

2.1 INTRODUCTION

This chapter provides a summary of transportation system user needs for the Salem-Keizer Metropolitan Area gathered from project stakeholders. Personal key stakeholder interviews and expanded stakeholder questionnaires contributed to a comprehensive list of user needs for the region. This chapter also includes a summary of the interviews and questionnaires that were conducted and an assessment of regional strengths, weaknesses, opportunities, and challenges. The assessment of current and future transportation user needs in the Salem-Keizer area provides the backbone for the development and evaluation of potential ITS projects.

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

- ▶ Travel and Traffic Management
- ▶ Public Transportation Management
- ▶ Emergency Management
- ▶ Maintenance and Construction Management
- ▶ Information Management

2.2 STAKEHOLDERS AND SYSTEM USERS



To ensure the success of the *Regional ITS Operations & Implementation Plan for the Salem-Keizer Metropolitan Area*, a coalition of stakeholders and system users was created to gather input and build consensus. Efforts were taken to include a variety of interested stakeholders into the development of the plan, due to the broad array of positive impacts and benefits that ITS provides to the community. Personal interviews with key stakeholders targeted numerous subjects, while questionnaires focused primarily on gathering the big picture user needs from expanded stakeholders. After the completion of the interviews and questionnaires, a

workshop for both the key and expanded stakeholders was held to discuss and verify the transportation needs that had been identified previously 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, the notes taken during the interviews can be found in Appendix D. One or more representatives from the following agencies were interviewed:

- ▶ ODOT Region 2
- ▶ Salem Public Works Dispatch 9-1-1 Center
- ▶ City of Salem
- ▶ City of Keizer
- ▶ Cherriots
- ▶ Marion County
- ▶ Polk County

2.2.2 Expanded Stakeholder Questionnaire

An online questionnaire was developed and e-mailed to the project's expanded stakeholders to determine user needs, agency coordination and perceived problems with the transportation system. The questionnaire was sent to public agencies indirectly involved with the project. Questionnaire recipients included the following:

- ▶ Marion County (Public Works, Engineering, Operations and Maintenance)
- ▶ Emergency Management (Marion and Polk County)
- ▶ Red Cross, Emergency Services
- ▶ Police (Salem, Keizer)
- ▶ Fire Department (Salem, Keizer)
- ▶ Salem-Keizer School District (Security)

Of the 18 questionnaires sent, there was one response. This response can be found in the Appendix E, along with a complete list of questionnaire recipients and a copy of the questionnaire.

2.2.3 User Needs Assessment Workshop

A user needs assessment workshop was conducted with a group of key and expanded stakeholders to discuss and finalize the existing list of transportation needs. The workshop participants included representatives from some of the agencies listed above and contributed to an expanded collection of user needs for the Salem-Keizer Metropolitan Area.

The workshop included a presentation that provided project background information, an overview of the plan process, general ITS uses, and a summary of the previous needs identified from stakeholder interviews. After the presentation, a group discussion was conducted to gain consensus on the existing list of needs and to identify additional needs. The discussion was organized by the following interest areas:

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



A preliminary list of needs was also classified into functional areas, similar to those outlined above and placed on a poster for a project scoring exercise. Each participant was given five dots

to place in the areas that represented the most critical need from their perspective. The outcome of this workshop was a comprehensive list of prioritized, user needs for the region that will be used as input for the subsequent steps of the planning process. The workshop invitation, presentations, workshop handout and meeting minutes can be found in Appendix F.

2.3 PROJECT MISSION GOALS & OBJECTIVES

Key project stakeholders developed a mission statement and accompanying goals and objectives to guide the development and deployment of intelligent transportation systems in the Salem-Keizer Metropolitan Area.

2.3.1 Mission Statement

To enhance economic productivity by improving the safety, efficiency, and reliability of our existing and future transportation system using enhanced operations, advanced technologies, coordinated management techniques and real-time information.

2.3.2 Goals

Improve the safety, efficiency and reliability of our transportation system.

Objectives

- ▶ Reduce frequency, duration, and effects of incidents.
- ▶ Reduce emergency response times.
- ▶ Reduce recurrent congestion.
- ▶ Coordinate incident/emergency response with other local and regional agencies.
- ▶ Improve the management and operations during incidents and emergencies.

