



I-5/Barbur Boulevard Incident Management Operational Plan

User's Manual Version 1.0

Prepared by

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In Cooperation with



**Oregon Department of
Transportation**



**City of
Portland**

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Glossary of Terms and Abbreviations

ATMS	Advanced Traffic Management System
CBD	Central Business District
CCTV	Closed-Circuit Television
CMS	Changeable Message Sign. Changeable message signs have a set of fixed messages and the operator may choose between these preset messages.
COMET	CorridOr ManagEment Team (incident response crew)
EB	Eastbound (direction of travel)
I-5	Interstate 5
ITS	Intelligent Transportation Systems
N/A	Not Applicable
NB	Northbound (direction of travel)
ODOT	Oregon Department of Transportation
ORE 99W	Oregon Highway Route 99W (also named Barbur Boulevard in the study area)
PDOT	City of Portland Office of Transportation
PVMS	Portable Variable Message Signs
SB	Southbound (direction of travel)
SWARM	System Wide Adaptive Ramp Metering
TMC	Traffic Management Center (located at the City of Portland)
TMOC	Traffic Management Operations Center (located at the Region 1 Oregon Department of Transportation Office)
VMS	Variable Message Sign. Variable message signs have the capability to display any number of user selected messages and the messages may be tailored by the incident type and location.
WB	Westbound (direction of travel)

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DRAFT I-5/Barbur Boulevard Incident Management Operational Plan User's Manual

1 INTRODUCTION

This section includes a description of the project, the existing transportation problems that occur due to incidents, and the goals and objectives of the I-5/Barbur Boulevard Parallel Corridor Incident Management Project

1.1 Description

ODOT and the City of Portland have teamed up to share agency traffic management field devices and software in an effort to manage incidents more efficiently along Interstate 5 and Barbur Boulevard from downtown Portland to the City of Tigard (I-405 to 64th Avenue). Barbur Boulevard (ORE 99W) parallels Interstate 5 from downtown Portland to Tigard and serves as an alternate route for many motorists during an incident on I-5. This cooperative use of traffic management field devices allows multiple agencies to jointly respond to incidents in the corridor and more effectively manage traffic within the I-5/Barbur Boulevard corridor.

During an incident on Interstate 5, freeway traffic diverts to Barbur Boulevard in an attempt to bypass the resulting congestion. The goal of the project is to better manage the diverting traffic and maximize the vehicle throughput on Barbur Boulevard.

Even with the implementation of incident management strategies in this corridor, other freeways are still the preferred alternate routes because the arterial roadways cannot carry the same traffic volume as the freeway. Message signs in advance of this corridor on I-5 northbound, I-84 westbound, US26 eastbound and I-5 southbound will suggest other freeways as alternate routes during an incident in this section of I-5. However, some traffic will divert to Barbur Boulevard and now ODOT and the City of Portland can coordinate their response by cooperatively adjusting signal timings, managing the response and providing information to motorists.



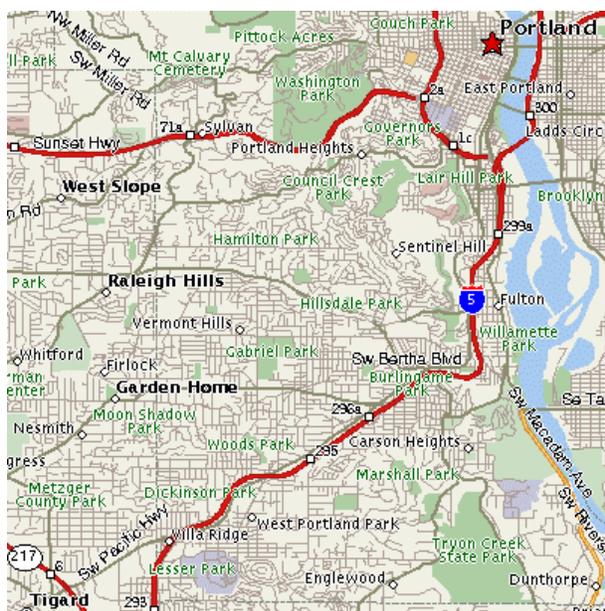
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The incident management system on the I-5/Barbur Boulevard Corridor includes two operations centers (the Traffic Management Operations Center (TMOC) at the Oregon Department of Transportation (ODOT), and the Traffic Management Center (TMC) at the City of Portland), TriMet transit buses as traffic probes for congestion information on Barbur Boulevard, TriMet transit signal priority, an assortment of field devices (electronic message signs, freeway ramp meters, coordinated traffic signals, traffic video cameras) and a communications system that includes voice, data, Internet and video transmissions. This multi-agency project has integrated these roadside devices with the ODOT TMOC and the City of Portland TMC to improve the management of incidents within the corridor. The field devices included along the incident management corridor are depicted in Figure 1, located under the Maps tab.

The purpose for this user’s manual is to identify preplanned responses to more effectively manage traffic in the I-5/Barbur Boulevard corridor using the available field devices in the corridor. The following sections describe the concept of operations and Section 4 describes the response scenarios based on direction of travel, incident location, and number of lanes closed. This user’s manual is intended to be a working document and should be updated at least once per year and as needed after major incidents in the corridor.

1.2 Problem

Barbur Boulevard (ORE 99W) is a key north-south arterial transportation corridor which parallels I-5 (an ODOT interstate highway¹), carries nine bus lines along certain sections, is classified as a statewide highway by ODOT¹ and a major city traffic street/regional transitway/major truck street in the City of Portland² carrying 25,000 to 35,000 vehicles daily. Interstate 5 parallels Barbur Boulevard between I-405 to the north and the Portland city limits to the south and carries 120,000 to 140,000 vehicles daily in this section.



The I-5/Barbur Boulevard corridor is a vital link between the City of Portland Central Business District (CBD) and suburban areas to the south. This corridor serves heavy commuter travel, interstate travel, and has key transit connections between the CBD and suburban areas to the south, with a transit park and ride station at Capitol Highway. The I-5 corridor currently experiences significant congestion, especially during the peak travel periods, and has been the site of numerous incidents. In 2000, there were 201 collisions on I-5 in the study area with 27 occurring during the AM peak and 16 during the PM peak³. During incidents that occur on I-5 today, travelers frequently use Barbur Boulevard as a diversion route. Implementation and integration of the traffic management field devices in the corridor allow the City of Portland and ODOT to coordinate their response to incidents and better manage traffic that ends up diverting to Barbur Boulevard.

1.3 Goals and Objectives

The overall goal of the I-5/Barbur Boulevard Parallel Corridor Incident Management Project is to reduce the amount of time that normal freeway operations are disrupted on I-5 when an incident occurs. Another goal of the project is to provide multi-agency traffic-responsive corridor management on both I-5 and Barbur Boulevard.

¹ 1999 Oregon Highway Plan, Oregon Department of Transportation, May 1999, pg. 41.

² Transportation Element, City of Portland Comprehensive Plan, City of Portland, Oregon, Office of Transportation, June 21, 1996.

³ 2000 State Highway Crash Rate Tables, Oregon Department of Transportation, Transportation Data Section, Crash Analysis and Reporting Unit, Oct. 2001, pg. 22.

The objectives of the I-5/Barbur Boulevard Parallel Corridor Incident Management Project include⁴:

- To sustain or increase corridor capacity/throughput during incident conditions
- To reduce on-ramp incidents through the use of ramp metering
- To improve safety and efficiency of urban corridors
- To improve integration of regional freeway systems with local signal systems
- To improve incident detection and notification to reduce incident response time
- To provide freeway and arterial corridor status to system operators

2 CONCEPT OF OPERATIONS FOR I-5/BARBUR BOULEVARD INCIDENT MANAGEMENT SYSTEM

This section includes a description of the current system, a review of other operational plans, an overview of field equipment (practices, procedures, roles and responsibilities), agency contact information, suggested performance measures, criteria for activating the system, system constraints, and system enhancement recommendations.

2.1 Current System Description

The incident management corridor includes an approximately 3.5-mile section of I-5 and Barbur Boulevard (ORE 99W) between I-405 and ORE 99W/I-5 SB/NB on-ramp/64th Avenue. Figure 1, located under the Maps tab, depicts the study area and the existing equipment located on both I-5 and Barbur Boulevard. Equipment in the study area that is used to manage incidents in the corridor includes traffic signals, ramp meters, system detectors, CCTV cameras, variable message signs, and changeable message signs. The locations, functions, and agency ownership/responsibilities of these devices is described below. To develop the response scenarios described later in this user’s manual, the corridor was divided into segments based on where traffic can get off the freeway, onto Barbur Boulevard and then back onto the freeway from Barbur Boulevard. Three southbound operational segments and four northbound operational segments have been defined and are depicted in Figures 2 and 3, respectively, which are located under the Maps tab.

2.2 Review of Other Operational Plans

Across the United States, approximately four programs operate freeway-arterial incident management systems:

Minnesota ICTM, Minnesota DIVERT, Texas MCC, and California SVSC⁵. Other cities that are planning systems or have some type of freeway-arterial integration in place include Baltimore, Las Vegas, Miami, Salt Lake City, Los Angeles, Seattle, Phoenix, and Boise. The key components used in existing freeway-arterial incident management systems consist of:

- Using loop detection and/or CCTV cameras for incident detection
- Using electronic message signs and trailblazer signs to inform motorists of incident conditions and alternative routes



⁴ *Oregon Regional Intelligent Transportation Systems (ITS) Integration Program – Final Phase II Report*, Science Applications International Corporation (SAIC) and Cambridge Systematics, Inc., July 12, 2002.

⁵ “*Integrated Freeway-Arterial Incident Management Systems: Review of Existing Systems and Guidance on Developing a New System*,” James Colyar, Federal Highway Administration, Feb. 26, 2002.

- Defining the roles and responsibilities of the agencies involved
- Developing pre-defined response plans based on incident location that outline the type of response required
- Determining what conditions require the implementation of response plans (i.e., incident duration, number of lanes blocked, time of day, freeway volumes)

Some of the lessons learned from the existing systems include:

- Adequate resources must be available for operations and maintenance to assure functionality.
- A Sydney Coordinated Adaptive Traffic System (SCATS) required more maintenance, operations attention, and personnel training than originally planned and compared to conventional systems.
- Changeable message trailblazer signs required a high level of maintenance, particularly for the communications lines.
- Contractors working on construction projects should be aware of fiber optic cable locations to prevent the breaking of existing communications lines.
- Freeway loop detectors should be placed at locations most apt for congestion and incident detection.
- Operators need to have a good working knowledge of traffic control procedures.

2.3 Practices, Procedures, Roles, and Responsibilities

The equipment used to manage incidents in the I-5/Barbur Boulevard corridor is cooperatively owned, maintained and operated by the City of Portland and ODOT and includes closed-circuit television (CCTV) cameras, variable message signs (VMS), changeable message signs (CMS), ramp meters, vehicle detectors and coordinated traffic signals. The field equipment is connected via fiber optic cable to operations centers at ODOT and the City of Portland where staff are able to immediately identify and respond to incidents. A typical response to an incident may include detecting and verifying an incident, contacting the appropriate incident responders, implementing necessary traffic management applications (message signs, signal timing plans, ramp metering adjustments, etc.), monitoring the incident and finally closing out the incident. In addition to the fixed field equipment, ODOT has portable variable message signs (PVMS) and the COMET (Corridor Management Team) incident response crew to assist with the response to an incident. The TMOC Standard Operations and Procedures⁶ describes the COMET operations.

This section provides a brief description of the traffic management equipment used in the corridor and describes the various roles and responsibilities of each agency. Table 1 summarizes the roles and responsibilities by the operational field devices in this corridor.

2.3.1 Closed-Circuit Television (CCTV) Cameras

CCTV cameras are located at approximately one-half mile spacing or less on Interstate 5 throughout the project area and there are five cameras on Barbur Boulevard. The existing camera locations are depicted in Figure 1, which is the existing equipment graphic under the Maps tab. All cameras in the project area have full pan-tilt-zoom capabilities and are connected via fiber optic cable to both the ODOT



⁶ *Standard Operations and Procedures, Traffic Management Operation Center, Oregon Department of Transportation Region 1 Traffic, March 1, 2002.*



traffic management operations center (TMOC) and the traffic management center (TMC) at the City of Portland where agency staff monitor the region’s transportation network. The cameras are used to monitor roadway operating conditions and verify incidents. Initial identification of an incident may be via the cameras, but may also be via cell phone, emergency centers or radio communications, or via the automated incident detection system tied to the vehicle detectors on Interstate 5.

Priority control of the cameras is handled based on the owning agency. For example, ODOT has primary control of the ODOT owned cameras and the City of Portland has primary control of the City owned cameras. The ODOT TMOC operators are responsible for monitoring the cameras and using them to identify and confirm incidents and subsequently monitor the progress of the incident management.

Table 1. Agency Responsibility Matrix for Field Equipment Within I-5/Barbur Blvd Corridor

Agency	Barbur Boulevard				Interstate 5			
	Own	Maintain	Control	Share Data/ Video	Own	Maintain	Control	Share Data/ Video
CCTV								
City of Portland	✓	✓	P	✓			S	✓
ODOT			S	✓	✓	✓	P	✓
VMS								
City of Portland	✓	✓	S	✓			S	✓
ODOT			P	✓	✓	✓	P	✓
CMS								
City of Portland	✓	✓	S	✓	N/A			
ODOT			P	✓				
Ramp Meters								
City of Portland	N/A							
ODOT					✓	✓	✓	✓
Vehicle Detectors								
City of Portland	✓	✓		✓				
ODOT					✓	✓		✓
Traffic Signals								
City of Portland	✓	✓	P	✓	N/A			
ODOT	✓	✓	S	✓				

P = Primary control with override capability
 S = Secondary control that may be overridden by primary agency

2.3.2 Variable Message Signs (VMS)

Variable message signs are used to display real-time information to motorists in advance of an incident to help them make an informed decision about their route choices. Variable message signs have the capability to display any number of user-selected messages and the messages may be tailored for the incident type and location. Many variable message signs are located throughout the regional freeway network and many, outside of this incident management corridor, may be used to provide information to motorists about an incident in this particular section of Interstate 5. For incidents in this corridor, the message signs may be used to display information about the location of the incident and to recommend an alternate route. On Barbur Boulevard, two variable message signs exist: one for northbound traffic and one for southbound traffic at the south and north end of the project area, respectively. The locations of all of these signs are depicted in Figure 1, which is the existing equipment location graphic under the Maps tab.



The variable message signs (VMS) on the freeways are owned, operated and maintained by ODOT. The two variable message signs on Barbur Boulevard are owned and maintained by the City of Portland, but ODOT will have the primary responsibility for posting the messages. ODOT has a set of preprogrammed messages for display and the TMOC operators generally select from this preprogrammed list. During a major incident, the ODOT Incident Manager makes the final decision regarding sign messages.

2.3.3 Changeable Message Signs (CMS)

Changeable message signs have the capability to display preset fixed messages. The changeable message signs on Barbur Boulevard can display two separate messages and are blanked out when a message is not required. The changeable message signs on Barbur Boulevard have been installed in advance of freeway on-ramps and are used to inform the traveling public if the next on-ramp is past the incident and should be used for freeway access. There are six changeable message signs on Barbur Boulevard in the project area (three for southbound and three for northbound). The signs are depicted in Figure 1, which is the existing equipment location graphic under the Maps tab.

The CMS on Barbur Boulevard are owned and maintained by the City of Portland, but ODOT will have the primary responsibility for posting the messages. There are no CMS on Interstate 5. Both the City and ODOT have the capability to view and control the messages from their operations centers.

2.3.4 Ramp Meters

Ramp meters are located at all Interstate on-ramps in the project area with the exception of the southbound on-ramp at Capitol Highway. Some on-ramps outside the corridor that would likely be affected by incidents in this corridor do not currently have ramp meters including I-405/Broadway. The study area ramp meters are illustrated in Figure 1, located under the Maps tab. Currently the ramp-metering rate is based on the time-of-day. During an incident, ODOT staff is responsible for adjusting timings at the ramp meters based on the affected traffic conditions and the location of the incident.



During an incident, the ramp meters downstream of an incident may be turned off or would “open up” to allow more vehicles on the freeway because the freeway volume may be very low or none during a full closure. The ramp meters upstream of an incident may be turned on if they were off or they may be “closed down” to allow fewer vehicles on the freeway because the freeway volume may be heavy approaching the incident. In the near future, the ramp meters will be capable of dynamically adjusting the ramp-metering rate in real-time based on current vehicle volumes and speeds through the System Wide Adaptive Ramp Metering (SWARM) algorithm.

The ramp meters are all owned and operated by ODOT. If ramp metering timing changes are required, either an ODOT signal manager or the Region 1 ITS Manager is required to implement the timing changes. Once SWARM is in place the operators at the ODOT TMOC will be able to view the ramp metering operation during an incident and verify the algorithm is making the desired changes to the metering operation. Recommended changes to the metering operation based on the type of incident are identified by scenario as described in the operational scenario section of this report.

2.3.5 Vehicle Detectors

There are existing vehicle detectors located on both Interstate 5 and Barbur Boulevard as shown in Figure 1, located under the Maps tab. ODOT is responsible for maintaining and operating all of the vehicle detectors on Interstate 5 and the City of Portland is responsible for maintaining and operating the vehicle detectors on Barbur Boulevard.



On Interstate 5, vehicle detectors are located prior to every on-ramp with a ramp meter, and collect vehicle volume, speed and occupancy data for the freeway. The TransPort ATMS software at the ODOT TMOC provides an automatic incident detection system that compares the existing vehicle volumes and speeds with historical data and with data from upstream and downstream detectors. If the volume and/or speed of vehicles suddenly decreases at a location, then the software alerts the operator of a potential incident.

On Barbur Boulevard, there are vehicle system detectors at five locations (northbound and southbound) that are tied to the traffic signal controllers and continuously collect vehicle volumes, speeds and occupancy on Barbur Boulevard. The detectors on Barbur Boulevard are connected to the Series 2000 central traffic signal system and currently cannot be used to automatically identify an incident.

2.3.6 TriMet Buses as Transit Probes

As part of a new TransPort project, TriMet will use buses as traffic probes to report travel times and speed on key corridors so that congestion information may be monitored in near real-time and historical travel time information may be collected. Barbur Boulevard is the first corridor where TriMet will be implementing this data collection process and they are working cooperatively with the City of Portland and ODOT. The travel time information from TriMet will help supplement the vehicle detector data on Barbur Boulevard. However, criteria must be developed for monitoring Barbur Boulevard and determining when TriMet bus travel times deviate from their average travel time along the corridor.



