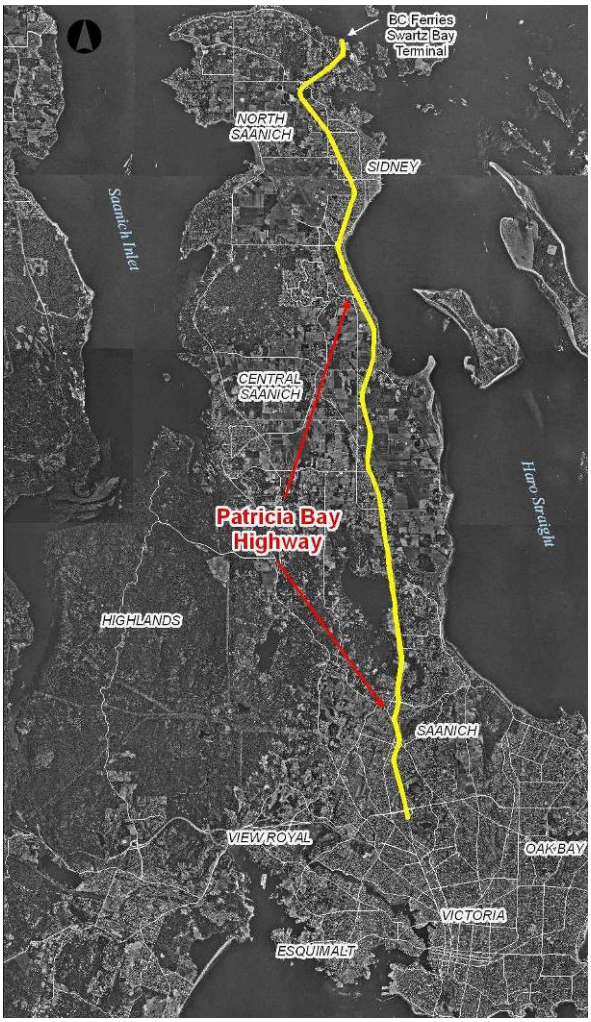
Ministry of Transportation

Highway 17 Corridor Planning Strategy



1961.0189.02 / March 15, 2007

URBAN SYSTEMS
2353 - 13353 Commerce Parkway
Richmond BC V6V 3A1
Telephone: 604-273-8700
Fax: 604-273-8752

2353 - 13353 Commerce Parkway, Richmond, BC V6V 3A1
Telephone: 604-273-8700 Fax: 604-273-8752

URBANSYSTEMS®

March 13, 2007 File: 1961.0189.02 C1

Ministry of Transportation
3rd Floor
2100 Labieux Road
Nanaimo, BC
V9T 6E6

VIA EMAIL: Dave.Edgar@gov.bc.ca

Attention: Dave Edgar, Project Manager

RE: HIGHWAY 17 CORRIDOR PLANNING STRATEGY – FINAL REPORT

We are pleased to provide you with a final version of the Highway 17 Corridor Planning Strategy. This document has been developed through the leadership of the Ministry of Transportation and extensive involvement from a Steering Committee comprised of local municipalities along the corridor as well as BC Transit, BC Ferries, and the Victoria International Airport Authority. It is our understanding that the Ministry will work directly with First Nations, as well as the general public along the corridor in order to advance any further planning and design of the Highway.

We would like to thank you for the opportunity to participate in this challenging assignment and if you have any further questions, please do not hesitate to contact the undersigned.

Yours truly,

URBAN SYSTEMS LTD.

John Steiner, M. Eng., MCIP
Principal

JS/mh

Encl:

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EXECUTIVE SUMMARY

The Ministry of Transportation, local area municipalities and other agency stakeholders have been working toward a long-term plan for the Highway 17 corridor for many years. This Corridor Strategy is designed to build onto the ***Vision for Highway 17*** report prepared in 2001. Through discussions with the study Steering Committee as represented by all agency stakeholders on the Peninsula, several key issues and concerns regarding the Vision were identified. Some of those concerns were related to the lack of connections to the highway in the southern portions of the corridor between Royal Oak Drive and Sayward Avenue. Other issues included the provision of essential roadways to support the planned grade-separated connections to the Highway and the closure of some cross-streets and direct accesses along the Highway. In some cases, the concerns were largely related to some uncertainty regarding the potential configuration and general feasibility of the specific interchanges along the Highway 17 corridor as identified in the Vision document.

