WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIC REGION
TUMWATER, WASHINGTON

SR 162 CORRIDOR CONGESTION STUDY

EXECUTIVE SUMMARY

Project Limits:

SR 162 / SR 410 Interchange to Orting City Limits
MP 0.00 to 8.11

JUNE 2017

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EXECUTIVE SUMMARY

Background and Context

Located in the heart of the Orting-Sumner Valley, the area offers a unique character and experience with scenic views of Mt. Rainier and surrounding farmlands. The long standing community vision of the area focuses on continuing efforts to preserve the essence and character of the Orting-Sumner Valley.

However, with recent growth in the area and future planned development, travelers along the State Route (SR) 162 corridor (Figure 1) experience congestion and delay during morning and evening peak periods. This corridor is one of the top priority corridors for area community members and leaders.

The Corridor:

- A Highway of Statewide Significance
- A substantial commuter route
- Categorized as a T-2 Freight & Goods classification with 8.3% (2015) daily truck volumes
- Annual Average Daily Traffic volumes are 21,000 (2014)

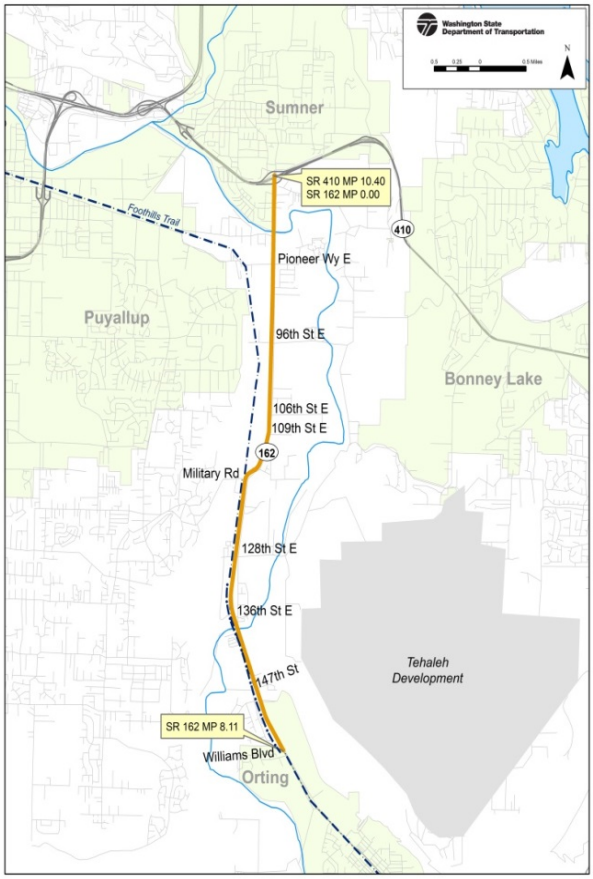

Figure 1: SR 162 Study Corridor

In 2015, the Washington State Department of Transportation (WSDOT) undertook this study as a result of the Connecting Washington Transportation funding. (L2000107 Study congestion on SR 162 and make recommendations for improvements) No design or construction funds are identified beyond this study phase.

Study Purpose & Need

The purpose of the Study is to identify ranked strategies that increase mobility by reducing delay for all users of the corridor, while maintaining or improving the safe operation of the highway.

The need exists to address current and future congestion in the corridor and at signalized intersections, most pronounced during the peak commute periods, imposing delays and inconvenience for motorized travelers that creates challenges and may have a significant impact on reliability and mobility at certain times of the day.

How was this study conducted?

The SR 162 corridor study effort developed strategies that take into account WSDOT's new Practical Solutions approach.

Study Constraints/Assumptions

These Study constraints and assumptions were agreed upon at the July 2016 Stakeholders meeting.

- The Study effort shall focus on the SR 162 corridor
- The Study will rely on a Practical Solutions approach to arrive at strategies
- The strategies shall be ranked
- The Pierce County Model will be used for the modeling effort

Community Engagement and Public Outreach

WSDOT worked with a Study stakeholder group (Figure 2) comprised of area agencies, elected officials, local planning and transportation staff and other stakeholders to ensure ranked strategies are identified to address performance gaps in the corridor.

