

**AGREEMENT GCA 5864**  
**between the**  
**Washington State Department of Transportation**  
**and the**  
**King County Department of Transportation, Metro Transit Division**  
**for an**  
**Expanded Bus Monitoring Project**  
**As an Element of the Early Safety and Mobility Projects of the**  
**Alaskan Way Viaduct and Seawall Replacement Program**

THIS EXPANDED BUS MONITORING PROJECT AGREEMENT (the "Agreement"), is entered into by and between King County, a home rule charter county of the State of Washington, by and through its Department of Transportation, Metro Transit Division (the "County" or "Metro Transit") and the State of Washington, by and through its Department of Transportation (the "State"), either of which entity may be referred to hereinafter individually as "Party" or collectively as the "Parties."

**WHEREAS**, the Alaskan Way Viaduct ("AWV") is a part of SR 99, a managed access highway, which serves as a primary north-south route to and through downtown Seattle, carrying approximately 110,000 vehicles per day; and

**WHEREAS**, the Alaskan Way Seawall (the "Seawall") supports the Alaskan Way surface street and a variety of utilities and also provides lateral support for some of the foundations of the AWV; and

**WHEREAS**, both the AWV and the Seawall require improvements to protect public safety and maintain the transportation corridor; and

**WHEREAS**, the State, the County, and the City of Seattle, in conjunction with the Federal Highway Administration, have committed to a partnership approach to resolving issues and implementing improvements for replacing and/or repairing the AWV and the Seawall (the "AWV Program"); and

**WHEREAS**, pursuant to Chapter 518 Section 305 of the Session Laws of 2007 the State is authorized to proceed with the design and construction of a series of projects, which are known as the Early Safety and Mobility Projects (the "Projects" or "Moving Forward Projects"), while the agencies referenced above work together to determine the solution for the Central Waterfront portion of the AWV Program; and

**WHEREAS**, some of the Projects will have construction impacts that directly affect all of the users of the highway; and

**WHEREAS**, construction disruptions on the SR 99 corridor will, if left unmitigated, also impact users of other nearby city streets and I-5; and

**WHEREAS**, in addition to implementing measures to avoid and/or mitigate construction related delays and impacts, providing safe travel through construction work zones has long been a primary goal of the State; and

**WHEREAS**, construction disruptions directly impact transit operators, such as Metro Transit, and their riders, resulting in higher cost of operations for transit operators, and degradation of service for transit users; and

**WHEREAS**, the Parties have developed a comprehensive program of strategies and actions designed to maintain the movement of people and goods during construction and implementation of the Projects; and

**WHEREAS**, the State desires to have Metro Transit implement said strategies and actions due to its experience and familiarity with delivering public transportation and services within the areas of construction impact; and

**WHEREAS**, in order to accurately assess the impacts of AWV construction activities on transit performance, the Parties agree that the Projects should include an expanded bus monitoring system that will provide data about transit performance before, during and after the implementation of the AWV Program; and

**WHEREAS**, the enhanced bus monitoring system will provide data about transit travel time and transit schedule reliability that will assist Metro Transit to identify the necessary additional transit services that will be provided as a component of one of the other Projects.

**NOW, THEREFORE**, in consideration of the terms, conditions, and mutual covenants set forth herein and in the attached Exhibits A (Scope of Work) and B (Cost Estimate), which are incorporated herein and made a part hereof by this reference, the sufficiency of which consideration is acknowledged, **IT IS MUTUALLY AGREED AS FOLLOWS:**

**1. PURPOSE**

1.1 The purpose of this Agreement is to implement an expanded bus monitoring system as specified with particularity in Exhibit A, Scope of Work (the "Work"), in order to obtain additional data about transit performance before, during and after implementation of the Projects to better inform the Parties' decision making about what additional transit services will be offered during implementation of the AWV Program.

**2. DUTIES AND RESPONSIBILITIES**

2.1 **Implementation of Expanded Bus Monitoring Program.** Metro Transit will be responsible for performing the Work. This will entail the design and implementation of an expansion of the existing bus monitoring facilities, as described more fully in Exhibit A. Metro Transit will make data obtained from this system available for use by the Parties to assess the impacts of AWV related construction projects on transit service and to support decision making about where additional transit service should be provided as part of the AWV Program mitigation efforts.

