

Part 1: Section 1**PROJECT SUMMARY**

Project Name: Probe Data for Traveler Information

Applicant and Project Partners:

Applicant: Oregon Department of Transportation: Intelligent Transportation Systems
Doug Spencer (ITS Standards Engineer) 644 A St, Springfield, OR 97477

Partners Lane Council of Governments (LCOG) 99 East Broadway, Suite 400 Eugene, Oregon 97401-3111	Lane Transit District (LTD) 3500 East 17th Avenue P.O.Box 7070 Eugene, OR 97401-0470
---	---

These partners will be responsible for data consumption, dispatch and congestion management.

Project Location: Eugene-Springfield Metro Area, Lane County; Non-construction.

Project Description:

Project Goal

The goal of the proposed project is to reduce congestion in Lane County by delivering better travel information, and in turn supporting better decision making by motorists and transit agency staff. The intended use of this information is to reduce congestion and delay on arterials and highways in Lane County.

Background

The population growth in Lane county from 2000-2006 has been steady with an increase of 4.6% over that time period. This growing population has increased congestion considerably, particularly on area surface streets and arterials. The Oregon Department of Administrative Services projects that there will be over 400,000 residents in Lane County by 2025. With this growth comes the threat of decreased air quality and a decline in the community's quality of life. In 2007 The Eugene area saw 60 days with Moderate air quality and 10 days of Unhealthy air quality.

One strategy to combat traffic congestion is to provide motorists, commercial trucking and transit agencies with better information about traffic conditions on streets and highways, and thus provide an opportunity to avoid trouble spots and choke points.

One constraint to better travel information, however, is the costs and availability of data collection equipment at the roadway. This detection equipment supplies the data to support information sources like the TripCheck Portland area SpeedMap, as well as travel time information that is shared with motorist via Variable Message Signs (VMS).

The deployment of roadside detection equipment is also harder to justify in smaller and more rural communities because of the lower population density and the constraint in local funding for such projects.

Approach

What is unique with this project is the proposal to collect data for traffic speeds and congestion from the private sector. The proliferation of Geographic Positioning Systems (GPS) and sophisticated logistical system for freight carriers offers the opportunity to use location information from vehicle "probes" rather than from detection in the public sector infrastructure as source data regarding congestion.

The real time data from vehicles probes will be delivered from a private sector data aggregator to ODOT where it will be processed, formatted and redistributed to partner agencies and local jurisdictions. ODOT will also use the data on TripCheck.com, TripCheck Mobile, as well as on its traveler information phone system, 511. Future applications may include travel time information on VMS in Lane County.

Financial Summary:

Tasks	Costs
Administration	\$5,000
Evaluation	\$55,000
Probe Data Collection and formatting	\$270,000
Congestion Map on TripCheck	\$100,000
Congestion Information on 511 Phone System	\$70,000
Contingency	\$105,000
Project Management	\$65,000
Total	\$670,000

Certification Statement:

I certify that the Oregon Department of Transportation *supports* the proposed project, has the legal authority to pledge matching funds, and has the legal authority to apply for project funds. I further certify that any proposed matching funds are available or will be available for the proposed project. I understand that this is not a grant application, that it is a request for reimbursement through the federal aid system, and that all federal rules for contracting, auditing, and payment will apply to this project.

Signature 

Date 6/30/08

Printed Name Galen Mc Gill

Title ITS Manager

Part 1. Application

Section 1: Project Summary

Project Name: Transit probe data for real-time traveler information and congestion analysis

Applicant and Project Partners:

Lead agency: Lane Council of Governments (LCOG)
Susan Payne, Senior Planner
99 E. Broadway, Suite 400, Eugene, OR 97401-3111
541-682-7435, spayne@lcog.org

Partner agencies:

Lane Transit District (LTD)
Steve Parrott, Information Technology Manager
3500 East 17th Avenue, PO Box 7070, Eugene, OR 97401-0470

Oregon Department of Transportation (ODOT)
Doug Spencer, ITS Standards Engineer,
644 A St., Springfield, OR 97477

LCOG will be project manager and will develop software for data archiving, display and analysis. LTD will provide vehicles, communications, and software to acquire, process and transmit selected vehicle motion data to the ODOT Traveler Information Portal. LCOG, LTD and ODOT will work together to design and validate the processing, and to design appropriate data schema for downstream applications. ODOT will provide the interface to the TripCheck Traveler Information Portal.

