



## MEMORANDUM

**TO:** Southwest Washington Regional Transportation Council Board of Directors  
**FROM:** Matt Ransom, Executive Director   
**DATE:** June 24, 2014  
**SUBJECT:** Vancouver Area Smart Trek (VAST) Report

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### AT A GLANCE - INFORMATION

*This informational item is the annual report on the VAST Program, its recent accomplishments and ongoing activities. The VAST Program has been one of RTC's ongoing programs since 2001. It links ITS technology and infrastructure projects with agency collaboration to improve the operation of the transportation system.*

### INTRODUCTION

The purpose of this memo is to summarize the accomplishments of the VAST Program in the last year, outline future activities, and provide the annual program update to the RTC Board.

The Vancouver Area Smart Trek (VAST) program is a partnership of transportation agencies in the Clark County region established to improve transportation system performance by collaborating on signal systems, freeway and arterial management, and traveler information projects through the use of smart technology and the system infrastructure needed to support it. RTC has managed the program since 2001 assisting partner agencies in identifying and developing operational projects to benefit the region. The VAST agencies are WSDOT, Clark County, City of Vancouver, C-TRAN, City of Camas, and RTC.

VAST promoted strategies and the supporting technology focus on operational and multimodal approaches to make better use of existing transportation facilities by improving system efficiency and performance. Project improvements leverage technology without adding new roadway capacity and represent the non-capital component of the regional transportation program. VAST strategies can include a wide range of projects such as: traveler information, freeway management, arterial management, coordinated incident management, and transit signal priority. These strategies were prepared as part of the region's adopted Transportation System Management and Operations (TSMO) plan which support regional transportation goals by improving travel time reliability, reducing crashes, improving transit on-time performance, and by reducing travel delay, fuel use, and air pollution. The VAST Program recognizes the need for greater coordination between transportation operations and the underlying ITS technology to present an integrated transportation operations program.

RTAC members heard the annual update and endorsed the VAST Program activities at their meeting on June 20<sup>th</sup>. RTC's management and coordination of the program is funded by the federal Surface Transportation Program and programmed in the 2014-2017 TIP. As authorized by RTC Board Resolution 05-14-09, adopting the FY2015 Unified Planning Work Program, the

Executive Director will enter into an agreement with WSDOT Local Programs to obligate previously granted STP funds for the VAST Program over the next three years.

## **FEDERAL REQUIREMENTS**

The ITS element of the VAST program meets federal requirements for planning, development, and implementation of ITS projects. Federal regulation 23 CFR 940 requires that regions develop and maintain a regional ITS architecture to ensure that ITS technology projects are interoperable and that it must include participation from transportation stakeholders so that projects are coordinated and integrated. The TSMO element directly supports the federal Congestion Management Process (CMP) by providing regional services to agency partners to improve transportation performance by collaborating on operational strategies. Federal regulation 23 CFR 450.320(c) for the CMP requires that agencies collaborate to utilize operational management, demand management, transit, and ITS technology to address travel demand before adding roadway capacity.

## **REGIONAL COLLABORATION**

The successful implementation of operational strategies requires cooperation between transportation agencies and interoperability between intelligent transportation system (ITS) technologies.

The VAST Steering Committee, made up of the partner agencies, is the forum for discussing transportation operations and technology and has been both a successful collaboration and an effective way for the agencies to coordinate on project delivery, joint project funding, monitoring project development, and project integration. RTC also manages the VAST Communications Infrastructure Committee (CIC) which was formed in 2004. The CIC addresses the sharing, maintenance, and standards for communications infrastructure, and equipment is made up of both transportation and communications technical staff from the VAST agencies. The VAST program is funded primarily through federal grants and has resulted in projects that benefit individual transportation agencies and the Clark County region. This agency cooperation has resulted in a valuable pathway for developing and securing funding for ITS/operations projects totaling more than \$21.7 million in federal funding since 2001.

A wide range of projects to improve transportation operations and modernize the supporting communications and technology have been funded since the initiation of the program. They include central signal system upgrades, new signal controllers, signal optimization projects, freeway detection, cameras, variable message signs, and transit signal priority as well as the fiber communications needed for connecting ITS devices and infrastructure.

## **RECENT VAST PROGRAM ACCOMPLISHMENTS**

### Successful Partnerships

VAST agency collaboration and federal funding through RTC has led to successful partnerships and the implementation of projects to benefit safety, improve operations, and provide

information to the traveling public. The following examples demonstrate some of the more visible partnerships.

