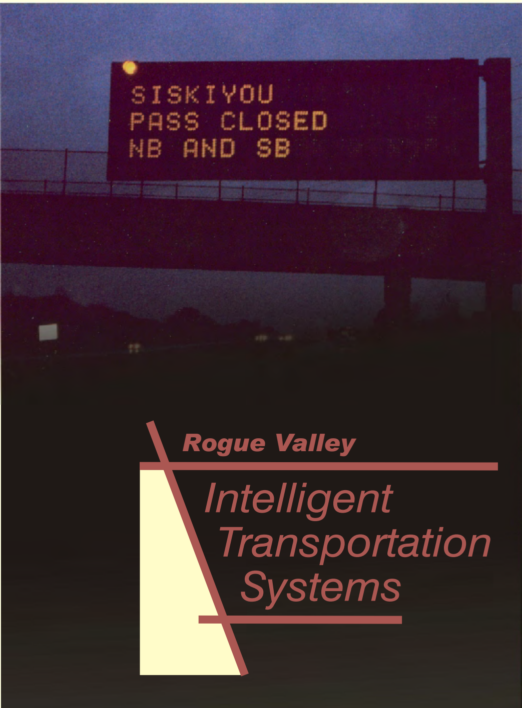
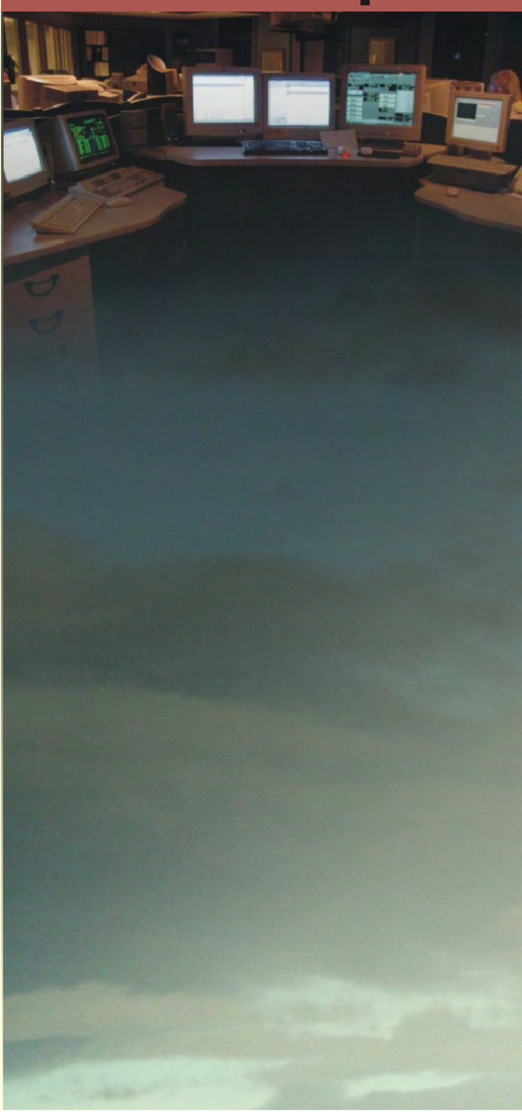


Rogue Valley
Intelligent
Transportation
Systems

Regional ITS Operations & Implementation Plan for the Rogue Valley Metropolitan Area

Final Report - July 2004



Prepared by

DKS Associates
TRANSPORTATION SOLUTIONS

And

Castle Rock Consultants

In association with

ODOT
Jackson County
City of Medford
Rogue Valley Council of Governments
Rogue Valley Metropolitan Planning Organization
Rogue Valley Transit District
Federal Highway Administration
Southern Oregon Regional Communications

TABLE OF CONTENTS

CHAPTER 5: COMMUNICATION REQUIREMENTS

CHAPTER 6: DEPLOYMENT PLAN

APPENDICES

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENTS

The *Regional ITS Operations & Implementation Plan for the Rogue Valley Metropolitan Area* was prepared with the assistance of many people. DKS Associates wishes to acknowledge the Steering Committee, the workshop participants, and the following people for providing valuable input towards the preparation of this plan.

PROJECT MANAGER

Galen McGill	Oregon Department of Transportation ITS Unit

KEY PROGRAM STAKEHOLDERS

Alex Georgevitch	City of Medford
Jerry Barnes	City of Medford
Nathaniel Price	Federal Highway Administration
Eric Niemeyer	Jackson County
Ron Norris	Medford Police Department
Larry McKinley	Oregon Department of Transportation ITS Unit
Sue D'Agnese	Oregon Department of Transportation Region 3
Shirley Roberts	Oregon Department of Transportation
Dan Moore	Rogue Valley Council of Governments
Julie Rodwell	Rogue Valley Council of Governments
Vicki Guarino	Rogue Valley Council of Governments
Chris Olivier	Rogue Valley Council of Governments
Scott Chancey	Rogue Valley Transportation District
Millie Tirapelle	Southern Oregon Regional Communications
Arlen Hatlestad	Southern Oregon Regional Communications

EXPANDED STAKEHOLDERS

Chief Keith Woodley	Ashland Fire & Rescue
Steve Roesler	Bear Creek Corporation
Pieter Smeenk	City of Ashland
Tom Humphrey	City of Central Point
Bob Pierce	City of Central Point
Dave Hussell	City of Eagle Point
Paul Wyntergreen	City of Jacksonville
Mark Hammel	City of Medford
Wayne Pace	City of Medford
Denis Murray	City of Phoenix
Jim Wear	City of Phoenix
Betty Wheeler	City of Talent
Cpl. John Meeker	Eagle Point Police Department
Bern Case	Jackson County Airport
Paul Lear	Jacksonville Fire Department
Kelly Dutra	Medford Police Department- RVCCOM
Paula Gibson	Medford Police Department- RVCCOM
Karl Haeckler	Medford Police Department
Ken Parsons	Mercy Flights
John Vial	Oregon Department of Transportation District 8
Lt. Tanya Henderson	Oregon State Police
Sgt. Jeff Proulx	Oregon State Police
Chief David Tucker	Phoenix Fire Department
Matthew Barnes	Rogue Valley Transportation District
Margie Puckett	Southern Oregon Regional Communications
Joe Hunkins	Southern Oregon Visitor's Association

CONSULTANT TEAM

Jim Peters	DKS Associates	Hau Hagedorn	Castle Rock Consultants
Peter Coffey	DKS Associates	Toshi Forrest	Castle Rock Consultants
Renee Hurtado	DKS Associates		
Rich Shinn	DKS Associates		
Danella Whitt	DKS Associates		

Oregon Department of Transportation

Rogue Valley Intelligent Transportation Systems

Chapter 1: Current & Future Transportation Conditions

1.1 INTRODUCTION

The purpose of this chapter is to provide an overview of the current and future transportation system conditions in the Rogue Valley metropolitan area and develop an inventory of the physical, operational, traffic safety, and travel characteristics of the transportation corridors in the study area. This inventory includes a summary of the following:

- Study area corridors
- Recurrent congestion locations
- High crash locations
- Transit operations
- Traffic signal control
- Intelligent transportation system (ITS) elements
- Communications network
- Emergency management
- Incident management
- Special events
- Freight movement
- Traveler information
- Relevant adopted documents

The main goal of the inventory is to establish the baseline conditions in the study area that will be used for building an intelligent transportation system based on regional transportation user needs.

1.2 STUDY AREA

Figure 1-1 illustrates the 10 study corridors in the study area, which encompasses the current boundaries of the Rogue Valley Metropolitan Planning Organization (RVMPO). A detailed list of planned projects on each of the study corridors can be found in Section 1.13.5. The transportation operating conditions of the key study corridors are summarized in Table 1-1. Key regional facilities located within the study area are depicted in Figure 1-2 and Appendix C includes addresses for these facilities. These facilities include City halls, public works departments (engineering offices and maintenance facilities), schools, and emergency management facilities (fire stations, police stations, 911 centers, ambulance locations, hospitals, and emergency operations centers).

©2004, MapQuest.com, Inc.; ©2004 GDT, Inc.

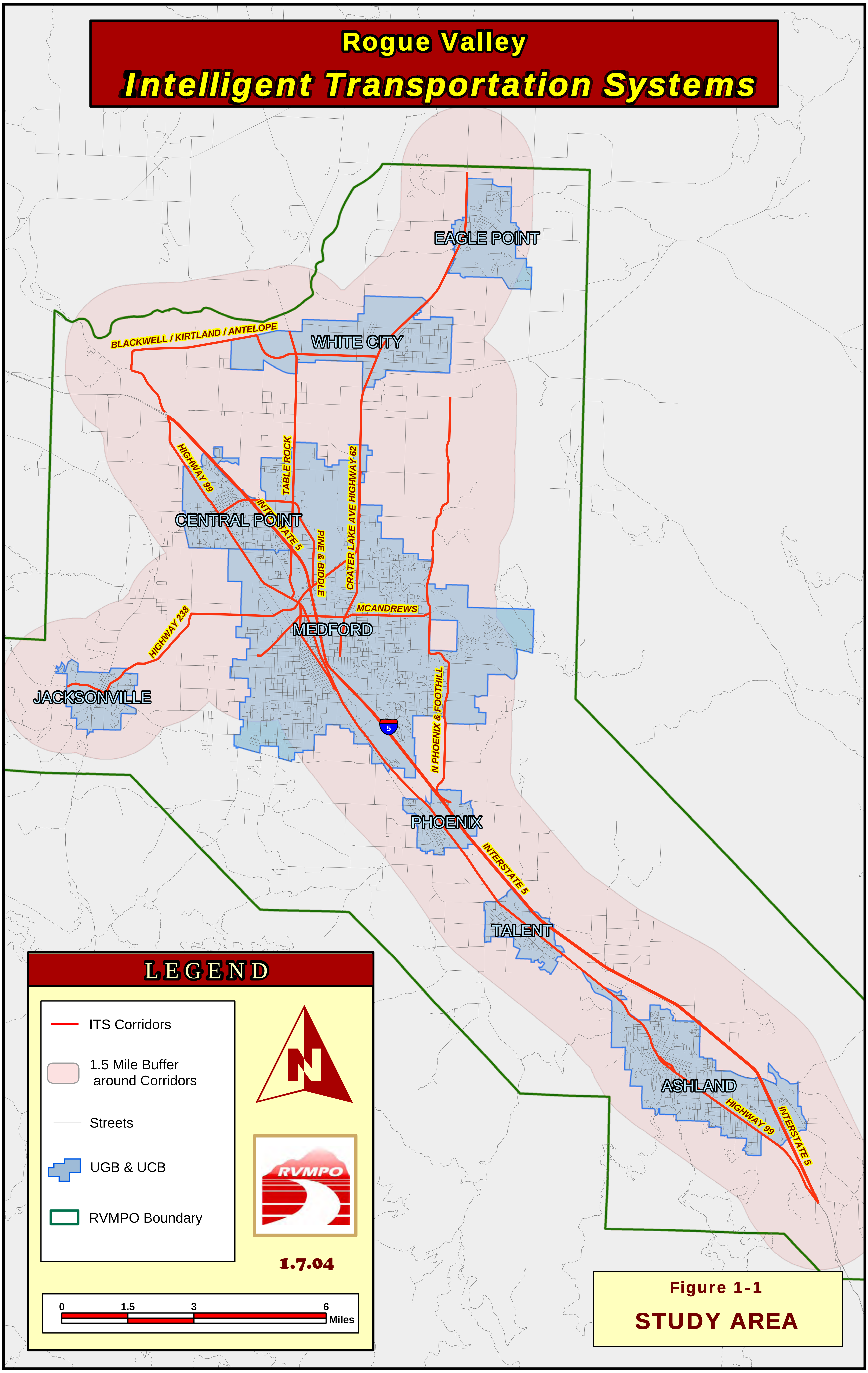


Figure 1-1
STUDY AREA

Table 1-1. Study Area Corridors

#	Corridor	Limits	Key RVTD Transit Routes	Maximum 2000 2-Way ADT*	Maximum 2023 2-Way ADT*
1	Interstate 5	Exit 11 to Exit 35	1: RV Mall/Poplar Square	52,800 (N of Barnett)	74,180 (N of Barnett)
2	Rogue Valley Highway (Hwy 99)	I-5 Exit 11 to I-5 Exit 35	5: Ashland Loop 10: Ashland 30: Jacksonville 40: Central Point	17,330 (N of McAndrews)	21,030 (N of McAndrews)
3	Crater Lake Highway (Hwy 62)	Highway 99 to Linn Road (Eagle Point)	60: White City	23,850 (W of Poplar)	30,960 (W of Poplar)
4	Pine Street/Biddle Road	Highway 99 to Highway 62	1: RV Mall/Poplar Square 40: Central Point	8,040 (Between I-5 Ramps)	12,660 (Between I-5 Ramps)
5	Jacksonville Highway (Hwy 238)	Stage Road South (Jacksonville) to Highway 62	2: Main Street/West Medford 30: Jacksonville	5,460 (E of Sage)	9,000 (E of Sage)
6	Crater Lake Avenue	East Main Street to East Vilas Road	60: White City	9,820 (N of McAndrews)	14,480 (N of McAndrews)
7	North Phoenix Road/Foothill Road	Fern Valley Road to Corey Road (White City)	--	5,010 (Hillcrest)	12,930 (S of Cherry)
8	Table Rock Road	Highway 99 to Antelope Road (White City)	--	7,090 (N of Hwy 99)	10,410 (N of Vilas)
9	Blackwell Road/ Kirtland Road/ Antelope Road	Interstate 5 to Highway 62	--	5,030 (W of Agate)	6,810 (W of Agate)
10	McAndrews Road	Ross Lane to Foothill Road	1: RV Mall/Poplar Square 40: Central Point	15,030 (E of Riverside)	19,480 (E of Royal)

* ADT values are approximate values taken from the RVCOG travel demand model.

Rogue Valley
Intelligent Transportation Systems

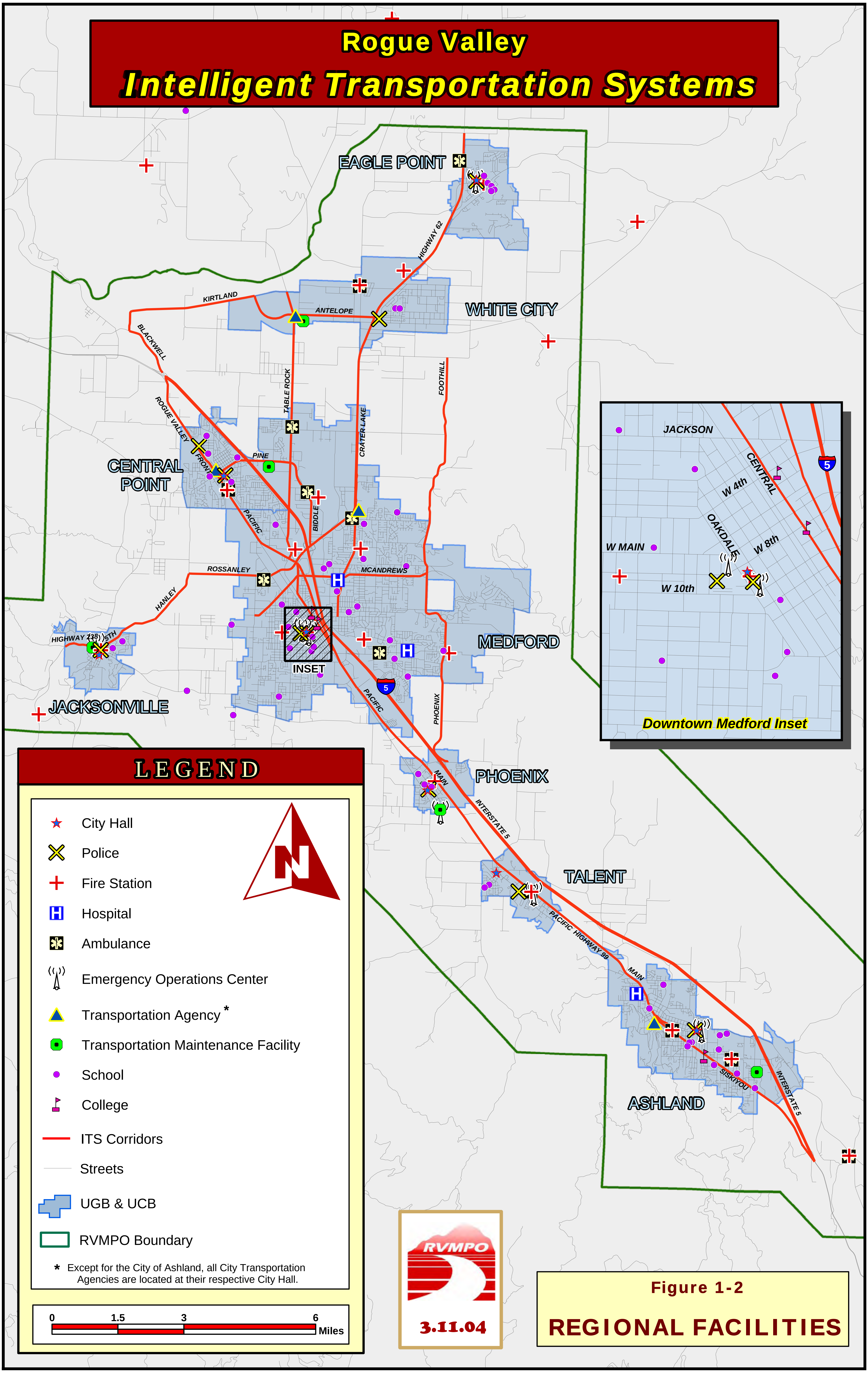


Figure 1-2

REGIONAL FACILITIES

1.3 TRAFFIC CONDITIONS SUMMARY

Congested corridor sections/bottlenecks and high collision locations provide the greatest opportunities to implement ITS field elements that will produce a noticeable benefit. While Table 1-1 includes a brief summary of transportation operating conditions for each study area corridor, this section provides a summary of existing and future recurrent congestion locations and high collision locations.

1.3.1 Characteristics of Congestion

Congestion is typically categorized as either non-recurrent or recurrent. Non-recurrent congestion results from unexpected random events such as collisions or road debris in travel lanes. Recurrent congestion happens repeatedly at the same location, such as at key bottlenecks, merge points, or weaving sections, during peak periods. Volume-to-capacity (v/c) ratios help determine locations where traffic flows are near or at capacity on a consistent basis, indicating recurrent congestion. The Rogue Valley Council of Governments (RVCOG) normally assigns congestion to v/c ratios as listed in Table 1-2.

Table 1-2. Congestion Levels Based on Volume-to-Capacity Ratios

Congestion Level	Volume-to-Capacity Ratio
Moderate	0.80 – 0.89
High	0.90 – 0.99
Severe	≥ 1.00

1.3.2 Existing Congestion

Recurrent congestion is very limited during the morning and/or peak periods today and most of it falls within the moderate to high congestion range. The two trouble spots that fall into the severe congestion category are Fern Valley Road between Highway 99 and the Interstate 5 interchange and Highway 62 at I-5, which is also a key bottleneck. Although the North Medford Interchange (Highway 62 at I-5) is a problem area today, reconstruction of the interchange is scheduled to start this year to improve operations. Figure 1-3 highlights these existing peak period recurrent congestion locations.

I-5/Fern Valley Road Interchange in Phoenix (Source: ODOT, 1999)

1.3.3 Future Congestion

Figure 1-4 illustrates potential recurrent congestion locations for the year 2023 based on RVCOG and City of Medford travel forecasts for maximum peak hour travel demand. The RVCOG travel demand model for 2023 only includes the implementation of currently funded projects as outlined in the *Regional Transportation Plan* (RTP) and may represent a worst case scenario because it assumes no additional funding will be available beyond the currently programmed funds. The forecasts indicate increased congestion by 2023, particularly on Interstate 5, Highway 62, Phoenix Road, Foothill Road, McAndrews Road, and Barnett Road.

Rogue Valley
Intelligent Transportation Systems

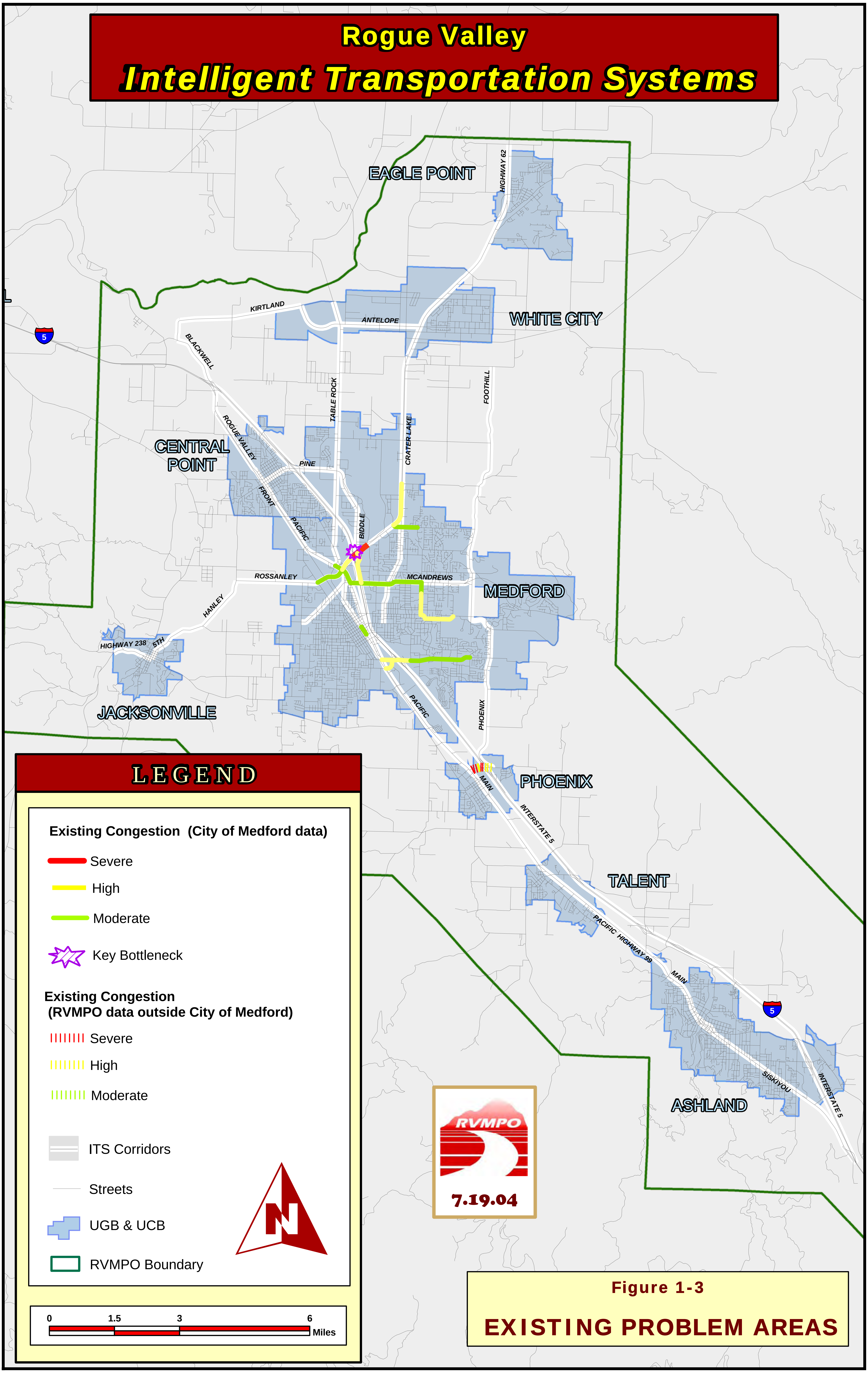


Figure 1-3

EXISTING PROBLEM AREAS

Rogue Valley
Intelligent Transportation Systems

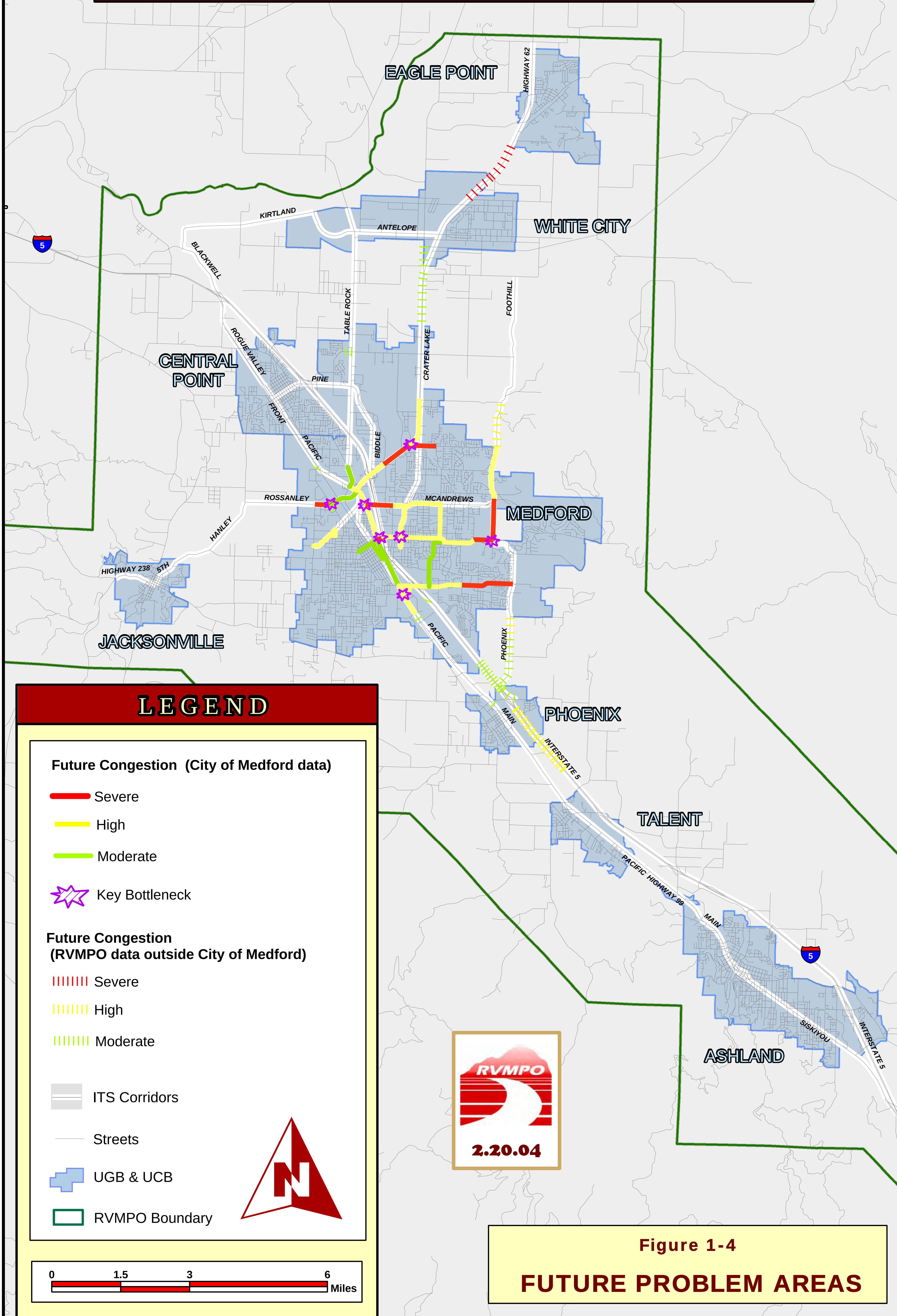


Figure 1-4

FUTURE PROBLEM AREAS

1.3.4 Crash Summary

Additional problem locations are identified through an assessment of collision reports. ODOT identifies safety corridors with high collision rates and also uses a ranking methodology to analyze specific locations based on a three-year crash history. Other local jurisdictions in the Rogue Valley utilize their own analysis methods.

ODOT designates a "Safety Corridor" or a "Truck Safety Corridor" for any state or local highways that have a higher frequency of traffic collisions than the statewide average for a similar roadway type. The only Safety Corridor in the Rogue Valley metropolitan area is a 10-mile section of Highway 62 from approximately Interstate 5 in Medford to Nick Young Road in Eagle Point. ODOT strives to improve the safety on these designated corridors through increased law enforcement, engineering improvements, and education efforts.

To identify locations with high collision rates, ODOT developed a Safety Priority Index System (SPIS). For every 0.10-mile section of roadway, a score is given based on three years of collision data with weighting for crash frequency, rate, and severity. Three or more collisions or one or more fatal collisions must have occurred at the same location over the previous three years for a location to be considered a SPIS site. ODOT identifies the top 10 percent SPIS sites every year and evaluates these locations for safety problems. Appendix D contains additional information about ODOT's SPIS methodology.

Figure 1-5 highlights the Highway 62 Safety Corridor and the high collision locations throughout the Rogue Valley metropolitan area. This figure includes ODOT SPIS sites (2000 – 2002) for federal and state roadways, the Top 20 collision sites in the City of Medford, the Top 5 collision sites in the City of Ashland (2003), and the Top 5 collision sites on Jackson County roadways (2000 – 2002). Collision data depicted in Figure 1-5 can be found in Appendix D.

1.4 TRANSIT

Rogue Valley Transportation District (RVTD) provides bus service within the metropolitan area and Greyhound provides bus service in and out of the metropolitan area. This section includes details about RVTD and Greyhound's services and Figure 1-6 illustrates the existing transit service and infrastructure.

RVTD Front Street Transfer Station in Medford

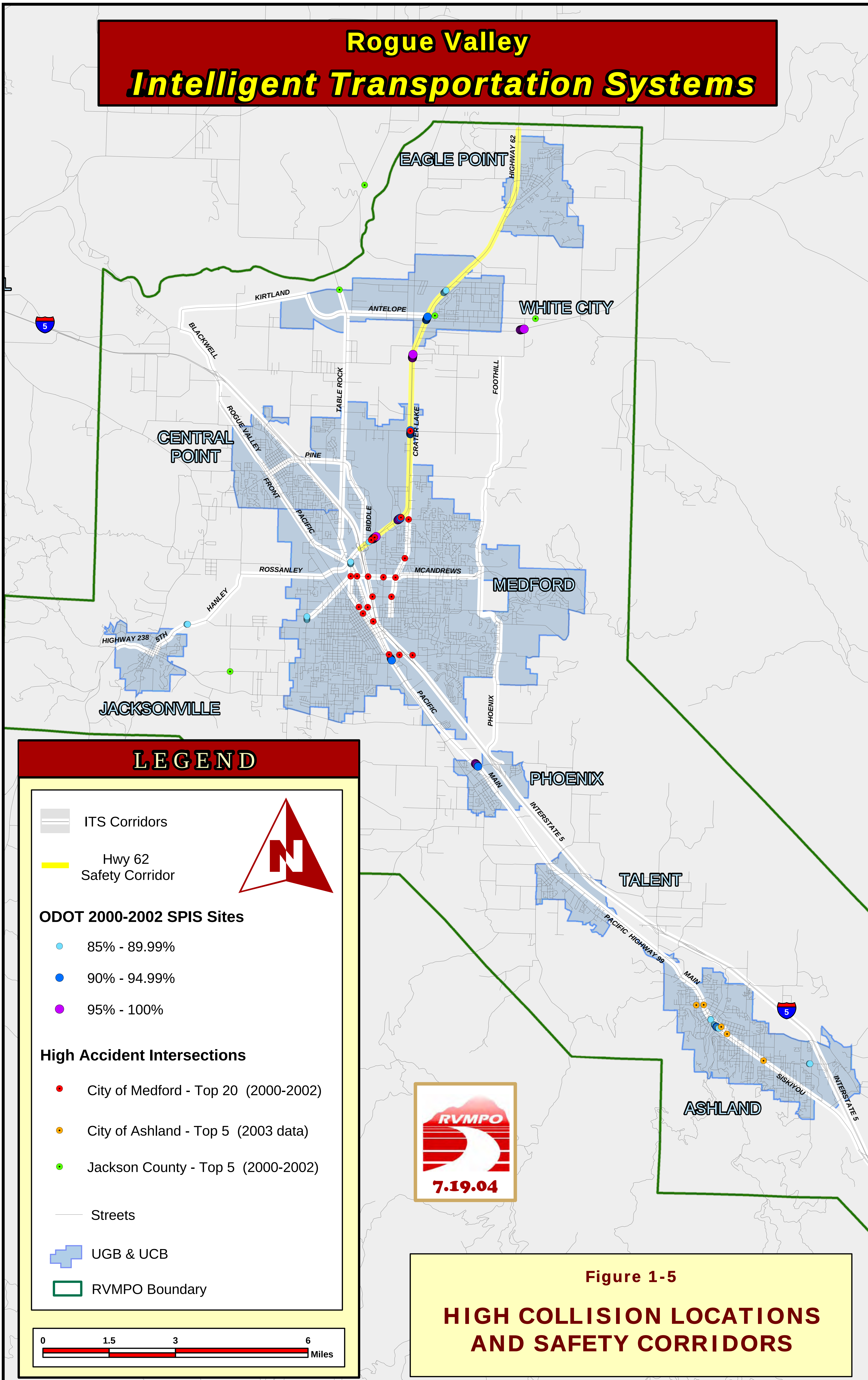


Figure 1-5

HIGH COLLISION LOCATIONS AND SAFETY CORRIDORS

Rogue Valley
Intelligent Transportation Systems

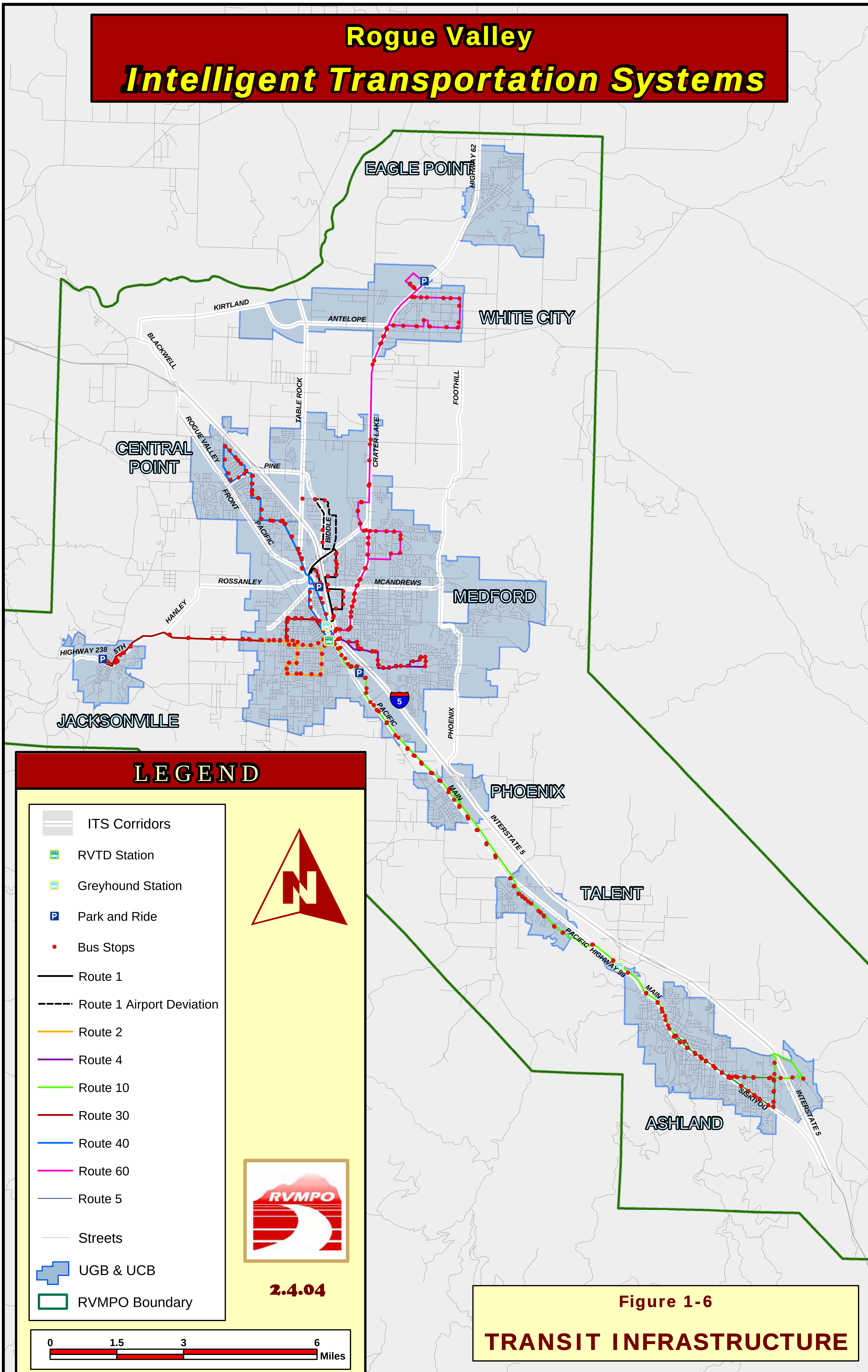


Figure 1-6

TRANSIT INFRASTRUCTURE

1.4.1 Rogue Valley Transportation District (RVTD)

The Rogue Valley Transportation District currently has a fleet of 23 buses and operates eight bus routes that service approximately 330 bus stops throughout the Rogue Valley metropolitan area. Table 1-3 lists the five main program areas (fixed routes and specialty programs) administered by RVTD. Figure 1-6 includes the eight RVTD fixed routes, their only transit center (located at 200 South Front Street in downtown Medford), and the four Rogue Valley park and ride lots. RVTD also provides transit service for special events such as the Jackson County Fair and supports local agencies during emergency situations.

Table 1-3. RVTD Programs

Program	Description
Fixed Routes	Regularly scheduled bus service (eight routes) for White City, Central Point, Medford, Jacksonville, Phoenix, Talent, and Ashland
Transportation Demand Management (TDM)	Reduce single occupancy vehicle (SOV) trips through the following services and programs: ✦ CarPools/VanPools ✦ Bikes on Buses ✦ Group Bus Pass Programs ✦ Quality of Life Day ✦ Pedestrian Reflector Day ✦ Telework Support ✦ Bus Rentals ✦ Education Programs (Gus Rides the Interactive Bus, Young at Heart, Bicycle as Transportation) ✦ Assistance with Oregon Office of Energy Tax Credits ✦ Trip Reduction Incentive Programs
TransLink	Centralized ride reservation and scheduling center under contract to the Oregon Medical Assistance Program (OMAP) for non-emergency medical trips for Coos, Curry, Douglas, Jackson, and Josephine Counties
Valley Lift	Curb-to-curb service for people unable to use a regular lift-equipped bus because of a disability
Senior Shopper Express	Curb-to-curb service from home to shopping, banking, public libraries, etc. within the Rogue Valley for people over age 60

RVTD Fare Box

Fuel Tracking System

RVTD currently tracks several components of their operations and maintenance. Fixed route bus drivers manually track passengers by type (i.e. senior, child, student), by route, and by day. This information is electronically downloaded at a station located on the fuel island. Bus fuel consumption of natural gas is tracked electronically at the fuel island, and maintenance activity (i.e. oil change, part replacement) is tracked manually by bus.

The Rogue Valley Transportation District plans to enhance their existing transit service with several projects during 2004 and also wants to determine feasible ITS projects that will help improve operating efficiency, the quality of service, and the return on investment. By the fall of 2004, RVTD plans to upgrade their fleet by acquiring 10 new coaches that will each have new fare boxes and security monitoring cameras. The cameras will simply be connected to a recorder on board the bus that can be manually viewed at a later time as needed. Also, RVTD plans to take on the responsibility of paratransit dispatch and scheduling for private providers by July 2004.

1.4.2 Greyhound

Greyhound provides long-distance bus service in and out of the Rogue Valley metropolitan area. Figure 1-6 depicts the two Greyhound stations in the Rogue Valley: one in Medford and one in Ashland, which both service routes along Interstate 5. Major route connection points are located to the north in Portland and to the south in Redding, California.

1.5 TRAFFIC SIGNALS

This section describes the traffic signal equipment used at signalized intersections in the Rogue Valley metropolitan area. Tables are provided in Appendix E that describe the signal controller type and the agency that owns, maintains and operates each signal. Figure 1-7 depicts the existing and planned traffic signals in the study area. The signals are color-coded by the jurisdiction of operation. Existing signal interconnect locations are depicted on Figure 1-9.

Traffic signals in the Rogue Valley metropolitan area are currently operated and maintained by the following three agencies: City of Medford, Jackson County, and ODOT. ODOT is responsible for operations and maintenance of traffic signals owned by the City of Ashland and City of Central Point. Table 1-4 lists the appropriate traffic signal operations contact person at each agency.

Table 1-4. Traffic Signal Operation Contacts

Agency	Name	Phone	Number of Signals in the Study Area
City of Medford	Wayne Pace	541-774-2620	108
Jackson County	Eric Niemeyer	541-774-6230	8
ODOT	Terrie Moxley	541-951-3875	45
TOTAL NUMBER OF SIGNALS ON STUDY AREA ROUTES			**161**

This section includes details pertaining to controller and controller cabinet type, video detection, existing central signal systems, and emergency vehicle preemption capabilities.

Rogue Valley
Intelligent Transportation Systems

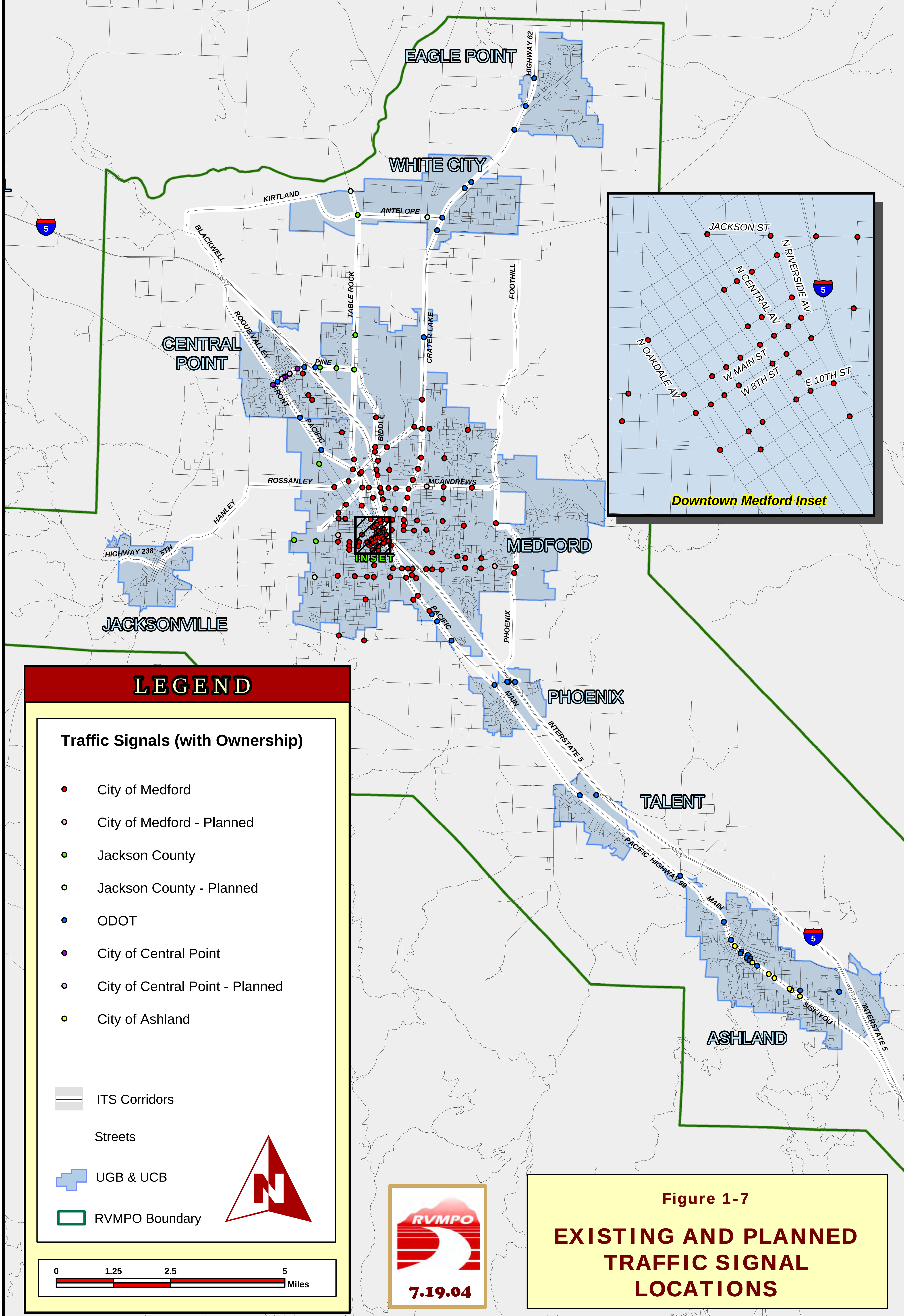


Figure 1-7

EXISTING AND PLANNED TRAFFIC SIGNAL LOCATIONS

1.5.1 Traffic Signal Operations

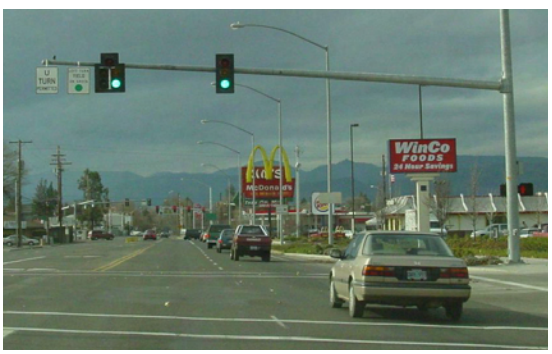
Approximately 161[1] traffic signals are operational today in the Rogue Valley metropolitan area, with three additional signals currently planned and funded. Appendix E describes the existing and planned traffic signal equipment (location, controller type, ownership, operation and maintenance responsibilities) for each of the four local transportation agencies. A description of the operating procedures and equipment used by each agency is provided herein.

1.5.1.1 Oregon Department of Transportation

ODOT operates and maintains 45 traffic signals in the Rogue Valley metropolitan area, and is responsible for maintenance of the eight Jackson County signals. Traffic signals owned by ODOT within the City of Medford city limits are operated and maintained by the City of Medford. Of the 45 traffic signals that ODOT operates, all use Type 170 controllers and Wapiti W4IKS software. The ODOT traffic signals within the City of Medford use BiTrans software on Type 170 controllers.

1.5.1.2 City of Medford

The City of Medford operates 108 traffic signals within the City limits. The City of Medford operates and maintains all of the traffic signals within the Medford City limits including ODOT-owned traffic signals.



All of the traffic signals operated by the City of Medford use Type 170 controllers with BiTrans software and the QuicNet/4.1 central signal system software. All but two of the existing 108 Medford traffic signals are interconnected via copper twisted pair and direct connected to the QuicNet central system server at the City Service Center. QuicNet is a central/distributed signal system that provides the City with full upload and download capabilities and a visual display of local intersection status. The QuicNet central computer does not directly control the local traffic signals, but it does allow remote access to the local traffic signal controllers. The QuicNet central signal system server is located at the City Service Center. QuicNet can also support other field devices such as dynamic message signs and closed-circuit television (CCTV) cameras although the City of Medford does not currently have these modules.

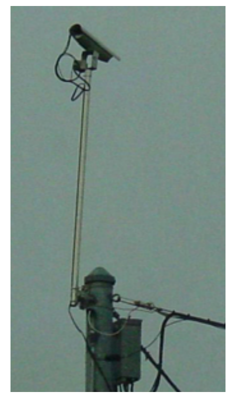
The City of Medford operates time-based coordination at many of the intersections during the AM and PM peak periods. In the central business district (CBD), the City operates the signals fixed time using a common cycle length. On other arterial roadways, the City uses a combination of AM, Midday, and PM peak coordinated timing plans while many others operate in the free mode.

[1] Of the approximately 161 existing traffic signals, 108 are operated and maintained by the City of Medford, 45 are operated and maintained by ODOT (34 ODOT-owned, 4 Central Point-owned, and 7 Ashland-owned), 8 are owned and operated by Jackson County (Jackson County signals are maintained by ODOT).

1.5.1.3 Jackson County

Jackson County owns and operates eight traffic signals as shown in Figure 1-7. Jackson County has an agreement with ODOT to maintain the eight traffic signals owned by the County. All traffic signals owned and operated by Jackson County use Type 170 controllers with Wapiti software. None of the existing traffic signals are currently interconnected and the County does not have remote access via dial-up or other form of communications. The County currently does not utilize computerized software to maintain traffic signal databases. Because the eight County traffic signals are physically spaced at distances greater than one-half mile, no coordinated timing plans are used.

1.5.2 Video Detection



The majority of traffic signals in the Rogue Valley metropolitan area use inductive loops for vehicle detection. The only existing video detection in the study area is used by Jackson County at two traffic signals on Table Rock Road (Vilas Road and Biddle Road). Video cameras are only used for detecting north-south traffic on Table Rock Road. However, Jackson County is only using the video detection for temporary vehicle detection during construction and plans to install inductive loops as the signals are reconstructed. Traficon manufactures the video detection system used by Jackson County. The video used for vehicle detection is not transmitted to a central location for monitoring.

1.5.3 Emergency Vehicle Preemption

The majority of the traffic signals in the Rogue Valley (all of the City of Medford signals) have full fire district vehicle preemption using Opticom on all intersection approaches.

Police vehicles and ambulances do not have capability to preempt traffic signals. The City of Medford currently has model 700 series optical detectors and discriminators at all traffic signals within the city limits. This provides the capability to provide preemption based only on vehicle identification numbers and provides capability to provide lower priority preemption for transit vehicles.

1.6 ITS EQUIPMENT

The Rogue Valley has already made a significant investment in intelligent transportation system infrastructure and is currently deploying some significant communications infrastructure. The following sections describe existing and planned ITS equipment by agency including existing software systems, closed-circuit television (CCTV) cameras, dynamic message signs (DMS), traffic count stations, and weather stations. Figure 1-8 shows the locations of the existing and programmed field devices. Additional information about the existing equipment is also contained in Appendix F.

Rogue Valley
Intelligent Transportation Systems

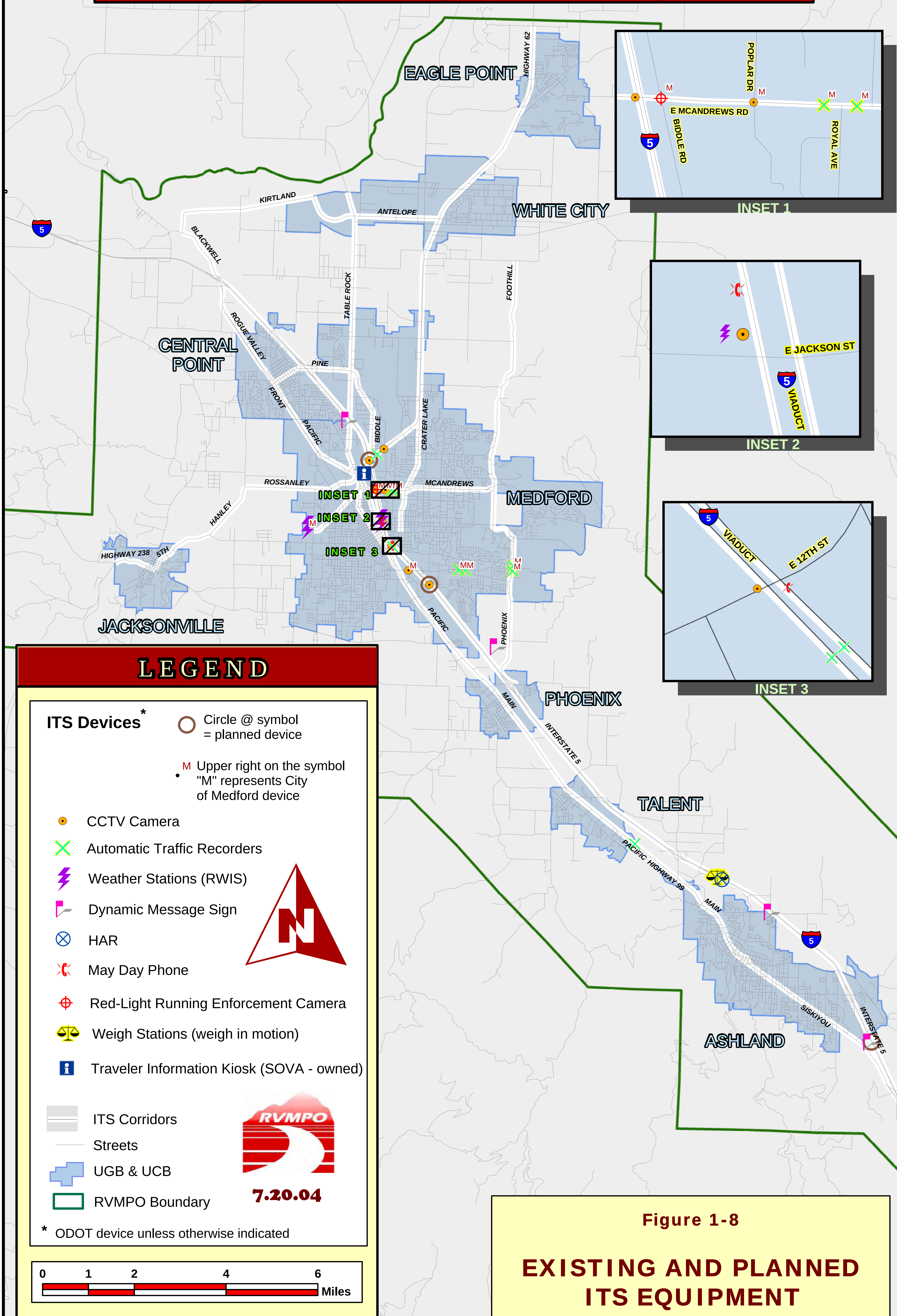


Figure 1-8

EXISTING AND PLANNED ITS EQUIPMENT

Many of the ITS field devices in the Medford metropolitan area have been deployed to address incidents on the Interstate 5 viaduct through Medford. Because the viaduct is an elevated facility, it has a greater potential for icy conditions. In addition, no shoulders are provided for disabled vehicles and the lack of shoulders adds a level of complexity for emergency response personnel accessing an incident. Frequently dispatchers must send emergency response personnel both directions on Interstate 5 to attempt to access an incident on the viaduct. To address these issues, ODOT has deployed an advance "ICE" warning sign, cameras, a weather station, and mayday phones. This equipment is described in more detail herein.

1.6.1 Traffic Operations Center

Shared Oregon State Police Dispatch Center and ODOT Traffic Operations Center

ODOT currently operates a Traffic Operations Center (TOC) in a shared facility with the Oregon State Police Dispatch. The facility is utilized to manage and coordinate response to incidents and to dispatch ODOT personnel throughout south central Oregon. Dispatchers in the center are responsible for posting messages on the dynamic message signs in the Rogue Valley metropolitan area. The center has access to video images from cameras in the City of Medford and the mountain passes (Lake of the Woods Highway and the Siskiyou Pass).

1.6.2 Closed-Circuit Television (CCTV) Cameras

Today, ODOT uses four closed-circuit television (CCTV) cameras to monitor traffic on Interstate 5 and primarily on the viaduct through Medford. Two additional cameras are currently being constructed as part of the North Medford Interchange project (one at the SB off ramp and one at Poplar Drive on Highway 62. Cameras are also planned as part of the South Medford Interchange project. ODOT posts images from the existing cameras on Interstate 5 on the TripCheck website, which is described in Section 1.12.

The City of Medford has two existing cameras for monitoring (one on McAndrews Road between Poplar Drive and Biddle Road and one on Barnett Road at Stewart Avenue). The video is currently transmitted via copper twisted-pair cable to City Hall for monitoring, but is not currently posted to a website.

Currently the three cameras on the viaduct communicate via wireless to the weather station site at Jackson Street (Milepost 28.94). From the weather station the video is transmitted via a 56K frame relay network to the dispatch center at the Oregon State Police Building in Central Point.

1.6.3 Dynamic Message Signs (DMS)

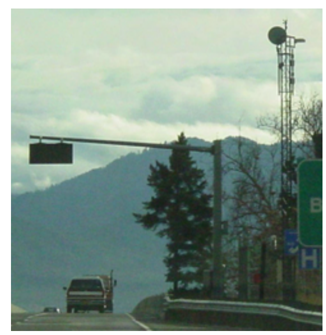
Currently ODOT operates and maintains three dynamic message signs in the Rogue Valley metropolitan area. All existing signs are on Interstate 5 and include two signs for southbound (at Table Rock Road and Mountain Avenue) and one sign northbound (Milepost 25.45 at Phoenix). ODOT plans to install another southbound dynamic message sign south of Ashland at approximately Milepost 13. All three dynamic message signs are accessed remotely via a dial-up telephone link.

1.6.4 Automatic Traffic Recorders

The City of Medford and ODOT currently operate automatic traffic recorders (ATR) to collect volume, speed and occupancy data. Medford operates two wireless traffic counters on Barnett Road at Black Oak Drive and N. Phoenix Road. ODOT operates four ATR stations in the project vicinity including one on Highway 62 (Milepost 1.09), one on Highway 99 (Milepost 15.82) and two on Interstate 5 (Milepost 28.33 and 42.84).

1.6.5 Road Weather Information Systems (RWIS)

ODOT currently operates and maintains one road weather information system (RWIS) in the Rogue Valley metropolitan area on Interstate 5 viaduct at Milepost 28.94. Weather information from the site is used to identify icy conditions on the viaduct and is posted on TripCheck for traveler information. Weather and road condition information collected from the site includes temperature, wind speed, wind direction, humidity, and road surface temperature.



I-5 Weather Station and Overhead Ice Warning Sign

1.6.6 Highway Advisory Radio (HAR)

ODOT currently operates and maintains a low power highway advisory radio (HAR) system on Interstate 5 near Ashland (Milepost 18) that has an approximate two-mile range. The system is used to provide advanced traveler information and is suitably located to provide pass condition information for southbound traffic prior to the Siskiyou Pass. The existing HAR is near the end of its life cycle and has been unreliable during recent harsh weather conditions.

1.6.7 Mayday Phones

Mayday phones are provided in two locations on Interstate 5 (one northbound and one southbound) on the viaduct (Mileposts 28.35 and 28.94).

1.7 COMMUNICATIONS EQUIPMENT

The communications system is one of the most critical components in the deployment of ITS infrastructure since local agencies must be able to monitor, control, and operate traffic management devices from remote locations to effectively manage the movement of passengers and goods. The existing transportation related communications network in the Rogue Valley metropolitan area consists of a variety of media such as fiber optic cable, twisted-pair copper, radio, cellular telephone and a soon-to-be-completed wireless mesh Ethernet network. The existing communications infrastructure is illustrated in Figure 1-9. Currently planned network infrastructure, such as the wireless mesh network and the Medford fiber optic infrastructure currently under design, is not shown at this time.

1.7.1 City of Medford Fiber Optic Infrastructure

The City of Medford is currently constructing Phase One and is under design for Phase Two of a multi-phase project to deploy fiber optic cable throughout the City. After completion of Phase Two, the City will have over 20 miles of fiber optic cable throughout the City that could be utilized for future access to field devices and public agency facilities. The existing and programmed fiber optic cable includes 48 individual fibers. At the completion of Phase Two construction, the City will have agency-owned communications infrastructure connecting City Hall, the City Service Center, the Oregon State Police Building and various field devices including ODOT video cameras. The City ultimately plans to deploy Ethernet technology for video and data communication to field devices and between agencies.

1.7.2 City of Medford Copper Twisted-Pair Infrastructure

The City of Medford currently has copper twisted-pair infrastructure between 106 of their 108 traffic signals and the City Service Center. The existing copper cable includes a minimum of 6 pairs of conductors. Today, the copper twisted-pair infrastructure is used for communications to traffic signals.

1.7.3 Medford Wireless Mesh Network

The City of Medford Police Department is currently deploying a wireless mesh Ethernet network throughout the City. The Mesh Network will provide wireless access to transportation data from police vehicle mobile data terminals at speeds of up to 1.5 Million bits per second (Mbps). The Medford Police Department is open to sharing this wireless infrastructure with other agencies within the Rogue Valley metropolitan area.

Medford City Hall

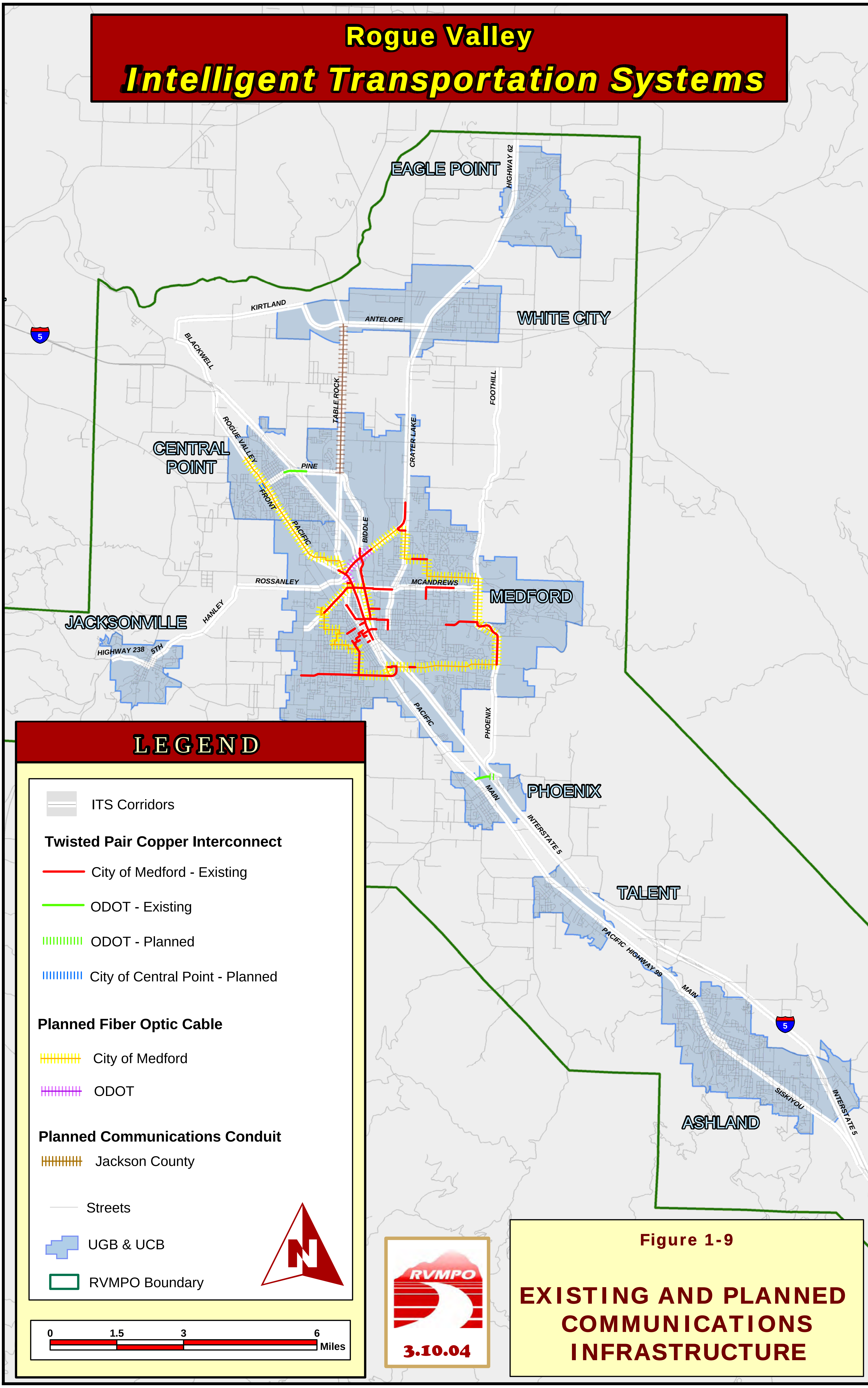
The goal for the wireless mesh network is to provide data communications between agency locations, between police vehicles and agency network data. In addition, the City is planning to use the wireless network for tracking emergency response vehicles and for transmitting streaming video between first responders and doctors at hospitals.

1.7.4 ODOT Fiber Optic Infrastructure

ODOT is currently installing fiber optic cable on Highway 62 between Riverside Avenue and Poplar Drive to provide access to the cameras at the Highway 62 interchange and to complete a segment of the City of Medford fiber optic ring. The fiber being installed by ODOT will ultimately be connected to City of Medford fiber optic cable and agencies have plans to share fiber.

1.7.5 Jackson County

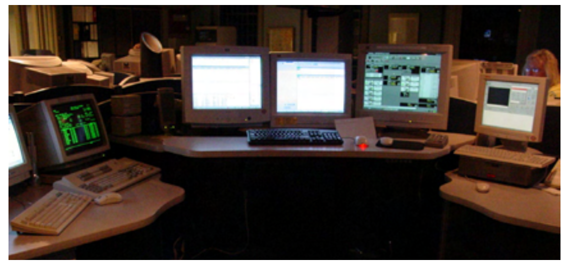
Jackson County has mostly isolated signalized intersections and as a result does not currently utilize traffic signal interconnect cable.


Rogue Valley
Intelligent Transportation Systems
EAGLE POINT
HIGHWAY 62
WHITE CITY
KIRTLAND
ANTELOPE
BLACKWELL
5
TABLE ROCK
FOOTHILL
CRATER LAKE
ROGUE VALLEY
CENTRAL POINT
PINE
FRONT
PACIFIC
BIDDLE
ROSSANLEY
MCANDREWS
MEDFORD
HANLEY
JACKSONVILLE
HIGHWAY 238
5TH
PACIFIC
PHOENIX
PHOENIX
MAIN
INTERSTATE 5
TALENT
PACIFIC HIGHWAY 99
MAIN
SISKIYOU
INTERSTATE 5
ASHLAND
LEGEND
ITS Corridors
Twisted Pair Copper Interconnect
City of Medford - Existing
ODOT - Existing
ODOT - Planned
City of Central Point - Planned
Planned Fiber Optic Cable
City of Medford
ODOT
Planned Communications Conduit
Jackson County
Streets
UGB & UCB
RVMPO Boundary
N
0
1.5
3
6
Miles
RVMPO
3.10.04
Figure 1-9
EXISTING AND PLANNED COMMUNICATIONS INFRASTRUCTURE

1.8 EMERGENCY MANAGEMENT

This section describes the emergency management agencies in the Rogue Valley as well as the strategies used for routine services typically handled by 911, police, fire, and medical agencies and strategies for major emergencies and disasters. Roles and responsibilities and interagency relationships (for emergency management and transportation management agencies) will be discussed in Chapter 4: Operational Concept. Appendix C contains addresses of local emergency management agencies.

1.8.1 911 Centers



Work Station at SORC 911 Center

Two 911 centers serve the Rogue Valley: Rogue Valley Communications Center (RVCCOM) and Southern Oregon Regional Communications (SORC). Each agency acts as a Public Safety Answering Point (PSAP), but SORC is the primary PSAP for the Rogue Valley since it covers a greater geographic area. SORC is also a regional contact point for the National Air Warning Alert System (NAWAS), which is a nationwide emergency radio channel. Table 1-5 lists the local emergency management agencies that use these two 911 centers for call-taking and dispatching services. Both RVCCOM and SORC utilize a computer-aided dispatch (CAD) system that maps addresses and provides other information. Although the two agencies utilize different CAD systems, the systems interface through a fiber optic connection. RVCCOM's CAD system is also linked to mobile data terminals (MDT's) that are outfitted in some police and fire vehicles as listed in Table 1-5. SORC plans to update their CAD system later this year and will soon also have the capability to interface with MDT's.

Mobile Data Terminal in Medford Police Vehicle

1.8.2 Police, Fire, and Medical Agencies

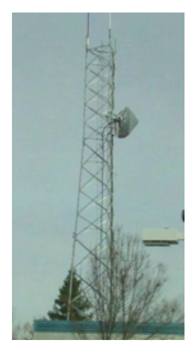
Table 1-5 lists all of the police, fire, and medical agencies that serve the Rogue Valley, and emergency management facilities and hospitals are illustrated in Figure 1-2. (Appendix C contains addresses of these facilities.) Most of the emergency management agencies listed in Table 1-5 primarily serve the jurisdiction for which they are named with a few exceptions. The Oregon State Police patrols all of the region's federal and state highways and the Jackson County Sheriff's Office serves all of unincorporated Jackson County. Jacksonville Fire District #3 serves the Cities of Central Point and Eagle Point as well as unincorporated White City, and Jacksonville Fire District #5 serves the City of Talent. The fire and medical response agencies meet on a monthly basis to coordinate regional efforts.

Table 1-5. Rogue Valley Emergency Management Agencies

	Emergency Management Agency	RVCCOM		SORC		Own Agency		Mobile Data Terminals
		Call-Taking	Dispatch	Call-Taking	Dispatch	Call-Taking	Dispatch	
Police	Oregon State Police	✓		✓			✓	
Police	Jackson County Sheriff's Office			✓	✓			
Police	Medford Police Department	✓	✓					✓
Police	Central Point Police Department			✓	✓			✓
Police	Ashland Police Department	✓					✓	
Police	Jacksonville Police Department			✓	✓			
Police	Phoenix Police Department			✓	✓			
Police	Talent Police Department			✓	✓			
Police	Eagle Point Police Department			✓	✓			
Police	Southern Oregon University Campus Security	✓	✓					
Fire & Rescue	Jackson County Fire Districts			✓	✓			
Fire & Rescue	Medford Fire & Rescue	✓	✓					✓
Fire & Rescue	Ashland Fire & Rescue	✓					✓	
Fire & Rescue	Jacksonville Fire Department			✓	✓			
Fire & Rescue	Phoenix Fire Department			✓	✓			
Fire & Rescue	Aircraft Rescue & Firefighting Department						✓	
Fire & Rescue	Mercy Flights			✓	✓		P*	P*

* P = Planned within the next year

1.8.3 Emergency Management Agency Communications



The various emergency management agencies throughout the Rogue Valley currently utilize different radio frequencies, which makes it difficult to maintain contact between agencies and forces dispatchers to scan through various channels. The City of Medford is currently working on the deployment of a wireless mesh communications network that will be utilized by the Medford Police Department, Medford Fire & Rescue, and other departments within the City. Once the network has been tested within Medford, the goal is to expand the network throughout the Rogue Valley to achieve regional communications interoperability.

1.8.4 Management of Major Emergencies & Disasters

Table 1-6 outlines the protocol to follow in the event of major emergencies or disasters such as floods, earthquakes, and winter storms. Typically the Jackson County Sheriff's Office takes the lead during a major emergency, unless a multi-county evacuation is required or the emergency is limited within a City's jurisdiction. During an emergency, the Jackson County Emergency Operations Center (EOC), located at SORC, is activated and local transportation personnel are responsible for coordinating with the EOC to maintain accessible transportation routes to shelters and to re-route traffic as necessary. Some cities within the Rogue Valley, such as Medford and Ashland, also activate a City EOC and normally send a representative to the Jackson County EOC as necessary. The American Red Cross (ARC) is responsible for providing shelters, which typically include public schools, churches, or other locations. ARC determines which shelter locations to use based on each particular emergency situation.

Table 1-6. Major Emergency Protocol

Emergency Situation	Protocol to Follow
Multi-County Evacuation	*State of Oregon Emergency Management Plan*[2]
Major Countywide Emergency	Jackson County Sheriff's Office- Emergency Management
Major Citywide Emergency	City's Emergency Management

1.9 INCIDENT MANAGEMENT

No formal incident response/management program currently exists in the Rogue Valley. ODOT District 8 has discussed the need for such a program and has decided that it may be needed as the region grows, but do not plan to implement such a program in the near future. Although no formal program is in place, several of the local agencies such as ODOT, Jackson County, and the City of Medford do have equipment on hand (i.e. portable dynamic message signs) that can be deployed in the event of an incident or major emergency to support local emergency management agency operations.

With the help of Rogue Valley agencies, ODOT Region 3 developed a regional *Emergency Detour Contingency Manual*[3] to address protocol for incident response for major incidents along Interstate 5 through Region 3, which includes the project study area. In the occurrence of a major incident on I-5, Figure 1-10 illustrates the appropriate alternate routes that should be used. The manual depicts detour information, sign placement, and locations for traffic control. Additionally, the manual also includes additional details for a complete closure of the Interstate 5 viaduct between Exits 27 and 30. These details include traffic control deployment and procedures and responsibilities for ODOT, City of Medford Public Works Department, City of Central Point Maintenance Department, Medford Police Department, and Rogue Valley Central Communications.

---

[2] *State of Oregon Emergency Management Plan*, Oregon Emergency Management, June 2000.
[3] *Emergency Detour Contingency Manual*, Oregon Department of Transportation, Region 3, March 1996.

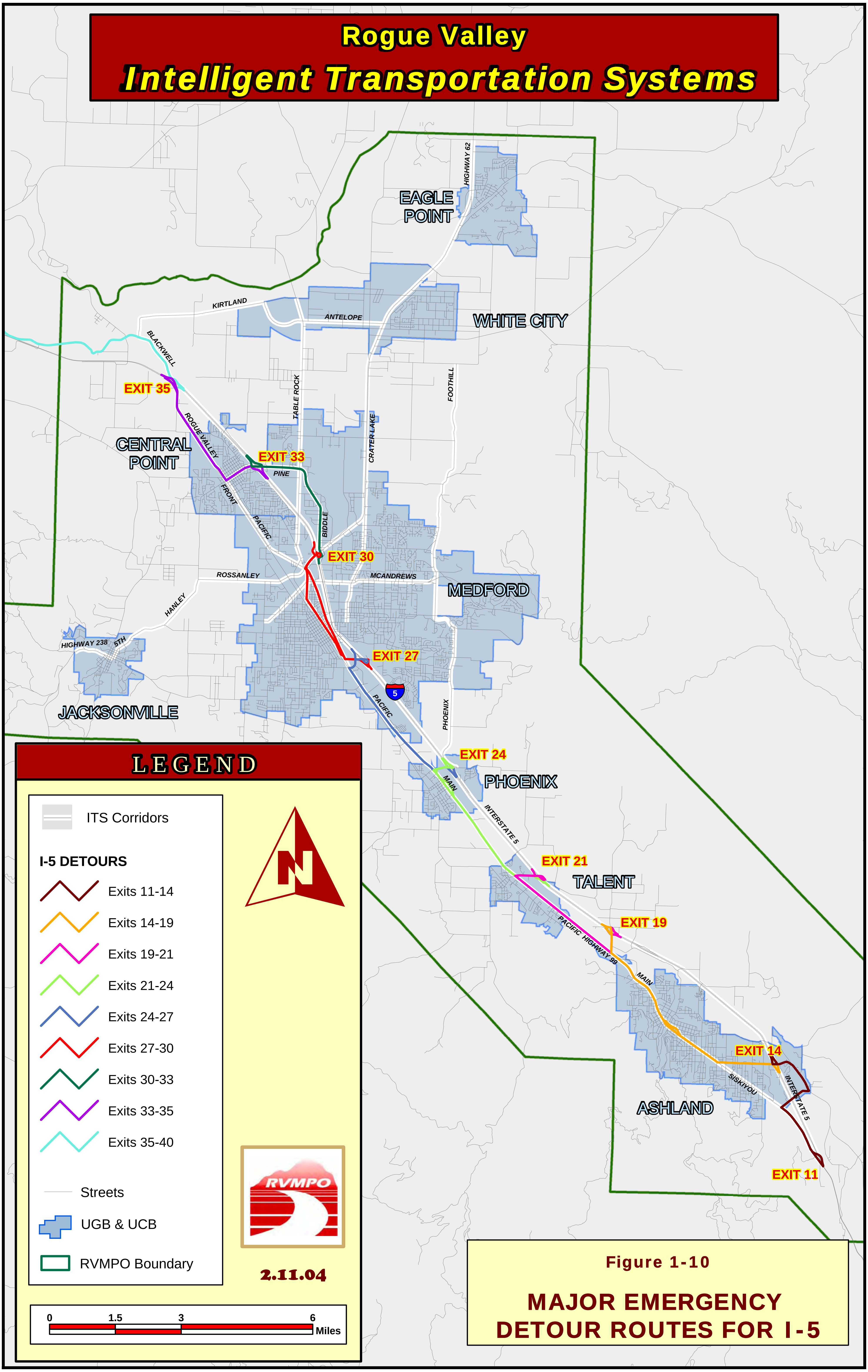


Figure 1-10

MAJOR EMERGENCY DETOUR ROUTES FOR I-5

1.10 SPECIAL EVENTS

There are numerous special events, some of which are summarized in Table 1-7, that take place throughout the year that impact transportation system operations in the Rogue Valley. Each special event creates different impacts to study area corridors, major interchanges, and the transit system.

Table 1-7. Rogue Valley Special Events

Special Event/ Event Center	Details
Oregon Shakespeare Festival	✦ *Location:* Three Theaters at 15 South Pioneer Street in Ashland ✦ *Time Frame:* February through October (Peak Period: Summer) ✦ *Major Events:* Numerous plays and events at varying times ✦ *Traffic Impacts:* Lack of staging area for transit/shuttle vehicles, impacts to Highway 99 and streets in downtown Ashland
Jackson County Fairgrounds/ Expo Park (& Amphitheater[4])	✦ *Location:* 1 Penninger Road in Central Point ✦ *Time Frame:* Year-Round ✦ *Major Events:* Jackson County Fair, Harvest Fair & Homebrew Festival, Wild Rogue Pro Rodeo ✦ *Other Events:* Trade Shows, Concerts, Livestock/Horse/Small Animal Shows, Small Private Meetings, Weddings ✦ *Traffic Impacts:* Inefficient parking management sometimes causes traffic to back up on the northbound I-5 off-ramp of the Central Point Interchange as well as on the Interstate
Britt Festivals Garden & Amphitheater	✦ *Location:* First Street in Jacksonville ✦ *Time Frame:* Summer ✦ *Major Events:* Various concerts held in the 2,200-person capacity outdoor amphitheater ✦ *Traffic Impacts:* Congestion in Jacksonville
Applegate Christian Fellowship	✦ *Location:* 7590 Highway 238 in Ruch (Southwest of Jacksonville) ✦ *Time Frame:* Friday and Saturday evening services, Sunday morning services ✦ *Traffic Impacts:* Congestion on Highway 238 through Jacksonville
Single Day or Weekend Events	✦ *Location:* Varies ✦ *Time Frame:* One day or several days over one weekend ✦ *Major Events:* Pear Blossom Golf Tournament, Run, Parade, & Street Fair (3-Day Weekend in April) Art in Bloom Festival (Mother's Day Weekend) Medford Cruise (3-Day Weekend in Mid-June) Medford Jazz Jubilee (3-Day Weekend in Early October) Various Parades (i.e. July 4th) ✦ *Traffic Impacts:* Street closures, congestion on major study area corridors

[4] A new amphitheater is currently under construction on the Jackson County Fairgrounds property. Numerous concerts and special events are planned for this new facility.

1.11 FREIGHT

Freight arrives, departs, or passes through the Rogue Valley via truck, train, or air. Most commercial vehicle traffic utilizes state highways, while train traffic travels along Central Oregon & Pacific Railroad tracks that lie just west of Highway 99 and run parallel to Highway 99. Most of the roadway-rail intersections are at-grade through the Cities of Ashland, Talent, Phoenix, Medford, and Central Point, but there are also a limited number of grade-separated crossings. The Rogue Valley International Medford Airport is located in north Medford east of Interstate 5 between the Central Point interchange and the North Medford interchange.

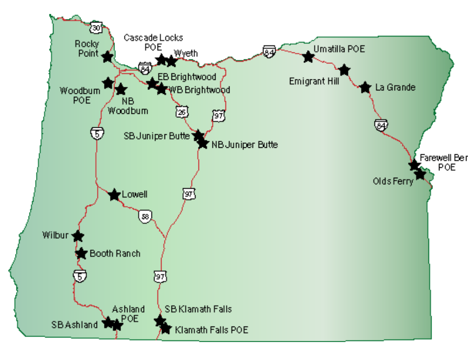
A large amount of commercial vehicle activity takes place in the Rogue Valley as a result of Interstate 5 serving as the primary north/south corridor between Oregon and California and the because of the difference in laws and regulations between the two states. The state of Oregon allows triple trailers, while the state of California only allows double trailers. Many truck companies switch between double and triple trailers in the Rogue Valley to comply with regulations.

Port of Entry Weigh Station in Ashland

ODOT operates two weigh stations, which are depicted in Figure 1-8, on Interstate 5 in Ashland for each direction of interstate traffic. The northbound weigh station is a major Port of Entry (POE) for the state of Oregon due to its close proximity to the California border. Both weigh stations utilize weigh-in-motion technology and participate in the Oregon Green Light program[5], which is an electronic screening and preclearance system.

The Green Light program provides free transponders to any commercial vehicle that wishes to participate in the program. These transponders communicate with weigh stations as a commercial vehicle approaches and relays information such as certifications, taxes paid, weight from high-speed weigh-in-motion scales, and so forth. If a commercial vehicle meets all of Oregon's trucking regulations, the red light on the transponder changes to green, which indicates the commercial vehicle may bypass the weigh station. Otherwise, the light stays red and the commercial vehicle must stop at the weigh station for inspection.

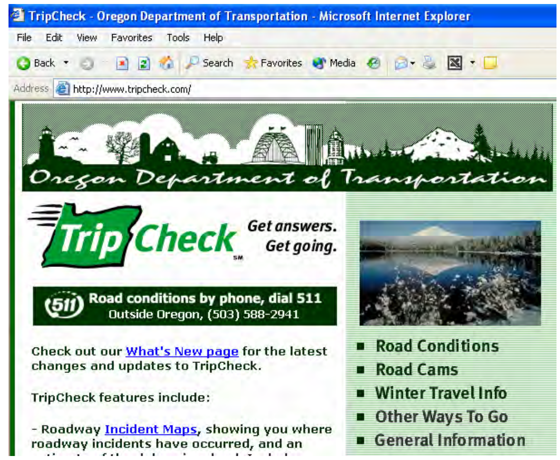
The Green Light program currently serves approximately 2,750 trucking companies, which includes almost 26,000 commercial vehicles. During 2003, an average of approximately 7,800 trucks per month successfully used the Green Light program at the Ashland Port of Entry weigh station.



ODOT Green Light Weigh Station Map

[5] *Oregon Green Light*. Oregon Department of Transportation, Jan. 6, 2004. http://www.odot.state.or.us/trucking/its/green/light.htm Accessed Jan. 16, 2004.

1.12 TRAVELER INFORMATION



The Oregon Department of Transportation (ODOT) provides most of the traveler information for the Rogue Valley. ODOT provides real-time traveler information through the TripCheck website, 511, and highway advisory radio. ODOT's TripCheck website (www.tripcheck.com) includes four camera images, road conditions, weather information, incident maps, and construction activity for the Rogue Valley. ODOT continues to add information to TripCheck as new equipment is deployed.

In late 2003, ODOT implemented 511, the new national traveler information number, throughout the state to provide various types of real-time traveler information. The 511 system is accessible to travelers over the phone through touch-tone dialing or voice activation.

As discussed under the *ITS Equipment* section, a highway advisory radio (HAR) system is located on I-5 in Ashland and allows travelers to access real-time traveler information on a designated traffic radio station.

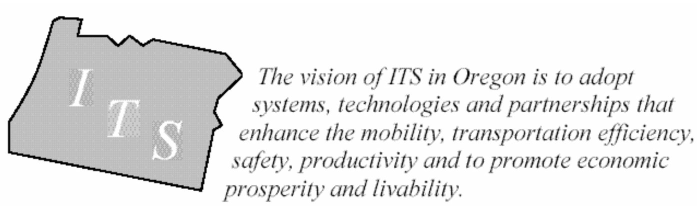
The Southern Oregon Visitors Association (SOVA) has deployed numerous computerized touch screen visitor information kiosks throughout Southern Oregon at locations such as state welcome centers, national parks/monuments, and key cities. There is currently an existing kiosk at the Rogue Valley Mall Information Center in Medford and SOVA would eventually like to install additional kiosks in the Rogue Valley at locations such as the airport and the state welcome center in Ashland. SOVA has partnered with Oregon Tourism, the Oregon Department of Transportation, the Federal Highway Administration, and the National Scenic Byways to provide various types of information including a link to the TripCheck website.

1.13 SUMMARY OF RELEVANT DOCUMENTS

A number of regional studies and plans have been compiled in the Rogue Valley that relate to ITS applications. A review of these documents was conducted to identify potential connections to other agencies and/or planned projects in the Rogue Valley metropolitan area. This section provides a summary of the key points from the documents reviewed.

1.13.1 ODOT ITS Strategic Plan: 1997 - 2017

To capitalize on the cost effective benefits of ITS projects, ODOT developed the *ODOT ITS Strategic Plan: 1997 – 2017* to set forth a vision and goals for ITS in Oregon. The plan includes a summary of existing ITS infrastructure, high priority user services, an ITS implementation strategy and timeframe, and associated costs (capital, operations, maintenance, staffing). Both regional



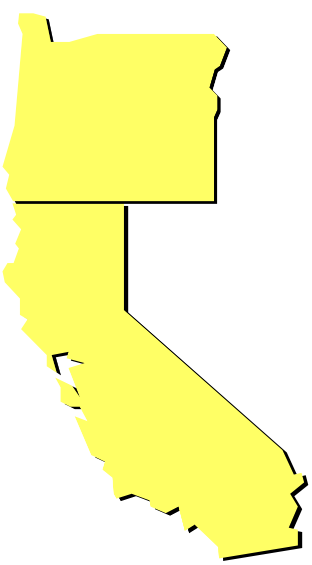
and statewide projects are included for implementation in the short, mid, and long term. The following list includes projects identified for Region 3 as well as descriptions of what has been implemented to date:

Photo Violation Detection at Biddle Road/McAndrews Road in Medford

- Photo Violation Detection: The City of Medford has installed this at two locations, but reduced it to one location due to recent construction.
- Local Traveler Information Database: ODOT has incorporated traveler information from ODOT field equipment with the TripCheck website, but local agency data has yet to be integrated.
- Regional Traffic Management Center (TMC): ODOT has set up a regional TMC and located it with the Oregon State Police (OSP) dispatch center. Other local agencies have not yet been integrated with the TMC.
- Automatic Incident Detection System: This project has not yet been implemented at the TMC.
- Incident Dispatch & Response: ODOT, OSP, and local agencies have not yet dedicated staff for incident management.

The lengthy statewide project list encompasses many aspects of ITS such as transportation operations, traffic and incident management, traveler information, emergency response, and traveler safety.

1.13.2 California-Oregon Advanced Transportation Systems (COATS) ITS Strategic Deployment Plan



In May 2001, the Western Transportation Institute of Montana State University-Bozeman completed an ITS Strategic Deployment Plan focused on the feasibility of ITS in rural areas. The COATS study area includes parts of thirteen counties in northern California as well as the southern half of Oregon, covering over 80,000 square miles. The COATS Strategic Deployment Plan provides both strategies to guide ITS deployment, as well as specific deployment locations. Many of the 1,500 ITS projects identified by the COATS Strategic Deployment Plan are focused in Jackson County and the COATS early winner project over the Siskiyou Pass is the most high profile ITS project to date in the County.

The strategic direction proposed by the COATS Plan identified the phased implementation strategies listed in Table 1-8.

The strategies and projects specific to the Rogue Valley metropolitan area are summarized in Table 1-9.

Table 1-8. COATS Phased Implementation Strategies

Timeline	Focus	Strategies	Description
Short Term (0-4 years)	Traveler Safety	Operational Efficiency and Public Safety	✦ Monitor road–weather conditions ✦ Monitor road rights-of-way
		Advise unfamiliar travelers of unsafe driving conditions	✦ Utilize dynamic message signs and highway advisory radio
		Regional and bi-state coordination	✦ Monitor traffic and roadway conditions ✦ Implement Transportation Operations Centers ✦ Provide roadway control with automated gates
Medium Term (4-8 years)	Transportation Management and Public Safety	Improved response to incidents	✦ Develop regional incident management plans ✦ Deploy automatic vehicle location systems ✦ Improve hazardous materials response and management
Long Term (8-15 years)	Integrated Traveler and Transportation System	Economic productivity enhancements for individuals, businesses and organizations	✦ Provide timely and accurate traveler information
		Personal mobility, accessibility and awareness for public transportation	✦ Track transit vehicles and provide real-time information to managers and patrons ✦ Provide transit traveler information systems
		Improved tourism industry, transportation and transit coordination	✦ Provide Internet-based information systems, and traveler information systems

Table 1-9. COATS Deployment Locations in the Rogue Valley Metropolitan Area

Project	Highway	Location
Short-Term		
Advisory Television	Interstate 5	Medford and Ashland
Automated Anti-Icing	Interstate 5	Medford Viaduct
Regional Incident Management Plan	Interstate 5	Milepost 30 to 52
	Interstate 5	Siskiyou Pass
Parking Management and Information System	Interstate 5	Ashland (Shakespeare Festival)
Recreational Vehicle Park and Ride Lots	ORE 238	Jacksonville (Britt Festival)
Recreational Vehicle Park and Ride Lots	Interstate 5	Ashland (Shakespeare Festival)
Mayday Systems	ORE 140	Milepost 0 to 32
Kiosks	ORE 62	Tou Velle State Recreation Site

Project	Highway	Location
Medium-Term		
Highway Advisory Radio	ORE 62	North Medford Interchange
Kiosks		Oregon Shakespeare Festival
Automated Passenger Counting		Transit Vehicles
Dynamic Ridesharing/Paratransit		Transit
Parking Management and Information System	ORE 238	Jacksonville (Britt Festival)
Transit Traveler Information	Interstate 5, ORE62	Park & Ride Locations
Transit Vehicle Routing/Scheduling		Transit Vehicles
Maintenance Fleet AVL		Maintenance Vehicles
Hazmat Management	Interstate 5	Milepost 0 to 52
Weigh-in-Motion	ORE 140	Milepost 1 Westbound
Long-Term		
Regional Incident Management Plan	ORE 140	Milepost 0 to 32
In-Vehicle Route Guidance System	Interstate 5	Tourist Information
In-Vehicle Route Guidance System	ORE 62	Tourist Information
In-Vehicle Route Guidance System	ORE 140	Tourist Information
On-Board Transit Safety Systems		Transit Vehicles
Weigh-in-Motion	ORE 62	Milepost 7 North and Southbound

1.13.3 I-5 State of the Interstate Report – 2000

ODOT's *I-5 State of the Interstate Report – 2000* includes comprehensive data regarding the existing physical and operation conditions on I-5, a general future travel demand forecast, an assessment of freeway performance if no improvements are made through 2020, and identification of regional deficiencies and ITS tools that will help address these deficiencies. No significant congestion exists today on I-5 through the Rogue Valley metropolitan area. However, ODOT predicts that many of the interchanges in the study area will experience significant congestion by 2020. The report includes the following recommendations for early action improvements:

- MP 11.54: South Ashland- Re-stripe southbound entrance ramp to included parallel acceleration lane.
- MP 14.17: Green Springs- Re-stripe, improve channelization, close/combine driveways where possible, and improve sight distance at southbound ramp terminal.
- MP 19.10: North Ashland- Stripe and delineate to form smaller intersections, close/combine driveways where possible, improve signing near southbound exit ramp, and review traffic control at northbound ramp terminal.
- MP 21.20: West Valley View Road- Use striping and channelization to form smaller intersections, close/combine driveways where possible.
- MP 24.40: Fern Valley Road- Re-stripe, provide channelization, and delineate for two separate lanes and close/combine driveways where possible.
- MP 27.58: South Medford: Add skip striping for bicycle lanes across entrance to ramps.

- MP 30.29: North Medford: Close/combine driveways where possible, add skip striping for bicycle lanes across entrance to ramps, remove free right turn for northbound ramp traffic at Highway 62, and correct southbound loop ramp superelevation.
- MP 32.96: Central Point- Construct curb along Pine Street just east of northbound ramp terminal to delineate access and add left turn lane at southbound ramp terminal if validated.
- MP 35.44: Seven Oaks- Lengthen southbound entrance ramp by 215 feet, improve ramp terminal turning (curb) radii and channelization, and construct left turn refuge at northbound ramp terminal if validated.

Seven Oaks Interchange (Source: ODOT, 1999)

The report also includes an ITS component for both the Interstate in general and through each of the three ODOT regions along the Interstate. It also identifies corridor deficiencies and matches them to ITS user services and market packages, which will both be discussed in greater detail in *Chapter 3: Regional ITS Architecture*. The corridor deficiencies along Interstate 5 in the Rogue Valley are listed in Table 1-11 along with the ITS user services and market packages selected to address these deficiencies.

1.13.4 Oregon Department of Transportation Economic and Bridge Options Report

Hundreds of bridges on the interstates and other routes are nearing or past the end of their useful life. With cracks weakening the aging structures, ODOT has been forced to limit the weights allowed across many bridges. As a result, ODOT has prepared a plan for how and when to invest in the replacement of these bridges over the next 10 years. This report recommends replacing 45 bridges and repairing 6 bridges on Interstate 5 between Oregon Highway 42 and the California border as part of Stage 3 of the bridge improvements. Table 1-10 lists the bridges planned for repair or replacement in the Rogue Valley metropolitan area.

Table 1-10. Summary of Planned Rogue Valley Bridge Improvements

Facility	Bridge Name	Action
Central Pt Rd Con2	Central Point Rd Conn #2 (East Pine St) over Hwy 1 (I-5)	Replace
I-5 (Hwy 001) NB	Bear Creek, Hwy 1 NB at MP 14.96	Replace
I-5 (Hwy 001) NB	Hwy 1 NB over Eagle Mill Rd	Replace
I-5 (Hwy 001) NB	Hwy 1 NB over COR (Seven Oaks)	Replace
I-5 (Hwy 001) SB	Bear Creek, Hwy 1 SB at MP 14.96	Replace
I-5 (Hwy 001) SB	Hwy 1 NB over COR (Seven Oaks)	Replace
OR 66 (Hwy 021)	Hwy 21 over Hwy 1	Repair
OR 99 (Hwy 063)	Hwy 63 over Hwy 1 (Seven Oaks Interchange)	Replace
Valley View Rd Con	Valley View Rd Conn#1 over Hwy 1 (N Ashland Interchange)	Replace

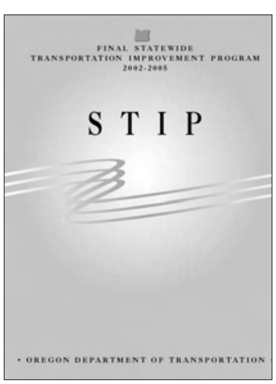
Table 1-11. *I-5 State of the Interstate* ITS Components in the Rogue Valley

I-5 Deficiencies in the Rogue Valley Metropolitan Area (ODOT Region 3)	ITS Components that Address I-5 Corridor Deficiencies																											
	User Services	Market Packages																										
		ITS Data Mart	ITS Data Warehouse	ITS Virtual Data Warehouse	Multi-Modal Coordination	Broadcast Traveler Information	Interactive Traveler Information	Autonomous Route Guidance	Dynamic Route Guidance	ISP Based Route Guidance	Integrated Transportation Mgmt/ Route Guidance	In-Vehicle Signing	Network Surveillance	Probe Surveillance	Surface Street Control	Freeway Control	HOV Lane Management	Traffic Info Dissemination	Regional Traffic Control	Incident Management System	Traffic Forecast & Demand Mgmt	Virtual TMC & Smart Probe Data	Road Weather Info System	Advanced Vehicle Safety Systems	Commercial Vehicle Operations	Emergency Response	Emergency Routing	Mayday Support
Traffic congestion at North Medford Interchange Traffic congestion at South Medford Interchange	Pre-Trip Traveler Info En-Route Driver Information Route Guidance Ride Matching & Reservation Traffic Control Travel Demand Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X						
High accident area through the Siskiyou Pass	Pre-Trip Traveler Info En-Route Driver Information Traffic Control					X	X	X	X	X	X	X	X	X	X	X		X	X			X	X				X	
Slow emergency response times in remote areas	Incident Management Hazardous Material Incident Response Emergency Vehicle Mgmt														X	X				X						X	X	X
Lack of cellular coverage in Siskiyou Pass	Emergency Notification & Personal Security																									X		X
Slow moving trucks impede traffic on grades	En-Route Driver Information Traffic Control Longitudinal Collision Avoidance Safety Readiness					X	X					X				X		X						X				
Lack of adequate queuing and truck parking area at the NB I-5 weight station near Ashland	En-Route Driver Information Commercial Veh. Electronic Clearance Automated Roadside Safety Inspection Longitudinal Collision Avoidance					X	X					X												X	X			
Substandard lane/shoulder width across Medford Viaduct	Lateral Collision Avoidance Automated Highway Systems																							X				

1.13.5 Planned Projects in the Rogue Valley Metropolitan Area

Table 1-12 summarizes planned projects (funded and unfunded) for the study area corridors and for transit in the Rogue Valley metropolitan areas. These projects come from the following plans or reports:

- *Statewide Transportation Improvement Program (STIP) 2002 – 2005*: ODOT's four-year program with over $1.6 billion in funding that comes from federal highway funds, federal transit funds, and state highway programs.
- *Statewide Transportation Improvement Program (STIP) 2004 – 2007*: The same ODOT four-year program as the *2002 – 2005 STIP* that is pending approval.
- *Oregon Transportation Investment Act (OTIA)*, 2001: The Oregon Legislative Assembly approved this ODOT eight-year program to improve pavement conditions, capacity, and bridges throughout Oregon. The Region 3 *OTIA* projects on study area corridors have also been incorporated into the *STIP*.
- *RVMPO 2001 – 2023 Regional Transportation Plan (RTP)*: This 20-year plan developed by RVCOG includes projects for the old MPO boundaries (Cities of Medford, Central Point, Phoenix, and White City). Many of the short-term projects have already been incorporated in the *STIP*.
- *City of Medford Transportation System Plan (TSP)*, 2003: The proposed projects in this plan are incorporated in the *RTP*.
- *City of Central Point Transportation System Plan (TSP)*, Public Draft, November 2000: The proposed projects in this plan are incorporated in the *RTP*.
- *City of Phoenix Comprehensive Land Use Plan Transportation Element*, Draft, June 1999: The proposed projects in this plan are incorporated in the RTP.
- *City of Jacksonville Transportation System Plan*, 1995: This plan sets forth general policies for the City of Jacksonville.
- *City of Talent Transportation System Plan (TSP)*, 2002: Some of the short-term projects have been incorporated in the *STIP*.
- *Ashland Transportation, Transit, and Parking Committee (TTPC) Final Recommendation*, 2000: This report includes recommended projects based on the goals set forth in the *Ashland Comprehensive Plan*. Some of the short-term projects have been incorporated in the *STIP*.
- *City of Eagle Point Draft Transportation System Plan (TSP)*, 2001: Some of the short-term projects have been incorporated in the *STIP*.
- *Jackson County Transportation System Plan (TSP)*, Draft, 2003: Many of the projects included in this plan have already been incorporated into the *RTP*.
- *White City Transportation System Plan (TSP)*, Draft, 2003: Many of the projects included in this plan have already been incorporated into the *RTP*.



OTIA
OREGON TRANSPORTATION INVESTMENT ACT

TSP's:
Cities & County

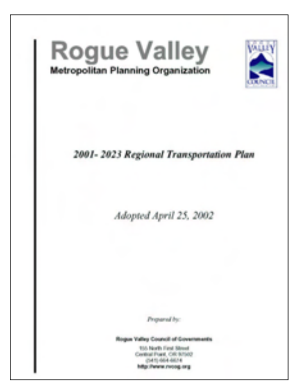


Table 1-12. Planned Projects on Study Area Corridors

Study Corridor	Project	Report/Plan
Interstate 5	✦ Key 11727: Extend/channelize southbound off-ramp at Central Point Interchange ✦ Key 10838: North Medford Interchange improvements ✦ Key 10964 (*OTIA*): South Medford Interchange relocation ✦ Key 10841: Fern Valley Rd Interchange improvements and new traffic signals at NB and SB ramp terminals ✦ Key 09436: Replace Siskiyou safety rest area in Ashland	*2002 – 2005 STIP*
	✦ Key 12723: Widen and possibly realign Fern Valley Rd Interchange ✦ Key 13000: Replace NB and SB Bear Creek Bridges ✦ Key 12666: Install 2 small southbound VMS at MP 14 and one large northbound VMS in California	*2004 – 2007 STIP*
Highway 99	✦ Key 12341: Improve signalization and geometry at Pine St ✦ Key 12328: Add southbound through lane at Barnett Rd ✦ Key 09822 (*OTIA*): Overlay pavement and build sidewalk from 6th St to Oak St ✦ Key 12380 (*OTIA*): Modernize roadway to urban standards and add a left turn lane from Colver Rd to Arnos Rd ✦ Key 12382 (*OTIA*): Construct roundabout at Lithia Wy/Main St ✦ Key 08989: Modify geometry and replace traffic signal at Helman St/2nd St	*2002 – 2005 STIP*
	✦ #9: Install new traffic signal at Rose St ✦ #13 & #14: Realign intersection and upgrade traffic signal at Fern Valley Rd/Cheryl Ln ✦ #16 - #20: Install new traffic signals at First St, Fourth St, and Oak St ✦ #28: Widen to provide bicycle lanes and sidewalks from Hwy 62 to Beall Ln ✦ #30: Add additional NB and SB turning lanes at South Stage Rd ✦ #31: Add additional SB through lane at Stewart Ave ✦ #631: Re-align and upgrade traffic signal and railroad crossing at Beall Ln ✦ #632: Re-align intersection and add traffic signal at Scenic Ave ✦ #637: Add bicycle lanes and sidewalks from Beall Ln to Pine St ✦ #810: Add sidewalks from Bolz Rd to North "Y" ✦ #820: Widen for bicycle lanes from South "Y" to South Phoenix Urban Growth Boundary ✦ #821: Add sidewalks on east side from Fern Valley Rd to Bolz Rd	*2001 – 2023 RTP*
Highway 62	✦ Key 12018: Access management control ✦ Key 10838: North Medford Interchange improvements on Hwy 62 from Hwy 99 to Biddle Rd	*2002 – 2005 STIP*
	✦ #8 & #23: Reconfigure intersection approach at Agate Rd and install new traffic signal ✦ #15: Install new traffic signal at Coker Butte Rd ✦ #517: Add additional EB and WB turning lanes at Delta Waters Rd	*2001 – 2023 RTP*
	✦ #8: Consider a frontage road along Highway 62 from Elm Wy to Crystal Dr	*Eagle Point TSP*

Study Corridor	Project	Report/Plan
Highway 62	✦ Map Key 1: Widen intersection approaches at Antelope Rd ✦ Map Key 69: Construct new 4-lane expressway from Biddle Rd to Delta Waters Rd ✦ Map Key 70: Construct new 4-lane expressway from Delta Waters Rd to Vilas Rd	*Draft Jackson Co. TSP*
Pine St/ Biddle Rd	✦ Key 12343 & 12381 (*OTIA*): Widen to 5 lanes from Haskell St to Hwy 99 ✦ Key 12341: Improve signalization and geometry at Hwy 99 ✦ Key 12340: Traffic calming in downtown ✦ Key 12338: Upgrade traffic signal at Third St ✦ Key 12337: Remove traffic signal at Fourth St and add new traffic signals at Second St and Sixth St ✦ Key 12323: Install new traffic signal at Lawnsdale Rd	*2002 – 2005 STIP*
	✦ #259: Add sidewalks from Table Rock Rd to Hamrick Rd ✦ #512: Add additional EB and WB turning lanes at McAndrews Rd ✦ #630: Widen for deceleration/acceleration lanes from Hamrick Rd to Bear Creek Bridge ✦ #636: Widen for turn lanes and bicycle lanes from Bear Creek Bridge to Penninger Rd ✦ #638: Widen Bear Creek Bridge for bicycle lanes and sidewalks	*2001 – 2023 RTP*
Highway 238	✦ Key 12384 (*OTIA*): Reconstruct pavement and build drainage system and sidewalk over one-mile section	*2002 – 2005 STIP*
	✦ #7: Widen to 2 lanes with bicycle lanes and sidewalks from Hanley Rd to Rossanley Rd	*2001 – 2023 RTP*
	✦ Map Key 20: Widen to 3 lanes from Oak Grove Rd to Elm St	*Draft Jackson Co. TSP*
Crater Lake Ave	✦ Key 12326: Upgrade intersection at McAndrews Rd ✦ Key 12329: Install new traffic signal at Roberts Rd West	*2002 – 2005 STIP*
	✦ #15: Install new traffic signal at Coker Butte Rd ✦ #473: Widen to 3 lanes from Delta Waters Rd to Own Dr ✦ #512: Add additional EB and WB turning lanes at Biddle Rd ✦ #515: Add left-turn lanes and protected movements on all approaches at Jackson St	*2001 – 2023 RTP*
N Phoenix Rd/ Foothill Rd	✦ Key 12506: Construct new 5-lane roadway from Cherry Ln to Hillcrest Rd	*2002 – 2005 STIP*
	✦ #21: Install new traffic signal at Fern Valley Rd ✦ #223: Widen to 3 lanes from McAndrews Rd to Delta Waters Rd ✦ #243: Widen to rural 2-lane road from Coker Butte Rd to Corey Rd ✦ #453: Install new traffic signal at Cherry Ln ✦ #469: Widen to 3 lanes from Hillcrest Rd to McAndrews Rd ✦ #503: Install new traffic signal at Lone Pine Rd	*2001 – 2023 RTP*
	✦ Map Key 15: Construct new 2-lane roadway from Corey Rd to Atlantic Ave	*Draft Jackson Co. TSP*

Study Corridor	Project	Report/Plan
Table Rock Rd	✦ Key 08485: Widen to 5 lanes from Biddle Rd to Wilson Rd ✦ Key 12332: Upgrade intersection at Merriman Rd	*2002 – 2005 STIP*
	✦ #215: Widen to 5 lanes from Wilson Rd to Antelope Rd ✦ #228: Widen to 3 lanes from Bear Creek to Biddle Rd ✦ #233: Install new traffic signal at Wilson Rd ✦ #447: Widen to 3 lanes from Merriman Rd to I-5	*2001 – 2023 RTP*
Blackwell Rd/ Kirtland Rd/ Antelope Rd	✦ Key 10990: Replace Bear Creek Bridge on Kirtland Rd ✦ Key 11712: Left-turn control and access control from Agate Rd to Division Rd	*2002 – 2005 STIP*
	✦ #219: Install new traffic signal at Agate Rd ✦ #222: Widen to 5 lanes from Table Rock Rd to 7th St	*2001 – 2023 RTP*
	✦ Map Key 1: Widen intersection approaches at Highway 62	*Draft Jackson Co. TSP*
McAndrews Rd	✦ Key 12326: Upgrade intersection at Crater Lake Ave ✦ Key 12324: Install new traffic signal at Keeneway Dr	*2002 – 2005 STIP*
	✦ #400: Construct new 5 lane road from Foothill Rd to Tamarack/Hillcrest Rd ✦ #490: Widen to 5 lanes from Ross Ln to Jackson St	*2001 – 2023 RTP*
Transit	✦ Key 11384 & 12091: Purchase new RVTD buses ✦ Key 10862: Talent Park & Ride ✦ Key 10861: Ashland Park & Ride ✦ Key 11778: TDM Rideshare Projects in 2004 ✦ Key 11784: TDM Rideshare Projects in 2005	*2002 – 2005 STIP*
	✦ Key 12531: TDM Rideshare Projects in 2006 ✦ Key 12532: TDM Rideshare Projects in 2007	*2004 – 2007 STIP*
	✦ Transit 5: Improve tour bus parking in and around the Oregon Shakespeare Festival properties	*Ashland TTPC Final Recommendation*

1.13.6 Southern Oregon Commuter Rail Study

The *Southern Oregon Commuter Rail Study* provides analysis to help state and local government and citizens decide if a construct a commuter rail system should be built between Ashland and Grants Pass, which is a distance of approximately 45 miles. Existing rail lines that could be used for commuter rail pass through or near the commercial center of eight cities in the Rogue Valley: Ashland, Talent, Phoenix, Medford, Central Point, Gold Hill, Rogue River, and Grants Pass. At this time, no decision has been made to pursue this project.

Oregon Department of Transportation

Rogue Valley Intelligent Transportation Systems

Chapter 2: User Needs Assessment

2.1 INTRODUCTION

This chapter provides a summary of transportation system user needs for the Rogue Valley metropolitan area gathered from project stakeholders through personal key stakeholder interviews, expanded stakeholder mail-out questionnaires, and a workshop that included both key and expanded stakeholders. In addition, this chapter also includes a summary of the interviews and questionnaires including an assessment of regional strengths, weaknesses, opportunities, and challenges. The assessment of current and future transportation user needs in the Rogue Valley provides a backbone for the development and evaluation of potential ITS projects.

The *Stakeholders and System Users* section includes details from the interviews, questionnaires, and workshop. The *Summary of User Needs* section highlights the user needs identified by stakeholders organized by the following areas of interest:

- Travel & Traffic Management
- Public Transportation Management
- Emergency Management
- Information Management
- Maintenance & Construction Management
- General Findings

2.2 STAKEHOLDERS AND SYSTEM USERS

To ensure the success of the *Regional ITS Operations & Implementation Plan for the Rogue-Valley Metropolitan Area*, a coalition of stakeholders and system users was created to gather input and build consensus. Personal interviews with key stakeholders targeted numerous subjects, while mail-out questionnaires focused primarily on gathering the big picture user needs from expanded stakeholders. A workshop was held after the completion of the interviews and questionnaires with both the key and expanded stakeholders to discuss and verify the transportation needs that had been identified and to determine any additional needs.

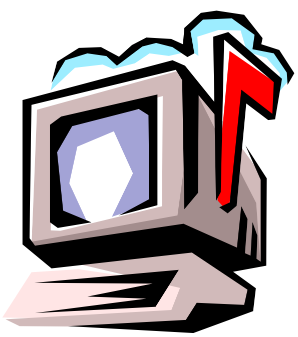
2.2.1 Personal Interviews

Key stakeholders with decision-making authority regarding matters such as ITS implementation and institutional coordination were interviewed personally. The interviews were conducted to identify user needs, regional transportation problems, institutional relationships, and obstacles to ITS implementation. Each interview lasted approximately one hour and Appendix G includes the notes taken during the interviews. One or more representatives from the following 10 agencies were interviewed:

- Oregon Department of Transportation (ODOT): Region 3 and District 8
- Jackson County: Roads, Parks, & Planning
- City of Medford: Public Works
- City of Central Point: Public Works
- City of Ashland: Public Works
- Rogue Valley Council of Governments (RVCOG)
- Rogue Valley Transportation District (RVTD)
- Oregon State Police (OSP)
- Rogue Valley Central Communications (RVCCOM, a Division of the Medford Police Department)
- Southern Oregon Regional Communications (SORC)

2.2.2 Mail-Out Questionnaires

Questionnaires were e-mailed or mailed to the project's expanded stakeholders to determine user needs and problems of the transportation system. The questionnaire was sent to public agencies indirectly involved with the project, private companies in the study area, and selected representatives of the general public. Overall, questionnaire recipients included the following:



- Smaller Cities (Eagle Point, Jacksonville, Phoenix, and Talent)
- Emergency Management Agencies (9 Police, 6 Fire & Rescue, Mercy Flights)
- Regional Advisory Councils/Committees
- Schools (School Districts and Institutions of Higher Learning)
- Special Event Organizers
- Special Interest Groups (AAA, Southern Oregon Visitor's Association)
- Five Largest Area Employers

Of the approximately 40 questionnaires sent out, 6 were completed and returned and can be found in Appendix H along with a complete list of questionnaire recipients.

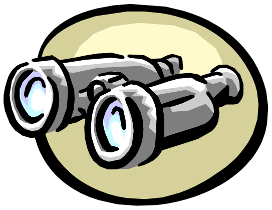
2.2.3 User Needs Assessment Workshop

On February 26, 2004, a user needs assessment workshop was conducted with key and regional stakeholders to discuss and finalize the list of transportation user needs for the Rogue Valley metropolitan transportation system. User needs documented from the interviews and questionnaires were discussed and additional needs were identified. The focus of the workshop was to reach consensus from all stakeholders regarding the regional transportation user needs.

The workshop began with a short presentation that provided project background information, an overview of the plan process, general ITS uses, and a summary of the stakeholder interviews and questionnaires. Participants were then able to provide input at the following three poster sessions:

- Travel & Traffic Management/Emergency Management/Incident Management
- Traveler Information/Information Management
- Public Transportation Management/Maintenance & Construction Management

At the end of the meeting, a representative from each poster session reported back to all participants and additional group discussion was held to finalize the user needs. Appendix I includes the workshop invitation, presentations, handout, and meeting minutes.



2.3 PROJECT MISSION, GOALS, AND OBJECTIVES

To guide the development and ultimate deployment of intelligent transportation systems in the Rogue Valley metropolitan area, key project stakeholders developed a mission statement and accompanying goals and objectives.

2.3.1 Mission Statement

Using advanced technologies, the Rogue Valley Metropolitan Area strives to improve the safety and security of the transportation network; improve the movement of goods, people and services; and enhance multi-modal transportation operations through coordinated management techniques, information sharing among agencies and the general public, and partnerships between public and private organizations.

Goals

1) Improve the safety and security of our transportation system.

Objectives

- Reduce frequency, duration, and effects of incidents.
- Reduce emergency response times.
- Reduce recurrent congestion.
- Coordinate incident/security response with other local and regional agencies.

2) Improve the efficiency of the transportation system.

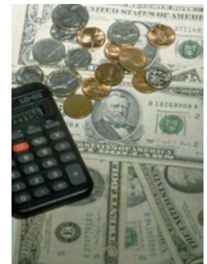
Objectives

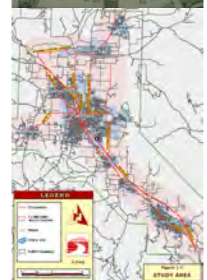
- Improve travel time for vehicles, including transit vehicles.
- Improve efficiency for all modes.
- Reduce travel time variability.
- Reduce fuel consumption and environmental impacts.
- Increase vehicle occupancy.
- Improve transit service reliability.
- Improve maintenance and operations efficiencies.

3) Provide improved traveler information.

Objectives

- Provide real-time multi-modal transportation system information to travelers.
- Provide information about construction activities.
- Provide incident information.
- Provide real-time road condition and weather information.
- Provide one location where customers can access all regional and local traveler information.





4) Deploy functional and cost efficient ITS infrastructure.

<u>*Objectives*</u>

- ✦ Deploy systems that fit in with future improvements.
- ✦ Deploy systems with a high benefit-to-cost ratio.
- ✦ Deploy systems that maximize the use of existing infrastructure.
- ✦ Deploy systems with minimal use of maintenance and operational support.
- ✦ Integrate deployments with other local and regional projects.

5) Integrate regional ITS projects with local and regional partners.

<u>*Objectives*</u>

- ✦ Build consensus among the Steering Committee members.
- ✦ Incorporate Rogue Valley ITS working group as part of the regional planning process.
- ✦ Share resources between local and regional agencies.
- ✦ Continue to coordinate and integrate projects with other agencies.
- ✦ Promote public and private partnerships for ITS deployment, operations, and maintenance.

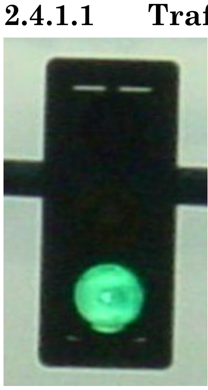
2.4 SUMMARY OF USER NEEDS

This section contains paraphrased statements that summarize the user needs gathered from the interviews, questionnaires, and workshop. User needs are categorized by the following areas of interest: Travel & Traffic Management, Public Transportation Management, Emergency Management, Information Management, Maintenance & Construction Management, and General Needs. Some needs may apply to multiple categories and any similar user need statements are likely the result of comments from separate stakeholders. The transportation user needs contained in this section will be mapped to the national ITS architecture user services (Chapter 3) prior to determining applicable ITS projects for the Rogue Valley metropolitan area.

2.4.1 Travel and Traffic Management

This section summarizes travel and traffic management user needs and deficiencies by the following areas of interest: traffic operations and management, incident management, special events, and traveler information.

2.4.1.1 Traffic Operations & Management



- ✦ Need to expand the ODOT Traffic Operations Center (TOC) to include additional jurisdictions, provide active control of systems and information, and to coordinate activities.
- ✦ Need to integrate systems between local transportation and emergency agencies.
- ✦ Need to coordinate traffic signals with congested freeway off-ramps.
- ✦ Need operational improvements at North and South Medford interchanges to improve flow between freeway and arterial roadways.
- ✦ Need to improve traffic signal operations in Central Point.
- ✦ Need a remote connection to Jackson County traffic signals.

- Need notification if other agency's signals become inoperable (ie. turned off for construction, malfunction).
- Need to deploy traffic control devices that operate in real-time based on traffic volumes.
- Need to address congestion at the following locations in particular:
    - I-5 Central Point Interchange
    - I-5 Viaduct in Medford
    - Highway 62 from I-5 to White City (and at Delta Waters Road)
    - Highway 99/Riverside Drive at Pine Street, Barnett Road, Colver Road, Rapp Road, and Creel Road
    - Table Rock Road from Pine Street to Antelope Road
    - Pine Street from Highway 99 to Table Rock Road
    - Biddle Road (and at McAndrews Road)
    - Barnett Road
    - South Stage Road
    - Fern Valley Road (and at Highway 99 and I-5 Interchange)
    - Expected Congestion on North Phoenix Road, Foothill Road and Lone Pine Road
    - (Although the North and South Medford I-5 Interchanges were identified as areas of congestion, projects are planned to alleviate congestion at both locations.)

- Need to address congestion on surface streets and the dependence on two freeway access points in the Medford area.
- Need to improve the north-south connections.
- Need to reduce crashes.
- Need bicycle detection at interchanges and major intersections.
- Need remote monitoring capabilities of major roadways and intersections.
- Need remote monitoring capabilities in at least one spot on every state highway in the region.
- Need better traffic volume data on arterial roadways.
- Need safety improvements on I-5 viaduct in Medford (no shoulders, lots of congestion, hard to get to accidents).

- Need more curve and speed warning systems in the Siskiyou Pass.
- Need advanced warning systems that enhance safety.
- Need to coordinate pedestrian and bicycle traffic on busy roadways.
- Need to enhance traffic signal and pedestrian crossing designs.
- Need to improve pedestrian connections in downtown Central Point.
- Need to provide security for and monitor bridges.
- Need real-time weather information at locations prone to bad weather.
- Need flood information in areas prone to flooding.
- Need to manage downtown parking to reduce time drivers spend looking for parking and to prevent traffic from using secondary streets while searching for parking.

2.4.1.2 Incident Management

- Need to develop an incident response program.
- Need to monitor high accident locations for incidents.
- Need to manage incidents that occur on the I-5 viaduct.
- Need to expand the City of Medford's incident management plan to the rest of the region.
- Need to develop an emergency/incident response plan for Siskiyou Pass closures that includes all local response agencies and need to perform test drills of the plan.

2.4.1.3 Special Events

- Need to ease congestion at the I-5 Central Point interchange when events are held at the Jackson County Fairgrounds/Expo Center.
- Need to enhance traffic signal operations during special events and holidays in Ashland and Medford.
- Need to manage traffic for parades in Ashland.
- Need to address lack of tour and specialty bus staging areas in the City of Ashland during Shakespeare Festival performances.
- Need to manage parking for the Shakespeare Festival.