In collaboration with stakeholders, the Study Goal and Corridor Vision were developed:

Study Goal

The Study will identify ranked strategies that address corridor improvements which result in improved travel time, predictability, and the safe operation of the SR 162 corridor from Sumner to Orting.

SR 162 Corridor Vision

Actively preserve the essence and character of the Orting-Sumner Valley while managing corridor performance that supports the local communities and the traveling public.

An online public survey was conducted to gather input on corridor performance, expectations and ideas to ease congestion and improve highway operations. A total of 2,214 respondents participated in the survey providing valuable public input.

Transportation and service agencies such as school districts, law enforcement and fire/rescue agencies were contacted to ascertain their concerns with the highway corridor.

Five stakeholder committee meetings were held in the Orting-Sumner Valley spanning from June 30, 2016 to November 9, 2016.

Study Stakeholders

- Pierce County
- City of Bonney Lake
- City of Summer
- City of Orting
- Muckleshoot Indian Tribe
- Nisqually Indian Tribe
- Puyallup Tribe of Indians
- Squaxin Island Tribe
- Confederated Tribes and Bands of the Yakama Nation
- Pierce Transit
- Sound Transit
- Puget Sound Regional Council
- Tehaleh/Newland Development
- WSDOT

Figure 2

Two public open houses were conducted; one in Sumner on November 15, 2016 and the second in Orting on November 16, 2016.

Data collection, modeling and analysis

The study team collected traffic data in spring 2016 and used the data to calibrate a base year travel demand model and to perform existing traffic conditions analysis. They performed future travel demand forecasts and future conditions analyses along with evaluating alternative strategy scenarios. The study team performed a review of right of way needs to ascertain impacts and to estimate planning level costs.

Strategy development

Study stakeholders, survey respondents and others identified 46 original ideas for improvements to SR 162 operations. Following a workshop presentation, nine ideas were eliminated as they:

- Failed to meet the study purpose, need, vision and goal
- Were not viable with existing technology or practice (utilize District School Bus associated with fixed commuter travel)
- Were not practical or applicable (Utilize park and ride lot for commercial event parking, changes to state policy on transit benefit districts)

The remaining 37 ideas were presented to the stakeholders. Similar ideas were combined, such as park and ride, park and pool, vanpool and others were listed under Transportation Demand Management (TDM). The combined ideas were then advanced to the Stakeholder screening process. The remaining landed in the following seven categories:

1) Transportation Demand Management
2) Public Transportation
3) Channelization
4) Highway Access Management
5) Intersection Improvements
6) Signals
7) Capacity Improvements

Further development of ideas into strategies narrowed the categories to five:

1) Transportation Demand Management
2) Operations (Improvements)/Intelligent Transportation Systems/Incident Management
3) Public Transportation Services
4) Park and Ride, Bicycle & pedestrian Facilities Improvements, Minor Access Management Measures
5) Intersection Control/Corridor Improvements

Strategies were divided into Short-Term (2020), Mid-Term (2025), and Long-Term (2035). Stakeholders stressed that the following be considered in evaluating the strategies:

- A community-based approach that relies on collaboration, commuter information and incentives to influence travel patterns and commuter choices
- Employing effective tools and techniques of TDM
- The aspects of sustainable and economical values
- Realistic capital investments

The WSDOT Practical Solutions approach was used in this performance-based and data-driven study process for transportation decision-making. The study team, with concurrence from study stakeholders, used the latest tools and appropriate performance measures to support and identify low-cost strategies to address performance issues in the highway corridor. This was accomplished recognizing the value of TDM, transit and rail to reduce travel demand and to reduce or delay the need for building costly new infrastructure expansion.

The Practical Solutions approach encourages system performance management through cost-effective operational improvements first, second is demand management opportunities, and the third, after exhausting other options is capacity expansion. Community input, policy change and local network improvements were also considered before capacity investments strategies.

Study Outcomes

Below are some study findings:

- The area is extremely diverse with single-family residential parcels, commercial, large agricultural tracts with seasonal event offerings and recreation opportunities prevalent in the valley and adjacent bluffs.
- Significant large-scale residential developments are a concern for the residents as raised in the online survey and open houses.
- Public transportation options are essentially nonexistent with no service offerings on the corridor by Pierce Transit or Sound Transit.
- The Pierce County Foothill Trail carries the bulk of the area bicycle traffic. However, bicyclists continue to rely on SR 162 for their travels as well.
- The existing highway corridor width is insufficient for capacity expansions without property acquisitions. Intersection improvements are likely to require additional property acquisition as well.
- Consideration of Compact, single lane, and modified single lane roundabouts along the existing two lane facility would reduce or eliminate property acquisitions, improve mobility efficiency, provide secondary safety benefits and delay the need for a multi-lane facility.
- Highway Capacity Improvements:
    - Capital investments alone will not eliminate future anticipated congestion.