Enhance management of the transportation system to improve maintenance and operations efficiencies.

Objectives

- ▶ Reduce the number of stops.
- ▶ Reduce overall vehicle hours of delay.
- ▶ Reduce incident related capacity restrictions.
- ▶ Increase average vehicle occupancy.
- ▶ Reduce intermodal transfer time.
- ▶ Reduce fuel consumption and environmental impacts.
- ▶ Provide weather information to coordinate snow and ice removal.
- ▶ Enhance management and maintenance of vehicle fleets.
- ▶ Provide more efficient response to customer complaints.
- ▶ Reduce operating costs by improving maintenance and operations processes.



Improve traveler mobility.Objectives

- ▶ Reduce recurrent and non-recurrent congestion related delay.
- ▶ Improve travel time for all transportation system users including transit vehicles, commuters, freight, and tourists.
- ▶ Improve travel time reliability.
- ▶ Improve transit travel time reliability.

Provide improved traveler information and access to the information.Objectives

- ▶ Provide real-time multi-modal transportation system information to travelers.
- ▶ Provide real-time 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.
- ▶ Provide accessible traveler information to all users of the transportation system.
- ▶ Provide one central location for dissemination of all traveler information.

Secure/develop a continuing commitment to ITS deployment by utilizing public-public and public-private partnershipsObjectives

- ▶ Deploy systems that fit in with future improvements and can be coordinated and integrated with other agencies.
- ▶ Deploy systems with a high benefit-to-cost ratio and maximize the use of existing infrastructure.
- ▶ Deploy systems with minimal maintenance and operational support requirements.
- ▶ Integrate deployments with other local and regional projects.
- ▶ Share infrastructure and operations resources between local and regional agencies.
- ▶ Build consensus among the Steering Committee members.
- ▶ Follow a phased plan and implement projects with high likelihood of success.
- ▶ Evaluate ITS projects using before and after surveys to document and promote the benefits and educate the public.
- ▶ Use data collection devices to document and track the transportation system performance.
- ▶ Educate decision makers, operators, planners and engineers using outreach, project benefit summaries, training and workshops.

2.4 SUMMARY OF USER NEEDS

This section contains paraphrased statements that summarize the user needs gathered from the interviews and questionnaires. User needs are categorized by the following areas of interest: Travel & Traffic Management, Public Transportation Management, Emergency Management, Maintenance & Construction Management and Information Management. 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 outlined in this section will then be mapped into the national ITS architecture user services (Chapter 3) prior to determining applicable ITS projects for the Salem-Keizer Metropolitan Area.

2.4.1 Travel and Traffic Management Needs

Travel and traffic management user needs and deficiencies were identified in this section and categorized into the following areas of interest: traffic operations and management, incident management, and traveler information.



2.4.1.1 Traffic Operations and Management Needs

- ▶ Need ability to automatically collect vehicle counts with classification
- ▶ Need more count stations
- ▶ Need to use automatic traffic recorders for detour route plans
- ▶ Need to install cameras
 - at all new intersections
 - Interstate 5 interchanges
 - West Salem bridges
 - Mission Street
 - Cordon Road
 - Lancaster Road
 - Salem Parkway
- ▶ Need means to show traffic congestion on key corridors
- ▶ Need the ability to share access to video images and data devices
- ▶ Need to set up an incident management plan/tool for using Willamette River Bridge for reverse traffic in the event of one bridge closure
- ▶ Need real-time construction mapping information
- ▶ Need mapped height and weight restrictions for possible diversion routes
- ▶ Need to communicate height and weight restrictions to the detour route (for incidents or pre-planned construction)
- ▶ Need to integrate systems between local transportation and emergency agencies
- ▶ Need to support “unrestricted freight mobility”
 - ▶ Need to address safety and blocking issues at rail crossings
 - ▶ Need to provide additional information regarding flood monitoring and slide monitoring
 - ▶ Need advanced traffic control
 - ▶ Need to provide railroad crossing occupation
 - ▶ Need to communicate closures due to events held at the Capitol
 - ▶ Need to provide information on Capitol closures to public and emergency responders
 - ▶ Need parking management at the convention center
 - ▶ Need advanced notification about parking for convention center
- ▶ Need a parking management plan and advanced signage to communicate parking information
- ▶ Need to manage parking structures downtown