2.4.1.4 Traveler Information

- Need a congestion flow map.
- Need to get congestion information to travelers prior to congested areas.
- Need to provide travelers with information about incidents, congestion, construction, or any other event that will increase travel times.
- Need congestion information along major roadways.
- Need real-time traveler information at freeway on-ramps.
- Need to keep "real-time" information current (i.e. DMS, 511, TripCheck, highway advisory radio).
- Need information consistency between the various information dissemination systems (i.e. 511, TripCheck, highway advisory radio).
- Need more local roadway information on TripCheck website.
- Need to interface and share resources with the National Weather Service.
- Need more precise area weather information.
- Need to provide more camera images for visual verification of conditions.
- Need to post information in locations that will not be obstructed by truck traffic.
- Need standard message sets for DMS.
- Need to disseminate transportation demand management (TDM) information (ie. carpool website) to the general driving public.
- Need to disseminate emergency information (ie. amber alert).
- Need to disseminate evacuation route information.
- Need to educate travelers on detours.
- Need to expand current highway advisory radio (HAR) to include more information and to cover a greater area.
- Need to upgrade existing HAR equipment to replace outdated technology, improve reliability, and to increase the broadcast range.

- Need to dedicate a radio frequency to broadcast road and weather conditions during the winter.
- Need to dedicate a radio frequency to broadcast emergency information and amber alerts.
- Need to broadcast live video feed from roadway cameras to local TV.
- Need to provide heavy vehicles with advance warning when the Siskiyou Pass is icy and provide them with alternatives to parking along Interstate-5.

2.4.2 Public Transportation Management

Stakeholders identified the following public transportation management needs:

- Need to automate passenger counting, which is done manually today.
- Need to outfit transit fleet with a GPS-based system with options for dispatch, vehicle tracking, etc.
- Need transit priority at key congested locations.
- Need transit priority for buses on Crater Lake Avenue near the RVTD Bus Barn.
- Need transit priority at all traffic signals along bus routes.
- Need to automate stop announcements, which are required by law.
- Need to gather more transit data for analysis and reporting purposes (i.e. track vehicles and stops in real-time along a route).
- Need to improve on-time efficiency.
- Need real-time information (travel times, incidents, camera images) at dispatch.
- Need to incorporate real-time transit information with other media used for traveler information dissemination.

- Need to increase bus frequency to make service more attractive to riders.
- Need to make it possible for riders to request remote stops.
- Need to cover radio dead spots at north and south ends of district.
- Need to provide travelers with consistent mode choice options.
- Need to provide clear connections between modes.
- Need to provide easy access to transit availability and routes.
- Need to reduce reliance on the single occupancy vehicle.
- Need to capitalize on transit and support TOD land use.
- Need express buses to Southern Oregon University.

T Transit
O Oriented
D Development

2.4.3 Emergency Management

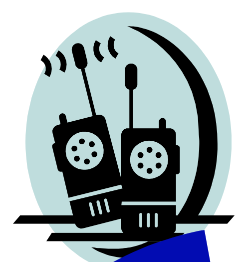
This section describes emergency management needs related to operations and communications.

2.4.3.1 Emergency Management Operations

- Need real-time (streaming) monitoring capabilities of major roadways.
- Need real-time congestion information at 911 centers with built-in alerts when congestion occurs.
- Need real-time information available in emergency vehicles.

- Need real-time road conditions during the winter for the Siskiyou Pass.
- Need road/lane closure information for all state highway construction projects.
- Need suggested alternative routes based on adverse roadway conditions.
- Need mobile data terminals in Oregon State Police vehicles.
- Need mobile data terminals in all public safety vehicles.
- Need to update and replace old traffic signal preemption devices.
- Need better coordination of traffic signal preemption outside of City area.
- Need to be able to exchange real-time information between emergency operations centers (EOC's) during a major emergency.
- Need to disseminate real-time disaster information (ie. floods, wildfires).
- Need to enhance emergency operations for major fires, snows, floods, and potential dam failures.
- Need to inform all regional fire agencies (keep in mind that some service areas overlap) about planned traffic signals to facilitate the inclusion of fire pre-emption in the design of the traffic signal.
- Need funding to enhance coordination efforts between ODOT and emergency services.
- Need to monitor critical infrastructure.
- Need to monitor Avenue G due to hazardous materials area caused by Kodak plant.
- Need speed data (historical or real-time) to determine where to place enforcement.
- Need more manpower at the Oregon State Police to enforce speed limits.
- Need to address speeding problem between the City of Central Point and the City of Medford.
- Need to establish a working relationship between Mercy Flights, a regional ambulance service, and ODOT and the Oregon State Police (OSP) similar to the coordination efforts between ODOT, OSP, and the fire chiefs.

2.4.3.2 Communications



- Need a high-speed wireless interoperable communications system.
- Need a common radio frequency (especially during major emergencies or pursuits).
- Need to fill in radio dead spots.
- Need to enhance communications in rural areas.

2.4.4 Information Management

User needs relating to information management include the following:

- Need more automated data collection.
- Need better systems in the field for real-time traffic data acquisition.
- Need to automate data sharing and inputs, especially for emergency information.
- Need an information system that houses high-quality, consistent traffic count data.
- Need to develop a standard data format that is GIS-compatible.
- Need to continue to provide more historical transportation information available on the Internet.
- Need easy access to major regional documents (ie. TSP's, functional classification maps).

- ✦ Need access to travel demand modeling (currently the regional model is controlled through ODOT TPAU).
- ✦ Need to continue transportation coordination between ODOT and Caltrans.
- ✦ Need to integrate computer systems (i.e. OSP, RVCCOM, SORC).

2.4.5 Maintenance & Construction Management

The following user needs were identified for maintenance and construction management:

- ✦ Need consistent, detailed, timely construction information for public agencies and private utilities/companies.
- ✦ Need to continue cooperation and annual coordination meetings that focus on major construction projects and winter operations.
- ✦ Need to improve construction work zone management.
- ✦ Need to reduce speeds in work zones.
- ✦ Need to reduce crashes in work zones.
- ✦ Need to maintain vehicle throughput by work zones.
- ✦ Need to provide vehicle speed feedback in construction work zones.
- ✦ Need to facilitate maintenance of I-5 viaduct and other trouble spots in the winter when roads are prone to icing.

2.4.6 General

Other general user needs were identified as follows:

- ✦ Need additional staffing resources.
- ✦ Need to address the large expected growth of the Rogue Valley metropolitan area over the next 20 years, especially for the City of Medford, the City of Central Point, and Southern Oregon University.
- ✦ Need to improve inter-jurisdictional management of regional project scheduling.
- ✦ Need to use common standards throughout the region to enhance integration.
- ✦ Need an integrated communications system between transportation agencies and emergency management agencies.
- ✦ Need funding for safety improvements on state highways and major arterials in the City of Ashland.
- ✦ Need to identify funding sources for interagency coordination projects.
- ✦ Need to research and test communications systems prior to implementation to ensure ease of use and regional functionality.
- ✦ Need to deploy ITS projects that improve a traveler's available choices and to make travel more efficient.
- ✦ Need to use the Internet to assist with truck delivery management.
- ✦ Need to facilitate coordination and memoranda of understanding (MOU's) between agencies.

2.5 STRENGTHS, WEAKNESSES, CHALLENGES, AND OPPORTUNITIES

During the interviews and the workshop, the project team identified strengths, weaknesses, opportunities, and challenges that may affect the deployment of ITS projects in the Rogue Valley. Table 2-1 through Table 2-4 highlights the information gathered and provides corresponding suggestions for how to address each strength, weakness, challenge, or opportunity, respectively.

Table 2-1. Strengths

Strength	Suggestion(s) on How to Capitalize on Strength
✦ Success of previous ITS deployment projects (e.g. CCTV cameras, dynamic message signs, weather station)	✦ Learn from past experiences and use existing ITS deployments as examples of proven benefits to the public.
✦ Extensive City of Medford traffic signal interconnect	✦ Utilize existing conduit for communications to accelerate the deployment of ITS field equipment and to cut costs.
✦ Fiber optic cable construction project	✦ Utilize the construction of fiber optic cable around the City to interface with other jurisdictions and accelerate the deployment of ITS field equipment.
✦ Wireless Mesh Network construction project	✦ Coordinate with emergency services for network infrastructure sharing to improve interagency coordination during incidents and emergencies.
✦ Regional agency coordination (e.g. TAC, PAC, RVACT, RVITS Working Group)	✦ Use these organizations and meeting forums to coordinate ITS projects with other improvement projects and to educate others about the benefits of ITS.
✦ Support for ITS exists at all levels	✦ Maintain this support through continued outreach, education and identification of funding sources.

Table 2-2. Weaknesses

Weakness	Suggested Improvement Plan
✦ Lack of staff resources	✦ Deploy ITS technologies that meet ITS standards and that are easy to operate and maintain.
✦ Needed information is not always readily available	✦ Establish an interagency transportation network for information sharing.

Table 2-3. Challenges

Challenge	Suggested Preventative Measures
✦ Lack of funding (capital, maintenance, and operations)	✦ Identify other creative non-traditional funding opportunities such as grants from non-profit agencies.
✦ Public perception and acceptance of technologies including privacy issues with video (City of Central Point)	✦ Clearly demonstrate the benefits of ITS in an outreach and education program, and by collecting before/after information from ITS deployments.
✦ Maintaining the ITS plan after it is developed	✦ Transition the group of key stakeholders from this ITS plan development into a formal ITS implementation group to initiate the steps outlined in this plan, secure funding, coordinate and plan new ITS projects, maintain the Architecture, monitor/report progress and promote ITS. This group should meet regularly.
✦ Ability to integrate with neighboring County, City, and State agencies	✦ Implement systems using ITS standards.
✦ Seasonal severe weather, especially in outlying areas (winter storms, floods, fires)	✦ Utilize ITS technologies to manage traffic during severe weather and provide alternate routes.

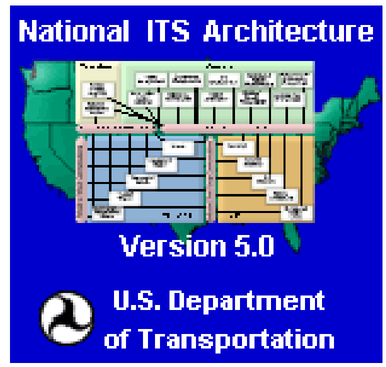
Table 2-4. Opportunities

Opportunity	Suggested Action Plan
✦ The City of Medford Public Works and the Medford Police Department are both planning citywide communications systems	✦ Consider opportunities to share infrastructure and to connect to other agencies within the region.
✦ Major planned capital improvements	✦ Capitalize on new construction projects and install communications infrastructure (i.e. conduit) and ITS equipment defined in this ITS plan.
✦ Region 3 Traffic Operations Center (TOC) in Central Point	✦ Integrate the TOC with regional transportation agencies and determine a strategy for regional traffic operations, management, and information sharing.
✦ Planned transit system upgrade	✦ Integrate transit improvements with transportation systems.
✦ Mobile data terminals used (or planned for use) in a number of emergency management vehicles	✦ Integrate transportation and emergency management systems and enhance information sharing.
✦ Homeland security funding	✦ Coordinate with emergency management personnel and look for opportunities to fund transportation security projects with homeland security money.

Opportunity	Suggested Action Plan
✦ Local emergency management plans	✦ Deploy ITS systems that accommodate both daily traffic operations and emergency contingency plan elements such as detours and information dissemination.
✦ Statewide 511 traveler information phone system	✦ Deploy ITS field devices to collect traffic congestion and incident information that can be distributed in a timely manner via the 511 telephone number.
✦ ODOT's TripCheck website	✦ Display camera images, incident information, construction information, etc. for the Rogue Valley metropolitan area on ODOT's award winning TripCheck website.

Chapter 3: Regional ITS Architecture

3.1 INTRODUCTION



This chapter provides a summary of the National ITS Architecture[1] and how it applies to the deployment of intelligent transportation systems in the Rogue Valley. This includes definitions of National ITS Architecture terminology, the Rogue Valley ITS systems inventory, descriptions of the user services and market packages selected by the Steering Committee to meet the needs of the Rogue Valley transportation network, and applicable ITS standards.

3.1.1 Why Develop an ITS Architecture?

The U.S. Department of Transportation (U.S. DOT) developed the National ITS Architecture to ensure that intelligent transportation systems deployed around the country can communicate with one other and share information to maximize the return of investment on ITS. The architecture is a framework that describes the functions of system components, how these components interconnect, the organizations involved, and the type of information to be shared.

For example, if a transportation agency wants to clear incidents faster, the architecture defines a function to monitor roadways and identifies the interconnection and information flows between the roadway, the traffic management center, and the emergency management center needed to provide responders with incident information. The architecture provides the framework for the process, but does not define how this is done with technology or management techniques.

The reasons for developing a regional ITS architecture tailored to the Rogue Valley include the following:

- Develop a framework for institutional agreements and technical integration for organized ITS project deployment that meets local transportation user needs.
- Build consensus among regional stakeholders about resource and information sharing and activity coordination.
- Meet federal funding requirements.

[1] *National ITS Architecture, Version 5.0.* U.S. Department of Transportation. Nov. 3, 2003. itsarch/iteris.com/itsarch. Accessed March 24, 2004.

The Federal Highway Administration (FHWA) published a policy[2] that all agencies seeking federal highway trust funding for ITS projects must develop a regional architecture that is compliant with the National ITS Architecture. The Federal Transit Administration (FTA) published a similar policy[3] that applies to federal funding from the mass transit account of the highway trust fund.

3.2 REGIONAL ITS ARCHITECTURE DEVELOPMENT PROCESS

The Rogue Valley Regional ITS Architecture was developed based upon the regional transportation network infrastructure, the user needs identified by stakeholders through interviews, questionnaires, and the user needs assessment workshop, and the *Regional ITS Architecture Guidance*[4]. *Turbo Architecture*[5], a software tool designed to support development of regional and project architectures based on the National ITS Architecture, was used to document the Rogue Valley Regional ITS Architecture. This *Turbo Architecture* database is intended to be a living document that gets updated by the key stakeholders as regional needs change.

The following steps, illustrated in Figure 3-1, were followed in the development of the regional architecture:

- Stakeholder Input: Key and expanded stakeholders, who are listed in Chapter 2, provided input throughout the architecture development process to obtain regional consensus.
- Systems Inventory: Existing and planned ITS system elements, described in Chapter 1, were input into the architecture. The *Turbo Architecture* inventory report for the regional architecture can be found in Appendix J.
- Map User Needs to User Services: The transportation user needs, documented in Chapter 2, were mapped to user services to ensure the architecture meets the regional needs.
- Market Package Selection: Market packages were selected based on the systems inventory and user needs.
- Interconnect and Information Flow Customization: Information flows between subsystems were customized to ensure that the architecture reflects existing and planned regional interconnects.

---

[2] *Intelligent Transportation System Architecture and Standards: Final Rule*, U.S. Department of Transportation, Federal Highway Administration, FHWA Docket No. FHWA-99-5899, Jan. 8, 2001.

[3] *Federal Transit Administration National ITS Architecture Policy on Transit Projects: Notice*, Federal Transit Administration, FTA Docket No. FTA-99-6147, Jan. 8, 2001.

[4] National ITS Architecture Team. *Regional ITS Architecture Guidance: Developing, Using, and Maintaining an ITS Architecture for Your Region*. Prepared for U.S. Department of Transportation, Federal Highway Administration, and Federal Transit Administration. FHWA-OP-02-024. Oct. 12, 2001.

[5] *Turbo Architecture, Version 3.0*, developed by Iteris for the U.S. Department of Transportation, Federal Highway Administration, 2004.

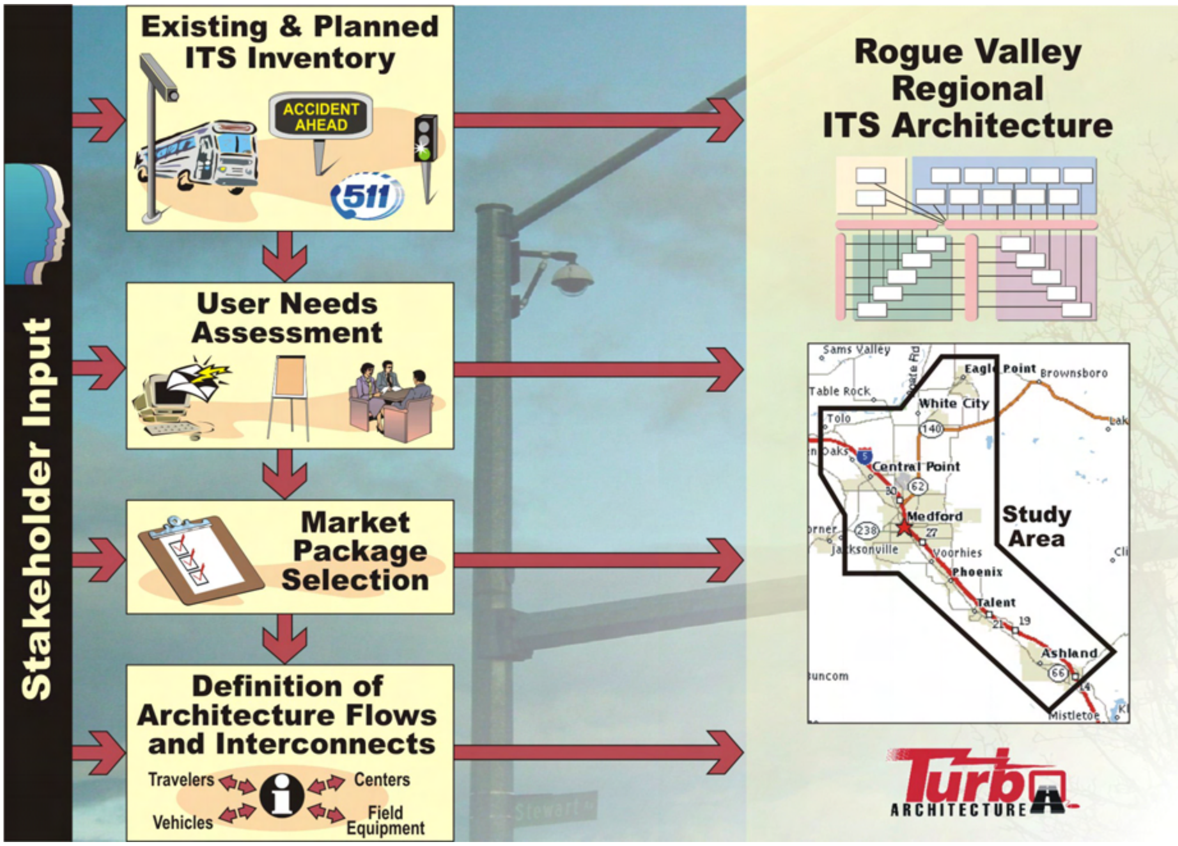


Figure 3-1. Regional ITS Architecture Development Process

3.3 USER SERVICES

User services describe what functions intelligent transportation systems should perform from the user's perspective. Users encompass a broad range including groups such as the traveling public, transportation agency personnel, emergency management personnel, and commercial vehicle operators. Although a user service is a functional requirement of the system, it does not describe where components fit into the architecture or how the service will be implemented. Selection of user services provides a high-level means of identifying the services to provide that address the regional user needs and problems. To simplify the range of requirements in a broad area of services, the user services are logically grouped into the following eight user services bundles:

- Travel & Traffic Management
- Public Transportation Management
- Electronic Payment
- Commercial Vehicle Operations
- Emergency Management
- Advanced Vehicle Safety Systems
- Information Management
- Maintenance & Construction Management

Table 3-1 includes the 33 nationally defined user services and indicates the ones selected by the Steering Committee based on the regional user needs documented in Chapter 2. A description of each user service may be found on the National ITS Architecture website[6].

[6] *User Services Bundles and User Services.* U.S. Department of Transportation. Nov. 3, 2003. itsarch/iteris.com/itsarch/html/user/userserv.htm. Accessed March 24, 2004.

Table 3-1. Rogue Valley User Needs Mapped to User Services

User Services Bundles and User Services	User Need Areas							
	Traffic Operations & Management	Incident Response	Special Events	Traveler Information	Public Transportation Management	Emergency Management Operations	Information Management	Maintenance & Construction Management
Travel & Traffic Management								
Pre-Trip Travel Information			✓	✓				
En-Route Driver Information		✓	✓	✓	✓	✓		
Route Guidance		✓	✓	✓	✓	✓		
Ride Matching & Reservation				✓	✓			
Traveler Services Information			✓	✓				
Traffic Control	✓		✓	✓	✓	✓	✓	
Incident Management	✓	✓		✓		✓		
Travel Demand Management	✓			✓	✓			
Emissions Testing & Mitigation								
Highway Rail Intersection	✓							
Public Transportation Management								
Public Transportation Management			✓	✓	✓			
En-Route Transit Information			✓	✓	✓			
Personalized Public Transit					✓		✓	
Public Travel Security					✓			
Electronic Payment								
Electronic Payment Services					✓			
Commercial Vehicle Operations								
Commercial Vehicle Electronic Clearance	✓							
Automated Roadside Safety Inspection						✓		
On-Board Safety & Security Monitoring						✓		
Commercial Vehicle Administrative Processes								
Hazardous Material Security & Incident Response	✓	✓				✓		
Freight Mobility								
Emergency Management								
Emergency Notification & Personal Security	✓	✓				✓		
Emergency Vehicle Management		✓				✓		
Disaster Response & Evacuation	✓	✓				✓		
Advanced Vehicle Safety Systems								
Longitudinal Collision Avoidance								
Lateral Collision Avoidance								
Intersection Collision Avoidance								
Vision Enhancement for Crash Avoidance								
Safety Readiness								
Pre-Crash Restraint Deployment								
Automated Vehicle Operation								
Information Management								
Archived Data Function	✓				✓	✓	✓	
Maintenance & Construction Management								
Maintenance & Construction Operations	✓				✓	✓		✓

3.4 LOGICAL ARCHITECTURE

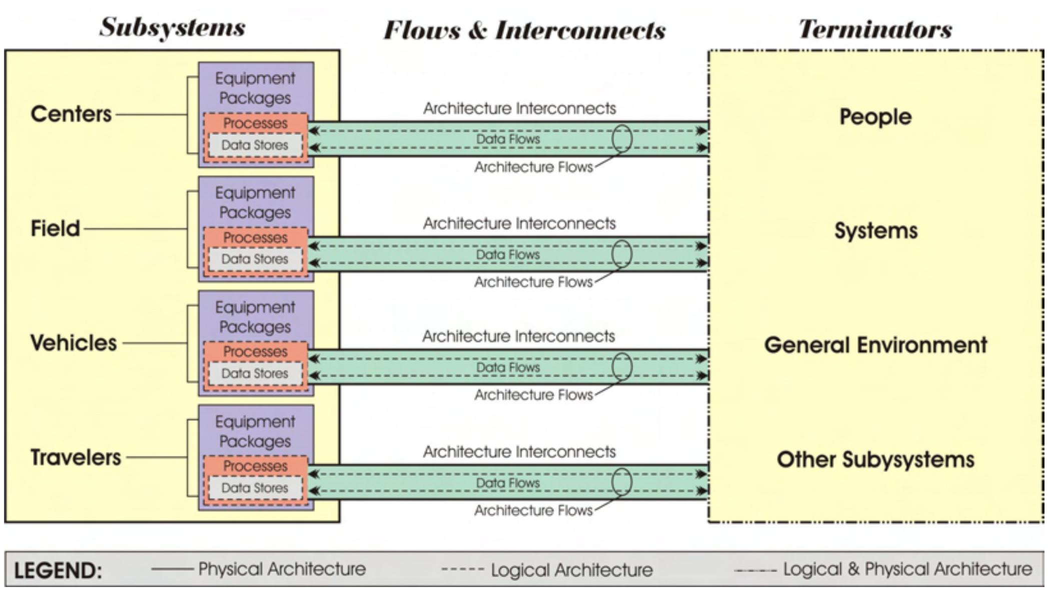
The logical architecture defines the requirements needed to provide the selected user services and is comprised of the following components:

- Processes: Activities and functions that must work together and share information to provide a user service.
- Terminators: Represent the people, systems, environment, and other subsystems that interact with intelligent transportation systems. These are described in more detail in Section 3.5: Physical Architecture.
- Data Flows: Information exchange between processes or between processes and terminators. For example, passenger count data is exchanged between a transit fare box and a transit system operator.
- Data Stores: Repositories of information maintained by the processes.

The logical architecture is typically described by data flow diagrams (DFD's) and process specifications (PSpecs) for specific project-related systems. Data flow diagrams graphically represent the processes, terminators, data flows, and data stores in a hierarchical format. The process specifications are used to write the specifications for specific project-related systems and consist of an overview, a set of functional requirements, and a complete listing of inputs and outputs. Public sector agencies tailor the logical architecture by identifying the processes, terminators, data flows and data stores that are existing or planned for a region.

3.5 PHYSICAL ARCHITECTURE

The physical architecture creates a high-level structure around the processes and data flows included in the logical architecture. It consists of subsystems, equipment packages, terminators, architecture flows, and architecture interconnects, which are all described in this section. Figure 3-2 illustrates the high-level physical architecture of the National ITS Architecture and includes the subsystems and architecture interconnects between subsystems. This diagram was tailored to the Rogue Valley metropolitan area to include the existing and planned regional subsystems and is included at the end of this section.



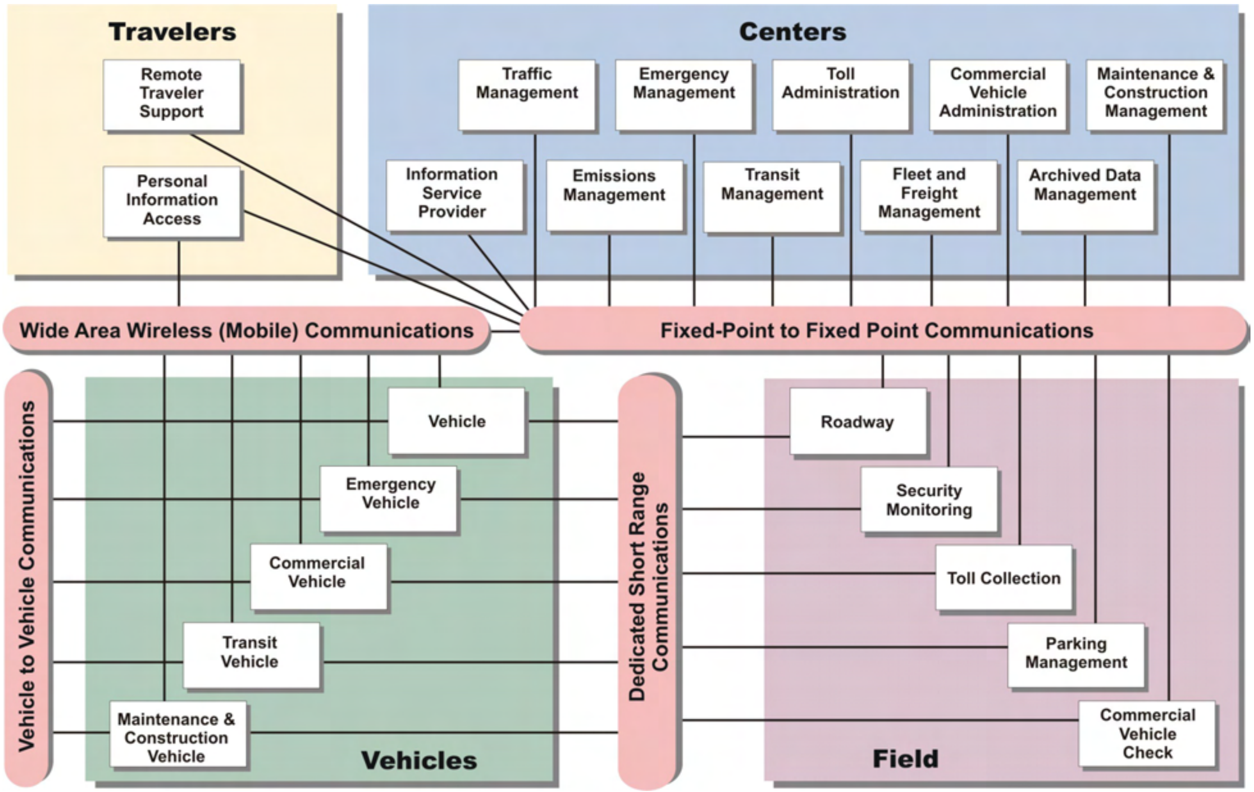


Figure 3-2. High-Level Physical National ITS Architecture

3.5.1 Subsystems

A subsystem represents a grouping of processes defined in the logical architecture that may be defined by single entities. There are 22 subsystems in the physical architecture that are assigned to four overarching classes that correspond to the physical world as described in Table 3-1 and illustrated in Figure 3-2.

Table 3-2. Subsystem Classes

Subsystem Class	Function	Real World Examples
Centers	Provide management, administration, and support functions for the transportation system.	✦ ODOT Region 3 Transportation Operations Center (TOC) ✦ SORC & RVCCOM 911 Centers
Field	Provide direct interface to the roadway network, vehicles traveling on the roadway network, and travelers in transit.	✦ Dynamic Message Signs ✦ Highway Advisory Radio ✦ Weigh-in-Motion Stations
Vehicles	Use the roadway network and provide driver information and safety systems.	✦ RVTD Buses ✦ Mercy Flights' Ambulances
Travelers	Gain access to traveler information through the use of equipment.	✦ TripCheck Website ✦ 511 Traveler Information Number

3.5.2 Equipment Packages

Equipment packages group similar processes of a subsystem together into an implementable package that addresses user services. The equipment packages are considered the building blocks of the physical architecture subsystems. Table 3-3 lists several examples of equipment packages in the National ITS Architecture.

Table 3-3. Sample Equipment Packages

Equipment Package	Process Specifications (PSpecs)	User Service Addressed
Roadway Basic Surveillance	✦ Process Traffic Sensor Data ✦ Process Traffic Images	Traffic Control
Transit Center Tracking and Dispatch	✦ Manage Transit Vehicle Operations ✦ Update Transit Map Data	Public Transportation Management
Emergency Evacuation Support	✦ Manage Emergency Response ✦ Provide Operator Interface for Emergency Data ✦ Provide Evacuation Coordination ✦ Manage Evacuation	Disaster Response and Evacuation

3.5.3 Terminators

Terminators, also called entities, define the boundary of the architecture by representing the people, systems, other subsystems, and general environment that interface with intelligent transportation systems. The National ITS Architecture includes interfaces between terminators and subsystems and processes, but does not allocate function requirements to terminators. For example, an emergency system operator is a terminator that interfaces with the Oregon State Police; however, the architecture does not define the functions performed by the operator to support the agency. The same set of terminators applies to both the logical and physical architectures, but the logical architecture processes communicate using data flows and the physical architecture subsystems communicate using architecture flows. The inventory report in Appendix J includes applicable terminators, or entities, in the Rogue Valley.

3.5.4 Architecture Flows

Architecture flows, also called information flows, are groupings of data flows that represent the actual information exchanged between subsystems and terminators and are the primary tool used to define interfaces within a regional ITS architecture. For example, an accident report is an architecture flow that is exchanged between a 911 center (subsystem) and the appropriate emergency system operator (terminator). Appendix K includes all of the architecture flows identified in the Rogue Valley Regional ITS Architecture.

3.5.5 Architecture Interconnects

Architecture interconnects, also called information interconnects, are the communications paths that carry architecture flows between the subsystems and terminators. These interconnects, shown in Figure 3-2, are typically grouped into one of the four categories listed in Table 3-4. Chapter 5 provides a detailed summary of the communications requirements for the Rogue Valley Regional ITS Architecture.

Table 3-4. Architecture Interconnects

Interconnect	Function	Real World Example
Fixed-Point to Fixed-Point Communications	Uses a communications network to link stationary entities.	✦ Fiber optic connection between a traffic management center and a CCTV camera
Wide Area Wireless Communications	Uses wireless devices to links users and infrastructure-based systems.	✦ Mobile telephone used to access traveler information
Dedicated Short Range Communications	Uses wireless communications channels to link vehicles and the immediate infrastructure within close proximity.	✦ Radio waves between a roadside transmitter and a vehicle
Vehicle to Vehicle Communications	Uses a wireless system to link communications between vehicles.	✦ Future vehicle collision avoidance systems

3.5.6 Rogue Valley Physical Architecture

Figure 3-3 illustrates the subsystems and architecture interconnects that make up the high-level physical architecture for the Rogue Valley. This figure includes both existing and planned physical entities. The planned entities include both upcoming elements that are programmed to receive funding and elements that will be deployed over the next 20 years as a part of this plan. The architecture flows are included separately in Appendix K because there are far too many to depict in a single graphic.

3.6 MARKET PACKAGES

Market packages are deployment-oriented groupings of physical architecture entities that address specific user services. The user services identified in Section 3.3 are too broad in scope to aid in the planning of actual deployments. Market packages are made up of one or more equipment packages that work together to deliver a transportation service and the architecture flows that connect them with subsystems and terminators. Figure 3-4 illustrates a sample market package that includes subsystems (the large rectangular boxes), the equipment packages (the small rectangular boxes), the terminators (the ovular boxes), and the architecture flows (the arrows).

Market packages for the Rogue Valley were selected early in the ITS plan development process to stimulate ideas about regional needs that may not have been previously identified. Table 3-5 lists the market packages selected by the Steering Committee and includes both existing market packages already deployed and planned market packages that will be deployed within the next 20 years as part of this plan. Eight broad categories of interest are used to group the 85 market packages and a description of each market package may be found on the National ITS Architecture website[7].

[7] *Market Packages*. U.S. Department of Transportation. Nov. 3, 2003. itsarch/iteris.com/itsarch/html/user/userserv.htm. Accessed March 24, 2004.

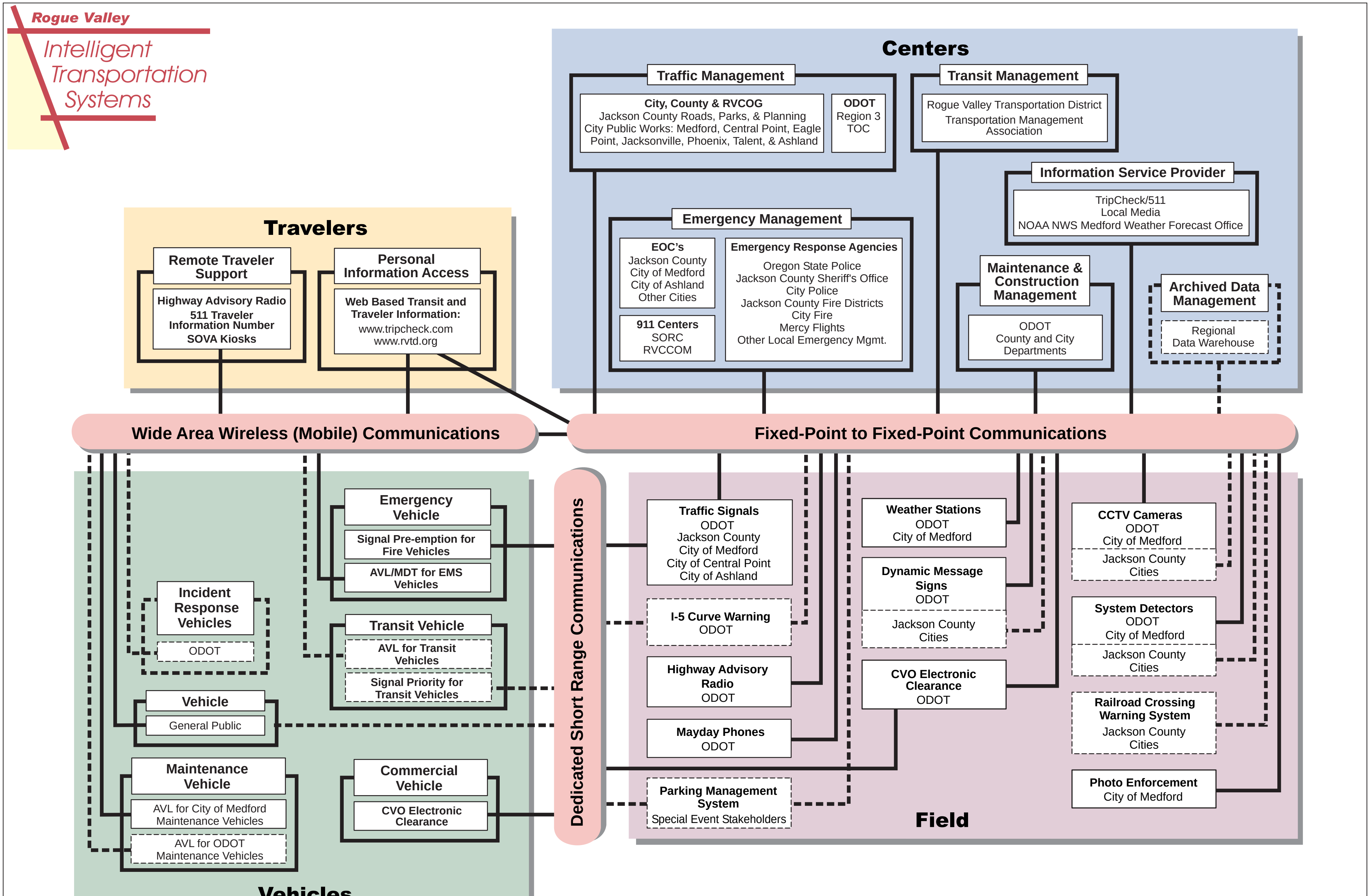


Figure 3-3
ROGUE VALLEY
HIGH-LEVEL PHYSICAL ARCHITECTURE

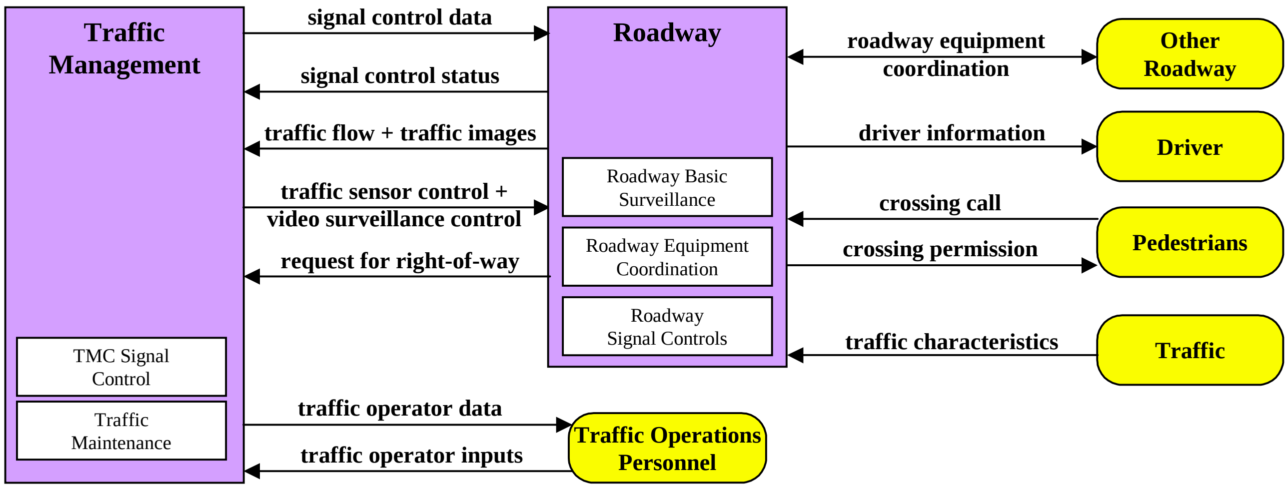


Figure 3-4. Sample Market Package Graphic: Surface Street Control[8]

Table 3-5. Rogue Valley Market Packages by Key Stakeholder

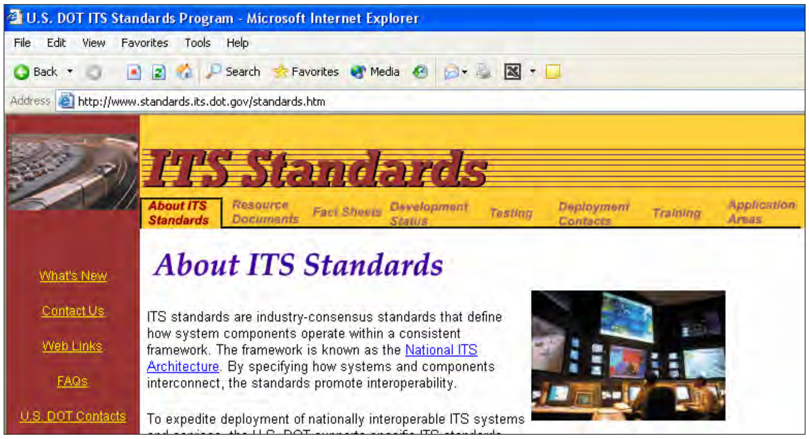
Market Packages (E = Existing, P = Planned)	Key Stakeholders								
	ODOT	Jackson County	City of Medford	City of Central Pt	City of Ashland	Other Cities	RVTD	Emergency Mgmt Agencies	RVCOG
Archived Data (AD) Management									
AD1: ITS Data Mart	E	E	E	E	E	E	E	E	
AD2: ITS Data Warehouse			P						P
AD3: ITS Virtual Data Warehouse	E	E	E	P	P	P	P	P	P
Advanced Public Transportation Systems (APTS)									
APTS1: Transit Vehicle Tracking							P		
APTS2: Transit Fixed-Route Operations							P		
APTS3: Demand Response Transit Operations							P		
APTS4: Transit Passenger & Fare Management							P		
APTS5: Transit Security							P		
APTS6: Transit Maintenance							E		
APTS7: Multi-Modal Coordination	P	P	P	P	P	P	P		
APTS8: Transit Traveler Information							P		

[8] *ATMS03- Surface Street Control*. U.S. Department of Transportation. Nov. 3, 2003. itsarch.iteris.com/itsarch/html/mp/gatms03.htm. Access March 24, 2004.

Market Packages (E = Existing, P = Planned)	Key Stakeholders								
	ODOT	Jackson County	City of Medford	City of Central Pt	City of Ashland	Other Cities	RVTD	Emergency Mgmt Agencies	RVCOG
Advanced Traveler Information Systems (ATIS)									
ATIS1: Broadcast Traveler Information	P	P	P	P	P	P	P	P	
ATIS2: Interactive Traveler Information	E	P	P	P	P	P	P		
ATIS3: Autonomous Route Guidance									
ATIS4: Dynamic Route Guidance	P	P	P	P	P	P	P		
ATIS5: ISP Based Route Guidance	P								
ATIS6: Integrated Transportation Mgmt/Route Guidance									
ATIS7: Yellow Pages & Reservation									
ATIS8: Dynamic Ridesharing							P		
ATIS9: In Vehicle Signing	P	P	P	P	P	P	P		
Advanced Traffic Management Systems (ATMS)									
ATMS1: Network Surveillance	E	P	E	P	P	P			
ATMS2: Probe Surveillance									
ATMS3: Surface Street Control	P	P	E	P	P	P			
ATMS4: Freeway Control	P		P						
ATMS5: HOV Lane Management									
ATMS6: Traffic Information Dissemination	E	P	P	P	P	P	P	P	
ATMS7: Regional Traffic Control	P	P	P	P	P	P			
ATMS8: Traffic Incident Management System	E	P	E	P	P	P	P	E	
ATMS9: Traffic Forecast & Demand Management	E	P	E	P	P	P	E		E
ATMS10: Electronic Toll Collection									
ATMS11: Emissions Monitoring & Management									
ATMS12: Virtual TMC & Smart Probe Data									
ATMS13: Standard Railroad Grade Crossing	E	E	E	E	E	E			
ATMS14: Advanced Railroad Grade Crossing									
ATMS15: Railroad Operations Coordination	P		P	P					
ATMS16: Parking Facility Management			P		P	P			
ATMS17: Regional Parking Management									
ATMS18: Reversible Lane Management									
ATMS19: Speed Monitoring	P		P	P	P				
ATMS20: Drawbridge Management									
ATMS21: Roadway Closure Management									
Advanced Vehicle Safety Systems (AVSS)									
AVSS1: Vehicle Safety Monitoring									
AVSS2: Driver Safety Monitoring									
AVSS3: Longitudinal Safety Warning									
AVSS4: Lateral Safety Warning									
AVSS5: Intersection Safety Warning									
AVSS6: Pre-Crash Restraint Deployment									
AVSS7: Driver Visibility Improvement									
AVSS8: Advanced Vehicle Longitudinal Control									

Market Packages (E = Existing, P = Planned)	Key Stakeholders: ODOT	Jackson County	City of Medford	City of Central Pt	City of Ashland	Other Cities	RVTD	Emergency Mgmt Agencies	RVCOG
AVSS9: Advanced Vehicle Lateral Control									
AVSS10: Intersection Collision Avoidance									
AVSS11: Automated Highway System									
Commercial Vehicle Operations (CVO)									
CVO1: Fleet Administration									
CVO2: Freight Administration									
CVO3: Electronic Clearance	E								
CVO4: CV Administrative Processes	E								
CVO5: International Border Electronic Clearance									
CVO6: Weigh-in-Motion	E								
CVO7: Roadside CVO Safety									
CVO8: On-Board CVO & Freight Safety & Security									
CVO9: CVO Fleet Maintenance									
CVO10: HAZMAT Management								P	
CVO11: Roadside HAZMAT Security Detection & Mitigation									
CVO12: CV Driver Security Authentication									
CVO13: Freight Assignment Tracking									
Emergency Management (EM)									
EM1: Emergency Call-Taking & Dispatch								E	
EM2: Emergency Routing								P	
EM3: Mayday Support									
EM4: Roadway Service Patrols	P								
EM5: Transportation Infrastructure Protection	P	P	P	P	P	P		P	
EM6: Wide-Area Alert	E							E	
EM7: Early Warning System					E				
EM8: Disaster Response & Recovery	P	P	P	P	P	P	P	P	
EM9: Evacuation & Reentry Management									
EM10: Disaster Traveler Information	P	P	P	P	P	P	P	P	
Maintenance & Construction (MC) Management									
MC1: Maintenance & Construction Vehicle & Equipment Tracking	P		E						
MC2: Maintenance & Construction Vehicle Maintenance									
MC3: Road Weather Data Collection	E		E						
MC4: Weather Information Processing & Distribution	E		E						
MC5: Roadway Automated Treatment									
MC6: Winter Maintenance	P	P	P	P	P	P			
MC7: Roadway Maintenance & Construction	P								
MC8: Work Zone Management	P	P	P	P	P	P			
MC9: Work Zone Safety Monitoring									
MC10: Maintenance & Construction Activity Coordination	P	P	E	P	P	P			

3.7 ITS STANDARDS



ITS standards, developed through industry consensus, define how system components should work within the National ITS Architecture to support deployment of interoperable systems at local, regional, state, and national levels. The U.S. Department of Transportation (U.S. DOT) ITS Standards Program has developed cooperative agreements with standards development organizations (SDO's) for development of non-proprietary, industry-based standards (approximately 100 currently in development) and has been encouraging the use of standards for ITS interoperability. They maintain a website[9] that provides the current status of ITS standards, resource documents, fact sheets, development status, testing procedures, deployment contacts, and training resources. Many of the standards are under development and only a small number of standards have been approved by U.S. DOT. Approved ITS standards must be applied to projects funded from federal sources. Appendix L includes a full list of ITS standards and their current development status.

This section includes a summary of common ITS standards that are applicable to the Rogue Valley Regional ITS Architecture. The selection of ITS standards is based on the architecture flows included in the regional architecture. Due to the ongoing nature of standards development, standards support is not available for all architecture flows at this time. Also, ITS standards do not apply to a few of the architecture flows for various reasons such as flows supported by non-ITS information (e.g. financial institution).

Existing intelligent transportation systems in the Rogue Valley may have been deployed prior to the development of ITS standards or that conform to another set of standards. For all future ITS deployment, agencies in the Rogue Valley should perform a systems engineering analysis to determine if compliance with ITS standards is feasible.

3.7.1 Key ITS Standards for the Rogue Valley

Table 3-6 includes a list of key ITS standards recommended for the Rogue Valley Regional ITS Architecture and the associated interfaces that each standard applies to. Several of the standards refer to data dictionaries and message sets, which are defined as follows:

- *Data Dictionary Entry*: Textual description of a data flow that includes any data elements that comprise the data flow. There is a data dictionary entry for every data flow included in the logical architecture.
- *Message Set:* A series or set of individual messages, which are groups of basic data (called data elements), in a strict format established for information exchange between systems.

[9] *ITS Standards*. U.S. Department of Transportation. May 22, 2003. www.standards.its.dot.gov/standards.htm. Accessed March 24, 2004.

Table 3-6. Key ITS Standards Recommended for the Rogue Valley

Standard Development Organizations	Applicable Architecture Interfaces	Key ITS Standards Recommended for Rogue Valley Regional ITS Architecture
AASHTO ITE NEMA	Traffic Management Centers to Other Centers	✦ National Transportation Communications for ITS Protocol (NTCIP) – See Section 3.7.1.1 for additional discussion.
	Traffic Management Center to Field Devices	
	Roadside Signal Controllers	✦ Advanced Transportation Controller (ATC)
	Transit Center to Other Centers and Vehicles	✦ Transit Communications Interface Profile (TCIP) – See Section 3.7.1.2 for additional discussion.
ITE	Traffic Management Center to Other Centers	✦ Traffic Management Data Dictionary (TMDD) ✦ Message Sets for External Traffic Management Center Communications (MS/ETMCC)
IEEE	Emergency Management Center to Other Centers	✦ Standard for Incident Management Message Sets (IMSS) for Use by Emergency Management Centers
	General	✦ Standard for Data Dictionaries for Intelligent Transportation Systems
ASTM	Archived Data Management Center Interfaces	✦ Standard Guide for Archiving and Retrieving ITS-Generated Data
ASTM IEEE	Vehicle to Roadside	✦ Dedicated Short Range Communications (DSRC)
SAE	Traveler Information (Information Service Provider (ISP) Interfaces)	✦ Advanced Traveler Information Systems (ATIS) Data Dictionary ✦ Advanced Traveler Information Systems (ATIS) Core Message List and Data Dictionary
	Location Referencing	✦ Location Referencing Standards

3.7.1.1 National Transportation Communications for ITS Protocol (NTCIP)

The National Transportation Communications for ITS Protocol (NTCIP)[10], developed by AASTHO, ITE, and NEMA, is a group of standards that provides rules for communications (called protocols) and vocabulary (called objects) needed for seamless operation of electronic traffic control equipment from different manufacturers operating within the same system. The NTCIP includes standards for the following two types of communications[11]:

- ✦ Center-to-Center (C2C): Communications interface between a traffic management center and another center. (Example: Interface between ODOT TOC and RVTD).
- ✦ Center-to-Field (C2F): Communications interface between a traffic management center and a field device. (Example: Interface between ODOT TOC and a dynamic message sign).

[10] *NTCIP: The National Transportation Communications for ITS Protocol Online Resource.* AASHTO, ITE, and NEMA. March 22, 2004. www.nctip.org. Accessed March 24, 2004.
[11] *The NTCIP Guide: Updated Version 3.* NTCIP 9001. AASHTO, ITE, and NEMA, v03.02b, Oct. 2002.

ODOT currently uses center-to-field standards for dynamic message signs and plans to use additional center-to-field standards as they are adopted and become mature. For center-to-center standards, ODOT uses XML which is not currently an NTCIP standard.

3.7.1.2 Transit Communications Interface Profiles (TCIP)

The Transit Communications Interface Profiles (TCIP)[12], a subset of NTCIP, are communications standards for interfaces between subsystems involving transit elements such as public transportation vehicles, transit management centers, other transit facilities, and other ITS centers and subsystems. TCIP standards provide conformance requirements for automated information exchange, mechanical and electrical interfaces, data integrity, and required message sets. Most of these standards are still in draft form so that have not been put to use by most ITS transit vendors. As transit projects are developed by the Rogue Valley Transportation District (RVTD) and the Transportation Management Association (TMA) a systems engineering approach will need to be used to determine whether compliance with TCIP standards is feasible.

[12] *Transit Communications for ITS Protocols (TCIP).* Institute of Transportation Engineers. http://www.ite.org/standards/tcip.asp. Accessed March 24, 2004.

Oregon Department of Transportation

Rogue Valley Intelligent Transportation Systems

Chapter 4: Operational Concept

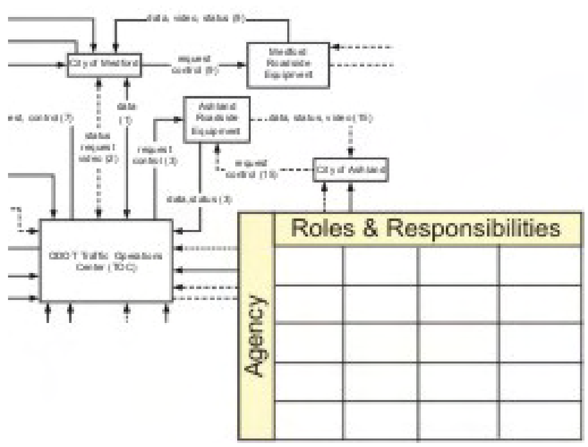
4.1 INTRODUCTION

The operational concept describes the current and future roles and responsibilities of regional transportation and emergency management agencies specifically related to the implementation and operation of intelligent transportation systems that require regional coordination such as incident management. The operational concept provides a high-level view of the way agencies and systems work together today and in the future to provide ITS services and will form the basis for future interagency agreements. The operational concept for the Rogue Valley metropolitan area includes:

- **High-Level Operational Concept Matrix.** This spreadsheet serves as a quick reference to high-level relationships between key and expanded stakeholder agencies and documents current and future relationships for ITS-related projects and the level of information-sharing.

- **Detailed Roles and Information Flows by Program Area.** For this project, seven program areas have been developed to group logical ITS projects as identified below. These program areas are consistent with the National ITS Architecture, but have been tailored to describe the program areas specifically identified for the Rogue Valley metropolitan area. For each program area, diagrams of current and future information flows between agencies and a responsibility matrix outlining current and future roles and responsibilities by agency are included.

  - Traffic Operations & Management
  - Traveler Information
  - Incident Management
  - Public Transportation Management
  - Emergency Management
  - Information Management
  - Maintenance & Construction Management



4.1.1 Approach

The information contained in the operational concept was garnered from in-person and telephone interviews with the key stakeholders and mail questionnaires from the extended stakeholders in the Rogue Valley metropolitan area described in Chapter 2. In addition, the market packages selected by the key stakeholders in Chapter 3 were used to help define current and future ITS program areas.

4.2 HIGH-LEVEL OPERATIONAL CONCEPT

ITS projects frequently require multi-jurisdictional coordination to implement and support ongoing operations. For example, a conventional design-build highway project will not include collaboration with emergency management agencies. However, the implementation of an incident management program including ITS deployments will likely involve a state department of transportation, local public works departments, regional emergency management agencies, and first responders. The operational concept identifies the key stakeholders responsible for a regional incident management program and defines each agency's roles and responsibilities.

4.2.1 Agency-to-Agency Relationships

To better conceptualize agency-to-agency relationships, eight broad categories of interactions have been defined. At one end of the spectrum there is no established relationship between agencies (Independent). In the middle, there is a level where agencies cooperate with each other but do not share data electronically (Cooperation). The level of highest coordination (Control Sharing), includes agencies that have established relationships beyond cooperation and have agreements in place that allow them to share control, operate or maintain field devices. Table 4-1 shows the relationship types, definitions, and relationship examples.

4.2.2 Information Flows

Information flows may refer to the exchange of information from one agency's central operation center to another (e.g., traffic management center). This type of exchange is known as a center-to-center information flow. If information is sent from a field device to a traffic management center, for example, this type of information flow is often referred to as center-to-field. More often than not, information is exchanged once it has been sent back to an agency's center. From there it is shared with one or more agencies. Aside from the actual information that is shared, information can be in the form of requests or control. Requests are basically inquiries sent to another agency for information. A control flow occurs when an agency has the authority to manipulate field devices such as changing messages on message signs. Table 4-2 summarizes the type of information flows between agencies that will be documented for each ITS program area.

Table 4-1. Relationships between Agencies

Relationship Category	Definition	Relationship Example
Independent	Agencies operate separately with no interaction.	The City of Ashland and the City of Central Point may not have any established relationship.
Consultation	An agency provides advice or services to another agency and vice versa. Information is exchanged and includes actions that may take place. No electronic information is shared.	RVCCOM will call the City of Medford to alert them of an incident that may require City personnel to close down a roadway. This information is shared verbally with no electronic means of sending data to and from these agencies.
Cooperation	Agencies work together to establish and achieve common goals. For example, agencies may work together in the planning, project development and operations phases of a project. No electronic sharing of information.	RVCOG participates with all regional agencies in planning and development of transportation operations.
Information Sharing	In addition to agencies working together at the "cooperation" level, they share electronic data and device status information.	RVCCOM and SORC have a linked CAD system. Information entered into either system is shared with both agencies.
Control Sharing	Through operational agreements agencies allow other agencies to control field devices. Note that "information sharing" level has been realized.	ODOT and the City of Medford work cooperatively to deploy traffic signals on major routes. While ODOT funds and owns some signals in Medford, the City of Medford is responsible for operating ODOT's signals.
Operational Responsibility	One agency operates the field equipment of a second agency on a full time basis but is not responsible for maintenance or repairs.	Traffic signals owned by ODOT within the City of Medford city limits are operated and maintained by the City of Medford.
Maintenance Responsibility	One agency maintains the field equipment of a second agency but is not responsible for operations.	ODOT contracts out to private companies to maintain their ITS equipment (message signs, CCTV, and HAR) while maintaining control.
Full O&M Responsibility	One agency has full responsibility for the field equipment of a second agency including operations and preventative and emergency maintenance.	ODOT maintains and operates the City of Central Point's traffic signals.

4.2.3 High-Level Operational Concept Relationship Matrix

The operational concept lays out the relationships between the various stakeholder agencies in the Rogue Valley region. Where possible, relationships with the expanded stakeholders have also been noted. These agency relationships were mapped out using the categories defined in the previous sections – relationship and data flow types. For each agency listed, the matrix also maps out the direction of data flow. That is, it notes which agency is the "from" and which agency is the "to". If the relationship has been verified with the agencies, this is also duly noted. Lastly, the matrix captures whether the relationships and data flows currently exist, are planned, or are being considered. The high-level operational concept matrix is included in Appendix M.

Table 4-2. Information Flow Definitions

Information Flows	Definition	Information Flow Example
Data	Data are information captured by field devices automatically or entered manually into a central repository. Examples of data include, but are not limited to, incident, traffic, weather, parking, and transit data.	SORC and RVCCOM share emergency data via their CAD system.
Video	Live video and/or still images captured by cameras.	Video images from cameras on I-5 are broadcast to TripCheck, ODOT's traveler information website.
Status	Status is information on the operational state of field devices. Examples include confirmation of message set postings to dynamic message signs, operational status of RWIS or cameras such as failed, on or off.	ODOT may receive operational status reports from dynamic message signs that indicate whether the device is working or not.
Request	The ability for an agency to solicit either a data or command change, such as DMS messaging or signal timings, from another party.	Many regional agencies request ODOT to display specific information for message signs.
Control	Control is the ability to manipulate the current setting of a field device. Control may include, but is not limited to, changing DMS messages, changing traffic signal timing plans, and camera control (e.g., pan, tilt, zoom).	OSP has limited control for some ITS equipment owned by ODOT, such as highway advisory radio (HAR).

4.3 DETAILED ROLES, RESPONSIBILITIES AND INFORMATION FLOWS

This section provides explicit information on the general roles each agency may take in participating in ITS projects. Along with this, diagrams are provided capturing how information flows between the various agencies. The responsibility definition matrices and information flow diagrams are presented according to the ITS program areas.

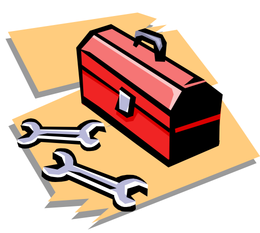
While the structure of an ITS project may differ according to the type and complexity of the endeavor, a set of general steps that a project undergoes can be gleaned from experience. In order to present the roles an agency may have in an ITS project, it is helpful to define the roles and responsibilities according to these generalized phases of an ITS project, which include the following:

- **Design:** The design phase groups all efforts put forth to lay the framework for a project implementation. This includes the development of pertinent documents required for successful project execution. The types of documentation that may be required during the design phase of an ITS project include: an operational concept, high-level requirements, detailed requirements, high-level design, detailed design, and operations and maintenance plans. Basically, the documentation provides the structure and understanding for how the project will be implemented. For example, high-level requirements are important in documenting the general vision of a project such as determining what facets and functions partners are interested in including in the design. Design-related documentation provides traceability to the initial goals and objectives of the project team, and further provides a point of reference in testing and validating the successful implementation of the final product. All aspects prior to the actual implementation of a project have been categorized into design.

- **Construction/Implementation:** The deliverables provided as part of the design process are used as the blueprint for construction and implementation. Implementation relating to ITS may include such tasks as construction; developing and installing equipment, hardware and software; and integration with existing systems. An example of implementation is installing RWIS equipment in the field. This includes all tasks necessary to install the hardware and software including tying into existing communications to pouring a new concrete pad to installing new servers in a central office. Implementation tasks are related to the actual execution of a project.

- **Operational Planning:** Operational planning involves developing processes and procedures to support ongoing operations and future expansion of ITS technologies. Upkeep may be performed by a combination of one or more project partners or contracting with a third party.

- **Operations:** Operations encompasses tasks related to operating ITS equipment after implementation. This may also include training technical or information technology staff and understanding any warranties, licenses or registration agreements with the vendor.



- **Maintenance:** System maintenance covers both hardware and software upkeep. Maintenance roles may include repairing equipment outages, routine testing of equipment to ensure it is functioning correctly, and replacement of equipment subcomponents.

4.3.1 Traffic Operations & Management

This section describes coordination between agencies to relieve congestion by operating and managing traffic control devices such as traffic signals, vehicle detection, automated traffic recorders, cameras, and other technologies. Figure 4-1 shows the flow of information between the agencies. Each line connecting the various agencies in Figure 4-1 is numbered and a short explanation is provided in Table 4-3. Solid lines indicate an existing relationship, such as ODOT maintaining control and maintenance responsibility for Ashland-owned traffic signals. Dashed lines indicate a proposed, planned or future relationship. For example, should ODOT install cameras on an ODOT facility within the City of Central Point, Central Point would like to have access to these video images. The responsibility matrix, Table 4-4 shows the current and future roles and responsibilities of the various key stakeholder agencies for the Rogue Valley specifically relating to Traffic Operations & Management.

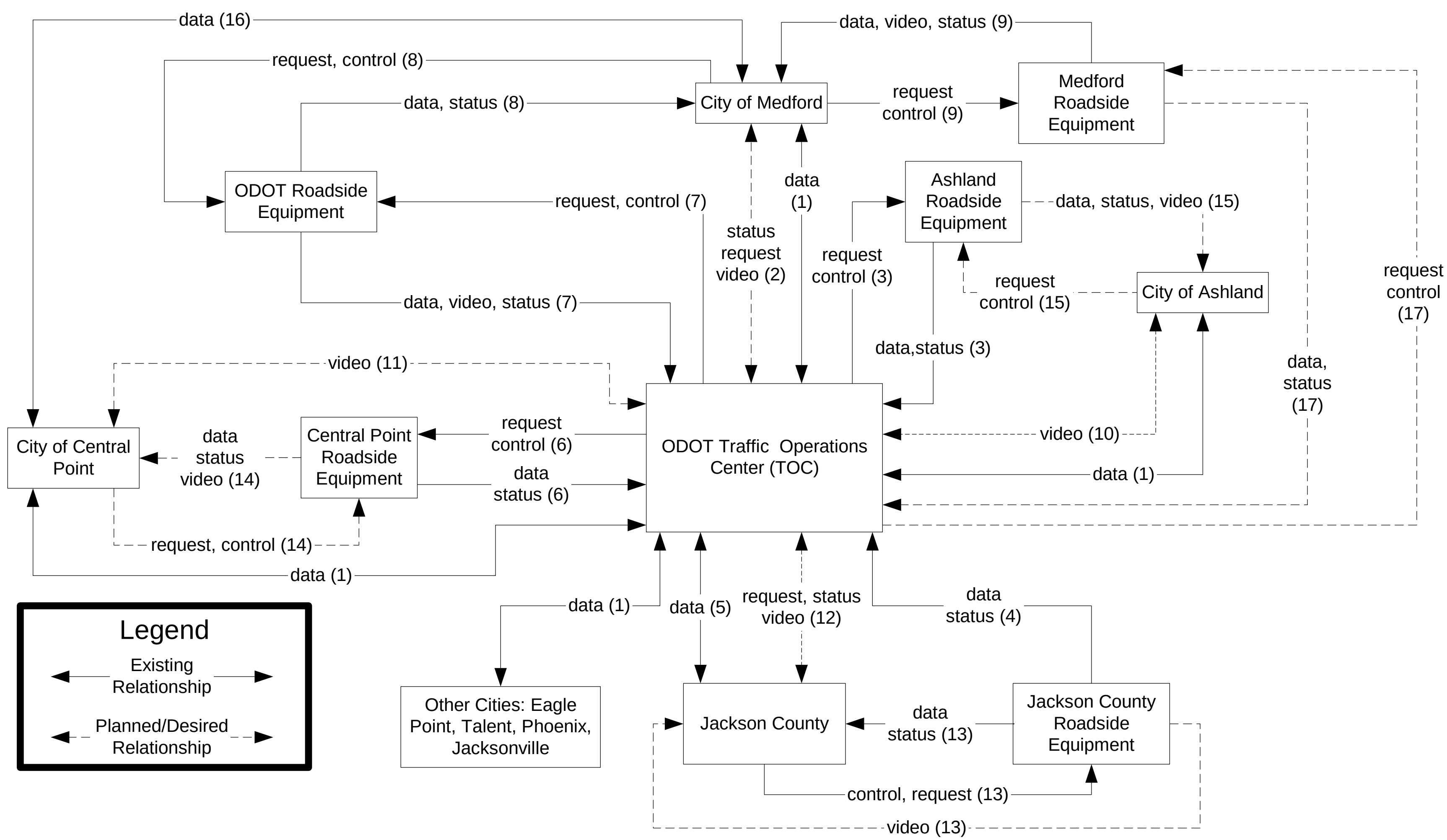


Figure 4-1. Traffic Operations & Management Flow Diagram

Table 4-3. Traffic Operations & Management Flow Table

Line Number	Traffic Operations & Management: Existing and Planned Information Flows (Line Definitions)
1	ODOT TOC and the Cities of Medford, Ashland and Central Point, as well as Jackson County communicate on a regular basis regarding traffic operations and share information via phone, email, and face-to-face.
2	ODOT would like to receive information regarding Medford's roadside equipment.
3	ODOT maintains and operates the City of Ashland's signals.
4	ODOT maintains Jackson County signals. Jackson County operates their own signals.
5	Jackson County and ODOT work closely together. They share the same office building and much information is shared through conversations, meetings, fax, and email.
6	ODOT maintains and operates traffic signals within the city of Central Point.
7	ODOT maintains and operates all of their roadside equipment with the exception of the traffic signals in the Medford city limits (see line 8)
8	The City of Medford maintains and operates signals owned by ODOT within the city limits.
9	The City of Medford maintains and operates all signals within the city limits.
10	The City of Ashland would eventually like to access video images from ODOT.
11	Central Point plans on sharing camera images with ODOT.
12	Jackson County would like access to ODOT's signals and cameras within Jackson County.
13	Jackson County operates their signals but would like remote connection in the future.
14	The City of Central Point would eventually like to take control of their signals and any ITS equipment installed within their jurisdiction.
15	The City of Ashland would eventually like to take control of their signals and any ITS equipment installed within their jurisdiction.
16	During "after hours" emergencies, ODOT may have authorization to follow planned responses for operating the City of Medford's signals.

Shared ODOT TOC and Oregon State Police Dispatch

Table 4-4. Traffic Operations & Management Roles and Responsibilities Matrix

Agency	Design	Construction/ Implementation	Operational Planning	Operations	Maintenance
ODOT	• Manage ODOT-led projects • Participate in developing requirements for traffic operations such as dynamic message signs, curve and speed warning systems, and cameras • Lead design of field devices on Interstate and state highways	• Oversee implementation of field devices on Interstate and state highways • Lead construction of field devices on Interstate and state routes • Secondary role in construction and implementation of field devices	• Participate in regional congestion mitigation plan • Participate in development of traffic signal plans on roadways under own jurisdiction • Lead regional operational planning of field devices and communications network for ODOT devices	• Lead operations role for ODOT devices • Secondary role for operations of devices on local jurisdictions such as traffic signals, cameras, loops and video detection • Operate traffic control devices on Interstate and state highways • Operate field devices for the city of Medford after hours and in emergency situations	• Maintain ODOT and local agency field devices for local jurisdictions such as traffic signals, cameras, and loop detection except within the City of Medford • Maintain traffic control devices on Interstate and state highways
Jackson County	• Manage Jackson County-led projects • Participate in developing requirements for traffic operations	• Lead implementation of field devices on county roads • Participate in implementation of remote access to Jackson County traffic signals	• Participate in regional congestion mitigation plan • Participate in regional operational planning of field devices and communications network	• Operate field devices owned by Jackson County	• Maintain field devices owned by Jackson County
Other Cities: Eagle Point, Jacksonville, Phoenix, and Talent	• Manage city-led projects • Participate in developing requirements for traffic operations	• Oversee implementation of field devices on city roads	• Participate in regional congestion mitigation plan • Participate in regional operational planning of field devices and communications network		
City of Medford	• Manage City of Medford-led projects • Participate in developing requirements for traffic operations and improvements such as the north and south Medford interchanges • Participate in procurement of cameras and dynamic message signs for traffic operations on local roads	• Lead construction and implementation of field devices on roadways within the City of Medford	• Lead development of traffic signal plans within jurisdiction • Participate in regional congestion mitigation plan • Participate in regional operational planning of field devices and communications network	• Operate field equipment deployed within the Medford city limits, except for devices owned by Jackson County	• Maintain field equipment deployed within the Medford city limits, except for devices owned by Jackson County
City of Ashland	• Participate in developing requirements for traffic operations • Develop improvements to manage traffic due to seasonal events (i.e. Shakespeare Festival) • Participate in developing automated data gathering (i.e. vehicle counts) projects from field devices	• Provide input on field devices implemented within the City of Ashland's city limits	• Participate in regional congestion mitigation plan • Participate in regional operational planning of field devices and communications network	• Depending on city funding, potentially operate traffic devices owned by the City of Ashland in the future	
City of Central Point	• Participate in developing requirements for traffic operations • Participate in coordinating traffic signal operations within Central Point city limits	• Provide input on field devices implemented within the City of Central Point's city limits	• Participate in regional congestion mitigation plan • Participate in regional operational planning of field devices and communications network	• Control traffic devices such as dynamic message signs and cameras within Central Point city limits	

4.3.2 Traveler Information

The purpose of this program area is to disseminate traffic condition related information such as congestion, incidents, construction, road closures, diverted routes, and general awareness. There are several traveler information sources in the Rogue Valley. ODOT is the main source of traveler information using radio (HAR), internet (TripCheck), phone (511 system), dynamic message signs and video (camera images) to disseminate information to the traveling public. These systems contain information relating to I-5 and state highways. Local construction information is provided on various websites hosted by some regional agencies. Figure 4-2 shows existing (solid line) information flows between the agencies, as well as planned (dashed line) information flows and relationships. Explanations for the type of relationship and information shared are found Table 4-5. The responsibility matrix in Table 4-6 shows the current and future roles and responsibilities of the various key stakeholder agencies for the Rogue Valley ITS implementation plan specifically relating to Traveler Information.

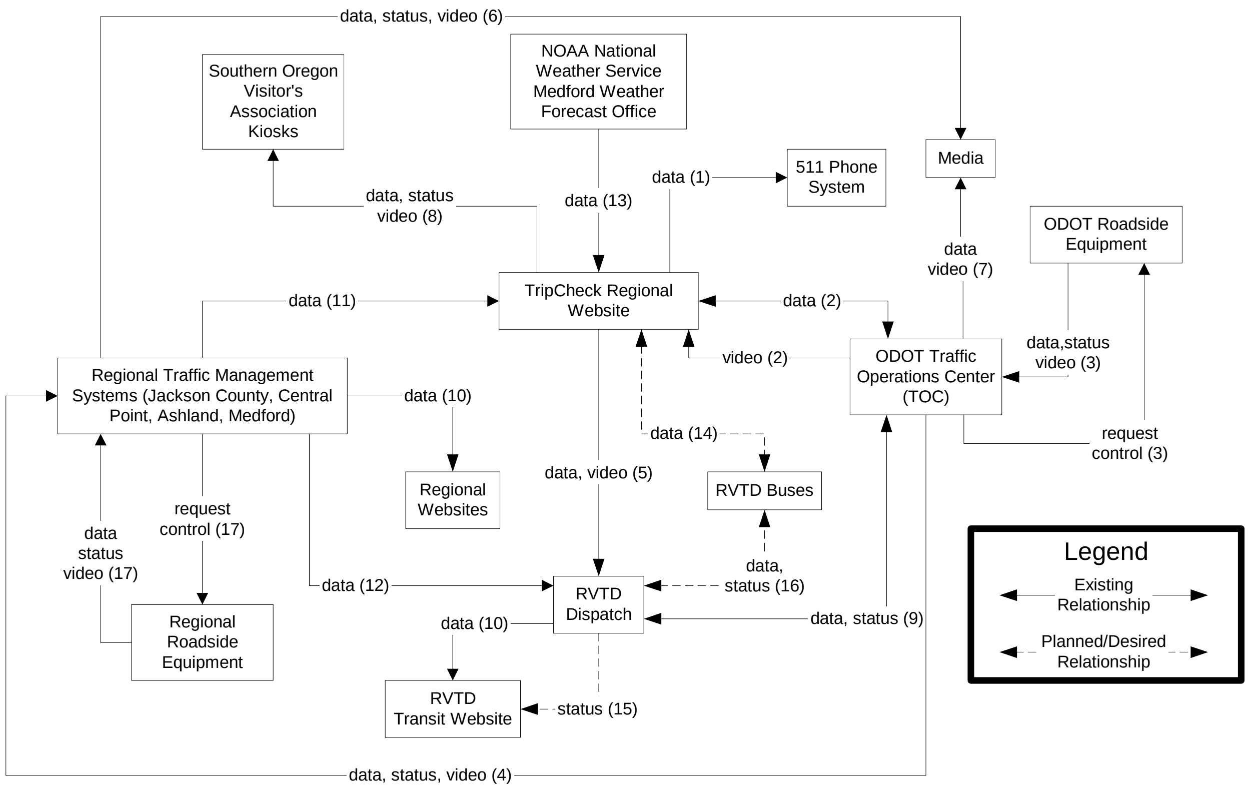


Figure 4-2. Traveler Information Flow Diagram

Table 4-5. Traveler Information Flow Table

Line Number	Traveler Information Systems Management: Existing and Planned Information Flows (Line Definitions)
1	TripCheck disseminates traveler information to the 511 phone system.
2	The ODOT Traffic Operations Center (TOC) creates/updates situations and construction information using the statewide condition reporting system.
3	ODOT may change the DMS messages to relay traveler information. They also use the highway advisory radio, RWIS and cameras to relay information to the traveling public.
4	Regional agencies (including Jackson County and the Cities of Medford, Ashland, and Central Point) share information with the ODOT TOC via phone, face-to-face, e-mail, and fax.
5	RVTD provides data to TripCheck as applicable.
6	Regional agencies prepare press releases for information that may affect the traveling public, such as construction projects, road closures, and utility work.
7	ODOT prepares press releases for planned construction projects and road closures. They also allow the media to use images from the traffic monitoring cameras.
8	Southern Oregon Visitor's Association kiosks link to TripCheck to provide travelers with information.
9	ODOT notifies RVTD via fax and phone of planned construction projects and road closures.
10	Many regional agencies operate and maintain a public website with traffic information (i.e. construction, road closures) available for the traveling public.
11	Regional agencies would like to see a single website combining traveler information for the Rogue Valley, instead of several different websites hosted by different agencies. Future data and video images will be fed directly into the TripCheck website.
12	Regional agencies inform RVTD of situations and events that may affect bus routes.
13	ODOT receives weather information from the NOAA (National Oceanic and Atmospheric Administration) National Weather Service Medford Weather Forecast Office.
14	Regional agencies control and receive data from their roadside equipment.
15	RVTD plans to provide real-time traveler information on their website.
16	RVTD plans to gather real-time information from buses.

Table 4-6. Traveler Information Roles and Responsibilities Matrix

Agency	Design	Construction/ Implementation	Operational Planning	Operations	Maintenance
ODOT	• Manage ODOT-led traveler information projects • Participate in standardizing message sets for DMS messages • Provide input on regional ATIS projects such as developing a congestion flow map • Design expansion of TripCheck for Rogue Valley regional information	• Lead expansion and upgrade of the highway advisory radio (HAR) system • Participate in live broadcasting of camera images to local television • Provide data for regional implementation of traveler information projects (i.e. provide traffic data for the congestion flow website) • Oversee procurement and installation of additional ITS equipment on Interstate and state highways such as cameras and dynamic message signs	• Lead development of operational plan and interagency agreements for providing traveler information in the Rogue Valley	• Lead operation of current and future traveler information devices on Interstate and state highways except within the City of Medford • Ensure current messages are posted to traveler information dissemination systems such as 511 and highway advisory radio (HAR) • Keep information on traveler information systems current	• Maintain ITS equipment on Interstate and state highways except within the City of Medford • Maintain TripCheck Regional website
Jackson County	• Participate in regional ATIS planning and development	• Provide input on regional implementation of traveler information projects	• Participate in development of operational plan and interagency agreements for providing traveler information in the Rogue Valley	• Post current traveler information such as construction information on regional websites	• Support maintenance of Jackson County website
Regional Traffic Management Agencies: Ashland, Central Point and Medford	• Participate in regional ATIS planning and development	• Provide input on regional implementation of traveler information projects • Provide data for regional implementation of traveler information projects (i.e. provide traffic data for the congestion flow website)	• Participate in the development of operational plan and interagency agreements for providing traveler information in the Rogue Valley	• Post current traveler information such as construction information on regional websites or ITS devices	• Maintain city-owned ITS equipment • Support maintenance of local traveler information websites
RVCOG	• Lead facilitation of regional traveler information planning projects • Participate in regional traveler information design and planning projects	• Provide input on regional implementation of traveler information projects • Provide data for regional implementation of traveler information projects	• Participate in development of operational plan and interagency agreements for providing traveler information in the Rogue Valley		
RVTD	• Manage RVTD-led projects such as automated passenger counts, GPS location and tracking for improved traveler information • Manage RVTD-led projects to provide schedule and real-time transit information to passengers online and at bus stops	• Oversee implementation of transit related ATIS projects • Manage procurement of ITS equipment for transit service	• Participate in development of operational plan and interagency agreements for providing traveler information in the Rogue Valley	• Operate RVTD website • Operate devices to provide real-time transit-related traveler information • Provide information to ODOT's planned Regional Trip Planner website	• Maintain ITS equipment • Maintain RVTD website • Maintain information flow to ODOT's planned Regional Trip Planner website

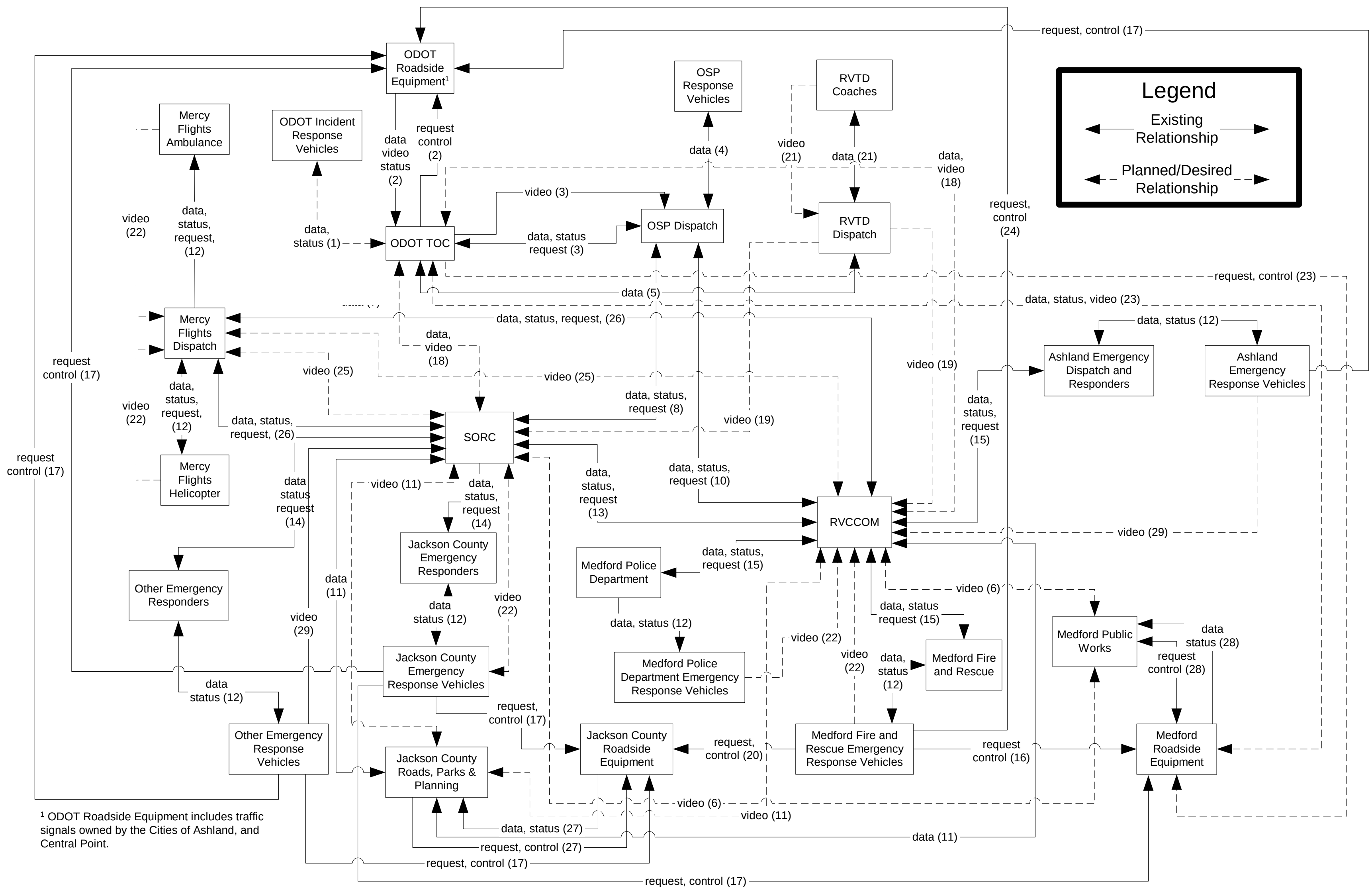
4.3.3 Incident Management

No formal incident management program exists in the Rogue Valley, but Chapter 6 includes a project to develop an incident management program as part of the deployment plan. Currently, several local agencies own equipment such as portable dynamic message signs that are deployed in the event of an incident or major emergency (i.e. flooding). The flow diagram shown in Figure 4-3 indicates the planned agreements for incident management and explanations of each flow are detailed in Table 4-7. The responsibility matrix in Table 4-8 discusses current and future roles and responsibilities.

Table 4-7. Incident Management Flow Table

Line Number	Incident Management: Existing and Planned Information Flows (Line Definitions)
1	The ODOT Traffic Operations Center (TOC) will dispatch incident response vehicles in the future once vehicles have been deployed. Vehicles will report status via radio.
2	The TOC has the ability to control roadside equipment (e.g. dynamic message signs, cameras, highway advisory radio) remotely.
3	OSP Dispatch and ODOT TOC are co-located allowing OSP to receive real-time video images.
4	OSP Dispatch directs OSP response vehicles.
5	The ODOT TOC tries to inform RVTD of incidents that may impact transit service.
6	The City of Medford plans to share video images from their cameras to SORC and RVCCOM.
7	Not used.
8	SORC has a direct phone line to OSP Dispatch for incident information.
9	Not used.
10	RVCCOM calls OSP Dispatch to relay information on incidents.
11	Jackson County Roads, Parks, & Planning sends and receives data from RVCCOM and SORC. If they procure cameras in the future, they will send the images to RVCCOM and SORC.
12	Emergency response vehicles correspond with the various emergency responders.
13	SORC and RVCCOM operate different CAD systems, but automatically share information through a fiber optic connection.
14	SORC dispatches for several emergency responders in the Rogue Valley.
15	Not used.
16	Traffic signals within the City of Medford are pre-emption enabled for fire vehicles only.
17	The majority of Jackson County traffic signals are outfitted with pre-emption for fire vehicles only.
18	SORC and RVCCOM would like to receive real-time data (i.e. video images, congestion information) directly from ODOT's roadside equipment.
19	RVTD would like to share future camera images from buses with SORC and RVCCOM to aid in traffic/incident monitoring.
20	Medford Fire and Rescue vehicles have the ability to pre-empt signals owned by Jackson County.

Line Number	Incident Management: Existing and Planned Information Flows (Line Definitions)
21	RVTD Dispatch corresponds with fleet via cell phone and radio to inform drivers of incidents affecting route/transit service. Future video images from coaches will be transmitted to the RVTD Dispatch center.
22	Emergency response vehicles equipped with cameras will be able to feed images directly to the 911 and/or Dispatch Centers to aid in incident response.
23	The City of Medford and ODOT may pursue an agreement for ODOT to implement pre-programmed signal timing "after hours" when needed for incident management.
24	The majority of ODOT traffic signals are outfitted with pre-emption for fire vehicles only.
25	SORC and RVCCOM would like to receive video images from Mercy Flights Dispatch once it is available.
26	SORC and RVCCOM work closely with Mercy Flights Dispatch.
27	Jackson County will control and operate the pre-emption equipped traffic signals that they own.
28	Medford Public Works control and operate their ITS equipment such as pre-emption equipped traffic signals and future dynamic message signs.
29	Other emergency response vehicles plan on sending video images to SORC.



[1] ODOT Roadside Equipment includes traffic signals owned by the Cities of Ashland, and Central Point.

Figure 4-3. Incident Management Flow Diagram

Table 4-8. Incident Management Roles and Responsibilities Matrix

Agency	Design	Construction/ Implementation	Operational Planning	Operations	Maintenance
ODOT	• Manage development of incident response plan on Interstate and state highways • Manage design of incident response technology on Interstate and state highways	• Provide input on implementation of incident management projects • Lead construction of field devices on Interstate and state highways	• Participate in developing inter-agency agreements for incident management • Participate in defining ODOT's role in regional incident management response	• Operate equipment (such as cameras and dynamic message signs) in incident response situations on Interstate and state highways • Lead operation role for ODOT devices • Secondary role for operations of local agency devices on alternate routes	• Maintain ODOT field equipment on Interstate and state highways
OSP	• Participate in developing incident response plan on interstates and state highways	• Provide input on implementation of incident management projects on interstate and state highways	• Participate in developing inter-agency agreements for incident management • Participate in defining OSP's role in regional incident management response		• Maintain OSP equipment used in incident response
RVTD	• Participate in developing regional incident response plan	• Provide input on implementation of incident management projects	• Participate in developing inter-agency agreements for incident management • Participate in defining RVTD's role in regional incident management response	• Operate vehicle-mounted cameras in the future which may be used to assist in incident response	• Maintain vehicle-mounted cameras in the future which may be used to assist in incident response
RVCOG	• Participate in developing incident response plans such as the I-5 viaduct	• Provide input on implementation of incident management projects	• Provide input in developing inter-agency agreements for incident management		
SORC	• Participate in developing regional incident response plan • Coordinate design with RVCCOM in developing shared interface for CAD	• Provide input on implementation of incident management projects	• Participate in developing inter-agency agreements for incident management • Participate in defining SORC's role in regional incident management response • Coordinate with RVCCOM and ODOT to receive camera images	• Operate SORC CAD equipment • Possibly operate dynamic message signs for the City of Medford in the future	• Maintain SORC CAD equipment
RVCCOM	• Participate in developing regional incident response plan • Coordinate design with SORC in developing shared interface for CAD	• Provide input on implementation of incident management projects	• Participate in developing inter-agency agreements for incident management • Participate in defining RVCCOM's role in regional incident management response • Coordinate with SORC and ODOT to receive camera images	• Operate RVCCOM CAD equipment • Possibly operate dynamic message signs for the City of Medford in the future	• Maintain RVCCOM CAD equipment
Regional Traffic Management Agencies: Jackson Co., Medford, Central Point, and Ashland	• Participate in developing regional incident response plan • Manage design of incident response technology within local jurisdictions	• Provide input on implementation of incident management projects	• Participate in developing inter-agency agreements for incident management	• Coordinate with emergency responders in clearing incidents • Operate equipment to alert travelers of detours or incidents	• Maintain city- and county-owned signal pre-emption equipment
Medford Police Department	• Participate in developing regional incident response plan for the City of Medford	• Provide input on implementation of incident management projects	• Participate in developing inter-agency agreements for incident management	• Operate Medford Police Department emergency response vehicles	• Maintain Medford Police Department equipment used in incident response
Medford Fire and Rescue	• Participate in developing regional incident response plan for the City of Medford	• Provide input on implementation of incident management projects	• Participate in developing inter-agency agreements for incident management • Provide input into the development of signal pre-emption use and policies	• Operate Medford Fire and Rescue vehicles	• Maintain Medford Fire and Rescue equipment used in incident response • Maintain traffic signal pre-emption devices installed on emergency response vehicles
Ashland, Jackson Co., and Other Emergency Responders	• Participate in developing regional incident response plan	• Provide input on implementation of incident management projects	• Participate in developing inter-agency agreements for incident management	• Operate emergency response vehicles within local jurisdictions • Operate technology to assist in incident response	• Maintain equipment used in incident response within local jurisdictions

4.3.4 Public Transportation Management

The Rogue Valley Transportation District (RVTD) provides bus service within the Rogue Valley metropolitan area. The agency also provides bus service during special events such as the County Fair. RVTD plans on updating the fleet, and is acquiring 10 new vehicles. They plan on moving towards more automated systems (i.e. vehicle location, passenger counting) and to deploy real-time customer information displays at transit facilities. A transit signal priority project is planned with the City of Medford and ODOT in the near future and RVTD would like to expand transit signal priority system wide. The flow diagram in Figure 4-4 shows the various relationships for Public Transportation Management, with corresponding flows provided in Table 4-9. The responsibility matrix in Table 4-10 shows the current and future roles and responsibilities of all the interacting agencies.

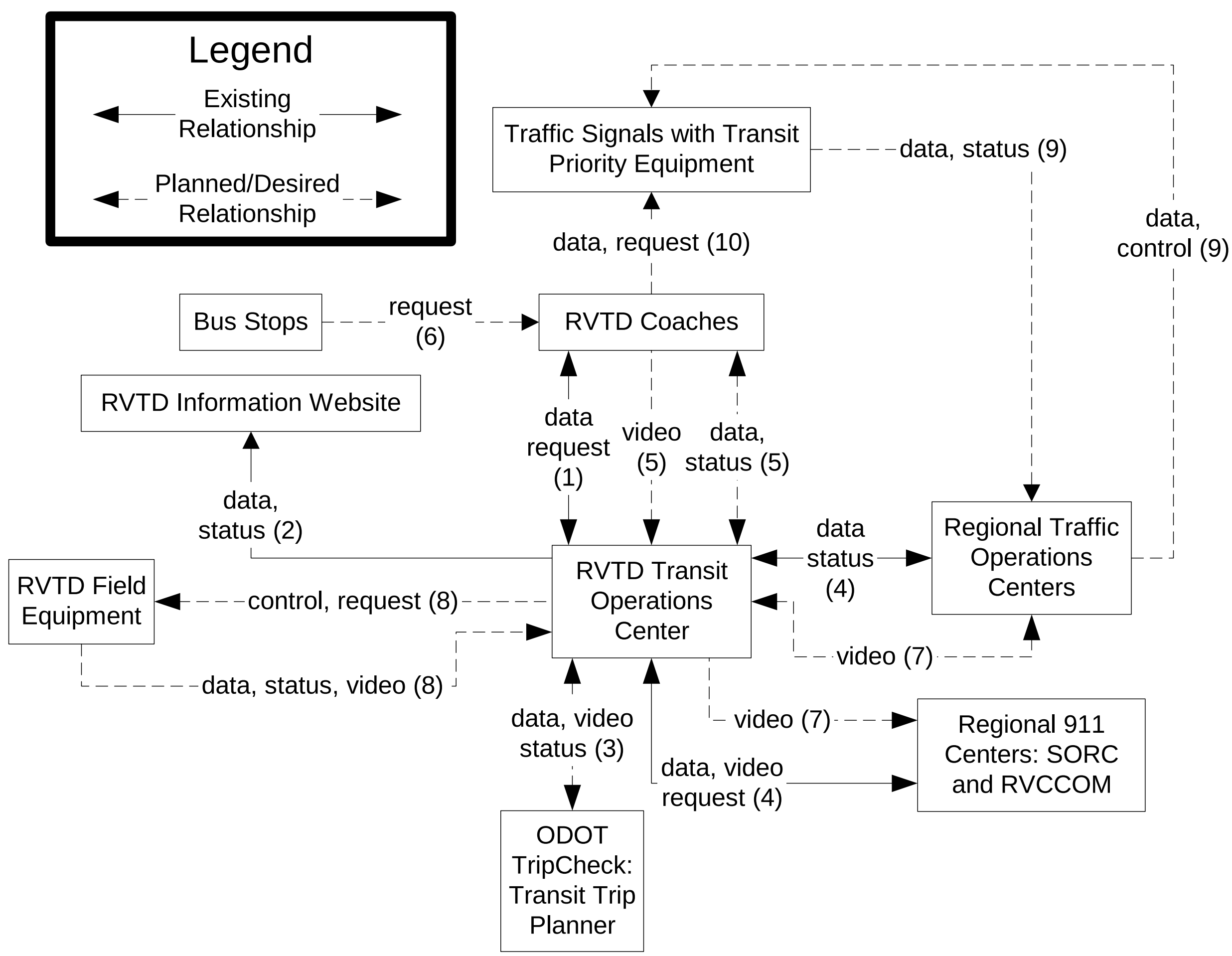


Figure 4-4. Public Transportation Management Flow Diagram

Table 4-9. Public Transportation Management Flow Table

Line Number	Public Transportation Management: Existing and Planned Information Flows (Line Definitions)
1	RVTD Transit Operations Center relays information to buses via phone. Passenger counts are done using the fare box, and download at the end of each day.
2	RVTD operates a traveler information website listing bus schedules. RVTD plans to transmit real-time information from buses to their traveler information website.
3	RVTD plans to transmit real-time information to ODOT's future Transit Trip Planner website.
4	Planned construction projects are faxed to RVTD by regional agencies. Occasionally emergency responders will request RVTD to assist them (i.e. air-conditioned buses for firefighters).
5	RVTD will update its fleet this year and the new coaches will include security monitoring cameras and updated fare boxes. RVTD plans to add other components such as GPS, transit signal priority equipment, and automated passenger counting in the future.
6	RVTD is considering installing "Transit Requested" push buttons at infrequently used bus stops.
7	RVTD may share video images obtained from vehicle-mounted cameras with RVCCOM, SORC and other local agencies.
8	RVTD will maintain and operate their field devices.
9	Regional agencies owning signals equipped with transit priority will control, operate and maintain the traffic signals.
10	RVTD coaches equipped with transit priority equipment will be able to request priority at traffic signals equipped with transit priority devices.

Table 4-10. Public Transportation Management Roles and Responsibilities Matrix

Agency	Design	Construction/ Implementation	Operational Planning	Operations	Maintenance
RVTD	• Participate in expanding transit service to key congested areas • Design automated systems technology for vehicle tracking, automated passenger counting and automated stop announcements • Manage real-time transit information dissemination projects (feeding transit arrival times to bus shelters) • Manage acquisition of AVL/APC/GPS systems • Coordinate with emergency responders to develop a formalized agreement to assist emergency responders	• Participate in acquiring real-time traveler information from ATIS equipment (cameras) • Manage implementation of express service to Southern Oregon University (SOU) • Manage schedule changes to increase frequency, and timeliness of transit • Manage construction of new bus stops and/or transit centers	• Lead development of operational and management for transit • Lead development of transit signal priority operational rules including priority schemes and bus driver responsibilities • Develop transit signal priority operational agreements with agencies who own traffic signals (ODOT, Jackson County, Medford, Central Point, and Ashland)	• Operate AVL/APC/GPS systems • Operate transit signal priority equipped buses • Maintain new bus stops and/or transit centers • Maintain automated passenger counting systems and automated stop announcements • Operate real-time transit dissemination systems	• Maintain AVL/APC/GPS systems • Maintain transit signal priority equipped buses • Maintain new bus stops and/or transit centers • Maintain automated passenger counting systems and automated stop announcements • Maintain real-time transit dissemination systems
Regional Traffic Operations Centers	• Participate in design of multi-modal coordination projects • Participate in expanding mesh network for RVTD use • Participate in expanding transit service to key congested areas	• Manage construction of field devices within municipal jurisdiction	• Participate in the development of transit signal priority rules of operations	• Operate traffic control signals providing transit signal priority	• Maintain transit signal priority equipment within jurisdiction
Emergency Responders			• Participate in developing a formalized agreement for RVTD to assist emergency responders		

4.3.5 Emergency Management

The local 911-dispatch centers, SORC and RVCCOM, provide dispatch services for all of the Rogue Valley. Eventually the region would like to integrate all emergency response vehicles' communication systems in order to coordinate dispatch and emergency management. The City of Medford is deploying a wireless mesh communications network to link Medford Fire and Rescue and the Medford Police Department. Each city within the Rogue Valley metropolitan area activates an Emergency Operations Center (EOC) during major emergencies within their city. For larger emergencies, Jackson County activates the Jackson County EOC, which is co-located with SORC. Figure 4-5 illustrates the information flows related to emergency management.

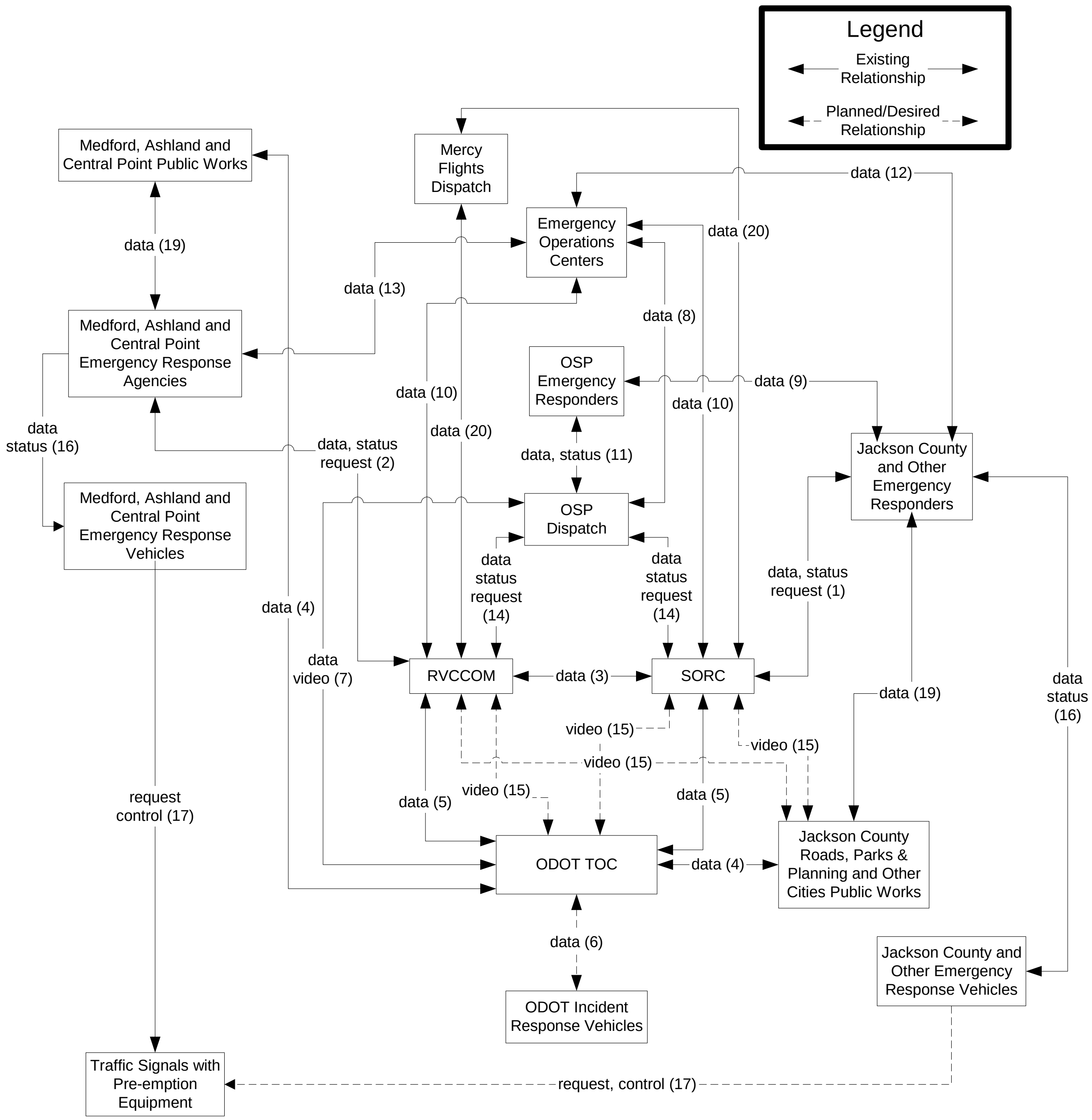


Figure 4-5. Emergency Management Flow Diagram

Table 4-11 includes descriptions of each information flow and Table 4-12 provides details about the roles and responsibilities associated with emergency management.

Table 4-11. Emergency Management Flow Table

Line Number	Emergency Management: Existing and Planned Information Flows (Line Definitions)
1	SORC dispatches emergency responders for Jackson County and numerous other agencies. (See Table 1-5 for a list of the agencies in the metropolitan area.)
2	RVCCOM dispatches for Medford and Ashland emergency responders.
3	RVCCOM and SORC CAD systems interface through a fiber optic connection.
4	Regional transportation management agencies coordinate with the ODOT TOC.
5	RVCCOM and SORC notify the ODOT TOC of emergency events.
6	The ODOT TOC will dispatch planned incident response vehicles.
7	The ODOT TOC and OSP Dispatch are co-located; sharing video and data on much of ODOT's ITS equipment.
8	OSP dispatch coordinates with emergency operations centers to follow protocol during major emergencies or disasters.
9	OSP and Jackson County/Other emergency responders work well together coordinating dispatch for increased efficiency.
10	RVCCOM and SORC communicate with the emergency operations centers to coordinate efforts during a major emergency or disaster. The Jackson County EOC is located at SORC.
11	OSP dispatch relays information to OSP emergency responders.
12	Jackson County/Other emergency responders work with emergency operations centers during major emergencies.
13	Medford and Ashland emergency responders work with emergency operations centers during major emergencies.
14	RVCCOM and SORC communicate with OSP dispatch using a direct phone line to relay information.
15	The ODOT TOC will eventually send real-time video feeds to RVCCOM and SORC and vice versa.
16	Data and communication is relayed between all emergency response vehicles and the emergency response agencies.
17	Numerous fire and rescue vehicles throughout the metropolitan area are equipped with emergency pre-emption devices.
18	Not used.
19	Regional transportation management departments correspond with their respective emergency responders.
20	Mercy Flights coordinates with RVCCOM and SORC.

Table 4-12. Emergency Management Roles and Responsibilities Matrix

Agency	Design	Construction/ Implementation	Operational Planning	Operations	Maintenance
ODOT	• Manage design of real-time video monitoring systems on state highways and Interstate • Participate in sending real-time information to emergency vehicles • Participate in automated exchange of real-time information during major emergencies • Participate in developing/coordinating alternative routes during emergency situations	• Acquire, construct and implement real-time road condition information equipment (HAR, DMS, and RWIS) on Interstates and state highways	• Participate in developing a regional Emergency Response Plan	• Operate ODOT equipment used in emergency response situations such as detour and/or road closure signs on Interstate and state highways • Work with local jurisdictions in implementing alternative routes from Interstate and state highways during emergency situations	• Maintain ODOT equipment used in emergency response situations
Emergency Operations Centers	• Participate in design of automated, real-time data exchange interfaces for use during major emergencies	• Implement technology to receive real-time information	• Participate in developing a regional Emergency Response Plan	• Operate real-time information systems	• Maintain real-time information systems
OSP	• Participate in emergency response related projects • Lead Amber Alert projects	• Assist as needed in the implementation of road condition information equipment (HAR, DMS, 511, and TripCheck) on Interstates and state highways	• Participate in developing a regional Emergency Response Plan	• Assist in operating equipment used in emergency response situations such as detour / road closure signs on the Interstate • Assist in coordinating alternative routes during emergency situations	
Regional Traffic Management Agencies: Jackson County, Medford, Central Point, and Ashland	• Participate in design of projects for use in emergency management situations on major roadways within the local jurisdiction • Participate in the design of real-time data exchange interfaces for use in emergency situations.	• Participate in updating emergency pre-emption signals • Manage acquisition of real-time video monitoring systems on city and county roads	• Participate in developing a regional Emergency Response Plan	• Operate city- or county-owned equipment used in emergency response situations such as detour and/or road closure signs	• Maintain city- or county-owned equipment used in emergency response situations such as detour and/or road closure signs
SORC	• Provide input into the design of regional emergency management projects • Coordinate design of CAD-related projects	• Implement SORC-owned emergency management technology	• Participate in developing a regional Emergency Response Plan • Participate in developing a working relationship with Mercy Flights	• Operate dispatch equipment and coordinate with local responders in emergency situations	• Maintain SORC-owned emergency management equipment
RVCCOM	• Provide input into the design of regional emergency management projects • Coordinate design of CAD-related projects	• Implement RVCCOM-owned emergency management technology	• Participate in developing a regional Emergency Response Plan • Participate in developing a working relationship with Mercy Flights	• Operate dispatch equipment and coordinate with local responders in emergency situations	• Maintain RVCCOM-owned emergency management equipment
Emergency Responders	• Manage design of MDT's in all emergency response vehicles • Participate in the design of regional emergency management projects	• Implement technology to receive real-time information and disseminate to emergency response vehicles	• Participate in developing a regional Emergency Response Plan	• Participate in developing/coordinating alternative routes during emergency situations	• Maintain real-time information systems

4.3.6 Information Management

Many agencies in the Rogue Valley currently share and archive traffic and transportation related data. This data is not readily accessible electronically. The main desire of the region is to create a regional data repository that will centralize access and information sharing. The flow diagram (Figure 4-6) shows agencies sending and receiving data stored in a regional repository and Table 4-13 describes these flows. Ideally this would mean information collected from each agency is stored in a primary location (RVCOG) for all other agencies to receive, or an organized virtual data warehouse. Eventually all data archived in the regional repository will comply to the National ITS Architecture standards. Table 4-14 provides a summary of the information management roles and responsibilities.

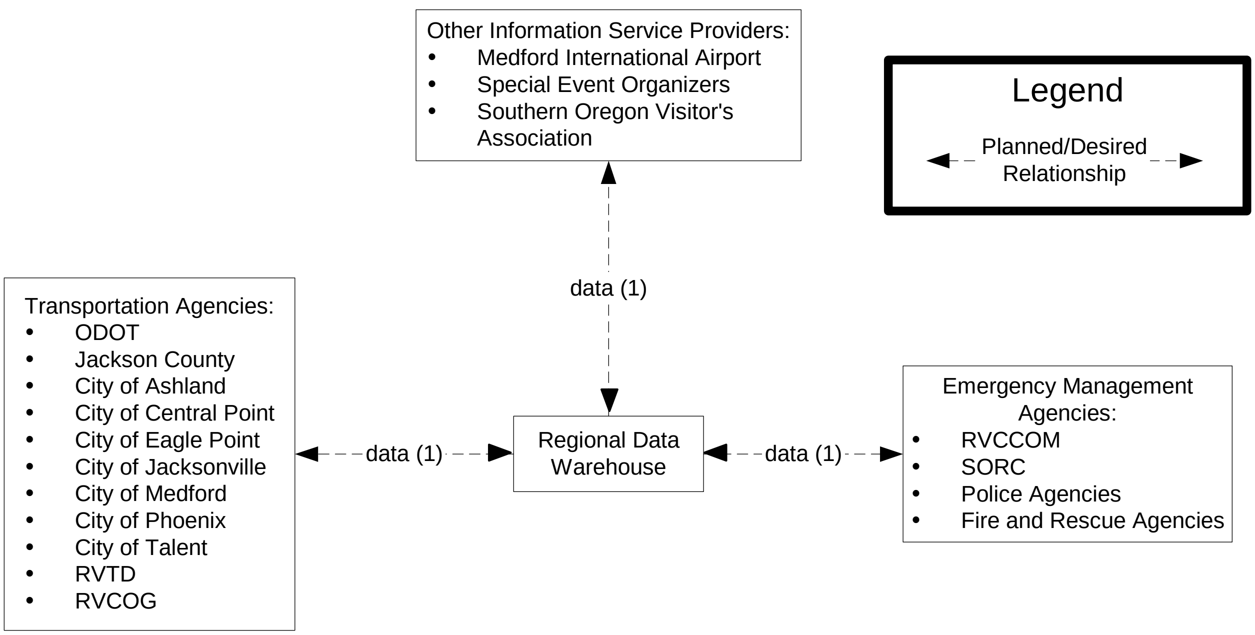


Figure 4-6. Information Management Flow Diagram

Table 4-13. Information Management Flow Table

Line Number	Information Management: Existing and Planned Information Flows (Line Definitions)
1	Agencies within the Rogue Valley will provide data to the future regional data warehouse and will have the ability to retrieve data from the warehouse.

Table 4-14. Information Management Roles and Responsibilities Matrix

Agency	Design	Construction/ Implementation	Operational Planning	Operations	Maintenance
Transportation Agencies: Jackson County, Cities of Ashland, Central Point, Eagle Point, Jacksonville, Medford, Phoenix, and Talent	• Manage design and acquisition of automated data collection devices within jurisdiction • Participate in developing regional data warehouse • Manage National ITS standards compliance within agency	• Manage implementation of National ITS standards within each agency • Manage implementation of agency ITS equipment	• Participate in developing operational plan for collection and retrieval of data	• Operate agency-owned ITS equipment for automated data collection	• Maintain agency-owned ITS equipment for automated data collection
ODOT	• Participate in developing regional data warehouse • Manage National ITS standards compliance within ODOT	• Manage implementation of National ITS standards within ODOT	• Participate in developing operational plan for collection and retrieval of data • Manage coordination between ODOT and CalTrans	• Operate ODOT-owned ITS equipment for automated data collection	• Maintain ODOT-owned ITS equipment for automated data collection
RVTD	• Manage National ITS standards compliance within RVTD • Participate in developing regional data warehouse	• Manage implementation of National ITS standards within RVTD	• Participate in developing operational plan for collection and retrieval of data	• Operate RVTD-owned ITS equipment for automated data collection	• Maintain RVTD-owned ITS equipment for automated data collection
Emergency Management Agencies	• Manage National ITS standards compliance within OSP • Participate in integration of CAD Systems • Participate in developing regional data warehouse	• Manage implementation of National ITS standards within each agency	• Participate in developing operational plan for collection and retrieval of data	•	•
RVCOG	• Lead design of regional data warehouse • Manage National ITS standards compliance within region • Manage web based archive of current and historical transportation data and regional documentation	• Lead the implementation and development of regional data warehouse	• Lead develop of operational plan for collection and retrieval of data from regional data warehouse	• Operate regional data warehouse • Operate web-based archiving • Participate in archiving data	• Maintain web-based archiving • Maintain regional data warehouse

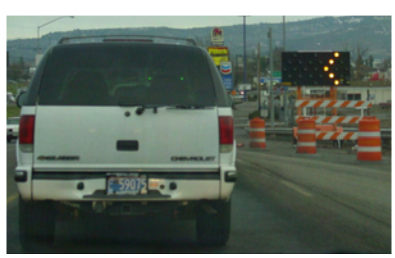
4.3.7 Maintenance & Construction Management

This program area focuses on the deployment of ITS to assist with maintenance and construction activities in the Rogue Valley. For example, RWIS is implemented by transportation agencies to gather point specific weather and pavement data. This data is used by public works personnel for planning and scheduling plowing, paving or construction tasks. Many agencies within the Rogue Valley send press releases, and fax construction schedules to the media and various agencies (i.e. RVTD, SORC, and RVCCOM) as well as hosting a website containing current construction and maintenance information. The flow diagram depicted in Figure 4-7 shows the various relationships for maintenance and construction management, with associated flows described in Table 4-15. Future or planned relationships are shown by a dotted line, and current relationships are shown with a solid line. The responsibility matrix in Table 4-16 shows the current and planned roles and responsibilities of all the interacting agencies.

Table 4-15. Maintenance & Construction Management Flow Table

Line Number	Maintenance & Construction Management: Existing and Planned Information Flows (Line Definitions)
1	ODOT and Jackson County share construction and maintenance schedules and services (i.e. Jackson County and ODOT share a sign crew).
2	Regional transportation management agencies inform RVTD of construction and maintenance plans.
3	ODOT and the Cities of Central Point and Ashland share construction and maintenance information.
4	Regional Transportation and Public Works Agencies prepare press releases for the media.
5	ODOT uses ITS equipment to improve work zone safety and reduce speeds.
6	Emergency responders would like to use ODOT ITS equipment to coordinate enforcement through work zones to improve safety and reduce speed violations.
7	Regional transportation management agencies inform emergency responders of construction plans.
8	The City of Medford uses their roadside equipment to improve work zone safety and reduce speeds.

Inside a Walk-In DMS



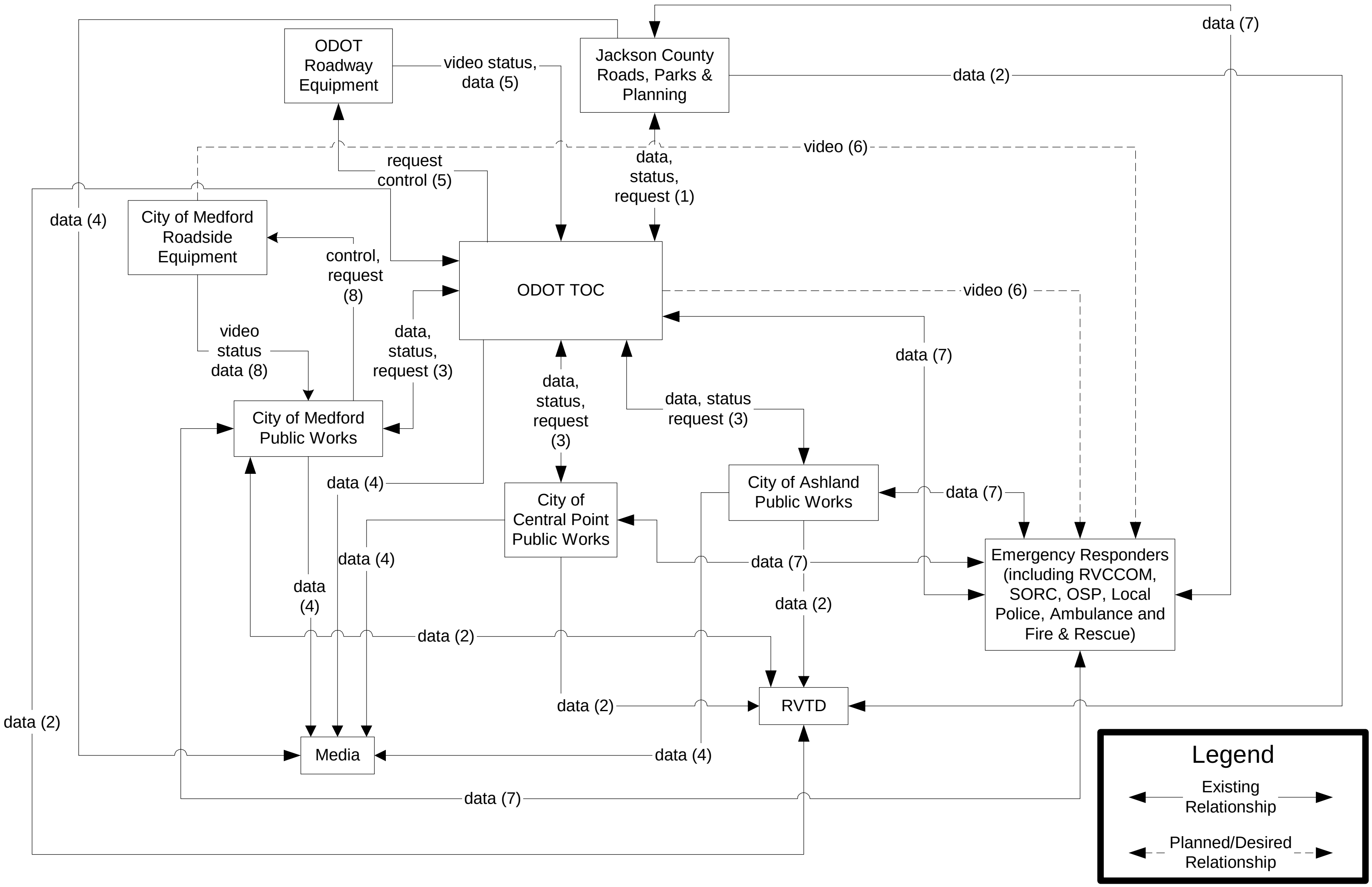


Figure 4-7. Maintenance & Construction Management Flow Diagram

Table 4-16. Maintenance & Construction Management Roles and Responsibilities Matrix

Agency	Design	Construction/ Implementation	Operational Planning	Operations	Maintenance
ODOT	• Lead design of construction and maintenance projects on Interstate and state highways	• Implement ITS equipment to improve safety within work zones • Implement ITS equipment (i.e. dynamic message signs, and speed trailers) to reduce speed in work zones	• Participate in coordination of construction and maintenance plans • Inform other agencies of construction and maintenance plans	• Operate portable and fixed equipment on Interstate and state routes	• Maintain portable and fixed equipment on Interstate and state routes
Transportation Management Agencies: Medford, Ashland, Central Point and Jackson County	• Lead design of construction and/or maintenance projects within the city and county limits	• Implement ITS equipment to improve safety within work zones • Manage acquisition of ITS equipment to improve safety in work zones	• Participate in coordination of construction and maintenance plans • Inform other agencies of construction and maintenance plans	• Operate portable and fixed ITS equipment on city and county routes	• Maintain portable and fixed ITS equipment on city and county routes
RVTD	• Participate in meetings for large scale construction and maintenance within the region		• Participate in coordination of construction and maintenance plans • Manage transit detours around work zones		
Emergency Responders	• Participate in meetings for large scale construction and maintenance within the region	• Continue enforcement of speed limits within work zones • Manage acquisition of ITS equipment to enforce speeds within work zones	• Participate in coordination of construction and maintenance plans • Work with transportation agencies to develop strategies for monitoring safety and speed enforcement within work zones	• Assist in operating ITS equipment with local agencies	

Oregon Department of Transportation

Rogue Valley Intelligent Transportation Systems

Chapter 5: Communication Requirements

5.1 INTRODUCTION

This chapter outlines a communication plan for the Rogue Valley metropolitan region that will support transportation requirements for data and video transmission.

