



**STAFF REPORT/RESOLUTION**

**TO:** Southwest Washington Regional Transportation Council Board of Directors

**FROM:** Matt Ransom, Executive Director

**DATE:** May 26, 2020 

**SUBJECT:** **Vancouver Area Smart Trek: Shared Central Signal System Study, Resolution 06-20-15**

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**AT A GLANCE - ACTION**

*The action is to authorize the Executive Director to enter into an agreement with WSDOT for \$100,000, facilitating RTC contract management of the Shared Central Signal System Study.*

**INTRODUCTION**

In January 2020, the RTC Board amended the 2020-2023 Transportation Improvement Program to add the Shared Central Signal System Study and program, \$50,000 in federal STBG funds with \$50,000 in local match for the Study to be managed by WSDOT. The Shared Central Signal System Study will analyze existing signal systems and develop guidelines for implementing a shared traffic signal central management system for the region. The Study will also document the systems engineering process for a shared signal system and outline an implementation strategy for future operations and maintenance for managing a regional signal system.

The Shared Central Signal System Study is a critical foundational step in developing initial systems engineering documents and verification and validation plans for WSDOT’s Shared Regional Signals System project, programmed in 2022. Because of the importance of this study to the future WSDOT project, RTC and WSDOT are proposing a partnership which enables the Study to proceed, enabling completion prior to the initiation of the Shared Regional Signals System project.

RTC and WSDOT have developed a cooperative agreement where RTC would be responsible for leading the procurement process, the review and approval of consultant billings and progress reports and overall management. WSDOT would take lead responsibility for day to day consultant management, setting agendas and scheduling meetings with support from RTC. RTC supports member agencies with project management services when possible, and in this instance RTC has the capacity to carry out the consultant procurement process and related management for the study.

**POLICY IMPLICATION**

Adoption of this resolution is consistent with the Vancouver Area Smart Trek Program and supports the federal Congestion Management Process requirement that agencies collaborate to utilize operational management, demand management, transit, and ITS technology to address travel demand before adding roadway capacity. Upon approval, the Study will be incorporated into the FY2021 Unified Planning Work Program.

**BUDGET IMPLICATION**

The proposed is *Additive* to the FY2021 Unified Planning Work Program (proposed) and RTC’s 2020 Work Program and Budget. Action will authorize the RTC’s Executive Director to enter into an agreement with WSDOT for \$100,000, consisting of \$95,000 consultant services and \$5,000 for RTC contract management for the Shared Central Signal System Study.

**ACTION REQUESTED**

Adoption of Resolution 06-20-15 “Vancouver Area Smart Trek: Shared Central Signal System Study.”

ADOPTED this 2<sup>th</sup> day of June 2020, by the Southwest Washington Regional Transportation Council.

SOUTHWEST WASHINGTON  
REGIONAL TRANSPORTATION COUNCIL

ATTEST:

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Scott Hughes  
Chair of the Board

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Matt Ransom  
Executive Director

Attachment: Draft SCSS Study Scope of Work

# **Scope of Work and Budget Vancouver Area Smart Trek Shared Central Signal System**

## **Project Description**

The proposed scope of work describes the tasks needed to document existing and future centralized traffic signal systems for transportation agencies in the Clark County/Vancouver region. This currently is comprised of the following Vancouver Area Smart Trek (VAST) agencies: City of Vancouver, Clark County, WSDOT, and C-TRAN and, in the future, may include other cities in the region. This Study will evaluate corridor operations, develop guidelines for implementing a regional centralized traffic signal management system, and outline an implementation strategy for future operations and maintenance.

The purpose of the project is to clearly outline the goals and objectives for the VAST partners and provide a path to improve operations of the region's traffic signal systems. An improved signal system will help minimize delay, balance congestion, smooth traffic flow, and further enhance the region's capability to implement operations and maintenance strategies that maximize safety, efficiency, and reliability of the traffic signal system.

This scope of work will provide the initial systems engineering documents of the future Shared Regional Signals System project. Final modifications, FHWA approval, and evaluation of the system will be conducted at the time of implementation of the system and are not part of this scope of work. This scope of work does provide for developing the verification and validation plans that will be used to evaluate the system at time of completion.

Tasks 1 to 4 for this scope of work will analyze other shared signal systems including research of existing shared systems and developing and evaluating use cases for the VAST partners. Task 4 will evaluate alternatives and make a recommendation on moving forward with a shared signal system option for the region. Task 5 will apply the recommendations from Task 4 as a basis for development of a Shared Signal System Concept of Operations that will include the goals and objectives of regional stakeholders, architecture of the shared central traffic signal system solution, and system operation and maintenance.

