

Local Area Specifications for Okanagan Lake Crossing Concession

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**BRITISH
COLUMBIA**

**Ministry of
Transportation**

Local Area Specifications for the Okanagan Lake Crossing Concession

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APPENDIX A Terminology and Interpretation

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1 GENERAL REQUIREMENTS

1.1 Description

The scope of the Project includes the provision of all services associated with the management, planning and delivery of the facility operations, maintenance and asset management activities to ensure compliance with all stated Performance Measures.

This document contains additional Operational Performance Measures, Asset Preservation Performance Measures and O & M Requirements that are specific to the Okanagan Lake Crossing Concession.

The Local Area Specifications extend the coverage or apply particular requirements over and above that specified within the following documents:

- *Highway Maintenance Specifications for Highway Concessions*
- *Highway Corridor Management Specifications for Highway Concessions*
- *Highway Asset Preservation Performance Measures for Highway Concessions*

The Concessionaire is required to develop and implement a compliance monitoring system to ensure that the O&M Output Specifications and O&M Requirements are being achieved.

Fundamental to the concept of performance based supply is the need for a co-operative, well-managed approach by the contracted parties that ensures all major concession objectives are consistently monitored and met. In order to achieve this, the Concessionaire is required to develop and implement a Quality Management System in accordance with Section 23 and Schedule 6 of the concession Agreement for the delivery of services described in this document.

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2 OPERATIONAL PERFORMANCE MEASURES

2.1 New Crossing Operations and Maintenance Manual

The Concessionaire is responsible for the operation, maintenance and rehabilitation of the New Crossing in accordance with the requirements defined in the Concession Agreement.

The Concessionaire will be required to prepare an Operations and Maintenance Manual for the new Crossing that describes the requirements for the management, operations, inspection and maintenance of the New Crossing.

The Operations and Maintenance Manual will provide comprehensive details and instructions as per Section 3.7 of the Reporting Specifications for Highway Concessions document as a minimum.

2.2 Highway Running Surfaces

The Ministry Highway Maintenance Specifications for Highway Concessions will be modified and enhanced over time for which the Concessionaire will continue to apply the latest version. This specification sets out the Operational Performance Measures (defect and response times), which are not repeated in this section.

Cyclic and preventative maintenance will be carried out on the Concession Highway including traffic lanes, shoulders, medians, pullouts, stop areas and entrance and exit ramps will be in accordance with the following subsections of the *Highway Maintenance Specifications for Highway Concessions* document:

1-100	Highway Pavement Patching and Crack Sealing
1-110	Highway Surface Treatment
1-130	Gravel Surface Grading and Re-Shaping
1-140	Dust Control and Base Stabilization
1-150	Highway Surface and Shoulder Graveling
1-160	Highway Shoulder Maintenance
1-170	Road Base Maintenance
1-180	Pavement Surface Cleaning
1-190	Debris Removal
1-200	Highway Structures Maintenance
1-220	Curb, Island and Barrier Maintenance

Table 2.2.1 establishes the maximum response time, from the time weather conditions are conducive to perform the work, within which the Concessionaire must complete additional operational repairs to each deficiency based on the

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Severity and Density ratings in the Ministry Pavement Surface Condition Rating Manual.

Table 2.2.1: Operational Performance Measures – All Paved Surfaces			
Concession Standard	Minimum Severity Level	Minimum Density Level	Response Time
Longitudinal Wheel Path Cracking	Single or multiple, moderate spalling, mean unsealed crack width greater than 5mm	10 percent within any 50 m length of pavement	12 months
Longitudinal Joint Cracking	Single or multiple, moderate spalling, mean unsealed crack width greater than 5mm	10 percent within any 50 m length of pavement	12 months
Pavement Edge Cracking	Single or multiple, moderate spalling, mean unsealed crack width greater than 5mm	10 percent within any 50 m length of pavement	12 months
Transverse Cracking	Single or multiple, moderate spalling, mean unsealed crack width greater than 5mm	Any	12 months
Meandering Longitudinal Cracking	Single or multiple, moderate spalling, mean unsealed crack width greater than 5mm	10 percent within any 50 m length of pavement	12 months
Alligator Cracking	Interconnected cracks forming a complete block pattern, slight spalling and no pumping	5 percent within any 50 m length of pavement	3 months
Shoving	Longitudinal displacement of a localized area of the pavement surface causing rough ride.	10 percent within any 50 m length of pavement	3 months
Bleeding	Distinctive appearance with free excess asphalt	10 percent within any 50 m length of pavement	3 months
Potholes	Pothole depth is 25 to 50 mm	Any	3 months

In association with this work, the operational requirements as set by the following subsections of the *Highway Maintenance Specifications for Highway Concessions* document will apply in full:

- 2-250 Ditch and Watercourse Maintenance
- 2-260 Drainage Appliance Maintenance
- 2-270 Shore, Bank and Watercourse Maintenance
- 4-350 Roadside Vegetation Control
- 4-370 Litter Collection and Graffiti Removal
- 4-380 Rest Area and Roadside Facility Maintenance
- 4-400 Roadside Fence Maintenance
- 5-440 Sign System Maintenance

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	Appendix A - Policy for Highway Signs
5-450	Temporary Line Marking and Eradication
5-470	Highway Traffic Control
7-760	Flood Control and Washout Response
7-770	Mud, Earth and Rock Slide Response
7-780	Highway Incident and Vandalism Response
8-830	Highway Inspection
8-840	Highway Patrol

The choice of treatment selection for maintenance purposes is solely at the discretion of the Concessionaire except that the following overlying principals will apply:

- Materials and their application must be best for purpose and consistent with Ministry standards;
- The Asset Preservation Performance Measures must be complied with;
- Innovation is encouraged; and
- The optimization of the life cycle of pavements and pavement materials is encouraged but not to the detriment of road safety or the targets and performance measures set.

2.3 Corridor Requirements

2.3.1 Strong Motion Seismograph Instrumentation

The Concessionaire is required to supply and install internet capable strong motion seismograph monitoring instrumentation (the "Recorder and Sensors") for real time monitoring of ground motions resulting from seismic activity along the highway corridor.

2.3.1.1 Where to Install

The Concessionaire is required to install a Recorder and four Sensors as follows:

- Two Sensors are to be installed on the New Crossing structure for monitoring structure motions, and
- One Sensor is to be installed along the east approach to the New Crossing for monitoring ground motions, and
- One Sensor is to be installed along the west approach to the New Crossing for monitoring ground motions.

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The Concessionaire will ensure that the Sensors supply information within 6 months of the Completion Date.