- *Target Zero Safety Award:* In April, the Clark County Public Works Department was the 2014 recipient of a Washington State Target Zero Safety Award for County traffic signal optimization projects, funded by federal grants distributed through the VAST program. The modernization of the County's signal system has improved safety and operations at their intersections. Clark County and RTC staff attended the Target Zero Awards ceremony in Lacey, Washington on April 16.
- *Bi-state Travel Time Project:* RTC has also programmed funds for the Washington portion of the Bi-state Travel Time project, a joint collaboration between the Washington and Oregon Departments of Transportation which will provide real-time travel information to the public along the I-5 and I-205 corridors in the Vancouver/Portland region. The project will consist of a combination of white on green guide signs showing travel times via alternate routes to specific destinations as well as the utilization of the existing variable message signs (VMS). The guide signs will be located at route decision points while the VMS will display travel times for specific destinations along a route. RTC, through its responsibilities under the VAST program, has worked closely with the two states on project development, resolving technical issues on data sharing and route and destination information and has planned and facilitated meetings between the two transportation departments. The current schedule calls for VMS destination times to be active by the end of the year with the route choice travel times by the middle of 2015.
- *Regional Transportation Data Archive:* Beginning in 2013, the VAST agencies established a new partnership with Portland State University to become a part of the regional transportation data archive known as Portal. The Portal archive contains, in a single location, historical and real-time transportation data from agencies in the Vancouver-Portland region. This one-stop information warehouse can be used by researchers, planners, traffic engineers, and the public to look at multimodal transportation performance throughout the region.

To date in 2014, RTC has worked with Portal staff and VAST agencies to implement several enhancements to the archive site, including infill of missing speed and traffic data on the WSDOT freeway system and the addition of new Clark County traffic count data from their arterial detection stations. By end of 2014, a concept of operations to display C-TRAN transit data will be complete with transit data added to the Portal site in 2015.

- *TSMO Pilot Project:* Phase one of the TSMO pilot project on Andresen Road and Mill Plain Boulevard was completed in 2013. It installed Bluetooth and other roadway detection devices to supplement existing traffic detection in the corridors. The first step was to evaluate the new technology and preliminary analysis has shown that the data collection technology has been successful in providing 24/7 arterial performance information including travel times, vehicle origin-destinations, volumes, and vehicle classification.

Phase two, which will provide additional operational improvements and detailed before and after analysis of performance, is currently underway.

### Agency Projects Programmed in 2013

RTC worked closely with the VAST agency partners to identify projects and develop funding applications for the partner agencies. The TSMO Plan contains an implementation strategy that connects the planning process with project implementation. RTC's role in regional collaboration on operations planning is intended to identify the best operational projects, while the partner agencies are responsible for project delivery. Operational projects programmed last year include the following:

- *SR-503 Incident Management and Traveler Information (WSDOT):* Expand WSDOT's existing traveler information system on SR-503. It will install arterial VMS, data stations, and traffic cameras, and collect corridor segment travel times as well as vehicle volumes, speed, and classifications. It also funds a related effort to investigate the various options of a demand responsive or adaptive signalized corridor on SR-503 between Fourth Plain Boulevard and NE 119th Street. *\$951,500 CMAQ; \$148,500 local*
- *Highway 99 Traffic Responsive Incident Management Project (Clark County, WSDOT):* Improve reliability and reduce the impact of incidents in the I-5/Hwy 99 corridor through an integrated corridor management process that will automatically respond to changes in traffic demand. *\$368,000 CMAQ; \$202,000 local*
- *Orchards Signal Optimization (Clark County, WSDOT):* Phase two of the Orchards project to improve mobility, travel reliability, and reduce congestion for regional corridors with further expansion and implementation of integrated and interconnected signal systems. *\$1,052,000; CMAQ; \$3,796,000 local*
- *Highway 99 Transit Signal Priority (C-TRAN, Clark County, Vancouver):* Improve on-time performance and increase reliability for transit vehicles in the corridor by implementing transit signal priority in the Hwy 99 corridor. *\$140,000; CMAQ; \$35,000 local*
- *Regional Communications Plan (RTC, VAST Agencies):* RTC, in coordination with the VAST regional partner agencies, is updating the regional ITS Communications Plan, now over 10 years old. It will assess the communications architecture approach for Clark County, City of Vancouver, and WSDOT traffic networks, current regional ITS network deployment efforts and needs, and combine them into a cohesive regional strategy. *\$43,000 STP, \$7,000 local*

### Intelligent Transportation Systems

In addition to the regular ITS activities carried out through the Steering Committee and Communications Committee, other key activities under the program include:

