

**Himes, Dale**

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**From:** Ron Anderson [Rqa@deainc.com]  
**Sent:** Friday, January 23, 2004 1:25 PM  
**To:** himesd@wsdot.wa.gov  
**Cc:** Jay Lyman  
**Subject:** I-5 Trade Corridor Approach



I-405  
ementation Plan\_02

Attached - if it isn't too big to download on the WSDOT site - is an implementation plan we prepared for I-405. Included is a schedule that does nothing more than provide visually what elements need to be considered.

The reason I wanted you to see this - is we held a two day workshop with several "big project" experts to develop the implementation plan. The draft plan that I attached was the write up for the two day workshop.

Not sure you want to go down that path - but having a workshop that follows WSDOT's Value Analysis process, with selected experts in attendance, is one way to get a lot of input from smart people. WSDOT can facilitate the workshop process. Then you could pull in a representative from Parson's Corporation (T-Rex project in Denver), Jacobs, HNTB, or others that have relevant experience. I could provide several names that would fit the bill. Then, it would be difficult to say any one firm has an unfair advantage in helping develop an approach.

Of course I would welcome the opportunity to be involved also.

Thanks, Ron

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*I-405  
CORRIDOR PROGRAM*

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**DRAFT**

**I-405 IMPLEMENTATION PLAN**  
**Sequencing Scenarios Leading to Construction**

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February 12, 2001

# I-405 CORRIDOR PROGRAM IMPLEMENTATION PLAN

This report is organized to provide a rapid program delivery proposal for implementation of improvements recommended in the I-405 Corridor Program. Key elements of the report are as follows:

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### List of December 20<sup>th</sup> & 21<sup>st</sup> Implementation Workshop Participants:

Michael Cummings	I-405 Corridor Planning Manager
Craig Stone	Area Administrator – South King
Brian Zeigler	State Design Engineer
Roger Horton	Asst. State Design Engineer, NW Region
Azim Sheikh-Taheri	Program Manager, NW Region
Kim Henry	Engineering Manager – South King
Ken Smith	Facilitator, Asst. State Design Engineer
Carol Hunter	Transportation Planner, OUM
Jeff Carpenter	Alternate Project Delivery Manager
Jim Leonard	FHWA
Ron Anderson	DEA, I-405 Corridor Project Manager
Dennis Sipila	DEA, Senior Design Manager
Bruce Wasell	Sverdrup, Senior Project Manager
Mark Mulvihill	Sverdrup, Senior Project Manager

### List of January 30th Budget Workshop Participants

Michael Cummings	I-405 Corridor Planning Manager
Craig Stone	Area Administrator – South King
Dave Dye	Deputy Regional Administrator, NW Region
Helena Kennedy-Smith	Assistant Director, Office of Urban Mobility
Azim Sheikh-Taheri	Program Manager, NW Region
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Martin Palmer	Environmental Program Manager, NW Region
Ben Brown	Documentation Program Manager, NW Region
Ron Anderson	DEA, I-405 Corridor Project Manager
Dennis Sipila	DEA, Senior Design Manager

# Summary

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## INTRODUCTION

The I-405 Corridor Program's Executive Committee requested information on the amount of time required to implement major elements of the alternatives being considered in the Program's Environmental Impact Statement (EIS). Following this request, legislative and funding groups requested similar information as a means of determining the Program's funding needs for the next 2- and 6- year periods. To respond to these requests, the Washington State Department of Transportation has developed a preliminary response that presents an aggressive approach to developing only the freeway elements of the Program.

This aggressive approach assumes freeway improvements will be included from Alternative 3. Currently the alternative contains approximately \$5.6 billion of freeway investments, and an initial phase would include an approximately \$2 Billion investment. (\$1.1 Billion in the first 6 years). For this analysis it was assumed the initial major investment would begin in the south end of the I-405 corridor and include selected investments north of I-90. Both the alternative and the phasing selected represent one of several possible scenarios, and can be modified based on any changes to the alternative or phasing. The Program understands that significant work is still required to develop a final recommendation and major environmental issues need to be addressed.

On January 25, 2001, the I-405 Executive Committee approved Alternative 3, estimated to cost \$6.8 billion, as the Preliminary Preferred Alternative for programming purposes. Selection of a Preferred Alternative will occur in spring, 2001. Final recommendations will be made in late 2001.

This Implementation Plan reflects a combination of historical knowledge of projects in Washington State, other fast-track MIS/EIS projects across the United States, and results from a facilitated implementation workshop of experts held by WSDOT on December 20 and 21, 2000. The focus of the workshop was on improvements proposed for the Interstate and State highway portions of the program as the primary responsibility of the Washington State Department of Transportation. A follow-up budget workshop was held by WSDOT on January 30, 2001 to identify the 2-year and 6-year budget levels needed to begin an aggressive delivery schedule for the I-405 and SR 167 improvements.

Included in this summary are specific actions, funding requirements, potential risks, and a schedule for implementing the plan.

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## ASSUMPTIONS

For programming purposes, development of the implementation plan was based around Alternative 3, which provides a "mixed mode" approach to roadway and transit improvements in the study area. Key assumptions are as follows:

- Major project sections, with independent utility, will be completed on the fastest schedule practicable.
- Construction will be substantially underway within six years with visible progress.
- Programmed improvements will be fully funded to completion.
- Other committed study area and regional projects are completed in coordination with new I-405 Corridor Program projects.
- Local/complimentary arterial projects are programmed and coordinated to reduce travel impacts during construction.
- Environmental enhancements and Transportation Demand Management activities will be initiated prior to major construction in the corridor to support environmental objectives and reduce travel demands.
- TSM/ITS programs are completed ahead of major construction to manage traffic operations during construction activities.
- The construction industry has the capacity to support and deliver a robust program.

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## RECOMMENDATIONS

**Summary of Actions:** The following are specific actions recommended from the Implementation and Budget Workshops:

- Pursue funding for construction of the \$1.9 billion section of I-405 between I-5 at Tukwila and I-90. This area has the highest levels of congestion in the corridor. Ensure funding to compliment Sound Transit's N. 8<sup>th</sup> Street Direct Access project in Renton, and with the Port Quendall NE 44<sup>th</sup> Interchange project.
- Pursue funding in the 2001-2003 biennium for environmental review and engineering for the section of I-405 from I-90 to SR 520. Coordination is needed for key design decisions with Translake, the Bellevue Access project, and the Sound Transit I-90 changes. Pursue construction funding for the section of I-405 between I-90 and the Bellevue Access ramps.
- Pursue funding in the 2003-2005 biennium to start environmental review and engineering for the section of I-405 from SR 520 to I-5. Ensure funding to complement with Sound Transit's NE 128<sup>th</sup> Street Direct Access project in Kirkland and the Bothell Campus Access project.
- Develop a financing plan during the 2001-2003 biennium and coordinate with the Translake financing plan.
- Pursue legislation prior to completion of the 2002 session that allows use of Design-Build for the I-405 Corridor Program.
- Develop an organization around the I-405 Corridor Program that assures management commitment to an aggressive schedule, along with establishment and staffing of a project team.
- Include development of an early action processes that includes:
  - ◆ Implementation of TDM and TSM/ITS programs aimed at reducing travel demand and managing traffic impacts during construction;

- ◆ Basin planning and construction of environmental enhancement programs that allow for permitting;
  - ◆ Relocation of utilities; and
  - ◆ Advanced right-of-way acquisitions.
- Assure \$48.9 million in design funding in the 2001-03 biennium for the following:

**Table 1 - Funding Needs for the 2001-03 Biennium and 2001-07 6-Year Period**

	Estimated Expenditures in Millions		
	FY 2002	FY 2003	2003-07
1) I-5 to I-90	\$ 4.0	\$ 16.0	\$ 940.0
South Renton \$320			
North 8th \$ 70			
NE 44th \$ 50			
2) I-90 to SR 520	\$ 3.0	\$ 5.0	\$ 50.0
I-90 to Bellevue Access			
Bellevue Access			
3) Financial Plan	\$ 4.0	\$ 1.0	\$ 1.0
4) SR 167 Corridor Plan/EIS	\$ 0.8	\$ 0.5	\$ 4.0
I-90 Corridor	\$ 0.5	\$ 0.5	\$ 4.0
5) I-405 Advanced Right of Way		\$ 5.0	*
6) Environmental Enhancements (Advanced)	\$ 0.7	\$ 3.0	*
7) Advanced construction- Utilities		\$ 3.0	*
8) TDM - Corridor	\$ 0.5	\$ 0.6	\$ 40.0
9) ITS - Corridor			\$ 5.0
10) Ongoing Projects	\$ 0.3		\$ 30.0
11) SR 520 to SR 522/195th		\$ 0.5	\$ 50.0
Kirkland			
Bothell			
12) SR 522 to I-5			\$ 10.0
TS&L, Hydraulic Design			
SR 527			
<b>Total</b>	<b>\$ 13.8</b>	<b>\$ 35.1</b>	<b>\$ 1,134.0</b>
* Enhancements, Utilities et al included in other totals for 2003/07			

## RISKS TO SUCCESSFUL IMPLEMENTATION

Critical risks to aggressive scheduling and rapid implementation involve events that may impact the start of construction. A partial list of such risks is below:

- **Funding Delays** – Whether the project is funded by the legislature or by a vote, funding may take longer than anticipated.

- **Public Initiative Processes** – Recent public initiatives have impacted transportation funding and planning processes.
- **Agency Concurrence** – Federal, state, local agencies and jurisdictions will need to concur with future planning and design processes. Delays may occur if one or more agencies do not concur at designated concurrence points.
- **Community Support** – Delays may result if neighborhoods become concerned with construction impacts, either direct or indirect, as detailed plans become more specific.

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## SCHEDULE FOR IMPLEMENTATION

Based on WSDOT's I-90 experience and national research on similar large corridor projects, the maximum size of a single project phase should not exceed \$1.5 to \$2.0 billion with a construction timeframe of no more than six years per phase. The entire I-405 corridor would be constructed in phases and would be completed by the year 2018 depending on commitment for funding and permitting issues. Annual expenditures of \$350-450 million will be required to complete the major elements of the \$6.8 billion I-405 Corridor Program within this timeframe.

Recommendations are to begin work at the south end of the I-405 corridor by constructing the section between I-5 at Tukwila to I-90 in Bellevue as one project, estimated to cost about \$1.9 billion. This segment addresses the most congested areas of the corridor in Renton and their connection with SR 167.

Figure 5 represents two strategies for construction: the "Accelerated Traditional" and "Design Build." The traditional approach is similar to current practices for other major WSDOT projects, but has been streamlined to achieve a faster groundbreaking date. Initial utility/TDM/environmental construction contracts could be awarded as early as mid-2004, with significant project construction in later 2006. The design-build example has an even more aggressive schedule with major construction potentially beginning in fall, 2005. The design-build process would be completed about two years earlier than the traditional delivery process.



# Corridor Needs/Assumptions

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## PURPOSE OF THE IMPLEMENTATION PLAN

I-405 serves as a vital regional travel corridor east of Interstate 5 within the Puget Sound Region. Growing traffic congestion within the corridor has a negative impact on personal and freight mobility, the state and regional economy, the environment, and quality of life issues.

Public officials' awareness of the deteriorating mobility on the Eastside helped spur a comprehensive study of the I-405 corridor. The 1998-1999 State Legislature provided funding for a partnership of State, Federal, regional, and local decision-makers to set the stage for identification and implementation of corridor improvements. The outcome of the I-405 Corridor Program is expected to be a regional strategy that will respond to travel needs, accommodate future growth, provide for a sustainable environment, and enhance livability within the affected communities.

Work on the I-405 Corridor Program began in February 1999. From the beginning, members of the Executive, Citizens, and Steering Committees have expressed a sense of urgency in developing and implementing recommendations. Final recommendations are expected when the Final Environmental Impact Statement is completed in late 2001. A final federal Record of Decision for the corridor improvements is expected in late 2001/early 2002.

In the interim, both the Governor and Washington State Transportation Commission have prepared budgets for the 2001-2003 biennium that provides funding for improvements to I-405. Each legislative session provides a window of opportunity to assure funding is available and to maintain momentum for early implementation of recommendations.

This implementation plan proposes a fast track process for delivery of improvements that could be recommended from the I-405 Corridor Program. Included in the plan is a discussion of suggested project delivery methods, schedules, and funding needs.

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## ASSUMPTIONS

Selection of a preferred alternative will be made in late spring 2001, with publication of the Draft EIS. Final recommendations will be made in late 2001. For programming purposes, development of the implementation plan was based around Alternative 3 which provides a mixed-mode approach to roadway and transit improvements in the study area.

In addition to the new projects and actions that will emerge from the I-405 Corridor Program, there are a significant number of ongoing projects that are in the development phase and will have an influence on the implementation plan. They are:

- Direct Access Projects
 

Bellevue Access Project	\$165 million	ST Lead
Kirkland Access Projects	\$ 40 million	ST Lead
Port Quendall/NE 44 <sup>th</sup>	\$ 72 million	Renton Lead
Renton N. 8 <sup>th</sup>	\$ 50 million	ST Lead
Bothell/SR 522 (UofW Campus)	\$ 18 million	ST Lead
SR 167/SW 27th	\$ 40 million	Renton Lead
- SR 169 HOV Queue Jump
- I-405/SR 167 SB Ramp Modification
- I-5/SR 518 Interchange
- SR 527 to I-5 HOV Lanes

Other key assumptions used to guide the development of the implementation plan are as follows:

- Construction will be substantially underway within six years with visible progress.
- Programmed improvements will be fully funded to completion.
- Major project sections, with independent utility, will be completed on the fastest schedule practicable.
- Other committed study area and regional projects are completed in coordination with new I-405 Corridor Program projects.
- Local/complimentary arterial projects are programmed and coordinated to reduce travel impacts during construction.
- TDM/TSM/ITS programs are initiated ahead of major construction to reduce travel demand and manage traffic operations during construction activities.
- The construction industry has the capacity to support and deliver a robust program (\$300-\$450 million annually).

# Establishment of Priorities

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## PROJECT LIMITS

The estimated cost of Alternative 3 for the I-405 Corridor Program is \$6.8 billion and involves more than a hundred projects spread over 224 square miles of the study area. Primary emphasis will be placed on improvements within the 30-mile I-405 corridor (I-405 portion is \$5.6 billion including freeway connections).

Because of the size of the program, establishment of priorities is essential to assure that available funding is targeted at projects that provide the greatest benefit. For the purposes of developing the Implementation Plan, the I-405 corridor is divided into zones (see **Figure 1**) that have the potential to meet the federal environmental test for independent utility. The capital components are:

<u>Zone</u>	<u>Interstate Estimate</u>
1. I-5 Tukwila to SR 900/Sunset Interchange & Sunset Interchange to Coal Creek	\$1.1 billion
2. Coal Creek to Northup (SR 520 I/C)	\$1.6 billion
3. Northup to NE 195 <sup>th</sup> (Beardsley Blvd.)	\$1.5 billion
4. NE 195 <sup>th</sup> to SR 527	\$0.5 billion
5. SR 527 to Swamp Creek	<u>\$0.4 billion</u>
	\$5.6 billion

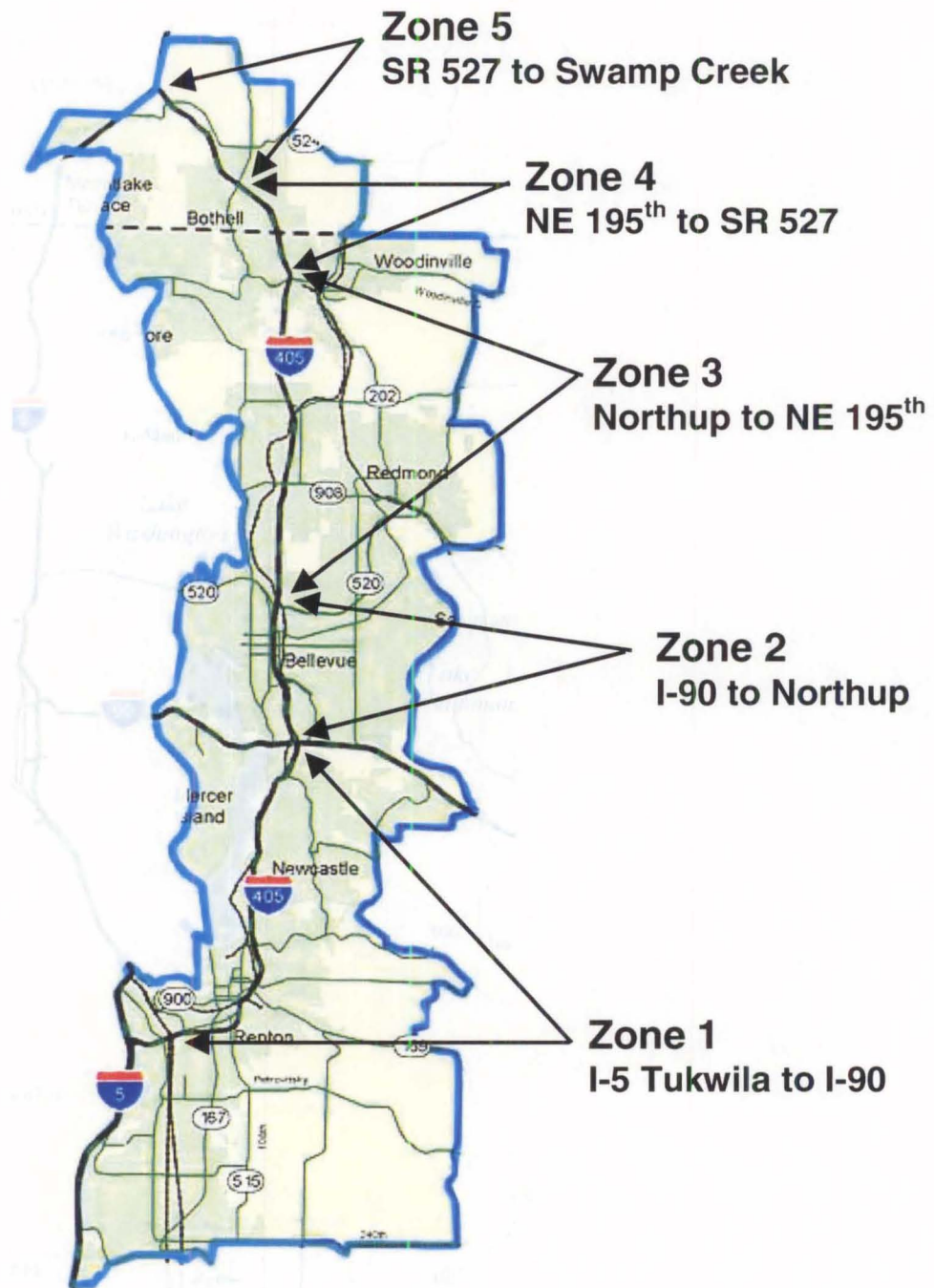
(These zone estimates do not include capital cost associated with transit, except HOV, and arterial improvements)

Based on congestion and operational problems, the I-405/SR 167 Interchange and the inter-related Renton S-Curves area (Zone 1) on I-405 are the highest priorities for improvement. Vehicles on I-405 block the mainline while queuing to go south on SR 167. As shown on **Figure 2**, the Renton area of I-405 is experiencing up to 12 hours of congestion daily. As a minimum, major reconstruction of the I-405/SR 167 Interchange, along with connecting ramps, can be accomplished as one project. However, the entire section of I-405 between I-5 and I-90 should be developed concurrently and is considered the highest priority for the 30-mile I-405 corridor.

**Figure 3** graphically shows current operating conditions on I-405 and SR 167. The length and duration of the congested operations are most severe in Zone 1. This zone has two general-purpose lanes plus an HOV lane in each direction. To the north of Coal Creek in Zones 2 & 3 there are up to eight and nine lanes.

Figure 1 - Primary Study Area Project Segments

### I-405 Implementation Plan Project Segments for Sketch Level Planning



Final design is underway for the Bellevue and Kirkland HOV Direct Access Projects. Operational and congestion problems within the area between I-90 and SR 522 (Zones 2 & 3) make this the second highest priority for implementation.

Completion of an additional HOV lane in Zone 5 this year will result in improved traffic operations, and represents the last segment of core HOV lanes on I-405. Zones 4 & 5 are the third area for implementation of corridor improvements.