2.2 **Monetary Contribution.** The State will be responsible for reimbursing Metro Transit for the costs incurred by Metro Transit in performing the Work pursuant to this Agreement. The State shall reimburse Metro Transit for its performance of the Work in accordance with the payment and billing provisions set forth at Section 3 of this Agreement.

**3. PAYMENT AND BILLING**

3.1 **Payment.** The Parties have estimated that the cost of Metro Transit's performing the Work under the Agreement will not exceed Five Hundred Forty-Four Thousand, Four Hundred and Fifty-Six Dollars (\$544,456.00) (the "Reimbursement Cap"). The State's payment to Metro Transit of Metro Transit's satisfactory performance of the Work shall not exceed this amount; provided, however, that should the Reimbursement Cap be reached, Metro Transit shall have no further obligation to perform any Work pursuant to this Agreement. The State shall not pay for any Work prior to the performance of the Work.

A cost estimate for the Work to be performed by Metro Transit pursuant to this Agreement is set forth in Exhibit B.

**3.2 Invoices and Billing.** Partial payments to Metro Transit shall be made by the State throughout the term of this Agreement, upon receipt of detailed billing invoices from Metro Transit. Reimbursement is subject to the submission to and approval by the State of appropriate invoices, reports, and financial summaries as reasonably requested by the State. The State's approval of invoices shall not be unreasonably withheld. Billings shall not be more frequent than one (1) per month and no less than one (1) per quarter.

The State shall make payment to Metro Transit for the Work performed by Metro Transit pursuant to the Agreement within thirty (30) calendar days of receipt of an appropriate billing invoice from Metro Transit.

Metro Transit will submit a final billing to the State within ninety (90) calendar days after the effective date of termination of this Agreement. Any requests for billing received ninety (90) calendar days after the effective date of termination of this Agreement will not be eligible for reimbursement.

**3.3 Reimbursement of Pre-Termination Costs Incurred.** In the event of termination pursuant to the provisions of Section 6 (Termination) of this Agreement, the State shall reimburse Metro Transit for allowable costs incurred under this Agreement, which Metro Transit has incurred up to and including the effective date of termination. Metro Transit shall promptly submit any such claim for reimbursement to the State.

#### **4. REPORTS**

4.1 Metro Transit shall advise the State regarding the progress of the Work at such time and in such manner as the State may reasonably require. Metro Transit shall keep satisfactory written records with regard to the Work performed under the Agreement, and shall submit reports in a form prescribed and requested by the State.

4.2 Metro Transit shall collect and submit, at such times as the State may reasonably require, such financial statements, data, records, contracts, and other documents related to the Work as may reasonably be deemed necessary by the State.

#### **5. DATA RIGHTS**

The County will retain all rights, title and interest (including all intellectual property rights) held by the County or the State, but not held by any third party, in all work reduced to writing or fixed in any media; including reports, articles, photographs, recordings, data computer programs and related documentation, produced solely by Metro Transit under this Agreement.

The County grants the State a non-exclusive, irrevocable, royalty-free license to reproduce, translate, publish, and use all work reduced to writing or fixed in any media; including reports, articles, photographs, recordings, data computer programs and related documentation produced solely by Metro Transit pursuant to this Agreement where the County has retained all rights, title and interest (including all intellectual property rights) or where the County has authority to authorize such use and where the rights, title and interest (including all intellectual property rights) are not held by a third party.

#### **6. EFFECTIVE DATE AND TERM OF AGREEMENT**

6.1 This Agreement shall take effect when it is signed by both Parties and will remain in effect through December 31, 2012 unless earlier terminated pursuant to the terms of this Agreement.

## 7. TERMINATION

7.1 **Termination for Default.** Either Party may terminate this Agreement at any time in the event the other Party fails to perform a material obligation of this Agreement or fails to perform any of the requirements of this Agreement. Pursuant thereto the State may terminate this Agreement for the following reasons, including but not limited to, if Metro Transit:

- A. Takes any action pertaining to this Agreement without the approval of the State, which under the provisions of this Agreement would have required the approval of the State;
- B. Fails to make reasonable progress on the Work or other violation of this Agreement that endangers substantial performance of the Work.

