Chapter 7
Plan Implementation

Table of Contents

Decision Methodologies

WSDOT uses Moving Washington and Practical Solutions methodologies to guide decision-making regarding transportation concerns.

Moving Washington

As discussed in Chapter 6, Moving Washington principles employ three strategies to identify transportation system solutions:

- ***Operate efficiently*** to get the most out of the existing highways and infrastructure.
- ***Manage demand*** by offering more traveler options.
- ***Add capacity strategically*** to best use limited resources by targeting the most congested areas or critical system gaps.

Practical Solutions

Practical Solutions is a two-part strategy that includes **least cost planning** and **practical design** which enables more flexible and sustainable transportation investment decisions. It encourages this by increasing the focus on project purpose and need throughout all phases of project development: planning, program management, environmental analysis, design, construction, operation, and maintenance.

Least Cost Planning

Least cost planning is an approach to making planning decisions that considers a variety of conceptual solutions to achieve the desired system performance targets at the lowest cost. It is defined in the Washington Administrative Code (WAC) as *"a process of comparing direct and indirect costs of demand and supply options to meet transportation goals and/or policies where the intent of the process is to identify the most cost-effective mix of options" (WAC 468-86-030).* Central to least cost planning is a process that engages the public, applies methods to evaluate planning options, and guides the selection of options. The outcome of least cost planning is a recommended set of multimodal strategies that are cost effective and still meet the goals and objectives set early in the planning process. Recommended capital investment concepts carry forward to the project development stage.

Practical Design

Practical design is an approach to making project decisions that focus on the need for the project and looks for the cost-effective solutions. It engages local stakeholders at the earliest stages of defining the scope to ensure their input is included at the right stage of project design. Decision-making focuses on maximum benefit to the system rather than maximum benefit to the project. Focusing on specific project needs minimizes the scope of work for each project. The goal is to allow more needs to be addressed system wide by reducing spending on lesser priority items on each project. Practical design encourages efficient, effective, and sustainable transportation decisions that can achieve:

- Maximum results within limited funding
- Tailored solutions for the project's purpose and need
- Phased solutions that address more critical and current needs
- More flexibility in design guidance and decision-making
- Freedom to innovate

Implementation

Chapter 6 reviewed a broad range of strategies which resulted in a number for consideration. These strategies do not favor capital investments over others. The recommended strategies are divided into short, medium, and long range categories. Short range strategies are ones that need implementation within five years. Medium range strategies should be reviewed and implemented (if needed) within five to fifteen years, but only after the short range strategies have been implemented and the conditions re-evaluated. Long range strategies require more than 15 years for evaluation and consideration to implement. If other strategies cannot continue meeting the needs of the corridor these long range strategies should move forward.

Lower cost strategies or ones with the highest benefit-cost ratios are recommended to be implemented first. Low cost strategies are defined as less than $1 million, medium cost ones are from $1 million to $5 million, high cost strategies are $5 million to $75 million, and very high cost strategies are over $75 million. Also, strategies that are not being recommended may be reevaluated for consideration in the future. As times change, strategies that effectively address mobility issues, but were removed due to lack of community support, should be reconsidered for implementation.

Least Cost Planning, Practical Design, and Moving Washington will influence the decisions made. The benefit/cost ratios identified for strategies in chapter 6 shows which projects provide the greatest benefit for the money spent to implement, construct or operate them. The benefit/cost ratio will be used to guide which strategies are recommended and what their ranking is.

Past Implementation of Least Cost Planning Strategies

It is the common practice in the South Central Region to optimize highway operations before expending funds on capital improvements. Many low cost strategies consistent with least cost planning have previously been implemented throughout the corridor and extended the time before more investments are needed. These include traffic signal timing to allow vehicles to progress through the corridor, signal optimization by time of day, flashing yellow arrow traffic signals, right-turn and left-turn channelization, median barrier, acquisition of access rights, right-in/right-out intersections, ramp metering (currently inactive), flow maps, and remote traffic monitoring via the Yakima Traffic Management Center (TMC). Thus, the remaining solutions to address congestion in the corridor are higher cost strategies.