2.3.7 Coordinated Traffic Signals

Within the study area there are 14 traffic signals on Barbur Boulevard as depicted in Figure 1, located under the Maps tab. Three of these are owned, maintained and operated by ODOT and the remaining 11 traffic signals are owned, maintained and operated by the City of Portland. Thirteen of the 14 traffic signals are interconnected and tied into the City of Portland's Series 2000 central traffic signal system. The one traffic signal (ORE 99W/I-5 SB/NB On-Ramp/64th Ave) not connected to the Series 2000 central traffic signal system computer is interconnected to other ODOT traffic signals to the south and outside the study area. This ODOT signal system is connected to the ODOT traffic signal manager's office via a dial-up phone line. Special incident signal timing plans, which include plans that favor northbound or southbound traffic depending on the location and type of incident, have been developed and are available for implementation during an incident. See the appendix for details about the incident signal timing plans and the implementation criteria.



The City of Portland will be the primary agency responsible for activating, monitoring and deactivating the incident timing plans on Barbur Boulevard. However, both agencies have the capability to activate the incident timing plans and ODOT may implement an incident timing plan after normal working hours after first notifying the City of Portland. Both ODOT and the City jointly agreed on the incident timing plans to use and

both agencies will work together if any changes to the incident timing plans need to be made.

2.4 Agency Contact Information

The ODOT Traffic Management Operations unit is designed to coordinate all of the traffic management devices and systems. It gathers information from many sources and, with that information, implements a plan to mitigate congestion caused by incidents. During an incident in the I-5/Barbur Boulevard corridor, the incident will be managed from the ODOT TMOC. The operators in the center will coordinate the incident response with other agencies and emergency responders and they will coordinate the traffic management response with the City of Portland. As described in the responsibility section above, the operators monitor the CCTV, select messages for the VMS and CMS, but signal managers at ODOT or PDOT are responsible for



implementing timing changes at freeway ramp meters and traffic signals on Barbur Boulevard. The contact information for the signal managers is provided in Table 2.

Table 2. Agency Contacts During an Incident

Field Device	Agency Contacts			
	ODOT		City of Portland	
CCTV, VMS, CMS	<u>ODOT TMOC*</u>	Phone:	Portland TMC	Phone:
Traffic Signals	Doug Anderson	Phone: Mobile/Pager:	<u>Willie Rotich*</u>	Phone: Mobile: Pager:
	Nelson Chi	Phone: Mobile/Pager:	Paul Zebell	Phone: Mobile: Pager:
	Phoung Vu	Phone: Mobile/Pager:	Bill Kloos	Phone: Mobile: Pager:
	Dennis Mitchell	Phone: Mobile/Pager:		
Ramp Meters	<u>Phoung Vu*</u>	Phone: Mobile/Pager:	Not Applicable	
	Nelson Chi	Phone: Mobile/Pager:		
	Doug Anderson	Phone: Mobile/Pager:		
	Dennis Mitchell	Phone: Mobile/Pager:		
* Contacts shown in bold and underlined are the first point of contact for each field device category listed in this table. The remaining contact names are listed in order of priority for each category of field devices. Once a person from the traffic signals category has been contacted, a TMOC operator should verify with that person whether or not they want to be the lead person for adjusting traffic signal timing plans. The TMOC operator should then log this information.				

2.5 Performance Measures

The implementation of incident management techniques along the Barbur Boulevard and I-5 corridor from I-405 on the north to the City limits of Portland/Tigard on the south is expected to improve the mobility and safety of the corridor traffic during an incident. The Science Application International Corporation (SAIC)⁷ is conducting an extensive evaluation of the I-5/Barbur Boulevard Incident Management Corridor both before and after project implementation. The following measures of effectiveness will be evaluated by SAIC to determine the benefits of this arterial/freeway incident management corridor project:

⁷ *Oregon Regional Intelligent Transportation Systems (ITS) Integration Program – Final Phase II Report*, Science Applications International Corporation (SAIC) and Cambridge Systematics, Inc., July 12, 2002.

- Speed/travel time in the primary direction during incident conditions (Barbur Blvd and I-5)
- Speed/travel time reliability in the primary direction during incident conditions (Barbur Blvd and I-5)
- Vehicle throughput in the primary direction during incident conditions (Barbur Blvd and I-5)
- Incident detection, response, and clearance times (time to resumption of typical operation)
- Freeway and arterial crash rates

2.6 When to Activate the System

The operational scenarios described in Section 4 for one-lane, two-lane, and full closures on I-5 are based on incident location. Each operational scenario outlines the implementation of CCTV cameras, freeway VMS, arterial VMS, arterial CMS, PVMS, ramp closures, ramp meters, and traffic signals. Regardless of an incident's duration, CCTV cameras should be used to monitor both I-5 and Barbur Boulevard and VMS and CMS on Barbur Boulevard should be activated as described under the applicable operational scenario. Using Barbur Boulevard as an alternate route is intended for major incidents that greatly reduce the capacity, efficiency, and safety of I-5.



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A number of factors play a role when determining whether to activate freeway VMS, utilize PVMS, close I-5 on-ramps, implement ramp meter timing changes, or implement incident signal timing plans for an alternate route system as described in the operational scenarios. These factors include the incident type, number of lanes closed, the time-of-day/day-of-week, the traffic volume, the location and the duration of the incident. Two main criteria should be used when determining if an incident warrants investigation of using Barbur Boulevard as the alternate route system:

1. An incident with two or more lanes blocked; OR
2. An incident with one lane blocked that is expected to last more than 20 minutes.

If the two main criteria described above are met, then operators must use their judgement about other factors that may impact the decision to fully or partially implement the applicable response scenario. Table 3 provides some guidance towards making this decision.

Table 3. Criteria Guidelines for Activating the System

Factor	Criteria
Number of Lanes Blocked	Two or more
Duration	20 minutes or more (one or more lanes blocked)
Time-of-Day	Peak periods have higher traffic volumes
Day-of-Week	Weekdays typically experience higher traffic volumes
Volume of Traffic	Compare volumes on I-5 to an average I-5 volume for the time-of-day the incident occurs

2.7 System Constraints

Several physical constraints exist on Barbur Boulevard that limit the capacity. These are critical points that need to be considered and monitored during incidents to ensure the signal timings (cycle lengths and splits) adequately accommodate increased volumes caused by diverting traffic:

1. One SB lane on Barbur Boulevard from Hooker Street to the Barbur Boulevard/Naito Parkway merge (north of Hamilton Street).
2. I-5 SB Bertha Boulevard/Terwilliger Boulevard Off-Ramp only has one WB left turn lane at Barbur Boulevard/Bertha Boulevard.
3. Short storage capacity of I-5 SB 24th Avenue Off-Ramp to Barbur Boulevard.
4. Queues on I-5 SB Capitol Highway Off-Ramp extend from four-way stop at Capitol Highway/Taylor's Ferry Road.



5. Single SB left turn lane on Barbur Boulevard at Barbur Boulevard/I-5 NB-SB On-Ramps/64th Avenue for vehicles heading to I-5 SB On-Ramp.
6. Lack of a NB left turn lane on Barbur Boulevard at Capitol Highway and the constraint of using Huber Street as a jug-handle.
7. NB left turn from Huber Street at I-5 NB Capitol Highway/Huber Street On-Ramp.
8. NB left turn from I-5 NB Terwilliger Boulevard Off-Ramp onto Terwilliger Boulevard to get to Barbur Boulevard.

2.8 System Enhancement Recommendations

To enhance the existing system and to provide clear direction to travelers during incidents, the following recommendations provide guidance on future improvements to system detection, variable message sign locations, static sign additions/modifications, and general maintenance in the corridor where trees obstruct the line of sight to existing guide signs.

2.8.1 Future Improvements

Currently, the system detectors located on Barbur Boulevard are connected to the City of Portland's Series 2000 central traffic signal system, but not to ODOT's TransPort ATMS software. The system detectors on Barbur Boulevard could be used to display Barbur Boulevard congestion information on the regional congestion flow map by interconnecting the system detectors with ODOT's ATMS software.

Based on a review of the existing electronic message signs and extensive field trips to review the corridor response plans, the installation of future variable message signs are recommended at the locations listed in Table 4.

Table 4. Recommended Future Variable Message Sign Approximate Locations

 <p>Northbound ORE 99W South of 64th Avenue</p>	 <p>Southbound Naito Parkway North of Market Street</p>
 <p>Southbound Broadway North of I-405 On-Ramp</p>	 <p>Westbound Taylor Street East of 13th Avenue</p>
 <p>Southbound 13th Avenue North of I-405 On-Ramp</p>	 <p>Southbound ORE 217 North of ORE 99W</p>
<p>(Not Pictured) Eastbound Everett Street West of I-405</p>	<p>(Not Pictured) Southbound Hood Avenue North of I-5</p>
<p>(Not Pictured) Westbound Kruse Way East of I-5 (City of Lake Oswego)</p>	<p>(Not Pictured) Northbound Bangy Road South of Kruse Way (City of Lake Oswego)</p>

The recommended electronic message sign locations are all located in advance (north or south) of the corridor project limits. The purpose for these signs is to provide motorists with advance information prior to entering the corridor and before reaching critical freeway on-ramps where an informed decision could be made to take Barbur Boulevard or I-5. A variable message sign on northbound ORE 99W south of 64th Avenue is important since this is the south end of the project limits and some of the scenarios involve the closure of the northbound on-ramp at 64th Avenue. These signs would also allow ODOT and PDOT to provide guidance for incidents on I-5 as well as other nearby freeways.

A second priority for the installation of future variable or fixed message signs includes the following locations: I-5 SB Naito Pkwy On-Ramp, I-5 SB/NB ORE 99W (64th Ave) On-Ramp, I-5 NB Capitol Hwy/Huber St On-Ramp, I-5 NB Spring Garden On-Ramp, I-5 NB Multnomah Blvd On-Ramp (at 22nd Ave), I-5 NB Bertha Blvd On-Ramp, and I-5 NB Terwilliger Blvd On-Ramp. These signs could be used for several purposes such as to inform motorists of I-5 traffic conditions, to indicate the ramp is closed, or to indicate that the ramp meter signal is turned on.

In addition to electronic message signs, some additional static signs would provide better guidance along Barbur Boulevard. Table 5 lists the recommended enhancements to static signs.

2.8.2 General Maintenance

Numerous guide signs in or near the study area that provide valuable traveler guidance are partially or almost entirely covered by trees. Trees need to be trimmed at the following guide sign locations:

- Eastbound Arthur Street east of Broadway (Guide Sign: US 26, Ross Island Br, Left Lanes, Barbur Blvd, Right Lane)
- Southbound Broadway at Portland State University (Guide Sign: I-5, To Freeway, Left Lane)
- Southbound Broadway at I-405 on-ramp (Guide Sign: To I-5, I-84, I-405 South, Left Diagonal Arrow)
- Southbound I-5 prior to Multnomah exit (Guide Sign: Exit 296B, Multnomah Blvd. ½ Mile)
- Southbound I-5 prior to Capitol Highway exit (Guide Sign: Exit 295, Capitol Hwy ½ Mile)
- Northbound Barbur Boulevard north of Tryon Creek Bridge (Guide Sign: To I-5 North, Sellwood Br., Right Lane)
- Northbound Barbur Boulevard at Spring Garden on-ramp (Guide Sign: To I-5 North, Sellwood Br., Right Diagonal Arrow)
- Northbound Barbur Boulevard at Bancroft Street (Guide Sign: US 26 East, Ross Island Bridge, Right Lane Exit Only)
- Northbound Naito Parkway south of Yamhill Street (Guide Sign: Morrison Bridge)



Also, trees and bushes should be trimmed on the southbound approach to the Barbur Boulevard/53rd Avenue signalized intersection to provide better sight distance as vehicles approach the intersection.

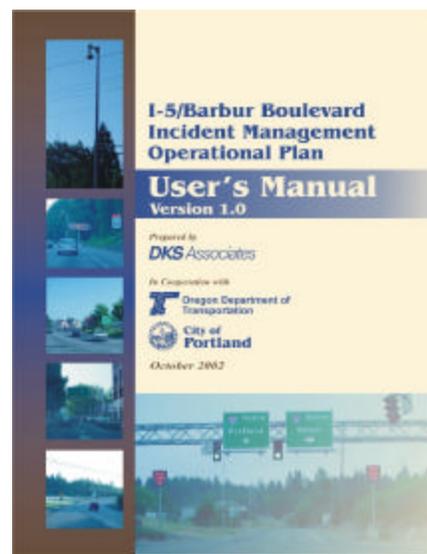
Table 5. Proposed Static Sign Enhancements

 <p>Install I-405 trailblazer sign on northbound Barbur Boulevard south of Sheridan Street.</p>	 <p>Install I-405 trailblazer sign on northbound Barbur Boulevard at Arthur Street.</p>
 <p>Install I-5 trailblazer sign on northbound Naito Parkway prior to Ross Island Bridge exit.</p>	 <p>Add I-5 North emblem to Morrison Bridge guide sign on northbound Naito Parkway south of Yamhill Street.</p>
 <p>Install guide sign at the I-5 northbound off-ramp/Terwilliger Boulevard intersection indicating Barbur Boulevard is to the left.</p>	 <p>Move Yield sign on north leg of Capitol Highway/Taylor's Ferry Road intersection to right side of exclusive right turn lane.</p>

3 PROCESS FOR UPDATING THIS OPERATIONAL PLAN USER'S MANUAL

The *I-5/Barbur Boulevard Incident Management Operational Plan User's Manual* is a working document and should be updated and reviewed often as incidents are experienced and the operational scenarios outlined in this document are implemented. The following policies are recommended for updating this user's manual:

- Update immediately after incidents
- Update at the end of each calendar year
- Update the version number on the title page
- Include the revision date and the revision number on each page
- Log the updates and include it with the manual
- Coordinate updates with ODOT and PDOT
- Distribute copies of the revised user's manual to:
 - City of Portland
 - ODOT TMOC Supervisor
 - ODOT TMOC Operators



4 OPERATIONAL SCENARIOS

The study area is divided into operational scenarios based on direction of travel, incident location, and number of lanes closed. There are three southbound operational segments and four northbound operational segments as depicted in Figures 2 and 3, respectively, under the Maps tab. Each operational segment may be found under its own tab in this manual and includes an overview of the segment as well as scenarios for one-lane closures, two-lane closures, and full closures. Each scenario describes recommended operational procedures regarding CCTV cameras, freeway VMS, arterial VMS, arterial CMS, PVMS, ramp closures, ramp meters, and traffic signals. The operational scenarios should be implemented as described in Section 2.6 regarding when to activate the system. The operational scenario tabs include the following:

- SB Segment 1
- SB Segment 2
- SB Segment 3
- NB Segment 4
- NB Segment 5
- NB Segment 6
- NB Segment 7



LEGEND

Equipment

-  Traffic Signal
-  CCTV
-  Ramp Meter
-  NB/SB System Detectors
-  NB System Detectors
-  SB System Detectors
-  NB VMS
-  SB VMS
-  NB CMS
-  SB CMS

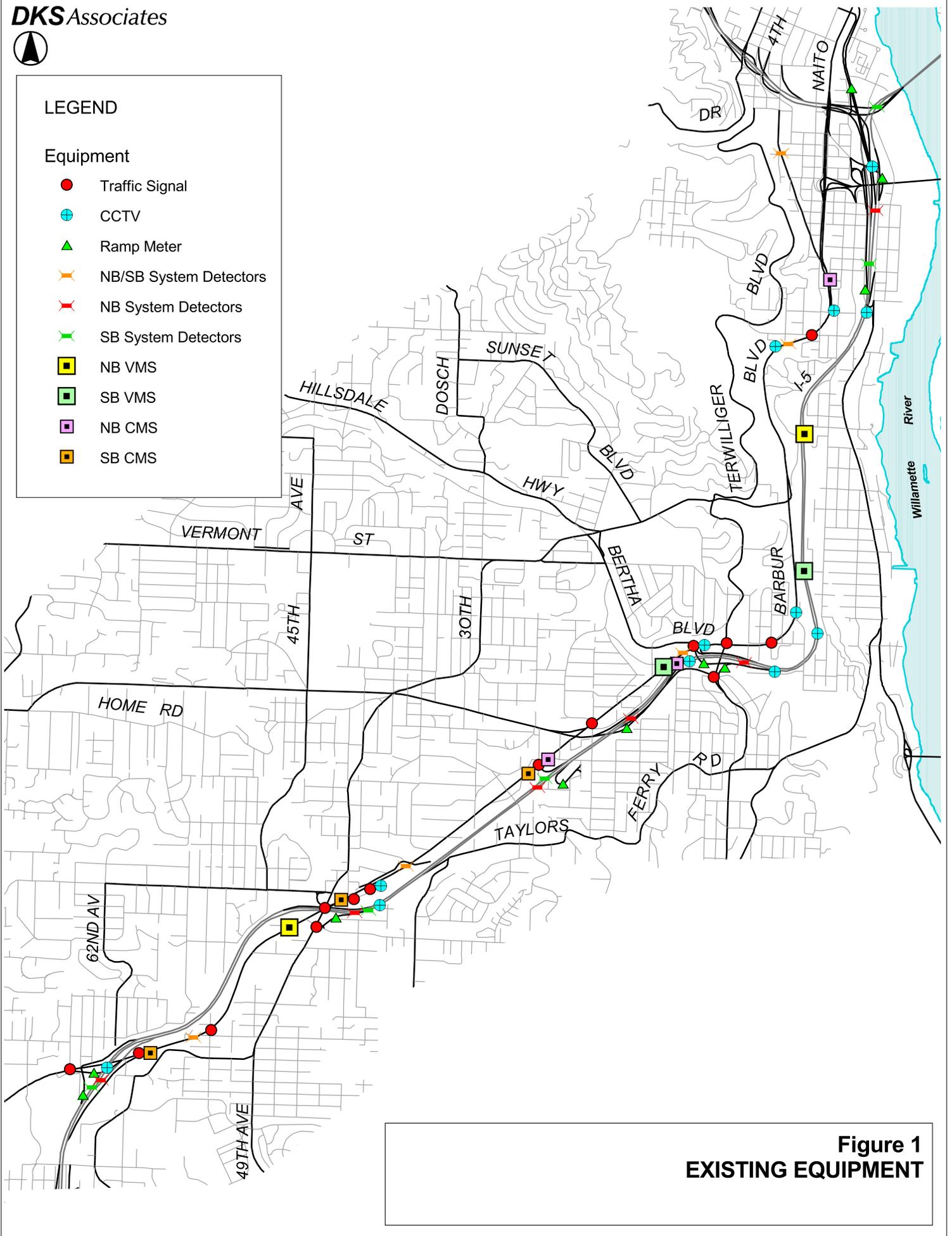


Figure 1
EXISTING EQUIPMENT



LEGEND

SB Segment Locations

-  Segment 1 - I-5 from I-405 to Terwilliger
-  Segment 2 - I-5 from Terwilliger to Capitol Hwy
-  Segment 3 - I-5 from Capitol Hwy to 99W

