Regional ITS Operations & Implementation Plan for The Eugene-Springfield Metropolitan Area

Draft Executive Summary

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Prepared by

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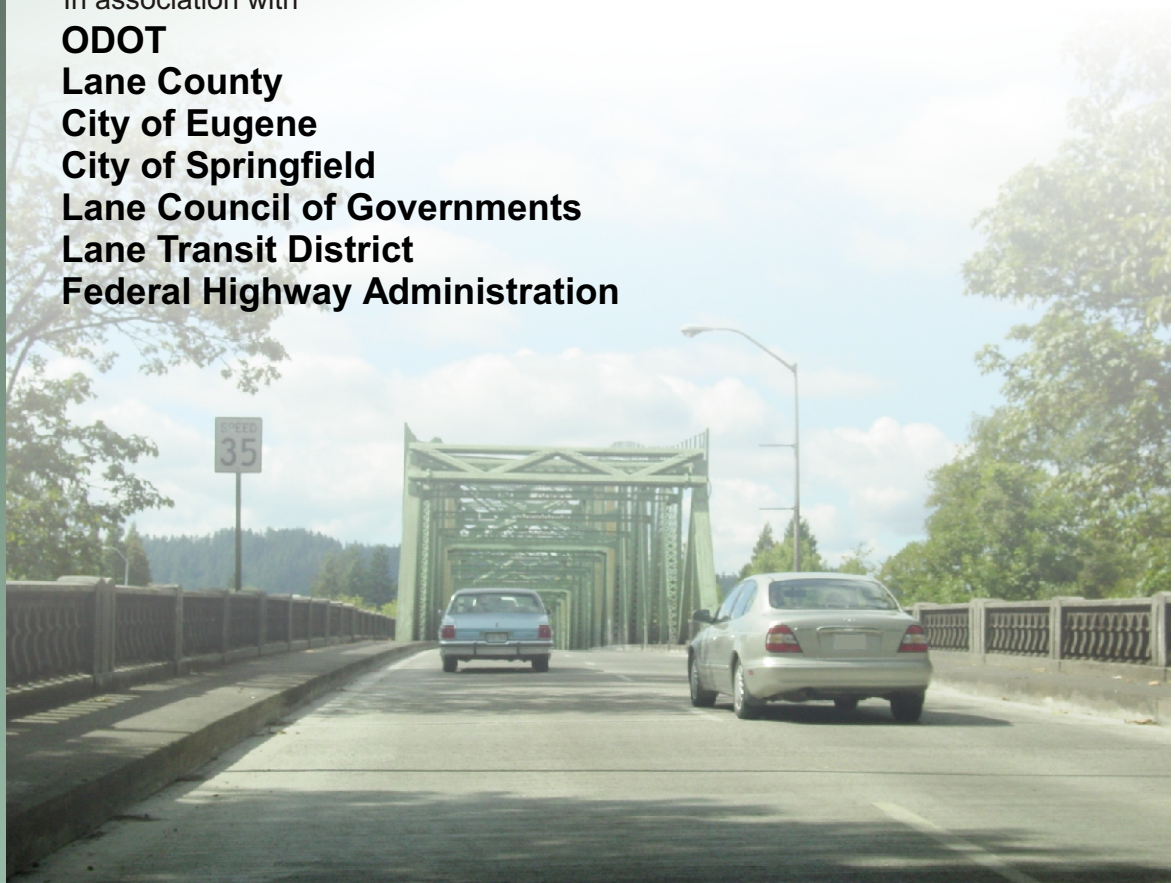
In association with
ODOT
Lane County
City of Eugene
City of Springfield
Lane Council of Governments
Lane Transit District
Federal Highway Administration



DKS *Associates*
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

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

N
Not to Scale

Eugene - Springfield ITS Plan

Figure 1
DRAFT ITS DEPLOYMENT PLAN

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Table 5. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs	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, and ODOT District 5 and ODOT's fiber on I-5.
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		ODOT currently has fiber along I-5 and plans to connect it to the NWTOC and ODOT District 5. - 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 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.	$1,600,000/ $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.

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ES-TM-03A	Pacific Highway (ORE 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.	$950,000/ $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 (ORE 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 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 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.	$1,200,000/ $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	$500,000/ $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	$350,000/ $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 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	$125,000/ $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.