The Parties shall serve written notice of a Party's intention to terminate this Agreement pursuant to this Subsection 6.1 setting forth in detail the reasons for such termination. The Party receiving said notice of intent to terminate shall be given the opportunity to remedy the default within fifteen (15) calendar days of receipt of said notice. If the default is not cured within the designated time period, this Agreement may be terminated immediately by written notice of the aggrieved Party to the other.

7.2 **Termination for Convenience.** Either Party may terminate this Agreement for convenience and without cause. Written notice of a Party's intention to terminate this Agreement pursuant to this Subsection 6.2 shall be provided to the other Party not less than one hundred and twenty (120) calendar days prior to the effective date of termination. The Parties may terminate this Agreement for convenience for reasons including, but not limited to, the following:

- A. The requisite State funds become unavailable through failure of appropriation or otherwise;
- B. The State determines, in its sole discretion, that the continuation of the Work would not produce beneficial results commensurate with the further expenditure of funds;
- C. Metro Transit is prevented from proceeding with the Work as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense; or an Executive Order of the President or Governor of the State with respect to the preservation of energy resources;
- D. Metro Transit is prevented from proceeding with the Work by reason of a temporary preliminary, special, or permanent restraining order or injunction of a court of competent jurisdiction where the issuance of such order or injunction is primarily caused by the acts or omissions of persons or agencies other than Metro Transit.

7.3 **County Funding and Termination for Non-appropriation.** Performance of any tasks undertaken by Metro Transit pursuant to this Agreement in advance of receiving reimbursement by the State beyond the County's current appropriation year is conditional upon the appropriation by the County Council of sufficient funds to support the Work provided for in this Agreement. Should such an appropriation not be approved, the Agreement shall terminate at the close of the current appropriation year. The appropriation year ends on December 31<sup>st</sup> of each year.

## 8. AMENDMENTS

8.1 Either Party may request changes to the provisions contained in this Agreement. Changes shall be mutually agreed upon and incorporated by written amendment to this Agreement. No variation or alteration of the terms of this Agreement shall be valid unless made in writing and signed by authorized

representatives of the Parties hereto.

**9. NOTIFICATION AND IDENTIFICATION OF CONTACTS**

**9.1 Notice.** Any notice or communication required or permitted to be given pursuant to this Agreement shall be in writing, and shall be sent postage prepaid by U.S. Mail, return receipt requested, to the contact persons and addressed identified in Subsection 8.2 of this Agreement unless otherwise indicated by the Parties in writing. Notice shall be deemed received three (3) calendar days from the date of mailing.

**9.2 Contact Persons and Addresses.**

To the State:                                 Project Engineer  
Transit Enhancements and Other Improvements  
Alaskan Way Viaduct & Seawall Replacement Program  
Washington State Department of Transportation  
999 Third Avenue, Suite 2424  
Seattle, WA 98104

To Metro Transit:                            Supervisor of Capital Program Planning  
King County Metro Transit Division  
201 S. Jackson Street  
M.S. KSC-TR-0411  
Seattle, WA 98104

**10. DISPUTE RESOLUTION PROCESS**

10.1     The Parties, through their designated representatives identified in Subsection 8.2 of this Agreement, shall use their best efforts to resolve any disputes pertaining to this Agreement that may arise between the Parties. If these designated representatives are unable to resolve a dispute, the responsible project managers of both Parties shall review the matter and attempt to resolve it. If they are unable to resolve the dispute, the matter shall be reviewed by the department directors of both Parties or his or her designee. The Parties agree to exhaust each of these procedural steps before seeking to resolve disputes in a court of law or any other forum.