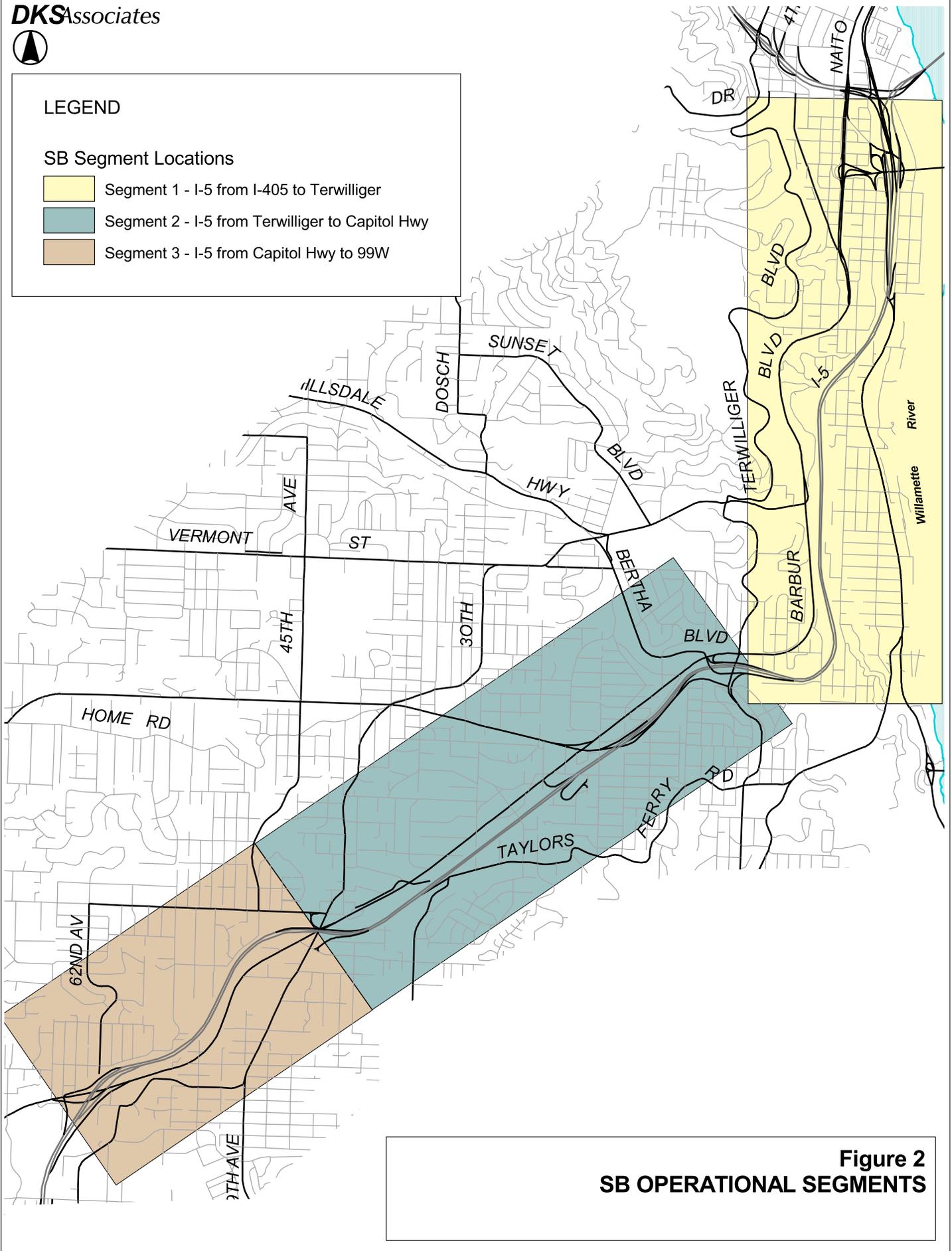


Figure 2
SB OPERATIONAL SEGMENTS



LEGEND

NB Segment Locations

-  Segment 4 - I-5 from 99W to Capitol Hwy
-  Segment 5 - I-5 from Capitol Hwy to Spring Garden
-  Segment 6 - I-5 from Spring Garden to Terwilliger
-  Segment 7 - I-5 from Terwilliger to I-405

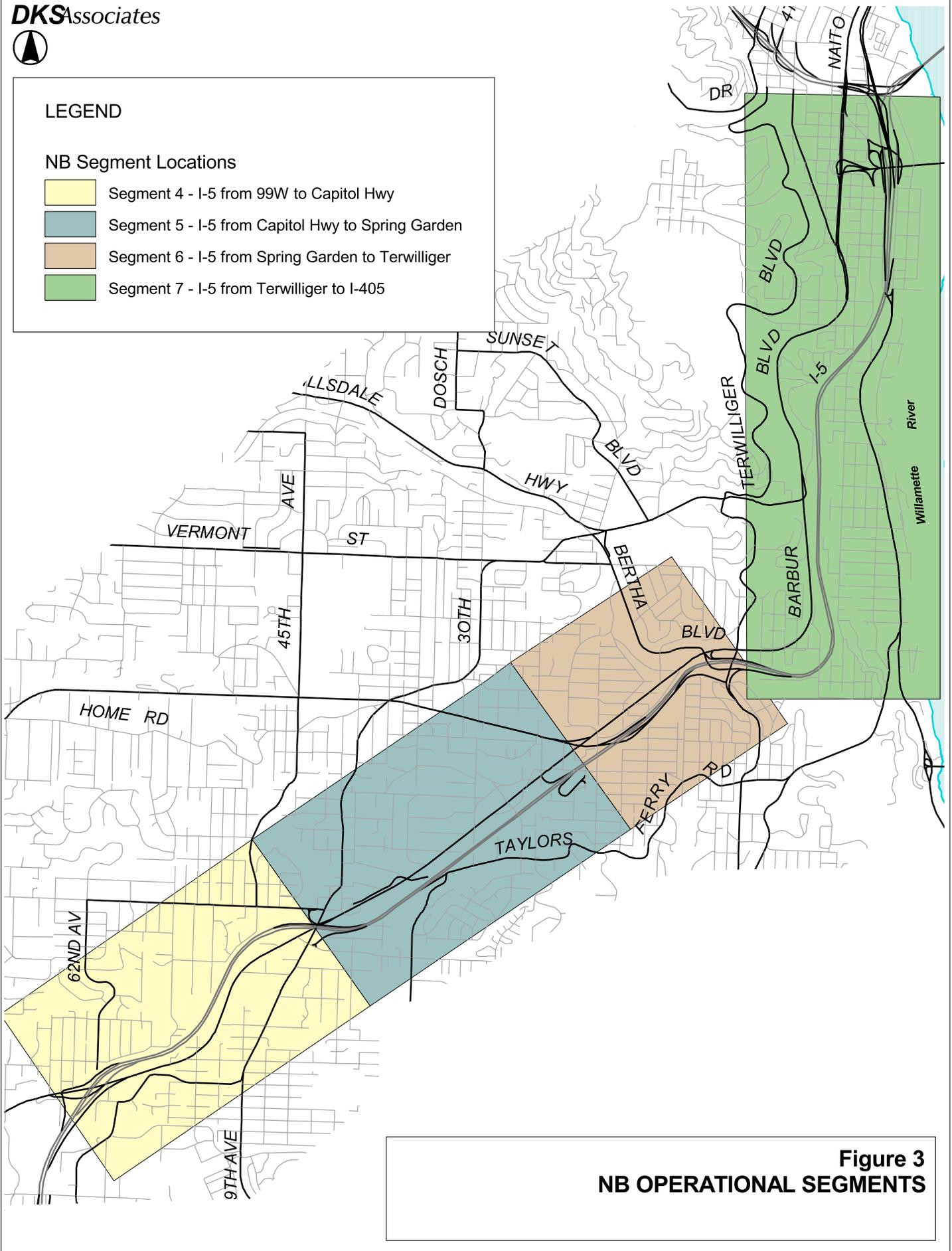


Figure 3
NB OPERATIONAL SEGMENTS

Southbound I-5 Segment 1: Incident Between I-405 and Terwilliger

Segment 1 Scenarios

Scenario	Southbound I-5 Status
1A	One-Lane Closure
1B	Two-Lane Closure
1C	Full Closure

Affected Travel Routes

Affected Route	Alternate Route (Depending on Scenario)
I-5 South Mainline	Barbur Blvd from Arthur St or Naito Pkwy to Capitol Hwy On-Ramp
I-5 SB Naito Pkwy On-Ramp	Barbur Blvd from Naito Pkwy to Capitol Hwy On-Ramp
I-5 SB Hood Ave On-Ramp	Barbur Blvd from Hood Ave/Hamilton St to Capitol Hwy On-Ramp
I-5 South Mainline North of I-205 in Washington	I-205 South
I-5 South Mainline North of I-84	I-84 East to I-205 South or I-405 to Barbur Blvd from Arthur St to Capitol Hwy On-Ramp
US 26 East Mainline West of Cedar Hills	ORE 217 South
I-405 South Mainline	6th Ave Exit to Barbur Blvd from Arthur St to Capitol Hwy On-Ramp
I-84 West Mainline	I-405 to Barbur Blvd from Arthur St to Capitol Hwy On-Ramp or ORE 99E South during a Full Closure



Southbound I-5 Scenario 1A: One-Lane SB Closure Between I-405 and Terwilliger

Field Device	Action	Responsible Agency						
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  PDOT						
Freeway VMS 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <td style="text-align: center;">SB I-5 at Terwilliger Curves:</td> </tr> <tr> <td style="text-align: center;">Display message per standard operating procedures</td> </tr> <tr style="background-color: #cccccc;"> <td style="text-align: center;">SB I-5 at Lombard St:</td> </tr> <tr> <td style="text-align: center;">Display message per standard operating procedures</td> </tr> <tr style="background-color: #cccccc;"> <td style="text-align: center;">WB I-5 at 28th Ave:</td> </tr> <tr> <td style="text-align: center;">Display message per standard operating procedures</td> </tr> </table>	SB I-5 at Terwilliger Curves:	Display message per standard operating procedures	SB I-5 at Lombard St:	Display message per standard operating procedures	WB I-5 at 28th Ave:	Display message per standard operating procedures	 ODOT  ODOT  ODOT
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Arterial CMS 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <td style="text-align: center;">SB Barbur Blvd at 24th Ave:</td> </tr> <tr> <td style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH ↑ ↑ DETOUR </div> </td> </tr> <tr style="background-color: #cccccc;"> <td style="text-align: center;">SB Barbur Blvd at Taylor's Ferry Rd:</td> </tr> <tr> <td style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH NEXT RIGHT </div> </td> </tr> <tr style="background-color: #cccccc;"> <td style="text-align: center;">SB Barbur Blvd at 64th Ave:</td> </tr> <tr> <td style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH NEXT LEFT </div> </td> </tr> </table>	SB Barbur Blvd at 24th Ave:	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH ↑ ↑ DETOUR </div>	SB Barbur Blvd at Taylor's Ferry Rd:	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH NEXT RIGHT </div>	SB Barbur Blvd at 64th Ave:	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH NEXT LEFT </div>	 ODOT  PDOT  ODOT  PDOT  ODOT  PDOT
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Portable VMS (Optional)	N/A							
Ramp Closures	N/A							
Ramp Meters	Evaluate Naito Pkwy Ramp Meter Evaluate Hood Ave Ramp Meter Evaluate Downstream Ramp Meters	 ODOT						
Traffic Signals 	Consider Incident Signal Timing Plan 13 for peak periods, Plan 16 for off-peak periods, or Plan 19 for heavy NB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT						

Southbound I-5 Scenario 1B: Two-Lane SB Closure Between I-405 and Terwilliger

Field Device	Action	Responsible Agency																																																																																																								
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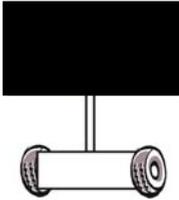
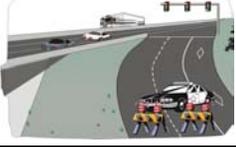
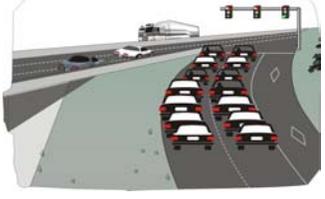
Southbound I-5 Scenario 1B: Two-Lane SB Closure Between I-405 and Terwilliger

Field Device	Action	Responsible Agency
Arterial VMS	SB Barbur Blvd South of Bertha Blvd:	 ODOT  PDOT
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH DETOUR STRAIGHT </div>	
Arterial CMS 	SB Barbur Blvd at 24th Ave:	 ODOT  PDOT
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH ↑ ↑ DETOUR </div>	
	SB Barbur Blvd at Taylor's Ferry Rd:	 ODOT  PDOT
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH NEXT RIGHT </div>		
Arterial CMS	SB Barbur Blvd at 64th Ave:	 ODOT  PDOT
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH NEXT LEFT </div>		
Portable VMS (Optional)	N/A	
Ramp Closures	N/A	
Ramp Meters 	Evaluate I-84 EB Ramp Meters Evaluate I-205 SB Ramp Meters Evaluate ORE-217 SB Ramp Meters Evaluate Naito Pkwy Ramp Meter Evaluate Hood Ave Ramp Meter Evaluate Downstream Ramp Meters	  ODOT
Traffic Signals 	Consider Incident Signal Timing Plan 13 for peak periods, Plan 16 for off-peak periods, or Plan 19 for heavy NB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT

Southbound I-5 Scenario 1C: Full SB Closure Between I-405 and Terwilliger

Field Device	Action	Responsible Agency	
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT ODOT/PDOT 	
Freeway VMS 	SB I-5 at Terwilliger Curves:	 ODOT	
	Display message per standard operating procedures		
	SB I-5 at I-205 (WSDOT):	 ODOT  WSDOT	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 SOUTH CLOSED 16 MILES AHEAD SOUTH OF I-84 </td> <td style="padding: 5px; text-align: center;"> I-5 THRU TRAFFIC USE I-205 SOUTH </td> </tr> </table>		I-5 SOUTH CLOSED 16 MILES AHEAD SOUTH OF I-84
	I-5 SOUTH CLOSED 16 MILES AHEAD SOUTH OF I-84	I-5 THRU TRAFFIC USE I-205 SOUTH	
	SB I-5 at Lombard St:	 ODOT	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 SOUTH CLOSED 5 MILES AHEAD AT MARQUAM BRIDGE </td> <td style="padding: 5px; text-align: center;"> I-5 TRAFFIC USE I-405 TO US 26 TO ORE 217 SB </td> </tr> </table>		I-5 SOUTH CLOSED 5 MILES AHEAD AT MARQUAM BRIDGE
	I-5 SOUTH CLOSED 5 MILES AHEAD AT MARQUAM BRIDGE	I-5 TRAFFIC USE I-405 TO US 26 TO ORE 217 SB	
	WB I-84 at 148th Ave:	 ODOT	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER </td> <td style="padding: 5px; text-align: center;"> I-5 THRU TRAFFIC USE I-205 SB </td> </tr> </table>		I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER
I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER	I-5 THRU TRAFFIC USE I-205 SB		
WB I-84 at 28th Ave:	 ODOT		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER </td> <td style="padding: 5px; text-align: center;"> USE CITY CENTER EXIT TO ORE 99E TO I-205 </td> </tr> </table>		I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER	USE CITY CENTER EXIT TO ORE 99E TO I-205
I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER	USE CITY CENTER EXIT TO ORE 99E TO I-205		
EB US26 at Cedar Hills Blvd:	 ODOT		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER </td> <td style="padding: 5px; text-align: center;"> I-5 TRAFFIC USE ORE 217 TO I-5 </td> </tr> </table>		I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER	I-5 TRAFFIC USE ORE 217 TO I-5
I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER	I-5 TRAFFIC USE ORE 217 TO I-5		
EB US26 at the Zoo:	 ODOT		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER </td> <td style="padding: 5px; text-align: center;"> USE I-405 SB TO 6TH AVENUE TO BARBUR BLVD </td> </tr> </table>		I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER	USE I-405 SB TO 6TH AVENUE TO BARBUR BLVD
I-5 SOUTH CLOSED FROM I-405 TO TERWILLIGER	USE I-405 SB TO 6TH AVENUE TO BARBUR BLVD		
WB US26 at Golf Creek:	 ODOT		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 SB TRAFFIC USE ORE 217 SB TO I-5 </td> </tr> </table>		I-5 SB TRAFFIC USE ORE 217 SB TO I-5	
I-5 SB TRAFFIC USE ORE 217 SB TO I-5			
Arterial VMS	SB Barbur Blvd South of Bertha Blvd: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 SOUTH DETOUR STRAIGHT </td> </tr> </table>	I-5 SOUTH DETOUR STRAIGHT	 ODOT  PDOT
I-5 SOUTH DETOUR STRAIGHT			

Southbound I-5 Scenario 1C: Full SB Closure Between I-405 and Terwilliger

Field Device	Action	Responsible Agency
Arterial CMS 	SB Barbur Blvd at 24th Ave: 	 ODOT  PDOT
	SB Barbur Blvd at Taylor's Ferry Rd: 	 ODOT  PDOT
	SB Barbur Blvd at 64th Ave: 	 ODOT  PDOT
Portable VMS (Optional)	EB US 30 at I-405 SB I-405 at Everett St SB I-405 at Park Ave SB Broadway at Jackson St SB Naito Pkwy at Clay St SB ORE 99E at ORE 224 	 ODOT
Ramp Closures	SB I-405 On-Ramp SB I-5 from Marquam Bridge Naito Pkwy On-Ramp Hood Ave On-Ramp 	 ODOT
Ramp Meters 	Deactivate 99W (64th Ave) Ramp Meter Deactivate Haines St Ramp Meter Evaluate I-84 EB Ramp Meters Evaluate I-205 SB Ramp Meters Evaluate ORE-217 SB Ramp Meters Evaluate Downstream Ramp Meters 	 ODOT
Traffic Signals 	Activate Incident Signal Timing Plan 14 for peak periods, Plan 17 for off-peak periods, or Plan 19 for heavy NB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT



LEGEND

Equipment

- Traffic Signal
- CCTV
- Ramp Meter
- NB/SB System Detectors
- SB System Detectors
- SB VMS
- SB CMS
- Incident Location

