

Manual of Aesthetic Design Practice



**BRITISH
COLUMBIA**

Ministry of Transportation

Table of Contents

A	Introduction	1
	How to Use This Manual	4
	Aesthetic Design Method	5
B	Aesthetic Classification System	9
C	Visual Resource Management	11
	1.0 Scope of Visual Resource Management	12
	2.0 Landscapes of British Columbia	13
	3.0 Landmarks	17
	4.0 Views	19
	5.0 Visual Quality Assessment	21
	6.0 Visual Absorption Capability	23
	7.0 Visual Interest: The Driver's Experience	
	8.0 Integration of Guidelines into Highway Design	28
D	Alignment	31
	1.0 Integration of Alignment	
	2.0 Response to Topography	
	3.0 Driver Interest and Experience	38
	4.0 Confusing Alignment	39
	5.0 Safety	41
	6.0 Response to Views	43i
	7.0 Response to Vegetation	48
	8.0 Secondary Aesthetic Impacts - Climate	49
	9.0 Secondary Aesthetic Impacts - Ecosystems	50
	10.0 Secondary Aesthetic Impacts - Adjacent Land Use	51
E	Clearing and Grubbing – Vegetation Management	53
	1.0 Location of Disposal Areas	54
	2.0 Method of Clearing	55
	3.0 Limits of Clearing	56
	4.0 Selective Clearing	58
	5.0 Clearing of Roadside Facility Areas	64
F	Earthworks	67
	1.0 Location of Borrow Pits, Surplus Disposal, Ponds, and Basins	68
	2.0 Site Preparation	70
	3.0 Integration with Adjacent Topography	71
	4.0 Application of Earthwork Guidelines	74

- G Revegetation – Vegetation Management83**
 - 1.0 Site Preparation84
 - 2.0 Operational Safety Distances85
 - 3.0 Response to Views from the Road86
 - 4.0 Response to Views Toward the Road91
 - 5.0 Response to Natural Vegetation92
 - 6.0 Response to Erosion94
 - 7.0 Response to Climatic Conditions96

- H Roadway Structures99**
 - 1.0 Aesthetic Classification System100
 - 2.0 Integration of Structures101
 - 3.0 Location of Structures102
 - 4.0 Scale of Structures103
 - 5.0 Form of Structures104
 - 6.0 Colour of Structures105
 - 7.0 Texture of Structures106
 - 8.0 Unity of Structures107
 - 9.0 Accents108
 - 10.0 Guidelines109

- I Roadside Facilities123**
 - 1.0 Provincial Roadside Facility Program124
 - 2.0 Definitions of Roadside Facility Types125
 - 3.0 Aesthetic Classification System and Roadside Facilities130
 - 4.0 Roadside Facility Spacing Plan131
 - 5.0 Roadside Facility Site Selection Process132
 - 6.0 Roadside Facility Design Process136
 - 7.0 Use of Professionals143
 - 8.0 Summary of Roadside Facility Planning and Design Method144

- J Above Ground Utilities145**
 - 1.0 Scale of Structure146
 - 2.0 Location of Utility Structures147
 - 3.0 Integration with Adjacent Vegetation and Earthwork
 - 4.0 Type, Placement, and Level of Illumination150
 - 5.0 Artistic Application of Lighting151

- References153**

- List of Figures155**



Above Ground Utilities

Above Ground Utilities

Introduction

Above ground utilities include lighting, power, and telephone lines which service roadside facilities and/or adjacent communities, residences, and businesses. By nature, these utilities can parallel the highway for great distances. The continual presence and sheer repetition of these structures demands attention and design approaches completely different than that given to other roadway structures.

Recommended Practices

The following pages outline recommended practices concerning the aesthetics of utility installation for highways in B.C., as summarized below:

- 1.0 Scale of structure should complement both the design speed and the scale of the highway.**
- 2.0 Place above ground utilities to minimize the disruption of views from the highway.**
- 3.0 Integrate utility structures with adjacent landscapes and with the characteristics of the region in which they are placed.**
- 4.0 Select the type, placement and level of illumination to facilitate safe and aesthetic night driving.**
- 5.0 Consider the artistic application of lighting for visual variety and the increased attentiveness of the driver.**

1.0 Scale of Structure

Specify structures, which will be of an appropriate scale and proportion, and which will compliment the design speed, and the scale of the highway.

.1 Adjust the height and proportion of utility structures, recognizing that a structure gains in physical prominence as design speeds decrease.

.2 Adjust the height of light standards to compliment the scale of the highway and adjacent existing vegetation.

- Light standard height should not exceed dimension of the pavement width, where such height limits are feasible.

2.0 Location of Utility Structures

Place utility structures to minimize the disruption of views from the highway.

.1 Locate lighting utility standards as an integral component of the highway.

- Place lighting at minimum setback distance required for highway design speed.
- Locate lighting in boulevards not in the median of divided highway.

