Chapter 7: DEPLOYMENT PLAN

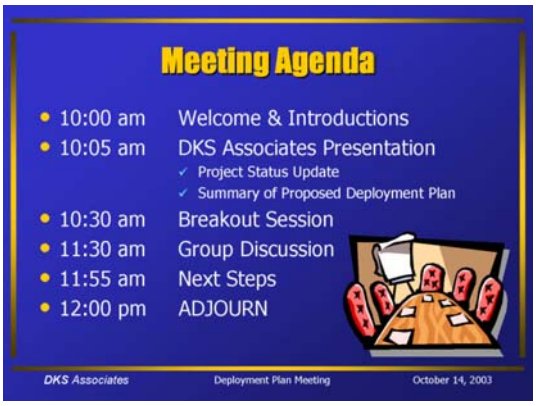
7.1 INTRODUCTION

This chapter includes details about the ITS projects selected for deployment and how and when these projects will be deployed. The projects described in this chapter are based on collaboration from the project Steering Committee and input received at an expanded stakeholder meeting. A project deployment schedule is provided based on a timeline of a 0 – 5 Year Plan, a 6 – 10 Year Plan, and an 11 – 20 Year Plan. Additional details are provided for some of the larger projects scheduled for deployment within the first five years.

7.1.1 Expanded Stakeholder Meeting

An expanded stakeholder meeting was held on October 14, 2003 with key and expanded stakeholders to discuss strategies for ITS deployment in the Eugene-Springfield metropolitan area. The main purpose of the meeting was to obtain consensus from the stakeholders regarding strategies and projects to include in the deployment plan.

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



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

The group reconvened towards the end of the meeting and a representative from each poster session summarized the input gathered. Additional group discussion was conducted at this point to finalize the deployment plan projects. Appendix O includes the meeting invitation, presentations, handout, and meeting minutes.

7.2 DEPLOYMENT PROJECTS

Table 7-1 summarizes the details for each of the proposed deployment projects. The following information is provided for each project:

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

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

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

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

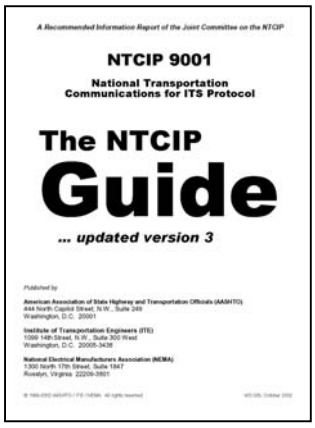
5-Year Plan	**2004 - 2008**
10-Year Plan	**2009 - 2013**
20-Year Plan	**2014 - 2023**

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

Figure 7-1 illustrates equipment and infrastructure deployment locations for many of the ITS projects and how they fit in with the 5-Year, 10-Year, and 20-Year Plans. Appendix P contains an ITS device numbering system that provides a rough guideline of equipment locations, quantities, and a list of projects they support.

7.2.1 Applicability of ITS Standards to Eugene-Springfield Early Deployment Projects

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



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

However, these standards are currently in various stages of development and acceptance, and many are not yet approved by the Standards Development Organizations (SDO's). None have been officially adopted by U.S. DOT. Those not yet approved are therefore not widely utilized by equipment, communications and software vendors. However, to meet the federal ITS requirements, it is recommended that each deployment project selected for near-term deployment be crosschecked with relevant standards as the project moves beyond this initial planning phase.

Applicable standards and protocols should be highlighted during the systems engineering analysis and—upon approval by the lead deployment agency—the appropriate standards should be utilized during detailed design, equipment selection and implementation. The identification of system-to-system standards that allow for the mutual sharing of information may call for particular attention. Relevant standards for the 5-Year Plan deployment projects have been identified as part of the overall description of major projects as detailed in Section 7.4. The National ITS Architecture provides a good starting point for the identification of relevant standards.

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TRANSPORTATION SOLUTIONS

LEGEND

CCTV Cameras
- Existing
- Proposed 0-5 Years
- Proposed 6-10 Years
- Proposed 11-20 Years

Dynamic Message Signs
- Existing
- Proposed 0-5 Years
- Proposed 6-10 Years
- Proposed 11-20 Years

Direction of Travel
- Northbound
- Southbound
- Eastbound
- Westbound

Dynamic Speed Sign Flashers
- Existing City of Eugene

System Detectors
- Existing
- Proposed 0-5 Years
- Proposed 6-10 Years
- Proposed 11-20 Years

Ramp Meters
- Proposed 0-5 Years
- Proposed 6-10 Years
- Proposed 11-20 Years

Weather Stations
- Existing

Parking Management
- Proposed 11-20 Years

Reversible Lane Management
- Proposed 6-10 Years

Curve Warning System
- Proposed 0-5 Years

Highway Advisory Radio Transmitters
- Proposed 0-5 Years

Malon Sweet Municipal Airport
AIRPORT RD
CLEAR LAKE RD
PACIFIC HWY
NORTHWEST EXPY
IRVING RD
RIVER RD
BELT LINE
ORE-99
BARGER AV
BELT LINE RD
ROYAL AV
W EUGENE PKWY
West of Proposed W. Eugene Pkwy.
11TH AV
ORE-126
18TH AV
HILL RD
BAILEY
CHAMBERS ST
ST
HILYARD ST
DR
AMAZON
WILLAMETTE
6TH AV
7TH AV
ORE-99
I-105 FWY
CENTENNIAL
Willamette River
DELTA HWY
HWY
COBURG RD
I-5 FWY
MILK PKWY
ORE-126
PIONEER PKWY
BLVD
EUGENE SPRINGFIELD HWY
Springfield
MAIN ST
BUS 126
ORE-99 BUS 126
FRANKLIN BLVD
ORE 99
30TH AV
SEAVEY LOOP RD
JASPER RD
McKenzie River
Coburg
Eugene
Lane County

N
Not to Scale

Figure 7-1
ITS DEPLOYMENT PLAN

Eugene - Springfield ITS Plan

Table 7-1. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
Travel & Traffic Management (TM)								
ES-TM-01	Regional Virtual Transportation Operations Center (TOC)	Project will determine the functional requirements for systems interfaces to traffic and transit management agencies, emergency management agencies, the NWTOC in Salem, and regional field devices.	M	ODOT Statewide TOC Software Project; This project relates to most of the Travel & Traffic Management projects included in this plan.	Depends on the planned communications installed between the NWTOC and ODOT District 5. Also depends on communications installed to field devices.	$200,000/ $125,000	● Information sharing capabilities ● Back-up capabilities ● More effective traffic management, incident management, and maintenance management ● Safety and efficiency improvements	Requires communications between City of Eugene, City of Springfield, Lane County, ODOT District 5, and the NWTOC.
ES-TM-02	Regional Freeway Surveillance and Management	Project will develop and deploy an integrated multi-jurisdictional regional freeway surveillance and management system that provides for traffic-responsive freeway control and sharing of roadside subsystems.	H, M, L	See Related ES-TM-02 Projects.	See Related ES-TM-02 Projects.	See Related ES-TM-02 Projects.	● Integration of multi-jurisdictional freeway and arterial systems ● Improved safety and efficiency of freeways, therefore reducing delay and emergency response times ● More effective traffic management, incident management, and maintenance management ● Timely and cost-effective complaint response ● Increase in information available to travelers through DMS and the TripCheck web site ● Availability of additional volume, speed, and occupancy data	See Related ES-TM-02 Projects.
ES-TM-02A	I-5 Freeway Surveillance and Management	Project includes the installation of the following devices on I-5:		*TransPlan* Projects #250 & 606; ES-TM-07A	Requires communications connection to the NWTOC and ODOT District 5.	$4,900,000/ $125,000		Improvements at I-5/Beltline Hwy can be incorporated with planned capital improvements.
		● CCTV Cameras	H, M, L					
		● DMS	H, M					
		● System-Wide Ramp Meters & System Detection	L					
		● Curve Warning System	H					
ES-TM-02B	Beltline Highway Freeway Surveillance and Management	Project includes CCTV cameras, DMS, system-wide ramp meters, and system detection on the following corridors:		*TransPlan* Projects #312, 409, 506, 606, 607, 622 & 638; ES-TM-07C	Requires communications connection to the NWTOC and ODOT District 5.	$6,100,000/ $175,000		Parts of this project can be incorporated with planned capital improvements.
		● River Rd to I-5	H					
		● Barger Rd to NW Expressway	M					
		● W 11th Ave to Barger Rd	L					
ES-TM-02C	Eugene-Springfield Highway (OR 126) Freeway Surveillance and Management	Project includes the installation of the following field devices:		*TransPlan* Projects #96, 821 & 835; ES-TM-07B	Requires communications connection to the NWTOC and ODOT District 5.	$3,400,000/ $100,000		Parts of this project can be incorporated with planned capital improvements.
		● CCTV Cameras	H, M					
		● DMS	L					
		● System-Wide Ramp Meters & System Detection	L					
ES-TM-02D	I-105 Freeway Surveillance and Management	Project includes CCTV cameras, DMS, system-wide ramp meters, and system detection at the following locations:		*TransPlan* Project #151; ES-TM-07B	Requires communications connection to the NWTOC and ODOT District 5.	$1,620,000/ $40,000		Parts of this project can be incorporated with planned capital improvements.
		● Delta Hwy Interchange	M, L					
		● Coburg Rd Interchange	M, L					
ES-TM-02E	Delta Highway Freeway Surveillance and Management	Project includes CCTV cameras, ramp meters, and system detection.	M	*TransPlan* Project #638	Requires communications connection to the NWTOC and Lane County.	$980,000/ $35,000		The close proximity of Lane County's offices to Delta Highway will cut down on communications costs.
ES-TM-03	Regional Arterial Surveillance and Management	Project will develop and deploy an integrated multi-jurisdictional regional arterial surveillance and management system that provides for traffic-responsive corridor management and sharing of roadside subsystems.	H, M, L	See Related ES-TM-03 Projects.	See Related ES-TM-03 Projects.	See Related ES-TM-03 Projects.	● Integration of multi-jurisdictional arterial systems	See Related ES-TM-03 Projects.