The basic purpose of the communication network is to provide the communication links between various end points on the network (e.g. field devices and centers). These end points are distributed across the region and can include everything from a camera to a central traffic signal system server to a 911 call center.

The communication network defined in this chapter will support communication required for ITS deployment between selected points in the region as identified in the deployment plan (Chapter 6). It will provide a backbone communication system, as well as a distribution network to reach the individual devices or control locations.

5.1.1 Methodology for Developing Rogue Valley Communication Plan

The methodology used to develop this communication plan follows a bottom-up approach. The analysis begins with a definition of the current communication requirements as the base, then overlays the future requirements and proposed technologies that should be supported. Based on the defined communication requirements (current and potential), a communication model for the entire network is developed. This model establishes the general configuration of the communication network and the basic protocols that will be supported.

The final stage of the communication plan development determines how the plan is applied to the actual deployment of the communication network, e.g. how is the implementation phased.

The communication plan should be considered a living document that is updated on a regular basis, as the communication needs change, to follow improvements in technology, and to reflect the implementation of various portions of the network.

5.1.2 Communication Plan Guidelines

A number of guiding principles have been used in the development of this communication plan. These principles must also be considered during the detailed design:

- **Reliability**: The system must provide a high level of reliability, achieved through the use of components with a high mean time between failures (MTBF), combined with a redundancy in the network design.

- **Growth**: The network must be expected to grow gracefully. This requires the incorporation of a reasonable amount of unused capacity and a design approach that allows extra capacity to be provided by upgrading the transmission equipment.
- **Standards**: Communication protocols and component selection must use widely accepted standards that minimize ongoing operations and maintenance costs.
- **Flexibility**: The network configuration must be designed to maximize flexibility to accommodate future changes, rearrangements and equipment changes.
- **Decentralized**: As the network supports several agencies, it must be configured around several centers of control, and allow the control location to be changed according to current needs.

5.1.3 Application of the Communication Plan

This chapter defines a high-level planning approach to ITS communication for the Rogue Valley metropolitan region. This plan provides the guidelines to be used in the development of the detailed design for each section of the communication network. As the opportunity arises to construct a section of the network (through funding or provision of facilities by a third party), the detailed design for that section will be completed.

The regional plan addresses the configuration and implementation approach, but it does not determine exact routing, equipment selection and capacities. These aspects of the communication network are best finalized during detailed design as a section of the network is implemented, allowing the most up to date requirements to be incorporated in sizing, and current transmission equipment to be selected. In municipal networks, cost effective facility routing and equipment locations can be selected if the implementation considers the plans for road reconstruction and construction or renovation of buildings that can be used for communication equipment.

The approach summarized in the following three subsections is recommended for each detailed design:

5.1.3.1 Pre-Design Planning Review

Before the start of the detailed design, typically at the same time as the documents are prepared to seek budget funding for the design, a brief pre-design planning review should be prepared. This document should typically be no more than two pages and should address the following topics:

- Key elements of the design that are required by the communication plan. These should include provisions for future growth and for geographic areas beyond the scope of a particular detailed design.
- Aspects of the design that will not follow the communication plan, with justification for these changes.

The purpose of the pre-design planning review is to ensure that the concepts and principles of the communication plan are considered in the detailed design. For example, if a road is being reconstructed, and it is known to be on a planned backbone communication route, this approach will ensure that the detailed design (even if it is only a small section of the ultimate backbone) provides for the future needs. These provisions could accommodate the future capacity with the initial installation or provide conduit and equipment mounting space for future installation.

5.1.3.2 Final Planning Review

After the completion of the detailed design of the specific network segment, the pre-design planning review should be finalized to include any changes that have been made during the detailed design. The final planning review should document any provisions made in the detailed design to support the communication plan (for instance, spare capacity, routing or configuration considerations). It should also justify deviations that have been made to the communication plan.

An important aspect of the final planning review is to identify if there is a need to update the master communication plan, either in whole, or in part.

5.1.3.3 Communication Plan Updates

As sections of the network are implemented, and as technology and communication requirements change, the communication plan should be updated as required. At any given time, the "current" communication plan should consist of the plan itself, and any planning reviews that have been conducted. A current list should be maintained with the communication plan, and updated as required.

5.2 EXISTING COMMUNICATION INFRASTRUCTURE

Chapter 1: Current & Future Transportation Conditions includes a section on existing communication infrastructure. This section identifies existing equipment and infrastructure that is owned and maintained by ODOT and the City of Medford. This existing infrastructure is illustrated in Figure 5-1 and summarized in this section.

In addition to the existing infrastructure, each agency was asked about their near-term plans and future vision for communications—independent of the new requirements defined in this regional ITS planning effort. The results of these discussions are included in this section as well.

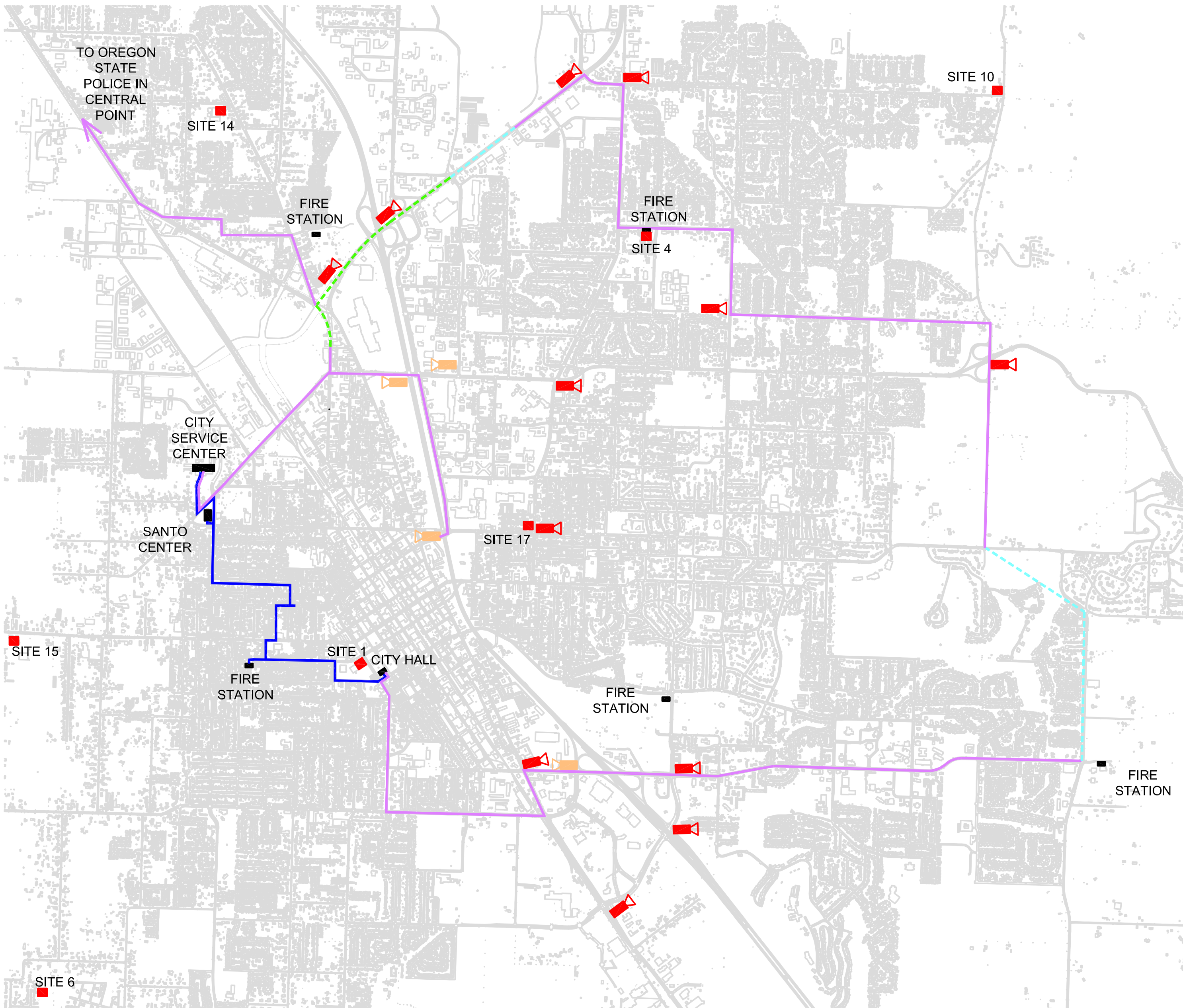
5.2.1 City of Medford Fiber Optic Ring

The City of Medford is currently designing a 48-strand fiber optic ring for use by City departments, the Oregon Department of Transportation and possibly other Rogue Valley stakeholders. Figure 5-1 illustrates the fiber route under design.

When constructed, the City of Medford fiber ring will be used for field-to-TOC communications as well as center-to-center communications between ODOT, Medford and other Rogue Valley ITS stakeholders desiring communications with Medford or ODOT. The current 48-strand fiber optic cable is intended to support other entities besides the ITS program. Current fiber requirements include the City of Medford's Information Systems department with 12 strands, the City of Medford's Public Works department with 24 strands and ODOT with 12 strands.

DKS Associates
TRANSPORTATION SOLUTIONS
1400 SW Fifth Avenue, Suite 500
Portland, Oregon 97201-5502
Telephone: (503) 243-3500
Fax: (503) 243-1934

N
NOT TO SCALE



LEGEND

- TS DEPARTMENT PROJECT
- PHASE 1 AERIAL
- PHASE 1 UNDERGROUND
- ODOT UNDERGROUND
- EXISTING CAMERA
- PLANNED CAMERA
- TS DEPARTMENT SITES

Figure 5-1
Planned City of Medford Fiber Optic Ring Route

5.2.2 City of Medford Copper Twisted Pair Network

All but two of the City of Medford's 108 signalized intersections are directly connected to the City Service Center (CSC) at 821 North Columbus Avenue. A total of 77 traffic signals are provisioned two City-owned copper twisted pairs while 29 traffic signals are connected to the CSC with dial-up phone lines leased from Qwest. The remaining two traffic signals do not have any communication media at this time. Figure 5-3 illustrates the existing copper twisted pair network.

With direct connectivity to 71 percent of the City's signalized intersections over agency-owned copper twisted pair, the existing City-owned copper twisted pair plant provides an excellent foundation for future ITS deployment in the City of Medford if some of the existing pairs can be freed up. The current central signal system, BI-Trans QuicNet/4.1, utilizes two pairs of twisted copper per communications channel (one pair for transmit and one pair for receive) and therefore utilizes all of the twisted pair capacity. As a result, the existing copper infrastructure cannot currently support additional ITS field devices without a modification to the network configuration.

5.2.3 City of Medford Wireless Network

The City of Medford Police Department is currently designing a wireless Ethernet network that will provide coverage throughout the entire City. Using equipment from Mesh Networks, this network will provide up to 1.5 Mbps of bandwidth to mobile data terminals equipped in police and emergency response vehicles.

While the exact network configuration is still under design, the Medford Police Department has indicated a willingness to make this license-free 2.4 gigahertz (GHz) network available for intelligent transportation system purposes. ITS devices such as CCTV cameras, dynamic message signs, and Ethernet compatible traffic controllers can be outfitted with modems that are fully compliant with IEEE 802 Ethernet standards. Figure 5-2 provides a high level, conceptual illustration of how Mesh Networks' equipment could be employed for intelligent transportation system applications.

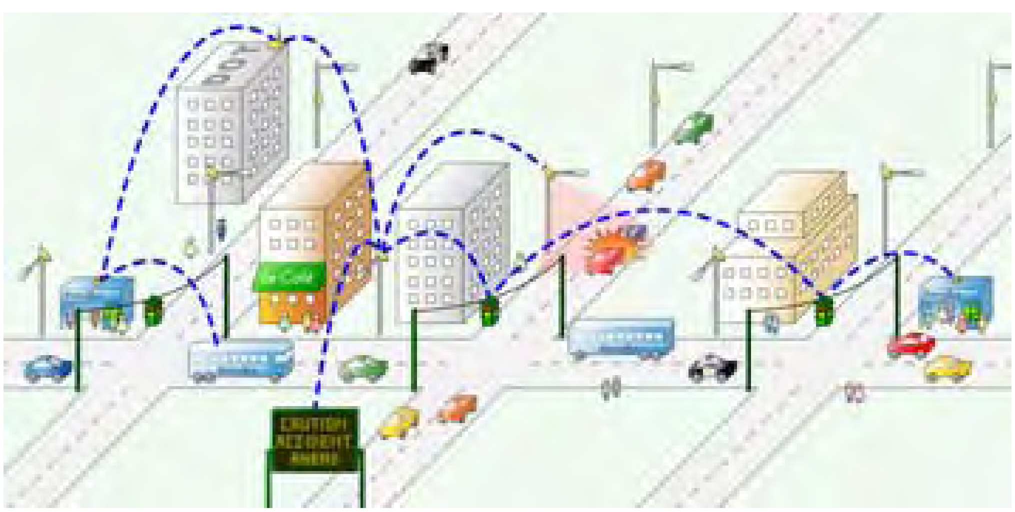
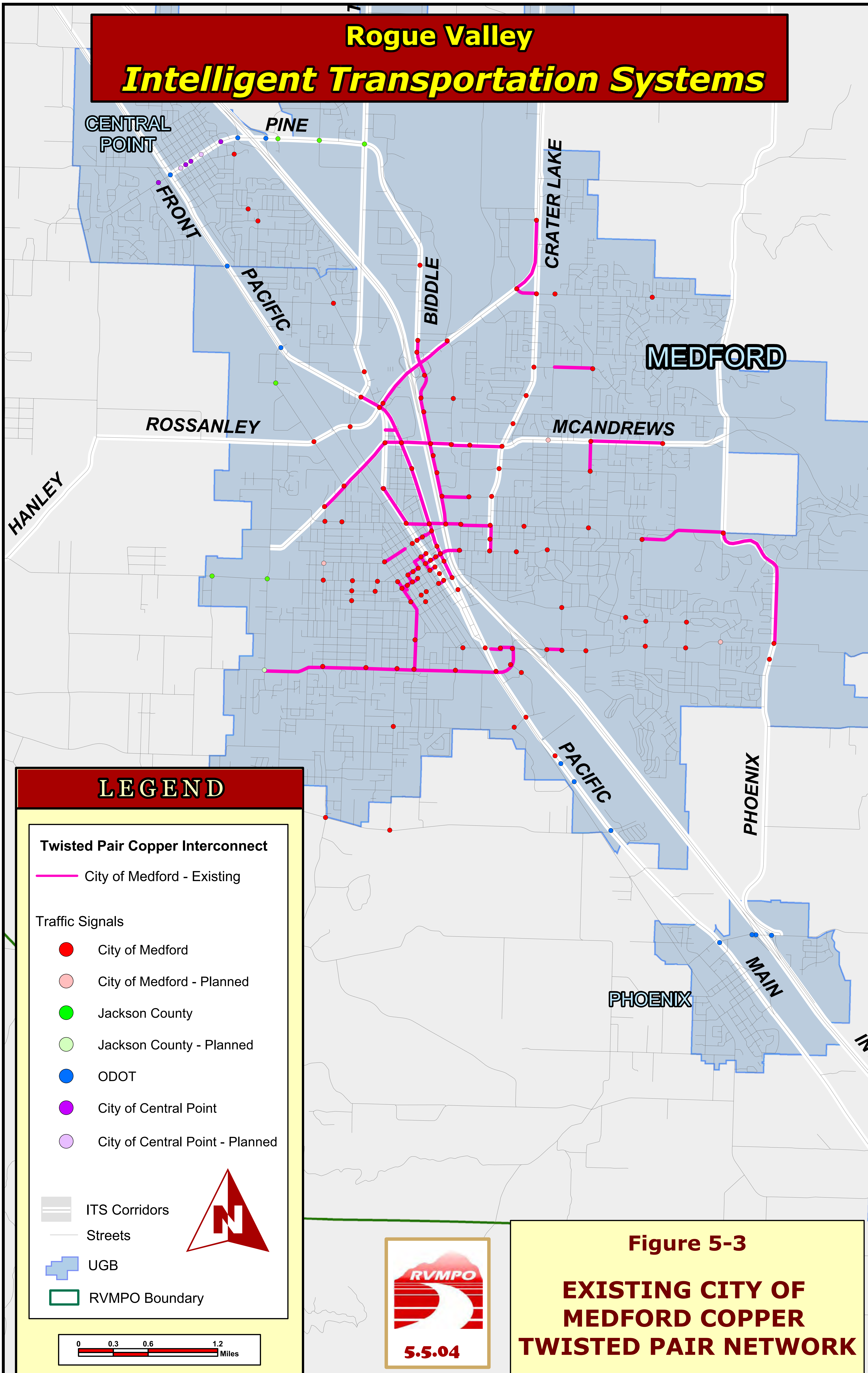


Figure 5-2. Conceptual Wireless ITS Network Topology

Rogue Valley
Intelligent Transportation Systems



LEGEND

Twisted Pair Copper Interconnect
- City of Medford - Existing

Traffic Signals
- City of Medford
- City of Medford - Planned
- Jackson County
- Jackson County - Planned
- ODOT
- City of Central Point
- City of Central Point - Planned

- ITS Corridors
- Streets
- UGB
- RVMPO Boundary

0 0.3 0.6 1.2 Miles

RVMPO
5.5.04

Figure 5-3

EXISTING CITY OF MEDFORD COPPER TWISTED PAIR NETWORK

This network is a good candidate to replace the leased 64K dial-up lines currently used at 29 signalized traffic intersections as well as provide connectivity to all other ITS field devices that do not have direct access to the fiber optic ring or copper twisted pair. Compared to deploying HDSL through a private telecommunication provider, wireless Ethernet access on a City-owned network would most likely be easier to implement.

5.2.4 Ashland Fiber Network

The City of Ashland has established multiple fiber optic rings throughout the City. Additionally, the Ashland Fiber Network (AFN) shares a 48-strand fiber optic trunk line with Hunter Communications/Core Digital Services with a direct connection to Hunter Communications' headend facility at 801 Enterprise Drive in Central Point. The network is currently used to provide cable television and broadband access to residential, commercial and government customers, this network is capable of providing 3 Mbps bandwidth to each service point. Although detailed network configuration data was not made available, informal discussions with Richard Holbo of Ashland Fiber Network and Chris Cahill of Core Digital Services indicated that AFN has enough spare fiber capacity within the City of Ashland to support any ITS field device deployed. Core Digital Services indicated a willingness negotiate a cooperative agreement for sharing fiber optic cable. Leased line rate information will be provided by Core Digital Services upon receipt of detailed design plans from the Rogue Valley MPO stakeholders.

5.2.5 Oregon Department of Transportation Network Infrastructure

ODOT has minimal existing communication infrastructure in the Rogue Valley metropolitan area at this time. All of the 45 traffic signals maintained by ODOT operate independently. ODOT is currently assisting the City of Medford with the fiber optic ring project that will include a fiber optic connection to the existing ODOT cameras on Interstate 5 at McAndrews Road and at Jackson Street. Additionally, ODOT is installing fiber optic cable on Crater Lake Highway between Riverside Avenue and Poplar Drive to provide access to CCTV cameras at the Interstate 5/Crater Lake Highway interchange. The City of Medford and ODOT currently have plans to share Medford's fiber optic ring.

5.2.6 Jackson County Table Rock Road

Jackson County currently plans to install empty conduit along Table Rock Road from Antelope Road in White City to Biddle Road in Medford. Once installed with fiber optic cable, Table Rock Road would provide connectivity for the Jackson County Road, Parks, and Planning Department.

5.3 COMMUNICATION REQUIREMENTS

This section considers the end devices and centers to be supported on the network and the associated requirements for local communication facilities. All of these devices and centers, considered as a group, form the communication requirements for the region, which must be supported by the communication network. Figure 5-4 illustrates the existing and planned ITS devices (from agency interviews) as well as the proposed ITS devices that are identified in this regional ITS planning effort and discussed in more detail in Chapter 6.

Rogue Valley
Intelligent Transportation Systems

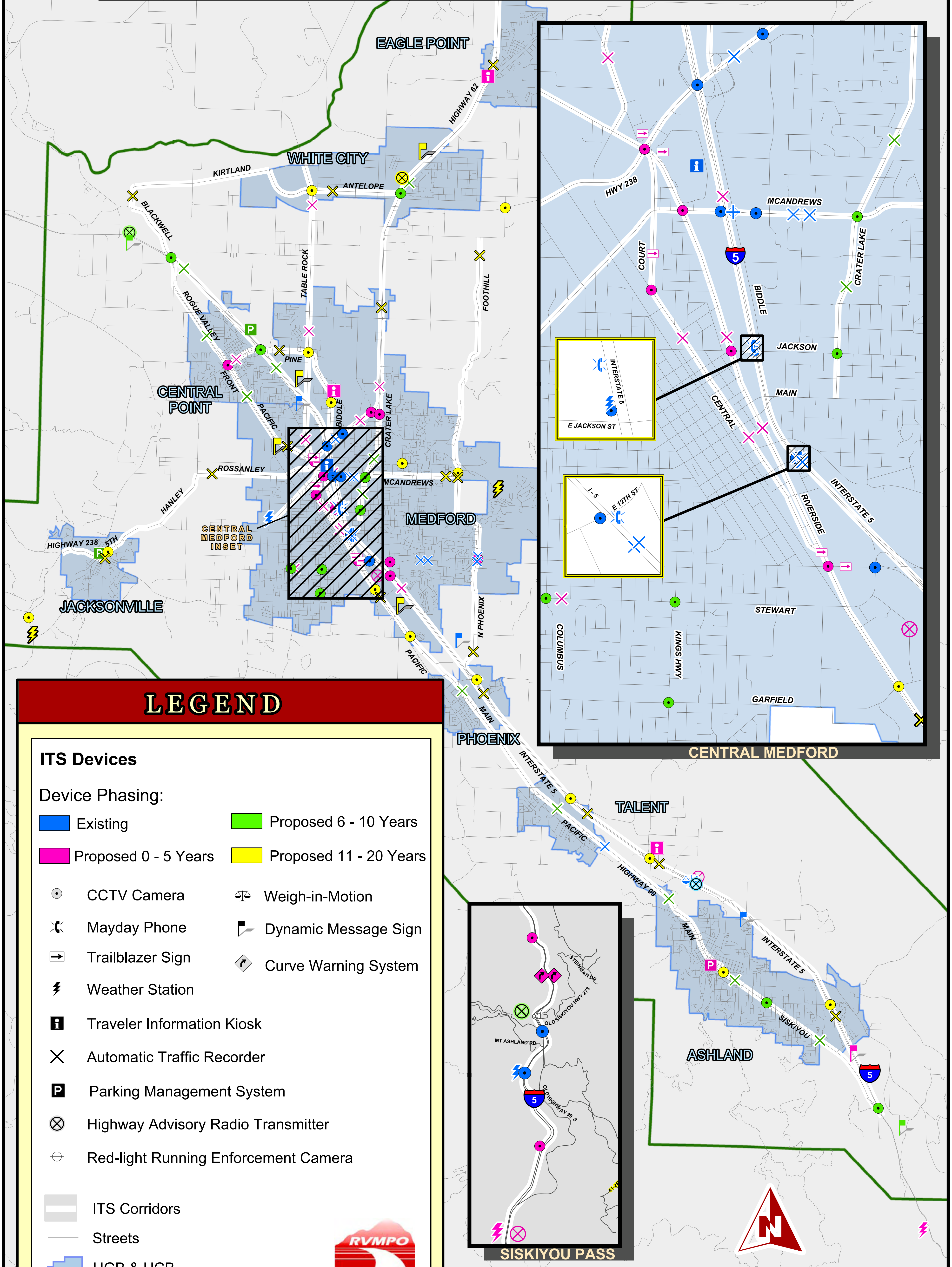


Figure 5-4

ITS DEPLOYMENT PLAN FOR 2004-2024

5.3.1 Requirements for Existing and Planned Devices

The network must be designed to support the various communication needs of the region; now, in the near future and for the long term. This section describes the current and future requirements for communication that the network must accommodate, including the planned devices identified in the deployment plan.

The detailed design of any section of the network should support all current requirements, and provide for future requirements. Where the exact deployment of the planned equipment is not finalized, or in those cases where there is a significant incremental cost, the provision for these future requirements may be limited to the following:

- Installation of appropriate cable sizes, or the installation of underground conduit for future cable installation
- Sizing of equipment enclosures, cabinets, and facility rooms to accommodate the future requirements
- Sizing provisions for power to include the load for future equipment
- Choice of transmission systems that will allow modular expansion to support the anticipated future requirements

5.3.1.1 Traffic Signals

Traffic signals in the region are operated by three separate agencies as shown in Table 5-1. It is important to note that the City of Medford operates all but four signals located within their City limits. Of the 45 signals operated and maintained by ODOT, 34 are ODOT-owned, 4 are Central Point-owned and 7 are Ashland-owned. Additionally, ODOT maintains the 8 signals owned and operated by Jackson County.

Table 5-1. Regional Traffic Signals

Agency	Number of Signals Operated	Controller Types	Software	Communication
City of Medford	108	170	BI-Trans with QuicNet 4.1 Central Software	106 of 108 signals are directly connected to the BI-Trans server using copper twisted pair or leased dial-up phone lines.
ODOT	45	170	Wapiti W4IKS	None
Jackson County	8	170	Wapiti W4IKS	None
TOTAL	161			

<u>Current Requirements</u>

The City of Medford is the only agency in the Rogue Valley that currently has remote communications to their traffic signals. Their current network configuration uses two twisted pairs per communication channel to directly connect the QuicNet central computer at the City Service Center to the traffic signal controllers. Each channel (two pairs) can support up to seven traffic signal controllers as shown in Figure 5-5. QuicNet is a central/distributed signal system that provides the City with full upload and download capabilities and a visual display of local intersection status. The QuicNet central computer does not directly control the local traffic signals, but it does allow remote access to the local traffic signal controllers for status information and upload/download capabilities. Communication to the local controller is accomplished using EIA/TIA-232 communication, commonly referred to by its original name, RS-232.

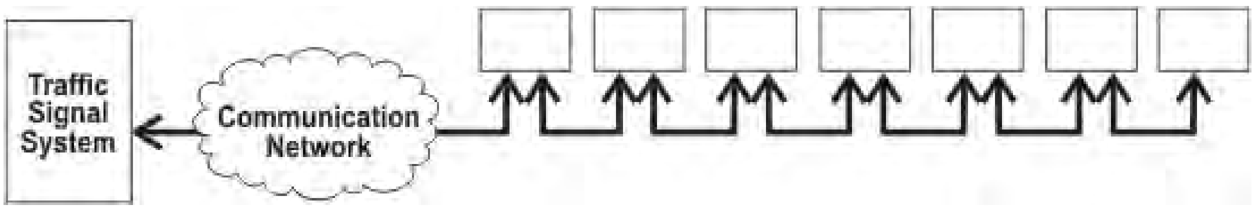


Figure 5-5. Traffic Signal Communication

Future Requirements
Several years from now it is likely that Jackson County and ODOT will have remote access to traffic signals via a central traffic signal system. In addition, traffic signal controllers will likely be upgraded to advanced transportation controllers (ATC) to support future functionality such as direct IP communication to the controller, higher speed upload/download capability, advanced signal control features such as transit signal priority and more intelligent recovery methods after signal preemption. The future ATC controllers will likely support the National Transportation Communications for ITS Protocol (NTCIP) and allow the agencies to install software from a variety of vendors on the same hardware platform. The data loading is dependant on the manufacturer's implementation of the protocol, but many of the ATC controllers today support communications up to 57.6 kbps today. Therefore, 57.6 kbps is a good basis for network design considering the current signal controllers communicate at 1200 bps.

Communication Provisions
The communication protocols used by traffic signal controllers can be supported by a variety of communication media including fiber optics, twisted pair, wireless or a combination of the three. The communication design should provide for two fibers for each group of six controllers, connected in series. The change from seven controllers per channel to five plus one spare will support additional overhead required for NTCIP.

It may be advantageous for the City of Medford to reorganize their controller communications into groups as the fiber optic trunk line is constructed. This measure could allow the City to reroute existing copper twisted pairs to communication hubs in order to ensure all signals have direct or indirect access to the fiber optic trunk line. Signals that are not on a current fiber path may be connected to this path using the existing twisted pair cable as required, or the wireless mesh network where appropriate. In either case, fibers should be reserved in the main fiber ring to accommodate those additional signals in the future.

For communication to the traffic signals that do not have existing copper signal interconnect, DKS Associates recommends either rerouting existing copper twisted pair to communication hubs on the fiber ring or provide access via the Medford Wireless Network.

Detailed design should anticipate additional intersections that may be installed. Where additional signals are likely, the number of signalized intersections sharing a common channel should be reduced to allow for future signalized intersections.

5.3.1.2 Transit Vehicle Signal Priority

Transit signal priority is an ITS technology that extends the green phase of a traffic signal to accommodate transit vehicles that are behind schedule. Although there are no transit signal priority systems currently deployed in the Rogue Valley, the Rogue Valley Transportation District (RVTD), ODOT, and the City of Medford plan to implement transit signal priority at two traffic signals on Highway 62 as part of the upcoming reconstruction of the North Medford Interchange. The deployment plan also includes a transit signal priority project to implement transit signal priority along all RVTD transit routes.

Future Requirements

Most transit signal priority systems use local communication between a roadside sensor and the traffic signal controller. The roadside sensor identifies the location of a transit vehicle and may provide signal priority as required.

In some municipalities a more centralized monitoring approach has been used, where the locations of the transit vehicles are tracked, and the signal priorities are changed systemwide in response to the congestion experienced by these vehicles. Such systems require automatic vehicle location technology for transit vehicles with frequent communications (up to second-by-second) between the transit vehicles and the central transit system. They also require fast, reliable communication and a near-real-time traffic signal control system.

Communication Provisions

Wireless mesh or radio are the two most likely candidates for the vehicle location information. Communications between the vehicle and the traffic signal will depend on the technology selected for the region, but will be a dedicated short range communication (DSRC) technology that will be deployed on an intersection by intersection basis. The DSRC will not affect the overall communication network design.

5.3.1.3 CCTV Video

CCTV monitoring requires transmission of a video signal, as well as a data channel for camera control. Camera control, pan/tilt/zoom (PTZ) and focus, is carried on an RS-232, RS-422 or RS-485 data channel, which can be digitized in an internet protocol (IP) video stream or carried as a separate low speed data channel.

Current Requirements

Today, video signals from the existing cameras are transmitted to the ODOT TOC in Central Point via leased lines. ODOT uses a video switch at the TOC to select the analog camera images to monitors located in the center. Currently ODOT has four CCTV cameras on Interstate 5, primarily on the viaduct through Medford. The City of Medford has two CCTV cameras for monitoring: one on McAndrews Road to the east of Interstate 5 and one on Barnett Road just west of Interstate 5. ODOT posts images from existing cameras on the TripCheck website while the City of Medford does not currently provide their video images on the Internet.

Future Requirements

Two additional cameras are being constructed as part of the North Medford Interchange project (one at the SB off ramp and one at Poplar Drive on Highway 62). The existing ODOT cameras on I-5 at McAndrews and Jackson Street are currently being connected to the Medford fiber optic ring. Cameras are also planned as part of the South Medford Interchange project. Additional CCTV cameras are included in the deployment plan (Chapter 6), and regional agencies would like to share camera images between agencies within the region and post them on the Internet. The analog video signals interfaced at a typical control center are shown in Figure 5-6.

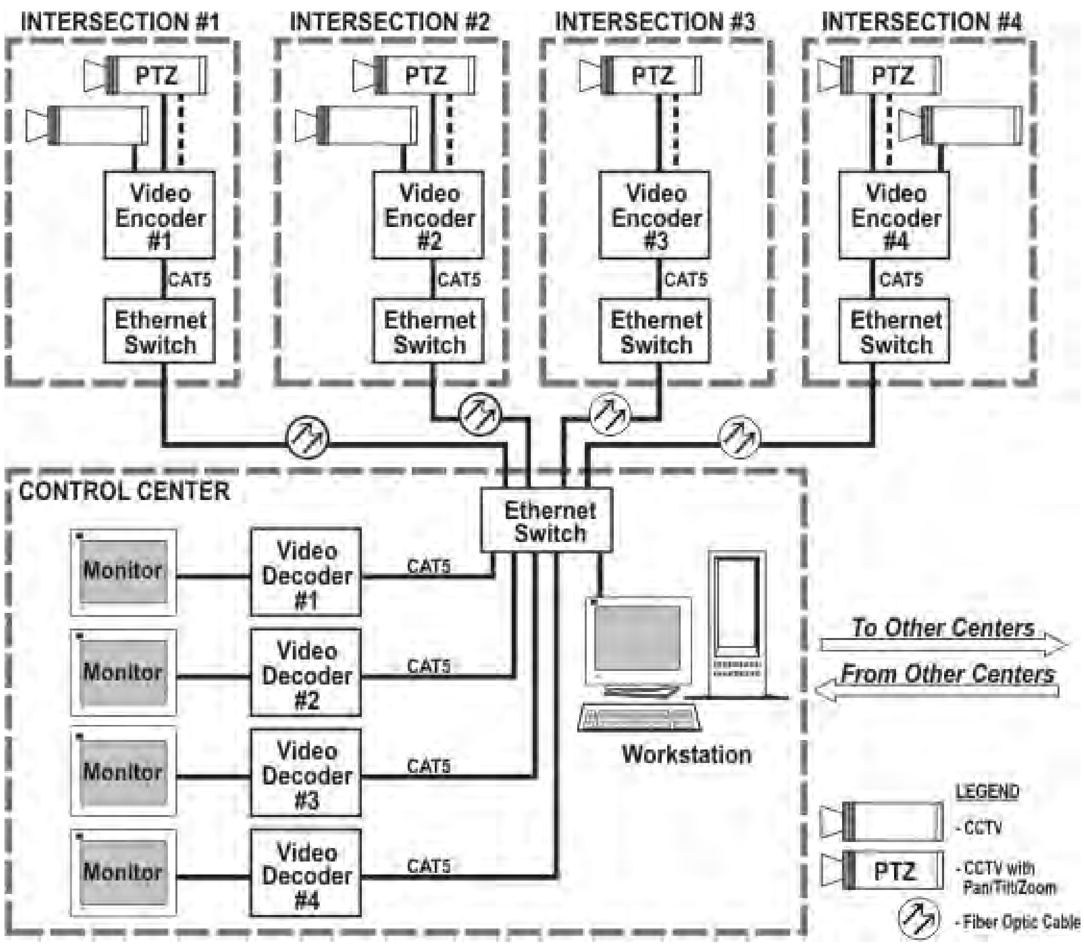


Figure 5-6. CCTV Video

Communication Provisions

CCTV video can be carried as an analog or digitized signal. The camera control channel can be transmitted as either serial data or be included in the TCP/IP data stream with the digital video. There are several methods available to transmit the video, but digital IP video is recommended because it provides the most flexible network design for sharing video with other agencies and the Internet. DKS recommends providing two fiber strands at every camera site. One fiber strand would be used for an Ethernet link supporting the video encoding and camera control requirements. The second fiber strand would be reserved for future requirements.

5.3.1.4 Automatic Traffic Recorders

Automatic traffic recorders (ATR) are used to collect traffic volume, speed and occupancy data at a given location, typically upstream from a signalized intersection.

Current Requirements

The City of Medford operates three wireless traffic counters and ODOT operates three ATR stations in the project area. ODOT's ATR stations consist of inductive loops that are directly connected to a 170 controller housed in a cabinet. Medford's ATR stations include weather information and communicate wirelessly to the traffic signal.

Future Requirements

The deployment plan (Chapter 6) includes additional ATR deployments to monitor critical traffic congestion points and collect traffic volume and speed data for future planning and congestion information mapping.

Communication Provisions

The data requirements of automatic traffic recorders can be supported with copper twisted pair, fiber optic cable or a dial-up phone line. Often these devices communicate directly with a traffic signal controller, and the fiber strands or copper pairs provisioned for a traffic signal controller will also support the automatic traffic recorders. In the case of a stand-alone automatic traffic recorder, the data could be connected to the Ethernet network if it is near a communications hub. For remote ATR's, leased dial-up phone lines are adequate.

5.3.1.5 Weather Stations (RWIS)

Weather stations, also called roadway weather information systems (RWIS), are used to collect and monitor weather and road conditions that are pertinent to motorists and to maintenance personnel responsible for the roadway operations. Typically weather stations collect temperature, wind speed, wind direction, humidity and road surface temperature.

Current Requirements

ODOT currently operates and maintains one weather station in the Rogue Valley metropolitan area on the Interstate 5 viaduct at milepost 28.94. Information from this station is posted on TripCheck for traveler information.

Future Requirements

Several additional RWIS locations have been identified as part of the deployment plan (Chapter 6).

Communication Provisions

The data requirements of a typical RWIS station can be supported with either copper twisted pair or fiber optic cable. ODOT's RWIS stations support TCP/IP for Ethernet networks and serial line internet protocol (SLIP) for RS-232 serial data over 56 kbps dial-up. Both configurations can be converted to fiber. However, if CCTV cameras are desired at the weather station, then fiber optic cable is the recommended transmission medium. Specifically, two fiber strands are needed per RWIS location (one to support the RWIS and a spare for redundancy). In the event the proposed RWIS locations are remote and less than 10,000 feet from the fiber ring, then CCTV video and RWIS data could be transported over copper twisted pair using HDSL technology deployed as part of the ITS network. For locations farther than 10,000 feet from the fiber ring a leased line from a private sector telecommunication provider may be necessary.

5.3.1.6 Dynamic Message Signs (DMS)

A dynamic message sign (DMS) is an electronic sign used to post messages that are variable (any message) or changeable (one of several fixed messages). Traffic management personnel typically use DMS to apprise motorists of changes in the local road conditions.

Current Requirements

Currently ODOT operates and maintains three DMS in the Rogue Valley metropolitan area along Interstate 5. ODOT currently communicates with these signs using Point to Multi-Point Protocol (PMPP)/Point to Point Protocol (PPP) through 56K leased dial-up phone lines.

Future Requirements

ODOT plans to install one additional DMS unit on southbound Interstate 5 near Ashland and the deployment plan (Chapter 6) includes additional DMS's throughout the region. ODOT's new DMS installations are NTCIP compliant and user configurable for 56K dial-up and UDP/IP over Ethernet. Communication requirements are similar to the traffic signal controllers, and several signs may share a single serial data communication channel depending on device location.

Communication Provisions

Two fibers are sufficient for a DMS sign channel. DKS recommends providing two fiber strands at each DMS location (one to support the DMS unit and the other for redundancy).

5.3.1.7 Highway Advisory Radio (HAR)

The purpose of HAR is to provide supplemental information to motorists about traffic advisories, construction and maintenance operations, adverse weather or environmental conditions, route diversions and special events. HAR uses low-power roadside transmitters that operate in AM or FM frequencies licensed by the Federal Communications Commission (FCC). The typical operating range on a HAR transmitter is two miles although ODOT has achieved ranges of up to six miles in some instances. HAR is not intended to replace required permanent signs or temporary signs used for construction or maintenance operations. Local agencies wishing to establish a HAR site must apply to the Oregon State Traffic Engineer. Following approval by the state, ODOT subsequently applies to the FCC for permission to operate in the AM or FM frequency spectrum.

Current Requirements

ODOT currently operates and maintains a single HAR system on Interstate 5 near Ashland that has an approximate range of two miles. This system is near the end of its useful life and is planned to be replaced in the Summer 2004.

Future Requirements

Additional HAR sites are planned to provide additional travel advisory information in advance of key interchanges. The deployment plan (Chapter 6) includes additional detail about this project.

Communication Provisions
HAR systems are currently being introduced to the market that will allow traffic management personnel to alter or replace HAR broadcast messages remotely from a traffic management center or other remote location using TCP/IP protocols. DKS Associates recommends provisioning two fiber strands per HAR location to support this capability. If the HAR site is remote, a leased phone line is adequate.

5.3.1.8 Red-Light Running Enforcement Cameras

Red-light running enforcement cameras take several photographs of red-light violators including shots of the driver and license plate and transmit those photos to a central computer for issuance of a traffic warning or violation.

Current Requirements
The City of Medford Police Department (MPD) contracts with a private entity to operate the red-light running enforcement cameras.

Future Requirements
MPD plans to expand the system to another eight locations in the next 1-2 years. The City of Medford Police Department currently outsources operation and maintenance of these devices to a private company. MPD has no plans to alter this arrangement.

Communication Provisions
No additional communication provisions are necessary to support field deployment of the red-light running enforcement cameras. The anticipated operations of these devices will continue to be managed by a private entity.

5.3.1.9 Weigh-in-Motion (WIM) Systems

Weigh-in-motion systems allow large trucks to bypass traditional weigh stations by reporting their weight electronically at highway speeds. Loop detectors in the pavement activate a computer that accepts weight data from scales, space measurements from axle sensors and height readings from an over-height detector. An electronic reader activates a transponder placed in the truck's windshield and sends a unique acquisition signal to a computer deployed at the roadside weigh station. The roadside computer receives all the data and checks the state records for registration, weight declaration, tax status and safety inspections. In less than a second, the driver is signaled to stop or go. ODOT has coined their weigh-in-motion systems as Oregon Green Light because of the green light provided by transponders when trucks are cleared to bypass the weigh station. Figure 5-7 illustrates a typical ODOT "Green Light" weigh-in-motion deployment.

Current Requirements
ODOT owns all weigh-in-motion stations throughout the state. In the Rogue Valley there are two stations located on Interstate 5 north of Ashland.

Future Requirements
No additional weigh-in-motion systems are planned for the region.

Communication Provisions

Future communication to the existing weigh stations could be provided via two fiber strands. The communications would support the exchange of data between the roadside computer located at the weigh station and the central computer located at the ODOT Port of Entry (POE) near Ashland.

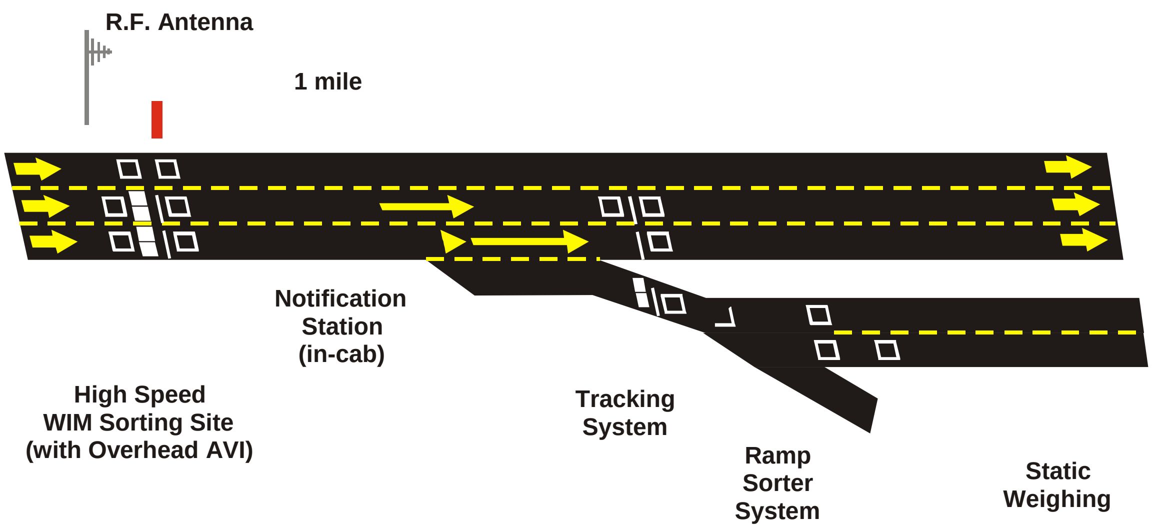


Figure 5-7. Weigh-in-Motion Deployment

5.3.2 Center-to-Center Requirements

A communication link must be provided between key regional centers that plan to share video and data. The following centers in the Rogue Valley metropolitan area should be interconnected: transportation management centers, transportation maintenance centers, transit management centers, emergency operations centers (EOC's), and 911 centers. Figure 1-2 illustrates the locations of these centers.

Future Requirements

Although there are no plans to develop formal transportation operations centers other than the existing ODOT Region 3 Transportation Operations Center (TOC), other agency locations should be considered as centers and served with appropriate center-to-center communication links because the information sharing requirements will be the same. Agencies without the physical space designated to a TOC will utilize workstations to provide similar functionality (viewing video, processing information and responding accordingly). Communication links throughout the network, including Center-to-Center and Center-to-Field links, should conform to National Transportation Communications for ITS Protocol (NTCIP) standards. NTCIP is a family of standards that provides both the rules for communicating (called protocols) and the vocabulary (called objects) necessary to allow electronic traffic control equipment from different manufacturers to operate with each other. The NTCIP Standards Framework is divided into five levels – Information, Application, Transport, Subnetwork and Plant. In addition to defining the data protocols and objects common to the ITS industry, the five NTCIP levels incorporate the seven layers of the Open System Interconnection (OSI) model used to standardize the protocols included in networking equipment found in the Information Technology industry. A brief description of each NTCIP level is provided below.

- Information Level – Information standards define the meaning of data and messages and generally deal with transportation related data as opposed to data concerning the communications network. This level is not part of the OSI model.
- Application Level – Application standards define the rules and procedures for exchanging information data. The rules may include definitions of proper grammar and syntax of a single statement, as well as the sequence of allowed statements. Protocols found in this level include FTP, SNMP and STMP. These standards are roughly equivalent to the Session, Presentation and Application layers of the OSI model.
- Transport Level – Transport standards define the rules and procedures for exchanging the Application data between point "A' and point "X" on the network, including any necessary routing, message assembly/disassembly and network management functions. Protocols found in this level include TCP/IP, and UDP/IP. These standards are roughly equivalent to the Transport and Network layers of the OSI model.
- Subnetwork Level – Subnetwork standards define the rules and procedures for exchanging data between two adjacent devices over some communications media. Protocols found in this level include ATM, Ethernet, SONET, PMPP and PPP. These standards are roughly equivalent to the Data Link and Physical layers of the OSI model.
- Plant Level –The plant level includes the communication infrastructure over which NTCIP communications standards are to be used. Physical media included in this level includes fiber optic cable, coaxial cable, copper twisted pair cable, and wireless communications.

Communication Provisions

During detailed design, six fibers should be included in the main fiber runs to accommodate each center-to-center link.

5.4 COMMUNICATION NETWORK ARCHITECTURE

In order to select a network architecture that is best suited to the needs of the region, it is important to consider the available options. This section describes the possible configurations and communication protocols at a higher level, including brief consideration of the strengths and weaknesses of each option.

A typical communication network is divided into the following three basic elements, as shown in Figure 5-8:

- **Backbone**: The communication backbone is capable of carrying all types of the data traffic in the system. The backbone interconnects a number of nodes, which are central locations where the information can be inserted onto or removed from the backbone.
- **Distribution**: The distribution portion of the network provides a connection between the backbone node and a group of ITS devices or buildings. In the case of fiber optic cable, the distribution portion typically has fewer fiber strands compared to backbone

portions. Distribution electronics are commonly collocated with the backbone node equipment in a communication hub.[1]

- **Local**: The local portion of the network or "drop" that connects an end device or building to a distribution cable or directly to a node on a backbone. For fiber optic networks, local portions typically have fewer fiber strands compared to distribution portions. For example, a hypothetical ITS network could have a 96 strand fiber backbone with 12 strand distribution cables that allocate two fiber strands for each traffic controller cabinet.

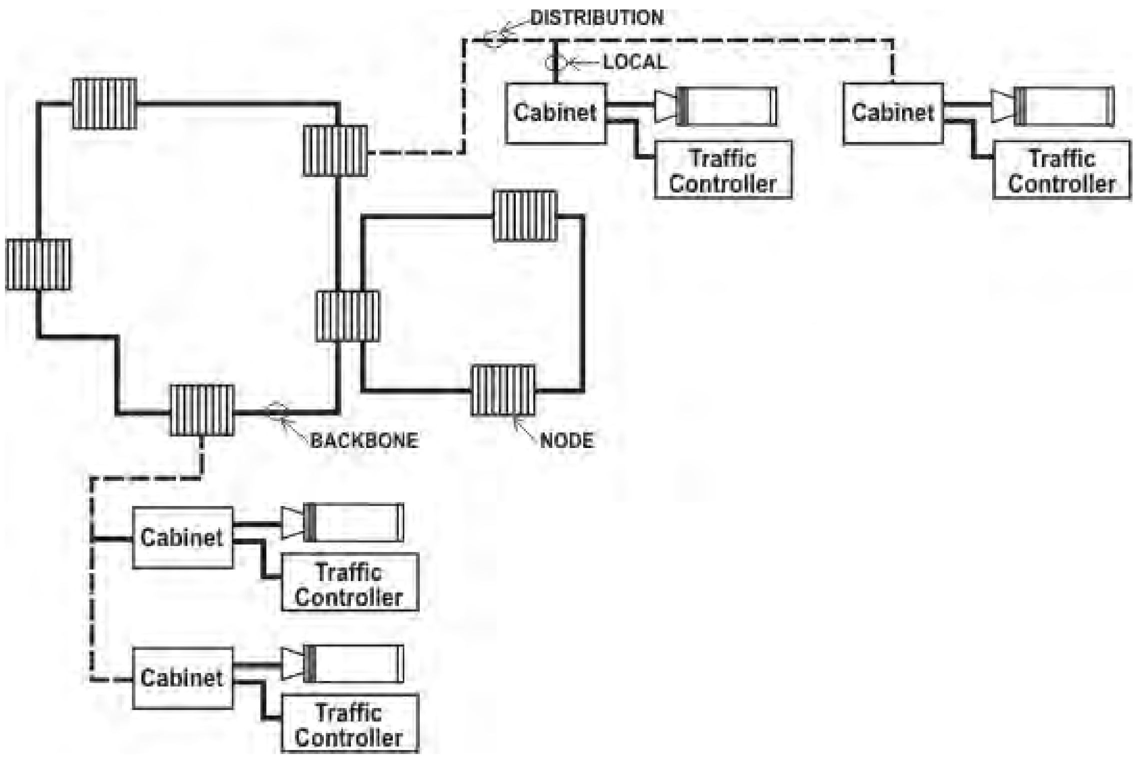


Figure 5-8. Communication Network Elements

The network must be designed to support data and video requirements to a wide variety of locations throughout the region. With particular types of communication equipment the video can also be converted to a data stream and carried on a common transmission medium, but for planning purposes it is typically more flexible to consider two independent networks:

- **Data:** The communication network to carry the data signals will consist of a high-speed backbone and local distribution that will feed the individual signals to the backbone.
- **Video**: The video network will carry single video channels and multi-channel video signals, generally to a control center. Single channel video will typically be carried in the distribution network, and video on the backbone usually combines a number of video signals into one multi-channel video signal.

[1] For the purposes of this document, the terms node and hub may be considered interchangeable.

There are a number of aspects of any network architecture that need to be considered:

- **Communication Technology Options – Plant Level:** At the outside plant level, the network architecture considers the links between elements in the network. There are a number of technologies that can be used to connect locations on the network, either cables or wireless links.
- **Physical Topologies:** The devices, centers and other facilities on a communication network can be connected in a number of different physical configurations or topologies, including star, ring, and/or mesh networks.
- **Backbone Communications Technology Options – Sub-network Level:** A key aspect of the network architecture is the type of transmission system used in the backbone to interconnect network nodes. Examples include ATM, SONET and Gigabit Ethernet (GigE) technologies. In newly constructed networks generally a single backbone transmission system is selected for the entire network.
- **Distribution Communication Technology Options – Sub-network Level:** There are a number of communication technologies that should be supported by the architecture for distribution systems such as Ethernet, RS-232/485, or propriety. Although it reduces complexity to minimize the number of distribution technologies, it is better not to design physical facilities that limit the use of a wide range of technologies.

5.4.1 Communication Technology Options – Plant Level

The plant level considers the physical plant used to interconnect points on the network. In traditional networks this would include the cable (fiber or twisted pair) between devices, but in recent years, the introduction of wireless technologies has also allowed wireless equipment to provide a plant level link. This section summarizes plant level options.

5.4.1.1 Twisted Pair

Twisted pair cable was the original physical plant used for communication networks. The widespread use of this technology by the telephone companies has resulted in robust cables that require little maintenance when installed correctly.

The most significant drawback of twisted pair plant is the narrow bandwidth it can provide. Although compression techniques have greatly improved data speed, they are still generally limited to low speed data unless costly multiplexing equipment is utilized.

Outside the City of Medford the traffic signals run independently, so an established twisted pair network does not exist. The City of Medford has a good quality twisted pair network that operates the traffic signal system. In many cases it may be feasible to intercept the twisted pair cables with the fiber optic distribution cable and connect ITS devices that are not located on the backbone or distribution routes using the existing twisted pair cables.

Utilization of the twisted pair plant in this manner could provide a cost effective method of serving some local, low data devices. It would also reduce the overall length of the twisted pair route, improving transmission quality. Utilizing existing twisted pair cable to communicate with low data devices can also decrease edge communication equipment costs, because many low data devices require costly intermediate equipment to transfer between fiber and their native communication protocol. All of these issues should be analyzed during detailed design of specific network segments.

5.4.1.2 Coaxial Cable

Coaxial cables were introduced to provide increased bandwidth and are still widely used to carry broadband video services by the cable television industry. In intelligent transportation systems they are used typically to make video connections where the cable is 500 feet or less in length, which does not require any transmission equipment.

Although coaxial cables can be used to transport video images for greater distances, the transmission of baseband video signals required in ITS networks is much more efficiently carried on fiber optic cable.

5.4.1.3 Fiber

Fiber optic cable has become the preferred choice of physical plant installations for ITS networks. Fiber optic systems can carry very large bandwidth on a single fiber, and cost effective transmission systems are available for CCTV video signals. Fiber has the advantage of low signal loss, allowing signals to be carried large distances without repeaters. Equipment is available that can carry a signal with any of the protocols described in this document between any two points in the region without repeaters. In recent years the cost of fiber optic cable has decreased, and it costs far less than a twisted pair of equivalent capacity.

5.4.1.4 Wireless

As the road allowances have become increasingly congested with cable plant, wireless systems have increased in suitability. Recent developments are making these systems more cost effective and increasing the bandwidth that they can carry.

Many options exist for low speed systems that do not require FCC licensing to operate. These systems typically operate in the 900MHz, 2.4GHz and most recently 5.8GHz frequency bands and employ Frequency Hopping Spread Spectrum techniques where the transmitter and receiver rapidly switch frequencies that allow other users to occupy the same frequency band without interference.[2] While license free systems frequently offer a relatively inexpensive and simplified deployment compared to licensed frequency systems, the popularity of the license free frequency band has saturated the 900 MHz and 2.4GHz bands. In the last few years significant research and development efforts have been made by telecommunication equipment manufacturers to provide wireless broadband access over licensed and license-free frequencies. This effort has intensified with the issuance of the

---

[2] Spread Spectrum is a data transmission modulation technique by which the transmitted signal is spread over a bandwidth wider than the information bandwidth. Spread Spectrum radio communications was developed originally used by the military because the radiated signals are distributed over a wider range of frequencies and then collected onto their original frequency at the receiver making them difficult to jam or intercept. Spread Spectrum frequency bands are designated by the FCC and require no user license. Currently three license free Spread Spectrum frequency bands have been assigned by the FCC – 902 MHz to 928 MHz, 2.4 GHz to 2.4835 GHz and 5.725 GHz to 5.85 GHz. There are two Spread Spectrum transmission techniques – Frequency Hopping and Direct Sequence. Frequency Hopping Spread Spectrum is a technique by which the frequency band is divided into a number of channels and the transmission hops from channel to channel in a pre-specified sequence. Direct Sequence Spread Spectrum is a technique by which the transmitted signal is spread over a particular frequency range.

IEEE 802.16, which addressed standards for manufacturing Ethernet compliant wireless metropolitan area networking devices.

When compared to the high cost of cable installation, wireless systems are a viable option. It is expected that they can provide the greatest cost benefit for low speed links in congested areas, and could be considered for short haul communication to ITS devices.

5.4.1.5 Leased Lines

Another plant level option is to lease communication services from a third party. Leased links require ongoing monthly charges, but do not require a large capital outlay to have installed. They are often used effectively to serve remote devices where it would be too costly to install a dedicated cable.

As a point of reference, a leased T-1 line can often run anywhere from $500/month to over a $1,000/month, with a DS-3 often running approximately 10 times this amount. However, these costs can vary drastically from region to region and between service providers, and should be verified during detailed design.

5.4.1.6 Leased Fiber

Fiber can be leased from telecommunication providers in the region. Unused fibers contained in cables owned by the private sector telecommunications provider can be segregated and leased exclusively for ITS use.

Although leased fibers incur monthly charges, they provide the full benefit of the fiber optic cable without the capital construction costs. Utilization of leased fiber may be particularly advantageous for phased network implementation, with the leased segments being replaced by new construction as network deployment proceeds.

5.4.2 Physical Topologies

There are a number of physical topologies that can be used to interconnect locations on a communication network. This section introduces some example network topologies, including star, ring, mesh, and hybrid.

5.4.2.1 Star

Star configurations refer to a topology where each device has one connection to a central point as shown in Figure 5-9. Also called a "home run," these links provide the sole communication path from the device to any other point in the network. This approach is often used in distribution networks, where each device has a single channel back to a node on the backbone. Local links are typically star configurations, as well, between the distribution cable and the end device.

With some systems, more than one device can share a channel. If these devices are served in series (as illustrated in Figure 5-9) they can be called a multidropped star, where a number of devices share one communication path.

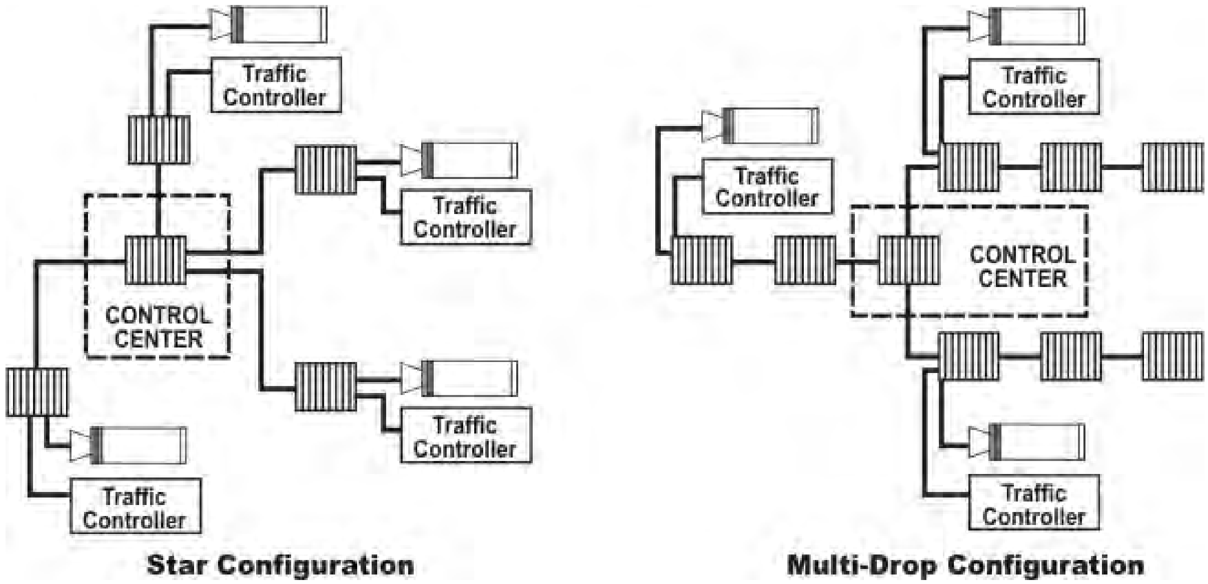


Figure 5-9. Generic Star and Multidrop Configuration

5.4.2.2 Ring

Ring configurations connect a number of devices or locations in a ring. This approach is often used in backbone networks that connect a number of nodes together as shown in Figure 5-8. Each node has two connections: primary and secondary. In this configuration illustrated in Figure 5-10, the failure of a single communication path or a single node allows the remainder of the devices to communicate without interruption. The use of rings in distribution networks is also possible, although there are a fewer number of types of distribution electronics available to do this.

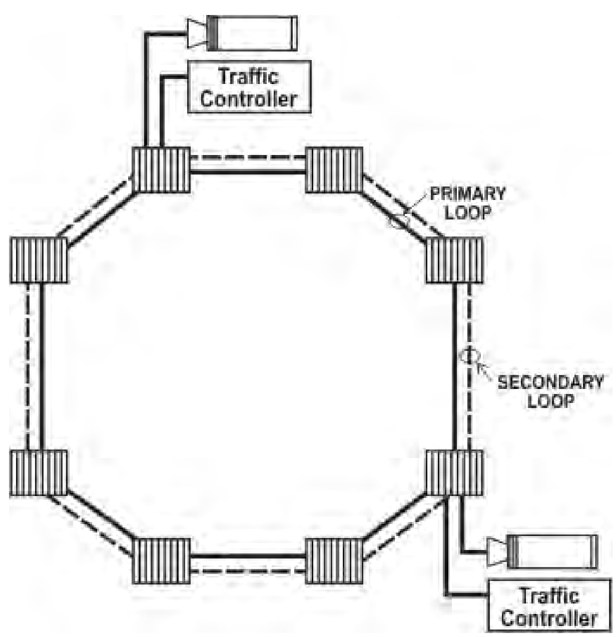


Figure 5-10. Generic Ring Configuration

5.4.2.3 Mesh

In some backbone technologies, particularly TCP/IP, the equipment can accept many different connections (instead of just primary and secondary), and the firmware on the communication equipment can select the routing of the traffic between any two points on the network (as compared to the ring where the hardware determines the routing). With this capability, a mesh configuration can be established where any number of connections may exist between any two points in the network, as shown in Figure 5-11.

This configuration can provide multiple redundant paths, and allows the system to balance traffic between the nodes in real time. It also provides increased flexibility and growth options for the network. This configuration also provides advantages in a system where there are multiple control points. The virtual traffic management center (TMC) concept, where ITS operations are conducted and monitored from multiple ad-hoc locations, would be well supported by this configuration.

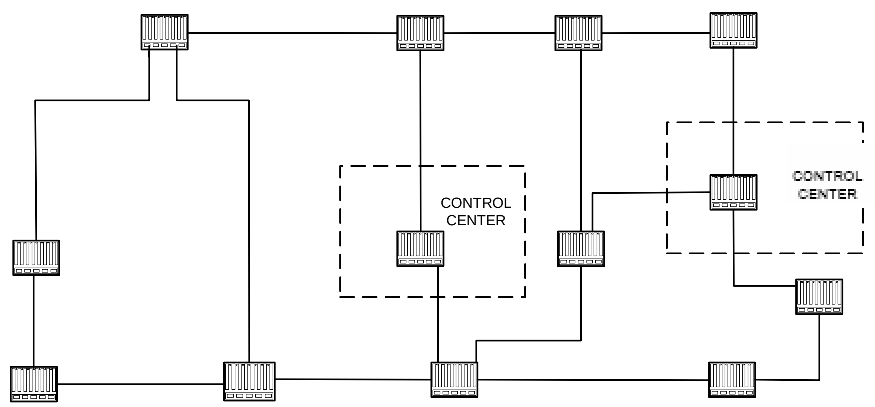


Figure 5-11. Generic Mesh Configuration

5.4.2.4 Hybrid

A hybrid network combines one or more of the previously discussed technologies into a single network. The most common topology is a hybrid with a star distribution network and a mesh or ring backbone.

A hybrid approach is also typically used in backbones where a ring or mesh has a node that is connected by a spur in a star configuration as shown Figure 5-12. In this case the node on the spur has access to the backbone bandwidth, but does have the redundancy that a node on the ring or mesh would have. This configuration also provides advantages in a system where there are multiple control points. The virtual TMC concept would also be well supported by this configuration.

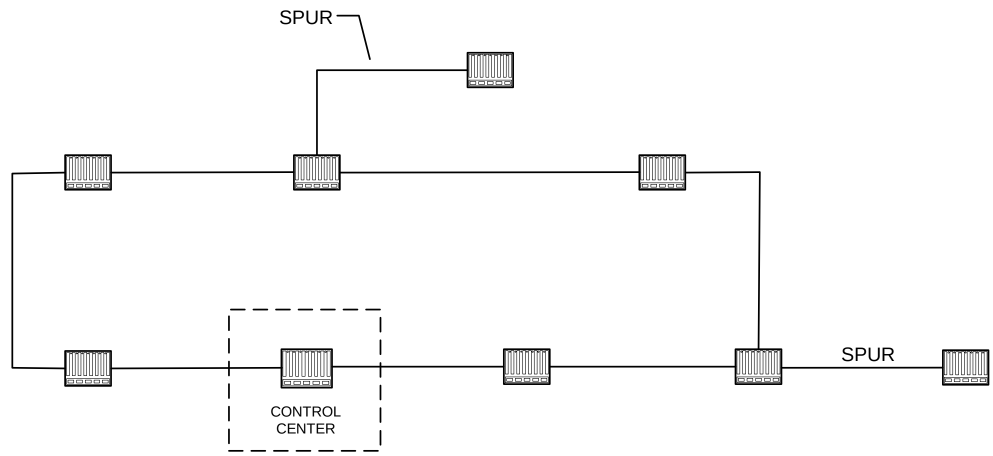


Figure 5-12. Generic Hybrid Configuration

Another hybrid network is a redundant star as shown in Figure 5-13. In this configuration, each device is connected in a star configuration, but two channels are provided to make the connection. The two channels are contained in the same transmission media, providing redundancy should the electronics on one of the end points fail. Since the communication path is common, however, this does not provide any redundancy to communication path failures such as cable cuts.

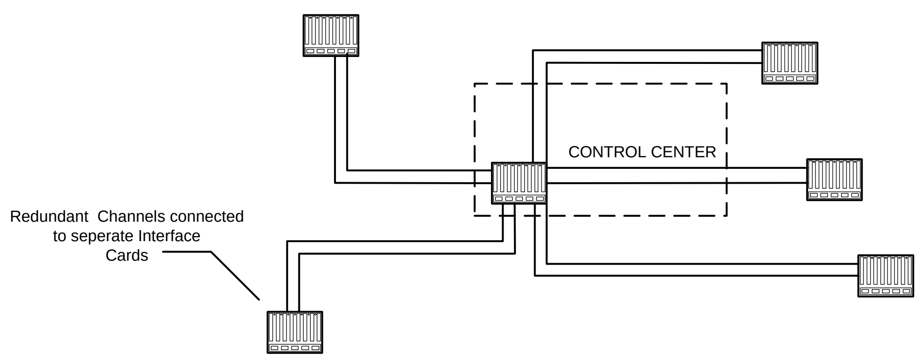


Figure 5-13. Generic Redundant Star Configuration

5.4.3 Backbone Communication Technology Options

The most significant decision in the design of the communication network is the selection of the data backbone technology. The selection must consider the current needs, industry standards, and the developing standards.

At this time there are only three technologies that are widely used, which also have a well established base of standards: ATM, SONET and Gigabit Ethernet. Other backbone systems exist, but they either do not have a full range of accepted standards, or there is not a variety of vendors providing interoperable equipment.

5.4.3.1 Asynchronous Transfer Mode (ATM)

Asynchronous Transfer Mode (ATM) backbones saw their greatest growth prior to the introduction of 100 and 1,000 Mbps Ethernet transmission. This equipment provided high speed connectivity and easily supported TCP/IP (Ethernet) transmission, making it a popular candidate for use in networks that had a high volume of TCP/IP traffic. The equipment provided routing and supported mesh configurations. ATM also provided the first variable bit rate solutions for transmission of video signals.

With the improvement of speeds provided on Ethernet equipment and new advances in digital video, the implementation of new ATM networks has virtually stopped. The same TCP/IP traffic that was the strength of the ATM equipment can be carried in native Ethernet equipment using Gigabit Ethernet (1,000 Mbps), without translation to ATM protocol. The most common digital video transmission protocols are also now based on TCP/IP protocol.

5.4.3.2 Synchronous Optical Network (SONET)

SONET technology is the traditional choice of telecommunication providers, for whom voice transmission makes up the majority of the traffic. The highly reliable system is based on the provision of established channels that are constantly open between each end point in the system.

The standards for SONET are firmly established and widely followed, and provide for the transport of serial data streams of 1.544 Mbps (T-1) or higher in a number of protocols. Data services operating at lower speeds or different protocols can be accommodated by adding communication components connected to the SONET network. Transmission equipment supporting pure implementations of SONET is interoperable between vendors.

SONET standards do not provide for Ethernet connections or data channels with lower speeds than 1.544 Mbps. Some vendors do provide multiplexers that will accept these protocols and transport them using SONET protocols and data rates, but these products are not “pure” SONET, and are not interoperable between vendors because each multiplexer must communicate with another multiplexer made by the same vendor.

An implementation of SONET in the backbone network for the region that would support TCP/IP (Ethernet) and low speed data would require routers at every node to convert the Ethernet signals into data channels that can be carried by SONET. It would also require multiplexers to combine the low speed data channels for ITS applications into a T-1 signal that can be carried by the SONET multiplexer. These additions require a number of other components as shown in Figure 5-14 resulting in a very complicated network, increasing capital cost and complexity in network maintenance.

The inherent requirement for SONET to assign all channels in a permanent manner can make the system inefficient, unless the transmission requirements are continuous and consistent, and the switching is done outside the backbone network. This is the case in a traditional telecommunication network.

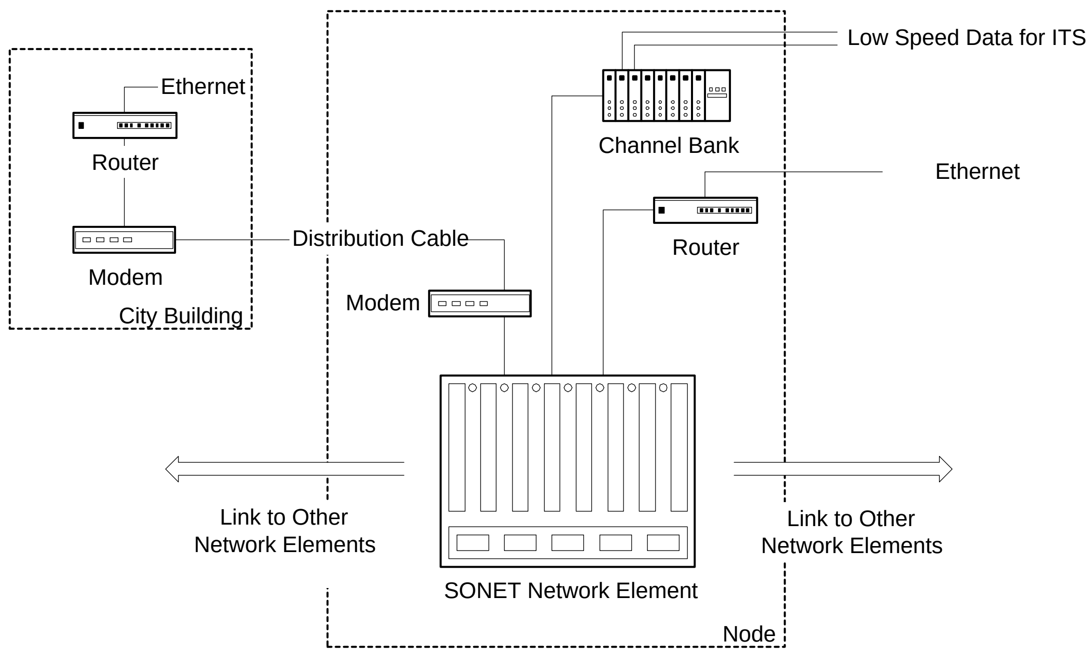


Figure 5-14. Required Equipment for SONET Backbone

5.4.3.3 Ethernet Family

A third network architecture that is increasing in use as the backbone in ITS networks is based on Ethernet. Although invented in 1976, Ethernet has evolved over time to support larger bandwidths. While Gigabit Ethernet (GigE) with bandwidth of 1000 Mbps is beginning to be deployed for ITS applications today, research is underway for higher bandwidth Ethernet switches that will support up to 10 Gbps. The increased bandwidth is achieved by continuously refining the Dense Wavelength Division Multiplexing (DWDM) algorithms programmed into the Ethernet switches. DWDM works by combining and transmitting multiple signals simultaneously at different wavelengths on the same fiber. In effect, one fiber is transformed into multiple virtual fibers. The increased speeds are achieved by increasing the number of available wavelengths on a single fiber strand. The more wavelengths available results in more avenues for the data to get from point “A” to point “B” thereby increasing the overall performance of the Ethernet switch. Given the continued investment into Ethernet by the networking industry, it is reasonable to believe that the Rogue Valley ITS network may deploy Ethernet equipment that is capable of well over 10 Gbps during the network’s lifetime. Standard TCP/IP protocols are used throughout the network, and the components are widely available and interoperable between vendors.

Ethernet provides a number of advantages:

- Based on established standards.
- Provides direct TCP/IP connectivity for center-to-center connectivity.
- Allows a standard IP addressing scheme, and subnetting.
- Supports Virtual Private Networking (VPN).
- Maintains the simple communication configuration.

✦ Supported by standard Network Interface Cards (NIC) and drivers, allowing direct connection to the backbone.
✦ Equipment is interoperable between a number of vendors, and compatible with the equipment and systems installed in the region's facilities.
✦ The extensive use of Ethernet in communication networks worldwide ensures that it will continue in the future.

Under an Ethernet configuration, a serial hub or terminal server device provides the low speed EIA/TIA 232 communication for existing ITS devices using EIA/TIA 232 communication, but this provides flexibility by allowing each port to be addressed with an IP address. Many new ITS devices may be procured with the Ethernet protocol in place of RS-232/422/485 and no serial hub or terminal server device is required. The routers are not required to convert the Ethernet traffic to other protocols for transport. The equipment at a node is greatly simplified as shown in Figure 5-15.

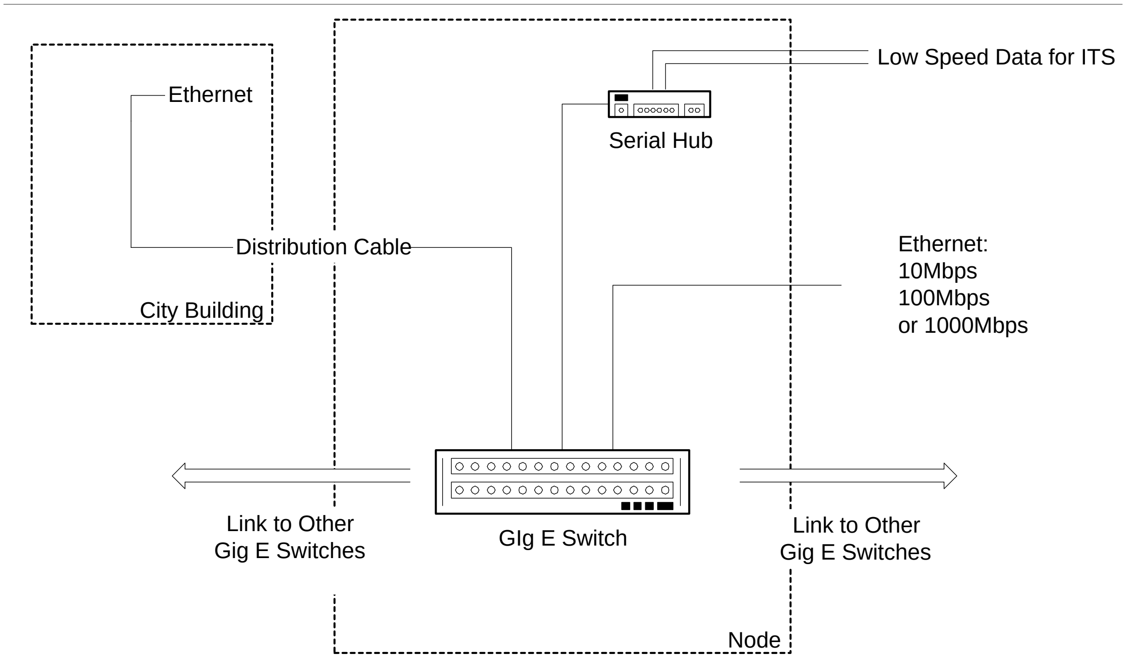


Figure 5-15. Required Equipment for Gigabit Ethernet Communication

5.4.4 Distribution Communication Technology Options

The options for communication in the distribution network are driven mainly by the communication protocol used by the ITS device. Most distribution networks support these protocols directly; however, some distribution systems convert signals in a number of protocols into a common channel that can be easily carried on the backbone network.

5.4.4.1 RS-232/422/485

The traditional low speed protocol used by ITS devices is RS-232. This protocol is still widely used, and is one of the two low speed protocols recognized by NTCIP as a standard. RS-422 and RS-485 are similar protocols, and are often found in the circuits used for camera control. These all provide low speed communication, typically operating at 9600 bps or 19,200 bps.

Each of these low-speed protocols was originally designed for twisted pair communication, but is now widely supported by fiber optic components. Although RS-232 is actually a point-to-point protocol, it can be supported as a multi-dropped protocol with certain fiber optic transceivers. RS-422 and RS-485 have similar interface requirements except that RS-422 is generally point-to-point and RS-485 is a multi-drop protocol.

In addition to simple point-to-point and multi-drop transmission, there are many options to combine and transport multiple RS-232/422/485 signals on the distribution network. Video/data transceivers are also available that will carry these protocols and video signals over fiber so that a pair of transceivers can provide the video signal from a camera and the camera control data channel.

Some distribution networks use redundancy, and there are data transceivers that can be connected in a ring over fiber to provide redundancy in case of a fiber failure.

Communication for the ITS subsystems requires the provision of low speed links to the controllers for each device. A number of controllers can typically share each low speed channel, and with NTCIP compliant controllers, functions such that vehicle detection and dynamic message sign control signals can share the same channel.

As shown in Figure 5-16, the low speed channels can be carried on the distribution cable from the node to the device using fiber optic modems. These modems will carry the signal over a pair of fibers connected in series so that the same pair of fibers can serve a number of modems. When the signals are carried to the node, a modem converts the optical signal to an electrical signal that can be connected to node equipment.

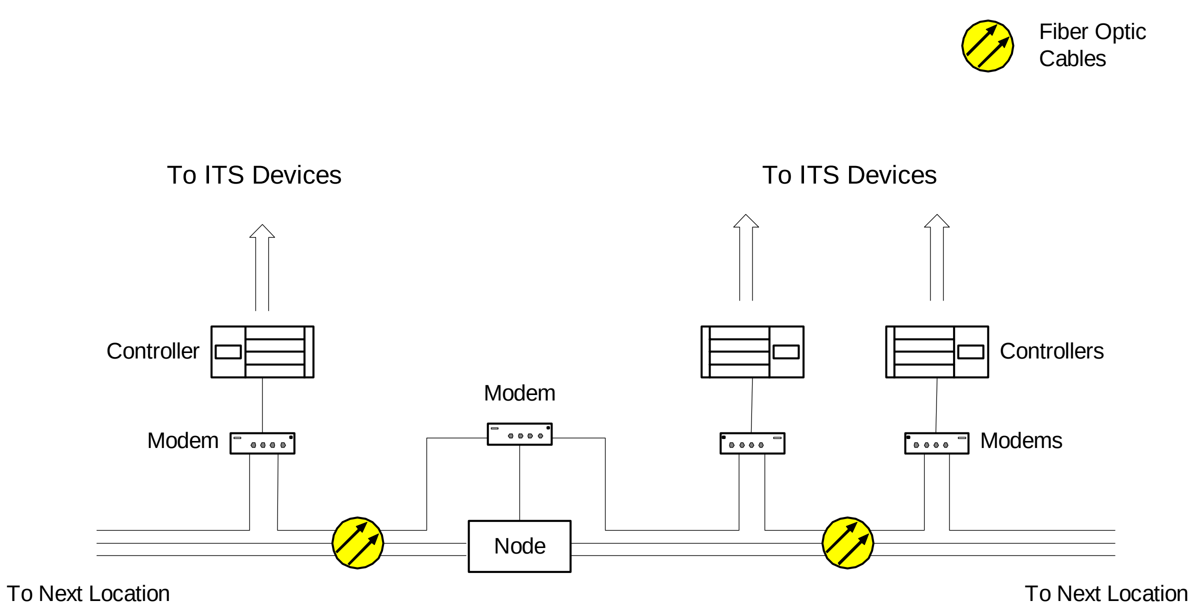


Figure 5-16. ITS Distribution – RS-232

5.4.4.2 Video Transmission

There are two economical methods of carrying the video signals from the field cameras to a control center: simple analog video transmission over fiber optic cables or digitized video carried by the backbone transmission equipment.

Analog video signals can be carried economically approximately 30-40 miles and provide a full motion video signal. Such transmitters could also carry the camera control signal as described above. Analog video signals differ from digitized video signals in that digital video signals are compressed. Consequently digital video signals require less bandwidth compared to analog video signals.

A number of video signals can be multiplexed and transported over a single fiber. Such systems typically combine from four to twelve signals on one fiber, but systems with as many as 128 signals are available. These systems become economical when there are few fibers available or the transmission distances are greater.

Individual camera signals would be carried on single channel transmission systems to a node location. At the node, a number of camera signals will be multiplexed into one signal that can be carried over a fiber to the control center, as shown in Figure 5-17.

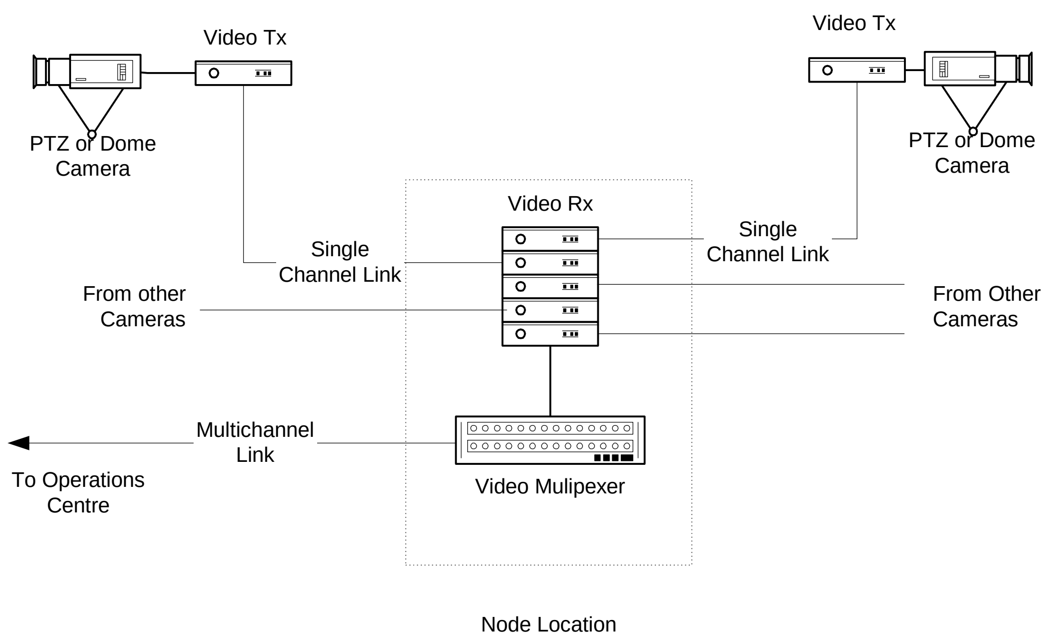


Figure 5-17. Video Links

The trend in the ITS industry is towards digital video transmission equipment that will carry digitized video signals over a TCP/IP network (“IP Video”) as shown in Figure 5-18, and the quality of the video images can be equivalent to analog systems. There is significant development occurring in this area, with improved quality using less bandwidth, and the systems are becoming more cost effective.

A significant advantage of IP Video over analog video is flexibility. Analog video signals are typically transmitted over dedicated circuits whereas compressed digital video can be converted to data packets that are suitable for transmission over TCP/IP based networks. This flexibility allows ITS network operators to store, duplicate and transmit (i.e. multicast) identical video streams to multiple users on the network.

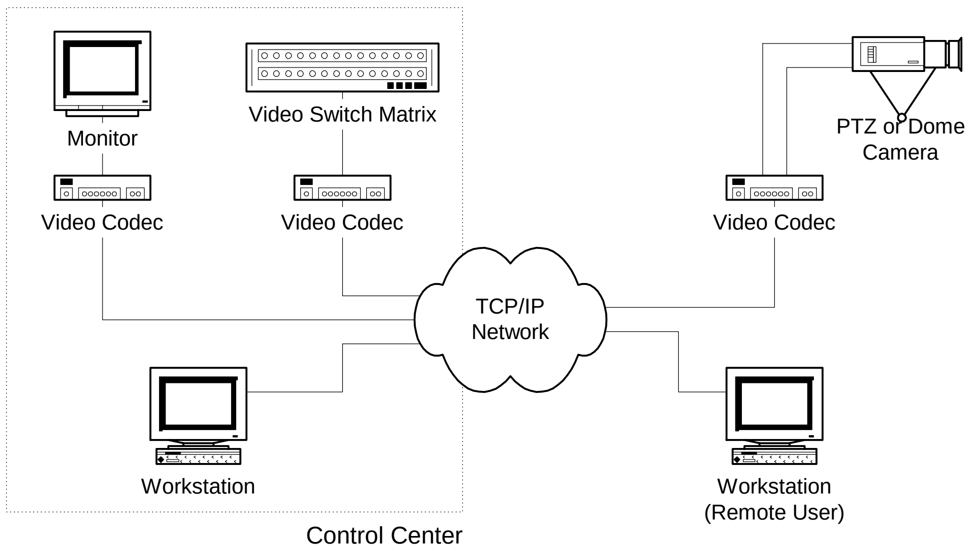


Figure 5-18. TCP/IP Network

5.4.4.3 Ethernet

With the proliferation of Ethernet (TCP/IP) communication in most computing equipment, this protocol is now appearing as an option in many ITS devices. Ethernet is a shared network providing a much wider bandwidth link to each device. (10 Mbps Ethernet typically provides up to 2 Mbps of actual throughput and 100 Mbps or "fast Ethernet" provides over 22 Mbps). Ethernet protocols also offer the ability to set transmission priorities to the different types of video and data traffic on the network. This allows the ITS network operator to control the Quality of Service (QoS) given to each application using the network.

Ethernet is the second low speed protocol standardized under NTCIP, and is gaining use in this area because the increased connection speed is needed to support the overhead required by the NTCIP protocol. With Ethernet being the defacto standard for office networks and the Internet, it is clear that Ethernet equipment will be available for many years to come.

Where the backbone network is Gigabit Ethernet, the use of Ethernet for the distribution can result in a very simple and flexible network. Small serial hubs can be used to convert RS-232/422/485 signals to Ethernet traffic so that the network can support all data requirements. If IP video is also implemented, all network traffic can be carried as an Ethernet signal as shown in Figure 5-19.

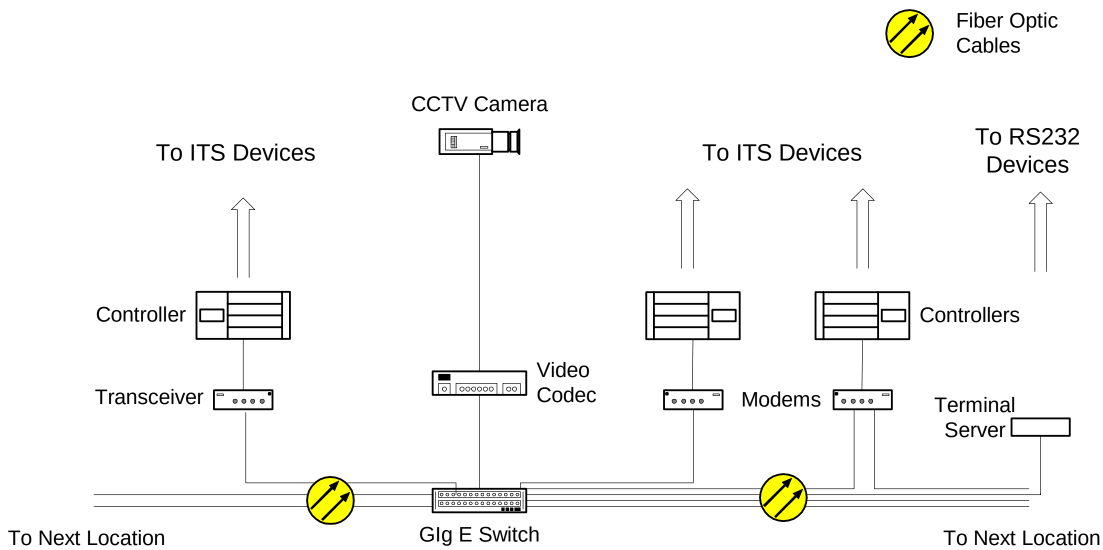


Figure 5-19. ITS Distribution

5.4.4.4 Wireless

Wireless communication is being used for distribution services for an increasing number of systems due to its advantage of not requiring a physical cable installation. Most wireless systems will carry RS-232/485 communication and can be used interchangeably with a pair of fibers and interconnecting fiber as described above.

Ethernet communication can also be accomplished over wireless links, and standards such as IEEE 802.16s are evolving to the point that wireless Ethernet communication manufacturers will begin production of equipment that can provide wireless broadband Ethernet coverage throughout the Rogue Valley metropolitan area. IEEE 802.16a is a sister standard of the widely used IEEE 802.11 wireless Ethernet standard. Whereas IEEE 802.11 is commonly deployed in office buildings and has an effective operating coverage of approximately 300 feet from the network access point, IEEE 802.16a operates in the 2-11 GHz licensed and unlicensed frequency bands and is specifically focused on deployment where operating coverage in excess of seven miles.

Microwave transmission is an option in many ITS networks, including the Rogue Valley. Unlike IEEE 802.16a, microwave communication requires visual line-of-sight between transmitter and receiver and frequency spectrum allocation from the Federal Communications Commission (FCC). However microwave communication would be especially effective in areas with large bandwidth requirements that are located on flat terrain and away from the fiber optic backbone.

Regardless of whether licensed or unlicensed frequencies are employed, encryption of the data at the transmitter with decryption at the receiver is recommended for all wireless applications where risk of interception and/or unauthorized manipulation is not desired. Data encryption can increase overall data throughput anywhere from 15 to 40 percent depending on the type of wireless technology and encryption algorithm and techniques employed.

5.5 COMMUNICATION PLAN RECOMMENDATIONS

This section describes the communication plan recommendations, and the process used to reach these recommendations. This methodology starts with the areas to be connected, addresses the configuration to be used, and develops a logical plan to serve the entire area.

At this stage of the process, this plan provides a high-level conceptual design of the network. Therefore, as the alternative technologies, architectures and approaches were considered, detailed cost estimating was not performed. Recommendations are based on industry experience, and a higher-level analysis combining the ability to meet requirements, cost, technical maturity, availability of equipment and services and a number of other factors.

It is highly recommended that this plan be considered a guide, and not a final design. It is further recommended that as each network segment enters planning and detailed design, all options be considered for connecting centers and field devices, including:

- Building new fiber optic cable.
- Utilizing existing twisted pair or other copper plant.
- Utilizing existing wireless communication links.
- Leasing communication services from private providers.
- Leasing communication services from public entities such as Ashland Fiber Network (AFN).
- Building and/implementing new wireless communication links.

Finally, as discussed in Section 5.1, it is recommended that this plan be updated regularly, as various segments of the network are built, and if and as overall design philosophy changes.

5.5.1 Physical Topology

Section 5.4.2 discussed the common physical topologies employed in data communications. Among the topologies discussed, DKS Associates believes a hybrid physical topology is best suited for ITS operations in the Rogue Valley metropolitan area. Employing a hybrid topology will allow member agencies to fully utilize their existing and planned network infrastructure in a manner that can benefit and complement others. Specific recommendations are listed below:

- **Interconnect Jackson County's planned fiber optic conduit on Table Rock Road between White City and Medford with the Medford fiber optic ring and the Ashland Fiber Network.** This would establish a trunkline communications between Jackson County, ODOT, Ashland, Medford, Talent and Phoenix. Note that the Hunter Communications facility located at 801 Enterprise Drive in Medford is approximately two miles from the planned termination point of the Table Rock Road conduit at Biddle Road /Table Rock Road. Detailed design and a cooperative agreement with AFN and Hunter Communications will be required to link the two trunklines.

- **Construct communication hubs at key locations on the fiber optic ring to transition the ITS data and video signals from copper twisted pair, wireless or other medium to the fiber optic ring.** These hubs will serve as collection points to consolidate the field devices onto GigE connections to centers.
- **Establish a headend at the City Service Center (CSC) for future field device connections.** In short, the CSC is a network node on all established (i.e. copper twisted pair network) and planned (i.e. Medford fiber ring) ITS networks in the City. Additionally the CSC could easily be included in the Medford Wireless Network if it is expanded to support ITS field devices.
- **Expand the Medford Wireless Network to include other stakeholders that do not have access to the fiber trunkline.** The City of Medford has indicated a willingness to expand their wireless network to support government initiatives throughout Jackson County. The 1.5 Mbps of bandwidth provided to each node is sufficient to support all of the ITS applications currently slated for the Rogue Valley. Employing wireless technology would allow the stakeholders to rapidly establish an ITS infrastructure on a permanent basis or as a temporary measure until fiber trunkline access is constructed.

5.5.2 Communication Technology

This section provides a summary of recommendations for physical infrastructure and communication technology to support the deployment of ITS field devices and center-to-center information exchange requirements as identified in the deployment plan.

5.5.2.1 Plant Level

At the plant level, the preferred technology is fiber optic cable. The fiber may be owned by one of the agencies or leased as dark fibers from others such as AFN or Hunter Communications. As each network segment goes to detailed design, both leased and new build options should be analyzed and a final decision made on a case-by-case basis. Regardless of whether the physical plant is leased or agency owned, DKS recommends all Rogue Valley ITS stakeholders be granted access to the entire network. This will ensure technology issues do not hamper the ability of Rogue Valley traffic management staff to efficiently address the traffic congestion and incident management issues. From a maintenance perspective, DKS Associates recommends Rogue Valley ITS stakeholders be held responsible for maintaining the ITS infrastructure placed in their jurisdiction.

Single Mode (SM) vs. Multimode (MM) Fiber

Although multimode fiber transmission could be used for links with short lengths (generally the distribution from a node to the field devices) this would require the use of a hybrid SM/MM fiber cable that would be a custom order. DKS Associates recommends the system utilize only SM fiber.

This approach will standardize the transmission components and allow the procurement of the widely available SM fiber. It will also ensure that all of the spare fibers in a cable could be used for any application. (In a hybrid cable spare MM fibers cannot be used for the longer distance links).

While fiber is the recommended technology for any new construction, other more cost effective distribution options may also be reviewed during detailed design, including using existing twisted pair plant and/or wireless links as discussed hereafter. Since multiple departments are requesting access to the fiber optic cable, DKS Associates recommends the City consider increasing the fiber strand count to 96 strands for select trunkline locations for future installations. This would support the current requirements and provide ample room to allow the fiber ring to support future requirements.

Use of Existing Twisted Pair for Distribution

The existing twisted pair cable in the City of Medford may be used for the distribution from the communication hub to the field device. The copper twisted pair network is currently used to transmit serial data between the BI-Trans/QuicNet 4.1 central server at the CSC and each of the traffic controllers deployed in the field.

Many central traffic signal control system manufacturers including McCain, the makers of BI-Trans, are currently developing versions of their product that communicate using Ethernet data packets as opposed to serial data. Upgrading the current central signal system to an Ethernet compatible version will allow the City of Medford to reallocate the existing twisted pair from the Type 170 traffic controller to a digital subscriber line (DSL) modem. The deployment would include a high data-rate digital subscriber line (HDSL) modem and a field hardened Ethernet switch in each traffic signal controller cabinet. This upgrade would allow the City to free up pairs that could then be used to support deployment of other ITS field devices such as CCTV cameras and dynamic message signs.

To complete the HDSL deployment, DKS Associates recommends establishing communications hubs at selected locations with access to both copper twisted pair and the fiber backbone. The purpose of the communications hub is to serve as the interface between the fiber network and the copper twisted pair network. To that end, each hub will typically be equipped with a digital subscriber line access multiplexer (DSLAM), Ethernet switch and fiber termination panel to perform this function. DKS estimates the communications hub equipment could be housed in a dedicated Type 332 traffic control cabinet. Figure 5-20 illustrates a typical HDSL configuration in an ITS environment.

For the 29 intersections with leased Qwest dial-up lines, implementation of the HDSL infrastructure described above will require close coordination with Qwest. The following two issues will need to be resolved: bandwidth and HDSL coverage. HDSL provides 1.544 Mbps upload and download bandwidth. Most telecommunication customers typically require a lot less upload bandwidth therefore, telecommunication providers do not offer HDSL to their customers. ITS applications are extremely upload intensive, so special arrangements would need to be made with Qwest to offer this product to the City – assuming all of the intersections fall within Qwest's DSL coverage area.

In the long term, DKS Associates recommends providing City-owned communication infrastructure to the 29 intersections currently outfitted with Qwest dial-up phone lines if HDSL service is either not available or cost prohibitive from a private provider.

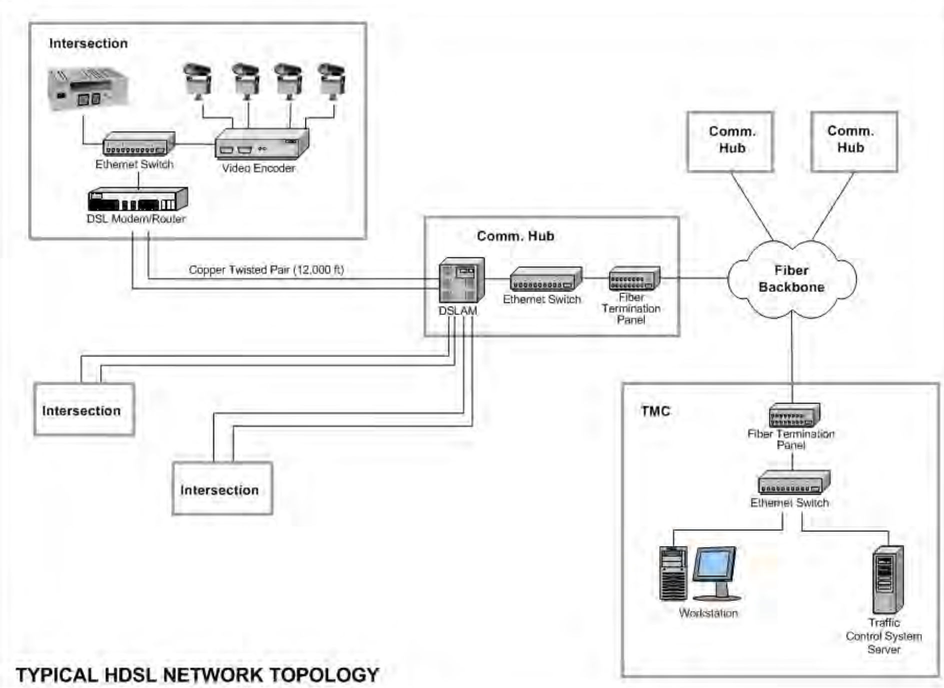


Figure 5-20. Typical HDSL Network Topology

<u>Wireless Distribution</u>

Wireless communication is also a viable option for distribution services between the node and the field device. Since high capacity wireless systems (SONET OC-3 at 155 Mbps) can typically cost over $60,000 per link, it is not anticipated that they would be a viable selection for backbone transmission although less expensive, lower speed wireless systems could be used as back-up Center-to-Center links for redundancy purposes. However, wireless systems could be considered to provide links for sections of the Rogue Valley that do not have access to the backbone via fiber or copper twisted pair, or to link sections through environmentally sensitive areas or those with particularly difficult obstacles. As discussed earlier in this chapter, the Medford Wireless Network is an excellent candidate for this task.

The choice of wireless or wireline transmission for specific areas should be determined during detailed design, and will be based on the local site conditions and facility availability.

<u>Recommendation:</u>

Expand the fiber optic network where feasible. For remote locations and/or sites without direct access to the fiber optic network, consider using the Wireless Mesh Network. For locations with existing copper twisted pair, but without direct access to the fiber optic network consider DSL technology to support video transmission.

5.5.2.2 Video Transmission

It is recommended that the video signals on the network be transported as digitally encoded video. In order to give key stakeholders maximum flexibility in determining the location from which ITS operations are controlled, analog video must be converted to IP data at some point in the network.[3] By using IP video transmission throughout the network the video can be easily routed to users at any point on the network.

With multiple agencies covering the region, it is expected that several video images will be of interest to more than one agency. In these circumstances one video image is commonly required at more than one control center. With digital video this is accomplished simply by sending the IP stream to a select group of users on the network with one transmission. This process is known as multicasting[4]. Analog systems do not, whereas analog systems require distribution amplifiers and additional video channels between control centers.

IP video transmission should adhere to a current Motion Picture Expert Group (MPEG) standard. At this time, the most common MPEG standards are MPEG-1, MPEG-2 and MPEG-4. MPEG-1 produces video quality slightly below the quality of most conventional VCR videos and is therefore no longer widely used. MPEG-2 was developed for all major TV standards including NTSC and HDTV. MPEG-4 is based on MPEG-1, MPEG-2 and Apple QuickTime technology and is designed to require considerably less bandwidth than MPEG-1 and MPEG-2. MPEG-4 supports traditional video display devices and also allows standard web browsers to view the video stream over an Ethernet connection to the backbone network. MPEG-2 typically produces a higher quality video signal than MPEG-4 and is better suited to instances where bandwidth is not an issue (i.e. where agency owned fiber is available). MPEG-4 is better suited for instances where bandwidth and/or fiber optic cable is at a premium (i.e. where leased lines are employed).

Digital video compression is an area undergoing constant innovation. DKS Associates recommends carefully reviewing the technology is this area to ensure the ITS network is employing compression technology that best fits the needs of its stakeholders.

Recommendation:
Convert analog video to digital. Digital video provides the greatest flexibility for sharing video between multiple agencies. Consider the installation of digital video cameras as the quality improves.

---

[3] Analog transmission cannot be used since it requires a separate network and video receivers at the user's location. Since these receivers cannot be moved easily to accommodate the "virtual control center", the video is converted to IP traffic that can easily be directed to the user's IP address, no matter where they are connected in the network.

[4] Most IP traffic uses unicasts, where traffic is sent from one sender to one receiver on the network. With video, the traffic can be multicast, meaning video sent from one sender to a select group of receivers on the network in one transmission. This reduces network traffic by sending the data only once to two or more receiving locations. A third transmission mode, broadcast, sends from one address to all other addresses on the network. Broadcast transmission is typically only used for short messages to all devices, and must be used with caution if the receiving devices must respond to the broadcast command, as they can easily overload the communication network.

5.5.2.3 Backbone

Gigabit Ethernet transmission is recommended for backbone transmission. The primary reasons for this recommendation are as follows:

- GigE is well suited for all network topologies employed in the Rogue Valley such as mesh (Medford Wireless Network and AFN), ring (Medford fiber ring) and star (possible HDSL deployment using Medford's copper twisted pair network).
- GigE provides flexible bandwidth allocation, which will allow key stakeholders to establish temporary traffic management centers as necessary.
- GigE will support transmission of the recommended IP video without any additional transmission equipment.
- GigE will directly support NTCIP standards for center-to-center communication, as well as NTCIP communication over Ethernet to field devices.
- GigE is mid-span compatible[5] between vendors, allowing different agencies to select different hardware for their portion of the network, and allowing open procurement.
- GigE provides quality of service (QoS) levels that can assign a priority (or QoS) to data from different ports. This allows prioritization of the services to be provided if the network is operating in a failure mode or peak traffic period. The IEEE 802.1.p standard delineates eight categories for prioritizing traffic at the Data Link layer of the OSI model. At this time many Ethernet equipment manufacturers do not strictly follow IEEE 802.1p. Instead they employ two or three categories of traffic prioritization, which are typically proprietary in nature. Therefore, ITS networks desiring a high level of QoS should strongly consider standardizing on a single Ethernet switch manufacturer within the communication hub and Traffic Operations Centers.

<u>Reasons GigE is recommended over SONET</u>

SONET transmission offers very fast switchover to redundant rings and dedicated channel capacity to any point in the network. However, it does not provide the advantages of GigE in the following areas:

- A pure SONET implementation does not support TCP/IP traffic that is specified in the NTCIP standards, or the low speed data channels. In these cases, additional channel banks or multiplexing/encoding hardware would be required.
- Proprietary SONET implementations will support video, Ethernet and low speed data directly, but once a type of equipment is selected for the ring, the same vendor must be used elsewhere. This could be a problem in multi-agency networks.
- SONET networks set up channels and reserve bandwidth between points on the network. Where the data requirements change, particularly as routing for video is changed, the channels would have to be re-routed through the nodes. Standard SONET implementations do not do this automatically, or in a user-friendly manner; it must be completed through changes at the network management system.
- Generally, SONET has a higher cost per node, particularly when the equipment required to convert the low speed RS-232 signals for transport on the SONET network are included.
- Overall cost and complexity of SONET network (due to the points discussed above) is not justified by regional redundancy requirements.

[5] When equipment is mid-span compatible, products from different vendors will function fully when inter-connected.

ATM

Asynchronous Transfer Mode (ATM) is a network technology based on transferring data in cells or packets of a fixed size. The small, constant cell size allows for the efficient transmission of video, audio and data on the same network. ATM equipment is expensive to procure and requires a high level of training to operate and maintain compared to Ethernet and is not recommended for ITS networks.

Recommendation:
Use Ethernet for backbone transmission. GigE is recommended today, but consider 10GigE where the extra bandwidth is required and as prices of the equipment become more cost effective.

5.5.2.4 Distribution

At this time, the recommended protocol for distribution to most devices is RS-232 communication, but all detailed design should support a migration to 10/100 Mbps Ethernet. This recommendation is based on the large installed base of RS-232 traffic signal controllers, and the fact that Ethernet based controllers using NTCIP protocols are only just now becoming available. As new versions of controllers are made available in the market, Ethernet communication should be considered, as it will likely become the standard in the future.

To provide RS-232 distribution to field devices over the GigE network, small terminal servers or serial hubs should be used. These devices are up-linked to the Ethernet network on the backbone, and provide a number of RS-232/485/422 ports, each addressable with a unique IP address. The central computer would communicate over the Ethernet network to the serial hub, where the data would be converted. From the hub to the end device, fiber optic links, wireless links or twisted pairs could be used as determined in detailed design.

Where possible, field nodes would be co-located at video camera locations, allowing video to be encoded and directly inserted on the backbone. When this is not possible, the video signal must be carried on the distribution network. It is recommended that the video image be converted to IP video at the base of the pole, and transported using video transceivers to the node. This approach eases a later migration to Ethernet.

Recommendation:
Migrate to IP addressable field devices as they become available. In the interim, provide terminal servers to support the Ethernet transmission standard.

5.5.3 Map of Proposed Communication System

Figure 5-21 illustrates the existing and proposed ITS equipment and centers, and the existing and proposed communication network infrastructure. The following sections briefly describe some details of the proposed network.

Rogue Valley
Intelligent Transportation Systems

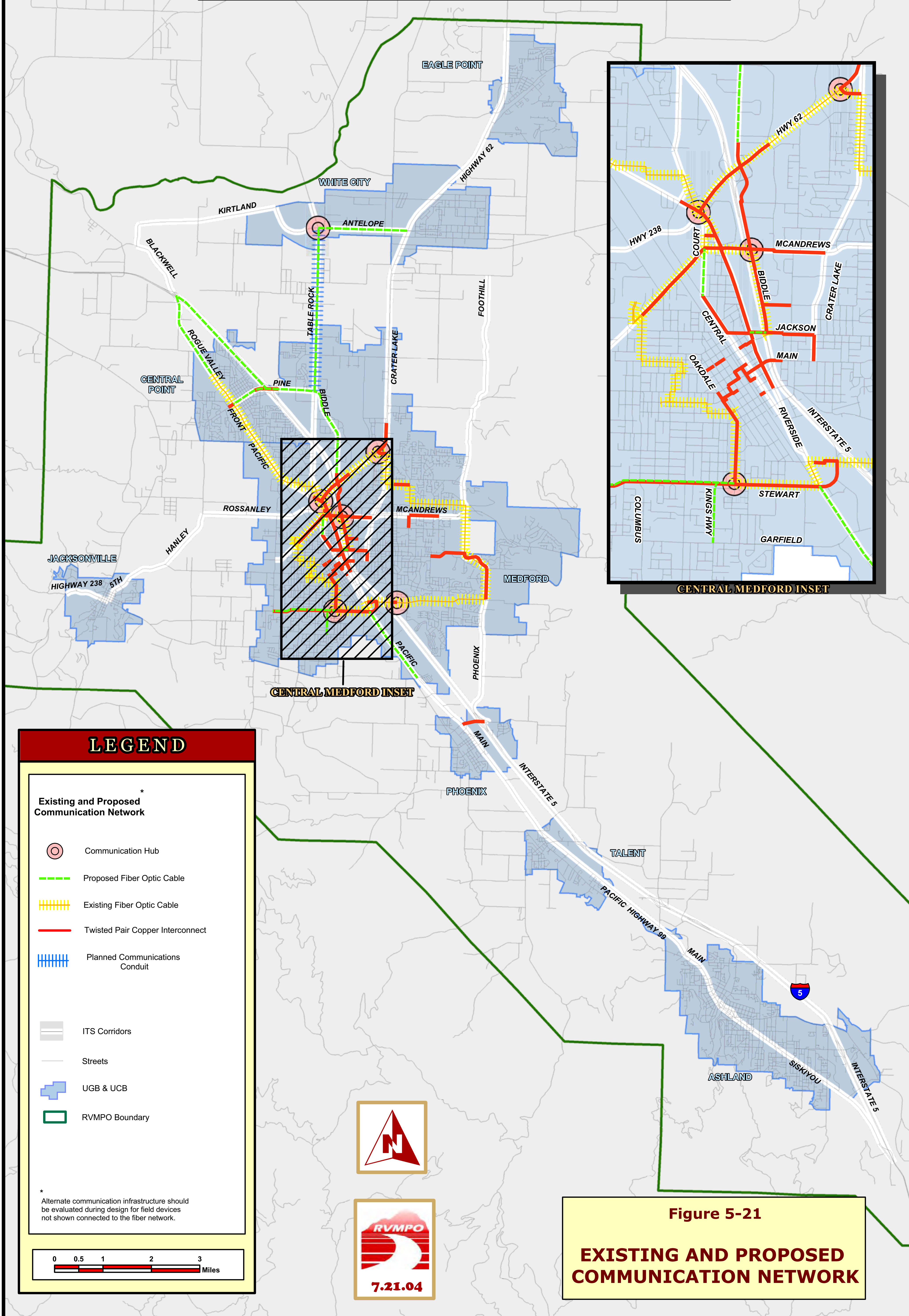


Figure 5-21

EXISTING AND PROPOSED COMMUNICATION NETWORK

5.5.3.1 Backbone Routes

The communication links identified in this plan will likely be constructed in phases, either as funding becomes available or in coordination with roadway improvement projects. One way to cost effectively support this phased construction process may be to build new fiber within the boundaries of a specific construction project and utilize leased services (either AFN or dark fiber) or wireless services for hub to hub and/or hub to center connectivity.

When fiber cable is installed on any of these routes, sufficient fibers to support the ultimate network should be included, even if the current build is only a section of the backbone. Isolated backbone sections could be connected by leased fiber or AFN channels. When the interconnection sections of the corridor are constructed the leased service would be replaced with backbone fiber as appropriate.

5.5.3.2 Standard Network Node Bandwidth Allocation

To determine bandwidth requirements, the standard field node configuration assumed would consist of the equipment listed in Table 5-2. The bandwidth requirements are based on a worst case scenario where the data sources listed in the table are assumed to be operating at maximum bandwidth at all times. DKS recommends designing the ITS network to be capable supporting the maximum possible bandwidth.

When performing detailed design, DKS Associates recommends following a design philosophy of distributing the bandwidth evenly between backbone nodes. This approach often allows for a common design approach to be applied to the system, simplifying the network configuration and maintenance.

Table 5-2. Standard Node Requirements

Communication Channel	Type	Description	Maximum No. of Channels Required	Approximate Maximum Bandwidth
CCTV Cameras	Video	One video camera per node	1	6 Mbps
CCTV Camera Control	RS-232/422/485	One common channel for all cameras	1	9.6 kbps
Traffic Signal Control	RS-232 or Ethernet	Up to six intersections per channel	2	56 kbps
System Detectors	RS-232 or Ethernet	Up to six detectors per channel	1	9.6 kbps
DMS	RS-232 or Ethernet	Up to four signs per channel	1	9.6 kbps
Other (HAR, RWIS)	RS-232		1	9.6 kbps
			Total	6.095 Mbps

5.6 MAINTENANCE & OPERATIONS

Figure 5-22 indicates the primary components of a generic regional communication network, and will be used to illustrate some of the maintenance and operations issues related to the communication network.

This figure assumes a network configuration in which agency specific fiber may be located in the same bundle or sheath as fiber that is utilized for the regional communication backbone. It also assumes that shared regional communication equipment (such as hubs, routers, multiplexers, transmitters and receivers) may be located in one agency's cabinet. Under this scenario, a number of different maintenance and operational issues need to be addressed and a series of recommendations are included in this section.

5.6.1 Fiber and Equipment Design

Communication equipment such as fiber optic cable, splice cabinets and enclosures, hubs, routers, multiplexers and modems should be standardized to the extent possible. In addition, local agencies should utilize standard equipment for their portion of the communication network that follows the standards of the backbone communication network. This supports bulk equipment purchasing, stocking of spare equipment, training of operations and maintenance personnel, network expansion and overall interoperability.

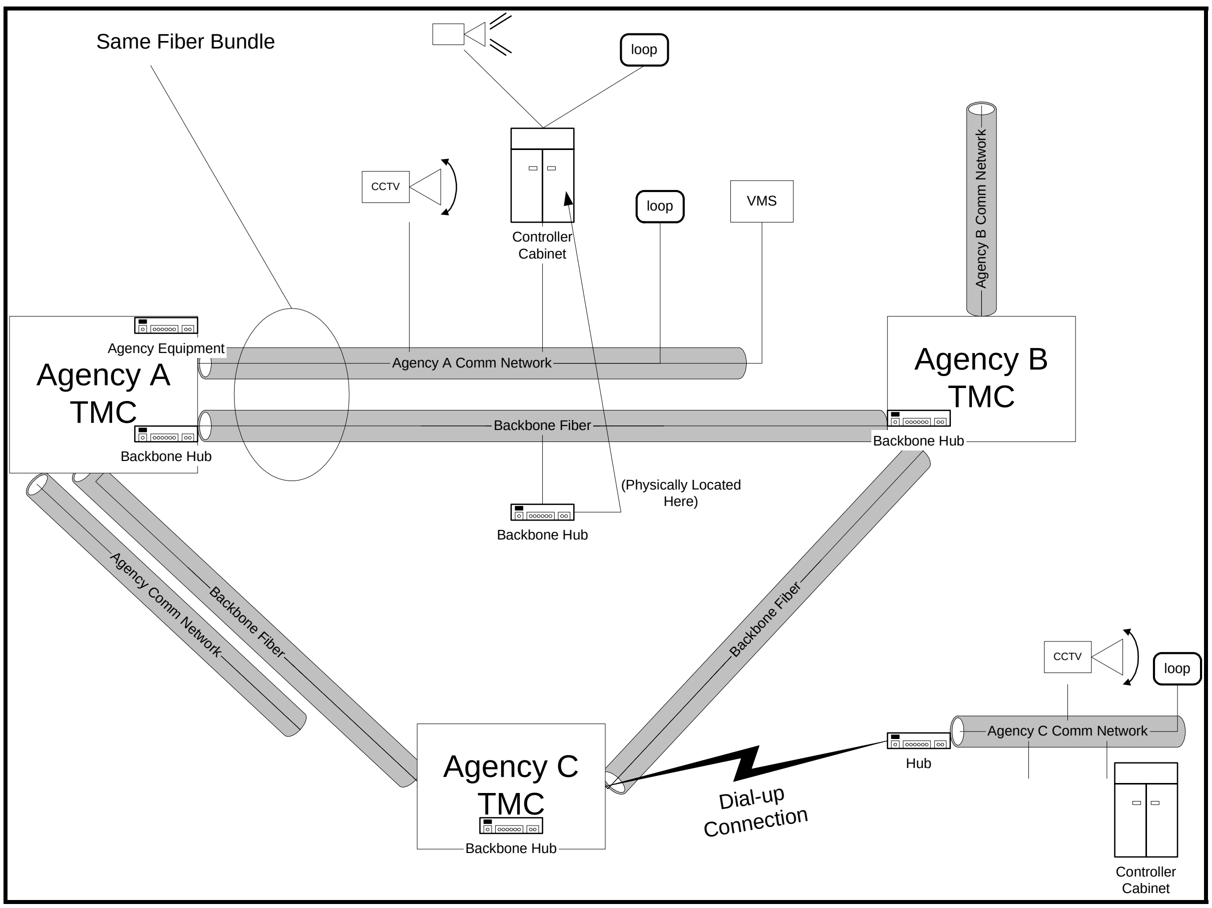


Figure 5-22. Conceptual Communication Network

5.6.2 Operations and Maintenance (O&M) of Communication Equipment

Many agencies have found that the cost of maintaining their own fiber optic networks—including equipment, training, and allocated staff—can be prohibitive. The rate of equipment or cable failure is so low that the trained personnel often do not get the opportunity to use the training on a small system, making them ineffective when repairs are needed. Often a group of regional agencies have pooled their resources, developed necessary agreements, and either selected a lead agency or a preferred contractor to maintain the network.

Any final maintenance agreements will need to address the issues in the following subsections.

5.6.2.1 O&M of Agency Dedicated Fiber

This agreement should identify each agency's responsibility for maintaining and operating fiber that connects to their own field devices.

5.6.2.2 O&M of Backbone Fiber

This agreement should identify each agency's responsibility for maintaining and operating fiber that is used for the regional communication backbone.

5.6.2.3 O&M of Equipment Located in Agency Facilities

This agreement should identify each agency's responsibility for operating and maintaining equipment that is located in an agency's facility (such as the TOC). It is assumed that both agency specific communication equipment, as well as backbone communication equipment, will be included in agency facilities, and the responsibilities for operating and maintaining both sets of equipment need to be established.

5.6.2.4 O&M of Equipment Located in Agency Field Devices

This agreement should identify each agency's responsibility for operating and maintaining equipment that is located in an agency's field device (such as a controller cabinet or splice vault). It is assumed that both agency specific communication equipment, as well as backbone communication equipment, will occasionally be included in agency field devices, and the responsibilities for operating and maintaining both sets of equipment need to be established.

5.6.3 Service Level Agreements

Once an agency (or group of agencies) has been determined as the lead agency(ies) for ongoing maintenance and operations of the network, agreement needs to be reached on level of service. Service level agreements (SLA's) include issues such as response time for a network outage to be repaired, prioritization of bringing equipment/fibers back on-line after an outage and availability of the network (acceptable amount of downtime per year).