.2 Locate power and telephone utility lines for minimal visibility from highway.

- Depending on economics and availability of land, one or all options may be applied.
 - provide a separate alignment for telephone and power utility lines behind 10m minimum width screen where natural treed conditions exist.
 - combine lighting, power and telephone into shared pole facility, where power services to lighting is above ground.
 - where power service to lighting is underground locate telephone and power utility line at farthest setback from pavement edge possible, commensurate to protection of designated views and minimum clearing of adjacent natural vegetation.
 - in locations of high visibility place all services underground so as not to interfere with the views from and toward the highway.



Figure J-1

In this example utility poles have been located away from the highway to preserve a particularly important view adjacent to a tourist facility.

.3 Locate lighting standards, telephone and power poles out of designated views and "areas of effective vision".

- Where a view, clearing, or open countryside appears to one side locate poles and standards to the opposite side.
- Where views on the curve remain equal locate standards and poles to the inside curve.
- Where views on tangents remain equal locate standards and poles to the side opposite of the approaching curve's predominant view.



Figure J-2

In this example utility poles have been located on the outside of a curve within the area of effective vision.



Figure J-3

This situation is much better where utility poles are not within the area of effective vision.

.4 Minimize the number of utility structures.

- Use the widest practical spacing between fixtures, commensurate with height of standard and uniformity requirements.
- Combine lighting standards and other power poles into a shared pole facility.
- Use other highway structures such as retaining walls and exposed cliff faces, and bridge and overpass infrastructure as replacements for light standards.

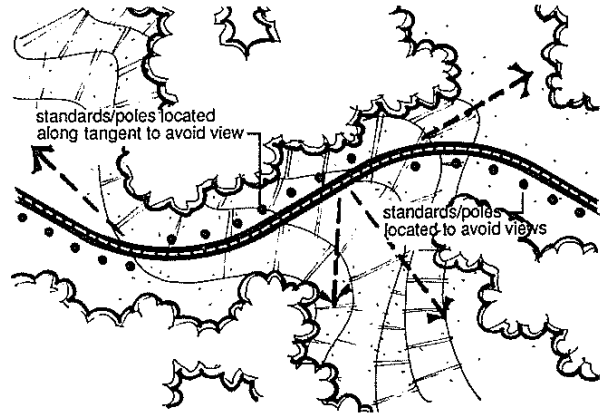


Figure J-4
Locate poles and standards on curve and/or tangent to side of road away from significant views.

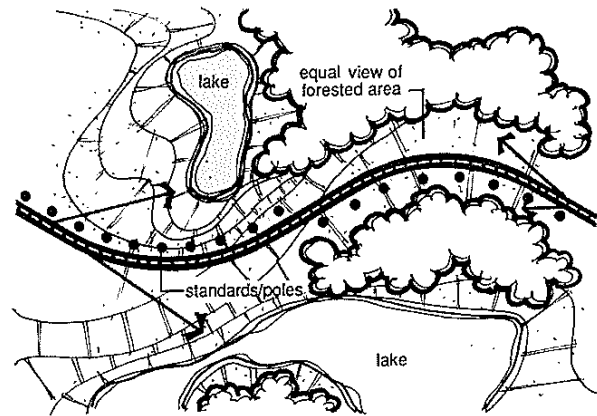


Figure J-5
Locate poles and standards to the inside curve, where views are equal.

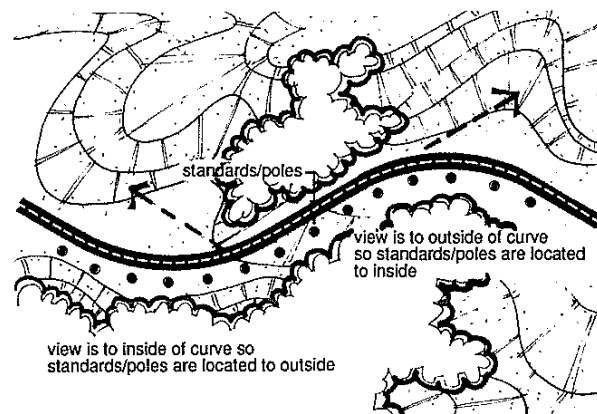


Figure J-6
When views along tangents are equal, locate standards and poles to the side opposite the approaching curve's predominant view.

3.0 Integration with Adjacent Vegetation and Earthwork

Integrate utility structures with adjacent landscapes and the characteristics of the region in which they are found.

.1 Integrate lighting standards and power and telephone poles with adjacent vegetation.

- Where clearing and grubbing of trees is required to accommodate utility structures provide the minimum setback distance allowed.
- Use existing and planted trees as backdrops to utility structures which must be placed at road-side.

.2 Integrate lighting standards and power and telephone poles with adjacent earthwork.

- Investigate opportunities of attaching utility lines to cliff faces in confined places, or to avoid obstruction of views
- Locate utility lines along a cliff top, rather than running lines over the cliff top.
- Where utility lines must follow topography which creates a silhouette of the line against the horizon, locate lines behind a vegetative screen of 10m minimum width.

