

Vancouver Area Smart Trek (VAST)

Annual Program Report FFY 2022

A regional partnership of:



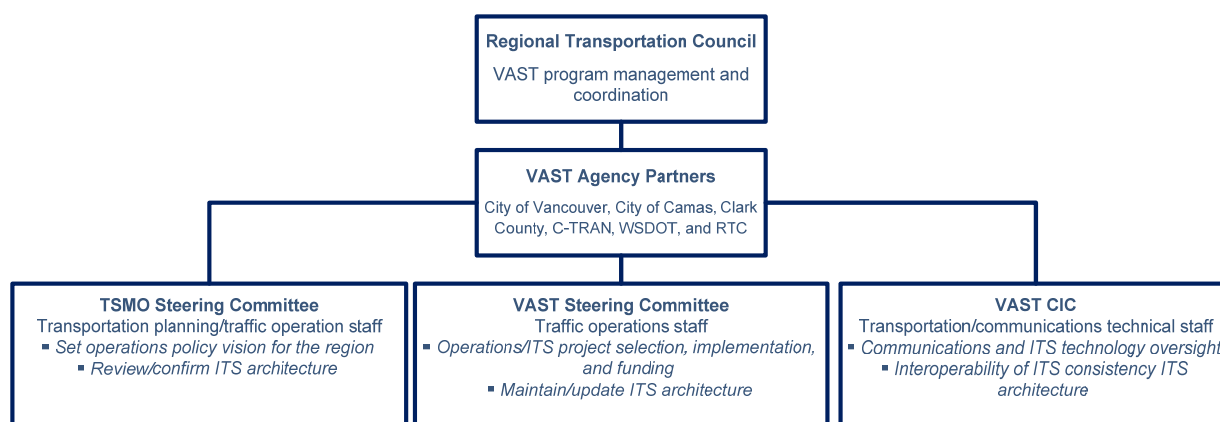
TSMO Vision for Clark County

Transportation System Management and Operation (TSMO) strategies promote more efficient and cost-effective use of the existing transportation system, providing increased accessibility, reliability, and safety for people and freight.

INTRODUCTION

The [VAST Program](#) (Vancouver Area Smart Trek) was established in 2001 and is a coalition of state, regional, and local agencies that have been actively working together to address the region’s transportation needs through Intelligent Transportation Systems (ITS) and traffic operations solutions. The VAST/TSMO (Transportation Systems Management and Operations) Program focuses on low-cost operational and ITS technology approaches that make better use of existing transportation facilities by improving system efficiency and performance and leverages technology to manage the system without adding new roadway capacity.

VAST Program Structure



RTC implements the program in coordination with the City of Vancouver, WSDOT, Clark County, C-TRAN, and the City of Camas. RTC staff manage the VAST/TSMO Steering Committee (SC) and the VAST Communications Infrastructure Committee (CIC).

The TSMO Plan sets the policy and performance guidelines for the consideration of regional operational strategies in Clark County. The 2016 update laid out strategies for the continued implementation of operational strategies over the next five to ten years. The Regional Communications Plan describes the communications and network needs that are critical components of the regional transportation system and are fundamental to connecting management centers with field equipment that facilitate regional mobility. The ITS Regional Architecture provides a framework for integrating existing and planned ITS systems for transportation agencies in the region. Fiber is shared between agencies through a permit process.

Program Activity	Status	Next Update
TSMO Plan	2016	2025
Regional Communications Plan	2016	2023
ITS Regional Architecture	2022	2027
Fiber Sharing Permits	Current	Ongoing

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 include participation from transportation stakeholders so projects are coordinated and integrated. The TSMO element of the program directly supports the federal Congestion Management Process (CMP) by providing regional services to partner agencies to improve transportation performance by collaborating on operational strategies. Federal regulation 23 CFR 450.320(c) of the CMP requires that agencies collaborate to utilize operational management, demand management, transit, and ITS technology to address travel demand before adding roadway capacity. In addition, a Memorandum of Understanding (MOU) executed between WSDOT, C-TRAN, and RTC ensures that planning and deployment of ITS projects and operations are consistent and integrated with the ITS vision for the Clark County region.

