

**TABLE 2.2-17**

**STUDY OF ALTERNATIVE CORRIDORS – CHILLIWACK/BC HYDRO (RK 1097.8 TO RK 1099.8)**

Factors	Proposed Revised Pipeline Corridor (BC Hydro)	Proposed Alternative Pipeline Corridor (TMPL)
<b>LENGTHS</b>		
Length of pipeline corridor (km)	2.5	2.0
Length following existing TMPL right-of-way (km)	0.1	2.0
Length following other linear features (other pipelines, power lines, highways, roads, fibre-optic lines, railways, etc.) (km)	2.2 (1.6 [BC Hydro right-of-way])	0
Length of "new" corridor (km)	0.2	0
Total parallels (km)	2.3	2.0
<b>CROSSINGS</b>		
No. of highway crossings (No.)	0	0
No. of road (arterial, collector, local) crossings (No.)	3	4
No. of TMPL crossings (No.)	2	0
No. of foreign line crossings (No.)	2	9
No. of fibre-optic/other cable crossings (No.)	0	2
No. of main power line crossings (No.)	2	2
No. of distribution power line crossings (No.)	1	10
No. of railway crossings (No.)	0	0
Crossings of named rivers (No.)	0	0
Crossings of named creeks (No.)	0	0
Crossings of other watercourses (No.)	0	0
Total watercourses (No.)	0	0
<b>GEOTECHNICAL</b>		
Length crossing slopes > 50% on the fall line (km)	0	0
Length crossing slopes > 50% on sidehill (km)	0	0
Natural hazard potential (km)	High: 0 Medium: 0 Low: 2.5	High: 0 Medium: 0 Low: 2.0
Length of thin veneer of overburden or exposed bedrock (km)	0	0
<b>HYDRAULICS</b>		
Minimum elevation (m)	20	25
Maximum elevation (m)	25	27.7
Acceptability	Yes	Yes
<b>LAND</b>		
Indian Reserve (km)(name)	0	0
Provincial Crown (km)	0	0
Private (km)	2.45	2.0
Unknown Parcels (km)	Trace	0
No. of private parcels (No.)	22	48
<b>ENVIRONMENT</b>		
Length within Riparian Reserve Zone (km)	0	0
Wetlands crossed (km)	0	0
<b>SOCIO-ECONOMIC</b>		
Parks and protected areas (km)(name)	0	0
Agricultural Land Reserve (km)	1.8	0.8
Designated Recreational Use Areas (crossed or km parallel)	0.2 (Public Service Zone)	0.2 (Civic Assembly Zone [Watson Elementary])
Residential Use Zones crossed (km)	0.7 (One Family Residential Zone) 0.1 (One and Two Family Residential Zone)	0.9 (One Family Residential Zone) 0.05 (One and Two Family Residential Zone) 0.04 (Agriculture Residential Zone)
Agricultural Land Use Zones crossed (km)	1.3 (Agricultural Lowland Zone) 0.2 (Agriculture Small Lot Zone)	0.7 (Agricultural Lowland Zone)

**TABLE 2.2-17 Cont'd**

<b>Factors</b>	<b>Proposed Revised Pipeline Corridor (BC Hydro)</b>	<b>Proposed Alternative Pipeline Corridor (TMPL)</b>
Industrial and Commercial Use Areas crossed (km)	0	0
Community Watersheds (No.)	0	0
Municipalities crossed (km)(name)	2.5 (Chilliwack)	2.0 (Chilliwack)
<b>CONSTRUCTABILITY AND COST</b>		
Constructability	1.6 km of restricted work space inside a BC Hydro transmission line corridor with 0.85 km of open agricultural land before rejoining the existing TMPL right-of-way. Fairly flat level ground with limited need for grading.	Restricted work space through acreages, residential properties and school property ending with 0.12 km crossing a raspberry field. Fairly flat level ground with limited need for grading. Limited space available for workspace.
Estimated Construction Cost (\$ millions)	8.4	7.9

The proposed revised pipeline corridor (BC Hydro) and proposed alternative pipeline corridor (TMPL) in the Chilliwack/BC Hydro area are 2.5 km and 2.0 km in length, respectively. The proposed alternative pipeline corridor (TMPL) follows the existing TMPL right-of-way for its entire length and traverses property associated with the Watson Elementary School for 0.2 km whereas the proposed revised pipeline corridor (BC Hydro) follows the existing TMPL right-of-way for 0.1 km, follows the BC Hydro right-of-way for 1.6 km and avoids the property where the Watson Elementary School is located. The proposed revised pipeline corridor (BC Hydro) crosses 1.5 km of agricultural land use zones and the proposed alternative pipeline corridor (TMPL) crosses 0.7 km of agricultural land use zones.

