Traffic Management Plan

HIGHWAY 97 SWISS VILLAGE – DRAINAGE IMPROVEMENTS

CATEGORY 2 TMP

Prepared by: XYZ Engineering
PRIME CONTRACTOR: ABC CONSULTING | JANUARY 1, 2020

1.0 Introduction

This Traffic Management Plan (TMP) outlines the traffic control procedures and requirements for the anticipated lane closures caused by the installation of the impervious retention pond liner. This TMP must be executed by a qualified Traffic Control Company. Any field adjustments to the plan shall be made by qualified personnel.

ABC will be installing an impervious retention pond liner adjacent to Highway 97 in the Swiss Village area close to Lake Country. Although the work will be performed off the roadway, removal of the roadside barrier is required for temporary access to the site. Therefore, a right lane closure will be required for Highway 97 southbound due to the removal of roadside concrete barrier and for equipment access and egress.

The Traffic Control Company shall implement the plan in accordance with the following guidelines and standards:

- BC Ministry of Transportation and Infrastructure (MoTI) 2020 Traffic Management Manual for Work on Roadways (2020 TMM)
- MoTI Manual of Standard Traffic Signs and Pavement Markings
- MoTI Standard Specifications – Section 194

This Traffic Management Plan is formulated as per the Category 2 guidelines in the 2020 TMM. A right lane closure will be in place while the work is being carried out on Highway 97. During inactive work, this lane closure will be removed, and 2 southbound lanes will be restored. However, a reduced construction speed limit will remain in place due to the removal of the roadside concrete barrier.

2.0 Project Overview

This section provides a description of the planned work, geographical description of the project location and pre-construction traffic operations (traffic volume, speed limits, etc.).

2.1 Project Description

ABC will be installing an impervious retention pond liner in the settling pond and associated ditches adjacent to Hwy 97. All work will be completed off the travelled roadway.

The work is expected to take approximately 8 weeks from April 6, 2020 to May 30, 2020.

2.2 Project Area

Highway 97 in the Swiss Village Area (LKI Seg 1221 23.61 km to 23.94 km) is a rural divided multi-lane (2 lanes in each direction) freeway with a posted speed limit of 100 km/h. It is located approximately 24 km south of Vernon and 4 km north of Lake Country (see Figure 1 below).

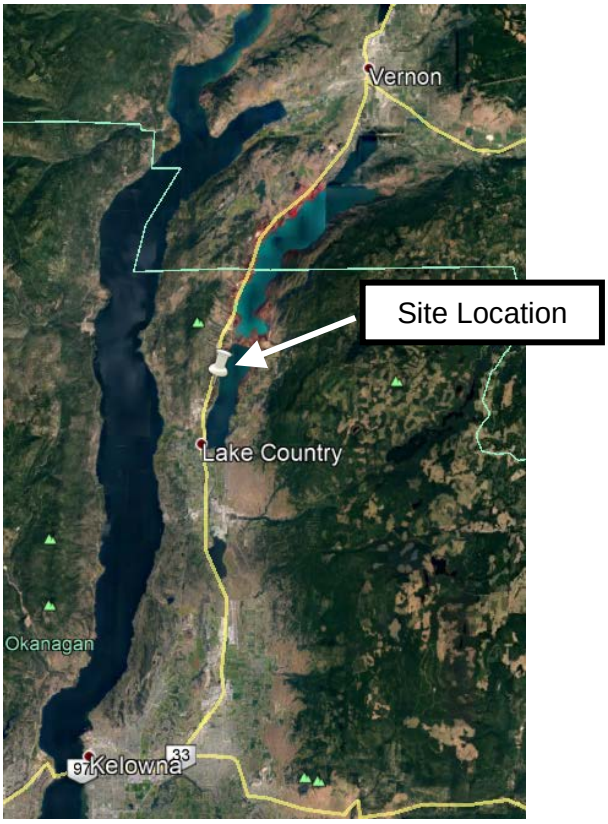


Figure 1: Project Location Map

This segment of Hwy 97 has mountainous terrain and has a few large radius curves, which do not require advisory speeds or warning signs. Surrounding land use is mainly rural with pedestrian trails within the work zone. These pedestrian trails will not be affected by the work taking place.