Recommended Strategies

Short Range Strategies

Short range strategies carried forward from the study are needs that have been identified and discussed prior to even starting this study. The study re-established that these strategies are still of high benefit (high B/C ratios) to the area. They should be implemented now to address the current needs. This would provide time for the strategies to be evaluated for their effect on the corridor and possibly defer the need to implement some medium to long range strategies. There are also some high cost, medium to long range strategies, that have been identified before the start of this study that were validated by the study. It is recommend that planning for these projects continue due to the extensive time needed to evaluate, scope, and implement these types of projects.

Short Range			
Strategies chosen to move forward	*Moving Washington Strategy*	*Cost Level*	*Est. Year of Need*[1]
Implement 1 of 3 Alternatives at Yelm St	Operate Efficiently	Low	2012
Minor Modifications to SR 240/US 395 Interchange	Operate Efficiently	High	2020
Establish a Commute Trip Reduction Program	Manage Demand	Low*	
Promote Flow Maps	Manage Demand	Low	
Ramp Meter On-Ramps at: Columbia Dr, Lewis St, and Court St Interchanges	Operate Efficiently	Low	2020
Study and Scope Complete Roadway from SR 240 to Kennewick Ave	Planning	Low	2013
Begin Expansion of Park and Ride Lots	Manage Demand	Medium*	
Study and Scope Construction of Additional Columbia River Crossing	Planning	Low	2020
Sign Alternate Routes to Tri-Cities Airport and Columbia Basin College	Operate Efficiently	Low*	2023

[1]Year equals date that it falls below level of service D
**requires local commitment (money and time)*

Implement One of Three Alternatives at Yelm Street

There are three viable alternatives to address the operational problems at Yelm Street:

1. Modify the Yelm Street signal timing to reduce the green time for left-turning vehicles and sign alternate routes to persuade motorists to use different routes. This is the least costly option, but pushes the left-turn issue to the next intersection.
2. Restrict Yelm Street to right-in right-out movements and construct a double left-turn lane at Kennewick Avenue. This option has the highest benefit to US 395.
3. Construct a double left-turn lane at Yelm Street. This option has the highest benefit to the City, but requires a second receiving lane on Yelm Street.

All three alternatives are low cost and would address the operational issues at Yelm Street. WSDOT will work cooperatively with the City to select one of the three alternatives.

Minor Modification to the SR 240/US 395 Interchange

This strategy restores the second northbound lane through the interchange and is highly recommended by the City of Kennewick. The strategy lengthens the eastbound SR 240 to northbound US 395 ramp. This is a high cost strategy ($6 million) but is less costly than reconstructing the entire interchange, adding new lanes, or widening the bridge.

Establish a Commute Trip Reduction (CTR) Program

Funding a strong CTR program is a high cost strategy and mobility benefits are expected to negligible. However, demand management strategies such as this are new to the corridor and establishing a scaled down program at a lower cost will provide a start to a more sustainable transportation system in the future.

Promote Existing Flow Maps

This is a low cost strategy with minimal mobility benefits for US 395. However, it is another step toward a more sustainable transportation system.

Meter On-Ramps at Columbia Drive, Lewis Street, and Court Street Interchanges

This low cost strategy can have significant mobility benefits for US 395. These interchanges are all located near the Columbia River Bridge, which is nearing capacity. Ramp meters will extend the useful life of the existing bridge and is especially useful at peak times in certain locations along the corridor. Also, ramp meters can be implemented incrementally.

Study and Scope Complete Roadway from SR 240 to Kennewick Avenue

This is a low cost incremental strategy to further study and scope for additional lanes and non-motorized facilities from SR 240 to Kennewick Avenue. This segment is currently failing and additional capacity has been needed for the past two years. Mobility benefits are projected to be high.

Begin Expansion of Park-and-Ride Lots

Right now, Ben Franklin Transit has identified a need for 300 park-and-ride spaces. An initial expansion of park-and-ride lots would address this immediate need. Construction of 300 spaces would cost over $3 million, but could be extended over several years to reduce the cost in any one year. The extensive expansion of park-and-ride lots described in Chapter 6 is a high cost strategy with very low mobility benefits but will help to maintain current mobility while building upon a sustainable transportation system.

