

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 5-440

SIGN SYSTEM MAINTENANCE

1. OBJECTIVE

To regulate and facilitate the safe and orderly movement of traffic.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) clean and repair existing Sign Systems and their components;
- b) reset Sign Systems that are accidentally knocked or blown down;
- c) relocate Sign Systems and Pickets that need to be removed and re-installed due to seasonal requirements or due to changing needs or conditions; and
- d) replace reflectors and Pickets.

2.2 Quantified Maintenance Services

The Contractor must:

- a) replace or install new Sign Face Overlays, Signs and Sign Systems; and
- b) relocate, due to policy changes, Signs and Sign Systems as required by the Province.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) keep all Sign Systems and Pickets clean, legible, adequately reflectorized, erect and correctly located in accordance with the Sign Manuals and the Province's Policy for Highway Signs as outlined in Appendix "A" of this Maintenance Specification, or as otherwise specified by the Province;
- b) relocate Sign Systems at Highway locations that are required to be removed and re-installed due to seasonal requirements or due to changing needs or conditions, at those Highway locations determined by the Province;
- c) replace reflectors with the same type, size and quality as existing and in accordance with the sign manuals listed in Section J of the Introduction to these Maintenance Specifications;
- d) replace Pickets;
- e) obtain prior approval from the Province for all re-ordering and design of guide signs and special information signs; and
- f) remove, store and be responsible for any illegal or unauthorized Signs or Sign Systems on the Highways, as directed by the Province.

3.1.1 Performance Time Frames

- a) The following table establishes the maximum time from the time the deficiency was detected by or reported to the Contractor, within which the Contractor must complete the cleaning, resetting, repair, and/or relocation of Sign Systems and Pickets:

Type of Sign marking (in accordance with the Sign Manuals)	Summer Highway Classification		
	1&2	3&4	5,6&7
(i) regulatory and warning	24 h	24 h	24 h
(ii) school and pedestrian	24 h	2 d	3 d
(iii) delineators and Pickets	24 h	2 d	3 d
(iv) parking and stopping	24 h	2 d	3 d
(vii) direction (guide)	2 d	3 d	7 d

Type of Sign marking (in accordance with the Sign Manuals)	Summer Highway Classification		
	1&2	3&4	5,6&7
(viii) information	2 d	3 d	7 d
(ix) service and attraction	2 d	3 d	7 d
(x) all other Signs	7 d	7 d	7 d

Legend

d – days

The Contractor must:

- b) notwithstanding 3.1.1 a), make temporary repairs to any regulatory or warning Sign that is determined to be a Damaged Sign as described in Appendix A of this Maintenance Specification or if any stop or yield Sign is missing; and initiate installation of temporary signage or provide traffic control in accordance with the Maintenance Specification for *Highway Traffic Control* immediately, from the time the deficiency was detected by or reported to the Contractor;
- c) touch up or re-paint all Sign and delineator posts when the surface is discoloured or damaged and re-paint all wood posts a minimum of once every three years;
- d) relocate Sign Systems and Pickets required to be removed and reinstalled due to seasonal requirements or changing needs or conditions within 7 days from receiving direction from the Province;
- e) replace surface reflectors within 10 days from the time the deficiency was detected by or reported to the Contractor, where more than 25 percent of the reflectors along any continuous 500-metre section of Highway are missing, damaged or have lost their reflectivity;
- f) replace surface reflectors within 30 days from the time the deficiency was detected by or reported to the Contractor, where less than 25 percent of the reflectors along any continuous 500-metre section of Highway are missing, damaged or have lost their reflectivity; and

- g) replace Guardrail and animal reflectors within 30 days from the time the deficiency was detected by or reported to the Contractor, where more than 25 percent of the reflectors along any continuous 500-metre section of Highway are missing, damaged or have lost their reflectivity.

3.2 Quantified Maintenance Services

The Contractor must:

- a) replace or install new Sign Face Overlays, Signs and Sign Systems; and
- b) relocate Signs and Sign Systems as required by the Province because of policy changes.

Note: The Contractor will not mount Signs on poles or structures without the prior approval of the Province and/or the owner of the poles or structures.

