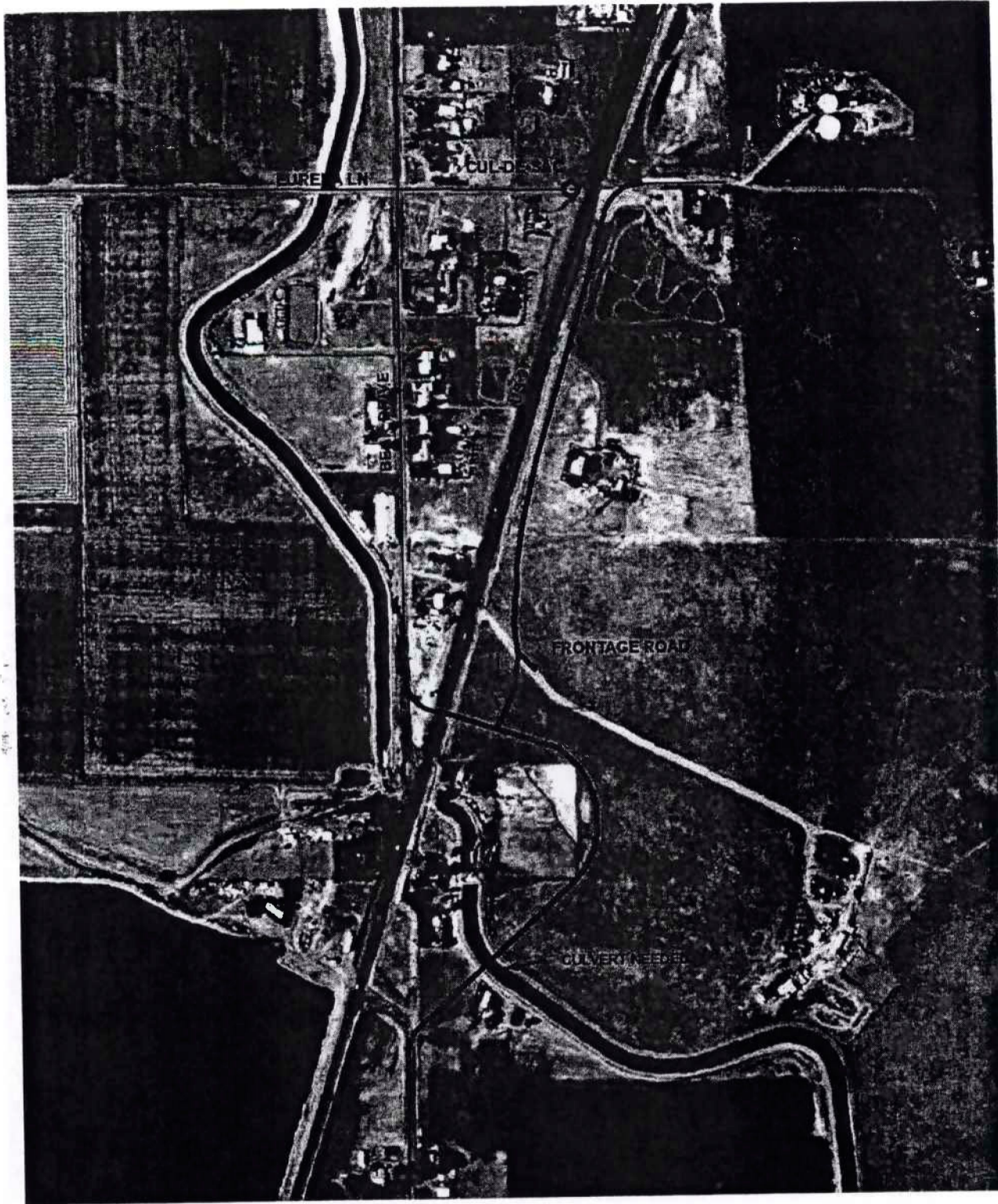
Figure 4-10

Projects 19 – 21 and 64 – 71

**New NE Bean Dr./US 97 Intersection; US 97/NE Meadowlark Lane Closure; US 97/NE Brown Dr. Closure; NE Kinkade Rd. Extension; NE Bean Dr. Realignment and Extension; Roundabouts at NE Bean Dr./NE Loucks Rd., NE Kinkade Rd./NE Loucks Rd., NE Kinkade Rd./NE Bean Dr., and NE Hilltop Lane/NE Brown Dr./NE Meadowlark Lane.**



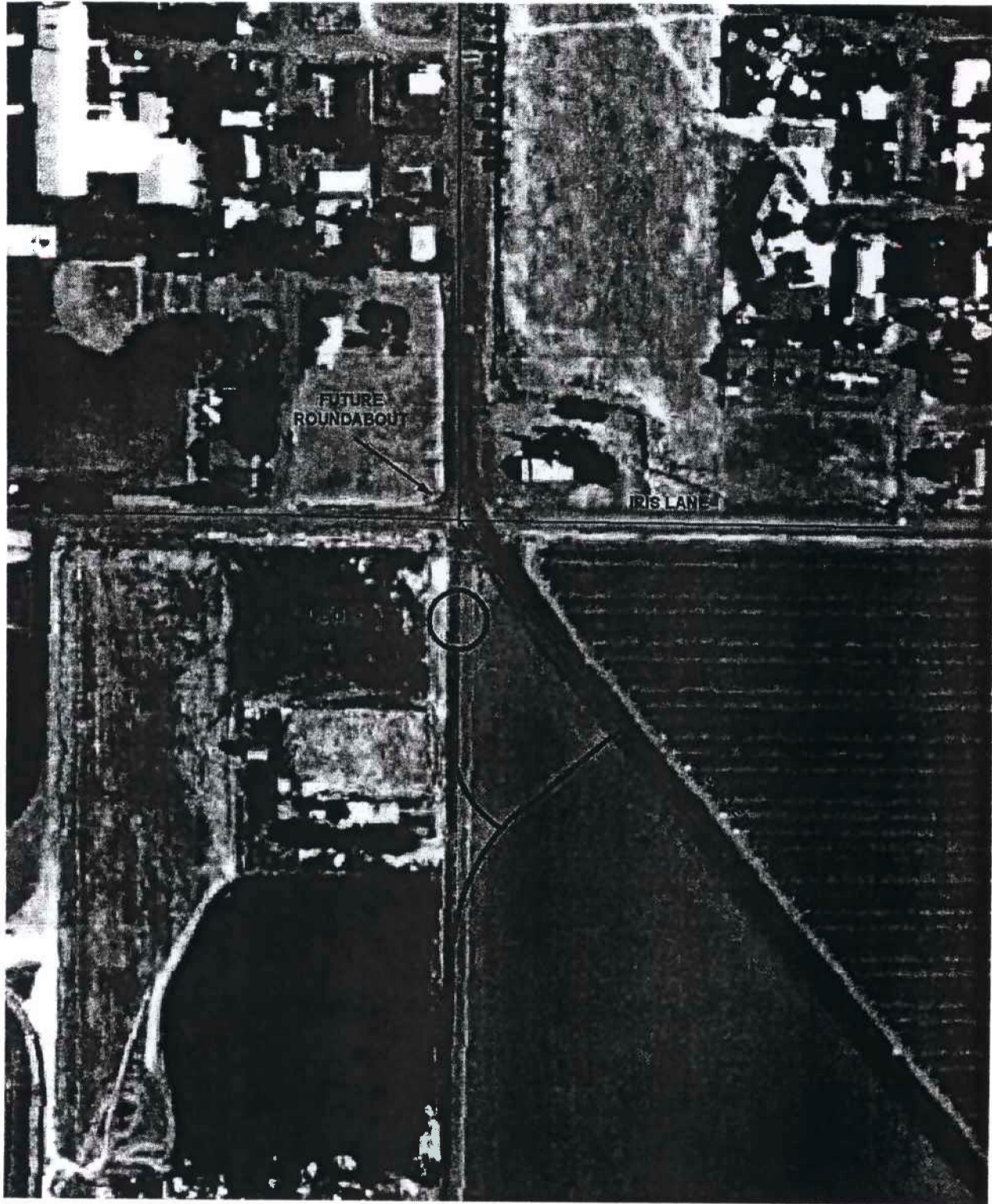
**Figure 4-11**  
**Projects 22 and 23**  
**US 97/NE Cora Drive Closure; US 97/NE Clark Drive Intersection Improvements**



