



STAFF REPORT/RESOLUTION

TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Matt Ransom, Executive Director 
DATE: February 23, 2016
SUBJECT: **Bus on Shoulder Feasibility Study, Resolution 03-16-03**

AT A GLANCE - ACTION

The RTC Board is being asked to: 1) amend the 2016-2019 Transportation Improvement Program (TIP) to add and program funds for the Bus on Shoulder Feasibility Study and 2) amend a project description into the Unified Planning Work Program for Fiscal Year 2016.

INTRODUCTION

The I-205 Access and Operations (AO) Study recommendations were adopted by the RTC Board in November 2014. The corridor recommendations were made up of long term improvements for 2035 that were incorporated into the RTP and a set of short term operational projects to be implemented by WSDOT in coordination with local agencies. The transit recommendation called for a feasibility study of bus on shoulder operations in the I-205 corridor.

A preliminary assessment of bus on shoulder (BOS) was conducted as part of the Access and Operations (AO) Study and found that it may offer the opportunity for improved transit reliability, travel time savings, expanded transit ridership, likely resulting in low-cost transit expansion in the corridor. While the high level assessment showed many potential benefits of BOS, there are still significant unknowns regarding its operation and capital cost. These include understanding how it operates alongside adjacent vehicle traffic and at high volume interchanges, as well as how it would work in coordination with incidents and law enforcement/public safety needs. The region also needs to learn more about the roadway infrastructure requirements of a bus on shoulder operation such as shoulder width and pavement depth. The preliminary assessment resulted in the recommendation to conduct a feasibility study.

The Bus on Shoulder Feasibility Study will investigate and research the issues associated with potential implementation of BOS and determine its applicability to the I-205 corridor. It will also identify the technical and engineering considerations for BOS in the corridor, including the identification of barriers, challenges, and opportunities. The study will evaluate traffic operations and transit operations and performance with and without BOS, develop a BOS concept plan and operating protocol, identify capital components, investigate policy issues, and determine regulatory/legal requirements for BOS operation.

A key result of the BOS Study will be to recommend to agency stakeholders whether the region should move forward with implementation planning which would address physical improvements and associated preliminary engineering, bus operating protocols, a detailed bus service plan, and capital costs. In addition, if the region advances towards implementation, lessons learned from phase one could be used to develop recommendations on a set of regional

policies that would guide how and when to consider BOS in other freeway corridors and bus operating protocols.

This resolution is to request that the RTC Board fund the Bus on Shoulder Feasibility Study by enacting the following:

- add and program funds for the BOS Feasibility Study within the 2016-2019 Transportation Improvement Program (see attached) and
- amend Unified Planning Work Program for Fiscal Year 2016 (FY 2016 UPWP) to include a description of the BOS Feasibility Study (see attached).

POLICY IMPLICATION

This BOS Feasibility Study is consistent with the Congestion Management Process, air quality requirements, and is financially constrained. The TIP amendment meets the goals of the Regional Transportation Plan (RTP) by enhancing the regional transportation system. The FY 2016 UPWP will be amended to add the BOS Feasibility Study and will be the same as currently described in the draft FY2017 UPWP. It will allow initiating the study prior to July 1, 2016.

Precedent actions: The RTC Board adopted the I-205 Access and Operations Study and implementation recommendations in November 2014 (Resolution 11-14-21); and the Regional Transportation Advisory Committee (RTAC) members recommended RTC Board adoption in support of these actions at their February 2016 general meeting.

BUDGET IMPLICATION

Action on this TIP amendment would program \$150,000 in federal CMAQ funds and \$23,410 in local match. The Bus on Shoulder Feasibility Study would be added to the 2016-2019 TIP, utilizing \$150,000 in CMAQ funds and matching local funds of \$23,410, totaling \$173,410.

ACTION REQUESTED

Adoption of Resolution 03-16-03, which shall:

- Amend the 2016-2019 Transportation Improvement Program to program \$150,000 in CMAQ funds and requisite minimum local match.
- Amend the Unified Planning Work Program for Fiscal Year 2016 to include a description of the BOS Feasibility Study.

ADOPTED this _____ day of _____ 2016
by the Southwest Washington Regional Transportation Council.

SOUTHWEST WASHINGTON
REGIONAL TRANSPORTATION COUNCIL

ATTEST:

Jack Burkman
Chair of the Board

Matt Ransom
Executive Director

Attachments

Washington State S. T. I. P.