The purpose of the Corridor Strategy was not to address every outstanding issue and concern that would be better resolved through subsequent stages of planning and design. Rather, the Strategy was designed to provide a long-term direction for the corridor that is supportable by local municipalities and other agency stakeholders. Based on previous planning work, several guiding principles have been established and used as the starting point for developing the Corridor Strategy for Highway 17. The planning principles summarized below have been used to shape the ultimate Strategy based on principles for corridor form and function, safety and reliability, as well as for a multi-modal transportation system. The following discussion highlights those planning principles.

Corridor Form and Function

- The corridor should be a four-lane highway between Swartz Bay and McKenzie Avenue Interchanges with a posted speed of 90 km/hr (except on the approach to the Swartz Bay Terminal);
- All major roadways crossing and intersecting with the Highway should connect to the highway with grade-separated interchanges;
- All other roadways that currently connect to the Highway should be closed with the provision of a frontage or support roadway system that provides alternative access to and from the Highway; and
- There should be no local accesses onto the Highway. A frontage road system should connect current and future land uses along the corridor to nearby support roads that are linked to the planned interchanges.

Safety and Reliability

- Remain a safe and reliable route for all travelers;
- Ensure the efficient movement of goods to improve our competitiveness and reduce costs for consumers;
- Provide effective connections to the Swartz Bay Ferry Terminal as well as the Victoria International Airport;
- Provide for the efficient movement of emergency response vehicles at all times of the day; and
- Access to adjacent lands will be subordinate to providing service to the through traffic movement.

Travel Choices

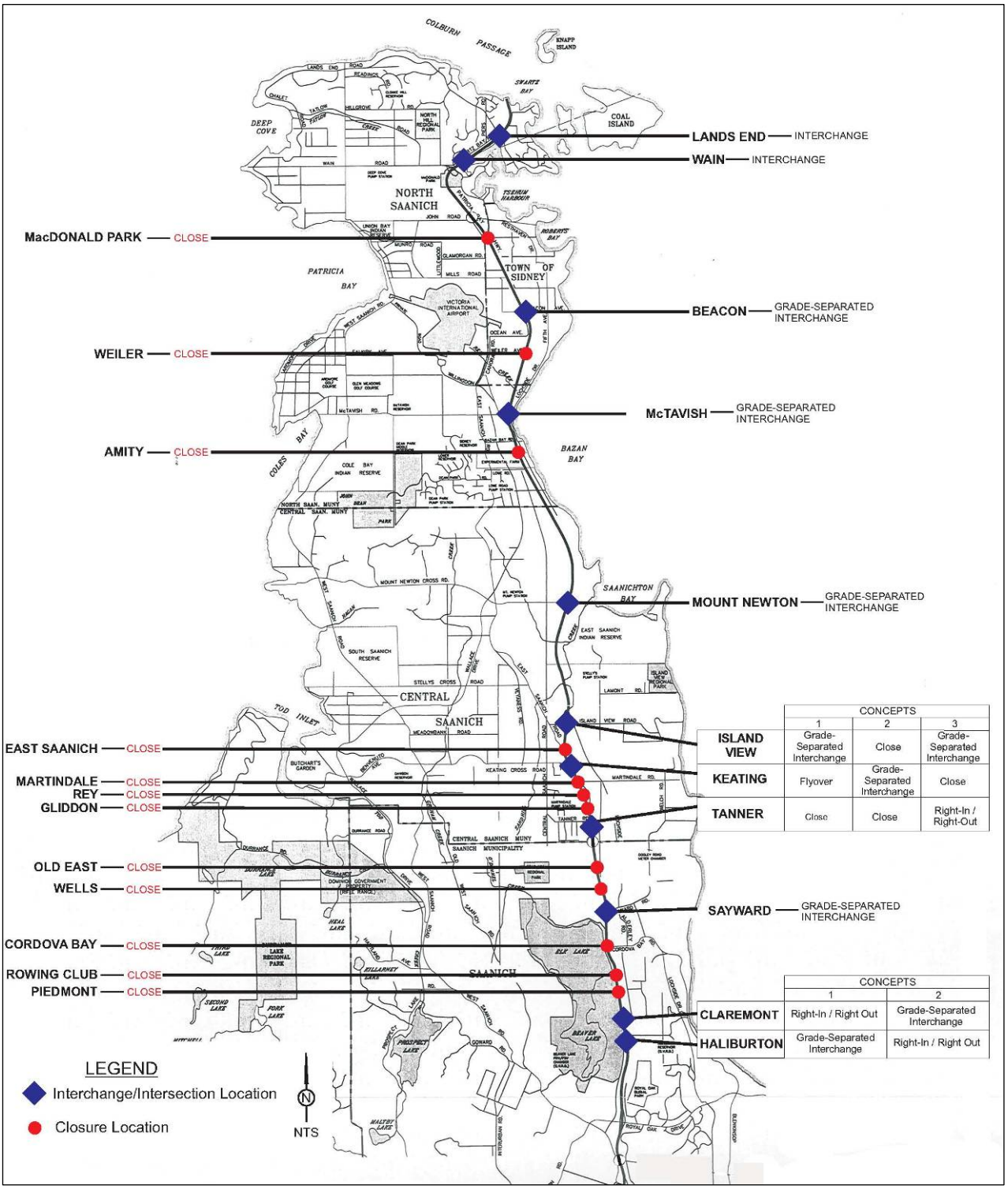
- Promote regional goals for direct, express bus services along the corridor and support infrastructure needs as part of the interchange concepts;
- Manage the highway corridor to ensure travel choice and increase the proportion of other travel modes, reducing the number of single occupancy vehicles (SOV's);
- Focus more on moving people than moving vehicles;
- Minimize the total volume of vehicle emissions;
- Minimize impacts on Blanshard Street; and
- Protect and improve the visual appeal of the highway corridor.