**11. INDEMNIFICATION AND HOLD HARMLESS**

11.1     The Parties shall protect, defend, indemnify, and save harmless the other Party, its officers, officials, employees, and agents, while acting within the scope of their employment as such, from any and all costs, claims, judgment, and/or awards of damages, arising out of, or in any way resulting from, each of the Party's own negligent acts or omissions. Neither Party will be required to indemnify, defend, or save harmless the other Party if the claim, suit, or action for injuries, death, or damages is caused by the sole negligence of the other Party. Where such claims, suits, or actions result from the concurrent negligence of the Parties, the indemnity provisions provided herein shall be valid and enforceable only to the extent of a Party's own negligence. Each of the Parties agrees that its obligations under this subparagraph extend to any claim, demand and/or cause of action brought by, or on behalf of, any of its employees or agents. For this purpose, each of the Parties, by mutual negotiation, hereby waives, with respect to the other Party only, any immunity that would otherwise be available against such claims under the Industrial Insurance provisions of Title 51 RCW. In any action to enforce the provisions of this Section, the prevailing Party shall be entitled to recover its reasonable attorney's fees and costs incurred from the other Party. The obligations of this Section 10 (Indemnification and Hold Harmless) shall survive any termination of this Agreement.

## 12. LEGAL RELATIONS

12.1 **No Third Party Beneficiaries.** It is understood that this Agreement is solely for the benefit of the Parties hereto and gives no right to any other person or entity.

12.2 **No Partnership or Joint Venture.** No joint venture, agent-principal relationship or partnership is formed as a result of this Agreement. No employees or agents of one Party or any of its contractors or subcontractors shall be deemed, or represent themselves to be, employees or agents of the other Party.

12.3 **Applicable Law.** This Agreement shall be governed by and construed in accordance with the laws of the State of Washington.

12.4 **Jurisdiction and Venue.** To the extent allowed by law, the King County Superior Court, situated in Seattle, Washington, shall have exclusive jurisdiction and venue over any legal action arising under this Agreement.

12.5 **Mutual Negotiation and Construction.** This Agreement and each of the terms and provisions hereof shall be deemed to have been explicitly negotiated between, and mutually drafted by both Parties.

12.6 **Severability.** If any provision of this Agreement is held invalid by a court of competent jurisdiction, the remainder of the Agreement shall not be affected thereby if such remainder would then continue to serve the purposes and objectives originally contemplated by the Parties.

12.7 **Waiver of Default.** Waiver of any default shall not be deemed to be a waiver of any subsequent default. Waiver of breach of any provision of this Agreement shall not be deemed to be a waiver of any other or subsequent breach and shall not be construed to be a modification of the terms of this Agreement unless stated to be such in writing, signed by duly authorized representatives of the Parties, and attached to the original Agreement.

12.8 **Assignment.** Neither this Agreement, nor any interest herein, may be assigned by either Party without the prior written consent of the other Party.

12.9 **Binding on Successors and Assigns.** This Agreement and all of its terms, provisions, conditions, and covenants, together with any exhibits and attachments now or hereafter made a part hereof, shall be binding on the Parties and their respective successors and assigns.

12.10 **Rights and Remedies.** Both Parties' rights and remedies in this Agreement are in addition to any other rights and remedies provided by law.

12.11 **Entire Agreement.** This Agreement embodies the Parties' entire understanding and agreement on the issues covered by it, except as may be supplemented by subsequent written amendment to this Agreement, and supersedes any prior negotiations, representations or draft agreements on this matter, either written or oral.

12.12 **Survival.** The provisions of this Section 11 (Legal Relations) shall survive any termination of this Agreement.

## 13. FORCE MAJEURE

13.1 Either Party to this Agreement shall be excused from performance of any responsibilities and obligations under this Agreement, and shall not be liable for damages due to failure to perform, during the time and to the extent that it is prevented from performing by a cause directly or indirectly beyond its

control, including, but not limited to: any incidence of fire, flood, snow, earthquake, or acts of nature; strikes or labor actions; accidents, riots, insurrection, terrorism, or acts of war; order of any court of competent jurisdiction or authorized civil authority commandeering material, products, or facilities by the federal, state or local government; or national fuel shortage; when satisfactory evidence of such cause is presented to the other Party to this Agreement, and provided that such non-performance is beyond the control and is not due to the fault or negligence of the Party not performing. In no event should this provision eliminate the obligation of the State to make payment to Metro Transit for the expenses of Work properly incurred under this Agreement prior to an event determined to have been caused by force majeure or eliminate the obligation of Metro Transit to perform the Work, or any portion of the Work, under the Agreement that Metro Transit can perform during or following the occurrence of the force majeure event.