**Figure 4-12**

**Projects 26, 27, 47 and 48**

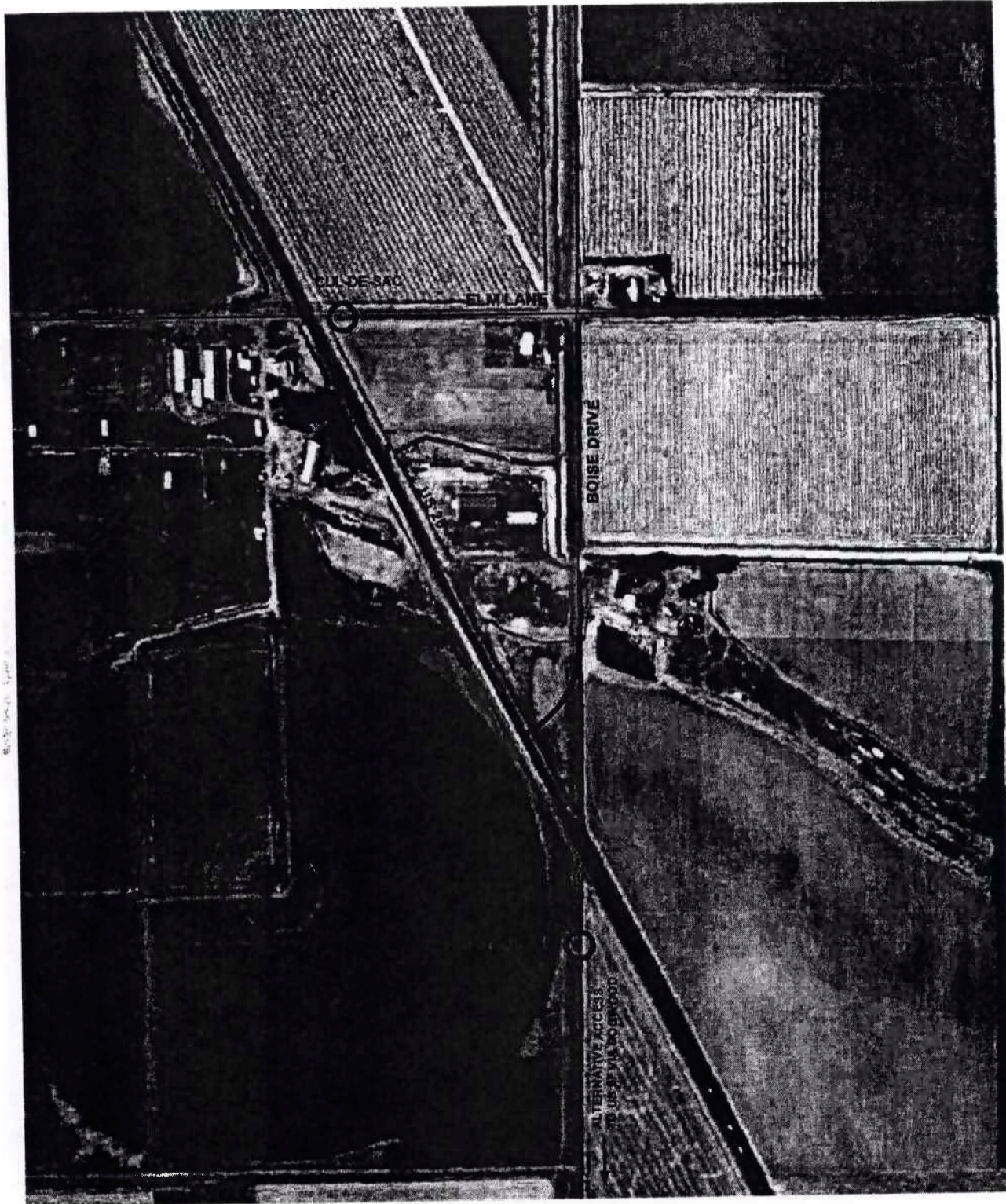
**SW Eureka Lane Closure; US 97/SW Bear Drive Intersection Improvements; SW Eureka Lane Extension; SW Bear Drive Improvements**



**Figure 4-13**

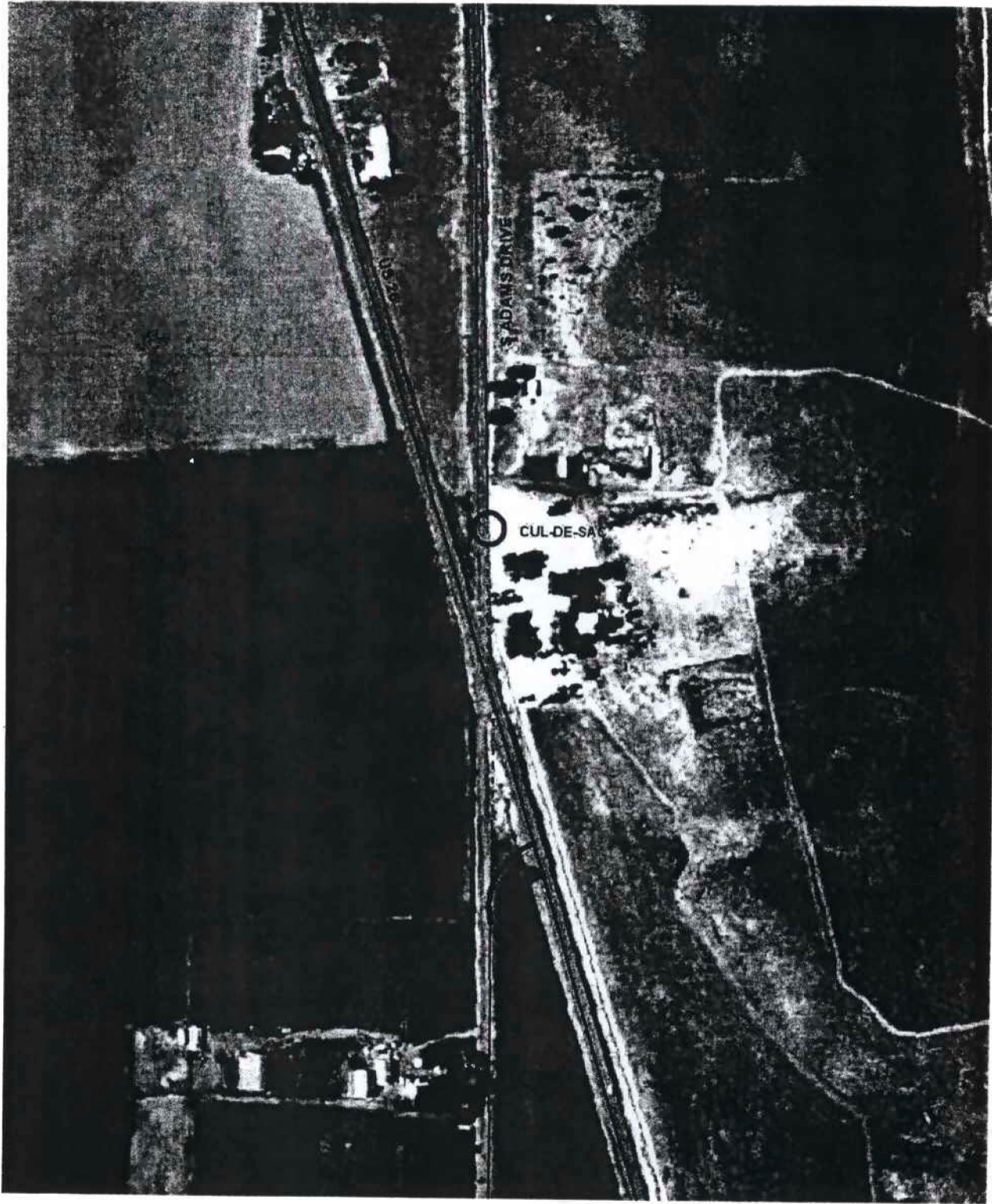
**Project 30**

**Culver Highway 361/SW Iris Lane/SW Elbe Drive Intersection Improvements**



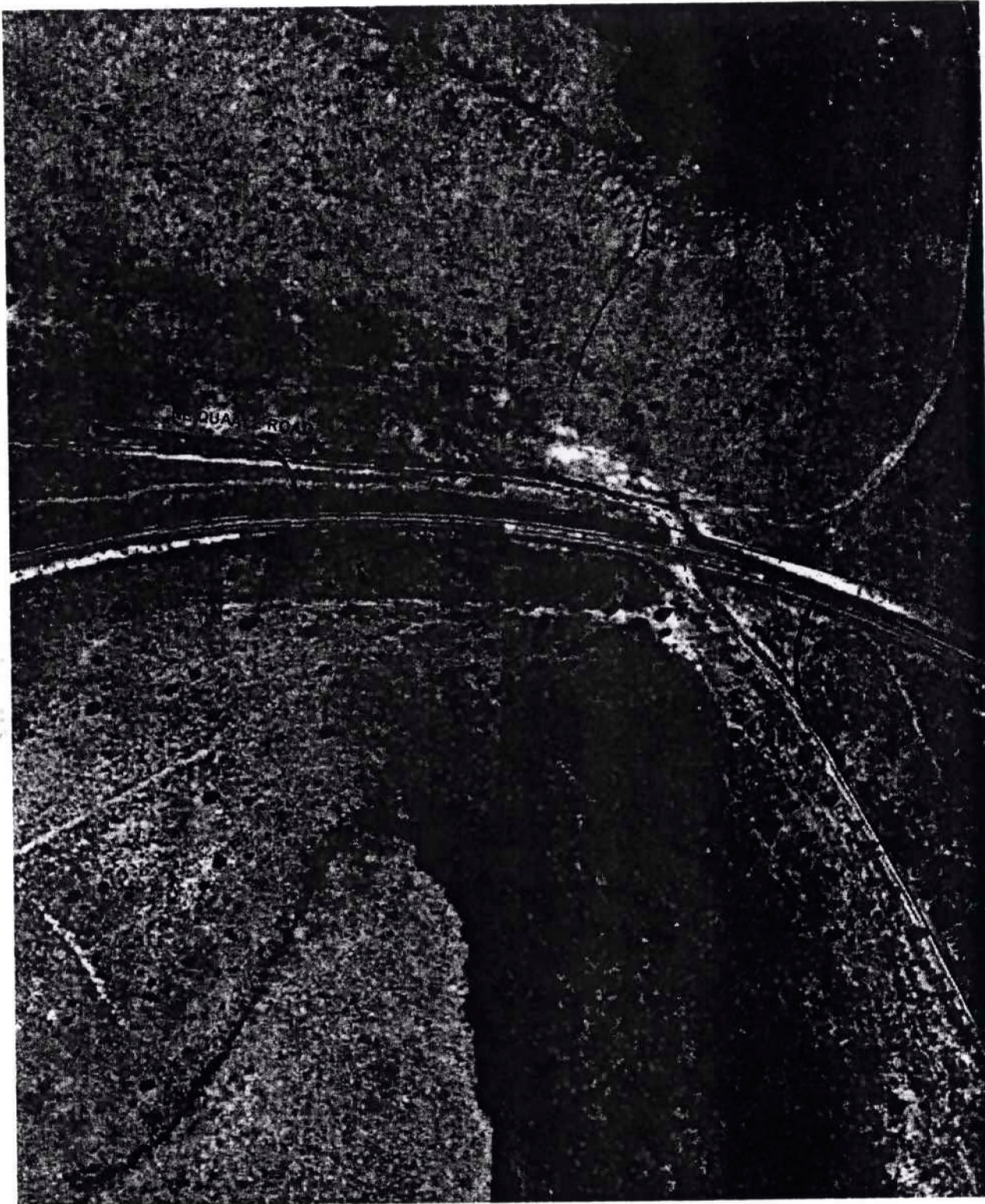
**Figure 4-14**  
**Project 35**

**US 26/NW Boise Drive Intersection Improvements**



**Figure 4-15**  
**Project 37**  
**US 26/S Adams Drive Intersection Improvements**





**Figure 4-16**  
**Projects 39 and 40**

**US 97/NE Quaaale Road and US 97/Old US 97 Intersection Improvements**

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**Section 5**  
Other  
Transportation Systems

## Other Transportation Systems

This section discusses transportation systems other than state highways and the County road system, including:

- Bicycle System;
- Pedestrian System;
- Public Transportation;
- Rail Service;
- Air Service; and
- Pipeline and Transmission System.

