13 - Transportation System Efficiency Management

Introduction

Over the years, our reliance on the private automobile as our primary mode of transportation has grown substantially. Our dependence on the automobile in the region is evidenced by continual increases in automobile ownership, the number of drivers, the length and number of auto trips, and, as a result, a rise in vehicle miles of travel (VMT) per person (see Chapter 3 and Appendix B). This trend of increased automobile use has led to mounting traffic congestion, spiraling transportation costs, potentially worsened air quality, and increasing numbers of traffic accidents. In addition, future projections indicate an ever-widening gap between vehicular travel demand and the physical capability of our existing transportation system to provide adequate levels of mobility (see Chapter 3). If we continue to rely almost totally on the automobile for our daily transportation needs, we will reduce our ability to get where we want to go, as well as degrade the overall quality of life in our community.

Adding auto travel lanes and constructing new roads has been the traditional approach to addressing increased transportation demand by attempting to "pave our way" out of congestion. However, at this point in time there are several reasons why merely adding additional highway capacity may not be the most efficient way of meeting our increasing mobility needs. First, highway construction is very expensive, and there are limited and dwindling sources of funding to finance those costs. Second, there are significant constraints associated with constructing new and widened highways, as well as growing citizen resistance to converting more and more of our urban land resource to pavement. Third, the negative impacts on our neighborhoods and communities associated with the disruption, fragmentation, air pollution, and danger that new and expanded highway facilities entail are often unacceptable. Finally, merely increasing the ability of the system to serve single-occupant vehicle (SOV) trips is not the most efficient use of our existing transportation infrastructure.

This Plan, therefore, seeks to provide more creative solutions than "business as usual" approaches in order to meet our future transportation needs. Steps need to be taken now to make more efficient use of our existing facilities and increase their overall capacity to move people and goods, and not merely vehicles.

There are several effective options besides highway construction for relieving traffic congestion and meeting increased travel demand. These include a wide variety of Transportation Systems Efficiency Management (TSEM) activities and programs designed to increase the efficiency of existing facilities and promote alternatives to the use of the single-occupant vehicle (SOV) without large-scale roadway construction. Congestion Management Process (CMP), Transportation Demand Management (TDM), Transportation Systems Management (TSM), and

Intelligent Transportation Systems (ITS) are components of strategies designed to improve system efficiency, modify travel demand, and expand our options for travel behavior choices.

CMP is a systematic process to monitor and analyze congestion in major travel corridors and develop and implement strategies (e.g., TDM/TSM) that alleviate congestion and enhance system performance. CMP also includes actions such as parking management and spreading demand away from the peak periods.

TDM actions increase system efficiency by managing and reducing automobile trip demand and maximizing the movement of people and goods, not just vehicles. Typical TDM strategies include ridesharing programs, vanpooling, buspooling, promoting alternative work schedules, travel-time shifting (out of the peak period), telecommuting, and increasing bicycle, pedestrian, and transit use.

TSM actions increase system efficiency by improving flows and removing bottlenecks on existing transportation facilities. Typical TSM strategies include improving traffic signalization, adding turn lane and intersection improvements, removing on-street parking (sometimes only during peak hours), adding transit turnouts and signal pre-emption, and constructing bicycle and pedestrian facilities.

ITS actions increase system efficiency by providing the infrastructure to support several of the TDM and TSM strategies mentioned above, such as improving traffic signalization, signal pre-emption, facilitating the dispersal of information to the traveler for better route selection, and informing agencies and travelers of incidents occurring on the regional transportation system.

Vehicle Hours of Travel (VHT) and Vehicle Miles of Travel (VMT) Reduction Measures are typically modifications to SOV travel demand and trip length and can involve changes in land use patterns coupled with TDM and CMP programs and strategies that serve to reduce daily VMT. These measures can employ both "carrots," such as incentives and subsidies for using a mode other than the automobile, and "sticks," such as disincentives to automobile use, such as parking surcharges or congestion pricing.

Purpose of the Regional Transportation Systems Efficiency Management Chapter

One of the goals of the Plan is to ensure a balanced transportation system that provides viable alternatives to the single-occupant vehicle and makes more efficient use of our existing infrastructure. To that end, the Regional Transportation Systems Efficiency Management chapter of the RTSP includes:

- a regional policy framework to ensure a balanced transportation system and to make the most efficient use of our existing transportation facilities;

- an inventory of regionally significant Transportation Systems Efficiency Management (TSEM) activities and programs that are currently in place and identification of opportunities for expanding, improving, and/or creating effective regional efficiency management programs and activities;

- a "tool box" of TSEM alternatives and strategies to provide information to providers, business and community leaders, citizens, and other interested parties on specific strategies and programs to reduce VMT and increase the efficiency of our regional transportation system; and

- an appropriate package of recommended TSEM actions to ensure a balanced and efficient regional transportation system.

Implementing Transportation Systems Efficiency Management Strategies and Programs

The 1992 Oregon Department of Transportation interagency working group developed a listing of key findings and necessary, supportive actions to ensure the successful application and implementation of Transportation Systems Efficiency Management (TSEM) strategies. The SKATS/City of Salem TDM/Transit Subcommittee evaluated these findings for suitability and appropriateness in relation to the Salem-Keizer urban area and identified a series of general characteristics and supportive conditions for successful applications of TSEM improvements and actions.

General Characteristics for Successful TSEM Applications

- Moderate to heavily congested commute corridors

- Well defined, concentrated residence-to-work-site travel patterns with identifiable trip origin and destination points

- Major employment destination sites or defined clusters of smaller employment sites

Supportive Conditions for Successful TSEM Applications

- Constrained parking at the work site

- Employee residences and personal activity opportunities (retail, service, professional office, etc.) within five miles of work site (potential bicycle trips)

- Employee residences and personal activity opportunities within 1/4 mile of work site (potential walk trips)

- Residences, employment sites, and personal activity opportunities clustered at nodes or located along corridors with transit and pedestrian-supportive urban designs (potential transit trips)

Scenarios for the Successful Implementation of TSEM Strategies

- Strategies are more effective if coupled with complementary strategies (e.g., park-and-ride facilities are more likely to be successful if linked to express or limited stop transit service).

- An efficient Demand Management/Rideshare program should offer the potential user some combination of the following:

    - improved transportation alternatives (e.g., increased bus service);
    - incentives to use alternative modes (e.g., discount transit fares);
    - disincentives to single-occupant vehicle travel (e.g., parking fees);
    - removal of impediments to using alternative transportation modes (e.g., guaranteed ride home programs); and
    - employer support for Demand Management/Rideshare options identified as useful by employees (e.g., creation of a company TDM program).

- Demand management/rideshare programs are most likely to be successful where there are financial incentives to encourage commuter participation (e.g., transportation allowances).

- Congestion, parking costs, etc., often need to be perceived as unacceptable before voluntary demand management/rideshare options become widely attractive to commuters.

- Marketing efforts should target those commuters who are interested in or open to altering their commute pattern (e.g., market segmentation). Time and resources may not be best used in trying to change the minds of those who are committed drive-alone commuters.

- The target area for a TDM program should be clearly defined (e.g., the Downtown/Capitol Mall area). The largest scale demand management/rideshare experiments have been at the subarea level and have been characterized by significant reductions in certain types of vehicle trip rates.