The Corridor Strategy illustrated in Figure 1 highlights the fundamental features of the long-term plan. In particular, the Strategy defines the preferred interchange locations and cross-street closures to achieve the planning principles previously described. The preferred interchange locations north of the Royal Oak interchange include Sayward Road, Mount Newton Cross Road, McTavish Road, Beacon Avenue, Wain Road and Lands End Road. Options for interchange locations have also been identified at Claremont Road and Haliburton Avenue as well as at Keating Cross Road and Island View Road. These alternatives should be examined further with local area communities and other agencies. All other intermediate cross-streets and accesses along the corridor will be closed and essential support roadways have been identified.

Achieving the Corridor Strategy requires significant effort, resources as well as consultation with all stakeholders, including the Tsawout First Nation. In some areas of the corridor – such as in the area of Haliburton and Claremont as well as between Keating and Island View, further work is needed with the local municipalities and the broader community on locally defined processes to identify and assess the optional interchange locations. For example, Official Community Plan updates may provide sufficient opportunity for the community to engage in discussions about the alternative interchange locations and community preferences. In several other areas of the corridor where the interchange locations have generally been defined and the feasibility of

options are confirmed – such as Sayward, Mount Newton, McTavish and Beacon – strategies to advance the planning and design of the alternative interchange concepts, interconnecting streets and accesses could be advanced. Depending on local, provincial and other available resources, these strategies could be concentrated on everything from simply preserving lands for specific concepts as part of a local planning initiative through to preparing functional and preliminary designs of preferred interchange concepts. For the Ministry of Transportation, the design and implementation of any capital improvement – either the ultimate interchange concept or an interim condition – will rely on the project merits relative to other provincial projects as defined through the Ministry's business cases.

Figure 1 – Recommended Corridor Strategy



The interchange concepts described in this Strategy have been developed to varying levels of detail. However, there are no shelf-ready projects to be advanced without significantly more planning and design. Table 1 summarizes the relative complexity of the implementation challenges and issues to be addressed in order to advance any of the interchange concepts along the corridor in terms of planning and design, community assessment, roadway network, alternative modes, as well as finances and agreements. It should be recognized that the Ministry will want to explore intermediate improvement concepts that advance the Corridor Strategy where there are significant benefits relative to the impacts and costs, and where potential partnerships with other stakeholders can be identified.