TABLE 2.2-18

**ENGAGEMENT SUMMARY – CHILLIWACK/BC HYDRO (RK 1097.8 TO RK 1099.8)**

Organization or Group	Proposed Pipeline Corridor		Alternative Pipeline Corridor	
	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised
<b>Public Consultation</b>				
City of Chilliwack on October 23, 2012	<ul style="list-style-type: none"> <li>Support for use of BC Hydro right-of-way to avoid two residential subdivisions.</li> <li>Sterilization of the landscape – many linear corridors in Chilliwack (<i>i.e.</i>, hydro, natural gas, existing Trans Mountain pipeline, etc.). However, pipeline right-of-way is absorbed to a point in the natural landscape compared to a highway where it is completely sterile.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>
Chilliwack Routing Workshop on March 27, 2014	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>With proposed corridor, concern raised was in event of spill, impact on air quality for students at Watson Elementary School.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>With proposed alternative corridor, concern raised was in event of spill, impact on air quality for students at Watson Elementary School.</li> </ul>
<b>Aboriginal Engagement</b>				
<ul style="list-style-type: none"> <li>N/A (not Crown land)</li> </ul>				
<b>Landowner Relations</b>				
Owners contacted October, November 2012, March, June 2013	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>Interference with property development, fruit farming, nurseries, strata development.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>

Stakeholders have expressed concern about the safety of children at Watson Elementary School, in the event of a spill should the alternative pipeline corridor near the school be selected for the construction of the pipeline. The City of Chilliwack supported exploring a pipeline corridor within or adjacent to the BC Hydro right-of-way to avoid having a pipeline corridor that traverses developed residential areas.

The proposed pipeline corridor is the BC Hydro right-of-way option because of the fewer impacts this option would have to residents and built-up urban areas when compared to the TMPL option. The selection of this pipeline corridor would require an agreement with BC Hydro with the assurances that electrical effects on the pipeline or BC Hydro's operations would be fully mitigated to the satisfaction of both companies.

Environmental field studies were conducted in the BC Hydro/Chilliwack area for archaeology in late March 2014.

### Salmon River/Redwoods Golf Course (RK 1148.0 to RK 1151.6)

Trans Mountain has revised the proposed pipeline corridor in the vicinity of the Salmon River and Redwoods Golf Course between RK 1148.0 and RK 1151.6 in Fort Langley, BC. The proposed revised pipeline corridor parallels the existing TMPL right-of-way for a slightly longer distance than the previously proposed pipeline corridor. The proposed revised pipeline corridor then turns to the north along 217A Street and enters the property where the Redwoods Golf Course is located. The revised pipeline corridor in the vicinity of the Redwoods Golf Course is wide enough to accommodate two options; one that traverses the golf course and another that avoids the golf course to the east.

The existing TMPL right-of-way has been assessed as unsuitable for Line 2 due to the substantial development that has occurred on or immediately adjacent to the TMPL right-of-way over the past 60 years. The existing CN Rail alignment has been identified as the proposed pipeline corridor from Fort Langley to the crossing of the Fraser River. In order to access the CN Rail corridor from the existing TMPL right-of-way, a largely Greenfield pipeline corridor is required between the two existing linear facilities. Three alternative pipeline corridors have been considered.

1. The Salmon River floodplain alternative (*i.e.*, the previously proposed pipeline corridor) leaves the TMPL corridor at approximately RK 1148 and turns north across farmland in the Salmon River floodplain to connect with the CN Rail corridor approximately 250 m east of 222nd Street.
2. A second alternative corridor (*i.e.*, the proposed revised pipeline corridor) follows the existing TMPL right-of-way from RK 1148 for approximately 1.7 km before it turns north following 217A Street and enters the property where the Redwoods Golf Course is located. The pipeline corridor then follows 88th Avenue to the east boundary of the golf course. From this location, the pipeline corridor heads north to the CN Rail line and rejoining the proposed pipeline corridor. This pipeline corridor option crosses the Hope Redwoods Natural Area. However, the pipeline corridor is wide enough to provide sufficient space to reduce the amount of clearing of trees and disturbance to the Natural Area.
3. A third alternative pipeline corridor follows the existing TMPL right-of-way for approximately 300 m before turning north along the east side of 224th Street. This corridor then turns slightly northwest before crossing 88th Avenue which it then follows west to the east boundary of the Redwoods Golf Course and joins with the pipeline corridor alternative described in No. 2 above.

During a routing workshop held in Langley, BC, concerns were raised with the pipeline corridor located in the Salmon River floodplain with respect to the fisheries value of the Salmon River and interference with farming practices and drainage works. It was noted that the Redwoods Golf Course land had been acquired by the Township of Langley and it was suggested that a more environmentally acceptable route could be developed across this land.

The second and third alternative corridors described above are identical from 88<sup>th</sup> Avenue north but differ in their connection to the existing TMPL right-of-way. Two new landowners would be affected by the third alternative pipeline corridor described whereas no new landowners and seven existing landowners on TMPL are affected by the second pipeline corridor alternative described. Trans Mountain is no longer considering the third pipeline corridor alternative described above because there are new landowners associated with that alternative corridor.

The previously proposed and proposed revised pipeline corridors are illustrated and compared in Figure 2.2-13 and Table 2.2-19. An engagement summary regarding the Salmon River/Redwoods Golf Course pipeline corridor selection process is provided in Table 2.2-20.



