

AMENDMENT NO. 2  
TO  
GCA 5864

THIS AMENDMENT No.2 to GCA 5864 (the "Second Amendment") is made and entered into between King County, 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 ("WSDOT" or the "State"), either of which entity may be referred to hereinafter individually as "Party" or collectively as the "Parties."

**WHEREAS**, on October 23, 2008 the Parties entered into GCA 5864, an Agreement for an Expanded Bus Monitoring Project (the "Agreement") as part of the Alaskan Way Viaduct and Seawall Replacement Program, and

**WHEREAS**, on August 14, 2009, in order to preserve the project schedule, the Parties revised the Agreement with Amendment No.1 to reflect the State's authorization for Metro Transit to begin work under the Agreement prior to its execution and to memorialize the State's commitment to pay the County for that advance work, and

**WHEREAS**, Section 8 of the Agreement provides for changes to be made to the Agreement by mutual written agreement of the Parties, and

**WHEREAS**, the Parties have determined that modifications the anticipated viaduct construction schedule will necessitate an extension of the term of the Agreement, and

**WHEREAS**, as a consequence of the construction modifications, the Parties have mutually agreed to extend the term of the Agreement from December 31, 2012 to June 30, 2014, with no additional costs to the State; and

NOW, THEREFORE, BE IT MOVED by the Council of King County in consideration of the terms, conditions, covenants, and performances contained herein, or attached and incorporated and made a part hereof,

IT IS MUTUALLY AGREED AS FOLLOWS:

1. Subsection 6.1 (Effective Date and Term of Agreement) is hereby deleted in its entirety and replaced with the following:

This Agreement shall take effect when it is signed by both Parties and will remain in effect through June 30, 2014 unless earlier terminated pursuant to the terms of this Agreement.

2. Exhibit A – Scope of Work – to the Agreement is hereby amended by retitling it as Exhibit A-1, which is attached to the Agreement and by this reference incorporated herein, and changing any references to the former "Exhibit A" accordingly.

- 3. Exhibit A – Scope of Work – is further amended by deleting in its entirety the second sentence of the Reporting Section of the Exhibit and replacing it with the following:

Reports will be generated in a timeframe that allows Metro Transit schedule planning staff to consider the results prior to the schedule load for any subsequent service change.

- 4. Exhibit A – Scope of Work – is further amended by adding the following to the Reporting Section of the Exhibit:

For each service period, a Performance Report shall be prepared by Metro Transit in the same format and content as the, “Enhanced Transit, Transit Time and Demand Management Performance Report,” Volume 1: September 2009-February 2010 (Submitted April 5, 2010) and transmitted to the State at the same time as the Enhanced Transit Service Report

- 5. Except as specifically modified in this Second Amendment, all other terms, conditions, and provisions of the Agreement, as previously modified in the First Amendment, shall remain in full force and effect.

IN WITNESS WHEREOF, the Parties hereto have executed this AMENDMENT No. 2 as of the latest date written below.

KING COUNTY  
TRANSPORTATION  
DIVISION

STATE OF WASHINGTON  
DEPARTMENT OF TRANSPORTATION

\_\_\_\_\_  
By  
Kevin Desmond  
General Manager

\_\_\_\_\_  
By  
Ron Paananen  
Program Administrator

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Attachments:

Exhibit A-1 to the Amendment

**GCA 5864****Exhibit A-1 – Scope of Work****Overview**

The Expanded Bus 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 Metro Transit 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 Bus Monitoring Project will support travel time monitoring along all the key transit pathways to and from the Seattle CBD. See Exhibit A-1, 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 Exhibit A-1, Attachment 2. Data from the Expanded Bus 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 Bus Monitoring Project will build on this existing CBD system by adding up to 28 additional readers to 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 Metro Transit 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 Metro Transit 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.

