PROJECT DEVELOPMENT

BRIDGE FEASIBILITY STUDY (2014)

In March 2014, the RDN contracted Herold Engineering to evaluate and update an older bridge feasibility study that was completed in 1999 by Graeme and Murray Engineering.

The updated study involved preliminary geo-technical and hydro-technical assessments, as well as topographic surveys of the proposed bridge location and the undeveloped portion of trail corridor (a 1km stretch from the Nanaimo River to Cedar Road). It provided the RDN with **updated bridge design options**, **information on required bridge spans** and **current cost estimates**. A comparison of findings from both studies is outlined in the table below.

2014 FEASIBILITY STUDY VS. 1999 FEASIBILITY STUDY

	1999 FEASIBILITY STUDY	2014 FEASIBILITY STUDY
Bridge Options	Steel Truss or Cable Suspension	Steel Truss or Cable Suspension
Bridge Accessibility	pedestrian, cyclist, equestrian	pedestrian, cyclist, equestrian, wheelchair
Span Lengths	70m - west span 50m - east span	90m - west span 84m - east span
Deck Width	1.2 m	2.1m
Deck Elevation	200 year flood level (Q200) = 10.75m bridge deck 2m above Q200 levels	200 year flood level (Q200) =10.75m bridge deck 1.5m above Q200 levels
Total Cost - Suspension (two bridges)	$412,000 pedestrian, cyclist, equestrian	$1,137,000 pedestrian,cyclist $1,277,000 pedestrian, cyclist, wheelchair $1,417,000 pedestrian, cyclist, wheelchair, equestrian
Total Cost - Truss (two bridges)	$486,000 pedestrian, cyclist, equestrian	$1,473,000 pedestrian and cyclist $1,473,000 pedestrian, cyclist, wheelchair $1,623,000 pedestrian, cyclist, wheelchair, equestrian
Study Recommendations (Truss vs Suspension)	Steel Truss: rigid, durable, less maintenance and long-term costs, reminiscent of rail bridges	Cable Suspension: lower construction costs, design aesthetics

Updated design and cost options shown in the green column.

Project parameters for both studies included "front country" trail conditions, accessibility for multiple user groups, and two separate steel bridge spans over the west and east channels of the Nanaimo River. The sizable cost increase from the 1999 study is explained in the updated study as being due to the following:

- Longer bridge spans in the 2014 study (due to probable bank erosion and wider river channels)
- A larger contingency in the 2014 study (30% in 2014 vs 10% in 1999)
- Longer bridge approaches in the 2014 study (to accommodate wheelchair accessibility, not considered in the 1999 study)

East channel of Nanaimo River (viewed from East bank)

DIRECTION FROM THE REGIONAL BOARD

The updated Feasibility Study (Herold Engineering, 2014) was approved by the Regional Board on October 28, 2014. At that time, the Board directed Park Staff to:

- **Consult with the community regarding an equestrian accessible bridge option in order to assess public support and user demand in consideration of higher estimated constructions and maintenance costs.**
- **Proceed with design development for two steel truss bridges (as opposed to two cable suspension bridges) following community consultation.**

West channel of Nanaimo River (viewed from West bank)