- The larger the scope of the program, the more important it is that there is cooperation among jurisdictions, private employers, and the public. Coordinated efforts among agencies and transportation providers are more likely to succeed than overlapping efforts.

- Demand management/rideshare programs should have strong local financial support to ensure that jurisdictions and private employers support the program (e.g., local matching funds and employer subsidies to supplement state and federal funds).

Regional Transportation Systems Efficiency Management (TSEM) Programs and Activities

This section presents a detailed description of the existing "regionally significant" TSEM programs and activities in the region, such as TDM and TSM activities, including the regionally significant park-and-ride/pool facilities that serve the residents of the SKATS area. It should be noted, however, that the status of the programs and activities described in this section are subject to change. Consequently, any relevant changes will be reflected in periodic updates to this Plan.

TDM Programs

Transportation Demand Management programs increase the efficiency of the existing and future transportation system by managing and reducing the number of automobile trips and maximizing the movement of people and goods. Of the many strategies that are associated with TDM programs in general, discussion of the Regional TDM Program and the Regional Rideshare Program are presented below.

Regional TDM Program

The Regional TDM Program is designed to complement and enhance the efforts that began with the Regional Rideshare Program in 1975 (described in detail below). The TDM program started in 1994 and is funded through the federal Surface Transportation Program as well as local funding sources. The program currently includes four components, listed below, which are described in the following paragraphs.

- Employer/Employee and Community Outreach
- TDM Program Development and Evaluation
- TDM Program Coordination with Other Agencies
- Regional Rideshare Program

<u>Employee/Employer and Community Outreach</u>

An essential part of the TDM program is informing employers and employees that there are options available for the commute to work. The overall goal of this service is to coordinate the development and implementation of transportation alternative programs, activities, and incentives in the Salem-Keizer area. Currently, 109 worksites work with Cherriots Rideshare to offer Employee Transportation Programs. These programs usually have multiple elements to them, to allow the employer the opportunity to tailor the choices to meet the needs of the employees. Possible components of an Employee Transportation Program include:

- New employee introduction package: Includes two free bus passes and a form to enroll in the ride matching program.
- Reduced price bus passes: Monthly passes on Cherriots at a discount.
- Preferential/Reduced Carpool Parking: For those employees joining or starting a carpool, the city of Salem has designated parking spaces for carpools. In addition, some area businesses and agencies offer a similar service in their private parking lots.

- Bicycle and Pedestrian Incentives: Designed to encourage employees to walk or bike to work. Several companies in the area offer on-site bicycle lockers for their workers. In addition, the city of Salem has a number of lockers for rent in downtown.
- Flexible work hours.
- Teleworking.
- Emergency Ride Home program: For employees enrolled in the program who have an emergency that requires the employee to leave immediately, this program would pay for the taxi fare.

In addition, another part of the TDM program's outreach is to inform employers, employees, and the public of the benefits and possibilities that are part of Employee Transportation Programs specifically and TDM strategies in general. These tasks include:

- Assist major employers to develop and establish a comprehensive employee transportation program.
- Explore the feasibility of developing a Transportation Management Association.
- Promote incentives and disincentives for the use of rideshare, transit, bicycling, and walking by employees and the community.
- Assist in the development and establishment of telecommuting programs.
- Promote alternative work hours.
- Participate in community activities to promote TDM strategies where appropriate.

In addition, on a regular basis, the TDM staff meets with public and private sector employers and employees to develop transportation programs and provide information on transportation alternatives.

TDM Program Development and Evaluation

TDM Program Development and Evaluation includes:

- Research TDM strategy related incentives/disincentives and programs elsewhere in the nation for potential applicability for the region. Determine implementation process for these incentives/disincentives to employers and employees.
- Develop marketing promotions.
- Produce newsletter to promote carpool/vanpool use and other transportation alternatives to the single-occupant vehicle, energy conservation, and air quality for distribution to policy makers, local communities, businesses, and the public.
- Retain existing "public" carpool parking and locate additional "on-street" carpool parking spaces in the Downtown/Capitol Mall area, as the demand warrants.
- Develop and implement a park-and-ride plan in coordination with Salem-Keizer Transit District for the Salem-Keizer urban area.
- Identify and develop potential park-and-ride sites within Marion and Polk counties and coordinate the designation and/or construction of these sites with the appropriate jurisdictions.
- Continue to improve the current computer matching program in order to meet the needs of prospective clients and cost effectiveness of the program.

- Improve program monitoring and evaluation procedures to assess the overall effectiveness of the program and the special marketing promotions.
- Develop ordinances to require TDM strategies in lieu of other mitigation measures in Traffic Impact Analysis.

TDM Program Coordination with Other Agencies

The Regional TDM Program coordinates transportation related activities with various other state, regional, and local transportation agencies and committees. The intent of this program is not to duplicate efforts of other agencies or committees. The activities include:

- Coordinate with TDM programs throughout Oregon and Washington to share information and coordinate programs and promotional activities.
- Assist Salem-Keizer Transit District with improvements in transit services and park-and-ride facilities.
- Participate with other TDM professionals throughout the state to educate and promote transportation alternatives to the business community, the pubic and state and local policy makers.

Regional Rideshare Program

The main program offered under the Regional TDM umbrella is the Regional Rideshare Program. The Regional Rideshare Program originated in 1975 as a cooperative effort between the city of Salem, the Mid-Willamette Valley Council of Governments (MWVCOG), and the State of Oregon Department of General Services. The program objective was to alleviate parking demand in the Central Business District (CBD) and Capitol Mall area by providing transportation alternatives to driving alone to work. By the end of 1977, the program had expanded to include a regionwide carpool matching service, preferential parking and reduced parking fees for carpools, park-and-ride facilities connecting to Cherriots bus service, the Cherriots Commuter Bus club (a "no charge" express transit service for CBD/Capitol Mall area commuters), the use of flex hours, and a referral service for vanpools. The program was administrated by the MWVCOG until July 1979. In July 1979, the city of Salem Public Works Department assumed responsibility for administration of the program. In July 2005 the Salem-Keiser Transit District assumed responsibility for the administration of the program and markets the program under the name of "Cherriots Rideshare". The Regional Rideshare Program is funded through the federal Surface Transportation Program of the Safe Accountable Fair Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) and local funding sources.

Currently, the Regional Rideshare Program's major components are the Carpool Matching Services,Vanpool Referral Services and administering the Emergency Ride Home Program, described in detail below.

Carpool Matching Service and Participation. Carpooling involves the use of an employees' private vehicle to carry fellow employees or other commuters to

work, either using one car and sharing expenses, or rotating vehicle use so that no money changes hands. The Cherriots Rideshare program provides a computerized carpool matching service and offers a 24-hour Rideshare Hotline for potential carpool participants within an 80-mile radius of the Salem-Keizer-Turner urban area. Applicants are matched with those individuals commuting in the same direction and receive a computer printout or e-mail containing contact information of other participants. The average daily round trip commute for carpool participants was approximately 45 miles in 2005-2006.

Cherriots Rideshare processes approximately 62 potential carpool applications a month. As of June 2006, there were 2,778 applicants in the rideshare database.