Table 1 – Implementation Complexity [1]

Highway Section / Interchange	Key Challenges				
	Further Planning and Design	Community Assessment	Roadway Network	Alternative Modes	Finances & Agreements
Royal Oak Drive to Claremont Avenue	◐	◐	◔	◔	◐
Sayward Interchange	◕	●	◕	◐	●
North of Sayward Road to Island View Road	◕	◕	◐	◕	◕
Mount Newton Interchange	◔	◔	○	◔	◐
McTavish Interchange	◔	◔	◔	◔	◐
Beacon Interchange	◐	◔	◔	◔	◐

[1] Measures of Complexity: ○ Low ◔ Low to Medium ◐ Medium ◕ Medium to High ● High

The Ministry has worked extensively with local area municipalities and other agency stakeholders along the corridor. They are also working with the Tsawout First Nation on local area development interests along the Pat Bay Highway which may impact the Corridor Strategy. Because of the unique challenges in each area of the Corridor, the Ministry has committed toward continuing to work with communities individually in order to address those issues and challenges noted above, and to perhaps move specific projects forward over time. In most cases, it will rely on the partnerships with local and provincial agencies as well as other stakeholders to identify what steps may be required to identify the preferred interchange locations and concepts that may be developed further with public input and feedback.

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1.0 INTRODUCTION

Highway 17 – also called the Pat Bay Highway – serves as a 'gateway' to the Capital Region and the entire Vancouver Island via BC Ferries at Swartz Bay and the Victoria International Airport. As the primary north-south corridor on the Saanich Peninsula, the Pat Bay Highway also serves an important role for travel within the Capital Regional District.

In addition to providing those key connections, the Pat Bay Highway has an important economic role and function. On a provincial level, the Pat Bay Highway supports the movement of people, goods and services throughout the Island. Locally, the Highway also supports the distribution of goods and services to and from several activity nodes within the Capital Region. The regional and provincial economic importance of the Highway is expected to continue to grow in the long-term, thus increasing the need to consider highway mobility and safety challenges identified through in previous studies. Over the last 20 years, studies have identified the need for the long-term grade-separation of key intersections along the Pat Bay Highway between Swartz Bay and the McKenzie Avenue Interchange, as a replacement to the at-grade signalized and unsignalized intersections as well as the closure of the property accesses that exist today. Although there is limited Ministry funding available, any major investments on Pat Bay Highway would requirement a consensus among Peninsula municipalities and other agency stakeholders on a long-term corridor strategy. The purpose of this document is to provide the overall direction through a Corridor Planning Strategy that identifies the locations and defines potential concepts for the grade-separated connections to the Highway, changes to accesses and sidestreets as well as the provision of support roadways that are needed to achieve the plan. In this regard, the alterations to the municipal roadway system will be concentrated on those network changes that are needed to support the highway improvement concepts and to provide reasonable alternatives for local and inter-municipal travel.

In an effort to guide short-term and long-term land use and transportation planning along the Highway 17 corridor, the Ministry identified a preliminary direction for the overall corridor as documented in the ***Vision for Highway 17*** (2001). Rather than re-visit the overall direction, the Steering Committee – comprised of the Ministry as well as other local, regional, provincial and airport agency stakeholders – agreed that the process should build from what has already been done and supported by most communities. In this regard, the primary objectives in preparing the ***Highway 17 Corridor Strategy*** are summarized as follows:

- To present the guiding principles regarding the proposed future functional state of the Highway 17 corridor as defined through previous studies;
- To confirm the assessment of existing and forecast conditions as well as the identification of mobility and safety issues along the Highway;

- To present compiled input from stakeholder organizations that have been involved in this study, including the peninsula municipalities, BC Ferries, BC Transit and Victoria Airport Authority;
- To identify and evaluate feasible improvement concepts intended to address concerns and issues. It should be recognized that, in some cases, alternative configurations of those feasible improvements should be considered at the functional planning and design stages of work; and
- To identify key initiatives needed to advance and protect for further design and implementation of the long-term strategy.

Achieving these objectives involves local area agencies to provide input and feedback on the initial corridor Vision and to examine alternatives at a conceptual level of detail. This process ensures that the current policies and plans of local municipalities as well as regional and provincial agencies are addressed with any improvement strategies. A Steering Committee and Working Committee of local and provincial politicians and staff were established to provide this guidance and feedback on the improvement concepts evaluated as part of the Strategy.

