



STAFF REPORT/RESOLUTION

TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Matt Ransom, Executive Director *MR*
DATE: March 25, 2014
SUBJECT: **Vancouver Area Smart Trek: Regional Communications Plan, Resolution 04-14-06**

AT A GLANCE - ACTION

The RTC Board is being asked to approve Resolution 04-14-06 to obligate federal Surface Transportation Program (STP) funds and to amend the intelligent transportation system (ITS) technical services contract with IBI Group to update and develop a Regional Communications Plan (RCP) for the VAST agency partners. The RCP will examine the communications architecture, plans, ITS, and traffic networks of the VAST transportation agencies and establish a single cohesive communications vision for the region.

INTRODUCTION

RTC has been responsible for the coordination and administration of the Vancouver Area Smart Trek (VAST) program since 2001. RTC implements the program through the VAST Steering Committee which includes the following partner agencies: City of Vancouver, Washington State Department of Transportation (WSDOT), Clark County, C-TRAN, and the City of Camas. The VAST Program has been a successful and beneficial collaboration for the partner agencies. RTC's role is to provide coordination, management, and deployment of intelligent transportation system (ITS) projects, infrastructure, and equipment to ensure integration and interoperability of projects. The VAST Program recognizes the need for greater coordination between the ITS technology and transportation operations and presents an integrated transportation operations program.

In May 2013, the RTC Board adopted Resolution 05-13-11 to obligate federal STP funds for the 2013-2014 VAST Program. That action also included approval of \$60,000 for technical assistance to the Program. These services have provided a critical level of expertise for VAST agencies in areas such as:

- Management of shared regional communications infrastructure
- Integration of ITS and operations data
- Common standards for ITS communications, equipment, and devices
- On-going support for the Interagency Fiber Agreement and associated permits.

In July 2013, as recommended by the VAST Steering Committee, the RTC Board approved Resolution 07-13-16 for the selection of the IBI Group to provide ITS technical services to the agencies. During the development of the technical services scope of work, the VAST Steering Committee recognized the need to update the Regional Communications Plan; however, at that

time there were no funds identified. Therefore, the technical services scope of work with IBI Group contained language to amend the scope and add a communications plan task should funds become available.

RTC worked with the VAST Steering Committee to prepare a funding application for a Regional Communications Plan and was successful in getting Surface Transportation Program funds programmed in the 2014-2017 Transportation Improvement Program for the Regional Communications Plan.

REGIONAL COMMUNICATIONS PLAN SCOPE OF WORK

The previous Regional Communications Plan was developed more than 10 years ago, and while significant fiber infrastructure has been built, other communications elements such as network architecture, system redundancy, long-term capacity, and centralized versus remote equipment need to be addressed. The scope of work is attached and includes the following major tasks.

- Determine Baseline Existing Conditions, Programmed, and Planned Infrastructure
- Identify User Needs
- Gather Network Engineering Input, Identify, and Define Additional Network Needs
- Confirm and Update Physical Communications Infrastructure

The Regional Communications Plan will identify funding opportunities for communications network expansion and documentation and will also conduct a scan of best practices for other regional multi-agency communications networks.

POLICY IMPLICATION

Adoption of this resolution is consistent with RTC's role and responsibilities in the management and implementation of the VAST program. Adoption of the resolution also provides support for the implementation and integration of the VAST program to meet federal requirements for the Congestion Management System as well as ITS projects. The VAST program is also consistent with the traffic operational efficiency goals in RTP, TIP, and the UPWP.

BUDGET IMPLICATION

The budget for the VAST Regional Communications Plan is \$50,000 which would be funded by \$43,000 in federal Surface Transportation Program funds and \$7,000 in local match. These funds are available and programmed in the 2014-2017 Transportation Improvement Program as adopted by the RTC Board on October 1, 2013. Action on this resolution will authorize the RTC Executive Director to obligate the \$43,000 in STP funds through an interlocal agreement with WSDOT Local Programs and amend the existing technical assistance contract with IBI Group to add \$50,000 for the Regional Communications Plan.

ACTION REQUESTED

Adoption of Resolution 04-14-06 “Vancouver Area Smart Trek: Regional Communications Plan.”

ADOPTED this _____ day of _____ 2014,
by the Southwest Washington Regional Transportation Council.