MODEL for REGIONAL COLLABORATION

The VAST Program recognizes that successful implementation of operational strategies requires cooperation between transportation agencies and interoperability between ITS technologies.

The VAST Steering Committee discusses transportation operations and technology and has been successful at collaboration and an effective way for the agencies to coordinate on project delivery, joint project funding, monitoring project development, and project integration. The VAST Communications Infrastructure Committee (CIC) addresses sharing, maintenance, and standards for communications infrastructure and equipment and is made up of both transportation and communications technical staff from the VAST agencies.

Successful Partnerships

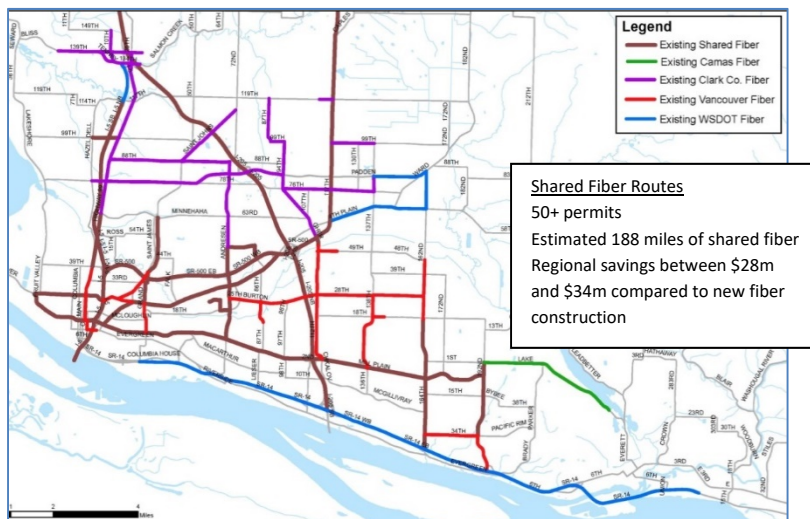
VAST agency collaboration and federal funding through RTC has led to successful agency partnerships. The following examples demonstrate some of the more noteworthy efforts.

Regional Transportation Data Archive: RTC and the VAST agencies have an ongoing partnership with Portland State University to support the regional transportation data archive known as Portal (<http://portal.its.pdx.edu/home/>). The Portal archive contains, in a single location, historical and real-time transportation data from agencies in the Vancouver-Portland region. This information warehouse is used by researchers, planners, traffic engineers, and the public to look at multimodal transportation performance throughout the region.

2022 efforts focused on improving the quality and usability of the existing data. Some of the improvements included adding improved functionality of the freeway data and visualization of C-TRAN data.

Shared Communications Fiber: VAST agencies have a Communications and Interoperability Agreement, in place since July 2006, which authorizes agencies to enter into fiber asset sharing permits. The agreement has led to better use of existing fiber and communications equipment by sharing available capacity among agencies.

- Asset Management:** The VAST agencies use a shared GIS mapping cloud database (OSPInsight) 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 allows them to manage their own assets more effectively. While the software has been a valuable tool for tracking and sharing fiber assets, it has been difficult to access from outside the county network where the database is located. The VAST partners migrated to a full web-based cloud interface that seamlessly allows any approved user to easily view the fiber and communications network, fiber ownership, capacity, and availability.