## **Scope of Work**

### **Task 1 – Project Management and Coordination**

Consultant shall manage and coordinate the tasks included in this Scope of Work including budget, scope, and schedule and provide project management activities through the schedule duration noted to coordinate resources in delivering this project. This task also includes project management team meetings, technical advisory committee meetings and agency stakeholder meetings. This task assumes a contract schedule of no more than 12 months.

### **Task 2: Shared System Existing Use Cases**

Consultant shall research two existing shared operation signal systems currently in operation and develop a deliverable listing benefits, advantages/disadvantages, challenges and governance structure of shared operations. Preferably, one of the two use cases will include a group of agencies operating on the Trafficware ATMS.NOW platform similar to the VAST agencies.

### **Task 3: Systems Engineering**

Consultant shall produce Systems Engineering documents in accordance with all Federal Highway Administration (FHWA) Guidelines regarding systems engineering process. Consultant shall coordinate with FHWA Washington Division ITS Engineer to confirm Systems Engineering document deliverables are in compliance with FHWA expectations for procurement using federal dollars.

This shall include working with the regional stakeholders to assess user needs. The needs will be based on the signal system operational objectives and strategies indicated by the regional users of the central signal system.

The user needs assessment will summarize what the users require the centralized signal system must do to meet operational goals. Prior to conducting the User Needs assessment, WSDOT, Clark County, City of Vancouver and other regional stakeholders, including City of Battle Ground, City of Camas, and City of Washougal, will provide the Consultant with a field inventory of communications and controller information. The consultant will consolidate the results of the needs assessment into one document.

Based on the user needs identified as part of this task, three use cases will be developed that describe how the regional partners will use the shared signal system and will be used to evaluate and compare the different signal system solutions. The use cases will also be included in the Concept of Operations. Example use cases could include:

- Freeway incident, traffic is diverting to arterial and the parallel route
- Coordination across agency boundaries
- After hours operation

### **Task 4 Evaluate Shared Signal System Options**

Consultant shall evaluate the purpose, need, and architecture options for a regional shared signal system. The outcome of the evaluation will be a unified multi agency regional operational system. The evaluation will:

- Document and evaluate shared signal system architecture options
- Document evaluation criteria with stakeholder input
- Compare advantages and disadvantages for each option including how well each option meets the goals and user needs, the technical and institutional feasibility, and the costs

- Consider needs for a successful deployment including the potential for a joint operations center
- Provide a recommended alternative

### **Task 5: Shared Signal System Concept of Operations**

Consultant shall develop a draft and final Concept of Operations for the shared regional central traffic signal system. The Concept of Operations will address the goals and objectives of regional stakeholders, architecture of the shared central traffic signal system solution, and operation and maintenance of the shared central traffic signal system.

The concept of operations will include the following elements:

- Purpose and background of the system
- Roles and responsibilities
- Goals and objectives
- User needs
- System operational needs
- Integration requirements with existing hardware
- System support (resources) and operating environment
- Overview of the system
- Operation and maintenance of the system, including resources
- Discussion on location and staffing of a joint signal operations center, including assessment of benefits and drawbacks of a joint signal operations center and recommended high-level operating procedures such as operations during after hours, probable lead agency, operations during incidents that result in diversion.

Consultant shall develop a list of recommended system requirements that can be used for enhancements of the shared system. The Consultant shall also develop a System Verification Plan that will be used by WSDOT to verify system enhancements meet the system requirements.

### **Task 6: RTC Contract Management**

RTC will be responsible for leading the procurement process, review and approve consultant billings and progress reports, ensure that the consultant carries out tasks defined in the scope of work, and the successful completion of the contract. The Study will be coordinated closely with the STATE, who will take lead responsibility for day to day consultant management, setting agendas and scheduling meetings with support from RTC. RTC will also provide advice and other assistance to the STATE as requested for the Study.

<b>Budget by Task</b>	<b>Amount</b>
Project Management and Coordination	\$9,000
Shared System Existing Use Cases	\$10,500
Systems Engineering	\$27,000
Evaluate Shared Signal System Options	\$12,500
Shared Signal System Concept of Operations	\$36,000
RTC Consultant Management	\$5,000
<b>Total Budget</b>	<b>\$100,000</b>

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