3.2.1 Performance Time Frames

The Contractor must:

- a) replace or install new regulatory, warning or school and pedestrian Sign Face Overlays, Signs and/or Sign Systems within 24 hours from receiving direction from the Province;
- b) order, replace or install new guide or information Sign Face Overlays, Signs and/or Sign Systems as follows:
 - i) order within 24 hours of receiving direction from the Province; and
 - ii) install within 24 hours of delivery.
- c) install delineators and all other Sign Face Overlays, Signs and/or Sign Systems within 7 days of receiving direction from the Province; and
- d) plan to perform all required Sign Face Overlays, Signs and Sign System deficiencies within the Contract Year to the limit of the identified quantities. Where identified work exceeds the available quantities the Contractor must ensure repairs are identified and carried out in order of priority to ensure safety and to protect the infrastructure.

3.3 Materials

The Contractor must ensure that:

- a) Sign Face Overlays, Signs and Sign Systems must be as specified in the Specifications for Standard Highway Sign Materials, Fabrication and Supply; and in the Sign Pattern Manual;
- b) metal posts and battens are made of perforated, Galvanized steel square tubing or of other material as approved in writing by the Province;
- c) all wooden posts and battens are pressure-treated wood S4S, with dimensions, colour and shape as specified in the Standard Specifications for Highway Construction;
- d) metal or concrete posts for delineators are as specified in the Sign Manuals and that plastic or fiberglass delineator posts are in accordance with the Standard Specifications for Highway Construction;
- e) oil-base, solid colour stain or oil-base exterior paint, compatible primer paint and standard paint colours are as specified in the Sign Manuals, with all materials meeting the CGSB specifications as to quality, coverage and colour in accordance with the Standard Specifications for Highway Construction;
- f) all hardware is of non-corrosive material to avoid discolouration of Sign and delineator faces;
- g) delineator reflectors and reflective sheeting are in accordance with the Sign Manuals;
- h) concrete and other materials used for production and fabrication of Sign bases are in accordance with the Sign Manuals, Standard Specifications for Highway Construction or as otherwise approved in writing by the Province;
- i) Pickets, animal reflectors and other materials are as approved in writing by the Province; and
- j) Guardrail reflectors are as specified in the Standard Specifications for Highway Construction.

4. WARRANTY

Not applicable to this Maintenance Specification.

BC MINISTRY OF TRANSPORTATION

Maintenance Specification

SIGN SYSTEM MAINTENANCE

APPENDIX "A"

Policy for Highway Signs

Poorly maintained Signs and other Sign Systems reduce Highway safety and spoil the appearance of an otherwise well maintained Highway. To be respected by Highway Users and to be useful and effective, Sign Systems must be correctly used and correctly placed.

Effective Signing requires:

- a) selection of the correct Sign System for a particular situation;
- b) correct location of the Sign System; and
- c) ongoing maintenance to ensure that the Sign and its post(s) are in good condition.

In order to meet the requirements of this policy, the Contractor must engage in practices that ensure that all Signs and other Sign Systems are correctly placed, clearly display the necessary messages to ensure the safe and orderly movement of traffic, and meet other safety, aesthetic and economic benefits. This requires that the Contractor carry out its obligations in accordance with this Maintenance Specification in a manner that minimizes the overall deterioration of Signs and other Sign Systems.

The following descriptions of "Sign Deterioration" and "damaged Sign" must be referred to in this Maintenance Specification:

"Sign Deterioration"

Each Sign face will be kept visible and legible under both day and night time conditions. It should be noted that all Signs will gradually deteriorate to a point where the Signs must be Refurbished or replaced. The retro-reflective sheeting of Signs deteriorates from the effects of sunlight, weather, airborne particles, and air pollution. Dirt from road spray, snow and ice removal from the roadway, and air pollution may collect on the Sign sheeting, and, if unchecked, will severely affect the night time visibility of the Sign.

A Sign face is considered to have lost its retro-reflectivity for night time display when the area of limited retro-reflectivity or blotchy reflectiveness exceeds 25% of the Sign face area. A Sign face is also considered to have lost its retro-reflectivity when the

reduced retro-reflectivity, as determined by the Province, overrides the ability of the Sign text, colour, or legend to be effectively presented to the travelling public or other intended audience.

"Damaged Sign"

A Sign is considered to be a damaged Sign where:

- a) the Sign is not flat (planar) and properly oriented to the travelling public or other intended audience;
- b) either 10 square cm or 1% (whichever is greater) of the Sign face area is damaged, dented, vandalized or otherwise not as new; or
- c) in the opinion of the Province, the intended message to the travelling public or other intended audience is unclear or confusing.