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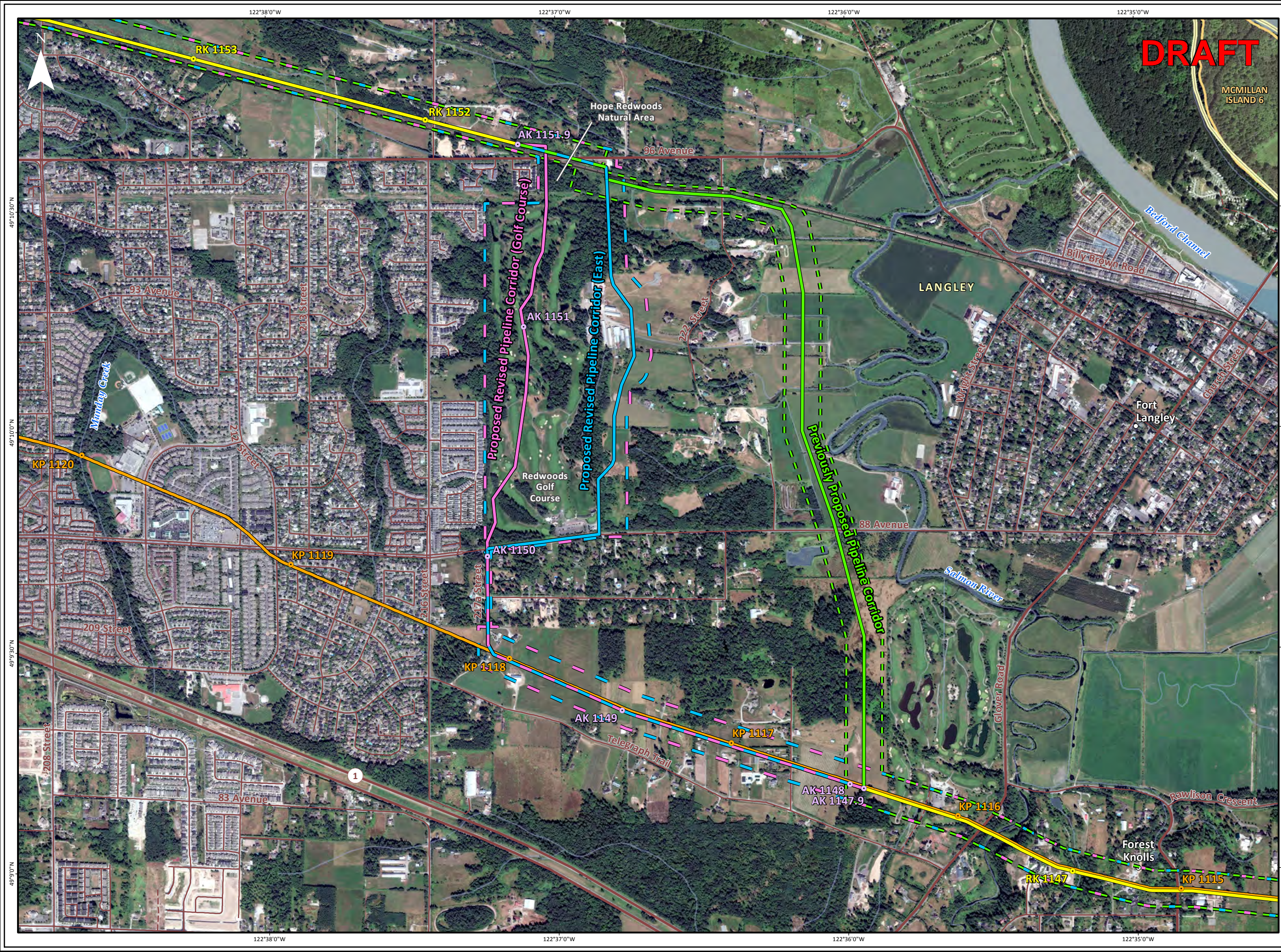






FIGURE 2.2-13


**PIPELINE CORRIDOR REVISIONS -  
SALMON RIVER /  
REDWOODS GOLF COURSE**


**TRANS MOUNTAIN EXPANSION PROJECT**

**Alternative Corridors**


-  Proposed Revised Pipeline Corridor (Golf Course)
-  Proposed Revised Pipeline Corridor (East)
-  Previously Proposed Pipeline Corridor

 Reference Kilometre Post (RK)


 Alternate Kilometre Post (AK)


 TMPL Kilometre Post (KP)

 TMEP Mapping Reference Line


 Trans Mountain Pipeline (TMPL)


 Highway

 Paved Road

 Resource Road / Lane

 Railway

 City / Town / District Municipality

 Indian Reserve / Métis Settlement

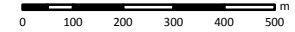
Projection: NAD 1983 UTM Zone 10N. Routing: Baseline TMPL & Facilities: provided by KMC, 2012; Proposed Corridors provided by UPI, August 23, 2013 and June 5, 2014. Reference Line & RK/AK provided by UPI, March 25 & 28, 2014; Additional Routing Alternatives provided by UPI, March 25 & 28, 2014; Transportation: IHS Inc., 2013; Natural Resources Canada, 2012; Geopolitical Boundaries: Natural Resources Canada, 2003; AltaUS, 2013; IHS Inc., 2011; BC FLNRO, 2007 & ESRI, 2005; First Nation Lands: Government of Canada, 2014; AltaUS, 2010 & IHS Inc., 2011; Hydrology: Natural Resources Canada, 2007-11 & BC FLNRO, 2008; Parks and Protected Areas: Natural Resources Canada, 2014; AltaUS, 2012 & BC FLNRO, 2008; B/W & Colour Imagery: 2008-2011; Provided by KMC, 2012; NASA Geospatial Interoperability Program, 2005; ESRI, 2005 Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community).