Data from a permanent count station, located on Hwy 97 600 m north of Woodsdale Road in Lake Country (approximately 3 km south of the project location), shows a 2018 Average Annual Daily Traffic (AADT) of approximately 21,800 vehicles per day.

At the project location specifically, Hwy 97 has an approximate 4% uphill grade with a straight horizontal alignment and no sight distance obstructions. Roadside concrete barrier is installed for this section of Hwy 97. A hiking trail crosses underneath Hwy 97 using a pedestrian underpass at the project location.

2.3 Work Activity

This section contains an overview of the work being carried out as part of this project.

Construction limits for this project are approximately 300 m in length, and the work area will be located off the travelled roadway.

Installation of the impervious retention pond liner will be conducted during the daytime only from 7am-5pm, 6 days per week (Monday-Saturday).

During active work, a right lane closure for Highway 97 southbound will be implemented due to the removal of roadside concrete barrier for temporary access to the site. A reduced construction speed limit of 60 km/h will also be implemented to allow for access and egress of construction vehicles. Traffic control people (TCPs) may be used to assist with access and egress to the work area during busy periods. It is expected that there will be a maximum of 5-8 trucks per hour accessing and leaving the work area.

During inactive work, the lane closure will be removed but a reduced construction speed limit of 80 km/h will be implemented due to the removal of the concrete barrier. Barrier Removed C-069 signs will be installed and the barrier opening will be delineated with devices.

Highway 97 northbound will not be affected. During both active and inactive work, it will remain at the regular posted speed limit of 100 km/h.

Delay to vehicular traffic on Highway 97 during active work will not exceed 20 minutes.

3.0 Implementation Plan

This Implementation Plan outlines the role of individuals involved in the implementation of this Traffic Management Plan.

Traffic control people (TCPs) will be on-site to set up and take down the lane closure and associated devices, assist with any incidents that may occur, and assist with access and egress into the work area as needed.

During active work, construction vehicles will use the closed lane to access the work area.

Figure 2: Right Lane Closure – Highway 97 Southbound will be used throughout the project duration during active work. *Figure 3 – Inactive Work – Hwy 97 Southbound* will be implemented throughout the project duration during inactive work.

3.1 Site Supervisor

The Site Supervisor for this project is Jill Smith. She will responsible for conducting daily toolbox meetings, addressing issues as they occur, leading the crew, and being the point of contact with the Ministry Representative.

As part of her role, she will ensure that:

- Each crew member is familiar with the Traffic Control Plan
- Each crew member wears the required safety apparel
- Each crew member has adequate training on the equipment they will be using
- The work area is protected by implementing this TMP

She will also be responsible for liaising with the Traffic Control Manager and Traffic Control Supervisor to inform them of the work schedule, day's activities, and to address any incidents, improvements or changes which need to be made.

3.2 Traffic Control Manager

The Traffic Control Manager for this project is Jane Smith. She will be responsible for preparing, implementing and managing this Traffic Management Plan. She will be responsible for, but not limited to, the following tasks:

- Monitoring traffic operations to determine the effectiveness and possible improvements to the TMP
- Overseeing modifications to the TMP as required
- Ensuring daily traffic control logs are maintained
- Sets up and implements a monitoring schedule for both active and inactive work periods throughout the course of the project

- Notifying the MoTI and emergency personnel of any major incidents within or near the project location
- Liaising with the Site Supervisor as needed

3.3 Traffic Control Supervisor (TCS)

Typically, there will only be 1 TCP on site as the work area is not on the travelled roadway. In these cases, the TCP will assume the role of, and be considered the Traffic Control Supervisor.

However, if more than 1 TCP is on site, such as during busy periods or if an incident occurs, a Traffic Control Supervisor will be named on the day of. Their name will be recorded on the Daily Traffic Control Log.

