

# Information Sheet - Mountain Highway Interchange Noise Assessment and Sound Mitigation

## Why is the project needed?

The new Mountain Highway Interchange will provide additional Highway 1 access to better distribute traffic in the Lower Lynn area and relieve pressure at the Keith Road/Seymour Parkway and Main Street/Dollarton Highway interchanges. Mountain Highway will be realigned to provide a new continuous municipal connection across Highway 1. New pedestrian and cycling facilities will be constructed; fish and wildlife habitat improvements will be made, along with accommodations for future Highway 1 improvements.

## What did the province do to reduce impacts to the community?

The Project team understands the importance of preserving as much mature forested area and natural habitat as possible therefore retaining walls, steepened slopes, and a tight diamond design were all chosen to reduce the overall project footprint. In addition, the project will revegetation the entire site, construct noise mitigation measures, make improvements to Keith Creek fish habitat and water quality, make new trail connections, and upgrade drainage and utilities.

## What is a Noise Assessment?

Noise assessments measure pre-construction noise levels, determine future noise impacts and propose practical noise mitigation options based on the Ministry of Transportation's Noise Policy. The Mountain Highway Interchange Noise Assessment collected baseline community noise levels in September 2015; those levels were then modelled to forecast future sound levels (2028). Noise Assessments are conducted by third party Professional Acoustical Consultant Engineers on all Ministry of Transportation capital projects that include upgrades to numbered Highways.

## What were the findings of the assessment?

The overall noise levels are expected to be near preconstruction levels upon completion of the project. The baseline noise level readings ranged from 58db to 70db which are considered typical for a location in close proximity to the highway. Of the 92 total residences that were assessed, 52 were predicted to have minor impacts, 33 moderate impacts and 7 severe impacts therefore the project is proposing a number of mitigation measures to help offset those impacts. It is important to note that the noise assessment forecasted noise levels for residences which front the project as they would typically experience the highest variation of noise levels.

Do Noise Assessments account for ground elevation changes and vegetation loss?

Yes. Acoustical Engineers were provided with project design files which included the clearing limits, new infrastructure and new ground profiles. Note that the 2028 noise level forecasts include projected traffic growth but not the offsetting noise reduction benefits resulting from revegetation (5,000 trees and 20,000 shrubs).

Why has traffic noise increased since construction started?

The removal of trees and ground cover has exposed the hard surface of rock and soil which is reflecting traffic noise and heightening noise levels. Where possible the project will start to revegetate various locations as early as possible to provide ground cover that will help dampen noise levels. Trees and vegetation are not considered optimal measures to reduce noise levels but they can provide an overall benefit by absorbing and scattering noise.

What Noise Mitigation Measures were considered?

New interchange features such as retaining walls, ramps and the new overpass were evaluated for their noise mitigation potential. In addition sound barriers, revegetation, building façade upgrades, noise screens, terrain features and quiet pavement were also considered.

How is noise mitigation measures evaluated?

The Project Team evaluate measures based on the following criteria:

- Is there an impact? *As per Noise Policy thresholds and Noise Assessment*
- Will noise mitigation be effective in reducing noise? *Minimum 5db reduction required as per Noise Policy and Noise Assessment*
- Does effective noise mitigation meet cost guidelines? *As per Noise Policy cost guidelines and Noise Assessment*
- Does implementation of noise mitigation cause harm? *Property, environment, drainage, utility, access etc.*
- Can implementation of noise mitigation be reasonably engineered and constructed?

Why are sound barriers not always effective?

The distance and elevation gap between the residences and highway are key factors in whether a sound barrier will provide noise reduction benefit. Sound barriers located next to the highway still have significant levels of traffic noise overtop the barrier therefore residences located above the top of wall and a distance away will not receive negligible noise reduction. Sound barriers for a fronting residence could require additional tree removal which may be considered detrimental to the property by the private owner and/or neighbourhood. Sound barriers also require careful consideration of constructability, accessibility, property constraints, impact to habitat & utilities, and aesthetics. The Mountain Highway Interchange project will be installing sound barriers near the Shavington cul de sac where it fronts Mountain Highway and along the south side of Keith Road.

## What is the Mountain Highway Interchange Project doing to minimize traffic noise?

The project will include sound walls, revegetation (5,000 trees & 25,000 shrubs), soil berms, traffic screens, signage and signalization to reduce traffic noise. These measures were determined to be the most practical and effective for the project site. Consultation will continue throughout construction as the input received from residents has been very beneficial in ensuring the project best addresses community concerns and effectively optimizes mitigation measures.

*The plan view sketch included on the next page illustrates the various mitigation measures being implemented by the project.*

## How have you engaged with local residents?

With many Ministry projects, traffic noise is a major concern for the surrounding community which is why the Project Team has spent much time and effort minimizing traffic noise through design, engineering and now during construction. Public comments were received at Open Houses held in January 2016 and February 2017 and the feedback received was then reviewed by the project team for inclusion in the final design. However further engagement during construction is essential because “actual” impacts and opportunities can be better identified, therefore the project team continues to meet with residents who have specific noise concerns to ensure that all appropriate mitigation measures have been considered.