5.6.4 Utilization of Dial-Up and Leased Line Connections

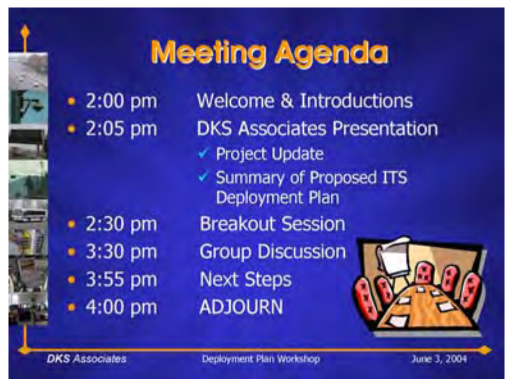
Some agencies currently use (or may plan to use) leased line connections to field devices. Opportunities to replace these connections with agency-owned infrastructure and/or purchase bulk telecommunication services from service providers should be examined, and regional rules-of-thumb developed.

Chapter 6: Deployment Plan

6.1 INTRODUCTION

This chapter includes a summary of the ITS deployment plan for the Rogue Valley and includes details about the ITS projects such as how and when projects will be deployed. The projects included in the deployment plan were developed based on collaboration from the project Steering Committee and input received at an expanded stakeholder workshop. A project deployment schedule is provided based on a timeline of a 0 – 5 Year Plan, a 6 – 10 Year Plan, and an 11 – 20 Year Plan. Additional details are provided for some of the larger projects scheduled for deployment within the first five years.

6.1.1 Workshops



On June 3, 2004, two workshops were held to discuss strategies for ITS deployment in the Rogue Valley metropolitan area. The first workshop included the project's key and expanded stakeholders and the second workshop was open to the general public and was advertised through local news media. The main purpose of both workshops was to obtain consensus regarding the projects to include in the deployment plan.

The expanded stakeholder workshop began with a short presentation to summarize the project to date and highlight how the user needs collected earlier in the project were used to determine deployment plan projects. Three poster board sessions were set up for the following categories so that workshop participants could ask questions and provide input at each station:

- Travel & Traffic Management/Communications
- Emergency Management/Information Management
- Public Transportation Management/Maintenance & Construction Management

The group reconvened towards the end of the meeting and a representative from each poster session summarized the input gathered. Additional group discussion was conducted at this point to finalize the deployment plan projects. The public workshop was held more informally as an open house, with a brief presentation. Appendix N includes the meeting invitations, presentations, handout, and meeting minutes.

6.2 DEPLOYMENT PROJECTS

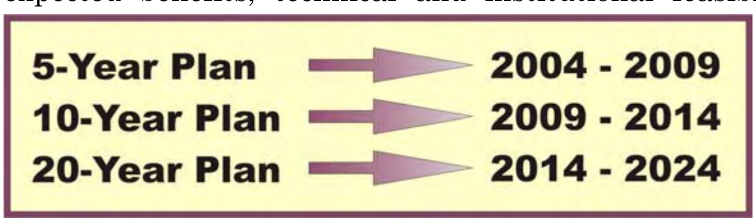
Each of the ITS deployment projects are summarized in Table 6-1. The following information is provided for each project:

- Project Number (for reference)
- Lead Agency
- Project Title
- Project Description
- Priority (High, Medium, or Low)
- Relativity to Planned Projects
- Project Dependencies
- Capital Costs/O&M Costs
- Expected Benefits
- Technical and Institutional Feasibility

The project numbers are used for reference purposes only and do not indicate any type of priority. Within this table, the projects are described under one of the following six applicable categories:

- Travel & Traffic Management (TM)
- Communications (CO)
- Public Transportation Management (PTM)
- Emergency Management (EM)
- Information Management (IM)
- Maintenance & Construction Management (MC)

Each project was assigned a priority of high, medium, or low based on input from the Steering Committee, relativity to other planned projects, project dependencies, cost, expected benefits, technical and institutional feasibility, and equitable distribution of projects. The high, medium, and low priorities relate to a 20-year schedule that includes a 5-Year Plan (0 – 5 Years), 10-Year Plan (6 – 10 Years), and a 20-Year Plan (11 – 20 Years), respectively.



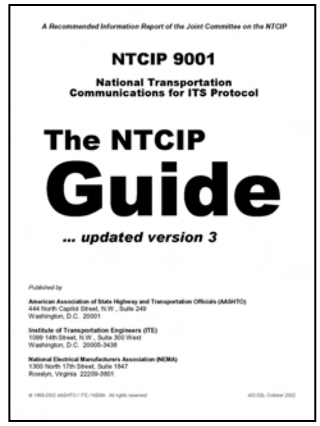
The cost estimates included with each project are based on past ITS project experience and costs found through various ITS studies that have been performed through the Federal Highway Administration (FHWA) and ITS America. The cost associated with each project includes a 20% mark-up for design. The operations and maintenance (O&M) costs for each project represent an annual estimated cost once the project has been deployed.

Figure 6-1 illustrates equipment and infrastructure deployment locations for many of the ITS projects and depicts how they fit in with the 5-Year, 10-Year, and 20-Year Plans.

6.2.1 Applicability of ITS Standards to Rogue Valley Early Deployment Projects

Chapter 3 discusses the probable need for and use of the following ITS standards as part of the ITS deployment program in the Rogue Valley metropolitan area:

- **Common Standards:** Standards that define terms, data elements, and message sets.
- **National Transportation Communications for ITS Protocol (NTCIP):** ITS standards that apply to the majority of interfaces between traffic and transit management systems and devices.
- **Transit Communications Interface Profiles (TCIP):** A number of data interface standards for the transit industry.


A Recommended Information Report of the Joint Committee on the NTCIP

NTCIP 9001

National Transportation
Communications for ITS Protocol

The NTCIP
Guide

... updated version 3

Published by

American Association of State Highway and Transportation Officials (AASHTO)
444 North Capitol Street, N.W., Suite 249
Washington, D.C. 20001

Institute of Transportation Engineers (ITE)
1099 14th Street, N.W., Suite 300 West
Washington, D.C. 20005-3438

National Electrical Manufacturers Association (NEMA)
1300 North 17th Street, Suite 1847
Rosslyn, Virginia 22209-3801

© 1999-2002 AASHTO / ITE / NEMA. All rights reserved. v03.02b, October 2002

However, these standards are currently in various stages of development and acceptance, and many are not yet approved by the Standards Development Organizations (SDO's). Those not yet approved are therefore not widely utilized by equipment, communication and software vendors. However, to meet the federal ITS requirements, it is recommended that each deployment project selected for near-term deployment be crosschecked with relevant standards as the project moves beyond this initial planning phase.

Applicable standards and protocols should be highlighted during the systems engineering analysis and—upon approval by the lead deployment agency—the appropriate standards should be utilized during detailed design, equipment selection and implementation. The identification of system-to-system standards that allow for the mutual sharing of information may call for particular attention. Relevant standards for the 5-Year Plan deployment projects have been identified as part of the overall description of major projects as detailed in Section 6.4.1. The *National ITS Architecture* provides a good starting point for the identification of relevant standards.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
Travel & Traffic Management (TM)								
RV-TM-01 (ODOT & Medford)	Integration Between ODOT Region 3 Transportation Operations Center (TOC) and Local Transportation Operations Systems	Project will determine the functional requirements for systems interfaces to traffic and transit management agencies, emergency management agencies, the ODOT Region 3 TOC, and regional field devices. Once the functional requirements have been determined, the local transportation operations systems will be integrated with the ODOT TOC.	H, M, L	ODOT Statewide TOC Software Project; This project relates to most of the Travel & Traffic Management projects included in this plan.	Depends on center-to-center communication and communication installed to field devices.	$205,000	• Information sharing capabilities • Back-up capabilities • More effective traffic management, incident management, and maintenance management • Safety and efficiency improvements	Requires communications between the ODOT Region 3 TOC and local transportation operations centers
RV-TM-02 (ODOT, Jackson County, Medford, Central Pt, Ashland, J-ville)	Network Surveillance	Provide network surveillance on the following corridors: • I-5 [ODOT] • Rogue Valley Highway (Hwy 99) [Medford, Central Pt, Ashland] • Crater Lake Highway (Hwy 62) [ODOT, Medford] • Pine Street/Biddle Road [Central Pt, Medford] • Jacksonville Highway (Hwy 238) [ODOT, Jacksonville] • Crater Lake Avenue [Medford] • North Phoenix Road/Foothill Road [Medford] • Table Rock Road [Jackson Co] • Blackwell Road/Kirtland Road/ Antelope Road [Jackson Co] • McAndrews Road [Medford] • Stewart Ave [Medford] • Kings Highway [Medford]	 H, M, L H, M, L H, M H, M, L L H, M L L L M, L M M	 STIP Key #10838, 10964, 10841 STIP Key #12328 STIP Key #10838, Draft Jackson Co TSP Key #69 and #70 None None RTP Project #473 None STIP Key #08485, RTP Project #215 RTP Project #222, Draft Jackson Co Key #1 RTP Project #400 & #490 RTP Project #465 RTP Project #403	Requires communication to the agency with jurisdiction over the roadway.	$6,780,000/ $250,000	• Integration of multi-jurisdicational systems • More effective traffic management, incident management, and maintenance management • Improve real-time signal timing adjustments • Increase in information available to travelers through the TripCheck website	Parts of this project can be incorporated with planned capital improvements. ODOT staff have significant experience with CCTV camera deployments.
RV-TM-03 (ODOT, Jackson County, Medford, Central Pt, Ashland, J-ville)	Traffic Data Collection System	Deploy automated traffic data collection systems for corridor management and incident detection on the following corridors: • I-5 [ODOT] • Rogue Valley Highway (Hwy 99) [Medford, Central Pt, Ashland] • Crater Lake Highway (Hwy 62) [ODOT, Medford] • Pine Street/Biddle Road [Central Pt, Medford] • Jacksonville Highway (Hwy 238) [ODOT, Jacksonville] • Crater Lake Avenue [Medford] • North Phoenix Road/Foothill Road [Medford] • Table Rock Road [Jackson Co] • Blackwell Road/Kirtland Road/ Antelope Road [Jackson Co] • McAndrews Road [Medford] • Stewart Ave [Medford]	 H, M, L H, M, L H, M, L H, L L M L H L L H	 STIP Key #10838, 10964, 10841 STIP Key #12328, 12380 STIP Key #10838, Draft Jackson Co TSP Key #69 and #70 STIP Key #12338, 12337, 12323 None STIP Key #12326 None STIP Key #08485, RTP Project #215 RTP Project #222, Draft Jackson Co Key #1 RTP Project #490 None	Requires communication to the agency with jurisdiction over the roadway.	$785,000/ $85,000	• Integration of multi-jurisdicational systems • Increase in staff efficiency • More effective traffic management and incident management • Availability of additional volume, speed, and occupancy data • Enhanced management of roadway operations	Parts of this project can be incorporated with planned capital improvements. ODOT and Medford staff have significant experience with data collection systems.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-04 (ODOT, Medford)	Dynamic Message Signs	Deploy dynamic message signs on the following corridors: • I-5 • Rogue Valley Highway (Hwy 99) • Crater Lake Highway (Hwy 62)	 M, L L L	RV-TM-03; RV-TM-11	Requires communication to the agency with jurisdiction over the roadway.	$2,135,000/ $25,000	• Improve driver safety during incidents and events • More effective traffic management and incident management • Reduction in staff time needed to deploy temporary signs • Provide motorist information on incidents/events more quickly	ODOT has successfully deployed numerous dynamic message signs throughout Rogue Valley and Oregon.
RV-TM-05 (ODOT, Medford, & Jackson County)	Traffic Signal Coordination	Implement traffic signal coordination and install traffic signal interconnect where needed on the following corridors: • Rogue Valley Highway (Hwy 99) • Crater Lake Highway (Hwy 62) • Pine Street/Biddle Road • Crater Lake Avenue • Table Rock Road • McAndrews Road	H, M, L	RV-TM-12 None None STIP Key #12338, 12337, 12323 STIP Key #12329 None RTP Project #490	Requires interconnect to traffic signals not currently interconnected. For advanced traffic signal coordination, traffic signals operated by ODOT and Jackson County need to be connected to a central signal system.	$320,000	• Improved safety and efficiency of each corridor, therefore reducing delay and emergency response times • Reduced stops and congestion • Improved travel times	Parts of this project can be incorporated with planned capital improvements. Almost all traffic signals in the City of Medford already have interconnect and are connected to the City's central signal system.
RV-TM-06 (ODOT)	Curve Warning System	Deploy a curve warning system on I-5 in the Siskiyou Pass.	H	None	None	$550,000/ $11,000	• Reduced vehicle speeds • Improved safety • Reduced collisions	ODOT and CalTrans have successfully deployed several curve warning systems that have resulted in accident and speed reductions.
RV-TM-07 (Medford, Central Pt, Ashland)	Speed Monitoring System	Deploy an automated speed monitoring system with driver feedback signs on the following corridors: • Rogue Valley Highway (Hwy 99) • Crater Lake Highway (Hwy 62)	L	RV-TM-03	None	$150,000/ $6,000	• Reduced vehicle speeds • Improved safety • Reduced collisions	The Medford Police Department has found their speed enforcement vans effective in reducing speeds.
RV-TM-08 (ODOT & Medford)	Incident Response Program	Develop a multi-jurisdictional regional incident response program to support emergency management agencies with incident management on regional state, county, and city roadways. This program includes personnel, response vehicles, and dispatch.	L	RV-TM-02; RV-TM-10;	This project would require incident response vehicles and staff to patrol the regional roadways.	$820,000/ $37,000	• Increased capacity and throughput during incident conditions • Improved integration of regional freeway systems with local signal systems • Reduction in congestion and delay due to incidents • Reduced incident response times • Improved safety and efficiency	ODOT Region 1 and Region 2 have successfully implemented incident response programs in the Portland and Eugene-Springfield metropolitan areas, respectively.
RV-TM-09 (ODOT, Medford, Central Pt, Ashland, Jackson County)	Incident Management and Operations	This project includes the development of incident management operational plans and the deployment of field devices to manage incidents. The field devices will include CCTV cameras, dynamic message signs, trailblazers, and system detectors to detect incidents, monitor conditions, and post traveler information. Coordinated traffic signal timing plans will also be implemented. The incident management operational plans will include the operational protocol for field devices	H, M, L	RV-TM-01; RV-TM-02; RV-TM-03; RV-TM-05; RV-TM-09	Requires deployment of field devices and communications infrastructure. Some field devices or communications equipment may be installed as part of other freeway and arterial surveillance and management projects.	$2,735,000/ $95,000	• Ability to detect and monitor incidents • Availability of real-time freeway and arterial corridor information during incidents • Increased capacity and throughput during incident conditions • Improved integration of regional freeway systems with local signal systems	ODOT Region 1 and the City of Portland have successfully developed and deployed an incident management operational plan on the I-5/ Barbur Boulevard corridor.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-09A RV-TM-09B RV-TM-09C RV-TM-09D		(i.e. CCTV cameras, DMS, and system detection on mainline and alternate routes), the development of incident signal timing plans on alternate arterial routes, and clearly defined agency roles and responsibilities. The corridors for this project include the following: • I-5: Exits 11 to 35 (Alt rtes previously identified by local agencies) • I-5: Siskiyou Pass • Crater Lake Highway (Hwy 62) • Lake of the Woods Highway (Hwy 140)					• Reduction in congestion and delay due to incidents • Reduced incident response times • Improved safety and efficiency	Alternate routes and some operational procedures have already been established for I-5 as part of the Emergency Detour Contingency Manual. The operational plan for I-5 can expand on this and focus on the metropolitan area.
RV-TM-10 (RVTD)	Transit Signal Priority	Give priority at traffic signals only to buses that are behind schedule to support transit operations and schedule adherence. This project includes installing transit priority equipment on the transit fleet as well as upgrading equipment at traffic signals and traffic signal controllers (as needed). This project also includes staff time to design and implement the transit signal priority timings. • Outfit transit fleet with transit priority emitters. • Route 1 (20 signals), Route 60 (15 signals) • Route 10 (28 signals), Route 4 (8 signals) • Route 40 (16 signals), Route 2 (10 signals), Route 60 (2 signals)	H H M L	RVTD, ODOT, and the City of Medford will be implementing transit signal priority at two traffic signals on Hwy 62 as part of the North Medford Interchange Project and will be able to apply lessons learned to future deployments; RV-PTM-01	Equipment installations/upgrades at traffic signals will depend on the technology chosen as part of the North Medford Interchange Project. Also requires the installation of transit priority equipment on the transit fleet.	$565,000/ $22,000	• Reduced transit delay • Improved schedule adherence and reliability • Reduced operational costs • Enhanced transit service • Increased ridership	TriMet and the City of Portland have successfully deployed the technology on several corridors in the City of Portland.
RV-TM-11 (ODOT & Jackson County)	Central Signal System	Upgrade the City of Medford central signal system to provide additional functionality such as transit signal priority, congestion mapping, integrated camera control, and enhanced data collection reporting. This project also includes installing a central signal system for traffic signals owned by ODOT, Jackson County, the City of Central Point, and the City of Ashland. Ensure the system can be integrated with transit systems (ie. AVL) and emergency management systems (ie. AVL). Consider sharing the same central signal system with the City of Medford.	M, L	RV-TM-06; RV-PTM-03	Requires a communication connection between the central signal system and each traffic signal that will be connected to the system.	$1,040,000/ $4,000	• Capability for advanced traffic signal operations and more flexible intersection control • Provides congestion mapping capability • Improved transit schedule adherance	The City of Medford already has a central signal system in place and can pass on lessons they have learned.
RV-TM-12 (ODOT)	Advanced Traffic Management System (ATMS) Software	Implement ODOT's ATMS Software in the Rogue Valley metropolitan area. This software will provide functionality to automatically notify the media and other agencies of incidents, support remote camera control and sign control, support congestion mapping, and support travel time reporting.	H	RV-TM-01; ODOT's ATMS Project (Releases 1 and 2)	None	None (This project is currently underway and funded by ODOT)	• Reduced staff time responding to incidents • Improved multi-agency coordination during incidents and special events • Reduced travel times and improved safety	ODOT Region 1 has successfully installed ATMS Release 1 in the Portland TMOC. They are currently developing ATMS Release 2 to enhance the existing system and add additional components.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-13 (ODOT)	Expand/Upgrade Highway Advisory Radio (HAR)	Expand and upgrade existing highway advisory radio system to cover a greater geographic area and to include more traveler information.	H, M, L	RV-TM-10; RV-TM-19	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations, etc…) to collect traveler information.	$300,000/ $10,000	• Real-time traveler • En-route information that allows users to make informed travel decisions • Reduced congestion and delay • Customer satisfaction	WSDOT has implemented highway advisory radio in southern Washington and can be used as a resource during design and construciton.
RV-TM-14 (ODOT)	Integrate Regional Traveler Information with TripCheck, 511, and Highway Advisory Radio	Develop an integrated system for disseminating and posting traveler information to TripCheck, 511, and HAR. This should include the ability to disseminate information to web-based services such as PDA's and cell phone messaging.	H, M, L	RV-TM-02; RV-TM-03; RV-TM-04; RV-TM-05	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations) to collect traveler information.	$500,000/ $9,000	• Real-time and static traveler information • Pre-trip planning capabilities and en-route information that allow users to make informed travel decisions	Requires an interface between agencies in the Rogue Valley metropolitan area to TripCheck, the 511 system, and the HAR system.
RV-TM-15 (ODOT)	Integrate 511 with Northern California	When California expands their 511 system to northern California, integrate the California and Oregon systems so that travelers may access information from both states when they are near the state borders.	L	511 Deployment in Northern California	Depends on when California plans to deploy a 511 system in the northern part of the state.	$100,000/ $1,000	• Reduced congestion and delay • Customer satisfaction	Components for integration can be incorporated into the deployment of 511 in northern California.
RV-TM-16 (ODOT, Medford)	Traveler Information Television	Develop a dedicated television station for disseminating traveler information, such as camera images from the TripCheck website or congestion/ incident maps.	M	RV-TM-14	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations) to collect traveler information.	$30,000/ $80,000		Requires an interface between a television station and available traveler information.
RV-TM-17 (SOVA, ODOT)	Traveler Information Kiosks	Deploy computerized touch-screen kiosks that provide traveler information, including a link to TripCheck at the following locations: • Airport • Rest Areas • Eagle Point Visitor's Center ODOT plans to deploy a site specific weather forecast kiosk with a link to 511 that provides nearby site conditions at the Suncrest Rest Area near Talent.	H	None STIP Key #09436 Visitor's Center	None	$220,000/ $13,000		SOVA has installed a number of traveler information kiosks in southern Oregon including one at the Rogue Valley Mall in Medford.
RV-TM-18 (ODOT)	I-5 Siskiyou Pass Traveler Information	Develop a separate link on TripCheck for the Siskiyou Pass that includes a one-page profile view of I-5 with current and forecasted weather conditions and camera images along the entire length of the pass. Weather information shall be integrated with NOAA.	H	RV-MC-05	Depends on deployment of additional field devices to provide complete coverage of the pass.	$110,000/ $10,000	• Improve safety due to real-time and forecasted weather information • Improved traffic management over Siskiyou Pass	WSDOT has created website pages in this format that provide very clear and concise information in one location.
RV-TM-19 (Airport)	Integrate Rogue Valley International-Medford Airport Traveler Information with ODOT Region 3 TOC	Provide traveler information about Rogue Valley roadways at the airport and provide airport information to travelers via TripCheck and dynamic message signs operated by the TOC.	L	None	Requires communications link and interface between the Airport and the TOC.	$280,000/ $5,000	• Real-time and static traveler information • Pre-trip planning capabilities and en-route information that allow users to make informed travel decisions • Reduced congestion and delay • Customer satisfaction	Other agency interfaces are being developed as part of the ITS Deployment Plan that can be used as models for interface development.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-20 (Event Organizers)	Special Event Management Systems	Project includes the deployment of traffic signal timing plans, portable dynamic message signs, and parking management for the following special events: ● Jackson County Fairground Events ● Oregon Shakespeare Festival ● Britt Festival ● Other Regional Special Events	L	None	None	$350,000/ $7,000	● Improved safety and efficiency, therefore reducing delay and emergency response times ● More effective traffic management and special event management ● Increase in information available to travelers through DMS and the TripCheck web site	Once traffic signal interconnect has been installed as part of RV-TM-07, special event signal timing plans can be deployed without having to install additional communication infrastructure.
Communication (CO)								
RV-CO-01 (ODOT & Medford)	Document Communication Design Standards	Document design standards for communications in the following areas to ensure standardization, compatibility, connectivity, and reliability between multiple jurisdictional agencies: ● Conduit construction ● Cable plant description ● Minimum number of fibers ● Network technology ● Junction boxes ● Fiber termination panels ● Fiber connectors ● Communication hub design ● Fiber optic testing specification ● Fiber optic installation specification ● End electronics	H	This project is essential for ensuring that the communications deployed with other projects in this ITS plan are consistent throughout the metropolitan area and with other regional agencies.	None	$75,000/ $3,000	● Set of standards ready for implementation on all new projects or reconstruction projects ● Standardization for multiple regional agencies	This documentation will establish the technical aspects required for establishing a communications network.
RV-CO-02 (ODOT, Medford, Jackson County)	Communication Network	Expand the communication network to support additional field devices and connect operations centers to the regional communications network.	H, M, L	This project is relative to most of the projects included in this ITS plan.	While the communication network can be expanded independent of the other projects in this plan, it is more likely that the infrastructure will be installed as part of other projects in this plan.	$4,000,000/ $150,000	● Connection between agencies will allow for multi jurisdictional control, management, coordination, and information sharing ● Connection to ITS field devices allows for innovative strategies such as arterial management and incident management	The City of Medford and ODOT already have a significant fiber optic communications network in the City.
Public Transportation Management (PTM)								
RV-PTM-01 (RVTD)	Automated Vehicle Location (AVL)/Computer Aided Dispatch (CAD) Transit Management System	Install an automated vehicle location (AVL) system on the RVTD fleet and install a computer aided dispatch (CAD) system at the RVTD dispatch center. RVTD plans to put 10 new buses, which are designed to accommodate an AVL system, into service in the fall of 2004. AVL should be deployed on these 10 buses, and the rest of the fleet should be outfitted with AVL as vehicles are replaced. Integrate the CAD system with the AVL system so that dispatchers may track the fleet in real-time and monitor on-time performance.	H	RV-TM-12	None	$620,000/ $20,000	● More efficient allocation of transit resources ● Operating cost savings ● Improved transit reliability ● Ability to automate data collection process, which enhances planning efforts	TriMet and Lane Transit District (LTD) can be used as resources. TriMet has already successfully implemented AVL and CAD and LTD is currently researching systems for acquisition.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-PTM-02 (RVTD)	Integrate Real-Time Transit Traveler Information with ODOT Regional Trip Planner Project	Provide ODOT's Regional Trip Planner Project with real-time transit schedule information. Real-time information will be searchable by route and stop location and indicate the amount of time until the next arrival.	H	RV-PTM-01; ODOT Regional Trip Planner Project	Automated vehicle location (AVL) must be installed on the transit fleet to enable real-time tracking and schedule information.	$350,000/ $2,000	• Real-time transit information to aid travelers with pre-trip planning • Removal of traveler uncertainty • Improved customer satisfaction	ODOT is developing an interface with RVTD as part of its Regional Trip Planner Project.
RV-PTM-03 (RVTD)	Real-Time Customer Information Displays	Deploy real-time dynamic message signs at key locations such as transit centers and bus stops where multiple routes pass through, and at stops with large bus headways.	M, L	RV-PTM-01	Automated vehicle location (AVL) must be installed on the transit fleet in order to provide real-time schedule information.	$440,000/ $83,000	• Real-time transit information to aid travelers with en-route planning • Better information during service disruptions • Reduction of perceived waiting times • Removal of traveler "uncertainty" • Improved customer satisfaction	TriMet has successfully implemented real-time customer information displays in the Portland metropolitan area using simple wireless communications.
RV-PTM-04 (RVTD)	Online Route Assignment	Develop an online route assignment program accessible by customers on the Internet and personal digital assistants that enables the user to determine the appropriate transit route to take between two locations. The system includes selecting the route based on quickest trip, fewest transfers, or shortest walk.	M	RV-PTM-01	Automated vehicle location (AVL) must be installed on the transit fleet in order to provide real-time schedule information.	$75,000/ $2,000	• Information to aid travelers with pre-trip and en-route planning • Improved customer satisfaction	TriMet has successfully implemented online route assignment and can be used as a resource.
RV-PTM-05 (RVTD)	Automated Passenger Counting (APC)	Install an automated passenger counting (APC) system that electronically records the number of passengers boarding and deboarding at each transit stop as well as the location and the time.	M	RV-PTM-01	In order to determine when and where passengers board and de-board, automated vehicle location (AVL) must be installed to support real-time operations.	$138,000/ $6,000	• More efficient allocation of transit resources • Ability to automate data collection process, which enhances planning efforts	This system can be added as a component of the AVL system (RV-PTM-01).
RV-PTM-06 (RVTD)	Automated Stop Announcements	Provide automated stop announcements prior to each scheduled stop along a transit route.	L	RV-PTM-01	Automated vehicle location (AVL) must be installed on the transit fleet to enable announcements to be coordinated with real-time route location.	$450,000/ $15,000	• Improved service and customer satisfaction	This system can be added as a component of the AVL system (RV-PTM-01).
RV-PTM-07 (RVTD)	Electronic Fare Collection with Smart Cards	Update the electronic fare collection system on the RVTD fleet to include the use of "smart" cards that allow for electronic payment of fares based on fare type (i.e. adult, senior) and zone.	M	None	This project should be coordinated with other transit agencies throughout Oregon to determine the feasibility of integrating this system throughout the state.	$1,000,000/ $5,000	• Ability to automate data collection process, which enhances planning efforts • Improved service and customer satisfaction	RVTD will need to research the existing technologies to determine what works best with their fleet.
RV-PTM-08 (RVTD)	Paratransit Scheduling with Mobile Data Terminals (MDT's)	Install mobile data terminals (MDT's) in paratransit vehicles so that dispatch may provide updated schedule and route information to each paratransit vehicle.	L	None	None	$120,000/ $5,000	• More efficient allocation of transit resources • Improved customer mobility • Customer satisfaction	Local emergency management agencies have successfully deployed mobile data terminals in years past and can be used as a resource.
RV-PTM-09 (RVTD)	Periodic Transit Fleet Maintenance System Upgrades	As technology evolves, upgrade the existing transit fleet maintenance system to continue the integration between of the on-board system with the vehicle diagnostics system.	M, L	None	None	$100,000/ $5,000	• More efficient allocation of transit resources • Improved maintenance management	RVTD has a transit fleet maintenance system today and periodic upgrades will help enhance the existing system.
RV-PTM-10 (RVTD)	Transit Security System Integration of Video Images with RVTD Dispatch	Develop a system to transmit video from buses and the transit station back to RVTD dispatch for real-time surveillance capabilities.	M	None	Requires communications connectivity between buses and the transit station and the RVTD Dispatch system.	$1,500,000/ $25,000	• Improved surveillance and monitoring capabilities • Increased security for passengers both on-board and waiting at the transit station	RVTD is in the process of acquiring an on-board transit security system at the same time they add additonal buses to their fleet later this year.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
Emergency Management (EM)								
RV-EM-01 (ODOT, SORC, RVCCOM)	Integration Between Traffic/Transit Management Systems and Emergency Management Systems	Provide a two-way information flow (ie. CCTV camera images, congestion flow map, emergency calls) between transportation management systems and the metropolitan area 911 and emergency dispatch centers.	H	RV-TM-01	A software interface will be required at the 911 and emergency dispatch centers, the traffic management centers, and the transit management systems for access between systems.	$1,350,000	• Improved real-time traffic conditions information • Information sharing between agencies • More efficient allocation of emergency response resources • Reduced emergency response times	ODOT and the Bureau of Emergency Communications (BOEC) are currently working on a proof-of-concept for 911 center integration. Evaluation of this proof-of-concept will help with 911 and emergency dispatch center integration in the Rogue Valley metropolitan area.
RV-EM-02 (ODOT)	Provide Interface Between Traffic Management Systems and Emergency Operations Centers (EOC's)	Provide an interface between the Regional Virtual TOC or other traffic management systems and each of the regional emergency operations centers to allow access to traffic control devices during emergency situations at the EOC's as well as to share information between agencies. This project includes workstations, monitors, and a communications interface at the EOC's.	M	RV-TM-01; RV-EM-01	A software interface will be required at the emergency operations centers, the traffic management centers, and the transit management centers for access between systems.	$75,000	• Improved real-time traffic conditions information • Information sharing between agencies • More efficient allocation of emergency response resources • Reduced emergency response times	The RV-EM-01 project regarding public safety integration will provide the basis for the deployment of regional emergency operations center integration.
RV-EM-03 (Medford Police Dept)	Traffic Adaptive Emergency Response	Deploy an integrated emergency response system that provides for pre-trip planning, en-route guidance (static route plan), and dynamic route guidance (traffic-adaptive route plan) for emergency vehicles.	L	RV-EM-01; RV-EM-05	Depends on real-time traffic information availability and also requires a communication connection between the regional traffic management centers and the 911 centers. Automatic vehicle locators included in RV-EM-05 are required for dynamic route guidance.	$420,000/ $10,000	• Improved static and real-time information tailored to emergency management purposes • Reduced emergency response times	As RVCCOM 911 and SORC 911 are connected to the regional communication network, real-time traffic information will be readily available.
RV-EM-04 (Medford Police Dept)	Provide Real-Time Traffic Information to Mobile Data Terminals	Provide real-time traffic information to mobile data terminals housed in emergency response vehicles. Inventory existing emergency vehicle fleet to determine how many additional mobile data terminals need to be installed and install these as necessary.	M	RV-EM-03	None	$150,000/ $5,000	• Improved real-time traffic conditions information • Reduced emergency response times	A number of emergency response vehicles already include in-vehicle mobile data terminals.
RV-EM-05 (SORC, RVCCOM)	Emergency Vehicle Fleet Management System	Installation of automated vehicle locators (AVL) on emergency vehicles and dissemination of real-time emergency vehicle locations to dispatchers at the 911 centers for resource allocation.	H	None	Depends on linking vehicle locations to the mesh network currently installed in Medford that is planned for expansion throughout the Rogue Valley.	$450,000/ $15,000	• More efficient management of emergency vehicle fleet • Reduced emergency response times	Some local emergency management agencies have already installed AVL on their vehicles.
RV-EM-06 (Mercy Flights, Medford & Ashland Fire & Rescue)	Ambulance-Hospital Information System	Enable the exchange of real-time information (video, audio, and data) between regional ambulances and hospitals through the regional communication network.	H	None	Requires communications to be in place throughout the region.	$250,000/ $25,000	• Improved public safety • More efficient allocation of medical resources	San Antonio, Texas created the LifeLink System as a Model Deployment Initiative, which can be used as a resource.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
Information Management (IM)								
RV-IM-01 (RVCOG)	Regional Data Management System	Create a data management system for archiving data, collecting real-time data, and accessing data. The system should have geospatial capabilities and data should include at a minimum traffic counts, speed data, accidents (vehicles, pedestrians, and bicycles), traffic enforcement data, incident information, and transit information.	M	RV-IM-02; This project closely relates to projects that deploy field devices and systems to collect transportation related data.	This project is dependent on interagency communications and the deployment of field devices to collect data.	$560,000/ $20,000	• Improved resources for regional modeling, research, analysis, planning, and design • Reduced cost of data collection	This project will make use of data already collected or planned for collection by agencies in the Rogue Valley metropolitan area. ODOT has been working on an information brokering system as part of their TOCS software project.
RV-IM-02 (RVCOG)	Regional Data Standardization	Determine as a region the preferred format for data collection, reporting, and storage for consistency throughout the region.	M	RV-IM-01; RV-TM Projects	None	$50,000	• Ease of data sharing • Improved resources for regional modeling, research, analysis, planning, and design	Agreements will need to be reached amongst regional agencies to develop standards that work well for all agencies involved.
Maintenance & Construction Management (MC)								
RV-MC-01 (ODOT, Jackson County, Medford)	Maintenance, Construction, and Special Event Coordination System	Develop an information management system that contains details about regionwide maintenance and construction activities by public agencies, utility companies, and private contractors as well as special event information, including location and event duration.	L	None	Requires data and information from public and private agencies throughout the region.	$540,000/ $10,000	• Construction and maintenance scheduling capabilities • Improved resources for planning • Cost savings through project coordination	The system must allow for quick and easy data input and retrieval to make it efficient for affected agencies to use.
RV-MC-02 (ODOT, Jackson County, Medford)	Winter Maintenance Scheduling	Deploy a system that monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.	L	RV-MC-05	Requires communication between field devices and winter maintenance personnel.	$250,000/ $5,000	• Real-time weather and pavement conditions • More efficient allocation of maintenance resources during winter and inclement weather	Midwest states, northern states, and Canada have deployed similar systems that can be used as models for the region.
RV-MC-03 (ODOT, Medford)	Roadway Weather Information Systems (RWIS or "Weather Stations")	Deploy roadway weather information sites that provide temperature and road conditions at the following locations: • Siskiyou Pass [ODOT] • Jacksonville Hill [ODOT] • McAndrews Rd on Hill [Medford]	 H L L	None	None	$560,000/ $10,000	• Real-time weather and pavement conditions • More efficient allocation of maintenance resources during inclement weather	ODOT has previous experience with weather stations in the Rogue Valley and other regions.
RV-MC-04 (ODOT, Jackson County, Medford)	Develop Work Zone Management Standards	Develop standards for safety enhancements and management techniques in work zones such as the • Variable speed limits • Incident detection and management • Lane merge controls • Queue detection and electronic driver feedback signs	M	None	None	$40,000	• Improved construction zone safety and efficiency • Heightened safety awareness through driver feedback	The development of regional work zone management standards, that incorporate other statewide efforts, will make implementation easier during major construction projects. ODOT has acquired portable changeable speed limit signs that may be available for use in the region.

[1] The estimated operations & maintenance (O&M) costs listed in this table are for an annual basis once the project has been deployed.

Rogue Valley
Intelligent Transportation Systems

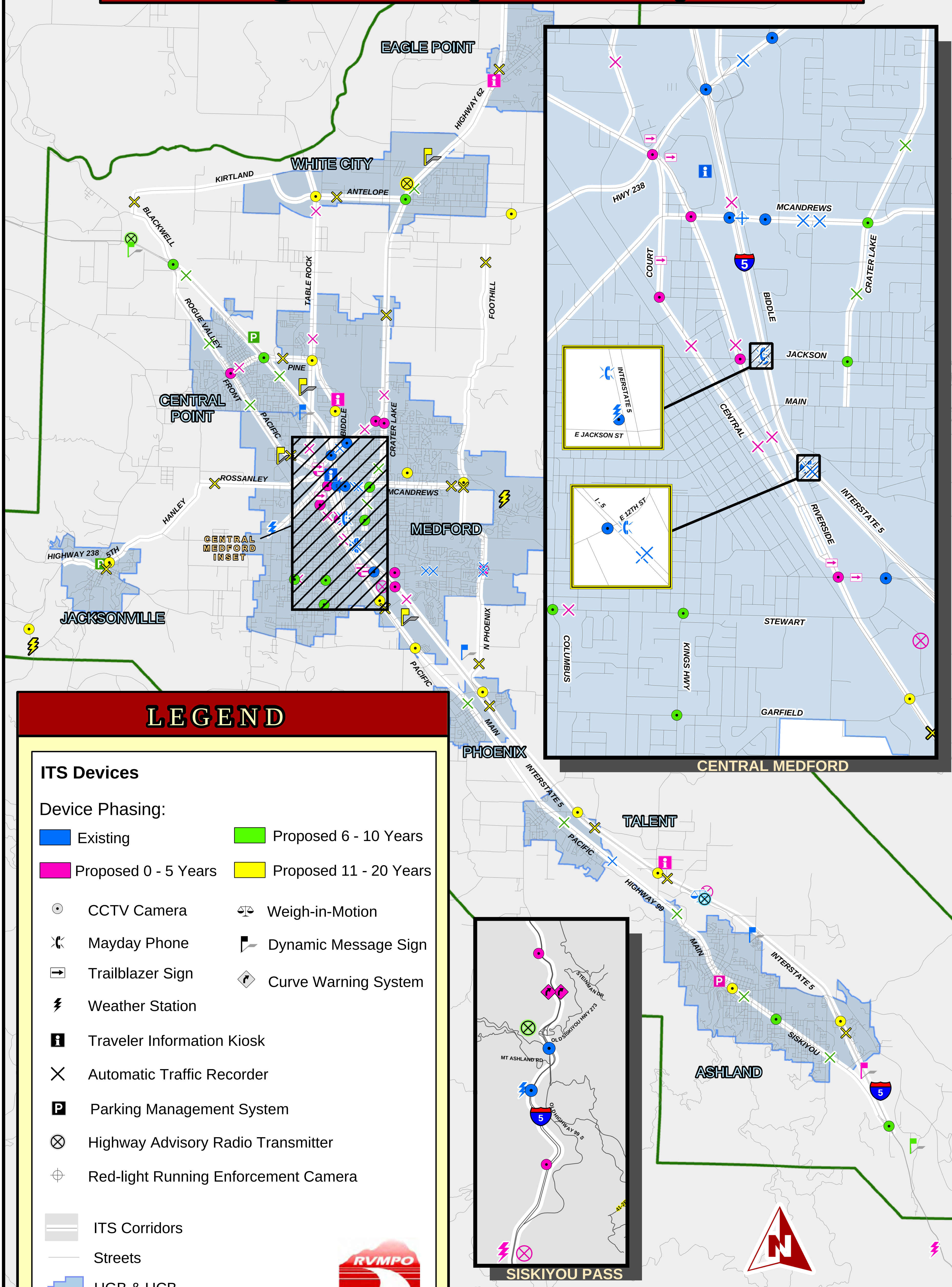


Figure 6-1

ITS DEPLOYMENT PLAN FOR 2004-2024

6.3 DEPLOYMENT PLAN SCHEDULE

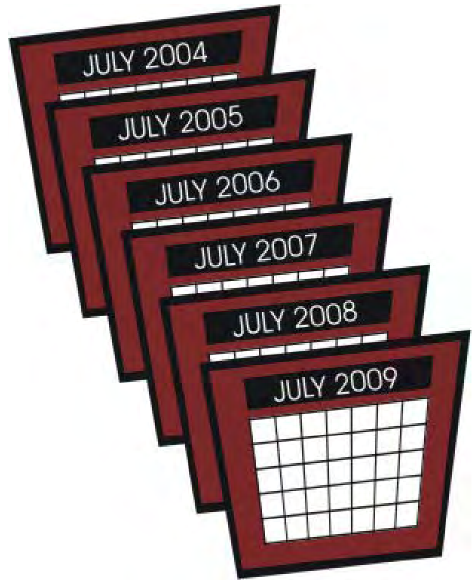


Table 6-2 shows the deployment plan schedule for the proposed projects, grouped by area of interest. As described previously, the schedule follows a 5-Year Plan, 10-Year Plan, and 20-Year Plan and relates to the priority assigned to each project in Table 6-1. Since priorities and institutional objectives change over time, the deployment plan schedule should be re-evaluated after the 5-Year Plan has been completed.

6.4 5-YEAR PLAN PROJECTS

This section provides more details regarding many of the larger 5-Year Plan projects. A table describing each project includes the following information:

- Purpose
- Project Number (for reference)
- Project Title
- Existing Problems
- Stakeholders
- Description
- Communication Requirements
- ITS Standards
- Project Dependencies
- Benefits
- Cost
- Phased Plan

Other 5-Year Plan projects not included in greater detail are already planned for development by other agencies or are fairly straightforward to deploy.

6.4.1 ITS Standards for 5-Year Plan Projects

It is recommended that each ITS project selected for near-term deployment be crosschecked against relevant standards. Accordingly, each of the 5-Year Plan project descriptions in Section 6.4 includes identification of relevant standards. ODOT already adheres to some applicable ITS standards as described herein.

6.4.1.1 ITS Standards in Use by ODOT

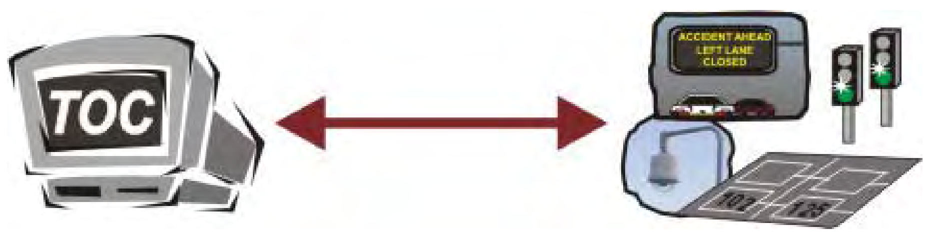
Oregon Department of Transportation

Of the traffic agencies in the Rogue Valley metropolitan area, ODOT is one of two agencies that has mature ITS projects already deployed. Accordingly, ODOT has spent the most time analyzing, approving and utilizing ITS standards. The following practices highlight ODOT's experience with the adoption of ITS standards:

- ODOT is currently using most of the approved message set and data definition standards when available and applicable, particularly:
    - ***ITE TM 1.03: Standard for Functional Level Traffic Management Data Dictionary (TMDD)***
    - ***ITE TM 2.01: Message Sets for External TMC Communications (MS/ETMCC)***

- **Center-to-Center Standards:** ODOT is planning on utilizing XML[1] for center-to-center communication, as opposed to either DATEX[2] or CORBA[3]. Many standards for XML have already been developed and are used widely in the IT industry. Message sets and data dictionaries for ITS utilizing XML are currently being converted from DATEX message sets by the SDO's.

- **Center-to-Field Standards:** Most field device NTCIP standards are still in development. ODOT is currently utilizing ***NTCIP 1203: Object Definitions for Dynamic Message Signs*** and will continue to review all other relevant NTCIP standards when deploying new field devices. It should be noted however, that ***NTCIP 1205: Data Dictionary for Closed Circuit Television (CCTV)*** was specifically evaluated and determined to be far from maturity. Migration to this standard will likely only occur during equipment replacement.



---

[1] eXtensible Markup Language (XML): a universal structured data transfer methodology that is currently widely used in e-business and e-government applications.

[2] DATa EXchange Between Systems (DATEX): one of the two approved NTCIP standards for center-to-center communications.

[3] Common Object Request Broker Architectures (CORBA): one of the two approved NTCIP standards for center-to-center communications.

Table 6-2. Deployment Plan Schedule (Page 1 of 2)

		5-Year Plan					10-Year Plan					20-Year Plan									
Ref. #	Project Title Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Travel & Traffic Management																					
RV-TM-01	Integration Between ODOT Region 3 Transportation Operations Center (TOC) and Local Transportation Operations Systems				■	■				■	■				■	■					
RV-TM-02	Network Surveillance	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
RV-TM-03	Traffic Data Collection System	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
RV-TM-04	Dynamic Message Signs	▣	▣				■	■				■		■		■					
RV-TM-05	Traffic Signal Coordination		■	■	■				■	■	■				■	■	■				■
RV-TM-06	Curve Warning System				■	■															
RV-TM-07	Speed Monitoring System											■	■								
RV-TM-08	Incident Response Program															■	■				
RV-TM-09	Incident Management and Operations			■	■	■			■	■	■			■	■	■			■	■	■
RV-TM-10	Transit Signal Priority	▣			■	■			■	■			■	■			■	■			■
RV-TM-11	Central Signal System						■	■						■	■						
RV-TM-12	Advanced Traffic Management System Software			■	■																
RV-TM-13	Expand/Upgrade Highway Advisory Radio (HAR)	▣			■	■			■	■			■	■							
RV-TM-14	Integrate Regional Traveler Information with TripCheck, 511, and Highway Advisory Radio	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
RV-TM-15	Integrate 511 with Northern California											■	■								
RV-TM-16	Traveler Information Television									■	■										
RV-TM-17	Traveler Information Kiosks	▣	▣				■	■				■	■				■	■			
RV-TM-18	I-5 Siskiyou Pass Traveler Information			■	■	■															
RV-TM-19	Integrate Rogue Valley International-Medford Airport Traveler Information with ODOT Region 3 TOC														■	■					
RV-TM-20	Special Event Management Systems											■	■	■			■	■	■		
Communications																					
RV-CO-01	Document Communication Design Standards		■	■																	
RV-CO-02	Communication Network	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Proposed Implementation ▣ Currently Funded Projects

Table 6-2. Deployment Plan Schedule (Page 2 of 2)

Ref. #	Project Title	5-Year Plan					10-Year Plan					20-Year Plan									
	Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Public Transportation Management																					
RV-PTM-01	Automated Vehicle Location (AVL)/Computer-Aided Dispatch (CAD) Transit Management System	■	■	■																	
RV-PTM-02	Integrate Transit Traveler Information with ODOT Regional Trip Planner Project				■	■															
RV-PTM-03	Real-Time Customer Information Displays						■	■	■			■	■	■	■			■	■		
RV-PTM-04	Online Route Assignment					■	■														
RV-PTM-05	Automated Passenger Counting (APC)				■	■															
RV-PTM-06	Automated Stop Announcements						■	■													
RV-PTM-07	Electronic Fare Collection with Smart Cards						■	■	■												
RV-PTM-08	Paratransit Scheduling with Mobile Data Terminals (MDT's)																		■	■	■
RV-PTM-09	Periodic Transit Fleet Maintenance System Upgrades						■					■					■				
RV-PTM-10	Transit Security System Integration of Video Images with RVTD Dispatch											■	■	■							
Emergency Management																					
RV-EM-01	Integration Between Traffic/Transit Management Systems and Emergency Management Systems				■	■															
RV-EM-02	Provide Interface Between Traffic Management Systems and Emergency Operations Centers (EOC's)						■	■							■	■					
RV-EM-03	Traffic Adaptive Emergency Response														■	■					
RV-EM-04	Provide Real-Time Traffic Information to Mobile Data Terminals									■	■										
RV-EM-05	Emergency Vehicle Fleet Management System			■	■							■	■								
RV-EM-06	Ambulance-Hospital Information System		■	■						■	■										
Information Management																					
RV-IM-01	Regional Data Management System								■	■											
RV-IM-02	Regional Data Standardization						■	■													
Maintenance & Construction Management																					
RV-MC-01	Maintenance, Construction, and Special Event Coordination System											■	■								
RV-MC-02	Winter Maintenance Scheduling												■	■							
RV-MC-03	Roadway Weather Information Systems (RWIS)			■	■						■	■				■	■				
RV-MC-04	Develop Work Zone Management Standards						■	■													

■ Proposed Implementation   Currently Funded Projects

Network Surveillance

Purpose

To provide traveler information for the general public and monitoring capabilities for traffic management, maintenance, and emergency management personnel on key corridors.

Hwy 99/Hwy 62/Hwy 238 (Medford)

Existing Problems

- Existing and future recurrent congestion on Rogue Valley Hwy, Crater Lake Hwy, Jacksonville Hwy, Delta Waters Rd, McAndrews Rd, and Barnett Rd.
- Future key bottleneck at Riverside Ave/McAndrews Rd.
- High incident locations.
- Limited monitoring capabilities.
- Lack of traveler information.

Stakeholder(s)

Primary:
- Varies by Roadway Jurisdiction

Includes:
- ODOT
- Jackson County
- City of Medford
- City of Central Point
- City of Ashland

Description

To monitor roadway and equipment conditions:
Deploy closed-circuit television (CCTV) cameras at key intersections on study area corridors and bring the video feed from each camera to the offices of the transportation agency who owns that particular camera. Use the camera viewing capabilities to monitor the roadway for congestion, trouble spots, incidents, equipment failures, and traffic signal operations.

To reduce incident response time:
Install CCTV cameras to detect and verify incidents.

To disseminate traveler information to the public prior to their trip:
Install CCTV cameras on study area corridors, particularly at high crash locations and key bottlenecks. Display the information on the TripCheck website and provide a video feed to the local media.

Communication Requirements

CCTV cameras require the largest bandwidth of all ITS field equipment to communicate with the traffic operations centers. The existing fiber optic cable can be used to support the transmission of video and Ethernet based communications will provide the flexibility and redundancy desired by the Rogue Valley stakeholders.

Project Dependencies

- System detectors should be installed as part of the following projects:
  - STIP Key #10964: I-5 at Milepost 27
  - RTP Project #215: Crater Lake Ave/Delta Waters Rd

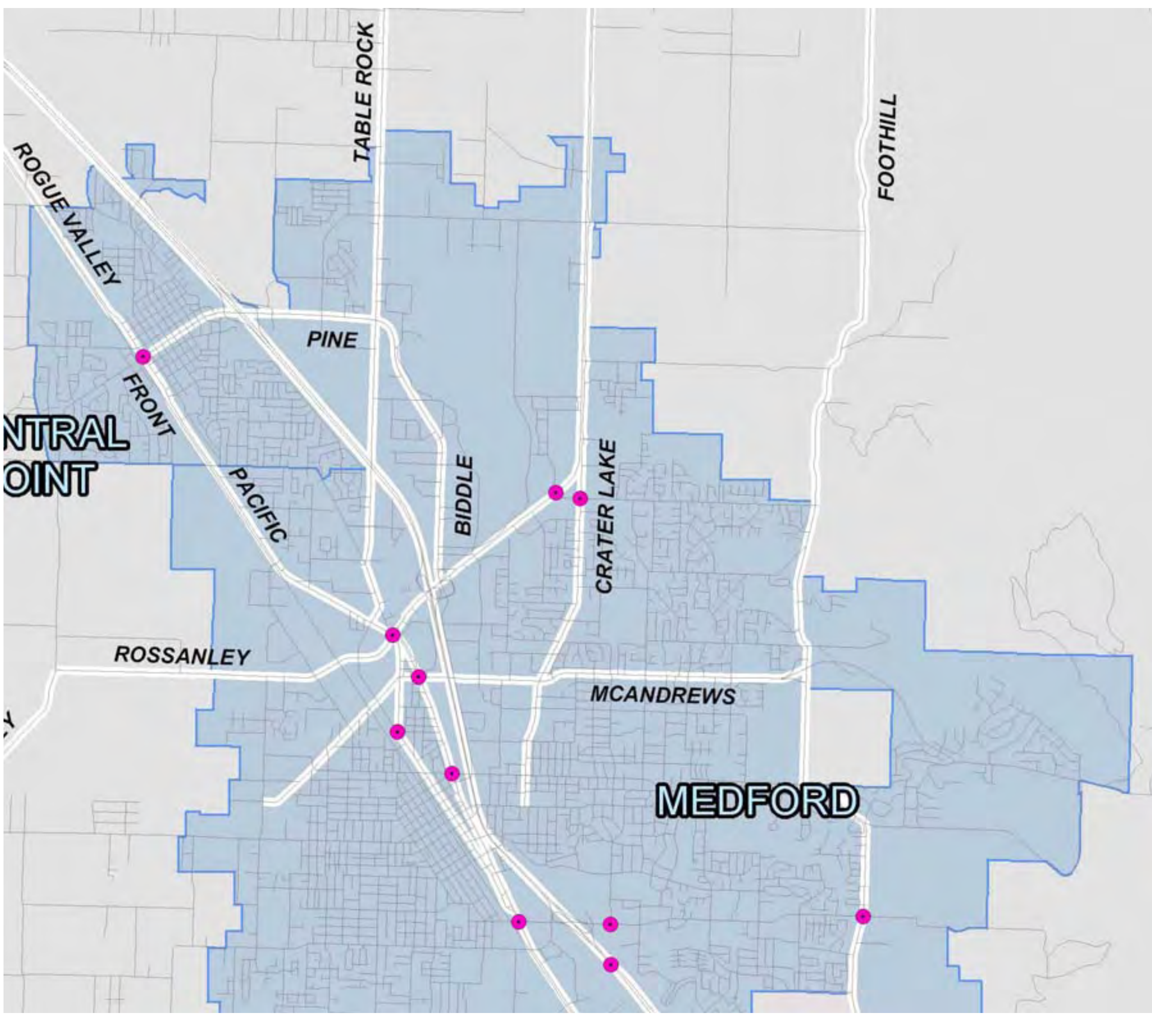
ITS Standards

- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1205, 1208, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302, 2303
- SAE J2353, J2354, J2369

Benefits

- Integration of multi-jurisdictional systems.
- More effective traffic management, incident management, and maintenance management.
- Improve real-time signal timing adjustments.
- Increase in information available to travelers through the TripCheck website.

0 – 5 Year Plan		0 – 5 Year Cost	
Roadway	**Locations**	**Capital**	**O&M/year**
I-5	Milepost/Exits 2.3, 7.2, 27 and 35 (4 cameras)	$510,000	$20,000
Rogue Valley Hwy (Hwy 99)	Pine St, Hwy 62/Hwy 238, Riverside Ave at McAndrews Rd, Jackson St, and Barnett Rd, Court St at Edwards St (6 cameras)	$300,000	$12,000
Crater Lake Hwy (Hwy 62)	Delta Waters Rd (1 camera)	$50,000	$2,000
Crater Lake Ave	Delta Waters Rd (1 camera)	$60,000	$2,000
N Phoenix Rd/Foothill Rd	Barnett Rd (1 camera)	$60,000	$2,000
Barnett Rd	Highland Dr (1 camera)	$60,000	$2,000
	TOTAL:	**$1,040,000**	**$ 40,000**



CCTV Camera Locations for 0 – 5 Year Deployment

Purpose

To better manage the regional roadway network by collecting roadway performance data. To reduce incident response time, and improve travel times by providing real-time congestion information.

Sample Time Period: 5:05 p.m. to 5:10 p.m.

Location on Rogue Valley Hwy (Hwy 99)	Average Volume (veh)	Average Speed (mph)	Average Occupancy (%)
Jackson St	31	17.9	25
8th St	43	15.4	33

Existing Problems

- Existing and future recurrent congestion on Rogue Valley Hwy, Crater Lake Hwy, Table Rock Road, Delta Waters Rd, and McAndrews Rd.
- Future key bottleneck at Crater Lake Hwy/ Delta Waters Rd.
- High incident locations.
- Limited incident detection capabilities.
- Lack of traveler information.
- Lack of roadway performance data.

Stakeholder(s)

Primary:
- Varies by Roadway Jurisdiction

Includes:
- ODOT
- Jackson County
- City of Medford
- City of Central Point

Description

Today, annual counts are conducted manually for transportation planning purposes. This project would deploy system detectors to automate the collection and storage of traffic volume, speed and occupancy data. These counts will provide planners with daily traffic volume data throughout the year. In addition the volume, speed and occupancy data could be used to provide real-time traffic congestion information to the public. This congestion information will be displayed on a congestion map on the TripCheck website. Finally, these system detectors can be used to support the automatic detection of incidents. This project should include the implementation of a data management system so the data can be automatically stored and made available to other intersections.

Communication Requirements

System detectors can be integrated with existing traffic signals and signal systems for collecting and storing traffic volume, speed and occupancy data. System detectors do not require continuous communications unless the stations are being used for congestion mapping. To collect and store the volume data, the stations could be polled based on a predefined schedule to upload the data once per day or once per week. This data can be combined with the traffic signal data stream.

ITS Standards

- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1205, 1206, 1209, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302, 2303
- SAE J2353, J2354, J2369

Traffic Data Collection System

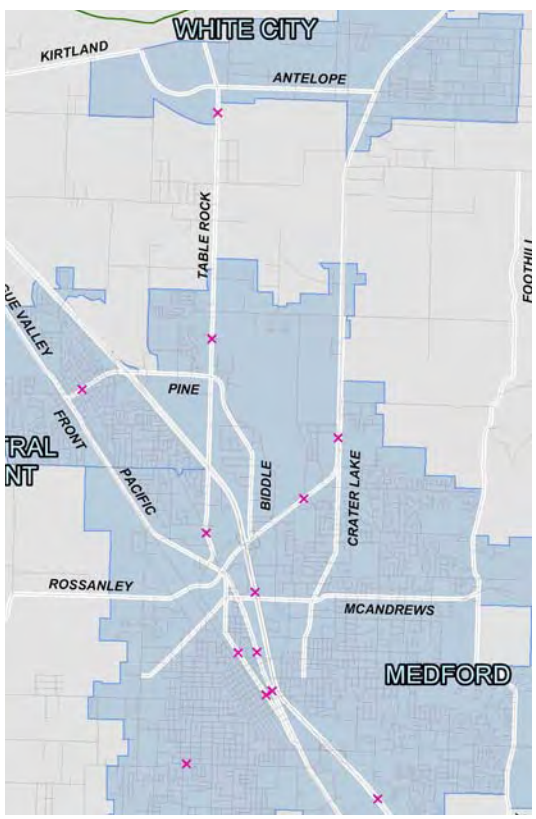
Project Dependencies

- System detectors should be installed as part of the following projects:
  - STIP Key #10964: I-5 at Milepost 27
  - STIP Key #12337: Pine St at 2nd St
  - STIP Key #08485: Table Rock Rd at Vilas Rd
  - RTP Project #215: Table Rock Rd at Antelope Rd

Benefits

- Integration of multi-jurisdictional systems.
- Increase in staff efficiency
- More effective traffic management and incident management.
- Availability of additional volume, speed, and occupancy data.
- Enhanced mangement of roadway operations

0 – 5 Year Plan		0 – 5 Year Cost	
Roadway	**Locations**	**Capital**	**O&M/year**
I-5	Mileposts 27, 29, and 35	$95,000	$6,000
Rogue Valley Hwy (Hwy 99)	Central Ave at Jackson St and 8th St, Riverside Ave at Jackson St and 8th St	$80,000	$8,000
Crater Lake Hwy (Hwy 62)	Webfoot Rd and Whittle Ave	$50,000	$4,000
Pine St	2nd St (Central Point)	$20,000	$2,000
Table Rock Rd	Antelope Rd, Vilas Rd, and Berrydale Ave	$60,000	$6,000
Stewart Ave	Columbus Ave	$20,000	$2,000
	TOTAL:	**$325,000**	**$ 28,000**



Automatic Traffic Recorder Locations for 0 – 5 Year Deployment

Purpose

To warn drivers on I-5 at Milepost 6.3 (Siskiyou Pass) to reduce their speed prior to entering a sharp horizontal curve.

Existing Problems

- High number of incidents at Milepost 6.3 just south of the interchange.
- Sharp horizontal curve on major interstate.

Stakeholder(s)

Primary: ODOT

Description

This project will include the deployment of an advanced curve warning system on northbound and southbound Interstate 5 in advance of the curves at Milepost 6.3 in the Siskiyou Pass. For each direction of travel, the system will include a radar system to detect the speed of approaching vehicles and a dynamic message sign to warn motorists traveling too fast to reduce their speeds. Sample messages that can be posted, based on a posted advisory curve speed of 45 miles per hour, include:

Vehicles Below Posted Speed:	Vehicles Over But Within 25 mph of Posted Speed:	Vehicles 25 mph Over Posted Speed:
CAUTION CURVES AHEAD	YOUR SPEED IS 62 MPH SLOW DOWN	YOUR SPEED IS OVER 70 MPH SLOW DOWN

Communication Requirements

The only communications required for this project is a connection between the radar detection system and dynamic message sign. If remote communications to the system are desired, a wireless communication connection is recommended due to the remote site location.

ITS Standards

- IEEE P1512 – 2000, P1512.1, P1454
- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1203, 1206, 1209, 1301, 2001, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302, 2303
- SAE J2353, J2354, J2369, J2540

Project Dependencies

- There are no project dependencies for implementing this project.

Benefits

- Reduced vehicle speeds.
- Improved safety.
- Reduced collisions.

Cost

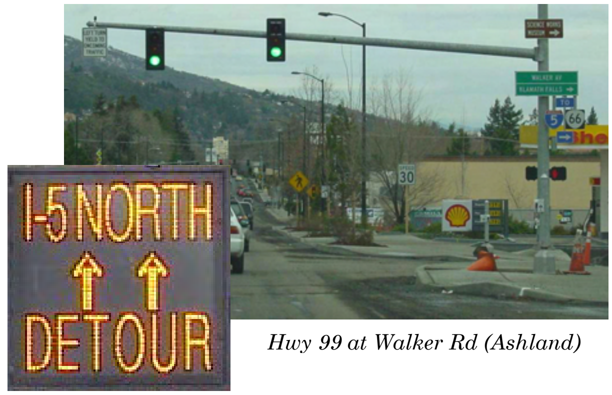
$550,000	Project Deployment
$11,000	Annual Ops & Maintenance

Phased Plan

0 – 5 Years: Project Deployment

Purpose

To provide multi-agency traffic-responsive corridor management, to reduce secondary crashes caused by an incicent, and to reduce the amount of time normal freeway operations are disrupted when incidents occur on I-5: Exits 11 to 35, I-5: Siskiyou Pass, Crater Lake Hwy, and Lake of the Woods Hwy.



Hwy 99 at Walker Rd (Ashland)

Existing Problems

- Limited transportation management resources when vehicles divert from the freeway or highway due to incidents.
- Limited monitoring and incident detection capabilities.
- No pre-defined alternate routes for any regional highways other than I-5 through the metropolitan area.
- Limited means to disseminate real-time alternate route information to travelers.

Stakeholder(s)

Primary:
- ODOT

Secondary:
- Jackson County
- Cities of: Medford, Central Point, Phoenix, Talent, and Ashland
- RVTD
- Emergency Management Agencies (911, Police)

Description

ODOT and other Rogue Valley agencies prepared a regional *Emergency Detour Contingency Manual*[4] to address protocol for incident response for major incidents along Interstate 5 through Region 3. Today this plan is implemented manually and includes placement of portable variable message signs.

This project will deploy fixed trailblazer signs or changeable fixed message signs (CFMS) to display one of serveral preset fixed messages on detour routes (ie. whether to stay on the detour route or get back on the freeway), dynamic message signs, CCTV cameras to monitor the roadway performance, and alternate traffic signal timing plans to accommodate changes in traffic patterns.

Prior to design of the field devices an incident management operational plan should be developed.

The operational plan should follow a user-friendly format that includes the following information:

- Existing Practices & Procedures
- Roles & Responsibilities
- Existing Equipment Descriptions (ie. CCTV cameras, DMS, CFMS, system detectors, and traffic signals)
- Criteria for System Activation (ie. number of lanes blocked, duration, time-of-day, day-of-week, and traffic volume thresholds)
- Operational Scenarios (based on direction of travel, incident location, and number of lanes closed), which summarize procedures for:
  - CCTV utilization
  - Messages to post on DMS (freeway and arterial) and arterial CFMS
  - Use of portable DMS if necessary
  - Ramp closures
  - Signal timing plan to implement
- Maps that illustrate Operational Scenarios

[4] *Emergency Detour Contingency Manual*, Oregon Department of Transportation, Region 3, March 1996.

Description Continued

To implement the incident management and operational plan for each corridor:
Once the plan has been developed, deploy field devices as necessary. Field devices may include CCTV cameras, dynamic message signs, trailblazer signs, changeable fixed message signs, and automatic traffic recorders.

ITS Standards

- IEEE P1512 – 2000, P1512.1, P1454
- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1203, 1204, 1205, 1206, 1209, 1301, 2001, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302
- SAE J2353, J2354, J2369

Communication Requirements

Communication will be required between each field device and the owning agency so that information from that device may be transmitted in real time. Communication will also be required between agencies to support the roles and responsibilities defined as part of each incident management and operational plan.

Project Dependencies

- Full use of the operational plans depends on the deployment of field devices and communication infrastructure included as part of other Traffic Management Projects in this plan (RV-TM-01, RV-TM-02, RV-TM-03, RV-TM-05, and RV-TM-10)
- An incident management operational plan must be developed for each corridor to clearly establish operational protocol and the roles and responsibilities of each agency prior to implementation of incident management and operations.

Benefits

- Ability to detect and monitor incidents.
- Availability of real-time freeway and arterial corridor information during incidents.
- Increased capacity and throughput during incident conditions.
- Improved integration of regional freeway systems with local traffic signal systems.
- Reduction in congestion and delay due to incidents.
- Reduced incident response times.
- Improved safety and efficiency.

Phased Plan

0 – 5 Years:	I-5: Exits 27 - 30
6 – 10 Years:	I-5: Siskiyou Pass I-5: Exits 11 – 19 I-5: Exits 30 – 35
11 – 20 Years:	I-5: Exits 19 – 27 Crater Lake Highway Lake of the Woods Highway

Cost

Plan Costs

$100,000	I-5: Exits 11 to 35
$50,000	I-5: Siskiyou Pass
$40,000	Crater Lake Highway
$40,000	Lake of the Woods Highway
$230,000	**TOTAL**

0 – 5 Year Deployment Costs for I-5

$450,000	Project Deployment
$15,000	Annual Ops & Maintenance

Deployment costs for the 6 – 10 Year and 11 – 20 Year Plans should be reevaluated at the end of the 0 – 5 Year Phase since some field device costs are included as part of other Traffic Management Projects.

Rogue Valley
Intelligent Transportation Systems

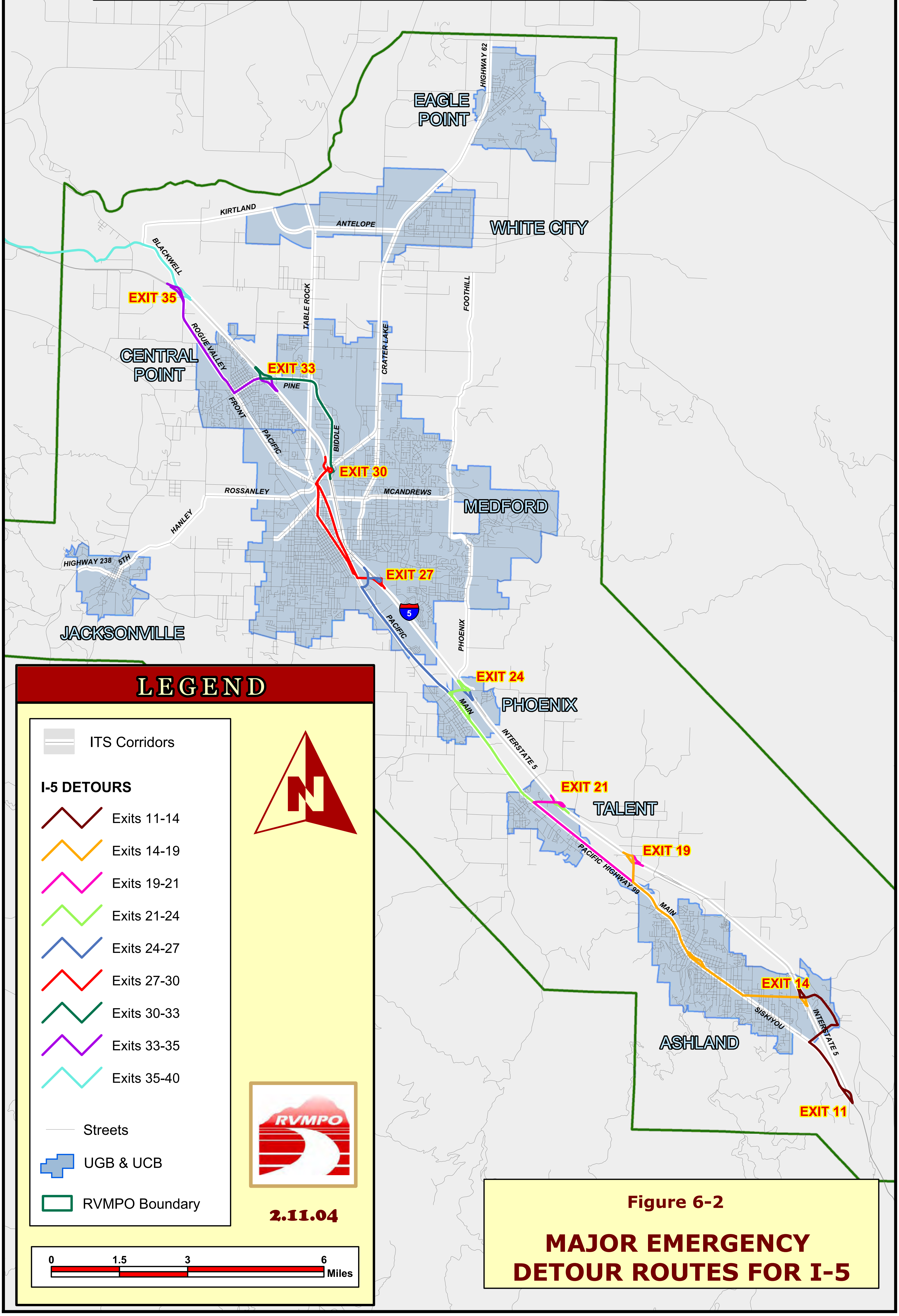


Figure 6-2

MAJOR EMERGENCY DETOUR ROUTES FOR I-5

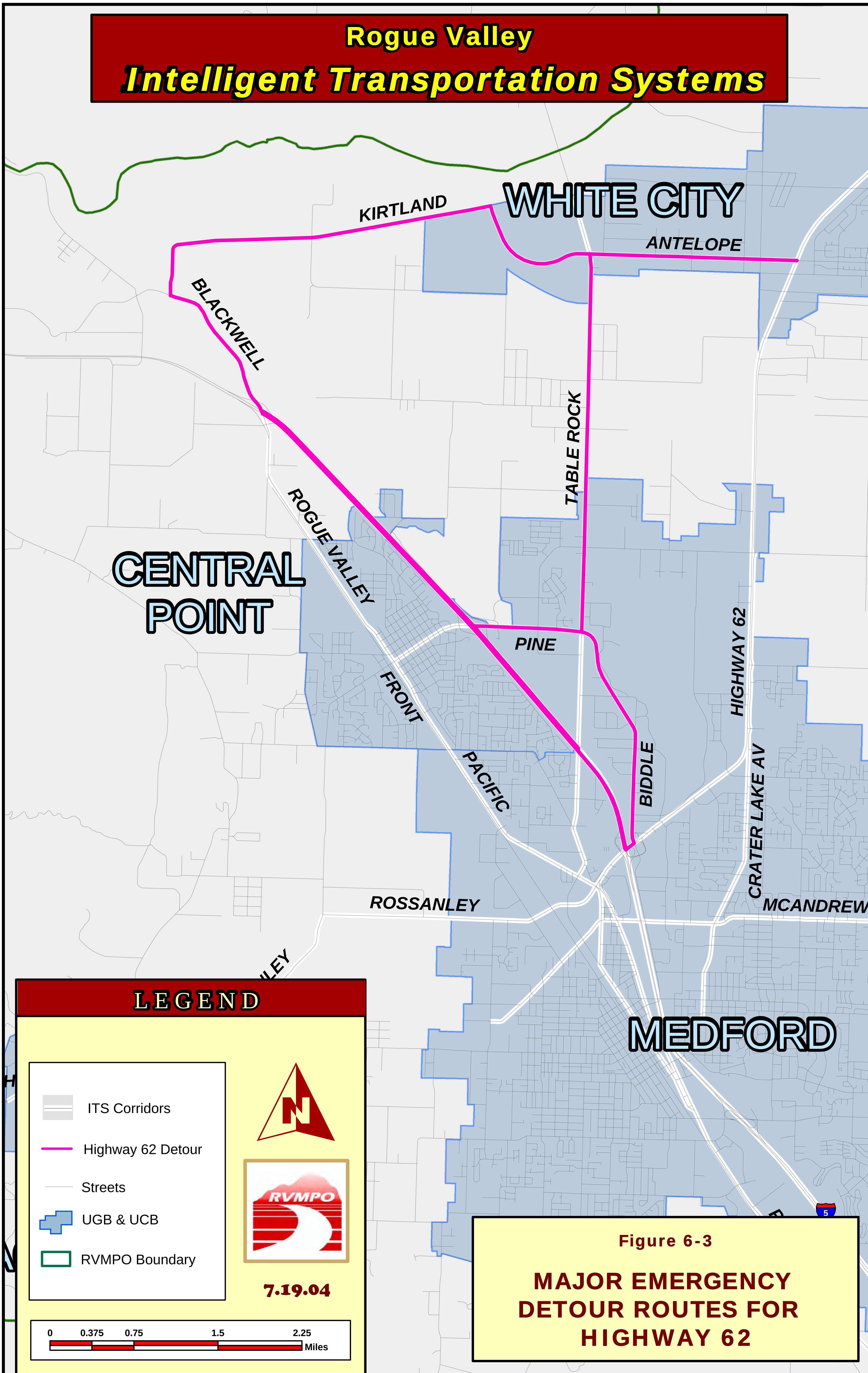


Figure 6-3

MAJOR EMERGENCY DETOUR ROUTES FOR HIGHWAY 62

Transit Signal Priority

Purpose

To improve transit travel time reliability on corridors with traffic signals.

Existing Problems

- Corridors experience varying levels of congestion affecting bus reliability.
- Buses have difficulty progressing on coordinated signal corridors without additional dealy at traffic signals because they service bus stops between intersections.

Stakeholder(s)

Primary:
- RVTD

Secondary:
- ODOT
- Jackson County
- City of Medford

Description

The implementation of Transit Signal Priority (TSP) in Oregon and around the country has proven that TSP is effective at reducting transit travel times and increasing transit reliability. TSP is planned for deployment at new traffic signals through the North Medford Interchange on Highway 62. Opticom is planned for these installations and this same technology can be supported at City of Medford traffic signals where Opticom detectors are installed at all traffic signals. TSP features are currently being added to the traffic signal software used by the City of Medford. However, additional software modifications may be required to provide the functionality desired by RVTD and the City of Medford.

This project includes the installation of emitters on RVTD coaches and Opticom and software upgrades to provide TSP functionality along regular fleet routes. A future enhancement may include only providing additional green time for buses that are running behind schedule. The use of this feature is dependent on the technology used on-board the transit fleet (Project RV-PTM-01).

Communication Requirements

A communications interface will be needed between each transit vehicle and each traffic signal along a transit priority corridor. Potential interfaces include Opticom (which is already used in the Rogue Valley metropolitan area for fire vehicle preemption), loops embedded in the pavement that detect bus presence, or radio frequency tags and readers.

ITS Standards

- IEEE 1455 – 1999
- ITE TM 1.03, TM 2.01
- NTCIP 1202, 1206, 1209, 1211, 1401, 1405

Benefits

- Reduced transit delay.
- Improved schedule adherence and reliability.
- Reduced operational costs.
- Enhanced transit service.
- Increased ridership.

Project Dependencies

- Traffic signals may need to be outfitted with detection equipment in order to support TSP depending on the detection method selected.
- Automated vehicle locators (Project RV-PTM-01) are required to provide transit signal priority for buses behind schedule.

Cost

Phased Plan	Project Deployment		Annual Ops & Maintenance	
	Transit*	Traffic*	Transit*	Traffic*
0 – 5 Years**	$80,000	$195,000	$7,000	$3,000
6 – 10 Years	$20,000	$135,000	$3,000	$3,000
11 – 20 Years	$20,000	$115,000	$3,000	$3,000
Total:	**$565,000**		**$22,000**	

*Transit costs represent costs associated with detection equipment for the transit fleet, while traffic costs represent costs associated with detection equipment and timing plans for affected traffic signals.

**The first phase will include all of the costs associated with software development and testing.

Phased Plan

0 – 5 Years:	Route 1 (20 signals) Route 60 (15 signals)
6 – 10 Years:	Route 10 (28 signals) Route 4 (8 signals)
11 – 20 Years:	Route 40 (16 signals) Route 2 (10 signals) Route 60 (2 signals)*

*Note: Route 60 shares some of the same traffic signals as Route 2.

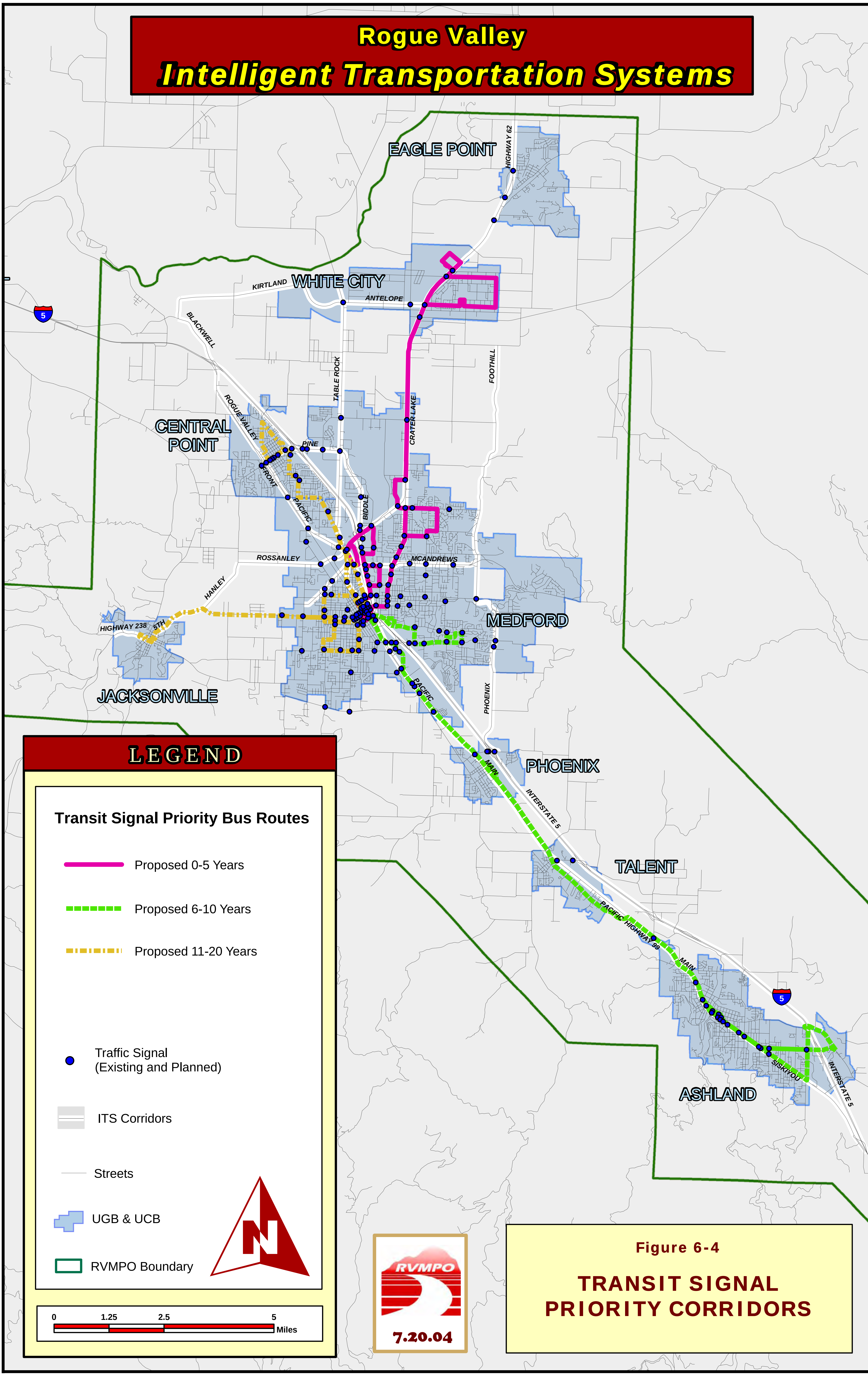


Figure 6-4

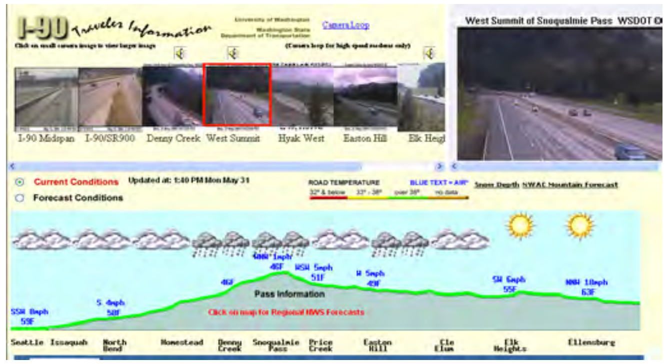
TRANSIT SIGNAL PRIORITY CORRIDORS

I-5 Siskiyou Pass Traveler Information

Project RV-TM-17

Purpose

To provide a graphical display of real-time and forecasted weather conditions on I-5 over Siskiyou Pass.



Existing Problems

- I-5 closures on Siskiyou Pass due to weather.
- Hazardous winter driving conditions due to weather

Stakeholder(s)

Primary:	■ ODOT
Secondary:	■ Oregon State Police ■ NOAA

Description

This project will install additional weather information stations, road temperature sensors, CCTV cameras, highway advisory radio, dynamic message signs, and provide access to this information including the highway advisory messages via a web page. The web page will display a profile of the pass graphically displaying the road temperature, current weather conditions, forecasted weather conditions and camera images.

Communication Requirements

Communications between field devices over Siskiyou Pass and the ODOT TOC north of Central Point will be a challenge due to the geographic and harsh weather conditions of the pass. Consideration should be given to installing hardwire, but other alternatives exist to compress the video and transmit wirelessly. The CCTV cameras will require the greatest bandwidth, but video compression methods are improving rapidly and reducing the overall bandwidth requirements.

ITS Standards

- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1205, 1206, 1208, 1209, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302, 2303
- SAE J2353, J2354, J2369

Benefits

- Improved safety due to real-time and forecasted weather information.
- Improved traffic management over Siskiyou Pass.

Project Dependencies

- Requires additional field devices prior to preparing the Siskiyou Pass information page.

Phased Plan

0 – 5 Years:	Project Deployment

Cost

$110,000	Project Deployment
$10,000	Annual Ops & Maintenance

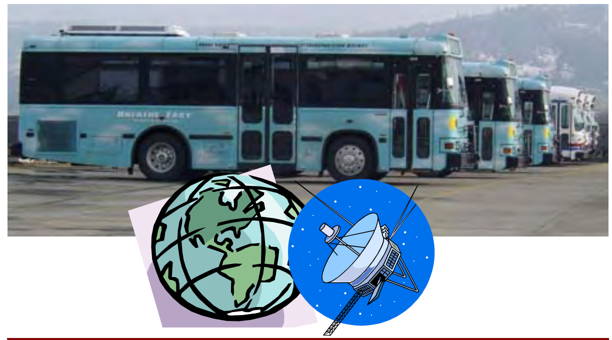
AVL/CAD Transit Management System

Purpose

To manage the RVTD transit fleet and to enhance customer service.

Existing Problems

- Current means to determine bus location is voice communications.
- Data is not readily available for systems analysis of operations.
- Need to provide automatic stop announcements



Stakeholder(s)

Primary: RVTD

Description

This project will install Automatic Vehicle Location (AVL) equipment on all fixed route transit vehicles in the RVTD fleet. In addition, this project will include an update to the computer aided dispatch (CAD) system to support mapping the real-time location of transit vehicles, track schedule adherence, transfer points and route inefficiencies. The AVL/CAD system will support future deployments such as transit signal priority, real-time arrival/departure information, automatic passenger counter (APC) system to know where passengers get on and off the buses, and the automatic stop announcement system to determine where the next bus stop is.

This deployment requires a GPS receiver and an on-board computer to interface the GPS receiver to the data communications equipment on the bus. The system will also support enhanced voice and data communications between the operator and dispatcher.

Communication Requirements

If a GPS based system is used, then a two-way wireless communication link with the Transit Management Center is required for relaying vehicle position information. Other point based systems may be deployed that could use the existing fiber optic network to transmit the bus location information.

Project Dependencies

- This system must be compatible with the new transit fleet RVTD plans to purchase during the summer or fall of 2004.

ITS Standards

- IEEE 1455-1999
- NTCIP 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408,
- SAE J2353, J2354, J2540, J2549
- TCIP 1400, 1401, 1402, 1403, 1404, 1405

Benefits

- More efficient allocation of transit resources.
- Operating cost savings.
- Improved transit reliability.
- Ability to automate data collection process, which enhances route and stop planning efforts.

Cost

$620,000	Project Deployment
$20,000	Annual Ops & Maintenance

Phased Plan

0 – 5 Years: Project Deployment

Ambulance-Hospital Information System

Purpose

To provide real-time information (video, audio, and data) between emergency medical technicians in ambulances and physicians at regional hospitals.

Existing Problems

- Time plays an important factor in saving lives during an emergency situation. There is always a need to reduce the response time for a patient in a life-threatening situation to interface with a physician.

Stakeholder(s)

Primary:
- Mercy Flights
- Medford Fire & Rescue
- Ashland Fire & Rescue

Secondary:
- Rogue Valley Medical Center
- Providence Medford Medical Center
- Ashland Community Hospital

Description

This project will be a joint effort between Mercy Flights, Medford Fire & Rescue, Ashland Fire & Rescue and the regional medical centers.

This project will utilize the wireless mesh network currently being installed to transmit digital images from cameras used by first responders to the receiving medical center. The project will provide video cameras/digital video cameras, workstations and wireless network cards to support the transmission of video and data.

Communication Requirements

Existing and planned infrastructure (i.e. mesh network, fiber optic cable) will be used to provide communications between the ambulances and hospitals.

ITS Standards

- IEEE 1512 – 2000
- NTCIP 1201, 2101, 2103, 2104, 2302, 2303, 2304, 2305

Project Dependencies

- The extent of coverage throughout the metropolitan area will depend on the amount of communication network that is in place.

Benefits

- Improved public safety.
- Improved field care of patients en-route to a regional hospital.
- More efficient allocation of medical resources.

Phased Plan

0 – 5 Years: Project Deployment

Cost

$250,000	Project Deployment
$25,000	Annual Ops & Maintenance

6.5 DEPLOYMENT PLAN COSTS

Table 6-3 summarizes the estimated capital costs and annual operations/maintenance costs for full implementation of the 20-Year Plan with an overall capital cost of $33 million with $1.1 million annual operations and maintenance. To maximize the benefits of ITS projects in the Rogue Valley, an on-going commitment must be made to the operations and maintenance of equipment and software and to consistent staffing for effective system operation.

Table 6-3. Estimated Capital, Operations, & Maintenance Costs for 20-Year Plan

Implementation Stage	Estimated Implementation Capital Costs	Estimated Annual Operations & Maintenance Costs*
5-Year Plan: 0 – 5 Years	$8,510,000	$265,000
10-Year Plan: 6 – 10 Years	$9,778,000	$366,000
20-Year Plan: 11 – 20 Years	$13,250,000	$460,000
ITS Plan Management	N/A	$100,000
TOTAL	**$31,538,000**	**$1,191,000**

* Annual operations and maintenance costs are per year for the associated stage.

6.5.1 Deployment Plan Costs for 5-Year Plan

Table 6-4 includes a breakdown of the capital costs and annual operations and maintenance (O&M) costs by agency for the 5-Year Plan, which totals $8.56 million. Approximately 50 percent of the 5-Year Plan costs are for shared projects that involve several agencies (traffic/transit management or emergency management). ODOT's projects total approximately 26 percent of the 5-Year Plan due to the need for ITS solutions along the interstate and highways within the metropolitan area.

$8.56 Million 5-Year Deployment Plan

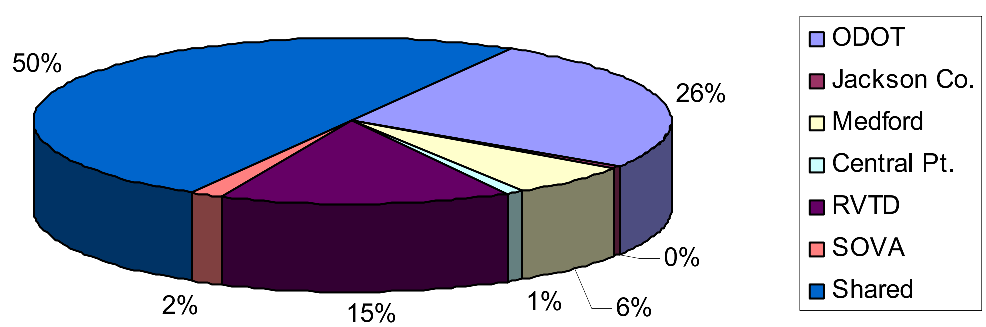


Table 6-4. Estimated Agency Costs for 5-Year Plan

Project Elements	Estimated Costs Capital	Estimated Costs Annual O&M
Oregon Department of Transportation (ODOT)		
✦ Network Surveillance- Install CCTV's on: I-5 at Milepost 27 I-5 on the Siskiyou Pass Highway 99 at Highway 62 Highway 62 at Delta Waters Rd	$557,000	$23,000
✦ System Detection- Install on: I-5 at Mileposts 27, 29, and 35 Highway 62 at Webfoot Rd Highway 62 at Whittle Ave	$142,000	$10,000
✦ Dynamic Message Sign on Southbound I-5 at Milepost 13 [Already funded through STIP]	$305,000	$4,000
✦ Curve Warning System on I-5 at Milepost 6.3	$550,000	$11,000
✦ Highway Advisory Radio: Replace Transmitter on I-5 in Ashland Install Transmitter on I-5 Near California Install Transmitter on I-5 in Medford Install Static Signs Near New Transmitter Sites	$150,000	$5,000
✦ Install Traveler Information Phone with 511 Connection at Suncrest Rest Area	$74,000	$4,000
✦ Develop I-5 Siskiyou Pass Traveler Information Site within TripCheck Website	$110,000	$10,000
✦ Roadway Weather Information System- Install on: I-5 at North End of Siskiyou Pass I-5 Near California	$280,000	$5,000
ODOT Total:	*$2,168,000*	*$72,000*
Jackson County		
✦ System Detection- Install on: Table Rock Rd at Antelope Rd Table Rock Rd at Vilas Rd	$41,000	$4,000
Jackson County Total:	*$41,000*	*$4,000*
City of Medford		
✦ Network Surveillance- Install CCTV's on: Riverside Ave/McAndrews Rd Riverside Ave/Jackson St Riverside Ave/Barnett Rd Court St/Edwards St Crater Lake Ave/Delta Waters Rd Barnett Rd/N Phoenix Rd Barnett Rd/Highland Dr	$422,000	$15,000

Project Elements	Estimated Costs Capital	 Annual O&M
✦ System Detection- Install on: Riverside Ave at Jackson St Riverside Ave at 8th St Central Ave at Jackson St Central Ave at 8th St Stewart Ave at Columbus Ave Table Rock Rd at Berrydale Ave	$122,000	$12,000
City of Medford Total:	*$544,000*	*$27,000*
City of Central Point		
✦ Network Surveillance- Install CCTV on Highway 99 at Pine St	$61,000	$2,000
✦ System Detection- Install on Pine St at 2nd St	$20,000	$2,000
City of Central Point Total:	*$81,000*	*$4,000*
Rogue Valley Transportation District (RVTD)		
✦ Transit Signal Priority (TSP): Software Testing Outfit Fleet with TSP Emitters Develop Signal Timings Along Routes 1 and 60	$275,000	$10,000
✦ Automated Vehicle Location (AVL) and Computer Aided Dispatch (CAD) System: Software System CAD Terminals at Dispatch Vehicle Locators for Entire Fleet	$620,000	$20,000
✦ Integrate Transit Traveler Information with ODOT Transit Trip Planning Project	$350,000	$2,000
RVTD Total:	*$1,245,000*	*$32,000*
Southern Oregon Visitor's Association (SOVA)		
✦ Traveler Information Kiosks- Install at: Rogue Valley International- Medford Airport Eagle Point Visitor's Center	$146,000	$9,000
SOVA Total:	*$146,000*	*$9,000*
Shared Projects Between Several Agencies		
✦ Integration Between ODOT Region 3 TOC and Local Transportation Operations Systems	$205,000	-
✦ Integration Between Traffic/Transit Management Systems and Emergency Management Systems	$1,350,000	-
✦ Coordinated Signal Timing at 20 Intersections	$80,000	-
✦ Incident Management and Operations:	$495,000	$15,000

Project Elements	Estimated Costs Capital	Annual O&M
Develop Incident Management and Operations Plan for I-5 from Exit 11 to 35 Install Six Trailblazer Signs in Medford for Viaduct Detour Develop Incident Signal Timing Plans in Medford for Viaduct Detour		
✦ Integrate Regional Traveler Information with TripCheck, 511, and Highway Advisory Radio	$380,000	$9,000
✦ Document Communication Design Standards	$75,000	$3,000
✦ Install Key Communication Network Infrastructure: Switches (Central, Middle, and Edge) Communication Hub	$1,000,000	$50,000
✦ Emergency Vehicle Fleet Management System	$450,000	$15,000
✦ Ambulance-Hospital Information System	$250,000	$25,000
Shared Agencies Total:	*$4,285,000*	*$117,000*
Rogue Valley Council of Governments (RVCOG)		
Manage and Update RVITS Plan	-	$100,000
RVCOG Total:		*$100,000*
TOTAL:	**$8,510,000**	**$365,000**

6.6 FUNDING PLAN

This section seeks to set forth some basic information about available funding sources for Rogue Valley ITS projects. It covers the following:

- ✦ A discussion about how ITS projects will be prioritized and melded into the overall *Regional Transportation Plan (RTP).*
- ✦ A brief overview in text and Table 6-6 of the federal funding situation since the TEA-21 renewal process is unresolved and some possibilities for what the new legislation may contain
- ✦ Appendix O provides details on the six Titles of the old TEA-21 legislation and how they could be used for ITS projects [since this may shortly be obsolete it should be used with caution]
- ✦ Appendix P lists websites and other resources on the subject of transportation finance.

This section does not seek to identify specific funding sources for the specific projects identified earlier in this chapter. Such a step would be inappropriate at this stage, given the uncertainty of the federal TEA-21 renewal and the fact that a new Rogue Valley *Regional Transportation Plan* is due to be adopted by April 2005.

6.6.1 ITS PROJECTS AND THE RTP

In the Rogue Valley MPO, the *Regional Transportation Plan* is updated every three years[5] and the next issue is due to be in place by April 25, 2005, when the current air quality conformity plan expires. The *RTP* is the "umbrella" program that coordinates and integrates all projects desired in the region. Those projects with identified funding during the life of the plan (in this case, through 2030) appear on a "Tier 1" list and those for which funding is not clear are relegated to a "Tier 2" list.

Several projects are underway in the region that respond to specific criteria and goals, and generate their own priority lists. Examples include the STP, CMAQ, freight, transit and other programs. The "funnel diagram" shown in Figure 6-5 describes how the various elements of the *RTP* are integrated into its final Tier 1 and 2 project lists.

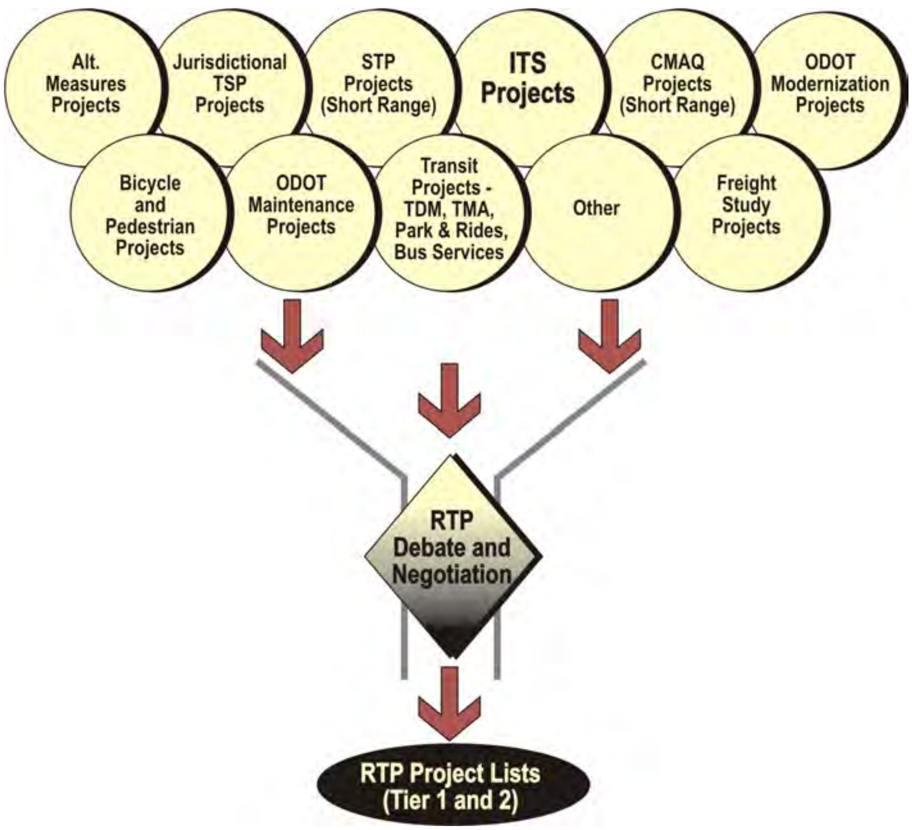


Figure 6-5. RTP Project List Funnel Diagram

6.6.2 OVERVIEW OF TEA-21 RENEWAL

In mid-2003 the Bush Administration, the US House and the US Senate each introduced their bills for the next 6 years of multi-modal federal transportation funding. The House began its proposal at $385 billion; the Senate adopted a bill for $318 billion, whereas the Administration began with a bill of $246 billion. All three bills were proposed to be funded through the federal gas tax and other sources comprising the Highway Trust Fund, and not

5 Updates are required every three years because this is an air quality non-attainment area; otherwise the update schedule would occur every five years.

through general fund revenues. The original House bill would have required an increase in the federal gas tax. The actual funding bills have been a moving target so the following is merely an indication of their variety. One recent published source (April 2004) estimated the funding levels by state under each of three recent proposals and the Oregon funding level is shown in Table 6-5[6].

Table 6-5. Estimated Federal and Oregon Funding

Funding Level	TEA-21 (1998-2003)	DOT/Executive SAFETEA	House TEA-LU	Senate SAFETEA
Federal	$174,000,000,000	$195,100,000,000	$225,700,000,000	$318,000,000,000
Oregon	$2,038,880,248	$2,130,722,602	$2,210,420,796	$2,616,720,377

The wide discrepancy in proposed funding levels as well as some variations in programs have resulted in a failure, thus far, to renew the legislation, although it does appear (as of May 21, 2004) that a compromise at $275 billion may have been reached. Rather than be forced to lay off 5,000 U.S. DOT employees and interrupt many projects, the President has now issued three extensions [by Executive Order] of the old TEA-21 bill, the most recent of which expired on June 30, 2004. In this type of (predictable) situation, a House-Senate Conference Committee normally hammers out a bicameral consensus bill. This is now named and has begun work, although with little likelihood that its task will be completed before Congress takes a summer break. Thus, the context for ITS-specific funding remains unclear.

6.6.3 ITS OPPORTUNITIES THUS FAR

Given this situation, it is not possible to predict federal programs and funding levels that will be available for ITS projects. However, an ITS commitment is present in all the bills. ITS projects cut across several categories of transportation improvement – safety, emergency and incident response, traveler information, congestion mitigation and so on. As such, they may be eligible for federal, state and local funding under almost all of the many available programs. Under TEA-21 the only dedicated funding source for ITS integration and deployment is the ITS Integration program in Section 5208. These funds are typically earmarked each year by Congress. Other federal highway funds may also be used for ITS projects, for example:

- National Highway System (NHS) and Surface Transportation Program (STP) eligibilities are clarified to specifically allow funds to be spent for infrastructure-based ITS capital improvements. [1106(b), 1108(a)].
- Congestion Mitigation and Air Quality Improvement (CMAQ) funding eligibilities are clarified to include programs or projects that implement ITS strategies. [1110(b)][7].

Overall, TEA-21 authorized approximately $1.3 billion in direct federal spending for ITS – $600 million for research and $700 million for deployment of projects. States were also

[6] www.highways.org/pdfs/6yr_chart_2.pdf The discrepancies in the totals compared with the text and Table 6-5 are due to the rapidly changing contents of each bill during early 2004.
[7] http://www4.trb.org/trb/dive.nsf/web/idea_programs

given the discretion, although not the requirement, to use some portion of their general federal Title I[8] funding for certain types of ITS projects.

ODOT does not currently have a specific ITS funding program. To date, all of their ITS funding has been obtained on a project-by-project basis as part of the Statewide Transportation Improvement Program (STIP).

6.6.4 ITS OPPORTUNITIES IN THE TEA-21 RENEWAL PROCESS

All three federal TEA-21 renewal legislations contain specific funding for continued ITS project deployment and research. The various TEA-21 renewal programs contain the following for ITS:

- Administration's $247 billion SAFETEA bill – $1.6 (sic) billion with $700 million for research and $800 million for deployment.
- Senate's $318 billion SAFETEA bill – "would zero out any direct funding for ITS deployment projects but maintain some eligibility in Title I funding sources." Provides $765 million for ITS research.
- House's $385 billion TEA-LU bill creates a new core program to provide congestion relief to the states, using $3 billion worth of ITS solutions as primary tools for this. Described more fully below:

> "TEA-LU would create a new "Congestion Relief" subtitle in Title I that would require states to spend annually a formula-determined amount on projects designed to increase motor vehicle travel reliability, maximize roadway capacity and efficiency, and remove bottlenecks. Funding support would also be made available to improve transportation systems management and operations (such as agency coordination, traffic detection and surveillance, demand management, electronic toll collection, signal coordination, traveler information services etc); create in all 50 states "real-time" traffic and travel conditions monitoring systems; and continue funding incentives for ITS deployment efforts. TEA-LU would require that a minimum, of $3 billion is made available over the life of the bill to fund these programs……Also included in TEA-LU are $150 million for support of 511 traveler information services; $150 million in continued funding for the Commercial Vehicle Information Systems and Network (CVISN); $83.5 million in continued research support. (Thus) If enacted, TEA-LU would provide some $4.135 billion in total direct spending on ITS, more than three times greater than TEA-21. Moreover, if enacted, this new core "Congestion relief" program and mandated funding level would represent the true 'mainstreaming' of ITS as a fundamental part of governmental transportation funding in the United States."[9]

Table 6-6 includes a more detailed summation of the three renewal bills.

---

[8] See Appendix O for a description of the six titles on TEA-21 and how each may have been used to help fund ITS programs.

[9] Kelly, Robert B; Johnson, Mark D. *Bursting the ITS Dam*. Traffic Technology International, Feb/Mar 2004.

Table 6-6. Summary of ITS in All Three Reauthorization Bills Heading into Conference (April 6, 2004)*

	Administration SAFETEA	Senate S1072 SAFETEA	House HR3550 TEA-LU
Total Bill	$256 billion	$318 billion	$284 billion
ITS Deployment Programs *In the core highway funding title*	Subtitle G (operations) includes abundant language encouraging the use of ITS and allowing core program funding to be used, plus there is an $810 million dedicated fund for ITS deployment that is formula-based (performance incentive program).	There is abundant language in Subtitle G (operations) encouraging the use of ITS and allowing core program funding to be used, but there is only one program where funding must be spent on operational improvements (including but not limited to ITS), and within that the money is only allocated for 2004.	Subtitle B (Congestion Relief) is all about ITS deployment and operational improvements, with a $3 billion dedicated ITS deployment program (using core program funds), a congestion relief program further requiring a percentage of allocations for urban areas to be used for ITS and operational improvements, and dedicated 511 program funding at $36 million.
ITS Research and Development *In the research title*	Includes language covering a variety of issues, with funding at $726 million (20% increase over TEA-21)	Includes similar language to the Administration's research section, but has a few specific set-asides that take from the R&D pot making available funds of only $519 million (14% decrease over TEA-21)	Includes similar language to the Administration's research section, with funding at $690 million (14% increase over TEA-21). Note: Science Committee may still have recommended changes for T&I Committee as they head into conference
Other Notable Programs That Impact ITS	✦ CVISN (Sec. 1704) includes $25 million per year in grants not to exceed $2.5M at a time. ✦ HOT Lanes - may allow if the agency develops, manages, and maintains a system that will automatically collect the toll (Sec. 1610).	✦ CVISN (Sec. 4241) includes $25 million per year in grants not to exceed $2.5M at a time . ✦ HOT Lanes - fees collected from motorists using a fast lane shall be collected only through the use of noncash electronic technology that optimizes the free flow of traffic on the tolled facility (Sec. 1609).	✦ CVISN (Sec. 4109) includes $22 million per year in grants not to exceed $2.5M at a time. ✦ HOT Lanes - may allow if the agency develops, manages, and maintains a system that will automatically collect the toll (Sec. 1208). ✦ High Priority Projects (Sec. 1702) includes specific allocations for hundreds of projects, several of them including ITS deployment (over $80 million).

*Source: ITS America website, May 21, 2004

6.6.5 HOMELAND SECURITY FUNDING FOR ITS

The Department of Homeland Security (DHS), formed after the terrorist attacks of September 11, 2001, has a mission that overlaps to some degree with ITS, especially in the areas of protecting key infrastructure, emergency response and electronic communications. It therefore represents a potential new capital and planning funding source for jurisdictions. A variety of programs has been created, some channeling funds through the 50 states and others, for example, providing funds directly to local fire districts with no state-level pass-through.

In the first two funding years of DHS funding, the focus has naturally been on the nation's larger urban systems and major infrastructure such as the air carrier airport system and large rail-based mass transit systems. As time goes on, however, more funds are being made available for smaller systems and agencies. In its proposed FY 2005 budget, DHS is seeking a total of $40.167 billion up from $36.541 billion in FY 2004 and from $31.182 billion in FY 2003. The Division of most interest to local governments seeking funding is the Office for Domestic Preparedness (ODP), which has a 2005 budget request of $3.561 billion, which is actually down from its 2004 allocation of $4.366 billion, although 82 percent up over 2003's $1.961 billion. Thus, applications will likely be highly competitive.

Major divisions of ODP include:

- State/Local Programs
- Exercise & Evaluation
- Training & Technical Assistance Programs
- Assistance to Fire Fighter Grant Program (formerly a program under FEMA)

According to ODP's 2005 budget document:

> "ODP awards grants to every State and territory in the Union using population-based formulas, and awards grants to metropolitan regions and other critical areas based on intelligence assessments and its (sic) economic and symbolic national importance. Also, ODP provides support and resources for the planning and execution of national/regional exercises, technical assistance and other counterterrorism expertise. Finally, ODP administers the Assistant to Fire Fighters Grant Program, which provides financial assistance directly to fire departments at the local government level for procurement of conventional fire suppression equipment, firefighter personal safety, and fire apparatus."

According to Ron Norris, former deputy police chief for Medford, the state of Oregon had some $32 million in FY 2004 from DHS that must be applied for county by county, after a risk assessment is performed. In Jackson County, this risk assessment has identified Jackson County interoperability (of communications equipment) as a priority. Jackson County, Medford and Ashland have received some funds thus far; once the FY 2005 budget is in place (the FY begins October 1, 2004) it will be clearer what is available to pursue. Mr. Norris indicates that the next round of applications will be due in February or March 2005. Thus, within the next three to six months it will be appropriate for the MPO to identify specifically what DHS grants the region and /or its member agencies should plan to apply for. In particular, the following DHS grants are appropriate funding sources for interoperable communications:

- Title V, Section 5208: "Intelligent Transportation System Integration Program"
- Title V, Section 3007: "Urban Area Formula Grant"

6.6.6 CONCLUSION

The future funding of ITS projects in the Rogue Valley depends heavily upon the overall funding levels and specific funding programs of the new TEA-21 legislation, which can be anticipated by year's end. Given federal budget constraints and the Administration's stated commitment to not raising the federal gas tax, it seems unlikely that the ambitious ITS-specific funding levels of the House bill will come into being at this time.

However, it does seem clear that ITS as a program and concept has gained credibility with decision-makers and that some degree of specific funding for ITS deployment will result, as well as a continued acceptance of the use of other funding sources for ITS uses.

Furthermore, the Department of Homeland Security may be looked to as a new potential source of ITS funding with which local grant-seekers need to be fully conversant as these programs evolve.

Oregon Department of Transportation

Rogue Valley Intelligent Transportation Systems

Appendix A: Glossary of Acronyms

LIST OF ACRONYMS

AAA	American Automobile Association
AASHTO	American Association of State Highway and Transportation Officials
AD	Archived Data
ADT	Average Daily Traffic
AFN	Ashland Fiber Network
AM	Amplitude Modulation
APC	Automated Passenger Counting
APD	Ashland Police Department
APTS	Advanced Public Transportation Systems
ARC	American Red Cross
ARFF	Aircraft Rescue and Firefighting
ASTM	American Society for Testing and Materials
ATC	Advanced Transportation Controller
ATIS	Advanced Traveler Information System
ATM	Asynchronous Transfer Mode
ATMS	Advanced Traffic Management System
ATR	Automatic Traffic Recorder
AVI	Audio Video Interleave
AVL	Automated Vehicle Location
AVSS	Advanced Vehicle Safety Systems
BOEC	Bureau of Emergency Communications
bps	Bits Per Second
C2C	Center-to-Center
C2F	Center-to-Field
CAD	Computer-Aided Dispatch
CalTrans	California Department of Transportation
CBD	Central Business District
CCTV	Closed-Circuit Television
CFMS	Changeable Fixed Message Sign
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CO	Communications
COATS	California-Oregon Advanced Transportation Systems
Codec	Coder/Decoder or Compressor/Decompressor
CORBA	Common Object Request Broker Architecture
CPPD	Central Point Police Department
CSC	City Service Center
CVISN	Commercial Vehicle Information Systems and Network
CVO	Commercial Vehicle Operations

DATEX	Data Exchange Between Systems
DFD	Data Flow Diagram
DHS	Department of Homeland Security
DMS	Dynamic Message Sign
DOT	Department of Transportation
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
DSRC	Dedicated Short Range Communication
DWDM	Dense Wavelength Division Multiplexing
E	East
EB	Eastbound
EIA	Electronic Industries Alliance
EM	Emergency Management
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EPPD	Eagle Point Police Department
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FM	Frequency Modulation
FTA	Federal Transit Administration
FTP	File Transfer Protocol
FY	Fiscal Year
Gbps	Gigabits Per Second
GHz	Gigahertz
GigE	Gigabit Ethernet
GIS	Geographical Information System
GPS	Global Positioning System
H	High
HAR	Highway Advisory Radio
HDSL	High Data-Rate Digitial Subscriber Line
HOT	High Occupancy Toll
IEEE	Institute of Electrical and Electronics Engineers
IGA	Intergovernmental Agreement
IM	Information Management
IMSS	Incident Management Message Sets
IP	Internet Protocol
ISP	Information Service Provider
ISTEA	Intermodal Surface Transportation Efficiency Act
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems
JCFD	Jackson County Fire District
JCSO	Jackson County Sheriff's Office
JPD	Jacksonville Police Department
K (or kbps)	Kilobits Per Second
kbps (or K)	Kilobits Per Second
L	Low
LTD	Lane Transit District
M	Medium

Mbps	Million Bits Per Second
MC	Maintenance and Construction
MDT	Mobile Data Terminal
MEV	Million Entering Vehicles
MHz	Megahertz
MM	Multimode
MOU	Memorandum of Understanding
MP	Milepost
MPD	Medford Police Department
MPEG	Motion Picture Expert Group
MPO	Metropolitan Planning Organization
MS/ETMCC	Message Sets for External Traffic Management Center Communications
MTBF	Mean Time Between Failures
N	North
NAAQS	National Ambient Air Quality Standards
NAWAS	National Air Warning Alert System
NB	Northbound
NEMA	National Electrical Manufacturers Association
NHS	National Highway System
NIC	Network Interface Card
NOAA	National Oceanic and Atmospheric Administration
NTCIP	National Transportation Communications for ITS Protocol
NTSC	National Television System Committee
NWS	National Weather Service
O&M	Operations and Maintenance
ODOT	Oregon Department of Transportation
ODP	Office for Domestic Preparedness
OMAP	Oregon Medical Assistance Program
OSI	Open System Interconnection
OSP	Oregon State Police
OTIA	Oregon Transportation Investment Act
PAC	Public Advisory Council (Part of RVMPO)
PDA	Personal Digital Assistant
PMPP	Point to Multipoint Protocol
POE	Port of Entry
PPD	Phoenix Police Department
PPP	Point to Point Protocol
PSAP	Public Safety Answering Point
PSpecs	Process Specifications
PTM	Public Transportation Management
PTZ	Pan-Tilt-Zoom
QoS	Quality of Service
R&D	Research and Development
RF	Radio Frequency
RFPD	Rural Fire Protection District
RS	Recommended Standard
RTP	*Regional Transportation Plan*
RTPO	Regional Transportation Planning Organization
RV	Rogue Valley

RVACT	Rogue Valley Area Commission on Transportation (Part of RVMPO)
RVCCOM	Rogue Valley Communications Center (Part of Medford Police Department)
RVCOG	Rogue Valley Council of Governments
RVITS	Rogue Valley Intelligent Transportation Systems
RVMPO	Rogue Valley Metropolitan Planning Organization
RVTD	Rogue Valley Transportation District
RWIS	Roadway Weather Information System
Rx	Receiver
S	South
SAE	Society of Automotive Engineers
SAFETEA	Safe, Accountable, Flexible, and Efficient Transportation Equity Act for 2003
SB	Southbound
SDO	Standards Development Organization
SLA	Service Level Agreement
SLIP	Serial Line Internet Protocol
SM	Single Mode
SNMP	Simple Network Management Protocol
SONET	Synchronous Optical NETwork
SORC	Southern Oregon Regional Communications
SOU	Southern Oregon University
SOV	Single Occupancy Vehicle
SOVA	Southern Oregon Visitor's Association
SPIS	Safety Priority Index System
STIP	*Statewide Transportation Improvement Program*
STMP	Simple Transportation Management Protocol
STP	Surface Transportation Program
T&I	Transportation and Infrastructure
TAC	Technical Advisory Council (Part of RVMPO)
TCIP	Transit Communications Interface Profile
TCP/IP	Transmission Control Protocol/Internet Protocol
TCSP	Transportation and Community and System Preservation
TDM	Transportation Demand Management
TEA-21	Transportation Equity Act for the 21st Century
TEA-LU	Transportation Equity Act: A Legacy for Users
TIA	Telecommunication Industry Association
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIP	Transportation Improvement Program
TM	Travel and Traffic Management
TMA	Transportation Management Association
TMC	Traffic Management Center
TMDD	Traffic Management Data Dictionary
TMOC	Traffic Management and Operations Center
TOC	Traffic Operations Center
TOCS	Transportation Operations Center System
TOD	Transit Oriented Development
TPAU	Transportation Planning Analysis Unit (Part of ODOT)
TPD	Talent Police Department
TRADCO	Transportation Advisory Committee
TRB	Transportation Research Board

TriMet	Tri-County Metropolitan Transportation District of Oregon
TSP	Transportation System Plan
TSP	Transit Signal Priority
TTPC	Transportation, Transit, and Parking Committee
TV	Television
Tx	Transmitter
UCB	Urban Containment Boundary
UDP/IP	User Datagram Protocol/Internet Protocol
UGB	Urban Growth Boundary
US	United States
U.S. DOT	United States Department of Transportation
V/C	Volume-to-Capacity
VCR	Video Cassette Recorder
VPN	Virtual Private Network
W	West
WB	Westbound
WIM	Weigh-in-Motion
WSDOT	Washington State Department of Transportation
XML	Extensible Markup Language

Appendix B: References

LIST OF REFERENCES

2004 – 2005 Traffic Safety Improvement Program, Jackson County, Dec. 22, 2003.

Ashland Transportation, Transit, and Parking Committee (TTPC) Final Recommendation, Aug. 25, 2000.

Astle, Dave. *Southern Oregon Commuter Rail Study*. Prepared for the Oregon Department of Transportation Rail Division, Rogue Valley Transportation District, and Rogue Valley Council of Governments, June 2001.

City of Central Point Transportation System Plan, Public Review Draft, City of Central Point, Nov. 2000.

City of Jacksonville Transportation System Plan, City of Jacksonville, Sept. 5, 1995.

City of Medford Transportation System Plan, Prepared by Parametrix for the City of Medford, June 2003.

City of Phoenix Comprehensive Land Use Plan Transportation Element, Draft, City of Phoenix City Council, June 21, 1999.

City of Talent Transportation System Plan, City of Talent, June 2002.

Draft Statewide Transportation Improvement Program 2004 – 2007, Public Review Draft, Oregon Department of Transportation, Oct. 2002.

Draft Transportation System Plan- City of Eagle Point, Rogue Valley Council of Governments, June 2001.

Emergency Detour Contingency Manual, Oregon Department of Transportation, Region 3, March 1996.

Federal Transit Administration National ITS Architecture Policy on Transit Projects: Notice, Federal Transit Administration, FTA Docket No. FTA-99-6147, Jan. 8, 2001.

I-5 State of the Interstate Report – 2000: A Transportation Conditions Report, Oregon Department of Transportation, June 2000.

Intelligent Transportation System Architecture and Standards: Final Rule, U.S. Department of Transportation, Federal Highway Administration, FHWA Docket No. FHWA-99-5899, Jan. 8, 2001.

ITS Standards. U.S. Department of Transportation. May 22, 2003. www.standards.its.dot.gov/standards.htm. Accessed March 24, 2004.

Jackson County Oregon Transportation System Plan, Draft Report, Prepared by Kittelson & Associates, Inc. and Angelo Eaton & Associates for Jackson County, Oct. 2003.

Market Packages. U.S. Department of Transportation. Nov. 3, 2003. itsarch/iteris.com/itsarch/html/user/userserv.htm. Accessed March 24, 2004.

National ITS Architecture, Version 5.0. U.S. Department of Transportation. Nov. 3, 2003. itsarch/iteris.com/itsarch. Accessed March 24, 2004.

National ITS Architecture Team. *Regional ITS Architecture Guidance: Developing, Using, and Maintaining an ITS Architecture for Your Region*. Prepared for U.S. Department of Transportation, Federal Highway Administration, and Federal Transit Administration. FHWA-OP-02-024. Oct. 12, 2001.