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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 (Alternate Routes: Franklin Blvd/Main St/A St, Q St, Marcola Rd, 42nd St)				$55,000/ $0		
ES-TM-07C		● Beltline Highway (Alternate Routes: Coburg Rd, I-105, Delta Hwy, River Rd, Pacific Hwy)				$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.	$65,000/ $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 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	H			$260,000/ $1,000		
		● Coburg Rd, Crescent Ave, Game Farm Rd N, Gateway St, Harlow Rd, Pioneer/MLK Pkwy	M			$95,000/ $1,000		
		● Centennial/MLk Blvd, Pacific Hwy, W 11th Ave, W 13th Ave, W 18th Ave, River Rd, Pearl St, Willamette St, Amazon Pkwy	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/Willagillespie/ Goodspasture Island		ES-TM-02E				
		● Barger Road		ES-TM-03A				
		● Royal Avenue/Roosevelt Boulevard		ES-TM-03A				
		● Cal Young Road/Gilham Road		ES-TM-03C				
		● Green Acres Road/Crescent Avenue		ES-TM-02E				
		● Chambers Street		None				

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		• Main Street (28th Avenue to 69th Avenue) • Jasper Road Extension		ES-TM-03G *TransPlan* Project #66				
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 and ES-EM-02.
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.	$450,000/ $6,000	• Surveillance and monitoring capabilities • Improved homeland security	This project can be incorporated with the design of the two I-5 Bridge modifications.
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.	$550,000/ $25,000	• 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 (HAR) system that provides traveler information. Project includes both permanent and mobile installations. Permanent installations will be deployed at the four key entry points to the metropolitan area (north, 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.	$400,000/ $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.	$300,000/ $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 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.	$300,000/ $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 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.

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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.	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 Expressway ● Irvington Rd west of Northwest Expressway ● 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, and Transit Systems	Provide interface between freeway management systems and 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		$1,500,000/ $100,000		
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.	$1,000,000/ $40,000	● 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.

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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	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.	$5,500,000/ $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.

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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	$1,000,000/ $300,000	• 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/ $0	• 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	$200,000/ $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 entire fleet of LTD buses.	H	None	None	$1,000,000	• Ability to automate data collection process, which enhances planning efforts	LTD will need to research the existing technologies to determine what works best with their fleet.
ES-PTM-06	Automated Vehicle Location System	Existing STIP Project.	H	2002 – 2005 STIP Key #11366	None	$750,000	• More efficient allocation of transit resources • Improved transit travel times	LTD is currently testing their new AVL system and has TriMet available as a resource.
ES-PTM-07	Automated Passenger Information Systems	Existing STIP Project.	H	2002 – 2005 STIP Key #11368, 11761; ES-PTM-06	None	$500,000	• Improved real-time transit information • Customer satisfaction	The technology for automated passenger counting is included as a feature of the AVL system.
ES-PTM-08	Automated Passenter Counting	Current LTD Project.	H	ES-PTM-06	None	$500,000	• Ability to automate data collection process, which enhances planning efforts	The technology for automated passenger counting is included as a feature of the AVL system.
ES-PTM-09	Transit Fleet Maintenance and Security System	Current LTD Project.	M	None	None	$750,000	• More efficient allocation of transit resources • Improved maintenance management • Surveillance and monitoring capabilities	LTD is currently exploring technology options for this project.

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Table 5. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs	Expected Benefits	Technical and Institutional Feasibility
ES-PTM-10	Automated Vehicle Location System and Computer Aided Dispatch System for Paratransit	Installation of automated vehicle locators (AVL) on paratransit vehicles and installation of a computer aided dispatch (CAD) system to streamline paratransit operators.	L	None	None	$500,000	• More efficient allocation of transit resources • Improved transit travel times	LTD has already successfully implemented a CAD system for their main fleet and is currently in the process of outfitting their main fleet with AVL.
ES-PTM-11	Integration of Bus Video Images with LTD Dispatch	Develop a system for transmitting video still images from buses back to LTD Dispatch for surveillance capabilities of the roadway and passengers.	M	None	Requires interface between video system and LTD Dispatch system.	$350,000	• Improved surveillance and monitoring capabilities	LTD buses already include video systems.
ES-PTM-12	Bus Rapid Transit	Existing STIP Project.	H, M, L	2002 - 2005 STIP Key #11362, 11363, 11364, 11371, 11372, 12251, 12252, 12258	None		• 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.		• 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 systems for access between systems.		• 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.	$450,000/ $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.	L	ES-EM-03	None	$100,000/ $5,000	• Improved real-time traffic conditions information • Reduced emergency response times	A number of emergency response vehicles already include in-vehicle mobile data terminals.

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Table 5. Proposed Deployment Projects

Project Number	Project Title	Project Description	Priority	Relativity to Planned Projects	Project Dependencies	Capital Costs/ O&M Costs	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/ $5,000	• 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 and methodologies 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	$175,000/ $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.
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.	$550,000/ $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.