Project Location: Eugene/Springfield Metro area, Lane County; Non-construction.

Project Description:

Goal: The goal of the project is to provide travelers with real-time information on traffic conditions in the region so as to enable them to make informed route choices; and, to provide operations and planning staff at LTD, the Central Lane Metropolitan Planning Organization (MPO) and partner agencies with data products to identify and address congestion in the region.

Background: The Eugene-Springfield Metro area is the second largest urban area in Oregon. Traffic volumes are increasing on all facilities as the urban population continues to grow. Peak period congestion is becoming more common and is predicted to worsen considerably over the next twenty years. However, as investments in capacity-increasing infrastructure are more and more restricted by funding shortages, better use of existing infrastructure must be made to maintain mobility. Real-time traffic information offers all travelers (transit, passenger vehicles, and commercial/freight) the ability to choose routes that are less congested. ODOT surveys have shown that travelers will utilize such data if it is made available in a timely and easily accessible format. However, such real-time traffic data products are not available to travelers in this region.

Approach: This project will use Lane Transit District buses as *vehicle probes* to acquire real-time travel time and speed of buses along bus routes within the Eugene/Springfield area. The existing on-board Automated Vehicle Location (AVL) system and backend software will be upgraded to provide and process high temporal resolution Global Positioning System (GPS) data. Position and speed data will be processed, conditioned and transmitted to the ODOT Traveler Information Portal where it will be made available for inclusion in real-time congestion information products on TripCheck and regional variable message signs (VMS). These data will also be archived, processed, and aggregated by the MPO to inform the MPO's Congestion Management Process by providing statistics on peak hour speeds/travel times and travel time reliability. Products, including congestion maps, will be posted on the MPO's web site for public dissemination.

Schedule

The project will be conducted over about a two year period. Assuming contracts are in place by December 2008, in-vehicle upgrades are expected to be complete by August 2009; backend data conditioning and upload software, and analysis and display products by January 2010; test and calibration by March 2010. Routine data collection and verification is expected to begin in April 2010. Project completion will be September 2010.


Financial Summary:

In-vehicle upgrade	\$360,000
Data collection and Software	\$275,000
Design, calibration, testing	\$ 65,000
Administration and Management	\$ 60,000
Contingency	\$100,000
Total Requested:	\$860,000

Match: No matching funds are supplied. However, LTD will provide the buses and operations mileage for the project. The value of these services can be compared to the cost charged by commercial vendors selling probe data: approximately \$750/mile per year. This project will use data from the LTD bus fixed route fleet which numbers over 100 buses, and travels about 4 million miles per year with 310,000 service hours. LTD's communication costs to sustain the data stream are \$280,000 per year.

Certification Statement:

I certify that **Lane Council of Governments** supports the proposed project, has the legal authority to pledge matching funds, and has the legal authority to apply for project funds. I further certify that any proposed matching funds are available or will be available for the proposed project. I understand that this is not a grant application, that it is a request for reimbursement through the federal aid system, and that all federal rules for contracting, auditing, and payment will apply to this project.

Signature		Date	6-30-08
Printed Name	Robert J Swank	Title	Associate Director

Proposal for ODOT Innovative Transportation Operations Project

Implementation and Evaluation of Lateral Guidance and Speed Advisory for BRT

Part 1, Section 1 – Summary (2 page limit)

Project Partners

This proposal is submitted by the Lane Transit District (LTD), the public transit service in the Eugene, Oregon metropolitan region. LTD operates the Emerald Express (EmX) Bus Rapid Transit (BRT) service, the focus of the proposed project, and LTD will be the project manager. LTD has formed a west coast partnership to improve BRT operations and technology, together with the California Department of Transportation (Caltrans) and the Partners for Advanced Transit and Highways (PATH) program of the University of California. PATH will perform the technical work on the project with the assistance of commercial partners.