National ITS Architecture Team. R*egional ITS Architecture Maintenance White Paper*. Prepared for U.S. Department of Transportation. FHWA-HOP-04-004. Jan. 31, 2004.

NTCIP: The National Transportation Communications for ITS Protocol Online Resource. AASHTO, ITE, and NEMA. March 22, 2004. www.nctip.org. Accessed March 24, 2004.

The NTCIP Guide: Updated Version 3. NTCIP 9001. AASHTO, ITE, and NEMA, v03.02b, Oct. 2002.

ODOT ITS Strategic Plan: 1997 – 2017, Oregon Department of Transportation, Oct. 1998.

Oregon Department of Transportation Economic and Bridge Options Report, Prepared by the Economic & Bridge Options Team for the Oregon Transportation Commission, Aug. 22, 2003.

Oregon Green Light. Oregon Department of Transportation. Jan. 6, 2004. www.odot.state.or.us/trucking/its/green/light.htm. Accessed Jan. 16, 2004.

Rogue Valley Metropolitan Planning Organization 2001 – 2023 Regional Transportation Plan, Rogue Valley Council of Governments, April 25, 2002.

Safety Management System: Safety Priority Index System, Oregon Department of Transportation, Traffic Management Section, Transportation Safety Division, Aug. 2003.

State of Oregon Emergency Management Plan, Oregon Emergency Management, June 2000.

Statewide Transportation Improvement Program 2002 – 2005, Oregon Department of Transportation, May 2002.

Strong, Christopher and Stephen Albert. *California-Oregon Advanced Transportation Systems ITS Strategic Deployment Plan*. Prepared by the Western Transportation Institute, Montana State University for the State of California Department of Transportation New Technology and Research Program, the State of Oregon Department of Transportation Traffic Management Section, and the U.S. Department of Transportation Federal Highway Administration, May 2001.

Title 23, Code of Federal Regulations (CFR), Highways, Chapter 1: Federal Highway Administration, Department of Transportation, Part 940: Intelligent Transportation System Architecture and Standards.

Transit Communications for ITS Protocols (TCIP). Institute of Transportation Engineers. http://www.ite.org/standards/tcip.asp. Accessed March 24, 2004.

TripCheck. Oregon Department of Transportation. www.tripcheck.com.

Turbo Architecture, Version 3.0, developed by Iteris for the U.S. Department of Transportation, Federal Highway Administration, 2004.

User Services Bundles and User Services. U.S. Department of Transportation. Nov. 3, 2003. itsarch/iteris.com/itsarch/html/user/userserv.htm. Accessed March 24, 2004.

White City Oregon Transportation System Plan, Draft Report, Prepared by Kittelson & Associates, Inc. and Angelo Eaton & Associates for Jackson County, Oct. 2003.

Appendix C: Regional Facilities

CONTENTS

Table C-1. Regional City Hall Locations

City Hall	Address			
Ashland	20 E Main St	Ashland	OR	97520
Central Point	155 S 2nd St	Central Point	OR	97502
Eagle Point	17 S Buchanan Ave	Eagle Point	OR	97524
Jacksonville	110 E Main St	Jacksonville	OR	97530
Medford	411 W 8th St	Medford	OR	97501
Medford Lausmann Annex	200 S Ivy	Medford	OR	97501
Phoenix	510 W 1st St	Phoenix	OR	97535
Talent	204 E Main St	Talent	OR	97540

Table C-2. Regional Transportation Agency Office Locations

Agency	Address			
City of Ashland Public Works	51 Winburn Way	Ashland	OR	97520
City of Central Point Public Works	Central Point City Hall			
City of Eagle Point Public Works	Eagle Point City Hall			
City of Jacksonville Public Works	Jacksonville City Hall			
City of Medford Public Works	Medford City Hall			
City of Phoenix Public Works	Phoenix City Hall			
City of Talent Public Works	Talent City Hall			
Jackson County Roads, Parks, & Planning ODOT District 8	200 Antelope Rd	White City	OR	97503
ODOT Region 3 Transportation Operations Center (TOC)	4500 Rogue Valley Hwy (Collocated with Oregon State Police)	Central Point	OR	97502
Rogue Valley Council of Governments (RVCOG)	155 N 1st St	Central Point	OR	97502
Rogue Valley Transportation District (RVTD) Main Office	3200 Crater Lake Ave	Medford	OR	97505
RVTD TransLink Call Center	518 W 6th St	Medford	OR	97501

Table C-3. Transportation Maintenance Facility Locations

Agency	Address			
City of Central Point Public Works	399 S 5th St	Central Point	OR	97502
City of Jacksonville Public Works	400 W C St	Jacksonville	OR	97530
City of Medford Public Works	821 N Columbus Ave	Medford	OR	97501
City of Phoenix Public Works	1000 S B St	Phoenix	OR	97535
Jackson County Roads, Parks, & Planning	Transportation Agency Office			
ODOT District 8	706 Tolman Creek Rd	Ashland	OR	97520
	3131 Hamrick Rd	Central Point	OR	97502
Rogue Valley Transportation District (RVTD)	RVTD Main Office			

Table C-4. Regional Emergency Operations Center (EOC) Locations

Agency	Address
City of Ashland	1175 E Main St Ashland OR 97520 (Civic Center Council Chambers)
City of Central Point	Central Point City Hall
City of Eagle Point	Eagle Point City Hall
City of Jacksonville	Jacksonville Public Works Maintenance Facility
City of Medford	Medford City Hall Lausmann Annex
City of Phoenix	Phoenix Public Works Maintenance Facility
City of Talent	Jackson County Rural Fire Protection District (RFPD) #5
Jackson County	Southern Oregon Regional Communications

Table C-5. Regional 911 Center Facilities

911 Center	Address
Rogue Valley Central Communications (RVCCOM)	Medford City Hall (Part of Medford Police Department)
Southern Oregon Regional Communications (SORC)	10 S Oakdale Ave Medford OR 97501

Table C-6. Regional Police Facilities

Agency	Address
Ashland Police Department (APD)	Ashland City Hall
Central Point Police Department (CPPD)	Central Point City Hall
Eagle Point Police Department (EPPD)	Eagle Point City Hall
Jackson County Sheriff's Office (JCSO)	787 W 8th St Medford OR 97501
Jacksonville Police Department (JPD)	Jacksonville City Hall
Medford Police Department (MPD)	Medford City Hall
Phoenix Police Department (PPD)	Phoenix City Hall
Oregon State Police (OSP)	4500 Rogue Valley Hwy Central Point OR 97502
Southern Oregon University (SOU) Campus Security	382 Wightman St Ashland OR 97520
Talent Police Department (TPD)	604 Talent Ave Talent OR 97540

Table C-7. Regional Fire & Rescue Facilities

Agency	Address			
Aircraft Rescue & Firefighting (ARFF) Department	3650 Biddle Rd (Rogue Valley-Medford International Airport)	Medford	OR	97504
Applegate Valley Rural Fire Protection District (RFPD) #9	1095 Upper Applegate Rd	Jacksonville	OR	97530
Ashland Fire & Rescue Headquarters	455 Siskiyou Blvd	Ashland	OR	97520
Ashland Fire & Rescue Station #2	1860 Ashland St	Ashland	OR	97520
Deputy State Fire Marshal	2700 N Pacific Hwy	Medford	OR	97501
Jackson County Fire District (JCFD) #3 Headquarters- White City Station	8333 Agate Rd	White City	OR	97503
JCFD#3 Agate Lake Station	880 E Antelope Rd	Eagle Point	OR	97524
JCFD#3 Central Point Station	600 S Front St	Central Point	OR	97502
JCFD#3 Eagle Point Station	213 Loto St	Eagle Point	OR	97524
Jackson County Rural Fire Protection District (RFPD) #5	581 S Pacific Hwy	Talent	OR	97540
Jacksonville Fire Department	180 N 3rd St	Jacksonville	OR	97530
Medford Fire & Rescue Headquarters	Medford City Hall Lausmann Annex			
Medford Fire & Rescue Station #2	W 8th St/Lincoln St	Medford	OR	97501
Medford Fire & Rescue Station #3	Siskiyou Blvd/Highland Dr	Medford	OR	97504
Medford Fire & Rescue Station #4	2208 Table Rock Rd	Medford	OR	97501
Medford Fire & Rescue Station #5	Roberts Rd/N Keeneway Dr	Medford	OR	97504
Medford Fire & Rescue Station #6	Barnett Rd/N Phoenix Rd	Medford	OR	97504
Mercy Flights Headquarters	3650 Biddle Rd #14	Medford	OR	97504
Mercy Flights Ambulance Fleet Locations	11655 Hwy 62	Eagle Point	OR	97524
	2109 Barnett Rd	Medford	OR	97504
	1913 Delta Waters Rd	Medford	OR	97504
	531 Parsons Dr	Medford	OR	97501
	5050 Table Rock Rd	Medford	OR	97502
Phoenix Fire Department	Phoenix City Hall			

Table C-8. Regional Hospital Locations

Hospital	Address			
Ashland Community Hospital	280 Maple St	Ashland	OR	97520
Providence Medford Medical Center	1111 Crater Lake Ave	Medford	OR	97504
Rogue Valley Medical Center	2825 E Barnett Rd	Medford	OR	97504

Table C-9. Regional School Locations

School	Type of School	Address			
Abraham Lincoln	Elementary	3101 McLoughlin Dr	Medford	OR	97504
Armadillo Technical Institute	High	306 W 1st St	Phoenix	OR	97535
Ashland	Middle	100 Walker Ave	Ashland	OR	97520
Ashland	High	201 S Mountain Ave	Ashland	OR	97520
Bellview	Elementary	1070 Tolman Creek Rd	Ashland	OR	97520
Briscoe	Elementary	265 N Main St	Ashland	OR	97520
Cascade Christian	High	525 E E St	Jacksonville	OR	97530
Central Point	Elementary	450 S 4th St	Central Point	OR	97502
Childrens Garden	Elementary	3665 E Barnett Rd	Medford	OR	97504
Crater	High	410 Rogue Valley Hwy	Central Point	OR	97502
Eagle Point High	High School	203 N Platt St	Eagle Point	OR	97524
Eagle Point Junior High	Middle	203 N Platt St	Eagle Point	OR	97524
Glenn D Hale	Elementary	215 E Main St	Eagle Point	OR	97524
Grace Christian	Elementary	649 Crater Lake Ave	Medford	OR	97505
Grace Lutheran	Elementary	660 Francis Ln	Ashland	OR	97520
Grace Lutheran	Elementary	1760 E Main St	Ashland	OR	97520
Griffin Creek	Elementary	2430 Griffin Creek Rd	Medford	OR	97501
Harvest Baptist	Elementary	2001 S Columbus Ave	Medford	OR	97501
Hedrick	Middle	1501 E Jackson St	Medford	OR	97504
Helman	Elementary	705 Helman St	Ashland	OR	97520
Hoover	Elementary	2323 Siskiyou Blvd	Medford	OR	97504
Howard	Elementary	286 Mace Rd	Medford	OR	97501
Jackson	Elementary	630 W Jackson St	Medford	OR	97501
Jacksonville	Elementary	655 Huener Ln	Jacksonville	OR	97530
Jefferson	Elementary	333 Holmes Ave	Medford	OR	97501
Jewett	Elementary	1001 Manzanita Dr	Central Point	OR	97520
Kennedy	Elementary	2860 N Keeneway Dr	Medford	OR	97504
Lincoln	Elementary	320 Beach St	Ashland	OR	97520
Little Butte Intermediate	Elementary	12 N Shasta Ave	Eagle Point	OR	97524
Lone Pine	Elementary	3158 Lone Pine Rd	Medford	OR	97504
Mae Richardson	Elementary	200 W Pine St	Central Point	OR	97502
McLoughlin	Middle	320 W Second St	Medford	OR	97501
Montessori School of Medford	Elementary	1398 Poplar Dr	Medford	OR	97504
Mountain View	Elementary	7837 Hale Wy	White City	OR	97503
New Dimension Christian	Elementary	1108 W Main St	Medford	OR	97501
North Medford	High	1900 N Keeneway Dr	Medford	OR	97504

School	Type of School	Address			
Oak Grove	Elementary	2838 Jacksonville Hwy	Medford	OR	97501
Orchard Hill	Elementary	1011 La Loma Dr	Medford	OR	97504
Phoenix	Elementary	215 Rose St	Phoenix	OR	97535
Phoenix	High	745 N Rose St	Phoenix	OR	97535
Rogue Community College Riverside Campus	College	117 S Central Ave	Medford	OR	97501
Rogue Valley Adventist	Elementary	3675 S Stage Rd	Medford	OR	97501
Rogue Valley Christian	Elementary	1440 S Oakdale Ave	Medford	OR	97501
Roosevelt	Elementary	112 Lindley St	Medford	OR	97504
Sacred Heart	Elementary	431 S Ivy St	Medford	OR	97501
Scenic	Middle	1955 Scenic Ave	Central Point	OR	97502
South Medford	High	815 S Oakdale	Medford	OR	97501
Southern Oregon University (SOU)	University	1250 Siskiyou Blvd	Ashland	OR	97520
SOU Medford Campus	University	229 N Bartlett St	Medford	OR	97501
St Mary's	High	816 Black Oak Dr	Medford	OR	97504
Talent	Elementary	307 W Wagner Ave	Talent	OR	97540
Talent	Middle	102 Christian Ave	Talent	OR	97540
Walker	Elementary	364 Walker Ave	Ashland	OR	97520
Washington	Elementary	610 S Peach St	Medford	OR	97501
White City	Elementary	2830 Maple Ct	White City	OR	97503
Wilson	Elementary	1400 Johnson St	Medford	OR	97504

Appendix D: Collision Data

CONTENTS

Oregon Department of Transportation

Safety Management System

Safety Priority Index System (SPIS)

OREGON DEPARTMENT of TRANSPORTATION
Traffic Management Section
Transportation Safety Division

August 2003

Safety Priority Index System (SPIS)

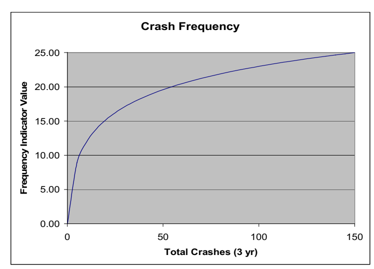
The Safety Priority Index System (SPIS) is a method developed in 1986 by the Oregon Department of Transportation (ODOT) for identifying potential safety problems on state highways. The Federal Highway Administration (FHWA) accepted SPIS as fulfilling the requirements of the Highway Safety Improvement Program (HSIP). When Oregon began developing its Safety Management System in response to the 1991 ISTEA, it identified SPIS as one of several essential building blocks. SPIS has been recognized as an effective problem identification tool for evaluating state highways for segments with higher crash histories.

Several modifications to SPIS were implemented following the study, "An Evaluation of the Safety Priority Index System (SPIS)," completed by Dr. Robert Layton of the Transportation Research Institute at Oregon State University. These modifications were implemented in the 1998 SPIS reports, and were "fine-tuned" in the 1999 SPIS reports. These adjustments to the calculations created a large difference in the number of sites located in 1998 in comparison to years past, making it *appear* that more sites exist. However, the new calculations and listings are more applicable to both urban and rural sites, and allow for better understanding of the reported values.

Index Formulation

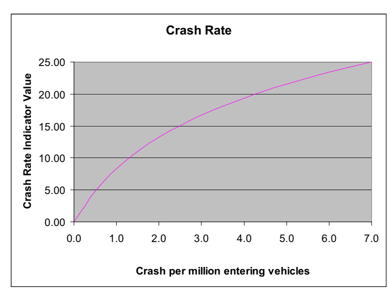
The SPIS is a method of identifying locations where safety money may be spent to the highest benefit. The SPIS score is based on three years of crash data and considers crash frequency, crash rate, and crash severity. A roadway segment becomes a SPIS site if a location has three or more crashes, **or** one or more fatal crashes over the three year period. SPIS sites are 0.10 mile sections on the state highway system. The priority index has three parameters and associated Indicator Values (IV):

Crash frequency indicator value	(IV_{Freq})	25% of SPIS score
Crash rate indicator value	(IV_{Rate})	25% of SPIS score
Crash severity indicator value	($IV_{Severity}$)	50% of SPIS score



The crash frequency indicator value, **IV_{Freq}**, is a value between 0 and 25 determined using a logarithmic distribution based on total crashes in a three-year period. The maximum indicator value of 25% is obtained when the total number of crashes reaches 150 crashes on the same 0.10-mile segment over a 3-year period.

$$IV_{Freq} = \left[\frac{LOG(TotalCrashes + 1)}{LOG(150 + 1)}\right](25)$$

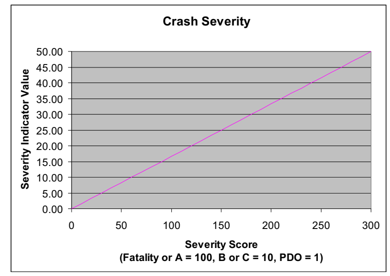


The crash rate indicator, **IV_{Rate}**, is a value between 0 and 25, also determined by using a logarithmic distribution based on the following crash rate calculations. Again, the maximum indicator value of 25% is obtained when the crash rate reaches seven crashes per million entering vehicles.

$$IV_{Rate} = \left[\frac{LOG\left(\left(\frac{(TotalCrashes)(1{,}000{,}000)}{(3yr)(365days)(ADT)}\right)+1\right)}{LOG(7+1)} \right](25)$$

The crash severity indicator, **IV**$_{\mathbf{Severity}}$, is a value between 0 and 50, which is determined by using a linear distribution from the calculation below. The formula considers severity values between 0 and 300 only, therefore severity products above 300 are assigned the maximum value, to match the maximum indicator value of 50%.

$$IV_{Severity} = \left[\frac{100(FATAL + INJ_A) + (10)(INJ_B + INJ_C) + (PDO)}{(300)} \right](50)$$



Where:

FATAL = The number of fatalities;

INJ_A = the number of severe injuries (Class A);

INJ_B = the number of moderate injuries (Class B);

INJ_C = the number of minor injuries (Class C);

PDO = the number of “property damage only” crashes.

The SPIS value is the sum of the above indicator values (IV_{Freq}+IV_{Rate}+$IV_{Severity}$) for 0.10 mile (0.16 km) sections of urban and rural roads, shifted by 0.01 mile for each new section.

SPIS Report Formats

In 2001, the SPIS Reports were reformatted to enhance usability. The following changes were incorporated:

- SPIS sites have been "grouped" and are reported as such. A "group" is defined as consecutive SPIS sites that are less than 0.01 miles from the ending milepoint (EMP) of one site to the beginning milepoint (BMP) of the next SPIS site. Groups were defined for the Top 10% and for All Sites. Investigation reports can be reported for "group" rather than individual site. Complete SPIS lists are still available.
- City street, state highways, other connections are listed for the BMP of any SPIS site.
- City and county jurisdiction were added for each SPIS Site.
- Route Number (OR-22, I-5 etc.) were added for each SPIS site.
- Percentile reported for the each 5% increment of the top 25%.
- An Access database available to Region staff that allows for custom queries by highway, milepoint, and Region.

In 2002, two minor enhancements were made to the SPIS Reports:

- The code for the mileage type was added to most report. This allows for easy identification of any "Z" mileage locations.
- The 2002 SIP Segment Rating for the section the SPIS site is located within was determined and included.

Oregon Department of Transportation

2002, Top 10% SPIS Groups - By Highway, Prefix, Milepoint

Region 2

Rte	Pfx	Mlg	BMP	EMP	Lgth	ADT*	Crsh*	Fatal*	City	County	Connection in Group*	SPIS*	SIP*
1	**PACIFIC**												
I-5	0		184.91	185.09	0.18	42,300	7	1		Lane		49.22	3
I-5	0		248.91	249.09	0.18	54,800	8	0		Marion	CONN. NO. 3 M.P. 3C248.94	51.29	3
9	**OREGON COAST**												
US-101	0		20.96	21.14	0.18	15,700	22	0	Seaside	Clatsop	OCEAN WAY	75.53	4
US-101	0		65.21	65.32	0.11	17,800	26	0	Tillamook	Tillamook		46.29	1
US-101	0		114.12	114.26	0.14	22,000	27	0	Lincoln City	Lincoln	17TH ST.	58.64	3
US-101	0		114.21	114.33	0.12	22,000	18	0	Lincoln City	Lincoln	16TH ST.	49.16	3

Field	Definition	Source
Hwy	Internal ODOT Highway Number	ITIS Database
Hwy Name	Internal ODOT Highway Name	ITIS Database
Route	Route Number	Arcview Dataset, data added by Traffic Management
Pfx	Prefix, See Crash Data Code Manual for descriptions	ITIS Database
Mlg	Mileage type	ITIS Database
BMP	Beginning Milepoint of SPIS site	ITIS Database
EMP	Ending Milepoint of SPIS site	ITIS Database
Lgth	Length, for SPIS Groups, the distance from the BMP to the EMP	Calculated
99ADT	Average Daily Traffic in 1999. For SPIS groups, the maximum value in the group is reported	ITIS Database
Crsh	Total number of crashes in three year period in 0.10 mile. For SPIS groups, the maximum value in the group is reported	Crash Database
Fatal	Total number of fatalities in three year period in 0.10 mile. For SPIS groups, the maximum value in the group is reported	Crash Database
Cul	Describes roadway environment, can be urban (U) or rural (R)	ITIS Database
City	If BMP of SPIS site is within city limits, city name is reported	Arcview Dataset, data added by Traffic Management
Percentile	The percentile of the SPIS site, relative to the entire list	Calculated

County	If BMP of SPIS site is within county limits, county name is reported	Arcview Dataset, data added by Traffic Management
SPIS	Composite score based on rate, frequency, and severity of crashes. For SPIS groups, the maximum value in the group is reported	SPIS program
Connection	Name of connection at BMP. Not all connections are reported. For SPIS groups, the maximum alphabetical value in the group is reported	ITIS Database, added by Traffic Management
SIP	The Safety Investment Program (SIP) Segment Rating of the segment that the SPIS site is located in. Varies from 1-5, with 5 having 10 or more fatal / injury A crashes in a three year period.	SIP database

SPIS Analysis

Each year, the Traffic Management Section generates regional reports of the top 10% ranked SPIS sites for review by the five Region Traffic Managers. The Region staff evaluates the sites on this "Top 10%" list and considers the safety problems which may be contributing to the crash history at these locations. If a correctable problem is identified, benefit/cost analysis is performed on viable options and appropriate projects are initiated. Regions report the results of these site evaluations, including potential causes and possible corrections, to the State Traffic Engineer. While the SPIS reports are computer-generated by the Traffic Management Section, the rest of the process is manual and is primarily performed by Regional personnel.

An Accident Summary Database is also created annually for use by region and consultant staff in evaluating sections of highway. The interface allows the user to enter a section of state highway, from milepost 'x' to milepost 'y'. The database then yields information for that section of highway regarding number and type of accidents, highest and lowest SPIS values, and traffic volume information.

Annual Process for SPIS Reports

- *April* The Crash Data Unit of the Transportation Data Section collects, compiles, and enters crash data into a database. This data is accessed by the Information Services Branch (ISB) and placed on the production server for use by the Traffic Management Section.

- *May* The Highway Safety Engineering Coordinator runs the Manage SPIS application, created by ISB, to compile the data on the production server. Once the necessary information has been compiled, the Highway Safety Engineering Coordinator produces the resulting reports for posting to the Intranet, and creates GIS points for the STIP-SIP map and the current Accident Summary Database. The Highway Safety Engineering Coordinator also has the ability to perform variable length analysis of SPIS values on state highway sections.

- *July* The Highway Safety Engineering Coordinator checks the SPIS reports, Accident Summary Database, and other elements for accuracy. The final reports are posted to the Intranet for use by the region traffic personnel in investigating the SPIS sites. The new version of the Accident Summary Database is distributed to the holders of the old databases as well as any other transportation professionals that request the data. The GIS points are forwarded to the GIS Coordinator in the Transportation Inventory/Mapping Unit of the Transportation Data Section.

- *July-December* The Region Traffic Managers and staff review the Intranet reports and investigate the SPIS sites and associated crash data (using the Accident Summary Database, and other references) indicated for their area. Their goal is to determine the possible cause(s) of the listed crashes and estimate what, if any, fixes might reduce the crash potential at each site. If a correctable problem is identified, benefit/cost analysis is performed on viable options and appropriate projects are initiated. This information is entered into the "Top 10% Investigation" spreadsheet for submittal to the Traffic Management Section. Regions report the results of these site evaluations, including potential causes and possible corrections, to the State Traffic Engineer. These completed reports are due in the first quarter of the following year.

Contact Information

If you have any questions regarding the SPIS or the elements and tools involved, please contact:

Chris Monsere, Highway Safety Engineering Coordinator

Traffic Management Section

5th Floor, Transportation Building

355 Capitol Street NE

Salem, Oregon 97301-3871

Phone (503) 986-3580 Fax: (503) 986-4063

Email: Christopher.m.monsere@odot.state.or.us

Table D-1. ODOT Region 3 2000 - 2002 Top 10% SPIS Groups- By Score

Oregon Department of Transportation

2003, Top 10% SPIS Groups - By Score

Region **3**

Rte.	Hwy	Pf	Mlg	BMP	EMP	Lgth	ADT*	Crsh	Fatal*	City	County	Connection in Group*	SPIS	SIP *
OR-99	234	0	0	17.4	17.49	0.09		42	0	Roseburg	Douglas		89.99	5
OR-62	22	0	0	0.78	0.98	0.20	36,400	76	0	Medford	Jackson	ROAD	84.47	3
OR-99	25	0	0	-2.52	-2.32	0.20	9,500	55	0	Grants Pass	Josephine	025AQ CONN. (MORGAN LA	84.33	5
OR-99	63	0	0	11.05	11.23	0.18	18,600	40	0	Phoenix	Jackson	CHERYL AVE.	76.66	3
OR-238	272	0	0	0.13	0.33	0.20	27,800	35	0	Grants Pass	Josephine		73.39	4
I-5	1	0	0	107.91	108.09	0.18	26,000	23	0		Douglas		72.95	3
OR-140	270	0	0	2.2	2.38	0.18	4,200	12	1		Jackson		72.21	3
	240	0	0	2	2.18	0.18	24,700	25	0	North Bend	Coos		71.77	4
OR-99	35	0	0	71.64	71.82	0.18	6,000	15	0		Douglas	DILLARD-BROCKWAY RD.	71.25	5
OR-38	45	0	0	14.84	15.08	0.24	2,800	10	1		Douglas		67.04	3
US-199	25	0	0	2.47	2.65	0.18	23,000	14	1		Josephine	WILLOW LANE	66.14	5
US-101	9	0	0	235.32	235.5	0.18	10,800	30	0	North Bend	Coos	HWY. 240 (VIRGINIA AVE) M.	66.11	5
OR-38	45	0	0	15	15.09	0.09	2,900	9	1		Douglas		65.13	3
OR-99	25	2	0	-0.95	-0.81	0.14	18,600	24	0	Grants Pass	Josephine	N.E. "F" ST.	62.47	5
	240	0	0	0.02	0.2	0.18	15,400	18	0	North Bend	Coos		62.4	4
I-5	1	0	0	129.91	130.09	0.18	29,900	5	1		Douglas		60.64	4
OR-62	22	0	0	5.3	5.47	0.17	32,100	16	0		Jackson	COREY RD.	60.29	4
OR-62	22	0	0	1.5	1.68	0.18	41,000	44	0	Medford	Jackson	DELTA WATERS RD.	58.51	3
US-199	25	0	0	0.7	0.87	0.17	35,000	35	0	Grants Pass	Josephine		58.44	3
OR-99	234	0	0	17.3	17.42	0.12	23,400	27	0	Roseburg	Douglas		58.27	5
OR-99	25	0	0	-2.17	-2.07	0.10	15,700	22	0	Grants Pass	Josephine	HILLCREST DR.	57.7	5
US-101	9	0	0	238.64	238.73	0.09	15,600	11	0	Coos Bay	Coos		57.69	5
US-199	25	0	0	0.54	0.71	0.17	35,000	21	0	Grants Pass	Josephine	RINGUETTE ST.	57.15	3
US-199	25	0	0	1.96	2.14	0.18	23,000	18	0		Josephine	DOWELL RD.	57.15	5
	240	0	0	0.68	0.82	0.14	18,800	33	0	North Bend	Coos		57.07	4
OR-62	22	0	0	3.56	3.74	0.18	32,000	32	0	Medford	Jackson	VILAS RD. E.	56.16	3
OR-99	25	2	0	-2.35	-2.17	0.18	15,200	18	0	Grants Pass	Josephine	HILLCREST DR.	56.16	5
OR-138	73	0	0	46.91	47.09	0.18	850	6	0		Douglas		55.83	3
US-101	9	0	0	236.42	236.58	0.16	21,800	19	0	North Bend	Coos	NEWMARK ST.	55.13	5
OR-99	60	0	0	0.66	0.84	0.18	11,300	19	0	Grants Pass	Josephine	PARKDALE DR.	54.78	4
OR-138	73	0	0	0.01	0.19	0.18	18,300	31	0	Roseburg	Douglas	WINCHESTER ST.	54.68	2
	240	0	0	4.91	5.09	0.18	10,800	7	0		Coos		54.62	4
US-101	9	0	0	238.12	238.29	0.17	13,600	20	0	Coos Bay	Coos	MARKET AVE.	54.24	5
OR-99	25	0	0	-0.96	-0.84	0.12	20,900	36	0	Grants Pass	Josephine	N. "E" ST.	53.83	5
OR-99	25	0	0	-0.88	-0.78	0.10	19,800	31	0	Grants Pass	Josephine	N. "F" ST.	53.42	5
OR-99	63	0	0	19.23	19.34	0.11	13,700	20	0	Ashland	Jackson	PIONEER ST.	52.69	3
OR-42	35	0	0	31.91	32.09	0.18	3,100	4	1		Coos		52.55	3
OR-99	25	2	0	-1.09	-0.91	0.18	19,400	18	0	Grants Pass	Josephine	N.E. "E" ST.	52.29	5
US-199	25	0	0	0.97	1.13	0.16	35,300	17	0	Grants Pass	Josephine	REDWOOD AVE.	51.92	3
US-199	25	0	0	21.89	22.03	0.14	9,700	5	1		Josephine		51.9	3
OR-99	63	0	0	8	8.14	0.14	30,100	18	0	Medford	Jackson		51.41	5
I-5	1	0	0	80.91	81.09	0.18	18,700	6	0		Douglas		51.29	3
OR-62	22	0	0	6.24	6.42	0.18	23,300	25	0		Jackson	ANTELOPE RD.	51.29	4
US-101	9	0	0	203.91	204.09	0.18	4,300	4	1		Douglas		50.58	4
OR-99	35	0	0	73.28	73.41	0.13	10,000	5	0	Winston	Douglas	ROSE ST.	50.28	5
US-101	9	0	0	238.27	238.4	0.13	15,900	20	0	Coos Bay	Coos	HWY. 243 (ANDERSON AVE.)	50.2	5
OR-99	45	0	0	50.34	50.45	0.11	7,300	5	0	Drain	Douglas	2ND ST.	50.17	3
OR-99	35	0	0	75.63	75.79	0.16	22,000	25	0		Douglas		49.96	5
US-199	25	9	Y	0.94	1.08	0.14	27,000	27	0	Grants Pass	Josephine		49.9	3
OR-99	35	0	0	76.29	76.43	0.14	22,900	6	1		Douglas		49.28	5
US-101	9	0	0	228.91	229.09	0.18	10,600	5	0		Coos	HAUSER RD.	48.57	4
OR-42	35	0	0	45.91	46.03	0.12	2,900	3	0		Douglas		48.4	4

Pfx: (0) 2-way, add dir; (2) Couplet, non-add dir; (9) Spur; (R) Spur, Couplet, non-add dir; (8) Temporary   * Max (num or alpha) in SPIS group

Rte.	Hwy	Pf	Mlg	BMP	EMP	Lgth	ADT*	Crsh	Fatal*	City	County	Connection in Group*	SPIS	SIP *
OR-42	35	0	0	34.91	35.09	0.18	3,100	3	0		Coos		48.02	3
US-101	9	0	0	201.91	202.06	0.15	4,300	7	0		Douglas		47.98	4
US-101	9	0	0	357.4	357.5	0.10	17,000	18	0	Brookings	Curry	WILLOW ST.	47.67	3
OR-138	231	0	0	25.3	25.39	0.09	11,400	11	1	Sutherlin	Douglas		47.31	2
US-199	25	0	0	2.98	3.14	0.16	16,100	5	0		Josephine		47.26	5
OR-99	25	0	0	-2.23	-2.11	0.12	13,400	27	0	Grants Pass	Josephine		47.15	5
OR-99	60	0	0	3.92	4.07	0.15	5,100	3	1		Josephine		47.08	4
OR-238	272	0	0	4.08	4.26	0.18	8,100	9	0		Josephine		46.89	4
US-199	25	9	Y	0.16	0.32	0.16	28,200	13	0	Grants Pass	Josephine		46.7	3
I-5	1	0	0	65.91	66.06	0.15	20,600	5	0		Josephine		46.67	3
OR-99	234	2	0	17.38	17.48	0.10	11,800	15	0	Roseburg	Douglas		46.58	5
US-101	9	0	0	201.41	201.56	0.15	4,300	3	1		Douglas	BOOTH RD.	46.33	4
US-199	25	9	Y	1.16	1.25	0.09	27,000	16	1	Grants Pass	Josephine		45.98	3
OR-99	25	9	Y	-0.09	0.06	0.15	28,200	14	0	Grants Pass	Josephine	PARKDALE DR.	45.82	5
	241	0	0	3.88	4.01	0.13	1,200	5	1		Coos		45.13	4

Pfx: (0) 2-way, add dir; (2) Couplet, non-add dir; (9) Spur; (R) Spur, Couplet, non-add dir; (8) Temporary   Max (num or alpha) in SPIS group

Table D-2. City of Medford 2000 - 2002 Top 40 Collision Intersections

Intersection Magic VER 5.509
City of Medford, OR 02/04/2004

Intersection listing
01/01/2000 - 12/31/2002
Top 40 intersections with at least 1 accidents.
Sorted by accident count
Filter: (clear filter)

Intersection name:	Count:	Volume:	Rate:
*****			
JACKSON ST & RIVERSIDE AV N	62	0	0.000
STEWART AV E & BARNETT RD E	58	0	0.000
HWY 62 & DELTA WATERS RD	57	0	0.000
RIVERSIDE AV S & BARNETT RD E	52	0	0.000
CRATER LAKE AV & DELTA WATERS RD	49	0	0.000
CENTRAL AV N & 4TH ST E	48	0	0.000
BARNETT RD E & ALBA DR	48	0	0.000
HWY 62 & POPLAR DR	44	0	0.000
MCANDREWS RD E & COURT ST	40	0	0.000
MCANDREWS RD E & BIDDLE RD	40	0	0.000
MCANDREWS RD E & RIVERSIDE AV N	38	0	0.000
HWY 62 & VILAS RD	37	0	0.000
HILTON RD & HWY 62	32	0	0.000
CRATER LAKE AV & STEVENS ST	32	0	0.000
MCANDREWS RD E & CRATER LAKE AV	31	0	0.000
HWY 62 & FRED MEYER ENT	29	0	0.000
CENTRAL AV N & JACKSON ST	28	0	0.000
MCANDREWS RD E & ROYAL AV	27	0	0.000
RIVERSIDE AV S & 8TH ST E	27	0	0.000
CRATER LAKE AV & BROOKHURST ST	25	0	0.000
HILTON RD & POPLAR DR	24	0	0.000
BIDDLE RD & STEVENS ST	24	0	0.000
CARDINAL AV & HWY 62	23	0	0.000
BARNETT RD E & HIGHLAND DR	22	0	0.000
BLACK OAK DR & BARNETT RD E	22	0	0.000
MCANDREWS RD E & POPLAR DR	22	0	0.000
CENTRAL AV S & 10TH ST E	21	0	0.000
RIVERSIDE AV N & 4TH ST E	20	0	0.000
6TH ST E & RIVERSIDE AV N	20	0	0.000
RIVERSIDE AV S & BANK ST	19	0	0.000
MURPHY RD & BARNETT RD E	18	0	0.000
OAKDALE AV S & 10TH ST W	18	0	0.000
SPRING ST & CRATER LAKE AV	18	0	0.000
8TH ST E & CENTRAL AV S	18	0	0.000
N. PACIFIC HW & TABLE ROCK RD	16	0	0.000
RIVERSIDE AV S & BOYD ST	16	0	0.000
RIVERSIDE AV N & HWY 62	16	0	0.000
HILTON RD & BULLOCK RD	16	0	0.000
HWY 62 & SKYPARK DR	16	0	0.000
HWY 62 & N. PACIFIC HW	16	0	0.000
*****			
Totals: 40	1189	0	0.000
Averages:	29.7	0	0.000

Table D-3. City of Ashland 2003 Top 5 Collision Intersections

Top 5 Collision Intersections (*listed in no particular order*)
Wimer Street/Scenic Drive
Wimer Street/N Main Street
Lithia Way/N 1st Street
Lithia Way/E Main Street
Siskiyou Boulevard/Wightman Street

Table D-4. Jackson County 2000 – 2002 Top 10 Collision Intersections[1]

Intersection	Average Daily Traffic (ADT)	Million Entering Vehicles (MEV)	Number of Accidents	Rate	Rank Rate
Antelope Road/Bigham-Brown Road	3,658	2.00	3	1.50	1
Agate Road/Nick Young Road	6,659	3.65	4	1.10	2
Arnold Lane/Bellinger Lane	6,884	3.77	4	1.06	3
Antelope Road/Division Road	23,257	12.73	13	1.02	4
Kirtland Road/Table Rock Road	22,739	12.45	12	0.96	5
Antioch Road/Modoc Road	7,658	4.19	3	0.72	6
Upton Road/Wilson Road	7,781	4.26	3	0.70	7
Peninger Road/Upton Road	10,531	5.77	4	0.69	8
Biddle Road/Hamrick Road	57,234	31.34	21	0.67	9
Antelope Road/Gladstone Avenue	14,347	7.85	5	0.64	10

[1] *2004 – 2005 Traffic Safety Improvement Program*, Jackson County, Dec. 22, 2003.

Appendix E:
Traffic Signal Inventory

CONTENTS

Table E-1. Rogue Valley Traffic Signals Operated by ODOT

Intersection	Location	Status	Controller Type	Software Type	Owning Agency	Maintaining Agency
Hwy 62 @ Linn Rd	Eagle Point	Existing	170	W4IKS	ODOT	ODOT
Hwy 62 @ Nick Young Rd	Eagle Point	Existing	170E	W4IKS	ODOT	ODOT
Hwy 62 @ Shasta Ave	Eagle Point	Existing	170E	W4IKS	ODOT	ODOT
Hwy 62 @ Avenue H	White City	Existing	170E	W4IKS	ODOT	ODOT
Hwy 62 @ Avenue G	White City	Existing	170E	W4IKS	ODOT	ODOT
Hwy 62 @ Antelope Rd	White City	Existing	170	W4IKS	ODOT	ODOT
Hwy 62 @ Hwy 140	White City	Existing	170E	W4IKS	ODOT	ODOT
Hwy 62 @ Vilas Rd	Medford	Existing	170	W4IKS	ODOT	ODOT
Pine St @ Haskell St	Central Point	Existing	170	W4IKS	Central Point	ODOT
Hwy 99 @ Pine St	Central Point	Existing	170	W4IKS	ODOT*	ODOT
Pine St @ 2nd St	Central Point	Planned		W4IKS	Central Point	ODOT
Pine St @ 3rd St	Central Point	Existing	170	W4IKS	Central Point	ODOT
Pine St @ 4th St	Central Point	Existing	170	W4IKS	Central Point	ODOT
Pine St @ 6th St	Central Point	Planned		W4IKS	Central Point	ODOT
Pine St @ Freeman St	Central Point	Existing	170	W4IKS	Central Point	ODOT
Pine St @ I-5 Southbound Ramps	Central Point	Existing	170	W4IKS	ODOT	ODOT
Pine St @ I-5 Northbound Ramps	Central Point	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 @ Beall Ln	Central Point	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 @ Fern Valley Rd	Phoenix	Existing	170	W4IKS	ODOT	ODOT
Fern Valley Rd @ Luman Rd	Phoenix	Existing	170	W4IKS	ODOT	ODOT
Fern Valley Rd @ I-5 Southbound Ramps	Phoenix	Existing	170	W4IKS	ODOT	ODOT
Fern Valley Rd @ I-5 Northbound Ramps	Phoenix	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 @ W Valley View Rd	Talent	Existing	170	W4IKS	ODOT	ODOT
W Valley View Rd @ Wal-Mart	Talent	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 @ Valley View Rd	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 (Main St) @ Maple St	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 (Main St) @ Laurel St	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 (Main St) @ Helman St	Ashland	Existing	170	W4IKS	Ashland	ODOT
Hwy 99 (Main St) @ Pioneer St	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 (Lithia Wy/C St) @ Pioneer St	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 (Main St) @ 2nd St	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 (Lithia Wy/C St) @ 2nd St	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 (Main St) @ Gresham St	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 (Lithia Wy/C St) @ 3rd St	Ashland	Existing	170	W4IKS	ODOT	ODOT

Intersection	Location	Status	Controller Type	Software Type	Owning Agency	Maintaining Agency
Hwy 99 (Siskiyou Blvd) @ Ashland Fire Station	Ashland	Existing	170	W4IKS	Ashland	ODOT
Hwy 99 (Siskiyou Blvd) @ Sherman St	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 99 (Siskiyou Blvd) @ Beach St/Iowa St	Ashland	Existing	170	W4IKS	Ashland	ODOT
Hwy 99 (Siskiyou Blvd) @ Mountain Ave	Ashland	Existing	170	W4IKS	Ashland	ODOT
Hwy 99 (Siskiyou Blvd) @ Wightman St	Ashland	Existing	170A	W4IKS	Ashland	ODOT
Hwy 99 (Siskiyou Blvd) @ Hwy 66	Ashland	Existing	170	W4IKS	Ashland	ODOT
Hwy 99 (Siskiyou Blvd) @ Walker Ave	Ashland	Existing	170	W4IKS	Ashland	ODOT
Hwy 66 @ Walker Ave	Ashland	Existing	170	W4IKS	ODOT	ODOT
Hwy 66 @ Tolman Creek Rd	Ashland	Existing	170	W4IKS	ODOT	ODOT

*Central Point will take over the ownership of the Hwy 99/Pine St traffic signal when it is replaced in 2004.

Table E-2. Rogue Valley Traffic Signals Operated by Jackson County

Intersection	Location	Status	Controller Type	Software Type	Owning Agency	Maintaining Agency
Pine St @ Penninger St	Central Point	Existing	170	W4IKS	Jackson County	ODOT
Pine St @ Hamrick Rd	Central Point	Existing	170	W4IKS	Jackson County	ODOT
Sage Rd @ Mason Wy	Medford	Existing	170	W4IKS	Jackson County	ODOT
Hwy 238 @ Oak Grove Rd	Medford	Existing	170E	W4IKS	Jackson County	ODOT
Hwy 238 @ Ross Ln/Lozier Ln	Medford	Existing	170	W4IKS	Jackson County	ODOT
Stewart Ave @ Lozier Ln	Medford	Planned		W4IKS	Jackson County	ODOT
Table Rock Rd @ Biddle Rd	Medford	Existing	170	W4IKS	Jackson County	ODOT
Table Rock Rd @ Vilas Rd	Medford	Existing	170	W4IKS	Jackson County	ODOT
Table Rock Rd @ Antelope Rd	White City	Existing	170	W4IKS	Jackson County	ODOT
Table Rock Rd @ Kirtland Rd	White City	Planned		W4IKS	Jackson County	ODOT
Antelope Rd @ Agate Rd	White City	Planned		W4IKS	Jackson County	ODOT

Table E-3. Rogue Valley Traffic Signals Operated by City of Medford

Intersection	Status	Type	Controller Type	Software Type	Central System	Phone Drop	Coordinated Timing	Owning Agency	Maintaining Agency
4th St @ Columbus Ave	Planned	Signal		BI Tran				Medford	Medford
4th St @ Front St	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
4th St @ Bartlett St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
6th St @ Front St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
8th St @ Hamilton St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
8th St @ Orange St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
8th St @ Oakdale St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
8th St @ Ivy St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
8th St @ Holly St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
8th St @ Grape St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
8th St @ Front St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
10th St @ Oakdale Ave	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
10th St @ Holly St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
10th St @ Front St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
11th St @ Grape St	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
11th St @ Holly St	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Barnett Rd @ Winco	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Barnett Rd @ Stewart Ave	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Barnett Rd @ Alba Dr	Existing	Signal	170	BI Tran	QuicNet	Yes	Yes	Medford	Medford
Barnett Rd @ Highland Dr	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Barnett Rd @ Ellendale Dr	Existing	Signal	170	BI Tran	QuicNet	Yes	Yes	Medford	Medford
Barnett Rd @ Black Oak Dr	Existing	Signal	170	BI Tran	QuicNet	Yes	Yes	Medford	Medford
Barnett Rd @ Murphy Rd	Existing	Signal	170	BI Tran	QuicNet	Yes	Yes	Medford	Medford
Barnett Rd @ Golfview Dr	Planned	Signal		BI Tran				Medford	Medford
Barnett Rd @ Phoenix Rd	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford
Biddle Rd @ Lawndale Rd	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford
Biddle Rd @ Hilton Rd	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Biddle Rd @ Hwy 62 Off-Ramp	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Biddle Rd @ I-5 Northbound Off-Ramp	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Biddle Rd @ Morrow Rd	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Biddle Rd @ Progress Dr	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Biddle Rd @ Bearcreek Center	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Biddle Rd @ McAndrews Rd	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Biddle Rd @ Market St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Biddle Rd @ Stevens St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Biddle Rd @ Jackson St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Caperna Dr South of Foothill/Hillcrest Signal	Existing	Flasher	170	BI Tran	QuicNet	-	-	Medford	Medford
Center Dr @ Armory Dr	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Court St @ Ohio St	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Crater Lake Ave @ Delta Waters Rd	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford
Crater Lake Ave @ Roberts Rd	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford
Crater Lake Ave @ Brookhurst St	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford

Intersection	Status	Type	Controller Type	Software Type	Central System	Phone Drop	Coordinated Timing	Owning Agency	Maintaining Agency
Crater Lake Ave @ McAndrews Rd	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Crater Lake Ave @ Spring St	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Crater Lake Ave @ Stevens St	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Crater Lake Ave @ Jackson St	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Crater Lake Ave @ Minnesota Ave	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Delta Waters Rd @ Kennedy School	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Delta Waters Rd @ McLaughlin Dr	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Foothill Rd @ Hillcrest Rd	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Hillcrest Rd @ Black Oak Dr	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford
Hwy 62 @ Cardinal Ave	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Hwy 62 @ Delta Waters Rd	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Hwy 62 @ Fred Meyer	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 62 @ Hilton Rd	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 62 @ I-5 Southbound Off-Ramp	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 62 @ Rogue Valley Mall	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Hwy 99 (N Pacific Hwy) @ Sage Rd	Existing	Signal	170	W4IKS	-	-	-	ODOT	ODOT
Hwy 99 (N Pacific Hwy) @ Table Rock Rd	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Hwy 99 (N Pacific Hwy) @ Hwy 238 (Rossanley Rd)	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Hwy 99 (Riverside Ave) @ Ohio St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ McAndrews Rd	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ Manzanita St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Central Ave/Court St) & Edwards St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ Jackson St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Central Ave) @ Jackson St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ 4th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Central Ave) @ 4th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ 6th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Central Ave) @ 6th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ Main St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Central Ave) @ Main St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ 8th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Central Ave) @ 9th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ 10th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Central Ave) @ 10th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ 12th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ Barnett Rd	Existing	Signal	170	BI Tran	QuicNet	Yes	Yes	Medford	Medford
Hwy 99 (Riverside Ave) @ Stewart Ave	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 (S Pacific Hwy) @ Belknap Rd	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Hwy 99 @ Lowry Ln	Existing	Signal	170E	W4IKS	-	-	-	ODOT	ODOT
Hwy 99 @ Bearcreek Corporation	Existing	Signal	170	W4IKS	-	-	-	ODOT	ODOT
Hwy 99 @ South Stage Rd	Existing	Signal	170	W4IKS	-	-	-	ODOT	ODOT
Hwy 238 (Rossanley Rd) @ Central Ave	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Hwy 238 (Rossanley Rd) @ Sage Rd	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford

Intersection	Status	Type	Controller Type	Software Type	Central System	Phone Drop	Coordinated Timing	Owning Agency	Maintaining Agency
Jackson St @ Summit Ave	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Jackson St @ Hawthorne St	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Jackson St @ Academy Pl	Existing	Signal	170	BI Tran	-	-	-	Medford	Medford
Kings Highway South of Queens Dr	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Main St @ Columbus Ave	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Main St @ Hamilton St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Main St @ Orange St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Main St @ Oakdale St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Main St @ Holly St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Main St @ Grape St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Main St @ Front St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Main St @ Bartlett St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Main St @ 8th St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Main St @ Hawthorne St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Main St @ Crater Lake Ave	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Main St @ Ashland Ave/Lindley St	Existing	Signal	170	BI Tran	-	-	-	Medford	Medford
Main St @ Keeneway Dr	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
McAndrews Rd @ Sage Rd/Summit Ave	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
McAndrews Rd @ Columbus Ave	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
McAndrews Rd @ Court St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
McAndrews Rd @ South Mall	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
McAndrews Rd @ Poplar Dr	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
McAndrews Rd @ Royal Ave	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
McAndrews Rd @ Keeneway Dr	Planned	Signal		BI Tran				Medford	Medford
McAndrews Rd @ Springbrook Rd	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford
McAndrews Rd @ Brookdale Ave	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Merriman Rd @ Mace Rd	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Phoenix Rd @ Larsen Creek Dr	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford
Poplar Rd @ Morrow Rd	Existing	Signal	170	BI Tran	QuicNet	Yes	Yes	Medford	Medford
Siskiyou Blvd @ Amber Cir	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Siskiyou Blvd @ Black Oak Dr	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford
Siskiyou Blvd @ Murphy Rd	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Spring St @ Springbrook Rd	Existing	Flasher	170	BI Tran	-	-	-	Medford	Medford
Springbrook Rd @ Roberts Rd	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford
Stevens St @ Royal Ave	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Stewart Ave @ Lozier Ln	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Stewart Ave @ Columbus Ave	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Stewart Ave @ Peach St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Stewart Ave @ King St/Kings Hwy	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Stewart Ave @ Jasper St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Stewart Ave @ Holly St	Existing	Signal	170	BI Tran	QuicNet	-	Yes	Medford	Medford
Stewart Ave @ Center Dr	Existing	Signal	170	BI Tran	QuicNet	-	-	Medford	Medford
Table Rock Rd @ Berrydale Ave	Existing	Signal	170	BI Tran	QuicNet	Yes	-	Medford	Medford

Appendix F:
ITS Equipment Inventory

CONTENTS

Table F-1. ITS Equipment Inventory[1]

ITS Device/System	Location	City	Owner	Status
CCTV Camera	I-5 Viaduct at Jackson St	Medford	ODOT	Existing
CCTV Camera	I-5 Viaduct at McAndrews Rd, Facing South	Medford	ODOT	Existing
CCTV Camera	I-5 Viaduct at McAndrews Rd, Facing North	Medford	ODOT	Existing
CCTV Camera	I-5 Viaduct at 12th St, Pointing Northbound	Medford	ODOT	Existing
CCTV Camera	I-5 North Medford Interchange at Hwy 62	Medford	ODOT	Planned
CCTV Camera	I-5 South Medford Interchange at Highland Ave	Medford	ODOT	Planned
CCTV Camera	Northwest Corner of McAndrews Rd/Poplar Dr	Medford	Medford	Existing
CCTV Camera	Northwest Corner of Barnett Rd/Stewart Ave	Medford	Medford	Existing
Dynamic Message Sign	SB I-5 at Table Rock Road	Medford	ODOT	Existing
Dynamic Message Sign	SB I-5 at Mountain Ave	Ashland	ODOT	Existing
Dynamic Message Sign	SB I-5 at Milepost 13	Ashland	ODOT	Planned
Dynamic Message Sign	NB I-5 at Milepost 25.45	Phoenix	ODOT	Existing
Automatic Traffic Recorder	I-5 at Milepost 28.33	Medford	ODOT	Existing
Automatic Traffic Recorder	Hwy 99 at Milepost 15.82	Talent	ODOT	Existing
Automatic Traffic Recorder	Hwy 62 at Milepost 0.66	Medford	ODOT	Existing
Automatic Traffic Recorder	WB McAndrews Rd West of Royal Ave	Medford	Medford	Existing
Automatic Traffic Recorder	EB McAndrews Rd East of Royal Ave	Medford	Medford	Existing
Automatic Traffic Recorder	WB Barnett Rd West of Black Oak Dr	Medford	Medford	Existing
Automatic Traffic Recorder	EB Barnett Rod East of Black Oak Dr	Medford	Medford	Existing
Automatic Traffic Recorder	SB Phoenix Rd South of Barnett Rd	Medford	Medford	Existing
Automatic Traffic Recorder	NB Phoenix Rd North of Barnett Rd	Medford	Medford	Existing
Weather Station	I-5 Viaduct at Milepost 28.94	Medford	ODOT	Existing

[1] See Figure 1-8: Existing and Planned ITS Equipment in Chapter 1 for a map of the ITS equipment.

ITS Device/System	Location	City	Owner	Status
Mayday Phone	SB I-5 Viaduct at Milepost 28.94	Medford	ODOT	Existing
Mayday Phone	NB I-5 Viaduct at Milepost 28.35	Medford	ODOT	Existing
Highway Advisory Radio	I-5 at Milepost 18	Ashland	ODOT	Existing
Truck Weigh-in-Motion	SB I-5 at Milepost 18.11	Ashland	ODOT	Existing
Truck Weigh-in-Motion	NB I-5 Port of Entry at Milepost 17.87	Ashland	ODOT	Existing
Red-Light Running Enforcement Camera	Northwest Corner of McAndrews Road/ Biddle Road, Facing South	Medford	Medford	Existing
Red-Light Running Enforcement Camera	Southeast Corner of McAndrews Road/ Biddle Road, Facing West	Medford	Medford	Existing

Oregon Department of Transportation

Rogue Valley Intelligent Transportation Systems

Appendix G:
Interview Notes

CONTENTS

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: P03196-002 Page 1 of 8

Meeting/Phone by: JMP/SRH

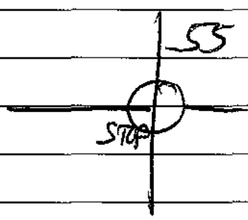
Contact Name(s)/Affiliation: Lt. Tanya Henderson, Sgt. Jeff Pranlx
OSP (Oregon State Police)

Subject: Needs Assessment Phone no:

Discussion:

Problem Areas: Viaduct is a problem area
- 2 lane raised viaduct.
No shoulders i.e. safety for emergency personnel.
- Resurfaced viaduct last year
-
- Would like landings on both ends of the bridge so they could work the traffic.
- Speeding issues over the viaduct
- District 8 ODOT said they would add landings MP 27 to MP 30 1.5 mi long viaduct

140/Kershaw Rd — Fatals in last year



Good sight distance
- people not yielding the ROW.

Response vehicles come opposite direction to respond.

- Speed + congestion is an issue

Action Items: 7:30 - 9
4:00 - 6:30 > Congested on the viaduct

Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 8
Meeting/Phone by: OSP

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:

Viaduct – Queues from the off-ramps extend onto the freeway. Off-ramps at either end.

Hwy 62 interchange & South interchange will be rebuilt in the next several years

62 from exit 30 out to Costco.
- Lots of rear-ends. Congested east of I-5

All State Highways I-5
Hwy 99
Hwy 238
Hwy 62
Hwy 234
Tiller Trail
Hy 230 up to Diamond Lake

Have speed trailers – (1)
Need c law enforcement with it.
Volunteers set up the trailers.

Trucks: Monitor for speeds
Have a new group focused on level 1 truck inspection.
– All troopers are truck inspection certified.
– New Federal regulations on hours & loads.

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 8
Meeting/Phone by: OSP

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion: Trucking: Tools used to monitor
- Get print out of the computer + GPS
- Truckers have a log book that OSP can

Speed + Volume - Could use to collect
- Would like to have historical speed info to know where to send out
- Need traveler info. in advance north + south of the viaduct
- ODOT will have an 1 hour to 1 hour + a half before diverting

VMS: Siskiyous info. needs to be current! Sometimes this is delayed.

ODOT sets the chain reqt.

Action Items: | Responsibility: | Due Date:

Distribution: ______

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 4 of 8
Meeting/Phone by: OSP

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:

ODOT to OSP relationship: OSP ~~manages~~ enforces the roads
ODOT controls when it opens
ODOT is in the comm center.

TMC in the OSP bldg. Having ODOT located w/ OSP has ~~begun~~ been a huge benefit

VMS: Possibly one at MP 17 Mountain Ave

- Closer to Siskiyou Pass
- Further north near the Rogue River Area. (MP 45)

Message sign info needs to be automated. to keep in real-time.
Lead Supervisor on the hill is responsible for messages

Debrief on the meeting tomorrow for the

How to get info. to other truckers that don't have enough chains on for

- Had complaints that 511 wasn't current enough. Construction info.

Action Items: | Responsibility: | Due Date:

Traveler Info to Crater Lake Ave

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 5 of 8
Meeting/Phone by: OSP

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

Camera on every Hwy: 140/Kershaw
- Use the cameras a lot.

238 at Jacksonville Hill
More on the viaduct I-5

VMS - Good for Amber Alert.
Grants Pass - MP 66 NB.
MP 66-80 are three passes.
ODOT brings PVMS
MP 80+ for SB
Hwy 62 / @ Vilas SB

Summertime Events: Crater Lake is popular in the winter + summer.
Most traffic related problems are in the winter

- Access to video + traffic congestion info in the vehicles

- Working Siskiyou Pass. Having cameras up there & access to video would help manage work flow.

Action Items: - Need weather related info.
- Jeff is working in the field so he needs video, + weather related info in his vehicle

Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 6 of 8
Meeting/Phone by: OSP

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:
Jeff really needs the data in the field
- Cameras in the passes

Communication is the key problem for any situation.
Dead spots on the hills to get out on the radio.
- What would help to improve communication.
- Hard to coordinate response w/ faulty comm.

Curve Warning System
Siskiyous at train trestle
Curves in Grants Pass

MP 72 Speed limit is going to be raised

Relationships: OSP + Sheriffs office work together.
- County + OSP share resources
Medford PD they do not have much of a relationship.

Common Radio Freq? No. Funding limits this.
Switch radio channels to communicate w/ other agencies + DOT
Dispatch monitors OSP + gets calls from other

Action Items: Responsibility: Due Date:

H Security

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 7 of 8
Meeting/Phone by: OSP

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

Incident: Critical info in real-time is difficult
has to go through multiple channels to coordinate

How could ODOT help with a pursuit?
- On-Star
- Spike strips buried in the pavement.
- Block on off-ramp.

OSP help do
Have more cut throughs on the freeway to turn around.
- Have rollovers ~~if they~~ get off the freeway due to the steep grades.

Crashes: Became fatal due to drivers trying to ~~over~~ correct.

Biggest Challenge is the amount of growth occurring in the region.

Special Events: Pear Blossum in City area.
Shakespeare
Jackson County Fairgrounds
-

Action Items: Responsibility: Due Date:

- ODOT assists managing these events.
Redirect traffic. Not needed to adress
~~no~~ new events coming up that

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 8 of 8
Meeting/Phone by: OSP

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- Medford will grow north ~~to~~ White City.
- John Selee in Salem is the Homeland Security manager — OSP Capt. in Headquarters
  - Each County needs to have a plan.

Josephine County has a Committee that has EMS, Fire, Police, etc.
OSP funding is

—

Action Items: | Responsibility: | Due Date:

- ODOT related meeting in Josephine County
- Ranked the projects — Last year
  Rosalee Senger — Regional ODOT Office in Roseburg would know about these meetings

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: P03196-002 Page 1 of 6

Meeting/Phone by: SRH/JMP

Contact Name(s)/Affiliation: Lt. Tanya Henderson, Sgt. Jeff Proulx (Oregon State Police)

Subject: Needs Assessment Phone no:

Discussion:

- No mobile data terminals
  - ↳ not enough funding for all OSP veh. statewide (approx. 400 veh)
  - ↳ tested them out
- Comm. bureau in Salem handles radio

Some of the local PD's have these → Medford, CP

★ Safety issues:

Medford Viaduct / MP 27 to 30 ? ~ 4 lanes (2 ea. direction)

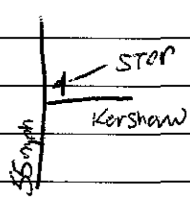
viaduct is only about ½ mile MP 28 to 29

- no shoulders
- congestion (4-6:30 pm)
- just resurfaced it last year
- 55 mph
- ices also
- hard to get to accidents

concrete barrier

- OSP needs a landing at each end of viaduct
  - would help w/ enforcement/monitoring

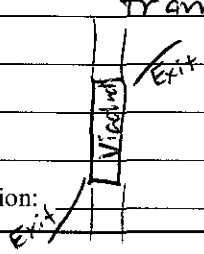
140/Kershaw Rd → lots of fatal accidents



— people not yielding to fwy

Action Items: Responsibility: Due Date:

to access trouble spots, OSP usually has to travel from opp. direction



- People back up on ramps due to traffic signals

Distribution:

← Both these interchanges are scheduled to be redone eventually

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 2 of 6
Meeting/Phone by: OSP

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

62 Interchange at Hwy 30
↳ ODOT scheduled to be redone next yr. (East. of I-5)

☆ Congestion → 62 → Exit 30 past Costco (Medford)
↳ lots of rear-ends

☆ OSP Roadway Responsibilities → state roadways
I-5
Hwy 62
Hwy 99
Hwy 238
Hwy 66
Hwy 234
Hwy 230

☆ Have speed trailers → 1
↳ have not been very useful
↳ need to have a trooper enforcing in conjunction w/ trailer
↳ usually not enough manpower
↳ often volunteers take trailer out to deal w/ complaints

☆ Trucks
↳ monitor speeds pretty well / also # of hrs. driven
↳ Truck Inspections → Level I + II > 500/year
↳ group of 11 assigned to this

Action Items: Responsibility: Due Date:

↳ all troopers truck certified
↳ Large trucking companies → use computers to log driving hrs.
↳ this is pretty rare
↳ Independent truckers → troopers check log books + receipts

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ____ P/A no: ____
Meeting/Phone by: OSP

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

★ Speed data would be useful to help OSP to determine where to place enforcement
↳ currently ODOT uses radar guns to let OSP know where to place enforcement

Need to get congestion info to travelers
↳ ie/ before they get to viaduct

- Have Reader Boards 1 mile in advance of viaduct
↳ before alt. exits

- Need to coordinate traffic signals w/ congested fwy off-ramps

- City of Medford doesn't like traffic diverted throughout downtown
- Right now traffic is not diverted if delay is less than 2 hrs.
- Really like the reader boards
  - Info needs to be current though
    - ie/ chain restrictions
      - ODOT responsible for this

- Some ODOT personnel located in OSP offices

Action Items: Responsibility: Due Date:

- 3 plasma screens → flashes to any camera around state
- 1 rolling screen → weather

Shared Dispatch Room
- has been an advantage

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ____ P/A no: ____ Page 4 of 6
Meeting/Phone by: OSP

Contact Name(s)/Affiliation:

Subject: Hwy 62 / Vialus → SB VMS Phone no:

Discussion: more of these are helpful esp. w/ amber alert

VMS → other locations that are needed:
↳ Closer to Siskiyous (SB)
↳ I-5 farther North towards Rogue River area
↳ SB prior to Medford (MP 45)

MP 80 → SB I-5
MP 66 → NB I-5
↳ prior to Grants Pass

- ODOT needs to keep messages updated in a timely manner
↳ need more info on type of chains (each state has different laws) for trucks
↳ how do we get this info to truckers?

- 511 needs to be updated more often too
← use these quite a bit
- Cameras → would like 1 or more on every hwy
↳ 140 / Kershaw
238 at Jacksonville Hill
↳ lot of wrecks, weather-related
I-5 on Viaduct

☆ most problems in winter - due to weather, esp. the Siskiyou's

- Relationship w/ ODOT
↳ co-located dispatch

- MDT's in veh. would be useful
↳ camera views would help w/ staff levels
↳ could monitor some stretches of rdwy w/ cameras
↳ earlier detection of incidents - call in resources earlier

Action Items: Responsibility: Due Date:

☆ Need more manpower!

☆ Comm. is key! ~ Quite a few radio deadspots

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 5 of 6
Meeting/Phone by: OSP

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

☆ Curve warning signs w/ real-time veh. speed
↳ Need these at Grants Pass (MP 72ish)
↳ Siskiyous

- Work closely w/ JCSO & ODOT
- don't deal w/ Medford PD often
often help out when needed
↳ share manpower
- can't find funding for common radio frequency
- Switch radio channels depending on who was on spot 1st
↳ can't monitor all of them while in veh.

- Dispatch only monitors OSP channel
↳ get phone calls if something big comes up
- Difficult to get real-time info conveyed
- Biggest problem w/ comm → pursuits
↳ agreement: whoever starts pursuit, everyone switches to their frequency
- How can ODOT help w/ pursuits?

- Spike strips → auto. pop-up to stop veh. in pursuit

- On-Star vehs. → can coordinate w/ them to have a stolen car turned off

Action Items: Responsibility: Due Date:

- Need more turnarounds on hwy (Have on Hwy 17 & 30)
↳ OSP policy to not cut across medians unless it's an emergency

- Driver's Ed → need more awareness about crashes

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 6 of 6
Meeting/Phone by: OSP

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

☆ Biggest Challenge → growth over next 20 yrs.
↳ Medford is growing to the east
☆ Special Events
↳ don't really impact OSP
↳ Pear Blossom in Medford in the spring
↳ Medford controls this
↳ ODOT is quite involved in special event mgmt.

- Homeland Security ~ John Soleil ~ in Salem ← main coordinator for dept.
↳ Need a plan for each county
↳ Usually have a committee made up of local agencies
↳ Hard for OSP to give input b/c OSP funding is handled separately through Salem
↳ There is a plan for Jackson Co.
↳ not sure if they can get us a copy due to security

"Southern Regional Dispatch Center"

☆ ODOT often ranks local issues w/ local agencies
↳ We will check into this
↳ mtg. held last yr.

Rosalie Senger ~ ODOT Reg. Office in Roseburg
Education/Info officer
↳ involved in mtg.

Action Items: ______ Responsibility: ______ Due Date: ______

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: P03196-002 Page 1 of 8
Meeting/Phone by: JMP

Contact Name(s)/Affiliation: Scott Chancey, Matthew Barnes
RVTD

Subject: Needs Assessment Phone no:

Discussion:

RVTD: Have an automated passenger count database by route ~~by~~ not by location. Not by TOD

- Computer program has been updated so system cannot be
- Track maintenance needs + preventative mnt schedule tracked by part, by bus, track how much fuel
- No plans
- Have own radio freq. Cell phone contact btwn maintenance.

Fuel - They enter bus # That tracks the fuel
- Replace a transmission starts the
Alerts the maintenance personnel of what is needed.

Compressed Natural Gas -
23 Coaches - Upgrading the fleet 100% by Fall 2004
10 New

Paratransit is contracted out, but will be bringing mngt back in house

5 Different private partners
- Users call one of the five providers today.
- Changing so (July 2004) they call RVTD + RVTD schedules trip prepares trip manifest, then fax to the provider

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 8
Meeting/Phone by: RVTD

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

Currently RVTD dispatches non-emergency medicaid
– Not automated @ this point
Done via fax today

July RVTD call center will dist

APC – Driver manually enters the passenger info
in one of 10 categories

While fueling, the electronic probe downloads

Will write their own 10-year plan shortly

Use Portland carpool NW match site.
Available from tripcheck.com.

TDM – encourage people to carpool, etc.

Needs: Automated highway message signs. Wants the
ability to promote transportation information.
Advertise carpool website

Do a passenger survey every year.

Action Items: Track the # of carpool/van pool Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 8
Meeting/Phone by: RVTD

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:
Don't generally do measurement of carpool use.

- Promote telework – or alternate modes.
  Consider as part of the travel demand management.

- Could RVTD use the Mesh Networks for transmitting data

RVTD may have fiber on

Will move to GPS / APC / Signal Priority in the future

- System to automate the next bus to go + pick someone else up.

New coaches coming with TSP equipment.
New fareboxes compatible with cameras + video

TSP - Do not know the technology yet.

Automated Stop Announcements. Need to be compatible w/ AVL.

Action Items: Responsibility: Due Date:
Could Mesh Networks be used for transit information

Distribution: ______

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 4 of 8
Meeting/Phone by: RVTD

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:
Also using GIS to track + inventory stops in the system
- Link this to AVL.

- Considering transit arrival information.
Internet /PDA when next bus is coming, etc.

Information Relationships: Get construction related information via fax. Not real consistent. Not always reliable.

- Automated system to enter construction related.

Real-time traffic condition information would be useful, to know of a wreck, etc.

Don't have a CAD system today.
Do an AVL/CAD project. Integrate with a CAD system.

Real-time info for passengers, etc.

- Radio Network - Will be upgraded in the next 5 years at the extreme ends of the network radio coverage is limited. Needs to be upgraded.

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 5 of 8

Meeting/Phone by: RVTD

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

Emergency Management Info. Sharing –
Have plans for a disaster about what routes go first.
Same thing at an airport.

Transit went + got people off a plane

Help fight fires – Dispatch an AC vehicle to help cool them off.

No formal plan, They just call.
Have an emergency route.
– Emergency personnel know to call RVTD

Airport
Medford Fire Dept. > Have called

– FTA req'd them to create a plan for emergency response
– real-time travel info.
– Bus location (critical).
– ↳ Internal Security

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 6 of 8

Meeting/Phone by: RVTD

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

TSP - Medford signals
Ashland signals > Have Opticom.

Hwy 62 project is the first.
Wants to go City wide.

~~IGA has~~ There is an IGA for two signals on Hwy 62 @ Poplar + to the west by the Interchange

Special Events: Jackson County Fair. They run a park + ride.
→ One @ Mall + One @ Crater HS.
Want one @ S. Gateway

4th of July -
Jubelee
Brit - venue in Jacksonville that does concerts
- Operate special routes

→ Route goes by, but a whole new route goes to the fair

Action Items: • Fair is in Central Point.

Responsibility: ______ Due Date: ______

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 7 of 8
Meeting/Phone by: RVTD

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

Transit Center downtown on Front Street btwn 8th & 10th

Future plans will be a north + south transfer point/ park + ride.

- Email lists, advertising, deliver schedules, etc.

Strengths: Applied for ITS Grant w/ Homeland Security
- Needs match.
- Submitted a grant directly to Homeland Security
-

Weaknesses - Disrupts operational schedule
- Trying to get the choice commuter. Looking for consistency
- Need to know all the construction projects + schedule, real-time congestion info. + incident info.
→ Anything that would block a lane of traffic they need to know.

Currently handle on a case-by-basis.

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 8 of 8

Meeting/Phone by: RVTD

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

Need cooperation from the agencies.
Biggest challenges is getting their buy-in.

- Detect bicycles @ interchanges (Both with + without bike lanes).

TDM - Looking for VMT savings
Collecting volumes may not be enough for them

When viaduct closed, They did a big media push
+ encouraged people to take alternate modes.

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: P03196-002 Page 1 of 6

Meeting/Phone by: SRH/JMP

Contact Name(s)/Affiliation: Scott Chancey, Matthew Barnes (RVTD)

Subject: Needs Assessment Phone no:

Discussion:

Would eventually like APC

Database - ~~automated for~~ passenger counts by route

Driver manually counts w/ fare box

↳ not by time-of-day or location

↳ Data downloaded at end of each day

System will be changed soon to be compatible w/ new computer system

- Track maintenance ~ tied to preventative maint.

↳ by part, by bus #, fuel consumption

No planned changes

entered manually

gets entered at fuel island

- Own Radio Frequencies

- Cell phone contact between ops + dispatch

- CNG ~ Compressed Natural Gas System

- 23 coaches ~ most of these are pretty old

↳ upgrading the fleet by Fall 2004

↳ 10 new veh.

- Paratransit ~ contracted out

↳ scheduling/dispatch will soon be controlled by RVTD

↳ 5 private providers ~ they get called by RVTD

↳ July 2004 ~ private providers will call in

↳ Call comes in

RVTD schedules it

2) Faxes/E-Mails to Private Providers

↳ They let RVTD know if they can do the trip

Action Items: Responsibility: Due Date:

Non-Emergency Medical Trips → RVTD dispatches these

- No formal plans in place yet

↳ Will be doing a 10-yr. plan soon

↳ this may come out of ITS Plan

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 2 of 6
Meeting/Phone by: RVTD

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- Carpool Match → available through TripCheck
  ↳ works OK

- Matt → TDM
  ~~[illegible]~~
  ↳ automated hwy signs are of interest
    ↳ would like to be able to post more info than road conditions
      ↳ ie/ Carpool Web Site

- Passenger Survey every 2 yrs. of transit passengers

- Hard to measure carpool / vanpool
  ↳ try to do some surveys
- Promote telework
  ↳ May be able to promote this for govt. agencies as part of plan
- Mesh Network (wireless ethernet) ~ Medford(?) putting together ~ Emergency Agencies
  ↳ this may be something RVTD could use for GIS

- RVTD wants to move towards AVL / APC / GPS / Transit Priority System in the near future

Action Items: Responsibility: Due Date:

- Technology coming out for remote stop requests
  ↳ notifies a pick-up is needed by touch of button

- New coaches → would like to equip w/ transit priority
  ↳ will be coming w/ new fare boxes
  ↳ cameras

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 6

Meeting/Phone by: RVTD

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:

- Transit Priority
  - ↳ Have not yet decided on technology
- Eventually want Automatic Stop Announcements on-board
  - ↳ By law this is required
- Want to use GIS to track stops, etc...
  - ↳ training staff now
  - ↳ this could be linked to a future AVL system
- Web Site
  - ↳ talked about transit arrival times at bus shelters
  - ↳ internet / PDA's
  - ↳ lots of new technology coming out
- Cities provide construction info via fax ~ not always consistent
  - ↳ 7 jurisdictions
- Want to improve on-time efficiency
  - Medford, ODOT, & Jackson Co. are pretty good
- Need Real-time travel info (ie travel times, incident info causing congestion, remote cameras)

Action Items: Responsibility: Due Date:

- No CAD System
  - ↳ would most likely be a part of AVL project
- Want real-time transit veh. tracking capabilities

Distribution: ______

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 4 of 6
Meeting/Phone by: RVTD

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

- Radio
  - dead spots at ends of ~~jurisdiction~~ district (ie/ White City, Ashland)
  - need new system ~ prob. get one w/in next 5 yrs
- Lots of info sharing w/ emerg. mgmt. agencies
  - MOU's in place
  - Fleet plans for major emergencies
  - Plan w/ Airport
    - ie/ evacuations during bomb threat
  - Help w/ Fires
    - Dispatch air-conditioned buses for breaks for firemen (ie/ during summer when it's hot)
  - Informal Network
  - RVTD has an Emergency Response Plan
    - required by FTA
  - No formal plan for large-scale evacuations
- RVTD has a Homeland Security Plan (required by FTA)
  - real-time travel info would be critical (for bus locations)
  - radio critical too
- Ashland
  - might possibly want transit priority there → City-wide
  - City has emergency pre-emption equipment

Action Items: Responsibility: Due Date:

- RVTD + Ashland haven't discussed yet

IGA in place for Hwy 62 (2 ODOT signals) between Medford, ODOT, + RVTD
- ODOT / Medford to update software

Distribution: Hwy 62 / Poplar
- \+ next signal to West

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______
Meeting/Phone by: RVTD

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:

- Charter Services
- Special Event Services ~ Special Routes
  - ↳ Jackson Co. Fair Park + Rides
    - I-5 N. of Central Pt.
    - ↳ Mall
    - ↳ Crater High School
    - } Staging areas for special routes
    - ↳ Fair wants one at South Gateway
  - ↳ Ashland 4th of July
  - ↳ Jazz Jubilee
  - ↳ Brit

- Transit Centers
  - 1 → Front St. in downtown Medford
  - ↳ Future Plans → Transit Pt / Park 'n' Ride in both north + south of district
    - 2 similar to Front St

- Info Dissemination for RVTD
  - ↳ E-mail
  - ↳ Advertising

- RVTD applied for ITS Grant through fed. level Homeland Security
  - ↳ apply for funding for capital imprvmts

- Not aware of local Homeland Security committee

Action Items: Responsibility: Due Date:

- New Jackson Co. division → Emergency Mgmt
  - ↳ governing agency

- Weaknesses
  - ↳ anything that interrupts bus service
  - ↳ need consistency for passengers w/ mode choice options

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 6 of 6
Meeting/Phone by: RVTD

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

↳ need to know about all construction projects (duration, etc...)
↳ need congestion info
utility const. schedules would be good too
central web site would be useful

RVTD Goal → Transit Signal Prioritization throughout entire district
Biggest Challenge → getting all the agencies to agree to this

- Bicycle Detection at Interchanges → call/extend cycle
  ↳ w/ & w/out bike lanes

- TDM
  ↳ looking for VMT Savings
  ↳ currently do quarterly reports
    ↳ will be doing monthly reports
  system detectors probably not very useful
    hard to correlate w/ RVTD activities day-to-day traffic

- Trips w/in City of Ashland → free fare

Action Items: Responsibility: Due Date:

- RVTD tries to be involved w/ all the City's TSP's

Distribution:

Questionnaire for the Rogue Valley Metropolitan Area Regional ITS Operations & Implementation Plan

Name: TOM HUMPHREY

Title: COMMUNITY DEVELOPMENT DIRECTOR

Organization: CITY OF CENTRAL POINT

Address: 155 SOUTH SECOND ST
CENTRAL POINT, OR 97502

Phone: (541) 664-3321 x 230 Fax: (541) 664-6384

Date: 1-5-04

Project Background: The development of a *Regional Intelligent Transportation System (ITS) Operations & Implementation Plan* for the Rogue Valley metropolitan area is underway. The intent of the plan is to identify a set of advanced technology tools and management techniques that could be used to improve the efficiency and safety of the transportation system in the Rogue Valley. The purpose of this project is to get the most out of existing roadway facilities by preserving transportation system capacity, and enhancing regional transportation mobility, efficiency and safety for all modes (without adding travel lanes). Examples of transportation management devices that could be considered for the Rogue Valley metropolitan area include:

Traffic Monitoring
- Closed-Circuit Television (CCTV) Cameras
- Real-time speed and volumes

Traveler Information
- Dynamic Message Signs
- Highway Advisory Radio
- Traveler Information Web Page
- Road Weather Information Systems

Traffic Control
- Advanced Traffic Signal Systems
- Bus Priority
- Emergency Vehicle Preemption
- Incident Management

Planning
- GIS Applications

Communications
- A network to support regional information sharing and remote monitoring of field devices.

Maintenance
- Electronic inventory management
- Real-time road condition information

As part of the *Regional ITS Operations & Implementation Plan* we need your input. Please take a few moments to read and respond to the following questions. Your input will help to guide the deployment of transportation management devices to meet the needs of the Rogue Valley transportation system.

Responsibilities

- What are the primary responsibilities of your section/department of your organization? What are your individual responsibilities? Land use ~~planning and~~ and transportation planning and management
- What transportation technologies do you currently utilize or plan to implement? Transit Oriented Development (TOD); traffic counting and modelling; Travel demand management (TDM); GIS applications

Internal/External Interfaces

- How does your organization interact with other departments (engineering, maintenance, planning, information services, GIS) in your organization? For example, if you work in the maintenance department, how do you interact with the engineering department, the IS department and the planning department. How does your organization interact with outside organizations in exercising its transportation responsibilities? RVACT/MPO TAC; regional planning efforts and competition for funding; collaborate with PWD in plng/budgeting
- What information/data do you provide to other departments within your organization and/or to other agencies? If it is in electronic format, what format is the information/data in? What systems or methods do you employ to provide it? zoning, site plan information .pdf.
- What information/data is provided to you by other departments within your organization and/or by other agencies? If it is in electronic format, what format is the information/data in? What systems or methods do they employ to provide it? ~~assessor's~~ plat info; aerial photography infrastructure and utility info (autoCAD, pdf.)
- What changes are planned for the interactions you have with other departments or agencies (for example, additional data/information that you will receive or provide, or other changes in relationships with other departments)? putting up more info on the city web site.
- Now that we have had this discussion about information sharing, are there ways we can use technology to assist with coordinating activities and resources among different agencies? TSP interfaces for road classification and scheduled improvements.

Strengths, Weaknesses, Opportunities and Challenges

- What strengths in the existing transportation system and/or your organization are you aware of that are improving efficiency or safety? What suggestions do you have for capitalizing on these strengths? better communication and cooperation; working together on RTP and joint transport. issues.
- Do you see any barriers to deploying transportation technologies and/or sharing information among departments/other agencies? What can be done to improve the efficiency of your daily activities? What tools do you need to help you do your daily activities more effectively? if they are redundant, unrealistic or require too much effort they will be ignored.
- What opportunities exist that we should be aware of for the Rogue Valley Intelligent Transportation System planning process? (i.e., opportunities to coordinate with other projects, opportunities to coordinate with regional plans, possible funding sources, etc…)

  RPS, TPAU traffic modeling

- What challenges need to be overcome to improve the efficiency and safety of the transportation system? What challenges need to be overcome to help you perform your daily activities efficiently and effectively?

Transportation System

- What do you see as the biggest problem affecting the efficiency and safety of the Rogue Valley transportation system (i.e. congestion, incident delays, connectivity, signal progression along arterials, construction delays, public transportation performance, etc…)? Where would you say are the biggest transportation problem areas within your jurisdiction?
  scheduling and funding improvements - inter jurisdictional management

  How do you think we can address these problems and/or problem areas?
  better communication; agreement about standards and priorities
- Can you think of other issues that affect efficient and safe travel in the Rogue Valley metropolitan area?

Needs

- What information would help you do your daily activities more effectively (i.e. road conditions, construction information, real-time video, etc…)? greater access to modeling and scenario analysis (development pieces as part of a larger whole)
- Any final ideas or thoughts about how technology or information based transportation systems could be used to enhance the safety and efficiency of the transportation system in the Rogue Valley?

Other

- Are there other people you think it would be helpful for us to send a questionnaire to or add to our mailing list for expanded stakeholder meetings?

Name ____________________________

Title ____________________________

Organization ____________________________

Address ____________________________

____

Phone/Fax ____________________________

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: P03196-002 Page 1 of 6

Meeting/Phone by: JMP

Contact Name(s)/Affiliation: Tom Humphrey / Bob Pierce
Central Point

Subject: Needs Assessment Phone no:

Discussion:

Police Chief – Crime prevention + enforcement
– Dispatched by Medford Police

Congestion Problems – Only real congestion problem although minor is Hwy 99 + Pine. + Central Point Interchange.

– Primarily SB on + off at the interchange
Fails @ 8am, noon + 5pm

Fair causes grief @ the Central Pt Intc.

Expo is across from NB off-ramp @ Pennigan Rd

USF Reddaway trucks is further east

May be a WalMart?

Pilot? Center is a truck stop east of I-5

Camera on the overpass
Ampitheater will be built on fairgrounds.

Signs on I-5 to manage the traffic in advance of Central Pt. interchange

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 6
Meeting/Phone by: ______ Central Pt.

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:
~~Has~~ queued onto I-5 - NB today during special events.
- Interim improvements may be to add a 2nd lane SB (In STIP). 2nd lane NB will be decided on in March

Getting to Central Point is more difficult, then moving around Central Point.

→ Medford transportation conditions:

Traffic condition info. would be nice.

Vilas off Hwy 62 is used as a by pass to the N. Medford Interchange so they use the Central Pt. Interchange
Alternative SB to get to Central Point is to get off at Seven Oaks Interchange

VMS
N. of Seven Oaks. (Info. about airport)
Hwy 62 SB North of Vilas

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 6

Meeting/Phone by: Central Pt.

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

Issue: Gravel trucks out of Jacksonville pass through town going to Central Pt. Intz

TOD planned west of tracks north of Pine Street.

CCTV

664-3321 x 610

Central Point police have MDT. Mike Sweeney is the police chief - 3321 x610

Traffic Signals

Central Point - owns two signals. ODOT - maintains + operates → Oak / Freeman, Pine / Haskill, 10th / Pine

Signals - New @ 99/Pine

Planned/ Not funded: 2nd, 4th, 6th

Plan is for ODOT to Maintain + Operate

Rest of signals are ODOT

Except Penniger - County

Hamrick - County

Table Rock Road - County

Action Items: ______ Responsibility: ______ Due Date: ______

Existing signals @ 3rd + 4th are electromechanical

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: Page 4 of 6
Meeting/Phone by: Central Pt.

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

Regional Forums: RVACT
MPO TAC
PAC
RPS – Regional Problem Solving

GIS – Collaborate with the County + want it to be available on the Internet.

Needs: Would like access to traffic modeling.
– Wants to be able to do some customized Scenarios for Central Point to be able to run some scenarios

– Currently higher a Consultant to use the TPAU model

– TPAU is managing the model. Have to work with TPAU to get the model.
– Need better control over the model.

Video + data

Cameras on Hwy 99, I-5, Penniger Road, Pine Street

Action Items: Responsibility: Due Date:

HCL?

Issue: ODOT video sharing w/ Central Point.

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ____ P/A no: ____ Page 5 of 6
Meeting/Phone by: Central Pt.

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:
Haven't capitalized on transit
- During fair they block entrance to Peninger from Upton unless they are a bus or 4H member.
- No convenient route from Central Point via bus today.
- No convenient bus routes from Talent to Central Point

• Commuter Rail was considered Central Point to Ashland. COG has a copy of the Commuter Rail plan.

• ODOT will retain the signals on Hwy 99 after the City takes over the road.

- Wants to put more info on line including street classification.
Has a CD of TSP
Wants real-time access to regional TSPs.

Construction Scheduling data base would be useful. Right now done verbally.

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 6 of 6
Meeting/Phone by: Central Pt.

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

SWOC - Strengths (Better communication, working well together)
Barriers (redundant, don't have unrealistic expectations)
Have to be user friendly)

Biggest problem: Connectivity is an issue due to interchange, creek, RR & airport
- Signal progression. Would like to have it.
- public transp. performance lacking
- Scheduling & funding. Interjurisdictional performance.
Better standards.

—

Traffic signal data - Would like to have access to the signals

Trying to become ~~more~~ ped friendly in Central Pt.

Action Items: Responsibility: Due Date:

Trucks: Trying to keep trucks off Vilas & Hamrick & use Table Rock & Pine instead

Have a TGM grant ~~for~~ corridor planning on Hwy 99

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: P03196-002 Page 1 of 5

Meeting/Phone by: SRH/JMP

Contact Name(s)/Affiliation: Tom Humphrey, Bob Pierce (City of Central Pt.)

Subject: Needs Assessment Phone no:

Discussion:

CPPD Techology → crime-related

☆ Congestion
- ↳ really don't have many problems → mostly minor
- ↳ More major issues
  - Hwy 99/ Pine
  - I-5/ Central Pt. Interchange — SB problems
    - truck traffic ~ Pilot Ctr. (truck stop)
      - ↳ 8 am, Noon, 5pm
    - ↳ Really bad when fair is going on
      (Fair / Expo Ctr → Peninger Rd.)
      - building an amphitheater now
- Police cheif would like a camera on Central Pt. interchange
  - VMS would be helpful NB + SB prior to ")
- Interchange prob. won't be rebuilt for 10-15 yrs.
- Every once in a while traffic backs up on I-5
  - ↳ ie./ Bob Dylan concert
  - ↳ Fair comes close
  - ↳ STIP includes adding 2nd SB lane on on-ramp

- Getting around Central Pt. is easy
  - ↳ Getting to/from Central Pt. is harder
    - ↳ interchange + Medford

- Need congestion info on VMS
  - ↳ maybe even camera images

Action Items: Responsibility: Due Date:

- Lot of people use Vilas / Hamrick to get to I-5 at Pine instead of Hwy 62

- VMS SB on I-5 North of 7 Oaks

Distribution:
- VMS SB on Hwy 62 North of Vilas

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 5
Meeting/Phone by: Central Pt.

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:
- Gravel trucks from Jacksonville sometimes cut through downtown CP

- Transit Oriented Development (TOD) ~ 7 or 8 TOD's
  - ↳ RVTD has yet to set up buses through CP's TOD
  - ↳ CP has invested quite a bit of $ towards TOD

- Camera at Pine/99

- Police chief (Mike Sweeney) → had a camera on top of Grange ~ police could access it from veh.
  - ↳ camera was taken down due to public outcry of big brother

☒ Traffic Signals
- ↳ own 3 ~ ODOT operates/maintains
  - Oak / Freeman
  - 10th / Pine
  - Pine / Haskell
- → will own new signal at Pine/99
  - ↳ will put signals on even-#'ed streets on Pine → 2nd, 4th, 6th ← Planned under financially constrained list
- ↳ City may eventually take over signals
- ↳ signal at Penninger → Jackson Co.
  - Table Rock Rd.
- ↳ rest of signals are ODOT

Action Items: | Responsibility: | Due Date:

☒ No interconnect, except
- ↳ Signals at Pine/3rd + Pine/4th

☒ Info Sharing
- ↳ GIS info
- ↳ exchange PDF's

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______
Meeting/Phone by: Central Pt.

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

☆ Lot of coordination at: MPO TAC & PAC Mtg's
RVACT ~
RPS ~ Regional ~~Planning~~ Problem Solving

- Would eventually like to put more info online

- Need access to travel modeling
  - ↳ Want a big picture model + ability to do scenario-based modeling
    - ↳ everything is controlled through TPAU
    - ↳ usually have to hire a consultant to look at individual scenarios
  - CoG built the model → TPAU manages it

- If cameras were installed, Central Pt. would like access/control to them
  - ↳ For Info sharing → Central Pt. would want cameras to be part of a bigger system

- Would like cameras on arterials, I-5, overpasses/interchanges, Peninger Rd, Pine St, Hwy 99

- Need to capitalize on transit
  - ↳ some transit is used for Fair
    - ↳ Fair has special entrance for exhibitors & transit
  - ↳ Needs to support TOD land use
- ↳ in Central Pt., pretty much have to drive ~ not many transit options

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 4 of 5
Meeting/Phone by: Central Pt.

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- No big problems w/ RR Xings
  - ↳ Will be adding a new xing soon
- Study has looked at Commuter Rail from Grants Pass to Ashland
  - COG should have copy of this
- Jackson County has pretty good web site
  - ↳ City accesses their info pretty frequently
  - ↳ Desired info sharing amongst region:
    - Functional Class Maps
    - TSP
    - Real-time access (as it's being updated)
    - Construction Schedule
      - not always aware of County construction

Strengths
↳ Better communication/cooperation

Barriers
↳ projects can't be redundant or unrealistic
  - must be user friendly

Issue
↳ lack of connectivity (ie/ interchange, creek, airport)

Action Items: Responsibility: Due Date:

- City would like to have signal progression

Problems
- Scheduling/funding
- Integration/standards
- transit performance

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 5 of 5
Meeting/Phone by: Central Pt.

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:

☆ Once it is cost-effective, CP would like to operate + maintain their own signals

- CP is growing towards North

- trying to discourage truck traffic on Hamrick - Vilas

- trying to encourage peds in downtown
  - JMP → may be a good place for countdown timers

- bike improvements planned

- have bicycle detection at Oak/Freeman
  - ↳ maybe at Pine/Haskell also

- Medford dispatches CPPD

Action Items: | Responsibility: | Due Date:

Distribution: ______

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: P03196-002 Page 1 of 5
Meeting/Phone by: JMP

Contact Name(s)/Affiliation: Shirley Roberts (ODOT), Dan Moore, Julie Rodwell, Vicki Guarino
Subject: RVCOG Needs Assessment Phone no:

Discussion:

ODOT provides the modeling services, but it is COGs model.

Updating the model this year to include Ashland to Eagle Point

Transportation Problem Areas: Medford is the most congested.

S. Medford Interchange south of Barrett Road ~~becomes~~ be an overpass

N. Medford Interchange is being rebuilt this Spring

Hwy 62 east of I-5 - New expressway to parallel Hwy 62

OTIA 3 project will be the Hwy 62 improvements

I-5 Viaduct is a major bottleneck b/c of accidents.
RMS signs were not active with the last accident.

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 2 of 5
Meeting/Phone by: RVCOG

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- Would be nice to have another VMS north of Central Point.
- Nice to have VMS to tell folks not to get on to I-5
- More VMS south of I-5 as well

ODOT Incident Response?

- Need better coordinated incident response
- No direct local street btwn Barnett & Crater Lake Hwy

Viaduct - Did a seismic retrofit. No plans to add more lanes?

Study Area corridors almost all have congestion.

Bad intersections: Fern Valley / Phoenix interchange is another congestion point.

Central Pt. Interchange - E. Pine Street has access — SB off-ramp will be expanded. No other

Action Items: Responsibility: Due Date:

Pine Street has left turn issues b/c all permissive lefts

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 3 of 5
Meeting/Phone by: RVCOG

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:
Ampitheater traffic management plan is being put in place
Dan Dorrell, District 8 would know about the TMP for the ampitheater
Issue for emergency services
What did Clark County do for their issue.

Table Rock Rd - Pine to just north of Vilas will be undergoing improvements

Safety analysis for all the corridors - RVCOG is analyzing all of the intersections.

Want to have automated crash data. RVCOG is going to try to automatically convert this data into GIS.
Currently take their ODOT's electronic dBase + convert to RVCOG GIS manually.

Traffic Counts: Data is currently a mish mash of completeness
Project next year to identify agencies needs in the way of traffic data. Design a counting program.
Next RTP is every 3 years

Action Items: Responsibility: Due Date:
- Identify a program (Counts done one way, etc.)

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 4 of 5
Meeting/Phone by: RVCOG

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

Counts: Having 24-hour volume data and better count data would be useful.

Transit: Difficult to get out of Crater Lake Avenue onto Crater Lake Hwy.
May move the bus barn in five years.
However, today is difficult today for buses to get out of bus barn

- Counts on Crater Lake Avenue between Vilas & Delta Waters

- Transit support to the TOD needs to be brought up by the City with the transit district.
Need it to be warranted first.
City owns Crater Lake Avenue.

Highway Advisory Radio — Consider this for the Medford area.
HAR might be a good tool to use north & south of the viaduct

Siskiyou Pass closure: Problem how to address.
Review the COATS

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 5 of 5
Meeting/Phone by: RVCOG

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

Emergency Response Plan – COG is putting together ERP for each region

- Hazard Mitigation Planning – Natural Hazards Mitigation done for Medford
- GIS project

Emergency Management Plan – Structures as they respond:

- Management Approach
- Alert + Warning of a Population
- Evacuation Plans
- Public Information.

Provide flood information.
State Highways likely to be flooded:
- Shady Cove (Rogue River runs through)
- ~~East of~~ Gold Hill

Potential dam failures:
- Lost Creek Lake dam
- BLM dams

Emergency Managers: Need funds for the radio communication network

Action Items: | Responsibility: | Due Date:

Disaster Response: Need back-up generators for key locations

Wildfires are interesting – On smoke sometimes

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ~~1/6/04~~ 1/5/04 P/A no: P03196-002 Page 1 of 4

Meeting/Phone by: SRH/JMP

Contact Name(s)/Affiliation: Dan Moore, Julie Rodwell, Vicki Guarino (RVCOG), Shirley Roberts (ODOT)

Subject: Needs Assessment Phone no:

Discussion:

Travel Model → RVCOG Responsible for model
↳ TPAU does the modeling services
↳ Work w/ TPAU to maintain it
↳ Will be updating model this fiscal yr. to include new MPO boundaries (incl. Ashland, Eagle Pt.)

☆ Most congestion → Medford
↳ S. Medford Interchange → new single-pt. interchange is planned an 1/8 mile south of the old one
↳ Barnett will become just an overpass
↳ N. Medford Interchange → will be reconstructed this spring
↳ Congestion on Hwy 62 from I-5 to White City
↳ OTIA $ (Phase 3) to rebuild Hwy 62
↳ still have to finish EIS
↳ Table Rock Rd → from Pine to Antelope ← County working on projects
↳ Viaduct → major bottleneck when an accident occurs on the viaduct
↳ messages don't seem to get posted for this
↳ need another VMS on I-5 SB North of Central Pt.

- Check w/ ODOT about Incident Response
↳ seem to be on-site for some incidents
↳ This would be helpful

Action Items: Responsibility: Due Date:

↳ need a coordinated incident response effort

☆ Hwy 99 is a good alt. route for incidents on I-5

- Circulation w/ Medford is pretty tough
↳ no direct routes ~ very residential

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 4
Meeting/Phone by: RVCOG

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- No recurrent congestion on I-5
  - ↳ more incident based
- Viaduct → recently did an overlay + seismic retrofit
  - ↳ no plans to widen
- The Study Area corridors chosen for the Plan are typically congestion spots
- Phoenix / Fern Valley Interchange → congestion problem
- Central Pt. Interchange is currently a problem
  - ↳ major truck stop
  - ↳ trucking companies
  - ↳ plans to add a lane to the SB on-ramp
- Pine St → issues b/c theres no left turn refuge through downtown
- Amphitheater ~ were supposed to put together a traffic mgmt. plan
  - Jackson Co.
  - ↳ will create major traffic problems
  - Dan Dorrell at ODOT might have more info
- ☆ RVCOG looking at accident data in MPO ~ 2 yr. worth of data
  - ↳ particularly looking at Table Rock Rd
  - ↳ trying to identify trends

Action Items: Responsibility: Due Date:

- ↳ Next Step → look at potential projects
  - ↳ want more automated data that can be brought directly into GIS
  - ↳ ODOT currently ~~___~~ updating their system
    - ↳ trying to coordinate GIS data

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 4
Meeting/Phone by: RVCOG

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:

- Traffic count data throughout area is varied (quantity/quality)
  - ↳ RVCOG is going to put together a list of the data collection needs & then put together a system
    - ↳ this yr. or next → before next RTP (every 3yrs.)
  - ↳ want a uniform system → ie/ shape file output
  - ↳ 24-hr. volumes on arterials would be useful
  - ↳ Need better count data
    - ↳ more perm. count stations

- ☆ Issue → getting busses from bus barn onto Crater Lake Ave
  - ↳ doing a study to see if bus facility should be relocated
    - ↳ 5-10 yrs. away
  - ↳ quite a bit of traffic
    - ↳ maybe need a signal
  - ↳ need to count traffic on Crater Lake Ave/Hwy from Delta Waters to Vilas

- Need a ~~[illegible]~~ dedicated radio channel for emergency info (ie/ amber alert)
  - ↳ can this be shared w/ HAR
  - ↳ beef up system
    - ↳ maybe expand to a greater range & include metro area (CP & Medford)

- Would it make sense to have a central ops center?

Action Items: | Responsibility: | Due Date:

- Emergency Response Plans for local jurisdictions → being developed by COG
  - ↳ Dan/Julie can put us through to them
  - ↳ we should invite them to our workshops
  - ↳ ie/ Hazard Mitigation in slide areas
  - ↳ Comm. systems

Distribution: ↳ security component?

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 4 of 4
Meeting/Phone by: RVCOG

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

- Did one for Eagle Pt.
- Medford Plan in progress

Emergency Mgmt Plans
↳ City's mgmt approach to structure — ie/ - alert/warning for public notification
- evacuation
↳ Police/Fire agencies have their own response

↳ need to provide info on disasters
ie/ floods → pretty frequent
↳ Shady Cove (Hwy 62)
↳ Rogue River/Gold Hill (I-5)
- potential dam failures (ie/ in Ashland)

↳ plans looked at comm needs/systems
↳ lack of funding
↳ need a power back-up for power failures, esp. during natural disaster

↳ wildfires are a factor too
↳ smoke can make roads impassable

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: P03196-002 Page 1 of 3

Meeting/Phone by: DMP

Contact Name(s)/Affiliation: Eric Niemeyer

Subject: (Jackson County) Needs Assessment Phone no:

Discussion:

ODOT maintains the signals
- Jackson County owns + operates
Signals all more than ½ mile

- Peninger is connected to the ODOT signals at the interchange

- Pay booths into the parking lot were the bottle neck
Working w/ Ampitheater
After the show was easy.

- Eric collects the traffic count data manually about once/year.

- Would like to have a remote connection to
Installing phone drop + interconnect to two signals on Table Rock Road.

- Cheryl Wallace about the radio network.

Video Detection used temporarily on Table Rock Rd @ Vilas + Biddle. Just Table Rock phases.
Continue to use the cameras for construction
Traficon - Temporary only

Action Items: Table Rock Road

Responsibility:

Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 3
Meeting/Phone by: Jackson Co.

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion: Jackson County Roads:
- Table Rock Road
- Vilas Road
- Pine Street East of I-5 (Penniger east)
- Antelope Road
- Foothill to Hil Crest
- Old Jacksonville Hwy
- Kirtland Rd.
- W Main to Columbus

Transportation Problem Areas:
- Hwy 62 @ Delta Waters
- Interchanges (North + South)
- Pine Street Corridor with the WalMart

New plans: Gordon Trucking planned on Pine Street
USF Reddaway switches to triples @ Medford.
– No operational problems on Pine Street today

Weigh Stations: Talk to John Hall

Video from ODOT to Jackson County could be useful for alternate routes.

Action Items: Responsibility: Due Date:

County Road congestion levels are minimal

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 3
Meeting/Phone by: Jackson Co.

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

Talk about connecting Tolo Rd to I-5 NB
+ an exit off NB I-5.

County Roads into mountains: Butte Falls Hwy.
Prospect Area.

County Maintenance is @ Antelope Rd.

ODOT Maintenance: Pine @ Hamerick
across from USF Reddaway

Action Items: | Responsibility: | Due Date:

Send ODOT spec on the fiber installation job.

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/5/04 P/A no: P03196-002 Page 1 of 3
Meeting/Phone by: SRH / JMP

Contact Name(s)/Affiliation: Eric Niemeyer (Jackson County)

Subject: Needs Assessment Phone no:

Discussion:

8 Traffic Signals
↳ Owned by County + Operated by County
↳ Maintained by ODOT
↳ County does some maintenance
↳ No remote access
↳ ODOT has a phone drop at one
↳ Too far away for interconnect
↳ may be an interest to interconnect the signals on Pine St

- Bottleneck at Bob Dylan concert at Fairgrounds → Parking!
↳ couldn't get veh. into the parking lots fast enough
↳ manual ticket/$ collection
↳ Peninger Rd ~ County Rd.
↳ after event → pretty easy to clear out

- Once or twice /yr. → download count data from signals
↳ 2-4 week increments
(2 weeks for 15-min. bins)

- Would like to have a remote connection to the signals
↳ will put in phone drops + IC as part of Table Rock Rd construction

Action Items:	Responsibility:	Due Date:
- Radio → use 2-way radio for staff		
↳ can get more info from Cheryl Wallace		

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 3
Meeting/Phone by: Jackson Co.

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

- Traficon Video Detection
  - using 4 temp cameras at
    - Table Rock / Biddle
    - Table Rock / Vilas
  - during construction
  - they work OK ~ will probably only be used for temp./construction applications
  - some problems when there's fog

County Roads:
- Table Rock Rd (most major)
- Vilas
- Pine St (east of I-5)
- Peninger
- Antelope Rd
- Curtland
- Foothill (all the way down to Hillcrest)
- N. Phoenix
- Old Jacksonville Hwy (Name is uncertain)
- W. Main into Medford (at Columbus)

Congestion / Problem Locations
1. ☆ Hwy 62 (esp. at Delta Waters) ← biggest problem
2. ☆ Freeway Ramps → N. & S. Medford Interchanges
   ☆ Pine St corridor w/ the Walmart

Action Items:	Responsibility:	Due Date:
- Truck transfer pts. → Near Central Pt.	~ switching between	
Central Pt. Interchange { ↳ USF Reddaway ~ existing	doubles & triples	
↳ Gordon is planning one		

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ____ P/A no: ____ Page 3 of 3
Meeting/Phone by: Jackson Co.

Contact Name(s)/Affiliation:

Subject: ____ Phone no: ____

Discussion:

★ Talk to John Mall about weigh stations
↳ County has both perm. + portable

★ Information Sharing
↳ ODOT has access to Jackson Co's signals
↳ ~~ODOT~~ County would love access to ODOT's signals/info
↳ camera images would be helpful for secondary routes when traffic is diverted

- Really don't need camera images on County Rds.

- Talk of a new interchange to connect Tolo Rd. to I-5
↳ NB on-ramp + SB off-ramp

- Not sure how maint. crews get weather info
↳ High Elev / Weather Issues:
Butte Falls Hwy
Prospect Ave
↳ Maint. at same location as Public Works

- Table Rock Rd → will be reconstructed as 5 lanes
↳ Biddle to Wilson → Phase 1 ← starts in spring
↳ Wilson to Antelope → Phase 2

- Not really much contact w/ emergency mgmt. agencies

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: P03196-002 Page 1 of 8

Meeting/Phone by: JMP/SRH

Contact Name(s)/Affiliation: Millie/Margie Puckett, Arlen Hatlestad
Tirapelle

Subject: SORC Needs Assessment Phone no:

Discussion:

- Share the same CAD system w/ Medford Central Comm Center
- Hot line btwn the two centers through the CAD
  - Dispatch for 28 agencies all areas except Medford, Ashland + Central Pt PD

National Air Warning Alert System — NAWAS
- Do a roll call 3 times a day.
- SORC relays this info to other local agencies.

State Police has their own dispatch. They have a tie line.
State Police has a different CAD system.

- Medford Dispatch - Ashland dispatch goes to Medford.
-

Hwy 140 + Hwy 62 are potential problems
- Summer is fires,
- Winter is snow

Have traveler warnings about what is happening
- People get rerouted over 140 + 62
  140 is a detour route for the Siskiyou

★ Jacksonville Hill is a common snow problem on 238. Wanting to know if that route is open.

Action Items: Responsibility Due Date:

Wether info.?

Integration w/ State Police

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 8
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

Agate Lake Dams
Ashland Lake Dams
Lost Creek Dams
Elk Creek Dam.

238 out to Josephine County ☆
62 to Crater Lake —
I-5 to State Border
SORC dispatches for

Eagle Point is growing fast

Hwy 238 is the only way in for Josephine County
Flooding issues in Eagle Point.
Flooding in Applegate Area

No current plans for monitoring the bridges in real-time
Cities have alarms on the water towers. City can measure the presence of known chemicals.

Alarms on some of these facilities are tied into the SORC 911

Action Items: | Responsibility: | Due Date:

Interaction w/

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 8
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

Talk to ODOT
- Have County Roads Frequency
- Work mainly in the winter
- State sends out teletypes
- People call in + tell 911 with the wrecks.

- Trucks wait @ Phoenix b/c of Siskiyou Pass so they alert Fire of chemical Hazmat

- Put system detector information on the viaduct for flow information

- 911 monitored the Viaduct cameras to let ambulance know if they could get through. Used a common frequency for the event

- Wants more information on Jacksonville Hwy 71
  - Weather Information
  - Camera
- EMS vehicles have to use this route

Summer time population increases in Medford
- Shakespeare Festival
- Brit.
- Jacksonville Fair

Action Items: Hwy 62 out to Crater Lake

Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 4 of 8
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

230/62 Junction is a common crash area
Elk Creek

Cell phone calls that came to 911

Airport: Joint responce effort
- Tower manned 8am to 6pm
- Would be helpful to have a connection to

New runway in next 5 years.
Sheriff office is moving to airport.
EOC will go to the Airport.

EOC is the conference room.

Ashland - Medford + Jackson County EOCs work together. Send liasons back and forth
Put about 35 people in here.

County GIS mapping is on 2nd floor.
- Every two hours they provided a map of the fire lines.
- A runner shares the information.
Would establish a new Comm Center connection if moved to the airport.

Action Items: Responsibility: Due Date:

MDT

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 5 of 8
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

They currently have a fiber connection
- Have a rep from County + ODOT roads

Activate the EOC with Amber Alert, Fires, etc.
Health Dept

Gary Leening, ODOT worked closely with

Rogue River Ambulance has everything north of Gold Hill
They need to know if there is a traffic problem
otherwise they go to Grants Pass.

Medford Mesh Networks is being deployed throughout Medford.

Central Point has a wireless 2.4GHz system that Central Point PD uses
- One on high school
- One across from OSP.
- ~~Med~~

Hospitals are worried about the Medford Wireless
- Medford PD is leading this effort

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 6 of 8
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

Mobile Data Terminals will be supported

Very interested in traffic congestion info.

Central Pt. PD had access to video in their vehicles
Had 11GHz cards in the Central Pt. PD cards.

Police could access the video from their terminals.

High school has a camera system. Could provide this video to the police vehicles
- Need a broad bandwidth
- Used a PELCO camera

Avenue G has a Hazmat area. (Radiation facility)
- Need some automatic detection
- Evacuation
  Cameras in that area would be useful
- Water treatment facility is near this facility

- Chief Randy Iverson covers the hazardous areas.
  Agate Station FS #3

Interested in mobiles + a wireless network btwn his stations

Action Items: Responsibility: Due Date:

Planning a wireless network btwn SORC to John's Peak to White City Fire Station

SORC operates the towers on the mountain tops.

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 7 of 8
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion: SORC towers are full. Careful about interference.

Baldy is on SE side of town
John's Peak is on the NW side

Most radio gaps are up Hwy 62 + 140

Data Comm to the vehicles needs higher freq. which covers less area.
800 MHz planned by Motorola for their data network.
SORC is sticking w/ RF networks

Car to car over the lower bandwidth
Video

2.4 GHz needs licensing + there is a lot of interference.

SORC has an MOU w/ TSA. They have their own command post
Tom Owen, Manager
Bill, IT.
Sit in on EOC
At Jet Center where the Sheriff's Office will be or close to it.

Action Items: Homeland Security funneled through them.

Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 8 of 8

Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

Medford PD has cell connection to MDT
Medford PD uses a different MDT software than Tiburon's MDT system. CAD software
Tiburon has the CAD system.
- Comm system (infrastructure) does not matter

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: P03196-002 Page 1 of 6

Meeting/Phone by: SRH/JMP

Contact Name(s)/Affiliation: Millie Tirapelle, Margie Puckett (SORC)
Arlen Hatlestad

Subject: Needs Assessment Phone no:

Discussion:

☆ Dispatch all police, fire, & ambulance (Mercy Flights) for all of Jackson County, except:
Medford Police & Fire
Central Pt. Police
Tiburon Ashland Police & Fire

☆ CAD system linked to Medford C-COM ← will soon have different CAD systems, but same vendors
↳ 911 calls often overlap & need to be switched for dispatch — this is done through CAD system
↳ do follow-up on the phone

- SORC also has ties to state & fed. agencies
↳ SORC is the Primary PSAP b/c of this

↳ NAWS - National Alert Warning System
pt
connected through state to Colorado
Have to answer roll call 3 times/day (each county)

- Have a tie-line to CCOM & one to OSP (direct line between the agencies)

- Ashland ~ still has a dispatch center, & their own circuits but are contracted through CCOM

Action Items: Responsibility: Due Date:

Detour Route for I-5

- Out Hwy 140 & 162 → high potential emergency areas
- fires in summer
- snow in winter } accidents
people get re-routed when Siskiyous are closed

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 6
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

☆ Hwy 238 → major connector to Josephine County ← only way in
↳ people call in to see if Jacksonville Hill is open

☆ Quite a few dams in outlying areas
↳ Gold Mill, Rogue River, Shady Cove

☆ Hwy 62 ~ also critical
↳ part of Crater Lake is w/in Jackson County

- In 20 yrs., metro area will expand to outlying areas
  - Eagle Pt. + Central Pt. are both growing very rapidly!

- Big Floods in '97 ~ major flooding in Applegate (Hwy ~~238~~ was closed) + in Eagle Pt.

- Lot of potential areas for disaster

- SORC has an emergency action plan for each dam
  ↳ 11 dams in County

- Jackson Co. Emergency Mgmt. Group
  ↳ has looked at homeland security
  ↳ currently trying to fill EM mgr. position

- No plans for monitoring of critical infrastructure

Action Items: Responsibility: Due Date:

↳ Medford is monitoring their water sources
↳ Ashland " " " dam

- Quite a bit of interaction w/ ODOT/Jackson Co. during the winter
  ↳ get teletypes from state
  ↳ usually SORC is aware of a problem before ODOT

Distribution:

↳ SORC will call them to alert

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ____ P/A no: ____ Page 3 of 6
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: ____ Phone no: ____

Discussion:

- Keep fire departments on stand-by when Siskiyous are closed b/c of HazMat trucks stuck in the area

- Arlen would like to see real-time congestion info w/ alerts when there is congestion

- During viaduct construction, SORC used the ODOT cameras constantly to see if conditions were clear for ambulances to get through
  - ↳ also watched for incidents

- other good locations to monitor w/ cameras:
  - Jacksonville Hill (long, windy hill w/ a lot of traffic)
    - usually covered in snow in winter
  - Hwy 62 all the way out to Crater Lake
    - ↳ quite a few accidents out towards the Lake due to snow

Special Events
- ↳ Shakespeare Festival
- ↳ Brit Festival (Jacksonville)
- ↳ Amphitheater being built in Central Pt.

Action Items: | Responsibility: | Due Date:

adding a new runway ~ may eventually be a 24-hr operation

- Airport – currently dispatch is a combined SORC-CCOM effort
  - ↳ need coordination w/ FAA
  - ↳ tower only manned from 8 am – 8 pm
    - after 8 pm ~ need info from Salem

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- JCSO is moving to the airport this week

- SORC is EOC for County
  - ↳ planning a new bldg out near the airport for SORC
  - ↳ Medford & Ashland both have EOC's (fairly small) & EOC
  - ↳ some smaller cities have EOC's
  - ☆ Everyone coordinates w/ Jackson Co. EOC
    - ↳ everything is wired

  ↳ EOC & 911 Center coordinated during emergencies
  ↳ ↳ citizen hot lines set up " "

WAN between SORC & CCOM ~ fiber
  - ↳ will still have fiber to CCOM once new bldg is done
  - ↳ want to convince CCOM to move w/ them

- Would love real-time traffic info
  - ↳ need a comm connection

- During EOC → ODOT/Jackson Co. will be present depending on the emergency
  - ↳ usually present regardless

- ODOT goes to Fire Chiefs Monthly Mtg
  & Police " " "

Action Items: Gary Leaming (spelling ?) | Responsibility: | Due Date:

- RVMC (Rogue Valley Medical Ctr) → on Barnett in Medford
  - ↳ 2 Hospitals in Medford, 1 in Ashland, 1 in Grants Pass
  - tried a big wireless system, but had problems

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 5 of 6
Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

- Concerned w/ planned mesh network in Medford (through PD)
  - hospitals also concerned
- Central Pt. PD → has wireless system } these will have problems coexisting
  - System has not really been tested
- New CAD system will have support MDT's ← will provide 2 terminals to each jurisdiction
  - ↳ law enforcement will be looking into purchasing more
  - ↳ looking at a grant for all user agencies to have MDT's
  - ↳ would be very interested in having real-time traffic info on MDT's

MDT ~ MDC

- Central Pt. PD has MDT's
  - Arlen did a test w/ a camera on top of Grange & connected it to MDC's
  - had to take camera down b/c of public outcry
  - PD is lending 2 cameras to schools
    - all the schools are wi-fi
- Study area corridors
  - Add Avenue G ?
    - huge hazmat area ~ Kodak
      - radiation, etc...
      - there's a plan for this plant
      - if there's an accident ~ White City will be wiped out

Action Items: Responsibility: Due Date:

- cameras in this area would be useful

Fire Chief Iverson ~ good contact
- Randy
- Jackson Co. FD #3
  - first-class equipment → Agate Sta.
  - wants wireless network & MDC's in-vehicles

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 6 of 6

Meeting/Phone by: SORC

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- Plan in place to connect wireless to White City Fire sta.
- 8 mountain-top ~~radio~~ comm. towers
  - share w/ other agencies
  - pretty full - but try to avoid interference
  - still trying to enhance some dead spots:
    - Hwy 62, Hwy 140

lot of wrecks on Hwy 140

- SORC using basic RF (radio frequency) ~ 800-900 MHz
- MOU w/ Transp. Security Authority (TSA)
  - Tom Owen

At Airport (Jet Center) IT → Bill

↳ also sit in on EOC

good contact about Homeland Security

- MDT Connection ~ will be through 900 MHz radio frequency (Central Pt. PD is connected through cell phones)

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: Page 1 of 5
Meeting/Phone by: JMP/SRH

Contact Name(s)/Affiliation: Paula Gibson (CCOM), Ron Norris, Kelly Dutra

Subject: Medford PD Needs Assessment Phone no:

Discussion:

- Speeds have reduced thanks to speed trailers
- Put red light cameras @ two sites that have worked well
- Barnett + Riverside added a right turn lane
- Implementing Mesh in the Medford area
  Doing Citywide right now
  Planning Countywide
- Technical Services is setting up the

Looking @ Emergency Medical Services.
Paramedics could video stream to a doctor
Planning to transmit the video from

Potential to have access to transportation cameras, school cameras, Sonitrol.

They can bring on-line

Tracking AVL/GPS with the Mesh Networks
Going to add vehicle tracking software. to CAD System

Mesh Networks will be in place March or April

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______
Meeting/Phone by: CCOM

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

- Medford is working closely w/ TS dept.

OSP can have mesh as well

Medford 911 would like to have info. on their mapping.
- Cameras
- Real-time congestion info.
- Construction Info.

Plant mapping will be completed in March
- shows vehicle locations

Camera Locations
Riverside/Barnett
Riverside/Stewart
Big "X"
Biddle/McAndrews
Delta Waters/62
Poplar/62
Hwy 62 I-5 east
South 99 has left turning traffic problems

Trying to develop an interoperability radio freq.
Big picture plan for State of Oregon is to set up a common radio freq. down I-5.

Action Items: Responsibility: Due Date:

Talk to Wayne Pace about his capabilities for temp traffic detours.
Wayne can deploy two cars with VMS on his vehicles + detour routes set up. Use pilot

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 5
Meeting/Phone by: CCOM

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:

- JoJack is common radio freq.
  ODOT is installing or planning a tower on Sexton Mtn. + Ashland.
  ACU1000 - Uses 800MHz
- Most viable is ACU1000 to combine State Money w/ local money.
  Need to consider a consortium to go after a grant.
- Oregon Police Emergency Network (OPEN)
  - No towers for these
  - Waiting on the interoperability in PDX.

ACU 1000 — Code OPEN + you can hear anyone
Combine UHF + VHF.

TSA has a nice mapping solution.

Gary Leening, ODOT did a lot of work with rerouting the viaduct project

EOC - Each City has an EOC
- Ashland + Medford have an EOC. Send rep to County to the EOCs

Police has an RV Emergency Command Center w/ Mesh, CAD System

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ____ P/A no: ____ Page 4 of 5
Meeting/Phone by: CCOM

Contact Name(s)/Affiliation:

Subject: ____ Phone no: ____

Discussion: EOC Countywide Event
- Radio Comm w/ ODOT
- Need traffic congestion + roadway condition information
- Camera info

~~A~~

Moving to a new City 911 across the Street to the Annex
Happening in March
OSP, SORC, + Medford Comm

Flood: If they new 99/Valley View flooded, then they

Problem Areas:
- N. Phoenix Road/Foothill Road is becoming
- S. Stage Road between Jacksonville and I-5 is used as a cut through to go to Ashland
- Central Point is an issue.
- Old Stage Road from Central Point to Jacksonville.
- ~~Lone~~ Pine + Foothill
- Talent experiencing lots of growth.