All of the TSP elements presented in this section are based on the requirements of the Oregon Transportation Planning Rule (TPR). The modal plans have been developed based on the existing and future conditions analysis, taking into consideration the interests of citizens, business owners, and governmental agencies as expressed by the Technical Advisory Committee and citizen input.

### 5.1 BICYCLE SYSTEM

Bicycles are legally classified as vehicles and can use all public roads in the County. However, the high speed and volume of traffic on major highways can be unsafe for non-auto users. As a result, roads with a low volume of traffic are preferred routes for bicycle use. For instance, the old alignment of US 97, where available and properly maintained, is often used by bicyclists for recreational purposes.

Bicycle travel can be a viable commuting option if bicycle lanes or paved shoulders are provided. However, in unincorporated areas of the county bicycling currently is primarily a form of recreation or exercise, rather than a viable mode of transportation, due to a lack of dedicated bicycle lanes or shoulder bikeways.

The *Oregon Bicycle and Pedestrian Plan* identifies the following categories of bicycle systems:

- *Shared Roadways*, where bicycles and motor vehicles share the same travel lanes. Generally safest in urban areas on roads with low speeds and low traffic volumes (less than 3000 ADT).
- *Shoulder Bikeways*, which are paved shoulders on roads, adjacent to vehicle travel lanes.
- *Bike Lanes*, where a portion of the road is specifically designated for use by bicyclists through the use of striping and signage. Bike lanes are most appropriate on urban arterials and on major collectors;
- *Multi-Use Paths*, which are separated from a road by an open space or barrier. Multi-use paths are often part of a community trail system used by walkers and joggers in addition to bicyclists, and may be in a different location than the road right-of-way since they serve a different purpose than the road system.

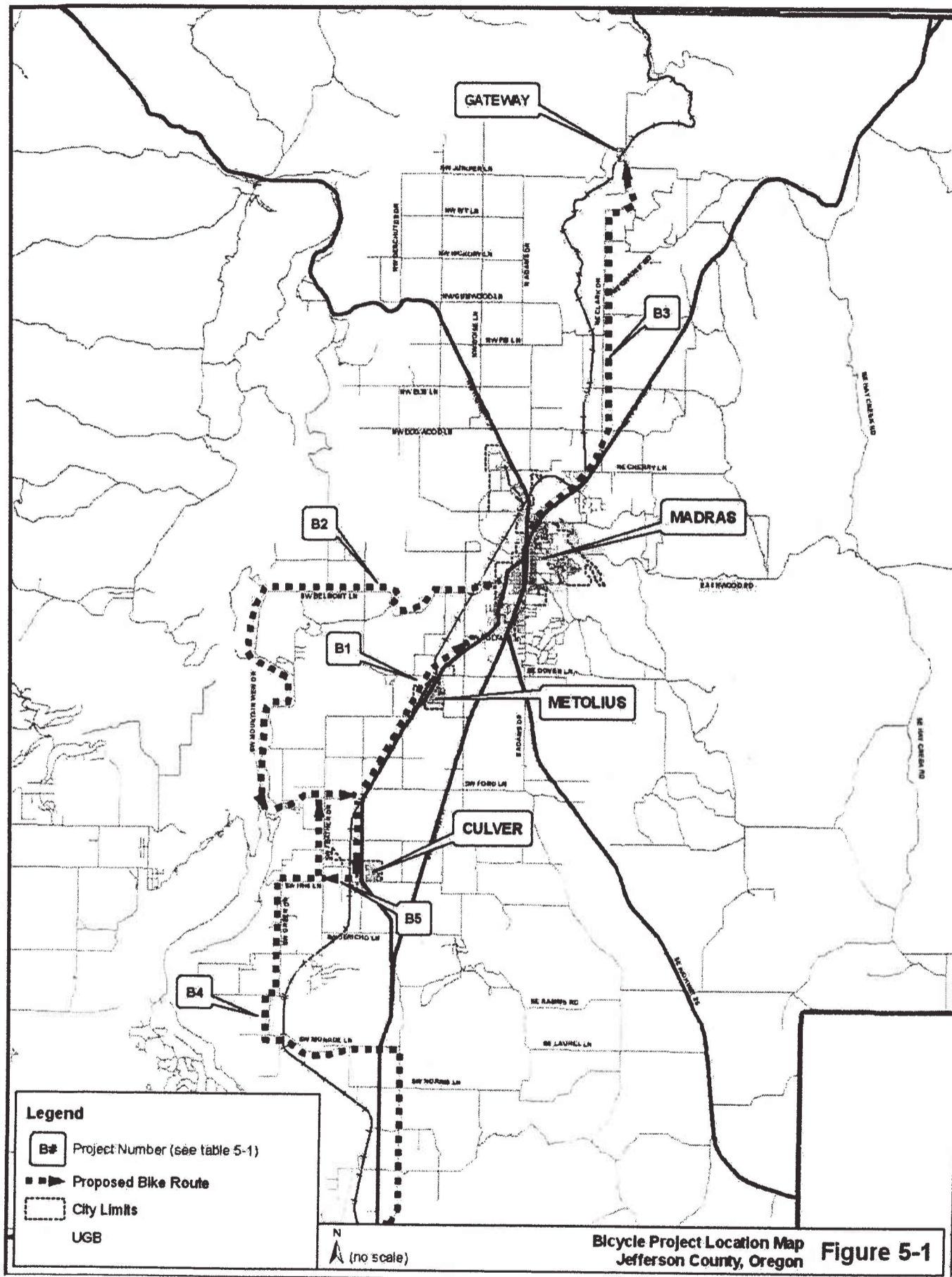
Generally, most roads in the rural parts of the county carry fewer than 3,000 ADT, which is consistent with ODOT guidelines for shared roadway bicycle use. However, most of the roads have minimal shoulder width, may have poor sight distance, are not signed to warn motorists of the potential for encountering bicyclists on the road, and tend to have high speed traffic, making them unsafe for bicyclists. In order to increase safety for bicyclists, county and public roads being constructed or upgraded should provide shoulder bikeways, while state highways and other arterials should include bike lanes. Currently, the only County roads that have adequate shoulder width for bikeways are Ashwood Road from the Madras city limits to the Deer Ridge correctional facility, and Chinook Drive from the Deschutes County line to Mustang Road in Crooked River Ranch. Willow Creek Trail in Madras is the main designated multi-use path in the county. There also is a multi-use path in Camp Sherman.

ORS 366.514 requires that bicycle trails be provided when a highway, road or street is being constructed, reconstructed or relocated, except when the cost would be disproportionate to the need or when sparse population in the area indicates an absence of need. Road standards contained in the Jefferson County Code require that 3 – 8 foot wide paved shoulders be provided when county and local access roads are being constructed or improved. This will gradually begin to create a safer bicycle system.

Based on public comments and future needs, five mid-, and long-term bicycle and pedestrian projects have been identified. No short-term projects were identified due to lack of funding to complete the project. The projects were selected because they will utilize the existing right-of-way to establish a network of bicycle lanes and routes providing a safe, interconnected bicycle system for recreational use as well as encourage commuter use between Madras, Metolius and Culver. The projects were prioritized based on the desire to facilitate bicycle commuting between cities and provide recreational routes that would serve the greatest population. The County may also designate and sign bicycle routes in locations where a continuous road system does not exist, to provide route guidance to bicyclists. Table 5-1 shows the bicycle facility project list. Figure 5-1 shows the location of the projects.

**TABLE 5-1 BICYCLE FACILITY PROJECTS**

No.	Project Name	Project Description	Cost Estimate
<b>Mid-Term (5-10 years)</b>			
B1	Madras/Metolius/Culver Bicycle Connection	Widen shoulders on Culver Highway 361 to provide bicycle connection between Madras, Culver and Metolius. Install bicycle route signs.	\$3,800,000
B2	Westside Bicycle Loop	Construct bicycle lanes or wider shoulders on Gem Lane, Jordan Road, Mountain View Drive and Belmont Lane to provide a looped scenic bicycle route west of Madras. The project will also provide access to Lake Billy Chinook, although improvement of Jordan Road from the rim down to the lake to safely accommodate bicycle and pedestrian traffic may not be feasible.	\$7,300,000
<b>Long-Term (10-20 years)</b>			
B3	Madras to Town of Gateway Bicycle Route	Construct six foot shoulders on NE Clark Drive and the planned NE Clark Drive extension. Designate the road as a bicycle route from Madras to Gateway.	\$9,580,000
B4	Cove Palisades to Peter Skene Ogden Bicycle Connection	Designate SW Gem Lane, SW Feather Drive, SW Green Drive, SW Monroe Lane and Old Culver Highway 361 as a bicycle connection from the Cove Palisades State Park to Peter Skene Ogden Scenic Wayside.	\$4,500,000
B5	Culver Loop	Construct six foot shoulders on SW Iris Lane between Feather Drive and Highway 361 to provide a looped route around Culver in conjunction with projects B1 and B4.	\$65,000



## 5.2 PEDESTRIAN SYSTEM

In unincorporated areas of the county walking is mainly a form of recreation or exercise, rather than a viable mode of transportation. The high speed and volume of traffic on highways and major county roads are unsafe for pedestrian. Low-volume roads with paved shoulders are preferred routes for pedestrian use. In most cases, bikeways and bike lanes can be used by pedestrians as well as bicyclists, although multi-use paths may provide greater safety from vehicles.