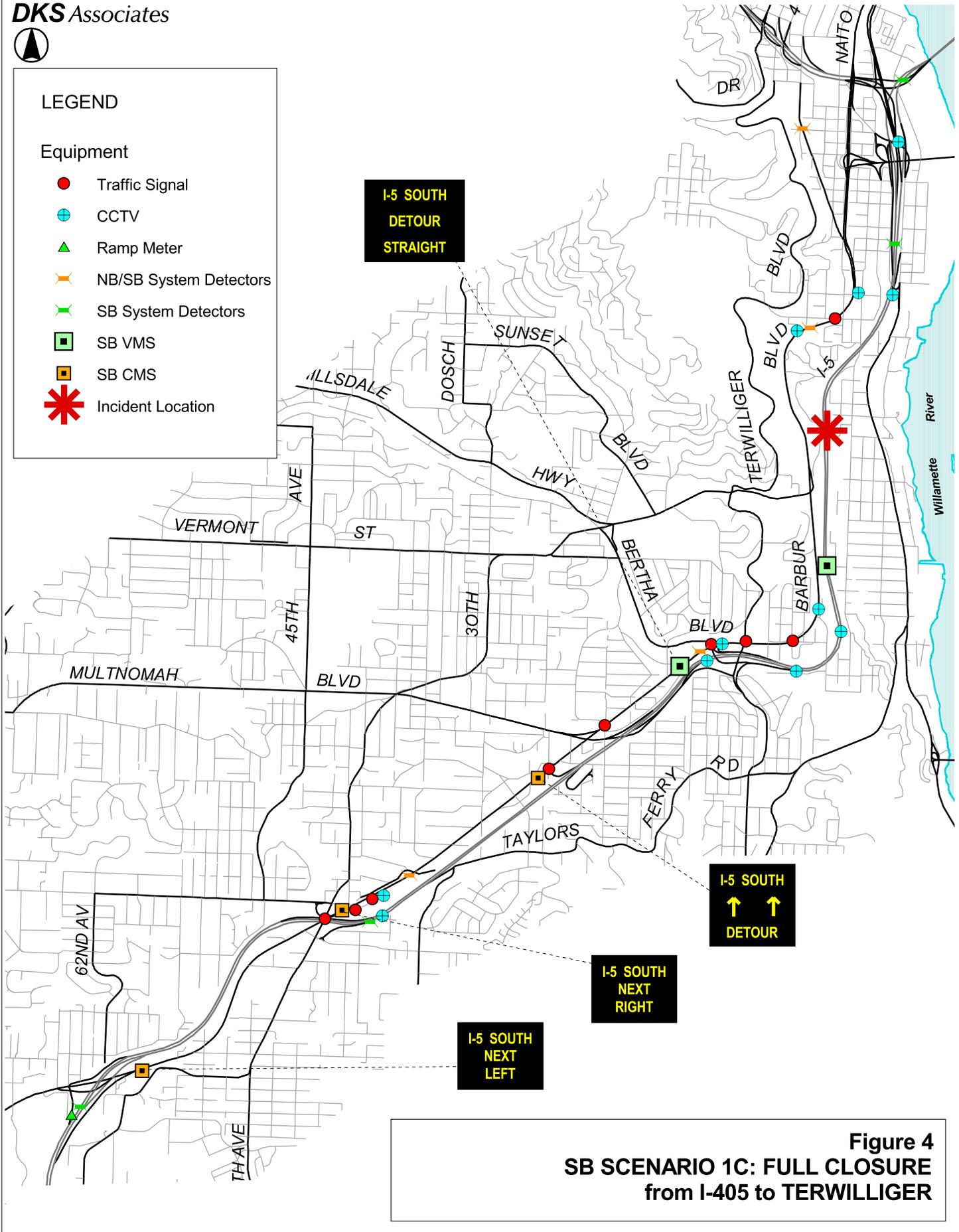


Figure 4
SB SCENARIO 1C: FULL CLOSURE
from I-405 to TERWILLIGER

Southbound I-5 Segment 2: Incident Occurs Between Terwilliger and Capitol Hwy

Segment 2 Scenarios

Scenario	Southbound I-5 Status
2A	One-Lane Closure
2B	Two-Lane Closure
2C	Full Closure

Affected Travel Routes

Affected Route	Alternate Route (Depending on Scenario)
I-5 South Mainline	Barbur Blvd from Terwilliger to Capitol Hwy On-Ramp
I-5 SB Naito Pkwy On-Ramp	Barbur Blvd from Naito Pkwy to Capitol Hwy On-Ramp
I-5 SB Hood Ave On-Ramp	Barbur Blvd from Hood Ave/Hamilton St to Capitol Hwy On-Ramp
I-5 South Mainline North of I-205 in Washington	I-205 South
I-5 South Mainline North of I-84	I-84 East to I-205 South or I-405 to Barbur Blvd from Arthur St to Capitol Hwy On-Ramp
US 26 East Mainline West of Cedar Hills	ORE 217 South
I-405 South Mainline	6th Ave Exit to Barbur Blvd from Arthur St to Capitol Hwy On-Ramp
I-84 West Mainline	I-405 to Barbur Blvd from Arthur St to Capitol Hwy On-Ramp or ORE 99E South during a Full Closure



Southbound I-5 Scenario 2A: One-Lane SB Closure Between Terwilliger and Capitol Hwy

Field Device	Action	Responsible Agency												
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT												
Freeway VMS 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB I-5 at Terwilliger Curves:</td> </tr> <tr> <td style="padding: 5px; text-align: center;">Display message per standard operating procedures</td> </tr> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB I-5 at Lombard St:</td> </tr> <tr> <td style="padding: 5px; text-align: center;">Display message per standard operating procedures</td> </tr> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">WB I-5 at 28th Ave:</td> </tr> <tr> <td style="padding: 5px; text-align: center;">Display message per standard operating procedures</td> </tr> </table>	SB I-5 at Terwilliger Curves:	Display message per standard operating procedures	SB I-5 at Lombard St:	Display message per standard operating procedures	WB I-5 at 28th Ave:	Display message per standard operating procedures	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB I-5 at Terwilliger Curves:</td> </tr> <tr> <td style="padding: 5px; text-align: center;"> ODOT</td> </tr> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB I-5 at Lombard St:</td> </tr> <tr> <td style="padding: 5px; text-align: center;"> ODOT</td> </tr> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">WB I-5 at 28th Ave:</td> </tr> <tr> <td style="padding: 5px; text-align: center;"> ODOT</td> </tr> </table>	SB I-5 at Terwilliger Curves:	 ODOT	SB I-5 at Lombard St:	 ODOT	WB I-5 at 28th Ave:	 ODOT
SB I-5 at Terwilliger Curves:														
Display message per standard operating procedures														
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WB I-5 at 28th Ave:														
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SB Barbur Blvd South of Bertha Blvd:														
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Arterial CMS 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB Barbur Blvd at 24th Ave:</td> </tr> <tr> <td style="padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> I-5 SOUTH ↑ ↑ DETOUR </div> </td> </tr> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB Barbur Blvd at Taylor's Ferry Rd:</td> </tr> <tr> <td style="padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> I-5 SOUTH NEXT RIGHT </div> </td> </tr> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB Barbur Blvd at 64th Ave:</td> </tr> <tr> <td style="padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> I-5 SOUTH NEXT LEFT </div> </td> </tr> </table>	SB Barbur Blvd at 24th Ave:	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> I-5 SOUTH ↑ ↑ DETOUR </div>	SB Barbur Blvd at Taylor's Ferry Rd:	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> I-5 SOUTH NEXT RIGHT </div>	SB Barbur Blvd at 64th Ave:	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> I-5 SOUTH NEXT LEFT </div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB Barbur Blvd at 24th Ave:</td> </tr> <tr> <td style="padding: 5px; text-align: center;"> ODOT  PDOT</td> </tr> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB Barbur Blvd at Taylor's Ferry Rd:</td> </tr> <tr> <td style="padding: 5px; text-align: center;"> ODOT  PDOT</td> </tr> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">SB Barbur Blvd at 64th Ave:</td> </tr> <tr> <td style="padding: 5px; text-align: center;"> ODOT  PDOT</td> </tr> </table>	SB Barbur Blvd at 24th Ave:	 ODOT  PDOT	SB Barbur Blvd at Taylor's Ferry Rd:	 ODOT  PDOT	SB Barbur Blvd at 64th Ave:	 ODOT  PDOT
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SB Barbur Blvd at Taylor's Ferry Rd:														
 ODOT  PDOT														
SB Barbur Blvd at 64th Ave:														
 ODOT  PDOT														
Portable VMS (Optional)	N/A													
Ramp Closures	N/A													
Ramp Meters	Evaluate Downstream Ramp Meters	 ODOT												
Traffic Signals 	Consider Incident Signal Timing Plan 14 for peak periods, Plan 15 when I-5 needs to be cleared at 24th Ave, Plan 17 for off-peak periods, or Plan 19 for heavy NB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT												

Southbound I-5 Scenario 2B: Two-Lane SB Closure Between Terwilliger and Capitol Hwy

Field Device	Action	Responsible Agency																										
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT																										
Freeway VMS 	<p style="background-color: #cccccc; padding: 2px;">SB I-5 at Terwilliger Curves:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px; text-align: center;"> ACCIDENT ON I-5 SB XX MILES AHEAD LEFT/RIGHT LANES CLOSED </td> <td style="width: 50%; padding: 5px; text-align: center;"> USE NEXT EXIT TO BARBUR BLVD SB </td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">SB I-5 at I-205 (WSDOT):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px; text-align: center;"> ACCIDENT ON I-5 SB XX MILES AHEAD AT TERWILLIGER </td> <td style="width: 33%; padding: 5px; text-align: center;"> 2 LANES CLOSED </td> <td style="width: 33%; padding: 5px; text-align: center;"> OR I-5 THRU TRAFFIC USE I-205 SOUTH </td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">SB I-5 at Lombard St:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px; text-align: center;"> ACCIDENT ON I-5 SB XX MILES AHEAD AT TERWILLIGER </td> <td style="width: 33%; padding: 5px; text-align: center;"> 2 LANES CLOSED </td> <td style="width: 33%; padding: 5px; text-align: center;"> OR USE ALTERNATIVE ROUTE </td> </tr> <tr> <td colspan="3" style="text-align: center; padding: 5px;"> OR EXPECT DELAYS OR USE ALTERNATIVE ROUTE </td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">WB I-84 at 28th Ave:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px; text-align: center;"> ACCIDENT ON I-5 SB XX MILES AHEAD AT TERWILLIGER </td> <td style="width: 33%; padding: 5px; text-align: center;"> 2 LANES CLOSED </td> <td style="width: 33%; padding: 5px; text-align: center;"> OR USE ALTERNATIVE ROUTE </td> </tr> <tr> <td colspan="3" style="text-align: center; padding: 5px;"> OR EXPECT DELAYS OR USE ALTERNATIVE ROUTE </td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">EB US26 at Cedar Hills Blvd:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px; text-align: center;"> ACCIDENT ON I-5 SB AT TERWILLIGER </td> <td style="width: 33%; padding: 5px; text-align: center;"> 2 LANES CLOSED </td> <td style="width: 33%; padding: 5px; text-align: center;"> OR I-5 TRAFFIC USE ORE 217 TO I-5 </td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">EB US26 at the Zoo:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px; text-align: center;"> ACCIDENT ON I-5 SB XX MILES AHEAD AT TERWILLIGER </td> <td style="width: 33%; padding: 5px; text-align: center;"> 2 LANES CLOSED </td> <td style="width: 33%; padding: 5px; text-align: center;"> OR USE ALTERNATIVE ROUTE </td> </tr> <tr> <td colspan="3" style="text-align: center; padding: 5px;"> OR EXPECT DELAYS OR USE ALTERNATIVE ROUTE </td> </tr> </table>	ACCIDENT ON I-5 SB XX MILES AHEAD LEFT/RIGHT LANES CLOSED	USE NEXT EXIT TO BARBUR BLVD SB	ACCIDENT ON I-5 SB XX MILES AHEAD AT TERWILLIGER	2 LANES CLOSED	OR I-5 THRU TRAFFIC USE I-205 SOUTH	ACCIDENT ON I-5 SB XX MILES AHEAD AT TERWILLIGER	2 LANES CLOSED	OR USE ALTERNATIVE ROUTE	OR EXPECT DELAYS OR USE ALTERNATIVE ROUTE			ACCIDENT ON I-5 SB XX MILES AHEAD AT TERWILLIGER	2 LANES CLOSED	OR USE ALTERNATIVE ROUTE	OR EXPECT DELAYS OR USE ALTERNATIVE ROUTE			ACCIDENT ON I-5 SB AT TERWILLIGER	2 LANES CLOSED	OR I-5 TRAFFIC USE ORE 217 TO I-5	ACCIDENT ON I-5 SB XX MILES AHEAD AT TERWILLIGER	2 LANES CLOSED	OR USE ALTERNATIVE ROUTE	OR EXPECT DELAYS OR USE ALTERNATIVE ROUTE			<p style="text-align: center;"> ODOT</p> <p style="text-align: center;"> ODOT  WSDOT</p> <p style="text-align: center;"> ODOT</p> <p style="text-align: center;"> ODOT</p> <p style="text-align: center;"> ODOT</p> <p style="text-align: center;"> ODOT</p>
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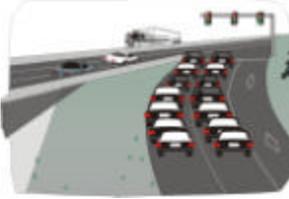
Southbound I-5 Scenario 2B: Two-Lane SB Closure Between Terwilliger and Capitol Hwy

Field Device	Action	Responsible Agency
Arterial VMS	SB Barbur Blvd South of Bertha Blvd:	 ODOT  PDOT
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH DETOUR STRAIGHT </div>	
Arterial CMS	SB Barbur Blvd at 24th Ave:	 ODOT  PDOT
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH ↑ ↑ DETOUR </div>	
Arterial CMS 	SB Barbur Blvd at Taylor's Ferry Rd:	 ODOT  PDOT
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH NEXT RIGHT </div>	
	SB Barbur Blvd at 64th Ave:	 ODOT  PDOT
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> I-5 SOUTH NEXT LEFT </div>	
Portable VMS (Optional)	N/A	
Ramp Closures	N/A	
Ramp Meters 	Evaluate I-84 EB Ramp Meters Evaluate I-205 SB Ramp Meters Evaluate ORE-217 SB Ramp Meters Evaluate Downstream Ramp Meters 	 ODOT
Traffic Signals 	Consider Incident Signal Timing Plan 14 for peak periods, Plan 15 when I-5 needs to be cleared at 24th Ave, Plan 17 for off-peak periods, or Plan 19 for heavy NB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT

Southbound I-5 Scenario 2C: Full SB Closure Between Terwilliger and Capitol Hwy

Field Device	Action	Responsible Agency																							
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT																							
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Southbound I-5 Scenario 2C: Full SB Closure Between Terwilliger and Capitol Hwy

Field Device	Action	Responsible Agency	
Arterial VMS	SB Barbur Blvd South of Bertha Blvd: <div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 10px auto;"> I-5 SOUTH DETOUR STRAIGHT </div>	 ODOT  PDOT	
	SB Barbur Blvd at 24th Ave: <div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 10px auto;"> I-5 SOUTH ↑ ↑ DETOUR </div>	 ODOT  PDOT	
Arterial CMS 	SB Barbur Blvd at Taylor's Ferry Rd: <div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 10px auto;"> I-5 SOUTH NEXT RIGHT </div>	 ODOT  PDOT	
	SB Barbur Blvd at 64th Ave: <div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 10px auto;"> I-5 SOUTH NEXT LEFT </div>	 ODOT  PDOT	
	EB US 30 at I-405 SB I-405 at Everett St SB I-405 at Park Ave SB Broadway at Jackson St SB Naito Pkwy at Clay St SB ORE 99E at ORE 224		 ODOT
Ramp Closures	SB I-405 On-Ramp SB I-5 from Marquam Bridge Naito Pkwy On-Ramp Hood Ave On-Ramp		 ODOT
Ramp Meters 	Deactivate 99W (64th Ave) Ramp Meter Deactivate Haines St Ramp Meter Evaluate I-84 EB Ramp Meters Evaluate I-205 SB Ramp Meters Evaluate ORE-217 SB Ramp Meters Evaluate Downstream Ramp Meters		 ODOT
Traffic Signals 	Activate Incident Signal Timing Plan 14 for peak periods, Plan 15 when I-5 needs to be cleared at 24th Ave, Plan 17 for off-peak periods, or Plan 19 for heavy NB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT	



LEGEND

Equipment

- Traffic Signal
- ⊕ CCTV
- ▲ Ramp Meter
- ✂ NB/SB System Detectors
- ✂ SB System Detectors
- SB VMS
- SB CMS
- ✱ Incident Location