Figure 2 - Traffic Congestion, Hours of Congestion per Day, I-405 South to North, 199(\_)

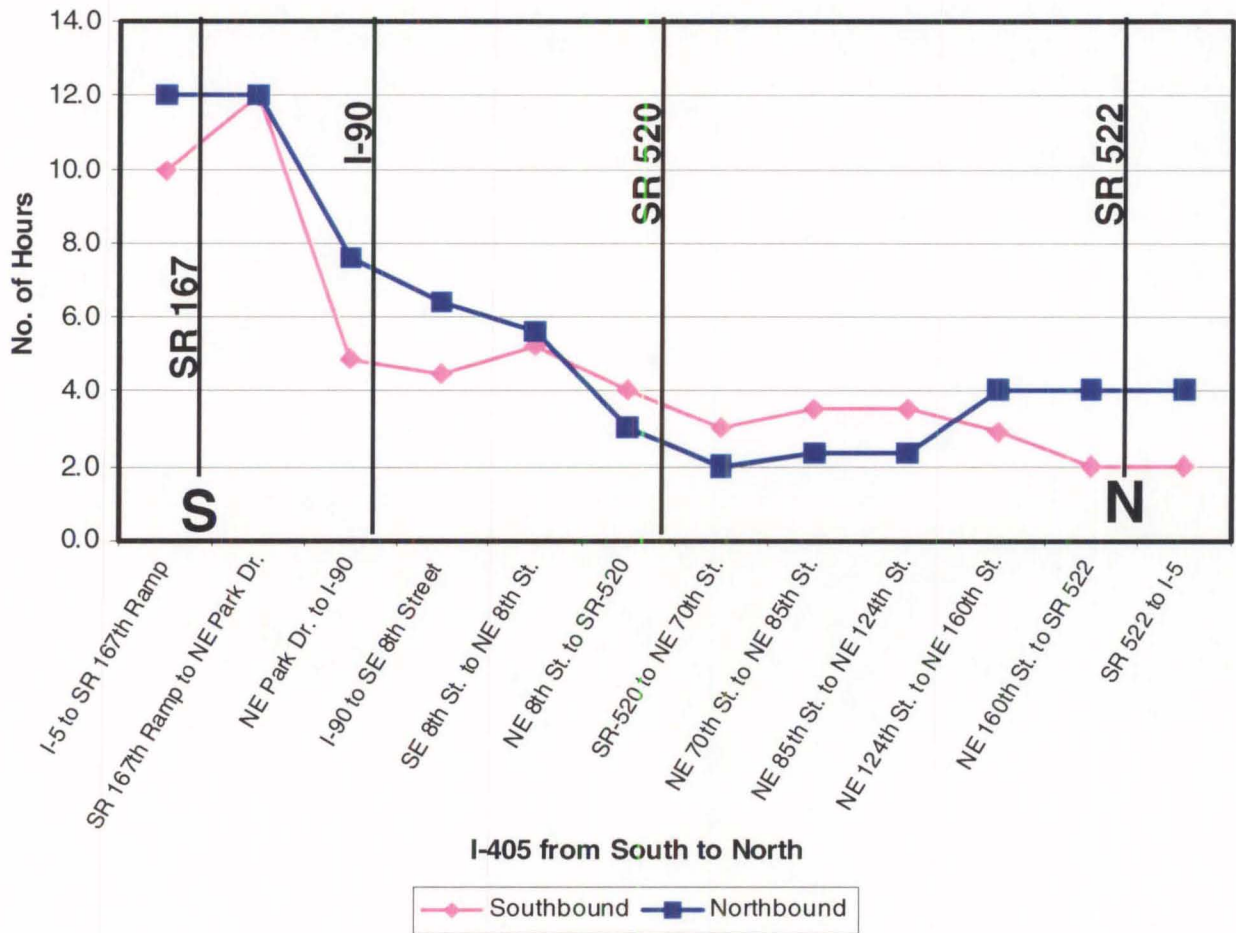


Figure 3 - I-405 & SR 167 Traffic Profile: General Purpose Lanes, 1999 Weekday Average  
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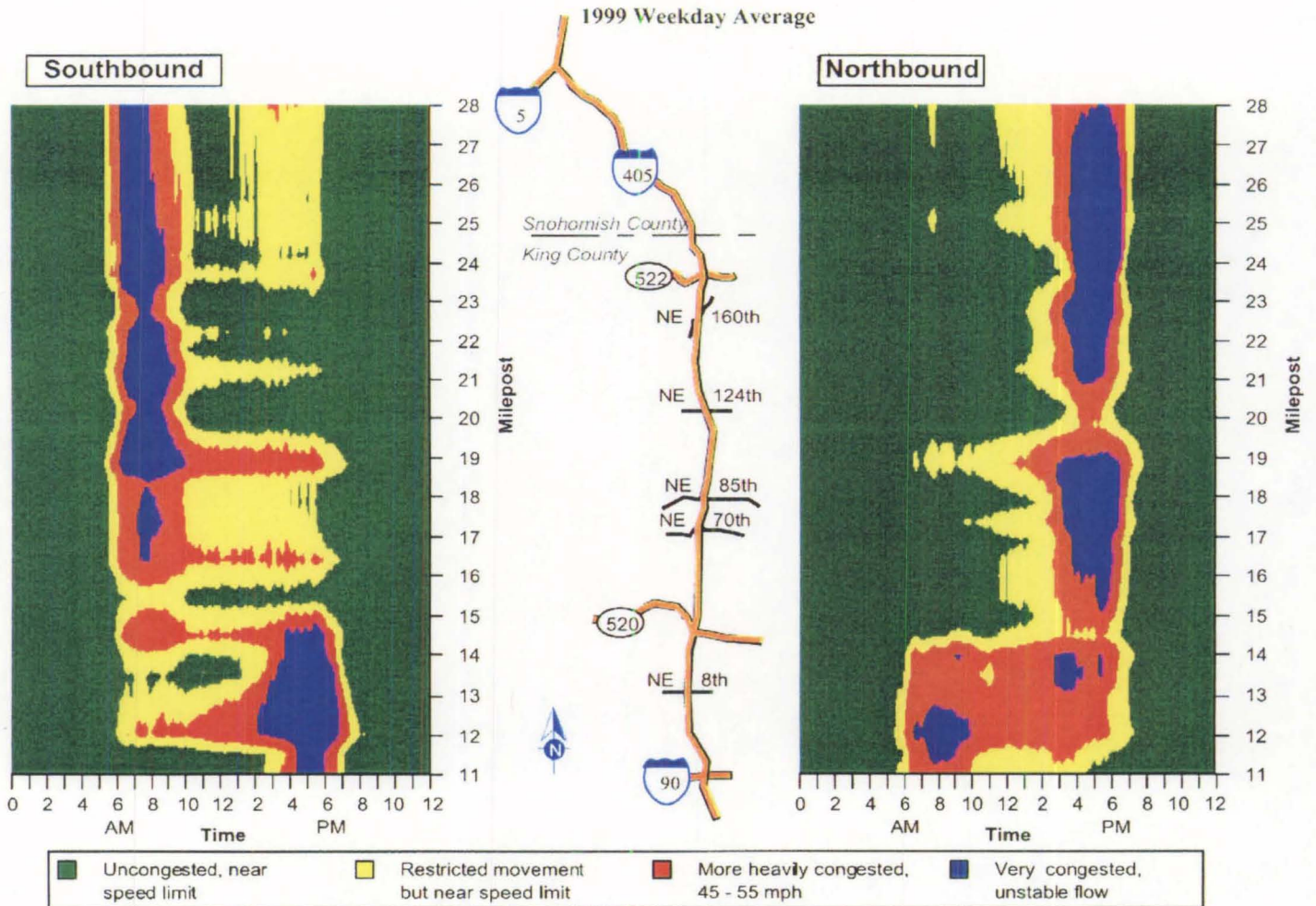


Figure 3 - I-405 & SR 167 Traffic Profile: General Purpose Lanes, 1999 Weekday Average  
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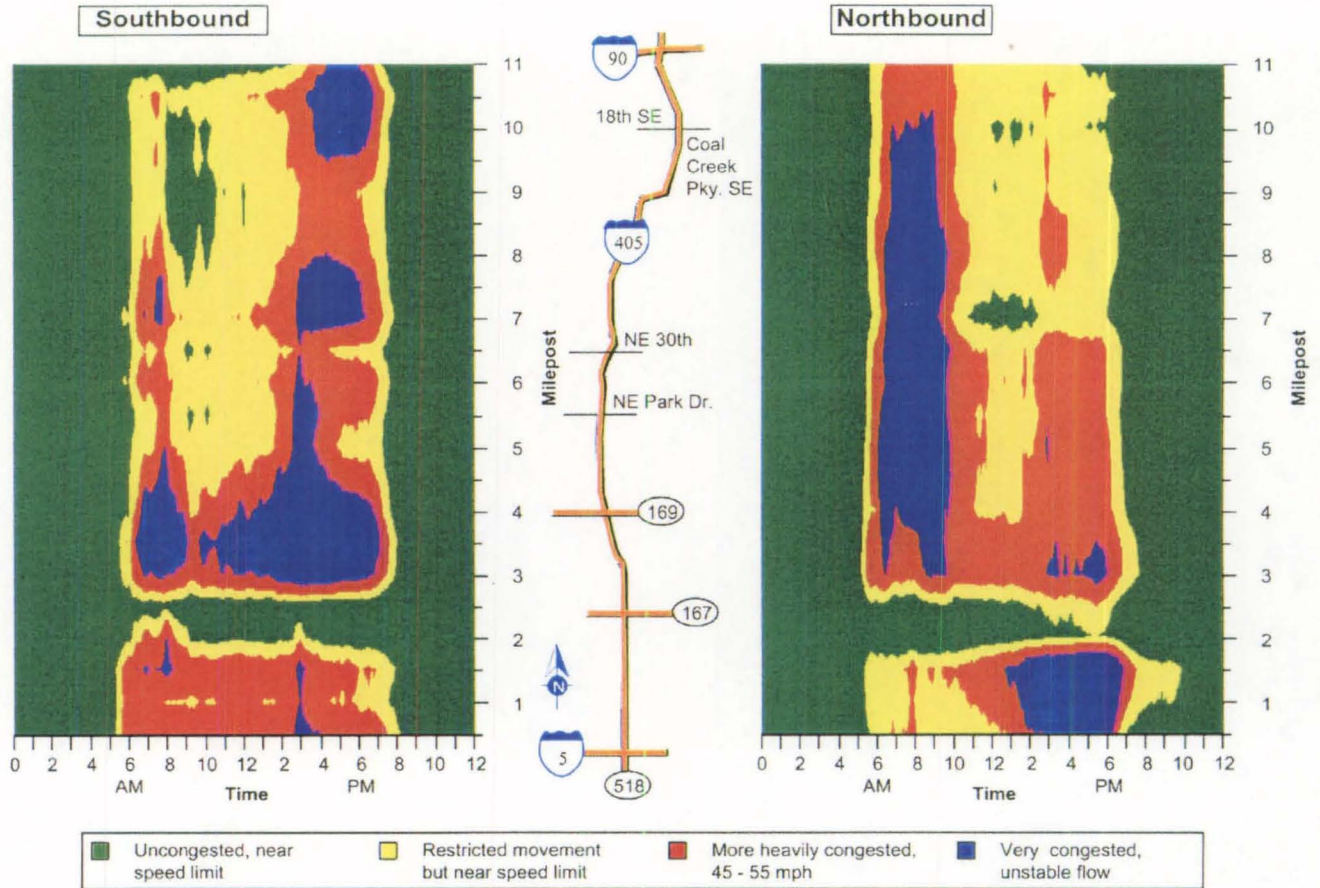
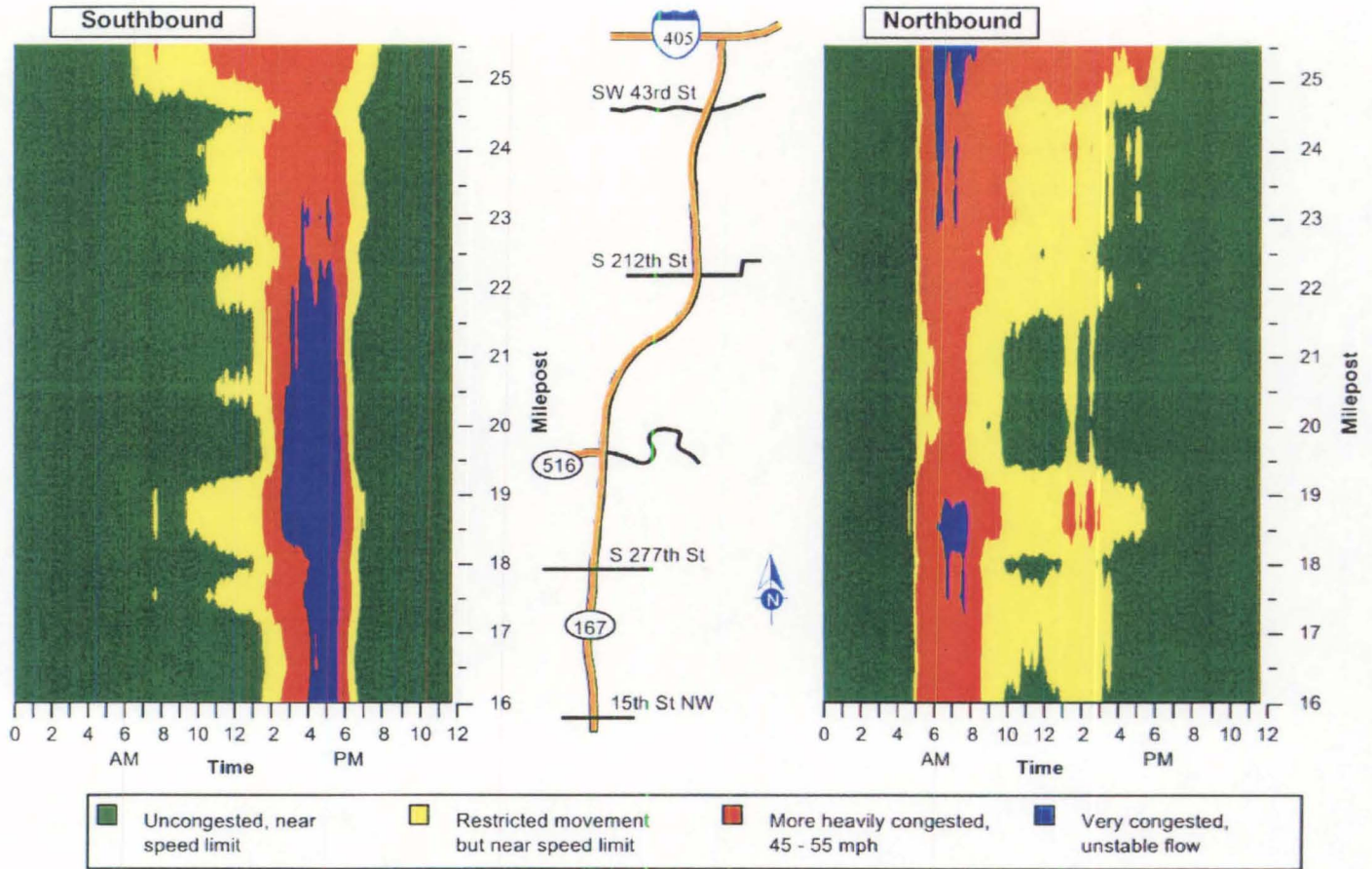


Figure 3 - I-405 & SR 167 Traffic Profile: General Purpose Lanes, 1999 Weekday Average  
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# Project Delivery Methods

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## CURRENT TRENDS IN PROJECT DELIVERY –

Mobility problems in the I-405 corridor are bad and getting worse each year as population and employment increases. The public will demand quick implementation for any of the build alternatives. Traditional straight-line (or sometimes times referred to as linear) project delivery methods where specific projects are first designed, and then advertised for construction and built, typically require more time to complete than newer, innovative delivery methods.

For the purpose of developing this Implementation Plan, two fast-track project delivery methods were evaluated. One is a modification to WSDOT's traditional delivery approach (accelerated traditional) that would allow for the overlap of the design and construction phases. This would result in several major projects being constructed at the same time in the zone between I-5 in Tukwila and I-90. The preliminary engineering would build on the corridor-level EIS and 30% of the project design would be completed for the entire zone. The zone then could be divided into buildable segments for final design, permitting, and construction. The time frame required for the accelerated traditional project delivery process for a \$1.5-\$2.0 billion segment would be seven to nine years. **Figure 4** shows possible durations for project design, right-of-way, and construction for an accelerated traditional approach for the section from Tukwila to I-90.

The I-90 completion project provides a good example of how the accelerated WSDOT traditional project delivery system works. Construction on this \$1.5 billion, seven mile long project began in 1986 and was essentially completed on schedule and within budget in 1993. About 30 major contracts were awarded, with the majority being constructed concurrently. WSDOT's ability to deliver this complex project on time require a special office and establishment of an organization and management oversight process to assure coordination between design and construction elements.

The second fast-track project delivery system is design-build. The use of the term design-build covers many variations of the same process. Basically, this method of project delivery involves quoting WSDOT a price early-on for both design and construction of the entire segment under one project. The essential identifying element of the design-build method of project delivery is the single point responsibility of the design-build principal, typically a general contractor. The following section lists several design-build projects. Two of which, I-15 in Salt Lake City and the I-25 Southeast Corridor Project in Denver, are similar in size and scope to Zone 1 of the I-405 corridor. These fast-tracked projects are estimated to reduce overall delivery time by two years compared to traditional methods. It is noted that design-build methods have been successful in reducing delivery time for major infrastructure projects, they have not resulted in significant reduction (or increases) in total project costs.



## OTHER CORRIDOR PROJECTS

A literature search of other nationwide corridor projects was conducted to find examples of expedited project delivery. Following is a list of projects that share characteristics in common with the I-405 Corridor Program. The I-15 project in Salt Lake City and I-25 Southeast Corridor project in Denver are highlighted and reviewed in more detail.

Location	Title	Scope	Years	Included
Washington D.C. Region	Virginia Western Corridor Case Study	MIS to study a potential new freeway corridor through the Suburbs of Washington D.C.	1990 to Present	Not Included: Still in EIS Phase.
Orange County, CA	I-91 HOT Lanes	Public Private Partnership to build HOT Lanes in LA Region.	1995 to Present	Not Included: Limited Range of Project.
Northern Georgia	Northern ARC Study	MIS, FFS, and EIS to build a new east-west freeway through Northern Georgia.	MIS - 1997 - 1999. Currently in FFS phase.	Not Included: Too Rural for Comparison.
Houston, TX	West Loop Case Study	MIS to build HOV lanes in the suburbs of Houston.	1997 - 2000	Not included: Project stalled after original concepts did not adequately address purpose and need.
Salt Lake City, UT	I-15 Corridor Study	MIS: Design-Build to redesign I-15 through Southern Salt Lake City.	1988 - Present	Selected -- Right mix of urban/suburban, congested corridor and rapid timeline.
Denver, CO	Southeast Corridor Study	MIS: Design Build to rebuild I-25 south of Denver. Includes Light Rail.	1990 to Present	Selected -- Urban/ suburban mix, public vote, multi-modal.

The I-15 Corridor runs through southern Salt Lake City. The I-15 project was, like the I-405 Corridor Program, built on the foundation of several previous multi-modal corridor studies. Also like the I-405 Corridor Program, the I-15 corridor had exceeded its design life in several locations and predicted growth along the corridor would exacerbate existing levels of congestion. It was therefore necessary to expedite the process, due to design considerations. Another factor in accelerating the timeline was the 2002 Olympics.

The project resulted in a total redesign of I-15. This included new interchanges along the length of the 17-mile corridor and intersecting surface streets. This involved one additional general-purpose lane in each direction, new HOV lanes, 142 bridges, three major freeway-to-freeway interchanges, eight new interchanges, and an Advanced Traffic Management System (ATMS).

At the completion of the FEIS, an Request for Qualifications (RFQ) for a design-build contractor was issued. After one month, Statements of Qualifications (SOQs) were received and three teams were shortlisted. These three teams then saw and commented on the draft design-build Request for Proposal (RFP). Four months after receiving the federal Record of Decision (ROD) on the environmental impact statement, the RFP was formally released to the shortlisted teams. The teams were given two months to submit proposals.

Three months after the proposals were received, negotiations were finalized and an official Notice to Proceed was issued to the contractor. The 17-mile, \$1.3 billion contract began on April 15, 1997, with 30% design already completed. Construction is on schedule and is scheduled for Substantial Completion in July 2001 and Owner Acceptance in October 2001, about 4 1/2 years duration from notice to proceed. Expenditures were greater in the first year than last, averaging about \$300 million per year.

The decision to use design-build was based on research that indicated the public would prefer a greater level of impact in exchange for shorter construction duration. It is estimated that the design-build saved about three years compared to a traditional project delivery process.

Significant effort went into the maintenance of traffic during construction. The existing six-lane freeway was reduced to four lanes reducing capacity from 220,000 to 125,000 ADT. Over \$50 million was spent on parallel street improvements and \$70 million on ATMS elements.

Advantages of design build included having a single point of responsibility; innovative collaboration between the design and construction teams; early establishment of fixed price; schedule compression; and the reduction in demand on staffing for Utah DOT. Disadvantages included problems associated with adjustment to role changes; early establishment of criteria and requirements; commitment to expedite reviews; and, commitment to review for contract compliance only.

(<http://www.I-15.com>)

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## I-25 Southeast Corridor MIS

The I-25 Southeast Corridor runs from the center of Denver along I-25 to just south of the Denver Tech Center. The project was initiated to address high congestion and high accident rates as well as identified transit deficiencies in the corridor. High growth along the corridor and approaching gridlock conditions resulted in the MIS and construction process to be expedited.

This project is similar to I-405 corridor in that the region is rapidly growing and there is significant traffic congestion. And, like I-405, the balance and number of households and employment along the corridor has changed significantly since it was first built. In addition, these two projects also desire a multi-modal approach to transportation solutions -- although the I-25 Southeast Corridor Study had a much stronger mandate to bolster high capacity transit through the corridor.

The final recommendation of the FEIS was to design 19.7 miles of new light rail transit, ten light rail stations, additional feeder bus systems, highway shoulder widening, eight interchanges redesigned, auxiliary lanes and two new viaducts. The project also includes five new pedestrian overcrossings, ITS improvements and a corridor wide TDM plan.

One month after the Southeast Corridor Study finished its FEIS, work began on the RFP. When the draft RFP had taken shape enough to identify all the aspects of the project, an RFQ was released. Two months after releasing the RFQs, SOQs were received and a shortlist was prepared. Shortlisted firms were then provided with the draft RFP for industry comment.

At the time of this writing, the Southeast Corridor Study is in the design-build selection process. Their schedule provides for bidders to review a draft RFP for a two month period, followed by release of the final RFP and a five month proposal preparation period. Following submission of detailed proposals, including prices, selection and award should be completed in a two month period.