Table 7-1. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
ES-TM-03A	Pacific Highway (OR 99) Arterial Surveillance and Management	Project includes the following deployment elements:		ES-TM-07C	Requires communications to the City of Eugene Public Works Office and the NWTOC.	$940,000/ $40,000	• Improved safety and efficiency of arterial corridors, therefore reducing delay and emergency response times • More effective traffic management, incident management, and maintenance management • Timely and cost-effective complaint response • Increase in information available to travelers through DMS and the TripCheck web site • Availability of additional volume, speed, and occupancy data	The City of Eugene is currently planning to replace their twisted-pair copper interconnect with fiber.
		• CCTV Cameras	M, L					
		• DMS	M					
		• System Detection	M, L					
		• Replacement of Twisted-Pair Copper with Fiber Interconnect	M					
		• Signal Timing Coordination	M, L					
ES-TM-03B	River Road Arterial Surveillance and Management	Project includes the following deployment elements:		Lane County *CIP* Projects; ES-TM-07C	None	$110,000/ $15,000		Parts of this project can be incorporated with planned capital improvements.
		• System Detection	L					
		• Signal Timing Coordination	M, L					
ES-TM-03C	Coburg Road Arterial Surveillance and Management	Project includes the following deployment elements:		*TransPlan* Project #619; ES-TM-07A; ES-TM-07C	Requires communications to the City of Eugene Public Works Office and the NWTOC.	$470,000/ $30,000		The traffic signals are already interconnected and are part of the City of Eugene's QuicNet traffic signal system.
		• CCTV Cameras	H					
		• System Detection	H					
		• Signal Timing Coordination	H					
ES-TM-03D	6th Avenue/7th Avenue Arterial Surveillance and Management	Project includes the following deployment elements:		*TransPlan* Project #133; ES-TM-07A; ES-TM-07B; ES-TM-07C	Requires communications to the City of Eugene Public Works Office and the NWTOC.	$90,000/ $6,000		The traffic signals are already connected to the City of Eugene's QuicNet traffic signal system.
		• CCTV Cameras	M, L					
		• System Detection	L					
ES-TM-03E	W 11th Avenue (OR 126) Arterial Surveillance and Management	Project includes the following deployment elements:		*TransPlan* Projects #332 & 333	Requires communications to the City of Eugene Public Works Office and the NWTOC.	$780,000/ $35,000		The traffic signals are already interconnected and are part of the City of Eugene's QuicNet traffic signal system.
		• CCTV Cameras	L					
		• DMS	M					
		• System Detection	L					
		• Signal Timing Coordination	L					
ES-TM-03F	Franklin Boulevard (OR 126 Bus) Arterial Surveillance and Management	Project includes the following deployment elements:		City of Eugene *Downtown Vision Study*; ES-TM-07A; ES-TM-07B	Requires communications to the City of Eugene Public Works Office and the NWTOC.	$500,000/ $20,000		The traffic signals are already interconnected and are part of the City of Eugene's QuicNet traffic signal system.
		• CCTV Cameras	L					
		• DMS	L					
		• System Detection	L					
		• Signal Timing Coordination	M, L					
ES-TM-03G	Main Street/A Street (OR 126 Bus) Arterial Surveillance and Management	Project includes the following deployment elements:		*TransPlan* Projects #69, 75 & 838; ES-TM-07A; ES-TM-07B; ES-TM-10	Requires interconnect to signals east of 28th St and communications to the City of Springfield Public Works Office and the NWTOC.	$1,220,000/ $60,000		The traffic signals west of 28th St are already interconnected and are part of the City of Springfield's QuicNet traffic signal system.
		• CCTV Cameras	M, L					
		• DMS	M					
		• System Detection	M, L					
		• Signal Timing Coordination	M, L					
ES-TM-03H	Pioneer/MLK Parkway Arterial Surveillance and Management	Project includes system detection.	L	*TransPlan* Project #768; ES-TM-07A; ES-TM-07B	None	$510,000/ $25,000		Part of this project can be incorporated with the planned MLK Parkway construction.
ES-TM-03I	West Eugene Parkway Arterial Surveillance and Management	Project includes CCTV cameras, signal interconnect, and system detection that should be incorporated in the design of the West Eugene Parkway.	H, M	*TransPlan* Project #336	None	$360,000/ $20,000		This project can be incorporated with the design of West Eugene Parkway, a brand new roadway.
ES-TM-04	Reversible Lane Management on MLK/Centennial Boulevard	Project includes the deployment of reversible lane controls on MLK/ Centennial Boulevard for special events or emergency situations.	M	*TransPlan* Projects #818, 924, 927, & 930	Requires communications to the City of Eugene Public Works Office and an interface with affected traffic signals.	$600,000/ $5,000	• Improved use of existing capacity • Improved safety and efficiency during special event management	This project will require software training.
ES-TM-05	Gateway Area Traffic Responsive Signal Timing	Project includes traffic responsive signal timing development, system detection deployment, and transmission of existing video detection images back to the City of Springfield's Public Works' office.	H	None	None	$130,000/ $7,500	• Improved safety and efficiency of the corridor, therefore reducing delay and emergency response times • Reduced congestion	The traffic signals along Gateway Street are already interconnected as well as connected to the City of Springfield's central signal system.

Table 7-1. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
ES-TM-06	30th Avenue Signal Timing Coordination near I-5	Project includes signal timing coordination of the two traffic signals on 30th Avenue at the east end of Lane Community College. Conduit currently exists between these two signals.	H	None	None	$10,000/ $750	● Improved safety and efficiency ● Reduced congestion and delay	Empty conduit is available between these two signals for the installation of interconnect cable.
ES-TM-07	Incident Management Operational Plans	Project includes the development of an incident management operational plan that includes the operational protocol for field devices (ie. CCTV cameras, DMS, and system detection on mainline and alternate routes), the development of incident signal timing plans on alternate arterial routes, and clearly defined agency roles and responsibilities for the following corridors:	H, M, L	ES-TM-01; ES-TM-02; ES-TM-03	Requires deployment of field devices and communications infrastructure. Some field devices or communications equipment may be installed as part of other freeway and arterial surveillance and management projects.	Note: All costs for field devices are included in ES-TM-02 and ES-TM-03.	● Availability of real-time freeway and arterial corridor information during incidents ● Increased capacity and throughput during incident conditions ● Improved integration of regional freeway systems with local signal systems ● Reduction in congestion and delay due to incidents ● Reduced incident response times ● Improved safety and efficiency	ODOT Region 1 and the City of Portland have successfully developed and deployed an incident management operational plan on the I-5/Barbur Boulevard corridor. - Alternate routes and some operational procedures have already been established for I-5 as part of the Major Incident Management Plan. The operational plan for I-5 can expand on this and focus on the metropolitan area.
ES-TM-07A		● I-5 (Alternate routes previously identified by local agencies)				$65,000/ $0		
ES-TM-07B		● Eugene-Springfield Highway				$55,000/ $0		
ES-TM-07C		● Beltline Highway				$85,000/ $0		
ES-TM-08	Incident Notification System	Develop an incident notification system that alerts subscribers when incidents occur as well as the location, the transportation impacts, and the expected duration. Subscribers may include public agencies as well as private companies such as companies representing the media.	H	None	Requires deployment of field devices and communications infrastructure to detect and verify incidents.	$70,000/ $0	● Availability of real-time incident information ● Media broadcast capabilities ● Reduced congestion and delay ● Customer satisfaction	ODOT Region 1 has successfully implemented a pager-based notification system that could be used as a model for the Eugene-Springfield metropolitan area.
ES-TM-09	Transit Signal Priority	Give priority at traffic signals only to buses that are behind schedule to support transit operations and schedule adherence. This project includes installing transit priority on the transit fleet as well as upgrading Opticom and traffic signal controllers (as needed) at traffic signals and developing signal timing plans on key corridors.		None	Requires upgrade to 700 series Opticom detectors at traffic signal with older models. Also requires the installation of emitters on the transit fleet.		● Reduced transit delay ● Schedule adherence and reliability ● Reduced operational costs ● Enhanced transit service ● Increased ridership	TriMet and the City of Portland have successfully deployed the technology on several corridors in the City of Portland.
		● Outfit transit fleet with transit priority emitters.	H,M,L			$500,000/ $7,500		
		● Franklin Blvd, Main St/S A St, Pioneer/MLK Pkwy, Gateway St, Game Farm Rd N, Harlow Rd	H			$300,000/ $1,000		
		● Coburg Rd, Crescent Ave, Harlow Rd	M			$55,000/ $1,000		
		● Centennial/MLK Blvd, Pacific Hwy, W 11th Av, W 13th Av, W 18th Av, River Rd, Pearl St, Willamette St, Amazon	L			$95,000/ $1,000		
ES-TM-10	Traffic Signal Interconnect	Install traffic signal interconnect and connect the signals to the QuicNet system at the following locations:	H, M, L		None	$1,000,000/ $10,000	● Capability for advanced operations and more flexibility ● Provides technology needed for other ITS projects in this plan	Sections of traffic signal interconnect can be added to the main system when other nearby projects are constructed. - Traffic signal interconnect should be included as part of the design of the new Jasper Road extension.
		● Valley River Dr/Willagillespie Rd/ Goodspasture Island Rd		ES-TM-02E				
		● Barger Rd		ES-TM-03A				
		● Royal Av/Roosevelt Blvd		ES-TM-03A				
		● Cal Young Rd/Gilham Rd		ES-TM-03C				
		● Green Acres Rd/Crescent Av		ES-TM-02E				
		● Chambers St		None				
		● Main St (28th Av to 69th Av)		ES-TM-03G				
		● Jasper Rd Extension		*TransPlan* Project #66				