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MAP NUMBER 201406_MAP_TERA_RT_00589_08_SALMONR		PAGE SHEET 1 OF 1
DATE July 2014	TERA REF. 496781	REVISION 0
SCALE 1:15,000	PAGE SIZE 11x17	DISCIPLINE RT
DRAWN AJS	CHECKED TGG	DESIGN TGG
 ALL LOCATIONS APPROXIMATE		



**TABLE 2.2-19**

**STUDY OF ALTERNATIVE CORRIDORS –  
SALMON RIVER/REDWOODS GOLF COURSE (RK 1148.0 TO RK 1151.6)**

Factors	Previously Proposed Pipeline Corridor	Proposed Revised Pipeline Corridor (Golf Course)	Proposed Revised Pipeline Corridor (East)
<b>LENGTHS</b>			
Length of pipeline corridor (km)	3.6	4.0	4.5
Length following existing TMPL right-of-way (km)	0	1.7	1.7
Length following other linear features (other pipelines, power lines, highways, roads, fibre-optic lines, railways, etc.) (km)	1.2	0.6	1.3
Length of "new" corridor (km)	2.4	1.7	1.5
Total parallels (km)	1.2	2.3	3.0
<b>CROSSINGS</b>			
No. of highway crossings (No.)	0	0	0
No. of road (arterial, collector, local) crossings (No.)	3	3	5
No. of TMPL crossings (No.)	1	1	1
No. of foreign line crossings (No.)	7	22	25
No. of fibre-optic/other cable crossings (No.)	1	2	3
No. of main power line crossings (No.)	2	2	2
No. of distribution power line crossings (No.)	1	1	2
No. of railway crossings (No.)	1	1	1
Crossings of named rivers (No.)	0	0	0
Crossings of named creeks (No.)	0	0	0
Crossings of other watercourses (No.)	10	0	1
Total watercourses (No.)	10	0	1
<b>GEOTECHNICAL</b>			
Length crossing slopes > 50% on the fall line (km)	0	0	0
Length crossing slopes > 50% on sidehill (km)	0	0	0
Natural hazard potential (km)	High: 0 Medium: 1.5 Low: 2.1	High: 0 Medium: 0 Low: 4.0	High: 0 Medium: 0 Low: 4.5
Length of thin veneer of overburden or exposed bedrock (km)	0	0	0
<b>HYDRAULICS</b>			
Minimum elevation (m)	1	8.7	5.8
Maximum elevation (m)	28	76.6	76.6
Acceptability	Yes	Yes	Yes
<b>LAND</b>			
Indian Reserve (km)(name)	0	0	0
Provincial Crown (km)	0	0	0
Private (km)	3.8	3.6	3.7
Unknown Parcels (km)	0	0	0
No. of private parcels (No.)	19	15	15
<b>ENVIRONMENT</b>			
Wetlands crossed (km)	0.2	0	0.1
<b>SOCIO-ECONOMIC</b>			
Parks and protected areas (km)(name)	0	0.2 (Hope Redwoods Natural Area)	0
Agricultural Land Reserve (km)	3.6	3.6	3.8
Designated Recreational Use Areas (crossed or km parallel)	0	1.7 (Rural Golf Course [Redwoods Golf Course, Hope Redwoods Natural Area])	1.5 (Rural Golf Course [Redwoods Golf Course])

**TABLE 2.2-19 Cont'd**

Factors	Previously Proposed Pipeline Corridor	Proposed Revised Pipeline Corridor (Golf Course)	Proposed Revised Pipeline Corridor (East)
Residential Use Zones crossed (km)	2.3 (Rural Floodplain) 1.3 (Rural Zone)	2.3 (Rural Zone)	3.0 (Rural Zone)
Industrial and Commercial Use Areas crossed (km)	0	0	0
Transportation Infrastructure (construct within)	0	0	0
Community Watersheds (No.)	0	0	0
Municipalities crossed (km)(name)	3.6 (District of Langley)	4.0 (District of Langley)	4.5 (District of Langley)
<b>CONSTRUCTABILITY AND COST</b>			
Constructability	Greenfield route via Salmon River Valley, crosses private land throughout, stays east of the Redwoods Golf Course, crosses CN Railway and 96 <sup>th</sup> Avenue then follows the north side of CN Rail.	Combination of TMPL right-of-way and Greenfield route via 217A Street to cross through the Redwoods Golf Course, and a Natural Area north of the Golf Course, crosses CN Rail and 96 <sup>th</sup> Avenue before rejoining proposed pipeline corridor. Includes some in street congestion along 217A Street.	Combination of TMPL right-of-way and Greenfield route via 217A Street and then easterly along 88 <sup>th</sup> Avenue before turning north to cross the southeast corner of the Redwoods Golf Course. Jogs east to cross private land along east side of the Golf Course. Continues north before crossing CN Rail and 96 <sup>th</sup> Avenue to rejoin proposed pipeline corridor. Includes some in street congestion along 217A Street and 88 <sup>th</sup> Avenue. Misses the Natural Area crossed by the proposed revised pipeline corridor.
Estimated Construction Cost (\$ millions)	8.6	11.9	13.8

The length of the previously proposed pipeline corridor in the Redwoods Golf Course/Salmon River Valley area is 3.6 km and the lengths of the proposed revised pipeline corridor (golf course) and the proposed revised pipeline corridor (east) are 4.0 km and 4.5 km, respectively. Both the proposed revised pipeline corridor (golf course) and the proposed revised pipeline corridor (east) follow the existing TMPL right-of-way for 1.7 km whereas the previously proposed pipeline corridor does not follow the existing TMPL right-of-way. The lengths of new corridor required for the previously proposed pipeline corridor, the proposed revised pipeline corridor (golf course), and the proposed revised pipeline corridor (east) are 2.4 km, 1.7 km, and 1.5 km, respectively.