Funds for the Southeast Corridor Project are capped at \$1.225 billion. Completion will take six to seven years at an expenditure average of \$205 to \$175 million per year. Key issues in the design-build process that are evident in the Southeast Corridor project include:

- The importance of having a memorandum of understanding in place with private utilities that defines responsibilities for design, construction, and cost. Liability clauses need to be included that define what happens if utilities are not moved.
- Teaming is important, must be sincere, and there should be a sharing of authority. Projects that show cooperation at the state level are receiving more funding at the federal level.
- Design requirements should set clear criteria and what would not be accepted, identify areas where flexibility exists, allow for and encourage innovation, and allow flexibility from the preliminary design work.

- Agreements need to be in place with the local municipalities with set dollar limits for added work and assurance the design-build contractor will not have extra costs or be delayed due to local regulations.
- When short-listing, the State should consider requiring teams to submit copies of their joint venture agreements along with their statements of qualifications.

(<http://www.southeastcorridor.com>)

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## POTENTIAL STRATEGIES FOR CONSTRUCTION

This paper looks at two potential strategies for construction. The objectives are to accelerate start of construction and to complete useable segments in as short a time as possible. Completion of the entire I-405 Corridor Program would be based on a wide range of factors including number of phases, projects included in the construction packages, and funding.

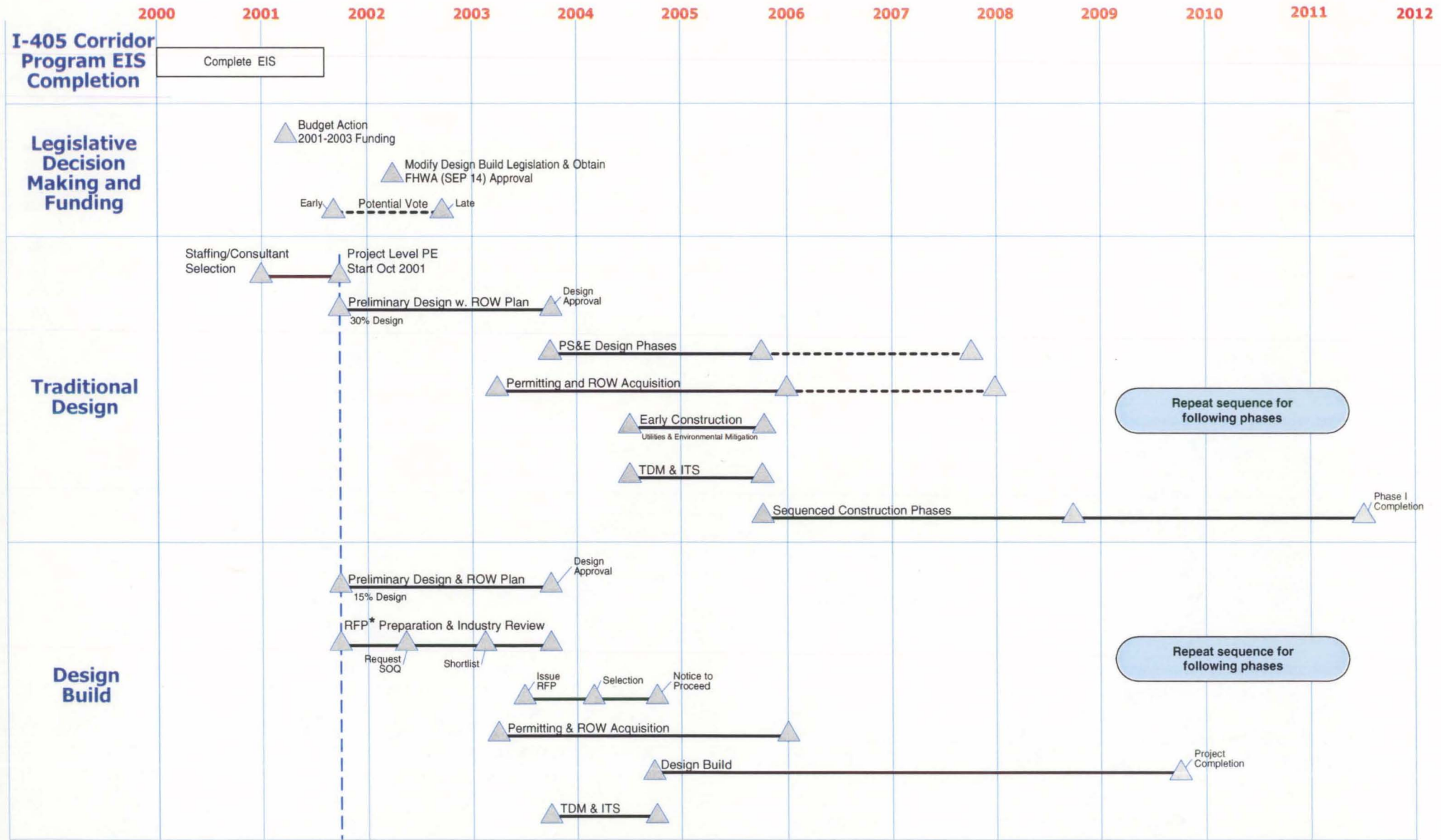
Based on WSDOT I-90 experience and the I-15 and Southeast Corridor projects, the maximum size of a single design build project should be \$1.5 to \$2.0 billion with a construction time frame of no more than six years. Preparation of a project level 30% design through design approval for the section of I-405 from I-5 Tukwila to I-90 would allow the flexibility to use either the traditional or design-build project delivery method.

**Figure 5** examines two strategies for construction: the "Accelerated Traditional" and the "Design-Build." The traditional approach uses an approach similar to other major WSDOT projects, but has been streamlined to achieve a faster groundbreaking date. Initial Utility/TDM/Environmental construction contracts could be let as early as mid-2004 with significant project construction in later 2006. The design-build example has an even more aggressive schedule with major construction beginning in fall, 2005. The design-build process would be completed about two years earlier than the traditional delivery process.

**Common to Both Approaches:** Both approaches begin with a project level design commencing at the completion of the current corridor programmatic EIS phase. The preliminary design phase would be aimed at completing the initial 30% design and project level environmental review for the entire segment between I-5 and I-90.

**The Accelerated Traditional:** Concurrent with the preliminary design, the right-of-way plans will be developed. This will allow immediate work to commence on the final project level design as well as the permitting and ROW acquisition. Early construction, consisting of fast track projects and arterial projects would be implemented in 2005. This includes ITS and TDM/TSM measures to provide as much capacity and congestion relief as possible during construction. First phase construction for I-405 would begin in mid to late 2006. Completion of the \$1.9 billion segment from I-5 to I-90 would be completed by 2012.

Figure 5 - Implementation Scenarios for I-405: I-5 Tukwila to I-90



\* RFP - Request for Proposal

**The Design-Build:** This approach begins with a similar preliminary design and Right-of-Way plan preparation process as used in the traditional method, but does allow for the initial design to be developed to a lesser extent.

The design-build example appears more complex because the RFP process is included as well. This is due to the fact that consultant selection begins much earlier. In the end, a single contractor is selected to design and build the system. As the timeline shows, the Best and Final Proposal (BAFP) process begins in late 2001. At this time the functional requirements for the BAFP are collected and a rough draft of the document is begun. A few months into the process, an RFQ is released to interested contractors. SOQs are then gathered and firms are shortlisted. After the draft request for BAFP is completed it is distributed to the shortlisted firms for industry comment. The firms provide comments that are incorporated into the final RBAFP, which is then officially released. This would be in about mid 2003. Proposals would be collected early in 2004. The final contract would be awarded with Design Approval in late 2004, with completion of construction in 2009.



# Schedule

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## CONSTRUCTION TIMELINE OPTIONS

Development of the traditional vs. design-build process was based on the assumptions that Alternative 3 would be the preferred build alternative and that funding would be available in the 2001-2003 biennium to begin preliminary design. Preconstruction activities that lead to a Record of Decision would be similar for either project delivery process.

The presented timelines shown in Figure 5 are based on the earliest possible construction start date. The events leading up to the start of construction have already been optimized, so further acceleration of a start date is unlikely. This section outlines some options and some assumed impacts on the overall construction schedule and its funding:

- **Individual Contracts** -- Projects along I-405 and regional arterials will be designed and built individually or in smaller packages. This type of approach will result in longer construction time than the design-build approach, but could be easier to fund. This might also lessen immediate construction impacts by spreading out projects, however the amount of traffic related delays might actually increase due to more days of construction along the corridor.
- **One Single Design-Build Contract** – This option provides one contract and one contractor consortium (or team) building all or most of the work within the project limits, as one coordinated project. This could greatly expedite the building process, thereby increasing the effectiveness of the improvements. However, this option might be more difficult to fund with the higher initial cash flows.

# Funding Needs

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## FUNDING SCENARIOS

Implementation of recommendations from the I-405 Corridor Program will require commitment to the largest single construction program in WSDOT's history. The total estimated cost of the preliminary preferred alternative is \$6.8 billion and involves a multi-modal list of over 150 specific project segments and actions. Although the list of projects are spread among many jurisdictions for funding and construction, the bulk of the expenditures, about \$5.6 billion, are on I-405 and the connecting freeways, and will be the responsibility of the State.

The focus of this implementation plan is on development of the section of I-405 between I-5 Tukwila and I-90. Included is reconstruction of the I-405/SR 167 Interchange, and widening of SR 167 South. The estimated cost of the entire section is \$1.9 billion. The I-405/SR 167 Interchange, if constructed as a stand alone project, could be completed for \$320 million.

The Washington State Transportation Commission has prepared a budget for initial implementation of the I-405 recommendations, with \$12 million for the 2001-2003 biennium. The Transportation Commission's proposed budget included \$467 million for I-405 over the next 6 years.

The Governor has proposed support for solutions to the I-405 corridor. As of this writing, it is understood that the Governor's budget may include \$10 million for the 2001-2003 biennium, and \$71 for the next 6 years.

Recommendations from this implementation plan are to complete a project level design approval for the entire section of I-405 between Tukwila and I-90. This would require an initial expenditure of approximately \$49 million in the 2001-2003 biennium. Once construction has begun, expenditures will average \$350 million a year.

Attached is Table 1 that can be used to age project delivery and required funding for implementation of the initial segment between I-5 and I-90 for either an accelerated traditional approach or a design build approach. Table 2 provides a sketch level opinion of costs and planning for the entire project.

As major investments into projects on I-405 are programmed by partners, early funding should be provided to allow the ultimate mainline improvements to be constructed simultaneously within the limits of the Sound Transit Direct Access projects in Renton and Kirkland, and the Port Quendall interchange improvements.

# Recommendations

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## IMPLEMENTATION PROPOSAL

Following are recommended actions for aggressive scheduling and implementation of the preferred alternative from the I-405 Corridor Program.

**Corridor Priorities:** The highest priority section of I-405 for implementation is I-5 Tukwila to I-90. A project level initial design should be prepared for the entire section based on the need to establish an independent utility for each segment built. Funding should be made available for construction of the entire segment.

If funding is limited, the I-405/SR 167 Interchange between SR 181 and SR 169, at an estimated cost of \$320 million, should be constructed first. For programmed projects by partners, \$50 million should be allocated to each of the direct access projects at N 8<sup>th</sup> Street in Renton, Port Quendall/NE 44<sup>th</sup> Street in Renton, and the direct access in Kirkland.

Pursue funding in the 2001-2003 biennium for environmental review and engineering for the section of I-405 from I-90 to SR 520. Coordination is needed for key design decisions with Translake, the Bellevue Access project and the Sound Transit I-90 changes. Pursue construction of the section of I-405 between I-90 and the Bellevue Access ramps within a 6 year period.

Pursue funding for the section of I-405 from SR 520 to North of SR 522 in the 2003-2005 biennium. Ensure funding to complement with the Bothell Campus Access project.

**Delivery Method:** Both accelerated-traditional and design-build project delivery methods have the capability of rapid delivery of construction. Design-build offers the advantage of reducing the construction time by as much as two years for substantial segments. It is recommended that the option for design-build be pursued. This will require legislative action by 2001 to allow continued use of the design-build option.

**Schedule:** Implementation on a fast-tracked schedule requires legislative approval of funding in the 2001-03 biennium. Included in Figure 4 is a proposed schedule based on completing the I-405 Corridor Program, legislative decision-making and funding, and initiation of project level design. Whether aggressive-traditional or design-build, both processes require design approval prior to start of construction. The decision to use design-build will require approval by the 2001 Legislature in order to stay on schedule.

**Funding Needs:** About \$51 million will be required in the 2001-03 biennium to keep the project on the schedule listed under Figure 4. A commitment to \$1.9 billion will be required to deliver all improvements from I-5 Tukwila to I-90 over the period of 2003 through 2009. This may require a vote of the public for approval of funding. It is

recommended that the legislature commit funds for pre-construction activities in the 2001-03 biennium and, if required, allow a vote of the public in November, 2001 or 2002, to fund the entire program. Table 1 provides a recommendation to get \$48.9 million in Fiscal Year 2002 and 2003, and an additional \$1 billion in the following years.

**Early Action Items:** Include development of an early action process that includes implementation of TDM and TSM/ITS programs aimed at reducing travel demand and managing traffic impacts during construction; construction of environmental enhancement programs that allow for permitting; and, construction of utility relocations. **Organizational Structure:** Develop an organization around the I-405 Corridor Program that assures management commitment to an aggressive schedule, along with establishment and staffing of a project team. Begin immediately with core staffing to develop delivery strategies, pursue consultant selection and clarify early action items.

**Long Term Strategy:** Attached as **Table 2** is a sketch level opinion of costs to deliver all projects on I-405 over the next 18 years. The table is based on the Preliminary Preferred Alternative recently adopted by the Executive Committee of the I-405 Corridor Program. It is intended as a budget placeholder. Though the analysis does make specific assumptions, it would be applicable to other alternative and phasing approaches and was not intended to pre-judge the selection of an alternative or phasing option by the I-405 Corridor Program. To be successful, transit and supporting local programs would all need to be funded consistent with the phases described.

Table 2 - Sketch Level Opinion of Costs and Phasing

**I-405 Corridor -- Estimated Expenditures by Biennium (Alternative 3 - Fwy. GP plus Fwy. HOV)**

Zone	Project Segment	PE Start	CN Start	CN End	Biennium										Total
					2001-03	2003-05	2005-07	2007-09	2009-11	2011-13	2013-15	2015-17	2017-19		
1	I-5 Tukwila to I-90	Jul, 01	Sep, 04	Sep, 09	\$ 20	\$ 300	\$ 640	\$ 425	\$ 287						\$ 1,672
	SR 167 Corridor Plan/EIS	Sep, 01			\$ 1	\$ 2	\$ 1								\$ 4
	I-90 Corridor Plan/EIS	Sep, 01			\$ 1	\$ 2	\$ 1								\$ 4
	Other Companion Projects (Note 3)	Sep, 01	Jun, 03	Jul, 17	\$ 18	\$ 39	\$ 39	\$ 40	\$ 40	\$ 40	\$ 40	\$ 40	\$ 40	\$ 24	\$ 320
2	I-90 to Northup (SR 520 I/C)	Oct, 01	Jul, 07	Sep, 13	\$ 8	\$ 20	\$ 30	\$ 325	\$ 420	\$ 290	\$ 107				\$ 1,200
3	Northup to NE 195th (Beardsley Blvd.)	Sep, 01	Jul, 10	Sep, 16	\$ 1	\$ 3	\$ 47	\$ 75	\$ 95	\$ 450	\$ 550	\$ 279			\$ 1,500
4	NE 195th to SR 527	Sep, 03	Jul, 14	Sep, 17	\$ -	\$ 2	\$ 8	\$ 20	\$ 40	\$ 75	\$ 100	\$ 225	\$ 30		\$ 500
5	SR 527 to Swamp Creek	Sep, 09	Jul, 16	Sep, 18	\$ -				\$ 2	\$ 15	\$ 80	\$ 225	\$ 78		\$ 400
<b>Total</b>					\$ 49	\$ 368	\$ 766	\$ 885	\$ 884	\$ 870	\$ 877	\$ 769	\$ 132	\$ 5,600	

Note 1: All costs shown for Alternative 3, I-405 general purpose lanes, freeway extensions, plus freeway HOV.

*Bus Rapid Transit, transit enhancements, and non-freeway related arterial improvements are not included.*

Note 2: All dollars in millions, year 2000.

Note 3: "Other Companion Projects" include environmental enhancements, TDM, advanced construction, and other activities required to keep the program on schedule.

\* This document is based on the Preliminary Preferred Alternative recently adopted by the Executive Committee of the I-405 Corridor Program. It is intended as a budget placeholder. Though the analysis does make specific assumptions, it would be applicable to other alternative and phasing approaches and was not intended to pre-judge the selection of an alternative or phasing option by the I-405 Corridor Program. To be successful, transit and supporting local programs would all need to be funded consistent with the phases described.

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## IMPLEMENTATION PLAN CHALLENGES

The I-405 Corridor Program faces four main challenges in implementing an aggressive timeline that similar systems have not.

The first challenge is commitment by the public and State and Federal governments for funding. The magnitude of the entire I-405 program is unprecedented for size and complexity. Funding will need to address I-601 spending limits, will need to compete with other projects statewide for money, and will need to garner public support

The second challenge is our built environment. Of the projects studied in our research, only a few MISs happened in areas with extreme right-of-way constraints (I-25 Southeast Corridor and the Virginia Western MIS are prime examples). However, only the I-25 Southeast Corridor has managed to progress to the implementation phase. The I-405 Corridor is built, in several places, to the extents of its right-of-way. Commercial and residential land purchases will need to take place to allow ROW expansion. Right-of-way acquisition may be a challenge for the project and will likely be critical on the path for implementation.

The third challenge is our natural environment. The Central Puget Sound region has a very diverse ecosystem. The I-405 Corridor runs between the Cascades and Lake Washington. There are many ESA issues and stream crossings within the Study Area. Other projects examined did not have the level of environmental scrutiny that the I-405 program will incur. This may also impact the timeline.

Fourth, the I-405 study area does not have a robust secondary transportation network to facilitate diversion of traffic during construction. Both the I-15 project in Salt Lake City and the Southeast Corridor Project in Denver that entered the design-build phase had fairly extensive secondary transportation networks -- either other freeways or robust parallel arterials. This enabled expedited construction and extensive lane closures. Major I-405 reconstruction options that involve closing down lanes may expect significant traffic delays and complex detours. This may require other options for reconstruction that may impact the timeline and increase costs.

Clear commitment from the Governor and Legislative Branch, as well from the region and local jurisdictions are need to align decision makers and resources to deliver an aggressive project schedule. Without clear commitments to the I-405 corridor program there are hundreds of milestone actions and approvals that could be deliberated and delayed, having compounding impacts on project delivery schedules.

# **I 405 CORRIDOR PROGRAM PHASES 3 AND 4**

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**WSDOT OFFICE OF URBAN MOBILITY**

## **SCOPE OF WORK**

**DAVID EVANS AND ASSOCIATES, INC.**  
415 - 118th Avenue SE  
Bellevue, WA 98005-3553  
(425) 519-6500

**WDOT0189**

I-405 Original EIS Scope 1999.doc

**July 1999**



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**I-405 Corridor Program**  
**Scope of Work**  
7/19/99 DRAFT

**PHASE 3: ALTERNATIVES ANALYSIS AND ENVIRONMENTAL IMPACT  
STATEMENT**

**WORK ELEMENT 0: PROJECT MANAGEMENT**

**0.1 On-Going Management**

The CONSULTANT will be responsible for on-going management of this study in accordance with the provisions of the AGREEMENT. On-going management will include ensuring that the work is completed on time and within the AGREEMENT budget.

The CONSULTANT is responsible for:

- Strategic management and reporting
- Maintaining electronic schedule
- Meeting regularly with STATE and designated project management team
- Making assignments to Work Element managers and contributing agencies
- Ensuring that work products are developed in a manner that facilitates on-going feedback from participating agencies and interest groups
- Integrating technical Working Papers into unified documents and presentations
- Implement effective quality assurance/quality control procedures
- Other Work Elements as necessary to maintain schedules and budgets

The CONSULTANT will provide a monthly progress report with monthly invoices to STATE that will include current work performed by all Consultants. The progress reports will be prepared in a format approved by the STATE Project Manager.

The CONSULTANT will maintain regular contact with the STATE Project Manager via informal meetings, telephone discussions, and electronic mail. For the purpose of budgeting the CONSULTANT shall meet with the STATE Project Manager no more than an average of three times per month, including management meetings, work product review meetings, and preparation meetings for committee and public meetings.

The CONSULTANT will be responsible for coordinating the activities of the SUB-CONSULTANTS as necessary to complete the Work Elements of the AGREEMENT. This coordination will include obtaining monthly progress reports and invoices, timely input for meetings, incorporating work into project deliverables and obtaining answers to any issues raised by the STATE or committees. The CONSULTANT Project Manager shall be the contact for questions and requests of the STATE Project Manager.

Discussions, correspondence, or work requested of the committees, that impact the scope of work, budget, or Products shall be directed to the STATE Project Manager.

The CONSULTANT will provide quality assurance and quality control (QA/QC) throughout the life of the AGREEMENT to ensure adequate administration, accounting, budget monitoring, scheduling, communications and planning and engineering procedures leading to the final product.

## **0.2 Project Schedule**

For the purposes of budgeting the length of the project will be 18 months, from approximately August 1999 through January 2001. The CONSULTANT will prepare a project schedule (using Microsoft Project software), including the details of a public involvement schedule within thirty (30) days of the award of this AGREEMENT. The schedule will be in a format approved by the STATE Project Manager. It will show dates of meetings and presentations, when input is required from STATE and the committees, Work Element duration, Products, and milestone dates for the events necessary to complete each Work Element. The schedule will also identify milestone dates and the duration of report preparation, STATE review, interagency review, and public review. The duration between draft and final reports will allow adequate time for distribution, review, and incorporation of review comments into the final version of the report. The schedule will then be used as a tool to track the study activities. The schedule will be updated monthly or as necessary. The project schedule will be submitted to the STATE for approval.