The only dedicated pedestrian paths in the unincorporated area of the County are the walking path in Juniper Hills Park and a portion of the Willow Creek trail.

Pedestrian facilities suitable for walking to work, school and shopping occur inside urban growth boundaries rather than in rural areas of the County. Section 402.8(F) of the 2007 Jefferson County Zoning Ordinance states that sidewalks may be required when proposed development is within an urban growth boundary, when property is within one-fourth mile of a school, shopping center or other use likely to create pedestrian traffic, or when the surrounding area is developed with sidewalks or is zoned for commercial, industrial or urban residential uses. Section 12.18 of the Jefferson County Code states that roads within one mile of an urban growth boundary may be required to be developed in accordance with city standards when it is likely that the road would eventually become connected to the city street system. This could include requirements for curbs and sidewalks.

This combination of paved roadway shoulders in rural areas and sidewalks in urban or urbanizable areas form the County's pedestrian system plan.

## 5.3 PUBLIC TRANSPORTATION

Jefferson County does not provide public transportation services. There are few options in the County to meet the needs of people unable to drive vehicles. This includes some seniors, the developmentally or medically disabled, people who have lost driving privileges due to suspended or revoked licenses, and people who do not own vehicles for financial or other reasons.

Existing public transportation service includes a fixed-route bus service operated by CAC Transportation Inc., a private transportation group based in Bend, which provides twice daily service between Bend and the Portland airport, stopping in Madras. While this service is useful for those traveling to Portland, its schedule does not allow travel from Madras to Bend and return the same day.

The Central Oregon Council on Aging (COCOA), a charitable non-profit public benefit corporation, provides dial-a-ride service for senior citizens and persons with disabilities in Deschutes and Jefferson Counties. Service from Madras to Bend is provided once a week. People on the Oregon Health Plan can use a dial-a-ride service for medical appointments. The East Cascade Brokerage, based in Redmond, pools resources from the tri-county area to provide rides on request through a call-in service similar to dial-a-ride. However, their vans currently do not have the special equipment, such as wheelchair lifts, that are needed to serve some clients. Crooked River Ranch also operates a dial-a-ride van three days a week.

Public bus service and passenger rail service are not available in the county. Greyhound Bus service is available from Bend to Eugene, where connections can be made to cities along the I-5 corridor.

As the population of the County increases, the demand for public transportation within and between cities will become more important. A potential solution is a public dial-a-ride service that will provide the needed transit service to the section of the population that does not have access to a motor vehicle. Such service is likely to be needed and developed within cities before being provided in the unincorporated areas of the County where low density and widely scattered population make transit service impractical.

The County recently adopted a Coordinated Human Services Transportation Plan, prepared by the Central Oregon Intergovernmental Council. The intent of the Plan is to improve transportation services for people with disabilities, seniors, and individuals with lower incomes by identifying opportunities to coordinate existing resources; providing a strategy to guide the investment of financial resources; and guide the acquisition of future grants. The Plan includes a review of the level of existing public transportation services; existing and potential funding sources; identification of special populations and where they need to travel but are unable to due to cost, lack of service or other reason; and a formulation of strategies to meet the transportation needs. The strategies were prioritized in order to identify those that could conceivably be accomplished within a year or two. The Coordinated Human Services Transportation Plan will serve as the County's public transportation plan. The Plan is attached as Appendix II.

#### **5.4 RAIL SERVICE**

The Burlington Northern Santa Fe Railway (BNSF) and the Union Pacific Railroad serve the US 97 corridor through Oregon from the Washington State line to the California border through the Oregon Trunk Line. The Trunk Line consists of approximately 40 miles of track which is owned by BNSF. Union Pacific Railroad has trackage rights to use the Trunk Line. Currently, Union Pacific has one train operating daily in each direction, and BNSF operates 12 to 15 trains daily. The line passes through the cities of Madras, Metolius, and Culver, and provides vital transport for industrial and agricultural freight. It carries approximately 8 million gross tons of freight per year.

There are no short-line railroads in the county.

According to the *2001 Oregon Rail Plan*, BNSF has identified future improvements needed to provide clearance sufficient for high-cube double-stack traffic for five tunnels located on an 88-mile stretch in Wasco and Jefferson Counties. A preliminary estimate of improvements totals \$6.3 million. In addition, BNSF may work to minimize the number of rail crossings within the County to improve safety.

#### **5.5 AIR SERVICE**

There are six air transportation facilities in the county (one heliport and five airports). Of those, only two of the airport facilities are open to the public: the Madras/City-County Airport and the Lake Billy Chinook Airport.

The Madras/City-County Airport is the main facility that provides air transportation service in Jefferson County. It is located at the northwest edge of the City of Madras. Access is provided via Cherry Lane, which connects to US 26. The airport is included in the statewide air transportation study, and serves mostly large local businesses, commercial and heavy industrial firms, and the United States Forest Service. It is anticipated that the airport will continue to provide this service for



the long-term. In 1994 the airport had 45 aircraft based at the airport, with approximately 9,300 aircraft operations. The airport operation was anticipated to grow to around 11,570 operations by 2014, with 56 based aircraft. The 1997 Airport Layout Plan Report, which was undertaken by the City of Madras and the State Department of Aviation, identifies the future needs of the facility. The report identifies the current, short-term and long-term facility needs and necessary improvements to maintain a safe, efficient, economical, and environmentally acceptable air transportation facility for the area. The Airport Layout Plan Report will serve as the transportation system plan for the Madras City-County Airport.

The second public airport in the County, Lake Billy Chinook Airport, is used by smaller operators and recreational pilots. The Airport is located approximately 6 miles west of the City of Culver. Access is provided from Jordan Lane past the south end of Lake Billy Chinook. Although open to the flying public, the airport is privately owned. It is primarily used by smaller operators and recreational pilots. There are approximately eight aircraft based at the airport, with 90-percent used for general aviation. No future access and road needs have been identified for this facility, therefore, no specific plan is being proposed at this time.

## **5.6 PIPELINE AND TRANSMISSION SYSTEM**

Jefferson County is served by one major interstate transmission pipeline. The facility is a 36-inch diameter natural gas pipeline operated by Pacific Gas Transmission Company, whose local office is located in Redmond, OR. This line runs for approximately 30 miles through the county east of Highway 97 from the Cove Canyon area to the Lone Pine area enroute from Canada to California. The line transmits between 800 million and 1 billion cubic-feet of Canadian natural gas to California each day. No future needs were identified for this transmission pipeline. Therefore, no changes or alternatives have been developed for this mode of transportation.

Additional pipeline transportation in and through the county includes transport of water from the Deschutes Valley Water District facility at Opal Springs, and transmission lines for electricity and telephone service throughout the county.



**Section 6**

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**Transportation Financing**

## Transportation Financing

The Transportation Planning Rule (OAR 660-12-040) does not require that county TSPs include a financing plan. However, developing such a plan is prudent for determining which needs and projects cannot be funded at current revenue levels. The finance overview presented in this section is intended to provide historical context for road expenditures and revenues in the county and to identify primary sources for capital project funding. Analyses of past funding availability and projections were conducted to explore the potential for various funding mechanisms.

### 6.1 FUNDING FOR HIGHWAY PROJECTS

Funding for the highway projects listed in Table 4-1 would come from ODOT, although it is possible that private development projects that would generate significant amounts of traffic may need to construct some of the intersection improvements in order to mitigate the impact to the highway facility. The County currently has no funds available to contribute to road projects involving state highways.

The Statewide Transportation Improvement Program, known as the STIP, is Oregon's four year transportation capital improvement program. It is the document that identifies the funding for, and scheduling of, transportation projects and programs, including projects on the federal, state, city, and county transportation systems, multimodal projects (highway, passenger rail, freight, public transit, bicycle and pedestrian), and projects in the National Parks, National Forests, and Indian tribal lands. The STIP is used to identify major local, state and federal transportation system investments that rely in whole or in part on federal funding, or that are deemed to be of regional or statewide significance regardless of funding source. The STIP includes lists of projects that are approved to be carried out during a four-year time period.

The 2006 – 2009 STIP includes funding for the US 97/SW Iris Lane intersection improvements (project 1 on the highway projects list in Table 4-1). The draft 2008 -2011 STIP includes two additional projects. The first involves closure of the NW Gumwood Lane intersections, along with the improvements at the Columbia Drive intersection (projects 8, 9 and 10 in Table 4-1). The second is the US 97/NE Cherry Lane intersection improvements (project 11 in Table 4-1).

### 6.2 FUNDING FOR COUNTY ROAD AND BICYCLE PROJECTS

#### Existing Revenue Sources

Financial data from the Public Works Department's audited budget for the 2000-2001 to 2004-2005 fiscal years were reviewed to determine the County's ability to fund various transportation projects. Since 2001, the average revenue of the County's Public Works Department has been approximately \$1.87 million dollars. This revenue has remained relatively constant during the review period.

State revenue is the largest funding source for the Public Works Department. This funding includes motor-vehicle revenue, land sales revenue, weed contracts, and ODOT project funds. The vast majority of state revenue is from the "gas tax." Approximately \$1,150,000 is anticipated to be

received from this source in the 2007/2008 fiscal year. All of the proposed road and bicycle projects are "gas tax eligible."