Table 7-1. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
ES-TM-11	Integrate Regional Virtual TOC with UO SOS Room	Provide an interface between the Regional Virtual TOC and the UO SOS Room that allows for two-way information sharing, monitoring, and control functions.	M	ES-TM-01; ES-TM-04	Requires communications between the Regional Virtual TOC and the UO SOS Room.	$100,000/ $1,000	● Information sharing capabilities ● More effective special event management	The development of the interface will be similar to the emergency management systems interface that will be developed as part of ES-EM-01
ES-TM-12	Beltline Highway Queue Warning System	Deploy a queue warning system on eastbound and westbound Beltline Highway near the Willamette River that includes dynamic signing to warn drivers of upcoming queues.	H, M	ES-TM-02B	None	$85,000/ $7,000	● Improved safety ● Reduced amount of rear-end collisions	This project only requires communications between field devices and only requires communications to the NWTOC if permanent DMS are incorporated.
ES-TM-13	I-5 Bridge Security	Project includes the deployment of a bridge surveillance system on the McKenzie River and Willamette River I-5 bridges.	H	I-5 Bridge Reconstruction	Needs to be deployed during I-5 bridge reconstruction.	$430,000/ $6,000	● Surveillance and monitoring capabilities ● Improved homeland security	FHWA plans to issue a technical advisory in 2004 regarding bridge security technology.
ES-TM-14	I-5 Bridge Weather Detection and Deicing System	Project includes the installation of a weather detection system and an automatic deicing system on the McKenzie River and Willamette River I-5 bridges.	H	I-5 Bridge Reconstruction	Needs to be deployed during I-5 bridge reconstruction.	$540,000/ $22,000	● Real-time weather and pavement conditions ● More efficient allocation of maintenance resources during inclement weather	This project can be incorporated with the design of the two I-5 Bridge modifications.
ES-TM-15	Highway Advisory Radio (HAR)	Deploy a highway advisory radio system that provides traveler information. Project includes both permanent and mobile installations. Permanent installations will be deployed at the five key entry points to the metropolitan area (north, northwest, south, east, and west) and at key central locations.	H	2004 – 2007 Draft STIP Key #12942	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations, etc…) to collect traveler information.	$350,000/ $10,000	● Real-time traveler information ● En-route information that allows users to make informed travel decisions ● Reduced congestion and delay ● Customer satisfaction	WSDOT has implemented highway advisory radio in southern Washington and can be used as a resource during design and construciton.
ES-TM-16	Integrate Regional Traveler Information with TripCheck, 511, and Highway Advisory Radio	Develop an integrated system for disseminating and posting traveler information to TripCheck, 511, and HAR.	H, M, L	National/State 511 Deployment Project; ES-TM-15 (2004 - 2007 Draft STIP Key #12942)	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations, etc…) to collect traveler information.	$385,000/ $10,000	● Real-time and static traveler information ● Pre-trip planning capabilities and en-route information that allow users to make informed travel decisions ● Reduced congestion and delay ● Customer satisfaction	Requires an interface between agencies in the Eugene-Springfield metropolitan area to TripCheck, the 511 system, and the HAR system.
ES-TM-17	Congestion/ Incident Information Mapping	Develop an incident and congestion flow mapping system that shows travel speeds on study area roadways.	H, M, L	ES-TM-02; ES-TM-03	Depends on deployment of system detectors to monitor travel speeds along roadways. Also depends on an interface with incident management personnel.	$290,000/ $5,000		The WSDOT Smart Trek (www.smarttrek.org) congestion and incident mapping system can be used as a model for the Eugene-Springfield metropolitan region.
ES-TM-18	Traveler Information at Rest Areas	Provide real-time traveler information at rest areas north and south of the metropolitan area: ● Oak Grove Rest Area (MP 207) ● Gettings Creek Rest Area (MP 177)	M	ES-TM-16	Depends on deployment of field equipment (CCTV cameras, system detectors, weather stations, etc…) to collect traveler information.	$290,000/ $10,000	● Pre-trip planning capabilities that allow users to make informed travel decisions prior to entering the metropolitan area ● Reduced congestion and delay ● Customer satisfaction	Real-time information can be disseminated by an internet link to ODOT's TripCheck web site and/or by a sign advertising the 511 traveler information phone number.
ES-TM-19	Rest Area Surveillance System	Deploy security surveillance systems, including several cameras, at rest areas north and south of the metropolitan area: ● Oak Grove Rest Area (MP 207) ● Gettings Creek Rest Area (MP 177)	L	None	None	Cost Included in ES-TM-18	● Surveillance and monitoring capabilities ● Improved security	ODOT Region 1 is currently installing security cameras on the I-5 Columbia River Bridge and similar technology will apply to the rest areas.

Table 7-1. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
ES-TM-20	Advanced Parking Management and Information System	Deploy a parking management system at the following locations to collect real-time parking status information, provide en-route driver information, and electronically manage access to parking facilities: ● Planned UO Basketball/Event Center ● UO Autzen Stadium ● Lane Community College ● Eugene Airport	L	UO plans to construct a new Basketball/Event Center on their campus in downtown Eugene.	None	$750,000/ $20,000	● Real-time information so travelers can make informed decisions about mode choice and parking ● Reduced congestion and air pollution near parking lots ● More efficient use of parking spaces ● Reduced driver frustration when looking for parking	This project will require training staff at the University of Oregon, Lane Community College, and the Eugene Airport.
ES-TM-21	Road Weather Information Systems (RWIS or "Weather Stations")	Deploy road weather information sites that provide temperature and road conditions at the following locations: ● Beltline Highway on the Willamette River Bridge ● I-5 at Coburg Road	M, L	*TransPlan* Project #506	None	$140,000/ $5,000	● Real-time weather and pavement conditions ● More efficient allocation of maintenance resources during inclement weather	ODOT has previous experience with weather stations. - The Beltline Hwy RWIS can be incorporated with planned capital improvements.
ES-TM-22	Advanced Railroad At-Grade Crossings	Detection of an approaching train will allow the dissemination of advance information to emergency management personnel and travelers to allow them to make an informed decision about route choice. Deployment locations include: ● 28th St/Main St Crossing ● Centennial Blvd east of 28th St (not yet constructed) ● Olympic Blvd east of 28th St ● Irving Rd west of Northwest Expwy ● Irvington Rd west of Northwest Expwy ● 42nd St at Weyerhouser	L	*TransPlan* Project #930	None	$700,000/ $10,000	● Enhanced safety ● Real-time railroad activity information ● Alternate route information for travelers ● More efficient allocation of emergency response vehicles ● Reduced emergency response times ● More efficient transit routing	May be difficult to coordinate with railroad companies for the deployment of detectors within railroad right-of-way. Local agencies may be able to place detectors outside of the railroad right-of-way if the railroad companies are not cooperative. - The Centennial Blvd crossing can be incorporated with planned capital improvements.
ES-TM-23	Integrate Freeway Management Systems with Central Signal Systems	Integrate freeway management systems with the City of Eugene and City of Springfield central signal systems to provide seamless traffic flow between freeways and arterials, particularly during incident management.	L	ES-TM-02; ES-TM-06; ES-TM-07; ES-TM-27	This project should not be implemented until freeway management systems (Project ES-TM-02) are being deployed.	$1,100,000/ $40,000	● Integration of freeway and arterial systems ● Improved safety and efficiency, therefore reducing delay and emergency response times	The project will require software integration between freeway management systems and each City's central signal system.
ES-TM-24	Upgrade Central Signal System	Upgrade or replace the City of Eugene's and City of Springfield's central signal systems with a central signal system that can be integrated with transit systems (ie. AVL) and emergency management systems (ie. AVL)	L	ES-PTM-06	This project should not be implemented until the City of Eugene and the City of Springfield determine it is feasible to replace their current QuicNet central signal systems.	$505,000/ $20,000	● More efficient preemption of traffic signals ● Reduced emergency response times ● Improved transit schedule adherance	When the central signal system is upgraded, the technology will need to be available to integrate the signals with transit systems and emergency management systems.

Table 7-1. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
ES-TM-25	Special Event Management Systems	Project includes the deployment of traffic signal timing plans, portable dynamic message signs, and parking management for the following special events: ● UO Sporting Events ● Lane County Fair ● Oregon Country Fair ● Eugene Celebration ● Springfield Cruise ● Springfield Christmas Parade ● Other Regional Special Events	L	ES-TM-02; ES-TM-03; ES-TM-04; ES-TM-20	None	$350,000/ $125,000	● Improved safety and efficiency, therefore reducing delay and emergency response times ● More effective traffic management and special event management ● Increase in information available to travelers through DMS and the TripCheck web site	Many of the traffic signals in downtown Eugene and Springfield and near UO where many special events take place are already interconnected, which means special event signal timing plans can be implemented without having to deploy communications infrastructure.
ES-TM-26	Integrate Eugene Airport Traveler Information with NWTOC	Provide traveler information about Eugene-Springfield roadways at the airport and provide airport information to travelers via TripCheck and dynamic message signs operated by the NWTOC.	L	ES-TM-16	Requires communications link and interface between the Eugene Airport and the NWTOC.	$280,000/ $20,000	● Real-time and static traveler information ● Pre-trip planning capabilities and en-route information that allow users to make informed travel decisions ● Reduced congestion and delay ● Customer satisfaction	Other agency interfaces are being developed as part of the ITS Deployment Plan that can be used as models for interface development.
ES-TM-27	Develop Evacuation Route Plan	Develop an operational plan for an evacuation of the metropolitan area in the case of a major emergency.	H	Lane County Hazard Mitigation Plan; ES-TM-02; ES-TM-02; ES-TM-07	None	$120,000/ $0	● Increased capacity and throughput during emergency evacuation conditions ● Improved safety and efficiency	This project should be included as part of the Lane County Hazard Mitigation Plan and should address ITS elements.
Communications (CO)								
ES-CO-01	Document Communications Design Standards	Document design standards for communications in the following areas to ensure standardization, compatibility, connectivity, and reliability between multiple jurisdictional agencies: ● Conduit construction ● Cable plant description ● Minimum number of fibers ● Network technology ● Junction boxes ● Fiber termination panels ● Fiber connectors ● Communication hub design ● Fiber optic testing specification ● Fiber optic installation specification ● End electronics	H	This project is essential for ensuring that the communications deployed with other projects in this ITS plan are consistent throughout the metropolitan area and with other regional agencies such as PAN and other fiber consortiums.	None	$75,000/ $2,500	● Set of standards ready for implementation on all new projects or reconstruction projects ● Standardization for multiple regional agencies	This documentation will establish the technical aspects required for establishing a communications network.
ES-CO-02	Communications Network	Provide a communications network throughout the Eugene-Springfield metropolitan area to allow communications between regional agencies and also ITS devices in the field.	H, M, L	This project is relative to most of the projects included in this ITS plan.	Each piece of the communications network is dependent on the pieces that link the communications line and field equipment back to the NWTOC or ODOT District 5 Offices.	$5,400,000/ $50,000	● Connection between agencies will allow for multi-jurisdictional control, management, coordination, and information sharing ● Connection to ITS field devices allows for innovative strategies such as arterial management and incident management	Requires the purchase of fiber optic maintenance tools and staff training for fiber maintenance for all new capital fiber installation.