## **0.3 Document Management System**

The CONSULTANT will maintain a document management system for coding, storing, and retrieving project records. The system will cover Products related to project initiation, CONSULTANT contract administration, and project Work Elements. The CONSULTANT, subcontractors, and contributing agencies will be required to use the documents management system.

## **0.4 Project Team Partnering Session**

The CONSULTANT will participate in a one-half day partnering session to be attended by all key project team members from the STATE, CONSULTANT, and participating agencies. It is assumed that this session will include membership from the Steering Committee and will be conducted together with a Steering Committee meeting. The session will focus on helping team members to understand and embrace the purpose and need for the project, the team structure, and the project process. A partnering agreement will be developed during the first session (within 30 days after the notice to proceed).

The agreement will include goals and expectations, team management structure (including clearly identified roles and responsibilities for all organizations and key individuals), decision-making structure, communication structure, management tools, and management/performance guidelines. The agreement will be reviewed regularly by the STATE Project Manager and CONSULTANT to maintain its usefulness through updates and revisions as project developments warrant.

## **0.5 Products**

The CONSULTANT will produce a list of all expected working papers and project reports. The list will be reviewed by the STATE. Preparation of working papers and reports will be included in specific technical working elements.

The CONSULTANT will prepare two copies of interim working papers, which will be reviewed by the STATE Project Manager prior to distribution to others. The STATE will commit to timely reviews of all working papers. The CONSULTANT will reproduce up to thirty (30) copies of each approved working paper.

For major study reports, the CONSULTANT will prepare a draft document, which will be internally reviewed and edited by the CONSULTANT for format, style, clarity, and consistency prior to submittal to the STATE for review. The CONSULTANT will designate an editor assigned to this activity. The reports will be reviewed and approved by the STATE Project Manager, followed by the identified committee(s). Review comments will be compiled by the STATE into a single document, which will be provided to the CONSULTANT for final editing.

One camera-ready copy and an electronic version of the final report will be provided to the STATE, which will be responsible for all printing and distribution. A version of Microsoft Word, Excel and related products and approved by the State are assumed to be the standard electronic medium for this project.

## **0.7 Project Management Plan**

The CONSULTANT will prepare a Project Management Plan building upon the plan developed in Phase 2A. This plan will summarize the primary management activities identified in Work Element 0. The CONSULTANT will prepare an outline of the Plan for review by the STATE. The Plan will include specific responsibilities between the STATE and CONSULTANT, a communications plan, a list of expected deliverables, and a quality control plan.

## **WORK ELEMENT 1: EIS FRAMEWORK**

### **1.1 Prepare Statement of Purpose and Need for Action**

Objective: To ensure that the Statement of Purpose and Need adopted for the EIS brings clear focus to the transportation problem(s) to be addressed, and is adequate to guide identification and elimination of alternatives during the EIS process.

Approach: The CONSULTANT will coordinate with the STATE and FHWA to revise the draft the Statement of Purpose and Need for the EIS developed during the previous phase to incorporate changes from the Executive, Steering, and Citizens Committees and ensure that it remains consistent with FHWA guidelines. The Statement of Purpose and Need will identify the proposed action, concisely identify and characterize the specific problems that the proposed action is intended to address, and demonstrate why the corridor limits and study area boundaries are logical.

The revised Statement of Purpose and Need will be reviewed once by the STATE. Review comments of the STATE will be consolidated into a single document by the STATE, and revisions to the draft Statement of Purpose and Need will be incorporated by the CONSULTANT into a final Statement of Purpose and Need for inclusion in the EIS.

Deliverable: Revised and final description of proposed action and Statement of Purpose and Need.

### **1.2 Establish IDT Committee**

Objective: To confirm the membership, participation, and role of the Interdisciplinary Team.

Approach: In this Work Element an Interdisciplinary Team (IDT) will be established to function in an advisory capacity and provide objective guidance and recommendations concerning the proposed action and environmental review process. The STATE will identify and appoint members of the IDT.

Deliverable: Confirmed IDT membership and role relative to Executive and Steering Committees.

### **1.3 Prepare and Issue Notice of Intent and Determination of Significance**

Objective: To inform the public that STATE is preparing an EIS for the project that appears to have a significant impact.

Approach: The STATE will prepare and issue the Notice of Intent and Determination of Significance to initiate the NEPA and SEPA EIS processes, respectively.

Deliverable: Notice of Intent and Determination of Significance.

## **WORK ELEMENT 2: EIS SCOPING**

### **2.1 Conduct Agency Scoping Meeting**

Objective: To ensure opportunities for early coordination with affected jurisdictions and resource agencies in identifying the scope of the proposed action, range of strategies or alternatives, impacts and significant issues to be addressed, measures to mitigate adverse impacts, and role of other agencies.

Approach: The CONSULTANT will arrange, prepare for, and conduct one agency scoping meeting. It will be held on a convenient day of the week for up to two hours at a location convenient for attendees. The meeting format is expected to include a presentation by the CONSULTANT covering the proposed action and alternative strategies; summary of the strategies screening and evaluation process; identification of the proposed approach to environmental review and timeline; key environmental issues, analyses, and mitigation; and relationship to other projects and planning processes in the region. This presentation will be followed by an informal question and answer period.

The CONSULTANT will prepare a brief project information packet and fact sheet corresponding to the presentation outline. The CONSULTANT will print and assemble 35 copies of the agency information packet and fact sheet. Display boards prepared for the public scoping meeting also will be used for the agency scoping meeting.

Copies of the project information packet and meeting agenda will be sent to federal, state, and local agencies; affected jurisdictions; and local officials by the CONSULTANT prior to the scoping meeting. The STATE will be responsible for meeting room rental fees and publication of legal meeting notices.

The CONSULTANT also will be responsible for the following in connection with the agency scoping meeting:

- Coordinate scheduling of the meeting with STATE;
- Secure a transit- and ADA-accessible meeting facility
- Provide clear directional signage; and
- Arrange for set-up and take-down of the meeting location.

The CONSULTANT will prepare minutes of the agency scoping meeting.

Deliverable: Preparation of materials for one agency scoping meeting; arrangement of and attendance at agency scoping meeting; 35 copies of the information packet and fact

sheet; sign-in sheets; copies of all fact sheets, handouts, mailings, announcements, and other written information provided; meeting minutes summarizing of key issues, pertinent information, and comments received from the agencies and jurisdictions; and a list of agencies that attended or were consulted.

## **2.2 Conduct Three Public Scoping Meetings**

Objective: To ensure opportunities for early coordination with the public in identifying the scope of the proposed project, range of strategies or alternatives, impacts and significant issues to be addressed, and measures to mitigate adverse impacts.

Approach: The CONSULTANT will arrange, prepare for, and conduct three open house scoping meetings for the general public. They will be conducted on convenient days of the week for up to four hours each at different locations in the project vicinity. It is anticipated that the open houses will be held in a space that affords room for individual stations corresponding to key subject areas. These may include, but are not limited to, greeting/sign-in/room arrangement; proposed action and alternative strategies; summary of the strategies screening and evaluation process; proposed approach to environmental review and timeline; key environmental issues, analyses, and mitigation; relationship to other projects and planning processes in the region; and how the public can be involved.

One or more members of the CONSULTANT team will staff each station. The CONSULTANT also will assist STATE with media coverage at the open house. STATE staff will be in attendance to assist with presentations, staff specific stations, respond to inquiries concerning other nearby projects of STATE, and answer other general questions consistent with their area of expertise or responsibility. Brief presentations may be made at specific intervals (such as on the half-hour) to welcome attendees, provide a general overview of the open house, and summarize the proposed action and environmental process.

The CONSULTANT will prepare handouts, fact sheets, and response forms, and will print and assemble 300 copies. Up to 16 display boards will be prepared that support the scoping meeting agenda.

STATE will be responsible for meeting room rental fees and publication of legal meeting notices. Notice of the public open house will include publication in newspapers of local and regional circulation, and other available means of communication including the project newsletter, Web site, and community publications and calendars.

The CONSULTANT will be responsible for the following in connection with the three public scoping meetings:

- Coordinate scheduling of the meetings with STATE;
- Secure transit- and ADA-accessible meeting facilities within the project vicinity



- Provide clear directional signage
- Brief staff at the public open house on assignments, media contacts, recording public comments, and encouraging use of response forms
- Arrange for set-up and take-down of the meeting locations
- Orient greeters to guide the public and assist the staff; and
- Debrief staff at the meetings in order to capture verbal comments received.

The CONSULTANT will compile and summarize both the verbal and written comments received from the public.

Deliverable: Preparation of materials for three public scoping meetings; arrangement of and attendance at three scoping meetings; preparation of up to 16 display boards; 300 copies of the public handouts, fact sheet, and response form; sign-in sheets; copies of all fact sheets, handouts, mailings, announcements, and other written information provided; summaries of key issues, pertinent information, and comments received from the public; and a list of members of the public who attended.

### **2.3 Prepare Final Study Plan**

Objective: To incorporate necessary revisions to the draft Study Plan for the Draft EIS based on the input received during the agency and public scoping meetings, as well as the direction received from the IDT.

Approach: Following review of the draft Study Plan by the IDT (Phase 2A) , and after concluding the agency and public scoping meetings, the CONSULTANT will prepare the final Study Plan. This plan will incorporate the following: agency and/or IDT discipline issues and concerns; revisions to the scope of the project and alternatives; revisions to the scope and level of analysis for each discipline study; manpower and resource requirements; and any changes in the project schedule. The final Study Plan will be reviewed once by the IDT and the STATE. Review comments of the IDT and the STATE will be combined into a single document by the STATE. The final Study Plan will be revised once by the CONSULTANT, and will be submitted for approval by the IDT and the STATE.

Deliverable: Final Study Plan document.

## **WORK ELEMENT 3: ALTERNATIVES DEVELOPMENT AND SCREENING**

### **3.1 Develop Range of Planning-level Alternatives**

Objective: To develop a listing of alternatives meeting the project purpose and need.

Approach: The CONSULTANT will review the investment strategies analyzed in the I-405 MCP and define and describe those strategies as clearly as possible. The CONSULTANT and the STATE will identify other strategies that may need to be added to the strategies previously identified. The CONSULTANT and STATE will identify strategies focused on a 2020 horizon year as well as conduct a visioning session (up to 8 hours) focused upon potential longer-term strategies (e.g. 2030+). The CONSULTANT strategy team will be involved in this process along with key stakeholders as identified by the STATE

Deliverable: The CONSULTANT will summarize the results of the alternatives development and visioning session in a working paper.

### **3.2 Develop Evaluation Criteria and Performance Measures**

Objective: Develop a set of criteria that can be used to evaluate options and alternatives for two levels of analysis.

Approach: The CONSULTANT will develop a set of criteria to be used in the screening of alternatives. The first-level evaluation criteria will be based on: (1) whether the strategy satisfies the project purpose and need; (2) the relative performance of each strategy; and (3) presence of physical and/or operational features that would indicate that the strategy is infeasible. The second-level evaluation criteria will focus on specific impacts necessary to distinguish environmental impacts among alternatives.

The CONSULTANT will draft evaluation criteria that are consistent with the purpose and need Statement for review and approval by the STATE. The criteria are expected to consider local, regional, STATE, and national goals; regional and local traffic and transportation; land use and other key social, economic, and environmental effects; construction impacts; and estimated cost and cost-effectiveness. Feasibility criteria will be developed by the CONSULTANT for review by the STATE. The criteria also will anticipate procedural and technical requirements for Section 404 of the Clean Water Act, the Endangered Species Act, Section 4(f) of the Department of Transportation Act, Section 6(f) of the Land and Water Conservation Fund Act of 1965, Section 106 of the National Historic Preservation Act, and/or other permits or approvals that may be required for project implementation.

Deliverable: Working paper summarizing evaluation criteria

### **3.3 Evaluate Preliminary Strategies and Alternatives (First Level)**

Objective: To provide preliminary evaluation of the potential solutions

Approach: The CONSULTANT will conduct the following activities:

- Obtain physical and operational data necessary to conduct a fatal flaw analysis

- Assemble evaluation data from the MCP study; update as necessary.
- Collect evaluation data for any solutions not previously considered in MCP
- Conduct quantitative and qualitative analysis as applicable to criteria
- Applying evaluation criteria, screen-out actions without merit
- Seek consensus from stakeholders on initial evaluation results

The CONSULTANT will collect the data necessary to effectively screen the strategies against the criteria, identify effective enhancements and mitigation, and identify those to be advanced for more detailed evaluation.

The CONSULTANT will use the evaluation criteria as a guide to focus data collection. At a minimum, data are expected to address local, regional, STATE, and national goals; regional and local traffic and transportation; land use and other key social, economic, and environmental effects; construction impacts; and estimated cost and generalized cost-effectiveness. Conceptual cost estimates will be made to establish a general range of financial feasibility.

Data will be developed at a level of detail sufficient to determine whether each strategy satisfies the project purpose and need, identifies the relative performance and cost-effectiveness of each strategy, identifies potential significant adverse impacts, and generally determines whether the strategy is free from significant adverse impacts that would be infeasible to adequately mitigate. The analysis will rely primarily on previous studies, existing information, aerial photography, and professional judgment. Detailed environmental investigations and field reconnaissance will not be conducted in this phase of the study.

The CONSULTANT will compare each strategy against the applicable evaluation criteria to identify strategies that materially serve the purpose and need for the project. Opportunities for improving performance and reducing significant adverse effects of potentially viable strategies will be identified. Any engineering constraints or substantial environmental effects (either positive or negative) will be identified.

After conducting an initial evaluation, the CONSULTANT will summarize the results in preparation for a project team working session with the STATE, where the evaluations will be reviewed and revised to reflect the consensus of the attendees at the working session. Strategies that are recommended to be eliminated from further consideration or should be revised in order to improve their performance will be described. The CONSULTANT will also identify potential refinements to the alternatives to maximize their potential effectiveness.

Deliverables: The CONSULTANT will prepare an evaluation matrix and summary Working Papers demonstrating the results of the evaluation, the performance of each strategy, and opportunities for enhancing viable strategies.

### **3.4 Identify Elements Common to All Alternatives**

Objective: To clearly identify common elements of the alternatives that can be used to help package alternative components.

Approach: The CONSULTANT will identify those elements of the alternatives which are expected to be included as common components of each alternative evaluated in detail within the EIS. These elements will be explicitly listed for consideration by the STATE. After review by the STATE, the CONSULTANT will prepare a working paper identifying all transportation and related elements that will be common to all alternatives.

Deliverables: Working Paper documenting the identification of common elements

### **3.5 Packaging of Concepts into Alternatives**

Objective: To create alternatives that have logical packaging of project elements.

Approach: The CONSULTANT will package the project concepts into several themes:

- Group remaining concepts and project elements into (assumed up to 8) alternative packages based on major themes
- Develop categories for packages based on major themes, modes or costs. It is expected that packages may contain similar or identical components for certain geographic areas or study area corridors.

The CONSULTANT will work with the STATE to reach consensus on proposed packages of alternatives to be carried into detailed alternatives analysis.

Deliverables: A working paper documenting the creation of alternative packages.

### **3.6 Evaluate Refined Alternative Packages (Second Level)**

Objective: To further reduce the number of alternatives into a manageable number to be carried forward into the detailed environmental studies.

Approach: The CONSULTANT will evaluate the packages of improvements using the evaluation criteria. The general process includes the following:

1. Apply evaluation measures to alternative packages
2. Provide quantitative and qualitative analysis to packages
3. Conduct sensitivity analyses as needed to test assumptions and answer questions of stakeholders
4. Reach consensus with stakeholders on the conclusions of this analysis
5. Drop alternatives that rate poorly

The CONSULTANT will collect all data necessary to effectively evaluate the alternatives against the criteria, identify effective enhancements and mitigation, and identify those to be advanced for NEPA and SEPA review.

The CONSULTANT will use the evaluation criteria as a guide to focus data collection and analysis. At a minimum, data are expected to address local, regional, State, and national goals related to wetlands, threatened and endangered species, historic resources, park and recreation resources, and environmental justice, among others; design, construction, and operations standards; regional and local traffic and transportation; noise; land use, shorelines, community cohesion, and other key social and economic effects; impacts on threatened and endangered species, habitat, wetlands, water quality, and other sensitive elements of the natural environment; construction impacts; and estimated cost and cost-effectiveness.

Data will be developed at a level of detail sufficient to distinguish among the alternatives. The data will also allow the CONSULTANT to determine how well each satisfies the project purpose and need, identifies the performance and effectiveness of each alternative with regard to solving the transportation problem(s), identifies potential significant adverse impacts, and generally determines the anticipated level of adverse impacts remaining after incorporation of reasonable mitigation.

In addition to the transportation alternatives, there is some interest in testing how sensitive the results would be to changes in land use. Up to two sensitivity tests will be performed to assess how either highest densities in particular locations or a redistribution of land use might affect demand. The PSRC model will be re-run beginning with trip generation. A single transportation alternative from among those being evaluated will be selected to perform this sensitivity test.

Deliverables: Assembled data to evaluate the alternatives against the criteria, identification of effective enhancements, and identification of those to be advanced for NEPA and SEPA review. An evaluation matrix and summary working paper demonstrating the results of the detailed evaluation, the performance of each alternative, and opportunities to avoid or reduce adverse effects.

### **3.7 Refine Alternatives and Process through Value Analysis**

Objective: . To improve the performance of the alternatives and the evaluation of impacts.

Approach: The CONSULTANT will assist the STATE in preparing a Value Analysis process. Project team and independent professionals will conduct an in-depth assessment of the alternatives remaining in the study, prior to advancing them to detailed

evaluation in the Draft EIS discipline studies. The process is assumed to cover up to 5 days.

Project alternatives that come forward from the prior evaluation will be reviewed and refined to provide the same functional result at the least impact or cost. These alternative refinements will include geometric as well as operational changes and will be tailored for maximum benefit at the least cost.

Deliverable: Working paper summarizing the value analysis process

### **3.8 Adopt Final Set of Reasonable and Feasible Alternative Packages**

Objective: To agree on a final set of alternatives to carry into the detailed environmental analysis.

Approach: The STATE will use the results of Work Element 3.6 to suggest a final set of reasonable and feasible alternatives. Up to 4 build alternatives are assumed. The CONSULTANT will provide backup data and information to the STATE to assist in this assessment.

Deliverable: Technical report documenting the recommended set of alternatives.

## **WORK ELEMENT 4: DISCIPLINE STUDIES**

### **4.1 Develop Environmental Methodology**

Objective: To identify and confirm with the Steering Committee and IDT the methodology that will be applied to evaluate the alternatives advanced for detailed analysis in the Draft EIS for each element of the environment.

Approach: The CONSULTANT will develop methodology Working Papers that identify the approach to analyses for each of the environmental disciplines for the NEPA and SEPA review process. Corridor Specific issues will be identified for emphasis in the studies.

The CONSULTANT will prepare individual Working Papers (or sections of one working paper) for each of the environmental disciplines that describe in detail the methods that will be used to evaluate impacts and identify mitigation measures for the strategies and alternatives to be evaluated in the Draft EIS.

The Working Papers will likely consist of air quality; noise; soils and geology; water resources, quality, and quantity; wetlands; biological resources, including plants, animals, fish, and threatened and endangered species; hazardous materials; traffic and

transportation; land use, zoning, and plans and policies; housing and displacements; social and economic impacts; environmental justice; recreation and 4(f) resources; historic, cultural, and archaeological resources; visual quality; utilities and public services; and energy.

The Working Papers will describe how the discipline studies will be conducted, including the following: study area; major issues to be addressed; data needs and sources; general approach to research and documentation (including anticipated level of analysis); measures to be used to compare the build and no-build alternatives; anticipated agency coordination; governing plans and policies; anticipated permits and approvals to be addressed; and products.

The CONSULTANT will attend up to three meetings with individual Federal and/or State agencies, the IDT, and the Steering Committee to discuss the relationships between the traffic, land use, housing and displacements, environmental justice, aesthetics, and noise disciplines. The CONSULTANT will prepare an initial draft technical memorandum section, and respond to STATE comments on the proposed methodology.

Deliverable: Individual Working Papers (or sections of one working paper) for each of the environmental disciplines.

## **4.2 Prepare Descriptions of Alternatives**

Objective: To ensure that the descriptions of the alternatives advanced to the EIS are full and complete in order to enhance communication with the public and affected agencies, and facilitate effective evaluation during the EIS process.

Approach: The CONSULTANT will prepare descriptions of the corridor-level alternatives and project level-level components advanced into the EIS as necessary to fulfill requirements for the EIS under NEPA and SEPA. This section also will discuss why this represents a range of reasonable alternatives, and will identify other alternatives that have been eliminated from detailed study. It is assumed here that up to four alternatives will be advanced for detailed study in the EIS, including a No Action Alternative, TSM/TDM alternative, and an alternative with a different land use future, among others.

The draft description of the alternatives will be reviewed once by the STATE. Review comments of the STATE will be combined into a single document by the STATE, and the draft Study Plan will be revised once by the CONSULTANT into a final description of the alternatives for inclusion in the EIS.

Deliverable: Draft and final descriptions of the alternatives evaluated in the EIS, and discussion of alternatives that have been eliminated from detailed study.

### 4.3 Conduct Detailed Alternatives Evaluation

Objective: To develop the necessary information to determine the reasonableness and feasibility of each alternative advanced for detailed study in the EIS, and to describe the relative performance and environmental consequences of each alternative at the level of detail needed to identify meaningful differences in their effectiveness, environmental consequences, and opportunities for mitigation of adverse impacts.