The Traffic Control Supervisor (TCS) will be responsible for, but not limited to, the following tasks:

- Overseeing traffic control operations, ensuring traffic control is executed according to the Traffic Control Plan, and taking note of any improvements or changes that should be made
- Ensuring compliance with the requirements outlined in Part 18 of WorkSafeBC's Occupational Health and Safety Regulations regarding supervision of TCPs
- Supervision and authority over all of the TCPs on site
- Providing direction to TCPs
- Ensuring traffic control devices are in place, checked, maintained, and moved as required
- Ensuring daily traffic control setups are documents and changes are identified in the daily traffic control log
- Ensuring traffic concerns are reported to the Traffic Control Manager and/or Site Supervisor, as required

On site, the TCS will also be responsible for ensuring all TCPs are:

- Carrying evidence of their current TCP certification
- Wearing the required safety apparel and have the appropriate equipment
- Performing traffic control duties competently and safely
- Positioned in safe locations
- Provided with rest breaks

The procedures outlined below will also be followed by the TCS:

3.3.1 Before Work Begins

- Confirm the TMP for the day's activities and document traffic management strategies to be implemented

- Conduct safety meeting with TCPs and coordinate with the Prime Contractor's staff on the traffic management requirements of the day
- Place signs and traffic control devices according to the drawings found in this TMP and the 2020 TMM. Note any adjustments which may need to be made based on local site conditions.
- Cover conflicting signs
- Inspect and check for the effectiveness of signing and traffic control devices.

3.3.2 During Active Work

- Periodically inspect and check all signs and devices
- Adjust signs as required
- Monitor traffic delays to ensure they do not exceed 20 minutes. Re-open lane if necessary.

3.3.3 At the End of the Shift

- Conduct a pre-close down inspection
- Remove unnecessary signage
- Reinstate all vehicle traffic lanes
- Liaise with the Prime Contractor's staff to see if there are any considerations or concerns regarding the TMP and associated strategies
- Complete Daily Traffic Control Log
- Complete Incident Management Report – as required

3.4 Traffic Control Person (TCP)

The Traffic Control People (TCPs) used on this project will:

- Be adequately trained in a manner acceptable to WorkSafeBC
- Carry evidence of their current TCP certification
- Ensure compliance with the requirements outlined in Part 18 – Traffic Control of WorkSafeBC's Occupational Health and Safety Regulations
- Perform their work effectively in accordance with the traffic control arrangements and procedures for the work
- Try to assess the layout through the eyes of a road user to help anticipate traffic control issues
- Communicate instructions and directions to drivers effectively by using traffic control motions and signals that are precise and deliberate to be clearly understood by road users
- Identify required changes to the Traffic Control Plan and bring them forward to the TCS

4.0 Traffic Control Plan

This Traffic Control Plan documents how traffic control will be achieved during the construction period. Typical traffic control layouts will be implemented as mentioned in the sections below.

The TCS will implement the traffic control layouts outlined in this TMP. Minor adjustments made to the typical traffic control layouts (such as adjusting signs for local site conditions) will follow guidelines outlined in the 2020 TMM and will be documented in the Daily Traffic Control Log. Major adjustments which have the potential to impact traffic operations will be noted and a revised TMP will be submitted to the Ministry for approval before implementation.

4.1 Active Work – Right Lane Closure

During active work, a right lane closure on Hwy 97 southbound will be implemented with a reduced construction speed limit of 60 km/h, as shown in *Figure 2: Right Lane Closure – Hwy 97 Southbound*. This figure is based on *Figure 9.6: Right Lane Closed – Short and Long Duration* in the 2020 TMM.

Taper lengths and device spacing should be placed on the highway based on the dimensions shown in *Table A* and *Table B* of the 2020 TMM for a 100 km/h regular posted speed limit.

C-001-1 TRAFFIC CONTROL PERSON AHEAD and C-001-2 FLAGGER AHEAD signs will be implemented when there is a TCP present on the travelled roadway and/or actively controlling traffic. If the TCP is not present, these signs will be bagged/covered. TCPs will position these signs within the sign array shown in Figure 2, depending on where their TCP station is.