Action Items: | Responsibility: | Due Date:

- Eagle Mill in Ashland

Crashes:
- N. Phoenix/Foothill Rd bad crashes
- Speeding on 62 but slowed by the speed

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 5 of 5
Meeting/Phone by: CCOM

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion: Mesh Network location:
• Static signage is not good.

Riverside @ Hwy 62
"X" Area is confusing

Doug Townsend 7742051 IS Director setting up

1.5 MBps

- OSP needs a terminal to see the status of 911 Center plus the electronic messaging system.
- Phone today to

JoJack - Common freq. - Old + outdated
↳Josephine / Jackson County

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: P03196 - 002 Page 1 of 4

Meeting/Phone by: SRH / JMP

Contact Name(s)/Affiliation: Paula Gibson (CCOM), Ron Norris (Medford PD)
Kelly Dutra (Comm Mgr.) ↳ recently retired (Kelly taking over) ↑ retiring in July

Subject: Needs Assessment Phone no:

Discussion:

w/ cameras

☆ Speed Enforcement Vans → work well
45-65% reduction in speeding

☆ Photo Enforcement
↳ Biddle/McAndrews ~ used to have 3 red light runners/cycle ~ now it's 6-8 week

- Medford PD → setting up mesh network in City ← have a grant
↳ goal → to go county-wide
↳ Viasys (vendor) ~ installed by March 2004 or April
↳ data transmission
↳ Police veh. have MDT's (GPRS)

- Planned project → install video in ambulances w/ live-stream to hospital
↳ use mesh network
just a concept at this point

- Can use mesh network to connect to cameras
↳ faster data transmission than GPRS
↳ will be using AVL/GPS also + will track police veh.
↳ can track/map any veh (i.e. Public Works) "plant mapping"
↳ will probably also add to Fire
↳ ambulances have been using AVL

in-veh. officers can also pull up map in car + figure out how to get where they need to go

Action Items: Responsibility: Due Date:

- Medford → technologically progressive
↳ closely tied w/ Technical Services Dept.

- Would like a congestion flow map

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 4
Meeting/Phone by: CCOM

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- Desired Camera Locations:
  - McAndrews / Biddle
  - Riverside / Barnett
  - " / Stewart
  - Delta Waters / Hwy 62
  - ☆ Hwy 62 east of I-5
  - S. Interchange (I-5)
  - S. Hwy 99 ~ accident prone

☆ Trying to develop a common radio frequency - interoperability

- Wayne Pace (City of Medford) → has 2 veh. he can deploy in N. & S. parts of town w/ message boards to re-direct traffic during a closure or emergency

ACU-1000 System → statewide comm. system planned along I-5
  - local system will tie into this
    - no funding to do a local system yet

OPEN - Oregon Police Emergency Network
  - not currently available to everyone

OPEN ~

Action Items: ACU-1000 ~ converts frequency Responsibility: Due Date:

- Gary Leaming (ODOT) → talk to him about Viaduct re-routes
  ↳ did a great job during reconstruction

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______
Meeting/Phone by: CCOM

Contact Name(s)/Affiliation: ______

Subject: ______ Phone no: ______

Discussion:

Dispatch → Medford Police & Fire
Ashland " " "
Central Pt "
Airport Fire
S. Ore. U.

- Medford has an EOC → } each sends a rep. to County
  Ashland " " " → } EOC for disasters beyond City-level

- Emer. Command Veh. → County veh.
  ↳ large RV w/ comm system, including CAD

- Need radio connection w/ ODOT

- Need to be able to exchange real-time info between EOC's

- CCOM relocating across the street to ~~City Hall Annex~~
  ↳ upgrading facility from 4 ~~centers~~ stations to 7 stations

- EOC currently located on 2nd floor of City Hall Annex

RVCCOM ~ RV Consolidated Comm. Ctr.

Action Items: | Responsibility: | Due Date:

- Need flood info at Hwy 99/Valley View

Mark Burnes - Medford Fire Dept.

Distribution: ______

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no:

Meeting/Phone by: CCOM

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion: SE Medford → big expansion

- N. Phoenix Rd area → will eventually become congested
  Foothill Rd → + Lone Pine
  ~~South~~ Old? Stage → people use this to get between Jacksonville
  Pioneer + Ashland
- People try to avoid going through Medford
- A lot of people that work in Ashland live in southern Medford
- Talent is growing fast
- Eagle Mill in Ashland is a back way in
  ↳ will get congestion
- Quite a few accidents on Phoenix Rd. + Foothill Rd.
  ↳ more rural-type accidents
- Speeding issues on Hwy 62
  ↳ van enforcement has been working well
- Need better signage (static) in Medford + Jackson Co.
  ↳ before a major intersection
  ↳ visible locations

Action Items: Responsibility: Due Date:

Doug Townsend → 774-2051 ~ Tech. Services Director
↳ in charge of setting up mesh network
$800,000 for Medford

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: P03196-002 Page 1 of 3

Meeting/Phone by: JMP

Contact Name(s)/Affiliation: Pieter Smeenk

Subject: Ashland Needs Assessment Phone no:

Discussion:

Big traffic issues: College surges
Shakespeare Festival (Feb-Nov)
Delivery issues (Strange unloading)

Shakespeare Outdoor Festival in June
– Same difficulty with bus.

Have a tourist trolley that would shuttle people around.

Argadyne, Pioneer + Lower Oak Street – Staging buses get's moved around during the events.
They pull up to the door

Tour Bus drops people off, then goes and waits a while until after the show.

Daily school crunch @ 3:30pm
High School, next to College, next to Ixia Apts

I-5 South Interchange, is a choke point.
Also used as a diversion route for Siskiyou Pass closures

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 3
Meeting/Phone by: Ashland

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion: Traffic Signals
Hwy 99 + 66 are State facilities.
Ashland to jurisdiction 4th to Walker signals

Ashland owns, ODOT will maintain + operate

Main/Mountain Ashland owns ~~maintains + operates~~
ODOT operates + maintains.

ODOT should have the signal locations

Did interconnect get installed on Hwy 99

Security monitors @ the dam.

Lot of the Shakespeare attendees stay @ nearby B&B. P+R adequate + designed for more.

So. Oregon U is the difficult point. In 20 years, how are they going to support.
How about express shuttles.

About 4,500 students, many come from Medford.

South. Oregon U planning for many

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ________ P/A no: ________ Page 3 of 3
Meeting/Phone by: Ashland

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:
- Would be useful to see the Medford area traveler information. 20% of people work in Medford.

- More accessible transportation

Interested in changing

Open to pilot projects to

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: P03196-002 Page 1 of 3

Meeting/Phone by: SRH/JMP

Contact Name(s)/Affiliation: Pieter Smeenk (City of Ashland)

Subject: Needs Assessment Phone no:

Discussion:

- Probably most interested in smaller-scale projects

☆ Big Traffic Issues
SOU – Surges
Event - Traffic ~ College, Shakespeare Festival
Delivery Issues ~ b/c downtown is so compact

Shakespeare Festival → Feb. – Nov.
↳ Peak ~ June – ~~Oct~~ Sept.
↳ ~~[illegible]~~ problem getting buses through

☆ Tourist Trolley – currently goes around Valley
↳ proposed to shuttle people from hotels

Arganine, Pioneer ~ Bus staging areas during performances
↳ lack of storage
↑ Tour/Specialty Buses

☆ Daily school crunch at 3:30 → college, next to high school, next to jr. high

- S. Ashland Interchange
↳ need another lane on the bridge
↳ this is the detour pt. to get to K-Falls when I-5 is closed at Siskiyou Pass
↳ locals can use a different bypass under I-5 farther south

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 3
Meeting/Phone by: Ashland

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

☆ Traffic Signals
↳ Hwy 99 → 4th to Walker } Ashland just took over jurisdiction from ODOT
↳ Hwy 66 → Hwy 99 to RR Bridge
↑ ODOT will operate + maintain
- ODOT owns all the other signals on the state hwys
- Signal on E. Main → owned by City
↳ operated/maintained by ODOT

- Should hopefully be interconnect ~ need to check w/ ODOT

- Water gauging stations } for water supply
- security monitoring at dam

- Ashland ~ not expecting much growth
↳ just in-fill

- Hwy 99/66 → congestion pt., safety issues

- Shakespeare Festival
↳ parking not really a problem
↳ lot of people walk from downtown B&B's

- SOU ~ will have problems as they continue to grow over next 20 yrs.

Action Items: ↳ really need express shuttles | Responsibility: | Due Date:
↳ most students don't live in Ashland
↳ ≈ 4500 students ~ maybe 2000 live in Ashland
↑ lot of part-time students
↑ may be up to 10,000 students in another 20 yrs.

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 3
Meeting/Phone by: Ashland

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

- No problems on I-5 through Ashland

- Info sharing
  - ↳ Driving public wants to know where congestion/construction, etc. is in ~~Ashland~~ Medford
    - ↳ over 20% of Ashland residents work in Medford
    - ↳ most people shop in Medford

- City spends a lot of time doing traffic counts
  - L have a person dedicated to it
  - L system detectors may be useful
- May need special event signal timing
  - L may be a good "pilot" project

- Oak St. gets a fair amount of traffic

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: P03196-002 Page 1 of 4

Meeting/Phone by: JMP

Contact Name(s)/Affiliation: John Vial, District Mgr, Sue D'Agnese (Region Mgr) (ODOT)

Subject: Needs Assessment Phone no:

Discussion:

99 through Medford is not a State facility

Medford does all signal timing w/in City limits

☆ Terry Moxley, Region Electrica 541.951.3875

Some maintenance activities

TOC @ OSP 24/7 staffed with 2 persons

Will have 4 stations set up Operates District 7 + 11

Phone, fax, email btwn OSP + the TOC + SORC

She'll know where signals are, ITS field equipment

ITS Maintenance for CCTV, VMS + HARs done by Region Electricians + Computer services

Traffic Counters

Planned in next year: ① DMS @ Ashland MP 13 SB
② DMS in California mile south of NB border
③ 2 cameras @ N. Medford interchange
Poplar + the interchange
– 1 @ interchange

Action Items: Responsibility: Due Date:

Planning new ATRs
Want one south of Ashland
Want a speed counter on I-5 + Hwy 62
Want one out farther N. of Eagle Point

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 4
Meeting/Phone by: ODOT

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

- No dedicated incident response.
- Tracking incident response data @ The TOC

- Incident Response → so far it is not getting anything. Congestion is not as much of an issue here now.

John meets once/year w/ tow operators.
Meet with fire districts

- Have incident response plan for the viaduct with Medford.

Maintenance + OSP have different radio frequency
Coordinate response, but try to separate responsibilities.

- Incident responders (Ambulance) lack traffic information

Siskiyou Pass - WTI has prepared an ITS Plan
- More VMS
- Better HAR

2 existing cameras

Action Items: | Responsibility: | Due Date:

Ask Terry Moxley for

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 3 of 4
Meeting/Phone by: ODOT

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:
Have one lousy HAR. Didn't work last go round
- Existing is 2 miles either direction
- Most people choose to

To bypass Siskiyou no good route

~~Detoured Grants Pass~~
Do not detour traffic for Siskiyou b/c long + indirect

HAR needs to be replaced

ODOT slightly interested in signs approaching the facility

Weather Stations - One on Siskiyou
One on Viaduct

Congestion Points
Hwy 62 - I-5 Medford to Delta Waters

North + South Interchanges
Central Point Interchange

Traffic Management Plan for Ampitheater
- Get from the Fair
Expo Manager
Lancaster Engineer

Action Items: Responsibility: Due Date:

Short term plan about how to deal w/ these events
- ITS devices were not used
- Consider VMS

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 4 of 4
Meeting/Phone by: ODOT

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:
Looked @ a DMS on the Siskiyou for trucks
to detect truck speed.

Speeding problem between Central Point to

Safety Corridor 62 White City in.
Lots of angle + rear-end accidents

- Automated deicing system on the viaduct
Sue would only support a surveillance camera

Green Light Program - 8 percent

ATR could be used for travel time information

Closed caption TV station like Bend

Traffic Signals - Remote comm to these would be
useful.
Terry will know

Incident Mngmt Plan - 2 hours or less then don't detour
SB goes off @ N. Medford Interchange

- Would like to know when signals are off-line in Medford
- Would like dispatch center to know of a off line signal

Action Items: Responsibility: Due Date:
Talk to Bridge Dept to see their interest in electronic identification of cracks.
Gary Bowling
Talk to Terry about how often the viaduct is closed
Talk to Bob Sechler about incident detour routes
541 9573541

Distribution: See other side →

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: P03196-002 Page 1 of 6

Meeting/Phone by: SRM / JMP

Contact Name(s)/Affiliation: Sue D'Agnese, John Vial (ODOT)

Subject: Needs Assessment Phone no:

Discussion:

Hwy 99 through Medford → not state-owned

- any signals in Medford that are owned by ODOT are timed by Medford

- There is interconnect through Ashland on Hwy 99

- Hwy 62 → should have interconnect w/in Medford limits

☆ ☆ Terry Moxley → Region Electrical Mgr.
↳ (541) 951-3875
↑ check signal list w/ Terry + check on ITS device list

John → District Mgr.
↳ maintenance + ops

Electrical + TOC → controlled by
↑
24/7 staffing ~ one or 2 staff
↳ 4 stations set up
↳ also runs Districts 7 + 11 + Rogue Valley

Info sharing w/ OSP → phone, fax, e-mail
+ SORC

ITS Maint. → done by Region Electricians
↳ somewhat managed out of TOC

Action Items: Responsibility: Due Date:

☆ I-5 MP 13 SB → planned DMS for Ashland

Planned ODOT DMS for NB I-5 1 mile w/in California border

- 2 cameras planned for N. Medford Interchange
↳ 1 at interchange, 1 at Poplar

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 2 of 6
Meeting/Phone by: ODOT

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

☆ Planning phase for new ATR's ← looking
↳ S. of Ashland
↳ want a speed one in Rogue Valley on I-5
& maybe an ATR on Hwy 62 (close to Eagle Pt.)

☆ No dedicated incident response
↳ include night/extra shifts during winter for de-icing, sanders
↳ Talk to Terry Moxley about incident data
↳ Region 3 has talked about a dedicated IR program, but it hasn't really been deemed necessary yet

- Work w/ response agencies
↳ meet annually w/ tow operators
↳ meet w/ HazMat
↳ meet w/ fire districts frequently

IR plan for Viaduct → formal plan w/ Medford
↳ John will get us a copy of the plan

- TOC + OSP → different radio frequencies
↳ scan each other's channels
↳ good relationship between OS police & ODOT
↳ ODOT strictly works w/ traffic

- everything works well w/in Metro area

Action Items: Responsibility: Due Date:

Most issues → mtn. passes → outside of study area

- Police / Fire / Ambulance don't always get complete info from dispatch about road conditions

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 6
Meeting/Phone by: ODOT

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

WTI is working on a Siskiyou Pass IR Plan
need
- better HAR
  - more VMS boards
- need to get people choices

Siskiyou Pass
2 existing cameras
good for traveler info
~ not really an incident detection method

- Existing HAR doesn't really work
  - 2 mile range each side
  - static signs w/ Tune to 1610 + flashing yellow lights when activated

- If I-5 is closed ~ usually only a few hrs.
  - most people wait it out
  - could detour to 140 to K-Falls
    - or go to Grants Pass + take coastal route

☆ Usually don't detour traffic when Siskiyou Pass is closed
  - Detour routes are long + they're not easy

- Need to replace existing HAR w/ a better system
  - more user friendly
  - larger range

Action Items: Responsibility: Due Date:

- Congestion isn't bad in metro area
  - except viaduct

- ITS needs to be used to affect driver choices/traffic patterns
  - not just to make people feel good

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 4 of 6
Meeting/Phone by: ODOT

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

- RWIS at top of pass & one on viaduct

Congestion Pts.
Hwy 62 → from I-5 to Delta Wtrs
N. & S. Interchanges
Central Pt. "

- Talk to County Fair about Amphitheater/Fairgrounds Traffic Mgmt Plan
↳ Expo Mgr.
Lancaster Engineering
could implement MAR + VMS signs w/ the plan
plan has been effective ~ been in effect 2 yrs.

- Curve/Speed Warning Signs for trucks (similar to California) for the Siskiyou Pass

- Speeding problem between Central Pt. & Medford

- Hwy 62 → Safety Corridor from Medford to White City
↳ mostly access control issues

- Would be nice to have an automated deicing system on viaduct
- PTZ camera on viaduct would be useful for incident detection

Action Items: Responsibility: Due Date:

- Weigh Station ~ POE in Ashland
↳ 8% of trucks use the green light

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 5 of 6
Meeting/Phone by: ODOT

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- Not really a need for congestion mapping
  - not much congestion, lack of alt. routes
  - could almost get this info w/ existing ATR's
  - more important to just get 911 centers real-time info
- Real-time video feed to local TV
- Need to use traffic modeling to find congestion spots in the future to decide where to put equipment
- Maybe a camera at Delta Waters
- Biddle corridor is problematic
- Remote access to signals is useful
  - Terry can tell us more
- No need for actuated timing on ODOT corridors
- ODOT maintains Jackson Co's signals
- May need bridge crack monitoring
  - Gary Bowling - Bridge Section would have more info

Action Items: Responsibility: Due Date:

- Incident Mgmt - Viaduct ← only closed about once/yr.
  - Terry will have more data
  - could use small changeable message signs in Medford
  - flip-down static signs

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 6 of 6
Meeting/Phone by: ODOT

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

Bob Sechler (957-3541)
↳ has Alt. Route Plan for I-5

Partnership w/ Jackson Co.
↳ trade services/equipment
↳ share 1 sign crew

- Work closely w/ City of Medford

- Close ties w/ OSP
- Work w/ Medford PD re: viaduct

- Would like an automated notice when Medford signals go down - esp. when they impact ODOT signals
↳ need info in more timely manner
↳ go to dispatch ctr.

Biggest Traffic Generators:
↳ Bear Creek Corp. (approx. 500 employees)
↳ RVMC (Rogue Valley Medical Ctr.)

- Need RWIS on top of Jacksonville

Action Items: Responsibility: Due Date:

- Statewide → ODOT decided not to put GPS on maint. veh.

- Problem w/ comm/electrical/power to Siskiyou cameras during storms

- Portable ~~[illegible]~~ radios would be good for crews when they're out of veh.

Distribution: - Radio coverage is great
↳ very few dead spots in District

Questionnaire for the Rogue Valley Metropolitan Area Regional ITS Operations & Implementation Plan

Name	Wayne Pace		
Title	Operations Superintendent		
Organization	City of Medford		
Address	821 North Columbus Ave		
	Medford, Or 97501		
Phone	541-774-2600	Fax	541-774-2646
Date	January 6, 2004		

Project Background: The development of a *Regional Intelligent Transportation System (ITS) Operations & Implementation Plan* for the Rogue Valley metropolitan area is underway. The intent of the plan is to identify a set of advanced technology tools and management techniques that could be used to improve the efficiency and safety of the transportation system in the Rogue Valley. The purpose of this project is to get the most out of existing roadway facilities by preserving transportation system capacity, and enhancing regional transportation mobility, efficiency and safety for all modes (without adding travel lanes). Examples of transportation management devices that could be considered for the Rogue Valley metropolitan area include:

Traffic Monitoring
- Closed-Circuit Television (CCTV) Cameras
- Real-time speed and volumes

Traveler Information
- Dynamic Message Signs
- Highway Advisory Radio
- Traveler Information Web Page
- Road Weather Information Systems

Traffic Control
- Advanced Traffic Signal Systems
- Bus Priority
- Emergency Vehicle Preemption
- Incident Management

Planning
- GIS Applications

Communications
- A network to support regional information sharing and remote monitoring of field devices.

Maintenance
- Electronic inventory management
- Real-time road condition information

As part of the *Regional ITS Operations & Implementation Plan* we need your input. Please take a few moments to read and respond to the following questions. Your input will help to guide the deployment of transportation management devices to meet the needs of the Rogue Valley transportation system.

Responsibilities

- What are the primary responsibilities of your section/department of your organization? What are your individual responsibilities? ***Infrastructure Maintenance & Operations including all traffic signals, signing & striping and other traffic control devices.***

- What transportation technologies do you currently utilize or plan to implement? ***Intergraded Traffic Signal Management (BiTrans), Pavement Management and Computer-assisted Maintenance Management.***

Internal/External Interfaces

- How does your organization interact with other departments (engineering, maintenance, planning, information services, GIS) in your organization? For example, if you work in the maintenance department, how do you interact with the engineering department, the IS department and the planning department. How does your organization interact with outside organizations in exercising its transportation responsibilities? ***As Required! In the City of Medford organization, Operations is responsible for existing structures, Engineering is responsible for new construction and/or systems.***

- What information/data do you provide to other departments within your organization and/or to other agencies? If it is in electronic format, what format is the information/data in? What systems or methods do you employ to provide it? ***Multiple formats & sources as needed.***

- What information/data is provided to you by other departments within your organization and/or by other agencies? If it is in electronic format, what format is the information/data in? What systems or methods do they employ to provide it? ***Multiple formats & sources as needed.***

- What changes are planned for the interactions you have with other departments or agencies (for example, additional data/information that you will receive or provide, or other changes in relationships with other departments)? ***Improvements in GIS information are both needed and planned.***

- Now that we have had this discussion about information sharing, are there ways we can use technology to assist with coordinating activities and resources among different agencies? ***Common standards and data platforms for use in a Regional Traffic Operations Center. Integrated Communication Systems between Transportation Agencies and Law Enforcement Agencies. Better field information systems to acquire real time traffic data.***

Strengths, Weaknesses, Opportunities and Challenges

- What strengths in the existing transportation system and/or your organization are you aware of that are improving efficiency or safety? What suggestions do you have for capitalizing on these strengths? ***Real Time Traffic Management!!! Better feedback information systems. i.e. traffic cameras on major roadways.***

- Do you see any barriers to deploying transportation technologies and/or sharing information among departments/other agencies? What can be done to improve the efficiency of your daily activities? What tools do you need to help you do your daily activities more effectively?
- ***Multiple Jurisdictions with differing priorities. A Regional Traffic Operations Plan, Managed or Coordinated through one Traffic Operations Center.***

- What opportunities exist that we should be aware of for the Rogue Valley Intelligent Transportation System planning process? (i.e., opportunities to coordinate with other projects, opportunities to coordinate with regional plans, possible funding sources, etc…) ***North and South I5 Interchange Projects, Upgrade of City of Medford ITS and Regional Emergency Management.***

- What challenges need to be overcome to improve the efficiency and safety of the transportation system? What challenges need to be overcome to help you perform your daily activities efficiently and effectively? ***Multiple Agencies with differing priorities. There are currently, command and control issues between real time traffic management and engineering & planning.***

Transportation System

- What do you see as the biggest problem affecting the efficiency and safety of the Rogue Valley transportation system (i.e. congestion, incident delays, connectivity, signal progression along arterials, construction delays, public transportation performance, etc…)? Where would you say are the biggest transportation problem areas within your jurisdiction? ***Real Time Traffic Management of Peaks, Holidays and Special Events. Also, active management of lane closures, construction traffic control and emergency incidents.***

  How do you think we can address these problems and/or problem areas? ***We can address these problems with a Coordinated City, Count and State TOC with command and control authority.***

- Can you think of other issues that affect efficient and safe travel in the Rogue Valley metropolitan area? ***Long Term Planning and Connectivity.***

Needs

- What information would help you do your daily activities more effectively (i.e. road conditions, construction information, real-time video, etc…)? ***Better information on construction activity, lane closures and active enforcement of construction traffic control signing. Video Surveillance of major roadways, construction detours, emergency events, etc.***

- Any final ideas or thoughts about how technology or information based transportation systems could be used to enhance the safety and efficiency of the transportation system in the Rogue Valley? ***Active monitoring and control of real time traffic movements throughout the region. The region suffers traffic delays on a daily bases from in adequate management of construction work zones, motor vehicle crashes, peak hour signal plans, disabled vehicles, lane closures and a host of other minor issues. The implementation of traffic surveillance, message boards and communications systems for command & coordination between Law Enforcement and Transportation Agencies would greatly reduce traffic delays and congestion.***

Other

- Are there other people you think it would be helpful for us to send a questionnaire to or add to our mailing list for expanded stakeholder meetings?

Name ______________________________

Title ______________________________

Organization ______________________________

Address ______________________________

____

Phone/Fax ______________________________

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 PA no: P03196-002 Page 1 of 7

Meeting/Phone by: JMP/SRH

Contact Name(s)/Affiliation: ~~[illegible]~~ Alex Georgevitch, Wayne Pace

Subject: City of Medford Needs Assessment Phone no:

Discussion:

Incident Management:
Current cameras on I-5 need to be full motion.

Would like to see cameras + message boards everywhere

Construction Management
Permitting
Detours
Lane Management
Signal Corridor Mngmt
Event Mngmt.

Global vision is multi-jurisdictional live TMC w/ control over TMC + info systems to send drivers w/o having to manually deploy signing.

Interactions
Jackson County - No
ODOT - Only collaboration is in ~~[illegible]~~ when Medford uses the ODOT.

Freeway acts as the main transportation route through Medford
~~[illegible]~~ Highway 99 is Medford Road. ODOT picks it up on either end

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 2 of 7
Meeting/Phone by: Medford

Contact Name(s)/Affiliation:

Subject: ______ Phone no:

Discussion:

Operations: Medford maintains the signals for ODOT.

Would love to see a joint ops center w/ good Command + control btwn all agencies

All but two signals are interconnected today 106 out of 108.

Have QuicNet/4. Have signal techs have access Wayne updates plans, does graphics, etc

Rwa

TWP back to MUX, back to server, Server connected

Mesh Network interface w/ all traffic signals, ITS devices.
Redundant servers one at Service Center
one at City Hall
Set up the network by end of Feb.

Initially get MDCs on Fire + Police up + running on the CAD system.

Viasys Corporation is who providing mesh to Medford

Action Items: | Responsibility: | Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 3 of 7
Meeting/Phone by: Medford

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

Traffic Congestion: I-5 divides east + west

Barnett - 30 to 40K ADT
- Rogue Valley Medical Center is a major trauma center (Regional Med Facility).

Providence - Has a Cancer Center
Mercy Flights goes through Airport

Riverside - Central - Primary alternate route for I-5

WB Barnett: Congestion from employment near Med Center

McAndrews + Biddle - Used to be heaviest City owned signal
or Barnett

Coordination: Barnett
McAndrews to Royal
Stewart Avenue
Hwy 62
Central - Riverside
Biddle (Jackson to McAndrews)

Action Items: Responsibility: Due Date:

Works pretty well for normal, events + holidays could be improved.

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: P/A no: Page 4 of 7
Meeting/Phone by: Medford

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion: Traffic Congestion:
Foothill is of future importance
- Jackson County owns parts of it.
Needs to be outfitted in the future.

Garfield to Columbus @ S. Interchange will be an issue. Minor arterial past Myers Lane, but will be on a freight road.

N-S Arterial on west part of town will be Columbus part of Ring Road

Main & 8th (Major employment & destination center)

Crater Lake Avenue main N-S corridor today

Highland - Springbrook to Delta Waters connector will become the longest N-S corridor.

Interactions: ODOT wants regional relationships
~~but wants~~
County may be more difficult.
ODOT signals are all Wapiti
Medford signals are BiTran

ODOT

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 5 of 7
Meeting/Phone by: Medford

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:
CCTV, CMS, + EOC will be in the Annex.

Wayne Pace goes to incident command. he is the Inc Commander +

Information Sharing w/ 911
- Email
- CAD + Signal System totally separate

- Give them lane closures + telephone call Pw#

Common construction database. Need to know where the construction is occurring ~~w/o~~ during an incident

Construction Work Zone Management:
- Make sure they are permitted + setting up ~~be~~ according to the plan.
- Track TCP review to make sure it is done.
- Educating the Contractors.

3 Things mess up traffic
1. Failure of system / signal
2. Construction
3. Emergency / Incident
   → Trying to better manage an event

Action Items: | Responsibility: | Due Date:

Have all 700 Series Optizom

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: ______ Page 6 of 7

Meeting/Phone by: JMP / SRH Medford

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

PVMS - Medford has

Other problem corridors
Hwy 62 @ Interchange - Lots of rear-ends
Barnett / Riverside
4th / Riverside

Special Events: Pear Blossum
July 4th
No ongoing events

Jacksonville Brit Concerts - No parking
Operate the trolley

Incident Mngmt is high priority for City.

- ~~Discussions~~ Discussions about how CAD / ITS / mesh are going to support this.

Floods to Fire to traffic control

City willing to share camera control as long as City has override capability

Action Items: Responsibility: Due Date:

Wayne has an operations / control command + room possible Service Center room.

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 7 of 7
Meeting/Phone by: Medford

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

- Engineering point-of-view. Share cameras, but run through ODOT

- Vision to run 2070s w/ adaptive in the long term.

Car accident
Fire needs to be there for EMT
Police for scene mngmt
Medford for transp mngmt

There is an emergency mngmt action plan.

Ashland interaction is limited today, but will likely fuse together.
ODOT manages Ashland signals out of Grants Pass
Medford MAY take operations control of Ashland signal.
Ashland has an independent.

Portable cameras to move about & transmit over cable.

Action Items: Responsibility: Due Date:

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: 1/6/04 P/A no: P03196-002 Page 1 of 5

Meeting/Phone by: SRH/JMP

Contact Name(s)/Affiliation: Wayne Pace, Alex Georgevitch (City of Medford)

Subject: Needs Assessment Phone no:

Discussion:

- Incident Mgmt Plan for Viaduct ~ fax plan~
  ↳ takes 4-5 min. to update camera images

- Would like to see cameras everywhere along major corridors
- More message signs

- Need Incident Mgmt, Construction Signage, Detours, Event Routes (timing plans), Signal timing

- ~~Need a~~ Multi-Jurisdictional TOC → active control of systems + info
  ↳ need to get away from manually deploying signage

- Virtually no interaction w/ Jackson Co.
- Work well w/ ODOT but systems are totally separate
- ODOT wants commuters to stay off I-5
  ↳ not feasible
- Hwy 99 belongs to Medford w/in City limits
- City maintains ODOT's signals
- Need to integrate systems throughout Medford out to Central Pt. + Phoenix
  ↳ integrate Medford, ODOT, Jackson Co.

- Set up Regional TOC to coordinate activities

- All but 2 of City's signals are interconnected (twisted pair)
  ↳ 108 signals ~ BiTrans - QuicNet 4

Action Items: Responsibility: Due Date:

Access to QuicNet → Wayne, Alex, Pam, Signal Techs
everything is tied to server ~ + then access to network
I can dial up server
↙ Talk to Steve Edwards (PM)

- If MESH works like it's supposed to, City will have global access to all signals

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______
Meeting/Phone by: Medford

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

↳ can hook up all ITS devices to Mesh network
- Fiber will provide redundancy
- Mesh Network
↳ Redundant Servers → 1 at Tech Services Service Ctr., 1 at City Hall
↳ Grant for $400,000
↳ should be up + running by end of Feb.
↳ start installing sites the week of Jan. 19th
↳ 1st priority → MDC's on emergency veh.
Viasys Corp. → contracted to install Mesh network
↳ trade name

☆ Congestion Areas: (I-5 divides East + West)
Barnett (30k-40k ADT Range)
↳ S. Interchange will help
↳ RVMC → Major Trauma Ctr.
Providence Hospital → Has a cancer ctr.
↳ Routes from Airport to Hospitals are critical for Mercy Flights
↳ Riverside
- Biddle
- McAndrews
- Biddle/McAndrews intersection
↳ highest volumes

- Riverside/Central is the alt. route if I-5 is closed
↳ no special signal timing plans

Action Items:
- Signal Coordination:
  - Biddle (Jackson to McAndrews)
  - McAndrews (to Royal)
  - Stewart
  - Riverside/Central
  - Hwy 62 – partially
  - Barnett

Responsibility: Due Date:
→ Works well for typical traffic
↳ problems w/ special events, holidays, etc.

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 3 of 5
Meeting/Phone by: Medford

Contact Name(s)/Affiliation:

Subject: ______ Phone no: ______

Discussion:

- Foothill → will be a concern in the future
  - ↳ starting to get a lot of use
- Garfield to Columbus → concern for the future b/c of new interchange
  - ↳ Look at freight plan in TSP
    - ↳ Sage/Columbus will be major north-south arterial/freight route
- Main + 8th Downtown ~ destination area
  - ↳ employment, commercial
- Crater Lake Ave
  - ↳ need E-W connectors on East side
  - ↳ Highland/Barnabus/Springwater

Interaction ← Medford ops/maintains ODOT signals w/in City
- ↳ ODOT should be easy to work w/
  - ↳ they just want to maintain their own stuff
- ↳ Will be more difficult to coordinate w/ Jackson Co.
- ODOT doesn't want City controlling cameras/VMS

- Needs for Viaduct IM
  - ↳ Real-Time PTZ — connected to City, CCEM, + EOC

Info-Sharing w/ 911 Ctr. (CAD + City Systems are separate)
- ↳ e-mail (Excel, Word)
- ↳ City info – usually work order/ops-related
- ↳ phone
- ↳ 911 enters construction info in CAD

Wayne participates
↳ Joint Emer. Mgr./Commander
↳ Fire Chief is other one

Action Items: Responsibility: Due Date:

- Need a common construction database
- Construction Work Zone Mgmt is a big deal
  - ↳ need to do this better

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 4 of 5
Meeting/Phone by: Medford

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:
Main Causes of Congestion:
1) System Failure
2) Construction
3) Emergency incident
↳ need to clear incidents faster
↳ block less lanes w/ EM veh.

- Transit Priority:
↳ deal w/ RVTD to do this on Hwy 62
- Fire Dept. paid for Opticom system

- City has quite a bit of portable equipment
- Use PVMS frequently at: accident site
4th / Riverside (highest in City)
Hwy 62 near interchange

- Not many special event issues
Pear Blossom
4th of July
Parades
} these are manageable

Britt Festival in Jacksonville → big issue
↳ no parking

- Incident Mgmt is high priority
↳ started discussions on how MESH, CAD, ITS, etc... play a role
↳ flood, fire, traffic control
↳ 911 Ctr. really wants access to PTZ Cameras
↳ City OK to share control ~ w/ City TOC overrides

Action Items: Responsibility: Due Date:

- Potential Facility for TOC ← ideal location: Service Ctr.
↳ no manpower, budget

Distribution:

CONTACT REPORT

DKS Associates
Traffic • Transportation • Engineering

Date: ______ P/A no: ______ Page 5 of 5
Meeting/Phone by: Medford

Contact Name(s)/Affiliation:

Subject: Phone no:

Discussion:

↳ from engineering standpt. → run everything through ODOT's TOC
↳ share cameras → set up overrides
↳ float between whatever the need is
ie/ Fire Dept/911 w/ override if there's a fire

- City has a plan in place for roles/responsibilities for incidents
↳ need to expand this regionally

↳ ODOT currently operates Ashland's signals (out of Grants Pass)
↳ not very cost effective
↳ eventually this is something Medford may take control over way down the road
↳ Ashland is fairly independent though

- City plans to purchase portable PTZ cameras
↳ hook-up to mesh network

- Need automatic deicing on Barnett Rd at the east end where the grades are approximately 15%

Action Items:	Responsibility:	Due Date:

Distribution:

Appendix I:
User Needs Workshop

CONTENTS

Rogue Valley
Intelligent Transportation Systems

Regional ITS Operations & Implementation Plan for the Rogue Valley Metropolitan Area

"Expanded Stakeholder Workshop: User Needs"

Date: **Thursday, February 26, 2004**
Time: **9:30 am – 11:30 am**
Location: **Smullin Center Room 109 - 111**
Address: **Rogue Valley Medical Center Campus**
2650 Siskiyou Boulevard
Medford. OR 97504

Please R.S.V.P. by Thursday, February 19, 2004 to Vicki Guarino at vguarino@rvcog.com or by calling (541) 664-6676 ext.241

What Is It All About? The Rogue Valley metropolitan area is planning for an intelligent transportation system, or ITS, as a way to deal with increasing congestion problems on the roadway network. These new projects are needed to improve safety and maximize the use of the existing transportation infrastructure. Conceptually, ITS is simple. It includes the use of advanced technologies such as cameras, automatic vehicle detectors, message signs, and coordinated traffic signals to make traffic flow smoothly and safely. In addition, ITS includes real-time information about construction work zones, weather conditions, public transportation and freeway/roadway congestion.

Why Attend? Your input is vital to shaping the future of the regional transportation system. You will have an opportunity to identify transportation system needs in areas such as traffic management, traveler information, emergency management, and public transportation. The result of this project will be a prioritized list of projects based in large part on the transportation system needs identified in this meeting.

Meeting Agenda

9:30 am: *Welcome & Introductions*

9:35 am: *Presentation by DKS Associates*
- Description of plan process, what ITS is, and why to use ITS
- Summary of ITS needs we have heard so far

10:00 am: *Breakout Session*
- Poster sessions will be set up around the room based on areas of interest and workshop participants will have the opportunity to ask questions and provide input on transportation needs.

11:00 am: *Group Discussion*
- Group leaders will summarize poster session input and will lead a group discussion about potential ITS projects to address the needs.

11:25 am: *Next Steps*

Oregon Department of Transportation

In Cooperation With:

RVMPO
RVTD
Jackson County Oregon
City of Medford Oregon
City of Central Point Oregon
City of Ashland
U.S. Department of Transportation Federal Highway Administration

Consultants:

DKS Associates TRANSPORTATION SOLUTIONS
CASTLE ROCK

Medford Area ITS Plan

(Regional ITS Operations & Implementation Plan
For The Medford Metropolitan Area)

Rogue Valley
Intelligent
Transportation
Systems

User Needs Assessment Workshop

***DKS** Associates*
RVCOG &
Castle Rock Consultants
February 26, 2004

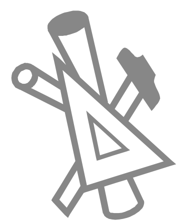
Workshop Goals

- Obtain stakeholder input
- Identify any additions/ modifications to the needs
- Finalize user needs in the Rogue Valley metropolitan area


Meeting Agenda

- 9:30 am Welcome & Introductions
- 9:35 am DKS Associates Presentation
  - ✓ Plan Process/Why ITS?
  - ✓ What is ITS?
  - ✓ Interview Summary: Transportation Needs
- 10:00 am Breakout Session
- 11:00 am Group Discussion
- 11:25 am Next Steps
- 11:30 am ADJOURN

Rogue Valley ITS Plan Expanded Stakeholder Workshop



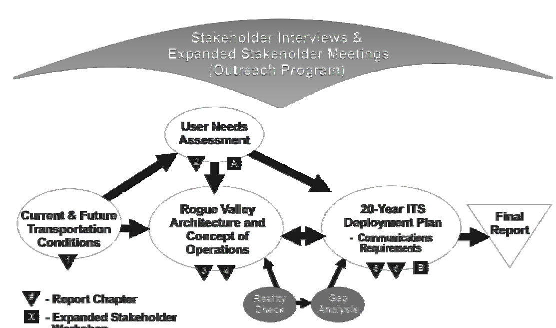
Plan Process & Why Are We Doing This Plan?

Presented by Peter Coffey

Why Are We Developing This ITS Plan?

- Cannot build our way out of congestion
- Maximize efficiencies and improve safety of existing infrastructure
- Demand from public for better information about congestion
- Required by FHWA for the Rogue Valley to receive federal funding

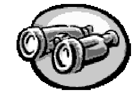
Project Approach



Current & Future Transportation Conditions

- Map Inventory of Existing and Planned ITS Elements
- Summary of Conditions: ADT, Congestion, Accidents, Freight, Special Events, Traffic Mgmt., Emergency Mgmt.
- Summary of Relevant Documents

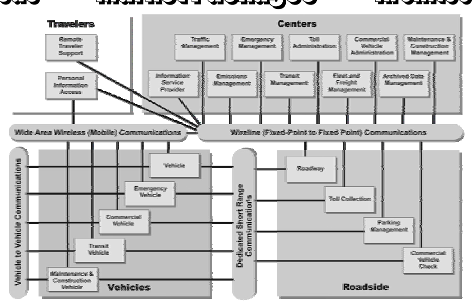
Needs Assessment



- Project Mission, Goals, and Objectives
- 10 Key Stakeholder Interviews
- Expanded Stakeholder Questionnaires
- User Needs Assessment Workshop

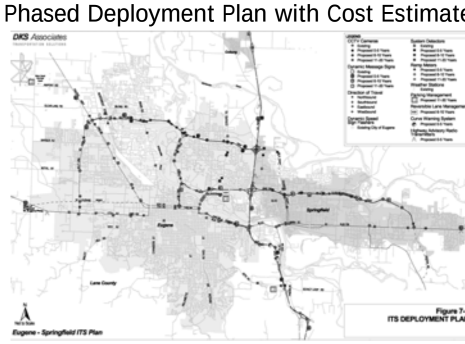
Regional Architecture

Needs ⟹ Market Packages ⟹ Architecture

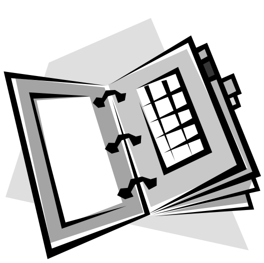


Develop a Deployment Plan

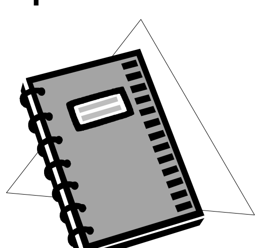
- Phased Deployment Plan with Cost Estimates



Executive Summary & Final Report



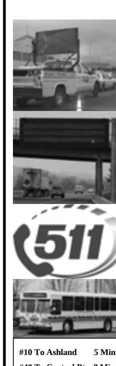
Final Report with Technical Appendices



Executive Summary

What is ITS?

Presented by Jim Peters



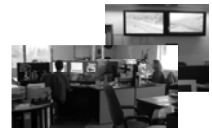
Intelligent Transportation Systems represent the latest in computers, electronics, communications and safety systems applied to our transportation network.

ITS Solutions Include:

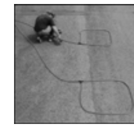
- Transportation Management
- Incident Management
- Traveler Information
- Public Transportation
- Information Management
- Work Zone Safety

Transportation Operations & Management

Signal Coordination



Traffic Operations Centers



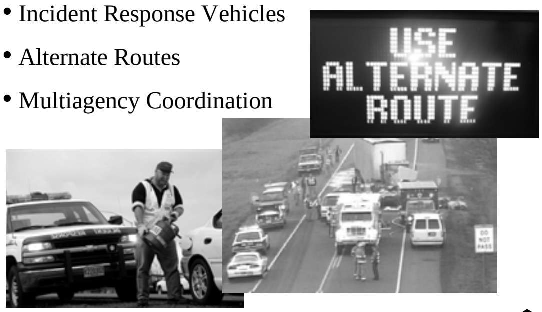
System Detectors

Message Signs

Cameras

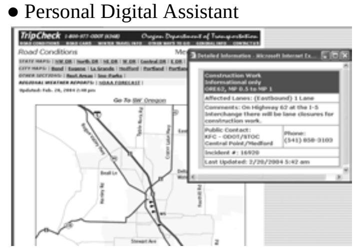
Incident Management

- Incident Response Vehicles
- Alternate Routes
- Multiagency Coordination



Traveler Information

- Internet: www.TripCheck.com
- Phone: 511
- In-Vehicle
- Personal Digital Assistant



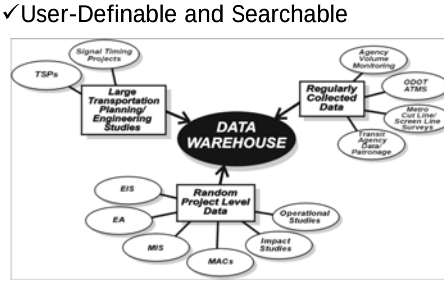
Source: Trafficgauge

Public Transportation

- Automatic Vehicle Location
- Real-Time Bus Arrival Information
- Transit Priority

Information Management

- Historical Archive of Data:
  - ✓User-Definable and Searchable



Work Zone Safety

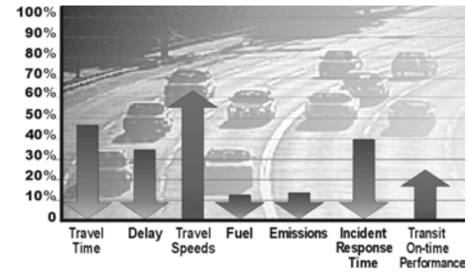
Dynamic Lane Merging

Work Zone Intrusion Alarms

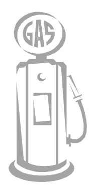
Source: International Road Dynamics

How are ITS Benefits Measured?

- Safety
- Cost Savings
- Delay/Time
- Environment
- Quality of Life

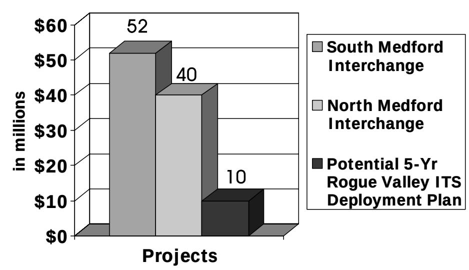


Benefits of ITS



- Coordinated Traffic Signals
  - ✓10 to 40 percent reduction in stops
  - ✓Up to 15 percent reduction in fuel consumption
  - ✓5 to 25 percent reduction in travel time
  - ✓15 to 45 percent reduction in delay
- Transit Management
  - ✓10 percent reduction in travel time

Project Cost Comparison



Rogue Valley ITS Plan Expanded Stakeholder Workshop

Transportation

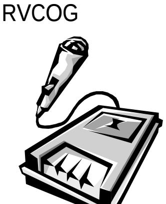
User Needs

Summary to Date

Presented by Renee Hurtado

Interviews Conducted

- ODOT- Region 3 & District 8
- Jackson County
- RVCOG



- City of Medford
- City of Central Point
- City of Ashland
- Rogue Valley Transportation District
- Oregon State Police
- CCOM (Medford 911)
- SORC (Southern Oregon 911)

Expanded Stakeholder Questionnaires

- Smaller Rogue Valley Cities
- Police Agencies
- Fire & Rescue Agencies
- Regional Advisory Committees/Councils
- Schools
- Special Event Organizers
- Special Interest Groups (AAA, SOVA)
- 5 Largest Area Employers

Traffic Management Needs

- Expand ODOT Traffic Operations Center to include multiple jurisdictions
- Enhance traffic signal operations
- Monitor key roadways and intersections
- Monitor inclement weather
- Collect more traffic volume and speed data (real-time and historical)

Traffic Management Needs

- Coordinate regional incident response
- Enhance management of incidents on I-5 viaduct in Medford
- Enhance traffic operations during special events

Traveler Information Needs

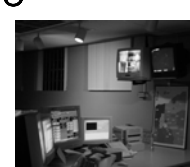
- Current "real-time" information
- Congestion flow map
- More roadside traveler information
- Camera images
- Weather information
- Expand existing HAR

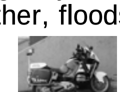
Public Transportation Management Needs

- GPS-based operating system
  - ✓Dispatch
  - ✓Track vehicles/stops
  - ✓Count passengers
- Transit signal priority
- Improve on-time efficiency
- Real-time info at dispatch

Emergency Management Needs

- Common emergency radio channel
- Real-time information at 911 centers and in vehicles
- Monitor critical infrastructure
- Enhance operations during major emergencies (winter weather, floods, fires, etc.)



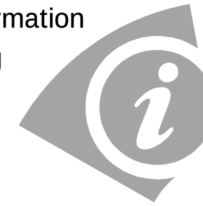


Communications Needs

- Remote access to:
  - ✓Traffic Signals
  - ✓ITS Equipment
- Integrated systems
- Communications links to:
  - ✓Transportation Agencies
  - ✓Emergency Management Agencies
  - ✓Emergency Operations Centers

Information Management Needs

- Automated data collection
- Standardized data format that is GIS-compatible
- Internet-accessible information
- Easier access to existing resources:
  - ✓Adopted plans
  - ✓Traffic demand model



Maintenance & Construction Management Needs

- Construction database
- Automate de-icing
- Improve construction work zone management

Rogue Valley ITS Plan Expanded Stakeholder Workshop

Breakout Session:
Transportation
User Needs

Goals of Breakout Session

- Review Identified User Needs
  - ✓Identify additions/deletions/modifications
  - ✓Review for completeness/level of detail
- Focus on the Type of Need to be Addressed (the “WHAT”)
- Do Not Focus on Institutional or Technical Issues (the “HOW”)

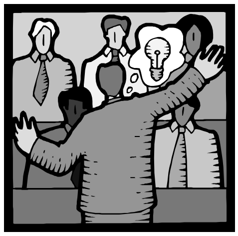
Poster Sessions

Group	Moderator
• Traffic Operations & Management, Emergency Management, and Incident Management	Jim Peters & Peter Coffey
• Traveler Information and Information Management	Hau Hagedorn
• Public Transportation Management and Maintenance & Construction Management	Renee Hurtado

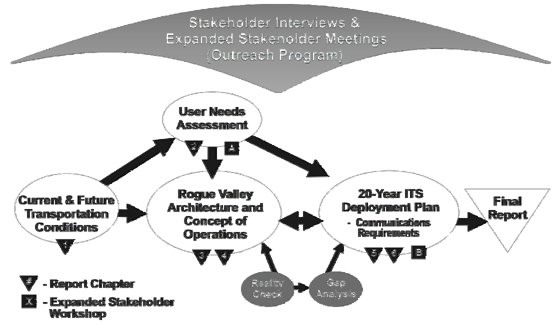
Rogue Valley ITS Plan Expanded Stakeholder Meeting

Group

Discussion



Next Steps



Next Meeting

Expanded Stakeholder Workshop #2:

Deployment Plan

June 2004

Regional ITS Operations & Implementation Plan for the Rogue Valley Metropolitan Area

Expanded Stakeholder Workshop

February 26, 2004

Prepared By:

DKS Associates TRANSPORTATION SOLUTIONS

CASTLE ROCK

In Cooperation With:

Oregon Department of Transportation

RVMPO

RVTD

JACKSON COUNTY Oregon

CITY OF MEDFORD OREGON

CITY OF CENTRAL POINT OREGON

CITY OF ASHLAND

U.S. Department of Transportation Federal Highway Administration

Project Mission Statement:

Using advanced technologies, the Rogue Valley Metropolitan Area strives to improve the safety and security of the transportation network; improve the movement of goods, people and services; and enhance multi-modal transportation operations through coordinated management techniques, information sharing among agencies and the general public, and partnerships between public and private organizations.

Project Goals:

1) Improve the safety and security of our transportation system.
2) Improve the efficiency of the transportation system.
3) Provide improved traveler information.
4) Deploy functional and cost efficient ITS infrastructure.
5) Integrate regional ITS projects with local and regional partners.

TABLE OF CONTENTS

INSTRUCTIONS

The poster sessions are organized by areas of interest. This handout includes a list of transportation user needs that have been identified to date for each category as well as questions that pertain to each subject. Keep the following things in mind throughout the poster sessions:

1) Please take some time to visit each poster session so you can provide input on each area of interest.
2) Review the transportation needs that have already been identified. Determine whether or not you agree with these needs. Should any of these needs be deleted or modified? Are there any additional needs that should be added to the list?
3) Focus on the types of needs to be addressed (the "WHAT").
4) Do not focus on institutional or technical issues (the "HOW").

Poster Session #	Poster Session Topics	Moderator (DKS Associates)
1	Traffic Operations & Management Emergency Management Incident Management	Jim Peters & Peter Coffey
2	Traveler Information Information Management	Hau Hagedorn
3	Public Transportation Management Maintenance & Construction Management	Renee Hurtado

POSTER SESSION #1

- TRAFFIC OPERATIONS & MANAGEMENT

- EMERGENCY MANAGEMENT

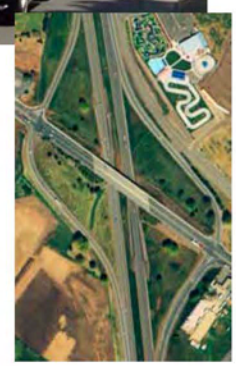
- INCIDENT MANAGEMENT

Traffic Operations & Management

User Needs Identified to Date

Traffic Control & Operations

- Need to expand the ODOT Traffic Operations Center (TOC) to include multiple jurisdictions to provide active control of systems and information and to coordinate activities.
- Need to integrate systems between local agencies.
- Need to coordinate traffic signals with congested freeway off-ramps.
- Need operational improvements at North and South Medford interchanges to improve flow between freeway and arterial roadways.
- Need to improve traffic signal operations in Central Point.
- Need a remote connection to Jackson County traffic signals.
- Need notification if other agency's signals become inoperable (i.e. turned off for construction, malfunction).
- Need to deploy traffic control devices that operate in real-time based on traffic volumes.
- Need to address congestion at the following locations in particular:
  - I-5 Central Point Interchange
  - I-5 Viaduct in Medford
  - Highway 62 from I-5 to White City (and at Delta Waters Road)
  - Highway 99/Riverside Drive at Pine Street, Barnett Road, Colver Road, Rapp Road, and Creel Road
  - Table Rock Road from Pine Street to Antelope Road
  - Pine Street from Highway 99 to Table Rock Road
  - Biddle Road (and at McAndrews Road)
  - Barnett Road
  - South Stage Road
  - Fern Valley Road (and at Highway 99 and I-5 Interchange)
  - Expected Congestion on North Phoenix Road, Foothill Road and Lone Pine Road
  - (Although the North and South Medford I-5 Interchanges were identified as areas of congestion, projects are planned to alleviate congestion at both locations.)



- Need to address congestion on surface streets and the dependence on two freeway access points in the Medford area by developing arterial roadways with more efficient flow that do not interface with freeway interchanges.
- Need bicycle detection at interchanges and major intersections.
- Need remote monitoring capabilities of major roadways and intersections.
- Need remote monitoring capabilities in at least one spot on every state highway in the region.
- Need better traffic volume data on arterial roadways.
- Need safety improvements on I-5 viaduct in Medford (no shoulders, lots of congestion, hard to get to accidents).

- Need a more effective curve and speed warning system in the Siskiyou Pass.
- Need advanced warning systems that enhance safety.
- Need to coordinate pedestrian and bicycle traffic on busy roadways.
- Need to enhance traffic signal and pedestrian crossing designs.
- Need to encourage pedestrians in downtown Central Point.

- Need to monitor bridges for structural soundness.
- Need real-time weather information at locations prone to bad weather.
- Need flood information in areas prone to flooding.
- Need to manage downtown parking to reduce time drivers spend looking for parking and to prevent traffic from using secondary streets while searching for parking.

© Time Inc.

Special Events

- Need to ease congestion at the I-5 Central Point interchange when events are held at the Jackson County Fairgrounds/Expo Center.
- Need to enhance traffic signal operations during special events and holidays in Ashland and Medford.
- Need to address lack of tour and specialty bus staging areas in the City of Ashland during Shakespeare Festival performances.

Questions to Address

- Do you agree with the transportation user needs on the list?
- Are any obvious transportation user needs missing?
- Imagine you are a traffic engineer for the City of Medford and a citizen calls in to complain about a signal where they claim they had to wait for six minutes. What tools/information would be useful to address this complaint?
- Are there any specific arterial roadways where traffic management tools should be applied?
- Are there any specific arterial roadways or corridors that have consistent speeding problems?
- Are there any specific at-grade railroad crossings that need improvements? If so, is there anything that would be useful to improve the safety of these crossings and/or reduce delay to emergency and private vehicles?
- Are there any specific corridors you would suggest as a diversion route during incidents?
- Are there any locations throughout the metropolitan area with parking problems?
- Who do you need to interact with if there is an incident and signal timing should be adjusted?

Emergency Management

User Needs Identified to Date

Communications

- Need a common radio frequency (especially during major emergencies or pursuits).
- Need to fill in radio dead spots.

Emergency Management Operations

- Need monitoring capabilities of major roadways.
- Need real-time congestion information at 911 centers with built-in alerts when congestion occurs.
- Need real-time information available in emergency vehicles.
- Need real-time road conditions during the winter for the Siskiyou Pass.
- Need road/lane closure information for all state highway construction projects.
- Need suggested alternative routes based on adverse roadway conditions.
- Need mobile data terminals in Oregon State Police vehicles.
- Need to be able to exchange real-time information between emergency operations centers (EOC's) during a major emergency.
- Need to disseminate real-time disaster information (i.e. floods, wildfires).
- Need to enhance emergency operations for major fires, snows, floods, and potential dam failures.

- Need to inform all regional fire agencies (keep in mind that some service areas overlap) about planned traffic signals to facilitate the inclusion of fire pre-emption in the design of the traffic signal.
- Need funding to enhance the support that ODOT personnel provides emergency services in the City of Ashland.
- Need to monitor critical infrastructure.
- Need to monitor Avenue G due to hazardous materials area caused by Kodak plant.
- Need speed data (historical or real-time) to determine where to place enforcement.
- Need more manpower at the Oregon State Police to enforce speed limits.
- Need to address speeding problem between the City of Central Point and the City of Medford.
- Need to establish a working relationship between Mercy Flights, a regional ambulance service, and ODOT and the Oregon State Police (OSP) similar to the coordination efforts between ODOT, OSP, and the fire chiefs.


Questions to Address

- Do you agree with the transportation user needs on the list?
- Are any obvious transportation user needs missing?
- Imagine there is a serious crash on Crater Lake Highway (Highway 62). Who will respond? Who needs to coordinate with whom? What information should be provided to motorists? What information would be useful to responders en-route?
- Imagine you are responding to an incident in Central Point and you turn left onto a roadway only to stop behind a queue waiting for a train to move through an at-grade crossing. What information could be provided to avoid this situation? Where should the information be provided? Can you think of specific locations this information would be useful?
- Imagine you are an emergency dispatcher. What information would be useful to you for incident identification and directing emergency response personnel?
- What kinds of things cause delays in response time? What is needed to reduce response times?

Incident Management

© KGW Channel 8

User Needs Identified to Date

- Need to develop an incident response program.
- Need to monitor high accident locations for incidents.
- Need to manage incidents that occur on the I-5 viaduct.
- Need to expand the City of Medford's incident management plan to the rest of the region.

Questions to Address

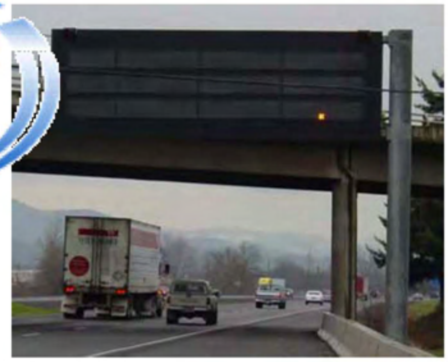
- Do you agree with the transportation user needs on the list?
- Are any obvious transportation user needs missing?
- What tools could you use for better on-scene traffic management?
- What tools could you use to improve multi-agency coordination and communication?
- Is there a need for multi-agency communication during incidents?
- Is there a need for traffic information en-route to an incident site?

POSTER SESSION #2

- TRAVELER INFORMATION

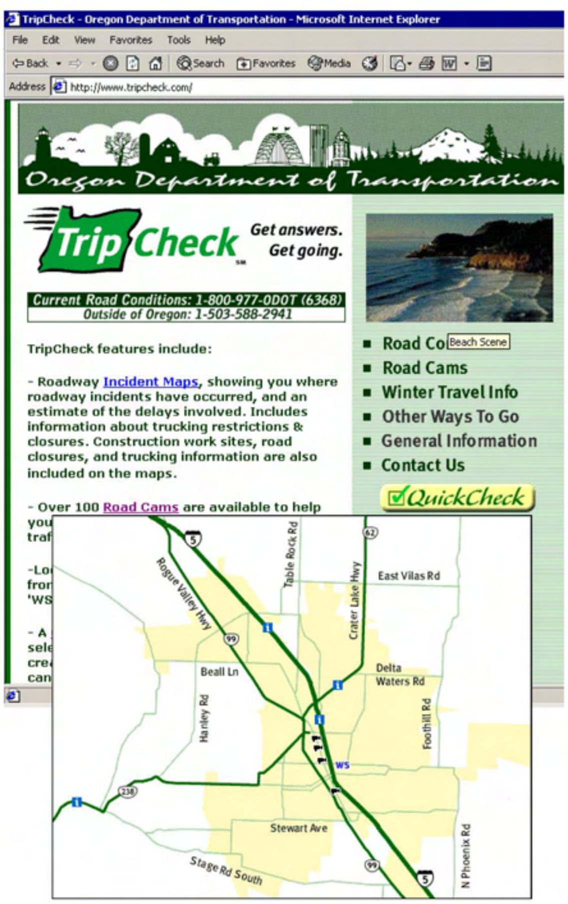
- INFORMATION MANAGEMENT

Traveler Information



User Needs Identified to Date

- Need a congestion flow map.
- Need to get congestion information to travelers prior to congested areas.
- Need to post congestion information along major roadways.
- Need to keep "real-time" information current (i.e. DMS signs, 511, highway advisory radio).
- Need to post real-time information in additional locations.
- Need to disseminate transportation demand management (TDM) information (i.e. carpool website) to the general driving public.
- Need to disseminate emergency information (i.e. amber alert).
- Need to expand current highway advisory radio (HAR) to include more information and to cover a greater area.
- Need to upgrade existing HAR equipment to replace outdated technology, to improve the ease of use, to fix frequent malfunctions, and to increase the broadcast range.
- Need to dedicate a radio station to broadcast road and weather conditions during the winter.
- Need to broadcast live video feed from roadway cameras to local TV.
- Need to provide heavy vehicles with advance warning when the Siskiyou Pass is icy and provide them with alternatives to parking along Interstate-5.



Questions to Address

- Do you agree with the transportation user needs on the list?
- Are any obvious transportation user needs missing?
- Imagine you are driving to work from Central Point to Medford and you have the option of taking Highway 99 or I-5. What information would be useful to you to decide on a route?
- Imagine you are considering taking public transportation instead of driving this morning. What information would be useful to you to make that decision? Where should the information be provided?
- Imagine you do not have a car and need to take public transit. What information would be useful? Where should the information be provided?
- Imagine you are a 911 dispatcher and someone calls in on a cell phone to report a crash on Jacksonville Highway but they do not know their exact location or travel direction. What information would be useful to you?
- Are there any locations in the metro area where weather information would help you plan your trip? What information would be useful and where should it be provided?

Information Management

User Needs Identified to Date

- Need more automated data collection.
- Need better systems in the field for real-time traffic data acquisition.
- Need an information system that houses high-quality, consistent traffic count data.
- Need to develop a standard data format that is GIS-compatible.
- Need to make more information available on the Internet.
- Need easy access to major regional documents (i.e. TSP's, functional classification maps).
- Need access to travel demand modeling (currently the regional model is controlled through ODOT TPAU).

Questions to Address

- Do you agree with the transportation user needs on the list?
- Are any obvious transportation user needs missing?
- Imagine you are a planner at RVCOG. What type of information would be most useful to you when developing models and addressing transportation demand management techniques? How should this information be provided?
- What type of information collected by other agencies would be useful to your agency? How would this information be shared?

POSTER SESSION #3

- PUBLIC TRANSPORTAION MANAGEMENT

- MAINTENANCE & CONSTRUCTION MANAGEMENT

Public Transportation Management

User Needs Identified to Date

- Need to automate passenger counting, which is done manually today.
- Need to outfit transit fleet with a GIS-based system with options for dispatch, vehicle tracking, etc.
- Need transit priority at all traffic signals along bus routes.
- Need to automate stop announcements, which are required by law.
- Need to gather more transit data for analysis purposes (i.e. track vehicles and stops in real-time along a route).
- Need to improve on-time efficiency.
- Need real-time information (travel times, incidents, and camera images) at dispatch.
- Need to incorporate real-time transit information with other media used for traveler information dissemination.
- Need to increase bus frequency to make service more attractive to riders.
- Need to make it possible for riders to request remote stops.
- Need to cover radio dead spots at north and south ends of district.
- Need to provide travelers with consistent mode choice options.
- Need to capitalize on transit and support TOD land use.
- Need express buses to Southern Oregon University.

Questions to Address

- Do you agree with the transportation user needs on the list?
- Are any obvious transportation user needs missing?
- What would make public transportation more desirable?
- What information about transit should be provided and where should it be provided?

Maintenance & Construction Management

User Needs Identified to Date

- Need consistent, detailed, timely construction information for public agencies and private utilities/companies.
- Need to continue cooperation and annual coordination meetings that focus on major construction projects and winter operations.
- Need to improve construction work zone management.
- Need to improve maintenance of I-5 viaduct and other trouble spots in the winter when roads are prone to icing.

Questions to Address

- Do you agree with the transportation user needs on the list?
- Are any obvious transportation user needs missing?
- Is there any need to know the location of maintenance vehicles?
- Imagine there is a large flood. Do you need to coordinate road closures with anyone? What information do you need to share with other agencies?
- Are there any locations that are consistently impacted by adverse weather conditions?
- Are there ways to improve coordination of construction and maintenance projects?

Meeting Minutes

Expanded Stakeholder Workshop: User Needs
February 26, 2004, Smullin Center, Medford

On February 26, 2004, DKS and RVCOG hosted an Expanded Stakeholder Workshop, focused on User Needs, from 9:30-11:30 a.m. at the Smullin Center in Medford. Approximately 30 people participated, including project staff (list at end of document).

Invitees were drawn from the expanded stakeholders list created by DKS and RVCOG. In advance of the meeting, DKS distributed copies of the User Needs for the Regional ITS Operations & Implementation Plan for the Rogue Valley Metropolitan Area. Copies also were distributed during the session.

The session began with a RVITS orientation presentation by DKS. Copies were provided to the participants. Participants then rotated through three stations, staffed by consultants, addressing:

1) Traffic Operations & Management, Emergency Management, and Incident Management;
2) Traveler Information and Information Management;
3) Public Transportation Management and Maintenance & Construction Management.

Maps illustrating existing and future equipment and services were provided by RVCOG. Notes were taken at each station. The session reconvened and station facilitators reported comments.

Notes from User Needs Workshop Poster Sessions

<u>Traffic Operations & Management Needs</u>

- Programmed/planned Internet connected kiosks (with touch screen access) at:
    - Mall Information Center
    - Airport (Planned)
- Key problem area: Crater Lake Avenue/Hwy at Delta Waters
- Consider the potential new road by the Airport
- Mesh grant applied

<u>Emergency Management Needs</u>

- MDT's in all public safety vehicles
- Need to disseminate evacuation route information
- Better coordination of signal preemption outside of city area

- Update and replacement of old signal preemption devices
- Ped buttons on all signals
- Dedicated radio frequency for broadcast of Amber Alert/emergency information
- DMS at freeway on-ramps (flashing lights)
- High speed wireless interoperable communication system
- MDT's in ambulances in the next year
- Ambulance Headquarters and Dispatch use a Right CAD System
    - Have separate Tiberon terminal connected to 911 CAD via frame relay
    - Planned interface to Tiberon (911 Centers)- 8 weeks to completion
- Fiber to Airport planned this summer
- Need real-time video and congestion information
- Streaming video
- CDPD in ambulance today, but planned GPRS
- Communications to rural areas is more important than Metro Area
- AVL/GPS in ambulances
- Accidents common in work zones
- Viaduct management was good
- Planned North Interchange and Table Rock Road

<u>Incident Management Needs</u>

- Siskiyou pass closure emergency plan that involves all local response agencies and periodic test drills
- Ashland parades
- Parking management system for Ashland Shakespeare Festival

<u>Traveler Information Needs</u>

- Internet access to assist with inset areas [on map] for managing truck deliveries
- Information about incidents, congestion, construction, or things that hold up traffic or increase travel times
- Visibility of VMS when traveling with truck traffic
- More cameras!! Visual verification of conditions
- Better real time information with 511, TripCheck, HAR
- Add more information to TripCheck website
- Kiosk tourism project (Southern Oregon Visitor Association) has money for some cameras
- Standardized radio station for Amber Alert/traffic information
- HAR needs to be updated more often, especially in critical situations- it uses pre-recorded messages which do not always match the situation
- OSP uses local media to disseminate info to public
- Educate travelers on detours
- Coordination (MOU's) between agencies
- More signage
- Traffic alerts on weatherboard
- Connect National Weather Service (NWS) to 511
- More precise weather information for area

- Linkages between different information dissemination systems

Information Management Needs
- Connect computers (i.e. OSP, SORC, CCOM)
- OSP works with local media to disseminate public detour information
- Link Caltrans and ODOT
- Standardize standards between agencies
- Standard message sets for message signs
- Electronic data sharing
- Automate information inputs and sharing, especially emergency information

Public Transportation Management Needs
- Improve ped crossings at unsignalized crossings on couplet in Phoenix to provide better access to transit steps
- Ped access from Phoenix City Center (TOD) to:
  - Greenway Trail
  - Bear Creek
  - Blue Heron Park
- Opticom system
  - Access from bus barn onto Crater Lake Ave (Medford)
  - Provide bus priority at key congested locations
  - GPS System
  - Discuss what is available and what the system benefits are
- Do emergency service providers know which is which: West Main or Hanley Road Route 238? Emergency services call West Main as Highway 238
- Use Beavercreek Trail as emergency management route

Maintenance & Construction Needs
- Rural interchange in Talent is dark; Need safety improvements; Look at collision data
- How will growth in SE Medford affect Phoenix Interchange?
- Phase 2 of Fern Valley Road will increase roadway to 5 lanes in 2-3 years
- Dynamic speed message signs in construction zones- Advertise "Fines double in work zone"
- Add information in report about fatalities/accidents in work zones
- $500,000 IT Grant for High-Speed Wireless Mesh Network:
  - Phase 1- Medford
  - Phase 2- Medford UGB and Central Point
  - Phase 3- Ashland
  - Phase 4- Talent and Phoenix
  - Doug Townsend, City of Medford (541-774-2051)
  - Ron Norris, Medford Police

Figure 1-1: Study Area
- New rest stop under consideration on I-5 in Ashland
- Proposed Traveler Information Center and Rest Stop in North Ashland- a link should be provided to this new facility

Figure 1-2: Regional Facilities

- Add Ambulance Headquarters and Dispatch on Biddle Road
- Add Ambulance Facility on Highway 62 in Eagle Point
- Move Ambulance Facility from West Main Street in Medford to Parsons Drive

Figure 1-5: High Collision Locations and Safety Corridors

- Four fatalities at Bybee Corner (Hanley Road just northeast of Jacksonville) from 2000 – 2003: vehicles enter the curve too fast heading northeast

Figure 1-8: Existing and Planned ITS Equipment

- In Inset 1, delete the ODOT camera on the east side of I-5

Figure 1-9: Existing and Planned Communications Infrastructure

- Add planned Jackson County communications conduit along Table Rock Road from Pine Street to Antelope Road. This will be installed as part of Phases 1 and 2 of the Table Rock Road widening project.

Workshop Participants (from sign-in sheet)

- Nathaniel Price (FHWA)
- Tanya Henderson (Oregon State Police)
- David Tucker (Phoenix Fire)
- Karl Haeckler (Medford Police)
- Bern Case (Jackson County Airport)
- Sue D'Agnese (ODOT)
- Mark Hammel (Medford Planning)
- Jerry Barnes (City of Medford)
- Alex Georgevitch (City of Medford)
- Keith Woodly (Ashland Fire)
- Paul Lear (Jacksonville Fire)
- Vicki Guarino (RVCOG)
- Julie Rodwell (RVCOG)
- Chris Olivier (RVCOG)
- Jim Peters (DKS Associates)
- Millie Tirapelle (SORC)
- Glen Anderson (RVMPO PAC)
- Galen McGill (ODOT)
- Denis Murray (City of Phoenix)
- Jim Wear (City of Phoenix)
- Shirley Roberts (ODOT)
- Hau Hagedorn (Castle Rock Consultants)
- Toshi Forrest (Castle Rock Consultants)
- Ron Norris (Medford Police)
- Joe Hunkins (Southern Oregon Visitors Association)
- Eric Niemeyer (Jackson County)
- Steve Roesler (Bear Creek Corporation)
- Peter Coffey (DKS Associates)
- Larry McKinley (ODOT)

Rogue Valley Intelligent Transportation Systems

Oregon Department of Transportation

Appendix J:
Architecture Inventory Report

CONTENTS

Element Inventory Report for Rogue Valley Regional ITS Architecture (Output from *Turbo Architecture 3.0* database)

Inventory Report

6/22/2004 2:34:20PM

Element Inventory for Region Rogue Valley Regional ITS Architecture

511 *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Information Service Provider
Mapped to Entity: Other ISP
Mapped to Entity: Remote Traveler Support

511_Personnel *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: ISP Operator

City of Ashland Emergency Operations Center (EOC) *Status:* Existing

Associated Stakeholder: City of Ashland
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

City of Ashland Maintenance and Construction Vehicles *Status:* Existing

Associated Stakeholder: City of Ashland
Mapped to Entity: Maintenance and Construction Vehicle
Mapped to Entity: Other MCV

City of Ashland Public Works *Status:* Existing

Associated Stakeholder: City of Ashland
Mapped to Entity: Maintenance and Construction Management
Mapped to Entity: Other MCM
Mapped to Entity: Other Traffic Management
Mapped to Entity: Traffic Management

City of Ashland Public Works_Automatic Traffic Recorders- Planned *Status:* Planned

Associated Stakeholder: City of Ashland
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Ashland Public Works_CCTV- Planned *Status:* Planned

Associated Stakeholder: City of Ashland
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Ashland Public Works_Personnel *Status:* Existing

Associated Stakeholder: City of Ashland
Mapped to Entity: Traffic Operations Personnel

City of Ashland Public Works_Speed Monitoring System- Planned *Status:* Planned

Associated Stakeholder: City of Ashland
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Ashland Public Works_Traffic Signals- Existing *Status:* Existing

Associated Stakeholder: City of Ashland
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Central Point Emergency Operations Center (EOC) *Status:* Existing

Associated Stakeholder: City of Central Point
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

City of Central Point Maintenance and Construction Vehicles *Status:* Existing

Associated Stakeholder: City of Central Point
Mapped to Entity: Maintenance and Construction Vehicle
Mapped to Entity: Other MCV

City of Central Point Public Works *Status:* Existing

Associated Stakeholder: City of Central Point
Mapped to Entity: Maintenance and Construction Management
Mapped to Entity: Other MCM
Mapped to Entity: Other Traffic Management
Mapped to Entity: Traffic Management

City of Central Point Public Works_Automatic Traffic Recorders- Planned *Status:* Planned

Associated Stakeholder: City of Central Point
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Central Point Public Works_CCTV- Planned *Status:* Planned

Associated Stakeholder: City of Central Point
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Central Point Public Works_Personnel *Status:* Existing

Associated Stakeholder: City of Central Point
Mapped to Entity: Traffic Operations Personnel

City of Central Point Public Works_Speed Monitoring System- Planned *Status:* Planned

Associated Stakeholder: City of Central Point
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Central Point Public Works_Traffic Signals- Existing *Status:* Existing

Associated Stakeholder: City of Central Point
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Eagle Point Emergency Operations Center (EOC) *Status:* Existing

Associated Stakeholder: City of Eagle Point
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

City of Eagle Point Maintenance and Construction Vehicles *Status:* Existing

Associated Stakeholder: City of Eagle Point
Mapped to Entity: Maintenance and Construction Vehicle
Mapped to Entity: Other MCV

City of Jacksonville Emergency Operations Center (EOC) *Status:* Existing

Associated Stakeholder: City of Jacksonville
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

City of Jacksonville Maintenance and Construction Vehicles *Status:* Existing

Associated Stakeholder: City of Jacksonville
Mapped to Entity: Maintenance and Construction Vehicle
Mapped to Entity: Other MCV

City of Medford Emergency Operations Center (EOC) *Status:* Existing

Associated Stakeholder: City of Medford
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

City of Medford Maintenance and Construction Vehicles *Status:* Existing

Associated Stakeholder: City of Medford
Mapped to Entity: Maintenance and Construction Vehicle
Mapped to Entity: Other MCV

City of Medford Public Works *Status:* Existing

Associated Stakeholder: City of Medford
Mapped to Entity: Maintenance and Construction Management
Mapped to Entity: Other MCM
Mapped to Entity: Other Traffic Management
Mapped to Entity: Traffic Management

City of Medford Public Works_Automatic Traffic Recorders- Existing *Status:* Existing

Associated Stakeholder: City of Medford
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Medford Public Works_Automatic Traffic Recorders- Planned *Status:* Planned

Associated Stakeholder: City of Medford
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Medford Public Works_CCTV- Existing *Status:* Existing

Associated Stakeholder: City of Medford
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Medford Public Works_CCTV- Planned *Status:* Planned

Associated Stakeholder: City of Medford

City of Medford Public Works_CCTV- Planned *Status:* Planned

Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Medford Public Works_Dynamic Message Signs- Planned *Status:* Planned

Associated Stakeholder: City of Medford
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Medford Public Works_Personnel *Status:* Existing

Associated Stakeholder: City of Medford
Mapped to Entity: Traffic Operations Personnel

City of Medford Public Works_RWIS- Existing *Status:* Existing

Associated Stakeholder: City of Medford
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Medford Public Works_RWIS- Planned *Status:* Planned

Associated Stakeholder: City of Medford
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Medford Public Works_Speed Monitoring System- Planned *Status:* Planned

Associated Stakeholder: City of Medford
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Medford Public Works_Traffic Signals- Existing *Status:* Existing

Associated Stakeholder: City of Medford
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

City of Phoenix Emergency Operations Center (EOC) *Status:* Existing

Associated Stakeholder: City of Phoenix
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

City of Phoenix Maintenance and Construction Vehicles *Status:* Existing

Associated Stakeholder: City of Phoenix
Mapped to Entity: Maintenance and Construction Vehicle
Mapped to Entity: Other MCV

City of Talent Emergency Operations Center (EOC) *Status:* Existing

Associated Stakeholder: City of Talent
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

City of Talent Maintenance and Construction Vehicles *Status:* Existing

Associated Stakeholder: City of Talent

City of Talent Maintenance and Construction Vehicles *Status:* Existing

Mapped to Entity: Maintenance and Construction Vehicle
Mapped to Entity: Other MCV

Commercial Vehicles *Status:* Existing

Associated Stakeholder:
Mapped to Entity: Commercial Vehicle Subsystem

CVO Inspector *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: CVO Inspector

Emergency Vehicles *Status:* Existing

Associated Stakeholder: Local Emergency Management Agencies
Mapped to Entity: Emergency Vehicle Subsystem

Jackson County Emergency Operations Center (EOC) *Status:* Existing

Associated Stakeholder: Jackson County
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

Jackson County Maintenance and Construction Vehicles *Status:* Existing

Associated Stakeholder: Jackson County
Mapped to Entity: Maintenance and Construction Vehicle
Mapped to Entity: Other MCV

Jackson County Roads, Parks, and Planning *Status:* Existing

Associated Stakeholder: Jackson County
Mapped to Entity: Maintenance and Construction Management
Mapped to Entity: Other MCM
Mapped to Entity: Other Traffic Management
Mapped to Entity: Traffic Management

Jackson County Roads, Parks, and Planning_Automatic Traffic Recorders- Planned *Status:* Planned

Associated Stakeholder: Jackson County
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

Jackson County Roads, Parks, and Planning_CCTV- Planned *Status:* Planned

Associated Stakeholder: Jackson County
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

Jackson County Roads, Parks, and Planning_Personnel *Status:* Existing

Associated Stakeholder: Jackson County
Mapped to Entity: Traffic Operations Personnel

Jackson County Roads, Parks, and Planning_Traffic Signals- Existing *Status:* Existing

Associated Stakeholder: Jackson County
Mapped to Entity: Other Roadway

Jackson County Roads, Parks, and Planning_Traffic Signals- Existing *Status:* Existing

Mapped to Entity: Roadway Subsystem

Local Emergency Management Agencies *Status:* Existing

Associated Stakeholder: Local Emergency Management Agencies
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

***See Page J-11 for a List of Local Emergency Management Agencies in the Rogue Valley Metropolitan Area**

Local Media *Status:* Existing

Associated Stakeholder:
Mapped to Entity: Media

NOAA National Weather Service Medford Office *Status:* Existing

Associated Stakeholder: NOAA National Weather Service Medford Office
Mapped to Entity: Information Service Provider
Mapped to Entity: ISP Operator
Mapped to Entity: Other ISP

NOAA National Weather Service Medford Office_Personnel *Status:* Existing

Associated Stakeholder: NOAA National Weather Service Medford Office
Mapped to Entity: ISP Operator

ODOT Region 3 Traffic Operations Center (TOC) *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Information Service Provider
Mapped to Entity: Other Traffic Management
Mapped to Entity: Traffic Management

ODOT Region 3 Traffic Operations Center (TOC)_Personnel *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: ISP Operator
Mapped to Entity: Traffic Operations Personnel

ODOT Region 3/District 8 *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Maintenance and Construction Management
Mapped to Entity: Other MCM
Mapped to Entity: Other Traffic Management
Mapped to Entity: Traffic Management

ODOT Region 3/District 8 Maintenance and Construction Vehicles *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Maintenance and Construction Vehicle
Mapped to Entity: Other MCV

ODOT Region 3/District 8_Automatic Traffic Recorders- Existing *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_Automatic Traffic Recorders- Planned *Status:* Planned

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_CCTV- Existing *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_CCTV- Planned *Status:* Planned

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_Curve Warning System- Planned *Status:* Planned

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_Dynamic Message Signs- Existing *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_Dynamic Message Signs- Planned *Status:* Planned

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_Highway Advisory Radio- Existing *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_Highway Advisory Radio- Planned *Status:* Planned

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_Mayday Phones- Existing *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_Personnel *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Traffic Operations Personnel

ODOT Region 3/District 8_RWIS- Existing *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_RWIS- Planned *Status:* Planned

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Region 3/District 8_Traffic Signals- Existing *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Other Roadway
Mapped to Entity: Roadway Subsystem

ODOT Weigh Stations *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Commercial Vehicle Administration

ODOT Weigh Stations_Inspection Facility *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Commercial Vehicle Check

Oregon State Police (OSP) Dispatch *Status:* Existing

Associated Stakeholder: Oregon State Police
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

Oregon State Police (OSP) Dispatch_Personnel *Status:* Existing

Associated Stakeholder: Oregon State Police
Mapped to Entity: Emergency System Operator

Regional Data Warehouse *Status:* Planned

Associated Stakeholder: All Local Transportation and Emergency Management Agencies
Mapped to Entity: Archived Data Management Subsystem

Rogue Valley Central Communications (RVCCOM) 911 Center *Status:* Existing

Associated Stakeholder: Medford Police Department
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

Rogue Valley Central Communications (RVCCOM) 911_Personnel *Status:* Existing

Associated Stakeholder: Medford Police Department
Mapped to Entity: Emergency System Operator

Rogue Valley Council of Governments (RVCOG) *Status:* Existing

Associated Stakeholder: Rogue Valley Council of Governments (RVCOG)
Mapped to Entity: Archived Data Management Subsystem
Mapped to Entity: Other Traffic Management
Mapped to Entity: Traffic Management

Rogue Valley Transportation District (RVTD) Dispatch and Operations *Status:* Existing

Associated Stakeholder: Rogue Valley Transportation District (RVTD)
Mapped to Entity: Other Transit Management
Mapped to Entity: Transit Management

Rogue Valley Transportation District (RVTD) Dispatch and Operations_Personnel *Status:* Existing

Associated Stakeholder: Rogue Valley Transportation District (RVTD)
Mapped to Entity: Transit System Operators

Southern Oregon Regional Communications (SORC) 911 Center *Status:* Existing

Associated Stakeholder: Southern Oregon Regional Communications (SORC)
Mapped to Entity: Emergency Management
Mapped to Entity: Other Emergency Management

Southern Oregon Regional Communications (SORC) 911 Center_Personnel *Status:* Existing

Associated Stakeholder: Southern Oregon Regional Communications (SORC)
Mapped to Entity: Emergency System Operator

Southern Oregon Visitors Association (SOVA) *Status:* Existing

Associated Stakeholder: Southern Oregon Visitors Association (SOVA)
Mapped to Entity: Information Service Provider
Mapped to Entity: Other ISP

Southern Oregon Visitors Association (SOVA)_Kiosks- Existing *Status:* Existing

Associated Stakeholder: Southern Oregon Visitors Association (SOVA)
Mapped to Entity: Remote Traveler Support

Southern Oregon Visitors Association (SOVA)_Kiosks- Planned *Status:* Planned

Associated Stakeholder: Southern Oregon Visitors Association (SOVA)
Mapped to Entity: Remote Traveler Support

Special Event Parking Management *Status:* Planned

Associated Stakeholder: Special Event Organizations
Mapped to Entity: Parking Management

Transit Vehicles *Status:* Existing

Associated Stakeholder: Rogue Valley Transportation District (RVTD)
Mapped to Entity: Transit Vehicle Subsystem

Transportation Management Association *Status:* Existing

Associated Stakeholder: Transportation Management Association
Mapped to Entity: Other Transit Management
Mapped to Entity: Transit Management

Transportation Management Association_Personnel *Status:* Existing

Associated Stakeholder: Transportation Management Association
Mapped to Entity: Transit System Operators

TripCheck *Status:* Existing

TripCheck *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: Information Service Provider
Mapped to Entity: Other ISP

TripCheck_Personnel *Status:* Existing

Associated Stakeholder: Oregon Department of Transportation (ODOT)
Mapped to Entity: ISP Operator

User Personal Computing Devices *Status:* Existing

Associated Stakeholder:
Mapped to Entity: Personal Information Access

Vehicles *Status:* Existing

Associated Stakeholder:
Mapped to Entity: Basic Vehicle
Mapped to Entity: Other Vehicle
Mapped to Entity: Vehicle

***Local Emergency Management Agencies in the Rogue Valley Metropolitan Area (listed alphabetically):**

Aircraft Rescue & Firefighting Department
Ashland Fire & Rescue
Ashland Police Department
Central Point Police Department
Eagle Point Police Department
Jackson County Fire Districts
Jackson County Sheriff's Office
Jacksonville Fire Department
Jacksonville Police Department
Medford Fire & Rescue
Medford Police Department
Mercy Flights
Phoenix Fire Department
Phoenix Police Department
Southern Oregon University Campus Security
Talent Police Department

Appendix L:
ITS Standards List

CONTENTS

Life Cycle of ITS Standards

From Initial Development to U.S. DOT Adoption

SDO develops, approves, and publishes standard → **Standard is tested** → **Standard matures and ITS products are developed** → **Adoption of standard through U.S. DOT rulemaking**

Standards development organizations (SDOs) coordinate the development of standards:

1) During **development** , an SDO committee writes and documents the technical aspects of standards.

2) Standards then go through a **balloting** process, where committee or working group members review the technical merits of the standards. A standard may or may not pass balloting.

3) Standards that have passed all necessary ballots are **approved**. At this stage the standard can be used but is not yet published.

4) Approved standards are **published** by the SDO and are available for purchase.

Testing measures the operation, correctness, and completeness of a standard under realistic transportation operating conditions. It also measures the degree of interoperability among standards as well as provides information about the performance of a standard to the ITS community.

As standards **mature**, competition develops among vendors to provide a range of equipment with differing levels of functionality. This gives transportation managers greater flexibility in choosing products that best suit their particular project requirements.

Standardized components lead to **interoperability** (the capacity of a device to communicate with different types of ITS devices) and **interchangeability** (the capacity to substitute one manufacturer's device for another).

ITS devices, based on open standards, lead to costs savings, as well as to easier and more efficient systems maintenance and operations.

Not all ITS standards reach this stage. The U.S. DOT will only consider adopting an ITS standard through **rulemaking** if the standard meets, at a minimum, certain established criteria. These criteria are defined in the *Final Rule/Policy on the National ITS Architecture and ITS Standards* and are intended to produce technically and commercially viable ITS standards and equipment.

Table L-1. Published Standards Documents - As of November 2003

Document Title	Lead SDO	Doc #	Publish Date	Order Information
A Conceptual ITS Architecture: An ATIS Perspective	SAE	J1763	31-Jul-95	Order from www.sae.org or call 724-776-4970.
Adaptive Cruise Control (ACC) Human Factors: Operating Characteristics and User Interface	SAE	J2399	15-Sep-03	Approved April 2002; awaiting publication.
Calculation of the Time to Complete In-Vehicle Navigation and Route Guidance Tasks	SAE	J2365	1-May-02	Order from www.sae.org or call 724-776-4970.
Commercial Vehicle Credentials	ANSI	ANSI ASC X12 TS286	1-Oct-97	Order from www.disa.org or call 703-548-7005.
Commercial Vehicle Safety Reports	ANSI	ASC X12 TS284	1-Dec-98	Order from www.disa.org or call 703-548-7005.
Commercial Vehicle Safety and Credentials Information Exchange	ANSI	ANSI ASC X12 TS285	1-Dec-96	Order from www.disa.org or call 703-548-7005.
Comparison of GATS Messages to SAE ATIS Standards Information Report	SAE	J2539	28-Feb-02	Order from www.sae.org or call 724-776-4970.
Data Dictionary for Advanced Traveler Information Systems (ATIS)	SAE	J2353	19-Oct-99	Order from www.sae.org or call 724-776-4970.
Data Radio Channel (DARC) System	EIA/CEA	EIA-794	1-Jul-99	Order from www.global.ihs.com or call 800-854-7179.
Definitions and Experimental Measures Related to the Specifications of Driver Visual Behavior Using Video Based Techniques	SAE	J2396	14-Jul-00	Order from www.sae.org or call 724-776-4970.
Field Test Analysis Information Report	SAE	J2372	14-Dec-99	Order from www.sae.org or call 724-776-4970.
Guide for Microwave Communications System Development	IEEE	Std 1404-1998	22-Jul-98	Order from standards.ieee.org/catalog/ordering.html or 800-678-IEEE.
Human Factors in Forward Collision Warning Systems: Operating Characteristics and User Interface Requirements	SAE	J2400	29-Aug-03	Order from www.sae.org or call 724-776-4970.
ISP-Vehicle Location Referencing Standard	SAE	J1746	15-Dec-99	Order from www.sae.org or call 724-776-4970.
ITIS Phrase Lists (International Traveler Information Systems)	SAE	J2540/2	1-Feb-02	Order from www.sae.org or call 724-776-4970. Amendment 1 ballot will end in Oct. 2003.
ITS Data Bus - Low Impedance Stereo Audio	SAE	J2366/1L	1-Nov-01	Order from www.sae.org or call 724-776-4970.
ITS Data Bus Architecture Reference Model Information Report	SAE	J2355	1-Oct-97	Order from www.sae.org or call 724-776-4970.
ITS Data Bus Data Security Services Recommended Practice	SAE	J1760	30-Dec-01	Order from www.sae.org or call 724-776-4970.

Table L-1. Published Standards Documents - As of November 2003

Document Title	Lead SDO	Doc #	Publish Date	Order Information
ITS Data Bus Protocol - Application Layer Recommended Practice	SAE	J2366-7	30-Apr-02	Order from www.sae.org or call 724-776-4970.
ITS Data Bus Protocol - Link Layer Recommended Practice	SAE	J2366-2	28-Nov-01	Order from www.sae.org or call 724-776-4970.
ITS Data Bus Protocol - Physical Layer Recommended Practice	SAE	J2366-1	28-Nov-01	Order from www.sae.org or call 724-776-4970.
ITS Data Bus Protocol - Thin Transport Layer Recommended Practice	SAE	J2366-4	30-Mar-02	Order from www.sae.org or call 724-776-4970.
ITS In-Vehicle Message Priority	SAE	J2395	28-Feb-02	Order from www.sae.org or call 724-776-4970.
Information Report on ITS Terms and Definitions	SAE	J1761	30-Apr-96	Order from www.sae.org or call 724-776-4970.
Location Referencing Message Specification	SAE	J2374	23-Sep-99	Order from www.sae.org or call 724-776-4970.
Mayday Industry Survey Information Report	SAE	J2352	1-Sep-98	Order from www.sae.org or call 724-776-4970.
Message Set for Advanced Traveler Information Systems (ATIS)	SAE	J2354	27-Nov-99	Order from www.sae.org or call 724-776-4970. Version 2 ballot expected in Nov. 2003.
Messages for Handling Strings and Look -Up Tables in ATIS Standards	SAE	J2540	1-Feb-02	Order from www.sae.org or call 724-776-4970.
NTCIP - Point to Multi-Point Protocol using FSK Modems Subnetwork Profile	AASHTO	2102	1-Aug-03	Order from www.ntcip.org/order.
NTCIP - Application Profile for File Transfer Protocol (FTP)	AASHTO	2303	30-Mar-02	Order from www.ntcip.org/order.
NTCIP - Application Profile for Simple Transportation Management Framework (STMF)	AASHTO	2301	30-Mar-02	Order from www.ntcip.org/order. Version 2 is in a working group draft.
NTCIP - Application Profile for Trivial File Transfer Protocol	AASHTO	2302	27-Mar-02	Order from www.ntcip.org/order.
NTCIP - Class B Profile	AASHTO	2001	1-Mar-98	Order from www.ntcip.org/order.
NTCIP - Global Object Definitions	AASHTO	1201	15-Apr-97	Order from www.ntcip.org/order. Version 2 is in ballot, as of Oct. 2002.
NTCIP - Object Definitions for Actuated Traffic Signal Controller Units	AASHTO	1202	1-Apr-97	Order Version 1 standard from www.ntcip.org/order/. Version 2 in "working group draft."
NTCIP - Object Definitions for Dynamic Message Signs	AASHTO	1203	1-Oct-97	Order Version 1 from www.ntcip.org/order/. Version 2 in "user comment draft."

Table L-1. Published Standards Documents - As of November 2003

Document Title	Lead SDO	Doc #	Publish Date	Order Information
NTCIP - Object Definitions for Environmental Sensor Stations	AASHTO	1204	1-Oct-98	Order from www.ntcip.org/order/. Amendment 1 approved in 2001. A draft of version 2 is being reviewed.
NTCIP - Object Definitions for Ramp Meter Control (RMC)	AASHTO	1207	28-Apr-02	Order from www.ntcip.org/order/.
NTCIP - Objects for CCTV Camera Control	AASHTO	1205	24-Apr-02	Order from www.ntcip.org/order/. Admendent 1 in working group draft.
NTCIP - Point to Multi-Point Protocol using RS 232 Subnetwork Profile	AASHTO	2101	30-Mar-02	Order from www.ntcip.org/order/.
NTCIP - Profile - Framework and Classification of Profiles	AASHTO	8003	30-Mar-02	Order from www.ntcip.org/order/.
NTCIP - Simple Transportation Management Framework (STMF)	AASHTO	1101	1-Apr-97	Order from www.ntcip.org/order/. Amendment 1 approved.
NTCIP - Transport Profile for Internet (TCP/IP and UDP/IP)	AASHTO	2202	27-Mar-02	Order from www.ntcip.org/order/.
National Names Phrase List	SAE	J2540/3	1-Jan-02	Order from www.sae.org or call 724-776-4970.
On-Board Land Vehicle Mayday Reporting Interface	SAE	J2313	30-Sep-99	Order from www.sae.org or call 724-776-4970.
RDS (Radio Data System) Phrase Lists	SAE	J2540/1	1-Jul-02	Order from www.sae.org or call 724-776-4970.
Serial Data Communications Between Microcomputer Systems in Heavy-Duty Vehicle Applications	SAE	J1708	30-Jun-95	Order from www.sae.org or call 724-776-4970.
Stakeholders Workshop Information Report	SAE	J2373	15-Apr-00	Order from www.sae.org or call 724-776-4970.
Standard Guide for Archiving and Retrieving ITS-Generated Data	ASTM	E2259-03	1-Jun-03	Order from www.astm.org, search for E2259-03 or call 610-832-9585.
Standard Metrology for Vehicular Displays	SAE	J1757/1	1-Jul-02	Order from www.sae.org or call 724-776-4970.
Standard Provisional Specification for Dedicated Short Range Communication (DSRC) Data Link Layer	ASTM	PS 105-99	3-Apr-00	Order from www.astm.org or call 610-832-9585.
Standard Specification for Telecommunications and Information Exchange between Roadside and Vehicle Systems: 5.9 GHz DSRC MAC and Physical Layer	ASTM	E2213-03	1-Oct-02	Order from www.astm.org or call 610-832-9585. Version 2 is in the ballot stage.
Standard for ATIS Message Sets Delivered Over Reduced Bandwidth Media	SAE	J2369	21-Feb-01	Order from www.sae.org or call 724-776-4970.

Table L-1. Published Standards Documents - As of November 2003

Document Title	Lead SDO	Doc #	Publish Date	Order Information
Standard for Common Incident Management Message Sets for use by Emergency Management Centers	IEEE	Std 1512-2000	7-Jul-00	Order from standards.ieee.org/catalog/ordering.html or 800-678-IEEE.
Standard for Data Dictionaries for Intelligent Transportation Systems - Part 1 Functional Area Data Dicitionaries	IEEE	Std 1489-1999	6-Dec-99	Order from standards.ieee.org/catalog/ordering.html or 800-678-IEEE. Version 2 in working group draft.
Standard for Hazardous Material Incident Management Message Sets for Use by Emergency Management Centers	IEEE	Std 1512.3-2002	29-Oct-02	Order from standards.ieee.org/catalog/ordering.html or 800-678-IEEE.
Standard for Message Set Template for Intelligent Transportation Systems	IEEE	Std 1488-2000	13-Jul-00	Order from standards.ieee.org/catalog/ordering.html or 800-678-IEEE. Version 2 in working group draft.
Standard for Message Sets for Vehicle/Roadside Communications	IEEE	Std 1455-1999	31-Jul-99	Order from standards.ieee.org/catalog/ordering.html or 800-678-IEEE.
Standard for Traffic Incident Management Message Sets for Use by EMCs	IEEE	P1512.1	30-Jun-03	Order from http://standards.ieee.org.
Standard for the Interface Between the Rail Subsystem and the Highway Subsytem at a Highway Rail Intersection	IEEE	Std 1570-2002	18-Oct-02	Order from standards.ieee.org/catalog/ordering.html or 800-678-IEEE.
Std. Spec. for Ded Short Range Comm. (DSRC) Physical Layer Using Microwave in the 902-928 MHz Band	ASTM	E2158-01	5-Apr-99	Order from www.astm.org or call 610-832-9585.
Subcarrier Traffic Information Channel (STIC) System	EIA/CEA	EIA-795	13-Aug-99	Order from www.global.ihs.com or call 800-854-7179.
TCIP - Framework Standard	NTCIP	1400	15-Jan-02	Order from www.ntcip.org/order/. Amendment 1 under development.
TCIP - Standard on Common Public Transportation (CPT) Objects	NTCIP	1401	27-Apr-01	Order from www.ntcip.org/order/. Amendment 1 under development.
TCIP - Standard on Control Center (CC) Objects	NTCIP	1407	14-Jan-02	Order from www.ntcip.org/order/. Amendment 1 under development.
TCIP - Standard on Fare Collection (FC) Objects	NTCIP	1408	14-Jan-02	Order from www.ntcip.org/order/. Amendment 1 under development.
TCIP - Standard on Incident Management (IM) Objects	NTCIP	1402	27-Apr-01	Order from www.ntcip.org/order/. Amendment 1 under development.
TCIP - Standard on On-Board (OB) Objects	NTCIP	1406	14-Jan-02	Order from www.ntcip.org/order/. Amendment 1 under development.
TCIP - Standard on Passenger Information (PI) Objects	NTCIP	1403	27-Apr-01	Order from www.ntcip.org/order/. Amendment 1 under development.
TCIP - Standard on Scheduling/Runcutting (SCH) Objects	NTCIP	1404	27-Apr-01	Order from www.ntcip.org/order/. Amendment 1 under development.
TCIP - Standard on Spatial Representation (SP) Objects	NTCIP	1405	27-Apr-01	Order from www.ntcip.org/order/. Amendment 1 under development.

Table L-1. Published Standards Documents - As of November 2003

Document Title	Lead SDO	Doc #	Publish Date	Order Information
The Survey and Analysis of Existing Standards and those Under Development Applicable to the Needs of the ITS Communications Technologies	IEEE	Bks 1-6: SH94633-SH 94638	19-Jun-98	Order from standards.ieee.org/catalog/ordering.html or 800-678-IEEE.
Truth-in-Labeling Standard for Navigation Map Databases	SAE	J1663	30-Aug-95	Order from www.sae.org or call 724-776-4970.

Table L-2. Approved Standards Documents - As of November 2003

Document Title	Lead SDO	Doc #	Comments
Advanced Transportation Controller (ATC) Standard Specification for the Type 2070 Contoller	ITE	ATC 2070	In "Notice to Adopt" stage at ITE. Amendment 1 is in development.
Converting ATIS Message Standards from ASN.1 to XML	SAE	J2630	Passed ballot, awaiting publication.
Message Sets for External TMC Communication (MS/ETMCC)	ITE	TM 2.01	Approved; being amended.
NTCIP - Transportation Transport Profile	AASHTO	2201	Recommended standard, awating publication.
NTCIP - Application Profile for Data Exchange ASN.1 (DATEX)	AASHTO	2304	Approved August 2002; awaiting publication.
NTCIP - Ethernet Subnetwork Profile	AASHTO	2104	Approved, waiting publication.
NTCIP - Octet Encoding Rules (OER)	AASHTO	1102	Approved August 2002; awaiting publication.

Table L-3. In Ballot Standards Documents - As of November 2003

Document Title	Lead SDO	Doc #	Comments
Advanced Transportation Controller (ATC) Cabinet	ITE	9603-2	Entered balloting. Check www.ite.org for additional information and to download drafts.
Location Referencing Message Specification	SAE	J2266	Went to ballot August 2003. J2266 supersedes SAE standard J2374 .
NTCIP - Object Definitions for Transportation Sensor Systems	AASHTO	1209	Entered balloting. Version 2 in "working group draft."
NTCIP - Object Definitions for Video Switches	AASHTO	1208	Entered balloting.
NTCIP - Point-to-Point Protocol using RS232 Subnetwork Profile	AASHTO	2103	Version 1 entered balloting. Version 2 in "working group draft."

Table L-4. Under Development Standards Documents - As of November 2003

Document Title	Lead SDO	Doc #	Comments
Advanced Transportation Controller (ATC)	ITE	9603-3	Check www.ite.org for additional information and to download drafts.
Application Program Interface (API) Standard for the Advance Transportation Controller (ATC)	ITE	9603-1	Check www.ite.org for additional information and to download drafts.
CORBA Specific Reference Model	AASHTO	1603	In "working draft" status.
Generic Reference Model for C2C Communications	AASHTO	1602	In "working draft" status.
NTCIP - Application Profile for Common Object Request Broker Architecture (CORBA)	AASHTO	2305	In "user comment draft."
NTCIP - CORBA Naming Convention Specification	AASHTO	1104	In "user comment draft."
NTCIP - CORBA Near Real-Time Data Service Specification	AASHTO	1106	On hold pending development of NTCIP 1603.
NTCIP - CORBA Security Service Specification	AASHTO	1105	In "user comment draft." On hold pending development of NTCIP 1603.
NTCIP - Object Definitions for Data Collection and Monitoring (DCM) Devices	AASHTO	1206	In "user comment draft."
NTCIP - Objects for Signal Control Prioritization	AASHTO	1211	In "user comment draft."
NTCIP - Objects for Signal Systems Masters	AASHTO	1210	In "working group draft."
NTCIP - Transportation Management Protocol (TMP)	AASHTO	1103	In "user comment draft." Expected to be available as a "recommended standard" in early 2004.
NTCIP - Weather Report Message Set for ESS	AASHTO	1301	In "working group draft."
NTCIP Object Definitions for Electrical Lighting Management Systems	AASHTO	1213	A proposed recommended standard will be available by year end 2004.
NTCIP SEP for Communications Profile	AASHTO	901x	Under developement.
NTCIP Structure and Identification of Management Information	AASHTO	8004	In working group/committe draft.
NTCIP Testing and Conformity Assessment Documentation within NTCIP Standards Publications	AASHTO	8007	AASHTO, ITE, and NEMA distributed 8007 for user comment, with comments due November 17, 2003.
NTCIP XML in ITS Center-to-Center Communications	AASHTO	9010	In "User Comment Draft".

Table L-4. Under Development Standards Documents - As of November 2003

Document Title	Lead SDO	Doc #	Comments
Standard Specification for Archiving ITS-Related Traffic Monitoring Data	ASTM	E17.54.02.2	In development, draft expected late 2004.
Standard Specification for Metadata Content for ITS-Generated Data	ASTM	E17.54.02.1	In development, draft expected early 2004.
Standard for Data Dictionaries and Message Sets for Dedicated Short Range Communcations (DSRC)	SAE	J2xx	Approved PAR.
Standard for Dedicated Short Range Communications (DSRC) Application Layer	IEEE	P1609.2	In working group/committe draft.
Standard for Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) Layer	IEEE	P1609.4	In working group/committe draft.
Standard for Dedicated Short Range Communications (DSRC) Resource Manager	IEEE	P1609.1	In working group/commitee draft.
Standard for IP Interface for Dedicated Short Range Communications (DSRC)	IEEE	P1609.3	In working group/committe draft.
Standard for Public Safety Incident Management Message Sets for Use by EMCs	IEEE	P1512.2	Anticipating balloting in the winter 2003.
Standard for Security and Privacy of Vehicle/Roadside Communication Including Smart Card Communications	IEEE	P1556	Still under development.
TCIP Dialogs	APTA	TCIP-Dialogs	Under development, expected to ballot in December 2003.

Oregon Department of Transportation

Rogue Valley Intelligent Transportation Systems

Appendix M: High-Level Operational Concept Matrix

CONTENTS

Table M-1. High-Level Operational Concept Matrix for the Rogue Valley Metropolitan Area

		Relationships					O&M Roles and Responsibilities			Information Flows						
From	**To**	**Independent**	**Consultation**	**Cooperation**	**Information Sharing**	**Control Sharing**	**Operational**	**Maintenance**	**Full Responsibility**	**Data**	**Video**	**Status**	**Request**	**Control**	**Comments**	**Confirmed**
ODOT Region 3/District 8	City of Medford- Public Works			Existing	Consider					Existing	Consider		Consider		ODOT and the City of Medford communicate on a regular basis	Y
	City of Central Point- Public Works				Consider	Existing			Existing	Consider	Consider			Existing	ODOT maintains and operates city owned signals	Y
	City of Ashland- Public Works				Consider	Existing			Existing	Consider	Consider			Existing	ODOT maintains and operates city owned signals	Y
	City of Talent- Public Works			Existing												Y
	City of Phoenix- Public Works			Existing	Consider				Existing	Consider				Existing	ODOT maintains and operates city owned signals	Y
	City of Jacksonville- Public Works			Existing	Consider											Y
	City of Eagle Point- Public Works			Existing	Consider											Y
	Jackson County			Existing	Consider			Existing		Consider	Consider	Consider	Consider	Existing	ODOT maintains Jackson County's signal and shares equipment and services with Jackson County	Y
	Rogue Valley Council of Govt. (RVCOG)			Existing	Consider					Consider	Consider				ODOT's Tripcheck would automatically send out data to regional data repository	Y
	Rogue Valley Transit District (RVTD)		Existing							Existing	Consider				ODOT informs RVTD of current construction projects	Y
	Rogue Valley Central Communications Center (RVCCOM)	Existing			Consider					Existing	Consider				Currently RVCCOM and SORC access information from the TripCheck Website	Y
	Southern Oregon Regional Communication (SORC)	Existing			Consider					Existing	Consider				Same as above	Y
	Oregon State Police (OSP)				Existing					Existing					Data is manually shared by a co-located dispatch.	Y
	Other Emergency Service Providers	Existing													No information provided	Y
City of Medford- Public Works	ODOT Region 3/District 8				Consider	Existing			Existing	Existing	Consider	Consider	Consider	Existing	Controls ODOT'S signals	Y
	City of Central Point- Public Works		Existing		Consider					Consider	Consider	Consider	Consider		Medford wants to integrate Medford, Central Point and Jackson County	Y
	City of Ashland- Public Works		Existing		Consider	Consider	Consider			Consider	Consider			Consider	Medford MAY take control of Ashland signals from ODOT	Y
	City of Talent- Public Works		Existing												Interagency Agreements	Y
	City of Phoenix- Public Works		Existing												Interagency Agreements	Y
	City of Jacksonville- Public Works		Existing												Interagency Agreements	Y
	City of Eagle Point- Public Works		Existing												Interagency Agreements	Y
	Jackson County		Existing		Consider					Existing		Consider	Consider		Have Emergency agreements, pass information on jurisdictional duties and much more	Y
	Rogue Valley Council of Govt. (RVCOG)		Existing		Consider										RVCOG participates some what with construction and other planning aspects	Y
	Rogue Valley Transit District (RVTD)			Existing											Some signals are transit priority enabled	Y
	Rogue Valley Central Communications Center (RVCCOM)				Existing					Consider	Consider				Medford relays construction information to RVCCOM for insertion into CAD	Y
	Medford Police Department			Consider									Consider		Medford patrol vehicles may become emergency pre-emption enabled	Y
	Medford Fire & Rescue			Existing											Signal priority	Y
	Other Emergency Service Providers			Existing												Y
City of Central Point- Public Works	ODOT Region 3/District 8			Existing	Consider	Consider			Consider	Consider	Consider	Consider	Consider	Consider	ODOT O&M signals city owned signals	N
	City of Medford- Public Works			Existing	Consider					Consider					Would like Medford traffic information	N
	City of Ashland- Public Works	Existing														N
	City of Talent- Public Works	Existing														N
	City of Phoenix- Public Works			Existing						Existing					Informally share information regarding many things.	N
	City of Jacksonville- Public Works	Existing														N
	City of Eagle Point- Public Works	Existing														N
	Jackson County			Existing											City accesses Jackson County's website frequently for info	N
	Rogue Valley Council of Govt. (RVCOG)		Existing		Consider					Consider					Send the information to the centralized data repository	N
	Rogue Valley Transit District (RVTD)		Existing												RVTD helps with special events	N
	Southern Oregon Regional Communication (SORC)			Existing						Existing					SORC dispatches for Central Point	N
	Central Point Police Department			Existing											They have emergency agreements with other agencies in the region	N
	Jackson County Fire Districts			Existing												N
	Other Emergency Service Providers			Existing												N

Table M-1. High-Level Operational Concept Matrix for the Rogue Valley Metropolitan Area

		Relationships					O&M Roles and Responsibilities			Information Flows						
From	**To**	**Independent**	**Consultation**	**Cooperation**	**Information Sharing**	**Control Sharing**	**Operational**	**Maintenance**	**Full Responsibility**	**Data**	**Video**	**Status**	**Request**	**Control**	**Comments**	**Confirmed**
City of Ashland- Public Works	ODOT Region 3/District 8				Consider	Existing			Existing	Consider	Consider			Existing	ODOT O&M city signals	N
	City of Medford- Public Works			Existing	Consider					Consider					Would like congestion information	N
	City of Central Point- Public Works	Existing														N
	City of Talent- Public Works	Existing														N
	City of Phoenix- Public Works			Existing											Informal information sharing.	N
	City of Jacksonville- Public Works	Existing														N
	City of Eagle Point- Public Works	Existing														N
	Jackson County	Existing														N
	Rogue Valley Council of Govt. (RVCOG)		Existing		Consider					Consider					Send the information to the centralized data repository	N
	Rogue Valley Transit District (RVTD)			Existing	Consider										RVTD would like transit priority	N
	Rogue Valley Central Communications Center (RVCCOM)			Existing	Consider						Consider				RVCCOM dispatches Ashland police	N
	Ashland Police Department			Existing											Regional Emergency responders work and train together.	N
	Ashland Fire & Rescue			Existing												N
	Other Emergency Service Providers			Existing												N
City of Talent- Public Works	ODOT Region 3/District 8			Existing												Y
	City of Medford- Public Works		Existing													Y
	City of Central Point- Public Works		Existing													Y
	City of Ashland- Public Works		Existing													Y
	City of Phoenix- Public Works		Existing													Y
	City of Jacksonville- Public Works		Existing													Y
	City of Eagle Point- Public Works		Existing													Y
	Jackson County		Existing													Y
	Rogue Valley Council of Govt. (RVCOG)			Existing	Consider					Consider					Send data to the centralized repository	Y
	Rogue Valley Transit District (RVTD)		Existing													Y
	Southern Oregon Regional Communication (SORC)			Existing												Y
	Talent Police Department		Existing													Y
	Jackson County Fire Districts		Existing													Y
	Other Emergency Service Providers															Y
City of Phoenix- Public Works	ODOT Region 3/District 8				Consider	Existing			Existing	Consider				Existing	ODOT operates and maintains city owned signal	Y
	City of Medford- Public Works			Existing												Y
	City of Central Point- Public Works		Existing													Y
	City of Ashland- Public Works		Existing													Y
	City of Talent- Public Works		Existing													Y
	City of Jacksonville- Public Works		Existing													Y
	City of Eagle Point- Public Works		Existing													Y
	Jackson County		Existing													Y
	Rogue Valley Council of Govt. (RVCOG)			Existing	Consider					Consider					Send data to the centralized repository	Y
	Rogue Valley Transit District (RVTD)			Existing												Y
	Southern Oregon Regional Communication (SORC)				Existing								Existing		Dispatches Phoenix emergency vehicles	Y
	Phoenix Police Department				Existing											Y
	Phoenix Fire Department				Existing											Y
	Other Emergency Service Providers		Existing		Existing											Y
City of Jacksonville- Public Works	ODOT Region 3/District 8			Existing												N
	City of Medford- Public Works		Existing													N
	City of Central Point- Public Works		Existing													N
	City of Ashland- Public Works		Existing													N
	City of Talent- Public Works		Existing													N
	City of Phoenix- Public Works		Existing													N
	City of Eagle Point- Public Works		Existing													N
	Jackson County		Existing													N
	Rogue Valley Council of Govt. (RVCOG)			Existing	Consider					Consider					Send data to the centralized repository	N
	Rogue Valley Transit District (RVTD)		Existing													N
	Southern Oregon Regional Communication (SORC)		Existing													N
	Jackson County Sheriff's Office			Existing												N
	Jackson County Fire Districts			Existing												N
	Other Emergency Service Providers		Existing													N

Table M-1. High-Level Operational Concept Matrix for the Rogue Valley Metropolitan Area

		Relationships					O&M Roles and Responsibilities			Information Flows						
From	**To**	**Independent**	**Consultation**	**Cooperation**	**Information Sharing**	**Control Sharing**	**Operational**	**Maintenance**	**Full Responsibility**	**Data**	**Video**	**Status**	**Request**	**Control**	**Comments**	**Confirmed**
City of Eagle Point- Public Works	ODOT Region 3/District 8			Existing												N
	City of Medford- Public Works		Existing													N
	City of Central Point- Public Works		Existing													N
	City of Ashland- Public Works		Existing													N
	City of Talent- Public Works		Existing													N
	City of Phoenix- Public Works		Existing													N
	City of Jacksonville- Public Works		Existing													N
	Jackson County		Existing													N
	Rogue Valley Council of Govt. (RVCOG)			Existing	Consider					Consider					Send data to the centralized repository	N
	Rogue Valley Transit District (RVTD)	Existing														N
	Southern Oregon Regional Communication (SORC)			Existing												N
	Eagle Point Police Department		Existing													N
	Jackson County Fire Districts		Existing													N
	Other Emergency Service Providers		Existing													N
Jackson County	ODOT Region 3/District 8			Existing		Consider		Existing		Consider	Consider	Consider	Consider	Existing	ODOT Maintains signals and shares equipment and services with Jackson County	Y
	City of Medford- Public Works		Existing													Y
	City of Central Point- Public Works		Existing													Y
	City of Ashland- Public Works		Existing													Y
	City of Talent- Public Works		Existing													Y
	City of Phoenix- Public Works		Existing													Y
	City of Jacksonville- Public Works		Existing													Y
	City of Eagle Point- Public Works		Existing													Y
	Rogue Valley Council of Govt. (RVCOG)			Existing	Consider					Consider					Send data to the centralized repository	Y
	Rogue Valley Transit District (RVTD)			Existing						Existing					Jackson County sends RVTD construction information	Y
	Southern Oregon Regional Communication (SORC)		Existing													Y
	Jackson County Sheriff's Office			Existing												Y
	Jackson County Fire Districts			Existing												Y
	Other Emergency Service Providers			Existing												Y
Rogue Valley Council of Govt. (RVCOG)	ODOT Region 3/District 8			Existing	Consider					Consider	Consider				ODOT provides traffic modeling services. RVCOG-operated repository will automatically ingest TripCheck data	Y
	City of Medford- Public Works			Existing	Consider					Consider	Consider				Send data to the centralized repository	Y
	City of Central Point- Public Works			Existing	Consider					Consider					Send data to the centralized repository	Y
	City of Ashland- Public Works			Existing	Consider					Consider					Send data to the centralized repository	Y
	City of Talent- Public Works			Existing	Consider					Consider					Send data to the centralized repository	Y
	City of Phoenix- Public Works			Existing	Consider					Consider					Send data to the centralized repository	Y
	City of Jacksonville- Public Works			Existing	Consider					Consider					Send data to the centralized repository	Y
	City of Eagle Point- Public Works			Existing	Consider					Consider					Send data to the centralized repository	Y
	Jackson County			Existing	Consider					Consider					Send data to the centralized repository	Y
	Rogue Valley Transit District (RVTD)			Existing	Consider					Consider					RVTD participating in RVCOG-led ERP development	Y
	Emergency Service Providers		Existing												Participating in RVCOG-led ERP development	Y
Rogue Valley Transit District (RVTD)	ODOT Region 3/District 8		Existing												ODOT provides construction information	N
	City of Medford- Public Works			Existing											Medford Provides construction information, transit priority	N
	City of Central Point- Public Works	Existing														N
	City of Ashland- Public Works		Existing												Ashland provides construction info; RVTD assists during special events	N
	City of Talent- Public Works			Existing												N
	City of Phoenix- Public Works			Existing												N
	City of Jacksonville- Public Works			Existing												N
	City of Eagle Point- Public Works	Existing														N
	Jackson County		Existing												Jackson County provides construction information	N
	Rogue Valley Council of Govt. (RVCOG)			Existing	Consider											N
	Emergency Service Providers				Existing										RVTD Provides services	N

Table M-1. High-Level Operational Concept Matrix for the Rogue Valley Metropolitan Area

		Relationships					O&M Roles and Responsibilities			Information Flows						
From	**To**	**Independent**	**Consultation**	**Cooperation**	**Information Sharing**	**Control Sharing**	**Operational**	**Maintenance**	**Full Responsibility**	**Data**	**Video**	**Status**	**Request**	**Control**	**Comments**	**Confirmed**
Rogue Valley Central Communications Center (RVCCOM)	ODOT Region 3/District 8		Existing		Consider					Existing	Consider				RVCCOM wants real time travel information from ODOT	N
	City of Medford- Public Works			Existing											Medford deploys sign vehicles	N
	City of Central Point- Public Works		Existing												CP maintains website with construction information	N
	City of Ashland- Public Works		Existing												Ashland informally relays construction information	N
	City of Talent- Public Works	Existing													Informal sharing of traffic related information	N
	City of Phoenix- Public Works	Existing								Consider					Informal sharing of traffic related information	N
	City of Jacksonville- Public Works	Existing													Informal sharing of traffic related information	N
	City of Eagle Point- Public Works	Existing													Informal sharing of traffic related information	N
	Jackson County		Existing												Informal sharing of traffic related information	N
	Rogue Valley Council of Govt. (RVCOG)			Existing											RVCOG participates with region traffic information and planning	N
	Rogue Valley Transit District (RVTD)		Existing												RVTD offers informal services	N
	Southern Oregon Regional Communication (SORC)				Existing					Existing					SORC and RVCCOM share CAD	N
	Oregon State Police (OSP)		Existing												RVCCOM relays information to OSP	N
	Jackson County Sheriff's Office		Existing												Informal information sharing between dispatches	N
	Medford Police Department				Existing					Existing					Has mesh network, CAD system	N
	Ashland Police Department				Existing										Dispatches Ashland response vehicles	N
	Central Point Police Department		Existing													N
	Talent Police Department	Existing													Dispatches Talent response vehicles	N
	Eagle Point Police Department	Existing													Dispatches Eagle Point response vehicles	N
	SOU Campus Security			Existing												N
	Jackson County Fire Districts		Existing													N
	Medford Fire & Rescue				Existing										Dispatches Medford emergency vehicles	N
	Ashland Fire & Rescue				Existing										Dispatches Ashland emergency vehicles	N
	Phoenix Fire Department				Existing										Dispatches Phoenix emergency vehicles	N
	Other Emergency Service Providers		Existing		Consider										Desires live video feed from ambulances to hospitals	N
Southern Oregon Regional Comm (SORC)	ODOT Region 3/District 8		Existing		Consider					Existing	Consider				Notifies ODOT of situations	N
	City of Medford- Public Works		Existing													N
	City of Central Point- Public Works			Existing												N
	City of Ashland- Public Works		Existing													N
	City of Talent- Public Works			Existing												N
	City of Phoenix- Public Works			Existing												N
	City of Jacksonville- Public Works			Existing												N
	City of Eagle Point- Public Works			Existing												N
	Jackson County			Existing												N
	Rogue Valley Council of Govt. (RVCOG)			Existing											Notifies ODOT of situations	N
	Rogue Valley Transit District (RVTD)			Existing						Existing					RVTD provides informal services	N
	Rogue Valley Central Communications Center (RVCCOM)				Existing					Existing					Shares CAD system	N
	Oregon State Police (OSP)		Existing							Existing					SORC relays information to OSP	N
	Jackson County Sheriff's Office				Existing					Existing					SORC dispatches for Jackson County	N
	Medford Police Department		Existing													N
	Ashland Police Department		Existing													N
	Central Point Police Department				Existing					Existing					Dispatches Central Point emergency response vehilces	N
	Talent Police Department			Existing						Existing					Dispatches Talent emergency vehicles	N
	Eagle Point Police Department			Existing						Existing					Dispatches Eagle Point emergency vehicles	N
	Jackson County Fire Districts			Existing						Existing					SORC dispatches for Jackson County	N
	Medford Fire & Rescue		Existing													N
	Ashland Fire & Rescue		Existing													N
	Phoenix Fire Department			Existing												N
	Mercy Flights			Existing												N
	Other Emergency Service Providers				Existing											N

Table M-1. High-Level Operational Concept Matrix for the Rogue Valley Metropolitan Area

		Relationships					O&M Roles and Responsibilities			Information Flows						
From	To	Independent	Consultation	Cooperation	Information Sharing	Control Sharing	Operational	Maintenance	Full Responsibility	Data	Video	Status	Request	Control	Comments	Confirmed
Oregon State Police Department (OSP)	ODOT Region 3/District 8					Existing				Existing				Existing	OSP is authorized to control HAR. OSP Dispatch and ODOT are co-located.	Y
	City of Medford- Public Works		Existing	Existing						Existing					OSP diverts traffic through Medford when I-5 is congested	Y
	Jackson County			Existing											Departments scan each other radio frequencies	Y
	Rogue Valley Council of Govt. (RVCOG)				Existing					Existing					RVCOG is compiling a ERP	Y
	Southern Oregon Regional Communication (SORC)				Existing					Existing					SORC relays information, CAD works with MDT	Y
	Emergency Service Providers				Consider					Existing					OSP would like partnership with Onstar	Y

Appendix N:
Deployment Plan Workshop

CONTENTS

Rogue Valley Intelligent Transportation Systems

Regional ITS Operations & Implementation Plan for the Rogue Valley Metropolitan Area

"Expanded Stakeholder Workshop: Deployment Plan"

Date:	**Thursday, June 3, 2004**
Time:	**2:00 pm – 4:00 pm**
Location:	**Medford Library**
Address:	**205 South Central Avenue Medford, OR 97501**

Please R.S.V.P. by Thursday, May 27, 2004 to Vicki Guarino at vguarino@rvcog.org or by calling (541) 664-6676 ext.241

What Is It All About? To effectively meet the transportation needs of the Rogue Valley metropolitan area, an Intelligent Transportation Systems (ITS) Plan is being developed. An ITS Plan involves the application of advanced technology to solve transportation problems, to improve safety, to provide services to travelers, and to assist transportation system operators to implement suitable traffic management strategies. As part of this project, stakeholder input was gathered through interviews, questionnaires, and an expanded stakeholder workshop to determine the regional needs. The task at hand now is to determine ITS strategies that address these regional needs. This is the second expanded stakeholder meeting as part of the project's effort to share with the stakeholders the future deployment plan outlined for the Rogue Valley metropolitan area.