Table 7-1. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
ES-CO-03	Radio Infrastructure Integration	Develop a system for radio infrastructure expansion and sharing amongst regional agencies.	H	LTD Planned Radio Infrastructure Expansion	None	$2,300,000/ $50,000	● Expanded communications coverage ● Infrastructure cost-sharing	Intergovernmental agreements relating to operations and maintenance will need to be set up to enable sharing of radio infrastructure.
Public Transportation Management (PTM)								
ES-PTM-01	Real-Time Customer Information Displays	Deploy real-time dynamic message signs at key locations such as transit centers, park and rides, bus stops where multiple routes pass through, and at bus stops with large bus headways.	H, M, L	None	None	$1,055,000/ $190,000	● Real-time transit information to aid travelers with en-route planning ● Better information during service disruptions ● Reduction of perceived waiting times ● Removal of traveler "uncertainty" ● Improved customer satisfaction	TriMet has successfully implemented real-time customer information displays in the Portland metropolitan area using simple wireless communications.
ES-PTM-02	Portable Real-Time Customer Information Displays	Acquire and deploy portable real-time dynamic message signs for special events that include transit service.	H	ES-PTM-01	The systems interface between the displays and the transit fleet will be developed as part of ES-PTM-01.	$30,000/ $4,000		
ES-PTM-03	Integrate Transit Traveler Information with ODOT Transit Trip Planning Project	Integrate transit traveler information with the transit trip planning web site ODOT is currently developing.	H	ODOT Regional Trip Planner Project	None	$350,000/ $2,000	● Real-time transit information to aid travelers with pre-trip planning ● Removal of traveler uncertainty ● Improved customer satisfaction	The interface with LTD will be based on the statewide infrastructure ODOT develops as part of its Transit Trip Planning Project.
ES-PTM-04	Transit Buses as Traffic Probes	Use buses as traffic probes to determine travel speeds on key corridors for congestion monitoring and data collection and analysis purposes.	M, L	The roadways designated for arterial surveillance and management as part of ES-TM-03 should be the primary locations for the collection of traffic probe data.	None	$220,000/ $2,500	● Improved surveillance and congestion information on arterials ● More effective traffic management, incident management, and maintenance management ● Reduced data collection costs	TriMet has been testing this technology in the City of Portland.
ES-PTM-05	Electronic Fare Collection	Install an electronic fare collection system on the entire fleet of LTD buses.	H	None	None	$1,000,000/ $6,000	● Ability to automate data collection process, which enhances planning efforts ● Improved service and customer satisfaction	LTD will need to research the existing technologies to determine what works best with their fleet. The RFP to begin this study is anticipated for release in 2004.
ES-PTM-06	Automated Vehicle Location (AVL), Computer Aided Dispatch (CAD) and Automated Passenger Counting (APC) System for Fixed Route	Project implementation currently underway. Systems Acceptance anticipated for 2004.	H	This project is the 2002 – 2005 STIP Key #11366	None	$2,000,000/ $5,000	● More efficient allocation of transit resources ● Improved transit travel times ● Ability to automate data collection process, which enhances planning efforts	LTD is currently testing their new AVL/CAD/APC system and has TriMet available as a resource.
ES-PTM-07	Transit Fleet Maintenance	On-board system integration with vehicle diagnostics system and on-board computer (or vehicle logic unit) and wireless communications. Back office system includes vehicle maintenance software and integration with existing systems.	M	None	None	$200,000/ $5,000	● More efficient allocation of transit resources ● Improved maintenance management	LTD is currently exploring technology options for this project.

Table 7-1. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
ES-PTM-08	Automated Vehicle Location (AVL) System and Computer Aided Dispatch (CAD) System for Paratransit	Integration of CAD/AVL system developed by paratransit contractor with fixed route system. Expansion of vehicle location equipment to all paratransit vehicles fleet-wide.	M	ES-PTM-06	ES-PTM-06	$500,000/ $1,000	● More efficient allocation of transit resources ● Improved transit travel times	LTD paratransit contractor has developed a CAD/AVL system in-house. LTD wishes to integrate this with the fixed route system and expand fleet-wide.
ES-PTM-09	System Security and Integration of Bus Video Images with LTD Dispatch	Develop a system for transmitting video images from transit stations and buses back to LTD Dispatch for surveillance capabilities of the stations, roadway and passengers.	M	None	Requires fiber/communications connectivity between transit stations and LTD Dispatch system.	$1,500,000/ $25,000	● Improved surveillance and monitoring capabilities ● Increased security for passengers both on-board and waiting at transit stations	LTD buses and some transit facilities already include video systems. Project would require upgrade to wireless communictaions system to support video transport.
ES-PTM-10	Bus Rapid Transit (BRT)	LTD is currently developing a BRT system for the Eugene-Springfield metropolitan area that utilizes buses to increase service frequency, capacity, and speed.	H, M, L	This project is the 2002 - 2005 STIP Keys #11362, 11363, 11364, 11371, 11372, 12251, 12252, 12258	None	Final BRT system costs will be determined by LTD.	● Faster, more convenient transit service ● Alternative to single-occupant vehicle ● Customer satisfaction	LTD is currently planning and researching BRT implementation.
Emergency Management (EM)								
ES-EM-01	Integration Between Traffic/Transit Management Systems and Emergency Management Systems	Provide a two-way information flow (ie. CCTV camera images, congestion flow map, emergency calls) between transportation management systems (NWTOC, Virtual TOC, LTD, and UO SOS Room) and the metropolitan area 911 and emergency dispatch centers: ● Central Lane 911 ● Oregon State Police ● Springfield Police Department ● Coburg Police Department ● Lane County Sheriff's Office	M	ES-TM-01	A software interface will be required at the 911 and emergency dispatch centers, the traffic management centers, and the transit management systems for access between systems.	$1,350,000	● Improved real-time traffic conditions information ● Information sharing between agencies ● More efficient allocation of emergency response resources ● Reduced emergency response times	ODOT and the Bureau of Emergency Communications (BOEC) are currently working on a proof-of-concept for 911 center integration. Evaluation of this proof-of-concept will help with 911 and emergency dispatch center integration in the Eugene-Springfield metropolitan area.
ES-EM-02	Provide Interface Between Traffic Management Systems and Emergency Operations Centers (EOC's)	Provide an interface between the Regional Virtual TOC or other traffic management systems and each of the regional emergency operations centers to allow access to traffic control devices during emergency situations at the EOC's as well as to share information between agencies. This project includes workstations, monitors, and a communications interface at the following EOC's: ● Eugene EOC ● Springfield EOC ● Coburg EOC ● Lane County EOC ● Planned ODOT EOC	M	ES-TM-01; ES-EM-01	A software interface will be required at the emergency operations centers, the traffic management centers, and the transit management centers for access between systems.	$75,000	● Improved real-time traffic conditions information ● Information sharing between agencies ● More efficient allocation of emergency response resources ● Reduced emergency response times	The ES-EM-01 project regarding public safety integration will provide the basis for the deployment of regional emergency operations center integration.
ES-EM-03	Traffic Adaptive Emergency Response	Deployment of the "Right Route" en-route emergency guidance system (static route plan) throughout the metropolitan region. Project also includes interface between automated vehicle locators (AVL) on emergency vehicles and traffic signals.	M	LCOG's Right-Route Demonstration Project	Requires an interface between AVL and traffic signals.	$420,000/ $10,000	● Improved static traffic route information ● Reduced emergency response times	LCOG has already developed the technology and implemented a limited amount of equipment in rural areas. This same technology applies to the urban area.
ES-EM-04	Integration of Traffic Management Information with Mobile Data Terminals	Provide real-time traffic information to mobile data terminals housed in emergency response vehicles. Inventory existing emergency vehicle fleet to determine how many additional mobile data terminals need to be installed and install these as necessary.	L	ES-EM-03	None	$200,000/ $10,000	● Improved real-time traffic conditions information ● Reduced emergency response times	A number of emergency response vehicles already include in-vehicle mobile data terminals.