TABLE 2.2-20

**ENGAGEMENT SUMMARY –  
SALMON RIVER/REDWOODS GOLF COURSE (RK 1148.0 TO RK 1151.6)**

Organization or Group	Previously Proposed Pipeline Corridor		Revised Proposed Pipeline Corridor (Golf Course)		Revised Proposed Pipeline Corridor (East)	
	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised
<b>Public Consultation</b>						
Township of Langley	<p>In a meeting on March 5, 2013:</p> <ul style="list-style-type: none"> <li>Support for pipeline corridor that avoids Walnut Grove residential area and Port Kells industrial area.</li> </ul>	<p>In a meeting on March 5, 2013:</p> <ul style="list-style-type: none"> <li>With this pipeline corridor the concern is the impact of pipeline during construction and operations on the Peat soil conditions in Salmon River Valley.</li> </ul>	<p>In a meeting on December 9, 2013:</p> <ul style="list-style-type: none"> <li>Preference through golf course rather than roadway (88th Avenue).</li> </ul>	<p>Concerns with this corridor raised in a meeting on December 9, 2013 are:</p> <ul style="list-style-type: none"> <li>Protecting streams on east side of golf course (Deep Creek) during construction and operations.</li> <li>Long term construction impacts to and mitigation of golf course greens, including timing of construction.</li> <li>That it may restrict future land use – Township of Langley has lease back on golf course and may develop the site.</li> <li>Protection of Hope Redwoods Natural Area on north side of golf course.</li> </ul>	<p>Meeting with Township staff on December 9, 2013:</p> <ul style="list-style-type: none"> <li>Investigate properties east of golf course to protect streams/ environmentally sensitive area.</li> <li>Expressed preference for pipeline to be along east side of the golf course (Deep Creek) which will affect four or five owners including the golf course.</li> <li>Willing to work with Trans Mountain to place pipeline in 88th Avenue if corridor is east of golf course.</li> <li>East alignment avoids extensive disturbance claims from golf course operator, protects Hope Redwoods Natural Area and limits impact to residents living on west side of golf course.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>
Langley Routing Workshop on June 19, 2013	<ul style="list-style-type: none"> <li>Reroute away from urban neighbourhood along existing right-of-way (Walnut Grove).</li> </ul>	<ul style="list-style-type: none"> <li>Protection of environmentally sensitive Salmon River Valley floodplain and Hope Redwoods Natural Area (historic Redwood trees located along 96th Avenue).</li> <li>Participant suggested looking at Redwoods Golf Course as better alternative.</li> <li>Consider other corridors such as Trans-Canada Highway.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>

**TABLE 2.2-20 Cont'd**

Organization or Group	Previously Proposed Pipeline Corridor		Revised Proposed Pipeline Corridor (Golf Course)		Revised Proposed Pipeline Corridor (East)	
	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised
Langley Routing Workshop on June 19, 2013 (cont'd)	<ul style="list-style-type: none"> <li>See above</li> </ul>	<ul style="list-style-type: none"> <li>With this corridor the concern is the protection of stream crossings and concern for water quality in event of spill and during construction.</li> <li>Impact to pipeline as result of flooding from West Creek and wetlands.</li> </ul>	<ul style="list-style-type: none"> <li>See above</li> </ul>	<ul style="list-style-type: none"> <li>See above</li> </ul>	<ul style="list-style-type: none"> <li>See above</li> </ul>	<ul style="list-style-type: none"> <li>See above</li> </ul>
Online Engagement following Langley Community Interest Workshop (live June 20 to July 11, 2013)	<ul style="list-style-type: none"> <li>Support reroute away from urban neighbourhoods (Walnut Grove and Forrest Hills).</li> </ul>	<ul style="list-style-type: none"> <li>With this corridor the concern is the impacts of a spill to environment (wetlands, streams, Fraser River) during construction and operations.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>
Langley Field Naturalists	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>Feedback reflected in Langley Routing Workshop on June 19, 2013.</li> <li>Feedback reflected in Langley Routing Workshop on April 2, 2014.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<p>Email received on November 25, 2013:</p> <ul style="list-style-type: none"> <li>Concern about route adjustment through Redwoods Golf Course.</li> <li>Concern about environmental impact to Hope Redwoods Natural Area, a designated park north of the property.</li> <li>Feedback reflected in Langley Routing Workshop on June 19, 2013.</li> <li>Feedback reflected in Langley Routing Workshop on April 2, 2014.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>Feedback reflected in Langley Routing Workshop on June 19, 2013.</li> <li>Feedback reflected in Langley Routing Workshop on April 2, 2014.</li> </ul>