SOUTHWEST WASHINGTON
REGIONAL TRANSPORTATION COUNCIL

ATTEST:

Jack Burkman
Chair of the Board

Matt Ransom
RTC Executive Director

Attachment

Vancouver Area Smart Trek Regional Communications Plan Update

The Regional Communications Plan (RCP) update recognizes that much of the infrastructure needs for existing and planned communications corridors have been identified. While the RCP will assess programmed and planned infrastructure and identify additional needs, the focus of the Plan update is on reviewing the current communications architecture approach being implemented for the City of Vancouver and Clark County ITS and Traffic networks, WSDOT communications architecture and plans, the current regional ITS Network deployment effort, and pulling all of these together into a single, cohesive communications strategy for the region.

This scope of work will utilize the Open Systems Interconnection (OSI) model as the baseline to guide development of the RCP. A description and illustration of the OSI model is shown beginning on page 3 of the scope.

Task 1: Baseline Existing Conditions: Programmed and Planned Infrastructure

Consultant shall meet with each partner agency to confirm accuracy of maps of existing, programmed and planned fiber networks. Consultant shall update Maps of Existing Conditions, Programmed and Planned Infrastructure and provide a brief power point or technical memorandum summarizing existing conditions of the regional communications infrastructure.

Task level Timeline: 2 weeks from notice to proceed

Task 2: Identify User Needs for Communications Networks

Once existing and planned fiber infrastructure has been confirmed, consultant shall meet with partner agencies to identify current and planned communications needs. Needs identification will start with a focus on locations of offices and equipment, and expand into a detailed discussion on current and planned user applications. Specific elements to be captured in this phase include:

- 1) Update maps on agency centers, offices and field equipment
- 2) Meet with each Traffic Operations group within agency to identify all current and planned Applications that do or will use the regional communications network
- 3) Discuss data sharing needs between agencies to support these applications
- 4) Review fiber sharing rules/guidelines and update as needed
- 5) Discuss redundancy needs and location of remote vs. centralized equipment
- 6) Review connected vehicle initiatives
- 7) Discuss communications standards

Examples of some of the above (illustrative only):

Clark County hosts a regional, multi-agency server for all Wavetronix equipment. In addition to Clark County's own equipment, partner agencies such as City of Vancouver and WSDOT, have field equipment as identified on the communications map, for both existing and planned locations. Communications "needs" are identified for both device to central "back haul", as well as, sharing of data between agencies.

WSDOT, City of Vancouver and Clark County have Bluetooth field devices as located on the maps from Task 1. Central system servers are located at the Clark County data center in downtown Vancouver. All agencies want to access the data. Communications "needs" are identified for both device to central "back haul" as well as sharing of data between agencies.

Clark County wants to put video clips from their CCTV cameras located at key intersections onto the web for Traveler Information servers. Communications for back-haul from field to central are identified, as well as, approach for video sharing with the public.

C-TRAN has CCTV cameras remotely located at their Park-n-Ride centers as identified on the maps from Task 1. C-TRAN wants to back-haul the video for security purposes, to remotely view the video at their central operations center, as well as, sharing the video with the general public to be able to see how full Park and Ride lots are in real-time.

Consultant shall prepare a **VAST Regional Communications User Needs Technical Memorandum**.

Task level Timeline: 6 weeks from completion of Task 1 (including a CIC presentation)

Task 3: Gather Network Engineering Input

Once the operations applications have been identified, the consultant shall meet with regional network engineers, primarily at Clark County (as they provide network services for both City of Vancouver and Clark County), C-TRAN and WSDOT, to discuss and document how networks are currently architected and how the agencies envision network architecture changes in the future. Work under this task will involve the following activities:

- 1) Review how City, County, and C-TRAN traffic/transportation networks are currently structured
- 2) Discuss emerging trends in network architecture and direction VAST and/or individual agencies want to go
- 3) Determine when and where to standardize as VAST and when/where to maintain agency specific network architecture
- 4) Discuss communications standards

Task level Timeline: 4 weeks from completion of Task 2

Task 4: Confirm and Update Physical Communications Infrastructure

Consultant shall review the communications and networking needs identified in Tasks 2 & 3 to identify whether the physical plant as planned supports those needs or to identify gaps between existing and planned infrastructure and regional needs.

Consultant shall prepare a presentation to discuss any potential infrastructure gaps with the Communications Infrastructure Committee. Examples may include new fiber pathways, proposed hub locations, or other physical reconfigurations of the network. The goal of this task is to gain consensus on any new infrastructure plans, which will then be detailed in the Final Report.