Why Attend? Your input and participation plays a key role in shaping the future of the regional transportation system. At this meeting, you will learn about the proposed plan for deploying ITS projects in the Rogue Valley metropolitan area and will have the opportunity to provide comments on these projects and offer suggestions.

Meeting Agenda

2:00 pm: *Welcome & Introductions*

2:05 pm: *Presentation by DKS Associates*
- Update of project status
- Summary of proposed ITS deployment plan

2:30 pm: *Breakout Session*
- Poster sessions will be set up around the room based on areas of interest and workshop participants will have the opportunity to ask questions and provide input on ITS deployment projects.

3:30 pm: *Group Discussion*
- Group leaders will summarize poster session input and will lead a group discussion about potential modifications or additions to the proposed ITS deployment plan.

3:55 pm: *Next Steps*

Oregon Department of Transportation

In Cooperation With:

RVMPO

RVTD

Jackson County Oregon

City of Medford Oregon

City of Central Point Oregon

City of Ashland

U.S. Department of Transportation Federal Highway Administration

Consultants:

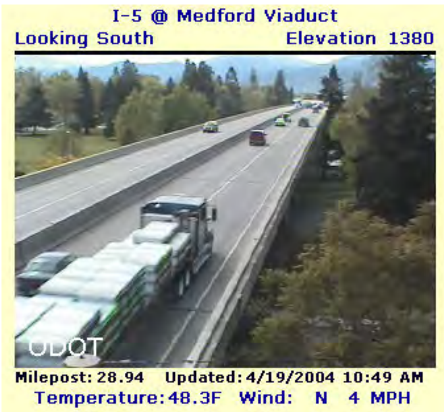
DKS Associates Transportation Solutions

Castle Rock

Sample Projects for the ITS Deployment Plan

The Rogue Valley metropolitan area is planning to apply technological solutions to improve the efficiency, safety, mobility, and convenience of the regional transportation system. Approximately 50 projects have been identified as possibilities to address the needs of the metropolitan area. This list provides an overview of some of the projects under consideration.

Interstate 5 Incident Management and Operations



Incidents such as crashes, disabled vehicles, spilled cargo, and other special events result in increased traveler delay and secondary crashes. This project will implement incident management strategies on alternate routes when an incident occurs on Interstate 5: Highway 99, Blackwell Road, Pine Street/Biddle Road, Fern Valley Road, Valley View Road, and Highway 62. Surveillance cameras, dynamic message signs, trailblazers, and system detectors will be deployed to detect incidents, monitor conditions, and post traveler information. Coordinated signal timing plans will also be developed and implemented when traffic is diverted onto the alternate routes that have traffic signals (e.g. Highway 99).

Integrate Traveler Information with TripCheck, 511, and HAR

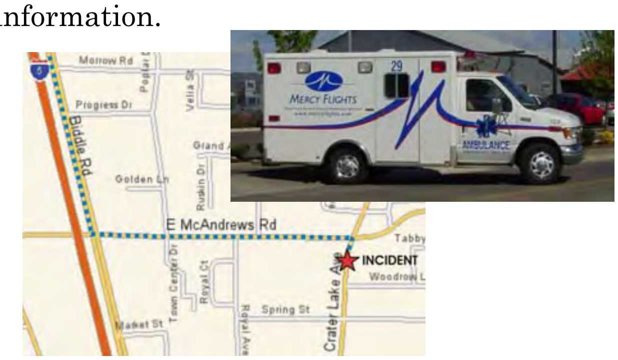
The purpose of this project is to provide travelers with real-time information regarding traffic conditions (ie. major incidents, current construction, road closures, severe weather locations, travel times) to help them make informed decisions. This information will be disseminated through ODOT's existing "TripCheck" website (www.tripcheck.com), the 511 telephone system, and highway advisory radio (HAR). ODOT plans to upgrade the existing HAR system in Ashland this summer, and this ITS plan also includes a project to deploy additional HAR transmitter sites throughout the metropolitan area to expand the coverage of real-time information.

GPS-Based Transit Management System

To improve transit service in the Rogue Valley for travelers and for the Rogue Valley Transportation District (RVTD), this project includes outfitting the RVTD transit fleet with a GPS-based system with capabilities for computer aided dispatch, automated vehicle location, automated passenger counting, and automated stop announcements. This system will allow RVTD to streamline operations, collect data for planning purposes, and post real-time transit vehicle location data on the Internet or on roadside electronic message signs to provide traveler information.

Traffic Adaptive Emergency Response

This project will deploy an integrated emergency response system that provides for pre-trip planning, en-route guidance (static route plan), and dynamic route guidance (traffic-adaptive route plan based on existing traffic conditions) for emergency vehicles.



(c) 2004 Yahoo Inc., (c) 2003 NAVTEQ

Rogue Valley
Intelligent Transportation Systems

Regional ITS Operations & Implementation Plan for the Rogue Valley Metropolitan Area

"Public Open House: Deployment Plan"

Date:	**Thursday, June 3, 2004**
Time:	**5:00 pm – 7:00 pm**
	(Presentation at 6:00 pm)
Location:	**Medford Library**
Address:	**205 South Central Avenue**
	Medford, OR 97501

Please contact Vicki Guarino (RVCOG) at vguarino@rvcog.org or (541) 664-6676 ext.241 if you have any questions.

What Is It All About? To effectively meet the transportation needs of the Rogue Valley metropolitan area, an Intelligent Transportation Systems (ITS) Plan is being developed. An ITS Plan involves the application of advanced technology to solve transportation problems, to improve safety, to provide services to travelers, and to assist transportation system operators to implement suitable traffic management strategies. As part of this project, stakeholder input was gathered through interviews, questionnaires, and an expanded stakeholder workshop to determine the regional needs. The task at hand now is to determine ITS strategies that address these regional needs. This open house is part of the project's effort to share the future deployment plan outlined for the Rogue Valley metropolitan area with the public.

Why Attend? Your input and participation plays a key role in shaping the future of the regional transportation system. At this meeting, you will learn about the proposed plan for deploying ITS projects in the Rogue Valley metropolitan area and will have the opportunity to provide comments on these projects and offer suggestions.

Rogue Valley Metropolitan Area

Oregon Department of Transportation

In Cooperation With:

RVMPO
RVTD
Jackson County Oregon
City of Medford Oregon
City of Central Point Oregon
City of Ashland
U.S. Department of Transportation Federal Highway Administration

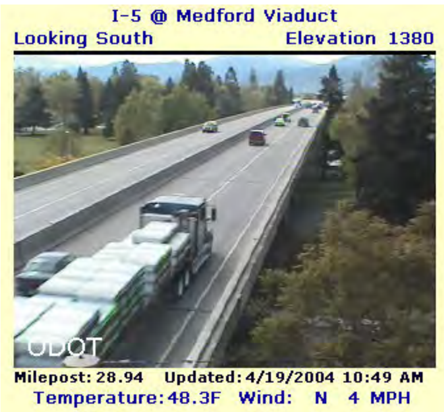
Consultants:

DKS Associates Transportation Solutions
Castle Rock

Sample Projects for the ITS Deployment Plan

The Rogue Valley metropolitan area is planning to apply technological solutions to improve the efficiency, safety, mobility, and convenience of the regional transportation system. Approximately 50 projects have been identified as possibilities to address the needs of the metropolitan area. This list provides an overview of some of the projects under consideration.

Interstate 5 Incident Management and Operations



Incidents such as crashes, disabled vehicles, spilled cargo, and other special events result in increased traveler delay and secondary crashes. This project will implement incident management strategies on alternate routes when an incident occurs on Interstate 5: Highway 99, Blackwell Road, Pine Street/Biddle Road, Fern Valley Road, Valley View Road, and Highway 62. Surveillance cameras, dynamic message signs, trailblazers, and system detectors will be deployed to detect incidents, monitor conditions, and post traveler information. Coordinated signal timing plans will also be developed and implemented when traffic is diverted onto the alternate routes that have traffic signals (e.g. Highway 99).

Integrate Traveler Information with TripCheck, 511, and HAR

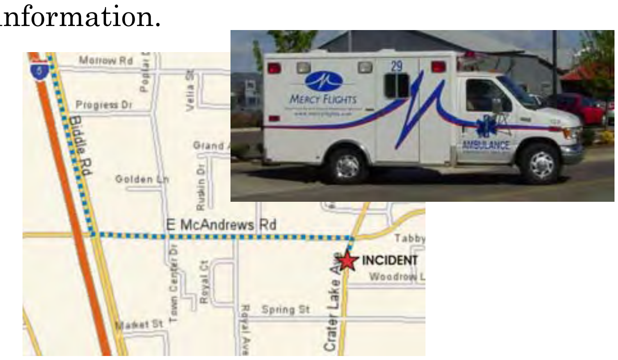
The purpose of this project is to provide travelers with real-time information regarding traffic conditions (ie. major incidents, current construction, road closures, severe weather locations, travel times) to help them make informed decisions. This information will be disseminated through ODOT's existing "TripCheck" website (www.tripcheck.com), the 511 telephone system, and highway advisory radio (HAR). ODOT plans to upgrade the existing HAR system in Ashland this summer, and this ITS plan also includes a project to deploy additional HAR transmitter sites throughout the metropolitan area to expand the coverage of real-time information.

GPS-Based Transit Management System

To improve transit service in the Rogue Valley for travelers and for the Rogue Valley Transportation District (RVTD), this project includes outfitting the RVTD transit fleet with a GPS-based system with capabilities for computer aided dispatch, automated vehicle location, automated passenger counting, and automated stop announcements. This system will allow RVTD to streamline operations, collect data for planning purposes, and post real-time transit vehicle location data on the Internet or on roadside electronic message signs to provide traveler information.

Traffic Adaptive Emergency Response

This project will deploy an integrated emergency response system that provides for pre-trip planning, en-route guidance (static route plan), and dynamic route guidance (traffic-adaptive route plan based on existing traffic conditions) for emergency vehicles.



(c) 2004 Yahoo Inc., (c) 2003 NAVTEQ

Rogue Valley ITS Plan

(Regional ITS Operations & Implementation Plan
For The Rogue Valley Metropolitan Area)

Rogue Valley
Intelligent Transportation Systems

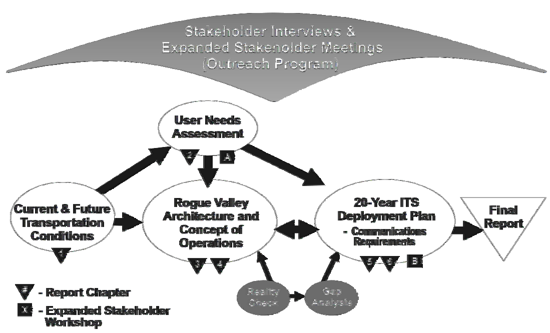
Deployment Plan Workshop

***DKS** Associates*
& RVCOG
June 3, 2004

Meeting Agenda

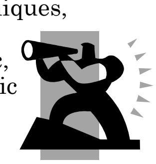
- 2:00 pm Welcome & Introductions
- 2:05 pm DKS Associates Presentation
  - ✓ Project Update
  - ✓ Summary of Proposed ITS Deployment Plan
- 2:30 pm Breakout Session
- 3:30 pm Group Discussion
- 3:55 pm Next Steps
- 4:00 pm ADJOURN

Project Approach



Mission Statement

- Using advanced technologies, the Rogue Valley Metropolitan Area strives to improve the safety and security of the transportation network; improve the movement of goods, people and services; and enhance multi-modal transportation operations through coordinated management techniques, information sharing among agencies and the general public, and partnerships between public and private organizations.



Workshop Goals

- Obtain stakeholder input
- Identify any additions/ modifications to the deployment plan projects and schedule
- Finalize Rogue Valley deployment plan

Rogue Valley ITS Plan Expanded Stakeholder Workshop

Summary of Proposed Deployment Plan & the Needs Addressed

Rogue Valley ITS Plan Project Categories

1. Travel & Traffic Management
2. Communications
3. Emergency Management
4. Information Management
5. Public Transportation Management
6. Maintenance & Construction Management

©2003, MapQuest.com, Inc.; ©2003 GDT, Inc.

Rogue Valley ITS Plan Projects

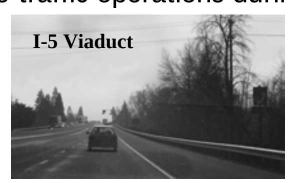
- Needs
  - ✓Mitigate Congestion
  - ✓Reduce Crashes
  - ✓What You Told Us
- Projects
  - ✓How Are the Needs Addressed?

Key Traffic Management Needs

- Expand ODOT Traffic Operations Center to include multiple jurisdictions
- Enhance traffic signal operations
- Monitor key roadways and intersections
- Monitor inclement weather
- Collect more traffic volume and speed data (real-time and historical)

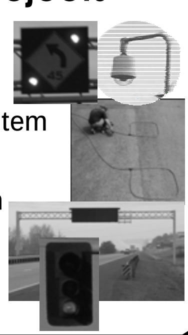
Key Traffic Management Needs

- Coordinate regional incident response
- Enhance management of incidents on I-5 viaduct in Medford
- Enhance traffic operations during special events

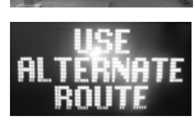


Key Traffic Management Projects

- ODOT TOC Integration
- Network Surveillance
- Traffic Data Collection System
- Dynamic Message Signs
- Traffic Signal Coordination
- Curve Warning System
- Speed Monitoring System



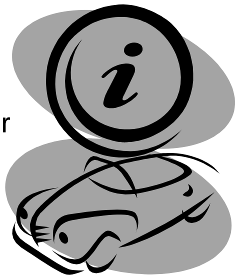
Key Traffic Management Projects



- Incident Management
  - ✓Operational Plans
  - ✓Detection/Notification
  - ✓Response Program
  - ✓Key Routes: I-5, Siskiyou Pass, Highway 62
- Special Event Management Systems

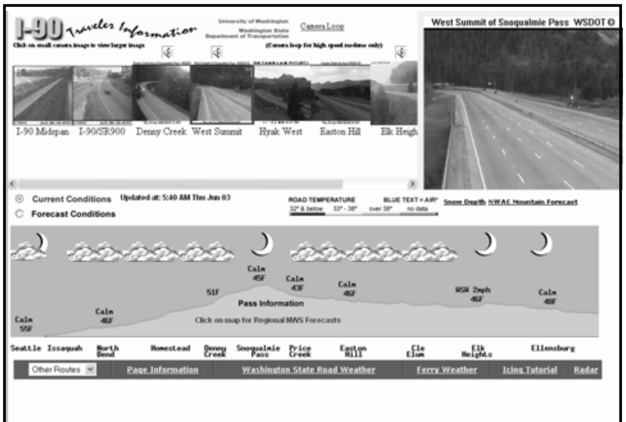
Key Traveler Information Needs

- Current “real-time” information
- Congestion flow map
- More roadside traveler information
- Camera images
- Weather information
- Expand existing HAR



Key Traveler Information Projects

- Dynamic Message Signs
- Expand/Upgrade Highway Advisory Radio (HAR)
- Integration with TripCheck, 511, and HAR
- Traveler Information TV
- Traveler Information Kiosks
- I-5 Siskiyou Pass Traveler Info
- Road Weather Information



Key Communication Needs

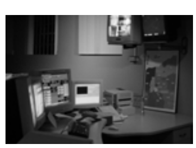
- Remote access to traffic signals and ITS equipment
- Integrated systems
- Communication links to key agencies

Key Communication Projects

- Document Communication Design Standards
- Communication Network

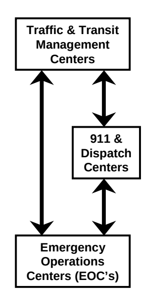
Key Emergency Management Needs

- Common emergency radio channel
- Real-time information at 911 centers and in vehicles
- Enhance operations during major emergencies



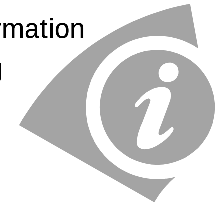
Key Emergency Management Projects

- Integration Between Systems
  - ✓ 911 & Dispatch Centers
  - ✓ Traffic/Transit Management
  - ✓ Emergency Operations Centers (EOC’s)
- Traffic Adaptive Emergency Response
- Provide Real-Time Information to MDT’s
- Ambulance-Hospital Information System

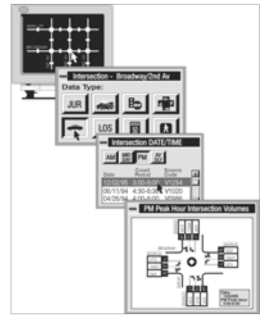


Key Information Management Needs

- Automated data collection
- Standardized data format that is GIS-compatible
- Internet-accessible information
- Easier access to existing resources:
  - ✓Adopted plans
  - ✓Traffic demand model



Key Information Management Projects



- Regional Data Management System
  - ✓Collection and archiving of operational and performance data
  - ✓Historical counts
  - ✓Roadway equipment information
- Regional Data Standardization

Key Public Transportation Management Needs

- Vehicle location system
  - ✓Dispatch
  - ✓Track vehicles/stops
  - ✓Count passengers
- Transit signal priority
- Improve on-time efficiency
- Real-time info at dispatch

Key Public Transportation Management Projects

- Transit Signal Priority
- Real-Time Transit Information Displays
- AVL/CAD Transit Management System
- Automated Passenger Counting
- Automated Stop Announcements

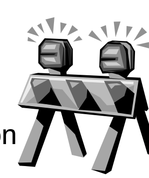
#10 to Ashland	**5 Min**
#60 to White City	**10 Min**

Key Maintenance & Construction Management Needs

- Construction database
- Improve construction work zone management

Key Maintenance & Construction Management Projects

- Maintenance Management System
- Maintenance, Construction, and Special Event Coordination System
- Winter Maintenance Scheduling
- Roadway Weather Info Systems
- Develop Work Zone Management Standards



Rogue Valley ITS Plan Expanded Stakeholder Workshop

Breakout Session:
Deployment Plan
Projects

Goals of Breakout Session

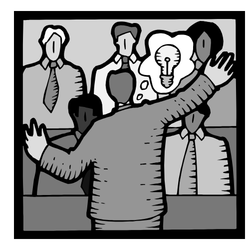
- Review Proposed Deployment Plan Projects
  - ✓Identify additions/deletions/modifications
  - ✓Review for completeness/level of detail
- Review Proposed Deployment Schedule
  - ✓Determine if project timing fits with other regional plans

Poster Sessions

Group	Moderator
1) Travel & Traffic Management, Communications	Jim Peters & Peter Coffey
2) Emergency Management, Information Management	Larry McKinley
3) Public Transportation Management, Maintenance & Construction Management	Renee Hurtado

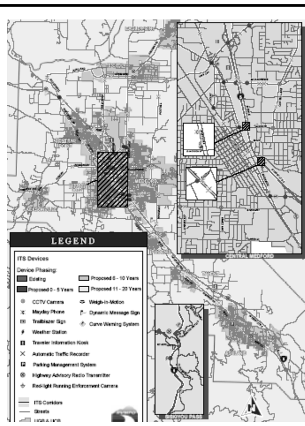
Rogue Valley ITS Plan Expanded Stakeholder Meeting

Group
Discussion

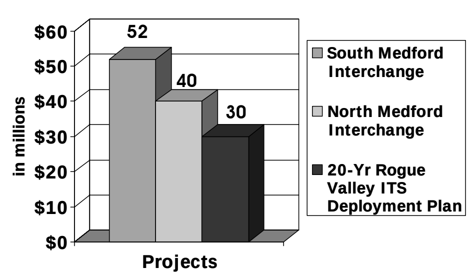


Keys to Implementation

- 20-Year Plan
  - ✓ Over 45 Projects
  - ✓ Approximately $30M



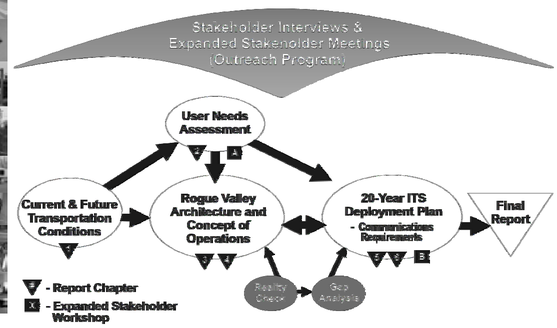
Project Cost Comparison



Keys to Implementation

- Partner and Coordinate for Funding
- Deploy Projects With Big "Bang for the Buck"
- Do not Forget Maintenance and Operations

Next Steps



Thank You!!

Rogue Valley ITS Plan

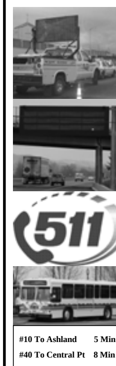
(Regional ITS Operations & Implementation Plan
For The Rogue Valley Metropolitan Area)

Rogue Valley
Intelligent
Transportation
Systems

Public
Open House:
Deployment
Plan

***DKS** Associates*
& RVCOG
June 3, 2004

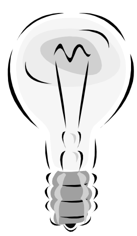
What is ITS?



Intelligent Transportation Systems represent the latest in computers, electronics, communications and safety systems applied to our transportation network.

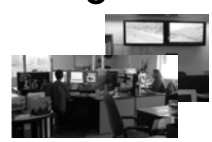
ITS Solutions Include:

- Transportation Management
- Incident Management
- Traveler Information
- Public Transportation
- Information Management
- Work Zone Safety

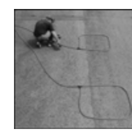


Transportation Operations & Management

Signal Coordination



Traffic Operations Centers



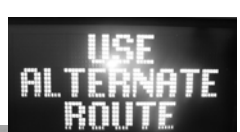
System Detectors

Message Signs

Cameras

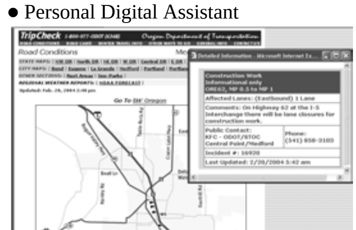
Incident Management

- Incident Response Vehicles
- Alternate Routes
- Multiagency Coordination



Traveler Information

- Internet: www.TripCheck.com
- Phone: 511
- In-Vehicle
- Personal Digital Assistant



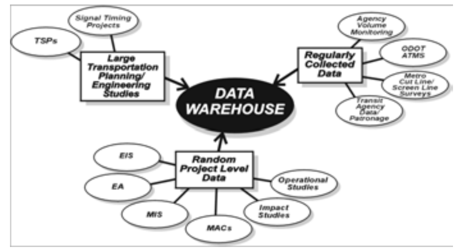
Source: Trafficgauge

Public Transportation

- Automatic Vehicle Location
- Real-Time Bus Arrival Information
- Transit Priority

Information Management

- Historical Archive of Data:
  - ✓User-Definable and Searchable



Work Zone Safety

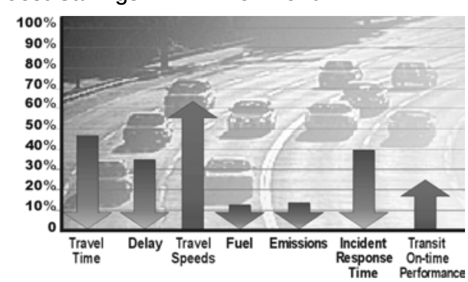
Dynamic Lane Merging

Work Zone Intrusion Alarms

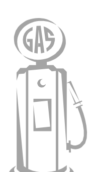
Source: International Road Dynamics

How are ITS Benefits Measured?

- Safety
- Cost Savings
- Delay/Time
- Environment
- Quality of Life

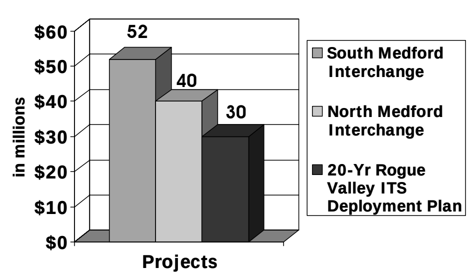


Benefits of ITS



- Coordinated Traffic Signals
  - ✓10 to 40 percent reduction in stops
  - ✓Up to 15 percent reduction in fuel consumption
  - ✓5 to 25 percent reduction in travel time
  - ✓15 to 45 percent reduction in delay
- Transit Management
  - ✓10 percent reduction in travel time

Project Cost Comparison



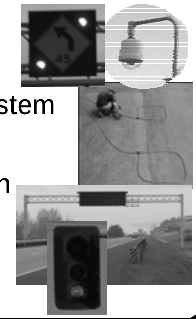
Rogue Valley ITS Plan Project Categories

1. Travel & Traffic Management
2. Communications
3. Emergency Management
4. Information Management
5. Public Transportation Management
6. Maintenance & Construction Management

©2003, MapQuest.com, Inc.; ©2003 GDT, Inc.

Key Traffic Management Projects

- ODOT TOC Integration
- Network Surveillance
- Traffic Data Collection System
- Dynamic Message Signs
- Traffic Signal Coordination
- Curve Warning System
- Speed Monitoring System



Key Traffic Management Projects

- Incident Management
  - ✓Operational Plans
  - ✓Detection/Notification
  - ✓Response Program
  - ✓Key Routes: I-5, Siskiyou Pass, Highway 62
- Special Event Management Systems

Key Traveler Information Projects

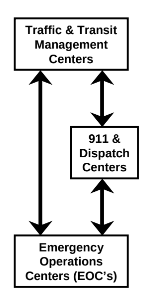
- Dynamic Message Signs
- Expand/Upgrade Highway Advisory Radio (HAR)
- Integration with TripCheck, 511, and HAR
- Traveler Information TV
- Traveler Information Kiosks
- I-5 Siskiyou Pass Traveler Info
- Road Weather Information

Key Communication Projects

- Document Communication Design Standards
- Communication Network

Key Emergency Management Projects

- Integration Between Systems
  - ✓911 & Dispatch Centers
  - ✓Traffic/Transit Management
  - ✓Emergency Operations Centers (EOC's)
- Traffic Adaptive Emergency Response
- Provide Real-Time Information to MDT's
- Ambulance-Hospital Information System



Key Information Management Projects

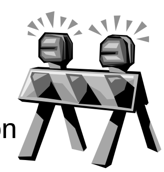
- Regional Data Management System
  - ✓ Collection and archiving of operational and performance data
  - ✓ Historical counts
  - ✓ Roadway equipment information
- Regional Data Standardization

Key Public Transportation Management Projects

- Transit Signal Priority
- Real-Time Transit Information Displays
- AVL/CAD Transit Management System
- Automated Passenger Counting
- Automated Stop Announcements

#10 to Ashland	**5 Min**
#60 to White City	**10 Min**

Key Maintenance & Construction Management Projects



- Maintenance Management System
- Maintenance, Construction, and Special Event Coordination System
- Winter Maintenance Scheduling
- Roadway Weather Info Systems
- Develop Work Zone Management Standards

Goals of Breakout Session

- Review Proposed Deployment Plan Projects
  - ✓ Identify additions/deletions/modifications
  - ✓ Review for completeness/level of detail
- Review Proposed Deployment Schedule
  - ✓ Determine if project timing fits with other regional plans

Poster Sessions

Group	Moderator
1) Travel & Traffic Management, Communications	Jim Peters & Peter Coffey
2) Emergency Management, Information Management	Larry McKinley
3) Public Transportation Management, Maintenance & Construction Management	Renee Hurtado

Rogue Valley Intelligent Transportation Systems

Regional ITS Operations & Implementation Plan for the Rogue Valley Metropolitan Area

Expanded Stakeholder Workshop:

Deployment Plan

June 3, 2004

Project Mission Statement:

Using advanced technologies, the Rogue Valley Metropolitan Area strives to improve the safety and security of the transportation network; improve the movement of goods, people and services; and enhance multi-modal transportation operations through coordinated management techniques, information sharing among agencies and the general public, and partnerships between public and private organizations.

Project Goals:

1) Improve the safety and security of our transportation system.
2) Improve the efficiency of the transportation system.
3) Provide improved traveler information.
4) Deploy functional and cost efficient ITS infrastructure.
5) Integrate regional ITS projects with local and regional partners.

Prepared By:

DKS Associates TRANSPORTATION SOLUTIONS

CASTLE ROCK

In Cooperation With:

Oregon Department of Transportation

RVMPO

RVTD

JACKSON COUNTY Oregon

CITY OF MEDFORD OREGON

CITY OF CENTRAL POINT OREGON

CITY OF ASHLAND

U.S. Department of Transportation Federal Highway Administration

TABLE OF CONTENTS

INSTRUCTIONS

The poster sessions are organized by areas of interest. This handout includes a list of the proposed ITS deployment plan projects that were selected to meet the transportation user needs that have been identified for the Rogue Valley metropolitan area. Keep the following things in mind throughout the poster sessions:

1) Please take some time to visit each poster session so you can provide input on each area of interest.
2) Review the deployment plan projects that have already been identified. Determine whether or not you agree with these ITS projects. Should any of these projects be deleted or modified? Are there any additional projects that should be added to the list?

Poster Session #	Poster Session Topics	Moderator
1	Travel & Traffic Management Communications	Jim Peters & Peter Coffey (DKS Associates)
2	Emergency Management Information Management	Larry McKinley (ODOT)
3	Public Transportation Management Maintenance & Construction Management	Renee Hurtado (DKS Associates)

GLOSSARY OF ACRONYMS

APC	Automated Passenger Counting
ATMS	Advanced Traffic Management System
AVL	Automated Vehicle Location
BOEC	Bureau of Emergency Communications
CAD	Computer-Aided Dispatch
CCTV	Closed-Circuit Television
CFMS	Changeable Fixed Message Sign
CO	Communication
DMS	Dynamic Message Sign
EM	Emergency Management
EOC	Emergency Operations Center
FHWA	Federal Highway Administration
GIS	Geographical Information System
H	High
HAR	Highway Advisory Radio
HazMat	Hazardous Materials
IEEE	Institute of Electrical and Electronics Engineers
IM	Information Management
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems
L	Low
M	Medium
MC	Maintenance & Construction Management
MDT	Mobile Data Terminal
MP	Milepost
NOAA	National Oceanic and Atmospheric Administration
NTCIP	National Transportation Communications for ITS Protocol
ODOT	Oregon Department of Transportation
O&M	Operations & Maintenance
PTM	Public Transportation Management
RTP	*Regional Transportation Plan*
RVCCOM	Rogue Valley Communications Center
RVCOG	Rogue Valley Council of Governments
RVTD	Rogue Valley Transportation District
RWIS	Roadway Weather Information System
SAE	Society of Automotive Engineers
SORC	Southern Oregon Regional Communications
SOVA	Southern Oregon Visitors Association
STIP	*Statewide Transportation Improvement Program*
TM	Travel & Traffic Management
TMOC	Traffic Management and Operations Center (Portland)
TOC	Transportation Operations Center (Central Point)
TSP	Transportation System Plan –or- Transit Signal Priority
UGB	Urban Growth Boundary
WSDOT	Washington Department of Transportation

POSTER SESSION #1

- TRAVEL & TRAFFIC MANAGEMENT

- COMMUNICATIONS

Travel & Traffic Management

Proposed Travel & Traffic Management (TM) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-01 (ODOT & Medford)	Integration Between ODOT Region 3 Transportation Operations Center (TOC) and Local Transportation Operations Systems	Project will determine the functional requirements for systems interfaces to traffic and transit management agencies, emergency management agencies, the ODOT Region 3 TOC, and regional field devices. Once the functional requirements have been determined, the local transportation operations systems will be integrated with the ODOT TOC.	H, M, L	ODOT Statewide TOC Software Project; This project relates to most of the Travel & Traffic Management projects included in this plan.	Depends on center-to-center communication and communication installed to field devices.	$200,000	● Information sharing capabilities ● Back-up capabilities ● More effective traffic management, incident management, and maintenance management ● Safety and efficiency improvements	Requires communications between the ODOT Region 3 TOC and local transportation operations centers
RV-TM-02	Network Surveillance	Provide network surveillance on the following corridors:			Requires communication to the agency with jurisdiction over the roadway.	$6,600,000/ $235,000	● Integration of multi-jurisdicational systems ● More effective traffic management, incident management, and maintenance management ● Improve real-time signal timing adjustments ● Increase in information available to travelers through the TripCheck website	Parts of this project can be incorporated with planned capital improvements. ODOT staff have significant experience with CCTV camera deployments.
(ODOT)		● I-5	H, M, L	STIP Key #10838, 10964, 10841				
(Medford, Central Pt, Ashland)		● Rogue Valley Highway (Hwy 99)	H, M, L	STIP Key #12328				
(ODOT, Medford)		● Crater Lake Highway (Hwy 62)	H, M	STIP Key #10838, Draft Jackson Co TSP Key #69 and #70				
(Central Pt, Medford)		● Pine Street/Biddle Road	H, M, L	None				
(ODOT, Jacksonville)		● Jacksonville Highway (Hwy 238)	L	None				
(Medford)		● Crater Lake Avenue	H, M	RTP Project #473				
(Medford)		● North Phoenix Road/Foothill Road	L	None				
(Jackson County)		● Table Rock Road	L	STIP Key #08485, RTP Project #215				
(Jackson County)		● Blackwell Road/Kirtland Road/Antelope Road	L	RTP Project #222, Draft Jackson Co Key #1				
(Medford)		● McAndrews Road	M, L	RTP Project #400 & #490				
(Medford)		● Stewart Ave	M	RTP Project #465				
(Medford)		● Kings Highway	M	RTP Project #403				
RV-TM-03	Traffic Data Collection System	Deploy automated traffic data collection systems for corridor management and incident detection on the following corridors:			Requires communication to the agency with jurisdiction over the roadway.	$700,000/ $78,000	● Integration of multi-jurisdicational systems ● Increase in staff efficiency ● More effective traffic management and incident management ● Availability of additional volume, speed, and occupancy data ● Enhanced management of roadway operations	Parts of this project can be incorporated with planned capital improvements. ODOT and Medford staff have significant experience with data collection systems.
(ODOT)		● I-5	H, M, L	STIP Key #10838, 10964, 10841				
(Medford, Central Pt, Ashland)		● Rogue Valley Highway (Hwy 99)	H, M, L	STIP Key #12328, 12380				
(ODOT, Medford)		● Crater Lake Highway (Hwy 62)	H, M, L	STIP Key #10838, Draft Jackson Co TSP Key #69 and #70				
(Central Pt, Medford)		● Pine Street/Biddle Road	H, L	STIP Key #12338, 12337, 12323				
(ODOT, Jacksonville)		● Jacksonville Highway (Hwy 238)	L	None				
(Medford)		● Crater Lake Avenue	M	STIP Key #12326				
(Medford)		● North Phoenix Road/Foothill Road	L	None				
(Jackson County)		● Table Rock Road	H	STIP Key #08485, RTP Project #215				
(Jackson County)		● Blackwell Road/Kirtland Road/Antelope Road	L	RTP Project #222, Draft Jackson Co Key #1				
(Medford)		● McAndrews Road	L	RTP Project #490				
(Medford)		● Stewart Ave	M					

Travel & Traffic Management

Proposed Travel & Traffic Management (TM) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-04 (ODOT, Medford, Ashland)	Dynamic Message Signs	Deploy dynamic message signs on the following corridors:		RV-TM-03, RV-TM-11	Requires communication to the agency with jurisdiction over the roadway.	$1,525,000/ $17,500	● Improve driver safety during incidents and events ● More effective traffic management and incident management ● Reduction in staff time needed to deploy temporary signs ● Provide motorist information on incidents/events more quickly	ODOT has successfully deployed numerous dynamic message signs throughout Rogue Valley and Oregon.
		● I-5	M, L					
		● Rogue Valley Highway (Hwy 99)	L					
		● Crater Lake Highway (Hwy 62)	L					
RV-TM-05 (ODOT, Medford, & Jackson County)	Traffic Signal Coordination	Implement traffic signal coordination and install traffic signal interconnect where needed on the following corridors:	H, M, L	RV-TM-12	Requires interconnect to traffic signals not currently interconnected. For advanced traffic signal coordination, traffic signals operated by ODOT and Jackson County need to be connected to a central signal system.	$320,000	● Improved safety and efficiency of each corridor, therefore reducing delay and emergency response times ● Reduced stops and congestion ● Improved travel times	Parts of this project can be incorporated with planned capital improvements. Almost all traffic signals in the City of Medford already have interconnect and are connected to the City's central signal system.
		● Rogue Valley Highway (Hwy 99)		None				
		● Crater Lake Highway (Hwy 62)		None				
		● Pine Street/Biddle Road		STIP Key #12338, 12337, 12323				
		● Crater Lake Avenue		STIP Key #12329				
		● Table Rock Road		None				
		● McAndrews Road		RTP Project #490				
RV-TM-06 (ODOT)	Curve Warning System	Deploy a curve warning system on I-5 in the Siskiyou Pass.	M	None	None	$600,000/ $11,000	● Reduced vehicle speeds ● Improved safety ● Reduced collisions	CalTrans has successfully deployed several curve warning systems in northern California that have resulted in accident and speed reductions.
RV-TM-07 (Medford, Central Pt, Ashland)	Speed Monitoring System	Deploy an automated speed monitoring system with driver feedback signs on the following corridors: ● Rogue Valley Highway (Hwy 99) ● Crater Lake Highway (Hwy 62)	L	RV-TM-03	None	$150,000/ $6,000	● Reduced vehicle speeds ● Improved safety ● Reduced collisions	The Medford Police Department has found their speed enforcement vans effective in reducing speeds.
RV-TM-08 (ODOT & Medford)	Incident Response Program	Develop a multi-jurisdictional regional incident response program to support emergency management agencies with incident management on regional state, county, and city roadways. This program includes personnel, response vehicles, and dispatch.	L	RV-TM-02; RV-TM-10;	This project would require incident response vehicles and staff to patrol the regional roadways.	$820,000/ $37,000	● Increased capacity and throughput during incident conditions ● Improved integration of regional freeway systems with local signal systems ● Reduction in congestion and delay due to incidents ● Reduced incident response times ● Improved safety and efficiency	ODOT Region 1 and Region 2 have successfully implemented incident response programs in the Portland and Eugene-Springfield metropolitan areas, respectively.

Travel & Traffic Management

Proposed Travel & Traffic Management (TM) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-09 (ODOT, Medford, Central Pt, Ashland, Jackson County)	Incident Management and Operations	This project includes the development of incident management operational plans and the deployment of field devices to manage incidents. The field devices will include CCTV cameras, dynamic message signs, trailblazers, and system detectors to detect incidents, monitor conditions, and post traveler information. Coordinated traffic signal timing plans will also be implemented. The incident management operational plans will include the operational protocol for field devices (ie. CCTV cameras, DMS, and system detection on mainline and alternate routes), the development of incident signal timing plans on alternate arterial routes, and clearly defined agency roles and responsibilities. The corridors for this project include the following:	H, M, L	RV-TM-01; RV-TM-02; RV-TM-03; RV-TM-05; RV-TM-09	Requires deployment of field devices and communications infrastructure. Some field devices or communications equipment may be installed as part of other freeway and arterial surveillance and management projects.	$2,730,000/ $90,000	● Ability to detect and monitor incidents ● Availability of real-time freeway and arterial corridor information during incidents ● Increased capacity and throughput during incident conditions ● Improved integration of regional freeway systems with local signal systems ● Reduction in congestion and delay due to incidents ● Reduced incident response times ● Improved safety and efficiency	ODOT Region 1 and the City of Portland have successfully developed and deployed an incident management operational plan on the I-5/Barbur Boulevard corridor. - Alternate routes and some operational procedures have already been established for I-5 as part of the Emergency Detour Contingency Manual. The operational plan for I-5 can expand on this and focus on the metropolitan area.
RV-TM-09A		● I-5: Exits 11 to 35 (Alternate routes previously identified by local agencies)						
RV-TM-09B		● I-5: Siskiyou Pass						
RV-TM-09C		● Crater Lake Highway (Hwy 62)						
RV-TM-09D		● Lake of the Woods Highway (Hwy 140)						
RV-TM-10 (RVTD)	Transit Signal Priority	Give priority at traffic signals only to buses that are behind schedule to support transit operations and schedule adherence. This project includes installing transit priority equipment on the transit fleet as well as upgrading equipment at traffic signals and traffic signal controllers (as needed). This project also includes staff time to design and implement the transit signal priority timings.		RVTD, ODOT, and the City of Medford will be implementing transit signal priority at two traffic signals on Hwy 62 as part of the North Medford Interchange Project and will be able to apply lessons learned to future deployments; RV-PTM-01	Equipment installations/upgrades at traffic signals will depend on the technology chosen as part of the North Medford Interchange Project. Also requires the installation of transit priority equipment on the transit fleet.	$560,000/ $13,500	● Reduced transit delay ● Improved schedule adherence and reliability ● Reduced operational costs ● Enhanced transit service ● Increased ridership	TriMet and the City of Portland have successfully deployed the technology on several corridors in the City of Portland.
		● Outfit transit fleet with transit priority emitters.	H					
		● Route 1 (20 signals), Route 60 (15 signals)	H					
		● Route 10 (28 signals), Route 4 (8 signals)	M					
		● Route 40 (16 signals), Route 2 (10 signals), Route 60 (2 signals)	L					
RV-TM-11 (ODOT & Jackson County)	Central Signal System	Upgrade the City of Medford central signal system to provide additional functionality such as transit signal priority, congestion mapping, integrated camera control, and enhanced data collection reporting. This project also includes installing a central signal system for traffic signals owned by ODOT, Jackson County, the City of Central Point, and the City of Ashland. Ensure the system can be integrated with transit systems (ie. AVL) and emergency management systems (ie. AVL). Consider sharing the same central signal system with the City of Medford.	M, L	RV-TM-06; RV-PTM-03	Requires a communication connection between the central signal system and each traffic signal that will be connected to the system.	$1,040,000/ $4,000	● Capability for advanced traffic signal operations and more flexible intersection control ● Provides congestion mapping capability ● Improved transit schedule adherance	The City of Medford already has a central signal system in place and can pass on lessons they have learned.

Proposed Travel & Traffic Management (TM) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-12 (ODOT)	Advanced Traffic Management System (ATMS) Software	Implement ODOT's ATMS Software in the Rogue Valley metropolitan area. This software will provide functionality to automatically notify the media and other agencies of incidents, support remote camera control and sign control, support congestion mapping, and support travel time reporting.	H	RV-TM-01; ODOT's ATMS Project (Releases 1 and 2)	None		● Reduced staff time responding to incidents ● Improved multi-agency coordination during incidents and special events ● Reduced travel times and improved safety	ODOT Region 1 has successfully installed ATMS Release 1 in the Portland TMOC. They are currently developing ATMS Release 2 to enhance the existing system and add additional components.
RV-TM-13 (ODOT)	Expand/Upgrade Highway Advisory Radio (HAR)	Expand and upgrade existing highway advisory radio system to cover a greater geographic area and to include more traveler information.	H, M, L	RV-TM-10; RV-TM-19	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations, etc…) to collect traveler information.	$250,000/ $7,500	● Real-time traveler information ● En-route information that allows users to make informed travel decisions ● Reduced congestion and delay ● Customer satisfaction	WSDOT has implemented highway advisory radio in southern Washington and can be used as a resource during design and construciton.
RV-TM-14 (ODOT)	Integrate Regional Traveler Information with TripCheck, 511, and Highway Advisory Radio	Develop an integrated system for disseminating and posting traveler information to TripCheck, 511, and HAR.	H, M, L	RV-TM-02; RV-TM-03; RV-TM-04; RV-TM-05	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations) to collect traveler information.	$500,000/ $9,000	● Real-time and static traveler information ● Pre-trip planning capabilities and en-route information that allow users to make informed travel decisions ● Reduced congestion and delay ● Customer satisfaction	Requires an interface between agencies in the Rogue Valley metropolitan area to TripCheck, the 511 system, and the HAR system.
RV-TM-15 (ODOT, Medford)	Traveler Information Television	Develop a dedicated television station for disseminating traveler information, such as camera images from the TripCheck website or congestion/ incident maps.	M	RV-TM-14	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations) to collect traveler information.	$30,000/ $80,000		Requires an interface between a television station and available traveler information.
RV-TM-16 (SOVA)	Traveler Information Kiosks	Deploy computerized touch-screen kiosks that provide traveler information, including a link to TripCheck at the following locations: ● Airport ● Rest Areas ● Tou Velle State Recreation Area ODOT plans to deploy a site specific weather forecast kiosk with a link to 511 that provides nearby site conditions at the Suncrest Rest Area near Talent.	H, M, L H	 None STIP Key #09436 None	None	$150,000/ $8,500		SOVA has installed a number of traveler information kiosks in southern Oregon including one at the Rogue Valley Mall in Medford.
RV-TM-17 (ODOT)	I-5 Siskiyou Pass Traveler Information	Develop a separate link on TripCheck for the Siskiyou Pass that includes a one-page profile view of I-5 with current and forecasted weather conditions and camera images along entire length of the pass.	H	RV-MC-05	Depends on deployment of additional field devices to provide complete coverage of the pass.	$110,000/ $30,000	● Improve safety due to real-time and forecasted weather information ● Improved traffic management over Pass	WSDOT has created website pages in this format that provide very clear and concise information in one location.
RV-TM-18 (Airport)	Integrate Rogue Valley International-Medford Airport Traveler Information with ODOT Region 3 TOC	Provide traveler information about Rogue Valley roadways at the airport and provide airport information to travelers via TripCheck and dynamic message signs operated by the TOC.	M	None	Requires communications link and interface between the Airport and the TOC.		● Real-time and static traveler information ● Information that allow users to make informed decisions ● Reduced congestion and delay ● Customer satisfaction	Other agency interfaces are being developed as part of the ITS Deployment Plan that can be used as models for interface development.
RV-TM-19 (Event Organizers)	Special Event Management Systems	Project includes the deployment of traffic signal timing plans, portable dynamic message signs, and parking management for the following special events: ● Jackson County Fairground Events ● Oregon Shakespeare Festival ● Britt Festival ● Other Regional Special Events	L	None	None		● Improved safety and efficiency, therefore reducing delay and emergency response times ● More effective traffic management and special event management ● Increase in information available to travelers	Once traffic signal interconnect has been installed as part of RV-TM-07, special event signal timing plans can be deployed without having to install additional communication infrastructure.

[1] The estimated operations & maintenance (O&M) costs listed in this table are for an annual basis once the project has been deployed

Network Surveillance

Project RV-TM-02

Purpose

To provide traveler information for the general public and monitoring capabilities for traffic management, maintenance, and emergency management personnel on key corridors.

Hwy 99/Hwy 62/Hwy 238 (Medford)

Existing Problems

- Existing and future recurrent congestion on Rogue Valley Hwy, Crater Lake Hwy, Jacksonville Hwy, Delta Waters Rd, McAndrews Rd, and Barnett Rd.
- Future key bottleneck at Riverside Ave/McAndrews Rd.
- High incident locations.
- Limited monitoring capabilities.
- Lack of traveler information.

Stakeholder(s)

Primary:
- Varies by Roadway Jurisdiction

Includes:
- ODOT
- Jackson County
- City of Medford
- City of Central Point
- City of Ashland

Description

To monitor roadway and equipment conditions:
Deploy closed-circuit television (CCTV) cameras at key intersections on study area corridors and bring the video feed from each camera to the offices of the transportation agency who owns that particular camera. Use the camera viewing capabilities to monitor the roadway for congestion, trouble spots, incidents, equipment failures, and traffic signal operations.

To reduce incident response time:
Install CCTV cameras to detect and verify incidents.

To disseminate traveler information to the public prior to their trip:
Install CCTV cameras on study area corridors, particularly at high crash locations and key bottlenecks. Display the information on the TripCheck website and provide a video feed to the local media.

Communication Requirements

CCTV cameras require the largest bandwidth of all ITS field equipment to communicate with the traffic operations centers. The existing fiber optic cable can be used to support the transmission of video and Ethernet based communications will provide the flexibility and redundancy desired by the Rogue Valley stakeholders.

ITS Standards

- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1205, 1208, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302, 2303
- SAE J2353, J2354, J2369

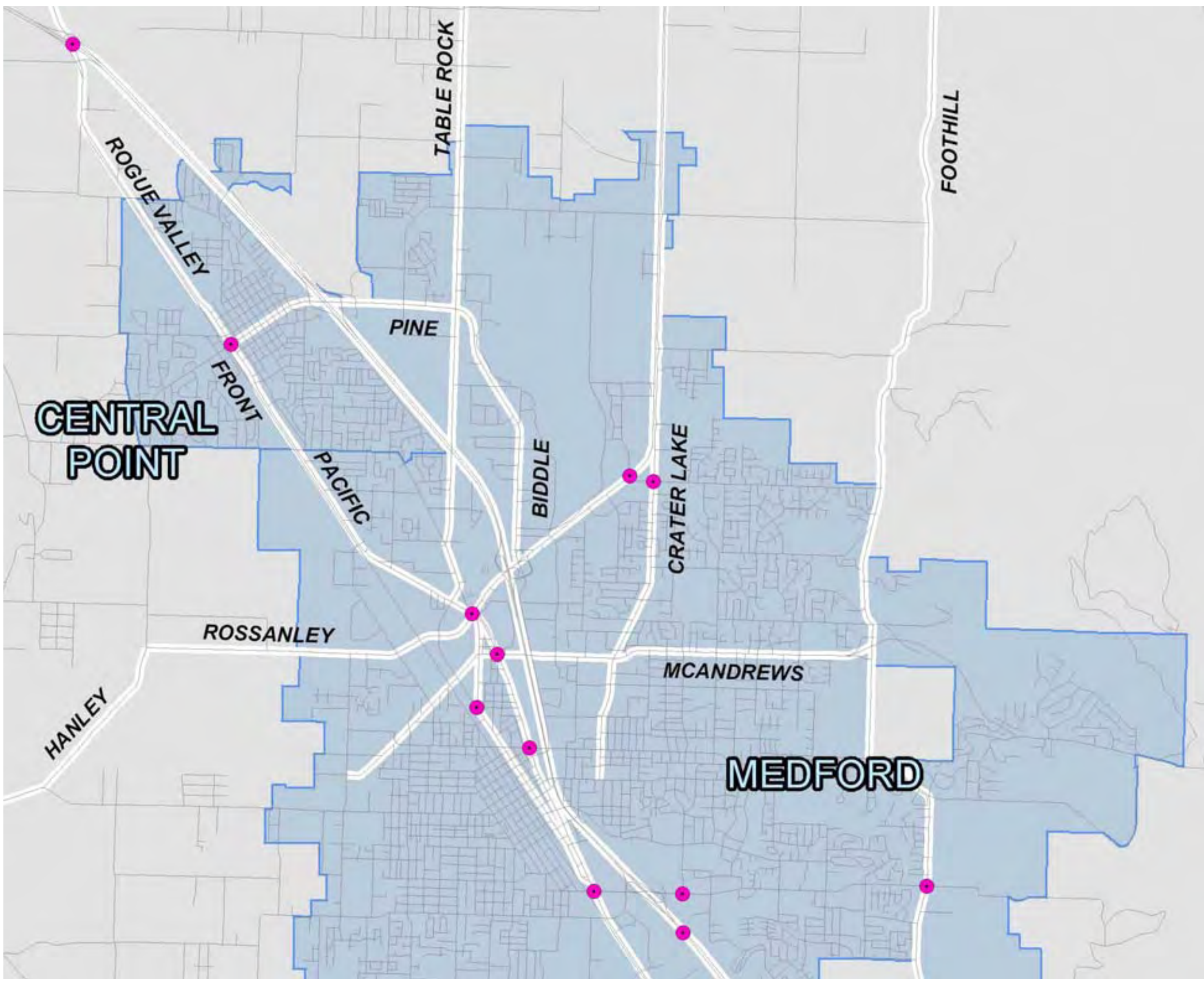
Project Dependencies

- System detectors should be installed as part of the following projects:
  - STIP Key #10964: I-5 at Milepost 27
  - RTP Project #215: Crater Lake Ave/Delta Waters Rd

Benefits

- Integration of multi-jurisdictional systems.
- More effective traffic management, incident management, and maintenance management.
- Improve real-time signal timing adjustments.
- Increase in information available to travelers through the TripCheck website.

0 – 5 Year Plan		0 – 5 Year Cost	
Roadway	**Locations**	**Capital**	**O&M/year**
I-5	Milepost/Exits 27 and 35 (2 cameras)	$285,000	$16,500
Rogue Valley Hwy (Hwy 99)	Pine St, Hwy 62/Hwy 238, Riverside Ave at McAndrews Rd, Jackson St, and Barnett Rd, Court St at Edwards St (6 cameras)	$245,000	$9,000
Crater Lake Hwy (Hwy 62)	Delta Waters Rd (1 camera)	$50,000	$2,000
Crater Lake Ave	Delta Waters Rd (1 camera)	$60,000	$2,000
N Phoenix Rd/Foothill Rd	Barnett Rd (1 camera)	$60,000	$2,000
Barnett Rd	Highland Dr (1 camera)	$60,000	$2,000
	TOTAL:	**$760,000**	**$ 33,500**



CCTV Camera Locations for 0 – 5 Year Deployment

Purpose

To better manage the regional roadway network by collecting roadway performance data. To reduce incident response time, and improve travel times by providing real-time congestion information.

Sample Time Period: 5:05 p.m. to 5:10 p.m.

Location on Rogue Valley Hwy (Hwy 99)	*Average Volume (veh)*	*Average Speed (mph)*	*Average Occupancy (%)*
Jackson St	31	17.9	25
8th St	43	15.4	33

Existing Problems

- Existing and future recurrent congestion on Rogue Valley Hwy, Crater Lake Hwy, Table Rock Road, Delta Waters Rd, and McAndrews Rd.
- Future key bottleneck at Crater Lake Hwy/ Delta Waters Rd.
- High incident locations.
- Limited incident detection capabilities.
- Lack of traveler information.
- Lack of roadway performance data.

Stakeholder(s)

Primary:
- Varies by Roadway Jurisdiction

Includes:
- ODOT
- Jackson County
- City of Medford
- City of Central Point

Description

Today, annual counts are conducted manually for transportation planning purposes. This project would deploy system detectors to automate the collection and storage of traffic volume, speed and occupancy data. These counts will provide planners with daily traffic volume data throughout the year. In addition the volume, speed and occupancy data could be used to provide real-time traffic congestion information to the public. This congestion information will be displayed on a congestion map on the TripCheck website. Finally, these system detectors can be used to support the automatic detection of incidents. This project should include the implementation of a data management system so the data can be automatically stored and made available to other intersections.

Communication Requirements

System detectors can be integrated with existing traffic signals and signal systems for collecting and storing traffic volume, speed and occupancy data. System detectors do not require continuous communications unless the stations are being used for congestion mapping. To collect and store the volume data, the stations could be polled based on a predefined schedule to upload the data once per day or once per week. This data can be combined with the traffic signal data stream.

ITS Standards

- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1205, 1206, 1209, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302, 2303
- SAE J2353, J2354, J2369

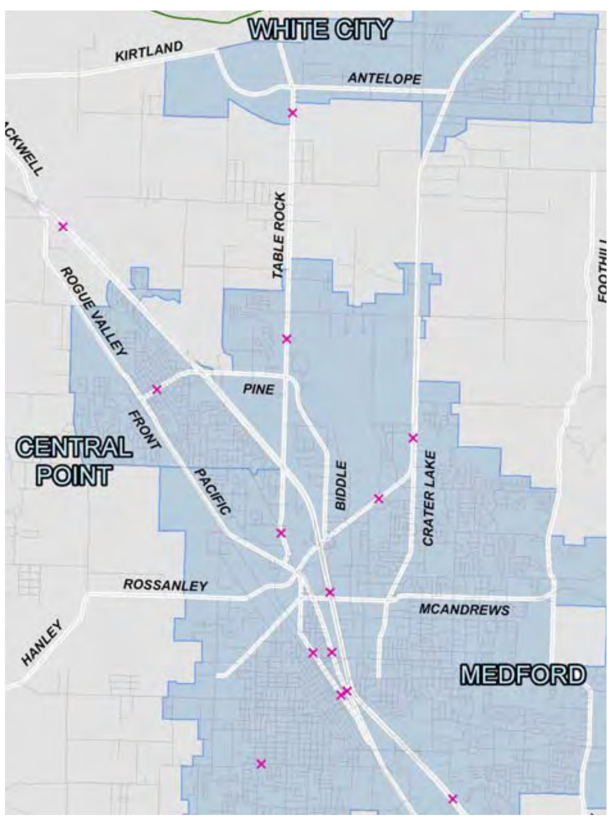
Project Dependencies

- System detectors should be installed as part of the following projects:
  - STIP Key #10964: I-5 at Milepost 27
  - STIP Key #12337: Pine St at 2nd St
  - STIP Key #08485: Table Rock Rd at Vilas Rd
  - RTP Project #215: Table Rock Rd at Antelope Rd

Benefits

- Integration of multi-jurisdictional systems.
- Increase in staff efficiency
- More effective traffic management and incident management.
- Availability of additional volume, speed, and occupancy data.
- Enhanced mangement of roadway operations

0 – 5 Year Plan		0 – 5 Year Cost	
Roadway	**Locations**	**Capital**	**O&M/year**
I-5	Mileposts 27, 29, and 35	$110,000	$6,000
Rogue Valley Hwy (Hwy 99)	Central Ave at Jackson St and 8th St, Riverside Ave at Jackson St and 8th St	$80,000	$8,000
Crater Lake Hwy (Hwy 62)	Webfoot Rd and Whittle Ave	$50,000	$4,000
Pine St	2nd St (Central Point)	$20,000	$2,000
Table Rock Rd	Antelope Rd, Vilas Rd, and Berrydale Ave	$40,000	$4,000
Stewart Ave	Columbus Ave	$20,000	$2,000
	TOTAL:	**$320,000**	**$ 26,000**



Automatic Traffic Recorder Locations for 0 – 5 Year Deployment

Purpose

To provide multi-agency traffic-responsive corridor management, to reduce secondary crashes caused by an incicent, and to reduce the amount of time normal freeway operations are disrupted when incidents occur on I-5: Exits 11 to 35, I-5: Siskiyou Pass, Crater Lake Hwy, and Lake of the Woods Hwy.

Hwy 99 at Walker Rd (Ashland)

Existing Problems

- Limited transportation management resources when vehicles divert from the freeway or highway due to incidents.
- Limited monitoring and incident detection capabilities.
- No pre-defined alternate routes for any regional highways other than I-5 through the metropolitan area.
- Limited means to disseminate real-time alternate route information to travelers.

Stakeholder(s)

Primary:
- ODOT

Secondary:
- Jackson County
- Cities of: Medford, Central Point, Phoenix, Talent, and Ashland
- RVTD
- Emergency Management Agencies (911, Police)

Description

ODOT and other Rogue Valley agencies prepared a regional *Emergency Detour Contingency Manual*[4] to address protocol for incident response for major incidents along Interstate 5 through Region 3. Today this plan is implemented manually and includes placement of portable variable message signs.

This project will deploy fixed trailblazer signs or changeable fixed message signs (CFMS) to display one of serveral preset fixed messages on detour routes (ie. whether to stay on the detour route or get back on the freeway), dynamic message signs, CCTV cameras to monitor the roadway performance, and alternate traffic signal timing plans to accommodate changes in traffic patterns.

Prior to design of the field devices an incident management operational plan should be developed.

The operational plan should follow a user-friendly format that includes the following information:

- Existing Practices & Procedures
- Roles & Responsibilities
- Existing Equipment Descriptions (ie. CCTV cameras, DMS, CFMS, system detectors, and traffic signals)
- Criteria for System Activation (ie. number of lanes blocked, duration, time-of-day, day-of-week, and traffic volume thresholds)
- Operational Scenarios (based on direction of travel, incident location, and number of lanes closed), which summarize procedures for:
  - CCTV utilization
  - Messages to post on DMS (freeway and arterial) and arterial CFMS
  - Use of portable DMS if necessary
  - Ramp closures
  - Signal timing plan to implement
- Maps that illustrate Operational Scenarios

[4] *Emergency Detour Contingency Manual*, Oregon Department of Transportation, Region 3, March 1996.

Description Continued

To implement the incident management and operational plan for each corridor:
Once the plan has been developed, deploy field devices as necessary. Field devices may include CCTV cameras, dynamic message signs, trailblazer signs, changeable fixed message signs, and automatic traffic recorders.

ITS Standards

- IEEE P1512 – 2000, P1512.1, P1454
- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1203, 1204, 1205, 1206, 1207, 1209, 1301, 2001, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302
- SAE J2353, J2354, J2369

Communication Requirements

Communication will be required between each field device and the owning agency so that information from that device may be transmitted in real time. Communication will also be required between agencies to support the roles and responsibilities defined as part of each incident management and operational plan.

Benefits

- Ability to detect and monitor incidents.
- Availability of real-time freeway and arterial corridor information during incidents.
- Increased capacity and throughput during incident conditions.
- Improved integration of regional freeway systems with local traffic signal systems.
- Reduction in congestion and delay due to incidents.
- Reduced incident response times.
- Improved safety and efficiency.

Project Dependencies

- Full use of the operational plans depends on the deployment of field devices and communication infrastructure included as part of other Traffic Management Projects in this plan (RV-TM-01, RV-TM-02, RV-TM-03, RV-TM-05, and RV-TM-10)
- An incident management operational plan must be developed for each corridor to clearly establish operational protocol and the roles and responsibilities of each agency prior to implementation of incident management and operations.

Phased Plan

0 – 5 Years:	I-5: Exits 27 - 30
6 – 10 Years:	I-5: Siskiyou Pass I-5: Exits 11 – 19 I-5: Exits 30 – 35
11 – 20 Years:	I-5: Exits 19 – 27 Crater Lake Highway Lake of the Woods Highway

Cost

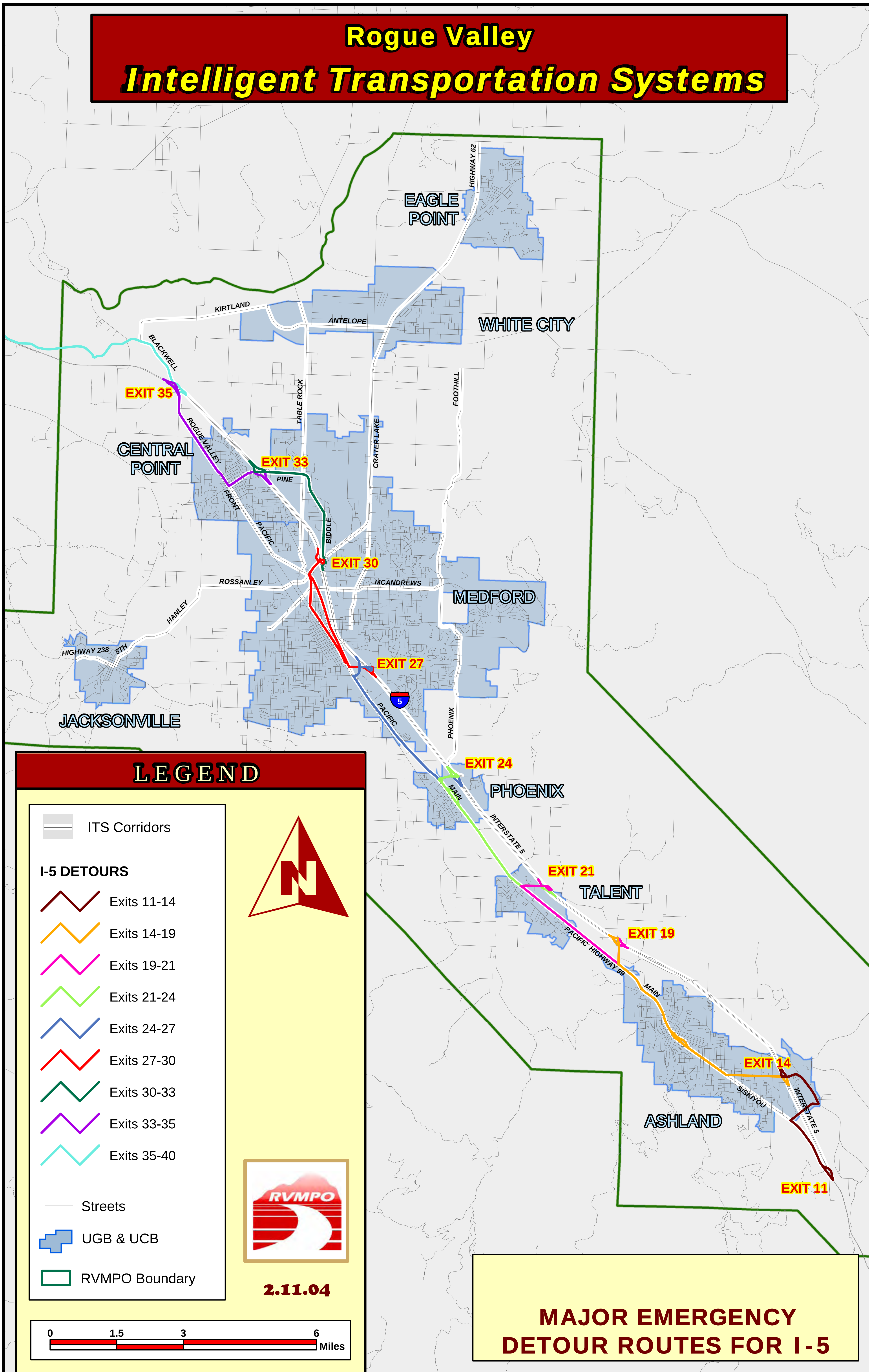
Plan Costs

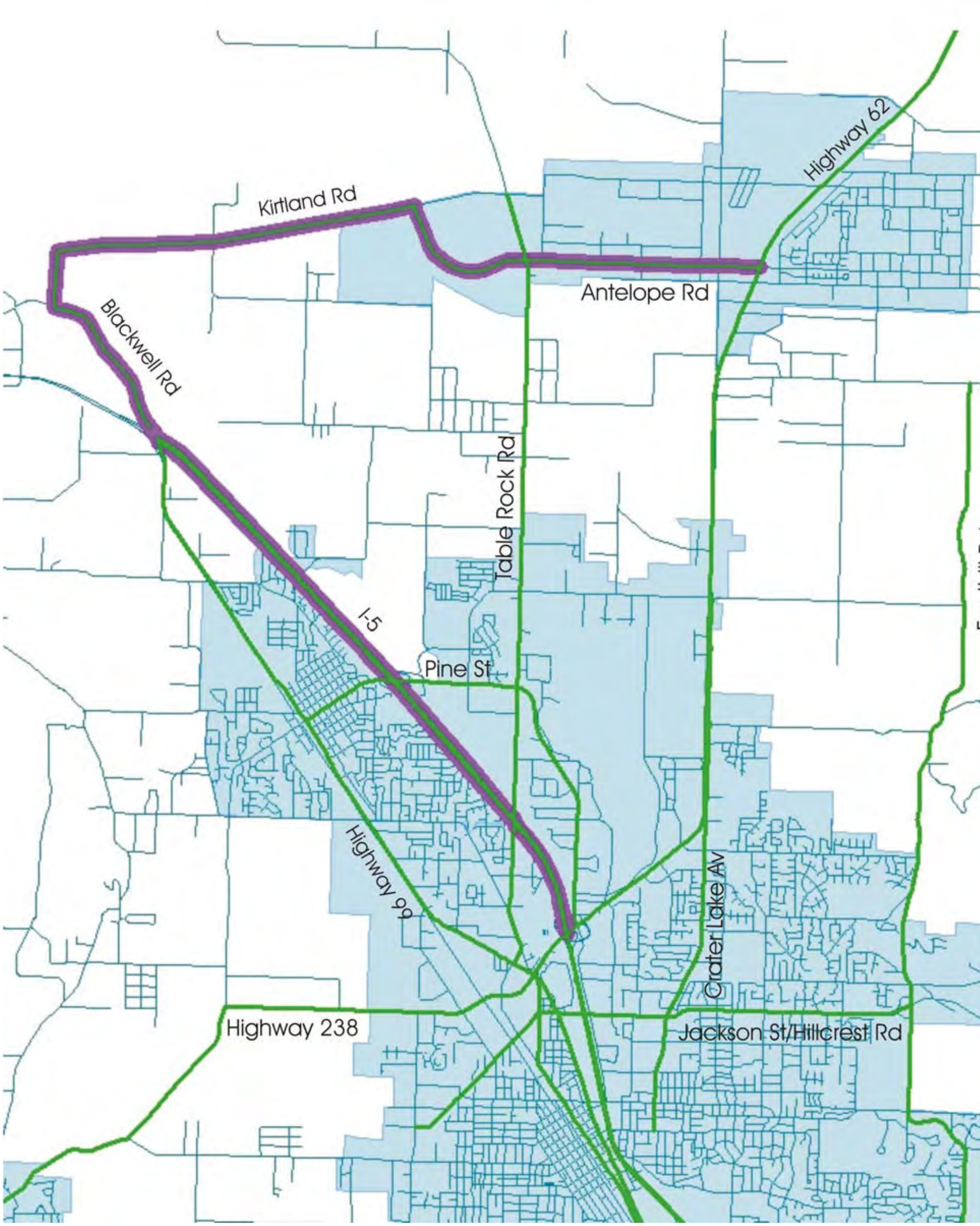
$100,000	I-5: Exits 11 to 35
$50,000	I-5: Siskiyou Pass
$40,000	Crater Lake Highway
$40,000	Lake of the Woods Highway
$230,000	**TOTAL**

0 – 5 Year Deployment Costs for I-5

$450,000	Project Deployment
$15,000	Annual Ops & Maintenance

Deployment costs for the 6 – 10 Year and 11 – 20 Year Plans should be reevaluated at the end of the 0 – 5 Year Phase since some field device costs are included as part of other Traffic Management Projects.


Rogue Valley
Intelligent Transportation Systems
EAGLE POINT
WHITE CITY
CENTRAL POINT
MEDFORD
JACKSONVILLE
PHOENIX
TALENT
ASHLAND
HIGHWAY 62
KIRTLAND
ANTELOPE
BLACKWELL
TABLE ROCK
CRATER LAKE
FOOTHILL
ROGUE VALLEY
PINE
FRONT
PACIFIC
BIDDLE
ROSSANLEY
MCANDREWS
HANLEY
HIGHWAY 238
5TH
PHOENIX
MAIN
INTERSTATE 5
PACIFIC HIGHWAY 99
SISKIYOU
EXIT 35
EXIT 33
EXIT 30
EXIT 27
EXIT 24
EXIT 21
EXIT 19
EXIT 14
EXIT 11
5
LEGEND
ITS Corridors
I-5 DETOURS
Exits 11-14
Exits 14-19
Exits 19-21
Exits 21-24
Exits 24-27
Exits 27-30
Exits 30-33
Exits 33-35
Exits 35-40
Streets
UGB & UCB
RVMPO Boundary
N
RVMPO
2.11.04
0
1.5
3
6
Miles
MAJOR EMERGENCY
DETOUR ROUTES FOR I-5



Alternate Route for Highway 62 Closures/Incidents:
Antelope Rd/Kirtland Rd/Blackwell Rd/I-5

Transit Signal Priority

Project RV-TM-10

Purpose

To improve transit travel time reliability on corridors with traffic signals.

Existing Problems

- Corridors experience varying levels of congestion affecting bus reliability.
- Buses have difficulty progressing on coordinated signal corridors without additional dealy at traffic signals because they service bus stops between intersections.

Stakeholder(s)

Primary:
- RVTD

Secondary:
- ODOT
- Jackson County
- City of Medford

Description

The implementation of Transit Signal Priority (TSP) in Oregon and around the country has proven that TSP is effective at reducting transit travel times and increasing transit reliability. TSP is planned for deployment at new traffic signals through the North Medford Interchange on Highway 62. Opticom is planned for these installations and this same technology can be supported at City of Medford traffic signals where Opticom detectors are installed at all traffic signals. TSP features are currently being added to the traffic signal software used by the City of Medford. However, additional software modifications may be required to provide the functionality desired by RVTD and the City of Medford.

This project includes the installation of emitters on RVTD coaches and Opticom and software upgrades to provide TSP functionality along regular fleet routes. A future enhancement may include only providing additional green time for buses that are running behind schedule. The use of this feature is dependent on the technology used on-board the transit fleet (Project RV-PTM-01).

Communication Requirements

A communications interface will be needed between each transit vehicle and each traffic signal along a transit priority corridor. Potential interfaces include Opticom (which is already used in the Rogue Valley metropolitan area for fire vehicle preemption), loops embedded in the pavement that detect bus presence, or radio frequency tags and readers.

ITS Standards

- IEEE 1455 – 1999
- ITE TM 1.03, TM 2.01
- NTCIP 1202, 1206, 1209, 1211, 1401, 1405

Benefits

- Reduced transit delay
- Improved schedule adherence and reliability.
- Reduced operational costs.
- Enhanced transit service.
- Increased ridership.

Project Dependencies

- Traffic signals may need to be outfitted with detection equipment in order to support TSP depending on the detection method selected.
- Automated vehicle locators (Project RV-PTM-01) are required to provide transit signal priority for buses behind schedule.

Cost

Phased Plan	Project Deployment		Annual Ops & Maintenance	
	Transit*	Traffic*	Transit*	Traffic*
0 – 5 Years**	$80,000	$195,000	$7,000	$3,000
6 – 10 Years	$20,000	$135,000	$3,000	$3,000
11 – 20 Years	$20,000	$115,000	$3,000	$3,000
Total:	**$565,000**		**$22,000**	

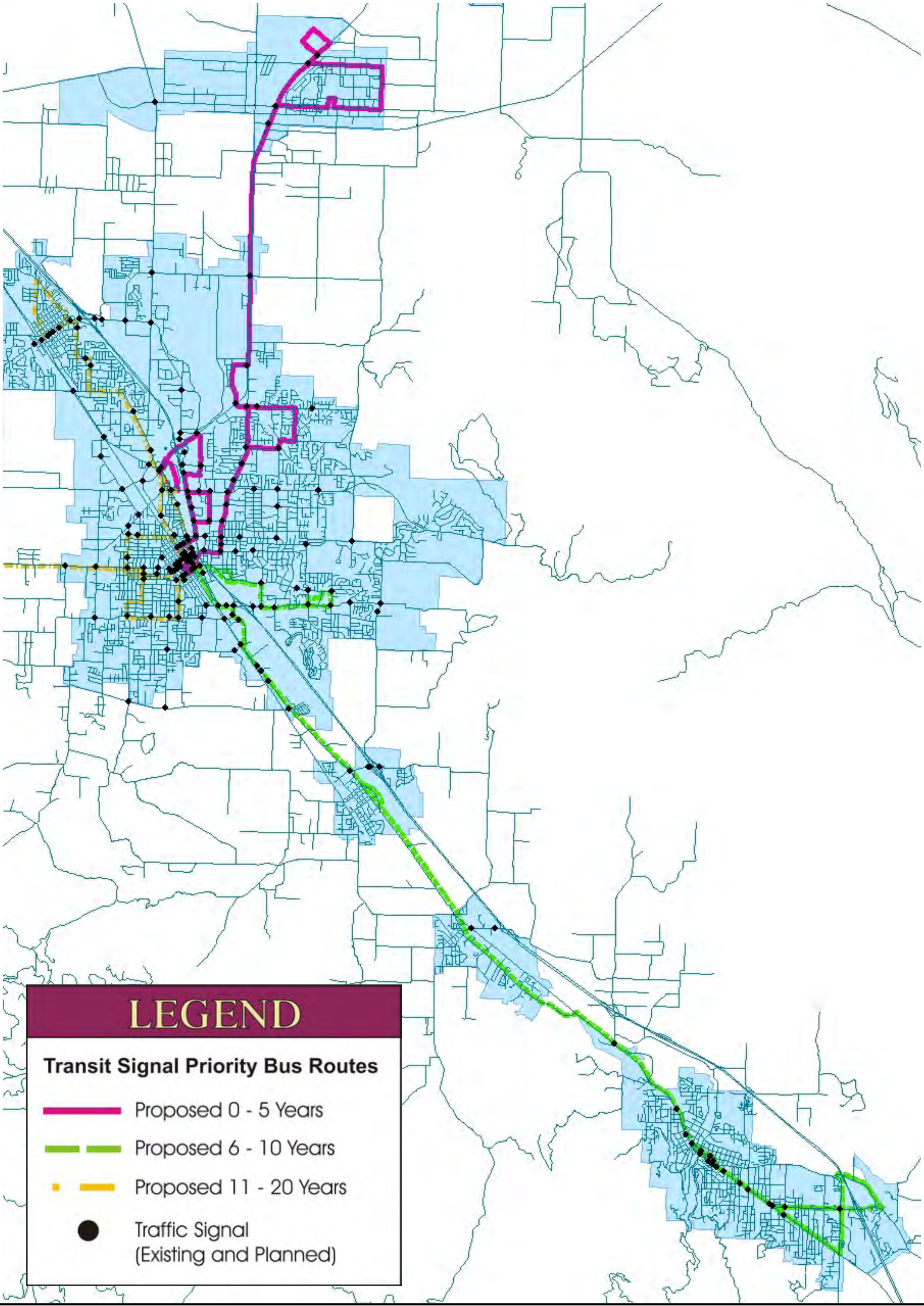
*Transit costs represent costs associated with detection equipment for the transit fleet, while traffic costs represent costs associated with detection equipment and timing plans for affected traffic signals.

**The first phase will include all of the costs associated with software development and testing.

Phased Plan

0 – 5 Years:	Route 1 (20 signals) Route 60 (15 signals)
6 – 10 Years:	Route 10 (28 signals) Route 4 (8 signals)
11 – 20 Years:	Route 40 (16 signals) Route 2 (10 signals) Route 60 (2 signals)*

*Note: Route 60 shares some of the same traffic signals as Route 2.

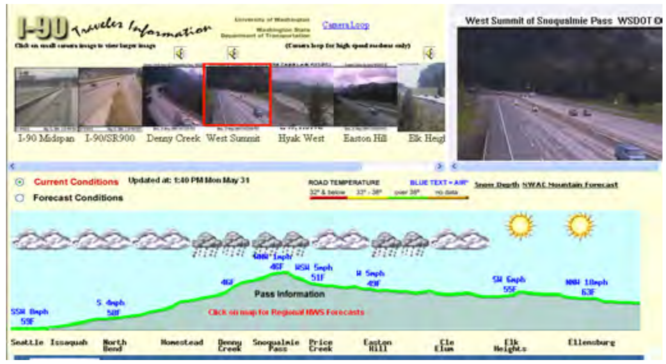

LEGEND
Transit Signal Priority Bus Routes
Proposed 0 - 5 Years
Proposed 6 - 10 Years
Proposed 11 - 20 Years
Traffic Signal
(Existing and Planned)

Purpose

To provide a graphical display of real-time and forecasted weather conditions on I-5 over Siskiyou Pass.

Existing Problems

- I-5 closures on Siskiyou Pass due to weather.
- Hazardous winter driving conditions due to weather



Stakeholder(s)

Primary:	ODOT
Secondary:	Oregon State Police NOAA

Description

This project will install additional weather information stations, road temperature sensors, CCTV cameras, highway advisory radio, dynamic message signs, and provide access to this information including the highway advisory messages via a web page. The web page will display a profile of the pass graphically displaying the road temperature, current weather conditions, forecasted weather conditions and camera images.

Communication Requirements

Communications between field devices over Siskiyou Pass and the ODOT TOC north of Central Point will be a challenge due to the geographic and harsh weather conditions of the pass. Consideration should be given to installing hardwire, but other alternatives exist to compress the video and transmit wirelessly. The CCTV cameras will require the greatest bandwidth, but video compression methods are improving rapidly and reducing the overall bandwidth requirements.

Project Dependencies

- Requires additional field devices prior to preparing the Siskiyou Pass information page.

ITS Standards

- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1205, 1206, 1208, 1209, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302, 2303
- SAE J2353, J2354, J2369

Benefits

- Improved safety due to real-time and forecasted weather information.
- Improved traffic management over Siskiyou Pass

Phased Plan

0 – 5 Years:	Project Deployment

Cost

$110,000	Project Deployment
$10,000	Annual Ops & Maintenance

Communications

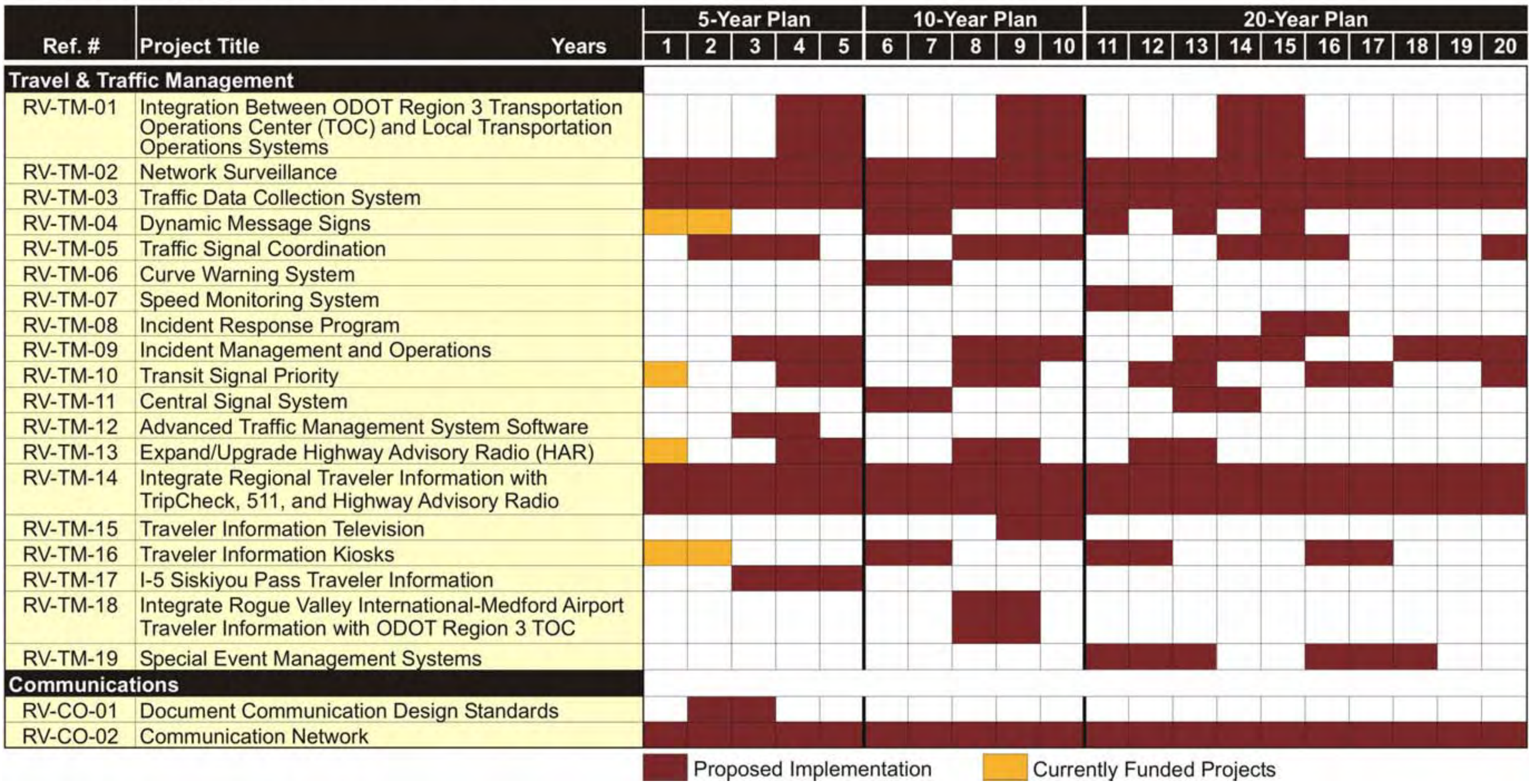
Proposed Communications (CO) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-CO-01 (ODOT & Medford)	Document Communication Design Standards	Document design standards for communications in the following areas to ensure standardization, compatibility, connectivity, and reliability between multiple jurisdictional agencies: ● Conduit construction ● Cable plant description ● Minimum number of fibers ● Network technology ● Junction boxes ● Fiber termination panels ● Fiber connectors ● Communication hub design ● Fiber optic testing specification ● Fiber optic installation specification ● End electronics	H	This project is essential for ensuring that the communications deployed with other projects in this ITS plan are consistent throughout the metropolitan area and with other regional agencies.	None	\$75,000/ \$2,500	● Set of standards ready for implementation on all new projects or reconstruction projects ● Standardization for multiple regional agencies	This documentation will establish the technical aspects required for establishing a communications network.
RV-CO-02 (ODOT, Medford, Jackson County)	Communication Network	Expand the communication network to support additional field devices and connect operations centers to the regional communications network.	H, M, L	This project is relative to most of the projects included in this ITS plan.	While the communication network can be expanded independent of the other projects in this plan, it is more likely that the infrastructure will be installed as part of other projects in this plan.	\$4,000,000/ \$150,000	● Connection between agencies will allow for multi-jurisdictional control, management, coordination, and information sharing ● Connection to ITS field devices allows for innovative strategies such as arterial management and incident management	The City of Medford and ODOT already have a significant fiber optic communications network in the City.

[1] The estimated operations & maintenance (O&M) costs listed in this table are for an annual basis once the project has been deployed

Schedule

Proposed Deployment Plan Schedule



POSTER SESSION #2

- EMERGENCY MANAGEMENT

- INFORMATION MANAGEMENT

Proposed Emergency Management (EM) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-EM-01 (ODOT, SORC, RVCCOM)	Integration Between Traffic/Transit Management Systems and Emergency Management Systems	Provide a two-way information flow (ie. CCTV camera images, congestion flow map, emergency calls) between transportation management systems and the metropolitan area 911 and emergency dispatch centers.	H	RV-TM-01	A software interface will be required at the 911 and emergency dispatch centers, the traffic management centers, and the transit management systems for access between systems.	$1,350,000	● Improved real-time traffic conditions information ● Information sharing between agencies ● More efficient allocation of emergency response resources ● Reduced emergency response times	ODOT and the Bureau of Emergency Communications (BOEC) are currently working on a proof-of-concept for 911 center integration. Evaluation of this proof-of-concept will help with 911 and emergency dispatch center integration in the Rogue Valley metropolitan area.
RV-EM-02 (ODOT)	Provide Interface Between Traffic Management Systems and Emergency Operations Centers (EOC's)	Provide an interface between the Regional Virtual TOC or other traffic management systems and each of the regional emergency operations centers to allow access to traffic control devices during emergency situations at the EOC's as well as to share information between agencies. This project includes workstations, monitors, and a communications interface at the EOC's.	M	RV-TM-01; RV-EM-01	A software interface will be required at the emergency operations centers, the traffic management centers, and the transit management centers for access between systems.	$75,000	● Improved real-time traffic conditions information ● Information sharing between agencies ● More efficient allocation of emergency response resources ● Reduced emergency response times	The RV-EM-01 project regarding public safety integration will provide the basis for the deployment of regional emergency operations center integration.
RV-EM-03 (Medford Police Dept)	Traffic Adaptive Emergency Response	Deploy an integrated emergency response system that provides for pre-trip planning, en-route guidance (static route plan), and dynamic route guidance (traffic-adaptive route plan) for emergency vehicles.	L	RV-EM-01; RV-EM-05	Depends on real-time traffic information availability and also requires a communication connection between the regional traffic management centers and the 911 centers. Automatic vehicle locators included in RV-EM-05 are required for dynamic route guidance.	$420,000/ $10,000	● Improved static and real-time information tailored to emergency management purposes ● Reduced emergency response times	As RVCCOM 911 and SORC 911 are connected to the regional communication network, real-time traffic information will be readily available.
RV-EM-04 (Medford Police Dept)	Provide Real-Time Traffic Information to Mobile Data Terminals	Provide real-time traffic information to mobile data terminals housed in emergency response vehicles. Inventory existing emergency vehicle fleet to determine how many additional mobile data terminals need to be installed and install these as necessary.	M	RV-EM-03	None	$150,000/ $5,000	● Improved real-time traffic conditions information ● Reduced emergency response times	A number of emergency response vehicles already include in-vehicle mobile data terminals.
RV-EM-05 (SORC, RVCCOM)	Emergency Vehicle Fleet Management System	Installation of automated vehicle locators (AVL) on emergency vehicles and dissemination of real-time emergency vehicle locations to dispatchers at the 911 centers for resource allocation.	H	None	None		● More efficient management of emergency vehicle fleet ● Reduced emergency response times	Some local emergency management agencies have already installed AVL on their vehicles.
RV-EM-06 (Mercy Flights, Medford & Ashland Fire & Rescue)	Ambulance-Hospital Information System	Enable the exchange of real-time information (video, audio, and data) between regional ambulances and hospitals through the regional communication network.	H	None	Requires communications to be in place throughout the region.	$250,000/ $25,000	● Improved public safety ● More efficient allocation of medical resources	San Antonio, Texas created the LifeLink System as a Model Deployment Initiative, which can be used as a resource.
RV-EM-07 (ODOT)	Critical Infrastructure Monitoring System	Deploy surveillance systems, which include intrusion alerts, on infrastructure (e.g. bridges) critical to public safety.	L	None	Project should focus on infrastructure identified as critical in local emergency management plans.		● Surveillance and monitoring capabilities ● Improved homeland security	FHWA has developed and continues to develop guidelines for homeland security.

[1] The estimated operations & maintenance (O&M) costs listed in this table are for an annual basis once the project has been deployed

Purpose

To provide real-time information (video, audio, and data) between emergency medical technicians in ambulances and physicians at regional hospitals.

Existing Problems

- Time plays an important factor in saving lives during an emergency situation. There is always a need to reduce the response time for a patient in a life-threatening situation to interface with a physician.

Stakeholder(s)

Primary:
- Mercy Flights
- Medford Fire & Rescue
- Ashland Fire & Rescue

Secondary:
- Rogue Valley Medical Center
- Providence Medford Medical Center
- Ashland Community Hospital

Description

This project will be a joint effort between Mercy Flights, Medford Fire & Rescue, Ashland Fire & Rescue and the regional medical centers.

This project will utilize the wireless mesh network currently being installed to transmit digital images from cameras used by first responders to the receiving medical center. The project will provide video cameras/digital video cameras, workstations and wireless network cards to support the transmission of video and data.

Communication Requirements

Existing and planned infrastructure (i.e. mesh network, fiber optic cable) will be used to provide communications between the ambulances and hospitals.

ITS Standards

- IEEE 1512 – 2000
- NTCIP 1201, 2101, 2103, 2104, 2302, 2303, 2304, 2305

Project Dependencies

- The extent of coverage throughout the metropolitan area will depend on the amount of communication network that is in place.

Benefits

- Improved public safety.
- Improved field care of patients en-route to a regional hospital.
- More efficient allocation of medical resources.

Phased Plan

0 – 5 Years: Project Deployment

Cost

$250,000	Project Deployment
$25,000	Annual Ops & Maintenance

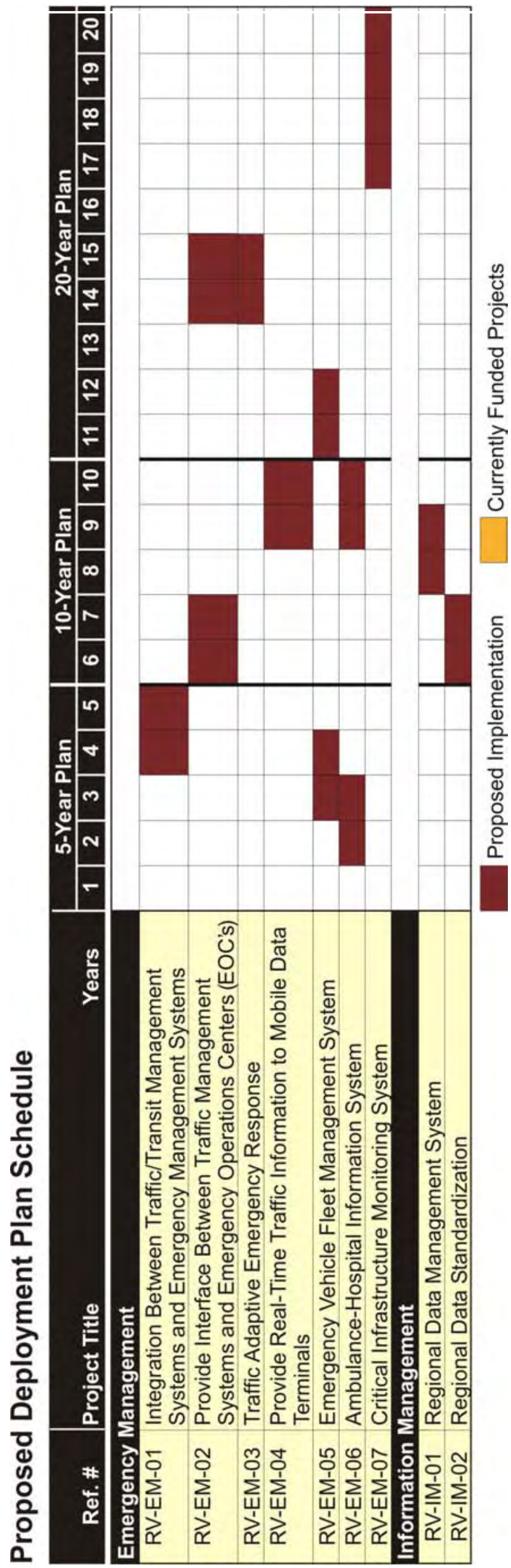
Information Management

Proposed Information Management (IM) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-IM-01 (RVCOG)	Regional Data Management System	Create a data management system for archiving data, collecting real-time data, and accessing data. The system should have geospatial capabilities and data should include at a minimum traffic counts, speed data, accidents (vehicles, pedestrians, and bicycles), traffic enforcement data, incident information, and transit information.	M	RV-IM-02; This project closely relates to projects that deploy field devices and systems to collect transportation related data.	This project is dependent on interagency communications and the deployment of field devices to collect data.	$560,000/ $20,000	● Improved resources for regional modeling, research, analysis, planning, and design ● Reduced cost of data collection	This project will make use of data already collected or planned for collection by agencies in the Rogue Valley metropolitan area.
RV-IM-02 (RVCOG)	Regional Data Standardization	Determine as a region the preferred format for data collection, reporting, and storage for consistency throughout the region.	M	RV-IM-01; RV-TM Projects	None	$50,000/ $2,000	● Ease of data sharing ● Improved resources for regional modeling, research, analysis, planning, and design	Agreements will need to be reached amongst regional agencies to develop standards that work well for all agencies involved.

[1] The estimated operations & maintenance (O&M) costs listed in this table are for an annual basis once the project has been deployed

Schedule


Proposed Deployment Plan Schedule
Ref. #
Project Title
Years
5-Year Plan
10-Year Plan
20-Year Plan
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Emergency Management
RV-EM-01 Integration Between Traffic/Transit Management Systems and Emergency Management Systems
RV-EM-02 Provide Interface Between Traffic Management Systems and Emergency Operations Centers (EOC's)
RV-EM-03 Traffic Adaptive Emergency Response
RV-EM-04 Provide Real-Time Traffic Information to Mobile Data Terminals
RV-EM-05 Emergency Vehicle Fleet Management System
RV-EM-06 Ambulance-Hospital Information System
RV-EM-07 Critical Infrastructure Monitoring System
Information Management
RV-IM-01 Regional Data Management System
RV-IM-02 Regional Data Standardization
Proposed Implementation
Currently Funded Projects

POSTER SESSION #3

- PUBLIC TRANSPORTAION MANAGEMENT

- MAINTENANCE & CONSTRUCTION MANAGEMENT

Public Transportation Management

Proposed Public Transportation Management (PTM) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-PTM-01 (RVTD)	Automated Vehicle Location (AVL)/Computer Aided Dispatch (CAD) Transit Management System	Install an automated vehicle location (AVL) system on the RVTD fleet and install a computer aided dispatch (CAD) system at the RVTD dispatch center. RVTD plans to put 10 new buses, which are designed to accommodate an AVL system, into service in the fall of 2004. AVL should be deployed on these 10 buses, and the rest of the fleet should be outfitted with AVL as vehicles are replaced. Integrate the CAD system with the AVL system so that dispatchers may track the fleet in real-time and monitor on-time performance.	H	RV-TM-12	None	$1,750,000/ $5,000	● More efficient allocation of transit resources ● Operating cost savings ● Improved transit reliability ● Ability to automate data collection process, which enhances planning efforts	TriMet and Lane Transit District (LTD) can be used as resources. TriMet has already successfully implemented AVL and CAD and LTD is currently researching systems for acquisition.
RV-PTM-02 (RVTD)	Integrate Real-Time Transit Traveler Information with ODOT Regional Trip Planner Project	Provide ODOT's Regional Trip Planner Project with real-time transit schedule information. Real-time information will be searchable by route and stop location and indicate the amount of time until the next arrival.	H	RV-PTM-01; ODOT Regional Trip Planner Project	Automated vehicle location (AVL) must be installed on the transit fleet to enable real-time tracking and schedule information.	$350,000/ $2,000	● Real-time transit information to aid travelers with pre-trip planning ● Removal of traveler uncertainty ● Improved customer satisfaction	ODOT is developing an interface with RVTD as part of its Regional Trip Planner Project.
RV-PTM-03 (RVTD)	Real-Time Customer Information Displays	Deploy real-time dynamic message signs at key locations such as transit centers and bus stops where multiple routes pass through, and at stops with large bus headways.	M, L	RV-PTM-01	Automated vehicle location (AVL) must be installed on the transit fleet in order to provide real-time schedule information.	$440,000/ $125,000	● Real-time transit information to aid travelers with en-route planning ● Better information during service disruptions ● Reduction of perceived waiting times ● Removal of traveler "uncertainty" ● Improved customer satisfaction	TriMet has successfully implemented real-time customer information displays in the Portland metropolitan area using simple wireless communications.
RV-PTM-04 (RVTD)	Online Route Assignment	Develop an online route assignment program accessible by customers on the Internet and personal digital assistants that enables the user to determine the appropriate transit route to take between two locations. The system includes selecting the route based on quickest trip, fewest transfers, or shortest walk.	M	RV-PTM-01	Automated vehicle location (AVL) must be installed on the transit fleet in order to provide real-time schedule information.	$75,000/ $5,000	● Information to aid travelers with pre-trip and en-route planning ● Improved customer satisfaction	TriMet has successfully implemented online route assignment and can be used as a resource.
RV-PTM-05 (RVTD)	Automated Passenger Counting (APC)	Install an automated passenger counting (APC) system that electronically records the number of passengers boarding and deboarding at each transit stop as well as the location and the time.	M	RV-PTM-01	In order to determine when and where passengers board and de-board, automated vehicle location (AVL) must be installed to support real-time operations.	$180,000/ $7,500	● More efficient allocation of transit resources ● Ability to automate data collection process, which enhances planning efforts	This system can be added as a component of the AVL system (RV-PTM-01).

Public Transportation Management

Proposed Public Transportation Management (PTM) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-PTM-06 (RVTD)	Automated Stop Announcements	Provide automated stop announcements prior to each scheduled stop along a transit route.	L	RV-PTM-01	Automated vehicle location (AVL) must be installed on the transit fleet to enable announcements to be coordinated with real-time route location.	$450,000/ $15,000	● Improved service and customer satisfaction	This system can be added as a component of the AVL system (RV-PTM-01).
RV-PTM-07 (RVTD)	Electronic Fare Collection with Smart Cards	Update the electronic fare collection system on the RVTD fleet to include the use of "smart" cards that allow for electronic payment of fares based on fare type (i.e. adult, senior) and zone.	M	None	This project should be coordinated with other transit agencies throughout Oregon to determine the feasibility of integrating this system throughout the state.	$1,000,000/ $5,000	● Ability to automate data collection process, which enhances planning efforts ● Improved service and customer satisfaction	RVTD will need to research the existing technologies to determine what works best with their fleet.
RV-PTM-08 (RVTD)	Paratransit Scheduling with Mobile Data Terminals (MDT's)	Install mobile data terminals (MDT's) in paratransit vehicles so that dispatch may provide updated schedule and route information to each paratransit vehicle.	L	None	None	$120,000/ $5,000	● More efficient allocation of transit resources ● Improved customer mobility ● Customer satisfaction	Local emergency management agencies have successfully deployed mobile data terminals in years past and can be used as a resource.
RV-PTM-09 (RVTD)	Periodic Transit Fleet Maintenance System Upgrades	As technology evolves, upgrade the existing transit fleet maintenance system to continue the integration between of the on-board system with the vehicle diagnostics system.	M, L	None	None	$100,000/ $5,000	● More efficient allocation of transit resources ● Improved maintenance management	RVTD has a transit fleet maintenance system today and periodic upgrades will help enhance the existing system.
RV-PTM-10 (RVTD)	Transit Security System Integration of Video Images with RVTD Dispatch	Develop a system to transmit video from buses and the transit station back to RVTD dispatch for real-time surveillance capabilities.	M	None	Requires communications connectivity between buses and the transit station and the RVTD Dispatch system.	$1,500,000/ $25,000	● Improved surveillance and monitoring capabilities ● Increased security for passengers both on-board and waiting at the transit station	RVTD is in the process of acquiring an on-board transit security system at the same time they add addiitonal buses to their fleet later this year.

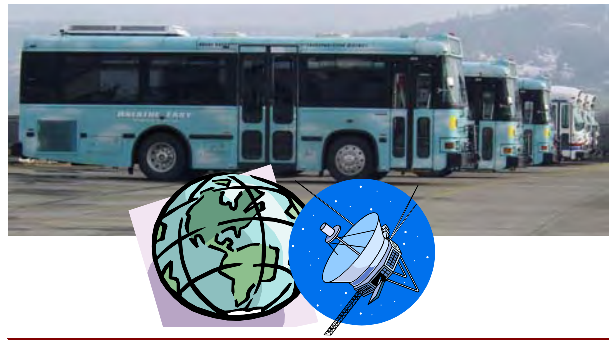
[1] The estimated operations & maintenance (O&M) costs listed in this table are for an annual basis once the project has been deployed

Purpose

To manage the RVTD transit fleet and to enhance customer service.

Existing Problems

- Current means to determine bus location is voice communications.
- Data is not readily available for systems analysis of operations.
- Need to provide automatic stop announcements



Stakeholder(s)

Primary: RVTD

Description

This project will install Automatic Vehicle Location (AVL) equipment on all fixed route transit vehicles in the RVTD fleet. In addition, this project will include an update to the computer aided dispatch (CAD) system to support mapping the real-time location of transit vehicles, track schedule adherence, transfer points and route inefficiencies. The AVL/CAD system will support future deployments such as transit signal priority, real-time arrival/departure information, automatic passenger counter (APC) system to know where passengers get on and off the buses, and the automatic stop announcement system to determine where the next bus stop is.

This deployment requires a GPS receiver and an on-board computer to interface the GPS receiver to the data communications equipment on the bus. The system will also support enhanced voice and data communications between the operator and dispatcher.

Communication Requirements

If a GPS based system is used, then a two-way wireless communication link with the Transit Management Center is required for relaying vehicle position information. Other point based systems may be deployed that could use the existing fiber optic network to transmit the bus location information.

ITS Standards

- IEEE 1455-1999
- NTCIP 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408,
- SAE J2353, J2354, J2540, J2549
- TCIP 1400, 1401, 1402, 1403, 1404, 1405

Project Dependencies

- This system must be compatible with the new transit fleet RVTD plans to purchase during the summer or fall of 2004.

Benefits

- More efficient allocation of transit resources.
- Operating cost savings
- Improved transit reliability.
- Ability to automate data collection process, which enhances route and stop planning efforts.

Cost

$1,750,000	Project Deployment
$5,000	Annual Ops & Maintenance

Phased Plan

0 – 5 Years: Project Deployment

Maintenance & Construction Management

Proposed Maintenance & Construction Management (MC) Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-MC-01 (ODOT, Jackson County, Medford)	Maintenance Fleet Management System	Installation of automated vehicle locators (AVL) on maintenance vehicles and dissemination of real-time vehicle locations at the ODOT Region 3 TOC and emergency dispatch centers or EOC's for resource allocation during incidents or emergencies.	M	None	None	\$450,000/ \$15,000	• More efficient managagement of maintenance fleet • Reduced emergency response times when maintenance support is needed	Some local emergency management agencies have experience with fleet management.
RV-MC-02 (ODOT, Jackson County, Medford)	Maintenance Management System	Develop a system to manage personnel and vehicles for scheduled and unscheduled maintenance in public rights-of-way. The system should include routine roadway maintenance activities (e.g. roadway cleaning), traffic control device maintenance for both ITS and non-ITS equipment, landscape maintenance, and hazard removal.	L	RV-MC-01	None	\$200,000/ \$45,000	• Maintenance scheduling capabilities • Improved resources for planning • More efficient allocation of maintenance resources	This project should make it easier for agencies to share maintenance resources. Some agencies such as ODOT and Jackson County already share resources.
RV-MC-03 (ODOT, Jackson County, Medford)	Maintenance, Construction, and Special Event Coordination System	Develop an information management system that contains details about regionwide maintenance and construction activities by public agencies, utility companies, and private contractors as well as special event information, including location and event duration.	L	None	Requires data and information from public and private agencies throughout the region.	\$540,000/ \$10,000	• Construction and maintenance scheduling capabilities • Improved resources for planning • Cost savings through project coordination	The system must allow for quick and easy data input and retrieval to make it efficient for affected agencies to use.
RV-MC-04 (ODOT, Jackson County, Medford)	Winter Maintenance Scheduling	Deploy a system that monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.	L	RV-MC-05	Requires communication between field devices and winter maintenance personnel.	\$250,000/ \$5,000	• Real-time weather and pavement conditions • More efficient allocation of maintenance resources during winter and inclement weather	Midwest states, northern states, and Canada have deployed similar systems that can be used as models for the region.
RV-MC-05 (ODOT) (Medford) (ODOT)	Roadway Weather Information Systems (RWIS or "Weather Stations")	Deploy roadway weather information sites that provide temperature and road conditions at the following locations: • Jacksonville Hill • McAndrews Rd on the Hill • Siskiyou Pass	L	None	None	\$550,000/ \$8,250	• Real-time weather and pavement conditions • More efficient allocation of maintenance resources during inclement weather	ODOT has previous experience with weather stations in the Rogue Valley and other regions.
RV-MC-06 (ODOT, Jackson County, Medford)	Develop Work Zone Management Standards	Develop standards for safety enhancements and management techniques in work zones such as the following: • Variable speed limits • Incident detection and management • Lane merge controls • Queue detection and electronic driver feedback signs	M	None	None	\$40,000	• Improved construction zone safety and efficiency • Heightened safety awareness through driver feedback	The development of regional work zone management standards, that incorporate other statewide efforts, will make implementation easier during major construction projects. ODOT has acquired portable changeable speed limit signs that may be available for use in the region.

[1] The estimated operations & maintenance (O&M) costs listed in this table are for an annual basis once the project has been deployed

Schedule

Proposed Deployment Plan Schedule

Ref. #	Project Title	5-Year Plan					10-Year Plan					20-Year Plan									
	Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Public Transportation Management																					
RV-PTM-01	Automated Vehicle Location (AVL)/Computer-Aided Dispatch (CAD) Transit Management System	■	■	■																	
RV-PTM-02	Integrate Transit Traveler Information with ODOT Regional Trip Planner Project				■	■															
RV-PTM-03	Real-Time Customer Information Displays						■	■	■			■	■	■	■			■	■		
RV-PTM-04	Online Route Assignment					■	■														
RV-PTM-05	Automated Passenger Counting (APC)				■	■															
RV-PTM-06	Automated Stop Announcements						■	■													
RV-PTM-07	Electronic Fare Collection with Smart Cards						■	■	■												
RV-PTM-08	Paratransit Scheduling with Mobile Data Terminals (MDT's)																		■	■	■
RV-PTM-09	Periodic Transit Fleet Maintenance System Upgrades						■					■					■				
RV-PTM-10	Transit Security System Integration of Video Images with RVTD Dispatch											■	■	■							
Maintenance & Construction Management																					
RV-MC-01	Maintenance Fleet Management System																■	■	■		
RV-MC-02	Maintenance Management System													■	■	■					
RV-MC-03	Maintenance, Construction, and Special Event Coordination System											■	■								
RV-MC-04	Winter Maintenance Scheduling												■	■							
RV-MC-05	Roadway Weather Information Systems (RWIS)										■	■				■	■				
RV-MC-06	Develop Work Zone Management Standards						■	■													

■ Proposed Implementation   Currently Funded Projects

Meeting Minutes

Expanded Stakeholder Workshop & Public Open House: Deployment Plan
June 3, 2004, Medford Library, Medford

Expanded Stakeholder Workshop

On June 3, 2004, DKS Associates and RVCOG hosted an Expanded Stakeholder Workshop, 2-4 p.m. at the Medford Library. A total of 20 people participated, including project staff (list included in these minutes).

Invitees were drawn from the expanded stakeholders list created by DKS and RVCOG. (Copies of the list and invitation also are in the project file). DKS distributed copies of a workbook addressing the workshop poster session and completion of the Deployment Plan for the Rogue Valley Metropolitan Planning Organization. Peter Coffey, Jim Peters and Renee Hurtado, DKS, gave an update of the project since the first stakeholder workshop in February, and asked stakeholders to review both the proposed RVITS projects and the scheduling of the projects. In breakout poster sessions, stakeholders circulated among maps and project lists posted on the walls. Stakeholders proposed changes and corrections, which were noted on the posters. The entire group reviewed those changes in the closing portion of the meeting.

Notes from Deployment Plan Workshop Poster Sessions

ITS Deployment Plan for 2004 – 2024 Map

- Population growth is expected in several areas: +160% in Eagle Point, +100% in east Medford, +217% in Phoenix.
- Potential for future traffic signals on Highway 99 in Phoenix and north Ashland.
- High accident location on Highway 99 in north Ashland due to speeds.
- Add additional CCTV camera on Siskiyou Pass for traveler information website.

Existing and Proposed Communication Network Map

- Verify traffic signal locations in Phoenix.

Travel & Traffic Management

- Expand/Upgrade Highway Advisory Radio Project: Use WAP-Cell phone for travel/weather information.

- I-5 Siskiyou Pass Traveler Information Project
  - Use Doppler radar for advanced weather information.
  - Integrate with the National Oceanic and Atmospheric Administration (NOAA).
- Include a Fog Warning System Project: Example system components include pavement delineators in-pavement and lighting on the side of the roadway to guide vehicles as a point of reference.
- Special Event Management Systems Project:
  - Keep as a high priority.
  - Use signals to manage events.
  - Use a wayfinder system for Ashland to identify available parking, free parking, and shuttles. Most parking is in the neighborhoods. Many are shuttled. There is a parking ramp at Horgedine/Pioneer. There are three or four lots around town or in the park that are free.
- Consider a project to integrate with the 511 system in California.

Communication

- Communication Network Project: Include ability to transfer operations and monitoring from main ODOT Traffic Operations Center (TOC) to another site.

Emergency Management

- Provide Real-Time Traffic Information to MDT's Project: Need an instant data source because TripCheck does not currently provide constant real-time information.
- Critical Infrastructure Monitoring System:
  - Communication systems should be considered for monitoring.
  - Critical infrastructure should be defined by the region, not the state.
- Major Detour Route for Highway 62 Map: Table Rock Road should be used as the alternate route instead of Antelope Road/Kirtland Road/Blackwell Road, especially since it is currently being widened to five lanes.
- SORC and the Medford Police Department would like to use the same platform for standardized data.

Information Management

- Regional Data Standardization Project: Use an information broker system.

Public Transportation Management

- Automated Passenger Counting and Electronic Fare Collection with Smart Cards Projects: Consider combining these into one project.
- Transit Priority Project: Need transit priority and a traffic signal at the current bus barn at Crater Lake Avenue/Ford Drive. This could possibly be included as a separate project. The bus barn may eventually be relocated, but not for at least seven years.
- Real-Time Customer Information Displays Project: Key locations include the Front Street Station and the Rogue Valley Mall.

Transit Infrastructure Map

- Park and Ride locations in Phoenix and Talent are needed, particularly for ridesharing. A Park and Ride in Phoenix would work well for both northbound and southbound directions.

Existing Conditions Maps

- Existing Problem Areas
  - Remove high congestion section on Highway 62 between White City and Eagle Point.
  - Why is there a congestion line at the intersection of Highway 62/Corey Road?
  - The intersections of Table Rock Road at Biddle Road and Vilas Road are problematic during the PM peak. Is this just construction related? Do we need surveillance more here than at the intersection of Highway 99 at Pine Street?
- High Collision Locations and Safety Corridors Map
  - What about pedestrian and bicycle accidents?
  - Remove the Jackson County high accident location at Agate Road/Nick Young Road.

Workshop Participants (from sign-in sheet)

- Jerry Barnes (City of Medford)
- Alex Georgevitch (City of Medford)
- Wayne Pace (City of Medford)
- Vicki Guarino (RVCOG)
- Julie Rodwell (RVCOG)
- Chris Olivier (RVCOG)
- Jim Peters (DKS Associates)
- Peter Coffey (DKS Associates)
- Renee Hurtado (DKS Associates)
- Tim Fletcher (ODOT)
- John Graves (RVMPO PAC)
- Porter Lombard (RVMPO PAC)
- David Chapman (RVMPO PAC)
- Larry McKinley (ODOT)
- Shirley Roberts (ODOT)
- Dan Dorrell (ODOT)
- Ron Norris (Medford Police Dept)
- Ken Parsons (Mercy Flights)
- Eric Niemeyer (Jackson County
- Steve Roesler (Bear Creek Corporation)

Public Open House

From 5 to 7 p.m. on the same day, an Open House was held for the public, and 6 people attended. Prior to the event, invitations and fliers were sent to approximately 200 people on RVCOG mailing lists from various transportation-related projects. A news release and flier was sent to all local news media. One radio station conducted an interview and an ad was printed in the Sunday edition of the Medford Mail Tribune.

DKS staff distributed the stakeholder workshop deployment plan workbook, led visitors through the posters, explained ITS and the RVITS plan, and made a formal presentation on the project. No comments were recorded.

Participants were: Kevin Keating, David Lewin, Charlotte Schreffler, James W. Lawrence, Elizabeth Lawrence, and Paul Seeman.