TABLE 2.2-20 Cont'd

Organization or Group	Previously Proposed Pipeline Corridor		Revised Proposed Pipeline Corridor (Golf Course)		Revised Proposed Pipeline Corridor (East)	
	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised
Langley Routing Workshop on April 2, 2014	<ul style="list-style-type: none"> <li>Some stakeholders requested Trans Mountain revisit previously proposed pipeline corridor (Salmon River valley) to avoid golf course (impact to residences along west side of golf course).</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>Potential to connect walking trails with pipeline right-of-way to connect north/south trail network.</li> </ul>	<ul style="list-style-type: none"> <li>Need to balance impacts to environment and human impact; routing along the east side of golf course will impact environment, along the west will impact many residents during operations and construction.</li> <li>Revisit previously proposed pipeline corridor (Salmon River valley) for reduced environmental impacts (compare Hope Redwoods Natural Area to Salmon River floodplain).</li> </ul> <p>With this corridor additional concerns include:</p> <ul style="list-style-type: none"> <li>Removal of trees along west boundary of golf course.</li> <li>Water contamination/flooding, disruption to natural areas north of golf course in event of spill.</li> <li>Impacts to Highland Creek and Madison Park (96th Avenue and 217a Street in event of spill.</li> <li>Impact to large wetland north of CN and west of 216th Street during construction and in event of spill.</li> </ul>	<ul style="list-style-type: none"> <li>Potential to connect walking trails with pipeline right-of-way to connect north/south trail network.</li> </ul>	<ul style="list-style-type: none"> <li>Need to balance impacts to environment and human impact; routing along the east side of golf course will impact environment, along the west will impact many residents.</li> <li>With this corridor environment concerns include air quality, water contamination/flooding, disruption to natural areas north of golf course in event of spill.</li> </ul>

TABLE 2.2-20 Cont'd

Organization or Group	Previously Proposed Pipeline Corridor		Revised Proposed Pipeline Corridor (Golf Course)		Revised Proposed Pipeline Corridor (East)	
	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised
Salmon River Valley landowner group at presentation to Township of Langley on January 13, 2014	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<p>During a presentation to Township of Langley on January 13, 2014, the following concerns were raised:</p> <ul style="list-style-type: none"> <li>Poor soil conditions in Salmon River Valley floodplain not suitable for pipeline installation.</li> <li>Impact of movement of farming equipment over right-of-way.</li> <li>Impact to drainage pattern from pipeline installation.</li> <li>Spill impacts on agricultural land, aquifers in event of spill.</li> <li>Helicopter air patrols will impact properties used for filming (i.e., noise).</li> <li>Additional feedback reflected in landowner engagement Langley Routing Workshop on April 2, 2014.</li> </ul>	<ul style="list-style-type: none"> <li>During a presentation to Township of Langley on January 13, 2014, it was mentioned that the group prefers route through Redwoods golf course over Salmon River Valley floodplain.</li> <li>Additional feedback reflected in landowner engagement process.</li> <li>Feedback reflected in Langley Routing Workshop on April 2, 2014.</li> </ul>	<ul style="list-style-type: none"> <li>Feedback reflected in Langley Routing Workshop on April 2, 2014.</li> </ul>	<ul style="list-style-type: none"> <li>Feedback reflected in Langley Routing Workshop on April 2, 2014.</li> </ul>	<ul style="list-style-type: none"> <li>Feedback reflected in Langley Routing Workshop on April 2, 2014.</li> </ul>
Digital Engagement - Online Discussion following Langley Community Interest Workshop (live March 17 to April 17, 2014)	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>N/A.</li> </ul>	<ul style="list-style-type: none"> <li>Considerable construction and pipeline safety impact to residents, schools, Hope Redwoods Natural Area if corridor on west side of golf course.</li> <li>Impact to environmentally sensitive areas, including risk to East Munday Creek that drains to the north parallel to west boundary of golf course in event of spill.</li> <li>Property devaluation and ability to sell homes due to pipeline installation.</li> </ul>	<ul style="list-style-type: none"> <li>Many comments that the route should go through the east side instead of the west to minimize impacts to many residents, two schools and environment (old growth trees and environmentally sensitive areas).</li> </ul>	<ul style="list-style-type: none"> <li>Hennig Farms expressed concern about agriculture land loss in the floodplain corridor option and soil instability in the alternate (hillside) corridor.</li> <li>Property devaluation and ability to sell homes due to pipeline installation.</li> </ul>



**TABLE 2.2-20 Cont'd**

Organization or Group	Previously Proposed Pipeline Corridor		Revised Proposed Pipeline Corridor (Golf Course)		Revised Proposed Pipeline Corridor (East)	
	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised	Supportive Comments	Concerns Raised
Langley Open House on April 2, 2014	<ul style="list-style-type: none"> <li>Some stakeholders requested Trans Mountain revisit the previously proposed pipeline corridor (Salmon River valley) to avoid golf course (impact to residences along west side of golf course).</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>Concern about impact associated with the routing through the golf course on residents and environment (environmentally sensitive area north of the golf course) during construction and in event of spill.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>
<b>Aboriginal Engagement</b>						
<ul style="list-style-type: none"> <li>N/A (not crown land).</li> </ul>						
<b>Landowner Relations</b>						
Landowners contacted October, November 2012, January, February, July, and September 2013	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>Interference with property development, tree removal, opposed to project.</li> </ul>	<ul style="list-style-type: none"> <li>Interference with golf course.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>	<ul style="list-style-type: none"> <li>None received.</li> </ul>

There are multiple competing interests in the Salmon River valley and Redwoods Golf Course area. Stakeholders indicated an overall preference for a corridor through the eastern portion and/or immediately east of the Redwoods Golf Course. Concerns with routing through the golf course include deep cut ravines on the eastern section of the golf course and long term recovery of the golf course (e.g., rehabilitation of the greens). In addition, stakeholders have raised concerns about the environmentally sensitive area north of the Redwoods Golf Course. A pipeline corridor to the east of the golf course would avoid the densely populated Walnut Grove area and the agricultural and environmental sensitivities of the Salmon River valley. Trans Mountain will continue to work with all stakeholders to minimize impacts.