In the past, federal grants also served as a primary funding source. The majority of federal grants came from forest timber dollars, which contributed approximately \$500,000 annually to the Public Works Department budget. That source of funds is no longer assured. Other sources of federal grants include federal mineral leases and FEMA reimbursement.

The Public Works Department also collects miscellaneous fees that provide some additional funding. These fees usually consist of service charges for various Public Works services. Sales of various materials, equipment, and supplies provide some revenue to the Department. This includes taxes from property foreclosures and office rentals. Funding from reimbursed items provides additional revenue. This includes transfers from other funds, reimbursement from miscellaneous funds, and fuel service reimbursement.

Table 6-1 shows the amount of funding received from each revenue source during the last five years.

**TABLE 6-1 PUBLIC WORKS DEPARTMENT  
HISTORICAL REVENUE SOURCES**

Revenue Source	Fiscal Year				
	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005
Federal Grants	\$382,348	\$521,331	\$746,613	\$546,597	\$539,101
Federal Revenue	-	\$16,087	\$16,549	\$18,864	\$16,078
State Revenue	\$898,203	\$906,889	\$953,793	\$1,408,370	\$1,245,698
Misc. Fees	\$8,187	\$8,016	\$7,830	\$7,704	\$7,631
Sales & Misc. Revenue	\$4,558	\$3,379	\$4,562	\$24,953	\$3,164
Reimbursed Items	\$182,124	\$374,736	\$140,065	\$134,085	\$247,403
<b>TOTAL</b>	<b>\$1,475,420</b>	<b>\$1,830,438</b>	<b>\$1,869,412</b>	<b>\$2,140,573</b>	<b>\$2,059,075</b>

#### Current Transportation System Development Charges (SDCs)

Many jurisdictions require new development to mitigate its impact on the public road system by contributing to capital improvement funds. SDCs constitute a mandatory collection method to assure the construction of improvements to facilities as contemplated in the transportation capital improvements plan.

According to ORS 223.297, an SDC is defined as a reimbursement fee, an improvement fee, or a combination thereof, assessed or collected at the time of increased usage of a capital improvement or issuance of a development permit, building permit, or connection to the capital improvement. SDCs do not include any fees assessed or collected as part of a local improvement district, a charge in lieu of a local improvement district assessment, or the cost of complying with requirements or conditions imposed upon a land use decision, expedited land division, or limited land use decision. The SDCs may only be spent on capital improvements associated with the systems for which the fees are assessed, including expenditures relating to payment of debts.

The County currently applies transportation and park system development charges to new developments in the County. The SDC ordinance was adopted in 1996. The transportation SDC has been set up at \$86.92/daily trip generated by new development in Crooked River Ranch and \$90.56/daily trip generated by new development in other unincorporated areas of the County. On an average, the County collects approximately \$89,000 in transportation SDCs annually. Current SDC dollars have been allocated to financing the construction of "J" Street, in collaboration with the City of Madras. SDCs will only be available for other transportation improvement projects after the financing of "J" Street is complete. With the current rate of SDC collection, the SDC fund is not anticipated to be available for other improvements until 2015.

### **Funding Needs**

Currently, all available County transportation system funding is spent on the maintenance of existing roads. Approximately \$180,000 is currently budgeted annually for upgrades to increase the level of service and reduce maintenance on existing roads. Approximately \$136,000 has been accumulated for bicycle and pedestrian projects. When these figures are compared to the cost estimates for the transportation projects listed in Tables 4-2 and 5-1, it becomes clear that additional funding sources will be needed in order to complete any of the projects.

As shown in Tables 4-2 and 5-1, a total of approximately \$97 million would be needed for completion of the proposed county road and bicycle projects - short-term county road projects would cost approximately \$4.3 million, approximately \$49.3 million would be needed for the mid-term road and bicycle projects, and approximately \$43 million would be needed for the long-term road and bicycle projects.

The County currently does not have funding to pay for any of the road improvement projects. A number of the proposed road projects involve county roads that should be improved to accommodate rerouted traffic when an existing county road access to a highway is closed or in conjunction with intersection improvements. Funding from ODOT may be possible for some of these projects. Funding for projects to accommodate future urban development will be up to private developers or the City.

Funding for bicycle projects adjacent to a state highway will come from ODOT. Funding for other bicycle and pedestrian projects may come from the County or private developers. ORS 366.514 requires that at least one percent of the total amount of the funds received in any fiscal year from the State Highway Fund be spent on bicycle or pedestrian projects. The one percent does not have to be used every year, but may be accumulated for up to ten years. As of 2007 the County had \$136,000 in its bike/pedestrian project fund. In most cases, pedestrian facilities will take the form of widened roadway shoulders that will also serve as bicycle facilities. Funding constraints generally will not allow the County to develop separate pedestrian paths or provide sidewalks. However, developers will be encouraged to provide walking paths within new subdivisions.

Because of the lack of County funding, private developers will be required to contribute to road improvements when a new subdivision or other development will significantly increase traffic or otherwise adversely impact a road or intersection. Any requirement for privately-funded road improvements will be based on a direct nexus between the level of road impacts that will be caused by the development and the level of road improvements that are required.

### **Funding for Other Multi-Modal Projects**

Funding for any rail improvements would be the responsibility of Burlington Northern Santa Fe Railroad. Any transmission line improvements will also be privately funded. The Madras City-County Airport Layout Plan Report contains discusses funding for projects at that facility. Any needed improvements at private airports will be the responsibility of the airport owners.

### **6.3 POTENTIAL FUNDING SOURCES**

Annual revenue collected is spent on administrative tasks and the operation and maintenance of County facilities. The County does not have additional resources identified for capital improvement projects. Therefore, funding sources need to be explored to establish a capital funding program that addresses modernization, preservation, operations, and safety of the County's transportation infrastructure.

The following programs are funding sources that could potentially be established or enhanced to fund transportation infrastructure projects in the County.

#### **Statewide Transportation Improvement Program (STIP)**

Every two years, ODOT allocates funding to improvement projects on state and local facilities through its four-year funding program, the Statewide Transportation Improvement Program (STIP). The STIP has provisions for funding local projects that are outside ODOT jurisdiction. Local jurisdictions must apply for this funding. Historically, Jefferson County has not consistently received STIP funding. With adoption of the TSP, the County will be in a stronger position to pursue funding for projects listed in the TSP because these projects will comply with the Transportation Planning Rule (TPR). However, it should be noted that simply being listed in the TSP does not guarantee STIP funding for any project.

#### **Updated System Development Charges (SDC)**

The current SDC program is based on an evaluation of transportation needs conducted in 1996. Since then, the transportation demand in the area has increased dramatically because of growth in Central Oregon. The SDC program charge should be based on the projected needs of the transportation system outside urban growth boundaries over a 20-year planning horizon. Once SDC eligible projects within the county have been identified and the total cost to implement the projects has been estimated, an SDC cost per trip assessment can be developed based on the trip generation potential of future development. As a result, the SDC program should be updated with the transportation project list presented in the TSP.

#### **Local Improvement District (LID)**

LIDs are created to finance road improvements through special assessment against benefited properties. A LID provides a mechanism to coordinate installation and funding of improvements between one or more property owners. LIDs may be formed when property owners petition the County for the purpose of constructing and funding public improvements in their neighborhood, or in some circumstances may be formed when the County determines that improvements are necessary.

**Municipal Bonds**

Municipal bonds are debt issued to fund public infrastructure projects. When an investor buys bonds, he or she is lending money to fund the public project with an agreement that the seller of the bond agrees to repay the principal amount of the loan at a specified time. The interest that investors receive is exempt from some income taxes. Jefferson County has the potential to issue municipal bonds to secure funding for various transportation projects.

**Various Taxes**

It is within county jurisdiction to levy taxes to fund public infrastructure projects that are needed to accommodate future growth in the County. The tax could be in the form of a local gas tax, ad valorem tax, or other form of tax.

**Private Developers/Exactions**

Although none of the potential funding sources identified above are being pursued at this time, at various times in the past the County has used some of these sources to fund specific transportation improvements. For future projects, the most likely source of funding will be private developers. Road standards in the Jefferson County Code require private developers to contribute to off-site road improvements when a new subdivision or other development will significantly increase traffic or otherwise adversely impact the existing transportation system. However, any requirement for privately-funded transportation improvements must be based on a direct nexus or rough proportionality between the level of impacts that will be caused by a development and the level of improvements that are required. Thus any transportation improvements required as a condition of approval for development are unlikely to cover the full cost of the improvements. Creative methods of completing a road project or improvement may be needed in such cases. For instance, the County may be able to contribute to the cost of a road improvement by providing rock and labor if a developer pays for the asphalt.



**Section 7**  

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**TSP Implementation**

## TSP Implementation

### 7.1 IMPLEMENTATION MEASURES

The County has adopted a number of regulations to implement the TSP and its objectives. The regulations are contained in various sections of the 2007 Jefferson County Zoning Ordinance (JCZO) and in the Jefferson County Code. The regulations include road construction, access management, and performance standards that apply both to new roads and to the existing road system. Regulations also include requirements for sidewalks and bicycle facilities.

#### County Road Design Standards

Road design standards take into consideration road functional and operational characteristics, including traffic volume, capacity and safety. The standards are necessary to ensure that as the road system develops it will be capable of safely and efficiently serving the traveling public while also accommodating the orderly development of adjacent lands. The County's road design standards are contained in Chapter 12.18 of the Jefferson County Code. Included are standards for the construction of new roads such as minimum right-of-way, travel lane and shoulder widths; maximum grade; and road design and construction standards; as well as access management standards such as intersection and driveway spacing standards.