Table 7-1. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs[1]	Expected Benefits	Technical and Institutional Feasibility
ES-EM-05	Incident Response Fleet Management System	Installation of automated vehicle locators (AVL) on incident response vehicles and dissemination of real-time vehicle locations at the NWTOC, and the emergency dispatch centers or EOC's for resource allocation during incidents or emergencies. Project also includes monitoring of incident response vehicle repairs and vehicle replacement schedules.	L	None	None	$350,000/ $80,000	● More efficient management of incident response fleet ● Reduced emergency response times when incident response support is needed	LTD is currently installing automated vehicle locators on its transit fleet and will be a valuable resource for project implementation.
Information Management (IM)								
ES-IM-01	Regional Data Management System	Create a data management system for archiving data, collecting real-time data, and accessing data. The system should have geospatial capabilities and data should include traffic counts, speed data, accidents (vehicles, pedestrians, and bicycles), traffic enforcement data, and incident information.	M	This project closely relates to projects that deploy field devices and systems to collect transportation related data; ES-TM-01; ES-TM-02; ES-TM-03; ES-PTM-05; ES-PTM-06; ES-PTM-09	This project is dependent on interagency communications and the deployment of field devices to collect data.	$560,000/ $50,000	● Improved resources for regional modeling, research, analysis, planning, and design ● Reduced cost of data collection	This project will make use of data already collected or planned for collection by agencies in the Eugene-Springfield metropolitan area.
ES-IM-02	Integrate Transportation Information with GIS Centerline Project	Update ITS transportation GIS data in accordance with the GIS Centerline Project once it is complete.	H, M, L	GIS Centerline Project	None	$50,000/ $5,000	● Improved mapping capabilities ● Improved resources for analysis, planning, and design	The GIS Centerline Project is in the process of combining roadway centerline data and developing regional standards for creating attributable data.
Maintenance & Construction Management (MC)								
ES-MC-01	Maintenance Fleet Management System	Installation of automated vehicle locators (AVL) on maintenance vehicles and dissemination of real-time vehicle locations at the ODOT District 5 Office and emergency dispatch centers or EOC's for resource allocation during incidents or emergencies.	L	None	None	$170,000/ $5,000	● More efficient managagement of maintenance fleet ● Reduced emergency response times when maintenance support is needed	LTD is currently installing automated vehicle locators on its transit fleet and will be a valuable resource for project implementation.
ES-MC-02	Construction Zone Safety Enhancements During I-5 Bridge Reconstruction	Deploy permanent and/or portable dynamic message signs and electronic driver feedback signs to alert motorists of their travel speed as they approach the work zone for the installation of the I-5 temporary bridges and reconstruction of the I-5 permanent bridges.	H	I-5 Bridge Reconstruction of the McKenzie and Willamette River Bridges	None	$200,000/ $45,000	● Improved construction zone safety and efficiency ● Heightened safety awareness through driver feedback	New equipment and training would be required for this project. ODOT has acquired portable changeable speed limit signs that may be available for use on this project.
ES-MC-03	Maintenance, Construction, and Special Event Coordination System	Develop an information management system that contains details about regionwide maintenance and construction activities by public agencies, utility companies, and private contractors as well as special event information, including location and event duration.	M	None	Requires data and information from public and private agencies throughout the region.	$540,000/ $10,000	● Construction and maintenance scheduling capabilities ● Improved resources for planning ● Cost savings through project coordination	The system must allow for quick and easy data input and retrieval to make it efficient for affected agencies to use.
ES-MC-04	Develop Work Zone Management Standards	Develop standards for safety enhancements and management techniques in work zones such as the following: ● Variable speed limits ● Incident detection and management ● Lane merge controls ● Queue detection and electronic driver feedback signs	H	None	None	$40,000/ $0	● Improved construction zone safety and efficiency ● Heightened safety awareness through driver feedback	The development of regional work zone management standards, that incorporate other statewide efforts, will make implementation easier during major construction projects. ODOT has acquired portable changeable speed limit signs that may be available for use in the region.

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

7.3 DEPLOYMENT PLAN SCHEDULE

Table 7-2 illustrates the deployment plan schedule for the proposed projects, grouped by area of interest. As described previously, the schedule follows a 5-Year Plan, 10-Year Plan, and 20-Year Plan and relates to the priority assigned to each project in Table 7-1. Since priorities and institutional objectives change over time, the deployment plan schedule should be re-evaluated after the 5-Year Plan has been completed.

7.4 5-YEAR PLAN PROJECTS

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

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

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

7.4.1 ITS Standards for 5-Year Plan Projects

It is recommended that each deployment project selected for near-term deployment be crosschecked against relevant standards. Accordingly, each of the 5-Year Plan project descriptions in Section 7.4 includes identification of relevant standards. ODOT and Lane Transit District already employ some applicable ITS standards as described herein.

7.4.1.1 ITS Standards in Use by ODOT

Of the traffic agencies in the Eugene-Springfield metropolitan area, ODOT is the only agency that has mature ITS projects already deployed (primarily elsewhere in the state). Accordingly, ODOT has spent the most time analyzing, approving and utilizing ITS standards. A review of ODOT's experience with the adoption of ITS standards identified the following practices:

- ODOT is currently using most of the approved message set and data definition standards when available and applicable, particularly:
  - ***ITE TM 1.03: Standard for Functional Level Traffic Management Data Dictionary (TMDD)***
  - ***ITE TM 2.01: Message Sets for External TMC Communications (MS/ETMCC)***
- **Center-to-Center Standards:** ODOT is planning on utilizing XML[1] for center-to-center communications, as opposed to either DATEX[2] or CORBA[3]. Many standards for

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

XML have already been developed and are used widely in the IT industry. Message sets and data dictionaries for ITS utilizing XML are currently being converted from DATEX message sets by the SDO's.

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

7.4.1.2 ITS Standards in Use by Lane Transit District

Lane Transit District (LTD) is the only other agency in Eugene-Springfield that has currently deployed ITS technologies on a wide scale. LTD has reviewed, and will continue to review, relevant TCIP and other ITS standards, but has found that few of the TCIP standards have been accepted to date and that the systems that are being implemented thus far do not adhere to the draft standards. LTD has indicated a strong desire to adhere to all ITS standards, but is heavily reliant on transit ITS equipment vendors, who to date have not been able to agree on these standards. LTD indicated that when they move forward with their next project for Advanced Traveler Information, to include real-time bus arrival information on street signs and on the Internet, they will endeavor to use any applicable draft standards.

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

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

Table 7-2. DEPLOYMENT PLAN SCHEDULE (Page 1 of 2)

		5-Year Plan					10-Year Plan					20-Year Plan									
Ref. #	Project Title — Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Travel & Traffic Management																					
ES-TM-01	Regional Virtual Transportation Operations Center								X	X											
ES-TM-02	Regional Freeway Surveillance and Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ES-TM-03	Regional Arterial Surveillance and Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ES-TM-04	Reversible Lane Management on MLK/Centennial						X	X													
ES-TM-05	Gateway Area Traffic Responsive Signal Timing				X	X															
ES-TM-06	30th Avenue Signal Timing Coordination Near I-5	X																			
ES-TM-07	Incident Management Operational Plans				X	X				X	X				X	X				X	X
ES-TM-08	Incident Notification System							X	X												
ES-TM-09	Transit Signal Priority	X	X	X	X	X				X	X						X	X			
ES-TM-10	Traffic Signal Interconnect	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ES-TM-11	Integrate Regional Virtual TOC with UO SOS Room									X	X										
ES-TM-12	Beltline Highway Queue Warning System					X	X														
ES-TM-13	I-5 Bridge Security				X	X	X	X													
ES-TM-14	I-5 Bridge Weather Detection and Deicing System				X	X	X	X													
ES-TM-15	Highway Advisory Radio (HAR)				F	F	F	F													
ES-TM-16	Integrate Traveler Information with TripCheck, 511, & Highway Advisory Radio		X	X	X	X	X	X	X	X	X	X	X								
ES-TM-17	Congestion/ Incident Information Mapping		X	X	X	X						X	X	X	X						
ES-TM-18	Traveler Information at Rest Areas									X	X										
ES-TM-19	Rest Area Surveillance System																			X	X
ES-TM-20	Advanced Parking Management & Information System											X	X			X	X			X	X
ES-TM-21	Road Weather Information Systems (RWIS)						X	X				X	X					X	X		
ES-TM-22	Advanced Railroad At-Grade Crossings											X	X								
ES-TM-23	Integrate Central Signal Systems with Transit & Emergency Management Systems																	X	X	X	X
ES-TM-24	Upgrade Central Signal System											X	X	X	X	X					
ES-TM-25	Special Event Management Systems																		X	X	X
ES-TM-26	Integrate Eugene Airport Traveler Information with Northwest Transportation Operations Center															X	X				
ES-TM-27	Develop Evacuation Route Plan		X	X																	
Communications																					
ES-CO-01	Document Communications Design Standards		X	X																	
ES-CO-02	Communications Network	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ES-CO-03	Radio Infrastructure Integration		X	X	X																

X = Proposed Implementation
F = Currently Funded Projects

Table 7-2. DEPLOYMENT PLAN SCHEDULE (Page 2 of 2)

Ref. #	Project Title	5-Year Plan					10-Year Plan					20-Year Plan									
	Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Public Transportation Management																					
ES-PTM-01	Real-Time Customer Information Displays		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
ES-PTM-02	Portable Real-Time Customer Information Displays						P	P													
ES-PTM-03	Integrate Transit Traveler Information with ODOT Transit Trip Planning Project		P	P	P	P															
ES-PTM-04	Transit Buses as Traffic Probes										P	P	P								
ES-PTM-05	Electronic Fare Collection			P	P	P															
ES-PTM-06	Automated Veh. Location, Computer Aided Dispatch & Automated Passenger Counting Sys. for Fixed Route	F	F	F																	
ES-PTM-07	Transit Fleet Maintenance									P	P	P									
ES-PTM-08	Automated Vehicle Location System and Computer Aided Dispatch System for Paratransit												P	P	P	P					
ES-PTM-09	System Security & Integration of Bus Video Images with LTD Dispatch								P	P	P										
ES-PTM-10	Bus Rapid Transit	F	F	F	F	F	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Emergency Management																					
ES-EM-01	Integration Between Traffic/Transit Management Systems & Emergency Management Systems								P	P	P										
ES-EM-02	Provide Interface Between Traffic Management Systems and Emergency Operations Centers									P	P	P	P								
ES-EM-03	Traffic Adaptive Emergency Response																P	P	P	P	P
ES-EM-04	Integration of Traffic Management Information with Mobile Data Terminals																P	P	P	P	P
ES-EM-05	Incident Response Fleet Management System																		P	P	P
Information Management																					
ES-IM-01	Regional Data Management System						P	P	P	P	P										
ES-IM-02	Integrate Transportation Information with GIS Centerline Project	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Maintenance & Construction Management																					
ES-MC-01	Maintenance Fleet Management System																P	P	P	P	P
ES-MC-02	Construction Zone Safety Enhancements During I-5 Bridge Reconstruction	P	P	P	P	P	P	P													
ES-MC-03	Maintenance, Construction, and Special Event Coordination System						P	P	P												
ES-MC-04	Develop Work Zone Management Standards		P	P																	

Proposed Implementation (P)
Currently Funded Projects (F)

Regional Freeway Surveillance & Management

Project ES-TM-02 (A, B, C, D, E) 1 of 2

Purpose

To improve travel time, reduce incident response time, reduce crashes and the effects of crashes on I-5, Beltline Highway, ORE 126, I-105, and Delta Highway.