2.4.1.2 Incident Management Needs



- ▶ Need improved detour route management
- ▶ Need a common communication link
- ▶ Need to provide advanced information to travelers (variety of media and provide other choices)
- ▶ Need to enhance the incident management program
- ▶ Need to provide additional video coverage
- ▶ Need to provide traveler information for incidents on Commercial Avenue
- ▶ Need to provide incident classification information (fender bender vs. major)
- ▶ Need to separate severity of accidents to filter the page notification
- ▶ Need to provide incident detection
- ▶ Need to provide infrastructure to support detection/traveler information
- ▶ Need to have tool to indicate traffic speeds on the roadside so that a page can be sent when traffic slows or stops
- ▶ Need to distribute information to the media
- ▶ Need signal interconnect on Cordon Road to automatically switch to an emergency signal timing plan
- ▶ Need to provide advanced information to east / west travelers intersecting Cordon Road in the event of a detour
- ▶ Need to get air bag deployment data from private sector vendors
- ▶ Need to investigate crime scenes quicker and more efficiently
- ▶ Need to define what needs to be included in accident investigations

2.4.1.3 Traveler Information Needs

- ▶ Need real-time, accessible traveler information
- ▶ Need to install VMS at:
 - Lancaster
 - Cordon (I-5 detour route)
 - Silverton Road
 - Highway 22 East
 - River Road northbound at Brooklake Road
 - 99W/Highway 22 intersection
- ▶ Need to utilize and implement dynamic message signs, highway advisory radio, Internet, Cable TV, in-vehicle, 511, radio for distribution of traveler information.
- ▶ Need a quality image for TripCheck, current cameras are black and white
- ▶ Need to integrate information from multiple sources (construction, incidents, public transit, congestion, alternate routes)
- ▶ Need to include parking information on highway advisory radio in Salem
- ▶ Need to be able to broadcast messages to cellular phones
- ▶ Need to be able to link traffic information to xm radio for use with existing xm traveler information channel

- ▶ Need traveler information for the Willamette River Bridges due to limited alternate route options
- ▶ Need to be able to access information about operational status of ferry systems
- ▶ Need to be able to post images on internet (ODOT TripCheck)
- ▶ Need weather stations at:
 - West Salem Hill
 - Fall City
 - Grand Ronde

2.4.2 Public Transportation Management Needs

- ▶ Need to utilize automatic vehicle locaters (AVL) on Cherriotics fixed-routes
- ▶ Need to implement Mobile Data on paratransit
- ▶ Need to support the High Priority Transportation Corridor
- ▶ Need to implement transit signal priority along bus routes
- ▶ Need to incorporate transit arrival information
- ▶ Need a uniform CAD interface from fixed route to paratransit
- ▶ Need to provide support for the regional trip planner
- ▶ Need to disseminate information about the operational status of ferry from Salem
- ▶ Need ferry information on TripCheck
- ▶ Need advanced signage to indicate ferry is closed
- ▶ Need security cameras to remote sites and safety management on ferry



2.4.3 Emergency Management Needs

- ▶ Need to facilitate preemption by vehicle ID
- ▶ Need to share incident information between 911, police, fire and transportation
- ▶ Need the ability to communicate with Salem Police Department
- ▶ Need to get data from Mayday systems (private sector data feed)
- ▶ Need to deploy vehicle tracking on fire department vehicles
- ▶ Need to provide real-time information to mobile data devices
- ▶ Need to enhance evacuation management
- ▶ Need to have information related to road closures, major accidents, and detour information available to 911 center
- ▶ Need to share incident information between computer aided dispatch (CAD) systems.
- ▶ Need evacuation plan in case of a major rail event involving hazardous materials
- ▶ Need some plan for terrorist attacks and Capitol mall security issues
- ▶ Need to notify public about road closures and affects on rail in the event of a terrorist attacks
- ▶ Need to be able to share digital video to first responders
- ▶ Need to have video dispatch center
- ▶ Need a link between the region's Emergency Operations Center (EOC) and Agency Operations Center (AOC)