The road standards vary based on the road's functional classification. Principal and minor arterial standards are mainly applicable on state facilities that carry the highest volume of traffic. Standards for major collectors, minor collectors and local roads vary depending upon the anticipated average daily traffic (ADT) the road will carry, categorized into high-volume and low-volume. A category for industrial roads is also included within the minor collector and local road standards, which are only applicable to roads within industrial or commercial zones. There are no industrial roads within the county at this time.

Managing access to the road system is necessary to preserve the capacity of arterials and collectors by minimizing the number of points where traffic flow may be disrupted by traffic entering and exiting the road. Access management also enhances safety by minimizing the number of potential conflict points. Access spacing standards for driveways and for new roads accessing existing County facilities are included in the road standards in the Jefferson County Code. Access to state facilities is governed by ODOT based on current access management standards defined in Oregon Administrative Rule (OAR) 734-051 and the Oregon Highway Plan.

The County Code road standards also require the dedication of additional right-of-way or improvements to adjacent roads and intersections when road capacity, traffic flow, public safety or the road surface will be affected by traffic that will be generated by a proposed new development or subdivision. This is in accordance with TSP Strategy 4.2, which requires developers to pay for improvements to the road system that will be needed as a result of increased traffic the development will create.

#### Intersections

Many of the road projects listed in Section IV involve intersections. The highway project list in Table 4-1 includes a number of projects that will add turn lanes at intersections where there is a

relatively high number of turning movements. These intersection improvements generally will be in conjunction with the closure of other county road access to the highway. Traffic flow and safety will be improved by this combination of reducing the overall number of intersections while improving the intersections that remain open.

Other intersection-related highway projects involve realigning county roads with skewed intersection geometry so that the road will intersect the highway at right angles, which will improve safety.

Road standards contained in the Jefferson County Code have been adopted to improve safety at county road intersections. The standards apply both to the construction of new roads and to the reconstruction of existing roads. The standards require that roads intersect at right angles, require roads located on opposite sides of an intersection to be directly opposite each other, and state that a roundabout may be required if the level of service of an intersection will be less than LOS C.

Modern roundabouts can provide both operational and safety benefits. They provide higher traffic capacity and lower delays than all-way stop intersections or signalized intersections because traffic often does not have to come to a complete stop. They provide traffic calming by slowing the speed of vehicles entering the intersection. They are a feasible design solution when more than four roads intersect or when the intersecting roads do not align or enter the intersection at right angles. Probably the most significant benefit of a roundabout installation is increased safety. Studies have found that single-lane roundabouts operate significantly more safely than two-way stop-controlled intersections, and somewhat more safely than four-way stop controlled intersections. Not only is the frequency of crashes lower, but injury rates are significantly reduced.

Many of the road projects listed in Tables 4-1, 4-2 and 4-3 involve the construction of roundabouts. The County Code road standards authorize the County to require a roundabout at other intersections when warranted by an anticipated increase in traffic from a new subdivision or other development.

### **Road Performance Standards**

The County's aim is to have all roads and intersections operate at LOS C or better. JCZO approval criteria for conditional use, site plan review, land division, destination resort and zoning map amendment applications require that the development not reduce the performance standards of the transportation facility below this minimum.

## **7.2 CONSTRUCTION OF PROJECTS**

The transportation projects listed in Tables 4-1, 4-2, 4-3 and 5-1 have been identified to address safety, operation, and connectivity needs to improve transportation facilities for various modes of transportation. As indicated in the discussion of funding in Section 6, the County currently cannot fund any of the projects. However, identification of the projects may increase the potential for obtaining state or federal funding. Equally important, the TSP and the transportation improvement projects that have been identified will be considered in the review of applications for subdivisions or other development, in order to ensure that transportation facility needs are addressed as part of the development and overall impacts to existing transportation facilities are minimized.

Pursuant to OAR 660-012-0025(1), adoption of the TSP constitutes the land use decision regarding the transportation projects that involve improvements within or adjacent to an existing road right-of-way. Further refinement planning, including the identification and consideration of alternatives,

alignment, mitigation of impacts, and opportunity for public involvement, will occur prior to development of the following projects. However, these projects shall not be subject to further justification with regard to their need, mode, function, or general location.

#13, US 97 Truck Bypass Study

#17, Culver Highway 361/SW Jericho Lane Safety Improvements

#18, US 97/US 26 South Interchange Study

#25, Culver Highway 361/SW Bear Drive Safety Improvements

#33, US 20 Safety Improvements

#42, US 26/US 97 North Interchange Study

#46, Crooked River Ranch Secondary Access Study

#47, SW Eureka Lane Extension

#61 – 64, 66, 67, 70 – 74 and 76, Projects to Accommodate Future Urban Growth.

### 7.3 AMENDING THE TSP

OAR 660-12-0060(1), which is implemented by Jefferson County Zoning Ordinance Section 803.2(F), requires the County to determine whether an amendment to the Comprehensive Plan or a land use regulation, including a zone change, would significantly affect an existing or proposed transportation facility by the end of the TSP 20-year planning period. A plan or land use regulation significantly affects a transportation facility if it would:

- Change the functional classification of an existing or planned transportation facility;
- Change standards implementing a functional classification system;
- Allow land uses or levels of development that would result in types or levels of travel or access that are inconsistent with the functional classification of a transportation facility;
- Allow land uses or levels of development that would reduce the performance of a transportation facility below the minimum acceptable performance standard identified in the TSP (LOS C); or
- Allow land uses or levels of development that would worsen the performance of a transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the TSP.

Generally, an amendment does not have a significant effect on a transportation facility if it will not have the effect of generating more trips than the existing zoning, or if there are adequate existing or planned transportation facilities to serve uses that could be allowed as a result of the amendment. In

order to show that planned transportation facilities are adequate, funding for the facility must be in place or approved, or be reasonably likely to be provided by the end of the planning period.

If it is determined that a proposed amendment or zone change will have a significant effect on a transportation facility, the County must do one of the following:

- Adopt measures to assure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility;
- Amend the TSP to provide transportation facilities, improvements or services adequate to support the proposed land uses, including a funding plan or mechanism to assure that the facility, improvement or service will be provided;
- Alter land use designations, densities or design requirements to reduce demand for automobile travel and meet travel needs through other modes;
- Amend the TSP to modify the planned function, capacity or performance standards of the transportation facility; or
- Provide other measures as a condition of approval for development, such as require the developer to make transportation improvements.

However, an amendment can be approved if a transportation facility is already performing below LOS C or will not be consistent with the identified function, capacity or performance standard for the facility by the end of the planning period, and the development will mitigate impacts to the transportation facility in a manner that avoids further degradation to the performance of the facility.

The TSP is an element of the Jefferson County Comprehensive Plan. Any proposal to amend the TSP shall be processed in the same manner as an application to amend the Comprehensive Plan, and shall be subject to the approval criteria contained in the Comprehensive Plan for a text amendment. However, Appendix II, the Coordinated Human Services Transportation Plan, and Appendix III, the Jefferson County Code road standards, are separate documents that are included in the TSP for reference purposes only. A Comprehensive Plan amendment is not required to amend these documents, nor will changes to these documents be considered an amendment of the TSP.



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**Appendix I**  
**Plan and Policy Review**

## Plan and Policy Review

Several jurisdictions own, manage, and/or operate the transportation facilities serving Jefferson County. The Oregon Department of Transportation (ODOT), which has jurisdiction of the state highway system, has developed statewide plans for specific transportation modes, a statewide transportation improvement program, and specific area studies. The county has adopted relevant planning documents, including the Comprehensive Plan and Zoning Ordinance. Transportation plans for individual cities were also reviewed. Plans and policies developed at the federal, state, regional, and local levels directly impact transportation planning in Jefferson County. Although each document that was reviewed contains many policies, only the most pertinent policies and information are summarized here.

The following summarizes the major documents reviewed during the development of the TSP.

### Federal

- Safe, Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) and implementing regulations (23 CFR 450 and 49 CFR 613)

### State/ODOT

- Transportation Planning Rule (OAR 660-12)
- Oregon Transportation Plan (1992)
- Oregon Highway Plan (1999)
- Oregon Public Transportation Plan (1997)
- Access Management Rule (OAR 734-051)
- US Highway 97 Corridor Strategy – Madras-California Border (Revised Draft Final 1995)
- Biggs Junction-Madras (US 97) Corridor Plan (Public Review Draft, 2002)
- US 26 Corridor Study – Heidi Junction-Madras (Public Review Draft, 1990)
- Oregon Highway 26 Corridor Strategy, Clackamas/Wasco County Line (East of Government Camp) to US Highway 97 (Madras) (Public Review Draft, 1995)
- Safety Priority Index System (SPIS)
- Freight Moves the Oregon Economy (1999)
- Jefferson County Facility Community Impact Study, Oregon Department of Corrections (Draft #2, 1999)
- Oregon Bicycle and Pedestrian Plan (1995)
- Oregon Aviation Plan (2000)
- Oregon Rail Plan (2001)

### Jefferson County

- Jefferson County Comprehensive Plan (1981)
- Jefferson County Zoning Ordinance (2003)



- Jefferson County Subdivision Ordinance (2000)
- Jefferson County Ordinance 0-110-02 - Administration of Right-of-Way, Road Design Standards, Road Construction Standards (2002)
- Jefferson County Transportation Plan (Final Draft, 1996)

#### **Cities**

- City of Culver Comprehensive Plan (1977)
- City of Madras Transportation System Plan (2003)
- City of Metolius Comprehensive Plan (1987)
- Madras City-County Airport, Airport Layout Plan Report (1997)

The documents reviewed for this project were relevant to the TSP process in varying degrees. The key documents and elements from this review are described below:

#### **FEDERAL**

The **Safe, Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU)**, legislation that renews the nation's surface transportation law (TEA-21) through fiscal year 2009, was signed into law in August 2005. Federal transportation planning requirements, such as those specified in SAFETEA and its implementing regulations, are addressed through state and local plans. Previously, TEA-21 funds and federal forest receipts have been the primary state and federal transportation funding sources; TEA-21 funds transit and roads. TEA-21 also made discretionary funds available for eligible projects along highways designated as National Scenic Byways, All-American Roads, or State scenic byways. FHWA administers this funding program, soliciting applications once a year, and makes funds available to ODOT.<sup>5</sup>

#### **STATE OF OREGON**

The **Oregon Transportation Plan (OTP) (1992)** is a policy document developed by ODOT in response to federal and state mandates for planning for the future of Oregon's transportation system. The OTP is intended to meet statutory requirements (ORS 184.618(1)) to develop a state transportation policy and comprehensive long-range plan for a multi-modal transportation system that addresses economic efficiency, orderly economic development, safety, and environmental quality.