The Recorder and the Sensors are to be installed in protected and secure locations to minimize the likelihood of damage by vandals and to ensure protection from the elements.

The site and installation position of the Recorder and the Sensors will be mutually agreed between the Province and the Concessionaire.

2.3.1.2 User's Guide and Maintenance Instructions

The Concessionaire is required to:

- a) Produce a written user's guide (the "Guide") detailing the exact location and nature of each device, maintenance requirements and how to use the Recorder and Sensors to obtain data in real time is required.
- b) Undertake all maintenance requirements identified in the Guide.

A draft Guide document is required within six months of instruction to install the Recorder and Sensors. The final Guide is required within one month of receiving the Province's comments on the draft user manual.

The Concessionaire will undertake all maintenance, repair and replacement to ensure uninterrupted functioning of the instrumentation including the uninterrupted provision of data.

2.3.1.3 Interpretation and Supply of Information

The Concessionaire is required to monitor and record seismic activity on a continuous basis and provide the data in real time to up to four organizations at the Province's request and at no cost to the Province or any of the four organizations. Such organizations are likely to include but are not limited to the Geological Survey of Canada, the University of British Columbia. .

The instrumentation will provide real time seismic parameter reporting including, at a minimum, horizontal acceleration, vertical acceleration, velocity, displacement, peak horizontal acceleration, peak vertical acceleration, peak velocity and peak displacement.

The data will need to be interpreted into terms consistent with the criteria defined for reacting to significant events. Regardless of the interpretation mechanism employed, the results are required immediately (in near real time) following seismic activity.

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2.3.1.4 Reacting to Significant Seismic Events

The Concessionaire is required to undertake routine condition inspections of structures following a significant seismic event. A seismic event is significant if it results in:

- Horizontal ground accelerations above 0.05 g at the location of the structure; or
- Vertical ground accelerations above 0.05 g at the location of the structure

The Concessionaire is required to undertake a routine condition inspection of structures within 48 hours of the occurrence of a significant seismic event.

The Concessionaire is required to undertake structure reporting (reporting natural event inspections as a Routine Condition Inspection) using format and detail consistent with those specified in the Ministry Bridge Management and Inventory System (BMIS) and Highway Maintenance Specifications for Highway Concessions 8-850.

2.3.1.5 Specification of Equipment

The Concessionaire will install a strong motion seismograph/structural monitoring system:

- That is a central recording unit with a minimum of 18 channels;
- That is connected to 4 triaxial Force Balance Accelerometers with a minimum full scale range of +/- 2.5 g;
- That provides continuous real time seismic reporting, on-line notification of recorded event and allows remote configuration and downloading over the Ethernet;
- That is a multi-tasking operating system which allows simultaneous data acquisition and interrogation;
- That has a common time synchronization and a minimum standard clock accuracy of 20ppm, capable of recording UTS;
- That provides a minimum digitizer resolution of 16 bit;
- That has a minimum recording capability of 200 sps per channel with simultaneous sampling rate for all channels and storage memory of at least 100 Mb;
- That has a frequency range greater than 5 times the natural frequency of the structure;

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- That has the natural frequency of the sensor > 80 Hz with a flat response from DC to at least 60 Hz;
- That has a programmable trigger level for the acquisition of operational vibrations and structural response as well as strong motion vibrations;
- That is able to operate from batteries for at least 3 weeks;
- That has built-in digital signal filtering capabilities;
- That has resolution and dynamic range of at least LSB 3mV and 120 dB;
- That has cables that are shielded and meet the specifications of Belden cables;
- That includes peripheral equipment for dial-up and Internet connectivity and communication and data processing software.

2.3.2 Anemometer

The Concessionaire will install, in a location approved by the Province, a Campbell Scientific 10X Datalogger, and a 05103 Wind Monitor manufactured by R.M. Young, installed on a mast 10 m above the bridge deck at mid span. The datalogger will be programmed to output the maximum one hour average wind speed and wind gusts (defined as in the ten minute period ending at the time of the observation, the highest peak is at least 5 knots higher than the current average and the highest peak is at least 15 knots)

The wind system will receive its excitation from the logger via a signal cable and line driver. A 3 pair 18AWG shielded cable will be installed. The logger will be placed in a weather proof enclosure on the bridge adjacent to the anemometer mast. The system requires a 12V supply which can be obtained from a solar panel/battery setup or if there is AC for other purposes on the bridge, a transformer can be utilized. Communications with the logger in this configuration can be via a cell phone or, if a pair of communication cables is available, a landline phone.

The Concessionaire will undertake all maintenance, repair and replacement to ensure uninterrupted functioning of the anemometer including the uninterrupted provision of data.

2.3.3 Close Circuit Television System

The Concessionaire is required to install and maintain a closed circuit television system as per Part 4, Schedule 5 [Construction Specifications].

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The Concessionaire will undertake all maintenance, repair and replacement to ensure uninterrupted functioning of the closed circuit television system including the uninterrupted provision of snapshot images to the Ministry website.

The Concessionaire will be required to conduct annual condition inspections of the closed circuit television system.

2.3.4 Landscape Maintenance

2.3.4.1 Objective

To provide aesthetically pleasing areas of grass and plantations, through the appropriate level of landscaping maintenance.

2.3.4.2 Definitions

All grass and plantation areas will be identified and classified by the Concessionaire to one of the following definitions, within six months of the Commencement Date, subject to the Province's review.

Grass Areas Definitions:

Class 1 Grass: Fine grass areas maintained between 4 and 8 cm in height (e.g. "lawn" designation).

Class 2 Grass: Coarser grade grass areas maintained between 10 and 20 cm in height (e.g. "rough grass" designation).

Plantation Areas Definitions:

Class 1 Plantation: A landscaped area that is establishing, and requires a greater amount of care to infill and/or achieve its intended purpose.

Class 2 Plantation: An established landscape area that has reached maturity and generally requires a lesser amount of maintenance, and/or a specific type of maintenance, to sustain its intended purpose.

Class 3 Plantation: A naturalized landscape, or wildlife refuge area, adjacent to Class 1 or Class 2 Plantations that requires minimal maintenance, except for reasons of safety and noxious weed control.