Existing Problems

- Recurrent congestion
- Key bottlenecks
- High collision locations
- Lack of traveler information
- Lack of roadway performance data

Stakeholder(s)

Primary:	ODOT- Traffic Mgmt
Secondary:	ODOT- Maintenance Mgmt Lane County- Traffic Mgmt Eugene- Traffic Mgmt Springfield- Traffic Mgmt LTD- Transit Mgmt

Description

To improve travel time and reduce crashes:
Install ramp meters on appropriate on-ramps to meter the flow of traffic entering the highway during peak or congested conditions. The ODOT Region 1 System Wide Adaptive Ramp Metering (SWARM) algorithm should be considered to dynamically adjust the ramp-metering rate in real-time based on current vehicle volumes and speeds. The installation of ramp meters should be accompanied by system detectors to obtain real-time vehicle volume and speed data.

To augment ramp meter deployment, traffic signal coordination should be implemented near the ramps along the arterial roadways with interchange access to the freeway. Ramp queue detectors should also be used near traffic signals to detect queue lengths that may back up through the signal so that ramp meter signal timing may be adjusted to clear the queue.

To reduce incident response time:
Install field devices to detect, verify, manage and clear incidents. Install system detectors to automatically detect incidents. Install closed-circuit television (CCTV) cameras on each freeway and transmit the video feed to the Northwest Traffic Operations Center (NWTOC) and to the District 5 Maintenance and Operations Building to monitor the freeways and to detect and verify incidents.

To disseminate traveler information to the public prior to their trip and en-route:
Install system detectors to collect volume, occupancy and speed information and display on a congestion information map on the TripCheck web site. Install dynamic message signs (DMS) to provide real-time traveler information en-route. Install CCTV cameras along each freeway, particularly at key interchanges, high crash locations, and key bottlenecks. Display the images on the TripCheck web site and provide a video feed to the local media.

To collect roadway peformance data for planning future improvements:
Install system detectors to collect and store traffic counts (volume, occupancy, and speed). The system detectors will automate the data collection process replacing the annual counts conducted manually today. They will also provide traffic count data year round and can be used to enhance transportation planning.

Communications Requirements

A connection is required between the highway traffic management equipment and the Northwest TOC. At the Northwest TOC, a system interface is needed to provide easy access to CCTV camera images, to output usable data from system detectors, to post messages to DMS, and to control ramp meter signals.

ITS Standards

- IEEE P1512 – 2000
- IEEE P1512.1, P1454
- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1203, 1204, 1205, 1206, 1207, 1209, 1301, 2001, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302
- SAE J2353, J2354, J2369

Project Dependencies

- Additional analysis should be conducted to determine the feasibility of adding meters to existing ramps based on storage capacity, acceleration distance, and interaction with nearby traffic signals.
- Communications connection to the ODOT NWTOC and the District 5 Maintenance and Operations Building.

Benefits

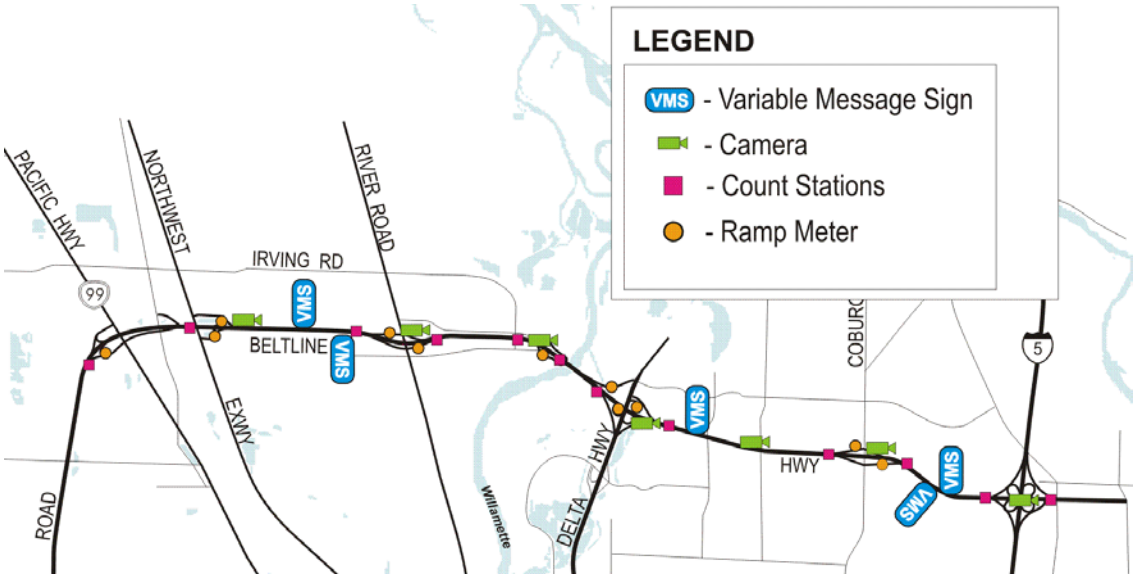
- Integration of multi-jurisdictional freeway and arterial systems
- Safety and efficiency improvements
- Reduced incident response time
- Improved incident management
- More effective traffic management
- Increased traveler information
- Availability of additional volume, occupancy, and speed data

0 – 5 Year Plan Cost

Freeway	Capital	O&M/yr
I-5	$1,400,000	$25,000
Beltline Hwy	$3,250,000	$90,000
OR 126	$825,000	$35,000
I-105	$320,000	$10,000
TOTAL:	**$5,795,000**	**$160,000**

0 – 5 Year Plan

Freeway	Deployment Plan
I-5	Limited cameras and DMS
Beltline Hwy	River Rd to MLK Pkwy
ORE 126	Limited cameras
I-105	Limited cameras

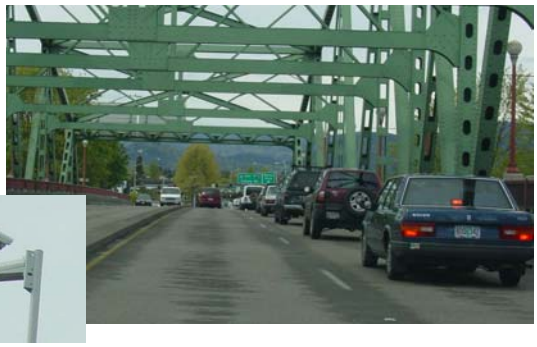


Coburg Road Arterial Surveillance & Management

Project ES-TM-03C

Purpose

To improve travel time and reduce crashes and the effects of crashes on Coburg Road.



Existing Problems

- Recurrent congestion on Coburg Road in downtown and at Beltline Highway
- Key bottlenecks at Beltline Highway and the Ferry Street Bridge
- Five high incident locations
- Lack of roadway perforance data
- Limited monitoring capabilities

Stakeholder(s)

Primary:	Eugene- Traffic Mgmt
Secondary:	Eugene- Maintenance Mgmt

Description

To monitor roadway and equipment conditions:
Deploy CCTV cameras at key intersections and bring existing CCTV camera video feed from Ferry Street Bridge to the City of Eugene Public Works Office and the Northwest Transportation Operations Center (NWTOC). Use the camera viewing capabilities to monitor the roadway for congestion, trouble spots, incidents, equipment failures, and traffic signal operations.

To reduce incident response time:
Install field devices to detect, verify, manage and clear incidents. Install system detectors to automatically detect incidents. Install closed-circuit television (CCTV) cameras on Coburg Road and transmit the video feed to the NWTOC and to the City of Eugene Public Works Office to monitor Coburg Road and to detect and verify incidents.

To disseminate traveler information to the public prior to their trip:
Install system detectors to collect volume, occupancy and speed information and display on a congestion information map on the TripCheck web site. Install CCTV cameras along Coburg Road, particularly at high crash locations and key bottlenecks. Display the images on the TripCheck web site and provide a video feed to the local media.

To collect roadway peformance data for planning future improvements:
Install system detectors to collect and store traffic counts (volume, occupancy, and speed). The system detectors will automate the data collection process replacing the annual counts conducted manually today. They will also provide traffic count data year round and can be used to enhance transportation planning and traffic signal timing plan development.

Coburg Road Arterial Surveillance & Management

Project ES-TM-03C 2 of 2

Communications Requirements

A connection is required between the proposed CCTV cameras and the City of Eugene Public Works Office. The communications connection between the existing CCTV cameras on the Ferry Street Bridge needs to be re-routed to the current City of Eugene Public Works Office since it is still connected to the old office location downtown. The system detectors can be connected to the closest traffic signal controller.

ITS Standards

- IEEE P1512 – 2000, P1512.1
- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1202, 1203, 1205, 1206, 1209, 1211, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2303
- SAE J2353, J2354, J2529, J2540

Project Dependencies

- Any operational issues that come out of the planned Coburg Road Access Management/Safety- Operational Study (*TransPlan* Project #619) should be evaluated as part of the signal timing coordination plans.

Benefits

- Integration of multi-jurisdictional arterial systems
- Improved safety and efficiency
- Reduced delay
- Reduced emergency response times
- More effective traffic management, incident management, and maintenance management
- Timely and cost-effective complaint response
- Increased traveler information
- Availability of additional volume, speed, and occupancy data

Cost

$470,000	Project Deployment
$30,000	Annual Ops & Maintenance

Phased Plan

0 – 5 Years: Project Deployment

Gateway Area Traffic Responsive Signal Timing

Purpose

To improve travel time for traffic and transit and to reduce crashes.