It was also recognized that public stakeholder and First Nations' input would be critical toward advancing the design and implementation of any ultimate or interim changes along the corridor. Once the corridor level Strategy work is complete, the Ministry and local area municipalities will work with public stakeholders and the Tsawout First Nation representatives to address constraints and opportunities for specific improvements. In this regard, the Strategy will provide the context for future planning and design of intermediate improvements that would require further consultation and communications with public stakeholders. In all cases, the Ministry would seek to establish partnerships with local agencies and other private interests to advance parts of the Strategy.

2.0 CONTEXT FOR THE STRATEGY

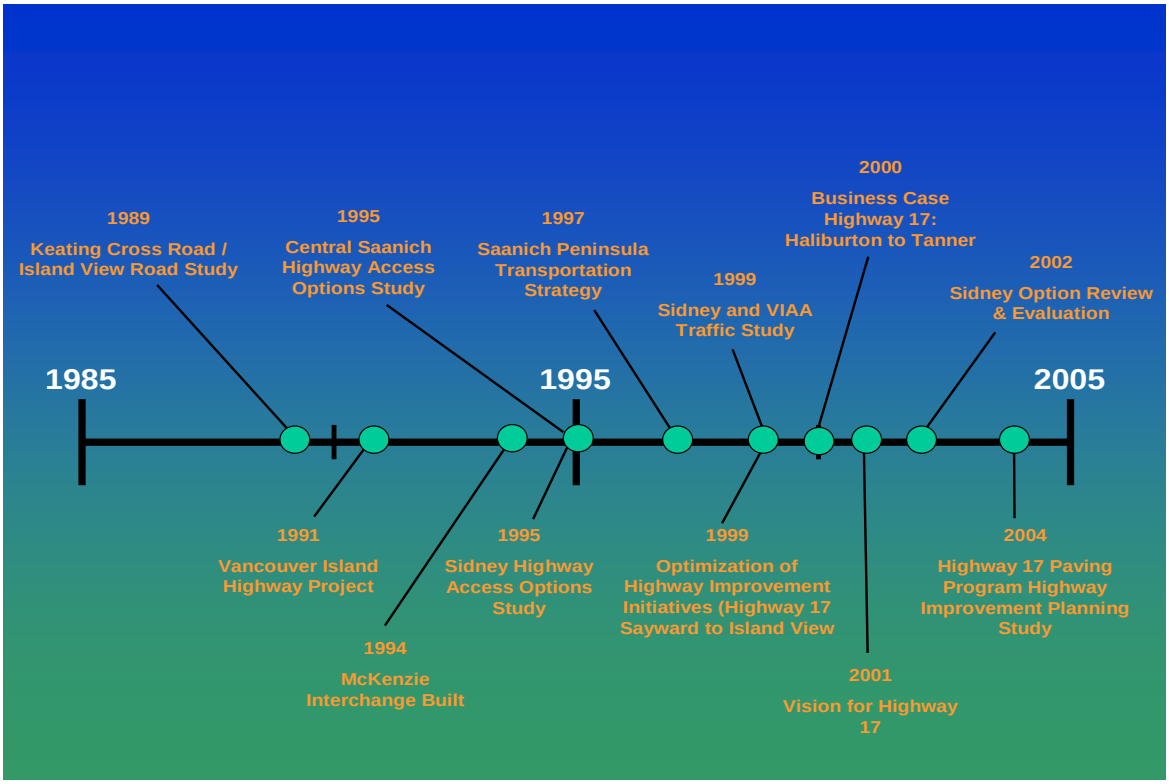
The Highway 17 Corridor Planning Strategy is shaped by a significant amount of transportation planning and design work that has been prepared for the highway as well as the surrounding areas of the Peninsula. Through this work, the Ministry and local agency stakeholders have expended significant resources toward developing a supportable plan to achieve a four-lane grade-separated highway between the Swartz Bay Ferry Terminal and the McKenzie Interchange.

This section of the Strategy describes the principle direction for the Highway 17 corridor based on previous work, and provides an updated assessment of key transportation issues and opportunities to incorporate other regional and municipal goals as part of the long-term corridor plan.

2.1 Planning Principles for the Highway

Over the last 20 or so years, the Ministry of Transportation has worked with several municipalities and other agencies on a range of transportation studies designed to address current and future mobility and safety issues along the corridor (see Figure 2.1 below). Some studies have involved the entire corridor, while others have been concentrated on specific sections of the highway. Many of these initiatives have included conceptual, functional and preliminary designs of possible highway improvement strategies. Some of these planning and design assignments have also examined potential changes to establish an appropriate hierarchy of roads that would support local area access and circulation within the community, as well as regional mobility.