Vanpool Referral Service. Vanpools can be company sponsored, third-party, or owner operated. A vanpool involves between 7 and 15 riders that is driven by a volunteer driver/coordinator who is commuting to the same location as the riders. Riders usually meet at a designated pick-up location, and have a designated drop-off point at the destination. Each rider pays a monthly fee that is determined by the lease cost, plus gas, divided by the number of riders.

When a carpool application is processed, applicants are also matched with vans that may serve their commuting needs. The applicant receives information about how to contact the driver, pick up and drop off locations, times and fares. Currently, there are 25 vanpools in the Cherriots Rideshare database.

Cherriots Rideshare, in collaboration with Cascades West Rideshare, and Lane Transit District's Commuter Solutions Program have established a vanpool program called Valley VanPool. This joint effort has significantly streamline service, promotion, and recruitment for commuter vanpools in the Willamette Valley. The program has given all vanpools a recognizable, common logo that has greatly enhanced marketing efforts, set up a vanpool hotline number, and created a Web site that is a one-stop vanpool information center.

Valley Vanpool has now been involved in the creation or coordination of eleven vanpools that serve over 125 commuters in the Willamette Valley. These vanpools reduce Vehicle Miles Traveled (VMT) by over 100,000 miles every month.

In 2006, Valley VanPool received a grant from ODOT to assist in vanpool growth in the Willamette Valley by way of offering partial subsidies to vans

Preferential Parking for Carpools and Vanpools. Complementary to the carpool/vanpool referral service, the city of Salem currently gives carpools priority for use of over 300 on-street parking spaces for carpools and reserves ten parking spaces for vanpools. The preferential on-street parking spaces are indicated by signs and are located in the Downtown/Capitol Mall area (see **Map 13-1**).

Participants of the carpool/vanpool referral service can also apply for reserved parking spaces located in one of the city's three downtown parking structures (Pringle, Marion Parkade and Liberty Square). Currently, carpool and vanpool

participants can obtain reduced parking fees for reserved carpool/vanpool parking spaces in the Pringle Parking Structure.

Regional TSM Programs

Transportation System Management strategies aim to increase the efficiency of the transportation system by addressing bottlenecks and flow problems inherent in the built facilities. Three current and continuing strategies pursued in the Salem-Keizer area are the Regional Parking Management System, the Regional Park-and-Ride/Pool System, and the Regional Traffic Signal Coordination and Control System. Additional TSM methods are used on a case-by-case basis to address issues that arise along a given corridor, or that impact a certain intersection. These strategies are discussed in detail in the following sections, with the Regional Traffic Signal Coordination and Control System discussed in the ITS section of this chapter.

Regional Parking Management System

Introduction

The appropriate management of the region's parking supply can be a useful tool in the effort to effectively balance the regional transportation system among the various modes of travel. Too abundant a supply of free parking can contribute to creating a demand for automobile trips that both exceeds the ability of the region to provide adequate roadway capacity and causes degradation in our air quality and overall livability. Too limited a supply of parking can cause perceptions of inconvenience and lack of accessibility to homes and businesses. The challenge is to manage the overall parking supply and demand in such a way that adequate levels of parking are available to prevent detrimental impacts on the economic health of the community, while at the same time not "over building" the supply of parking such that it fosters an increased demand for automobile trips and consumes too much valuable urban land that could be put to other uses.

As the MPO for the Salem-Keizer urban area, SKATS does not directly construct, plan for, or control the parking supply in the region. Those activities are the responsibility of the individual local jurisdictions. The Regional Transportation Systems Plan can, however, promote a regionwide strategy for the management of the regional parking supply and establish policies that support the overall parking management strategy.

Current Parking Supply

The last survey of the parking supply in the Salem-Keizer area was completed in 2005. This survey is an update to the initial survey in 1995, and focused on the increase in that time frame. The estimate for 1995 was 153,393 parking spaces available in the region associated with the Salem CBD, commercial, industrial, educational, government, and health-related land uses (**Table 13-1**). This parking supply translates into approximately 0.84 parking spaces per capita for 1995. The 2005 estimate is for 171,923 parking spaces, or approximately 0.79 parking spaces per capita.

Table 13-1
Parking Supply, 1995 to 2015

	Est. Parking Spaces 1995	Est Parking Spaces 2005	Est. Parking Spaces 2015
Total	**153,393**	**171,293**	**185,141**
Population	182,000	217,400	242,700
Parking per Capita	0.84	0.79	0.76

Source: Kimley-Horn and Associates, Inc., Parking Management and Conversion Plan, June 1995, City of Salem Parking Plan 2005

Regional Parking Management Strategy and Policies

The overall parking management strategy for the SKATS area is to ensure an appropriate supply of parking opportunities in the region that:

- maintains and promotes economic vitality and neighborhood livability within the region; and

- contributes to the balancing of travel demand within the region among the various modes of transportation available.

Changes in the Regional Parking Supply

As a result of the implementation by the local jurisdictions within the region of parking management policies consistent with those contained in this Plan, as well as specific code reductions related to the level of parking required for new development, the regional parking supply can be successfully managed so that an adequate, but not overstocked, supply of parking would exist in the region. It is estimated that 185,141 parking spaces associated with the Salem CBD, commercial, industrial, educational, government, and health-related land uses will be available in 2015 (**Table 13-1**). This parking supply translates into approximately 0.76 parking spaces per capita reduction in the overall regional parking supply that complies with the Oregon Transportation Planning Rule (TPR) requirement of a 5 percent reduction in certain types of parking per capita over the next twenty years. The survey of 2005 shows that the area is on-track to meeting the goal of a 10 percent reduction in 20 years.

Regional Park-and-Ride/Pool System

Overview

Park-and-ride/pool facilities serve as collection points where individuals can park their vehicle or be dropped off and then transfer to a multi-occupant vehicle or another mode of transportation (usually transit) in order to reach their trip destination. These facilities typically provide access to public transportation, such as bus or rail, and may also serve as staging areas for carpools, vanpools, or other ridesharing services (park and pools). Park-and-ride/pool facilities can either be designated or informal sites on public property or joint-use portions of lots on privately owned property, such as shopping centers and churches. Designated sites are signed, indicating the location of the site and, in the case of joint-use facilities, the portion of the site set aside for parking use. Some designated sites operate under a cooperative agreement between the owner of the site (e.g., Fred Meyer Store) and an administrative agency (e.g., Salem Area Transit District). Informal sites are not signed and operate under an informal agreement with the property owner who allows use of a portion of the site for parking, as long as it does not interfere with the daily function of the site. The size of a park-and-ride/pool facility may vary from only a few spaces in sparsely populated or less heavily traveled corridors to hundreds of spaces in lots served by major transit routes.

Park-and-ride/pool facilities serve various functions depending on their location and the type of connection provided. Lots located outside of the central business district (CBD) are often referred to as "fringe" or "peripheral" facilities. These lots typically serve downtown commuters and are usually served by public transportation. Fringe parking can help reduce parking and SOV travel demand within the CBD or other areas where demand for parking and roadway space is generally high. Other types of park-and-ride/pool facilities collect long distance commuters near the origin of the trip and, by eliminating much of the SOV trip length, are more effective at reducing the number of vehicle miles of travel (VMT). These facilities are typically located near the intersections of freeways or other major roads and provide a convenient transfer point for carpools, vanpools, and buspools.