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2.3.4.3 Specifications – Grass Maintenance

The Concessionaire will maintain healthy, high quality grass as follows:

Class 1 Grass Maintenance:

- a) Mowing, edging, trimming, and aeration
 - Applies to all irrigated and non-irrigated grass areas designated or referred to as Class 1 Grass.
 - Grass will be kept between a minimum height of 4 cm and a maximum height of 8 cm. To maintain a good appearance, individual areas will not be left partially mowed at the end of a day.
 - No visible grass clippings will remain on the grass surface after mowing is completed.
 - Grass will be cleanly edged and trimmed where it adjoins curbs and permanent fixtures. Trimming will be completed with each mowing. Edging will be carried out with a blade edger once each year by June 1st.
 - Core type aeration to a depth of 100 mm will be carried out each spring.
- b) Control of weeds, insect pests, and disease
 - Herbicides will not be used for weed control at any time.
 - Insect pests and disease will be controlled as required.
- c) Fertilizing and liming
 - Grass areas will be treated with slow release sulphur polymer coated fertilizer and lime, in accordance with recommendations provided through annual soil testing carried out in the spring by the Concessionaire.
- d) Lawn repair
 - Damaged or worn out grass areas, as determined by the Province, will be reinstated to the intended level for this class.
- e) Note: Defined grass areas which are adjacent to plantations, but which are not designated as Class 1 Grass, will be mowed to a Class 2 Grass standard.

Class 2 Grass Maintenance:

- a) Mowing and trimming

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- Grass will be kept between a minimum height of 10 cm and a maximum height of 20 cm.
 - Trimming of grass where it adjoins curbs and permanent fixtures will be done as necessary.
- b) Litter and waste cleanup
- No refuse, including litter and clippings, will remain on the site at the end of each day of maintenance.
 - Excess grass clippings and leaves will be removed.

2.3.4.4 Specifications – Plantation Maintenance

The Concessionaire will maintain healthy, highly presentable plantations, as follows:

Class 1 Plantation Maintenance:

- a) Control of weeds, insect pests, and disease
- Weeds present in individual plantations, and in the cultivated base of individual trees within grass areas, will not exceed 5% of the total area at any time.
 - All uprooted weeds will be removed and disposed of off site.
 - Insect pests and disease will be controlled as required.
- b) Edging
- The perimeter of all plantation beds and the cultivated base of individual trees within grass areas, except where the plants themselves form a natural defined edge.
 - Alternatively, the Concessionaire may request Province approval for the use of a permanent edging system.
 - Edging lines will be cleanly defined at all times.
- c) Fertilizing
- Plantation beds and individual trees will be fertilized by slow release spike or tablet formulations developed for this purpose, and applied in accordance with manufacturer's recommendations.
- d) Pruning
- All plants in highway right-of-way plantations and rest areas will be pruned in accordance with the Concessionaire's developed "Routine Pruning Schedule" (see *Reporting Specifications for Highway*

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Concessions for details and Section 4 of this document for the timing of delivery).

- e) Replacement of plant material and bark mulch
 - All salvageable trees and/ or shrubs dislodged by wind, traffic accidents, and vandalism will be replanted and re-staked by the Concessionaire.
 - Damaged or dead plant material will be replaced by the Concessionaire, with specimens of similar size, unless otherwise approved in writing by the Province.
 - Bark mulch will be replenished annually to provide a minimum settled depth of 5 cm.
- f) Litter and garden waste cleanup
 - No refuse, including litter, pruning, grass clippings, raked leaves or debris from cultivation will remain on the site at the end of the day's operation.
 - Sidewalks and road surfaces will be kept clean of soil debris and bark mulch.
- g) Watering
 - Where systems are activated, plantations will be irrigated to a minimum penetration of 100 mm once per week.
 - Irrigation rates will be adjusted up or down if so directed by the Province and will be done in accordance with local watering restrictions.
- h) Maintenance of irrigation systems
 - Active irrigation systems will be kept in proper working order at all times.
 - Sprinkler adjustments will be made, as required, to retain the irrigation design spray patterns.
 - Component repairs, including springs and nozzles, will be made, as required, and with original manufacturers' equipment brand and part numbers.
 - Other irrigation system repairs will be made at the direction of the Province.
 - Irrigation systems will be pressurized in April of each year and will be winterized in October of each year, or as otherwise directed by the Province.
 - Back-flow preventors on site will be tested once each year.

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- Water systems, such as wells and water pumps, will be kept in proper working order at all times.

Class 2 Mature Plantation Maintenance:

- a) Weed control
 - Remove all weed growth above the surface of the vegetative layer
- b) Edging
 - Where the outside edge is defined by plant material, prevent expansion beyond the original boundary unless mutually agreed to otherwise at a local level.
 - Visible formed edging in the ground will be maintained as for Class 1 Plantations.
- c) Pruning
 - Prune plants for health and intended function.
- d) Pest control
 - Pest control for emergencies only.

Class 3 Naturalized Plantation Maintenance

- a) Weed control
 - Removal of noxious weeds and other undesirable vegetation creating an extraordinary problem as defined and mutually agreed to at a local level.
- b) Litter and debris clean up
 - Remove visible litter and debris weekly.

2.3.4.5 Methods

- a) Mowing
 - The Concessionaire will ensure that mowing is done in such a manner as to not leave wheel depressions or other damage to the grass areas.
- b) Pest and disease control
 - Control of insect pests and diseases will be undertaken by as required, and is responsible for recognition, diagnosis, and timely control of insect pests and diseases. This will involve the use of preventative measures, such as the application of dormant oil sprays

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together with regular weekly monitoring for problems that arise and require immediate attention.

- All chemical applications for the control of insects, pests, and diseases will be performed in accordance with the *Pesticide Control Act and Regulations* and will be as approved in writing by the Province.
- The Concessionaire will not apply chemical spray in a manner that results in chemical spray drift and encroachment of the chemical into non-target areas. The Concessionaire is liable for all damages resulting from improper chemical usage.
- Pruning is to be performed in accordance with the originally intended plant form and function, which includes maximization of ground cover conditions, screening effect, and specimen planting, as applicable.
- Irrigation systems maintenance and repair will be in accordance with the Irrigation Industry of BC Specifications as amended or replaced from time to time and the Standard Specifications for Highway Construction.
- Replacement planting will be in accordance with the Standard Specifications for Highway Construction.

2.3.4.6 Miscellaneous

- a) The Concessionaire will hold a valid pesticide license and perform all work in accordance with the *Pesticide Control Act* and regulations there under and as approved in writing by the Province.
 - Note: The Concessionaire will not use herbicides.
- b) Testing of back-flow prevention devices will only be done by an individual certified as an active Cross Connection Control Specialist-1 by the BC Section of the American Water Works Association.

2.3.4.7 Scheduling

The Concessionaire, through its own inspections or via notification by others will:

- a) Repair all broken irrigation lines within three hours of being aware of the defect.
- b) Complete all other maintenance requirements, in accordance with the specifications included in Section 2.4.2.3 of this Maintenance Standard, within 24 hours of detection of the deficiency.