Study and Scope Construction of Additional Columbia River Crossing

This strategy is a low cost incremental method to further study whether there is still a need for additional lanes on the US 395 Columbia River Bridge. Without additional lanes crossing the Columbia River, the US 395 Columbia River Bridge will increasingly become more and more of a bottleneck for the Tri-Cities and the region. There is strong interest in the Tri-Cities area for another Columbia River crossing. The Tri-Cities jurisdictions are studying the possibility of constructing an additional crossing of the Columbia River. The local jurisdictions have completed an initial study which included consideration for expansion of the US 395 Columbia River Bridge. WSDOT will continue to participate in the on-going local planning efforts. Depending upon the results and actions taken on this study, the need for additional lanes on the US 395 Columbia River Bridge may be delayed or eliminated. If it is determined that an additional US 395 Columbia River Bridge is needed, then this strategy will continue on to scoping the project.

Signs Identifying Alternate Routes to the Tri-Cities Airport or Columbia Basin College

This is a very low cost strategy and will provide negligible mobility benefits.

Medium Range Strategies

After the short range strategies have been implemented, hopefully within five years of the study's acceptance, these locations should be re-evaluated to see if the short range strategies have resolved the corridor issues. In locations where operational problems persist or where growth or new development has created the need for additional solutions, the medium range strategies should be re-examined to see if they will resolve those concerns. Many of the strategies in the medium range have been discussed prior to this study and were identified as future needs. Medium range strategies that are still viable options should be carried forward with lower cost strategies implemented first (Operate Efficiently and Manage Demand). Strategies previously rejected in the study should also be re-evaluated to see if they now can move forward as viable strategies. High cost/medium range strategies need to be further studied or scoped at this time as well to refine the configuration and cost, and to develop a financing strategy. After being implemented and the locations are re-evaluated, medium range strategies could offset the need for long range strategies if effective.

Medium Range			
Strategies chosen to move forward	*Moving Washington Strategy*	*Cost Level*	*Est. Year of Need[1]*
Pedestrian Crossing Improvements at Kennewick Ave and Clearwater Ave	Operate Efficiently	Medium	
Meter Traffic through Signalized Corridor	Operate Efficiently	Low	
Construct Complete Roadway from SR 240 to Kennewick Ave	Add Capacity Strategically	High	2013
Construct Double Left-Turn Lane at 10th Ave	Operate Efficiently	Low	2019
I-182 Interchange – US 395 to 20th Ave Eastbound Weave Lane	Operate Efficiently	Medium	2023
US 395/Court Street Interchange to I-182 Interchange Northbound Weave Lane	Operate Efficiently	Medium	2023
Grade Separate Ridgeline Dr Intersection	Add Capacity Strategically	High*	
Study and Scope Complete Roadway - Kennewick Ave to 10th Ave and 10th Ave to 27th Ave	Planning	Low	2019
Incident Response Team for US 395	Operate Efficiently	Medium	
Traffic Management Center to Serve the Tri-Cities	Manage Demand	Medium*	
Variable Rate Tolling	Manage Demand	High	
Continue Expansion of Park and Ride Lots	Manage Demand	Medium*	
Expand and Promote Vanpooling	Manage Demand	High*	
Expand and Promote Transit Service	Manage Demand	High*	

[1]Year equals date that it falls below level of service D
**requires local commitment (money and time)*

Pedestrian Crossing Modifications at Kennewick Avenue and Clearwater Avenue

There are two viable alternatives to balancing motorized traffic and pedestrian needs for the Clearwater Avenue and Kennewick Avenue intersections. Both strategies allow signal progression to be retained for motorized vehicles providing a significant mobility benefit:

1. Constructing a pedestrian bridge would provide free-flow movements for pedestrians and remove conflicts with motorized vehicles. Pedestrians would ascend and descend over US 395 in order to cross the highway.
2. Constructing a median refuge would allow pedestrian movements to be at-grade. It may take pedestrians two traffic cycles to cross.

WSDOT will work with the City of Kennewick to select an alternative.

Meter Traffic through the Signalized Corridor

Metering traffic only during peak traffic hours is a very low cost strategy and would return balance to the signal timing in proportion to the highway-to-side street traffic ratio. Traffic on the side streets would experience longer queues and longer delays. This has significant mobility benefits for US 395 at very low cost.