Assumptions: Alternatives for the I-405 Corridor Program EIS are assumed to be presented and evaluated at a scale not less than 1 inch equals 2,000 feet. In some cases, an improvement contained within a package of solutions (such as an individual interchange modification) might be presented at a scale of 1 inch equals 500 feet or less if the design data are available and if warranted by the potential for substantial adverse impacts. These are expected to be limited exceptions. Preliminary corridor locations and roadway templates will be developed prior to the start of detailed evaluations as part of the discipline studies.

The study area for the I-405 Corridor Program EIS is divided into primary and secondary areas. The existing primary study area defines the boundaries within which the range of alternatives is expected to be identified. It includes the Cities of Bothell, Woodinville, Kirkland, Redmond, Bellevue, Mercer Island, Newcastle, Renton, and Tukwila, as well as portions of the Cities of Lynnwood, Issaquah, and Kent, and adjacent unincorporated areas of King and Snohomish counties. The secondary study area is as necessary to capture indirect and cumulative impacts of the alternatives.

Four action alternatives (including the required TSM/TDM alternative) plus the required No Action Alternative are assumed to be advanced for more detailed evaluation in the Draft EIS. All alternatives will be evaluated at a similar corridor level of detail. It is assumed that one alternative with a different land use future will be advanced for evaluation in the Draft EIS.

The CONSULTANT will assemble and maintain the GIS data base for mapping and evaluation of alternatives. Substantial reliance will be placed on available existing digital mapped data, both for descriptions of existing conditions within the study area and especially for evaluation of impacts of alternatives. The quality and accuracy of available digital data are not fully known at this time. If digital data are not available, complete, current, or adequate to conduct evaluations, supplementing the data base would be outside this project scope and budget.

Approach: The environmental review will be limited to the specific issues and level of analysis needed to inform strategic decision-making regarding corridor-level modal improvements, TSM/TDM and land use measures, and related transportation solutions and actions. All alternatives will be evaluated at a similar level of detail, consistent with



their overall level of definition. It is assumed that the alternatives will be evaluated at a corridor level of detail.

**Descriptions of the discipline studies proposed to be conducted are described individually in Appendix A to this scope of work.**

Deliverable: Discipline studies for: Air Quality; Noise; Energy; Geology and Soils; Surface Water Quantity and Quality; Groundwater; Wetlands; Upland Vegetation, Habitat, and Wildlife; Fisheries; Threatened and Endangered Species; Biological Assessment; ROW Acquisition/Displacements, Shorelines, Farmlands; Flood Plains; Land Use; Land Use Plans and Policies; Hazardous Materials and Wastes; Social Impacts; Economics; Environmental Justice; Recreation and Section 4(f) and 6(f) Resources; Public Services; Visual (Aesthetics); Cultural Resources; Traffic And Transportation; and Freight Mobility.

#### **4.4 Prepare and Print Expertise Reports**

Objective: To document through expertise reports the affected environment and environmental impacts evaluated in Work Element 4.3 that likely would result if a corridor alternative were implemented.

Approach: Expertise reports will be prepared in a manner that allows the pertinent information to be transferred and summarized directly into the Draft EIS. For each expertise report, the CONSULTANT will summarize the results of coordination with Federal, State, and local agencies; describe the methodology used to assess impacts; identify the affected environment; predict and analyze the construction-related (short-term) and operational (long-term) impacts (including direct, indirect, and cumulative) of alternative implementation; identify opportunities and measures for mitigating significant adverse impacts; and identify the least environmentally damaging alternative.

It is assumed that draft expertise reports will be prepared for air quality; noise; soils and geology; water resources, quality, and quantity; wetlands; biological resources, including plants, animals, fish, and threatened and endangered species; hazardous materials; traffic and transportation; land use, zoning, and plans and policies; housing and displacements; social and economic impacts; environmental justice; recreation and Section 4(f) resources; historic, cultural, and archaeological resources; visual quality; utilities and public services; and energy.

The draft expertise reports will be reviewed for format, style, clarity, and consistency prior to review by the STATE. The CONSULTANT's senior experts will review the documents for substantive content and technical accuracy. Ten copies of each draft expertise report will be provided for review by the STATE using a format and table of contents approved in advance by the STATE. Each draft expertise report will be reviewed once by the STATE. Review comments of the STATE will be combined into a

single document for each expertise report for delivery to the STATE, and each expertise report will be revised once by the CONSULTANT into a final expertise report suitable for appending to the EIS. Twenty copies of each final expertise report and a camera-ready copy will be delivered to the STATE.

Deliverable: Ten copies of each draft and 20 copies of each final expertise report for air quality; noise; soils and geology; water resources, quality, and quantity; wetlands; biological resources, including plants, animals, fish, and threatened and endangered species; hazardous materials; traffic and transportation; land use, zoning, and plans and policies; housing and displacements; social and economic impacts; environmental justice; recreation and Section 4(f) resources; historic, cultural, and archaeological resources; visual quality; utilities and public services; and energy.

## **WORK ELEMENT 5: DRAFT EIS DOCUMENTATION**

### **5.1 Select Preliminary Preferred Alternative**

Objective: To support the Executive Committee in its selection of a preliminary preferred alternative for identification in the Draft EIS.

Approach: The CONSULTANT will prepare a concise summary matrix based on the summaries prepared as part of each expertise report under Work Element 4. The summary matrix will briefly identify the performance, benefits, substantial adverse impacts (if any), and potential for mitigation for each alternative advanced for detailed study in the Draft EIS. The summary matrix and expertise report summaries will be distributed to the Citizens, Steering, and Executive Committee members prior to conducting a half-day joint working session to review the technical study results and select a preliminary preferred alternative. The preliminary preferred alternative will be identified and discussed in the Draft EIS.

Deliverable: Working summary matrix (work-in-progress), preparation for and participation in one half-day joint Committee working session, and supporting handouts and presentation graphics for the joint working session. This working session is assumed to be in addition to the regularly scheduled Committee meetings discussed under other work elements.

### **5.2 Prepare and Print Preliminary Draft EIS**

Objective: To prepare the Draft EIS in compliance with the requirements of NEPA (40 CFR 1500 to 1508), FHWA (23 CFR 771 and Technical Advisory T 6640.8A), and WSDOT (Environmental Procedures Manual M31-11). The EIS also shall be prepared so that it can be adopted to satisfy SEPA requirements according to the SEPA Rules, WAC 197-11.

Approach: It is assumed that all elements of the environment listed in FHWA Technical Advisory T 6640.8A will be scoped for detailed evaluation except for joint development, wild and scenic rivers, coastal barriers, and coastal zone impacts. The preferred alternative may be selected by the STATE for identification in the Draft EIS.

The CONSULTANT will prepare the preliminary Draft EIS. Chapter 1 will incorporate the Statement of Purpose and Need for the Action developed in Work Element 1 above. Chapter 2 will incorporate the Description of Alternatives developed in Work Element 4 above. Chapter 3, Affected Environment, and Chapter 4, Environmental Consequences, will be prepared by summarizing the expertise reports prepared in Work Element 4 above. Discussion will include secondary and cumulative impacts, construction activity impacts (to the extent they can be predicted), environmental justice, irreversible and irretrievable commitments of resources, and relationship of short-term and long-term uses of the environment. The document will be written in a concise, accurate, and thorough manner, and will emphasize language and graphics understandable by the general public.

The preliminary Draft EIS will be reviewed for format, style, clarity, and consistency prior to delivery to the STATE. The CONSULTANT's senior experts will review the document for substantive content and technical accuracy. Twenty-five copies of the preliminary Draft EIS will be provided for review by the STATE and FHWA using a format and table of contents approved in advance by the STATE and FHWA.

Deliverable: Preliminary Draft EIS Chapters 1 through 4, with supporting tables, figures, and graphics.

### **5.3 Prepare Preliminary Summary and Matrix**

Objective: To prepare the preliminary Summary and Environmental Matrix for the Draft EIS.

Approach: After receiving the STATE and FHWA comments on the preliminary Draft EIS, the CONSULTANT will prepare a preliminary summary and environmental matrix for the Draft EIS. The summary will: describe the proposed action; identify other major governmental actions or project affecting the corridor; describe all alternatives considered, including those from the MIS; discuss major environmental impacts; identify any areas of controversy or unresolved issues; list other actions and permits that may be required; and list environmental commitments.

The environmental matrix will include brief summaries of the distinguishing or substantial environmental impacts of each alternative and each element of the environment. The matrix also will indicate key mitigation measures and identify significant adverse impacts that cannot be mitigated (if any).

Deliverable: Preliminary Summary and Environmental Matrix.

#### **5.4 Prepare Camera-ready Draft EIS**

Objective: To receive specific review comments of the STATE and FHWA on the preliminary Draft EIS, and confirm the approach to revising the document in preparation of the camera-ready Draft EIS.

Approach: The preliminary Draft EIS will be reviewed once by the STATE and FHWA. Review comments of the STATE and FHWA will be unified into a single document by the STATE. After review of the comments by the CONSULTANT, a two-day review conference will be conducted with the STATE to discuss specific comments and confirm the approach to revising the document. Meeting minutes will be prepared by the CONSULTANT and distributed to the appropriate team members. The Draft EIS will be revised once by the CONSULTANT into a final camera-ready Draft EIS, as directed by the STATE. It is assumed that the STATE will establish and maintain the project commitments file based on the environmental documents prepared by the CONSULTANT.

Deliverable: Camera-ready Draft EIS.

#### **5.5 Prepare Notice of Availability of Draft EIS**

Objective: To prepare the Notice of Availability for the Draft EIS suitable for publication in the Federal Register.

Approach: The CONSULTANT will prepare a draft public availability notice for the Draft EIS that will satisfy applicable requirements under Council on Environmental Quality NEPA Regulations (40 CFR 1506.10) and the FHWA regulations (23 CFR Part 771.123 (i)). This draft notice will be reviewed by the STATE and a final notice of public availability will be prepared by the CONSULTANT, as directed by the STATE. The STATE will be responsible for coordinating publication of the notice in the Federal Register.

Deliverable: Draft and final Notice of Availability for the Draft EIS suitable for publication in the Federal Register.

### **WORK ELEMENT 6: CIRCULATE DRAFT EIS**

#### **6.1 Print and Distribute Draft EIS**

Objective: To print and distribute the Draft EIS.

Approach: The STATE will print and the CONSULTANT will distribute 250 copies of the Draft EIS after approval of the camera-ready Draft EIS by the STATE.

Deliverable: Two-hundred and fifty copies of the Draft EIS for distribution.

## **6.2 Conduct Public Hearings**

Objective: To conduct three public hearings to receive comments on the Draft EIS.

Approach: The CONSULTANT will coordinate, schedule, and make arrangements for three public hearings. They will be held on convenient days of the week for up to five hours at different locations within the corridor convenient for attendees. It is anticipated that the hearings will be conducted in conjunction with an open house, and will be in a space that affords room for individual stations corresponding to key subject areas. The CONSULTANT also will be responsible for providing a court reporter, display graphics, and meeting materials.

Individual stations may include, but are not limited to, greeting/sign-in/room arrangement; proposed action and alternatives; summary of key environmental issues, analyses, and mitigation; relationship to other projects and planning processes in the region; and how the public can be involved. One or more members of the CONSULTANT team will staff each station. The CONSULTANT also will assist the STATE with media coverage. The STATE staff will be in attendance to assist with presentations, staff specific stations, respond to inquiries concerning other nearby projects of STATE, and answer other general questions consistent with their area of expertise or responsibility. Brief presentations may be made at specific intervals (such as on the half-hour) to welcome attendees, provide a general overview of the open house, and summarize the proposed action and EIS process.

The CONSULTANT will prepare handouts, fact sheets, and response forms, and will print and assemble 300 copies of these. Up to 16 display boards will be prepared that support the meeting agenda.

The STATE will be responsible for meeting room rental fees and publication of legal meeting notices. Legal notice of the public hearing will include publication in newspapers of local and regional circulation, and other available means of communication including the project newsletter, Web site, and community publications and calendars.

The CONSULTANT will be responsible for the following in connection with the three public hearings:

- coordinate scheduling of the hearings with the STATE;
- secure transit- and ADA-accessible meeting facilities within the project vicinity;

- provide clear directional signage;
- brief staff at the public hearing on assignments, media contacts, recording public comments, and encouraging use of response forms;
- arrange for set-up and take-down of the meeting locations;
- orient greeters to guide the public and assist the staff; and
- debrief staff at the meetings in order to capture verbal comments received.

The CONSULTANT will compile and summarize both the verbal and written comments received from the public.

Deliverable: Preparation of materials for three public hearings; arrangement of and attendance at three public hearings; preparation of up to 16 display boards; 300 copies of the public handouts, fact sheet, and response form; sign-in sheets; copies of all fact sheets, handouts, notices, announcements, and other written information provided; and summaries of comments received from the public.

## **WORK ELEMENT 7: RESPOND TO COMMENTS ON DRAFT EIS**

### **7.1 Compile and Respond to Comments on Draft EIS**

Objective: To assemble, organize, and prepare responses to oral and written responses received on the Draft EIS.

Approach: The STATE will provide copies of all written responses received to the CONSULTANT. The CONSULTANT will review, identify, and code the individual comments contained in both the written responses and the transcript of oral comments from the public hearings.

After review of the coded comments by the STATE and CONSULTANT, a one-day conference will be conducted with the STATE to discuss specific comments, confirm the approach to preparing responses and revising the Draft EIS, and identify additional studies or revisions to the proposed action and mitigation (if any) that may be necessary. If additional studies are determined to be necessary, these will be identified, scoped, and budgeted under a separate task. Meeting minutes will be prepared by the CONSULTANT.

The coded comments and STATE guidance will be distributed to the appropriate team members. After completion of additional studies (if any), preliminary responses will be prepared that are concise, accurate and thorough, and which use language that is readily understandable by the general public.

Deliverable: Coded comments, attendance at one-day conference, and preliminary responses to comments.

## **7.2 Conduct Further Evaluation of Alternatives and Mitigation (STATE Option)**

Objective: At the STATE's option, to conduct further technical evaluation of alternatives and/or mitigation in the Final EIS.

Approach: At the STATE's direction and after negotiation of a scope of work and budget, the CONSULTANT will conduct additional detailed evaluation of alternatives and/or mitigation for inclusion in the Final EIS on a time-and-materials basis against a budget of \$<INSERT AMOUNT>. Such additional studies (if any) may be identified as prudent or necessary based on comments received on the Draft EIS.

Deliverable: Negotiated scope of work and budget, and additional technical studies devoted to alternatives and/or mitigation for inclusion in the Final EIS.

## **7.3 Select Preferred Alternative**

Objective: To support the Executive Committee in its selection of a preferred alternative for identification in the Final EIS.

Approach: The CONSULTANT will prepare a concise memorandum summarizing public and agency comments received on the Draft EIS, identifying preliminary responses to the comments, and discussing the potential need (if any) for further evaluation of alternatives and mitigation in the Final EIS. The memorandum will briefly summarize the comments for each alternative advanced for detailed study in the Draft EIS. The memorandum will be distributed to the Citizens, Steering, and Executive Committee members prior to conducting a half-day joint working session to review the comments and responses and select a preferred alternative. The preferred alternative will be identified and discussed in the Final EIS.

Deliverable: Working memorandum (work-in-progress), preparation for and participation in one half-day joint Committee working session, and supporting handouts and presentation graphics for the working session. This working session is assumed to be in addition to the regularly scheduled Committee meetings discussed under other work elements.

## **WORK ELEMENT 8: FINAL EIS DOCUMENTATION**

### **8.1 Prepare and Print Preliminary Final EIS**

Objective: To prepare the Final EIS in compliance with the requirements of NEPA (40 CFR 1500 to 1508), FHWA (23 CFR 771 and Technical Advisory T 6640.8A), and

WSDOT (Environmental Procedures Manual M31-11). The EIS also shall be prepared so that it can be adopted to satisfy SEPA requirements according to the SEPA Rules, WAC 197-11.

Approach: The CONSULTANT will prepare the preliminary Final EIS. The preferred alternative will be selected by the STATE for identification in the Final EIS if it was not identified in the Draft EIS. The Draft EIS will be revised to incorporate changes throughout the document resulting from modifications to the proposed project, selection of mitigation measures, updated information on the affected environment, results of additional studies (if any), factual corrections, results of coordination, and responses to comments prepared in the previous task. The document will be written in a concise, accurate, and thorough manner, and will emphasize language and graphics understandable by the general public.

The preliminary Final EIS will be reviewed for format, style, clarity, and consistency prior to delivery to the STATE. The CONSULTANT's senior experts will review the document for substantive content, technical accuracy, and adequacy of responses to comments. Twenty-five copies of the preliminary Final EIS will be provided for review by the STATE and FHWA using a format and table of contents approved in advance by the STATE and FHWA.

Deliverable: Preliminary Final EIS with supporting tables, figures, and graphics.

## **8.2 Prepare Camera-ready Final EIS**

Objective: To receive specific review comments of the STATE and FHWA on the preliminary Final EIS and responses to comments, and confirm the approach to revising the document during preparation of the camera-ready Final EIS.

Approach: The preliminary Final EIS will be reviewed once by the STATE and FHWA. Review comments of the STATE and FHWA will be unified into a single document by the STATE. After review of the comments by the CONSULTANT, a two-day review conference will be conducted with the STATE to discuss specific comments and confirm the approach to revising the document. Meeting minutes will be prepared by the CONSULTANT and distributed to the appropriate team members. The Final EIS will be revised once by the CONSULTANT into a camera-ready Final EIS, as directed by the STATE. It is assumed that the STATE will establish and maintain the project commitments file based on the environmental documents prepared by the CONSULTANT.

Deliverable: Camera-ready Final EIS.

## **8.3 Prepare Notice of Availability of Final EIS**



Objective: To prepare the Notice of Availability for the Final EIS suitable for publication in the Federal Register.

Approach: The CONSULTANT will prepare a draft public availability notice for the Final EIS suitable for publication in the Federal Register that will satisfy applicable requirements under Council on Environmental Quality NEPA Regulations (40 CFR 1506.10) and the FHWA regulations (23 CFR Part 771.123 (i)). This draft notice will be reviewed by the STATE and a final notice of public availability will be prepared by the CONSULTANT, as directed by the STATE. The STATE will be responsible for coordinating publication of the notice in the Federal Register.

**Deliverable: Draft and final Notice of Availability for the Final EIS suitable for publication in the Federal Register.**

## **WORK ELEMENT 9: CORRIDOR-LEVEL DECISION**

### **9.1 Print and Distribute Final EIS**

Objective: To print and distribute the Final EIS.

Approach: The CONSULTANT will print and distribute 250 copies of the Final EIS after approval of the camera-ready Final EIS by the STATE.

Deliverable: Two-hundred and fifty copies of the Final EIS for distribution.

## **WORK ELEMENT 10: Public Involvement Program**

Objective: Provide informed public consent for a corridor-wide transportation strategy.

Approach: The CONSULTANT will be responsible for the following activities, which are described in detail in the Public Involvement Plan, as shown in Appendix B.

Deliverables: Specific deliverables are noted within the description of activities.

### **10.0 Mobilization Phase**

#### **Information-gathering activities**

- Telephone survey  
The consultant will review existing research relevant to the survey; develop and implement a statistically valid telephone survey (primarily *quantitative* in design) of 1,200 residents and business owners of the I-405 study area. Three geographic sub-areas will be used to structure the random sampling and to assure a representative sample (400 per sub-area; margin of error = +/- 5): (1) between SR

520 and I-90 and between Lake Washington and Redmond; (2) between I-5 (at Lynnwood) and SR 520 and between Lynnwood and Turner Corner; and (3) between I-5 (at South Center) and I-90 and between Tukwila and Elliot. The results of the survey research will be presented in a report.

- **Focus groups**

The consultant will also conduct a series of six focus groups (one focus group of residents per geographic sub-area and one focus group per geographic sub-area of business owners) for the purpose of gathering more in-depth *qualitative* information relative to the above purposes and for testing information/educational material concepts. The focus group results will be presented in a separate report.

### **Project management**

During the mobilization phase the consultant will ensure work is completed in a timely and efficient manner by undertaking the following responsibilities:

- Strategic management, oversight and reporting of activities related to the public involvement program
- Meeting regularly with the client and designated project management team, but no more than 12 times between June 1999 and September 1999 at three hours per meeting for purposes of project management, work product review, and preparation for committee meetings and public events
- Maintaining regular contact with the members of the project management team via informal meetings, telephone discussions, and electronic mail
- Coordinating work with internal and external personnel involved in the production of public involvement deliverables
- Ensuring that work products are developed with the cooperation of the project management team, and when appropriate, participating agencies and interest groups
- Overseeing effective quality assurance/quality control procedures on public involvement activities and deliverables
- Preparing task lists, work product reports, invoices, and materials for team meetings
- Implementing other work elements as necessary to maintain schedules and budgets
  - Development and updating of database

### **Media relations**

Design, layout, and provide press-ready materials for a custom folder to contain media kit materials. Develop and update, as needed, media kit contents, including press releases, fact sheets, maps and other graphic materials, copies of the project newsletter, and reprints of informative articles explaining mobility issues on the corridor. This task element will include contacting news media, as needed

### **Paid media**

The consultant will develop a one-page media plan and schedule showing dates, stations, and newspapers that will be used to notify stakeholders of public meetings.

The consultant will also be responsible for the purchase, trafficking, and insertion of all paid media elements.

### **Project materials**

- Design, write, and produce a project newsletter to inform stakeholders about the program, the environmental review process and how they can participate. the consultant will print 1000 copies and distribute to stakeholders on project data base and at public events.
  - the consultant will draft up to six (6) articles, explaining the program and public involvement opportunities to target audience members, for insertion in community publications and appropriate organizations with newsletters.