The revised proposed pipeline corridor is the second option described above. This pipeline corridor extends the total length that Line 2 parallels the existing TMPL right-of-way by 1.7 km compared to the previously proposed pipeline corridor while not introducing new landowners to the Project. Consultation suggests there is more support for a pipeline corridor that would cross the Redwoods Golf Course or the properties to the east of the golf course rather than the Salmon River floodplain.

Environmental field studies were conducted in the Salmon River/Redwoods Golf Course area for aquatics in April 2014. Wetland field studies were conducted in mid-June 2014 while archaeology field studies will be conducted until November 2014.

#### Golden Ears Connector/South Fraser Perimeter Road (RK 1158.2 to RK 1167.0)

There have been several adjustments made to the previously proposed pipeline corridor between RK 1158.2 and RK 1167.0 in the City of Surrey, BC since Trans Mountain filed its Application to the NEB in December 2013. During the corridor optimization process, Trans Mountain has relocated and reconfigured the pipeline corridor to improve constructability, avoid congestion in developed urban areas and reduce the length of pipeline corridor that encounters Surrey Bend Regional Park (SBRP) all while attempting to parallel existing linear facilities or keep the pipeline corridor in established transportation/utility corridors. The proposed pipeline corridor has been widened at one location to allow space for a planned highway development. The revisions to the proposed pipeline corridor described here were discussed in the responses to NEB IRs 1.12, 1.40 (Filing ID A3W9H8) and 1.84 (Filing ID A3W9H9).

The previously proposed pipeline corridor was located adjacent to the south side of the CN Railway from Port Kells to its intersection with 104th Avenue. From there, the previously proposed pipeline corridor proceeded on the north side of the tracks through Surrey Bend Regional Park and crossed back to the south side of the rail tracks where it exited the Park. However, this broad corridor is encumbered by two highway projects: the South Fraser Perimeter Road (SFPR) and the Golden Ears Connector (GEC), which have taken much of the available land in the transportation corridor.

An alternative pipeline corridor has been identified between Golden Ears Way and 179th Street in consideration of the land being taken for the new GEC road project which required the previously proposed pipeline corridor to be shifted approximately 30 m to the south. West of 179th Street along the south side of Daly Road, the GEC road has taken all available land from the frontages of the industrial properties, therefore an alternative pipeline corridor has been aligned to cross to the north side of the CN Railway at 179th Street and follow Trigg Road and 104th Avenue to the location where the initial pipeline corridor entered SBRP. The alternative pipeline corridor is consistent with the previously proposed pipeline corridor through a portion of the SBRP until it turns to the southwest at AK 1162.7 to cross back to the south side of the CN Rail line, reducing the length of the proposed revised pipeline corridor that traverses SBRP by approximately 900 m compared to the previously proposed pipeline corridor.

A third pipeline corridor alternative for the westerly portion of the second alternative has been identified which avoids SBRP. This pipeline corridor follows the existing TMPL for approximately 2.5 km to 173rd Street where it turns north to 104th Avenue where it crosses into an industrial estate, and finally follows the south side of the SFPR to join the proposed pipeline corridor.

Following discussions with BC MOTI regarding the SFPR and the GEC, it was noted that some of the land purchased for the SFPR was no longer required and was for sale. This available land presented an opportunity to potentially avoid the SBRP and utilize the west side of the SFPR for much of the northern portion of the pipeline corridor.



Between RK 1162.7 and RK 1165.5, the land owned by BC MOTI extended from the SFPR up onto a bench located above the road. Evaluation of this land showed that it could accommodate a pipeline corridor which was superior to the previously proposed pipeline corridor.

The alternative pipeline corridor described above is the proposed revised pipeline corridor with the northern portion crossing under the SFPR prior to going through SBRP and utilizing the vacant SFPR lands.

The previously proposed, proposed revised and an alternative pipeline corridor are illustrated and compared in Figure 2.2-14 and Table 2.2-21. An engagement summary regarding the Golden Ears Connector/South Fraser Perimeter Road pipeline corridor selection process is provided in Table 2.2-22.