Project Location

The Eugene section of Lane Transit District's Franklin EmX BRT corridor is the site for testing, demonstrating and operating the new ITS technologies of the proposed project.

Project Description

A single lane BRT system has the potential to achieve rail-like service with half of the right of way required for a double lane BRT. However, the operating efficiency and passenger carrying capacity of a single lane BRT are limited when the system is operated entirely manually. Vehicle Assist and Automation (VAA) technologies make it possible for single lane BRT to reach its full potential. VAA technologies include precision docking at bus stations, lateral guidance for accurate steering through narrow lanes, and speed advisories to help the driver adjust the bus speed for maximum efficiency. When applied together, these applications should improve operating efficiency, reduce travel times and increase amenity value for passengers, while reducing construction, operation and maintenance costs.

LTD, Caltrans, PATH and three private firms formed a west coast proposal team that was selected to receive a cooperative agreement with the Federal Transit Administration (FTA) for the "Pilot Program to Demonstrate the Benefits of VAA Applications for Full-Size Public Transit Buses". Under the FTA's VAA program, precision docking and lateral guidance technologies are to be field tested and demonstrated in public transit revenue service for the first time in the U.S. Precision docking provides automatic steering of the bus as it approaches the bus station, allowing rail-like ease of boarding and alighting with negligible gap between the station platform and the bus floor. Passengers, especially those with impaired mobility, can get on and off the bus easily. This reduces the dwell time at stations, reducing the overall trip time. Lateral guidance provides steering control assistance to the driver for driving along the busway, enabling the bus to maintain speed while driving through curved sections, saving additional travel time. In future implementations it will enable the busways to be narrower, requiring less right of way and reducing construction cost. The proposed project will develop another critical VAA technology for BRT – speed advisory. A single lane BRT such as the EmX requires the bus drivers to be exceptionally well coordinated in order to achieve higher operating speeds and reduced dwell times, so that delays encountered

by one bus do not affect the operation of the entire system. Speed advisory provides a display to the bus driver indicating the recommended speed to provide the best service. It efficiently coordinates the motions of the buses traveling in opposite directions over a single busway lane between stations. A bus traveling in one direction cannot enter the single lane section until the bus from the opposite direction has vacated it. Speed advisory can also help coordinate bus movements through the traffic signals at intersections along the busway to minimize the number of stops needed and improve passenger perception of the speed of their trip.

Another important element of the proposed project is a careful cost-benefit evaluation of both the lateral guidance and speed advisory technologies in actual revenue service on the Franklin EmX system, providing the knowledge needed to support potential deployment for other BRT applications in Oregon and throughout the United States. With favorable results during the implementation on the Franklin corridor in Eugene, the lessons learned could be applied to the future BRT corridors in Eugene, to other cities in Oregon and urban areas across the country.

The proposed project is scheduled for a two-year period of performance, with the following key milestones:

1. Customization of speed advisory system for EmX implementation – Month 12
2. Implementation of the speed advisory system – Month 16
3. Field operational testing of all systems – Months 13 – 22
4. Evaluation of benefits and costs of each system – Month 24.

Financial Summary

The total budget for the proposed project is \$495,000. This estimate covers \$375,000 in labor, \$90,000 in vehicle instrumentation, and \$30,000 travel. About \$2.7 million in matching resources are being provided for VAA implementation in the associated larger project by the Federal Transit Administration, Caltrans and the other project partners. Of the proposed project resources, \$350,000 will be applied to the implementation of the speed advisory system and \$145,000 to the evaluation of the combined speed advisory and lateral guidance systems.