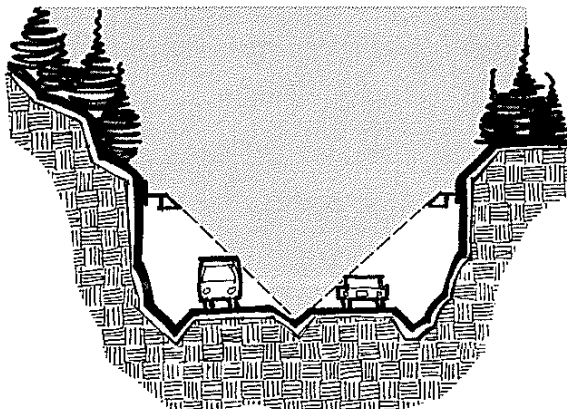


Figure J-7
Consider attaching utility lines to cliff faces.

.3 Parkway and Tourway lighting structures should be a colour which is responsive to the characteristics of the region in which they are found.

- Respond to colour characteristics of the region. Suggested colours might be:
 - medium khaki green or warm grey for forested backdrop.
 - medium khaki green or warm grey for wetland backdrop.
 - light khaki green or warm grey for grassland backdrop.
- The colour of lighting structures should be standardized along a route.

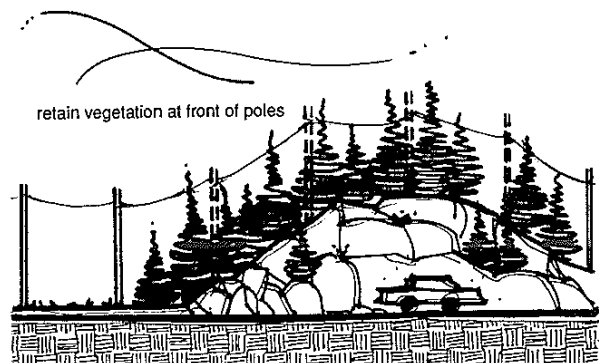


Figure J-8
Locate lines behind a vegetative screen where lines must follow topography.

4.0 Type, Placement, and Level of Illumination.

Determine the type, placement, and level of illumination to facilitate safe and aesthetic night driving.

.1 Minimize glare upon entering lit highway segments from unlit segments, and between suburban and rural areas.

- Diminish the spacing between light standards until typical spacing is achieved, so as to diffuse the sudden glare upon entering lit areas.
- Utilize 'reduced glare' or 'sharp cut-off' fixtures in transition areas between unlit and lit zones.

.2 Minimize the glare or visual nuisance of highly lit highway segments to adjoining residences.

- Provide a treed screen of 10m minimum width between affected residences and highway lighting.

.3 Provide adequate and complementary scaled lighting for signs.

- Signs not adequately visible by fluorescence should be lit by attached overhead light, matching the length, scale and colour of the sign.

.4 Provide both safe and functional lighting of all highway facilities.

- Light all parking areas, typical to illumination of urban parking areas.
- Light immediate exterior area of all structures within roadside facility areas, at an adequate level to safeguard against vandalism of property and attack on facility user.

Note: The type and level of illumination chosen is conditional with economics. Type and level of illumination must first be commensurate to safety and functional requirement.

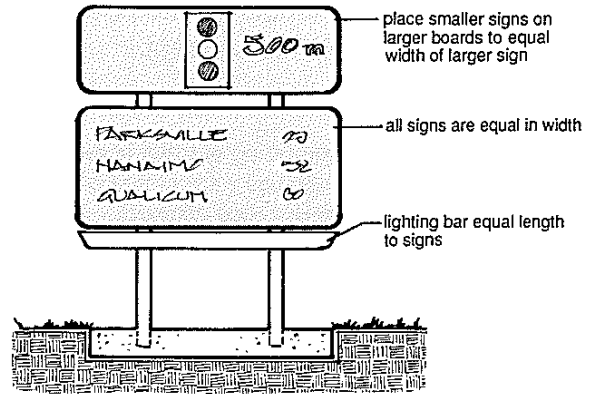


Figure J-9

Lighting for signage should match the length, scale and colour of the sign.

5.0 Artistic Application of Lighting

Consider the artistic application of lighting to provide visual variety and the increased attentiveness of the driver.

.1 Provide illumination of outstanding highway structures.

- Appropriate structures would be bridges, overpasses, and well detailed retaining walls.

.2 Provide illumination of outstanding natural features which may be easily featured from the roadside.

- Appropriate features would be waterfalls, individual landmark trees and rock outcrops, and cliff faces.

.3 Give increased consideration to artistic application of lighting to any structures and features described above, as means of giving variety to driver's experience as mentioned under Visual Resource Analysis.



Figure J-10

Illuminating this water cascade and bridge structure will create an interesting night driving experience.