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2.3.4.8 Materials

The Concessionaire will supply and use all required materials including, but not limited to:

- a) Pesticides, including insecticides and fungicides, in formulations suited to site-specific problems;
- b) Fertilizers in the following blends:
 - i. for Class 1 Grass sulfur polymer coated formulation, as required for local conditions and in accordance with manufacturer's recommendations; and,
 - ii. for Class 1 Plantations slow release tablet or spike type formulations, in accordance with manufacturer's recommendations;
- c) Plant material will conform to Canadian Nursery Trades Association Standards as outlined in the current Landscape Canada Guide Specifications For Nursery Stock;
- d) Grass seed, Class 1 (Lawn), Canada #1 grade, in a blend recommended by a local nursery supplier, for the specific purpose required, and for the area being planted, or as specified in original planting contract;
- e) Bark mulch, horticultural grade, medium grind, fir and/or hemlock bark mulch;
- f) Lime, agricultural grade, ground dolomite lime of size "60 minus";
- g) Irrigation system components, such as irrigation heads, controllers, valves, and regular replacement items (e.g. nozzles and sprinklers). All replacement items will be of the original manufacturer's brand or an equivalent model as approved by the Province; and
- h) Water.

2.3.5 Traffic Management

Limits on the hours of work are intended to reduce or prevent unnecessary disruption of the general public (both road users and adjacent land users) by activities associated with Concessionaire's activities.

There are no limitations on the hours of work for:

- Those tasks which cannot be planned or controlled (e.g. snow removal, debris clearance, etc.); and,

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- Those tasks which, if not undertaken, pose a significant safety hazard to the road users.

For all planned activities, the following sections describe the permitted hours of work on the Highway by the Concessionaire.

2.3.5.1 Original Service Period

During the Original Service Period, the traffic management requirements specified in the Concession Agreement. No further allowance beyond that specified is permitted for the construction aspects of the concession.

2.3.5.2 Enhanced Service Period

During the Enhanced Service Period, the traffic management regime will revert to the performance specifications contained in the Maintenance Specifications for Highway Concessions Section 5-470 and the traffic management standards in the Ministry's Traffic Control Manual for Work on Roadways with the following exceptions:

a) Lane Closures

Lane closures will be restricted to the times as noted below, except in situations where these restrictions would compromise road user safety:

- September 15 thru April 15 - 09:00 to 15:00 and 19:00 to 06:00
- April 15 thru September 15 – 21:00 to 06:00

b) Other Work Coordination

Where the Province grants others access to the Highway, such as utility companies and developers, such traffic management allocations to others, the Concessionaire will coordinate its operations, maintenance and rehabilitation activities to avoid conflicts and minimize inconvenience to the public.

c) Statutory Holidays and Special Events

The Concessionaire will not implement any Stoppages or Closures during the Statutory Holidays and Special Events (Holidays and Events) identified in Table 2.3.5.2-1 Table 2.3.5.2-2 following, provides details regarding Stoppage and Closure restrictions around Holidays and Events.

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Table 2.3.5.2-1: Statutory Holidays and Special Events	
Canada	USA
New Year's Day Spring Break Good Friday Easter Monday Victoria Day Canada Day British Columbia Day Labor Day Thanksgiving Day Remembrance Day Christmas Day Boxing Day New Year's Day	Martin Luther King Jr. Day Good Friday Easter Monday President's Day Memorial Day Independence Day Labor Day Columbus Day Veterans Day Thanksgiving Day plus the following day Christmas Day

Spring Break is a week long Event; no Stoppages or Closures are permitted the Saturday and Sunday before and after the Event. The week of the Event (Monday through Friday), no Closures and no 10-minute Stoppages or 20-minute Stoppages are permitted; however, 2-minute Stoppages are permitted.

It is anticipated that unforeseen special events may occur within the corridor that will affect the Highway. The Concessionaire will assume that four of these events will occur each year. The Province reserves the right to direct the Concessionaire to eliminate all stoppages and closures and initiate free-flow traffic for a 24 hour period the day of the event from midnight to midnight. The Province will provide the Concessionaire with one week's advanced notice of any such unforeseen special event.

Table 2.3.5.2-2 Restrictions on Stoppages and Closures	
Days on which Holidays/Events Fall	Timeframe for Restrictions
Monday	No Stoppages or Closures are permitted from the Friday before the Holiday or Event at 12:00 noon, to Monday at 12:00 midnight
Tuesday, Wednesday, or Thursday	No Stoppages or Closures are permitted from the day before the Holiday or Event at 12:00 noon, to the day of the Holiday or Event at 12:00 midnight
Friday	No Stoppages or Closures are permitted from the Thursday before the Holiday or Event at 12:00 noon, to Sunday at 12:00 midnight

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2.3.6 Overload Permit Evaluations

The Concessionaire will be responsible for providing the evaluation of the capacity of the Existing Bridge and the New Crossing when required by Commercial Vehicle Safety and Enforcement of the Ministry of Public Safety and Solicitor General for vehicles that require overload permits. The Ministry of Transportation shall advise the Concessionaire when such evaluation is required.

The evaluations of the Existing Bridge and the New Crossing shall be done in accordance with the Canadian Highway Bridge Design Code, CAN/CSA-S6. The Concessionaire shall provide, in a timely manner, to the Ministry of Transportation Bridge Engineering Section, the details and the results of the evaluation, together with any restrictions, limitations or prohibitions required for the safe crossing of overload vehicles. Evaluations must be prepared and sealed by a Professional Engineer registered in the Province of British Columbia. The Ministry of Transportation Bridge Engineering Section shall forward the evaluation results to Commercial Vehicle Safety and Enforcement of the Ministry of Public Safety and Solicitor General.

The Concessionaire will maintain the Existing Bridge and the New Crossing such that 64,000 kg class and 85,000 kg class overload permit vehicles (as defined by the Commercial Vehicle Safety and Enforcement of the Ministry of Public Safety and Solicitor General in Bulletin 24 of the Commercial Transport Manual) can safely use the crossing without restriction.

2.3.7 Traffic Measuring Equipment

The Concessionaire will be required to collect, record and be transmittable by public service telephone network vehicle speed and vehicle length classification data for all travel lanes at the permanent automated vehicle detection station at approximately Station 27+50 consistent with the Ministry's provincial program.