Existing Problems

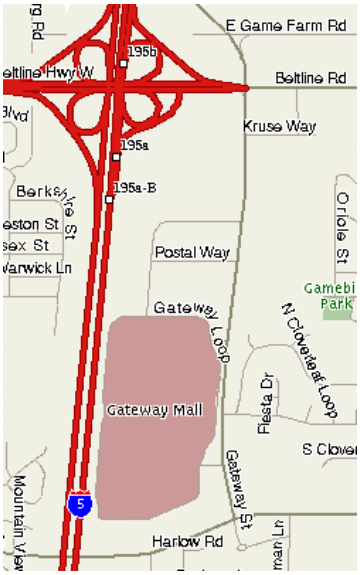
- Recurrent congestion on the northern segment of Gateway Street
- Key bottleneck at the Gateway Street/ Beltline Road intersection
- Five high incident locations
- High traffic volumes during Holiday season because of Gateway Mall, which is located on the west side of Gateway Street

Stakeholder(s)

Primary:	Springfield- Traffic Mgmt
Secondary:	Springfield- Maintenance Mgmt

Description

To improve travel time and reduce crashes:
Implement traffic responsive signal timing on Gateway Street from Harlow Road to Game Farm Road. Traffic responsive signal timing selects alternate pre-programmed signal timing plans based on current traffic volumes. This method has been shown to reduce stops, improve travel times, and reduce fuel consumption compared to traditional signal timing methods. System detectors should be used to collect real-time traffic volumes.



To collect real-time and historical roadway performance data:
Utilize existing system detectors and deploy additional system detectors to collect traffic data (volume, occupancy, and speed). Existing northbound and southbound system detectors are located in both travel lanes south and north, respectively, of the Gateway Street/Oakdale Street traffic signal. These detectors are wired to the traffic signal controller at this intersection. Additional northbound and southbound system detectors should also be deployed near the Gateway Street/Gateway Loop intersection to collect data closer to Beltline Road.

To monitor traffic signal operations:
Transmit existing video detection images back to the City of Springfield's Public Works office. Three of the six traffic signals on the project corridor currently utilize video detection. Viewing capabilities of these camera images will allow the City of Springfield to monitor the effectiveness of the pre-programmed signal timing plans implemented as part of the traffic responsive signal timing and to also respond quickly to any citizen complaints.

Gateway Area Traffic Responsive Signal Timing

Communications Requirements

All of the traffic signals along Gateway Street are currently interconnected and accessible from the City of Springfield's QuicNet/4 central signal system software. For the City to view the the video detection cameras and the proposed CCTV camera at Gateway Street/Beltline Road, additional communications will be required to bring these images back to the City's Public Works office in downtown Springfield. The proposed system detectors will also need to be hard-wired to the nearest traffic signal controller.

ITS Standards

- IEEE P1512 – 2000, P1512.1
- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1202, 1203, 1205, 1206, 1209, 1211, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2303
- SAE J2353, J2354, J2529, J2540

Project Dependencies

- The City of Springfield may reconfigure Gateway Street as a couplet with a new parallel roadway from south of Kruse Way to Beltline Road in the future. Project ES-TM-05 will need to be adjusted to accommodate any geometric and signal configuration changes.

Benefits

- Improved corridor safety and efficiency
- Reduced congestion and delay
- Reduced transit delay and improved transit reliability
- Reduced emergency response times
- Timely and cost-effective complaint response

Cost

$125,000	Project Deployment
$7,500	Annual Ops & Maintenance

Phased Plan

0 – 5 Years: Project Deployment

Incident Management Operational Plans

Purpose

To provide multi-agency traffic-responsive corridor management, to reduce secondary crashes caused by an incident, and to reduce the amount of time that normal freeway operations are disrupted when incidents occur on I-5, Beltline Highway, or the Eugene-Springfield Highway (I-105 and OR 126).

Stakeholder(s)

Primary:	ODOT- Traffic Mgmt ODOT- Incident Mgmt
Secondary:	ODOT- Maintenance Mgmt Lane County- Traffic Mgmt Lane County- Maintenance Mgmt Eugene- Traffic Mgmt Eugene- Maintenance Mgmt Springfield- Traffic Mgmt Springfield- Maintenance Mgmt LTD- Transit Mgmt

Existing Problems

- Lack of transportation management resources when vehicles divert from the freeway due to incidents
- Limited monitoring and incident detection capabilities
- No pre-defined alternate routes for any regional freeways other than I-5
- No remote connection between incident responders and traffic information other than radio
- Lack of means to disseminate real-time alternate route information to travelers

Description

To better manage incidents and to develop a protocol for multi-agency coordination: Develop incident management operational plans for I-5, Beltline Highway, and the Eugene-Springfield Highway (I-105 and OR 126). These plans will outline agency roles and responsibilities and procedures for operating field devices.

As part of the plan development, alternate freeway diversion routes should be evaluated to determine locations where additional signage may be needed. Signs may include fixed trailblazer signs or changeable fixed message signs (CFMS), which have the capability to display one of several preset fixed messages relating to detours (ie. whether to stay on the detour route or if the next freeway ramp is open).

Traffic signal timing plans will also need to be developed along arterial roadways that serve as alternate routes. These timing plans should accommodate large unidirectional increases in traffic volumes due to the detour.

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

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

Communications Requirements

No communications are required for the development of this project.

Benefits

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

ITS Standards

- IEEE P1512 – 2000, P1512.1, P1454
- ITE TM 1.03, TM 2.01
- NTCIP 1101, 1102, 1103, 1201, 1203, 1204, 1205, 1206, 1207, 1209, 1301, 2001, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302
- SAE J2353, J2354, J2369

Project Dependencies

- Full use of the operational plan depends on the deployment of field devices and communications included as part of the Freeway Surveillance & Management Projects (ES-TM-02A, B, C, & D)

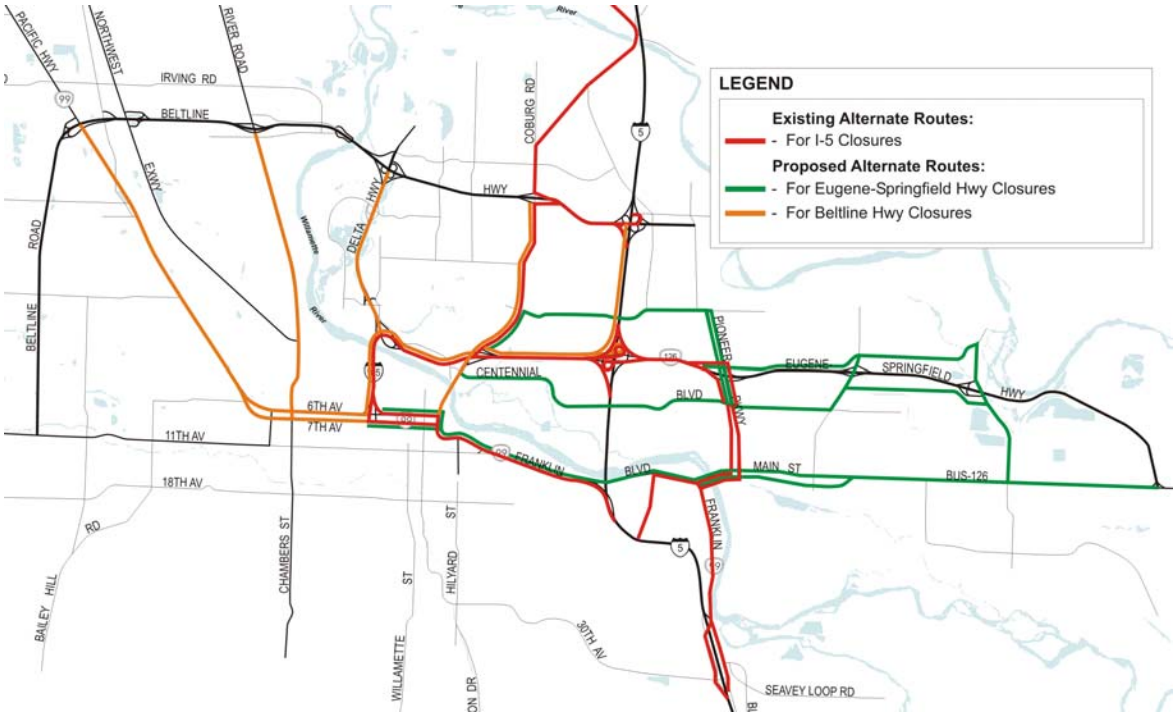
Phased Plan

0 – 5 Years: Project Deployment

Cost

All costs associated with field devices are included as part of Project ES-TM-02: Freeway Surveillance & Management.

$65,000	I-5
$85,000	Beltline Highway
$55,000	Eugene-Springfield Highway
$205,000	**TOTAL**



Transit Signal Priority

Project ES-TM-09 1 of 2

Purpose

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

Existing Problems

- Variable and unreliable transit travel times due to congestion
- Bus reliability at time points
- Difficulty setting and managing bus schedules

Stakeholder(s)

Primary:	LTD- Transit Mgmt Eugene- Traffic Mgmt Springfield- Traffic Mgmt
Secondary:	ODOT- Traffic Mgmt Lane County- Traffic Mgmt

Description

To help buses adhere to their pre-set schedules:
Provide additional green time at a traffic signal for buses to reduce time spent waiting at red lights. LTD plans to use transit signal priority (TSP) along their planned bus rapid transit (BRT) routes and at problem intersections along their regular fleet routes. A future enhancement may include only providing additional green time for buses that are running behind schedule. The use of this feature is dependent on the technology used on-board the transit fleet.

Communications Requirements

A communications interface will be needed between each transit vehicle and each traffic signal along a transit priority corridor. Potential interfaces include Opticom, which is already used in the Eugene-Springfield metropolitan area for fire vehicle preemption, loops embedded in the pavement that detect bus presence, or radio frequency tags and readers. LTD plans to use radio frequency detection for their planned bus rapid transit system.

ITS Standards

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

Benefits

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

Project Dependencies

- Traffic signals will need to be outfitted with detection equipment in order to support TSP.
- Automated vehicle locators (Project ES-PTM-06) are required to provide transit signal priority for buses behind schedule.