- Significant highway widening improvements shall require additional right of way. Some homes, farmland, businesses, utilities and highway access would be impacted.
- No one transportation-related strategy will solve the congestion on the corridor.
- An aggressive multi-faceted, multi-partner strategy approach will be required to achieve improvements in travel predictability, and capacity demands along the highway corridor.

At the fifth and final stakeholder meeting held on November 9, 2016, stakeholders agreed on the five strategies below:

1. **Transportation Demand Management (measures)**
   TDM: TDM strategies are aimed at travel behavior rather than expanding the transportation network to meet travel demand. Such strategies may include;
   - The promotion of work hour changes
   - Rideshare options (carpool, vanpool, etc.)
   - Worksite parking policies
   - Telecommuting

2. **Operations (Improvements)/Intelligent Transportation Systems/Incident Management (elements)**
   Ops: Operations include such elements as:
   - Active Traffic Management
   - Traffic signal timing/optimization
   - Signal interconnect actions

   ITS: Intelligent Transportation Systems improve transportation safety and mobility through the use of advanced wireline and wireless communications technologies. ITS strategies proposed include:
   - Electronic traveler information
   - Highway Advisory Radio (HAR)
   - Road & weather information systems

   The SR 162 corridor is not presently included in WSDOT's ITS Plan.

   Incident Management: WSDOT Incident Response resources clear traffic incidents safely and quickly, minimizing congestion and the risk of secondary incidents. Strategies include:
   - Multiple shoulder pullout areas
   - Incident response resources during peak travel times

3. **Public Transportation Services:** Strategies include multiple elements of transit and rail service.

4. **Park and Ride lots (PnR), Bicycle & pedestrian Facility Improvements, Minor Access Management measures:**
    - **Public park and ride facilities** are envisioned to be in the form of small-to-medium-sized lots both publicly and privately-owned, which may or may not be served by transit.
    - **Bicycle & pedestrian Improvements:** Strategies include:
        - Shoulder widening
        - Improved accessibility and mobility
    - **Minor Access Management:** Includes improved delineation of highway access to SR 162.

5. **Intersection Control/Corridor Improvements:**
    - **Intersection Channelization:** A strategy employed that increases mobility and capacity at highway intersections with;
        - Turn lanes
        - Striping
    - **Roundabouts:** Modern roundabouts create continuous, one-way traffic flow, reduce crashes and cost less to maintain than traditional signalized intersections. Converting signalized intersections in a suburban environment into single lane roundabouts may reduce fatal and all injury crashes.
    - **Corridor Segment Widening:** Capital investments that significantly widen the existing roadway.

Short description of the 5 strategies and their definitions are provided in Table 1 below:

	SHORT DESCRIPTION OF STRATEGY	DEFINITIONS / STRATEGIES
STRATEGIES	TDM (Assume 3% volume reduction similar to Mid-Term 2025 Mobility Results)	TDM: (Transportation Demand Management) TDM Strategies are aimed at changing travel behavior rather than expanding the transportation network to meet travel demand. Such strategies may include the promotion of work hour changes, rideshare options, parking policies, and telecommuting.
	Ops / ITS / Incident Management	Ops: Operations include such elements as traffic signal timing/optimization and interconnect actions. ITS: Intelligent Transportation Systems improve transportation safety and mobility through the use of advanced wireline and wireless communications technologies. ITS strategies proposed include electronic traveler information, Highway Advisory Radio, and road & weather information systems. Incident Management: WSDOT Incident Response resources clear traffic incidents safely and quickly, minimizing congestion and risk of secondary incidents. Strategies include multiple shoulder pullout areas and incident response resources during peak travel times.
	Public Transportation Services (2020 Pilot*)	Public Transportation Services: Strategies included multiple elements of transit service and rail service.
	PnR Facilities, Bike & Ped Improvements, Minor Access Management measures	PnR Facilities: Public park and ride facilities are envisioned to be in the form of small to medium size lots, both public and privately owned which may or may not be served by transit. Bicycle & Pedestrian Improvements: Strategies include shoulder widening and improved accessibility. Minor Access Management: Includes improved delineation of highway access to SR 162.
	Intersection Control / Corridor Improvements	Intersection Channelization: A strategy employed that increases mobility and capacity at highway intersections with turn lanes and striping. Roundabouts: Modern Roundabouts create continuous, one-way traffic flow, reduce collisions by 37%, and cost less to maintain than traditional intersections. Corridor Segment Widening: Capital improvements that create significant widening of the existing roadway.