VAST Agency Fiber by Ownership and Shared Routes

VAST PROGRAM AGREEMENTS

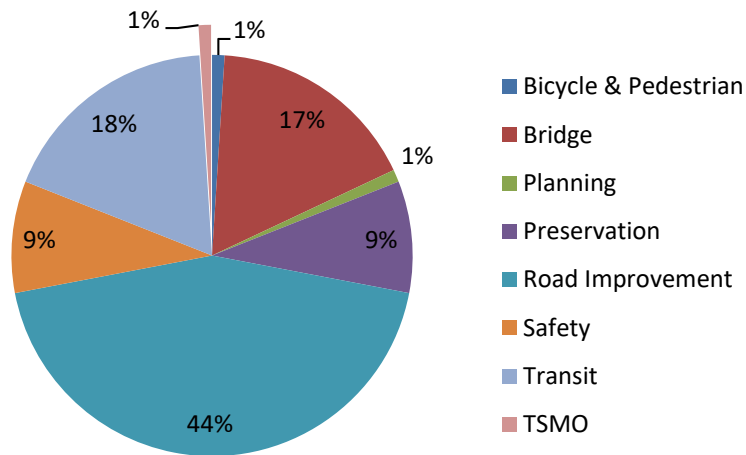
The VAST agencies adopted a memorandum of understanding (MOU) in 2001 that outlines how agencies collaborate on ITS project coordination, integration, review, guidance, and endorsement. It also ensures the communications network for VAST is integrated. A Communications MOU, executed in 2004, addresses the use, sharing, maintenance, and standards for communications infrastructure and equipment. VAST agreements are summarized below.

Agreement	Entities	Status
Memorandum of Understanding (MOU) Defines how the agencies work together on ITS policy, plans, programs, and projects. <i>Formed the VAST Steering Committee</i>	Clark County WSDOT C-TRAN Vancouver RTC	Ongoing
MOU for Communications Similar to first MOU but focused on communications infrastructure. Defined how partners work together on ITS infrastructure and devices. <i>Formed the Communications Infrastructure Committee</i>	Same as above	Ongoing
Communications Interoperability Agreement Gives authority at staff level for entering into fiber and communications sharing agreements, or permits, to the CIC for use by VAST agencies.	Same as above	Periodic amendments to update contract managers, permit format, etc.
MOU with C-TRAN, WSDOT, and RTC Ensures that planning and deployment of ITS projects and operations are consistent and integrated with the ITS vision for the Clark County region.	Same as above	Periodic review
OSPInsight License Use Agreement A cloud web-based database mapping tool used and shared among all VAST agencies. Tool displays communications fiber and equipment, as well as their detailed attributes. Supports fiber sharing among agencies, and allows agencies to manage their own assets more effectively.	Same as above	Annual licensing review

VAST Funding

The VAST program is funded primarily through federal grants with local matching funds. It has resulted in projects that benefit individual transportation agencies and the Clark County region, resulting in a valuable path for developing and securing funding for ITS/operations projects. A wide range of projects to improve transportation operations and build the supporting communications and technology have been funded since the initiation of the program. They have included 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. These investments are a small, but effective part of the overall transportation funding program. The 2023-2026 TIP, for example, has \$512 million in programmed projects. The TSMO category made up about 1% of the total program.

Percentage of Dollars Programmed by Project Type (\$512M total)



Recently Implemented Projects

I-205/NB Mill Plain On-Ramp Meter

This project installed a northbound on-ramp meter system at I-205 and Mill Plain to improve I-205 mainline traffic flow. The initial results show increased travel reliability by maintaining vehicle throughput, which has resulted in mainline travel time reduction of 15 seconds, or roughly 16%. Northbound I-205 speeds have increased approximately 3 miles per hour during the evening commute.

Centralized Signal System Enhancements

This project expands the capabilities of the regional traffic signal Advanced Traffic Management Systems at various intersections along NE 117th Avenue in Orchards. Eight traffic signals from NE Fourth Plain Boulevard to NE 99th Street have operational enhancements that include upgrades to existing traffic signal hardware; data collection capabilities (volume, occupancy, signal performance measures); and improved intersection surveillance. This improvement will allow WSDOT to actively manage signal timing through the corridor.

Shared Central Signal System Study

The Southwest Washington Regional Transportation Council (RTC) and the Washington Department of Transportation (WSDOT) evaluated options to operate a shared signal system. The purpose of this project was to evaluate the existing and future central traffic signal system functions in the Southwest Region of Washington and to develop a solution to actively manage the traffic signals across the jurisdictional (and central system) boundaries and share signal operations resources from the WSDOT joint traffic operations center.