Construct Complete Roadway from SR 240 to Kennewick Avenue

This high cost strategy has a high benefit/cost ratio and will provide high mobility to one of the most congested segments in the study corridor. This strategy not only significantly improves highway operations but also enhances non-motorized connectivity and improves quality of life in the surrounding neighborhood. The existing disconnected pedestrian-bicycle route will be address via the non-motorized shared-use path (listed separately in Chapter 6) has been included as part of this strategy. Further, a noise wall is included along the north side of the highway, between Ely and Yelm Street.

Construct Double Left-Turn Lanes at 10th Avenue

This is a low cost strategy with a very high benefit/cost ratio to address congestion in a spot location. This strategy extends the operational life of this corridor segment and delays the need for more costly capacity improvements.

I-182 Interchange – US 395 to 20th Avenue Eastbound Weave Lane

Medium cost strategy with an extremely high benefit/cost ratio to address weave congestion. This strategy will extend the operational life of the I-182/US 395 Interchange and delay or eliminate the need for higher cost fixes.

US 395/Court Street Interchange to I-182 Interchange Northbound Weave Lane

Medium cost strategy with a very high benefit/cost ratio to address weave congestion. This strategy will extend the operational life of the I-182/US 395 Interchange and delay or eliminate the need for higher cost fixes.

Grade Separate Ridgeline Drive Intersection

This is a high priority strategy for the City of Kennewick who have already begun planning and scoping the project. This strategy will provided enhanced access to the growing Southridge Sub-Area while addressing safety and mobility concerns created by high-speeds and steep grades.

Study and Scope Complete Roadway from Kennewick Avenue to 10th Avenue and 10th Avenue to 27th Avenue

This is a low cost incremental strategy to further study and scope additional lanes and non-motorized facilities from Kennewick Avenue to 10th Avenue and from 10th Avenue to 27th Avenue. Congestion on these segments is increasing and the highway is projected to fail within the near term. The additional lane will have significant mobility benefits for US 395.

Incident Response Team (IRT) for US 395

This is a medium cost strategy with low mobility benefits for the corridor; however, as the highway becomes more congested, mobility benefits will increase.

Traffic Management Center (TMC) to Serve the Tri-Cities

The Tri-Cities is one of four areas in the state monitored for major congestion, but is the only location without a TMC. This is a high cost strategy that would allow expanded monitoring of congestion in the Tri-Cities area. The "add dynamic travel time signs" strategy, listed separately in Chapter 6, has been incorporated as part of this strategy.

Variable Rate Tolling

Variable rate tolling is a high cost strategy that would reduce traffic congestion during peak times. This strategy can be implemented incrementally and would begin collecting revenue for corridor improvements including future expansion of the US 395 Columbia River Bridge.

Continue Expansion of Park-and-Ride Lots

This medium cost strategy has low mobility benefits that would continue expansion of park-and-ride lots. Using least cost methodology and to continue developing a more sustainable transportation system, this strategy can be implemented incrementally to reduce or increase the scale as funding is available or the need arises.

Expand and Promote Vanpooling

This is a high cost strategy with low mobility benefits for the corridor. Using least cost methodology and to continue developing a more sustainable transportation system, this strategy can be implemented incrementally to reduce or increase the scale as funding is available or the need arises.

Expand and Promote Transit Service

This is a high cost strategy with low mobility benefits for the corridor. Using least cost methodology and to continue developing a more sustainable transportation system, this strategy can be implemented incrementally to reduce or increase the scale as funding is available or the need arises.

Long Range Strategies

Long range strategies carried forward in the study would be most effective if implemented after medium range strategies have reached the limits of their effectiveness; it is anticipated this will occur about 15 years after acceptance of the study given current trends. Some of these strategies may be needed due to growth (i.e., new development) in the area and not solved by medium range solutions. At this time (in 15 years) the long range strategies should be re-evaluated to see if they are still deemed viable options. Again, strategies rejected in the study should be re-evaluated to see if they now can move forward as viable solutions. High cost long range strategies should be further studied and scoped before this time to refine the configuration and cost, and to develop a financing strategy. Because of the complexity of a new river crossing, it is recommended that this option continue to be studied and refined within the first five years of this study's approval.