Figure 2.1 – History of Key Initiatives



Since the completion of the Vancouver Island Highway Project, the Ministry and other key agencies have generally agreed in principle on the ultimate need for a four-lane, grade-separated highway extending between Swartz Bay and the McKenzie Avenue Interchanges. In fact, this direction was reinforced through the analysis of forecast travel demands presented in the ***Vision for Highway 17*** report which indicated that most signalized intersections along the Highway would operate with significant delays (failing or marginal levels of service) in the long-term with either a four-or six-lane highway and signalized intersections. Additionally, the "surges" in Ferry traffic would further exacerbate these problems (see Appendix A – Highway 17 Corridor: Intersection Levels of Service).

In support of this direction, the following guiding principles have been used to shape the Corridor Strategy based on a desired form and function of the corridor, goals for safety and reliability as well as support for Travel Choices.

a. Corridor Form and Function

- Four-lane highway between Swartz Bay and McKenzie Avenue Interchanges with a posted speed of 90 km/hr (except on the approach to the Swartz Bay Terminal);

- All major roadways crossing and intersecting with the Highway should connect to the Highway with grade-separated interchanges;
- All other roadways that currently connect to the Highway should be closed with the provision of a frontage or support roadway system that provides alternative access to and from the Highway; and
- There should be no local accesses onto the Highway. A frontage road system should connect current and future land uses along the corridor to nearby support roads that are linked to the planned interchanges.

b. Safety and Reliability

- Remain a safe and reliable route for all travelers;
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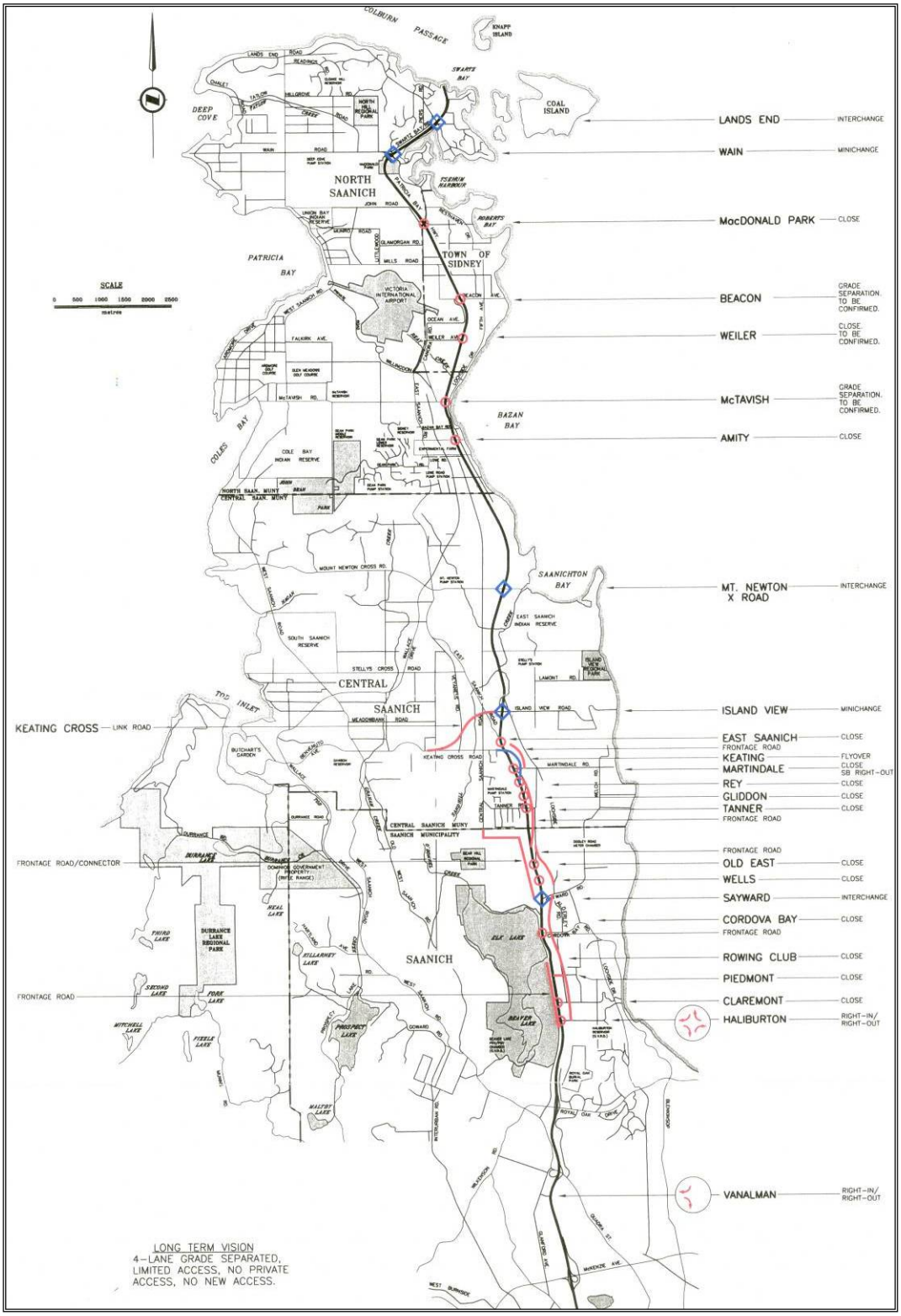
c. Travel Choices

