Highway 29 Realignment

History of Cache Creek/Bear Flat Design Work

The Cache Creek/Bear Flat segment of Highway 29 is located approximately 49 kilometres east of Hudson's Hope and 31 kilometres west of Fort St. John. In this area, the existing highway will be inundated by the Site C reservoir, requiring the relocation of approximately 8.5 kilometres of highway and the construction of a new bridge at Cache Creek.

In 1981, BC Hydro and the Ministry of Transportation and Infrastructure began evaluating multiple highway realignment options and, with that, a number of design reports, memos and studies were developed.

The design reports, along with public and property owner consultation in 2008/9 and 2012, and First Nation consultation, resulted in a shoreline route being identified as the preferred realignment, over an inland route, for several reasons including:

- Improved safety for the travelling public by increasing the length of passing opportunities for drivers
- Better geotechnical conditions
- Fewer technical challenges, resulting in lower costs and reduced construction risks
- A smaller area of private land is affected
- Less impact on agricultural land

The preferred highway realignment was included as part of BC Hydro's Site C Environmental Impact Statement. Since then, further engineering, geotechnical and design work has taken place to refine and optimise the design.

Below are descriptions of the design reports for the Highway 29 realignment at Cache Creek/ Bear Flat, as well as a summary of the evaluation process that resulted in the preferred realignment being selected. These reports are available on the Site C project website at sitecproject.com.

1981 Report

The Ministry of Transportation & Highways commissioned a study to identify feasible alternative relocation alignments of Highway 29 at Bear Flat (Cache Creek).

Two alternative alignments were considered, each with varying realignment lengths, totaling five options. The shoreline route (Option E) was recommended as the preferred route. The northern route (Option D) was discounted based on a variety of factors including environmental, agricultural and costs.

2009 Report

BC Hydro commissioned a report to update the 1981 Highway 29 realignment options, based on modern design standards. Three options of the shoreline route were considered, with varying configurations of bridge and causeway length at the Cache Creek crossing.

2008-2009 Consultation with Property Owners

From November 2008 to February 2009, BC Hydro undertook the Highway 29 Realignment Options Consultation for all Highway 29 realignments in the Peace Valley. The purpose of the consultation was to provide further information about potential changes to sections of Highway 29, gather input specific to individual properties, determine property owner considerations with respect to potential alignment options, and document property owner feedback and concerns.

A total of 31 property owner meetings took place and this input was considered, along with technical and financial information, as BC Hydro developed realignment options.

2012 Reports

The Options Analysis for Highway 29 Realignment, documented in early 2012, summarizes the Multiple Account Evaluation process for selecting the preferred alternative. A number of criteria were used to compare and evaluate realignment alternatives. This evaluation also concluded that a shoreline corridor (referred to as Alignment 1) was the preferred alternative.

The shoreline corridor was chosen over the northern route as a result of the noted instability and technical challenges associated with the northern route. In addition, the northern route required additional private land, would cause greater farm severance and take up more land within the Agricultural Land Reserve.

The 2012 Definition Design Report provides a comprehensive analysis of the engineering and design considerations of the realignment options. Further information regarding the Multiple Account Evaluation is also included in this report.

2011-2012 Project Definition Consultation

In spring 2011 and 2012, BC Hydro undertook Project Definition Consultation with property owners and First Nations. BC Hydro presented preferred realignments for each of the Lynx Creek, Farrell Creek, and Halfway River segments of Highway 29. At Dry Creek and Bear Flat/Cache Creek, BC Hydro identified corridors in which an alignment would be determined pending further geotechnical analysis. Information on the impact line approach was also presented during this consultation.

2013 Environmental Impact Statement

In January 2013, BC Hydro submitted the Site C Project Environmental Impact Statement. Section 4.3.4 of the EIS describes the preferred realignment and section 6.6 describes the process used to establish the preferred realignment and summarised the alternatives that were considered. The project, including the preferred highway realignment route, received provincial and federal environmental approvals in October 2014.

Design Development – October 2015 onwards

Since 2015, design efforts have focused on optimizing the Definition Design. Further design identified an optimal crossing, and a geotechnical investigation program was undertaken to confirm the design. This is the current design for which land was acquired in 2016, and clearing is currently underway.

Upper Bench Options

Two further documents, one a report dated June 2010, and the second a memo dated February 2012, reviewed alternatives proposed during consultation.

The 2010 report reviewed an option to relocate the Cache Creek alignment approximately 1 mile north of the current location of Highway 29, on an upper bench. The report determined that the volume of fill required, along with the unstable slopes and the height of the Cache Creek crossing would result in prohibitively high costs to construct. As a result this option was not pursued.

The 2012 memo reviewed a similar upper bench concept as the 2010 report and also concluded that the concept did not warrant further investigation. The memo also looked at alternative routes that would provide access to the Cache Creek / Bear Flat areas from Mile 68 of the Alaska Highway. Due to the additional travel time, larger environmental footprint and additional cost there was no justification to develop these concepts further.

More information can be found in the following documents located on the Site C Project website:

1. March 2017 Highway 29 Bear Flat / Cache Creek Summary of design work – 1981 through 2017.
2. 1981 Report – Highway 29 Hudson's Hope to Charlie Lake Environmental Impact and Engineering Study of Highway 29 Relocation Section 1 – Graeme & Murray Consultants Ltd.
3. 2009 Report – Highway 29 Relocations Report – Klohn Crippen Berger /SNC Lavalin with Urban Systems Ltd.
4. April 2012 Report 1 – Options Analysis for Highway 29 Realignment – BC Hydro.
5. April 2012 Report 2 – Highway 29 Definition Design Report – R.F. Binnie & Associates.
6. 2010 Report – Highway 29 Options – Urban Systems Ltd.
7. February 2012 Memo – Upper bench options for Highway 29 – BC Hydro.