2.4.4 Maintenance and Construction Management Needs

- ▶ Need to implement in-vehicle geo-coding of maintenance items (potholes, tree-limbs, signs)
- ▶ Need to provide a central source for construction information/construction zone coordination
- ▶ Need to enhance construction zone management to improve safety (video on site)
- ▶ Need to improve construction activity information (e.g. monitor delays, provide travel time information)
- ▶ Need to put all construction information in one location
- ▶ Need to provide operators at the TOC with construction activity information
- ▶ Need to provide RWIS information to TripCheck
- ▶ Need a better application of weather data, processing, road surfaces, and black ice automation
- ▶ Need better traffic control and advance signing in construction zones
- ▶ Need better maintenance planning



2.4.5 Information Management Needs



- ▶ Need to install sufficient communications infrastructure to support future bandwidth requirements
- ▶ Need to install communications over the bridges
- ▶ Need to provide the NWTOC with access to all weather stations
- ▶ Need a cable channel dedicated to travel/incident management
- ▶ Need an automatic notification system for the media
- ▶ Need communication between City of Salem and ODOT Traffic Operations Center
- ▶ Need a filter mechanism to filter out “extra” information so that you only see/hear the information you need.

2.5 STRENGTHS, CHALLENGES AND OPPORTUNITIES

Throughout the interviews and the development of the existing and future conditions chapter of the report, the project team identified strengths, weaknesses, opportunities, and challenges that may affect the deployment of ITS projects in the Salem-Keizer Metropolitan Area. Each of these areas represents information that is valuable to developing an ITS plan that is tailored to fit the specific characteristics of the study area.

Table 2-1. Regional Challenges

Challenges	Suggested Preventative Measures
<ul style="list-style-type: none"> • Lack of available resources and funding • Lack of high speed communications to field devices • Limited interagency connectivity • Willamette Bridges – limited alternatives • ITS education • Finding on-going funding sources • Funding operations and maintenance • Supporting freight mobility (provide reliable travel times) 	<ul style="list-style-type: none"> • Identify other creative non-traditional funding opportunities • Minimize the required resources by deploying ITS technologies that meet ITS standards and are easy to operate and maintain. • Focus on deploying technologies that enhance the informational flow between agencies and provide a common communication interface. • Develop alternative route/plan that could be used in an emergency event • Clearly demonstrate the benefits of ITS in an outreach and education program and by collecting before and after data from ITS deployments • Focus on long and short-term evaluation of ITS implementation to support funding needs and demonstrate benefits that building new infrastructure can't provide (i.e non-recurring congestion such as incidents and special events).

Table 2-2. Regional Strengths

Strengths	Suggestions to Capitalize on Strengths
<ul style="list-style-type: none"> • Northwest Transportation Operation Center • ODOT's Incident Response Team • Salem central signal system and communications infrastructure • Regional interest in communications • Support for ITS exists at all levels 	<ul style="list-style-type: none"> • Integrate the TOC with regional transportation agencies and determine a strategy for regional traffic operations, management, and information sharing. • Document the success of the incident response team to showcase preliminary benefits of communications between emergency responders and transportation agencies. • Utilize the construction of fiber optic cable around the area to coordinate with other jurisdictions and accelerate the deployment of ITS field equipment • Maintain this support through continued outreach, education and identification of funding sources

Table 2-3. Regional Opportunities

Opportunity	Suggested Action Plan
<ul style="list-style-type: none"> • Existing Salem video detection • Planned Capital Improvement Projects: <ul style="list-style-type: none"> New signals and communications I-5 Widen to 6 lanes (Highway 22 to Kuebler Blvd) OTIA projects Transit Improvements Fiber optic infrastructure projects Salem video data collection project 	<ul style="list-style-type: none"> • Utilize existing cameras as a low-cost "early winner" project by displaying camera images on ODOT's TripCheck website. • Capitalize on new construction projects and install communications infrastructure (i.e. conduit) and other ITS equipment defined in this plan. • Integrate planned transit improvements with the deployment of ITS technologies.