### **Project information infrastructure**

- Register, host, design, and develop a project website. The site will provide project information, interactive elements, and an e-mail link for the public. In addition, a password-protected section will be created for project team members involved in the environmental and technical approach. The site will be updated each Monday, with all new material due to the consultant by the preceding Wednesday. Printed collateral (such as newsletters or brochures) will require seven working days to adapt and upload to the site.
- Establish a project information line with four mailboxes, allowing members of the public to get project information, leave messages, and request materials. the
  - consultant will develop a script for the recorded messages and retrieve messages from the voice mail system, which will be forwarded to the appropriate parties if a response is requested.

### **Committee Support**

The consultant will provide support for the project committees by participating in the planning of meeting agendas, materials, committee member notification, production of materials, room set up, facilitation and participation as needed, recording of meeting notes, and producing a meeting report.

During the Mobilization Phase, the consultant will participate in two (2) Executive Committee meetings and one (1) Steering Committee meeting

### **Project administration**

The contractor will plan budgets and schedules, manage subcontractor services, provide monthly documentation and statements detailing all direct and indirect costs related to project products and completion of tasks and activities.

## **10.1 Orientation and Alternatives Identification Phase**

### **Information-gathering activities**

- Design, write, and produce a print collateral piece that contains a public feedback form. The piece will inform stakeholders about the program and provide sufficient background information on which to base a response. The consultant will print the form and distribute it to stakeholders on project data base and at public events.
  - The consultant will collect the forms to receive and record responses.

### **Project management**

During the Orientation and Alternatives Identification phase, the consultant will ensure work is completed in a timely and efficient manner by undertaking the following responsibilities:

- Strategic management, oversight and reporting of activities related to the public involvement program
- Meeting regularly with the client and designated project management team, but no more than 21 times between October 1999 and February 2000 at three hours per meeting for purposes of project management, work product review, and preparation for committee meetings and public events
- Maintaining regular contact with the members of the project management team via informal meetings, telephone discussions, and electronic mail
- Coordinating work with internal and external personnel involved in the production of public involvement deliverables
- Ensuring that work products are developed with the cooperation of the project management team, and when appropriate, participating agencies and interest groups
- Overseeing effective quality assurance/quality control procedures on public involvement activities and deliverables
- Preparing task lists, work product reports, invoices, and materials for team meetings
- Implementing other work elements as necessary to maintain schedules and budgets
- Updating of database

### **Media relations**

During this phase the consultant will arrange up to two (2) media briefings and draft two editorial pieces for submission to daily newspapers. The consultant will also draft letters to the editor, as needed (up to four) to respond to news events related to the project; and write and distribute up to two news releases publicizing the project or its activities. The consultant will also update and distribute media kit contents, as required by developments on the project.

### **Paid media**

The consultant will produce up to two radio spots to promote and publicize project events and information sources, including the project web site and telephone info line. The consultant will also write and produce one print ad for insertion into a daily newspaper serving the communities in the study area. In addition, the consultant will traffic and schedule all radio and print advertising.

### **Project materials**

- Design, write, and produce the second project newsletter to inform stakeholders about the program, the environmental review process and how they can participate. The consultant will print 1,000 copies and distribute to stakeholders on project database and at public events.
  - The consultant will provide graphic and editorial assistance in the creation of a PowerPoint presentation explaining the environmental review process for the I-405 Corridor Program, as well as its mission and goals
  - Disseminate feedback form and record responses.

### **Project information infrastructure**

- Update Web site
- Update telephone infoline

### **Outreach activities**

Presentations will be conducted through a Speakers Bureau to provide community organizations with consistent information about the I-405 MIS. Speakers will include WSDOT and consultant staff and may include other key stakeholders who are knowledgeable partners in the community outreach effort. Support materials will be developed for speakers. These materials will include display materials, overheads, program brochures with appropriate fact sheets, and a sample presentation outline. The consultant will assist in arranging speaking venues and scheduling presentations.

### **Committee Support**

The consultant will continue to provide support for the project committees by participating in the planning of meeting agendas, materials, committee member notification, production of materials, room set up, facilitation and participation as needed, recording of meeting notes, and producing a meeting report.

During the Orientation and Alternatives Identification Phase, The consultant will participate in three (3) Executive Committee meetings and four (4) Steering Committee meetings, and three (3) Citizens' Committee meetings.

### **Public meetings**

The consultant will provide staffing support and materials development for two scoping meeting and three open houses.

### **Project administration**

The contractor will plan budgets and schedules, manage subcontractor services, provide monthly documentation and statements detailing all direct and indirect costs related to project products and completion of tasks and activities.

## **10.2 Detailed Evaluation and Preferred Alternative Phase**

### **Information-gathering activities**

- Disseminate public feedback forms
- Receive and record responses

### **Project management**

During the Detailed Evaluation and Preferred Alternative phase, the consultant will ensure work is completed in a timely and efficient manner by undertaking the following responsibilities:

- Strategic management, oversight and reporting of activities related to the public involvement program
- Meeting regularly with the client and designated project management team, but no more than 36 times between February 2000 and October 2000 at three hours per meeting for purposes of project management, work product review, and preparation for committee meetings and public events
- Maintaining regular contact with the members of the project management team via informal meetings, telephone discussions, and electronic mail
- Coordinating work with internal and external personnel involved in the production of public involvement deliverables
- Ensuring that work products are developed with the cooperation of the project management team, and when appropriate, participating agencies and interest groups
- Overseeing effective quality assurance/quality control procedures on public involvement activities and deliverables
- Preparing task lists, work product reports, invoices, and materials for team meetings
- Implementing other work elements as necessary to maintain schedules and budgets
- Updating of database

### **Media relations**

During this phase the consultant will arrange up to two (2) media briefings and draft two editorial pieces for submission to daily newspapers. The consultant will also draft letters to the editor, as needed (up to four) to respond to news events related to the project; and write and distribute up to two news releases publicizing the project or its activities. The consultant will also update and distribute media kit contents, as required by developments on the project.

### **Paid media**

The consultant will produce up to two radio spots to promote and publicize project events and information sources, including the project web site and telephone info line. The consultant will also write and produce one print ad for insertion into a daily newspaper serving the communities in the study area. In addition, the consultant will traffic and schedule all radio and print advertising.

### **Project materials**

- Design, write, and produce the third project newsletter to inform stakeholders about the program, the environmental review process and how they can participate. The consultant will print 1000 copies and distribute to stakeholders on project data base and at public events.
  - The consultant will provide graphic and editorial assistance in the creation of a PowerPoint presentation explaining the environmental review process and the selection of a preferred alternative package for the I-405 Corridor Program.
  - Disseminate feedback form and record responses.

### **Project information infrastructure**

- Update Web site
- Update telephone infoline
- A display will be developed and updated as needed to provide general and background project information. Key policy questions will also be asked of readers. Members of the public will be asked to respond by mailing in the feedback form accompanying the display. Responses will be tabulated and summarized in a report. The display will be erected in secured public buildings or at public meetings where related issues are being discussed.

### **Outreach activities**

- Schedule presentation venues for speakers bureau
- Provide support for Speakers' bureau presentations
- Update speakers' kit as needed

### **Committee meetings**

The consultant will continue to provide support for the project committees by participating in the planning of meeting agendas, materials, committee member notification, production of materials, room set up, facilitation and participation as needed, recording of meeting notes, and producing a meeting report.

During the Detailed Evaluation and Preferred Alternative Phase, the consultant will participate in two (2) Executive Committee meetings and five (5) Steering Committee meetings, and one (1) Citizens' Committee meeting.

### **Project administration**

The contractor will plan budgets and schedules, manage subcontractor services, provide monthly documentation and statements detailing all direct and indirect costs related to project products and completion of tasks and activities.

**Public workshops**

The consultant will assist in the presentation of public workshops by participating in the planning of meeting agendas, materials, promotion and publicity of the workshops; notification of stakeholders and groups on the project database; production of materials; room set up; facilitation and participation as needed; and recording of input provided by those in attendance.



## 10.3 Consensus Development Phase

### **Project management**

During the Consensus Development Phase, the consultant will ensure work is completed in a timely and efficient manner by undertaking the following responsibilities:

- Strategic management, oversight and reporting of activities related to the public involvement program
- Meeting regularly with the client and designated project management team, but no more than 36 times between November 2000 and March 2001 at three hours per meeting for purposes of project management, work product review, and preparation for committee meetings and public events
- Maintaining regular contact with the members of the project management team via informal meetings, telephone discussions, and electronic mail
- Coordinating work with internal and external personnel involved in the production of public involvement deliverables
- Ensuring that work products are developed with the cooperation of the project management team, and when appropriate, participating agencies and interest groups
- Overseeing effective quality assurance/quality control procedures on public involvement activities and deliverables
- Preparing task lists, work product reports, invoices, and materials for team meetings
- Implementing other work elements as necessary to maintain schedules and budgets
- Updating of database

### **Media relations**

During this phase the consultant will arrange up to two (2) media briefings and draft two editorial pieces for submission to daily newspapers. The consultant will also draft letters to the editor, as needed (up to four) to respond to news events related to the project; and write and distribute up to two news releases publicizing the project or its activities. The consultant will also update and distribute media kit contents, as required by developments on the project. In addition, the consultant will arrange for a news conference at which the outcome of the study will be announced. The consultant will assist in the staging of and development of materials for the press conference.

### **Paid media**

The consultant will produce up to two radio spots to promote and publicize project events and information sources, including the project web site and telephone info line. The consultant will also write and produce one print ad for insertion into a daily newspaper serving the communities in the study area. In addition, the consultant will traffic and schedule all radio and print advertising.

### **Project materials**

- Produce fourth newsletter

- Produce Powerpoint presentation for final public workshops

### **Project information infrastructure**

- Update Web site
- Update telephone infoline
- Update traveling display program

### **Outreach activities**

- Schedule presentation venues for speakers bureau
- Provide support for speakers' bureau presentations
- Update speakers' kit

### **Committee meetings**

The consultant will continue to provide support for the project committees by participating in the planning of meeting agendas, materials, committee member notification, production of materials, room set up, facilitation and participation as needed, recording of meeting notes, and producing a meeting report.

During the Consensus Development Phase, the consultant will participate in one (1) Executive Committee meeting and two (2) Steering Committee meetings, and one (1) Citizens' Committee meeting.

### **Project administration**

The contractor will plan budgets and schedules, manage subcontractor services, provide monthly documentation and statements detailing all direct and indirect costs related to project products and completion of tasks and activities.

### **Public workshops**

The consultant will assist in the presentation of public workshops by participating in the planning of meeting agendas, materials, promotion and publicity of the workshops; notification of stakeholders and groups on the project database; production of materials; room set up; facilitation and participation as needed; and recording of input provided by those in attendance.

## **WORK ELEMENT 11: DEVELOP FUTURE (2020) FORECASTS FOR ALTERNATIVES**

Objective: To provide meaningful future forecasts of travel within the study area for evaluating the transportation concepts and alternatives.

Approach: The CONSULTANT will provide travel forecasts to support the alternatives analysis process throughout the study. Based on an analysis of the existing and future (2020) No Build forecasting results (Phase 2A of study), transportation improvement needs will be identified for the I-405 study area during Work Element 3. These will be screened and up to eight (8) concepts will be identified for further consideration.

Examples of “concepts” might include adding one general purposed lane in each direction to I-405 or adding a light rail line on I-405. These concepts will be coded into the PSRC model to be tested. The budget assumes that four will be highway-related and be fairly simple to code into the PSRC model and that four will be transit-related and will require more extensive network coding. Corridor travel demand by mode will be produced as part of the concept testing. It is assumed that all of the transportation performance measures will not be generated at this stage in the concept screening.

Transportation concepts will then be packaged into alternatives to be evaluated in greater detail (see Work Element 4). For travel modeling purposes, up to four alternative packages will be further tested and evaluated, in addition to the No Build. One of these is assumed to be a TSM/TDM alternative. Resources equivalent to one additional alternative are included to allow for certain alternative variations to be tested at the request of the STATE or other Stakeholders.

The packages of improvements will be coded into the highway and transit networks and the PSRC model will be applied to produce forecasts for each of the alternatives. The trip distribution, mode choice and assignment portions of the model will be run for each alternative. The forecasting results along with related performance measures will be summarized by alternative. These summaries will include total daily person and vehicle trips by mode by corridor and up to four selected screenlines; p.m. peak period vehicle volumes and throughput; p.m. peak period vehicle miles and hours of travel; and p.m. peak period travel times and weighted average speeds between major activity centers.

It is assumed that there may be a land use component for up to two of the alternatives, for example, for the TDM/TSM alternative and potentially for a light rail alternative. Proposed changes to land use distribution or densities will be developed jointly by the STATE and the CONSULTANT. These land use changes will be incorporated into the travel forecasting model in a format compatible with the PSRC trip generation model (i.e., by traffic analysis zone).

A final scenario to be tested will be running an unconstrained forecast to test where demand might go based upon origins and destinations if there were additional (unlimited) capacity in the I-405 corridor. The timing of when this analysis will be assessed as the study gets underway. The budget assumes two model runs to conduct this sensitivity test, one testing impact on traffic assignment only and the second to include rerunning both the trip distribution and traffic assignment models.

For the No Build and four Build Alternatives, the CONSULTANT will provide EMME/2 model output in ASCII format for input to the STEAM benefit-cost model. The CONSULTANT will be responsible for any data conversion or formatting required to make these data compatible with the STEAM model. The CONSULTANT will also provide all necessary model data inputs to the INTEGRATION model, as described in Work Element 12.

### Deliverables:

- Summaries of future (2020) forecasts for up to five packages of improvements, at the corridor and at up to four screenlines; and
- Summary of results of running a 2020 unconstrained forecast.
- Model output in ASCII format to be provided for the STEAM model.
- Model output to be provided for the INTEGRATION model.

## WORK ELEMENT 12: TRAFFIC OPERATIONS ANALYSIS

Objective: To provide meaningful traffic data necessary to support the evaluation of alternatives and preliminary engineering efforts.

Approach: The CONSULTANT will conduct two levels of traffic operations analysis. The first level of analysis will produce more generalized and easy to obtain data for support of the screening activities in Work Element 3. The second level of analysis will include more detailed traffic operations analyses required to support preliminary engineering activities and the detailed environmental studies in Work Element 4. The intent is to conduct detailed traffic operations analyses only where it is necessary to help make informed decisions on the impacts of alternatives.

The following activities will be conducted (Deliverables are listed within each activity):

### **12.1 Conduct Data Collection**

#### Data Required For Integration Simulation Model

One major element of the traffic operations analysis will be the use of the INTEGRATION model to simulate freeway and arterial traffic operations and queue buildup in the corridor at key locations within the corridor. INTEGRATION has specific data collection requirements, which must be met in order to assure adequate calibration of the model. Due to the detailed nature of the data collection, all data collected for INTEGRATION can also be used for merge/diverge and weaving analyses in the corridor as well using standard Highway Capacity Manual methods. The following lists the data collection procedures for INTEGRATION. The Consultant will work with WSDOT to determine if INTEGRATION will be used, and what portion(s) of the corridor should be modeled.

WSDOT will provide available existing peak hour counts for the freeway mainline and ramps in the sections throughout the project corridor (form of a CD). However, it will be the consultant's responsibility to check the data for accuracy, completeness and compatibility and fill the gap in the missing data as needed. Peak hour intersection counts and travel time data will be collected by the Consultant as needed and as outlined below.

- **Travel Time Runs**

Speeds for each segment of I-405 between on- and off-ramps will be determined through travel time surveys compiled and/or conducted by the consultant. Travel time information will also be gathered for key arterials within the study area. These travel times and associated speeds will be used along with traffic volumes for calibration of the INTEGRATION model. It is assumed that peak period travel time runs on I-405 as well as on up to 8 major arterials will need to be conducted for this study.

- **Subarea Model Land Use Information**

Existing year and forecast year zonal land use data used in the development of the BKR model and the Renton subarea model will be obtained from the appropriate local jurisdictions by WSDOT and provided to the Consultant.

Data required for other traffic analyses:

Traffic data will be needed outside of the INTEGRATION model for other specific traffic operations analyses. The AM and PM peak traffic counts compiled for I-405 and its ramps will serve as the base for the HCS merge/diverge and weave analysis. Weaving volumes will be estimated using select link information from the travel demand model. Vehicle occupancy data for I-405 will be compiled by the Consultant as available from the Washington State Transportation Center (TRAC).

In addition to AM and PM Peak hour ramp counts, turning movement counts are required for all intersections at ramp termini in the project area. It is assumed that only the most critical corridor intersections will be analyzed and will total no more than 40. The consultant will compile all existing available turning movement data. It is assumed that turning movement counts will need to be collected at up to 25 intersections of the ramp termini and adjacent arterial streets.

Deliverable: None

## **12.2 First Level of Analysis**

The first level of analysis will utilize measures of effectiveness that rely on data that is relatively easy to obtain. In most cases, the data required will come directly from the travel demand forecasting model developed for the study, with little or no post-processing required. This information will be developed for both the existing baseline condition and the future year (2020) baseline (no build) and build alternatives. It is intended that this level can be used to screen the set of five alternatives (no build plus four build alternatives), down to a set of three alternatives for more detailed analysis in the second level.

### First Level Measures of Effectiveness

Primary measures of effectiveness will include the following:

- Hours of Congestion

- Hours of Delay
- Vehicle Miles Traveled
- Travel Time

These measures will be calculated as follows:

- **Hours of Congestion:**

It is possible that many potential mobility solutions will not necessarily relieve congestion during the peak commuting hours of the day; however, they may provide significant relief for the shoulder peak hours and off-peak times. The Hours of Congestion measure will identify for each build alternative the projected hours out of the day that the I-405 corridor, or certain sections within, are expected to operate under congested conditions, and compare those results with the same projection for the no build, or future baseline alternative. This measure will be directly estimated using volumes from the EMME/2 travel model (AM/PM peak period) with post processing using UFOSNET. Results will be color-coded links based upon hours of congestion. In addition, up to four screenline locations will be selected to show composite hours of congestion. These composite hours will be used to summarize differences between alternatives.

- **Vehicle Miles Traveled (VMT)**

VMT will be obtained for each of the alternatives analyzed directly from the emme/2 travel demand forecasting model developed for the project.

- **Hours of Delay**

Vehicle hours traveled (VHT) will be obtained for each of the alternatives analyzed directly from the emme/2 travel demand forecasting model developed for the project.

- **Travel Time**

Travel times and associated speeds between selected origin and destination (o-d) zones (representing major activity centers) will be obtained for each alternative directly from the EMME/2 travel demand forecasting model developed for the project. It is assumed that travel times will be reported for up to *ten* separate o-d pairs.

### **12.3 Second Level of Analysis**

The second level of traffic operations analysis will be a more detailed assessment of traffic operations using a traffic simulation model for selected critical subareas of the study corridor, and standard Highway Capacity Manual (HCM) analysis methods as needed for other portions of the corridor. It is assumed that this level of analysis will be conducted for the future baseline alternative and up to two build alternatives.

#### **Model Calibration / Existing Traffic Operations Conditions**

- **INTEGRATION Model Calibration**

Based on roadway geometric and traffic signal data, traffic volumes collected in work element 12.1, and PSRC regional model trip tables, adapted to an appropriate subarea zonal system, an INTEGRATION model will be developed and calibrated to existing AM and PM peak period traffic patterns for the selected portions of the study area. The result of the calibration process will be a model that reflects the volumes, travel time and speed surveys collected in Work element 12.1. The calibrated model will be able to show the locations of key bottlenecks and their impact on traffic flow in the project area. The model will also be able to show the behavior of the queue buildup and dissipation over time. It is assumed that four subareas within the corridor will be modeled, these four subareas are described below.

For each subarea, steps to calibrate the model to the base year (existing conditions) include the following:

1. Code the model network. A determination on what class of roadways should be included in the network will be made in conjunction with WSDOT and the project team. At this point it is assumed that only the freeway system and major arterials within the specified subarea (see below) will be coded.
2. Develop a trip table to assign to the network. The total number of trips represented in the trip tables will be based on the PSRC model as used for this project; however, the zonal structure of the trip tables may be more refined than the PSRC zone system. For the Bothell, Kirkland and Bellevue subareas, the zonal system will be based on the BKR model. For the Renton subarea, it will be based on the Renton traffic model. Zone to zone correspondence tables will be developed and used to convert the PSRC trip table information into the refined subarea zonal systems. The disaggregation of trips to and from a given PSRC zone into smaller zones will be based on relative population and employment information assumed for the subarea models (i.e., the BKR model and the Renton model). This will require obtaining detailed zonal land use information from the jurisdictions associated with the subarea models.

The trip tables can either represent a three-hour peak period (which would correspond directly to the PSRC model, and would have potential for displaying peak spreading), or could be converted to peak hour tables. At this point it is assumed that peak hour analyses will be done. It is also assumed that the PSRC 1995 trip table will need to be factored up to reflect 1998 conditions, since most of the data obtained will be for year 1998. (note, if the relevant year 1995 data needed to calibrate the model could be found, then the PSRC trip table would not need to be factored up).

3. Assign the trip table to the network and calibrate to replicate observed conditions. Primary calibration measures will be peak hour volumes, speeds and queues.

***Renton Subarea***

This subarea will include the I-405 corridor from south of SR 167 to north of SR 169. It will be bounded roughly by SR 167 to the west, S 19<sup>th</sup> Street to the south, NE 3<sup>rd</sup> to the north, and Benson Road/I-405 to the east. For budgeting purposes, it is assumed the following will be coded into the INTEGRATION model:

- Up to \_\_ Links



- Up to \_\_ Nodes
- Up to \_\_ Signalized Intersections
- \_\_ Interchanges

***Bellevue Subarea***

This subarea will include the I-405 corridor from Coal Creek Parkway to north of SR 520. It will be bounded roughly by Bellevue Way to the west, Coal Creek Parkway to the south, Northup Road to the north, and 148<sup>th</sup> to the east. For budgeting purposes, it is assumed the following will be coded into the INTEGRATION model:

- Up to \_\_ Links
- Up to \_\_ Nodes
- Up to \_\_ Signalized Intersections
- 6 Interchanges

It is noted that WSDOT staff have already started the coding of this subarea, but coding refinements and calibration of the model to existing conditions still needs to occur.