If there is more than 1 TCP on site, they will communicate with each other through radio communication.

4.2 Active Transportation Road Users

Due to the rural nature of the highway, active transportation road users (eg. pedestrians, cyclists, and other non-vehicular road users) volumes are expected to be minimal during active work. If these road users are encountered, the TCP will direct them through the work zone.

4.3 Emergency Vehicles

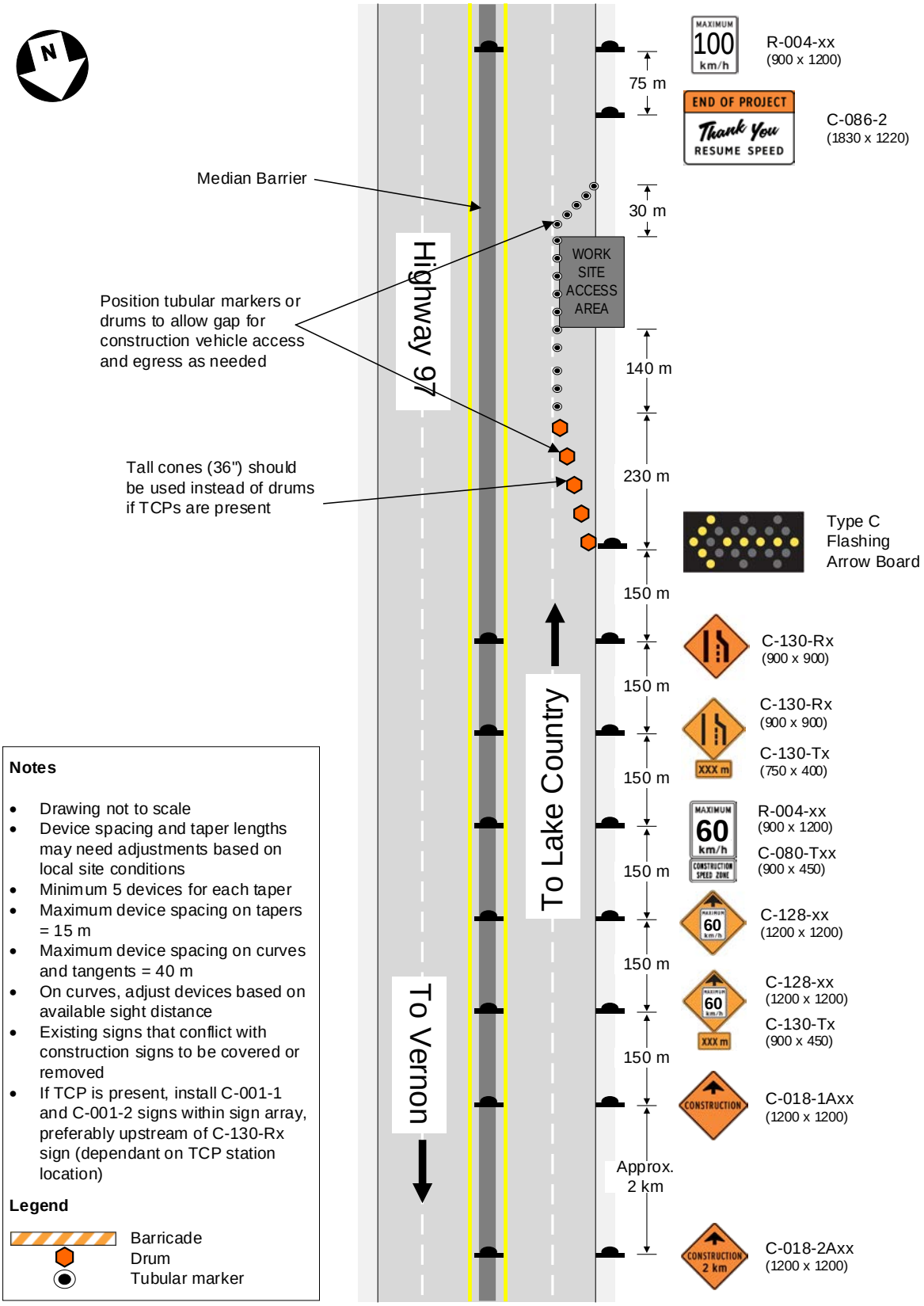
During active work, the TCP will ensure emergency vehicles are given priority in travelling through the work zone. If required, TCPs may stop general traffic, and hold active transportation road users, to assist emergency vehicles with proceeding through the work zone.