Managing Sign and Other Sign Systems Maintenance

The Province does not currently have a comprehensive or consolidated "Sign Maintenance Manual". It is therefore expected that the Contractor will develop an integrated process to accomplish an effective Sign maintenance program.

Contractors will base their program on the contents of the following publication or other sources as approved by the Province:

Maintenance Management of Street and Highway Signs
NCHRP Synthesis 157

ISSN 0547-5570
ISBN 0-309-04910-5

available from:

Transportation Research Board
National Research Council
2101 Constitution Avenue, N.W.
Washington, DC 20418

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 5-450

TEMPORARY LINE MARKING AND ERADICATION

1. OBJECTIVE

To facilitate the safe and orderly movement of traffic.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) place temporary line markings as required to delineate traffic lanes between the centreline, lane lines and turning lanes at locations where the absence of or deficiencies in pavement markings are unsafe or have the potential to become unsafe for Highway Users; and
- b) eradicate line markings as required.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) place temporary line marking tape on all existing and new pavement surfaces required as a consequence of the Contractor's provision of the Maintenance Services;
- b) ensure that all temporary line markings are well-defined, clear, distinct and in accordance with the Manual of Standard Traffic Signs and Pavement Markings;
- c) ensure that line markings bond to the surface will last for up to 1 month or until the permanent markings are applied;

- d) remove or completely eradicate line markings which are superfluous or obsolete or as directed by the Province;
- e) ensure that the surface is not damaged as a result of any grinding or other eradication technique used to remove temporary line markings; and
- f) remove paint or other pavement marking materials and dispose of the residue in a manner acceptable to regulatory agencies.

3.1.1 Performance Time Frames

The Contractor must:

- a) when temporary line markings are required as a consequence of the Contractor's provision of Maintenance Services, place temporary line markings and eradicate temporary and permanent line markings within 3 hours of completing such Maintenance Services; and
- b) gather and remove from the work site on a daily basis all refuse resulting from activities provided within this Maintenance Specification.

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.2.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.3 Materials

Refer to the Manual of Standard Traffic Signs & Pavement Markings.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 5-470

HIGHWAY TRAFFIC CONTROL

1. OBJECTIVE

To keep Highways safe; and to minimize delays for, and advise Highway Users of the duration and cause of delays.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) perform traffic control in conjunction with the delivery of the Maintenance Services;
- b) perform traffic control for road closures; and
- c) perform initial traffic control in response to all situations on the Highway that are unsafe or have the potential to become unsafe.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) initiate traffic control or request a Highway closure, as appropriate, upon detection or notification of a hazard or potential hazard;
- b) perform traffic control for complete closures of Highways;

- c) provide traffic control as required during the performance of the Maintenance Services; utilize the Traffic Control Manual for Work on Roadways as the primary reference for the placement and use of traffic control devices and for traffic control procedures, and use in conjunction with other Sign manuals;
- d) notwithstanding the Traffic Control Manual for Work on Roadways, perform the following in connection with traffic control for working personnel and equipment:
 - i) whenever lane closures reduce a two-way road to a single lane, a traffic control person must be used to control traffic whenever traffic volume exceeds 100 vehicles per hour, counted in both directions;
 - ii) in connection with continuously slow-moving operations, use a Shadow Vehicle and associated traffic control devices on all Class 1-3 Highways, except where the use of a Shadow Vehicle would be hazardous because of poor alignment, gradient or other Sight Distance obstruction, then the Contractor must use traffic control persons and/or other traffic control procedures; equipment used for snow removal and/or abrasive or chemical applications is excluded from this requirement;
- e) where traffic flow is restricted due to the operations of the Contractor and the delay exceeds 30 minutes, adjust the operations or terminate work until the traffic volume eases;
- f) obtain the prior written approval of the Province to use portable lane control signals. The Contractor must monitor traffic flows and adjust the timing to ensure optimum traffic flow and safety; and
- g) obtain the prior written approval of the Province temporary traffic control signals. The design and timing of temporary signals must also receive prior written approval of the Province and must comply with the relevant sections of the Motor Vehicle Act and of the Regulations pursuant to the Motor Vehicle Act.

3.1.1 Performance Time Frames

The Contractor must perform traffic control immediately, from the time the deficiency was detected by or reported to the Contractor.

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.2.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.3 Materials

Not applicable to this Maintenance Specification.

4. WARRANTY

Not applicable to this Maintenance Specification.