***Kirkland Subarea***

This subarea will include the I-405 corridor from south of NE 70<sup>th</sup> Street to north of NE 124<sup>th</sup> Street. It will be bounded roughly by Lake Washington Blvd/Market Street/98<sup>th</sup>/100<sup>th</sup> to the west, 60<sup>th</sup> Street to the south, 132<sup>nd</sup> to the north, and 132<sup>nd</sup> to the east. For budgeting purposes, it is assumed the following will be coded into the INTEGRATION model:

- Up to \_\_ Links
- Up to \_\_ Nodes
- Up to \_\_ Signalized Intersections
- 4 Interchanges

***Bothell Subarea***

Bothell (Just north of SR-522 to NE 160th which includes 2 interchanges)

This subarea will include the I-405 corridor from south of NE 160<sup>th</sup> Street to north of SR 522. It will be bounded roughly by 112<sup>th</sup> Avenue to the west, NE 145<sup>th</sup> Street to the south, SR 522 (including ramps to/from I-405 to the north) to the north, and 124<sup>th</sup> to the east. For budgeting purposes, it is assumed the following will be coded into the INTEGRATION model:

- Up to \_\_ Links
- Up to \_\_ Nodes
- Up to \_\_ Signalized Intersections
- 2 Interchanges

Deliverable: Calibrated INTEGRATION model networks for the four subareas outlined above. Summary tables and graphics documenting results of the INTEGRATION AM and PM peak period runs. A final calibrated electronic copy of the INTEGRATION model files will be transmitted to WSDOIT following WSDOT review and necessary model revisions.

- **Ramp Merge, Diverge and Weave Analyses**

For selected locations outside of the INTEGRATION model networks, existing AM and PM peak hour freeway operations will be analyzed by the consultant using analyses as outlined in the 1994 HCM. The analyses will include ramp merge, ramp diverge, and weaving section for selected sections of I-405. Up to 12 ramp merge and diverge locations combined will be analyzed. Up to 4 weaving sections will be analyzed.

Deliverable: Results of the HCS Merge/Diverge and weaving analysis will be documented in the Transportation Discipline Report

- **Intersection Analysis**

For selected locations outside of the INTEGRATION model networks, existing Level-of-Service (LOS) for selected adjacent arterial intersections will be analyzed using TRANSYT 7F software. Each intersection will be analyzed for the AM and PM peak Hour. Up to 15 intersections will be analyzed. Results will be checked and calibrated against actual conditions. The existing signal timings will be used as applicable. Intersection deficiencies will be identified.

Deliverable: Results of the TRANSYT 7F intersection analyses will be documented in the Transportation Discipline Report.

### **Future Baseline (No Build) Traffic Operations Analysis**

- **Future Baseline Detailed Traffic Forecasts and Trip Tables**

Based on the travel demand modeling effort outlined in Work Element 11, growth factors for the I-405 mainline and its ramps outside of the INTEGRATION subarea networks, as well as selected adjacent intersections, will be developed through the comparison of the existing and future year travel forecasts for the study area. Prior to their use, the travel growth factors will be reviewed and approved by WSDOT. These growth factors will then be applied to the existing peak hour volumes to arrive at future peak hour demand for selected mainline, ramps and adjacent intersections. These volumes will be input into a spreadsheet which will apply appropriate capacity constraints to arrive at final year 2020 baseline AM and PM peak hour forecasts for the project area facilities. It is assumed that future baseline forecasts will be developed for up to 15 intersections outside of the INTEGRATION subarea networks.

Deliverables: Year 2020 AM and PM peak hour baseline traffic forecasts for selected I-405 mainline and ramps, as well as selected arterial intersections. Volumes for selected sections of the corridor to be included in the Transportation Discipline Report.

- **Future Baseline INTEGRATION Traffic Simulation Analysis**

### ***Develop Future Baseline Subarea Trip Tables***

Year 2020 future baseline trip tables will be developed for each subarea based on the future baseline trip tables developed as part of the EMME/2 travel forecasting effort for the project. These tables will represent either peak period or peak hour volumes, as consistent with the existing baseline INTEGRATION subarea models. The PSRC trip tables will be disaggregated into the refined subarea zonal systems using conversion tables based on zonal land use data for the subarea models obtained in WE 11.

### ***Conduct Future Baseline Subarea Model Runs***

Through discussions with the study team, WSDOT and local agencies, future baseline subarea network assumptions will be developed. These will include facilities present in the existing baseline networks, as well as agreed upon, programmed and/or committed projects. These additional facilities will be coded into the Future Baseline INTEGRATION networks for each of the subareas.

The future baseline trip tables developed in Work Element 12.3.4.1 will then be assigned to the subarea INTEGRATION networks to simulate expected AM and PM peak period future baseline traffic conditions for the same locations for which the model was calibrated in work element 12.2.1. The model will be able to show the locations of key bottlenecks and their impact on traffic flow in the project area, including traffic diversion, and will also be able to indicate the behavior of the queue buildup and dissipation over time.

Deliverable: Summary tables and graphics documenting results of the INTEGRATION AM and PM peak period runs. More detailed documentation of results will be included in the Transportation Discipline Report.

- **Future Baseline Ramp Merge, Diverge and Weave Analyses**

For selected locations outside of the INTEGRATION model subarea networks, future baseline AM and PM peak hour freeway operations will be analyzed by the consultant using analyses as outlined in the 1994 HCM. The analyses will include ramp merge, ramp diverge, and weaving section for selected sections of I-405. Up to 12 ramp merge and diverge locations combined will be analyzed. Up to 4 weaving sections will be analyzed.

Deliverable: Results of the HCS Merge/Diverge and weaving analysis will be documented in the Transportation Discipline Report

- **Future Baseline Intersection Analysis**

For selected locations outside of the INTEGRATION model networks, future baseline Level-of-Service (LOS) for intersections at selected arterial intersections will be analyzed using TRANSYT 7F software. Each intersection will be analyzed for the AM and PM

peak Hour. Up to 15 intersections will be analyzed. Intersection deficiencies will be identified.

Deliverable: Results of the TRANSYT-7F intersection analyses will be documented in the Transportation Discipline Report

### **Traffic Operations Analysis for Alternatives**

This analysis represents the final level of analysis for detailed evaluation of alternatives. It is assumed that up to two "Build" alternatives will be analyzed at this point.

- **Detailed Traffic Forecasts for Alternatives**

Based on the travel demand modeling effort outlined in Work Element 11, growth factors for the I-405 mainline and its ramps outside of the INTEGRATION subarea networks, as well as selected adjacent intersections, will be developed through the comparison of the existing and future year travel forecasts for the respective build alternatives. These growth factors will then be applied to the existing peak hour volumes to arrive at future peak hour demand for selected mainline, ramps and adjacent intersections. These volumes will be input into a spreadsheet which will apply appropriate capacity constraints to arrive at final year 2020 baseline AM and PM peak hour forecasts for the project area facilities. It is assumed that future "build" forecasts will be developed for up to 12 ramp merge and diverge locations and up to 4 weaving sections, as well as up to 15 intersections outside of the INTEGRATION subarea networks.

Deliverables: Year 2020 AM and PM peak hour build traffic forecasts for the I-405 mainline and ramps, as well as turning movement volumes at selected arterial intersections. Volumes will be documented in the Transportation Discipline Report.

- **Future Build INTEGRATION Traffic Simulation Analysis**

#### ***Develop Future Build Alternatives Subarea Trip Tables***

Year 2020 future trip tables will be developed for each build alternative for each subarea based on the trip tables developed as part of the EMME/2 travel forecasting effort for the project. These tables will represent either peak period or peak hour volumes, as consistent with the existing baseline INTEGRATION subarea models. The PSRC trip tables will be disaggregated into the refined subarea zonal systems using conversion tables as was done for the future baseline trip tables.

#### ***Conduct Future Build Subarea Model Runs***

Based on the definition of alternatives (Work Element ??), future build alternatives will be coded into the INTEGRATION networks for each of the subareas.

The future build alternatives trip tables will then be assigned to the subarea INTEGRATION networks to simulate expected AM and PM peak period future build traffic conditions for each alternative for the same locations for which the model was

previously calibrated. The model will be able to show the locations of key bottlenecks and their impact on traffic flow in the project area, including traffic diversion, and will also be able to indicate the behavior of the queue buildup and dissipation over time.

Deliverable: Summary tables and graphics documenting results of the INTEGRATION AM and PM peak period runs. More detailed documentation of results will be included in the Transportation Discipline Report.

- **Future Build Ramp Merge, Diverge and Weave Analyses**

For selected locations outside of the INTEGRATION model subarea networks, AM and PM peak hour freeway operations will be analyzed by the consultant for each future build alternative using analyses as outlined in the 1994 HCM. The analyses will include ramp merge, ramp diverge, and weaving section for selected sections of I-405. Up to 12 ramp merge and diverge locations combined will be analyzed. Up to 4 weaving sections will be analyzed.

Deliverable: Results of the HCS Merge/Diverge and weaving analysis will be documented in the Transportation Discipline Report

- **Future Build Intersection Analysis**

For selected locations outside of the INTEGRATION model networks, future build Level-of-Service (LOS) for intersections at selected arterial intersections will be analyzed for each alternative using TRANSYT 7F software. Each intersection will be analyzed for the AM and PM peak Hour. Up to 15 intersections will be analyzed. Intersection deficiencies will be identified.

Deliverable: Results of the TRANSYT-7F intersection analyses will be documented in the Transportation Discipline Report

## **WORK ELEMENT 13- Preliminary Engineering**

Objectives: To provide sufficient engineering information needed for the following:

- Assurance that major design criteria are met without deviation (typically criteria determined by design speed).
- Assurance that major cost elements have been captured (i.e. enough to know whether or not a major existing element can remain or not; existing bridges, large walls, major utilities, high value right-of-way and environmental features, etc.).
- Assurance that common physical features in the electronic data and the project GIS will allow alternatives to be appropriately positioned relative to existing GIS data sets.

Approach: The Consultant will provide the design support, at a planning level of detail, to properly describe the various build alternatives in each segment of the I-405 corridor. Electronic data from relatively recent WSDOT projects has been identified for the

majority of the corridor. These will form the basis for description of alternatives within ¼ mile of WSDOT right of way.

An engineering analysis will be performed to determine the physical impacts of each alternative as well as the planning-level cost estimate. In the absence of a final or even partial design, an order of magnitude construction cost estimate will be used, based on major quantities.

Deviations from WSDOT standards will be scrutinized to determine whether they can be justified and win approval. Where access decisions are required, the probability of obtaining support for each alternative will be addressed.

Engineering services will be provided in support of the following work elements:

**1- Preliminary strategies and alternatives (Work Element 3)**

- Single-line, approximately scale representations of each build alternative.
- Referenced to aerial photos or GIS data by physical features.

**2- Refined Alternatives (Work Element 3)**

- Single-line, scale representations with refinements made at selected areas to confirm geometric feasibility (i.e. critical horizontal or vertical clearances, impact avoidance, etc.)
- Preliminary capital cost ranges based upon generalized unit costs
- Referenced to aerial photos or GIS data by physical features.

**3- Programmatic EIS Alternatives (Work Element 4)**

- Conceptual representations of each build alternative, based on full preferred design criteria unless specifically noted as deviated (i.e. a lower design speed, etc), that show approximate pavement width, based on number of lanes or track needed, and construction footprint.
- Planning-level capital and operating cost estimates.
- Construction footprint will include required work on adjacent facilities (i.e. local roads, railroads, major utilities, etc) and related facilities (i.e. drainage facilities, toll facilities, etc)
- Referenced to GIS data by mile post.

The CONSULTANT makes the following assumptions:

- \* I-405 corridor alternatives will be developed using existing DTM data. Data needed for any DTM data holes will be estimated.
- \* Alternatives will be depicted at the design level in Microstation (WSDOT standards). Graphics will accurately represent the alternative, but

will not be adequate for presentations.

\* Alternatives on local arterials that are beyond the immediate vicinity of the I-405 corridor shall not be developed beyond "Refined Alternatives".

\*

Deliverables: Engineering sketches and drawings in support of alternatives evaluation and environmental documentation. Planning-level cost estimates.

## **Appendix A—Environmental Discipline Studies**

### **4.3 Conduct Detailed Alternatives Evaluation**

#### **4.3.1 Air Quality**

A regional (study-area) burden analysis of emissions will be performed for nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOCs) using average speeds, vehicle mix, and vehicle miles traveled (VMT). Emissions will be predicted using the most recent MOBILE model adopted by the PSRC. A table of vehicle emissions by alternative will be prepared.

Preparation of CO hot-spot analyses will be deferred until preparation of subsequent project-level environmental review; however, anticipated likely hot-spot locations will be identified in the corridor EIS. The potential problem intersections will only be identified for the alternatives for which level II traffic analysis is completed and only for intersections within the four key sub-areas evaluated with the Integration model. Particulate matter less than 10 micrometers (PM<sub>10</sub>), total suspended particulates (TSP), and ozone concentrations will not be estimated in the corridor EIS. A conformity determination will not be completed.

Data requirements include study area VMT by speed (5 or 10 mph intervals, or roadway classification) and summary of intersection operations (volume and LOS) for study corridor.

#### **4.3.2 Noise**

Ambient noise levels will be measured at a maximum of 25 representative noise-sensitive receptors in the corridor that likely would be affected by noise from the proposed alternatives. Leq(h) traffic noise levels at representative locations in the corridor will be predicted using FHWA's Traffic Noise Model (TNM) computer model. The modeled levels will be used to create generalized noise contours for the corridor. These contours will be input to the GIS system, and estimates of the number of affected receptors by type will be identified. The potential locations and effectiveness of noise walls will not be determined. Construction noise will not be estimated in the corridor EIS.

Data requirements include peak-hour traffic volumes and speeds and free-flow (LOS C/D) volumes.

Products include a table of existing measured noise levels; table of distances from roadway that various noise levels (60,66,70 dBA) occur for existing and future conditions for entry into GIS system; and approximate number of impacted receptors from each alternative (this calculation to be made by DEA based on information available from their GIS database).



### **4.3.3 Energy**

Fuel consumption will be estimated for each alternative based on VMT and projected travel speeds. The methodology of *Procedures for Estimating Highway User Costs, Fuel Consumption, and Air Pollution* (USDOT, 1980) will be modified to apply to planning level corridor analysis. Construction and secondary and cumulative energy consumption will not be estimated in the corridor EIS.

Data requirements include VMT by speed (5 or 10 mph intervals, or roadway classification).

### **4.3.4 Geology and Soils**

Mapped topographical and physical features that could substantially constrain or affect project design, construction, or operation will be identified. Surface soils and geologic conditions along the proposed routes, as shown in maps published by the U.S. Geological Survey, Washington State Department of Natural Resources, and U.S. Soil Conservation Service, will be described. Sensitive or hazard areas as mapped by local jurisdictions will also be identified.

The relative impacts of the alternatives will be discussed. The scope will be limited to the impacts of the alternatives on topography and physical features, including sensitive areas, based on published information about soil, geology, and geologic hazards. Short-term impacts due to project construction and long-term impacts during project operation and maintenance will be included. Decommissioning impacts will not be discussed. Typical discussions will include comparisons of the extent of cut and fill created by each alternative, descriptions of possible construction methods and approximate areas of disturbance, and potential impacts that hazards such as earthquakes, heavy rains, or high groundwater could have on the performance of the facilities.

Measures to mitigate potential impacts from construction, operation, and maintenance of the facilities will be identified. Measures to mitigate the effects of the identified hazards will also be described.

WSDOT will provide boring logs, soils reports, and plans of existing structures for existing WSDOT facilities within the study area. No subsurface explorations will be performed.

### **4.3.5 Surface Water Quantity and Quality**

Existing rivers, streams, and lakes will be identified that would be directly impacted or that would receive stormwater runoff from any of the alternatives. The drainage basins of the identified rivers, streams, and lakes will be delineated based on topographic maps

from the GIS data base and on U.S. Geological Survey quadrangle maps for areas not covered by the GIS data base. Rivers, streams, and lakes with important aquatic resources will be determined from available literature and information obtained from resource agencies.

Current Federal, State, and local stormwater management requirements will be identified that would apply to each of the alternatives. Meetings will be conducted with the stormwater regulatory agencies as necessary. It is anticipated that there will be one meeting with the Washington Departments of Ecology and Fish and Wildlife. Existing basin plans and/or watershed plans for the identified rivers, streams, and lakes will be reviewed to determine any additional stormwater management requirements that might apply to any of the alternatives.

The potential for each of the alternatives to increase erosion, sedimentation, stormwater runoff, and other construction-related pollutants will be estimated. Potential stormwater quantity and quality treatment measures that may be used for each alternative will be identified. Potential locations for proposed major stormwater treatment facilities will be identified. Additional potential mitigation measures for stormwater quantity and quality impacts will be identified.

Long-term annual pollutant loads to receiving surface waters will be estimated using the methods described in the WSDOT *Highway Water Quality Manual* (WSDOT, 1988). Those methods rely on predictions of average daily traffic, determinations of highway length and change in impervious surfaces, and relationships established by long-term highway runoff studies in Washington. Long-term operating effects on groundwater will be estimated based on the quantity and concentrations of pollutants generated, literature on regional geology and groundwater resources, and relevant design components of the alternatives. No flow or water quality data will be collected. No flow calculations will be done for surface water quantity, except as needed to estimate annual pollutant loadings to receiving waters. If flow data are available for some water bodies, those data will be used.

The rivers, streams, and/or lakes that would be crossed by a transportation facility (i.e. road, light rail line) under any of the alternatives will be identified. Potential mitigation measures for the impacts that would result from crossing the surface water will be determined. Rivers and/or streams that would have to be relocated for any of the alternatives will also be identified. Field reconnaissance and investigations will be limited to particularly sensitive surface water resources where existing data are not sufficient to adequately characterize impacts and assess the potential for avoidance or effective mitigation. These investigations will be limited to rivers and/or streams that would be crossed by a transportation facility (i.e. road, light rail line) or that would have to be relocated.

No calculations will be done to determine the sizes of surface water collection, conveyance, and/or treatment facilities. No cost estimates will be prepared.

General secondary and/or cumulative impacts of each of the alternatives on surface waters will be identified based on land use changes identified in the Land Use Expertise Report.

#### **4.3.6 Groundwater**

The baseline hydrogeologic/groundwater resources will be identified. This will include delineation of hydrogeology/aquifers, sole source aquifers, groundwater flow directions, recharge/discharge areas, domestic groundwater users, well fields/well field protection areas, and groundwater quality. Data sources will include published reports prepared by Ecology and the U.S. Geological Survey, and well records on file with Ecology.

Potential short term/construction impacts to the quantity and quality of the groundwater resource will be identified. This section will include impacts from design/predesign field studies such as pumping tests, impacts of dewatering for construction or slope stability, impacts associated with recharge of construction disturbed runoff, etc. Potential long-term impacts to the quantity and quality of the groundwater resource based on the proposed alternatives will be identified. This section will include impacts of recharge area reduction, roadway surface water runoff recharge, spills of dangerous and hazardous chemicals, etc. Generalized cumulative effects caused by land use changes attributed to the project will also be briefly discussed.

Measures to mitigate potential impacts from design/predesign, construction, operation, and maintenance of the project will be identified. No subsurface explorations or groundwater quantity or quality testing will be performed.

#### **4.3.7 Wetlands**

Existing wetlands will be identified from sources including the USFWS National Wetland Inventory, DNR Natural Heritage Information System, local jurisdiction wetland inventories, project GIS system, and other available environmental reports. No field work, such as wetland delineations and wetland functional assessment, will be performed. Investigations will not attempt to identify wetlands that may have been missed during previous studies.

Criteria for impacts will be developed. For each alternative, wetland areas affected will be estimated using GIS and reported to the nearest acre. Where sufficient existing data are not available to assess wetland functions and values adequately, an attempt will be made to assess the potential for avoidance or effective mitigation of those wetlands. For each alternative, potential permits will be identified.

#### **4.3.8 Upland Vegetation, Habitat, Wildlife, and Threatened and Endangered Species**

DEA will identify documented sensitive wildlife, plant, and habitat occurrence from existing sources including the U.S. Fish and Wildlife Service (USFWS), Washington Department of Fish and Wildlife Priority Habitats and Species program, Washington Department of Natural Resources Natural Heritage Information System, and local jurisdiction's inventories. Areas affected under each alternative will be identified and estimated using GIS.

DEA will document the methods of the analysis, existing conditions, and projected impacts from each alternative. The report will identify opportunities to mitigate potential significant impacts and will identify the least environmentally damaging alternative.

#### **4.3.9 Fisheries and Threatened and Endangered Species**

DEA will describe major stream systems in the project area using information available from the Surface Water discipline studies conducted by CH2M Hill, published sources, project GIS maps and databases, DEA's professional experience, and data available from resource agencies. The affected environment section will include description of watersheds, stream systems, fish species presence, status of salmonid (salmon and trout) species/stocks, and general fish habitat conditions and limitations. The report will focus primarily on salmonids, but will also address other fish species that are protected or of concern.

In addition, the expertise report will evaluate all project alternatives for their relative potential impact on fish populations. Potential impacts will be assessed at a level of detail matching that of the alternative plans and descriptions. The assessment will include direct, indirect, and cumulative impacts, as well as construction impacts. Mitigation measures to avoid and reduce impacts to fish habitat and populations will be proposed. For unavoidable impacts, mitigation measures may be proposed to compensate for adverse effects.