A variety of supporting facilities and services, such as signing and marketing, promote park-and-ride/pool lot use. Sites can be developed to facilitate access by walking and bicycling by providing connecting sidewalks, access paths and bicycle lanes, and bicycle parking and storage facilities. A variety of personal services can also be provided at major lot locations (e.g., convenience stores, day care, banks, dry cleaning services).

Regional Park-and-Ride/Pool System Facility Inventory

During August 1994, SKATS staff conducted a field survey of regionally significant park-and-ride/pool facilities. This inventory is depicted in **Table 13-2**. The regional park-and-ride/pool system consists of 17 sites (designated and informal) that are located in and around the SKATS area. Twelve sites are located within the SKATS boundary and five are located outside the SKATS boundary (three of those five are not shown on the map) (**Map 13-1**). The park-and-pool facilities that are located outside of the SKATS area generally serve as staging areas for carpool and vanpool commuters who live outside and are employed within the SKATS area.

Table 13-2
Park and Ride Locations in the Salem-Keizer Area

Site Name	Address/Location	Spaces	# Parked Vehicles	Signed	Striped	Paved	Lighting	Classification
West Salem								
Wallace Road/Brush College Road	Northwest corner of Wallace Road @ Brush College Road.	50	23	yes	yes	yes	yes	Designated
Rickreall	9 miles west of Salem on Rickreall Road, 0.2 miles west of Hwy. 99W	20	5	no	no	no	no	Designated
Kings Valley Hwy./Hwy. 22	13 miles west of Salem, southeast corner of Hwy. 22 @ Hwy. 223	15	7	no	no	no	no	Informal
East Salem								
Christ Lutheran Church	4440 State Street @ 44th Place intersection.	15	2	no	yes	yes	no	Informal
Grace Baptist Church	4197 State Street @ Elma Street intersection.	20	2	no	no	no	yes	Informal
State Motor Pool Express bus service	1100 Airport Road @ Ryan Drive intersection	110	93	yes	yes	yes	yes	Designated
Market Street Express bus service	Northwest corner of Market Street @ Hawthorne Avenue	180	75	no	yes	yes	yes	Designated
Stayton Road/Hwy. 22	12 miles east of Salem, southeast corner of Hwy. 22 @ Cascade Hwy.	94	18	yes	yes	yes	yes	Designated
Silver Falls Hwy./Hwy. 22	5 miles east of Salem, northeast corner of Hwy. 22 @ Hwy. 214	15	0	no	no	yes	no	Informal
North Salem								
Fred Meyer North	2855 Broadway Street NE @ Salem Parkway intersection	20	15	yes	yes	yes	yes	Designated
People's Church	4500 Lancaster Drive NE @ Jade Road intersection	20	1	no	yes	yes	yes	Informal
North Salem Baptist Church	4290 Portland Road NE, north of Hyacinth Street intersection	approx. 25	5	no	yes	yes	no	Informal
Safeway	4990 North River Road @ Chemawa Road intersection	25	3	no	yes	yes	yes	Informal
South Salem								
Sunnyside/Turner Road Interchange	Southeast corner of Delaney Road @ Squirrel Hill Road.	60	18	yes	yes	yes	nearby	Designated
Fred Meyer South	3450 Commercial Street SE @ Madrona Avenue intersection	approx. 30	9	no	yes	yes	yes	Informal
Walmart Express bus service	5250 Commercial Street SE @ Baxter Road intersection	approx. 70	30	no	yes	yes	yes	Designated
Rite Aid/Albertson's Express bus service	4450 Commercial Street SE @ Hilfiker Road intersection	approx. 50	28	yes	yes	yes	yes	Designated

Goals, Objectives, and Policies

The Regional Transportation Systems Efficiency Management chapter (RTSEM) of the Regional Transportation Systems Plan (RTSP) provides a framework for developing an efficient and balanced regional transportation system for the SKATS area. Since SKATS does not actually build, maintain, or operate any portion of the facilities and services comprising this system, the RTSEM of the RTSP is implemented through the cooperative adoption of regional goals, objectives, and policies contained in the regional Plan. In turn, the regional Plan must be consistent with state and federal plans, policies, and mandates. The goals, objectives, and policies contained in the RTSEM of the RTSP are geared toward meeting the long-term mobility needs of the citizens and businesses in the SKATS area by promoting an increased variety of viable travel choice options in the region and making the most efficient use of existing transportation capacity and infrastructure.

Goal 1: A program of transportation systems efficiency management strategies and actions implemented on the regional transportation system in the Salem-Keizer urban area.

Objective 1: *Establish a program of transportation systems efficiency management strategies and actions to be implemented on the regional transportation system.*

Policy 1: The Regional Transportation Systems Efficiency Management chapter (RTSEM) of the Regional Transportation Systems Plan (RTSP) shall establish a program of transportation systems efficiency management strategies and actions to be implemented incrementally on the regional transportation system over the 20-year planning horizon.

Policy 2: The strategies and actions contained in the RTSEM shall be evaluated and updated on a recurring basis in order to respond to the changing mobility needs of residents and businesses in the Salem-Keizer area.

Objective 2: *Support Transportation Systems Efficiency Management (TSEM) strategies and actions on the regional transportation system that provide the greatest level of mobility for residents and businesses in the Salem-Keizer area.*

Policy 1: Support the continued allocation of regional funds to successfully implement the Regional Rideshare Program.

Policy 2: Cooperatively seek additional revenue sources to ensure the development and implementation of TSEM strategies and actions that provide cost-effective transportation alternatives to the single-occupant vehicle and peak period travel demand.

Goal 2: A regional transportation system that maximizes the safe and efficient utilization of existing and planned transportation capacity and infrastructure.

Objective 1: *Maximize the efficient use of existing and planned regional transportation capacity and infrastructure.*

Policy 1: Promote the implementation of Transportation Demand Management (TDM) strategies and programs in the Salem-Keizer area to reduce both reliance on the single-occupant vehicle as well as peak period vehicle demand on the regional transportation system.

Policy 2: Promote the implementation of Transportation Systems Management (TSM) and Congestion Management Process (CMP) strategies and actions to improve the operating efficiency of the existing regional transportation infrastructure in the Salem-Keizer area.

Policy 3: Implement TSEM strategies and actions in lieu of major widening projects on roadways identified as part of the regional transportation system unless significant constraints or insufficient improvements in service levels can be demonstrated.

Policy 4: Support the efforts of implementing jurisdictions to adequately maintain and maximize the useful service life of the existing regional transportation infrastructure.

Goal 3: A balanced regional transportation system that affords the residents and businesses in the Salem-Keizer area a range of viable modal options for the movement of people and goods.

Objective 1: ***Provide a regional transportation system that employs a variety of viable modes to facilitate options in personal and commercial travel choices.***

Policy 1: Promote the design and development of a regional transportation system infrastructure that incorporates vehicle, transit, walking, bicycling, and rideshare modes.

Policy 2: Promote the development of land use patterns and architectural designs that facilitate multimodal travel options.

Policy 3: Identify transportation system improvements that effectively accommodate and enhance the use of a variety of modal options.