<p>I certify that _____ <i>[applicant agency]</i> supports the proposed project, has the legal authority to pledge matching funds, and has the legal authority to apply for project funds. I further certify that any proposed matching funds are available or will be available for the proposed project. I understand that this is not a grant application, that it is a request for reimbursement through the federal aid system, and that all federal rules for contracting, auditing, and payment will apply to this project.</p>	
Signature	Date
Printed Name	Title

PART 1 – Section 1 Project Summary Limit: 2 pages**Project Name:** Delta Highway Intelligent Transportation System (DHITS)**Applicant and Project Partners**

Applicant: Lane County; Key Contact: Celia Barry, Public Works

Project Partners:

- Oregon Department Of Transportation (ODOT) is playing a major role in design and system operation and has provided crucial support throughout the funding application process. Contact: Doug Spencer, PE, Intelligent Transportation Systems.
- EWEB – Provides the fiber optic network required for the project. Contact: Dan Mulholland, Lane Council of Governments Telecommunications Manager.
- City of Eugene Traffic Engineer Tom Larson, PE provided a letter of support.
- State Representative Nathanson, District 13 has provided a letter of support.

Project Location: The project is located on Delta Highway (County Road # 1740-10), a Lane County principal arterial within the City of Eugene. Improvements will be near the eastern right-of-way of northbound Delta Highway. A Variable Message Sign (VMS) will be located just south of Goodpasture Island Road, with two supporting sensors located north of this location. Specifically, the VMS will be on a sign bridge constructed near milepost 1.40. Pole mounted radar sensors will be installed on the eastern-most shoulder of northbound Delta Highway at approximately milepost 0.50 and milepost 1.05 (the specific location of the sensors is to be determined). A pole mounted camera is proposed to be located on the west side of Delta Highway, near the VMS sign location.

Project Description: The project will address ongoing and increasingly unsafe congestion problems on Delta Highway at and near the Beltline Highway interchange. Traffic volumes have exceeded capacity on the Beltline bridges that cross the Willamette River, leading to slowed traffic during peak traffic periods. The result is the formation of queues on the ramps at Delta Highway that routinely extend onto mainline Delta Highway and reduce high volume traffic flow to a near stand-still. The combination of high volumes, high speeds, and queuing leads to sudden congestion and numerous rear-end collisions. Of 309 collisions that occurred for the years 2002 to 2006, according to ODOT's Crash Analysis and Reporting Unit, 239 were rear-end collisions (north and southbound traffic). This represents 78% of all crashes for the five-year period.

The system would include an automated VMS with traffic speed detection control, 24-hour traffic counting and monitoring, data transmission, and a fiber optic network. The system would use radar to detect traffic volume and speed, and communicate with the VMS being installed on Beltline Highway just west of River Road. The VMS would be triggered by defined travel speeds via two radar sensors, providing real-time motor travel information about congestion on both Delta and Beltline Highways. This will alert motorists to congestion ahead, slowing traffic and allowing the option to choose alternate routes. A closed-circuit television camera will also monitor traffic and provide live video to the ODOT traffic operation centers in Salem and Glenwood, and to travelers using ODOT's Tripcheck.com.

The system will allow ODOT and Lane County to not only reduce congestion and improve safety on both Beltline and Delta Highways, but could improve coordination and response times to disasters and other emergencies. The VMS could be used for communications about accidents and Amber Alerts. It will also provide accurate 24-hour traffic counts that can be used for traffic impact analysis, long range transportation planning, and regional corridor studies and improvements planning.

The multi-functionality and intercommunication of two VMS systems make this an excellent candidate for an innovative demonstration project.

Project Costs	Amount
1 Project Administration	\$30,000
2 Preliminary Engineering	\$91,000
3 Right-Of-Way	\$15,000
4 Construction Engineering	\$492,590
Construction, Other (Software, equipment, service	
5 contract, etc.)	\$361,500
Sub-Total	\$854,090
Project Contingency (20% of Construction)	\$170,818
6 Total Construction	\$1,024,908
Construction Engineering / Project Management	
7 (20%)	\$204,982
8 Project Evaluation	\$25,000
PROJECT GRAND TOTAL	\$1,390,890

Certification Statement:

I certify that Lane County, by **Board Order 08-6-25-10**, supports the proposed project, has the legal authority to pledge matching funds, and has the legal authority to apply for project funds. I further certify that any proposed matching funds are available or will be available for the proposed project. I understand that this is not a grant application, that it is a request for reimbursement through the federal aid system, and that all federal rules for contracting, auditing, and payment will apply to this project.

Signature

Date

**Printed
Name**

Jeff Spartz

Title

Lane County Administrator