Task level Timeline: 2-4 weeks from completion of Task 3 (as schedule allows including a CIC meeting)

Task 5: Communications Funding Opportunities Research

Consultant shall review funding opportunities for both communications network expansion and communications network documentation update. Consultant shall prepare a White Paper on funding opportunities and present to CIC for consideration and review.

Task level Timeline: 4 weeks 1 month and completed in parallel with earlier tasks

Task 6: Review of Other Regional Multi-agency Networks

Consultant shall perform an industry scan of other example regional, multi-agency networks, and prepare a White Paper on example networks, partner agencies and best practices. A primary focus of this industry

scan and white paper shall be on how other regional have chosen to (or not chosen to) include other, non-transportation agencies.

Task level Timeline: 4 weeks and completed in parallel with earlier tasks

Task 7: VAST Regional Communications Plan Final Report

Consultant shall meet with RTC and partner agencies to determine the best technical approach to develop and deliver the VAST Regional Communications Plan Final Report. The initial goal of this task is to determine an approach that will make the final deliverables both user friendly and accessible. Examples may include developing/expanding RTC's website to support access to this information or the use of a shared collaboration tool, such as SharePoint.

Finally, consultant shall develop the final deliverables, in draft and final format.

- 1) Determine Report Documentation Format (Word/PDF vs. Online/SharePoint)
- 2) Document results of Tasks 1-6 in a Final Report

Task level Timeline: DRAFT: 4 weeks from completion of Tasks 1-6

Task level Timeline: FINAL: 4 weeks from completion of DRAFT

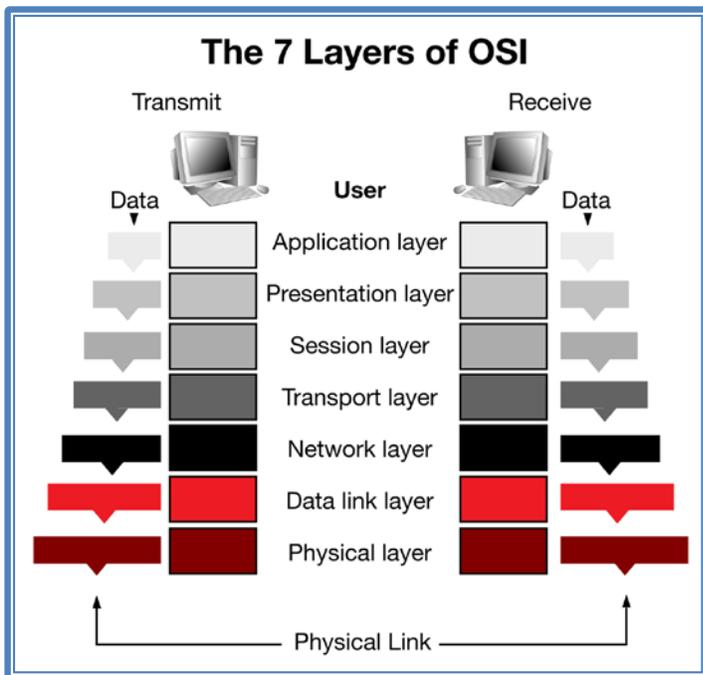
Open Systems Interconnections Model Description

The Open Systems Interconnection model is a standard created by the ISO ((International Organization for Standardization) that defines the procedures that must occur for an information system to communicate with another information system. The model is broken into seven subcomponents, or layers, each of which represents a conceptual collection of services provided to the layers above and below it. The OSI Model also defines a logical network and effectively describes computer packet transfer by using different layer protocols.

Each layer has a specific set of instructions that it must follow to meet the requirements for a specific function. In addition, each layer uses the services of the layer directly below it, and is does not consider the services of other layers. The Regional Communications Plan will be built from the Applications Layer up.

The seven layers of the OSI model are:

7. Application Layer
6. Presentation Layer
5. Session Layer
4. Transport Layer
3. Network Layer
2. Data Link Layer
1. Physical Layer



← STEP 2: USER

← STEP 3: NETWORK

← STEP 1: BASELINE

Regional Communications Plan

Budget by Task	Amount
Baseline Existing Conditions: Programmed and Planned Infrastructure	\$5,000
Identify User Needs for Communications Networks	\$10,000
Gather Network Engineering Input	\$7,500
Confirm and Update Physical Communications Infrastructure	\$5,000
Communications Funding Opportunities Research	\$5,000
Review of Other Regional Multi-agency Networks	\$5,000
VAST Regional Communications Plan Final Report	\$12,500
Total	\$50,000