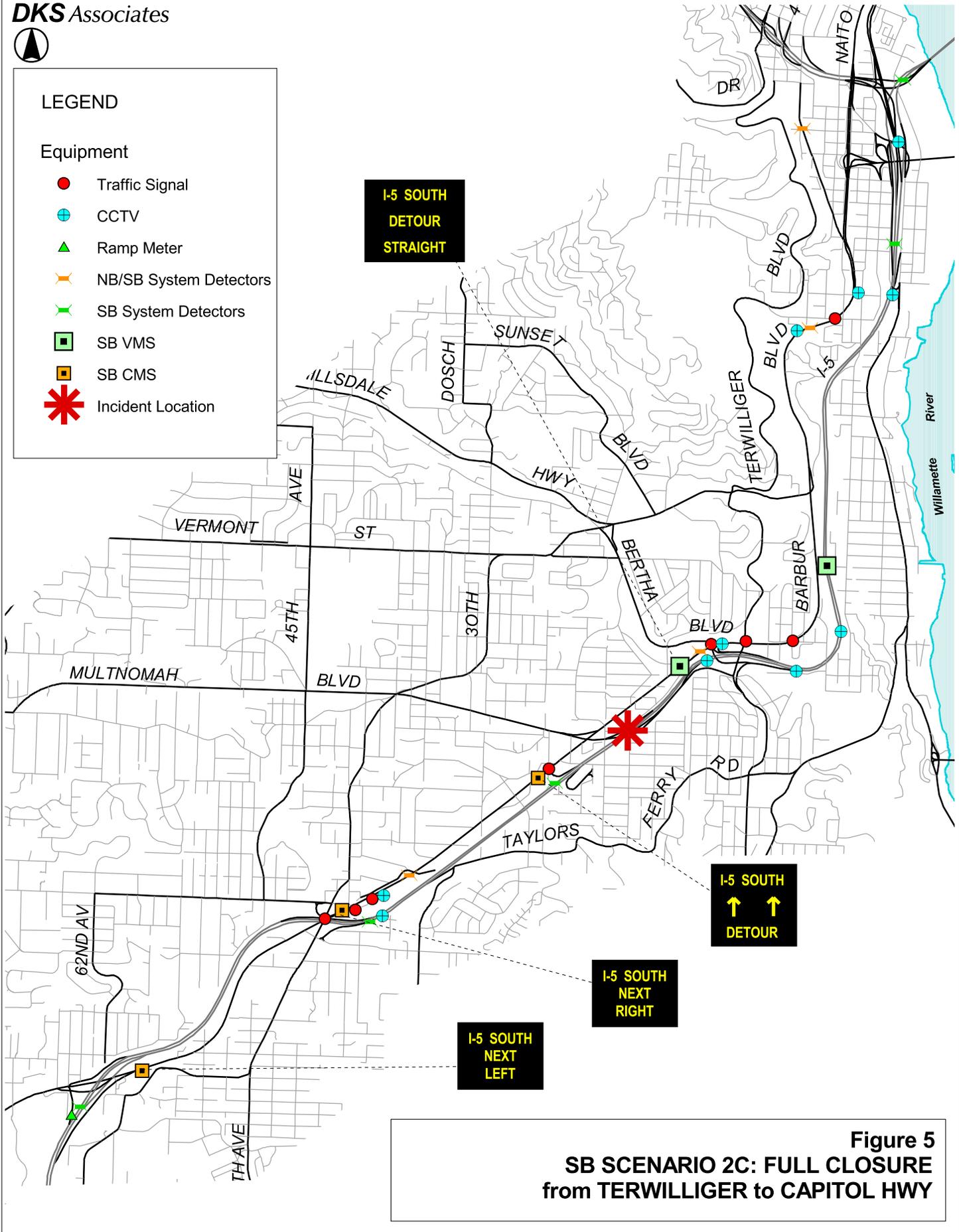


Figure 5
SB SCENARIO 2C: FULL CLOSURE
from TERWILLIGER to CAPITOL HWY

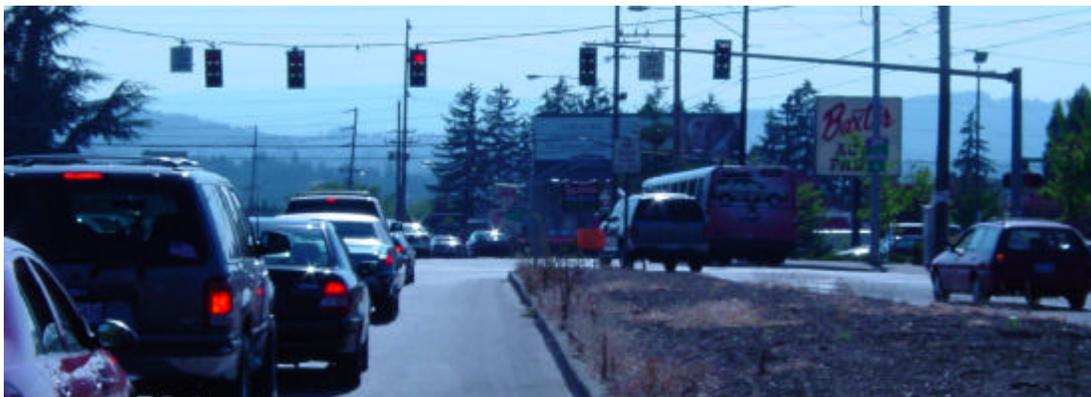
Southbound I-5 Segment 3: Incident Between Capitol Hwy and 99W (64th Ave)

Segment 3 Scenarios

Scenario	Southbound I-5 Status
3A	One-Lane Closure
3B	Two-Lane Closure
3C	Full Closure

Affected Travel Routes

Affected Route	Alternate Route (Depending on Scenario)
I-5 South Mainline	Barbur Blvd from Terwilliger to 64th Ave On-Ramp
I-5 SB Naito Pkwy On-Ramp	Barbur Blvd from Naito Pkwy to 64th Ave On-Ramp
I-5 SB Hood Ave On-Ramp	Barbur Blvd from Hood Ave/Hamilton St to 64th Ave On-Ramp
I-5 SB Capitol Hwy On-Ramp	Barbur Blvd from Capitol Hwy to 64th Ave On-Ramp
I-5 South Mainline North of I-205 in Washington	I-205 South
I-5 South Mainline North of I-84	I-84 East to I-205 South or I-405 to Barbur Blvd from Arthur St to 64th Ave On-Ramp
US 26 East Mainline West of Cedar Hills	ORE 217 South
I-405 South Mainline	6th Ave Exit to Barbur Blvd from Arthur St to 64th Ave On-Ramp
I-84 West Mainline	I-405 to Barbur Blvd from Arthur St to 64th Ave On-Ramp or ORE 99E South during a Full Closure



Southbound I-5 Scenario 3A: One-Lane SB Closure Between Capitol Hwy and 99W (64th Ave)

Field Device	Action	Responsible Agency
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT
Freeway VMS 	SB I-5 at Terwilliger Curves:	 ODOT
	SB I-5 at Lombard St:	 ODOT
	WB I-5 at 28th Ave:	 ODOT
Arterial VMS	SB Barbur Blvd South of Bertha Blvd:	 ODOT  PDOT
Arterial CMS 	SB Barbur Blvd South of Bertha Blvd:	 ODOT  PDOT
	SB Barbur Blvd at Taylor's Ferry Rd:	 ODOT  PDOT
	SB Barbur Blvd at 64th Ave:	 ODOT  PDOT
Portable VMS (Optional)	N/A	
Ramp Closures	N/A	
Ramp Meters	Deactivate 99W (64th Ave) Ramp Meter Evaluate Downstream Ramp Meters	 ODOT
Traffic Signals 	Consider Incident Signal Timing Plan 14 for peak periods, Plan 17 for off-peak periods, or Plan 19 for heavy NB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT

Southbound I-5 Scenario 3B: Two-Lane SB Closure Between Capitol Hwy and 99W (64th Ave)

Field Device	Action	Responsible Agency									
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT									
Freeway VMS 	<p style="background-color: #cccccc; margin: 0; padding: 2px;">SB I-5 at Terwilliger Curves:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px;"> ACCIDENT ON I-5 SB XX MILES AHEAD LEFT/RIGHT LANES CLOSED </td> <td style="width: 33%; padding: 5px;"> USE NEXT EXIT TO BARBUR BLVD SB FOLLOW SIGNS OR USE TERWILLIGER TO BARBUR BLVD TO I-5 </td> <td style="width: 33%;"></td> </tr> </table>	ACCIDENT ON I-5 SB XX MILES AHEAD LEFT/RIGHT LANES CLOSED	USE NEXT EXIT TO BARBUR BLVD SB FOLLOW SIGNS OR USE TERWILLIGER TO BARBUR BLVD TO I-5		 ODOT						
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	<p style="background-color: #cccccc; margin: 0; padding: 2px;">SB I-5 at I-205 (WSDOT):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px;"> ACCIDENT ON I-5 SB XX MILES AHEAD AT CAPITOL HWY </td> <td style="width: 33%; padding: 5px;"> 2 LANES CLOSED </td> <td style="width: 33%; padding: 5px;"> OR I-5 THRU TRAFFIC USE I-205 SOUTH </td> </tr> </table>	ACCIDENT ON I-5 SB XX MILES AHEAD AT CAPITOL HWY	2 LANES CLOSED	OR I-5 THRU TRAFFIC USE I-205 SOUTH	 ODOT  WSDOT						
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Southbound I-5 Scenario 3B: Two-Lane SB Closure Between Capitol Hwy and 99W (64th Ave)

Field Device	Action	Responsible Agency
Freeway VMS	EB US26 at the Zoo: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> ACCIDENT ON I-5 SB XX MILES AHEAD AT CAPITOL HWY </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> 2 LANES CLOSED </div> <div style="font-size: 2em;">OR</div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> USE ALTERNATIVE ROUTE </div> </div> <p style="text-align: center;">OR</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> ACCIDENT I-5 SB AT CAPITOL 2 LANES CLOSED </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> EXPECT DELAYS OR USE ALTERNATIVE ROUTE </div> </div>	ODOT
Arterial VMS	SB Barbur Blvd South of Bertha Blvd: <div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 80%;"> I-5 SOUTH DETOUR STRAIGHT </div>	ODOT PDOT
Arterial CMS	SB Barbur Blvd at 24th Ave: <div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 80%;"> I-5 SOUTH ↑ ↑ DETOUR </div>	ODOT PDOT
Arterial CMS 	SB Barbur Blvd at Taylor's Ferry Rd: <div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 80%;"> I-5 SOUTH ↑ ↑ DETOUR </div> SB Barbur Blvd at 64th Ave: <div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 80%;"> I-5 SOUTH NEXT LEFT </div>	ODOT PDOT ODOT PDOT
Portable VMS (Optional)	N/A	
Ramp Closures	N/A	
Ramp Meters 	Deactivate 99W (64th Ave) Ramp Meter Evaluate I-84 EB Ramp Meters Evaluate I-205 SB Ramp Meters Evaluate ORE-217 SB Ramp Meters Evaluate Downstream Ramp Meters	 ODOT
Traffic Signals 	Consider Incident Signal Timing Plan 14 for peak periods, Plan 17 for off-peak periods, or Plan 19 for heavy NB Barbur Blvd volumes. (See Table A1 in Appendix.)	PDOT

Southbound I-5 Scenario 3C: Full SB Closure Between Capitol Hwy and 99W (64th Ave)

Field Device	Action	Responsible Agency						
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT						
Freeway VMS 	<p style="background-color: #cccccc; padding: 2px;">SB I-5 at Terwilliger Curves:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;">I-5 SOUTH CLOSED XX MILES AHEAD</td> <td style="padding: 5px; text-align: center;">USE NEXT EXIT TO BARBUR BLVD SB FOLLOW SIGNS</td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 5px;">OR</td> </tr> <tr> <td colspan="2" style="padding: 5px; text-align: center;">ACCIDENT I-5 SB ALL LANES CLOSED</td> </tr> </table>	I-5 SOUTH CLOSED XX MILES AHEAD	USE NEXT EXIT TO BARBUR BLVD SB FOLLOW SIGNS	OR		ACCIDENT I-5 SB ALL LANES CLOSED		 ODOT
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OR								
ACCIDENT I-5 SB ALL LANES CLOSED								
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I-5 SOUTH CLOSED SOUTH OF TERWILLIGER BLVD	I-5 THRU TRAFFIC USE I-205 SB							
	<p style="background-color: #cccccc; padding: 2px;">WB I-84 at 28th Ave:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;">I-5 SOUTH CLOSED AT CAPITOL ALL LANES CLOSED</td> <td style="padding: 5px; text-align: center;">USE CITY CENTER EXIT TO ORE 99E TO I-205</td> </tr> </table>	I-5 SOUTH CLOSED AT CAPITOL ALL LANES CLOSED	USE CITY CENTER EXIT TO ORE 99E TO I-205	 ODOT				
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I-5 SB TRAFFIC USE ORE 217 TO I-5								

Southbound I-5 Scenario 3C: Full SB Closure Between Capitol Hwy and 99W (64th Ave)

Field Device	Action	Responsible Agency
Arterial VMS	SB Barbur Blvd South of Bertha Blvd: <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> I-5 SOUTH DETOUR STRAIGHT </div>	 ODOT  PDOT
Arterial CMS 	SB Barbur Blvd at 24th Ave: <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> I-5 SOUTH ↑ ↑ DETOUR </div>	 ODOT  PDOT
	SB Barbur Blvd at Taylor's Ferry Rd: <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> I-5 SOUTH ↑ ↑ DETOUR </div>	 ODOT  PDOT
	SB Barbur Blvd at 64th Ave: <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> I-5 SOUTH NEXT LEFT </div>	 ODOT  PDOT
Portable VMS (Optional)	EB US 30 at I-405 SB I-405 at Everett St SB I-405 at Park Ave SB Broadway at Jackson St SB Naito Pkwy at Clay St SB ORE 99E at ORE 224 	 ODOT
Ramp Closures	SB I-405 On-Ramp SB I-5 from Marquam Bridge Naito Pkwy On-Ramp Hood Ave On-Ramp Capitol Hwy On-Ramp 	 ODOT
Ramp Meters 	Deactivate 99W (64th Ave) Ramp Meter Deactivate Haines St Ramp Meter Evaluate I-84 EB Ramp Meters Evaluate I-205 SB Ramp Meters Evaluate ORE-217 SB Ramp Meters Evaluate Downstream Ramp Meters 	 ODOT
Traffic Signals 	Activate Incident Signal Timing Plan 14 for peak periods, Plan 17 for off-peak periods, or Plan 19 for heavy NB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT



LEGEND

Equipment

- Traffic Signal
- CCTV
- Ramp Meter
- NB/SB System Detectors
- SB System Detectors
- SB VMS
- SB CMS
- Incident Location

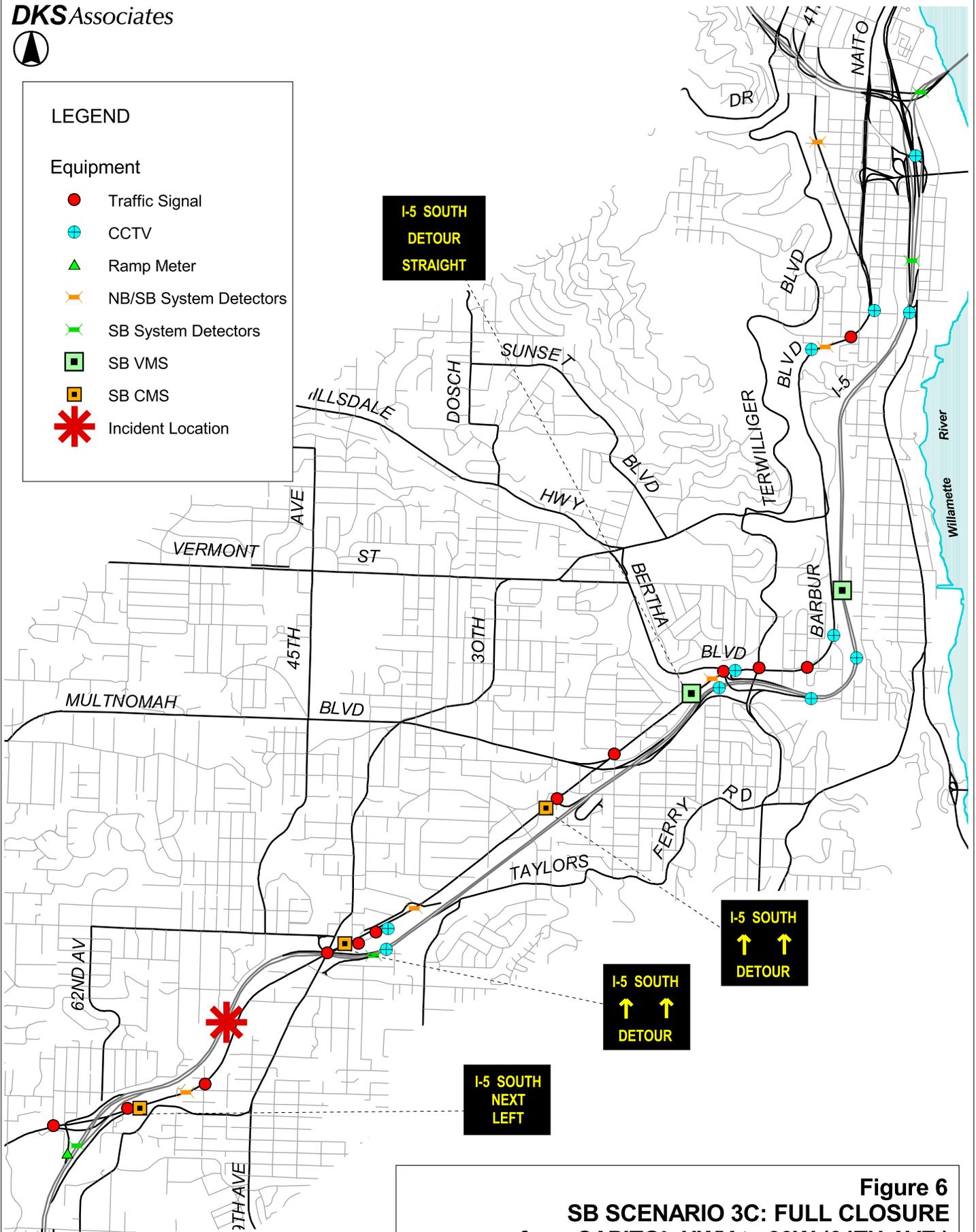


Figure 6
SB SCENARIO 3C: FULL CLOSURE
from CAPITOL HWY to 99W (64TH AVE.)