Goal 4: A public well informed about the availability, cost, and tradeoffs of transportation and travel behavior choices in the Salem-Keizer area.

Objective 1: *Encourage public education and information programs and activities that increase public awareness of the available transportation and travel choice options in the Salem-Keizer area.*

Policy 1: Support the development and provision of public educational opportunities and informational materials in order to increase public awareness of transportation efficiency and travel choice options available in the SKATS region

Policies for the Regional Parking Supply

Policy 1: Where practicable, existing on-street parking will be removed from the regional system in preference to acquiring new rights-of-way for the addition of travel lanes. Efforts shall be made to mitigate the impacts of such removals in those areas where abutting properties have no ability to provide their own supply of adequate off-street parking or where on-street parking is needed to support an existing business district.

Policy 2: An adequate supply of carpool and vanpool parking spaces should be provided in the region to accommodate the demand for such parking. The provision of these spaces shall have preference over those intended for general purpose uses.

Policy 3: Jurisdictions within the region should provide for the restriction of overflow parking impacts in residential areas through the use of residential parking permit programs and other means as appropriate.

Policy 4: New development in the region should provide sufficient access to an appropriate supply of off-street parking subject to the standards established by the local jurisdictions within the region. Those jurisdictions are encouraged to develop parking maximums that clearly reflect an intent to effectively manage the overall parking supply.

Policy 5: Major regional activity centers should be effectively accessible by transit, bicycles, and pedestrians; should provide priority spaces for carpools when practicable; and should meet their parking requirements through a combination of shared, leased and new off-street parking opportunities, as well as automobile demand reduction strategies.

Policy 6: Local jurisdictions within the region are encouraged to allow owners and lessees of nonresidential properties to satisfy off-street parking requirements by implementing plans that provide for and promote the increased use of modes of travel other than the automobile by both employees and customers.

Recommended Improvements

Specific TSEM improvement projects and activities associated with the regional transportation systems called for in this Plan address all four of the system efficiency methodologies identified in this chapter, including Congestion Management Process (CMP), Transportation Demand Management Systems (TDM), Transportation Supply Management Systems (TSM) and Intelligent Transportation System (ITS) facilities. Several of these methodologies are new additions to the toolbox of strategies that the region will use now and in the future to ensure

that the existing and future regional transportation system operates in an efficient manner; both from a user's perspective and from a financial one. In particular, the strategies proposed for the CMP and ITS programs are presented in greater detail, encompassing not only the basics of the programs, but the rationale for each as well.

Regional CMP Program

Introduction

This Plan continues the Regional Congestion Management Process (CMP) for the SKATS area defined in the 2030 RTSP. The CMP was developed in order to facilitate the monitoring, analysis and reduction of congestion in the major regional travel corridors. Elements of the overall Regional CMP will be phased in over the next several years as the infrastructure for data collection and the organizational structure to analyze and disseminate the data is designed and implemented.

Why a CMP?

For metropolitan areas with a population over 200,000, a Congestion Management Process is required by federal regulations to be part of the planning process for the transportation system. Further, for carbon monoxide nonattainment TMAs, such as SKATS, successful completion of the CMP process is necessary before federal funds may be programmed to any project in the TIP

> "...that will result in a significant increase in carrying capacity for single occupant vehicles (a new general purpose highway on a new location or adding general purpose lanes, with the exception of safety improvements or the elimination of bottlenecks) ..." [23 CFR Section 1410.302 (a)]

Many of the steps required of a CMP are already performed by SKATS when projects are considered for inclusion in the RTSP and TIP. The CMP merely codifies the procedure and allows for a more systematic analysis of the alternatives available to address congestion. The Regional CMP established in this Plan addresses three issues:

- First, it meets the federal requirements that the area implement a CMP that includes all federally-funded capacity increasing projects;
- Second, it lays the foundation for the evolving systematic data collection, analysis, and interpretation activities that comprise the backbone of the Regional CMP; and
- Third, it establishes an evaluation process that ensures that proposed improvements are designed and located in such a way as to solve congestion problems and be cost-effective over time.

As the Regional CMP is refined in future Plan Updates, it will provide ever more detailed pictures of the operational characteristics of the major travel corridors in the region and serve as a basis for the selection of improvements designed to effectively address the identified problems.

The SKATS Regional Congestion Management Process (CMP) is a three-layered process designed to ensure that federally funded SOV capacity is added to the transportation system appropriately, and, once added, that it is managed and protected effectively.

Regional CMP Consistency

System level components of the Regional CMP occur with the development and adoption of the RTSP; project specific elements of the Regional CMP occur during project selection for the TIP.

The adopted SKATS RTSP identifies the facilities that are considered part of the regional CMP system (**Map 13-2**) as well as the congestion problems on the regional system. Note that these congested segments are expected to occur even with the aggressive program of reasonable and affordable alternative modal strategies and actions embodied in the adopted RTSP, such as:

- major transit service and equipment improvements;
- continual expansion of the regional rideshare, TDM and vanpool programs;
- major additions to the regional bicycle system;
- completion of the regional traffic interconnect system and other operational and TSM improvements;
- significant expansion of the regional signal ITS system, including development of an automated traffic reporting system, improved real-time transit utilization reporting;
- ongoing support for the integration of transportation and land use and the development of a less auto-reliant urban form.

After the determination that a given proposed improvement will result in the *addition or subtraction of at least ½ mile of general purpose travel lane capacity* to the transportation system, the first layer of the SKATS CMP process is used to determine the *eligibility* of the proposed improvement for inclusion into the SKATS MTIP (and subsequently, into the ODOT STIP).

If the proposed improvement is deemed to constitute the addition or subtraction of *significant SOV capacity* to the region's transportation system, to be *eligible* for inclusion into the SKATS TIP the project must *either* address a congestion problem identified in the adopted SKATS CMP *or* be developed as the result of a planning effort called for in the adopted RTSP to resolve an Outstanding Issue specifically identified in the Plan.

Project Specific CMP Consistency

When a general purpose capacity adding project has been demonstrated to be consistent with the SKATS CMP system on a regional level, the second tier of the SKATS CMP process (**Figure 13-1**) ensures that specific other, non-SOV capacity adding solutions to the identified problem have been considered and evaluated. When a capacity adding project has been demonstrated to be consistent with the regional CMP system, it must also show that a wide range of alternative, non-SOV capacity solutions have been examined to solve the identified problem and that none of these was found to be effective, feasible, or neither. A checklist must be completed by the sponsoring agency and included with the request to program funds for the project in the SKATS TIP or AQCD that specifically documents the evaluation of each non-SOV alternative. Only when it can be demonstrated that no effective and feasible non-SOV capacity adding solutions

can be implemented will the project be considered for funding in the SKATS TIP.

Capacity Maintenance and Protection

Finally, if general-purpose SOV capacity has been shown to be the most effective solution to a problem identified in the SKATS CMP, then the design and implementation of that project must consider, and include where appropriate, specific actions or design features to *maintain* the capacity/operation of the segment and to *protect* it from returning to a congested state. Such protection could take the form of access control or other similar strategy.