Long Range			
Strategies chosen to move forward	*Moving Washington Strategy*	*Cost Level*	*Est. Year of Need[1]*
Construct Complete Roadway from Kennewick Ave to 10th Ave	Add Capacity Strategically	High	2019
Construct Complete Roadway from 10th Ave to 27th Ave	Add Capacity Strategically	High	2018
Construct Additional Columbia River Crossing	Add Capacity Strategically	Very High	2020
Re-Construct Lewis St/Sylvester St Interchange	Add Capacity Strategically	High	2032
Construct Complete Roadway from 27th Ave to I-82	Add Capacity Strategically	High	2029

[1]Year equals when it is estimated to falls below level of service D
**requires local commitment (money and time)*

Construct Complete Roadway from Kennewick Avenue to 10th Avenue

As traffic volumes continue to increase and other strategies have been implemented and are now exhausted, this high cost strategy will be necessary to address congestion. The non-motorized shared-use path (listed separately in Chapter 6) is included as part of this strategy and will enhance non-motorized connectivity and further improve highway operations.

Construct Complete Roadway from 10th Avenue to 27th Avenue

As traffic volumes continue to increase and other strategies have been implemented and are now exhausted, this high cost strategy will be necessary to address congestion. The non-motorized shared-use path (listed separately in Chapter 6) and a noise wall north of 19th Avenue and along the west side of the highway is included as part of this strategy. Not only does this strategy significantly improve highway operations, but it will enhance non-motorized connectivity and improve quality of life in the surrounding neighborhood.

Construct Additional Columbia River Crossing

The US 395 Columbia River Bridge is a major bottleneck in the region and there is strong interest and support from the local communities for another Columbia River crossing. This is a high cost strategy with a low benefit/cost ratio along corridor; however, this strategy will have significant benefits that will extend beyond the immediate vicinity of the corridor. Pedestrian and bicycle facilities will be improved as part of this strategy to enhance mobility for alternative transportation modes as well. The non-motorized shared-use bridge would no longer be necessary because the new bridge will include pedestrian and bicycle facilities.

Re-Construct Lewis Street/Sylvester Street Interchange

This is a high cost strategy and would significantly improve the configuration of the interchange. The City of Pasco has long expressed interest in re-configuring the interchange and WSDOT will continue to work with the local community to refine this strategy.

Construct Complete Roadway from 27th Avenue to I-82

This is a high cost strategy. Truck freight and other slow vehicles will be able to use the right lane as a climbing lane to travel the steep grade. This strategy will need to be reevaluated as the Southridge Subarea development progresses to determine if this improvement is still needed. The non-motorized shared-use path (listed separately in Chapter 6) may be constructed in an alternate location.

Funding

How Will We Pay for the Projects Identified in the US 395 Study?

Strategies chosen to move forward have different levels of financial commitment and implementation timing. Some costs are one time, while several operational strategies are yearly costs that will require an ongoing commitment to be effective. Low cost strategies are fundable out of existing state and local resources based on priority for that agency. Medium cost strategies are fundable with local Surface Transportation Program (STP) allocations, grants or existing state funds if they qualify and depending on priority. Projects over $5 million (high cost) may qualify for grants but will most likely need new revenue sources to be constructed, such as tolls or local taxing options. A new Columbia River crossing is identified as very high cost (over $100 million). This would need to be constructed with a new revenue source such as tolling the crossing.

What Funding Sources are Available for these Projects?

WSDOT traffic operational funding (Q program) can be used to fund traffic operation strategies, such as the Tri-Cities Traffic Management Center, ramp metering, and metering traffic through signals. Funding strategies for alternate modes have funding and grants available through WSDOT Public Transportation Office and Federal Transit Administration (FTA), such as Commute Trip Reduction (CTR) program, park-and-ride lots, transit, etc. The local jurisdictions benefit from many strategies and can apply funding strategies from their resources, such as the Transportation Improvement Board (TIB), local STP or Transportation Alternatives Program (TAP) funds allocated to Metropolitan Planning Organizations (MPOs). Projects with high benefit/cost ratios and low to medium costs should be able to compete for state highway improvement funds (I program), especially if increased transportation funding happens at the state or federals level. Since many strategies are of regional significance or importance, they will compete well for state or federal grants, such as Transportation Investment

Generating Economic Recovery (TIGER), freight mobility or other grant programs. Tolling is listed as a strategy to manage demand but is also a revenue stream for higher and/or long range strategies.