Northbound I-5 Segment 4: Incident Between 99W (64th Ave) and Capitol Hwy

Segment 4 Scenarios

Scenario	Northbound I-5 Status
4A	One-Lane Closure
4B	Two-Lane Closure
4C	Full Closure

Affected Travel Routes

Affected Route	Alternate Route (Depending on Scenario)
I-5 North Mainline	Barbur Blvd from 60th Ave to Capitol Hwy
I-5 NB 99W (64th Ave) On-Ramp	Barbur Blvd from 64th Ave to Capitol Hwy
I-5 North Mainline South of I-205	I-205 North to I-84 Westbound or I-5



Northbound I-5 Scenario 4A: One-Lane NB Closure Between 99W (64th Ave) and Capitol Hwy

Field Device	Action	Responsible Agency								
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT								
Freeway VMS 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">NB I-5 at I-205:</td> </tr> <tr> <td style="padding: 5px; text-align: center;">Display message per standard operating procedures</td> </tr> <tr style="background-color: #cccccc;"> <td style="padding: 5px;">NB I-5 at Carman:</td> </tr> <tr> <td style="padding: 5px; text-align: center;">Display message per standard operating procedures</td> </tr> </table>	NB I-5 at I-205:	Display message per standard operating procedures	NB I-5 at Carman:	Display message per standard operating procedures	 ODOT  ODOT				
NB I-5 at I-205:										
Display message per standard operating procedures										
NB I-5 at Carman:										
Display message per standard operating procedures										
Arterial VMS	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <td colspan="2" style="padding: 5px;">NB Barbur Blvd South of Capitol Hwy:</td> </tr> <tr> <td style="padding: 5px; text-align: center; width: 50%;"> I-5 NORTH OPEN AT CAPITOL HWY </td> <td style="padding: 5px; text-align: center; width: 50%;"> USE NEXT RIGHT </td> </tr> </table>	NB Barbur Blvd South of Capitol Hwy:		I-5 NORTH OPEN AT CAPITOL HWY	USE NEXT RIGHT	 ODOT  PDOT				
NB Barbur Blvd South of Capitol Hwy:										
I-5 NORTH OPEN AT CAPITOL HWY	USE NEXT RIGHT									
Arterial CMS 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <td colspan="2" style="padding: 5px;">NB Barbur Blvd at Spring Garden St:</td> </tr> <tr> <td style="padding: 5px; width: 50%;"></td> <td style="padding: 5px; text-align: center; width: 50%;"> I-5 NORTH NEXT RIGHT </td> </tr> <tr style="background-color: #cccccc;"> <td colspan="2" style="padding: 5px;">NB Barbur Blvd at Bertha Blvd:</td> </tr> <tr> <td style="padding: 5px; width: 50%;"></td> <td style="padding: 5px; text-align: center; width: 50%;"> I-5 NORTH NEXT RIGHT </td> </tr> </table>	NB Barbur Blvd at Spring Garden St:			I-5 NORTH NEXT RIGHT	NB Barbur Blvd at Bertha Blvd:			I-5 NORTH NEXT RIGHT	 ODOT  PDOT  ODOT  PDOT
NB Barbur Blvd at Spring Garden St:										
	I-5 NORTH NEXT RIGHT									
NB Barbur Blvd at Bertha Blvd:										
	I-5 NORTH NEXT RIGHT									
Portable VMS (Optional)	N/A									
Ramp Closures	N/A									
Ramp Meters	Evaluate Downstream Ramp Meters	 ODOT								
Traffic Signals 	Consider Incident Signal Timing Plan 12 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT								

Northbound I-5 Scenario 4B: Two-Lane NB Closure Between 99W (64th Ave) and Capitol Hwy

Field Device	Action	Responsible Agency
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT
Freeway VMS 	NB I-5 at I-205:	 ODOT
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> ACCIDENT ON I-5 NB XX MILES AHEAD NORTH OF ORE 217 </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> 2 LANES CLOSED </div> <div style="font-size: 2em;">OR</div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> I-5 THRU TRAFFIC USE I-205 OR ORE 217 </div> </div>	
	NB I-5 at Carman:	 ODOT
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> ACCIDENT ON I-5 NB XX MILES AHEAD LEFT/RIGHT LANES CLOSED </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> USE ORE 217 OR BARBUR BLVD </div> </div>	
Arterial VMS	NB Barbur Blvd South of Capitol Hwy:	 ODOT  PDOT
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> I-5 NORTH OPEN AT CAPITOL HWY </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> USE NEXT RIGHT </div> </div>	
Arterial CMS 	NB Barbur Blvd at Spring Garden St:	 ODOT  PDOT
	<div style="border: 1px solid black; padding: 5px; text-align: center; width: 200px; margin: auto;"> I-5 NORTH NEXT RIGHT </div>	
	NB Barbur Blvd at Bertha Blvd:	 ODOT  PDOT
	<div style="border: 1px solid black; padding: 5px; text-align: center; width: 200px; margin: auto;"> I-5 NORTH NEXT RIGHT </div>	
Portable VMS (Optional)	N/A	
Ramp Closures	N/A	
Ramp Meters 	Evaluate I-205 NB Ramp Meters Evaluate ORE 217 NB Ramp Meters Evaluate US 26 EB Ramp Meters Evaluate Downstream Ramp Meters	  ODOT
Traffic Signals 	Consider Incident Signal Timing Plan 12 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT

Northbound I-5 Scenario 4C: Full NB Closure Between 99W (64th Ave) and Capitol Hwy

Field Device	Action	Responsible Agency				
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT				
Freeway VMS 	<p style="background-color: #cccccc; padding: 2px;">NB I-5 at I-205:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%; padding: 5px;">I-5 NORTH CLOSED XX MILES AHEAD AT ORE 99W</td> <td style="width: 50%; padding: 5px;">I-5 THRU TRAFFIC USE I-205</td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">NB I-5 at Carman:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%; padding: 5px;">I-5 NORTH CLOSED XX MILES AHEAD AT ORE 99W</td> <td style="width: 50%; padding: 5px;">USE ORE 217 OR ORE 99W EXITS</td> </tr> </table>	I-5 NORTH CLOSED XX MILES AHEAD AT ORE 99W	I-5 THRU TRAFFIC USE I-205	I-5 NORTH CLOSED XX MILES AHEAD AT ORE 99W	USE ORE 217 OR ORE 99W EXITS	 ODOT  ODOT
I-5 NORTH CLOSED XX MILES AHEAD AT ORE 99W	I-5 THRU TRAFFIC USE I-205					
I-5 NORTH CLOSED XX MILES AHEAD AT ORE 99W	USE ORE 217 OR ORE 99W EXITS					
Arterial VMS	<p style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd South of Capitol Hwy:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%; padding: 5px;">I-5 NORTH OPEN AT CAPITOL HWY</td> <td style="width: 50%; padding: 5px;">USE NEXT RIGHT</td> </tr> </table>	I-5 NORTH OPEN AT CAPITOL HWY	USE NEXT RIGHT	 ODOT  PDOT		
I-5 NORTH OPEN AT CAPITOL HWY	USE NEXT RIGHT					
Arterial CMS 	<p style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd at Spring Garden St:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="padding: 5px;">I-5 NORTH NEXT RIGHT</td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd at Bertha Blvd:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="padding: 5px;">I-5 NORTH NEXT RIGHT</td> </tr> </table>	I-5 NORTH NEXT RIGHT	I-5 NORTH NEXT RIGHT	 ODOT  PDOT  ODOT  PDOT		
I-5 NORTH NEXT RIGHT						
I-5 NORTH NEXT RIGHT						
Portable VMS (Optional)	N/A					
Ramp Closures	99W (64th Ave) On-Ramp	 ODOT				
Ramp Meters 	Deactivate Capitol Hwy/Huber St Ramp Meter Deactivate Spring Garden St Ramp Meter Deactivate Bertha Blvd/Terwilliger Blvd Ramp Meter Evaluate I-205 NB Ramp Meters Evaluate Hwy ORE NB Ramp Meters Evaluate US 26 EB Ramp Meters Evaluate Downstream Ramp Meters 	 ODOT				
Traffic Signals 	Activate Incident Signal Timing Plan 12 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT				



LEGEND

Equipment

- Traffic Signal
- ⊕ CCTV
- ▲ Ramp Meter
- ✂ NB/SB System Detectors
- ✂ NB System Detectors
- NB VMS
- NB CMS
- ✳ Incident Location

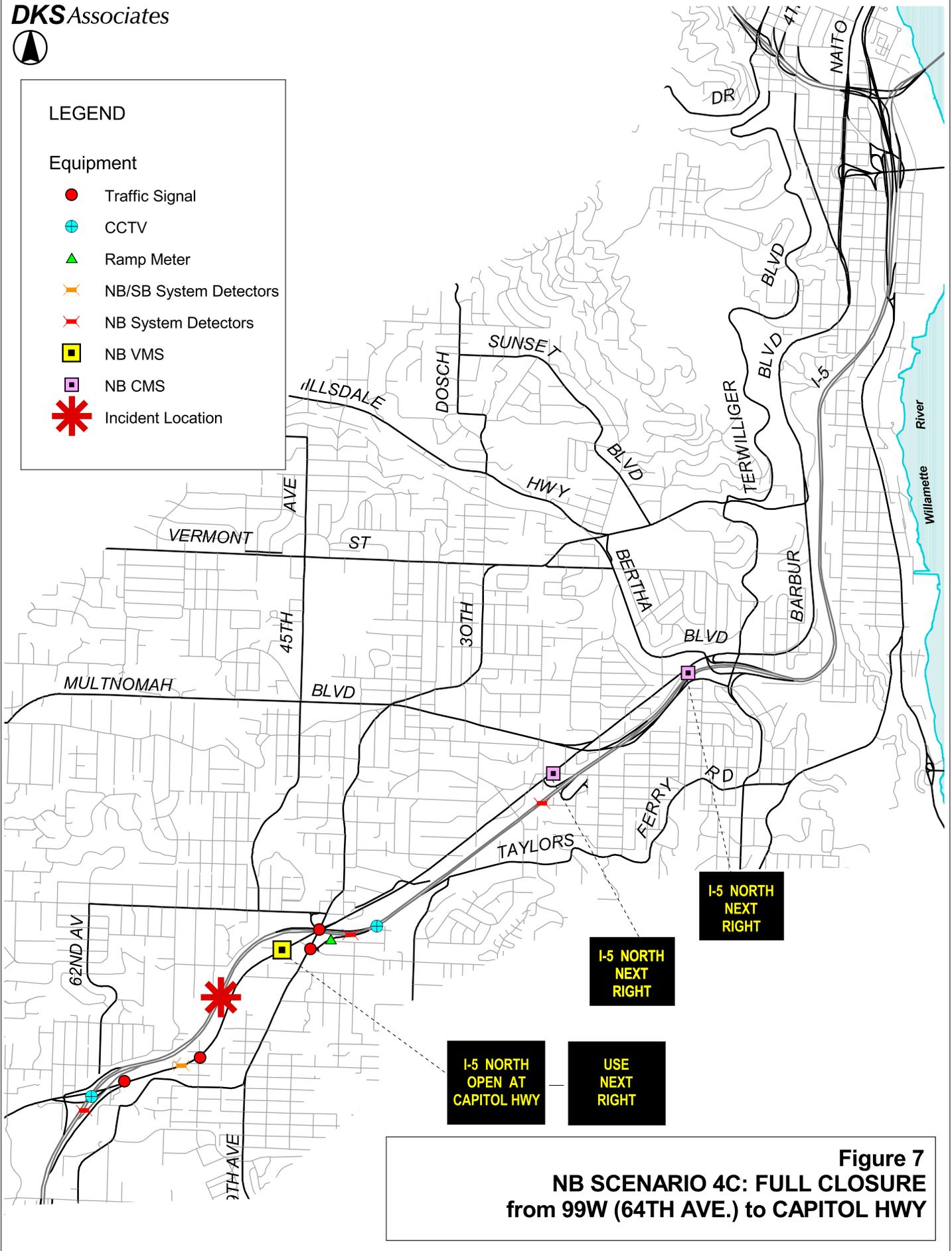


Figure 7
NB SCENARIO 4C: FULL CLOSURE
from 99W (64TH AVE.) to CAPITOL HWY

Northbound I-5 Segment 5: Incident Between Capitol Hwy and Spring Garden

Segment 5 Scenarios

Scenario	Northbound I-5 Status
5A	One-Lane Closure
5B	Two-Lane Closure
5C	Full Closure

Affected Travel Routes

Affected Route	Alternate Route (Depending on Scenario)
I-5 North Mainline	Barbur Blvd from 60th Ave to Spring Garden
I-5 NB Capitol Hwy/Huber St On-Ramp	Barbur Blvd from Capitol Hwy to Spring Garden
I-5 North Mainline South of I-205	I-205 North to I-84 Westbound or I-5



Northbound I-5 Scenario 5A: One-Lane NB Closure Between Capitol Hwy and Spring Garder

Field Device	Action	Responsible Agency
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT
Freeway VMS 	NB I-5 at I-205: Display message per standard operating procedures	 ODOT
	NB I-5 at Carman: Display message per standard operating procedures	 ODOT
Arterial VMS	NB Barbur Blvd South of Capitol Hwy: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> ACCIDENT ON I-5 NB AT CAPITOL HWY </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> I-5 NORTH DETOUR STRAIGHT </div> </div>	 ODOT  PDOT
Arterial CMS 	NB Barbur Blvd at Spring Garden St: <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;"> I-5 NORTH NEXT RIGHT </div>	 ODOT  PDOT
	NB Barbur Blvd at Bertha Blvd: <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;"> I-5 NORTH NEXT RIGHT </div>	 ODOT  PDOT
Portable VMS (Optional)	N/A	
Ramp Closures	N/A	
Ramp Meters	Evaluate Capitol Hwy/Huber St Ramp Meter Evaluate Downstream Ramp Meters	 ODOT
Traffic Signals 	Consider Incident Signal Timing Plan 12 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT

Northbound I-5 Scenario 5B: Two-Lane NB Closure Between Capitol Hwy and Spring Garden

Field Device	Action	Responsible Agency						
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT						
Freeway VMS 	<div style="background-color: #cccccc; padding: 2px;">NB I-5 at I-205:</div> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 40%;"> ACCIDENT ON I-5 NB XX MILES AHEAD NORTH OF ORE 217 </td> <td style="width: 10%;">2 LANES CLOSED</td> <td style="width: 10%;">OR</td> <td style="width: 40%;"> I-5 THRU TRAFFIC USE I-205 OR ORE 217 </td> </tr> </table> <div style="background-color: #cccccc; padding: 2px;">NB I-5 at Carman:</div> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%;"> ACCIDENT ON I-5 NB XX MILES AHEAD LEFT/RIGHT LANES CLOSED </td> <td style="width: 50%;"> USE ORE 217 OR BARBUR BLVD </td> </tr> </table>	ACCIDENT ON I-5 NB XX MILES AHEAD NORTH OF ORE 217	2 LANES CLOSED	OR	I-5 THRU TRAFFIC USE I-205 OR ORE 217	ACCIDENT ON I-5 NB XX MILES AHEAD LEFT/RIGHT LANES CLOSED	USE ORE 217 OR BARBUR BLVD	 ODOT  ODOT
ACCIDENT ON I-5 NB XX MILES AHEAD NORTH OF ORE 217	2 LANES CLOSED	OR	I-5 THRU TRAFFIC USE I-205 OR ORE 217					
ACCIDENT ON I-5 NB XX MILES AHEAD LEFT/RIGHT LANES CLOSED	USE ORE 217 OR BARBUR BLVD							
Arterial VMS	<div style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd South of Capitol Hwy:</div> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 45%;"> ACCIDENT ON I-5 NB AT CAPITOL HWY </td> <td style="width: 55%;"> I-5 NORTH DETOUR STRAIGHT </td> </tr> </table>	ACCIDENT ON I-5 NB AT CAPITOL HWY	I-5 NORTH DETOUR STRAIGHT	 ODOT  PDOT				
ACCIDENT ON I-5 NB AT CAPITOL HWY	I-5 NORTH DETOUR STRAIGHT							
Arterial CMS 	<div style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd at Spring Garden St:</div> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 60%;"> I-5 NORTH NEXT RIGHT </td> </tr> </table> <div style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd at Bertha Blvd:</div> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 60%;"> I-5 NORTH NEXT RIGHT </td> </tr> </table>	I-5 NORTH NEXT RIGHT	I-5 NORTH NEXT RIGHT	 ODOT  PDOT  ODOT  PDOT				
I-5 NORTH NEXT RIGHT								
I-5 NORTH NEXT RIGHT								
Portable VMS (Optional)	N/A							
Ramp Closures	N/A							
Ramp Meters 	Deactivate Spring Garden Ramp Meter Evaluate Capitol Hwy/Huber St Ramp Meter Evaluate I-205 NB Ramp Meters Evaluate ORE 217 NB Ramp Meters Evaluate US 26 EB Ramp Meters Evaluate Downstream Ramp Meters	  ODOT						
Traffic Signals 	Consider Incident Signal Timing Plan 12 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT						

Northbound I-5 Scenario 5C: Full NB Closure Between Capitol Hwy and Spring Garden

Field Device	Action	Responsible Agency
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT
Freeway VMS 	<div style="background-color: #cccccc; padding: 2px;">NB I-5 at I-205:</div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">I-5 NORTH CLOSED XX MILES AHEAD AT CAPITOL</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">I-5 THRU TRAFFIC USE I-205</div> </div> <div style="background-color: #cccccc; padding: 2px; margin-top: 5px;">NB I-5 at Carman:</div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">I-5 NORTH CLOSED XX MILES AHEAD AT CAPITOL</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">USE ORE 217 OR ORE 99W EXITS</div> </div>	 ODOT  ODOT
Arterial VMS	<div style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd South of Capitol Hwy:</div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">I-5 NORTH CLOSED AT CAPITOL HWY</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">I-5 NORTH DETOUR STRAIGHT</div> </div>	 ODOT  PDOT
Arterial CMS 	<div style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd at Spring Garden St:</div> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 5px auto; width: 60%;">I-5 NORTH NEXT RIGHT</div> <div style="background-color: #cccccc; padding: 2px; margin-top: 5px;">NB Barbur Blvd at Bertha Blvd:</div> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 5px auto; width: 60%;">I-5 NORTH NEXT RIGHT</div>	 ODOT  PDOT  ODOT  PDOT
Portable VMS (Optional)	N/A	
Ramp Closures	99W (64th Ave) On-Ramp Capitol Hwy/Huber St On-Ramp 	 ODOT
Ramp Meters 	Deactivate Spring Garden Ramp Meter Evaluate I-205 NB Ramp Meters Evaluate ORE 217 NB Ramp Meters Evaluate US 26 EB Ramp Meters Evaluate Downstream Ramp Meters 	 ODOT
Traffic Signals 	Activate Incident Signal Timing Plan 12 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT



LEGEND

Equipment

- Traffic Signal
- ⊕ CCTV
- ▲ Ramp Meter
- ✂ NB/SB System Detectors
- ✂ NB System Detectors
- NB VMS
- NB CMS
- ✱ Incident Location

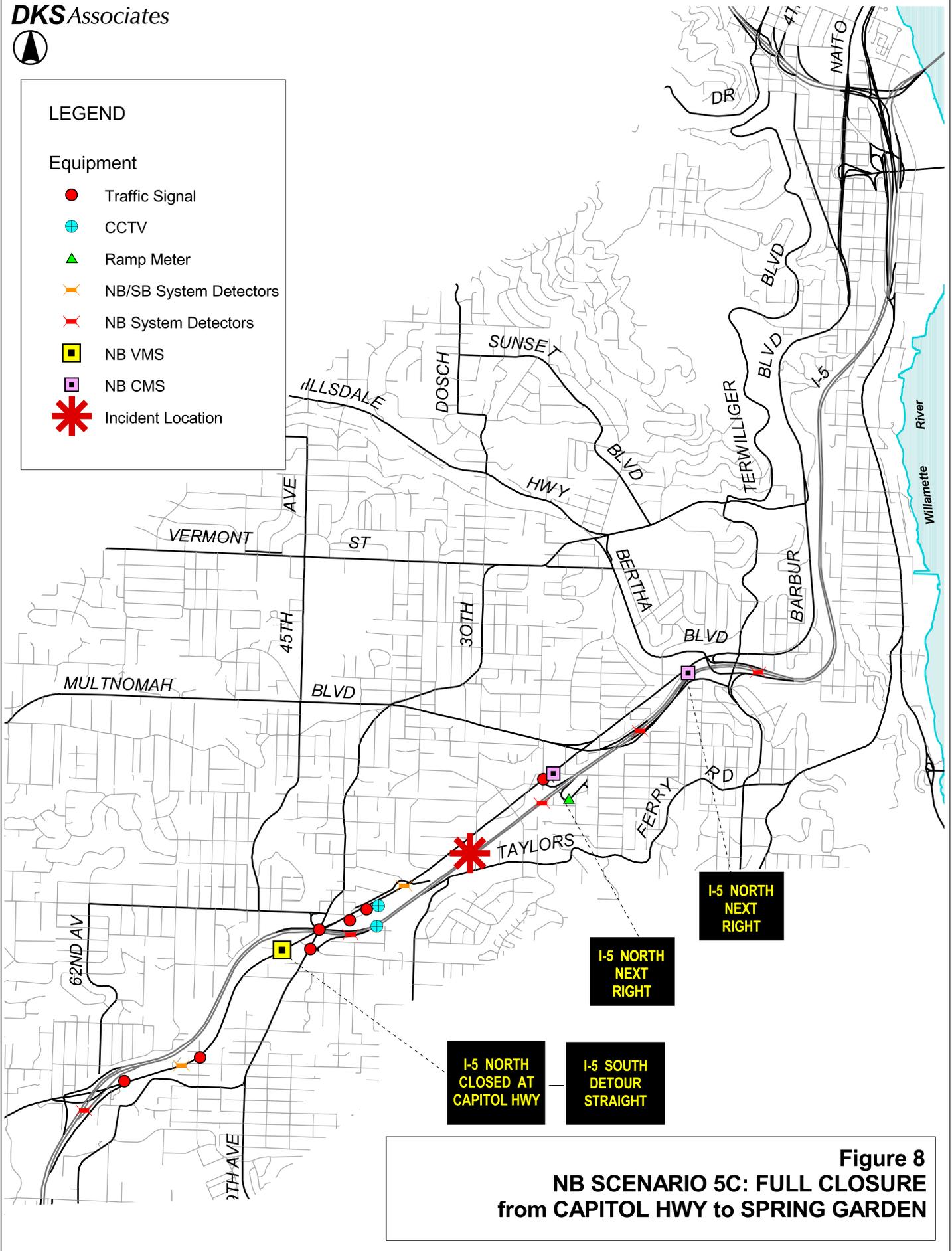


Figure 8
NB SCENARIO 5C: FULL CLOSURE
from CAPITOL HWY to SPRING GARDEN

Northbound I-5 Segment 6: Incident Between Spring Garden and Terwilliger

Segment 6 Scenarios

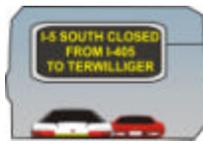
Scenario	Northbound I-5 Status
6A	One-Lane Closure
6B	Two-Lane Closure
6C	Full Closure