Oregon Department of Transportation

Rogue Valley Intelligent Transportation Systems

Appendix O: Funding Sources Overview

OVERVIEW OF FUNDING SOURCES POTENTIALLY AVAILABLE FOR ITS IN CURRENT TEA-21

The largest source of federal funding for ITS is the Transportation Equity Act for the 21st Century (TEA-21), which originally ran through September 30, 2003, and was extended to June 30, 2004 by Executive Order. TEA-21 expands the number of ITS programs eligible for federal funds and extends local control of how that money is used. TEA-21 provides highways and transit with $217.5 billion over six years (fiscal years 1998 to 2003). ITS projects can qualify for most, if not all, of these funds including operations and maintenance costs. By comparison, TEA-21's predecessor, the Intermodal Surface Transportation Efficiency Act (ISTEA), authorized $155 billion from 1992-1997, with limited ITS program funding through the FHWA.

TEA-21 is organized to "mainstream" technology in transportation programs and make ITS an everyday tool for state and local governments. This program allows local and state transportation authorities a way to tap a variety of federal transportation funding opportunities. But along with TEA-21's larger funding pool and greater local control of funds, ITS projects and the government entities and companies behind them must compete for funds with more traditional transportation programs, projects and players.

Besides mainstreaming funds for ITS projects, TEA-21 specifically re-authorizes the federal ITS program, and once again directs funds to the FHWA to administer. TEA-21 provides $1.28 billion for federal ITS programs. Spending goes to two broad categories: ITS standards, research, and operational testing, funded at $95-110 million annually; and ITS deployment incentives funded at $101-122 million per year. The two primary deployment funds are the Commercial Vehicle Intelligent Transportation System Infrastructure Deployment Program and the Intelligent Transportation Systems Deployment Incentives Program. Although these are the only two programs that are specifically for ITS deployment, TEA-21 allows ITS projects to compete with other transportation projects under related programs. These are described under the Titles below.

The TEA-21 document is organized into nine titles, six of which describe various types of transportation funding programs. These titles are as follows:

- Title I: Federal-Aid Highways
- Title II: Highway Safety
- Title III: Federal Transit Administration Programs
- Title IV: Motor Carrier Safety
- Title V: Transportation Research
- Title VII: Miscellaneous

Of these titles, three contain programs under which ITS projects would be eligible for funding. Below is a brief description of these funding programs. Details regarding purpose, criteria, distribution of funds, annual value and source of funding information are found in the table at the end of this section.

Title I - Federal-Aid Highways

Section 1106 Federal Aid Systems:
This program provides funding for improvements to rural and urban roads that are part of the National Highway System (NHS), including the Interstate System and designated connections to major intermodal terminals. Under certain circumstances, NHS funds may also be used to fund transit improvements in NHS corridors. TEA-21 expands the projects eligible for funding under NHS improvements to such areas as publicly owned bus terminals, infrastructure-based intelligent transportation system capital improvements, and natural habitat mitigation.

Section 1108 Surface Transportation Program:
The Surface Transportation Program (STP) provides flexible funding that may be used by state and local agencies for projects on any federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects, and public bus terminals and facilities. This program has been expanded to include infrastructure-based intelligent transportation system capital improvements.

When TEA-21 was initially enacted, each state was allocated a set amount of money to be used for STP-type projects. The state then allocated the money under each of the sub-programs listed above to the MPO's and Regional Transportation Planning Organizations (RTPO's) in the state. These agencies were responsible for distributing the money to projects based on the six-year transportation plans submitted by the local cities and counties each year.

ITS projects are eligible for funding under all these programs except for the Transportation Enhancement, Bridge Replacement and Rehabilitation and Emergency Relief programs.

Section 1110 Congestion Mitigation and Air Quality Improvement Program:
The Congestion Mitigation and Air Quality (CMAQ) Improvement Program, was continued in TEA-21, providing a flexible funding source to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Eligible activities include transit improvements, travel demand management strategies, traffic flow improvements, and public fleet conversions to cleaner fuels. The traffic flow improvements item includes, but is not limited to, signalization upgrades, ITS deployment, traffic signal coordination improvements, and construction of high occupancy vehicle lanes.

Section 1221 Transportation and Community and System Preservations Pilot program:
Through the Transportation and Community and System Preservation Pilot program, state and local governments, and metropolitan planning organizations are eligible for discretionary grants to plan and implement strategies that improve the efficiency of the transportation system; reduce environmental impacts of transportation; reduce the need for

costly future public infrastructure investments; ensure efficient access to jobs, services, and centers of trade; and examine private sector development patterns and investments that support these goals.

Subtitle E – Transportation Infrastructure Finance and Innovation Act:
TEA-21 builds on the innovative financing initiatives begun under ISTEA to leverage federal resources by encouraging private participation in the delivery of surface transportation infrastructure. These initiatives are intended to supplement the traditional federal-aid grant assistance by increasing funding flexibility and program effectiveness. They establish pilot programs to test new finance mechanisms, and they extend or make permanent some of the tools already tested. The Act establishes a new program, under the Transportation Infrastructure Finance and Innovation Act (TIFIA), through which the DOT can provide credit assistance on flexible terms directly to public-private sponsors of major surface transportation projects to assist them in gaining access to the capital markets. ITS projects must cost a minimum of $30 million and be supported by user charges or other dedicated revenue streams.

Title III - Federal Transit Administration Programs

TEA-21's transit program, authorized at $41 billion with a guaranteed funding level of $36 billion, represents at least a 50% increase and – if fully funded – as much as a 70% increase over appropriated funding in the six years of ISTEA. Most ITS projects specifically designated for ITS funding are included in Title V of TEA-21. Transit applications of ITS are covered under various programs within this Title V. However, the definition of capital projects within Title III was expanded under TEA-21 to include transit-related ITS systems, therefore transit ITS projects are also eligible for funding through the urbanized area formula and Major Capital Investment programs described here in Title III.

Section 3007 Urbanized Area Formula Grants:
Under this program, 91.23 percent of the funding is made available to all urbanized areas with a population of 50,000 or more. For urbanized areas with populations less than 200,000, funding may be used for either capital or operating costs at local option and without limitation. For urbanized areas with populations of 200,000 or more, the definition of "capital" has been revised to include preventative maintenance. Operating assistance for these larger areas is no longer an eligible expense. Also, for these larger areas, at least one percent of the funding apportioned to each area must be used for transit enhancement activities such as historic preservation, landscaping, public art, pedestrian access, bicycle access, and enhanced access for persons with disabilities. This program includes transit related ITS elements such as security cameras, preventative maintenance systems, communications and on-board computers.

Title V – Transportation Research

The legislated purposes of the programs under this title are, among others, to expedite integration and deployment, improve regional cooperation and operations planning, develop a capable ITS workforce, and promote innovative use of private resources.

Section 5207 Research and Development:
TEA-21 contains a comprehensive ITS research, development, operational testing, and demonstration program for intelligent vehicles and intelligent infrastructure systems.

This program provides priority for federal funding across five areas:

- Traffic management, toll collection, traveler information or traffic control systems
- Crash-avoidance and integration of in-vehicle crash protection technologies
- Human factors research
- Integration of intelligent infrastructure, vehicle and control technologies
- Impact of ITS on environmental, weather and natural conditions

ITS operational tests shall be designed to collect data to permit the objective evaluation of the test results and realize cost-benefit information. The federal share for operational tests and demonstration programs is not to exceed 80 percent.

Section 5208 Intelligent Transportation System Integration Program:
This program was established to accelerate the integration and interoperability of ITS systems in both metropolitan and rural areas, and provides criteria for the selection of projects that will support this goal. These criteria include the demonstration of a strong commitment to cooperation among agencies, jurisdictions, and the private sector, and a commitment to a comprehensive plan of fully integrated intelligent transportation system deployment in accordance with the national ITS architecture and standards. Public-private partnerships are encouraged, including arrangements that generate revenue to offset public investment costs and minimize the relative percentage and amount of federal ITS funding. All ITS Integration Program projects must be part of approved plans and programs developed under applicable statewide and metropolitan transportation planning processes and applicable state air quality implementation plans, as appropriate, at the time federal funds are sought. In addition, funding recipients must demonstrate a commitment to the long-term operations, management and maintenance of the system without continued reliance on federal ITS funding.

Section 5209 Commercial Vehicle ITS Infrastructure Deployment:
The purpose of this program is to improve the safety and productivity of commercial vehicles and drivers, and to reduce the costs associated with commercial vehicle operations and federal and state commercial vehicle regulatory requirements. TEA-21 establishes criteria for identifying priority areas and encourages multi-state cooperation and corridor development to improve the safety of commercial vehicle operations. Activities funded under the Commercial Vehicle Intelligent Transportation Infrastructure Deployment Program should advance the use of technology to increase the efficiency of the regulatory inspection processes, reduce administrative burdens, facilitate commercial vehicle inspections, and generally increase the effectiveness of enforcement efforts. Funds can also be used to enhance the safe passage of commercial vehicles across the United States and across international borders.

Table O-1 provides more detail about these federal programs.

Table O-1. Current TEA-21 ITS Funding Sources

Title	Purpose	Criteria	Distribution of Funds	Value/Application Process	Source Of Information
Federal Aid Systems	Provide funding for improvements to rural and urban roads that are part of the National Highway System (NHS), including the Interstate System and designated connections to major intermodal terminals. Also covers infrastructure-based intelligent transportation systems.	This program can be used to fund the following project types: ✦ Natural habitat mitigation ✦ Publicly-owned intra-city and inter-city bus terminals ✦ Infrastructure-based intelligent transportation system capital improvements	Allocated to each state based on a formula that includes each state's lane-miles of principal arterials (excluding Interstate), vehicle-miles traveled on those arterials, diesel fuel used on the state's highways, and per capita principal arterial lane-miles. Typically this money would be distributed to the MPO's by the state, but instead the state swaps this money with the local agencies and provides them all the STP money granted to the state.	Value: $14.9 Billion nationally for 2001-2003 Application Process: None	FHWA Website http://www.fhwa.dot.gov/tea21/factsheets/nhs.htm
STP Regional Competitive Program (STPR/STPU)	Improve transportation facilities based on regional priorities.	Projects are considered eligible if on federally functional roads classified above minor rural collectors. All modes of transportation eligible. The final criteria used in the application process are established by the MPO's and RTPOs.	Money for all state STP programs is allocated to each state by the federal government using the same process as discussed for the Federal Aid Systems. The state then distributes the money to the MPO's and RTPO's.		
STP-Statewide Competitive Funds (STPC)	Develop, improve and/or preserve an integrated transportation system that encourages multi-modal choices to the public.	All projects on federally functional roads, above minor rural collector, are eligible.	Selection criteria established by ODOT.	This money has been allocated through 2003.	

Title	Purpose	Criteria	Distribution of Funds	Value/Application Process	Source Of Information
STP Railway-Highway Grade Crossing Program	The objective of these projects is to reduce fatalities, injuries and damages through improved crossings.	The projects must be on local roads and half the available funds shall be designated for installing protective devices. Train activated warning devices that are ITS related would be eligible.			
Congestion Mitigation and Air Quality (CMAQ)	Fund transportation projects and programs that will contribute to attainment of National Ambient Air Quality Standards (NAAQS). Projects must be included in a conforming transportation plan and TIP and conform to the requirements of the Clean Air Act.	Eligible projects include: ✦ Transportation control measures ✦ Management systems ✦ Activities that are innovative and based on promising technologies which will improve air quality ✦ Traffic monitoring, management and control ✦ Emission inspection systems ✦ Public transit projects ✦ Project planning if leading directly to construction	After the state receives their portion of the grant money from the federal government, it is distributed to the MPO's. The MPO's are then responsible for soliciting applications to receive CMAQ funds.	The RVMPO receives applications and the TAC scores and weights them	

Title	Purpose	Criteria	Distribution of Funds	Value/Application Process	Source Of Information
Transportation and Community, and System Preservation Pilot Program (TCSP)	Provide funding for research and grants to investigate the relationships between transportation and community, and system preservation and private sector-based initiatives.	Eligible projects shall implement transportation strategies which provide the following: ✦ Improved efficiency of the transportation system ✦ Reduced environmental impacts ✦ Reduced need for costly future public infrastructure investments ✦ Efficient access to jobs and service to trade centers	An interagency team evaluates applications for competitive TCSP Program grants. The team includes representatives from FHWA, FTA, U.S. DOT Office of the Secretary, Federal Railroad Administration, Research and Special Programs Administration/ Volpe Center, and the Environmental Protection Agency. TCSP Program grants can also be designated by Congress.	Value: $50 million nationally for 2002 and 2003.	FHWA Program Information web site: www.fhwa.dot.gov/discretionary/pi_tcsp.htm http://tcspfhwa.volpe.dot.gov/docs/brochure.pdf
Transportation Infrastructure Finance Innovation Act	Provide credit assistance on flexible terms directly to public-private sponsors of major surface transportation projects to assist them in gaining access to the capital markets.	Any project that is eligible for STP funding can receive assistance from this program. ITS projects must cost a minimum of $30 million and be supported by user charges or other dedicated revenue streams. Federal credit cannot exceed 33 percent.	Funds are distributed by the U.S. Department of Transportation.	Available Funds: $232 million has been authorized by the U.S. DOT for FY 2002 and 2003. The maximum nominal amount of credit was $5.0 billion over the FY 2003-2004. Application Process: Applications are typically due in the spring for the following funding year.	http://www.fhwa.dot.gov/discretionary/pi_tifia.htm

Title	Purpose	Criteria	Distribution of Funds	Value/Application Process	Source Of Information
Urbanized Area Formula Grant	Provide funding for capital expenses, operating costs and/or preventative maintenance. Population of region dictates what the money can be used for. The funds can also cover transit related ITS expenses	Population 50-200K: Funding available for capital and operating costs. Population >200K: Funding available for capital and preventive maintenance expenses. 1percent of funding must be used for transit enhancements.	Funding is apportioned by the FHWA on the basis of legislative formulas.	Available Funds: $10 Billion nationally over three years. Application Process: Requires legislative campaigning.	www.fta.dot.gov/library/policy/prgms/uafg.htm
ITS Research and Development	Provide funding for research and development for operational tests and demonstration projects.	ITS research and development projects must fall into one or more of the categories below: 1. Traffic management, toll collection, traveler information or traffic control systems 2. Crash-avoidance and integration of in-vehicle crash protection technologies 3. Human factors research 4. Integration of intelligent infrastructure, vehicle and control technologies 5. Impact of ITS on environmental, weather and natural conditions	Because this is a discretionary program, there is no solicited application process for obtaining funding for a project. The local agencies are required to lobby Congress to get funds earmarked for a project through this program.	Value: $95 million total nationally for funding years 2002 and 2003	www.fhwa.dot.gov/tea21/h2400-v.htm#5207

Title	Purpose	Criteria	Distribution of Funds	Value/Application Process	Source Of Information
ITS Integration Program	This program was established to accelerate the integration and interoperability of ITS systems in both metropolitan and rural areas.	These projects shall exhibit one or more of the following characteristics: 1. Commitment to interagency and private-sector cooperation 2. Commitment to comprehensive plan compliant with National ITS Architecture 3. Must be part of approved plan 4. Demonstrate commitment to long-term operations, management and maintenance without reliance on federal funding	Because this is a discretionary program, there is no solicited application process for obtaining funding for a project. The local agencies are required to lobby Congress to get funds earmarked for a project through this program.	✦ Total value for this program and the Commercial Vehicle ITS program is $242 million for funding years 2002 and 2003. ✦ No more than $15 million of this program can be spent in the metropolitan area. ✦ The maximum amount of ITS program funding that can be spent on each project is 50 percent. However, up to 80 percent can be from federal grants.	Available Funds: FHWA Web site: www.fhwa.dot.gov/discretionary/pi_itsip.htm

Title	Purpose	Criteria	Distribution of Funds	Value/Application Process	Source Of Information
Commercial Vehicle ITS Infrastructure Deployment	To improve the safety and productivity of commercial vehicles and drivers, and to reduce the costs associated with commercial vehicle operations and federal and state commercial vehicle regulatory requirements.	These projects shall exhibit one or more of the following characteristics: 1. Encourage multi-state cooperation and corridor development 2. Increase efficiency of regulatory inspections 3. Reduce administrative burdens 4. Facilitate commercial vehicle inspections 5. Enhance safety	Because this is a discretionary program, there is no solicited application process for obtaining funding for a project. The local agencies are required to lobby Congress to get funds earmarked for a project through this program.	Available Funds: ✦ The maximum amount of ITS program funding that can be spent on each project is 50 percent. However, up to 80 percent can be from federal grants.	FHWA Web site: www.fhwa.dot.gov/discretionary/pi_itscv.htm
Corridor Congestion Relief Program		All ITS related projects are eligible			
IDEA program	Innovative solutions to critical issues in the areas of transit, highway, high speed rail and safety.	Managed by the Transportation Research Board (TRB)	Apply directly to TRB	N/A Online	http://gulliver.trb.org/publications/sp/IDEA_announcement.pdf#Safety also http://www4.trb.org/trb/dive.nsf/web/idea_programs

Appendix P: Funding References

ITS – SPECIFIC

http://www.highways.org/section.cfm?section=4&article=127

http://www.itsdocs.fhwa.dot.gov/jpodocs/repts_te/@0n01!.pdf The TEA 21 ITS Deployment Program, 2000 Interim Report

http://www.its.dot.gov/tea21/tea21bro.pdf TEA 21 ITS program

GENERAL

http://www.fhwa.dot.gov/tea21/sumcov.htm Summary of TEA 21

http://www.odot.state.or.us/tdb/planning/highway/ Oregon Highway Plan

http://www.odot.state.or.us/tdb/planning/OTPUpdate/index.htm Oregon Transportation Plan

http://www.odot.state.or.us/techserv/engineer/pdu/ENHANCEMENT/Progrm%20Information/ENHANCEOCT02.htm ODOT Transportation Enhancement Program; includes link to 2004-06 projects

http://www.twotigersonline.com/resources.html National Homeland Security / Emergency Response Knowledge Base; see also http://www.whitehouse.gov/homeland/contactmap.html

http://www.odot.state.or.us/tddtpau/modeling.html Various TPAU modeling memos and papers

http://www.odot.state.or.us/tdb/planning/tsp/index.htm Oregon Guidelines for TSP Development

http://www.odot.state.or.us/fsbpublic/otib.htm Oregon Transportation Infrastructure Bank

http://www.odot.state.or.us/lgs/Consultant%20Selection%20for%20Tier%20Two.htm Approved ODOT on-call consultants by region, with links to details about each firm

http://www.fhwa.dot.gov/environment/env_sum.htm Summary of environmental laws affecting transportation http://www.odot.state.or.us/transafety/TSAP/tsap.doc Oregon Transportation Safety Plan

http://www.odot.state.or.us/fsbpublic/pdfs/budget/0305gbb_prgbudget.pdf Governor's 2003-2005 biennium budget for transportation

http://www.odot.state.or.us/stakeholderstip/documents/oct23_02/ACT%20Guidelines%20Outline%20w-Stakeholder%20Comments%20Rev.%208-20-02.pdf Guidelines governing ACTs (1998) and 2002: http://www.odot.state.or.us/stakeholderstip/documents/aug7-02/hamm%20letter-ptac%20comments%20dr%20guidelines%208-5-02.pdf More draft ACT guidelines 2002

http://www.odot.state.or.us/stakeholderstip/documents/aug7-02/attach%205-act%20guidelines%20outline%20w-comments%20rev.pdf

http://www.odot.state.or.us/techserv/bikewalk/tea21old.htm Summary of bike and pedestrian funding

All ORS sections can be accessed on the Internet http://www.leg.state.or.us/ors/758.html is the address

http://www.odot.state.or.us/techserv/engineer/pdu/SCENIC/Scenic.htm Oregon Scenic Byways Program

- Continuing work with ACE (Active Community Environments), focus is on Safe Routes to School Legislation and applying for TCSP grant.

TCSP Planning Grant Application

Pat Rogers explains TCSP Planning Grant application: seeking funds to conduct research and investigate correlation between school siting, health, safety and performance. The result could be a manual similar to the "Main Street Handbook," to assist school boards and community members to provide solutions for making informed decisions. This is in response to a marked decline in kids to walking or biking to school.

http://www.odot.state.or.us/intermodal-freight/OFAC/OFAC_pdf_files/Freight%20projects%20criteria%20approved%20table%2009-03.pdf Criteria for Freight Mobility projects

Freight Advisory Committee Oregon Department of Transportation John B. Ficker Weyerhaeuser Company November 12, 2002 • $20 B Integrated Forest Products Company • Manufacture Pulp, Paper, Corrugated Boxes, Lumber, Plywood, OSB, Particleboard

[11/17/03] (43k) http://www.odot.state.or.us/intermodal-freight/OFAC/OFAC_pdf_files/Oregon_FAC_presentation.pdf

The State of Freight : WTS/ITE/ITS/SWE Joint Luncheon & Workshop Tuesday, March 11, 2003 WTS (Women's Transportation Seminar), ITE (Institute of Transportation Engineers), ITS (Intelligent Transportation Society), and SWE (Society of Women Engineers) invite ASCE members

[4/25/03] (51k) http://www.odot.state.or.us/intermodal-freight/ofac/WTS_Att_D.pdf

http://www.odot.state.or.us/traffic/pdf/signals/sigpol99pdf.pdf Oregon Standards for Traffic Control Devices

http://nepa.fhwa.dot.gov/ReNepa/ReNepa.nsf/All+Documents/EB2990A404A1687485256DB2006C2770/$FILE/31 [PowerPoint describing MPO planning
http://www.mcb.fhwa.dot.gov/documents/BriefingBook/BBook.htm April 2004 version of Briefing Book on MPOs

OTIA

ODOT OTIA - Region 3 - Coquille Myrtle Grove State Park
OTIA FUNDS: $1,000,000 TOTAL ESTIMATED PROJECT COST: $1,000,000 CONSTRUCTION: April 25, 2002 PROJECT DESCRIPTION: Overlay existing pavement, add aggregate for

[4/2/04] (13k) http://www.odot.state.or.us/otia/r3_coquille_myrtle.html

ODOT OTIA - Region 3 - Downtown Jacksonville
OTIA FUNDS: $3,000,000 MATCHING FUNDS: $460,000 TOTAL ESTIMATED PROJECT COST: $3,460,000 CONSTRUCTION: November 2003 PROJECT DESCRIPTION: Reconstruct 0.98 miles

[4/2/04] (14k) http://www.odot.state.or.us/otia/r3_or238_jacksonville.html

ODOT OTIA - Region 3 - Rogue River Bridge
OTIA FUNDS: $1,100,000 TOTAL ESTIMATED PROJECT COST: $1,100,000 CONSTRUCTION: November 2004 PROJECT DESCRIPTION: Inlay and overlay 0.40 miles of pavement
[4/2/04] (14k) http://www.odot.state.or.us/otia/r3_or99_rogue_rvr_bridge.html

[4/2/04] (15k) http://www.odot.state.or.us/otia/r2_us20_reeves.html

ODOT OTIA Region 3 - Carpenterville Highway
OTIA FUNDS: $1,000,000 TOTAL ESTIMATED PROJECT COST: $1,000,000 CONSTRUCTION: June 27, 2002 PROJECT DESCRIPTION: Overlay existing pavement, add aggregate

[4/2/04] (13k) http://www.odot.state.or.us/otia/r3_carpenter_hwy.html

ODOT OTIA Region 3 - OR 66: Siskiyou Blvd to S. City Limits (Ashland)
OTIA FUNDS: $1,500,000 TOTAL ESTIMATED PROJECT COST: $1,500,000 CONSTRUCTION: March 2004 PROJECT DESCRIPTION: Inlay and overlay .pavement on OR 66

[4/2/04] (14k) http://www.odot.state.or.us/otia/r3_or66_siskiyou.html

ODOT OTIA Region 3 - OR 99 - 6th to Oak (Phoenix)
OTIA FUNDS: $1,050,000 MATCHING FUNDS: $100,000 TOTAL ESTIMATED PROJECT COST: $1,150,000 CONSTRUCTION: November 2003 PROJECT DESCRIPTION: Inlay and overlay

[4/2/04] (14k) http://www.odot.state.or.us/otia/r3_or99_6th_oak.html

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
Travel & Traffic Management (TM)								
RV-TM-01 (ODOT & Medford)	Integration Between ODOT Region 3 Transportation Operations Center (TOC) and Local Transportation Operations Systems	Project will determine the functional requirements for systems interfaces to traffic and transit management agencies, emergency management agencies, the ODOT Region 3 TOC, and regional field devices. Once the functional requirements have been determined, the local transportation operations systems will be integrated with the ODOT TOC.	H, M, L	ODOT Statewide TOC Software Project; This project relates to most of the Travel & Traffic Management projects included in this plan.	Depends on center-to-center communication and communication installed to field devices.	$205,000	• Information sharing capabilities • Back-up capabilities • More effective traffic management, incident management, and maintenance management • Safety and efficiency improvements	Requires communications between the ODOT Region 3 TOC and local transportation operations centers
RV-TM-02 (ODOT, Jackson County, Medford, Central Pt, Ashland, J-ville)	Network Surveillance	Provide network surveillance on the following corridors: • I-5 [ODOT] • Rogue Valley Highway (Hwy 99) [Medford, Central Pt, Ashland] • Crater Lake Highway (Hwy 62) [ODOT, Medford] • Pine Street/Biddle Road [Central Pt, Medford] • Jacksonville Highway (Hwy 238) [ODOT, Jacksonville] • Crater Lake Avenue [Medford] • North Phoenix Road/Foothill Road [Medford] • Table Rock Road [Jackson Co] • Blackwell Road/Kirtland Road/ Antelope Road [Jackson Co] • McAndrews Road [Medford] • Stewart Ave [Medford] • Kings Highway [Medford]	H, M, L H, M, L H, M H, M, L L H, M L L L M, L M M	STIP Key #10838, 10964, 10841 STIP Key #12328 STIP Key #10838, Draft Jackson Co TSP Key #69 and #70 None None RTP Project #473 None STIP Key #08485, RTP Project #215 RTP Project #222, Draft Jackson Co Key #1 RTP Project #400 & #490 RTP Project #465 RTP Project #403	Requires communication to the agency with jurisdiction over the roadway.	$6,780,000/ $250,000	• Integration of multi-jurisdictional systems • More effective traffic management, incident management, and maintenance management • Improve real-time signal timing adjustments • Increase in information available to travelers through the TripCheck website	Parts of this project can be incorporated with planned capital improvements. ODOT staff have significant experience with CCTV camera deployments.
RV-TM-03 (ODOT, Jackson County, Medford, Central Pt, Ashland, J-ville)	Traffic Data Collection System	Deploy automated traffic data collection systems for corridor management and incident detection on the following corridors: • I-5 [ODOT] • Rogue Valley Highway (Hwy 99) [Medford, Central Pt, Ashland] • Crater Lake Highway (Hwy 62) [ODOT, Medford] • Pine Street/Biddle Road [Central Pt, Medford] • Jacksonville Highway (Hwy 238) [ODOT, Jacksonville] • Crater Lake Avenue [Medford] • North Phoenix Road/Foothill Road [Medford] • Table Rock Road [Jackson Co] • Blackwell Road/Kirtland Road/ Antelope Road [Jackson Co] • McAndrews Road [Medford] • Stewart Ave [Medford]	H, M, L H, M, L H, M, L H, L L M L H L L H	STIP Key #10838, 10964, 10841 STIP Key #12328, 12380 STIP Key #10838, Draft Jackson Co TSP Key #69 and #70 STIP Key #12338, 12337, 12323 None STIP Key #12326 None STIP Key #08485, RTP Project #215 RTP Project #222, Draft Jackson Co Key #1 RTP Project #490 None	Requires communication to the agency with jurisdiction over the roadway.	$785,000/ $85,000	• Integration of multi-jurisdictional systems • Increase in staff efficiency • More effective traffic management and incident management • Availability of additional volume, speed, and occupancy data • Enhanced management of roadway operations	Parts of this project can be incorporated with planned capital improvements. ODOT and Medford staff have significant experience with data collection systems.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-04 (ODOT, Medford)	Dynamic Message Signs	Deploy dynamic message signs on the following corridors: ● I-5 ● Rogue Valley Highway (Hwy 99) ● Crater Lake Highway (Hwy 62)	 M, L L L	RV-TM-03; RV-TM-11	Requires communication to the agency with jurisdiction over the roadway.	$2,135,000/ $25,000	● Improve driver safety during incidents and events ● More effective traffic management and incident management ● Reduction in staff time needed to deploy temporary signs ● Provide motorist information on incidents/events more quickly	ODOT has successfully deployed numerous dynamic message signs throughout Rogue Valley and Oregon.
RV-TM-05 (ODOT, Medford, & Jackson County)	Traffic Signal Coordination	Implement traffic signal coordination and install traffic signal interconnect where needed on the following corridors: ● Rogue Valley Highway (Hwy 99) ● Crater Lake Highway (Hwy 62) ● Pine Street/Biddle Road ● Crater Lake Avenue ● Table Rock Road ● McAndrews Road	H, M, L	RV-TM-12 None None STIP Key #12338, 12337, 12323 STIP Key #12329 None RTP Project #490	Requires interconnect to traffic signals not currently interconnected. For advanced traffic signal coordination, traffic signals operated by ODOT and Jackson County need to be connected to a central signal system.	$320,000	● Improved safety and efficiency of each corridor, therefore reducing delay and emergency response times ● Reduced stops and congestion ● Improved travel times	Parts of this project can be incorporated with planned capital improvements. Almost all traffic signals in the City of Medford already have interconnect and are connected to the City's central signal system.
RV-TM-06 (ODOT)	Curve Warning System	Deploy a curve warning system on I-5 in the Siskiyou Pass.	H	None	None	$550,000/ $11,000	● Reduced vehicle speeds ● Improved safety ● Reduced collisions	ODOT and CalTrans have successfully deployed several curve warning systems that have resulted in accident and speed reductions.
RV-TM-07 (Medford, Central Pt, Ashland)	Speed Monitoring System	Deploy an automated speed monitoring system with driver feedback signs on the following corridors: ● Rogue Valley Highway (Hwy 99) ● Crater Lake Highway (Hwy 62)	L	RV-TM-03	None	$150,000/ $6,000	● Reduced vehicle speeds ● Improved safety ● Reduced collisions	The Medford Police Department has found their speed enforcement vans effective in reducing speeds.
RV-TM-08 (ODOT & Medford)	Incident Response Program	Develop a multi-jurisdictional regional incident response program to support emergency management agencies with incident management on regional state, county, and city roadways. This program includes personnel, response vehicles, and dispatch.	L	RV-TM-02; RV-TM-10;	This project would require incident response vehicles and staff to patrol the regional roadways.	$820,000/ $37,000	● Increased capacity and throughput during incident conditions ● Improved integration of regional freeway systems with local signal systems ● Reduction in congestion and delay due to incidents ● Reduced incident response times ● Improved safety and efficiency	ODOT Region 1 and Region 2 have successfully implemented incident response programs in the Portland and Eugene-Springfield metropolitan areas, respectively.
RV-TM-09 (ODOT, Medford, Central Pt, Ashland, Jackson County)	Incident Management and Operations	This project includes the development of incident management operational plans and the deployment of field devices to manage incidents. The field devices will include CCTV cameras, dynamic message signs, trailblazers, and system detectors to detect incidents, monitor conditions, and post traveler information. Coordinated traffic signal timing plans will also be implemented. The incident management operational plans will include the operational protocol for field devices	H, M, L	RV-TM-01; RV-TM-02; RV-TM-03; RV-TM-05; RV-TM-09	Requires deployment of field devices and communications infrastructure. Some field devices or communications equipment may be installed as part of other freeway and arterial surveillance and management projects.	$2,735,000/ $95,000	● Ability to detect and monitor incidents ● Availability of real-time freeway and arterial corridor information during incidents ● Increased capacity and throughput during incident conditions ● Improved integration of regional freeway systems with local signal systems	ODOT Region 1 and the City of Portland have successfully developed and deployed an incident management operational plan on the I-5/ Barbur Boulevard corridor.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
    RV-TM-09A RV-TM-09B RV-TM-09C RV-TM-09D		(i.e. CCTV cameras, DMS, and system detection on mainline and alternate routes), the development of incident signal timing plans on alternate arterial routes, and clearly defined agency roles and responsibilities. The corridors for this project include the following: • I-5: Exits 11 to 35 (Alt rtes previously identified by local agencies) • I-5: Siskiyou Pass • Crater Lake Highway (Hwy 62) • Lake of the Woods Highway (Hwy 140)					• Reduction in congestion and delay due to incidents • Reduced incident response times • Improved safety and efficiency	Alternate routes and some operational procedures have already been established for I-5 as part of the Emergency Detour Contingency Manual. The operational plan for I-5 can expand on this and focus on the metropolitan area.
RV-TM-10 (RVTD)	Transit Signal Priority	Give priority at traffic signals only to buses that are behind schedule to support transit operations and schedule adherence. This project includes installing transit priority equipment on the transit fleet as well as upgrading equipment at traffic signals and traffic signal controllers (as needed). This project also includes staff time to design and implement the transit signal priority timings. • Outfit transit fleet with transit priority emitters. • Route 1 (20 signals), Route 60 (15 signals) • Route 10 (28 signals), Route 4 (8 signals) • Route 40 (16 signals), Route 2 (10 signals), Route 60 (2 signals)	 H H M L	RVTD, ODOT, and the City of Medford will be implementing transit signal priority at two traffic signals on Hwy 62 as part of the North Medford Interchange Project and will be able to apply lessons learned to future deployments; RV-PTM-01	Equipment installations/upgrades at traffic signals will depend on the technology chosen as part of the North Medford Interchange Project. Also requires the installation of transit priority equipment on the transit fleet.	$565,000/ $22,000	• Reduced transit delay • Improved schedule adherence and reliability • Reduced operational costs • Enhanced transit service • Increased ridership	TriMet and the City of Portland have successfully deployed the technology on several corridors in the City of Portland.
RV-TM-11 (ODOT & Jackson County)	Central Signal System	Upgrade the City of Medford central signal system to provide additional functionality such as transit signal priority, congestion mapping, integrated camera control, and enhanced data collection reporting. This project also includes installing a central signal system for traffic signals owned by ODOT, Jackson County, the City of Central Point, and the City of Ashland. Ensure the system can be integrated with transit systems (ie. AVL) and emergency management systems (ie. AVL). Consider sharing the same central signal system with the City of Medford.	M, L	RV-TM-06; RV-PTM-03	Requires a communication connection between the central signal system and each traffic signal that will be connected to the system.	$1,040,000/ $4,000	• Capability for advanced traffic signal operations and more flexible intersection control • Provides congestion mapping capability • Improved transit schedule adherance	The City of Medford already has a central signal system in place and can pass on lessons they have learned.
RV-TM-12 (ODOT)	Advanced Traffic Management System (ATMS) Software	Implement ODOT's ATMS Software in the Rogue Valley metropolitan area. This software will provide functionality to automatically notify the media and other agencies of incidents, support remote camera control and sign control, support congestion mapping, and support travel time reporting.	H	RV-TM-01; ODOT's ATMS Project (Releases 1 and 2)	None	None (This project is currently underway and funded by ODOT)	• Reduced staff time responding to incidents • Improved multi-agency coordination during incidents and special events • Reduced travel times and improved safety	ODOT Region 1 has successfully installed ATMS Release 1 in the Portland TMOC. They are currently developing ATMS Release 2 to enhance the existing system and add additional components.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-13 (ODOT)	Expand/Upgrade Highway Advisory Radio (HAR)	Expand and upgrade existing highway advisory radio system to cover a greater geographic area and to include more traveler information.	H, M, L	RV-TM-10; RV-TM-19	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations, etc…) to collect traveler information.	$300,000/ $10,000	• Real-time traveler • En-route information that allows users to make informed travel decisions • Reduced congestion and delay • Customer satisfaction	WSDOT has implemented highway advisory radio in southern Washington and can be used as a resource during design and construciton.
RV-TM-14 (ODOT)	Integrate Regional Traveler Information with TripCheck, 511, and Highway Advisory Radio	Develop an integrated system for disseminating and posting traveler information to TripCheck, 511, and HAR. This should include the ability to disseminate information to web-based services such as PDA's and cell phone messaging.	H, M, L	RV-TM-02; RV-TM-03; RV-TM-04; RV-TM-05	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations) to collect traveler information.	$500,000/ $9,000	• Real-time and static traveler information • Pre-trip planning capabilities and en-route information that allow users to make informed travel decisions • Reduced congestion and delay • Customer satisfaction	Requires an interface between agencies in the Rogue Valley metropolitan area to TripCheck, the 511 system, and the HAR system.
RV-TM-15 (ODOT)	Integrate 511 with Northern California	When California expands their 511 system to northern California, integrate the California and Oregon systems so that travelers may access information from both states when they are near the state borders.	L	511 Deployment in Northern California	Depends on when California plans to deploy a 511 system in the northern part of the state.	$100,000/ $1,000		Components for integration can be incorporated into the deployment of 511 in northern California.
RV-TM-16 (ODOT, Medford)	Traveler Information Television	Develop a dedicated television station for disseminating traveler information, such as camera images from the TripCheck website or congestion/ incident maps.	M	RV-TM-14	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations) to collect traveler information.	$30,000/ $80,000		Requires an interface between a television station and available traveler information.
RV-TM-17 (SOVA, ODOT)	Traveler Information Kiosks	Deploy computerized touch-screen kiosks that provide traveler information, including a link to TripCheck at the following locations: • Airport • Rest Areas • Eagle Point Visitor's Center ODOT plans to deploy a site specific weather forecast kiosk with a link to 511 that provides nearby site conditions at the Suncrest Rest Area near Talent.	H	None STIP Key #09436 Visitor's Center	None	$220,000/ $13,000		SOVA has installed a number of traveler information kiosks in southern Oregon including one at the Rogue Valley Mall in Medford.
RV-TM-18 (ODOT)	I-5 Siskiyou Pass Traveler Information	Develop a separate link on TripCheck for the Siskiyou Pass that includes a one-page profile view of I-5 with current and forecasted weather conditions and camera images along the entire length of the pass. Weather information shall be integrated with NOAA.	H	RV-MC-05	Depends on deployment of additional field devices to provide complete coverage of the pass.	$110,000/ $10,000	• Improve safety due to real-time and forecasted weather information • Improved traffic management over Siskiyou Pass	WSDOT has created website pages in this format that provide very clear and concise information in one location.
RV-TM-19 (Airport)	Integrate Rogue Valley International-Medford Airport Traveler Information with ODOT Region 3 TOC	Provide traveler information about Rogue Valley roadways at the airport and provide airport information to travelers via TripCheck and dynamic message signs operated by the TOC.	L	None	Requires communications link and interface between the Airport and the TOC.	$280,000/ $5,000	• Real-time and static traveler information • Pre-trip planning capabilities and en-route information that allow users to make informed travel decisions • Reduced congestion and delay • Customer satisfaction	Other agency interfaces are being developed as part of the ITS Deployment Plan that can be used as models for interface development.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-TM-20 (Event Organizers)	Special Event Management Systems	Project includes the deployment of traffic signal timing plans, portable dynamic message signs, and parking management for the following special events: • Jackson County Fairground Events • Oregon Shakespeare Festival • Britt Festival • Other Regional Special Events	L	None	None	$350,000/ $7,000	• Improved safety and efficiency, therefore reducing delay and emergency response times • More effective traffic management and special event management • Increase in information available to travelers through DMS and the TripCheck web site	Once traffic signal interconnect has been installed as part of RV-TM-07, special event signal timing plans can be deployed without having to install additional communication infrastructure.
Communication (CO)								
RV-CO-01 (ODOT & Medford)	Document Communication Design Standards	Document design standards for communications in the following areas to ensure standardization, compatibility, connectivity, and reliability between multiple jurisdictional agencies: • Conduit construction • Cable plant description • Minimum number of fibers • Network technology • Junction boxes • Fiber termination panels • Fiber connectors • Communication hub design • Fiber optic testing specification • Fiber optic installation specification • End electronics	H	This project is essential for ensuring that the communications deployed with other projects in this ITS plan are consistent throughout the metropolitan area and with other regional agencies.	None	$75,000/ $3,000	• Set of standards ready for implementation on all new projects or reconstruction projects • Standardization for multiple regional agencies	This documentation will establish the technical aspects required for establishing a communications network.
RV-CO-02 (ODOT, Medford, Jackson County)	Communication Network	Expand the communication network to support additional field devices and connect operations centers to the regional communications network.	H, M, L	This project is relative to most of the projects included in this ITS plan.	While the communication network can be expanded independent of the other projects in this plan, it is more likely that the infrastructure will be installed as part of other projects in this plan.	$4,000,000/ $150,000	• Connection between agencies will allow for multi-jurisdictional control, management, coordination, and information sharing • Connection to ITS field devices allows for innovative strategies such as arterial management and incident management	The City of Medford and ODOT already have a significant fiber optic communications network in the City.
Public Transportation Management (PTM)								
RV-PTM-01 (RVTD)	Automated Vehicle Location (AVL)/Computer Aided Dispatch (CAD) Transit Management System	Install an automated vehicle location (AVL) system on the RVTD fleet and install a computer aided dispatch (CAD) system at the RVTD dispatch center. RVTD plans to put 10 new buses, which are designed to accommodate an AVL system, into service in the fall of 2004. AVL should be deployed on these 10 buses, and the rest of the fleet should be outfitted with AVL as vehicles are replaced. Integrate the CAD system with the AVL system so that dispatchers may track the fleet in real-time and monitor on-time performance.	H	RV-TM-12	None	$620,000/ $20,000	• More efficient allocation of transit resources • Operating cost savings • Improved transit reliability • Ability to automate data collection process, which enhances planning efforts	TriMet and Lane Transit District (LTD) can be used as resources. TriMet has already successfully implemented AVL and CAD and LTD is currently researching systems for acquisition.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
RV-PTM-02 (RVTD)	Integrate Real-Time Transit Traveler Information with ODOT Regional Trip Planner Project	Provide ODOT's Regional Trip Planner Project with real-time transit schedule information. Real-time information will be searchable by route and stop location and indicate the amount of time until the next arrival.	H	RV-PTM-01; ODOT Regional Trip Planner Project	Automated vehicle location (AVL) must be installed on the transit fleet to enable real-time tracking and schedule information.	$350,000/ $2,000	• Real-time transit information to aid travelers with pre-trip planning • Removal of traveler uncertainty • Improved customer satisfaction	ODOT is developing an interface with RVTD as part of its Regional Trip Planner Project.
RV-PTM-03 (RVTD)	Real-Time Customer Information Displays	Deploy real-time dynamic message signs at key locations such as transit centers and bus stops where multiple routes pass through, and at stops with large bus headways.	M, L	RV-PTM-01	Automated vehicle location (AVL) must be installed on the transit fleet in order to provide real-time schedule information.	$440,000/ $83,000	• Real-time transit information to aid travelers with en-route planning • Better information during service disruptions • Reduction of perceived waiting times • Removal of traveler "uncertainty" • Improved customer satisfaction	TriMet has successfully implemented real-time customer information displays in the Portland metropolitan area using simple wireless communications.
RV-PTM-04 (RVTD)	Online Route Assignment	Develop an online route assignment program accessible by customers on the Internet and personal digital assistants that enables the user to determine the appropriate transit route to take between two locations. The system includes selecting the route based on quickest trip, fewest transfers, or shortest walk.	M	RV-PTM-01	Automated vehicle location (AVL) must be installed on the transit fleet in order to provide real-time schedule information.	$75,000/ $2,000	• Information to aid travelers with pre-trip and en-route planning • Improved customer satisfaction	TriMet has successfully implemented online route assignment and can be used as a resource.
RV-PTM-05 (RVTD)	Automated Passenger Counting (APC)	Install an automated passenger counting (APC) system that electronically records the number of passengers boarding and deboarding at each transit stop as well as the location and the time.	M	RV-PTM-01	In order to determine when and where passengers board and de-board, automated vehicle location (AVL) must be installed to support real-time operations.	$138,000/ $6,000	• More efficient allocation of transit resources • Ability to automate data collection process, which enhances planning efforts	This system can be added as a component of the AVL system (RV-PTM-01).
RV-PTM-06 (RVTD)	Automated Stop Announcements	Provide automated stop announcements prior to each scheduled stop along a transit route.	L	RV-PTM-01	Automated vehicle location (AVL) must be installed on the transit fleet to enable announcements to be coordinated with real-time route location.	$450,000/ $15,000	• Improved service and customer satisfaction	This system can be added as a component of the AVL system (RV-PTM-01).
RV-PTM-07 (RVTD)	Electronic Fare Collection with Smart Cards	Update the electronic fare collection system on the RVTD fleet to include the use of "smart" cards that allow for electronic payment of fares based on fare type (i.e. adult, senior) and zone.	M	None	This project should be coordinated with other transit agencies throughout Oregon to determine the feasibility of integrating this system throughout the state.	$1,000,000/ $5,000	• Ability to automate data collection process, which enhances planning efforts • Improved service and customer satisfaction	RVTD will need to research the existing technologies to determine what works best with their fleet.
RV-PTM-08 (RVTD)	Paratransit Scheduling with Mobile Data Terminals (MDT's)	Install mobile data terminals (MDT's) in paratransit vehicles so that dispatch may provide updated schedule and route information to each paratransit vehicle.	L	None	None	$120,000/ $5,000	• More efficient allocation of transit resources • Improved customer mobility • Customer satisfaction	Local emergency management agencies have successfully deployed mobile data terminals in years past and can be used as a resource.
RV-PTM-09 (RVTD)	Periodic Transit Fleet Maintenance System Upgrades	As technology evolves, upgrade the existing transit fleet maintenance system to continue the integration between of the on-board system with the vehicle diagnostics system.	M, L	None	None	$100,000/ $5,000	• More efficient allocation of transit resources • Improved maintenance management	RVTD has a transit fleet maintenance system today and periodic upgrades will help enhance the existing system.
RV-PTM-10 (RVTD)	Transit Security System Integration of Video Images with RVTD Dispatch	Develop a system to transmit video from buses and the transit station back to RVTD dispatch for real-time surveillance capabilities.	M	None	Requires communications connectivity between buses and the transit station and the RVTD Dispatch system.	$1,500,000/ $25,000	• Improved surveillance and monitoring capabilities • Increased security for passengers both on-board and waiting at the transit station	RVTD is in the process of acquiring an on-board transit security system at the same time they add addiitonal buses to their fleet later this year.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
Emergency Management (EM)								
RV-EM-01 (ODOT, SORC, RVCCOM)	Integration Between Traffic/Transit Management Systems and Emergency Management Systems	Provide a two-way information flow (ie. CCTV camera images, congestion flow map, emergency calls) between transportation management systems and the metropolitan area 911 and emergency dispatch centers.	H	RV-TM-01	A software interface will be required at the 911 and emergency dispatch centers, the traffic management centers, and the transit management systems for access between systems.	$1,350,000	• Improved real-time traffic conditions information • Information sharing between agencies • More efficient allocation of emergency response resources • Reduced emergency response times	ODOT and the Bureau of Emergency Communications (BOEC) are currently working on a proof-of-concept for 911 center integration. Evaluation of this proof-of-concept will help with 911 and emergency dispatch center integration in the Rogue Valley metropolitan area.
RV-EM-02 (ODOT)	Provide Interface Between Traffic Management Systems and Emergency Operations Centers (EOC's)	Provide an interface between the Regional Virtual TOC or other traffic management systems and each of the regional emergency operations centers to allow access to traffic control devices during emergency situations at the EOC's as well as to share information between agencies. This project includes workstations, monitors, and a communications interface at the EOC's.	M	RV-TM-01; RV-EM-01	A software interface will be required at the emergency operations centers, the traffic management centers, and the transit management centers for access between systems.	$75,000	• Improved real-time traffic conditions information • Information sharing between agencies • More efficient allocation of emergency response resources • Reduced emergency response times	The RV-EM-01 project regarding public safety integration will provide the basis for the deployment of regional emergency operations center integration.
RV-EM-03 (Medford Police Dept)	Traffic Adaptive Emergency Response	Deploy an integrated emergency response system that provides for pre-trip planning, en-route guidance (static route plan), and dynamic route guidance (traffic-adaptive route plan) for emergency vehicles.	L	RV-EM-01; RV-EM-05	Depends on real-time traffic information availability and also requires a communication connection between the regional traffic management centers and the 911 centers. Automatic vehicle locators included in RV-EM-05 are required for dynamic route guidance.	$420,000/ $10,000	• Improved static and real-time time information tailored to emergency management purposes • Reduced emergency response times	As RVCCOM 911 and SORC 911 are connected to the regional communication network, real-time traffic information will be readily available.
RV-EM-04 (Medford Police Dept)	Provide Real-Time Traffic Information to Mobile Data Terminals	Provide real-time traffic information to mobile data terminals housed in emergency response vehicles. Inventory existing emergency vehicle fleet to determine how many additional mobile data terminals need to be installed and install these as necessary.	M	RV-EM-03	None	$150,000/ $5,000	• Improved real-time traffic conditions information • Reduced emergency response times	A number of emergency response vehicles already include in-vehicle mobile data terminals.
RV-EM-05 (SORC, RVCCOM)	Emergency Vehicle Fleet Management System	Installation of automated vehicle locators (AVL) on emergency vehicles and dissemination of real-time emergency vehicle locations to dispatchers at the 911 centers for resource allocation.	H	None	Depends on linking vehicle locations to the mesh network currently installed in Medford that is planned for expansion throughout the Rogue Valley.	$450,000/ $15,000	• More efficient management of emergency vehicle fleet • Reduced emergency response times	Some local emergency management agencies have already installed AVL on their vehicles.
RV-EM-06 (Mercy Flights, Medford & Ashland Fire & Rescue)	Ambulance-Hospital Information System	Enable the exchange of real-time information (video, audio, and data) between regional ambulances and hospitals through the regional communication network.	H	None	Requires communications to be in place throughout the region.	$250,000/ $25,000	• Improved public safety • More efficient allocation of medical resources	San Antonio, Texas created the LifeLink System as a Model Deployment Initiative, which can be used as a resource.

Table 6-1. Deployment Projects

Project # (Lead Agency)	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
Information Management (IM)								
RV-IM-01 (RVCOG)	Regional Data Management System	Create a data management system for archiving data, collecting real-time data, and accessing data. The system should have geospatial capabilities and data should include at a minimum traffic counts, speed data, accidents (vehicles, pedestrians, and bicycles), traffic enforcement data, incident information, and transit information.	M	RV-IM-02; This project closely relates to projects that deploy field devices and systems to collect transportation related data.	This project is dependent on interagency communications and the deployment of field devices to collect data.	$560,000/ $20,000	• Improved resources for regional modeling, research, analysis, planning, and design • Reduced cost of data collection	This project will make use of data already collected or planned for collection by agencies in the Rogue Valley metropolitan area. ODOT has been working on an information brokering system as part of their TOCS software project.
RV-IM-02 (RVCOG)	Regional Data Standardization	Determine as a region the preferred format for data collection, reporting, and storage for consistency throughout the region.	M	RV-IM-01; RV-TM Projects	None	$50,000	• Ease of data sharing • Improved resources for regional modeling, research, analysis, planning, and design	Agreements will need to be reached amongst regional agencies to develop standards that work well for all agencies involved.
Maintenance & Construction Management (MC)								
RV-MC-01 (ODOT, Jackson County, Medford)	Maintenance, Construction, and Special Event Coordination System	Develop an information management system that contains details about regionwide maintenance and construction activities by public agencies, utility companies, and private contractors as well as special event information, including location and event duration.	L	None	Requires data and information from public and private agencies throughout the region.	$540,000/ $10,000	• Construction and maintenance scheduling capabilities • Improved resources for planning • Cost savings through project coordination	The system must allow for quick and easy data input and retrieval to make it efficient for affected agencies to use.
RV-MC-02 (ODOT, Jackson County, Medford)	Winter Maintenance Scheduling	Deploy a system that monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.	L	RV-MC-05	Requires communication between field devices and winter maintenance personnel.	$250,000/ $5,000	• Real-time weather and pavement conditions • More efficient allocation of maintenance resources during winter and inclement weather	Midwest states, northern states, and Canada have deployed similar systems that can be used as models for the region.
RV-MC-03 (ODOT, Medford)	Roadway Weather Information Systems (RWIS or "Weather Stations")	Deploy roadway weather information sites that provide temperature and road conditions at the following locations: • Siskiyou Pass [ODOT] • Jacksonville Hill [ODOT] • McAndrews Rd on Hill [Medford]	 H L L	None	None	$560,000/ $10,000	• Real-time weather and pavement conditions • More efficient allocation of maintenance resources during inclement weather	ODOT has previous experience with weather stations in the Rogue Valley and other regions.
RV-MC-04 (ODOT, Jackson County, Medford)	Develop Work Zone Management Standards	Develop standards for safety enhancements and management techniques in work zones such as the • Variable speed limits • Incident detection and management • Lane merge controls • Queue detection and electronic driver feedback signs	M	None	None	$40,000	• Improved construction zone safety and efficiency • Heightened safety awareness through driver feedback	The development of regional work zone management standards, that incorporate other statewide efforts, will make implementation easier during major construction projects. ODOT has acquired portable changeable speed limit signs that may be available for use in the region.

[1] The estimated operations & maintenance (O&M) costs listed in this table are for an annual basis once the project has been deployed.

TOTAL Rogue Valley ITS Plan Cost Estimate: $31,538,000 $1,091,000

Rogue Valley ITS Plan Cost Estimate

Project Number	Project Title	Estimated Capital Costs[1]	Estimated O&M Costs ($K/year)
Travel and Traffic Management (TM)			
RV-TM-01	Integration Between ODOT Region 3 Transportation Operations Center (TOC) and Local Transportation Operations Systems	$205,000	$0
RV-TM-02	Network Surveillance	$6,780,000	$250,000
RV-TM-03	Traffic Data Collection System	$785,000	$85,000
RV-TM-04	Dynamic Message Signs	$2,135,000	$25,000
RV-TM-05	Traffic Signal Coordination	$320,000	$0
RV-TM-06	Curve Warning System	$550,000	$11,000
RV-TM-07	Speed Monitoring System	$150,000	$6,000
RV-TM-08	Incident Response Program	$820,000	$37,000
RV-TM-09	Incident Management and Operations	$2,735,000	$95,000
RV-TM-10	Transit Signal Priority	$565,000	$22,000
RV-TM-11	Central Signal System	$1,040,000	$4,000
RV-TM-12	Advanced Traffic Management System Software	$0	$0
RV-TM-13	Expand/Upgrade Highway Advisory Radio (HAR)	$300,000	$10,000
RV-TM-14	Integrate Regional Traveler Information with TripCheck, 511, and Highway Advisory Radio	$500,000	$9,000
RV-TM-15	Integrate 511 with Northern California	$100,000	$1,000
RV-TM-16	Traveler Information Television	$30,000	$80,000
RV-TM-17	Traveler Information Kiosks	$220,000	$13,000
RV-TM-18	I-5 Siskiyou Pass Traveler Information	$110,000	$10,000
RV-TM-19	Integrate Rogue Valley International-Medford Airport Traveler Information with ODOT Region 3 TOC	$280,000	$5,000
RV-TM-20	Special Event Management Systems	$350,000	$7,000
	Travel and Traffic Management Subtotal:	*$17,975,000*	*$670,000*
Communications (CO)			
RV-CO-01	Document Communication Design Standards	$75,000	$3,000
RV-CO-02	Communication Network	$4,000,000	$150,000
	Communications Subtotal:	*$4,075,000*	*$153,000*
Public Transportation Management (PTM)			
RV-PTM-01	Automated Vehicle Location (AVL) and Computer Aided Dispatch (CAD)	$620,000	$20,000
RV-PTM-02	Integrate Transit Traveler Information with ODOT Transit Trip Planning Project	$350,000	$2,000
RV-PTM-03	Real-Time Customer Information Displays	$440,000	$83,000
RV-PTM-04	Online Route Assignment	$75,000	$2,000
RV-PTM-05	Automated Passenger Counting (APC)	$138,000	$6,000
RV-PTM-06	Automated Stop Announcements	$450,000	$15,000
RV-PTM-07	Electronic Fare Collection with Smart Cards	$1,000,000	$5,000
RV-PTM-08	Paratransit Scheduling with Mobile Data Terminals (MDTs)	$120,000	$5,000
RV-PTM-09	Periodic Transit Fleet Maintenance System Upgrades	$100,000	$5,000
RV-PTM-10	Transit Security System Integration of Video Images with RVTD Dispatch	$1,500,000	$25,000
	Public Transportation Subtotal:	*$4,793,000*	*$168,000*

Rogue Valley ITS Plan Cost Estimate

Project Number	Project Title	Estimated Capital Costs[1]	Estimated O&M Costs ($K/year)
Emergency Management (EM)			
RV-EM-01	Integration Between Traffic/Transit Management Systems and Emergency Management Systems	$1,350,000	$0
RV-EM-02	Provide Interface Between Traffic Management Systems and Emergency Operations Centers (EOC's)	$75,000	$0
RV-EM-03	Traffic Adaptive Emergency Response	$420,000	$10,000
RV-EM-04	Provide Real-Time Traffic Information to Mobile Data Terminals	$150,000	$5,000
RV-EM-05	Emergency Vehicle Fleet Management System	$450,000	$15,000
RV-EM-06	Ambulance-Hospital Information System	$250,000	$25,000
	Emergency Management Subtotal:	*$2,695,000*	*$55,000*
Information Management (IM)			
RV-IM-01	Regional Data Management System	$560,000	$20,000
RV-IM-02	Regional Data Standardization	$50,000	$0
	Information Management Subtotal:	*$610,000*	*$20,000*
Maintenance and Construction Management (MC)			
RV-MC-01	Maintenance, Construction, and Special Event Coordination System	$540,000	$10,000
RV-MC-02	Winter Maintenance Scheduling	$250,000	$5,000
RV-MC-03	Roadway Weather Information Systems (RWIS)	$560,000	$10,000
RV-MC-04	Develop Work Zone Management Standards	$40,000	$0
	Maintenance and Construction Subtotal:	*$1,390,000*	*$25,000*
	TOTAL Rogue Valley ITS Plan Cost Estimate:	**$31,538,000**	**$1,091,000**

[1] Costs include 20 Percent for Engineering and Construction Management.

[2] Costs include communications infrastructure not installed as part of an arterial management or incident management project.

Cost estimate includes staff time buried in the engineering and contingencies section.
Management of the plan is not included anywhere ($100,000/year).

Oregon Department of Transportation

Rogue Valley Intelligent Transportation Systems

Appendix Q: Steering Committee Meetings

CONTENTS

Rogue Valley Intelligent Transportation Systems

A planning project of the Rogue Valley Metropolitan Planning Organization

Agenda- Kick-Off Meeting

Time, Date: 9 a.m., Thursday, December 4

Location: RVTD Conference Room, 3200 Crater Lake Avenue, Medford

Conference Call-In Number: (541) 608-2421

Contact: Vicki Guarino, RVCOG- (541) 664-6676 ext. 241

1. Call to Order/Introductions (5 min) .... Alex Georgevitch
   Approve minutes; public comment
2. Project Introduction (15 min)... Galen McGill
3. Project Overview (20 min).. Jim Peters
   A. Scope of Work
   B. Project Schedule
4. Stakeholder Consensus (15 min)... Jim Peters
   A. Key Stakeholders (main contact and back-up)
   B. Expanded Stakeholders
5. Information Needed by DKS (10 min).. Jim Peters
   - Traffic signal locations and controller details
   - Traffic signal systems (twisted pair, fiber, radio, WAN, etc.)
   - Hardware and software system platforms
   - Leased lines, phone drops
   - System detectors
   - ITS devices (CCTV cameras, dynamic message signs, etc.)
   - Communications infrastructure
   - Bus priority equipment
   - Transit infrastructure
   - Existing and future (2023) traffic volumes, V/C, and LOS for 10 project corridors
6. List of Documents to Review (up to 6) (10 min) .... Jim Peters
7. Project Expectations (20 min) .... Jim Peters
8. Mission, Goals, and Objectives (30 min) .... Jim Peters
9. Next Steps (10 min).. Jim Peters
10. Other .... Alex Georgevitch

RVMPO | Oregon Department of Transportation | DKS Associates | Castle Rock Consultants

Meeting Minutes

Project Kick-Off Meeting

December 4, 2003, RVTD Conference Room

Attendees: Sue D'Agnese, Shirley Roberts, Galen McGill, Larry McKinley, ODOT; Alex Georgevitch, Jerry Barnes, Medford; Dan Moore, Julie Rodwell, Chris Olivier, Vicki Guarino, RVCOG; Scott Chancey, RVTD; Jeff Proulx, OSP; Hau Hagedorn, Castle Rock Consultants; Nathaniel Price, FHWA; Millie Tirapelle, Arlen Hatlestad, S. Ore. Regional 911; Peter Coffey, Renee Hurtado, Jim Peters, DKS Associates.

---

1. Call to Order/Introductions/Approval of Minutes .... Alex Georgevitch

After meeting participants introduced themselves, Alex Georgevitch called the meeting to order. Minutes from the May 15, 2003, meeting were approved as presented.

2. Project Introduction .... Galen McGill

Galen gave a brief overview of ITS, saying a plan is required by April 2005 for the region to qualify for Federal Highway Administration funds. The plan addresses traffic management devices such as signals. Each agency has its own systems and the idea of ITS is to have them work together. Much of that compatibility already is happening in the Medford area. This project will be directed by two groups: a steering committee of representatives of agencies that are key to the project's success, and an expanded stakeholder group which includes smaller communities, agencies and others interested in the plan.

3. Project Overview.. Jim Peters

Jim presented an outline of the project with PowerPoint, listing key project participants and the scope of work. The plan will include a needs assessment, which will be based largely on information from key local agencies. The work will follow a top-down, bottom-up approach. Top- down approach will involve applying the ITS architecture format to local projects and needs; the bottom-up approach will involve gathering the local information and framing it within the architecture. The project and deployment will have a 20-year horizon so it can be visionary.

A project schedule was distributed. Renee Hurtado said the task of identifying existing conditions will be done through the inventory and interviews. The plan will build on existing conditions and needs. A questionnaire will be sent to the expanded stakeholder group.

The group reviewed the corridors covered in the statement of work and agreed that the list seemed adequate. Jim said the area probably could be expanded if necessary as work proceeds. The ITS plan will assure that necessary agencies work in coordination and that ways are found to share information, such as road conditions for travelers. It will focus on ways to improve transportation for the general public rather than for a particular segment, such as the trucking industry. The regional architecture will show connections and a circuitry for information. It also will identify the agency responsible for carrying out specific aspects of the plan.

The group discussed potential benefits for agencies. Jim said the value of the plan will depend on agency input, so that projects address identified needs. Galen said local expertise is key to the usefulness of the plan. The plan won't necessarily solve all problems, but it should identify important problems.

The steering committee agreed to meet monthly, with meetings timed around the release of a draft document, which will be reviewed at the meeting. Millie Tirapelle said the SORC center has a larger conference room that may be more comfortable. She would check on its availability.

Jim said that an open house session in February, coordinated by RVCOG, would focus on information from the expanded-stakeholder group. Vicki Guarino said the open house will present the project's findings to date to the public and stakeholders who haven't been actively participating in the work. Additional, useful information for the ITS plan may be obtained at this event. Galen was concerned that the project not rely on the open house to gather necessary information from key sources. It was agreed that key sources would be contacted separately, perhaps in a smaller, daytime meeting on the same day as the open house, where information could be obtained in a more guided fashion.

Project information also would be presented to the RVMPO TAC, PAC and Policy Committee.

4. Stakeholder Consensus.. Jim Peters

Jim presented the draft lists of key stakeholders and expanded stakeholders. The committee decided to include smaller jurisdictions such as Eagle Point, Jacksonville, Phoenix, and Talent as expanded stakeholders. They will be included in project notifications and their representatives can decide how active they will be. Dan Moore asked about private sector participation, groups such as AAA and Oregon Truckers. Arlen Hatlestad suggested that fiber optic companies be included. Others suggested that the news media be included in light of their participation in issuing emergency warnings. Captain Rodriguez (OSP) or Dave Abbott (Jackson County Sheriff's Office) may have a contact list for media technical personnel that would be appropriate to include as expanded stakeholders. The California-Oregon Advanced Transportation Systems (COATS) should be reviewed for appropriate information. Alex noted that Medford has a project to create a fiber optic link to OSP. There was brief discussion of the recent activation of the Amber Alert system after a toddler was kidnapped, and a passing motorist alerted by the system was instrumental in the recovery. The committee agreed that the military would not be directly involved in RVITS. The private industry representatives (trucking, fiber optic companies, cell phone companies) would be invited to the open house.

Key stakeholders for RVITS were identified as Medford, Ashland, Central Point, Jackson County, RVCOG, RVTD, ODOT and FHWA.

5. Information Needed by DKS .... Jim Peters

Jim presented a brief list (on agenda) of information needs, but said he will email a more detailed list. Most of the information would come in the interviews. Julie Rodwell said she would like to have all traffic count data and data collection in RVMPO projects be integrated.

6. List of Documents to Review... Jim Peters

Jim presented a list of documents that will be reviewed as part of the existing conditions chapter. The committee agreed to add COATS and ODOT's Economic and Bridge Options Report. Julie said she will coordinate the list with DKS because there may be other reports that should be included.

7. Project Expectations .... Jim Peters

Participants listed expectations as follows:

Alex Georgevitch: Identifying software to share information from traffic cameras and other sources, and creating data bases that can be shared, such as accident data.

Dan Moore: The RVMPO needs to meet federal requirements by deadline. He hopes the plan will alleviate congestion, be integrated with emergency management providers, improve safety and incident response, provide real-time traveler information, and provide opportunities for public-private partnerships.

Sue D'Agnese: ODOT traffic management is undertaking projects, but information about projects needs to be better communicated, and duplication avoided.

Jeff Proulx: Oregon State Police wants to do whatever possible to reduce accidents on State and County roadways and to keep the roads clear.

Scott Chancey: RVTD wants to further efforts for transit signal prioritization.

Galen McGill: wants the plan to be well-coordinated so that it is effective, identifies agencies' current projects and needs, and establishes long-term relationships. He also wants to see automated data sharing.

Shirley Roberts: said her role is to support the project, and agreed with others' comments.

Julie Rodwell: wants to see public understanding the plan, and integrate the plan with the Regional Transportation Plan.

Larry McKinley: said it is important that various agencies' systems be integrated, secure communications interfaces be set up, and resources to be shared.

Arlen Hatlestad: wants to address ways to integrate the Internet with ITS for information dissemination and for secure access by public agencies. Galen noted that raw data is posted on ODOT's ftp site, but many people do not know about it.

Millie Tirapelle: said the challenge is to integrate users and communicate information about resources, such as ODOT's highway cameras. She hopes the project brings some cohesion to agencies and better information sharing despite limited funds. Alex noted that a communications network for emergency-services vehicles is expanding beyond Medford. Central Point has a wireless network linking patrol cars to city hall, and is linking patrol cars to cameras in the field.

Nathaniel Price: noted the importance of fiber links, but among smaller agencies the facilities and resources will differ widely. He wants to make sure the RVITS plan is something that is used and updated. It should identify areas of integration, and ways to incorporate ITS features into construction projects. Federal funds have been set aside for building ITS projects.

Jerry Barnes: said the public often is critical of the way transportation funds are spent, but this project presents an opportunity to show efforts toward efficiency, coordination and effective use of public money.

8. Mission, Goals, and Objectives.. Jim Peters

Jim led the committee in a roundtable discussion, recording suggestions with PowerPoint. He said he would compile comments into draft mission statement, goals and objectives and distribute the draft by email to meeting participants. Goals include safety, efficiency, security, improved real-time information, increased public awareness, system integration. Jim said the goals will be used near the end of the study for project scoring.

9. Next Meeting ....Alex Georgevitch

The group agreed that a meeting room with a larger table would be more comfortable. Millie Tirapelle said she would check on the availability of the SORC conference room. Jim noted that tentative meeting dates are listed on the project schedule and asked meeting participants to mark these on their calendars and check for future conflicts. Meetings will be Thursdays, 9 -11 a.m. The next meeting will be at 9 a.m. Jan. 22, 2004, tentatively at Southern Oregon Regional Communications conference room, 4th floor of the Jackson County Courthouse, 10 S. Oakdale Ave., Medford. (Note: Use the Facility Maintenance and Handicap Entrance at the back of the building to get to SORC's office.)

10. Other ....Alex Georgevitch

Alex Georgevitch adjourned the meeting at 10:50 a.m.

Rogue Valley Intelligent Transportation Systems

A planning project of the Rogue Valley Metropolitan Planning Organization

Agenda- Steering Committee Meeting #2

Time, Date: 9 a.m., Thursday, January 22, 2004

Location: SORC Boardroom, 4th Floor, Jackson County Courthouse, 10 South Oakdale Avenue, Medford

Conference Call-In Number: Call contact number below by Jan. 21 to arrange this service.

Contact: Dan Moore, RVCOG - (541) 664-6676 ext. 217

1. Call to Order/Introductions .... Alex Georgevitch

2. Review/Approve Minutes .... Alex Georgevitch

3. Public Comment .... Alex Georgevitch

4. Mission, Goals, and Objectives (15 min) ....Jim Peters
   Background: The working group in the last meeting discussed draft goals.
   Action Requested: Finalize project mission, goals, and objectives.

5. Project Update (10 min) ....Jim Peters
   A. Existing Conditions (15 min)
   B. Interview Results/Status (30 min)

6. Expanded Stakeholder Meeting (15 min)...Jim Peters
   A. Finalize Expanded Stakeholder List
   B. Discuss Meeting Format
   C. Finalize Meeting Location

7. Next Steps (10 min)..Jim Peters

8. Other Business.. Alex Georgevitch

9. Next Meeting: February 26, 2004 .... Alex Georgevitch

10. Adjourn

RVMPO Oregon Department of Transportation DKS Associates Castle Rock Consultants

Rogue Valley
Intelligent Transportation Systems

A planning project of the Rogue Valley Metropolitan Planning Organization

Meeting Minutes

Steering Committee Meeting #2
January 22, 2004, SORC Conference Room

Attendees: Sue D'Agnese, Galen McGill, Larry McKinley, ODOT; Alex Georgevitch, Medford; Dan Moore, Chris Olivier, Kathy Helmer, RVCOG; Mathew Barnes, RVTD; Nathaniel ("Nate") Price, FHWA; Arlen Hatlestad, Southern Oregon Regional Communications; Jim Wear, Phoenix.

Teleconferencers: Peter Coffey, Renee Hurtado, Jim Peters, DKS Associates.

---

1. Call to Order/Introductions/Approval of Minutes .... Alex Georgevitch

Alex Georgevitch called the meeting to order at 9:08 AM. The minutes of the Dec.4. 2003, meeting were approved as presented. Jim Peters apologized for DKS staff not attending the meeting in person; their plane had been returned due to fog. In the future, they will drive to Medford.

2. Public Comment .... Alex Georgevitch

There was no public comment.

3. Mission, Goals, and Objectives .... Jim Peters

Jim led the group in reviewing the drafted mission, goals and objectives, as per the handout. The group agreed that the mission statement was good as is.

Regarding Goal 2, Alex inquired about the applicability of the phrase "for non-motorized modes" in the second objective. The group agreed that the objective should be changed to "for all modes."

Dan asked if the objective of meeting federal requirements needed to be added to the list. Nate replied that complying was enough; it did not have to be listed.

Regarding the first objective under Goal 5, Alex asked why "building consensus among the Steering Committee members" was included, since it was part of the current process. Galen said that the sheet was lacking the objective of developing long-term partnerships to carry forward the coordination. The group agreed that the fourth objective should be changed to read "Continue to coordinate and integrate projects with other agencies."

Dan asked if there was going to be an ongoing need for an ITS Committee, and if so, what activities would it undertake over time. A budget for continued committee coordination would need to be developed. Galen noted that there would be a wide array of potential activities. The committee might become an MPO subcommittee that proposes regional projects or defines project pieces. Nate noted that there is a requirement to update the plan over time. The plan is to present an implementation plan; there will be a discussion of how to continue in the future. The group suggested that there would likely be two regular meetings each year and maybe a couple of special meetings regarding special projects. Jim noted that the group needed to consider managing the whole communications infrastructure. This group would develop intergovernmental agreements and memoranda of understanding.

4. Project Update... Jim Peters

Jim asked for people's comments on the draft Chapter 1 regarding Current & Future Transportation Conditions. He noted that comments are needed by 1/30/04. Some of the maps have yet to be finished.

Regarding the table on page 1-3, the group discussed how best to refer to the various interchanges and agreed that the I-5 exit numbers should be used for consistency. There are local names for the interchanges, but it is best to use the exit numbers.

The OSP office on Hwy 99 needs to be added to Figure 1-2.

In response to a question by Alex, Galen said that the maps will be in color and everyone to receive the report will receive a disc with color.

Jim noted that Figures 1-3 and 1-4 on congestion were not yet done; DKS is waiting for the information from the smaller towns.

Alex said that some traffic signals might be counted twice since Medford maintains some that are not owned by the City. Larry and Sue felt confident that they had not been doubled counted; some of the new signals are actually missing. Jim asked that the people responsible for each item review them for accuracy.

Alex asked that the RTP Policy about removing unwarranted signals be included somewhere in the report. This is an effort to improve efficiency. Jim said he would add it to section 1.13.5.

Regarding the crash data, Chris reported that he has 3 data sets in different formats. RVCOG has mapped some of the corridors; the state has mapped some. Medford has lots of data, but has not mapped it. This report calls for "high collision locations" and will require some data refinement. Jim suggested that Chris could use the SPIS calculations and just use each agency's format, rather than trying to put them all into the same format. Jim said that they just wanted the top accident locations. What is still needed is information from the other jurisdictions. Jim said that he, Renee and Chris would talk and organize to gather the data. Jim will contact Eric Niemeyer for county data. Alex will send Medford's data to DKS.
Alex mentioned that Figures 1-3 and 1-4 are a problem for him since the volume-to-capacity ratios are based on raw numbers from the travel demand model. Jim asked him to look at it as a starting point. Alex said he has v/c ratios for the intersections from a Citywide Synchro model and will give it to Jim to use for Figures 1-3 and 1-4.

The Oregon Highway model and the new MPO model are due out by the end of the fiscal year. The group agreed that they will go with the best information available now. If the model were done by June, then that information may be incorporated as appropriate.

The group discussed information that is still needed, which includes: the I-5 Alternate Route Plan, the I-5 Viaduct Alternate Route Plan, the Commuter Rail Feasibility Study ,the Traffic Management Plan for the new amphitheater, and a ranked list of County issues. Sue said she would get both I-5 alternate route plans from Bob Sechler and talk with John Vial regarding a traffic management plan for the new amphitheater. Jim will ask about whether a Jackson Co. Homeland Security Plan exists and if it is generally available. Dan will get the Commuter Rail study. Sue mentioned that Parametrix put together a list of ranked County issues and she will look into obtaining a copy of this documentation.

5. Expanded Stakeholder Meeting .... Jim Peters

Jim asked the group for their recommendations regarding public involvement aspects. Jim said he planned to have three events on February 26th: a meeting for other interested agencies, a Steering Committee meeting, and a public Open House. Dan said it would be a benefit to invite the public into the process at this time; he was particularly interested in inviting the MPO PAC, TAC and Policy Committee. Alex did not think that public input would be so helpful at the front end of this project since public turnout is virtually nonexistent for planning projects; he felt it would be better to wait until more work was accomplished and there was something for the public to review.

Ultimately, the group agreed that a meeting would be held from 9:30 AM to 11:30 AM, on Feb.26 for the “expanded stakeholder” group of other interested agencies and targeted members of the public, including such groups as the MPO PAC and TAC. Lunch will be brought in for the Steering Committee and that group will meet from Noon to 2 PM.

Regarding the expanded stakeholder list, Alex wanted Bill Hoke’s name to be added. Dan suggested that TRADCO be added, as well as the local Freight Advisory Committee. RVCOG will put together a mailing list and send out a DKS brochure on ITS along with an agenda for the Feb.26th morning meeting. DKS will prepare handouts for the meeting. Alex suggested that each agency or group send a representative, such as their Chair, rather than inviting several people from each group.

The meeting format will be: a starting presentation, followed by participants visiting a variety of stations manned by staff. Jim will work with RVCOG to determine a venue.
Jim shared some of what had been heard in stakeholder interviews. They heard a good deal about accidents on the I-5 viaduct, as well as closings of the Interstate due to the Siskiyou Pass closures in recent snowfalls. They heard many positive comments about work that had already been accomplished, such as the common dispatch of ODOT and OSP and the sharing of a CAD system by CCOM and SORC.

6. Next Steps .... Jim Peters

1/30/04 Comments are due on the Future & Current Transportation Conditions

2/12/04 Draft Needs Assessment Chapter will be ready for review
2/26/04 The Expanded Stakeholder and Steering Committee Meetings will be held
The next Steering Committee Meeting will focus on architecture, as well as the concept of operations.

7. Adjournment .... Alex Georgevitch
Alex adjourned the meeting at 10:50 AM.

Rogue Valley Intelligent Transportation Systems

A planning project of the Rogue Valley Metropolitan Planning Organization

Agenda- Steering Committee Meeting #3

Time, Date: 12 p.m., Thursday, February 26, 2004

Location: Smullin Center Room 109-111, Rogue Valley Medical Center Campus, 2650 Siskiyou Blvd, Medford

Contact: Julie Rodwell, RVCOG - (541) 664-6676 ext. 214

1. Call to Order/Introductions .... Alex Georgevitch
2. Review/Approve Minutes .... Alex Georgevitch
   Draft minutes from January 22, 2004 meeting attached.
3. Public Comment .... Alex Georgevitch
4. Federal ITS Requirements (10 min) .... Jim Peters
5. National ITS Overview .... Staff
   A. Why are We Creating an Architecture? (Nathaniel Price – 10 min)
   B. ITS Terminology (DKS – 5 min)
   C. Turbo Architecture (DKS – 5 min)
6. Rogue Valley Regional ITS Architecture (45 min) .... Jim Peters
   A. Physical Architecture
   B. User Services
   C. Market Packages
   D. How Will the Region Maintain the Architecture?
7. Introduction to Concept of Operations (30 min) .... Hau Hagedorn
8. Next Steps (5 min) .... Jim Peters
9. Other Business .... Alex Georgevitch
10. Next Meeting: April 1, 2004 .... Alex Georgevitch
11. Adjourn

RVMPO Oregon Department of Transportation DKS Associates Castle Rock Consultants

Meeting Minutes

Steering Committee Meeting #3
February 26, 2004, Smullin Center

Attendees: Sue D'Agnese, Galen McGill, Shirley Roberts, Larry McKinley, ODOT; Alex Georgevitch, Medford; Julie Rodwell, Chris Olivier, Vicki Guarino, RVCOG; Nathaniel Price, FHWA; Eric Niemeyer, Jackson County, Peter Coffey, Jim Peters, DKS; Toshi Forrest, Hau Hagedorn, Castle Rock Consultants.

---

1. Call to Order/Introductions/Approval of Minutes .... Alex Georgevitch

Alex Georgevitch called the meeting to order at 11:45 a.m. He suggested that if anyone had changes to make to the minutes they should call RVCOG.

2. Public Comment .... Alex Georgevitch

There was no public comment.

3. Federal ITS Requirements .... Jim Peters

Jim said the agenda would be changed so that Nathaniel Price could talk about the federal requirements and reasons for creating the ITS architecture.

Nathaniel made a PowerPoint presentation (slides handout) reviewing the reasons and history of the ITS Architecture. He said the ITS architecture is not a design but a plan that shows what the community wants the transportation system to do. It is a way of reducing costs by making the transportation system function more effectively. It also fosters cooperation among federal, state and local agencies and other interests, such as emergency responders. The architecture will become an element of other local plans, and incorporated into transportation plans. Federal regulations require that the regional architecture for the RVMPO be in place by April 8, 2005, so that projects in the RVMPO can continue to qualify for federal funds.

Alex Georgevitch asked whether the requirement could interfere with anticipated start of construction of the South Medford Interchange, which is expected to go to bid later in 2005. Nathaniel and Galen McGill said the region should have its ITS architecture completed well before April 2005, so there shouldn't be any problem. (Additional comments attached at the end of this document as a memo.)

4. Rogue Valley Regional ITS Architecture .... Jim Peters

Jim reviewed work accomplished to date, including identification of key and expanded stakeholders, interviews and surveys, and the compilation of the results, which are included in the systems inventory. He distributed a handout containing the Draft Regional ITS Architecture elements, which included the physical architecture, the Turbo Architecture inventory report, the user services, and the market packages.

Jim described the Draft Rogue Valley High-Level Physical Architecture Figure. The working group provided the following comments:

- Add the City of Medford under Web Based Transit & Traveler Information.
- Add the City of Phoenix under Traffic Signals.
- Add the City of Medford under Weather Stations.
- Add the National Oceanic and Atmospheric Administration (NOAA) as a Center.

Jim asked working group members to review the inventory for completeness. Members noted that Phoenix Traffic Signals, Mercy Flights and perhaps NOAA should be added to the inventory. NOAA would like to be able to distribute their information at rest areas. It was also noted that the name “Jackson County Public Works” should be replaced with “Jackson County Roads, Parks, and Planning”. Members would like the inventory to include field devices instead of the higher level “roadside devices”.

Jim described the market packages and their functions. He also described Turbo Architecture, the software that will be used to build and maintain the RVITS Regional ITS Architecture. Once the inventory is finished, the working group will verify that the draft selected market packages are appropriate to the area and best serve the RVITS needs. Market package descriptions also are on the web, as noted in the handout.

He led the group in an item-by-item review of draft Rogue Valley Market Packages by key stakeholders. Members noted planned and existing programs and services that match available packages listed in the draft, and discussed how packages fit existing and potential needs.

The working group discussed setting up a data warehouse, and agreed that RVCOG might be the most appropriate agency for the function.

Public transportation packages were skipped because RVTD representatives were absent.

Nathaniel and others said the options for assessing market packages, existing or planned, were too limited. There should be more ways to express the extent to which packages are applicable. Some packages could become useful in the future, and would be added to the architecture at the time they become useful, not now. The working group agreed that surface street and freeway controls need to be coordinated.

Some working group members said Ashland may have ITS needs relating to weather (freezing conditions at higher elevations) and traffic controls for special events.

DKS will incorporate the group’s comments on the draft market packages table and issue an updated table as part of the Draft Regional ITS Architecture chapter in late March.

5. Introduction to Concept of Operations..Hau Hagedorn

Hau made a PowerPoint presentation on ITS operations. She said consultants will meet separately with stakeholders to gather additional information and then will draft an outline showing coordination among agencies. Roles for agencies will be defined, and the flow of data will be diagrammed. Information about agency roles will be gathered from stakeholders.

She showed a sample diagram, using information from SORC. The slide illustrated working relationships with other agencies, and ITS features. As ITS features are added to the system the diagram will be amended to reflect the change. Hau said she will talk to each stakeholder about their roles, and then discuss his findings at the next working group meeting. Hau explained the function of the diagram, identifying the kind of information, where it is generated, and where it goes.

6. Next Steps .... Jim Peters

The next working group meeting will be 9:30-11:30 a.m., April 1, at the SORC conference room in the Jackson County courthouse, Medford.

DATE: **March 9, 2004**

TO: **RVITS Steering Committee**

FROM: **Nathaniel Price, FHWA**

SUBJECT: **ITS Architecture Conformity Overview**

To follow up on the phone conversation last week: Attached is a short overview of the ITS Architecture conformance Final Rule and how it would apply to the South Medford Interchange. The first couple of pages is the overview and then at the end is how it would apply in Medford. As the process of just how projects should be implemented and how we will oversee this process is still being developed in our Office, this is subject to change for future projects. Please let me know if you have any comments or questions.

Conformance with the Final Rule for ITS Architecture and Standards

The requirements for conformance with ITS Architecture and Standards are found in 23 CFR Part 940. The main sections of Part 940 address the Policy (940.5), Applicability (940.7), Regional ITS Architecture (940.9), Project Implementation (940.11) and Project Administration (940.13). The two elements to focus on for conformance are Part 940.9 addressing the development of a regional ITS architecture and Part 940.11 addressing implementation of ITS projects.

Overview of 23 CFR Part 940

Part 940.5 – Policy:

This section states that ITS projects shall conform to the National ITS Architecture and standards. Conformance with the National ITS Architecture is interpreted to mean the use of the National ITS Architecture to develop a regional ITS architecture, and the subsequent adherence of all ITS projects to that regional ITS architecture. Development of the regional ITS architecture should be consistent with the transportation planning process for Statewide and Metropolitan Planning.

Part 940.7 – Applicability:

All ITS projects that are funded in whole or in part with the highway trust fund, including those on the National Highway System (NHS) and on non-NHS routes, are subject to these provisions.

An ITS project is defined as any project that in whole or in part funds the acquisition of technologies or systems of technologies that provide or significantly contribute to the provision of one or more ITS user services as defined in the National ITS Architecture.

Part 940.9 – Regional ITS Architecture:

This section states that a Regional ITS architecture shall be developed to guide the development of ITS projects and programs and be consistent with ITS strategies and projects contained in applicable transportation plans. The regional ITS architecture shall include the following:

- Description of the region;
- Identification of participating agencies and other stakeholders;
- An operational concept that identifies the roles and responsibilities of participating agencies and stakeholders in the operation and implementation of the systems included in the regional ITS architecture;
- Any agreements (existing or new) required for operations, including at a minimum those affecting ITS project interoperability, utilization of ITS standards, and the operation of ITS projects identified in the regional ITS architecture;
- System functional requirements;
- Interface requirements and information exchanges with planned and existing systems and subsystems;
- Identification of ITS standards supporting regional and national interoperability; and
- The sequence of projects required for implementation.

This section also states that the agencies and other stakeholders participating in the development of the regional ITS architecture shall develop and implement procedures for maintaining it, as needs evolve within the region.

Part 940.11 – Project Implementation:
This section looks at how ITS projects are developed and implemented in a region. It states that all ITS projects funded with highway trust funds shall be based on a systems engineering analysis. The analysis should be on a scale commensurate with the project scope. The systems engineering analysis shall include:

- Identification of portions of the regional ITS architecture being implemented;
- Identification of participating agencies roles and responsibilities;
- Requirements definitions;
- Analysis of alternative system configurations and technology options to meet requirements;
- Procurement options;
- Identification of applicable ITS standards and testing procedures; and
- Procedures and resources necessary for operations and management of the system.

It also states that the final design of all ITS projects funded with highway trust funds shall accommodate the interface requirements and information exchanges as specified in the regional ITS architecture. If the final design of the ITS project is inconsistent with the regional ITS architecture, then the regional ITS architecture shall be updated as provided in the process defined in Part 940.9(f) to reflect the changes.

Part 940.13 – Project Administration:
This section simply states that prior to the authorization of highway trust funds for construction or implementation of ITS projects, compliance with Part 940.11 shall be demonstrated.

Conformity in Medford
The “Regional ITS Operations and Implementation Plan for the Rogue Valley Metropolitan Area” that is being developed for RVITS by DKS will satisfy most if not all of Part 940.9

Regional ITS Architecture. One piece that may or may not be addressed in complete detail is the maintenance of the regional ITS architecture.

Following the completion of the regional ITS architecture, all ITS projects in the region must be implemented following the requirements stated in Part 940.11. While this does apply to all ITS projects in a region, the intent of the Final Rule is to foster integration of the development of regional ITS systems. This includes incorporating ITS elements into the region's transportation planning and programming process, promoting increased stakeholder participation, and identification of potential integration activities among agencies. This will have the most impact on major ITS projects. A major ITS project means any project that implements part of a regional ITS initiative that is multijurisdictional, multi-modal, or otherwise affects regional integration of ITS systems. All major ITS projects should be developed and implemented based on the requirements identified in 23 CFR Part 940. Other projects will be addressed on a case by case basis, until a more formal process for addressing the implementation and administration of ITS projects can be developed within our office. With this in mind, I would like to work with ODOT and local agencies within Oregon to develop this process.

For the specific project that was questioned, the South Medford Interchange project, the ITS elements that were mentioned are a CCTV camera and some new signals. In this case, the need for a formal systems engineering process does not seem to apply. However, I would still like to see some documentation addressing the following items:

- Portions of the regional ITS Architecture being implemented;
- Identification of the participating agencies roles and responsibilities (this can most likely come from the Operational Concept developed as part of the ITS Plan). This should also include procedures and resources for operation and maintenance of the field devices;
- Functional requirements of the devices. For this particular project, it will not be much more than a paragraph indicating what you will require the devices to do, i.e. PTZ Camera, etc.; and
- ITS Standards that you expect to implement. In this case, I don't suspect there will be any.

I don't expect this documentation should be much more than a couple of pages. Most of it should be able to be drawn directly from the regional ITS architecture. Again, the analysis should be on a scale commensurate with the scope of the project. In this case, the ITS portion of the project is relatively minor compared to the entire construction project. Basically, I want to ensure that the intent of the Final Rule is met without overburdening the process. I am willing to discuss these documentation requirements with you further if this proves necessary.

If you have any further questions regarding 23 CFR Part 940 please feel free to give me a call at 503.587.4709 or send me an e-mail at Nathaniel.price@fhwa.dot.gov. I would also be willing to go over this in more detail at our next RVITS meeting if that is necessary. In addition, I am collecting information from other States on how they are handling the administration of ITS projects. I will be using this information along with input from ODOT and local agencies to develop the process that will be used here in Oregon.

Rogue Valley
Intelligent Transportation Systems

A planning project of the Rogue Valley Metropolitan Planning Organization

Agenda- Steering Committee Meeting #4

Time, Date: 9:00 a.m., Thursday, April 1, 2004

Location: SORC Boardroom, 4th Floor, Jackson County Courthouse, 10 South Oakdale Avenue, Medford

Conference Call-In Number: Call contact number below by March 30 to arrange this service.

Contact: Vicki Guarino, RVCOG - (541) 664-6676 ext. 241

---

1. Call to Order/Introductions .... Alex Georgevitch
2. Review/Approve Minutes .... Alex Georgevitch
3. Public Comment .... Alex Georgevitch
4. Workshop Debrief (10 min) .... Jim Peters
   Discussion of February 26th Expanded Stakeholder Workshop.
5. Concept of Operations (60 min) .... Hau Hagedorn
6. RVITS Architecture (10 min) .... Jim Peters
7. Goals and Objectives (35 min) .... Jim Peters
   Discussion of Project Scoring System
8. Next Steps (5 min) .... Jim Peters
9. Other Business .... Alex Georgevitch
10. Next Meeting: May 6, 2004 .... Alex Georgevitch
11. Adjourn

Meeting Minutes

Steering Committee Meeting #4
April 1, 2004, SORC Conference Room

Attendees: Galen McGill, Shirley Roberts, Larry McKinley, ODOT; Alex Georgevitch, Jerry Barnes, Medford; Julie Rodwell, Chris Olivier, Vicki Guarino, RVCOG; Nathaniel Price, FHWA; Jim Peters, Renee Hurtado, DKS; Toshi Forrest, Hau Hagedorn, Castle Rock Consultants; Ron Norris, Medford Police, Mike Curry, Jackson County emergency manager; Millie Tirapelle, Arlen Hatlestad, SORC 911; Scott Chancey, RVTD; Eric Niemeyer, Jackson County.

---

1. Call to Order/Introductions/Approval of Minutes .... Alex Georgevitch

Alex Georgevitch called the meeting to order at 9:05 a.m. He suggested that if anyone has changes to make to the minutes they should call RVCOG.

2. Public Comment .... Alex Georgevitch

There was no public comment.

3. Workshop Debrief .... Jim Peters

Jim led a debriefing of the February 26 workshop. Committee members said many good comments were received and there was a good turnout. The committee agreed that the next workshop should be held in a larger room. Suggested locations for the next workshop included the Jackson County Auditorium on Table Rock Road and the Girl Scout facility in Medford.

4. Concept of Operations .... Hau Hagedorn

Hau distributed hard copies of the Draft Chapter 4: Concept of Operations, and reviewed the document. (Electronic copies were distributed in advance of the meeting.) She described how it was developed with the information from stakeholders. The database shows everything that was included, identifying the various agencies, their interactions and the flows of information among them. Relationships among the agencies are identified and roles and responsibilities are categorized. Some chapter elements were confirmed among working group members during the meeting, but the rest of the chapter still needs reviewed by Committee members. The document lists basic ITS functions for participating agencies. Jim Peters said the flow diagrams provide a structure that can be used to develop other plans and agreements in the future.

The committee discussed Figure 4-3: Incident Management Flow Diagram and a sample scenario, closure of the southbound I-5 viaduct, depicted in a map handout. The scenario included activation of message signs and traffic signal timing. It was noted that only ODOT has authority to close I-5. Closure decisions for a particular roadway are made by whatever agency has jurisdiction of that roadway. The flow diagram is used to chart incident management and the information flows (data, video, control, request, status) between agencies, equipment, and vehicles. In general, information flows to and from roadside devices or vehicles will be between the device or vehicle and the owning/operating agency's center. Information flows between agencies will happen on a center-to-center level.

Summary of Edits to Figure 4-3:

- Change ODOT TMOC to ODOT TOC.
- Change CCOM to RVCCOM.
- Include "Other Cities" to the description of the Emergency Responders and Emergency Response Vehicles that interact with SORC. SORC dispatches for 9 cities and 28 agencies, but each one does not need to be listed separately.
- Add a planned video information flow from Emergency Response Vehicles to SORC and RVCCOM.
- Add Mercy Flights' Dispatch Center. Data and status information are currently exchanged between Mercy Flights and SORC and between Mercy Flights and RVCCOM. The two-way exchange of video information between Mercy Flights and SORC and RVCCOM is planned for the future.
- Add Jackson County Roads, Parks, and Planning Roadside Equipment and the appropriate flows.
- Add a planned two-way information flow (control, data, status, request, video) between ODOT TOC and Medford Roadside Equipment. The City of Medford will likely pursue an agreement for ODOT to implement pre-programmed signal timing after hours.
- Add a planned video information flow from Medford to SORC and RVCCOM.
- Add a planned video information flow from RVTD Coaches to RVTD.
- Add a planned video information flow from RVTD to SORC and RVCCOM.

Side note: SORC is in the process of deploying a countywide microwave system.

Table 4-8: Incident Management Roles and Responsibility Matrix defines roles and responsibilities for agencies in the areas of design, construction/implementation, operational planning, operations, and maintenance. Consultants asked agency representatives to review roles and responsibilities and notify them of any changes needed. There was discussion about 911 agencies possibly needing the capability to control variable massage signs in the future. Larry also noted that ODOT operates highway advisory radio (HAR), not OSP.

Traveler information (Figure 4-2 and Table 4-6) and centralized data storage (Figure 4-6 and Table 4-14) were discussed. Julie Rodwell noted a growing amount of traffic data collected by the MPO. Warehousing data could be a role for RVCOG. Alex noted Jackson County has a lot of GIS data and the warehouse needs to be accessible and maintained so that it's useful. Medford is putting all of its traffic data on GIS. Galen McGill said he wasn't sure that traffic count data should be part of an ITS warehouse—it should be for ITS data, but details can be worked out later. The issue now is whether the group wants to have a warehouse. Also, Jim said it could be a virtual warehouse in which every member keeps their own data. Alex pointed out the need for an incident database. Galen said it may be desirable to have a central archive to provide analysis and get information back to agencies. Julie said that even if each agency is responsible for its own information, there should be a lead agency assuming overall responsibility. Jim said such details can be worked out later during the actual project development of a data warehouse. Jim also mentioned that a separate project for standardization of data formats may be a project to include in the deployment plan.

Figure 4-2: Traveler Information Flow Diagram was discussed. Regarding construction information, Alex noted that Medford posts static info on the web and eventually the city would like to post its video images to ODOT's TripCheck website. Galen noted that the TripCheck website is available for the Rogue Valley to post information to and already has a link to the metropolitan area. The public is already largely aware of the TripCheck website. Diagram will be changed to eliminate an RVCOG Central Website and to show TripCheck as the regional traveler information website. Jackson County also posts static construction information on their website.

Jim pointed out that when Steering Committee members review the Draft Concept of Operations chapter, they do not need to review the chapter in its entirety but should closely review the information flows and roles and responsibilities associated with their agency.

5. RVITS Architecture.. Jim Peters

Jim distributed the draft Transit Architecture market packages, and said they are groupings of ITS equipment that provide particular transit related services. The market package selection is based on needs heard from stakeholders. Scott Chancey said much of what is noted is being done now, but in some cases is done by hand rather than an automated system. Some of the information is for RVTD's own use, but some would be useful to passengers and other agencies. Real Time Ridesharing is selected as planned under the traveler information market packages.

It also was noted that there is a new upgrade of the Turbo Architecture software (Version 3.0) expected out soon, so it will be used to update the regional architecture inventory and to create the regional architecture flow table.

6. Project Scoring .... Jim Peters

Jim distributed the draft matrix for evaluation of proposed Rogue Valley ITS plan projects. He noted that it lists the goals and objectives agreed upon during the January 22nd Meeting. Weighted goals and objectives will be used by RVCOG for project scoring. Each project will be assigned a score based on how well it meets each objective under each of the five project goals. The Committee agreed on the weighted goal scores included in the matrix, but changed Goal 2 to 25 points and Goal 3 to 20 points. It was noted that Committee members should contact DKS if they have any comments on the scores assigned to the goals and objectives.

7. Next Steps .... Jim Peters

The next meeting will be 9 a.m., May 6; Arlen Hatlestad said he would check on the availability of the SORC conference room.

The meeting adjourned at 10:55 a.m.

Rogue Valley
Intelligent Transportation Systems

A planning project of the Rogue Valley Metropolitan Planning Organization

Agenda- Steering Committee Meeting #5

Time, Date: 9:00 a.m., Thursday, May 6, 2004

Location: SORC Boardroom, 4th Floor, Jackson County Courthouse, 10 South Oakdale Avenue, Medford

Conference Call-In Number: Call contact number below by March 30 to arrange this service.

Contact: Vicki Guarino, RVCOG - (541) 664-6676 ext. 241 or Julie Rodwell ext. 214

---

1. Call to Order/Introductions .... Alex Georgevitch
2. Review/Approve Minutes .... Alex Georgevitch
   Draft minutes from April 1, 2004 Steering Committee Meeting
3. Public Comment .... Alex Georgevitch
4. Deployment Plan (90 min) .... Jim Peters & Renee Hurtado
   Review of Project List
   Discussion of Project Scoring (Dan Moore)
   Proposed ITS Equipment Map
5. Communication Plan (20 min) .... Jim Peters & Rich Shinn
6. Deployment Plan Workshop (10 min)..................... Jim Peters
   Finalize Location, Time and Format
7. Next Steps (5 min)..................... Jim Peters
8. Other Business..................... Alex Georgevitch
9. Next Meeting: June 3, 2004 .... Alex Georgevitch
10. Adjourn

RVMPO   Oregon Department of Transportation   DKS Associates   Castle Rock Consultants

Meeting Minutes

Steering Committee Meeting #5
May 6, 2004, SORC Conference Room

Attendees: Galen McGill, Shirley Roberts, Larry McKinley, Sue D'Agnese, ODOT; Alex Georgevitch, Jerry Barnes, Medford; Julie Rodwell, Chris Olivier, Vicki Guarino, RVCOG; Nathaniel Price, FHWA; Jim Peters, Rich Shinn, Renee Hurtado, DKS; Arlen Hatlestad, SORC 911; Eric Niemeyer, Jackson County.

---

1. Call to Order/Introductions/Approval of Minutes .... Alex Georgevitch
Alex Georgevitch called the meeting to order at 9:05 a.m. By consensus, the committee approved the minutes of April 1.

2. Public Comment... Alex Georgevitch
There was no public comment.

3. Deployment Plan .... Jim Peters
Jim reviewed the agenda and noted handouts: ITS deployment plan draft map, proposed deployment projects (Table 6-1), and draft evaluation chart. The deployment plan lists some 40-50 projects so the group at this meeting would hit only the highlights. He asked group members on their own to review all listed projects and let him know of anything that should be changed, removed or added within two weeks. He began an item by item review of the deployment plan.

<u>Travel & Traffic Management Projects</u>
RV-TM-01: Integration between ODOT Region 3 TOC and Local Transportation Operations Systems: Represents the functional requirements of the TOC, not necessarily a building and maybe no more than installing monitors or viewing camera images/system operations on personal computers at individual agencies.

#RV-TM-16: Central Signal System: The Central signal system is a placeholder project for Jackson County and ODOT traffic signals. Jackson County has only 9 signals, so they may not need this. System gives constant access to signals from a remote location. An additional project "Advance Traffic Management Software," will be added to the project list and consists of software to interface with the central signal system. Galen said it would be part of an incident management system in specific situations, planned and unplanned. Alex said it would be useful for special events that cause traffic delays. Eric suggested a project to assure that all agencies have signal-control software that is compatible. Currently ODOT and Jackson County use Wapiti software and the City of Medford uses BI-Trans software. Signal software integration will be included as part of the Central Signal System project.

Figure 6-1: ITS Deployment for 2004 – 2024: Map identifies camera projects. Consultants need to know of additional needs not identified. Alex asked about connecting to ODOT's viaduct sensors; Galen said that is possible now via the Internet. Medford will send locations of its planned cameras.

Automatic de-icing: ODOT and City of Medford to be removed; Medford would still like weather sensors on McAndrews Road to identify icing hazards on steep areas.

Eric asked whether an ITS project would have to be done in conjunction with other work at a site if the ITS project is listed in the plan. Galen said the ITS project would not be required, however if the project is not needed then it shouldn't be listed in the deployment plan. There also was discussion about doing ITS projects not in the plan. The plan reflects today's problems. Nathaniel said that if the project is simple, there would not be a problem. Galen said if the project is significant, the plan can be updated to assure that the project fits within the RVITS system.

Jerry mentioned that the City of Medford is planning to deploy red-light running enforcement cameras at approximately 7 additional locations. He will provide DKS with the new locations.

Weigh-in-motion projects on Hwy 62 and Hwy 140 were among several pulled from COATS that allow trucks to bypass weigh stations. The group decided to remove these from the map and project list since they do not fit with regional needs. Eric will check with the County Weighmaster to see if there are any County weigh station-related needs.

Julie asked about the plan update cycle. Galen said it would be done as needed; there is no mandatory review. Julie said an update should be tied to the RTP update cycle. Jim mentioned that the last project Steering Committee Meeting will focus on maintenance of the RVITS Plan.

#RV-TM-04 & 05 Automated traffic recording systems reflect need for traffic data information for corridor management, incident detection, and planning purposes. Medford is installing these devices to help identify growth impacts, around Stewart and Columbus for instance. Alex also noted that Medford has a weather station at its Columbus Ave. service center. He also noted the need for ice sensors north of the airport, useful when the airport is seeding clouds. He said he would check on the planned southwest Medford camera sites. Potential camera sites include Stewart/Columbus, Stewart/Kings Hwy, and Garfield/Kings Hwy.

#RV-TM-17: Expand/Upgrade HAR: ODOT noted that the existing HAR transmitter near Ashland will be replaced this summer, and perhaps a second transmitter may be added for better coverage. Julie suggested more signs to notify motorists of stations. Also need signs at Phoenix to notify motorists of Siskiyou Pass storm closure to give people more time to respond. Signs in White City are needed as warning for storms to the east (dynamic message signs and signs for weather/road conditions radio). Plan dates are soft, and meant to indicate priority.

Eric noted that ODOT, the County and private interests are attempting to coordinate development of the rest area for passenger vehicles only on Valley View, opposite Eagle Mill

Road, in Talent and this would be a good location for an information kiosk. A public rest area may also be added at the North Ashland Interchange. Sue mentioned that there has been some talk of adding a truck rest stop as part of the POE Weigh Station in Ashland because ODOT owns quite a bit of land adjacent to the weigh station.

#RV-TM-24: Lake of the Woods Highway Mayday System: pulled from COATS, but will be removed from the plan because most people have cell phones.

Several projects address regional incident management focusing on the I-5/Hwy. 99 corridor, and include aspects such as cameras, message signs, system detection, and signal timing coordination – all tools necessary to manage and divert traffic around an I-5 closure. Regarding incident response vehicles, Galen said such vehicles aren't seen as having a great direct benefit to the agency but would have a great benefit to the public by quickly redirecting traffic. Alex said that vehicles will eventually be needed in the future because the Medford area already is experiencing mile-long delays in some instances. Sue said such a project would have to be regional in scope and include efforts from multiple jurisdictions and should have a low priority.

#RV-TM-17 through RV-TM-21 are traveler information projects. #RV-TM-21 is a web page for the Siskiyou Pass showing conditions and listing temperatures along a profile view of the pass. Renee said she would provide a link to a similar existing site to show how it would work. [The University of Washington developed a traveler information website for I-90 through the Snoqualmie Pass: www.atmos.washington.edu/maciver/roadview/i90] It could also link to CALTRANS for information south of the summit.

#RV-TM-28: Real-Time Train Location Information: provides train location information to motorists. This project will be removed because train traffic is insufficient to support such a project.

Emergency Management Projects

Emergency management projects focus on getting traffic information to emergency responders, dynamic route information.

#RV-EM-04: Provide Real-Time Traffic Information to Mobile Data Terminals: Will provide real-time information to emergency vehicles.

#RV-EM-05: Emergency Vehicle Fleet Management System: Will be part of the mesh system so it has a higher priority because it is happening soon.

#RV-EM-06: Ambulance-Hospital Information System: also will move up in priority. It provides video from ambulance to the regional hospitals.

#RV-EM-07: Critical Infrastructure Monitoring System: sites will have to be identified. If no sites have been identified, this will be removed from plan. ODOT will check to see if anything has been identified as critical in the Rogue Valley.

#RV-EM-08: Flood Warning System: provides flood warning, but Galen said it is practical only in situations of commonly occurring floods.

All Projects

For all projects, Galen asked that the lead agency be listed to make the plan easier to use. There could be more than one agency.

Project Evaluation Matrix

Dan Moore from RVCOG scored the projects based on the project's goals and objectives. This process is to be used as a starting point for assigning priority. For example, Jim said RVTD projects came out lower in priority in the table, but will be assigned varying levels of high, medium, and low priority based on RVTD's plans. Julie said some steps need to be taken to get buses out quickly from the bus barn. Traffic causes long delays. Alex said the signal prioritization on Hwy. 62 has high priority because it is part of the agreement for the North Medford interchange project. Jim said AVL has uses beyond signal priority. He said the higher priorities seem to be going to the data collection and storage projects. The priority list has limited value in the ultimate phasing of the plan. Renee said it is one of the factors in assigning ultimate priority.

4. Communication Plan .... Jim Peters & Rich Shinn

Rich noted the region already has considerable facilities in place – Medford's fiber ring, Ashland's fiber network, and Jackson County's planned conduit along Table Rock Road. It offers many opportunities including an Ashland-White City trunk line and a network that could run off the Medford and Ashland fiber systems as well as the trunk line. Jim noted that the ring around Medford connects many key stakeholders. The result is that ITS projects can be very cost effective. Rich provided several system options, especially Ethernet, which gets more efficient as more users join. Specific recommendations were listed on slides. The Draft Communication Plan chapter will be submitted to the group soon for review.

5. Workshops .... Jim Peters

Working group agreed that two workshops will be held on June 3 at the Medford public library. Session No.1: 2-4 p.m.; RVCOG will invite people on the expanded stakeholder list. This workshop will follow the same format as the User Needs Workshop, with a brief presentation at the beginning followed by breakout poster sessions around the room. Session No. 2: 5-7 p.m., with formal presentation by DKS at 6 p.m., for the general public. RVCOG will use mail list from other transportation projects, advertising and press releases to invite people to second session.

6. Next Steps .... Jim Peters

Comment period for all draft documents will continue for two weeks.

7. Next Meeting .... Jim Peters

The next meeting will be held after the open house sessions.

The meeting adjourned at 11:10 a.m.

Rogue Valley

Intelligent Transportation Systems

A planning project of the Rogue Valley Metropolitan Planning Organization

Agenda- Steering Committee Meeting #6

Time, Date: 9:00 a.m., Wednesday, July 7, 2004

Location: Jackson County Elections Office, 1101 W Main St, Medford

Contact: Vicki Guarino, RVCOG - (541) 664-6676 ext. 241

---

1. Call to Order/Introductions .... Julie Rodwell
2. Review/Approve Minutes .... Julie Rodwell
   Draft minutes from May 6 Steering Committee Meeting and June 3 Workshops
3. Public Comment .... Julie Rodwell
4. Comments on ITS Chapters (5 min).. Jim Peters
5. Next Steps for Implementation Plan (10 min).. Jim Peters
6. Funding Plan Summary (10 min) .... Julie Rodwell
7. Draft Executive Summary (15 min) .... Jim Peters
8. Recommendation for Plan Continuation (60 min) .... Jim Peters
   A. Architecture Maintenance
   B. Incorporate ITS Plan into RTP
   C. Project Requirements
   D. Ongoing Steering Committee Meetings
9. Other Business.. Julie Rodwell
10. Adjourn

RVMPO Oregon Department of Transportation DKS Associates Castle Rock Consultants

Rogue Valley Intelligent Transportation Systems

A planning project of the Rogue Valley Metropolitan Planning Organization

Meeting Minutes

Steering Committee Meeting #6
July 7, 2004, Jackson County Elections Office

Attendees: Galen McGill, ODOT; Julie Rodwell, Chris Olivier, Vicki Guarino, Dan Moore, RVCOG; Nathaniel Price, FHWA; Jim Peters, Renee Hurtado, DKS; Eric Niemeyer, Jackson County; Jim Wear, Phoenix; Scott Chancey, RVTD.

---

1. Call to Order/Introductions/Approval of Minutes .... Julie Rodwell

Julie Rodwell called the meeting to order at 9:15 a.m.

2. Public Comment .... Julie Rodwell

There was no public comment.

3. Comments on ITS Chapters .... Jim Peters

Jim asked for additional comments on the chapters. He asked that all comments on the plan be made by July 16.

4. Next Steps of Implementation Plan .... Jim Peters

Jim noted that the high priority projects are listed in the 0-5 year plan. Julie said it is important to note that funding has not been identified for any of the projects, so they couldn't be considered as Tier 1 projects or the equivalent. Dan Moore asked whether ODOT would have additional ITS money, noting that the state is contributing funds to a joint Medford-ODOT fiber optic project. Galen McGill said ODOT has some money for ITS and has obtained grants. Also some bills in Congress allocate funds for ITS. Nathaniel Price said CMAQ and STP funds can be used for ITS, but the group noted that several projects should be bundled together because CMAQ projects smaller than about $200,000 are not feasible. Galen said ODOT's ITS projects are funded through operations funding in the STIP so it would be up to local ODOT staff to advocate for ITS projects. Although this funding may be applied to ITS projects, it also includes funding for operations of traffic signals, lighting, and so forth. Dan noted that the next CMAQ round won't be until the 06-09 STIP, however there will be surplus funds available from the recent funding round.

Jim said DKS will be adding a supplement to the project list, which currently shows the agency/agencies responsible for each project, that includes a breakdown of the funding share by agency for each of the 5-Year Plan projects.

Cost estimates and funding were discussed. Scott Chancey questioned the cost for the automated vehicle locator emergency management project, noted RVTD's estimated cost of $400,000 vs.

$1.75 million in the plan. Galen said the cost estimate for the two-way 911communications project also seems high compared to experience with a similar project in Portland. Total cost for the first 5 year projects is estimated at $9.6 million. Galen said the total likely is more than this region would be able to receive, and perhaps the plan should be based on what is reasonable. Julie said an alternative would be to present all of the identified projects as a wish list. It also was noted that the trend federally seems to increase ITS allocations. Galen said some ITS projects would qualify for Homeland Security funds—specifically systems integration, cameras and incident management projects—and those grants do not require local match. Jim said some projects in the 5-year plan could be moved back to longer term, reducing the 5-year cost. Scott said that if a project is needed, it should be in the plan, regardless of funding outlook. Dan said all of the projects should be incorporated into the RTP. Jim said the region needs to be plugged into the Homeland Security Program funding pipeline because applications seem to have short filing deadlines.

5. Funding Plan Summary .... Julie Rodwell

Julie said she was working on a revised draft funding chapter that will include information about homeland security funds. Also, transportation act reauthorization funding is unknown but could heavily impact ITS. Also, the new draft will include potential CMAQ and STP funds. Julie, Eric and Galen said the point where the 5-year plan is pared down to what is fundable is when it is incorporated into the RTP. Dan said the RVMPO also will need to work with ODOT on funding. Scott noted that transit capital funds typically are used for bus purchase, but could be used for ITS. RVTD applies for earmarks every five years. Jim said the most immediate potential funding source is Homeland Security.

6. Draft Executive Summary... Jim Peters

A draft executive summary was distributed via e-mail last week. Galen asked about the source for estimates of maintenance and operations costs, which seem high. Oregon costs have been less than 2 percent of the capital outlay. Jim said costs listed in the plan come from generic, national sources plus ODOT data provided by Ed Anderson during the Eugene-Springfield ITS Plan development. Galen will give DKS cost data from other Oregon projects to revise estimates in the RVITS plan.

7. Recommendations for Plan Continuation .... Jim Peters

Jim led a discussion of next steps after the plan is completed. To implement the plan the RVMPO will incorporate it into the RTP, which is being updated by April 2005. Additionally, the working group agreed that the RVMPO will be the lead agency for RVITS, and tentatively set working group meetings for late fall and winter. RVMPO responsibilities will include managing the working group, tracking plan implementation, identifying plan updates, coordinating funding applications, incorporating RVITS projects into the RTP Tier 1 and 2 project lists, continuing public outreach, and maintaining the Turbo architecture. DKS will provide the plan to the RVMPO; Nathaniel Price will provide the newest Turbo software and notice of training dates. Galen McGill said ODOT could maintain the architecture, but he had no problem with RVMPO doing the maintenance. ODOT will be responsible for making sure that changes the RVMPO makes to the RVITS architecture are reflected in the statewide architecture that is maintained by ODOT. Updates can be done periodically, as projects are completed, or annually or for RTP updates. ODOT and the RVMPO would be involved in the updates.

The group also discussed distribution of plan reports. Jim Wear asked about a presentation to the Phoenix City Council and the group agreed that the Executive Summary could be used for the presentation. Galen said each city should receive a copy of the executive summary plus a CD containing the final report and other key project documents.

8. Other Business.. Jim Peters

Eric Niemeyer asked that the meeting notes of May 6, 2004, regarding the deployment plan be changed to reflect that he was discussing development of a rest area on Valley View at North Ashland interchange only, not the rest area in Talent. Galen clarified that ODOT will be installing a phone at the Suncrest rest area in Talent that provides travelers with access to 511.

As the meeting adjourned, there also was discussion of printing and distributing the plan. Both DKS and RVCOG have tasks in their work scopes. Dan Moore said RVMPO funding for this project ended June 30, so Jim agreed that DKS will prepare copies per DKS work scope as follows: 10 copies full report; 25 copies executive summary; 30 or more CDs of full report. Distribution will be: full report, executive summary and CD to core stakeholders, Galen and John Vial; executive summary and CD to expanded stakeholders.

The meeting adjourned at 10:20 a.m.

Rogue Valley Intelligent Transportation Systems

A planning project of the Rogue Valley Metropolitan Planning Organization

Meeting Minutes

RVMPO Joint Committees Meeting
July 7, 2004, Jackson County Elections Office

Attendees: Galen McGill, Dan Dorrell, ODOT; Julie Rodwell, Vicki Guarino, Dan Moore, RVCOG; Nathaniel Price, FHWA; Jim Peters, Renee Hurtado, DKS; Eric Niemeyer, Kelly Madding, Jay Harland, Jackson County; Denis Murray, Angela Harding, Phoenix; Mark Gallagher, Medford; Tom Humphrey, Central Point; Glen Anderson, John Graves, Al Willstatter, Winter Salsa, Jim Ros, Mark Earnest, Ed Danehy, RVMPO PAC; Otto Caster, Mike Quilty, Sue Kupillas, Kay Harrison, RVMPO Policy Committee; Bunny Lincoln, Eagle Point.

Lunch meeting to introduce and review RVITS project began at 12:20. Jim Peters made a presentation, describing ITS, and the kinds of communications and automated systems that can be used to improve safety and reduce traffic congestion. RVITS equipment can streamline operations, reducing response times and costs.

Having an ITS plan approved is required for the area to receive federal funding for projects that include ITS. Jim described the high-priority projects identified in the RVITS projects. A project on the Siskiyou Pass is outside the RVMPO but was considered to be important to RVMPO members. The project would improve traveler information. Al Willstatter suggested that this work be coordinated with California officials.

Glen Anderson suggested that traffic signal detectors be set to respond to light-weight scooters and bicycles. Denis Murray said lights are needed to illuminate freeway interchanges; Jim said that would not be part of ITS because it is not communications or electronics based. Glen asked about pedestrian projects. Bunny Lincoln noted that a traveler information kiosk at Eagle Point's information center project on Hwy. 62 be included in the RVITS plan and the working group discussed having the city coordinate with ODOT. Mike Quilty asked about funding and the group discussed possible sources including Homeland Security and CMAQ, and the need to develop new sources. Mark Earnest asked about the South Medford Interchange, and Jim said that project includes cameras and traffic detectors/counters. Jay Harland suggested marketing RVITS information, possibly to have advertising/ sponsorship support. Mark Earnest asked about updates; Jim said the RVMPO will be responsible for updating the plan.

RVMPO Oregon Department of Transportation DKS Associates Castle Rock Consultants

Rogue Valley
Intelligent Transportation Systems
ITS DEPLOYMENT PLAN AND COMMUNICATION NETWORK FOR 2004-2024
EAGLE POINT
HIGHWAY 62
WHITE CITY
KIRTLAND
ANTELOPE
BLACKWELL
FOOTHILL
TABLE ROCK
CRATER LAKE
ROGUE VALLEY
CENTRAL POINT
PINE
FRONT
BIDDLE
PACIFIC
ROSSANLEY
MCANDREWS
MEDFORD
HANLEY
JACKSONVILLE
HIGHWAY 238
5TH
PHOENIX
CENTRAL MEDFORD INSET
MAIN
INTERSTATE 5
TALENT
PACIFIC HIGHWAY 99
ASHLAND
SISKIYOU
HWY 62
HWY 238
COURT
MCANDREWS
BIDDLE
CRATER LAKE
CENTRAL
JACKSON
MAIN
OAKDALE
RIVERSIDE
STEWART
COLUMBUS
KINGS HWY
GARFIELD
MT ASHLAND RD
OLD SISKIYOU HWY 273
OLD HIGHWAY 99 S
SISIKIYOU PASS INSET
SISKIYOU PASS INSET
LEGEND
Existing and Proposed *
Communication Network
Communication Hub
Proposed Fiber Optic Cable
Existing Fiber Optic Cable
Twisted Pair Copper Interconnect
Planned Communications Conduit
Traffic Signals - Existing
Traffic Signals - Planned
ITS Corridors
Streets
UGB & UCB
RVMPO Boundary
* Alternate communication infrastructure should be evaluated during design for field devices not shown connected to the fiber network.
ITS Devices
Device Phasing:
Existing
Proposed 0 - 5 Years
Proposed 6 - 10 Years
Proposed 11 - 20 Years
CCTV Camera
Mayday Phone
Trailblazer Sign
Weather Station
Traveler Information Kiosk
Automatic Traffic Recorder
Parking Management System
Highway Advisory Radio Transmitter
Red-light Running Enforcement Camera
Weigh-in-Motion
Dynamic Message Sign
Curve Warning System
Regional Facilites
Fire Station
Emergency Operations Center
Transportation Maintenance Facility
College
Police
Transportation Agency
City Hall
School
Hospital
Ambulance
N
RVMPO
7.21.04
0
1.25
2.5
5
Miles