Transit Signal Priority

Cost

Phased Plan	Project Deployment		Annual Ops & Maintenance	
	Transit*	Traffic*	Transit*	Traffic*
0 – 5 Years**	$445,000	$300,000	$6,500	$1,000
6 – 10 Years	$27,500	$55,000	$500	$1,000
11 – 20 Years	$27,500	$95,000	$500	$1,000
Total:	**$950,000**		**$10,500**	

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

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

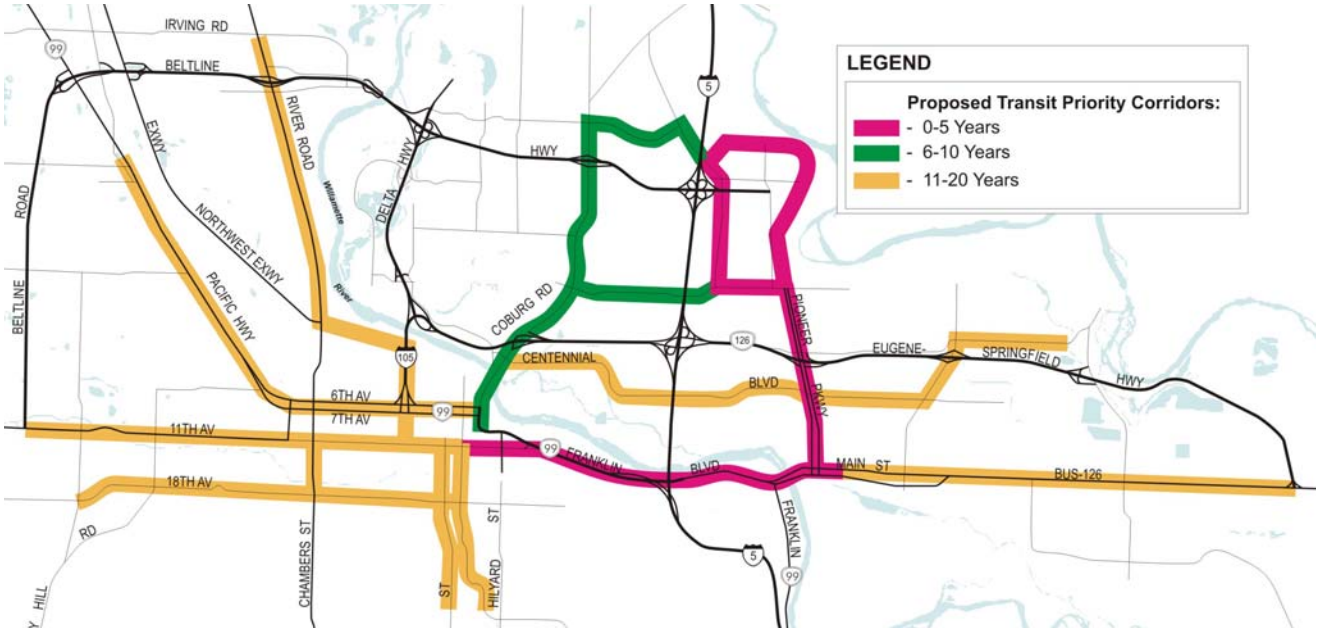
Phased Plan

Phasing of transit signal priority should match the phasing LTD uses for BRT deployment.

0 – 5 Years:
- Franklin Blvd
- Main St/S A St
- Pioneer/MLK Pkwy
- Game Farm Rd N
- Gateway St
- Harlow Rd (E of Gateway)

6 – 10 Years:
- Coburg Rd
- Crescent Av
- Harlow Rd (W of Gateway)

11 – 20 Years:
- Centennial/MLK Blvd
- Pacific Hwy (ORE 99)
- W 11th Av
- W 13th Av
- W 18th Av
- River Rd
- Pearl St
- Willamette St
- Amazon Pkwy

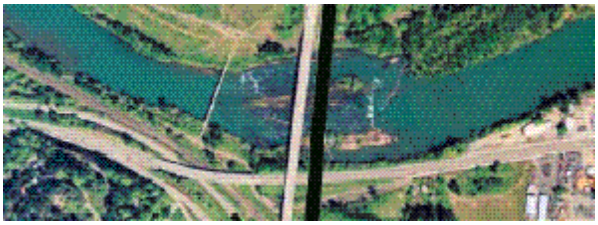


I-5 Bridge Security

Project ES-TM-13 1 of 1

Purpose

To monitor activity on the McKenzie River and Willamette River I-5 bridges.



Willamette River I-5 Bridge (Source: ODOT)

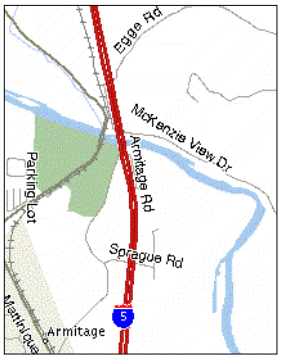
Existing Problems

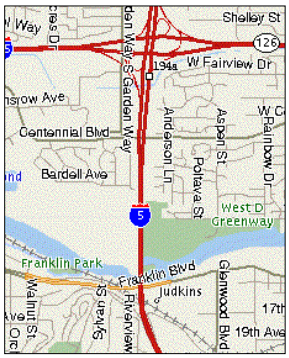
- Homeland security threats to the nation's bridges
- Limited alternate routes, particularly to the north at the McKenzie River bridge, in the event of bridge incapacitation

Stakeholder(s)

Primary:	ODOT- Traffic Mgmt
Secondary:	Oregon State Police

Description





To monitor bridges for suspicious activity: Deploy CCTV cameras and a security detection system (i.e. boundary penetration sensors, volumetric motion sensors, point sensors) on the McKenzie and Willamette River bridges. The FHWA plans to issue a technical advisory during 2004 on how to implement available and applicable technology for bridge security. Field equipment should be linked to the Northwest Transportation Operations Center (NWTOC) and the Oregon State Police Dispatch in Salem.

Communications Requirements

Communications will be required between any cameras or security system detectors and the Northwest TOC.

ITS Standards

- IEEE P1454
- NTCIP 1101, 1102, 1103, 1201, 1205, 1206, 1208, 1209, 2001, 2101, 2102, 2103, 2104, 2201, 2202, 2301, 2302, 2303

Project Dependencies

- This project should be designed and constructed as part of the Willamette River Bridge Improvements (STIP Key #13110) and the McKenzie River Bridge Improvements (STIP Key #13112), which are both expected to occur within the next five to ten years.

Benefits

- Surveillance and monitoring capabilities
- Improved homeland security

Cost

$450,000	Project Deployment
$6,000	Annual Ops & Maintenance

Phased Plan

0 – 5 Years: Project Deployment

Real-Time Transit Customer Information Displays

Project ES-PTM-01 1 of 1

Purpose

To disseminate real-time transit traveler information at key transit centers and bus stops.

Existing Problems

- No real-time bus arrival information
- Variable and unreliable transit travel times due to congestion
- Customer dissatisfaction with variable transit travel times

Stakeholder(s)

Primary:	LTD- Transit Mgmt
Secondary:	Regional Traffic Mgmt Agencies

Description

Source: LTD System Map

To inform travelers of transit vehicle real-time arrival times:
Deploy electronic message signs at LTD transit centers, key bus stops, and potentially some park and ride locations. Ideal locations for information displays are transit centers or bus stops where multiple transit routes pass through.

Communications Requirements

Communications will be required between each real-time information display and the LTD Dispatch Center. A wireless connection is provide the most cost-effective method of establishing communications.

ITS Standards

- NTCIP 1401, 1403, 1404, 1405, 1406, 1407
- SAE J2353, J2354, J2369

Project Dependencies

- LTD will need to complete their automated vehicle location project (Project ES-PTM-06) so real-time information is available for dissemination to roadside displays.

Benefits

- Increased transit traveler information to help travelers make informed decisions
- Customer satisfaction regarding transit in the Eugene-Springfield metropolitan area

Cost

Phased Plan:	0 – 5 Years	6 – 10 Years	11 – 20 Years	Total
Project Deployment	$540,000	$400,000	$60,000	**$1,000,000**
Annual Ops & Maintenance	$90,000	$90,000	$20,000	**$200,000**

Phased Plan

0 – 5 Years: High capacity transit centers and park and rides, first phase bus rapid transit route, and transit stops with crossing routes

Construction Zone Safety Enhancements During I-5 Bridge Reconstruction

Purpose

To improve safety for work zone crews during the construction of the temporary bridges and reconstruction of the I-5 bridges over the McKenzie River and the Willamette River.

Existing Problems

- High occurance of incidents (vehicle/vehicle incidents as well as vehicle/construction crew incidents) in freeway construction zones
- Speeding in work zones
- Long duration of construction project

Stakeholder(s)

Primary:	ODOT- Traffic Mgmt
Secondary:	Oregon State Police

Description

© International Road Dynamics

To alert motorists of their travel speed as they approach the construction zone: Deploy permanent and/or portable dynamic message signs (DMS) and electronic driver feedback signs. Display the driver's speed in real-time as well as with the posted construction speed limit to remind drivers to adjust their speed in the construction zone. The permanent and portable DMS may also be used to post other pertinent information about the construction zone.

Communications Requirements

Some type of detection method will be required to measure vehicle speed. A communications connection will be required between the selected detection method and the driver feedback sign.

Also, communications will be required between the Northwest Transportation Operations Center and any permanent DMS installed.

ITS Standards

- ITE
- NTCIP 1201, 1203, 1204, 1205, 1206, 1209, 2101, 2102, 2103, 2104, 2202

Construction Zone Safety Enhancements During I-5 Bridge Reconstruction

Project ES-MC-02 2 of 2

Project Dependencies

- This project has to be deployed concurrently with the Willamette River Bridge Improvements (STIP Key #13110) and the McKenzie River Bridge Improvements (STIP Key #13112).
- Construction on the temporary bridges began in September 2003 and completion is expected by Fall 2004.
- Reconstruction on the I-5 bridges is expected to occur within the next five to ten years.

Benefits

- Improved construction zone safety and efficiency
- Heightened safety awareness through driver feedback

Cost

$200,000	Project Deployment
$45,000	Annual Ops & Maintenance

Phased Plan

0 – 5 Years:	Deploy safety enhancements during temporary bridge construction.
6 – 10 Years:	Deploy safety enhancements during bridge reconstruction