Affected Travel Routes

Affected Route	Alternate Route (Depending on Scenario)
I-5 North Mainline	Barbur Blvd from 60th Ave to Terwilliger
I-5 NB Spring Garden On-Ramp	Barbur Blvd from Spring Garden St to Terwilliger
I-5 North Mainline South of I-205	I-205 North to I-84 Westbound or I-5



Northbound I-5 Scenario 6A: One-Lane NB Closure Between Spring Garden and Terwilliger

Field Device	Action	Responsible Agency
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT 
Freeway VMS 	NB I-5 at I-205: Display message per standard operating procedures NB I-5 at Carman: Display message per standard operating procedures	 ODOT  ODOT
Arterial VMS	NB Barbur Blvd South of Capitol Hwy: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> ACCIDENT ON I-5 NB AT CAPITOL HWY </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> I-5 NORTH DETOUR STRAIGHT </div> </div>	 ODOT  PDOT
Arterial CMS 	NB Barbur Blvd at Spring Garden St: <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;"> I-5 NORTH ↑ ↑ DETOUR </div> NB Barbur Blvd at Bertha Blvd: <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto; width: 150px;"> I-5 NORTH NEXT RIGHT </div>	 ODOT  PDOT  ODOT  PDOT
Portable VMS (Optional)	N/A	
Ramp Closures	N/A	
Ramp Meters	Evaluate Multnomah Blvd Ramp Meter Evaluate Downstream Ramp Meters	 ODOT
Traffic Signals 	Consider Incident Signal Timing Plan 11 or 12 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT

Northbound I-5 Scenario 6B: Two-Lane NB Closure Between Spring Garden and Terwilliger

Field Device	Action	Responsible Agency						
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT						
Freeway VMS 	<p style="background-color: #cccccc; padding: 2px;">NB I-5 at I-205:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> ACCIDENT ON I-5 NB XX MILES AHEAD NORTH OF ORE 217 </td> <td style="padding: 5px; text-align: center;"> 2 LANES CLOSED </td> <td style="padding: 5px; text-align: center;"> OR </td> <td style="padding: 5px; text-align: center;"> I-5 THRU TRAFFIC USE I-205 OR ORE 217 </td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">NB I-5 at Carman:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> ACCIDENT ON I-5 NB XX MILES AHEAD LEFT/RIGHT LANES CLOSED </td> <td style="padding: 5px; text-align: center;"> USE ORE 217 OR ORE 99W EXITS </td> </tr> </table>	ACCIDENT ON I-5 NB XX MILES AHEAD NORTH OF ORE 217	2 LANES CLOSED	OR	I-5 THRU TRAFFIC USE I-205 OR ORE 217	ACCIDENT ON I-5 NB XX MILES AHEAD LEFT/RIGHT LANES CLOSED	USE ORE 217 OR ORE 99W EXITS	 ODOT  ODOT
ACCIDENT ON I-5 NB XX MILES AHEAD NORTH OF ORE 217	2 LANES CLOSED	OR	I-5 THRU TRAFFIC USE I-205 OR ORE 217					
ACCIDENT ON I-5 NB XX MILES AHEAD LEFT/RIGHT LANES CLOSED	USE ORE 217 OR ORE 99W EXITS							
Arterial VMS	<p style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd South of Capitol Hwy:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> ACCIDENT ON I-5 NB AT CAPITOL HWY </td> <td style="padding: 5px; text-align: center;"> I-5 NORTH DETOUR STRAIGHT </td> </tr> </table>	ACCIDENT ON I-5 NB AT CAPITOL HWY	I-5 NORTH DETOUR STRAIGHT	 ODOT  PDOT				
ACCIDENT ON I-5 NB AT CAPITOL HWY	I-5 NORTH DETOUR STRAIGHT							
Arterial CMS 	<p style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd at Spring Garden St:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 NORTH ↑ ↑ DETOUR </td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd at Bertha Blvd:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;"> I-5 NORTH NEXT RIGHT </td> </tr> </table>	I-5 NORTH ↑ ↑ DETOUR	I-5 NORTH NEXT RIGHT	 ODOT  PDOT  ODOT  PDOT				
I-5 NORTH ↑ ↑ DETOUR								
I-5 NORTH NEXT RIGHT								
Portable VMS (Optional)	N/A							
Ramp Closures	N/A							
Ramp Meters 	Deactivate Bertha Blvd/Terwilliger Blvd Ramp Meter Evaluate Multnomah Blvd Ramp Meter Evaluate I-205 NB Ramp Meters Evaluate ORE 217 NB Ramp Meters Evaluate US 26 EB Ramp Meters Evaluate Downstream Ramp Meters 	 ODOT						
Traffic Signals 	Consider Incident Signal Timing Plan 11 or 12 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT						

Northbound I-5 Scenario 6C: Full NB Closure Between Spring Garden and Terwilliger

Field Device	Action	Responsible Agency				
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT				
Freeway VMS 	<p style="background-color: #cccccc; padding: 2px;">NB I-5 at I-205:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%; padding: 5px;">I-5 NORTH CLOSED XX MILES AHEAD</td> <td style="width: 50%; padding: 5px;">I-5 THRU TRAFFIC USE I-205</td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">NB I-5 at Carman:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%; padding: 5px;">I-5 NORTH CLOSED XX MILES AHEAD</td> <td style="width: 50%; padding: 5px;">USE ORE 217 OR ORE 99W EXITS</td> </tr> </table>	I-5 NORTH CLOSED XX MILES AHEAD	I-5 THRU TRAFFIC USE I-205	I-5 NORTH CLOSED XX MILES AHEAD	USE ORE 217 OR ORE 99W EXITS	 ODOT  ODOT
I-5 NORTH CLOSED XX MILES AHEAD	I-5 THRU TRAFFIC USE I-205					
I-5 NORTH CLOSED XX MILES AHEAD	USE ORE 217 OR ORE 99W EXITS					
Arterial VMS	<p style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd South of Capitol Hwy:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%; padding: 5px;">I-5 NORTH CLOSED AT CAPITOL HWY</td> <td style="width: 50%; padding: 5px;">I-5 NORTH DETOUR STRAIGHT</td> </tr> </table>	I-5 NORTH CLOSED AT CAPITOL HWY	I-5 NORTH DETOUR STRAIGHT	 ODOT  PDOT		
I-5 NORTH CLOSED AT CAPITOL HWY	I-5 NORTH DETOUR STRAIGHT					
Arterial CMS 	<p style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd at Spring Garden St:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="padding: 5px;">I-5 NORTH ↑ ↑ DETOUR</td> </tr> </table> <p style="background-color: #cccccc; padding: 2px;">NB Barbur Blvd at Bertha Blvd:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="padding: 5px;">I-5 NORTH NEXT RIGHT</td> </tr> </table>	I-5 NORTH ↑ ↑ DETOUR	I-5 NORTH NEXT RIGHT	 ODOT  PDOT  ODOT  PDOT		
I-5 NORTH ↑ ↑ DETOUR						
I-5 NORTH NEXT RIGHT						
Portable VMS (Optional)	N/A					
Ramp Closures	99W (64th Ave) On-Ramp Capitol Hwy/Huber St On-Ramp Spring Garden St On-Ramp Multnomah Blvd On-Ramp (depending on incident location) 	 ODOT				
Ramp Meters 	Deactivate Bertha Blvd/Terwilliger Blvd Ramp Meter Evaluate I-205 NB Ramp Meters Evaluate ORE 217 NB Ramp Meters Evaluate US 26 EB Ramp Meters Evaluate Downstream Ramp Meters 	 ODOT				
Traffic Signals 	Activate Incident Signal Timing Plan 11 or 12 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB Barbur Blvd volumes. (See Table A1 in Appendix.)	 PDOT				



LEGEND

Equipment

- Traffic Signal
- CCTV
- Ramp Meter
- NB/SB System Detectors
- NB System Detectors
- NB VMS
- NB CMS
- Incident Location

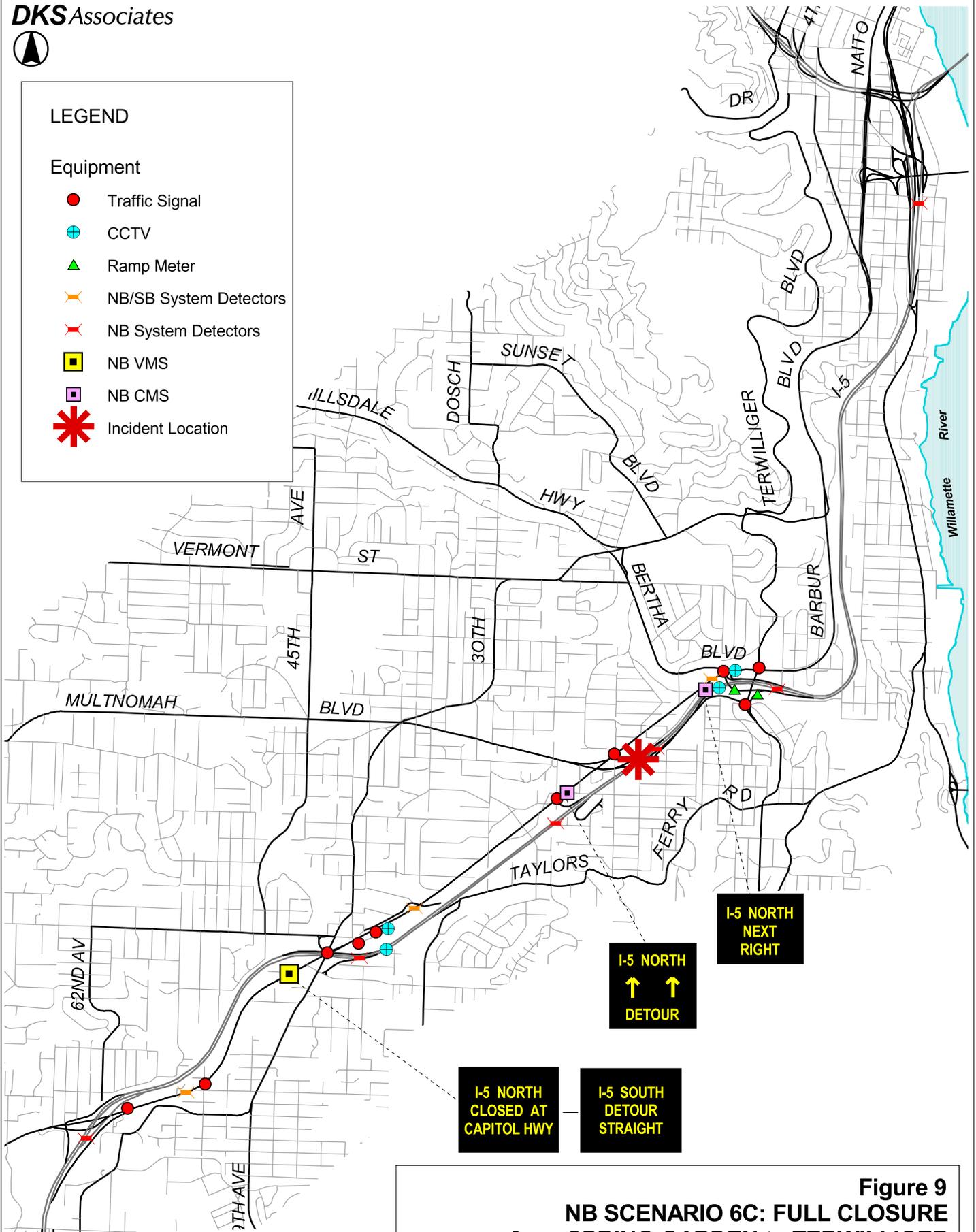


Figure 9
NB SCENARIO 6C: FULL CLOSURE
from SPRING GARDEN to TERWILLIGER

Northbound I-5 Segment 7: Incident Between Terwilliger and I-405

Segment 7 Scenarios

Scenario	Northbound I-5 Status
7A	One-Lane Closure
7B	Two-Lane Closure
7C	Full Closure

Affected Travel Routes

Affected Route	Alternate Route (Depending on Scenario)
I-5 North Mainline	Barbur Blvd from Bertha/Terwilliger to Downtown
I-5 NB Bertha Blvd On-Ramp	Barbur Blvd from Bertha/Terwilliger to Downtown
I-5 NB Terwilliger Blvd On-Ramp	Barbur Blvd from Bertha/Terwilliger to Downtown
I-5 North Mainline South of I-205	I-205 North to I-84 Westbound or I-5



Northbound I-5 Scenario 7A: One-Lane NB Closure Between Terwilliger and I-405

Field Device	Action	Responsible Agency
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT
Freeway VMS 	NB I-5 at I-205: Display message per standard operating procedures	 ODOT
	NB I-5 at Carman: Display message per standard operating procedures	 ODOT
Arterial VMS	NB Barbur Blvd South of Capitol Hwy: <div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;"> I-5 NORTH DETOUR STRAIGHT </div>	 ODOT  PDOT
Arterial CMS 	NB Barbur Blvd at Spring Garden St: <div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;"> I-5 NORTH ↑ ↑ DETOUR </div>	 ODOT  PDOT
	NB Barbur Blvd at Bertha Blvd: <div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;"> I-5 NORTH ↑ ↑ DETOUR </div>	 ODOT  PDOT
	NB Barbur Blvd at Naito Pkwy: <div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;"> I-5 NORTH NEXT RIGHT </div>	 ODOT  PDOT
Portable VMS (Optional)	N/A	
Ramp Closures	N/A	
Ramp Meters	Evaluate Downstream Ramp Meters	 ODOT
Traffic Signals 	Consider Incident Signal Timing Plan 10 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB volumes. (See Table A1 in Appendix.)	 PDOT

Northbound I-5 Scenario 7B: Two-Lane NB Closure Between Terwilliger and I-405

Field Device	Action	Responsible Agency	
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT	
Freeway VMS 	NB I-5 at I-205:	 ODOT	
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> ACCIDENT ON I-5 NB NORTH OF TERWILLIGER EXPECT DELAYS </div> <div style="text-align: center;"> 2 LANES CLOSED </div> <div style="font-size: 2em;">OR</div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> I-5 THRU TRAFFIC USE I-205 OR ORE 217 </div> </div>		
	NB I-5 at Carman:	 ODOT	
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> ACCIDENT ON I-5 NB XX MILES AHEAD LEFT/RIGHT LANES CLOSED </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> USE ORE 217 OR BARBUR BLVD </div> </div>		
Arterial VMS	NB Barbur Blvd South of Capitol Hwy:	 ODOT  PDOT	
	I-5 NORTH DETOUR STRAIGHT		
Arterial CMS 	NB Barbur Blvd at Spring Garden St:	 ODOT  PDOT	
			I-5 NORTH ↑ ↑ DETOUR
	NB Barbur Blvd at Bertha Blvd:		
	I-5 NORTH ↑ ↑ DETOUR		
	NB Barbur Blvd at Naito Pkwy:	 ODOT  PDOT	
	I-5 NORTH NEXT RIGHT		
Portable VMS (Optional)	N/A		
Ramp Closures	N/A		
Ramp Meters 	Evaluate I-205 NB Ramp Meters Evaluate ORE 217 NB Ramp Meters Evaluate US 26 EB Ramp Meters Evaluate Downstream Ramp Meters	  ODOT	
Traffic Signals 	Consider Incident Signal Timing Plan 10 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB volumes. (See Table A1 in Appendix.)	 PDOT	