**14. RECORDS RETENTION AND AUDIT**

14.1 During the progress of the Work and for a period not less than six (6) years from the date of final payment by the State, the records and accounts pertaining to the Work and accounting therefore are to be kept available by the Parties for inspection and audit by Washington State, King County and/or the Federal Highway Administration and copies of all records, accounts, documents, or other data pertaining to the Work will be furnished upon request. If any litigation, claim, or audit is commenced, the records and accounts along with supporting documentation shall be retained until all litigation, claim, or audit finding has been resolved even though such litigation, claim, or audit continues past the six (6) year retention period.

**15. COMPLIANCE WITH APPLICABLE LAWS**

15.1 The Parties agree to comply with all applicable federal, state, and local laws, rules, and regulations, including those pertaining to nondiscrimination, and agree to require the same of any subcontractors providing services or performing any of the Work using funds provided under this Agreement.

**15. EXECUTION OF AGREEMENT – COUNTERPARTS**

15.1 This Agreement may be executed in two (2) counterparts, either of which shall be regarded for all purposes as an original.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the latest date written below.

KING COUNTY, DEPARTMENT OF  
TRANSPORTATION, METRO TRANSIT  
DIVISION

STATE OF WASHINGTON  
DEPARTMENT OF TRANSPORTATION

By \_\_\_\_\_

By \_\_\_\_\_

Date \_\_\_\_\_

Date \_\_\_\_\_

APPROVED AS TO FORM:

APPROVED AS TO FORM:

By (print) \_\_\_\_\_

By Elizabeth Lagerberg  
Assistant Attorney General

Title \_\_\_\_\_

\_\_\_\_\_

Date

\_\_\_\_\_

Date



## **Exhibit A – Scope of Work for Expanded Bus Monitoring System**

### **Overview**

The Expanded Transit Travel Time Monitoring Project will improve and automate analyses of transit travel time and schedule reliability for key routes in the regional transit network within King County. In specific, this system will support the monitoring of the transit routes and pathways that will be primarily impacted by Alaskan Way Viaduct closure and construction. The project will build on the existing Automatic Vehicle Location (AVL) system, currently in use throughout the King County Metro fixed-route system, and the Automatic Vehicle Identification (AVI) system currently in use in the Seattle Central Business District (CBD). The AVI systems will be expanded to improve coverage and overall monitoring capabilities. Software tools will be developed to better integrate data available from the AVL system with the expanded AVI system.

### **Objectives**

The Expanded Bus Monitoring Project will be designed to fulfill the following objectives:

1. To establish baseline transit travel times before Alaskan Way Viaduct construction and to continue to monitor travel time during the closure/construction period.
2. To measure transit reliability along key transit routes and key transit corridors, before, during, and after construction of the Alaskan Way Viaduct Program.
3. To allow for the monitoring of other transit routes in the CBD, especially during an event such as an emergency tunnel closure.
4. To augment the existing CBD monitoring system to make it more useful as a monitoring and planning tool.

### **Key Routes and Route Paths**

The Expanded Travel Time Monitoring Project will support travel time monitoring along all the key transit pathways to and from the Seattle CBD. See Attachment 1. The monitoring system will be designed to monitor travel time along current route patterns on all the key transit paths to and from the Seattle CBD. A subset of these route patterns have been identified as transit routes that are most likely to be impacted by Alaskan Way Viaduct for purpose of potential investments in schedule maintenance. See Attachment 2. Data from the Expanded Travel Time Monitoring Project will be used to inform decisions about future schedule maintenance investments on these transit routes as well as other investments to augment capacity and service levels.

### **Project Elements**

The project will encompass three major work efforts, as described below.

