

# 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

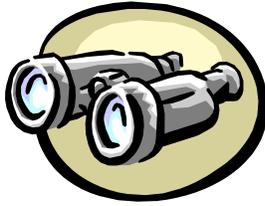
On February 26, 2004, a user needs assessment workshop was conducted with key and regional stakeholders to discuss and finalize the list of transportation user needs for the Rogue Valley metropolitan transportation system. User needs documented from the interviews and questionnaires were discussed and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

##### Objectives

- ◆ 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.

##### Objectives

- ◆ 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 RVTB 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.



## 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
<ul style="list-style-type: none"> <li>◆ Success of previous ITS deployment projects (e.g. CCTV cameras, dynamic message signs, weather station)</li> <li>◆ Extensive City of Medford traffic signal interconnect</li> <li>◆ Fiber optic cable construction project</li> <li>◆ Wireless Mesh Network construction project</li> <li>◆ Regional agency coordination (e.g. TAC, PAC, RFACT, RVITS Working Group)</li> <li>◆ Support for ITS exists at all levels</li> </ul>	<ul style="list-style-type: none"> <li>◆ Learn from past experiences and use existing ITS deployments as examples of proven benefits to the public.</li> <li>◆ Utilize existing conduit for communications to accelerate the deployment of ITS field equipment and to cut costs.</li> <li>◆ Utilize the construction of fiber optic cable around the City to interface with other jurisdictions and accelerate the deployment of ITS field equipment.</li> <li>◆ Coordinate with emergency services for network infrastructure sharing to improve interagency coordination during incidents and emergencies.</li> <li>◆ Use these organizations and meeting forums to coordinate ITS projects with other improvement projects and to educate others about the benefits of ITS.</li> <li>◆ Maintain this support through continued outreach, education and identification of funding sources.</li> </ul>

**Table 2-2. Weaknesses**

Weakness	Suggested Improvement Plan
<ul style="list-style-type: none"> <li>◆ Lack of staff resources</li> <li>◆ Needed information is not always readily available</li> </ul>	<ul style="list-style-type: none"> <li>◆ Deploy ITS technologies that meet ITS standards and that are easy to operate and maintain.</li> <li>◆ Establish an interagency transportation network for information sharing.</li> </ul>

**Table 2-3. Challenges**

Challenge	Suggested Preventative Measures
<ul style="list-style-type: none"> <li>◆ Lack of funding (capital, maintenance, and operations)</li> <li>◆ Public perception and acceptance of technologies including privacy issues with video (City of Central Point)</li> <li>◆ Maintaining the ITS plan after it is developed</li>   <li>◆ Ability to integrate with neighboring County, City, and State agencies</li> <li>◆ Seasonal severe weather, especially in outlying areas (winter storms, floods, fires)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Identify other creative non-traditional funding opportunities such as grants from non-profit agencies.</li> <li>◆ Clearly demonstrate the benefits of ITS in an outreach and education program, and by collecting before/after information from ITS deployments.</li>   <li>◆ 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.</li> <li>◆ Implement systems using ITS standards.</li>   <li>◆ Utilize ITS technologies to manage traffic during severe weather and provide alternate routes.</li> </ul>

**Table 2-4. Opportunities**

Opportunity	Suggested Action Plan
<ul style="list-style-type: none"> <li>◆ The City of Medford Public Works and the Medford Police Department are both planning citywide communications systems</li> <li>◆ Major planned capital improvements</li> <li>◆ Region 3 Traffic Operations Center (TOC) in Central Point</li> <li>◆ Planned transit system upgrade</li> <li>◆ Mobile data terminals used (or planned for use) in a number of emergency management vehicles</li> <li>◆ Homeland security funding</li> </ul>	<ul style="list-style-type: none"> <li>◆ Consider opportunities to share infrastructure and to connect to other agencies within the region.</li> <li>◆ Capitalize on new construction projects and install communications infrastructure (i.e. conduit) and ITS equipment defined in this ITS plan.</li> <li>◆ Integrate the TOC with regional transportation agencies and determine a strategy for regional traffic operations, management, and information sharing.</li> <li>◆ Integrate transit improvements with transportation systems.</li> <li>◆ Integrate transportation and emergency management systems and enhance information sharing.</li> <li>◆ Coordinate with emergency management personnel and look for opportunities to fund transportation security projects with homeland security money.</li> </ul>

Opportunity	Suggested Action Plan
<ul style="list-style-type: none"> <li>◆ Local emergency management plans</li> <li>◆ Statewide 511 traveler information phone system</li> <li>◆ ODOT's TripCheck website</li> </ul>	<ul style="list-style-type: none"> <li>◆ Deploy ITS systems that accommodate both daily traffic operations and emergency contingency plan elements such as detours and information dissemination.</li> <li>◆ Deploy ITS field devices to collect traffic congestion and incident information that can be distributed in a timely manner via the 511 telephone number.</li> <li>◆ Display camera images, incident information, construction information, etc. for the Rogue Valley metropolitan area on ODOT's award winning TripCheck website.</li> </ul>