Northbound I-5 Scenario 7C: Full NB Closure Between Terwilliger and I-405

Field Device	Action	Responsible Agency				
CCTV 	Operator to check incident scene with CCTV Operator to check arterial flow on Barbur Blvd with CCTV	 ODOT  ODOT/PDOT				
Freeway VMS 	<p style="background-color: #cccccc; margin: 0; padding: 2px;">NB I-5 at I-205:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center; padding: 5px;"> I-5 NORTH CLOSED XX MILES AHEAD AT TERWILLIGER </td> <td style="width: 50%; text-align: center; padding: 5px;"> I-5 THRU TRAFFIC USE I-205 </td> </tr> </table> <p style="background-color: #cccccc; margin: 0; padding: 2px;">NB I-5 at Carman:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center; padding: 5px;"> I-5 NORTH CLOSED XX MILES AHEAD AT TERWILLIGER </td> <td style="width: 50%; text-align: center; padding: 5px;"> USE ORE 217 OR ORE 99W EXITS </td> </tr> </table>	I-5 NORTH CLOSED XX MILES AHEAD AT TERWILLIGER	I-5 THRU TRAFFIC USE I-205	I-5 NORTH CLOSED XX MILES AHEAD AT TERWILLIGER	USE ORE 217 OR ORE 99W EXITS	 ODOT  ODOT
I-5 NORTH CLOSED XX MILES AHEAD AT TERWILLIGER	I-5 THRU TRAFFIC USE I-205					
I-5 NORTH CLOSED XX MILES AHEAD AT TERWILLIGER	USE ORE 217 OR ORE 99W EXITS					
Arterial VMS	<p style="background-color: #cccccc; margin: 0; padding: 2px;">NB Barbur Blvd South of Capitol Hwy:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center; padding: 5px;"> I-5 NORTH CLOSED AT TERWILLIGER </td> <td style="width: 50%; text-align: center; padding: 5px;"> I-5 NORTH DETOUR STRAIGHT </td> </tr> </table>	I-5 NORTH CLOSED AT TERWILLIGER	I-5 NORTH DETOUR STRAIGHT	 ODOT  PDOT		
I-5 NORTH CLOSED AT TERWILLIGER	I-5 NORTH DETOUR STRAIGHT					
Arterial CMS 	<p style="background-color: #cccccc; margin: 0; padding: 2px;">NB Barbur Blvd at Spring Garden St:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 100%; text-align: center; padding: 5px;"> I-5 NORTH ↑ ↑ DETOUR </td> </tr> </table> <p style="background-color: #cccccc; margin: 0; padding: 2px;">NB Barbur Blvd at Bertha Blvd:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 100%; text-align: center; padding: 5px;"> I-5 NORTH ↑ ↑ DETOUR </td> </tr> </table> <p style="background-color: #cccccc; margin: 0; padding: 2px;">NB Barbur Blvd at Naito Pkwy:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 100%; text-align: center; padding: 5px;"> I-5 NORTH NEXT RIGHT </td> </tr> </table>	I-5 NORTH ↑ ↑ DETOUR	I-5 NORTH ↑ ↑ DETOUR	I-5 NORTH NEXT RIGHT	 ODOT  PDOT  ODOT  PDOT  ODOT  PDOT	
I-5 NORTH ↑ ↑ DETOUR						
I-5 NORTH ↑ ↑ DETOUR						
I-5 NORTH NEXT RIGHT						
Portable VMS (Optional)	N/A					
Ramp Closures	99W (64th Ave) On-Ramp Capitol Hwy/Huber St On-Ramp Spring Garden St On-Ramp Multnomah Blvd On-Ramp Bertha/Terwilliger On-Ramp (Ramp Entrances from East and West) 	 ODOT				

Northbound I-5 Scenario 7C: Full NB Closure Between Terwilliger and I-405

Field Device	Action	Responsible Agency
Ramp Meters 	Evaluate I-205 NB Ramp Meters Evaluate ORE 217 NB Ramp Meters Evaluate US 26 EB Ramp Meters Evaluate Downstream Ramp Meters 	 ODOT
Traffic Signals 	Activate Incident Signal Timing Plan 10 for peak periods, Plan 13 for off-peak periods, or Plan 18 for heavy SB volumes. (See Table A1 in Appendix.)	 PDOT



LEGEND

Equipment

- Traffic Signal
- ⊕ CCTV
- ▲ Ramp Meter
- ✂ NB/SB System Detectors
- ✂ NB System Detectors
- NB VMS
- NB CMS
- ✳ Incident Location

I-5 NORTH
NEXT
RIGHT

I-5 NORTH
↑ ↑
DETOUR

I-5 NORTH
↑ ↑
DETOUR

I-5 NORTH
CLOSED AT
TERWILLIGER

I-5 SOUTH
DETOUR
STRAIGHT

Figure 10
NB SCENARIO 7C: FULL CLOSURE
from TERWILLIGER to I-405

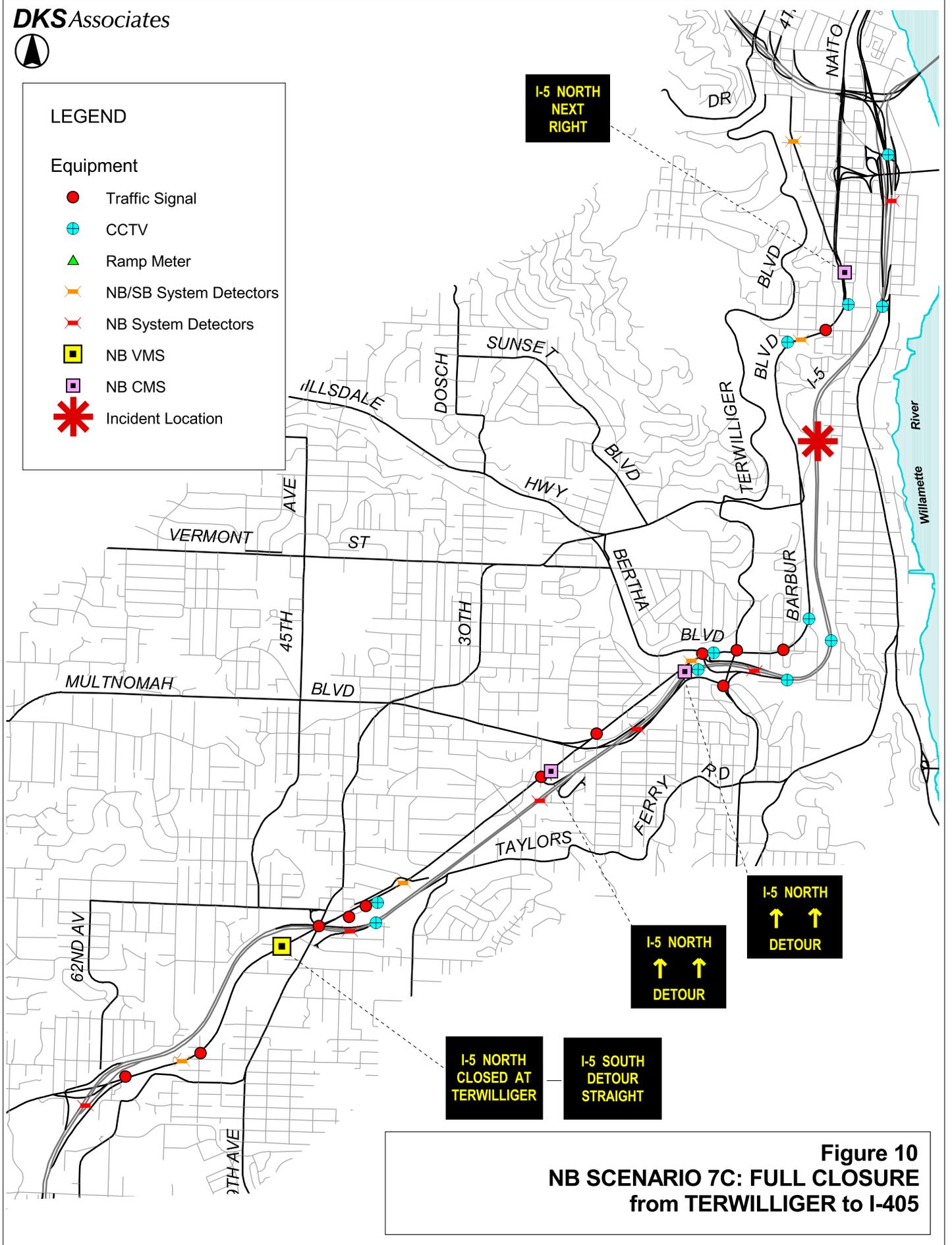


Table A1. Incident Signal Timing Plans for Barbur Boulevard Between Hamilton Street and 64th Avenue

Plan No.	Incident Location		Traffic Signals Affected	Cycle Length (sec)	Intent, Assumptions, and Signal Timing Notes	When to Use Plan
	Segment	Description				
Northbound Plans						
10	NB Segment 7	North of Terwilliger Curves (North of Bertha Blvd/Terwilliger Blvd On-Ramp Gore)	Plan 10: Barbur Blvd from 60 th Ave to Miles St, Capitol Hwy/Huber St Max II: Barbur Blvd/Hamilton St Free: Terwilliger Blvd/I-5 NB Off-Ramp	160	Intent <ul style="list-style-type: none"> Favor NB Progression from 60th Ave to Hamilton St Assumptions <ul style="list-style-type: none"> Assumes NB Bertha Blvd/Terwilliger Blvd On-Ramps are closed Traffic will get back to I-5 via Naito Pkwy Signal Timing Notes <ul style="list-style-type: none"> Designate I-5 NB Off-Ramp (phase 4) at 60th Ave as the coordinated phase 	Peak or Off-Peak Period Full NB Closure Two-Lane NB Closure
11	NB Segment 6	Terwilliger Curves (Between Terwilliger Blvd Off-Ramp and Bertha Blvd/Terwilliger Blvd On-Ramp Gore)	Plan 11: Barbur Blvd from 60 th Ave to Miles St, Capitol Hwy/Huber St, Terwilliger Blvd/I-5 NB Off-Ramp Max II: Barbur Blvd/Hamilton St	160	Intent <ul style="list-style-type: none"> Favor NB Progression from 60th Ave to Hamilton St Assumptions <ul style="list-style-type: none"> Assumes NB Bertha Blvd/Terwilliger Blvd On-Ramps are open Assumes NB Capitol Hwy/Huber St On-Ramp is closed Traffic will get back to I-5 via Bertha Blvd On-Ramp and Naito Pkwy Signal Timing Notes <ul style="list-style-type: none"> Designate I-5 NB Off-Ramp (phase 4) at 60th Ave as the coordinated phase Designate EB thru and left (phase 4) at I-5 NB Off-Ramp/Terwilliger Blvd as the coordinated phase Decrease NB thru (phase 4) at Barbur Blvd/Terwilliger Blvd as the coordinated phase for NB right turns onto Barbur Blvd 	Peak or Off-Peak Period Full NB Closure Two-Lane NB Closure
12	NB Segments 4, 5 and 6	Between 60 th Ave and South of Terwilliger Curves	Plan 10: Barbur Blvd from 60 th Ave to Miles St, Capitol Hwy/Huber St Max II: Barbur Blvd/Hamilton St Free: Terwilliger Blvd/I-5 NB Off-Ramp	160	Intent <ul style="list-style-type: none"> Favor NB Progression from 60th Ave to Hamilton St Assumptions <ul style="list-style-type: none"> Assumes NB Bertha Blvd/Terwilliger Blvd On-Ramps are open and NB Capitol Hwy On-Ramp is open Signal Timing Notes <ul style="list-style-type: none"> Designate I-5 NB Off-Ramp (phase 4) at 60th Ave as the coordinated phase 	Peak Period Full NB Closure Two-Lane NB Closure
13	NB Segments 4, 5 and 6	Between 60 th Ave and South of Terwilliger Curves	Plan 10: Barbur Blvd from 60 th Ave to Miles St, Capitol Hwy/Huber St Max II: Barbur Blvd/Hamilton St Free: Terwilliger Blvd/I-5 NB Off-Ramp	140	Intent <ul style="list-style-type: none"> Favor NB Progression from 60th Ave to Hamilton St Assumptions <ul style="list-style-type: none"> Assumes NB Bertha Blvd/Terwilliger Blvd On-Ramps are open and NB Capitol Hwy On-Ramp is open Signal Timing Notes <ul style="list-style-type: none"> Designate I-5 NB Off-Ramp (phase 4) at 60th Ave as the coordinated phase 	Off-Peak Period Full NB Closure Two-Lane NB Closure

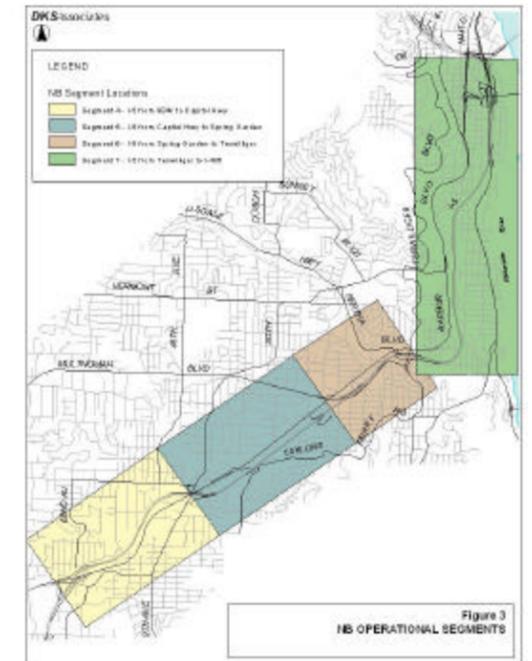


Table A1 (continued). Incident Signal Timing Plans for Barbur Boulevard Between Hamilton Street and 64th Avenue

Plan No.	Incident Location		Traffic Signals Affected	Cycle Length (sec)	Intent, Assumptions, and Signal Timing Notes	When to Use Plan
	Segment	Description				
Southbound Plans						
14	SB Segment 1	North of Terwilliger Blvd Off-Ramp	Plan 14: Barbur Blvd from Miles St to 64 th Ave, Capitol Hwy/Huber St Max II: Barbur Blvd/Hamilton St Free: Terwilliger Blvd/I-5 NB Off-Ramp	160	Intent <ul style="list-style-type: none"> Favor SB Progression from Hamilton St to 64th Ave Signal Timing Notes <ul style="list-style-type: none"> Watch the side street split (phases 4 and 8) at Barbur Blvd/Capitol Hwy closely because there may be an opportunity to reduce this split if I-5 is closed north of Capitol Hwy Designate SB left turn and thru (phase 5) at Barbur Blvd/64th Ave as the coordinated phases 	Peak Period Full SB Closure Two-Lane SB Closure
15	SB Segments 2 and 3	South of Terwilliger Off-Ramp or South of Capitol Hwy Off-Ramp	Plan 15: Barbur Blvd from Miles St to 64 th Ave, Capitol Hwy/Huber St Free: Terwilliger Blvd/I-5 NB Off-Ramp	160	Intent <ul style="list-style-type: none"> Favor SB Progression from south of Bertha Blvd to 64th Ave Plan 15 is identical to Plan 14 from Capitol Hill to 64th Ave, except for an increased split for the I-5 SB Off-Ramp (phase 4) at Bertha Blvd and changes to the offsets at Terwilliger Blvd and Bertha Blvd to progress the I-5 SB Off-Ramp (phase 4) at Bertha Blvd instead of the westbound thru on Barbur Blvd Assumptions <ul style="list-style-type: none"> Assumes I-5 SB Off-Ramp at Bertha Blvd is open Signal Timing Notes <ul style="list-style-type: none"> Designate the I-5 SB Off-Ramp (phase 4) at Bertha Blvd as the coordinated phase Watch the side street split (phases 4 and 8) at Barbur Blvd/Capitol Hwy closely because there may be an opportunity to reduce this split if I-5 is closed north of Capitol Hwy Designate SB left turn and thru (phase 5) at Barbur Blvd/64th Ave as the coordinated phases 	Peak or Off-Peak Period Full SB Closure Two-Lane SB Closure
16	SB Segments 2 and 3	South of 24 th Ave Off-Ramp	Plan 16: Barbur Blvd from 24 th Ave to 64 th Ave, Capitol Hwy/Huber St	160	Intent <ul style="list-style-type: none"> Favor SB Progression from 24th Ave to 64th Ave to clear SB I-5 between 24th Ave and Bertha Blvd Plan 16 is identical to Plan 14 between the Transit Center and 64th Ave, except the I-5 SB Off-Ramp at 24th Ave is designated as the coordinated phase and the offset at this intersection is adjusted to progress the off-ramp Signal Timing Notes <ul style="list-style-type: none"> Designate the I-5 SB Off-Ramp (phase 4) at 24th Ave as the coordinated phase Watch the side street split (phases 4 and 8) at Barbur Blvd/Capitol Hwy closely because there may be an opportunity to reduce this split if I-5 is closed north of Capitol Hwy Designate SB left turn and thru (phase 5) at Barbur Blvd/64th Ave as the coordinated phases 	Briefly Before Using Plan 15 Full SB Closure Two-Lane SB Closure
17	SB Segments 1, 2, and 3	SB Incident During Off-Peak	Plan 17: Barbur Blvd from Miles St to 64 th Ave, Capitol Hwy/Huber St Max II: Barbur Blvd/Hamilton St Free: Terwilliger Blvd/I-5 NB Off-Ramp	140	Intent <ul style="list-style-type: none"> Favor SB Progression from Hamilton St to 64th Ave Signal Timing Notes <ul style="list-style-type: none"> Designate SB left turn and thru (phase 5) at Barbur Blvd/64th Ave as the coordinated phases 	Off-Peak Period Full SB Closure Two-Lane SB Closure

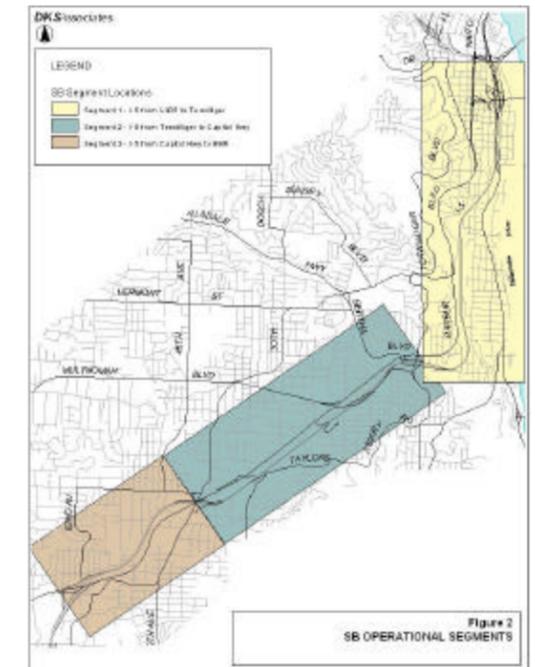


Table A1 (continued). Incident Signal Timing Plans for Barbur Boulevard Between Hamilton Street and 64th Avenue

Plan No.	Incident Location		Traffic Signals Affected	Cycle Length (sec)	Intent, Assumptions, and Signal Timing Notes	When to Use Plan
	Segment	Description				
Two-Way (Northbound/Southbound) Plans						
18	All Segments	Entire Study Area	Plan 18: Barbur Blvd from Miles St to 60 th Ave, Capitol Hwy/Huber St Max II: Barbur Blvd/Hamilton St Free: Terwilliger Blvd/I-5 NB Off-Ramp	160	Intent <ul style="list-style-type: none"> Two-Way NB/SB Progression Balance splits for northbound and southbound progression Signal Timing Notes <ul style="list-style-type: none"> Designate I-5 NB Off-Ramp (phase 4) at 60th Ave as the coordinated phase 	Full or Two-Lane NB Closure During Heavy SB volumes
19	All Segments	Entire Study Area	Plan 19: Barbur Blvd from 64 th Ave to Miles St, Capitol Hwy/Huber St Max II: Barbur Blvd/Hamilton St Free: Terwilliger Blvd/I-5 NB Off-Ramp	160	Intent <ul style="list-style-type: none"> Two-Way NB/SB Progression Balance splits for northbound and southbound progression Signal Timing Notes <ul style="list-style-type: none"> Designate SB left turn and thru (phase 5) at Barbur Blvd/64th Ave as the coordinated phases 	Full or Two-Lane SB Closure During Heavy NB volumes