The OTP consists of two elements: the Policy Element and the System Element. The Policy Element defines goals, policies and actions for the state for the next 40 years. The Plan's System Element identifies a coordinated multi-modal transportation system, to be developed over the next 20 years, which is intended to implement the goals and policies of the Plan.

The **1999 Oregon Highway Plan (OHP)**, an element and modal plan of the state's comprehensive transportation plan, guides the planning, operations, and financing of ODOT's Highway Division. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems.

The **Oregon Public Transportation Plan (1997)** forms the transit modal plan of the Oregon Transportation Plan. The plan contains goals, policies, and strategies relating to the whole of the state's public transportation system. The plan is intended to provide guidance for ODOT and public transportation agencies regarding the development of public transportation systems.

**Oregon Administrative Rule 734-051 (Access Management)** defines the State's role in managing access to highway facilities in order to maintain functional use and safety and to preserve public investment. The provisions in the OAR apply to all roadways under Oregon State jurisdiction within Jefferson County, and govern the issuance of permits for public and private accesses onto state highways. The access management rules include spacing standards for varying types of state roadways. It also lists criteria for granting right of access and approach locations onto state highway facilities. The rules promote the protection of emerging development areas, rather than the retrofit of existing built-up roads, and include spacing standards for the different types of state highways. The access management rules also include provisions for commercial centers, urban business areas, and special transportation areas discussed in the OHP.

The **US Highway 97 Corridor Strategy – Madras-California Border (1995)** addresses the US 97 Corridor, stretching 199.8 miles from the Highway 26 intersection in north Madras to the Oregon/California border. Only Segment 1 of this defined Corridor lies in Jefferson County. Segment 1 is approximately 26.6 miles in length. It begins at the north junction of U.S. 26 in Madras and ends at the Prineville junction of U.S. 97 and OR 370 (O'Neil Hwy).

The objective of the Corridor Strategy is to determine relevant policies applicable to the corridor and to formulate objectives that attempt to balance various modes of transportation with the needs, issues and unique features of the Corridor. The six underlying strategy themes identified during the strategy development process include enhancing safety, facilities management and improvement, intermodal connections, interpretive opportunities and preservation of environmental quality, economic development, and partnering (p.5, p.41). These strategies were taken into consideration in the development of the TSP to ensure compliance.

The stated purpose of the **Biggs Junction-Madras (US 97 North) Corridor Plan (2002)** is to "establish both short and long-term management direction for all modes of transportation in the corridor and to make major transportation tradeoff decisions." The US Highway 97 Corridor between Biggs Junction and Madras stretches 91.94 miles from the junction of US 97 with I-84 at the Columbia River to the US Highway 26 intersection in north Madras. Prioritized improvements to corridor facilities and system and management decisions identified in the corridor plan are intended to provide the basis for updating the Statewide Transportation Improvement Program (STIP). The Plan states that through local transportation system planning, such as the TSP update, ODOT and local governments in the corridor will cooperatively work together to ensure that city and county comprehensive plans and implementing ordinances achieve corridor plan management objectives.

The Corridor Overview (Section II) includes existing transportation conditions in the corridor (C., Existing Conditions). Under subsection 5.0, the Study states that in 1997 2 % of the corridor operated with a moderate level of congestion (V/C ration between 0.80-0.89). The 2 % of the corridor that was moderately congested occurred at Biggs Junction (Junction of US 97 with I-84 and US 30) and Madras (Junction of US Highway 97 with US Highway 26). The level of congestion on US 97 was not projected to change through the planning period (p.20). Existing conditions for the Dalles/California Highway, the segment described as US Highway 97 from MP 67.1 at the US Highway 97/197 junction to MP 91.94, and the US Highway 97/26 junction in the City of Madras are

found in Subsection 6.2 (p. 25). The Study concludes that this section of US Highway 97 meets State Highway Design Standards, with the exception of shoulder width, and exceeds the 1999 OHP goal of 90% "fair-or-better" pavement condition.

The Corridor Plan documents that opportunities for bicycle and pedestrian travel are limited to the urban areas of the Corridor. Most of the communities do not have designated bike lanes or a comprehensive system of sidewalks and local streets are used by autos, bicyclist and pedestrians as a shared surface. The Corridor Plan recommends continuing this practice and only adding or replacing sidewalks along US 97 and on local streets that connect residential areas with commercial centers and schools.

The Corridor Plan states that Madras City-County Airport will continue to be a vital component in economic development activities in the region and supports the protection of the airport from encroachment by incompatible land uses.

The Corridor Plan assumes that rural portions of the Corridor will continue in resource uses, e.g. agriculture, with growth generally confined to acknowledged exception areas and existing rural community centers; that all highway uses of US 97 will increase during the 20-year planning period; and that the use of US 97 as a statewide freight route will continue to grow in importance. Highway capital improvement projects identified for construction in the Statewide Transportation Improvement Program (STIP) relating to US 97 are assumed as "Committed" projects in the Corridor Plan.

Key themes reflected in the Corridor Plan that relate to sections of US Highway 97 in Jefferson County include:

- Maintain existing facilities to ensure that they remain safe and functional as the highest priority for the allocation of state and federal resources.
- Maintain overall corridor performance and safety through a combination of increased enforcement, access management, and targeted highway improvements.
- Apply appropriate access management standards consistent with existing and planned land uses.
- Factor environmental conservation into both maintenance practices and improvement projects with the focus to enhance the visual quality of the driving experience, especially within the Journey through Time Scenic Byway segment.
- Encourage transportation-efficient land use patterns by supporting development/redevelopment within existing urban areas and rural development centers.
- Provide no additional expansion of highway capacity, except for climbing and passing lanes to reduce conflicts between freight traffic and other highway users.
- Promote US 97 as a statewide freight route for access to Central Oregon, Washington, Idaho, California, and Nevada.
- Protect and enhance the corridor's scenic values.
- Resolve congestion and safety problems in Biggs Junction and Madras.
- Resolve highway/land use compatibility issues in urban areas and rural service centers.
- Address safety problems at intersections.

The following key management strategies listed under the "Rural Areas" section are applicable to Jefferson County (Section 3.2):

- Small-scale capital improvements, such as climbing and passing lanes, and turn lanes. The Plan includes capital improvements to reduce conflicts between autos and large trucks in the Corridor. This approach will enhance the operational characteristics of the Corridor and make the best use of scarce resources and minimizes environmental impacts.
- Access management plays an important role in the rural areas. With a large number of at-grade intersections through the rural portion of the Corridor, the opportunity exists for conflicts between highway users and cross-traffic and turning traffic. Control of the location and spacing of public and private access to the highway is a critical component in maintaining the operational integrity of the highway.
- Transportation improvements must minimize impact on significant environmental and cultural resources. The potential to impact streams, wetlands, plants, wildlife and archaeological sites is greatest in the rural portion of the Corridor. For this reason, small-scale strategic passing and climbing lane improvements are proposed to minimize impacts.

The Transportation Balance section recognizes that the automobile will continue to be the overwhelmingly dominant mode for moving people in the Corridor due to travel distances between residences and destinations and the absence of transit service (1.1.3). The stated management approach is to focus on management, maintenance, operations and service improvements in the Corridor, rather than modernization and large capital improvements, reduce auto/truck conflicts through the strategic use of passing and climbing lanes, and continue to develop transportation alternatives that reduce reliance on the auto. A general objective is to provide for safe and efficient high-speed continuous flow operation in rural areas (a V/C of 7.0 or less).

#### **US 26 Corridor Study – Heidi Junction-Madras (1990)**

As described in the US 26 Heidi Junction-Madras Corridor Study, a corridor study describes the nature and character of the highway by dividing it into small, uniform segments. Each segment is analyzed for traffic mix, capacity, alignment, width, accidents, pavement condition, off right-of way activities and economic development plans. Highway problems and needs both mid-range (10 years) and long-term (20 years) are identified and specific project strategy recommended. Cost estimates for the identified improvements are provided in this Corridor Study. Concepts to help use funds more effectively and improve highway safety are also introduced. The report is intended to provide a framework to identify existing highway improvements and project future needs to year 2010. Part of Section 6 (OR 216 to Deschutes River) and Section 7 (Deschutes River to Madras) run through Jefferson County.

The goals established in this Corridor Study include:

- Provide minimum lane widths of 12 feet on entire highway.
- Provide minimum paved shoulders of 6 feet on all highway sections with 2,000 or over Average Daily Traffic (ADT) and 3-foot paved shoulders of those sections with less than 2,000 ADT. On bridges provide a usable bridge width of four feet greater than the approach lane width if the ADT is 2,000-4,000 and six feet greater if the ADT is over 4,000.
- Improve and maintain pavement surface to good or better condition.