The additional traffic data requirements for the Measuring Equipment at approximately Station 27+50 are as follows:

- a) A continuous count of the number of Motor Vehicles recorded at 15 minute intervals. Changes to the recording interval may be required over time at the direction of the Province.
- b) A continuous count of the total number of Motor Vehicles in each lane classified by the following length bins:

Vehicle Class	Length Bin Configuration
Passenger Vehicles	≥ 0 to < 600 cm

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Vehicle Class	Length Bin Configuration
Single Unit Trucks	≥ 600 cm - < 1250 cm
Tractor Trailer Units (Short)	≥ 1250 cm - < 2250 cm
Tractor Trailer Units (Long)	≥ 2250 cm - < 3500 cm
Tractor Trailer Units (Long)	≥ 3500 cm - < 9999 cm

Changes to the length bin configurations may be required over time at the direction of the Province.

- c) A continuous count of the total number of Motor Vehicles in each lane classified by the following speed bands:

Speed Bin	Speed Bin Configuration	Speed Bin	Speed Bin Configuration
1	0-45 kph	7	76-80 kph
2	46-55 kph	8	81-85 kph
3	56-60 kph	9	86-90 kph
4	61-65 kph	10	91-100 kph
5	66-70 kph	11	101-110 kph
6	71-75 kph	12	111-999 kph

Changes to the speed bin configurations may be required over time at the direction of the Province.

- d) The Measuring Equipment shall record the year, date and time period measured.

2.3.8 Customer Care Survey

The customer care surveys as per the Highway Corridor Management Specifications for Highway Concession document, under Section 3.2.2 Operational Performance Measures will not apply.

2.3.9 Sidewalk Closures

In the event of sidewalk closures, the Concessionaire will provide a daily shuttle service for pedestrians, bicycles and their riders in accordance with the following times and frequencies:

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Direction	Times	Intervals
Westbound	every 15 minutes	7:00 am to 6:00 pm
Westbound	Hourly	6:00 pm to 7:00 am
Eastbound	every 15 minutes (alternating with westbound service)	7:00 am to 6:00 pm
Eastbound	Hourly (alternating with westbound service)	6:00 pm to 7:00 am

The locations for pick-up/drop-off will be determined in consultation with the Ministry ensuring safe and reliable access for users.

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3 ASSET PRESERVATION PERFORMANCE MEASURES

This section contains performance measures that must be applied in addition to those contained in the *Highway Asset Preservation Performance Measures for Highway Concessions* documentation.

3.1 New Crossing – Condition Surveys and Monitoring

To confirm that the required service life is being achieved, the Concessionaire will carry out routine condition surveys as described in the Highway Asset Preservation Performance Measures for Highway Concessions. The results of the annual and five-year inspections together with a summary of the corrective actions taken will be provided to the Province for its review.

The Province reserves the right to audit the Concessionaire's inspection process, the remedial actions taken and, if it wishes, to conduct its own inspection to verify the results of the Concessionaire's inspection and remedial work.

The Concessionaire will install approved monitoring probes including associated wiring and junction boxes in the deck concrete and concrete parapets to facilitate measurement of in situ corrosion rates using the linear polarization resistance technique. Readings are to be taken with each annual and five-year inspection, the results of which are to be included in the Concessionaire's report to the Province. The Province will direct the Concessionaire as to the number, location, depth from the surface and all other details regarding the installation of the monitoring probes and junction boxes. It is expected that there will be a total of 12 monitoring probes and junction boxes required for the crossing.

Chloride concentration in the deck concrete must be measured at the five-year condition surveys. Tests will follow CSA-A23.2-4B.

The following findings for deck or pontoon concrete will require mitigation by the Concessionaire:

- Corrosion rate higher than 0.005 mm/year at any probe more than 15 mm from the concrete surface;

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- Chloride concentration at depth of rebar (less tolerance) exceeding 0.020% of total mass;
- Crack width exceeding 0.20 mm at the concrete surface; and
- Leakage at cracks or joints. Leakage will be defined as any interior surface, which shows dampness.

3.2 Supplemental Structure Condition Rating Guidelines

Supplemental condition inspection guidelines to the Ministry Bridge Condition Rating Guidelines have been developed specific to a floating bridge structure. This reference document is entitled as follows:

- *Ministry Bridge Management Information Systems User Manual – Supplemental Guidelines for Floating Concrete pontoons.*

The Concession will apply the supplemental guidelines when conducting structure condition inspections as defined in the Ministry Bridge Management Information Systems User Manual. The ratings are to be applied in conjunction with those defined for Structures in the *Highway Asset Preservation Performance Measures for Highway Concessions*.

The supplemental condition inspection guidelines refer to the following structure components: under the heading “Floating Concrete pontoons”:

- Pontoon Hull;
- Anchors;
- Anchor Chains;
- Anchor Cables;
- Anchor Cable Connection Hardware;
- Pontoon Joints;
- Watertight Hatches and Doors; and
- Catwalk Platform Support Steelwork.

In addition to these new components, additional comments have been defined for some of the Condition State Descriptions for the following 2 components that are included in the existing Ministry Bridge Management Information Systems User Manual under the heading “Deck”:

- Sub Deck /Cross Ties; and

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- Wearing Surface.

Additional definitions to the Ministry Bridge Management Information Systems User Manual have been defined relating to the following components:

- Pontoon Hull;
- Sub Deck /Cross Ties; and
- Wearing Surface.

The definitions are as follows:

- Crack Width for purposes of establishing maximum crack width, the value will be taken as the mean plus 1.27 standard deviations determined from at least 10 measurements spaced approximately 150 mm apart along a single crack.
- Chloride Concentration must be determined on a sample of powdered concrete, taken and tested in accordance with CSA-A23.2-4B. Sampling at a specified depth increment will be done in a zone at the specified depth + 5 mm.
- Rate of Corrosion must be determined using a CC Technologies PR4500 Polarization Resistance Monitor operated in accordance with the manufacturer's instructions.

3.3 Supplemental Structure Condition Performance Measures

The Concessionaire is required to comply with the measures, minimum acceptable limits of condition and maximum response times as set in Table 3.3.1

The performance measures indicated are in addition to the operational condition requirements set by the *Highway Asset Preservation Performance Measures for Highway Concessions* and *Highway Maintenance Specifications for Highway Concessions*.

The Concessionaire must demonstrate through its Quality Management System, the means and commitment to conformance with these measures.

The Response Time set for this Performance Measure hence may not reflect the timeframe for defect rectification. In respect to structures, the Response Time specified in the tables is that required to either:

- Undertake physical works to achieve the performance measure criteria specified; or

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- Develop a remediation strategy reported in the annual asset management plan and incorporated into the annual Five Year Management Plan's capital works program.

Note that in Table 3.3.1 the following abbreviations are used:

- VA - Visual Assessment from a Routine Condition Inspection, Natural Event Inspection or Detailed Condition Inspection.