Regional Intelligent Transportation System Architecture Plan

The study updated the current ITS architecture, especially for connected and autonomous vehicles. The ITS architecture is a regionally focused summary of all ITS strategies, systems, and connections operated and/or planned by the VAST region's agency partners and provides a framework for understanding and simplifying more complex relationships among the transportation agencies that share information and technologies to operate and maintain the transportation system.



WSDOT Operations Center

Recently Obligated Projects

Cambridge Systematics/TomTom Data

The region has purchased three years of transportation travel time and origin-destination data analytics. This data is intended to benefit local agencies by proving insights into traffic operations.

Signal Timing, Evaluation, Verification, Enhancement – Phase 2

Adds ITS devices to additional county intersections, develops performance reports, and improves connection to regional data warehouse.

Systemwide Signal Enhancement

Integrates existing Clark County and Washington State Department of Transportation data streams into a dashboard view of transportation system performance measures.

I-205 SB 134th St. to Mill Plain Blvd. Ramp Meter

Installs ramp meters, signals, cameras, and associated electric work on I-205 southbound ramps.



WSDOT Ramp Meter

Programmed Agency Projects

The following projects are programmed in the 2023-2026 Transportation Improvement Program:

SW Washington Joint Operations Center (JOC): Builds on WSDOT’s operations center by expanding staff for 24/7 operation to actively manage the regional transportation network in a real-time environment.

Southwest Washington Regional Signal System: Enhances active traffic management systems capabilities at intersections on WSDOT arterial corridors.

Salmon Creek/Hazel Dell Adaptive Signal Operations: Implements adaptive signal operations, including the installation of radios, cameras, and modification of detection systems in the Salmon Creek and Hazel Dell area.

Orchards Sifton Adaptive Signals: Adds adaptive devices to county intersections in the Orchards and Sifton area.

SR 500, I-5 at 39th St.–Corridor Connection: Improves access from westbound SR 500 to northbound I-5 by constructing a right-turn lane from E 39th St. to I-5 Northbound ramp.



I-205 at Mill Plain Ramp Meter

Emerging Projects and Trends

The TSMO plan identifies current and emerging operations issues and trends that are impacting the direction of transportation systems management and operations in the region. 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. They will be reviewed by the VAST members in the next year to acknowledge recent and future strategy implementations in the region and to consider potential changes to technology and communications.

Emerging priorities	Discussion
Multi-discipline coordination	<ul style="list-style-type: none"> • Increased importance of multi-discipline coordination to deliver TSMO strategies, both within organizations and among agency partners. • Need internal buy-in within an organization (cultural), as well as operational coordination between agencies, to deliver regional solutions (e.g., deploying shared signals, jointly-operated TMC).
Asset management	<ul style="list-style-type: none"> • Increased need for asset management/construction activities tracking, which supports keeping partner agencies and the public informed about work activities.
Partnering with the private sector mobility providers	<ul style="list-style-type: none"> • Identifying opportunities to partner with private sector service providers to deliver mobility solutions where such opportunities are aligned with the Region’s TSMO vision.
Connected, Automated, Shared, Electric (CASE)	<ul style="list-style-type: none"> • Adapting to and identifying opportunities related to emerging CASE technologies: <ul style="list-style-type: none"> ○ Connected: Impacts to operations, specifically around communications infrastructure (network security, reliability) and roadside technology. ○ Automated: Impacts to planning, considering automated vehicles’ impact on future travel demand patterns and road and curb space needs. ○ Shared: Impacts to policy and planning, considering how best to allocate street and curb space and balance the public and private provision of mobility services. ○ Electric: Emerging area, considering internal fleet and public vehicle charging solutions, planning, design, deployment, emerging standards.
Broadband and 5G	<ul style="list-style-type: none"> • Increased importance of broadband communications and continued expansion of 5G, enabling connected vehicles (CV) and related technologies and opportunities for PPPs to build out fiber for agency use.