Components of a CMP

The facets of the initial SKATS Regional CMP are outlined below and are presented in more specific detail in the following sections. **Figure 13-1** illustrates the project evaluation process. It should be noted that the items presented below will evolve over time as experience is gained in actually implementing the CMP system and analyzing the resultant data.

- Develop a set of congestion identification measures for the region.
- Establish a framework for gathering and analyzing the data necessary to determine how the transportation system is functioning, what might be causing congestion on the system, what actions might be appropriate to address the congestion, and how effective given solutions might be in solving the problem.
- Ensure the evaluation of alternatives to address the problem, both for the present and the future transportation system.
- Plan how and who will implement the preferred solution, and how it would be funded.
- Provide for a mechanism to monitor the performance of the system to ascertain the continued effectiveness of the implemented solution.

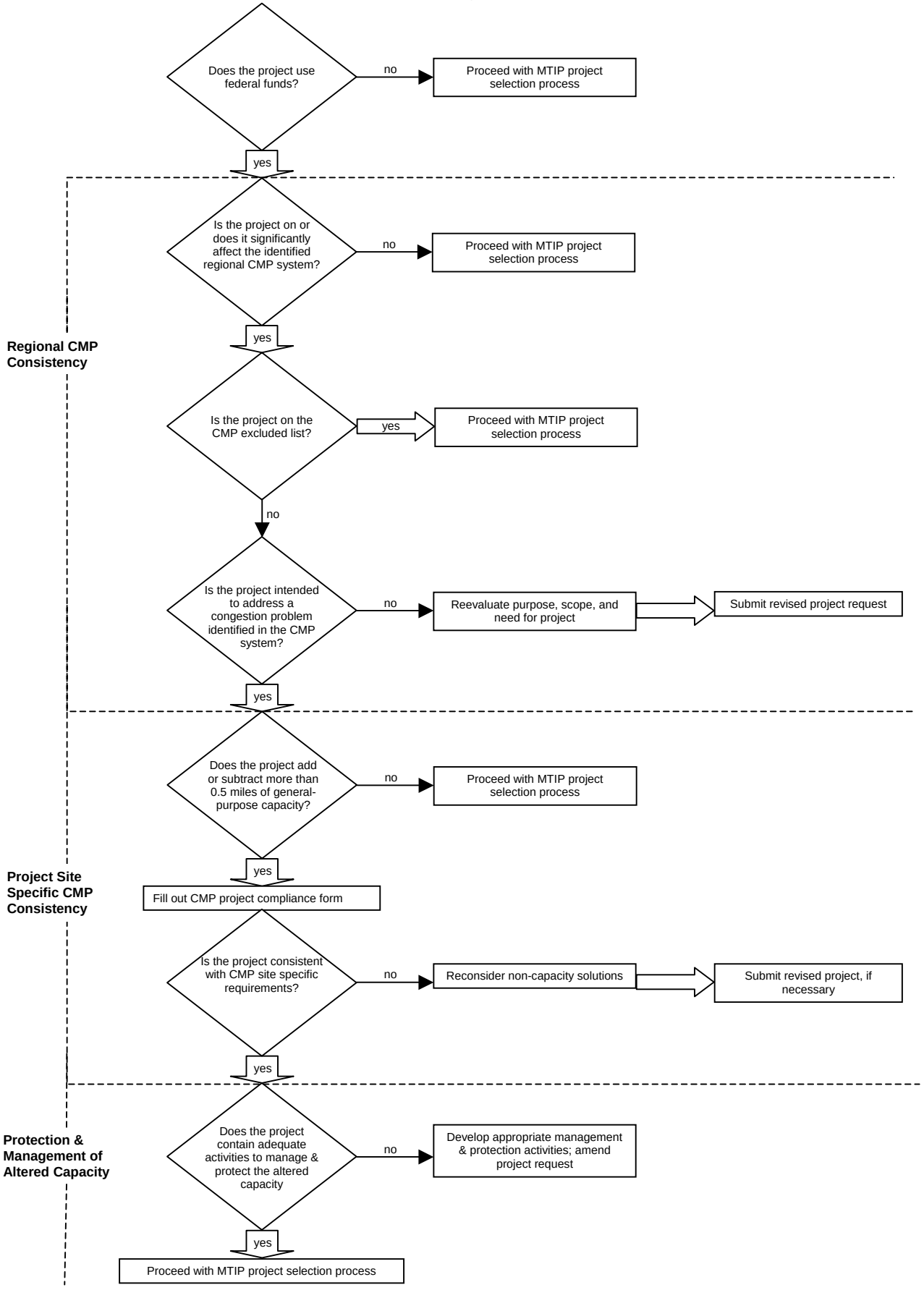
Congestion Identification Measures

The development of performance measures to identify congestions is the first step in defining a CMP. For many applications, the traditional measure has been the volume-to-capacity ratio (v/c). However, part of the focus of a CMP is to expand the consideration of solutions to include alternative modes and innovative solutions. As such, while the use of v/c as a congestions identification measure is appropriate in the short term while the CMP is being developed and refined, more sophisticated measures that address the multi-modal aspect of the transportation system will be required in the future.

The Regional CMP will initially employ measures that track auto and transit usage within a specific corridor. Existing traffic counts and transit ridership reports will form the basis of the congestion identification measures. These initial measures will be v/c for automobiles and peak period transit v/c. Peak period transit v/c is defined as the number of riders during the peak period on a route divided by the total capacity of the buses running on that route. One variation would be to also use seated capacity in addition to total capacity to reflect the desire of transit riders to have their own seat on the bus.

Figure 13-1

SKATS CMP Project Flow Chart



Additional measures can be added after the basic data collection and analysis process is in place. The regional traffic count program and the implementation of some ITS infrastructure is already in place. Projects to increase these data sources and to develop additional ones will be proposed as part of future TIPs.

Data Framework

Currently, the framework for gathering the data needed by the CMP is not fully developed. While individual jurisdictions do perform traffic counts on the region's arterials and the transit district does have ridership reports, there is no current process for the automated gathering of this data as it is produced, nor are the tools in place to automatically perform the analysis of the data.

These tools and processes will need to be developed over the next year through a cooperative procedure between the MPO, the cities, state and transit district, to ensure that the data gathered will not only meet the needs of the CMP requirements, but will satisfy the needs of the individual agencies.

While in the short-term, these data collection techniques will suffice; as additional performance measures are introduced new methods to collect the requisite data will be required. It is anticipated that several of the solutions will be implemented using the techniques and methodologies discussed in the ITS section that follows.

Analysis of Alternatives

Before any additional federally funded general-capacity –increasing or -decreasing travel lanes can be programmed in the SKATS TIP the sponsor must show that every other alternative has been seriously considered and found ineffective to sufficiently reduce congestion sufficiently. The alternatives should be considered individually and in concert with others. The alternatives to be considered include:

- Transportation Demand Management strategies
- Traffic System Management Improvements
- Transit Improvements
- Intelligent Transportation Systems
- Addition of general purpose lanes

Additionally, when SOV lanes are the only recourse for a project, they must include measures to ensure that the facility performance does not degrade after completion of the project. These measures would address operational management and/or travel demand reduction strategies.