For the Network Component Performance Measures specified in Table 3.3.1, the reporting of a "Remediation Strategy" requires the Concessionaire to develop and report in the annual asset management plan, a strategy to limit asset consumption within the specified response times. Remediation strategies that may be considered by the Concessionaire include monitoring, special inspection, investigation (that may include testing of materials), re-evaluation of the risk, and physical work remediation (maintenance, rehabilitation, and replacement).

The methods for assessing or calculating the performance measures are based on the definitions given in the Bridge Management Information System Data Dictionary and Users Manual.

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3.3.1 Structures Supplemental Performance Measures					
Asset Preservation Performance Measure	Intervention Criteria	Action	Maximum Response Time	Basis of Measure	
Component					
Floating Concrete Pontoons Includes pontoon hull, anchors, anchor chains, anchor cables, anchor cable connection hardware, pontoon joints, watertight hatches and doors, catwalk platform support steelwork, sub deck and wearing surface.	S1	Where more than 2% of the Floating Concrete Pontoons or any component thereof has an Inspection Rating worse than Fair.	Undertake Physical works to address defects or deterioration which are causing moderate effect on structural service life and there is potential for structure risk.	6 months	VA
	S2	Where more than 5% of the Floating Concrete Pontoons or any component thereof has an Inspection Rating worse than Good.	Develop a Remediation Strategy to address defects or deterioration which are causing moderate effect on structural service life and there is potential for structure risk.	12 months	VA
	S3	Where there is dampness on any interior surface or ponded water within any cell.	Immediately notify the Province, increase monitoring and complete physical works to eliminate dampness.	1 month	VA

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3.4 Stock Condition Index for Structures

The Stock Condition Index for Structures as per the Highway Asset Preservation Performance Measures for Highway Concession document, under Section 3.3.4 Asset Preservation Performance Measures will not apply.

3.5 Significant Natural Events Criteria for Additional Structure Inspections

As per the Highway Asset Preservation Performance Measures for Highway Concession document, under Section 3.3.2 Structures Inspection Management, the Concessionaire will also undertake structure inspections following Significant Natural Events that affect the Structure sub-categories. Significant Natural Events will include but not be limited to the following:

- Earthquake;
- Rain Storm;
- Snow;
- Wind, and
- Combined Lake Ice and Wind

For the purpose of the above, Significant Natural Events will be defined as follows:

- Earthquakes - refer to Section 2.3.1.3, Strong Motion Seismograph Section of this document.
- Rain Storm - when a heavy rain event in excess of 50mm in a 24-hour period occurs as reported by Environment Canada or recorded at a weather station along the length of the Concession Highway.
- Snow - whenever snow levels exceed 1m on a bridge structure.
- Wind – whenever the 1 hour average wind speed exceeds 60 km/h from either the north or south direction, as measured at the New Crossing; and
- Combined Lake Ice and Wind - Whenever the lake surface is completely frozen and the 1 hour average wind speed exceeds 50 km/h from either the north or south direction, as measured at the New Crossing.

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3.6 Highway Running Surfaces

As per the *Highway Asset Preservation Performance Measures for Highway Concession* document, under Section 3.2.3, the Concessionaire is required to comply with the performance measures, minimum condition and maximum response times as set in Table 3.2.3.

Figures 3.6.1 to 3.6.3 define the performance measures for Pavement Traffic Lanes as referenced in Section 3.2.3. of the *Highway Asset Preservation Performance Measures for Highway Concession* document.

The Concessionaire must comply with the cumulative distributions established for:

- a) Pavement roughness as per Figure 3.6.1;
- b) Surface deterioration as per figure 3.6.2; and
- c) Pavement rutting as per Figure 3.6.3.

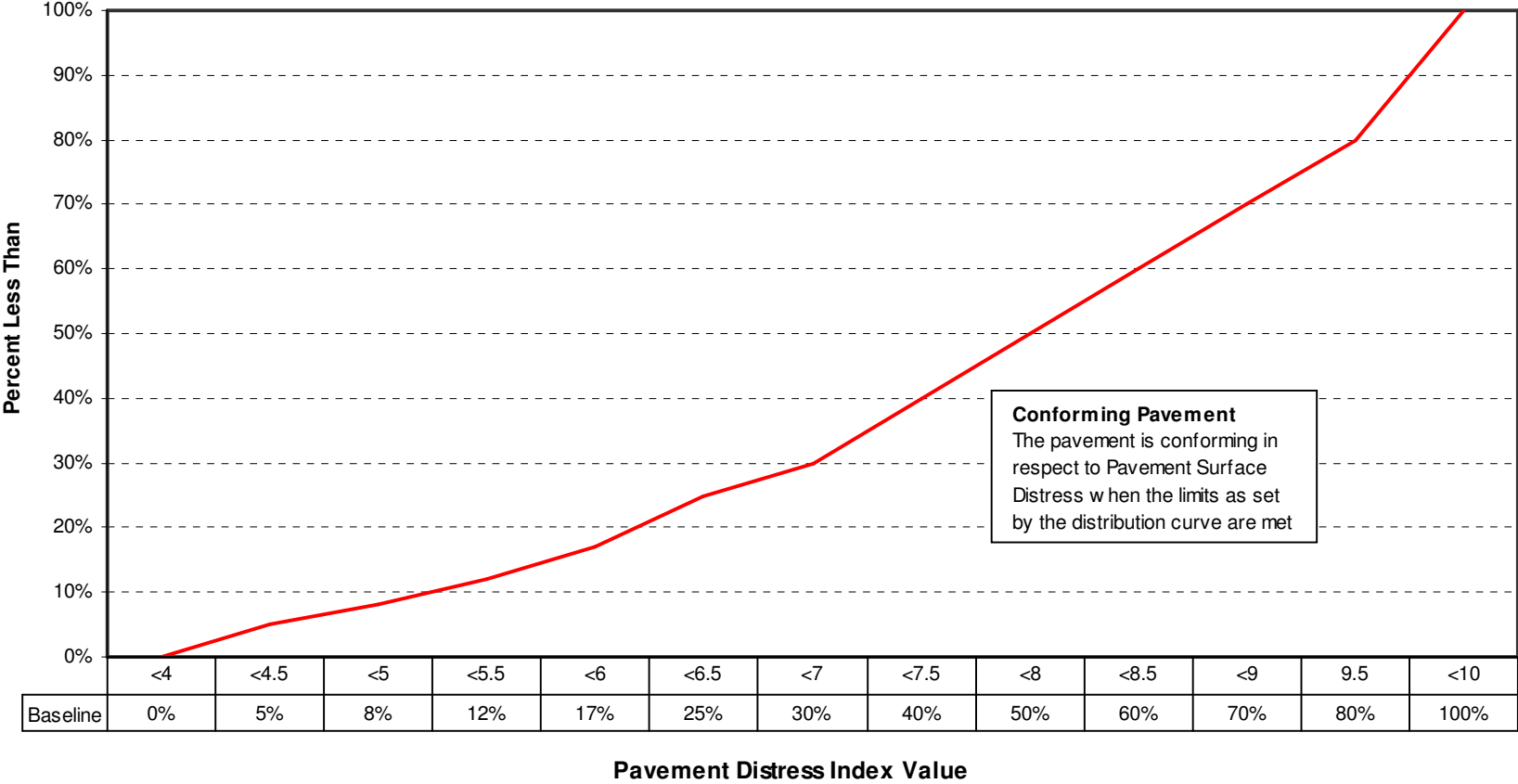
These describe the minimum acceptable limits of condition throughout the Concession Period on a continual basis defining the annual requirements.

