

Proposed Nordel Tunnel Alignment:

Variations of the proposed 4 to 5 kilometer tunnels starting at Nordel Way and descending under the North Delta neighbourhood and resurfacing in Surrey on South Fraser Way have been reviewed by Gateway staff. The review has determined that although a tunnel is technically feasible in this location, it is likely to be cost prohibitive, as the expense of tunneling 4 to 5 kilometers would consume, approximately 3 times the estimated budget for the comparable section of South Fraser Perimeter Road.

The placement of a roadway within a tunnel may appear to be a feasible approach for adjacent property owners by reducing noise and pollution problems associated with the roadway; however the location of a highway within an enclosed space places the motorists using the tunnel under a much higher safety risk than if constructed as an open roadway. As a result, tunnels require a number of highly sophisticated systems to better manage the tunnel environment and reduce the safety risks to a more manageable level. In addition, some commercial carriers would be prohibited from using the tunnel, requiring them to travel on existing routes. Further, operations and maintenance costs for a tunnel would be higher than for the proposed roadway alignment. Finally, the costs presented in the Sunbury presentation to Delta Council for the overpasses, exit ramps and widening of Nordel Way are far below what our assessment of the actual costs would be.

Although the technical and financial data overwhelmingly supports the current SFPR alignment through North Delta, the community has maintained a strong interest in a road tunnel through the North Delta escarpment. On September 14th 2005 a meeting was held with the Sunbury Neighbourhood Association's executive at which they expressed a desire for a broader review of the tunnel concept to ensure that social and community factors were considered. As a result of their request the program reviewed existing data to determine if there were other accounts that had not been assessed that could potentially favour a tunnel concept over the road concept.

As part of this work, senior specialists from Cushman and Wakefield LePage were commissioned to conduct a property tax comparison, based on the 2005 tax year for land required for each of the concepts. The study assessed the prospective reduction of property taxes under the current alignment concept and the potential for increased property taxes if truck traffic and regional traffic were removed in a North Delta tunnel scenario over a 35 year period (2012 to 2047).

The analysis concluded that the current (road) alignment would realize a net residential tax reduction of approximately \$2,500,000 over the 35 year time frame based on Net Present Value. Whereas, a 3 km tunnel concept proposed by Sunbury would result in no net residential tax loss over the 35 year period in the area of the tunnel.

The analysis also determined that property tax increases can be expected if property values for the area along River Road increase, given that regional and truck traffic will be removed from River Road and relocated to either SFPR or a tunnel through North Delta for the same 35 year time period. The analysis concluded there would be a net residential tax increase of approximately \$500,000 over this same time period.

Additional socio-community analysis was conducted by UMA Engineering Ltd. to assess other community values identified by the Sunbury Neighbourhood Association at the September 14, 2005 meeting. The additional values assessed included:

- Heritage sites lost or impacted;
- Impact on riverfront properties and access;

- Impact on riverfront green space;
- Number of proposed parcels affected, community severance and access impacts;
- Impacts on alternate modes of travel including; bikeways, walkways, and recreational trails;
- Compliance with the Official Community Plan; and
- Visual impacts.

The analysis concluded that a highway tunnel through North Delta as compared to the current SFPR alignment would have less impact on residential properties, heritage sites, riverfront green space, and visual effects for residents along River Road and alternate modes of travel. The analysis also concluded that the SFPR surface route would provide better views for drivers over the river than the North Delta tunnel proposal.

With respect to compliance with the Official Community Plan it was determined that both options were neutral as both Delta and Surrey have acknowledged a desire for a new transportation link to remove regional and truck traffic from River Road.

This review confirmed that even after consideration of community benefits, the safety risks, high construction costs as well as the high operations and maintenance costs made the North Delta tunnel concept not feasible and the additional analysis was not compelling enough to override the cost and safety concerns and will not be investigated further.

Proposed Annacis Island Tunnel Alignment:

The Sunbury presentation identified a tunnel to Annacis Island west of Nordel and a second tunnel connecting to the Fraser Surrey Docks as a potential alternative to the Gateway alignment. These tunnels would total approximately 3 kilometers in length with a construction cost of more than \$320 million depending on construction methods. In addition to construction costs, it is likely that environmental mitigation and compensation would be required to address potential impacts to fisheries values. Though not included in the figure noted above, such costs would likely be significant. Further, there may be restrictions on construction in the Fraser River due to fisheries concerns.

Other concerns that would have to be addressed include:

- Potential interference with the foundations of the Alex Fraser Bridge and the ship berths at the Fraser Surrey Docks, as well as with existing business buildings on Annacis Island;
- Ensuring that the tunnel is constructed in such a manner as to not impede existing and future shipping requirements;
- Construction of the portals and decline sections of the tunnels on each side of the river within the poor ground conditions would be challenging and costly, and would require significant property to minimize impacts on existing facilities;
- The sandy soils are susceptible to liquefaction under earthquake conditions and this presents risks and challenges to tunnel design and construction related to deformations and buoyancy. There is also the possibility of differential movement in the tunnel sections during an earthquake due to the varying soil conditions;

Given the above, this proposed tunnel alternative will not be considered further.



Comments on the Gateway Alignment

The Sunbury presentation provided a number of comments on the alignment being considered by Gateway including comments on cost, construction method, and public input into project development.

First, regarding the cost of the SFPR through North Delta, the approximately \$187 million (2005\$'s) is inclusive of property and environmental costs. Secondly, the project is proposed to be a design/build project and the contractor will be allowed flexibility within a defined corridor. The environmental assessment studies are being undertaken, and the environmental approval, when received, will be based on a defined corridor.

Finally, the Sunbury presentation also states that "the Sunbury Neighbourhood Association would request the opportunity to provide input at the various design stages to ensure that community's social, environmental and economic issues are addressed". As noted earlier, Gateway is committed to ensuring that community input is considered in the development of SFPR and is continuing to work to identify means through which to minimize the impact of the project on North Delta and other areas. There is an ongoing community relations program with staff willing to meet with organizations and interested individuals at any time to discuss their interests or concerns. We understand several members of the project team have met with Sunbury executive and have maintained ongoing dialogue. In addition, pre-design consultation for this section of the SFPR will be undertaken shortly, and again in at the preliminary design and detailed design stages of the project. All public input received will be considered along with technical and financial inputs in determining and refining the alignment.

Access Study

At the October 3rd, 2005 workshop with Council, Gateway presented the preliminary findings of the SFPR access study and heard from the representatives of the Sunbury Neighbourhood Association that the preference of the association was for no access from SFPR to North Delta from the Alex Fraser Bridge to Elevator Road.

As indicated at the workshop, Gateway has continued to work with the Municipality, emergency service providers, and the community to identify issues and interests and develop viable solutions that address the project's primary safety, functionality, movement and access goals as well as community objectives. This included reviewing criteria such as emergency access provisions, local access needs, ensuring that Ministry design standards are met, and understanding impacts to other facilities such as Nordel Way. As well, the alternatives must be technically and financially feasible.

Gateway has now developed a pre-design concept for the North Delta segment of SFPR that shows no access from SFPR to North Delta and this is the concept that will be taken to the public for input during the pre-design consultation process that will take place in the spring of 2006.

Signature:



**Geof Stock
Program Engineer
Gateway Program**