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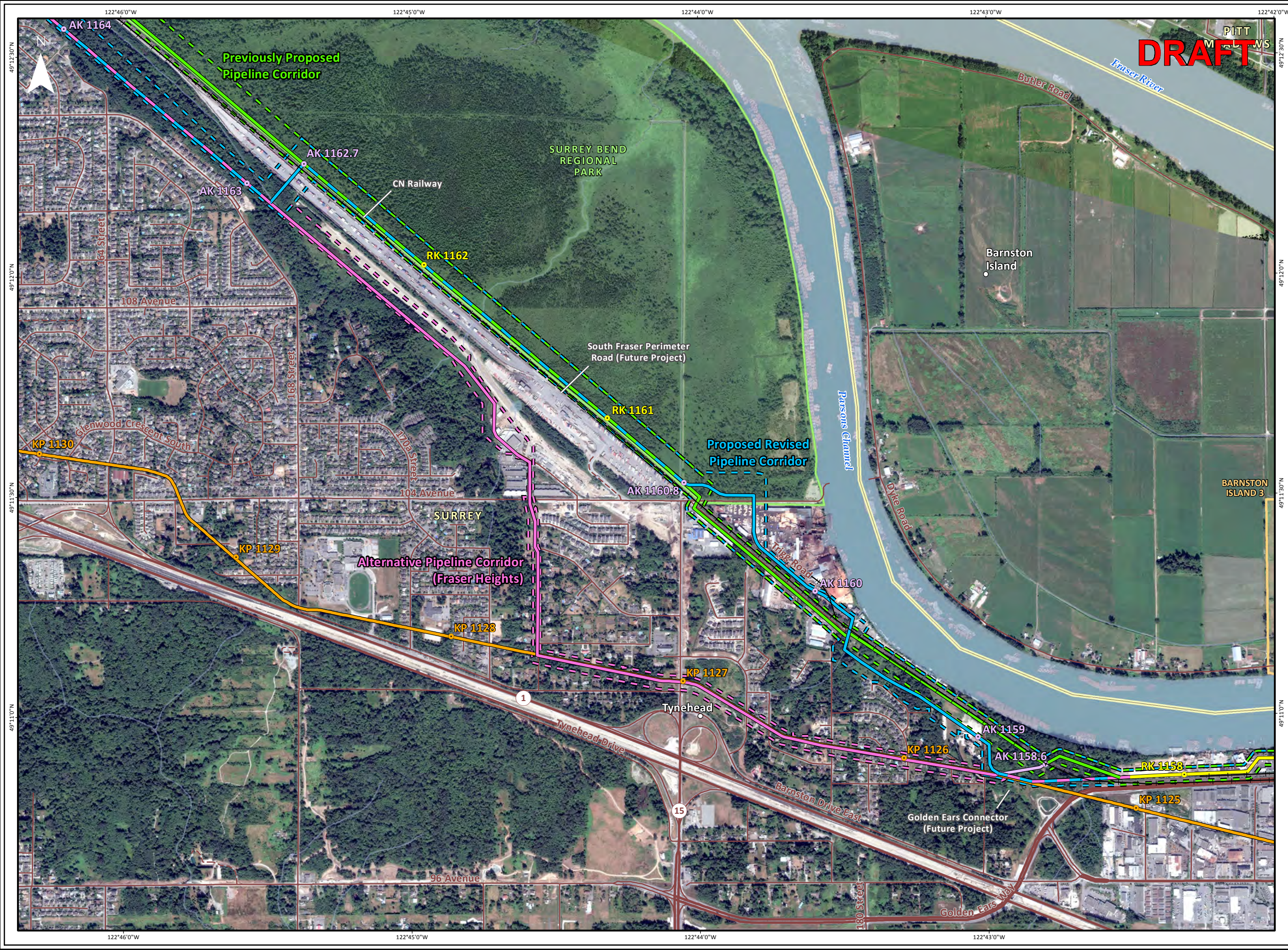

















FIGURE 2.2-14A

**PIPELINE CORRIDOR REVISIONS -  
GOLDEN EARS CONNECTOR /  
SOUTH FRASER PERIMETER ROAD**

**TRANS MOUNTAIN EXPANSION PROJECT**

**Alternative Corridors**

-  Alternative Pipeline Corridor (Fraser Heights)
-  Proposed Revised Pipeline Corridor
-  Previously Proposed Pipeline Corridor

-  Reference Kilometre Post (RK)
-  Alternate Kilometre Post (AK)
-  TMPL Kilometre Post (KP)
-  TMEP Mapping Reference Line (As Filed)
-  TMEP Mapping Reference Line (New Alignment)
-  Trans Mountain Pipeline (TMPL)
-  Highway
-  Paved Road
-  Resource Road
-  Railway
-  City / Town / District Municipality
-  Indian Reserve / Métis Settlement

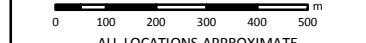
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

FIGURE 2.2-14B

**PIPELINE CORRIDOR REVISIONS -  
GOLDEN EARS CONNECTOR /  
SOUTH FRASER PERIMETER ROAD**

**TRANS MOUNTAIN EXPANSION PROJECT**

**Alternative Corridors**

-  Alternative Pipeline Corridor (Fraser Heights)
-  Proposed Revised Pipeline Corridor
-  Previously Proposed Pipeline Corridor

-  Reference Kilometre Post (RK)
-  Alternate Kilometre Post (AK)
-  TMPL Kilometre Post (KP)
-  TMPE Mapping Reference Line (As Filed)
-  TMPE Mapping Reference Line (New Alignment)
-  Trans Mountain Pipeline (TMPL)
-  Highway
-  Paved Road
-  Resource Road
-  Railway
-  City / Town / District Municipality
-  Indian Reserve / Métis Settlement

Projection: NAD 1983 UTM Zone 10N. Routing: Baseline TMPL & Facilities: provided by KMC, 2012; Proposed Corridors provided by UPI, August 23, 2013 and June 5, 2014; Reference Line & RK/AK VF provided by UPI, March 25 & 28, 2014; Additional Routing Alternatives provided by UPI 2013-2014; Transportation: IHS Inc., 2013; Natural Resources Canada, 2012; Geopolitical Boundaries: Natural Resources Canada, 2003, AltaLIS, 2013, IHS Inc., 2011, BC FLNRO, 2007 & ESRI, 2005; First Nation Lands: Government of Canada, 2014, AltaLIS, 2010 & IHS Inc., 2011; Hydrology: Natural Resources Canada, 2007-11 & BC FLNRO, 2008; Parks and Protected Areas: Natural Resources Canada, 2014, AltaLIS, 2012 & BC FLNRO, 2008; B/W & Colour Imagery: 2008-2011: Provided by KMC, 2012.

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