The cumulative distributions are determined using the 50 metre pavement performance data that is collected annually for all Paved Traffic Lanes that comprise the Highway.

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Figure 3.6.1

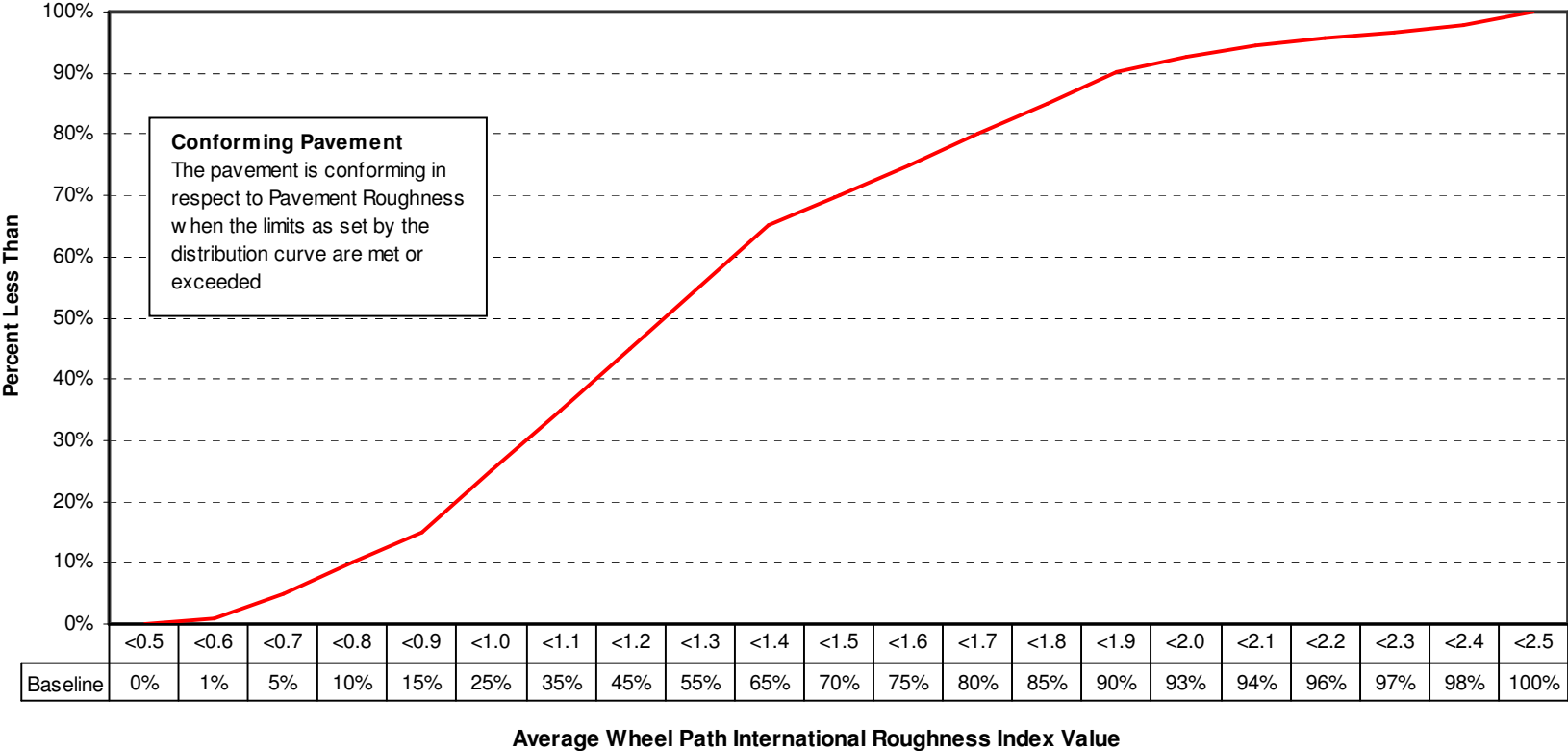
Pavement Surface Distress Profile - Cumulative Distribution
All Travel Lanes