Periodic Review

The final requirement for a CMP is that it provide an ongoing review of the regional system as the alternatives are brought online, to determine how effective the solution is working. This review forms a type of feedback to the planning process, to inform and direct the decision makers as to the potential effectiveness of future projects. It is anticipated that this review would be conducted during the RTSP update process.

CMP Corridors

The corridors selected for the initial regional CMP will be the Regional Road System (**Map 13-2**). This definition provides a reasonable coverage of the regional roads in the SKATS area, captures the majority of the transit routes and ridership, and represents the main trucking routes through the area. The corridors are listed below. As can be seen from the list, the corridors do not necessarily include the entire facility, rather the road is typically split into several sections, representing places where the operational characteristics of the route change. One example is Commercial Street South. Instead of including this street from Mission to Kuebler as one congested corridor, it is rather split into two segments: Commercial from Downtown to where the Commercial/Liberty couplet starts, and from the couplet past Kuebler to the interchange with I-5 near the southern limits of Salem's boundary.

CMP Corridors

- 12th/13th: Downtown to Commercial St S
- 17th: Silverton to Highway 22 E
- 25th: Madrona to State St.
- Broadway: Downtown to River Rd.
- Center: 12th to Cordon
- Chemawa: River Road to Portland Rd
- Cherry: River Road to Pine St.
- Commercial S: Couplet Split to I-5
- Commercial/Liberty N: Division to Salem Parkway
- Commercial/Liberty S: Downtown to the Couplet Split
- Cordon: Kuebler to Chemawa
- Doaks Ferry: Highway 22 to Wallace Rd
- Fairgrounds: Portland Rd to Hood St.
- Glen Creek: Wallace Rd to Doaks Ferry
- Hawthorne: Hyacinth to Highway 22 E
- Hazelgreen: Portland Rd to Cordon
- Highway 22 W: Bridges to UGB
- Hyacinth: Hawthorne to Salem Parkway
- I-5: Brooks Lake Road to Delaney
- Kuebler: Skyline to Cordon
- Lancaster: Kuebler to Portland Rd
- Liberty Rd S: Fairview to Davis Rd/Mildred Ln
- Lockhaven: Windsor Island Rd to Chemawa
- Madrona: 25th to Liberty
- Market: Capital/Summer to 45th

- Mission St: Commercial/Liberty to East UGB
- Orchard Hts: Wallace Rd to Doaks Ferry
- Portland Rd: Fairgrounds to Hazelgreen
- Pringle/Battle Creek: McGilchrist to Kuebler
- River Rd N: Commercial/Liberty N to Wheatland
- River Rd S: Commercial/Liberty to Viewcrest
- Salem Parkway: Commercial/Liberty N to I-5
- Silverton Rd: Fairgrounds/Portland Rd to Cordon
- Sunnyside: Commercial to Mildred Lane
- Sunnyview: Fairgrounds to Cordon
- State: 12th to Lancaster
- Turner Road: Highway 22 to South UGB
- Verda: Salem Parkway to Lockhaven
- Wallace Rd: Highway 22 to UGB

Regional TDM Program

Improvements and programs called for related to the Regional TDM program include the following:

- Continued regional and local support of the TDM program and its components, including the Regional Rideshare Program.
- Provision of bicycle racks and lockers as necessary at all existing and proposed Cherriots transit centers and transfer centers.
- Other TSEM projects recommended for implementation on the Regional Public Transportation System as identified in Chapter 14, the Regional Public Transportation System.
- Continued provision of bicycle racks on all Cherriots buses.
- Continued regional support for the development of Regional Bicycle System facilities as identified in Chapter 7, the Regional Bicycle System.

Regional TSM Program

Improvements and continuation of current work called for related to the Regional TSM program include the following projects:

- Continued regional support for the development and maintenance of existing facilities related to the Regional Park-and-Ride/Pool System.
- Continuation of cooperative agreements for designated, joint-use park-and-ride/pool facilities located in the Salem-Keizer urban area.
- Identify and encourage the development of potential joint-use park-and-ride/pool facilities in the SKATS area in cooperation with the Salem-Keizer Transit District.
- Development and continued support of a coordinated system of peak hour express bus service serving park-and-ride/pool facilities located near the major corridor entry points to the region.

- Specific TSEM roadway projects recommended for implementation affecting the Regional Goods Movement System as identified in Chapter 8, Regional Goods Movement System.
- Specific TSEM roadway projects recommended for implementation affecting the Regional Highway System as identified in Chapter 15, Regional Highway System.

Regional ITS Program

Intelligent Transportation Systems (ITS) refers to a myriad of technological activities that involve the collection, storage, processing and distribution of information related to the movement of people and goods in ways that serve to improve both the overall operation of the transportation system and the experience of the traveler.

Central concepts related to the ITS are:

- there is information that, when gathered and distributed in a timely way, can positively effect the operation and safety of the transportation system; and

- this information can be a benefit to one or all of the managers and users of the transportation infrastructure.

General examples of ITS activities include technologies to: help smooth out traffic flows, manage the operation of buses along transit routes, expedite emergency response times, provide useful system conditions information to the traveler, and improve railroad grade crossing safety.

Specific examples of ITS technologies include the following systems: traffic signal coordination and control; multi-modal traveler information; transit management; freeway management; electronic toll collection; railroad grade crossing safety/warning; emergency response management; electronic fare payment; and incident management.

Although many of these technologies are already in everyday use, it is highly likely that as time goes on, more increasingly useful technologies will emerge in the transportation arena. As these technologies become standardized and affordable, they will be incorporated into the evolving ITS network.

Current and Planned ITS Improvements

Traffic Signal Coordination and Control System

For the past several years, the SKATS area has been investing in upgrading the traffic signal control and coordination apparatus in the urban area. Currently, the SKATS adopted Transportation Improvement Program (TIP) annually allocates the funding necessary to operate the Regional Traffic Signal Control Operations Center (RTCOC) housed at the city of Salem.

In conjunction with activities described in the Congestion Management Process portion of the Plan, the RTSP calls for the eventual interconnection of the traffic signals associated with specific corridors of the Regional Highway System. To date, signal system interconnects in the following regional corridor segments have been completed:

- 12th/13th (Mission to Hoyt)
- Broadway (Liberty to Hood)
- Commercial Street (Madrona to Hilfiker)
- Commercial Street S (Fabry to Robins Lane/Fairway Dr)
- Liberty Road (Salem Heights to Kuebler)
- Market Street (Capitol to Hawthorne)
- Portland Road (Erixon to Lana)
- Silverton Road (Lana to Hawthorne)

Committed regional corridor signal system interconnect projects include:

- 12th/13th (Mission to Hoyt) (interconnect completed; project consists of an operational upgrade to actuate all pedestrian movements and side street approaches)
- 17th Street (State to D Street)
- 25th Street (Mission to McGilchrist)
- Broadway (Fred Meyer to Shangri La)
- Center Street (12th to Hawthorne)
- Cordon Road (State to Silverton)
- Edgewater (Wallace to Rosemont)
- Kuebler Blvd (Commercial to Stroh)
- Lancaster (Hagers Grove Rd to Cordon Rd)
- Lockhaven Drive (North River Road to I-5)
- Madrona (Pringle to Fairview Industrial Drive)
- Silverton Road (Fairgrounds to Lana, Lancaster to 45th, Brown to Cordon)
- State Street (12th to 24th)

Longer term regional corridor signal interconnect improvements called for in the Plan include:

- 12th/13th (Hoyt to Madrona)
- Center Street (17th to 24th Street)
- Chemawa / Hazelgreen at Portland Rd
- Liberty Road (Browning to Madrona)
- North River Road (Lockhaven to Manzanita)
- Wallace Road (Edgewater to Glen Creek)

The following ITS investment (both near- and long -term) is also called for in this RTSP:

- continued operation and improvement of the RTCOC component of the urban area ITS.