The Corridor Strategies section (p.10) includes strategies for providing passing lanes and access management (“improving levels of service and increasing capacity must go hand in hand with measures to control access”) in the Corridor. Corridor Analysis (p.14) for Segments 6 (p.38) and 7

(p.42) includes a detailed description of the transportation and facility conditions in the segments and respective tables that summarize improvement needs. The Summary and Conclusions section (p.46) anticipates that development of added passing lanes between Rhododendron and Madras will be one of several major potential modernization and reconstruction projects in the US 26 Corridor.

**The Oregon Highway 26 Corridor Strategy, Clackamas/Wasco County Line (East of Government Camp) to US Highway 97 (Madras) (1995)** is a “public review draft” and is described as the first step in the Corridor Planning process. The document describes the long-term (20-year) transportation improvement and performance objectives along Highway 26 for all modes of transportation along the Corridor. The portion of US Highway 26 within ODOT Region 4 is the subject of this Corridor Strategy and is defined as corridor segments 5, 6, and 7. Part of Section 6 (OR 216 to Deschutes River) and Section 7 (Deschutes River to Madras) run through Jefferson County. The Corridor Strategy is comprised of a series of performance and impact objectives. Transportation performance objectives relate to transportation balance/intermodal connectivity, regional connectivity, highway congestion, facility management, road conditions, and safety. Transportation impact objectives include environmental, social, land use, energy, and economic.

In 1986 ODOT developed the **Safety Priority Index System (SPIS)** to identify potential safety problems on Oregon’s state highways. The SPIS helps to identify areas where funds apportioned for safety issues can be spent in a manner that will achieve the highest benefit. ODOT defines a SPIS site as a 0.10 mile section of roadway that has three or more crashes or one or more fatal crashes over a three year period. The priority index of the roadway segments are based on frequency, severity, and crash rate. The current 2001 – 2003 SPIS rankings show six sites in Jefferson County, one on the Warm Springs Reservation, three within the Madras city limits, and two - US 26 at Dover Lane and US 97 at Milepost 106.00 (between US 97/Culver Highway-SR 361 and SW Monroe Lane) – that are within the unincorporated area of the county.

**The Freight Moves the Oregon Economy (1999)** report summarizes a variety of information about issues and needs surrounding the transport of freight by roads, rail lines, waterways, aircraft, and pipelines. The document’s stated purpose is to demonstrate the importance of freight to the Oregon economy and identify concerns and needs regarding the maintenance and enhancement of current and future mobility within the state of Oregon. State Highways 97 and 20 are designated freight routes. The document notes that, in terms of volume of freight moved, “the U.S. 97 corridor is the most important north-south corridor east of the Cascade Mountains (Chapter 2, p. 28).” Corridor planning projects (“ODOT Corridor Planning Corridors,” Figure I-5) listed in this document include Gresham-Madras (US 26), Madras-Biggs Junction (US 97), and Madras-California (Chapter 1, p.22). Corridor plans are intended to be a source of programs and projects included in local and state transportation improvement programs. While no specific recommendations were identified for facilities in Jefferson County, the deficiencies and improvements discussed in this document are pertinent to how freight facilities are addressed in the County’s TSP.

**The Jefferson County Facility Community Impact Study (1999)** was completed for the Oregon Department of Corrections to assess the potential impact of the medium security correctional facility to be located three miles east of Madras. In Section III (Community Development), the major transportation facilities in Jefferson County are identified as Highways 26 and 97, Greyhound bus service, the Madras Airport, and limited freight rail service. A Transportation Impact Analysis was completed as part of this study. The following points summarize the findings of that analysis:

- The analysis assumes that the intersection of US 97 and US 26 will be reconfigured with a new traffic signal.

- All intersections within the study area will continue to operate at an acceptable level of service during peak hours.
- Additional trips generated by the correctional facility will not result in a significant impact on the transportation system.

The **Oregon Bicycle and Pedestrian Plan (1995)** is a modal element of the Oregon Transportation Plan. It contains the standards used on State Highway projects and provides guidance to regional and local jurisdictions for the development of safe, connected bicycle and pedestrian systems. The plan includes two major sections: policies and implementation strategies and design, maintenance, and safety. The policy section contains relevant state and federal laws. The Oregon Bicycle and Pedestrian Plan considers rural highways and county roads suitable for cycling if they have paved shoulders or relatively low traffic volumes. Map 1, Conditions for Bicyclists on Rural Highways, shows that US 97 has four-foot or greater shoulders and that US 26 Madras to Prineville has shoulders less than four feet and an ADT greater than 1,000. Table 7, Standard Rural Highway Shoulder Widths, provides shoulder width recommendations based on roadway type (Rural Arterials, Rural Collectors, Rural Local Routes) and ATD.

The **Oregon Aviation Plan (2000)** identifies a primary state aviation system and system needs. The plan recommends policies to guide the state in protecting, maintaining, and developing the airport system. Jefferson County has two airports, the Madras City-County Airport and the Lake Billy Chinook Airport. As described in the Aviation Plan, the Madras City-County Airport is listed as a "Category 4" in Oregon's "core system" of airports and the Lake Billy Chinook airport is a "Category 5." Categorization of airports is based on services and functional roles. Category 1 airports are commercial service airports and provide Oregon's primary intrastate, interstate, and international connections for commercial passenger and cargo service. These airports accommodate scheduled major/national or regional/commuter commercial air carrier service. Category 4 airports serve the needs of general and business aviation users and activities within the local area. The airports have the airfield facilities and services necessary to accommodate general aviation users, in light single and multi-engine aircraft weighing 12,500 pounds and less. In addition, the Oregon Aviation Plan identifies Category 4 airports as candidates for new instrument approaches facilities because they provide significant local access and have established charter, cargo/express, corporate, or medevac activities. Based on these criteria, the Madras City-County Airport is among those on the list of airports recommended as the highest priority to receive new instrument approaches (Oregon Aviation Plan, p. 45). Identified issues regarding the condition of the facilities at Madras City-County Airport include deficiencies in runway end identifier lights (REILS), visual guidance indicators (VGI), instrument approach, and 24 hour weather<sup>10</sup>, and runway protection zones<sup>11</sup> (Exhibit V-17). Land use compatibility issues (Exhibit V-18) include open land fills, noise issues, and bird migratory areas near the airport. Category 5 airports are located in communities and outlying areas with small or no population within their service area. They can have an important emergency function and many provide access to recreational opportunities in remote areas. These airports have limited services, such as fuel and maintenance facilities, and have taxi-runway systems capable of only limited use general aviation activity. Exhibit V-17, Facility Condition Deficiencies, list the Lake Billy Chinook Airport as having runway protection zones and runway object-free area deficiencies. Land use compatibility issues (Exhibit V-18) include incompatible land uses, open land fills, and bird migratory areas near the airport. The **Madras City-County Airport, Airport Layout Plan Report** more specifically addresses aviation issues in Madras and the county, including an outline for future development and details of an airport layout plan.

The **2001 Oregon Rail Plan** addresses both freight and passenger rail transportation. The Plan's freight element has four major purposes: (1) describe Oregon's freight rail system in terms of the carriers and the individual properties that make up the state railroad system; (2) describe the commodities transported by rail in Oregon; (3) identify funding needs and potential funding sources for railroads in Oregon; and (4) assess what shippers want from rail service in Oregon.

## **LOCAL**

The **Jefferson County Comprehensive Plan** contains the official goals and policies that are relevant to land use in the county, and addresses all applicable Oregon Statewide Planning Goals. The goals and policies in the TSP will be the County's adopted long-range vision for transportation planning and the means of complying with statewide planning Goal 12.

The **Jefferson County Zoning Ordinance** implements the policies outlined in the Comprehensive Plan, lists the uses permitted in each zone, and the regulations that apply to specific uses and zones.

The **City of Madras Transportation System Plan** (adopted 1999 and amended in 2003) was designed to guide the management of existing transportation facilities and the design and implementation of future facilities inside the city's urban growth boundary and adjacent areas that have a strong potential to develop within a 20-year planning period. Where applicable, the County TSP and Madras TSP should be consistent. General Madras TSP policies include identifying transportation needs to accommodate developing or underdeveloped areas (Goal 2), increasing the use of alternate modes of transportation (Goal 3), and enhancing the role of the Madras airport (Goal 4). Additional policies are included under the following categories: Transportation Facility Improvements, Protection of Transportation Facilities, Protect Public Use Airports, Coordinated Review of Land Use Decisions, Impacts of Development Proposals, and Pedestrian and Bicycle Circulation.

### **City of Culver Comprehensive Plan (1977)**

The City of Culver, incorporated in 1946, has a population of approximately 1000 and is located nine miles south of Madras. Culver Highway (Highway 361) leaves Highway 97 at Madras and precedes south through Metolius and Culver before rejoining Highway 97 south of Culver. The City of Culver Comprehensive Plan describes the Culver Highway as a major federal aid secondary highway. With the exception of the Urbanization Policy that requires cooperation between the City and County when the Urban Growth Boundary is amended, the Comprehensive Plan does not contain background statements or policies regarding coordination with the county or the County's transportation system.

Incorporated in 1913, the City of Metolius is approximately two miles southwest of Madras. In 2005 the population of the City was 804. The **City of Metolius Comprehensive Plan (1987)** Transportation section notes that the automobile is the principal mode of transportation within the City. Freight is active through the City by truck and rail. The City is also served by the Madras Airport. At the time the Comprehensive Plan was adopted, there were only three paved roads in the City: Butte, 5<sup>th</sup> and 9<sup>th</sup> Streets. The lack of paved streets was identified as a problem by city residents (General Discussion section, p. 24). The Comprehensive Plan addresses City/County coordination with regards to areas outside the City limits but within the City's UGB, and joint City/County adoption of UGB amendments, but does not contain other policies related to the county or the County's transportation system.

**Appendix II**

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**Jefferson County Coordinated  
Human Services Transportation Plan  
(Adopted June 27, 2007 by M-94-07)**



**Appendix III**

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**County Code Road Standards  
(Adopted by Ordinance #O-69-07)**