#### **Seattle CBD AVI System Expansion**

A set of 17 AVI readers was previously installed in the core CBD area, as part of a Monitor and Maintain project related to the 2-year Downtown Seattle Transit Tunnel closure. These initial readers will continue to serve an important role during the Alaskan Way Viaduct demolition and construction projects. The Expanded Travel Time Monitoring project will build on this existing CBD system by adding up to 28 additional readers the monitoring system to provide AVI coverage primarily between Spokane Street and Denny Way. The expanded system will also attempt to resolve limitations with the existing system of AVI readers by re-locating some installations to improve the quality or usefulness of the data that is collected. The placement of all new AVI installations will need to be based on existing transit routings but to the maximum extent possible, these installations will be sited so as to anticipate and provide coverage for potential routing adjustments in the future that are being contemplated.

### **AVL Time Point Evaluation**

Outside the area that will be covered with new or existing AVI readers, AVL data will be relied upon for monitoring purposes. Based on the list of key route paths that are to be monitored, the existing AVL time point locations will be evaluated to determine if they support accurate travel time measurements of the intended route segments. If problems are identified, then King County Metro staff in the Speed and Reliability unit will work with Scheduling unit to either modify the time points or re-fine the route segment definition. This effort to modify existing time points may need to be implemented over several service changes. If it is determined that existing time points cannot be adjusted to permit reliable travel time monitoring, then additional AVI readers may need to be installed in specific locations to provide the required coverage.

### **Develop Advanced AVL and AVI Reporting Tool**

New software tools will be developed to query the AVL and AVI databases and present the results in a meaningful format. Desired features include: AVI log matching; automatic removal of outlying data; travel time and reliability measures of effectiveness by route, segment, and time period (AM Peak, Midday, PM Peak, and other periods as may be defined); graphical output; and comparisons between service change periods or for other reporting periods that may be of interest.

### **Reporting**

The system will be designed so that automated reports can be generated on a regular basis; and at least once per service change, or as needed for other specific purposes. Reports will be generated in a timeframe that allows schedule planning staff to consider the results prior to the schedule load for any subsequent service change. Reports will include the following information:

- Average Travel Time for selected roadway segments and impacted routes (AM, MD, PM).
- Reliability of travel time (25<sup>th</sup> and 75<sup>th</sup> percentile running times).
- Comparison with previous service change and baseline conditions.
- Summary/conclusions commentary.

### **Project Schedule**

Finalize design of AVI installations -new and relocated: 4<sup>th</sup> Quarter 2008