Longer term, as funds become available, the Plan calls for the incorporation of some sensing technology (i.e., loops or cameras) into the regional corridor traffic control system to provide real-time information on traffic flows for use in by the RTCOC and for traffic counting purposes.

Multi-modal Traveler Information System

At this time, the only application of this technology in the SKATS area is the ODOT website, www.TripCheck.com, which is intended to offer the traveler information regarding the conditions on the facilities of the state highway system in and around the Salem-Keizer area. Two CCTV cameras are located in the area of the I-5 @ Hayesville Interchange.

Variable message signs, either permanent or mobile, could also be considered a form of ITS technology. Generally, these signs are used to warn motorists of a significant delay and to indicate alternative routes. For these signs to be effective and practical, there must be an alternative available for the traveler to use. In the SKATS area, the installation of a permanent variable message sign is planned along Highway 22 east of Cordon Road in the next two to four years. Additional locations, such as along Highway 22 west of Doaks Ferry, are identified in the Regional ITS Plan, but are currently in the illustrative section until funding can be identified.

Transit

Transit ITS applications, e.g., transit managements systems and electronic fare payment systems, may have some promise in terms of increasing the efficiency of transit operations and customer confidence in the transit system. Improving mobility in regional transportation corridors where the physical and political impediments to adding right-of-way are high is identified as an "outstanding issue" in this RTSP Update. As part of the implementation of the recommendations adopted as a result of the High Priority Transportation Corridor study, transit ITS applications will be examined as part of an overall recommended strategy to improve mobility in the Broadway/ River Road North corridor. It is expected that ITS applications employed in the HPTC Corridor will also be used in other appropriate locations. Currently, the Transit District is outfitting their buses with Automated Vehicle Location (AVL) and Automated Passenger Counter (APC) technology. This will allow future bus stations to provide real-time information for bus arrival.

Freeway Management System

The I-5 freeway running north/south is the only freeway in the SKATS area. At the present time and in the foreseeable future, it is not believed that ramp metering will be required to manage the freeway flows through the area. If and when such improvements should be deemed necessary and the funds become available, they would be incorporated into the regional ITS.

Electronic Toll Collection System

The only imaginable application of this ITS technology in the SKATS area would be in conjunction with the construction of a new bridge across the Willamette River in the SKATS area. As part of the planning process associated with that new bridge, the issue of tolls and the means to collect them will be examined.

Railroad Grade Crossing Safety/Warning System

The Federal Rail Administration (FRA) has developed a strategic plan for Highway-Rail Intersections (HRI). Among the issues considered in this plan are the establishment of design standards for HRIs and the potential uses of AVL and GPS ITS systems in the control of the safety devices at the crossing. The Regional ITS Architecture Plan for the SKATS area identifies many of the railroad crossings to implement this technology.

Emergency Response Management System

The emergency response providers in the Salem-Keizer area meet periodically to ensure the coordination and effective integration of their operations and technologies. At this point in time, no specific additional application has been identified as a priority need for regionwide implementation.

Incident Management System

The jurisdictions in the Salem-Keizer area responsible for incident management meet periodically to ensure the coordination and effective integration of their operations and technologies. In addition, plans have been developed to reroute traffic in the event of a partial or full closure of I-5 or the Willamette River bridges.

Consistency with Established Architecture

All of the existing and planned ITS improvements contained in this Plan are consistent with the established Regional ITS architecture presented in the Regional ITS Architecture Plan for the Salem-Keizer area. Completion of the ITS plan was in August 2005. A number of the recommendations from the Regional ITS plan are included in the financially constrained portion of this Plan, with other projects in the illustrative list due to lack of funding. A list of the ITS-related projects, not including signal interconnect projects, is included in **Table 13-3**.

Table 13-3
ITS Projects

Name	Description	Cost ($1000s)
Committed		
ITS - Traffic Data Collection	Adapt video cameras to collect traffic data, including counts, speed and classification	$252
ITS - Transit Signal Priority	Implement signal priority along HPTC and other corridors	$175
ITS - Paratransit Mobile Data Devices	Deploy mobile data devices on paratransit vehicles	$364
Included		
ITS - En-Route Traveler Information System - Phase I: Hwy 22 at Cordon Rd	Deploy Highway Advisory Radio, Dynamic Message Signs at Hwy 22 and Cordon Rd. Multiple phase project.	$200
ITS - Automated Vehicle Location System	Install automated vehicle location devices on buses and integrate into bus dispatch system	$655
ITS - Real-time Transit Arrival Information	Provide real-time arrival and departure info to transit users. Data at selected bus stops and electronically	$275
Illustrative		
ITS - RTSCC System Upgrade	Upgrade the central computer for traffic signal control	$600
ITS - Adaptive Signal Timing Project	Deploy adaptive signal timing on selected corridors with the highest levels of congestion and the most fluctuation in volumes.	$1,400
ITS - Metropolitan Area Communications #1	Install fiber optic cable to connect traffic management centers and field devices	$462
ITS - Metropolitan Area Communications #2	Install fiber optic cable to connect traffic management centers and field devices	$385
ITS - Metropolitan Area Communications #3	Install fiber optic cable to connect traffic management centers and field devices	$539
ITS - Isolated Signal Interconnect	Connect remaining isolated signals to the Regional Traffic Signal Control Center	$445
ITS - Metropolitan Video Deployment - Phase III	Add video cameras at intersections and other critical locations	$0
ITS - Advanced Rail Warning System	Deploy RR crossing detection equipment. Info to be sent to 911 and NWTOC	$190
ITS - RTSCC Upgrade	Upgrade the Regional Traffic Signal Control Center	$111
ITS - Center to Center Integration	Implement communication links among the Regional Traffic Signal Control Center, ODOT's Northwest Traffic Operations Center and other operation centers in the area.	$205
ITS - Downtown Salem Parking Management	Provide real-time parking information in Salem's downtown. Message signs and radio will be used to inform motorists.	$448
ITS - Metropolitan Video Deployment - Phase I	Add video cameras at intersections and other critical locations	$1,960
ITS - Metropolitan Video Deployment - Phase II	Add video cameras at intersections and other critical locations	$1,008
ITS - Slide Monitoring System	Deploy a system to monitor frequent slide locations and alert motorists	$273
ITS - Isolated Intersection Safety Warning System	Deploy devices to warn motorists of high crash intersections	$600
ITS - Flood Warning System	Deploy monitoring system on roadways subject to high water and alert motorists	$400
ITS - En-Route Traveler Information System - Phase II-III	Deploy Highway Advisory Radio, Dynamic Message Signs and city/county/state websites to notify motorists of incidents and other traveler information. Multiple phase project.	$2,083