4.4 Inactive Work

During inactive work, the right lane closure will be removed but a reduced construction speed limit of 80 km/h will be implemented for Highway 97 southbound due to the removal of the concrete barrier. BARRIER REMOVED C-069 signs will be installed and the barrier opening will be delineated with devices, as shown in *Figure 3 – Inactive Work – Hwy 97 Southbound*.

Device spacing should be based on the dimensions shown in *Table B* in the 2020 TMM for a 100 km/h regular posted speed limit.

Figure 2: Right Lane Closure – Hwy 97 Southbound



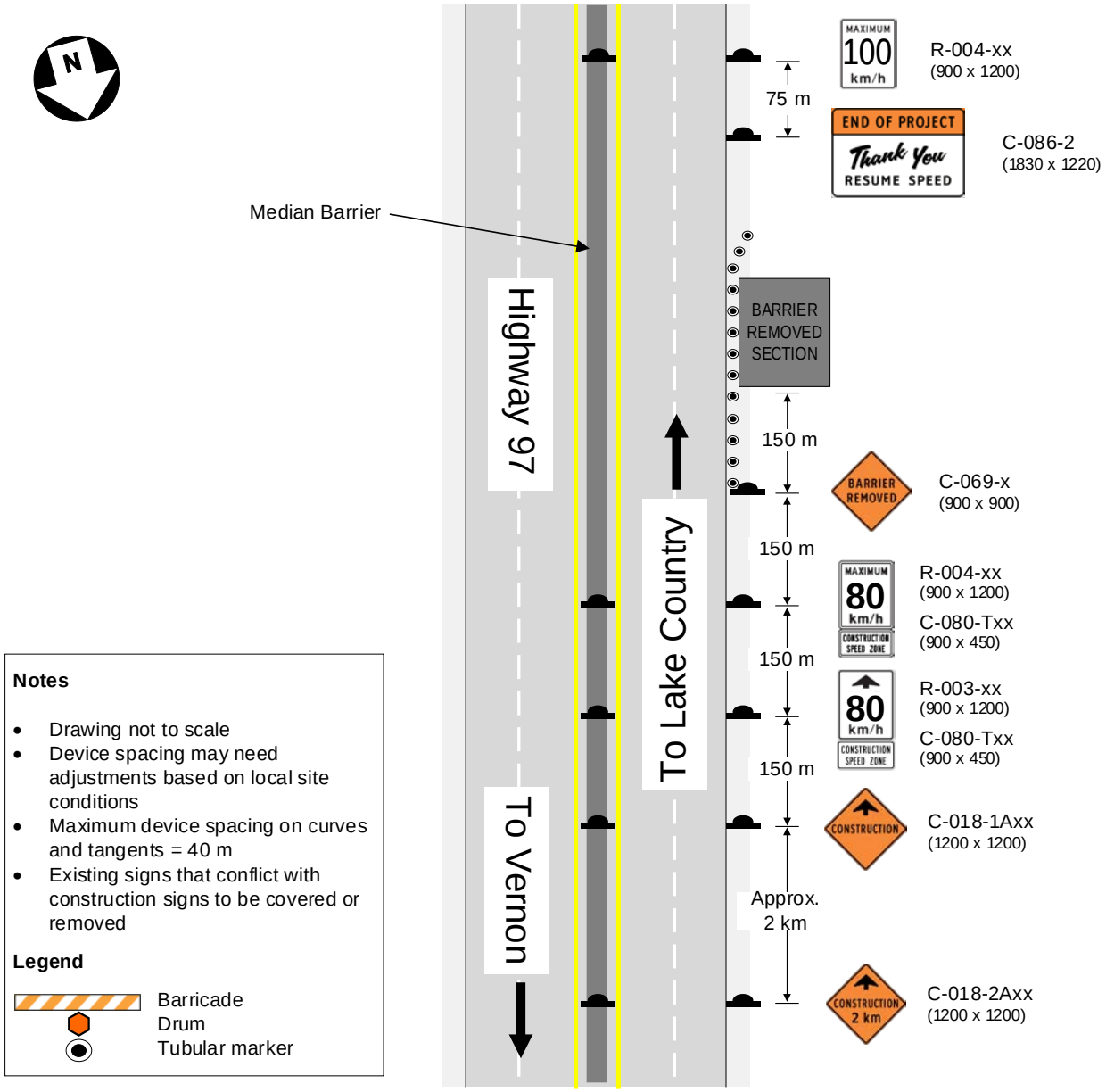
Notes

- Drawing not to scale
- Device spacing and taper lengths may need adjustments based on local site conditions
- Minimum 5 devices for each taper
- Maximum device spacing on tapers = 15 m
- Maximum device spacing on curves and tangents = 40 m
- On curves, adjust devices based on available sight distance
- Existing signs that conflict with construction signs to be covered or removed
- If TCP is present, install C-001-1 and C-001-2 signs within sign array, preferably upstream of C-130-Rx sign (dependant on TCP station location)

Legend

Barricade
Drum
Tubular marker

Figure 3: Inactive Work – Hwy 97 Southbound



Notes

- Drawing not to scale
- Device spacing may need adjustments based on local site conditions
- Maximum device spacing on curves and tangents = 40 m
- Existing signs that conflict with construction signs to be covered or removed

Legend

Barricade
Drum
Tubular marker

5.0 Incident Management Plan

The Incident Management Plan included in this TMP establishes general protocols for the TCS to follow in the event of an incident. It aims to maintain efficient emergency services, enable safe traffic movements, and reduce the time required to restore traffic flow, should an incident occur.

All crew members will be familiar with the incident management procedures outlined in this TMP. The Prime Contractor will ensure that resources are available to respond to emergencies as needed. The TCS, Traffic Control Manager and Site Supervisor will work together to provide efficient response and coordination, including any changes that may need to be made to the traffic control layout.