Table 1: Strategy Definitions

The final ranked strategies are summarized in the Table 2 below by Short-, Mid-and Long-Term:

SR 162 Corridor Congestion Study Ranked Strategy Summary

Ranked Strategies in desending order

	SHORT DESCRIPTION OF STRATEGY	Strategy	SHORT-TERM 2020 RANK	MID-TERM 2025 RANK	LONG-TERM 2035 RANK
STRATEGIES	Transportation Demand Management (Assume 3% volume reduction similar to Mid-Term 2025 Mobility Results)	A	1	1	1
	Operations/Intelligent Transportation Systems/Incident Management Measures	B	4	2	3
	Public Transportation Services (*2020 Pilot)	C	3*	5	4
	Park & Ride Facilities, Bike & Pedestrian Improvements. Minor Access Management measures	D	5	4	2
	Intersection Control/ Corridor Improvements	E	2	3	5

Table 2: Ranked Strategies

Note: Under Strategy E; Intersection Control/Corridor Improvements were identified in the Short-term as an opportunity to be considered in conjunction with the actions of Strategies A – D.

Table 3 below shows scores by criteria and by phasing (Short-, Mid-, and Long-Term).

11/9/2016

	SHORT DESCRIPTION OF STRATEGY	SHORT-TERM (2020) Strategy	Criteria					MID-TERM (2025) Strategy	Criteria					LONG-TERM (2035) Strategy	Criteria				
			Phasing	Cost Range ①	Mobility Improvements	Partnerships ①	TOTAL		Phasing	Cost Range ①	Mobility Improvements	Partnerships ①	TOTAL		Phasing	Cost Range ①	Mobility Improvements	Partnerships ①	TOTAL
	WEIGHT		1.00	1.00	1.50	0.50	Avg.		1.00	1.00	1.50	0.50	Avg.		1.00	1.00	1.50	0.50	Avg.
STRATEGIES	TDM (Assume 3% volume reduction similar to Mid-Term 2025 Mobility Results)	A	25	25	20	13	83	A	15	25	20	13	73	A	1	25	23	13	61
	Ops/ITS/Incident Management	B	25	24	10	2	62	B	15	23	15	4	57	B	1	25	14	1	40
	Public Transportation Services (2020 Pilot)	C	25	24	5	13	66	C	15	13	5	8	40	C	1	8	12	8	29
	PnR Facilities, Bike & Ped Improvements. Minor Access Management measures	D	25	25	3	8	61	D	15	21	4	4	44	D	1	25	8	8	41
	Intersection Control/ Corridor Improvements	E	25	18	23	5	71	E	15	13	22	1	50	E	1	5	21	1	28

Table 3: Strategy Scoring

Next Steps?

With the completion of this planning study, the strategies identified will assist WSDOT and others to make decisions on improving highway efficiencies and reducing congestion on SR 162.

WSDOT will work with stakeholders and partners to implement low-cost strategies such as Transportation Demand Management which includes vanpools and carpools in the Short-Term. WSDOT will continue to work with interested partners on the strategies considered pertinent and viable over the Short-, Mid- and Long-Term operation of the highway corridor.

The strategies for Short-, Mid- and Long-Term will be incorporated in the Corridor Sketch Phase II for the SR 162 corridor. These strategies then will be prioritized on a statewide basis for future implementation. Due to limited state funding, the recommendations in this study will need to compete for funding with other proposed improvements around the state based on performance outcome.

Funding will also need to be identified to advance potential solutions into the design, right of way, and construction phases. Other funding sources could be developer contributions, or create a local improvement district.