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Figure 3.6.2

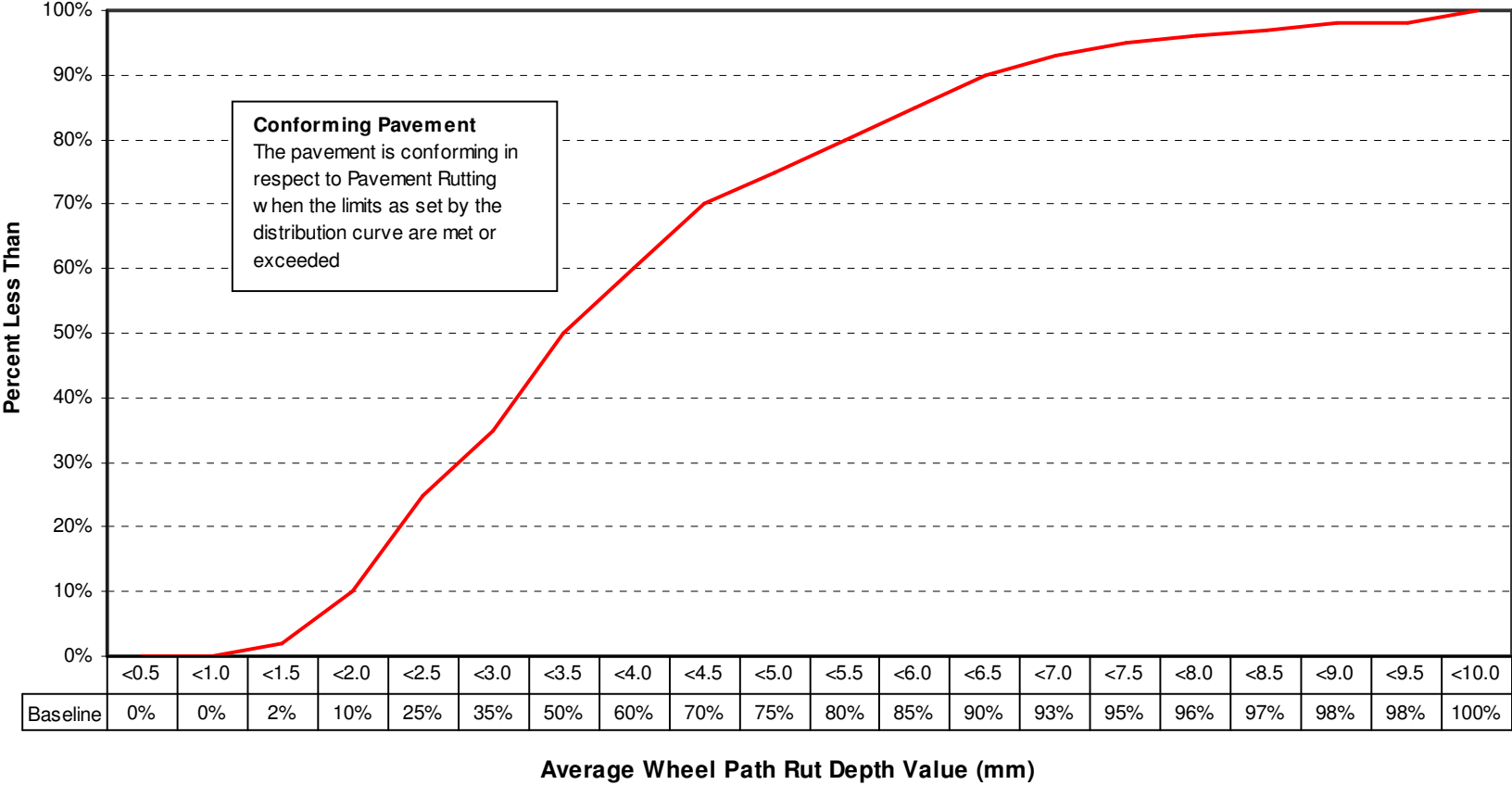
Pavement Roughness Profile - Cumulative Distribution
All Travel Lanes



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Figure 3.6.3

Pavement Rutting Profile - Cumulative Distribution
All Travel Lanes



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4 REPORTS AND RECORDS

4.1 Additional Reports and Records

The requirements and standards and/or format of reports and records required for Operations, Maintenance and Rehabilitation are detailed in the *Reporting Specifications for Highway Concessions* document.

Table 4.1.1 lists additional deliverable reports and records that are required and the timing and format of the deliverable.

Table 4.1.1: Schedule of Deliverable Reports and Records		
Deliverable Name	Due Date	Format
OMR Management Plans	Within 6 months of Commencement and reissue when amendments are made	As per Part 1, Schedule 7
User Satisfaction Survey	June 1 st of each year	As per Schedule 10, Payment Mechanism To be defined in consultation with Province
Strong Motion Seismograph/structural monitoring system Guide	As per Section 2.3.1	As per Section 2.3.1
Camera Images to Ministry website	Continually	As per Part 4, Schedule 5
Routine Pruning Schedule	1st of March each year following commencement of New Crossing	To be included as part annual plan
Operations and Maintenance Manual of New Crossing	Within 6 months of Commencement and reissue when amendments are made	To be defined in consultation with Province

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5 ADDITIONAL DETAILS

5.1 Highway Maintenance Classification

The Ministry Summer Highway Maintenance Classification for this Concession in terms of referencing the Ministry Highway Maintenance Specifications for Highway Concessions is as follows:

- Class 1

The Ministry Winter Highway Maintenance Classification for this Concession in terms of referencing the Ministry Highway Maintenance Specifications for Highway Concessions is as follows:

- Class A

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APPENDIX A Terminology and Interpretation

In this Local Area Specifications document, unless the context otherwise requires, terms will have the following meanings:

“**Classification**” designates the kinds and levels of Maintenance Services to be provided according to the amount and type of service the Highway is expected to provide, and for each individual Highway or portion of Concession Highway is the Class which the Province’s records designate, and as may be amended from time to time by the Province.

Classification - Summer	
Class	A.D.T. (average daily traffic) Vehicles per Day
1	over 10,000
2	5,000 - 10,000
3	1,000 - 5,000
4	500 - 1,000
5	100 - 500
6*	10 - 100
7*	0 - 10
8	A Highway, typically without a constructed road but for which maintenance responsibilities exist for such things as danger tree removal and drainage, and which may also have other improvements to maintain such as pedestrian and bicycle paths.

Classification - Winter	
Class	Definition
A	High volume traffic (over 5,000 winter average daily traffic count) or commuter routes and certain expressways and Freeways through mountain passes, as determined by the Province. They are heavy commuter traffic routes extended to include the bulk of vehicles commuting daily to a center and cut-off where traffic drops below 2,500 <u>winter</u> average daily traffic count. Very high volume ski hill and commuter routes.
B	All trunk and main routes (or portion thereof as designated by the Province) not included in Class A, with a cut-off traffic volume of 1,000 winter average daily traffic count. Lower volume ski hill and commuter routes.
C	All school bus routes and industrial (truck) traffic routes (more than 25% trucks) not included in Class A and B.
D	All other regularly maintained winter routes.
E	All other irregularly maintained winter routes.
F	Roads not maintained in the winter, or not open, or not maintained by the Minister.

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“Deck” means the portion of a Bridge that supports the Concession Highway, from the top of the major structural members to the Wearing Surface, and designed to distribute loads evenly across the Bridge.

“Highway User” means any person or persons, regardless of form of transportation, that uses the Concession Highway.

“Physical Works” means the carrying out of asset maintenance, rehabilitation or remediation activities in order to achieve the Asset Preservation Performance Measure requirements

“Pier” means an intermediate vertical support (Substructure) used to join and support the two Spans.

“Remediation Strategy (structures)” means all activities required managing the risks associated with defects (including deterioration and damage) identified from an inspection. In general these activities include monitoring, special inspection, investigation (that may include testing of materials), re-evaluation of the risk or physical work remediation. Physical work remediation can include maintenance, repair, rehabilitation and replacement. It is noted the initial risk assessment, made after identifying the defect, will be undertaken as part of the structure inspection work.