Procure, install and integrate AVI installations: 1st Quarter 2009

Complete development of monitoring tools: 4<sup>th</sup> Quarter 2009

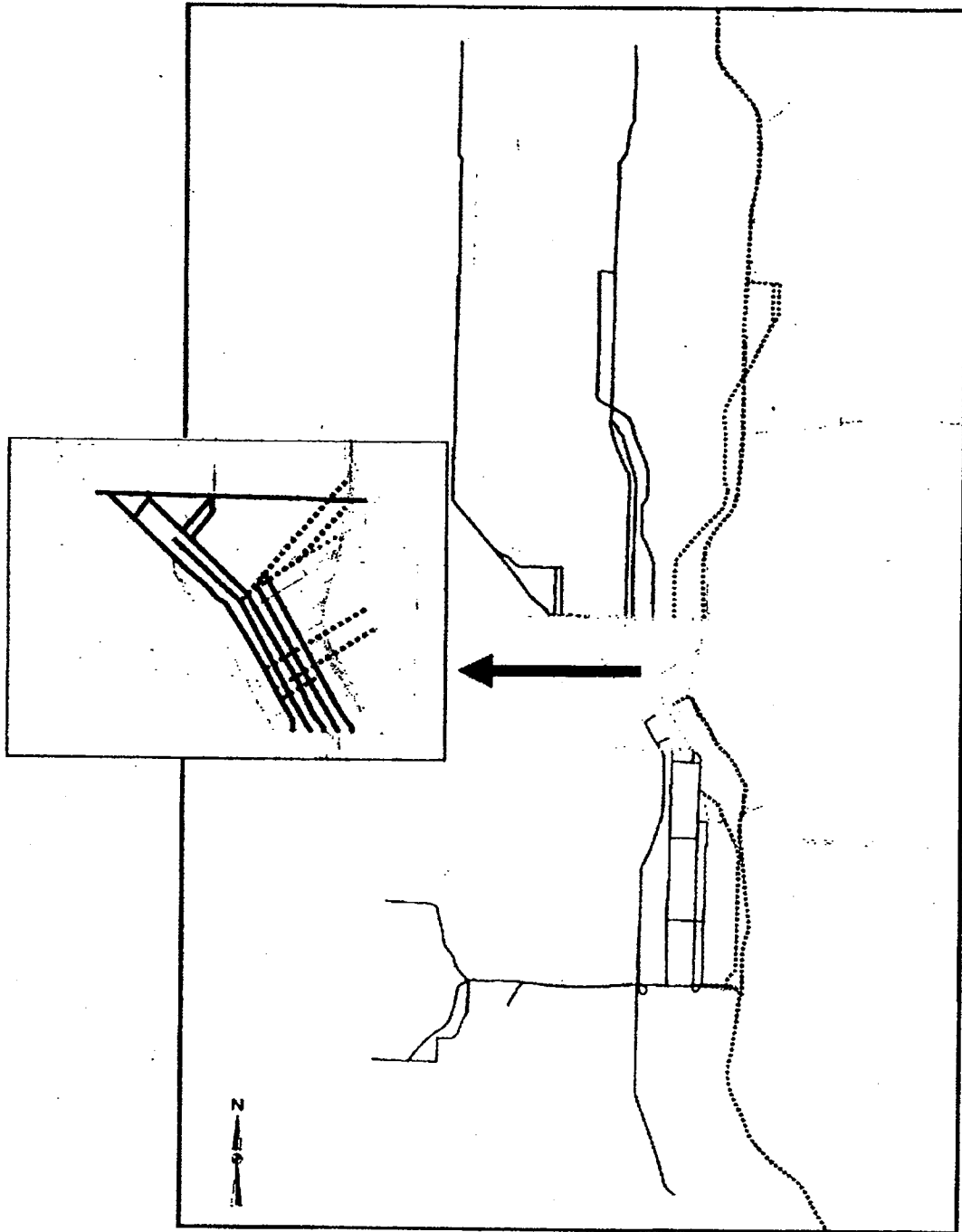
Complete AVL timepoint evaluation: 3<sup>rd</sup> Quarter 2009