*Display board from the 2017 Open House, available on the project website.*

### Highway 1 – Lower Lynn Improvements Mountain Highway Interchange



#### Visual and Noise Mitigation

##### What We Heard

- Concern of increased noise, increased traffic on residential streets, and greater visual impacts
- Need for sound/visual barriers to protect residents from increased noise as a result of closer traffic and construction activities

##### What We Are Doing

- 75m of 3m-high concrete sound barrier along the west side of the new Mountain Highway, south of Highway 1 as recommended in a noise assessment
- 100m of 2m-high decorative concrete fence along south side of E. Keith Road to provide screening from traffic
- 80m of 2m-high decorative concrete fence along east side of Brooksbank Avenue and south side of E. Keith Road
- Use of vegetation as barriers as appropriate



Rendering of concrete sound barrier along Mountain Highway



75m of 3m high concrete sound barrier along the west side of the new Mountain Highway, south of Highway 1

100m of 2m high decorative concrete fence along the south side of E. Keith Road

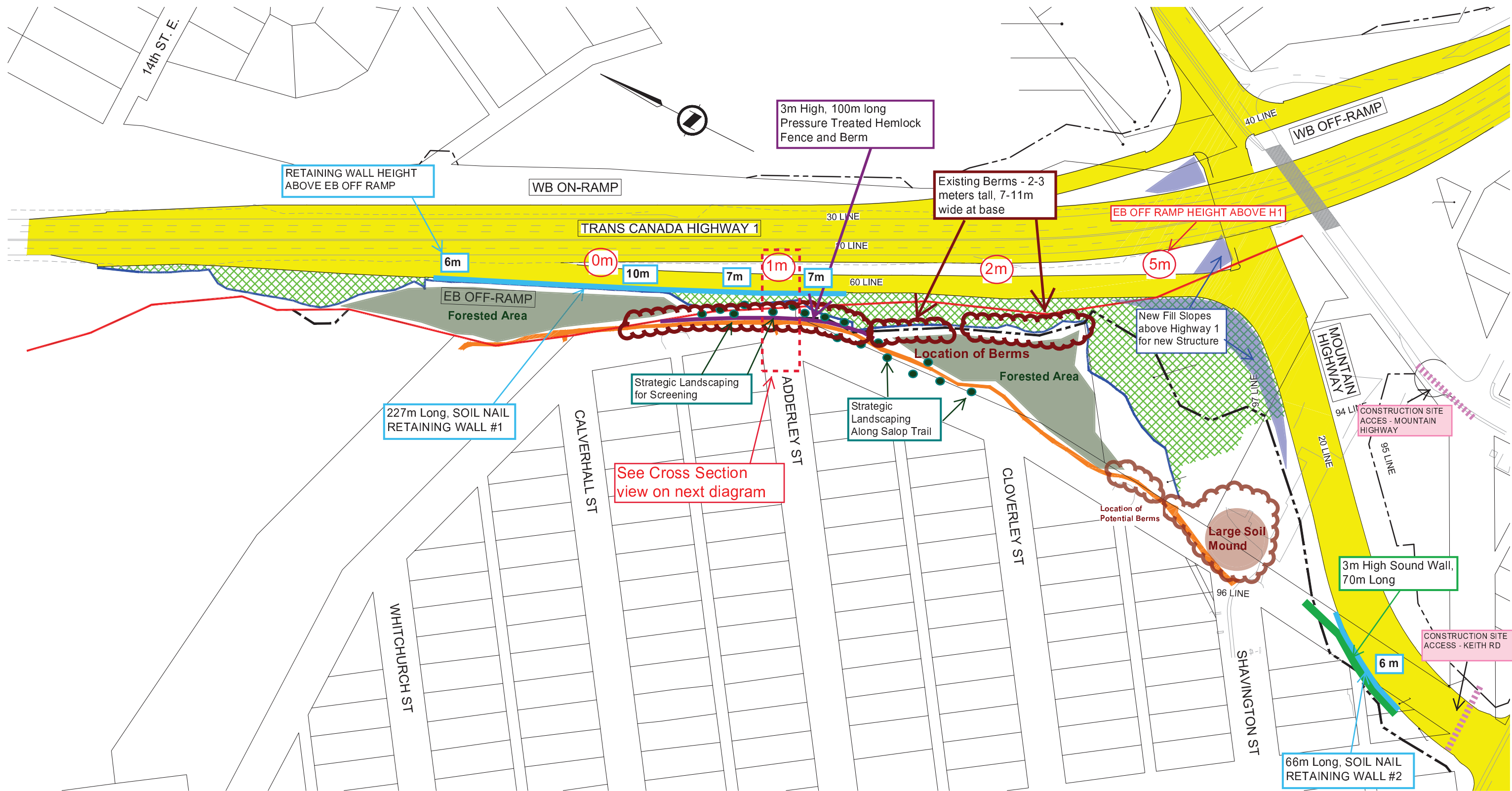
80m of 2m high decorative concrete fence along the south side of E. Keith Road and the east side of Brooksbank Avenue

B.C. on the Move: A 10-Year Transportation Plan






[gov.bc.ca/lowerlynninterchanges](http://www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/projects/highway-1-lower-lynn-improvements)

For more project information please visit the project website

<http://www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/projects/highway-1-lower-lynn-improvements>



**LEGEND**

-  REVEGETATED/ LANDSCAPING AREA
-  EXISTING GRAVEL TRAIL / PATHWAY
-  CUT LINE
-  EXISTING HWY 1 / MOTI PROPERTY LINE
-  NEW HWY 1 / MOTI PROPERTY LINE

# Cross Section at Adderley Street Looking East

## 5-Year Outlook from Project Completion

