



MEMORANDUM

TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Matt Ransom, Executive Director
DATE: October 31, 2017
SUBJECT: Vancouver Area Smart Trek (VAST), Annual Program Update

AT A GLANCE

This informational item is the annual update 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 provide the annual program update to the RTC Board on the accomplishments of the VAST Program in the last year and an outline of future program activities.

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, traveler information, and transit signal priority 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.

The Program focuses on strategies and the supporting technology that implement operational and multimodal approaches that make better use of existing transportation facilities by improving system efficiency and performance. They represent the non-capital component of the regional transportation program and emphasize improvements that leverage technology to manage the system without adding new roadway capacity. The operational strategies were prepared through the region's 2011 Transportation System Management and Operations (TSMO) plan which supports 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 2016 TSMO Plan Update tracked advances in technology and operations since 2011, identified emerging issues, such as connected and autonomous vehicles, and laid out strategies for implementation over the next five 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 VAST Program recognizes that the successful implementation of operational strategies requires cooperation between transportation agencies and interoperability between intelligent transportation system (ITS) technologies.

The VAST Steering Committee discusses 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). The CIC, which addresses 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 resulting in a valuable pathway for developing and securing funding for ITS/operations projects totaling more than \$27 million in federal funding over the last 15 years. A wide range of projects to improve transportation operations, and to build 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 and arterial detection, cameras, variable message signs, and transit signal priority as well as the fiber and network communications needed for connecting ITS devices and infrastructure.

RECENT VAST PROGRAM ACCOMPLISHMENTS

Agency Projects Programmed in 2016

The TSMO Plan connects the planning process with project implementation. RTC's role in operations planning is intended to identify the best operational projects in coordination with the partner agencies, while the agencies are responsible for project delivery. RTC works closely with the VAST agency partners to identify projects and develop federal funding applications that leverage local funds for the partner agencies.

Operational projects programmed in 2016 are listed in the table below:

Project	Agency	Summary	CMAQ	Local
STEVE 2	Clark County	Expansion of bluetooth travel time data collection and dashboard for operational analysis.	\$343k	\$117k

Small Cities ATMS	Battle Ground, Camas, and Washougal	Expand Clark County/WSDOT central signal system to include the small cities.	\$277k	\$95k
Central Signal System Hardware Upgrades	WSDOT	Area wide field upgrades to old signal controllers and cabinets in readiness for ATMS central signal software shared with County and improved signal coordination and analytics.	\$354k	\$121k
Urban Freeways Operations Study	RTC	Analyze and identify near term operational and system management improvements to make the transportation system operate more efficiently and predictably.	\$150k	\$23k
		<i>Total</i>	<i>\$1,124k</i>	<i>\$356k</i>

Successful Partnerships

VAST agency collaboration and federal funding through RTC has also led to successful agency partnerships. The following examples demonstrate some of the more visible projects.

- *Regional Transportation Data Archive:* RTC and the VAST agencies have an ongoing partnership with Portland State University in 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 information warehouse can be used by researchers, planners, traffic engineers, and the public to look at multimodal transportation performance throughout the region. In 2017, RTC worked with Portal staff and VAST agencies to implement enhancements to the archive site.

Two new data sources were added to the archive:

- Travel time information from County Bluetooth sensors.
- Arrival on green data, used to analyze signal coordination along a corridor.

While this data is currently being archived, 2018 will see them added to Portal visualizations for users.

The existing highway corridor speed graph has been updated to allow the user to select time of and segment length for analysis.

- *Shared Communications Fiber and Asset Management:* 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.

The VAST agencies have a shared GIS database that displays communications fiber and equipment as well as their detailed attributes. This asset management tool facilitates and supports fiber sharing among partner agencies and also allows them to manage their own

assets more effectively. The agencies can easily review the fiber and communication network, fiber ownership, capacity, and availability.

2016 TSMO PLAN

RTC and the VAST agencies completed an update to the VAST TSMO Plan late last year which was first developed and adopted by the RTC Board in May 2011.

The purpose of the 2016 TSMO Plan is to guide the implementation of operational strategies and supporting Intelligent Transportation Systems (ITS) technologies for Clark County in Southwest Washington and presents a strategic framework for accomplishing transportation system management objectives. It also supports future ITS technology investments and capital improvements necessary to accomplish those objectives.

This 2016 Plan update is a 5-year look that better reflects both the nature of TSMO strategies as viable near-term solutions to operational deficiencies, as well as the rapid evolution of ITS technologies and operations practices. The following sections provide a highlight of the Plan elements.

Regional TSMO Vision

TSMO provides options to address transportation needs where conventional transportation investments may be cost prohibitive, infeasible, or undesirable. In this way, TSMO is complementary to other regional transportation strategies and should be considered an integral part of the region’s toolkit to address existing and future needs. The TSMO Vision is to: *develop and implement strategies that promote more efficient and cost-effective use of the existing transportation system, providing increased accessibility, reliability, and safety for people and freight.*

Emerging Issues and Trends

The 2016 plan update identified current and emerging operations issues and trends that are impacting the direction of transportation systems management and operations in the region. These issues have been taken into consideration in the update of the TSMO strategies toolkit. The following is a partial list of trends identified in the Plan and how the region and VAST agencies have responded with associated projects, programmed initiatives, and planned activities. These issues will need to be revisited periodically because of the evolving nature of transportation technology.