System testing and integration: 1<sup>st</sup>/2<sup>nd</sup> Quarter 2009

System activation: 2<sup>nd</sup> Quarter 2009

Reporting: Ongoing for the Duration of the Alaskan Way Viaduct Program

**Attachment 1: Key Transit Pathways to/from Seattle CBD**



3/11/2008

## Attachment 2: Transit Routes Impacted by Alaskan Way Viaduct Program

### Transit Travel Time Monitoring Project: CBD, Feeder Route Paths (AWV Impact Routes)

Pathway	Market Coverage	Access/Egress	Central CBD via		Travel Time Segment		Current Service
			From	To	MidPoint	Primary [overlap]	
A.1	Ballard, Uptown	Elliott, Mercer, 1st	15th NW/NW 85th	1st/Denny	Elliott Ave and Emerson Pl vicinity or Dravus or Mercer Pl	15, 18	
A.2	Ballard	Elliott, Western, 1st	15th NW/NW 85th	1st/Denny	Elliott Ave and Emerson Pl vicinity	15X, 17X, 18X	
A.3	Magnolia	Elliott, Western, 1st	Elliott Ave/Magnolia Br	1st/Denny	N/A	19, 24, 33 [15X, 17X, 18X]	
B.1	North Seattle	Aurora	Aurora Ave NW/ NE 85th	Aurora/Denny (IB) Dexter/Denny (OB)	Aurora/46th or s/o Aurora Bridge	359	
B.2	North Seattle	Aurora	Aurora/46th or s/o Aurora Bridge	Aurora/Denny (IB)	N/A	5, 5X, 26X, 28X [358]	
B.3	Fremont	Dexter	Dexter/Westlake/Fremont	Dexter/Denny (OB)	N/A	26, 28	
B.4	South Lake Union	Westlake	Dexter/Westlake/Fremont	Dexter/Denny	N/A	17	
I.1	South Seattle/Burien	SR-509, E Marginal, AWV	1st/E Marginal	1st/Seneca (IB) 1st/Columbia (OB)	1st Ave S/Spokane St	121, 122	
I.2	South Seattle/Burien	SR-509, 4th Ave S	Michigan/Marginal	4th/Yesler	N/A	123	
I.3	South Seattle/Burien	Des Moines, 14th Ave, 1st Ave S	1st/E Marginal	1st/Yesler	1st Ave S/Spokane St	132	
J.1	West Seattle	Alaska, Avalon, WSB, 1st Ave S	Alaska Jct	1st/Yesler	Avalon/WSB	22	
J.2	West Seattle	WSB, 1st Ave S	Avalon/WSB	1st/Yesler	N/A	21, 37 [22, 56]	
J.3	West Seattle	Alaska, Fauntleroy, WSB/AWV	Alaska Jct	1st/Seneca (IB) 1st/Columbia (OB)	Avalon/WSB (IB) Fauntleroy/35th (OB)	54, 55	
J.4	West Seattle	Alaska, Fauntleroy, WSB, 1st Ave S	Avalon/WSB (IB) Fauntleroy/35th (OB)	1st/Yesler	1st/Spokane (IB)	116, 118, 119 [54, 55]	
J.5	West Seattle/Burien	Delridge, WSB, AWV	Delridge/Andover	1st/Seneca (IB)	N/A	125, 120	
J.6	West Seattle	Admiral, WSB, 1st Ave S	Admiral/California	1st/Yesler	N/A	56, 57	
J.7	West Seattle	Admiral, WSB, AWV	Admiral/California	1st/Seneca (IB) 1st/Columbia (OB)	N/A	56X	

### Central Pathways

#### Primary Path Current Service

1st Ave: 15, 15X, 18, 18X, 21, 21X, 22, 56, 56X, 57

2nd Ave: 19, 24, 33, 37, 131, 132, 134, 143X, 152, 158, 169, 161, 162, 170, 175, 177, 179, 190, 191, 192, 196, 306X, 312X, 522X, 577X, 202, 210, 214, 216, 218, 550X 554X, CT Routes, PT Routes

3rd Ave: 1, 2, 2X, 3, 4, 7, 7X, 13, 14, 17, 17X, 23, 25, 26, 26X, 27, 28, 28X, 32X, 34X, 35, 36, 39, 42, 42X, 49, 70, 5, 5X, 11, 76, 77X, 79E, 111, 114, 116, 118, 119, 121, 122, 123X, 143X, 150, 161, 304, 306, 316, 355X, 358X

4th Ave: 19, 24, 33, 37, 131, 132, 134, 143X, 152, 158, 159, 161, 162, 170, 175, 177, 179, 190, 191, 192, 196, 577X, 202, 210, 214, 216, 218, 550X 554X, CT Routes, PT Routes

5th Ave: 250, 252, 257, 260, 261, 265, 266, 303X, 311, 510X, 511X, 513X, 545X

Note: Deadhead pathways not listed

### Exhibit B – Cost Estimate

<u>Unit Costs</u>		<u>Assumptions</u>
Hardware cost per new AVI Reader:	\$12,500	AVI reader w/ two antennas, plus spread spectrum equipment.
Installation cost per new AVI Reader:	\$1,250	Electrical contractor, install new reader or modify existing.
Power connection:	\$10,000	Locations requiring significant re-wiring (25% of locations)
Phone drop:	\$1,000	Assume 4 phone drops required.
System Integration per reader:	\$2,000	Fine-tuning/testing antennas, troubleshooting communication, central server modifications.
Inspection Services, per location	\$500	King County Design & Construction Staff

<u>Item</u>	<u>Qty.</u>	<u>Cost</u>
New Readers,		
Hardware:	20	\$250,000
Installation:	25	\$31,250
Power connections:	5	\$50,000
Phone drops:	4	\$4,000
Inspection Services	25	\$12,500
System Integration:	25	\$50,000
<hr/>		
Construction costs:		\$397,750
Project Management		\$ 3,092
Design	15%	\$59,663
Permits	5%	\$19,888
Traffic control	5%	\$19,888
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Total		\$497,188
Contingency	10%	\$49,719
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Grand Total		\$550,000