2016 to 2019

(Project Funds to Nearest Dollar)

MPO/RTPO: RTC

Y Inside

N Outside

February 12, 2016

County: Clark

Agency: RTC

| Func Cls | Project Number | PIN | STIP ID | Imp Type | Total Project Length | Environmental Type | RW Required | Begin Termini | End Termini | Total Est. Cost of Project | STIP Amend. No. |
|----------|----------------|-----|----------|----------|----------------------|--------------------|-------------|---------------|-------------|----------------------------|-----------------|
| 11 | | | WA-08771 | 18 | 15.700 | CE | No | Region-Wide | Region-Wide | 173,410 | 16-03 |

Bus on Shoulder Feasibility Study

Investigate and research the issues associated with potential implementation of Bus on Shoulder.

Funding

| Phase | Start Date | Federal | Fund Code | Federal Funds | | State Fund Code | State Funds | Local Funds | Total |
|-----------------------|------------|---------|-----------|----------------|--|-----------------|-------------|---------------|----------------|
| | | | | | | | | | |
| PE | 2019 | | CMAQ | 150,000 | | | 0 | 23,410 | 173,410 |
| Project Totals | | | | 150,000 | | | 0 | 23,410 | 173,410 |

Expenditure Schedule

| Phase | 1st | 2nd | 3rd | 4th | 5th & 6th |
|---------------|----------|----------|----------|----------------|-----------|
| PE | 0 | 0 | 0 | 173,410 | 0 |
| Totals | 0 | 0 | 0 | 173,410 | 0 |

| | Federal Funds | State Funds | Local Funds | Total |
|------------------------------|----------------|-------------|---------------|----------------|
| Agency Totals for RTC | 150,000 | 0 | 23,410 | 173,410 |

1 F BUS ON SHOULDER FEASIBILITY STUDY

The I-205 Access and Operations (AO) Study identified and analyzed short term operational and system management improvements that would serve to make the transportation system operate more efficiently and predictably and could supplement or defer the timeline for freeway expansion. The AO Study recommendations, adopted by the RTC Board in November 2014, have three primary components. The roadway recommendations are made up of long and short term improvements which consist of the 2035 core projects that were incorporated into the RTP and a set of short term operational projects to be implemented by WSDOT in coordination with local agencies. The transit recommendation called for a feasibility study of bus on shoulder operations in the I-205 corridor. Finally, a set of operational policies were adopted that describe how to consider operational improvements in freeway corridors and to guide the implementation of ramp meters.

The Bus on Shoulder Feasibility Study is being initiated as a result of the transit recommendation of the I-205 Access and Operations Study. Phase one of the BOS Study will investigate and research the issues associated with potential BOS implementation and determine its applicability to the I-205 corridor. It will also identify the technical and engineering considerations for BOS in the corridor, including the identification of barriers, challenges and opportunities. The study will evaluate traffic operations and transit operations and performance with and without BOS, develop a BOS concept plan and operating protocol, identify capital components, investigate policy issues, and determine regulatory/legal requirements for BOS operation.

A key result of the study will be to recommend to agency stakeholders whether the region should move forward with bus on shoulder operations as well as a comprehensive phase two study that would address physical improvements and associated preliminary engineering, bus operating protocols, a detailed bus service plan, and capital costs. In addition, if the region advances a phase two study, lessons learned from phase one could be used to develop recommendations on a set of regional policies that would guide how and when to consider BOS in other freeway corridors and bus operating protocols.

Work Element Objectives: Bus on Shoulder Feasibility Study

- Compile baseline transportation and transit data including traffic freeway speeds by segment, time of day, and duration, mainline traffic volumes and entrance and exit volumes at ramps and at freeway to freeway interchanges along the corridor. Transit data would include ridership, on-time performance, reliability, and the number of buses required to maintain scheduled service.
- Conduct transportation analysis for a wide range of traffic operations, transit operations and performance with and without BOS in the corridor. Key evaluation measures will include safety, vehicle queuing and delay, incidents, and transit speeds and reliability.
- RTC will host a bus on shoulder technical workshop with agency stakeholders and policy makers. The workshop will inform participants on the engineering, operational, and technical

issues associated with BOS systems and will include experts with knowledge and insight of BOS systems already in place around the country. In addition, these experts will also review information developed to date, and answer questions from workshop participants. One of the outcomes of the workshop is to support the development of a draft BOS operating concept for the corridor.

- Examine existing physical characteristics of the facilities where BOS is being studied in order to identify engineering issues/constraints and opportunities that would need to be considered for a BOS operation in the corridor.
- Research the policy and legal issues associated with BOS operations including existing statutes, regulations and other agreements and determine if additional legislation is needed to allow transit vehicle use of the shoulder.
- Develop a service and operating concept for bus on shoulder at a level that will allow identification of conceptual capital improvements and associated costs.
- Collaborate with the BOS Technical Advisory Committee for advice, technical input and review during the study and to work toward concurrence on findings, needs, and next steps for the BOS Study. The TAC includes representatives of WSDOT, C-TRAN, ODOT, Tri-Met and Metro partner agencies.
- Coordinate with the Federal Highway Administration and the Federal Transit Administration to ensure that any regulatory or policy issues and other approvals associated with operating BOS on interstate facilities are addressed.
- Provide briefings and updates to the Regional Transportation Advisory Committee (RTAC), the RTC Board, the Bi-state Coordination Committee and other I-205 corridor stakeholders.