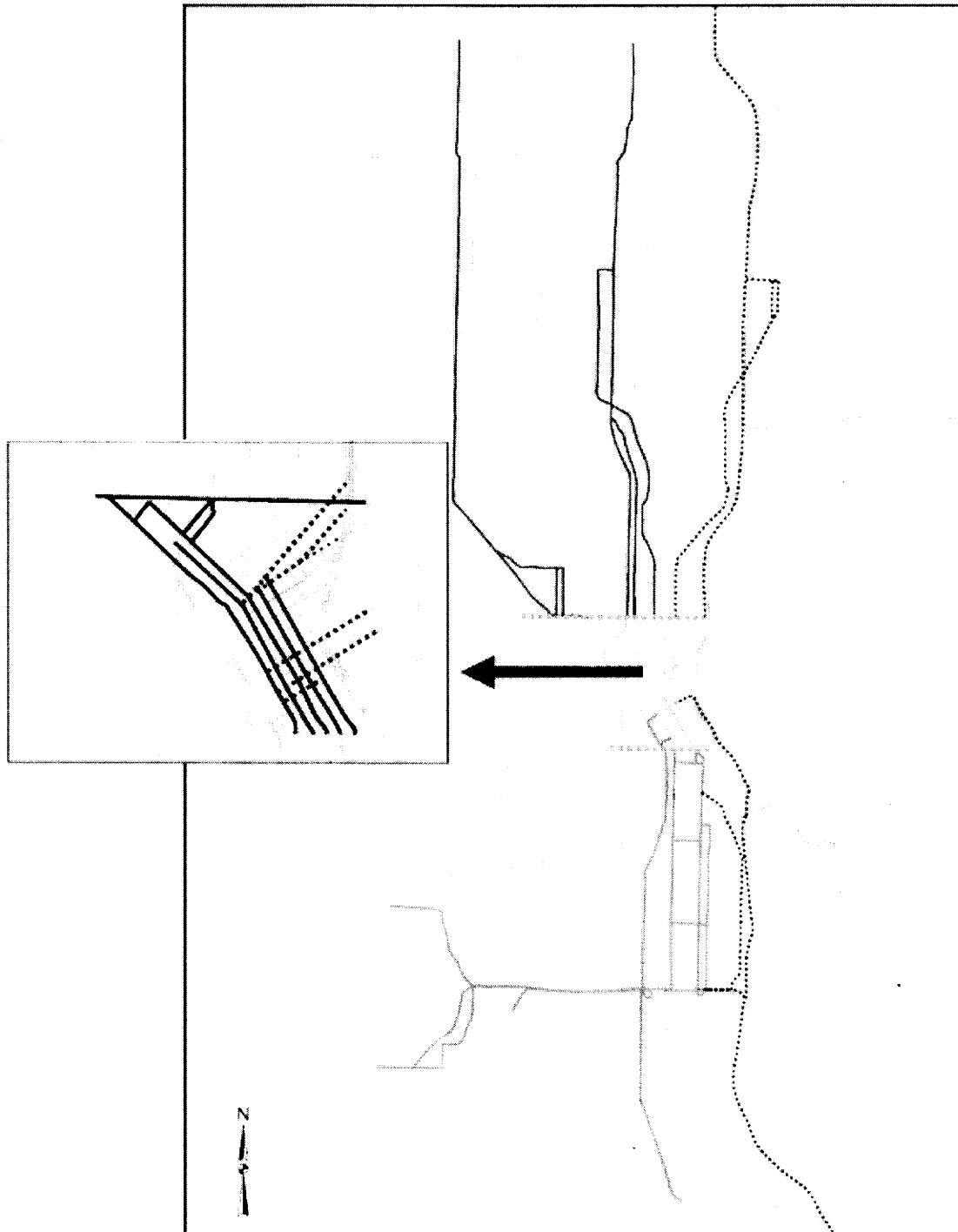
For each service period, a Performance Report shall be prepared by Metro Transit in the same format and content as the, "Enhanced Transit, Transit Time and Demand Management Performance Report," Volume 1: September 2009-February 2010 (Submitted April 5, 2010) Following the completion of a service period, the Performance Report shall be submitted to the State for review. This Performance report shall be submitted to the State at the same time as the next Enhanced Transit Service Proposal is submitted by the County to the State for review.

### **Project Schedule**

- Finalize design of AVI installations - new and relocated: 4th Quarter 2008
- Procure, install and integrate AVI installations: 1st Quarter 2009
- Complete development of monitoring tools: 4<sup>th</sup> Quarter 2009
- Complete AVL time point 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

GCA 5864

Exhibit A-1, Attachment 1: Key Transit Pathways to/from Seattle CBD



3-11-2008

**GCA 5864**  
**Exhibit A-1, 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	
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 or Dravus or Mercer Pl	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)	Aurora/46th or s/o Aurora Bridge	358
B.2	North Seattle	Aurora	Aurora/46th or s/o Aurora	Dexter/Denny (OB)		
B.3	Fremont	Dexter	Bridge	Aurora/Denny (IB)		
B.4	South Lake Union	Westlake	Dexter/Westlake/Fremont	Dexter/Denny (OB)	N/A	5, 5X, 26X, 28X [358]
I.1	South Seattle/Burien	SR-509, E Marginal, AWV	Dexter/Westlake/Fremont	Dexter/Denny	N/A	26, 28
I.2	South Seattle/Burien	SR-509, 4th Ave S	Dexter/Westlake/Fremont	Dexter/Denny	N/A	17
I.3	South Seattle/Burien	Des Moines, 14th Ave, 1st Ave S	1st/E Marginal	1st/Seneca (IB)		
J.1	West Seattle	Alaska, Avalon, WSB, 1st Ave S	Michigan/Marginal	1st/Columbia (OB)	1st Ave S/Spokane St	121, 122
J.2	West Seattle	WSB, 1st Ave S	Alaska Jct.	4th/Yesler	N/A	123
J.3	West Seattle	Alaska, Fauntleroy, WSB/AWV	Avalon/WSB	1st/Yesler	1st Ave S/Spokane St	132
J.4	West Seattle	Alaska, Fauntleroy, WSB, 1st Ave S	Alaska Jct.	1st/Yesler	Avalon/WSB	22
J.5	West Seattle/Burien	Deiridge, WSB, AWV	Avalon/WSB	1st/Yesler	N/A	21, 37 [22, 56]
J.6	West Seattle	Admiral, WSB, 1st Ave S	Alaska Jct.	1st/Seneca (IB)	Avalon/WSB (IB)	54, 55
J.7	West Seattle	Admiral, WSB, AWV	Avalon/WSB (IB)	1st/Columbia (OB)	Fauntleroy/35th (OB)	
			Alaska, Fauntleroy, WSB, 1st Ave S	1st/Yesler	1st/Spokane (IB)	116, 118, 119 [54, 55]
			Admiral, WSB, 1st Ave S	1st/Seneca (IB)		
			Admiral/California	1st/Columbia (OB)	N/A	125, 120
			Admiral/California	1st/Yesler		56, 57
			Admiral/California	1st/Seneca (IB)		
			Admiral/California	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, 159, 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, 308, 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, 268, 303X, 311, 510X, 511X, 513X, 545X

Note: Deadhead pathways not listed