#### **4.3.10 Biological Assessment**

Federally listed threatened and endangered, proposed, or candidate plant, animal, and fish species known to occur in the project area will be identified. A Biological Assessment (BA) will be prepared for these species. The BA will include species status and general description of existing habitat and limitations. Species life cycles and habitat needs will be described. The potential impacts of the proposed project alternative will be assessed, and a consequence call will be made. Mitigation measures will be proposed to avoid, reduce, or compensate for project impacts. The BA will address all species listed or proposed for listing under the Endangered Species Act that could occur in the project area as identified by the USFWS and National Marine Fisheries Service. DEA will research

existing literature and scientific data and interview experts to determine species distribution, habitat requirements, and other pertinent biological requirements for the target species.

DEA will document the findings from the above tasks in a BA. The BA will be tiered consistent with the corridor level of analysis provided in the EIS. DEA will identify and describe the potential project impacts for each species. The BA report will include an impact determination for each species addressed.

#### **4.3.11 ROW Acquisition/Displacements, Shorelines, Farmlands**

DEA will determine per alternative design/construction what businesses and/or residences will likely be displaced temporarily or permanently by construction/operation of certain new public transportation facilities. Shoreline management areas and any farmlands will be identified and discussed in terms of the regulatory framework, restrictions on development, and the relative potential impacts of the alternatives. The analysis will include developing a methodology for identifying displacements including comparing relative costs with mitigation costs (i.e., residential noise walls, vibration mats, wetland mitigation sites), and working with the design team to minimize property impacts before alternative analysis is completed. Existing available data will be used to generally describe ownership, tenants, household makeup, income status, employment, transportation, available replacement housing, and available property. Information regarding land use and economics will be accessed from the Land Use and Economics discipline studies, as well as from other existing sources. Mitigation options and relative costs will be discussed.

#### **4.3.12 Flood Plains**

Existing data describing floodplains will be identified and collected from a variety of jurisdictions. Sources of information include National Flood Insurance Program (NFIP) maps, Federal Emergency Management Agency (FEMA) maps, and other state, county, or city flood plain or floodway information. For each alternative, areas lying within 100-year flood plains will be estimated using GIS. Potential permits will be identified.

#### **4.3.13 Land Use**

Assumptions: Substantial reliance will be placed on existing digital mapped generalized land uses. Local jurisdictions' designations for future land use within the analysis area will be available in digital format for entry into the project GIS data base maintained by DEA. Analysis of land use impacts will rely on the land use designations contained in existing comprehensive plans or other comparable sources accessible within the DEA GIS data base. Zoning will not be mapped or evaluated. The quality and accuracy of available digital data are not fully known at this time. If refinement or supplement of existing generalized land uses is determined to be necessary, it may be accomplished as

an addition to this scope of work and budget through interpretation of recent aerial photography and/or through site reconnaissance.

Method: Jurisdictional boundaries, Urban Growth Area boundaries, existing generalized land uses, and future land use designations will be mapped from local jurisdictions' comprehensive plans or other existing sources contained in the DEA GIS data base. Potentially affected land uses and the areas of effect will be identified and estimated using the GIS.

McGowan Environmental will conduct coordination with King and Snohomish counties and the local jurisdictions adjacent to the corridor (13 assumed) that potentially will be affected. The purpose of this coordination will be primarily to augment identification and evaluation of indirect and cumulative impacts of changes in accessibility and mobility. The analysis also will rely on and refer to previous studies, data developed by the affected jurisdictions, and limited site reconnaissance. Up to five days of field reconnaissance and site familiarization will be devoted to alternatives analysis, as necessary. Current and anticipated trends in land use and development will be discussed. Pressures for change in land use, the timing and density of development, and population distribution, as well as other indirect and cumulative impacts within the primary and secondary study areas will be discussed for each alternative. Effects on rural lands outside the designated Urban Growth Area, if any, and growth management issues also will be discussed. Figures showing the existing land use and designations for future land use will be prepared for the expertise report by DEA based on mark-ups provided by McGowan Environmental.

#### **4.3.14 Land Use Plans and Policies**

Mirai will review, evaluate, and discuss applicable adopted transportation and related capital facility plans. HNTB will review, evaluate, and discuss applicable adopted utilities plans and policies. CH2M Hill will review, evaluate, and discuss applicable adopted community services and economic development plans and policies. DEA will review, evaluate, and discuss applicable adopted plans and policies related to shorelines and farmlands.

The Vision 2020 Update and applicable adopted land use plans and policies of King and Snohomish counties and the local jurisdictions adjacent to the corridor (13 assumed) will be reviewed by McGowan Environmental. The consistency of the Draft EIS alternatives with these applicable plans and policies will be evaluated and discussed. Potential inconsistencies of the alternatives with adopted plans and policies, if any, will be identified and evaluated.

#### **4.3.15 Hazardous Materials and Wastes**

The hazardous materials and wastes review will consist of research of historical sources and environmental agency records. Historical sources will include historical aerial

photographs available from WSDOT archives and historical fire insurance maps (Sanborn maps), where available, for selected portions of the corridors. Environmental agency records to be reviewed will include, subject to availability, the following databases:

- Federal NPL Site List and CERCLIS List
- Federal RCRA TSD Facilities List
- Federal RCRA TSD Generators List
- Federal ERNS List
- Washington States' Lists of Hazardous Waste Sites Identified for Investigation or Remediation (NPL and CERCLIS Equivalents)
- Washington States' Landfill or Solid Waste Site Lists
- Washington States' Leaking UST Lists
- Washington States' Registered UST Lists

To complete the review of these records, the services of a professional environmental data retrieval service will be used.

Limited site reconnaissance of sections of the corridor where historical or environmental agency records indicate the possible presence of hazardous wastes or hazardous substances, including petroleum products, will be performed. The site reconnaissance will not include any subsurface investigations or sampling of environmental media. Specific hazardous material surveys will not be performed. Locations within identified alternative alignments where possible hazardous building materials are present will be noted. Properties with identified or potential hazardous wastes or hazardous substances, including petroleum products, that exceed *de minimis* quantities, will be displayed in map form.

Short- and long-term impacts related to conditions identified by the review will be identified. Mitigation measures for these impacts will also be identified.

#### **4.3.16 Social**

The Affected Environment description will identify and describe existing neighborhoods along the project corridor, providing information on their locations, historic development patterns, demographics, community character, and community/social resources. The description will be based on existing documentation and telephone and/or personal interviews with local government staff. The Environmental Consequences analysis will assess potential direct and indirect impacts on neighborhoods during construction and operation. Impact assessment will be performed through inspection of aerial photographs overlaid with major project components; reviews of land use and neighborhood plans; site visits to individuals neighborhoods as necessary; and reviews of other discipline studies prepared for this project, specifically including: Displacements/Relocations; Land Use; Transportation; Air Quality; Noise; Visual; and Recreation. Impacts will be described by neighborhood, and will include discussion of such potential impacts as changes in quality of life, barriers to social interaction, impacts to community resources, and effects on

safety and security. The Mitigation discussion will identify measures to minimize the identified social/neighborhood impacts. Consultation with relevant local government staff will occur to assist in the identification of reasonable and acceptable mitigation measures.

The analysis will be performed at the programmatic level and will not evaluate project-level, site-specific impacts of individual improvements or design options. This scope of work does not include analysis of recreation facilities, public services, or pedestrian and bicyclist facilities, which being analyzed in other discipline studies.

#### **4.3.17 Economics**

CH2M Hill will use PSRC data for Transportation and Analysis Zones, the Social and Land Use discipline studies, and data from other existing sources to describe baseline conditions and trends in population, housing, employment, development, and level of economic activity within communities and the study area.

Loss of tax revenues associated with right-of-way acquisition and displacements will be estimated based on GIS analyses and estimates of assessed valuation. Estimates will be prepared by multiplying acres of land displaced by land use category (calculated elsewhere) by estimated assessed values and levy codes. Assessed values and levy codes for each land use category will be estimated using information from the King County Department of Assessments and Snohomish County Assessor's Office. Estimates will be prepared by City and compared to total tax revenues for each City to give perspective to the magnitude of the fiscal impacts of the project to various jurisdictions.

This scope of work excludes any evaluation of pricing options. Should such options become part of one or more alternatives, an analysis of pricing options can be added to the economics work scope at that time.

#### **4.3.18 Environmental Justice**

CH2M Hill will identify the nature and locations of impacts that have the potential to fall disproportionately on minority and/or low-income populations in compliance with the following: Presidential Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations dated February 11, 1994; US Department of Transportation (DOT) Order on Environmental Justice (DOT Order 5610.2) dated April 15, 1997; and Federal Highway Administration (FHWA) Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (FHWA Order 6640.23) dated December 2, 1998.

CH2M Hill will identify and describe minority and low-income populations in the project study area based on 1990 Census data. GIS maps depicting the locations of these populations will be produced. The environmental consequences analysis will compare the



distribution of impacts on minority and low-income populations relative to non-minority/non-low-income populations based on impacts as reported in other Expertise Reports prepared for this project. An identification of project benefits that may offset potentially disproportionate impacts will be made. The mitigation discussion will suggest, after consultation with relevant agencies, avoidance alternatives, and measures to minimize identified impacts on minority and low-income populations. The analysis will be performed at the programmatic level and will not evaluate project-level, site-specific impacts of individual improvements or design options.

#### **4.3.19 Recreation and Section 4(f) and 6(f) Resources**

Mapped existing and planned publicly owned parks, trails, and recreational facilities; significant privately owned recreational facilities; and known Section 4(f) and Section 6(f) resources will be identified from local park and recreation comprehensive plans and other existing inventories contained in the DEA GIS data base. Potentially affected resources and the areas of effect will be identified and estimated using GIS. Types and general levels of recreation use will be identified based on information available from the resource owners. Potential construction and operational impacts on parks and recreation facilities will be discussed for each alternative. Field reconnaissance will be limited to up to two days devoted to resources where existing data are not sufficient to adequately characterize impacts and assess the potential for effective mitigation. Avoidance alternatives will be evaluated, and a range of potential mitigation responses will be identified.

Preparation of a Section 4(f) Evaluation under Section 4(f) of the Department of Transportation Act and an Environmental Impact Assessment (EIA) under Section 6(f) of the Land and Water Conservation Fund Act of 1965, if required, will be tiered consistent with the corridor level of analysis provided in the EIS, and will be prepared as an addition to this scope of work and budget. A project-level Section 4(f) Evaluation and EIA will not be prepared.

#### **4.3.20 Public Services**

CH2M Hill will identify the location of public service facilities on maps and provide, where relevant, discussion of the types of service provided, service area boundaries, levels of use, access requirements, and other significant characteristics or values associated with each service or facility. The primary public services to be reviewed include the following: police and fire protection, medical and emergency services, and schools. Telephone contact and/or in-person interviews with public service providers will be necessary to obtain current information. The environmental consequences analysis will describe potential direct and indirect impacts resulting from both construction and operation to identified public services. The mitigation discussion will suggest measures to minimize the identified impacts to public services. Consultation with service providers will occur to assist in the identification of reasonable and acceptable mitigation measures.

#### **4.3.21 Visual (Aesthetics)**

DEA will describe the general landscape context of the study area using information from published sources and visual observations and DEA's professional expertise. The affected environment section will include the general landscape character of the study area, significant landforms, viewsheds and key viewpoints. The visual quality and character of the study area will be identified and the changes to this visual quality will be analyzed. The sensitivity of viewers to landform and visual resource changes will be estimated. The report will focus on broad changes in the landscape and how they will be perceived by the sensitive viewers.

Recommendations will be made to mitigate the aesthetic impacts of the alternatives. The potential impacts of the project alternatives will be assessed and compared in a matrix format. Mitigation measures will be identified and recommended proposal based on the degree of negative aesthetic impact associated with each alternative.

#### **4.3.22 Cultural Resources**

Cultural resources may include districts, sites, buildings, structures, objects, and landscapes significant in American history, prehistory, architecture, archaeology, engineering, and culture. CH2M Hill will identify known/recorded cultural resources based on information collected from the Washington State Office of Archaeology and Historic Preservation (OAHP). Local and regional comprehensive plans and other existing inventories (including previous investigations, historic maps, and documents) will also be collected. Some limited field reconnaissance (windshield survey) may be conducted to identify potential historic properties (buildings, structures and archaeological high probability areas). Low level consultations with up to four Indian Tribes will be initiated.

Potential impacts to identified cultural resources will be discussed only in very general terms since no project-specific impacts are known at this time. Potential mitigation measures will also be discussed only in general terms since no project specific impacts are known at this time.

To the extent feasible with collected information, historic, cultural, or archaeological resources that may qualify as Section 4(f) or Section 6(f) resources will be identified by CH2M Hill and will be discussed in the Historic, Cultural, and Archaeological Resources Expertise Report.

Assumptions: It is assumed that this first phase of investigation is designed only to collect easily accessible information from previous studies and available inventory lists and maps. Since it is assumed that this initial effort is designed as much to find potential fatal flaw constraints, the investigation will concentrate on trying to identify National or

State Register listed or determined eligible properties. Therefore, at this stage of investigation:

- Field reconnaissance work will be limited to windshield surveys; such windshield surveys would not be complete or exhaustive in coverage.
- Any identified archaeological site(s) will only be plot mapped and photographed; no formal archaeological site record forms will be completed.
- Any identified historic buildings or structures will only be plot mapped and photographed; no formal historic property inventory forms will be completed.
- Tribal consultations will be limited to a letter and one to two phone calls.
- Agency consultations will be limited to one face-to-face meeting with the Washington SHPO and letter and/or telephone communications with local governments to secure planning documents and historic resource inventory lists, etc.
- Historic context statements will not be developed.

#### **4.3.23 Traffic And Transportation**

Transportation impacts associated with the alternatives will be evaluated and documented, as itemized below.

##### **Travel Demand**

Travel demand will be analyzed in *Work Element 11* and will include the following measures:

- Travel by Purpose and Orientation
- Travel by Mode
- Trip Distance and Time

##### **Traffic Operations**

Traffic operations will be analyzed in *Work Element 12*. Included will be an assessment of the following:

- Existing and Planned Street and Highway System
- Existing and Future Daily and Peak Period Traffic Volumes
- Existing and future Congestion
- Existing and future Travel Times

For each alternative, the following will be documented:

- Hours of Congestion
- Changes in Traffic Operations at Critical Locations
- Impacts on Freeway/Arterial Conditions based upon agreed measures of effectiveness

## **Transit Routes, Service and Facilities**

The consultant will collect, estimate or identify the following transit related information:

- Route and schedule information for local agency as relevant to the study area
- Route and schedule information available from Sound Transit including the Regional Express, Sounder, and future Link components.
- Average occupancy of agency sponsored vanpools operating within the project study limits (if available).
- Locations of transit vehicle access to I-405
- Size and occupancy of Park-and-Ride lots within or adjacent to the project area

Analyses of transit impacts of each alternative will be conducted to determine changes in transit mode splits and person volumes, including the following:

- Changes in Mode Share
- Corridor-level transit demands

## **Safety Analysis**

A safety analysis will be conducted based on existing accident data collected in Phase 2A for the project study area. The analysis will identify High Accident Locations (HALs) and potential causes. Results from the safety analysis will be considered in the design of the mainline improvements and proposed interchange modifications. Safety deficiencies will be identified and recommendations for safety improvements summarized.

Based on the future baseline traffic forecasts, the safety analysis previously prepared for the existing conditions base year will be revisited. A qualitative assessment will be made of the anticipated changes to safety based on the projected traffic and geometric changes arising from the alternatives.

## **NonMotorized Analysis**

An analysis of nonmotorized (e.g. pedestrian, bicycle) impacts will be conducted for existing, future no-build, and for each alternative. Included in the analysis will be the following:

- Existing non-motorized facilities
- Planned Improvements
- Changes in NonMotorized Mode Share
- Corridor-level nonmotorized facility needs

## Freight and Goods Analysis

Freight and Goods analysis will be documented in a separate working paper.

Deliverable: *Each of the traffic and transportation impacts will be documented in a combined discipline report.*

### **4.3.24 Freight Mobility**

Freight mobility will be addressed from both a local and regional perspective as follows:

- Build and expand upon the I-405 Corridor Program (Phase 1) freight surveys, mapping, and background data for the primary impact area.
- Leverage the FAST Phase 1 (rail focus) and pending FAST Phase 2 (truck mobility focus), EWITS, Port of Seattle/Port of Tacoma O&D surveys (1998), PSRC GIS data base for employment and freight related land uses, and the freight aspects of the pending WTP update to frame the latest basis for freight mobility affecting, or affected, by the study area.
- Characterize the “freight trip” originating from, destined for, or passing through the study area in terms of commodity flow, trip purpose, and logistics considerations.
- Identify the physical infrastructure (of which the I-405 corridor is a key component) within which the freight trip is made. System level and facility specific features accommodating or inhibiting freight mobility will be identified together with design, operational, and/or institutional measures to mitigate or enhance freight mobility.
- Key to freight mobility is “time and cost”, the CONSULTANT will leverage the UW/GTLL study looking at “non-structural” barriers and opportunities affecting truck mobility. Since this study focused on the Green River Valley, served by the southern portion of I-405, it is timely and appropriate to understanding the benefits and impacts of freight in the corridor. Further understanding of the freight trip at the junction of I-405 and I-5 can be derived from recent and current studies performed for the SR 509 corridor.
- Other peripheral studies with application to assessing freight mobility in the I-405 corridor include the Trans-Lake Study, which had a primary focus moving general purpose and transient trips. Studies by Sound Transit for LRT service to the I-405 corridor and commuter rail service at the corridor’s termini with I-5 will also be explored for opportunities to accommodate freight or the impact on freight mobility.

Consideration of the current and future use of the existing BNSF rail line paralleling I-405 will also be addressed.

The CONSULTANT will populate the database necessary to utilize the Surface Transportation Efficiency Analysis Model (STEAM) and Freight Transportation Investment Model (FTIM). These focus specifically on quantifying the impacts and benefits of freight with a system level perspective. Inherent to this effort will be inclusion of "global" freight movement affecting freight mobility in the corridor. Mode choice decisions driven globally that affect tradeoffs between truck, rail, aviation, and maritime all affect in some respect the trip use and capacity of the I-405 Corridor and the regional network serving the study area.

The analyses of freight mobility impacts and benefits will be focused on three decision levels:

1. Considerations to incorporate, or understand, freight mobility impacts and benefits into the general purpose/transient trip framework for the corridor.
2. Options within the four "action alternatives" that address freight specific impacts or benefits.
3. A "freight only" alternative or sub-alternative with a sole focus of addressing the impacts and benefits of freight mobility for the corridor and its benefit/impact to the non-freight transportation system.

The following activities will be undertaken by the CONSULTANT:

➤ **Generate Freight Alternatives**

The CONSULTANT will use the freight flow baseline data collected as part of Phase 2A of this contract as a basis for generating freight improvement alternatives. These freight-focused alternatives will be integrated and analyzed within corridor.

➤ **Establish Evaluation Criteria**

The CONSULTANT will develop freight flow improvement evaluation criteria that will be added to the evaluation criteria.

➤ **Evaluate Alternatives**

The CONSULTANT will use the freight flow baseline data collected as part of Phase 2A of this contract along with a trucking survey focused on providing detailed information on the industry mix and value of truck travel time.

The CONSULTANT will use the Freight Transportation Investment Model (FTIM). The CONSULTANT will enter the following inputs into the FTIM model:

- Truck travel time savings per alternative
- Truck volumes
- Value of truck travel time
- Industry mix

The CONSULTANT will provide input to the team based on the FTIM results and previous analysis of freight flows in the corridor in order to help refine and evaluate the alternatives. The CONSULTANT will provide a technical memorandum summarizing the outputs of the FTIM per alternative. The outputs will be divided into two areas:

1. User Impacts
2. Industry Sector Impacts

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➤ **Select A Preferred Alternative**

The CONSULTANT will prepare a technical memorandum on freight flow improvements associated with the selected preferred alternative. This technical paper will include discussions on trucking industry savings, employment, income and business improvements associated with the improvements to freight flows within the corridor.

**Utilities Expertise Report**

All major public and private utilities known or thought to have facilities in the project area shall be identified, as well as noting any planned major utilities and improvements. Impacts from each alternative will be summarized with a statement regarding magnitude of cost.



**Appendix B—Public Information Program**  
**(incorporate by reference)**

## **PHASE 4: DEVELOP RECOMMENDATIONS**

### **WORK ELEMENT 1: DEFINE IMPLEMENTATION PROCESS**

The purpose of this Work Element is to define a process to implement the proposed actions. The CONSULTANT and the STATE will define the following:

- Steps needed to complete project approvals
- Project Phasing (by 5 year increments)
- Funding needs by increment
- Agency responsibilities for implementation
- Further environmental reviews needed for specific projects
- Funding strategies matched to project type

Deliverable: Working paper summarizing the implementation process

### **WORK ELEMENT 2: PREPARE RECOMMENDATIONS**

The purpose of this Work Element is to prepare study recommendations building upon the results of the EIS process. The CONSULTANT will prepare a set of draft recommendations for a single investment strategy in the corridor. The strategy will include the key conclusions from Work Element 1.

Deliverable: The recommendations will be summarized in a recommendations report, including a refined implementation process.

### **WORK ELEMENT 3: CONDUCT PUBLIC INFORMATION PROGRAM**

A public information program will be conducted, including the following:

- Committee meetings—Meetings will be held as needed with the Executive (up to 2) and Steering (up to 4) committees to finalize the recommendations and implementation process.
- Stakeholder meetings—One meeting with each stakeholder group (up to 6 total) will be conducted
- Media—Appropriate press releases and other media relations

Deliverable: Various outreach activities and committee minutes.