Relationship to Other Work Elements: Bus on Shoulder Feasibility Study

The Bus on Shoulder Feasibility Study supports goals for the efficiency, safety, and performance of the multimodal transportation system as defined in the Regional Transportation Plan and is consistent with the mix of transportation strategies needed to address future transportation system issues. It also relates to the VAST TSMO/ITS Work Program and the Congestion Management Process in that it will first consider transportation management, operational, and transit strategies to address system performance.

FY 2016/17 Products: Bus on Shoulder Feasibility

- A Bus on Shoulder Feasibility Report including findings, required physical improvements, and shoulder reconstruction needed for BOS operations, operating rules, and order of magnitude cost estimates. Report will also include a bus operating plan and capital improvement concept.
- Identify a potential low cost demonstration project for initial implementation.

- Recommendations to agency stakeholders on whether the region should move forward with a comprehensive phase two study that would include a detailed bus service plan, needed physical improvements, preliminary design and capital costs, bus operating protocols, and a financial plan.

FY 2016/17 Funding: BOS Feasibility Study

FY 2016/17 Revenues:

| | |
|----------------|------------------|
| | \$ |
| • Federal CMAQ | \$150,000 |
| • Local Funds | \$23,410 |
| | <u>\$173,410</u> |

Federal \$ are matched by C-TRAN funds.

FY 2016/17 Expenses:

| | |
|----------------|------------------|
| | \$ |
| • RTC | \$35,810 |
| • Consultants* | \$137,600 |
| | <u>\$173,410</u> |

Minimum required match: \$23,410

FY 2016 SUMMARY OF EXPENDITURES AND REVENUES: RTC

Note: Numbers may not add due to rounding

| SOUTHWEST WASHINGTON REGIONAL TRANSPORTATION COUNCIL | | | | | | | | | |
|---|--|-------------------------------------|---------------------------------|----------------------|-----------------|----------------|-------------------------|----------------|------------------|
| FY 2016 UNIFIED PLANNING WORK PROGRAM - SUMMARY OF REVENUES/EXPENDITURES BY FUNDING SOURCE | | | | | | | | | |
| Work Element | N O T E S | 1. FY 2016 Federal FHWA PL | 1. FY 2016 Federal FTA | 1. Federal STP | Federal CMAQ | State RTPO | Other Local Funds | MPO Funds | RTC TOTAL |
| I REGIONAL TRANSPORTATION PLANNING PROGRAM | | | | | | | | | |
| A | Regional Transportation Plan | 186,320 | 59,500 | 85,000 | | 44,996 | 43,894 | 22,264 | 441,974 |
| B | Transportation Improvement Program | 54,800 | 17,500 | 25,000 | | 13,234 | 12,910 | 6,548 | 129,992 |
| C | Congestion Management Process | | | 75,000 | | | | 11,705 | 86,705 |
| D | Vancouver Area Smart Trek Program | | | 175,000 | | | | 27,312 | 202,312 |
| E | Skamania and Klickitat RTPO | | | | | 39,660 | | | 39,660 |
| F | Bus on Shoulder Feasibility Study | | | | 150,000 | | 23,410 | | 173,410 |
| | Sub-Total | 241,120 | 77,000 | 360,000 | 150,000 | 97,890 | 80,214 | 67,830 | 1,074,053 |
| II DATA MANAGEMENT, TRAVEL FORECASTING, AIR QUALITY AND TECHNICAL SERVICES | | | | | | | | | |
| A | Reg. Transp. Data, Forecast, AQ & Tech. Services | 197,280 | 63,000 | 90,000 | | 47,642 | 46,476 | 23,574 | 467,972 |
| III TRANSPORTATION PROGRAM COORDINATION AND MANAGEMENT | | | | | | | | | |
| A | Reg. Transp. Program Coord. & Management | 109,600 | 35,000 | 50,000 | | 26,468 | 25,820 | 13,097 | 259,985 |
| TOTALS | | 548,000 | 175,000 | 500,000 | 150,000 | 172,000 | 152,510 | 104,500 | 1,802,010 |

3/1/2016

NOTES:

1. Minimum local match for federal PL, FTA and STP funds is provided from State RTPO, MPO and local funds. Local match for FHWA, FTA and STP funds is assumed at 13.5%.