Emerging Issues and Trends	Related TSMO Project or Initiative
Supporting Emerging Operational Strategies	<p>C-TRAN began SR-14 bus on shoulder operation on October 23, 2017 as an 18 month demonstration.</p> <p>WSDOT has funds programmed to implement ramp meters on SR-500 to I-205 north and Mill Plain to I-205 north</p> <p>WSDOT completed the Clark County Ramp Meter Study for planning and identification of metering on freeway corridors.</p> <p>RTC programmed funds for an Urban Freeway Operations Study and is partnering with WSDOT for additional funding, a work scope and budget. Study analysis will include</p>

	<p>advanced traffic management, integrated corridor management, and enhanced transit operations. Outcomes will include recommendations on an integrated set of improvements and strategies for implementation.</p>
Bi-State Coordination	<p>The bi-state travel time information project was implemented by WSDOT and ODOT in 2015. Travel time is available on roadside variable message signs and on WSDOT traveler information page.</p> <p>HOP Fastpass, the new integrated regional electronic transit fare collection system between C-TRAN and TriMet, began in September 2017.</p> <p>In July this year, Clark County began sending traffic and signal data to the PORTAL regional transportation data archive over the bi-state interagency ITS fiber network.</p>
Opportunities for Collaborative Initiatives and Shared Infrastructure	<p>Build upon current collaboration in shared fiber/communications infrastructure, video sharing, and bi-state travel time.</p> <p>VAST Agencies have continued to expand fiber sharing permits with 37 permits signed since 2006 with 115 miles of shared fiber assets.</p>
Regional Performance Measurement	<p>Performance measurement can leverage data generated by ITS field systems and aggregated through the PORTAL regional data archive. Portal continues to evolve with improved data quality and expanded information.</p>
Smart Cities	<p>The application of information technology to increase the connectivity and intelligence of urban infrastructure. This concept, referred to as “Smart Cities”, envisions integrated urban infrastructure to provide real-time monitoring, information, user feedback, and performance measurement. The result is a safer, more efficient, and more user-responsive urban infrastructure.</p> <p>RTC is sponsoring a Smart Cities workshop on December 6 and 7, 2017. The first day of the workshop will begin discussion of the Smart Cities concept and how it might apply to the region.</p> <p>More information about the Smart Cities workshop is described in the next section of this memorandum.</p>
Connected and Autonomous Vehicles (CAVs)	<p>Connected and autonomous vehicles (CAVs) could have a profound impact on the surface transportation system. A substantial amount of activity is currently underway to develop technologies, industry partnerships, technical standards, and policy frameworks to support the implementation of CAVs.</p> <p>Day 2 of the workshop will cover how agencies can “future proof” infrastructure to accommodate CAVs as devices and standards and will also discuss autonomous policies being considered or adopted by other public agencies.</p>
Quality, Integration, and Open Sharing of Transportation Data	<p>Transportation data is an increasingly important asset to be managed and leveraged to achieve public benefits. An example is the use of highway and transit agency data by third-party mapping applications to provide multi-modal trip planning and real-time traffic and service conditions.</p> <p>The role of public agencies in this effort also will be examined at the December Workshop.</p>

ONGOING PROGRAM

The VAST Program will continue the coordination and management of ITS and operations related activities which includes 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
- Ensuring that projects are interoperable

In addition, RTC will continue to manage the VAST Steering Committee and Communications Infrastructure Committee and in the next year will 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

The VAST program will continue to utilize technical assistance and support the PSU data archive in carrying out the activities described above.

SMART CITIES WORKSHOP

RTC is hosting a Smart Cities Workshop on December 6 and 7 at the Rose Besserman room at C-TRAN's Fisher's Landing Transit Center. The workshop is split into two sessions.

The overall objective of the workshop is to present high level discussion around Smart Cities in general, provide more detailed discussion around transportation focused Smart Cities initiatives, and review regional initiatives already underway.

The desired outcomes are to define why we care about Smart Cities, to educate regional policy makers and transportation professionals, and begin group discussion around Smart Cities with a focus on mobility. Session 1 discussion will also guide issues for discussion for Session 2 participants the following day.

Session one, on December 6, will be about 1.5 to 2 hours long and will include a broad set of participants. It is intended for policy makers, managers, and other practitioners. It provides an introduction to Smart Cities by asking, "What is a Smart City?" The concept of a smart city is to integrate information and communications technology to better manage a jurisdiction's assets and services for the community. Speakers will talk about the meaning of smart cities, some of the concepts already underway in the bi-state region, followed by a discussion of how it might apply to the Vancouver region with an emphasis on the transportation sector.

The second session, on December 7, will be 2.5 to 3 hours long. It pick up where Session 1 left off and will have two breakout sessions for more focused discussion on: technical issues around connected vehicles and policy and planning issues around autonomous vehicles. This session

will review regional initiatives already underway and discuss if local and regional policies exist and/or should be developed.

A 'Save the Date' announcement about the workshop will be available at the November Board meeting.

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