Incidents covered in this Incident Management Plan include unforeseen events which affect traffic operations. Examples include vehicle collisions, vehicle breakdown, stalls, objects falling from vehicles, or any other event which causes disruptions to traffic flow. It also includes situations where emergency vehicles require access to and/or through the construction zone.

If the incident occurs within the construction zone, the Prime Contractor will be responsible for providing, or obtaining, towing services. Should the incident occur outside the construction zone, but have the potential to impact traffic operations within the construction zone, the Prime Contractor will coordinate with the Ministry's Maintenance Contractor (MC).

Note: Procedures for tracking and responding to incidents such as worker injuries on the work site would be covered in the Occupational Health and Safety (OHS) Plan.

5.1 Detection of an Incident

The TCS will monitor the areas within, and in the vicinity of, the work zone. If an incident is detected, the TCS will immediately respond.

If any of the crew members or TCPs detect an incident, they will relay all relevant information to the TCS. Relevant information includes the following:

- Location of the incident
- Number of people involved and their current condition
- Whether or not emergency services may need to be called
- Any other relevant information such as accessibility issues, fire, or hazards

5.2 Incident Management Procedures

The TCS will then verify the incident, assess the severity of the incident, call emergency services if required, and inform the Traffic Control Manager who will work with the TCS, Site Supervisor, and relevant field staff in order to respond to the incident appropriately.

The TCS will follow the procedure below, coordinating with the Traffic Control Manager and Site Supervisor as necessary:

1) Based on the severity of the incident, monitor and secure the area as necessary
2) Adjust the traffic control layout as required to allow emergency services access to the incident as quickly as possible
3) Direct emergency responders to the incident and assist as necessary
4) Modify the traffic control layout as necessary if possible. This includes removing any field equipment or materials which may interfere with incident management operations.