- *Shared Fiber and Communications Assets:* VAST agencies have had a Communications and Interoperability Agreement in place since July 2006 that authorizes agencies to enter into fiber asset sharing permits. The agreement has led to better use of existing fiber and communication equipment by sharing available capacity among agencies. In total, twenty nine sharing permits affecting 101 miles of fiber have saved from \$15.2 to \$18.8 million compared to the VAST agencies building these projects separately.
- *Communications Asset Management Software:* The VAST agencies utilize shared mapping software that displays communications fiber and equipment as well as their detailed

attributes. This asset management tool facilitates and supports fiber sharing among WSDOT, City of Vancouver, and Clark County and allows agencies to manage their own assets more effectively. The agencies can easily review the fiber and communication network, fiber ownership, capacity, and availability. RTC successfully programmed funds for a major update to the OSPInSight fiber management software to review the accuracy of the existing database and to add newly constructed fiber projects. This effort is being initiated this summer.

## **FUTURE PROGRAM**

The VAST Program will continue the coordination and management of ITS and operations related activities. Emphasis areas include providing support to partner agencies on: transportation operations and planning; ITS projects, communications and integration; managing the TSMO/ITS committees; assisting in the development of funding applications for operational and ITS projects; coordinating on performance measurement of operational projects and ensuring that projects are interoperable. Key activities consist of:

### Operations

Work activities include the following elements: TSMO Plan implementation, support for the TSMO Pilot Project, maintenance of the regional Intelligent Transportation System Architecture, and maintain and enhance the Portal transportation data archive.

Continued implementation of the Regional TSMO Plan will involve several elements. TSMO corridors will be monitored and updated as needed to reflect changing conditions. The 10-year TSMO Implementation Plan is used to identify projects and carry out operational improvements in the region. RTC will coordinate regularly with TSMO partners to develop guidelines and protocols for regional operations. Performance measures will be further developed for evaluating operations and identifying TSMO effective strategies.

Stage two of the TSMO Pilot Project is underway. It evaluates the new transportation technology and provides additional operational improvements. Key elements of the phase two work by the end of 2014 include:

- Upgrades to the central signal system software that will let traffic engineers assess when vehicles arrive at an intersection during a signal green phase to better analyze and time signal timings.
- Creating the data and physical network connections and automatically push transportation data to the Portal data archive.
- Before and after analysis, for final evaluation of the blue tooth data collection technology implemented in phase one, and for measuring changes to the transportation performance of the corridor. RTC will lead the before and after analysis for the Pilot Project including lessons learned.

RTC updated the Regional ITS Architecture in 2012 and is responsible for its maintenance and ongoing updates. RTC will coordinate with partner agencies so that the regional architecture is

included in project development. The ITS architecture benefits agencies to ensure cost efficiency and better effectiveness of operational projects.

RTC will build on the Portal accomplishments completed in 2014. A scope of work for 2015 will be developed in coordination with the VAST partners and PSU. Key objectives for next year include publishing C-TRAN transit data, expanding arterial data coverage and linking Portal with the performance measures used for the Congestion Management Process. The data archive will support performance measurement, monitoring of system operations, and analysis of improvement strategies.

#### Intelligent Transportation Systems (ITS)

RTC will continue to manage the VAST Steering Committee and Communications Infrastructure Committee. Other ITS related activities anticipated in the next year include:

- Continue the expansion of communications infrastructure sharing between VAST agencies
- Maintain and update the shared fiber asset database management system
- Identify additional funding opportunities
- Continue development of and agreements on fiber, equipment, and infrastructure standards

Intelligent transportation system technical assistance to RTC and the VAST partner agencies has been provided by consultant services over the last several years. The VAST program will continue to utilize technical assistance and support the PSU data archive in carrying out the activities described above.

#### **POLICY IMPLICATION**

The VAST program meets federal requirements for the Congestion Management Process, the Regional ITS Architecture and ITS projects. The VAST program is also consistent with the traffic operational efficiency goals in MTP, TIP, and the UPWP.

#### **BUDGET**

The budget for the coordination and management of the three year VAST Program Coordination and Management is \$519,750 which is funded by \$450,000 in federal Surface Transportation Program funds and \$69,750 in local match. These STP funds are already programmed in the 2014-2017 Metropolitan Transportation Improvement Program, adopted by the RTC Board on October 1, 2013. The three year program budget consists of \$219,750 in agency funds, \$180,000 in technical assistance, and \$120,000 for the PSU data archive.

#### **NEXT STEPS**

The Executive Director will execute an agreement with WSDOT local programs to obligate previously granted federal STP funds for the VAST Program.