The Site Supervisor will be responsible for the following:

1) Informing all crew members (by radio or directly talking to them) of the incident and the possibility of emergency crews entering the work zone
2) Notifying the Ministry Representative and the MC as soon as practical – including the following information, as available:
    a. That an incident has occurred
    b. Planned clearance time of the incident
    c. Clearance measures required
    d. Response measures taken
    e. Planned measures, including modified traffic control layout, to restore traffic flow
3) Providing regular updates to the Ministry Representative and MC – typically every 30 mins.

5.3 Public Notification

Upon notification of the incident, the Ministry Representative will immediately contact the Transportation Management Centre BC (TMCBC) to notify them of the incident, changes to traffic patterns, and estimated clearance time. The Ministry Representative will update TMCBC with information as made available from the Site Supervisor.

Depending on the severity of incident, if there are significant delays (longer than 30 mins), TCPs and other crew members may be used to walk the queue and inform drivers of the following information:

- That an incident has occurred
- Estimated delay and clearance time
- Alternate routes (if available)

5.4 Resumption of Traffic Flow

At the conclusion of the incident, crew members will work with the TCS and Site Supervisor to clear the incident area of equipment and debris before restoring traffic flow to the layouts in this TMP. The Site Supervisor will notify the Ministry Representative once the incident is cleared and normal traffic flow is restored.

In addition, the TCS will work with the Traffic Control Manager and Site Supervisor for the following:

1) Survey the incident area for any damage to infrastructure, equipment and materials. If significant damage is observed, the affected area should be protected from general traffic and the public. The Site Supervisor will notify the Ministry Representative of any repairs which may need to be made.
2) Complete the Incident Management Report – which will then be sent to the Ministry Representative
3) Relevant parties will meet to discuss the incident including:
    - What happened?
    - Why did it happen?
    - What could have prevented it from happening?
    - What improvements can be made to the traffic control layouts or the TMP as a whole to prevent this, or similar incidents, from happening again in the future?

5.5 Emergency Contact List

Emergency/Public Services	**Phone Number**
Emergency – Police, Fire, Ambulance	911
Local RCMP (non-emergency)	XXX-XXX-XXXX
Local Fire Department (non-emergency)	XXX-XXX-XXXX
BC Ambulance (non-emergency)	XXX-XXX-XXXX
Local Hospital (non-emergency)	XXX-XXX-XXXX
BC Hydro	XXX-XXX-XXXX
FortisBC Gas	XXX-XXX-XXXX
Telus	XXX-XXX-XXXX
Shaw	XXX-XXX-XXXX
WorkSafeBC	XXX-XXX-XXXX
Provincial Emergency Program	XXX-XXX-XXXX

Ministry of Transportation	**Phone Number**
Ministry Representative – Bob Jones	XXX-XXX-XXXX
Road Area Manager – William Lee	XXX-XXX-XXXX
Operations Manager – Liam Smith	XXX-XXX-XXXX
District Manager – Susan Andrew	XXX-XXX-XXXX

Maintenance Contractor	Phone Number
Local Road Maintenance Contractor	XXX-XXX-XXXX

Contractor	Phone Number
Site Supervisor – Jill Smith	XXX-XXX-XXXX
Traffic Control Manager – Jane Smith	XXX-XXX-XXXX
Traffic Control Supervisor – Dan Davis	XXX-XXX-XXXX

6.0 Public Information Plan

This Public Information Plan details methods for communicating to the travelling public the impacts of the project, especially any delays in travel. It also outlines methods for providing work updates to the Road Authority.

Two weeks prior to the beginning of the work, the Site Supervisor will notify the Ministry Representative of the proposed schedule and anticipated traffic impacts. The Ministry Representative will then notify TMCBC who will post the notification onto DriveBC. Any changes to the proposed schedule will require advanced notice of at least 24 hours.

Due to the minimal impacts expected, dynamic message signs will not be used for this project. Instead, static advance warning signs will be used, and indicated in the traffic control drawings.