- Promote regional goals for direct, express bus services along the corridor and support infrastructure needs as part of the interchange concepts;
- Manage the highway corridor to ensure travel choice and increase the proportion of other travel modes, reducing the number of single occupancy vehicles (SOV's);
- Focus more on moving people than moving vehicles;
- Minimize the total volume of vehicle emissions;
- Minimize impacts on Blanshard Street; and
- Protect and improve the visual appeal of the highway corridor.

2.2 Preliminary "Vision"

The ***Vision for Highway 17*** report identifies a long-term strategy for the Highway 17 corridor toward an ultimate configuration for a four lane grade-separated highway between Swartz Bay and the McKenzie Avenue as previously described. The preliminary concept illustrated in Figure 2.2 outlines the potential location of interchanges, alterations and closures to other intersecting roadways and accesses to adjacent properties as well as the provision of a support roadway network.

Figure 2.2 – Long Term Vision for Highway 17 Corridor



Source: Vision for Highway 17, EarthTech, May 2001

In general, grade-separated connections to the Highway 17 between the Royal Oak and Wain Interchanges were identified at six locations as follows: Beacon; McTavish; Mt. Newton; Island View, Keating and Sayward. The potential configuration of these interchanges was not defined within the Vision document.

For the purpose of this study, a Steering Committee comprised of local politicians representing the communities along the Peninsula as well as staff from local municipalities and other agency stakeholders was established. Although there was general agreement regarding the ultimate need for the four-laning and grade-separation of intersections along Highway 17, several concerns were raised regarding the location of interchanges, uncertainty of the potential interchange configuration, closure of some intersecting roads, as well as the provision of support roadways. These issues and concerns are described in greater detail in Section 3 along with the development and evaluation of feasible improvement concepts.

In addition to the localized issues regarding the preliminary concept for Highway 17, many Steering Committee members were keenly interested in advancing the potential improvement concepts toward design and construction. Although the Ministry's Capital Program does not include the Pat Bay Highway at this time, it was agreed that a comprehensive and supportable Strategy was essential to guide ongoing planning, design or construction activities along the corridor. The Ministry and local area municipalities will also want to consult with affected public stakeholders and the Tsawout First Nation as part of the design and evaluation process.

2.3 Conditions Assessment

Since the completion of the ***Vision for Highway 17***, the municipalities of the Capital Regional District have developed and approved a regional transportation strategy – ***TravelChoices*** – which outlines the direction for a multi-modal transportation system needed to support population and employment increases envisioned in the Regional Growth Strategy. This section of the document provides a summary of the existing and forecast conditions along Highway 17, and describes those key transportation initiatives included in ***TravelChoices*** that should be recognized in the planning for the Highway 17 corridor.

2.3.1 Existing Conditions Assessment

The following discussion describes those corridor and intersection characteristics along Highway 17 as presented in the ***Vision*** document and summarizes any changes that should be considered as part of the Strategy.

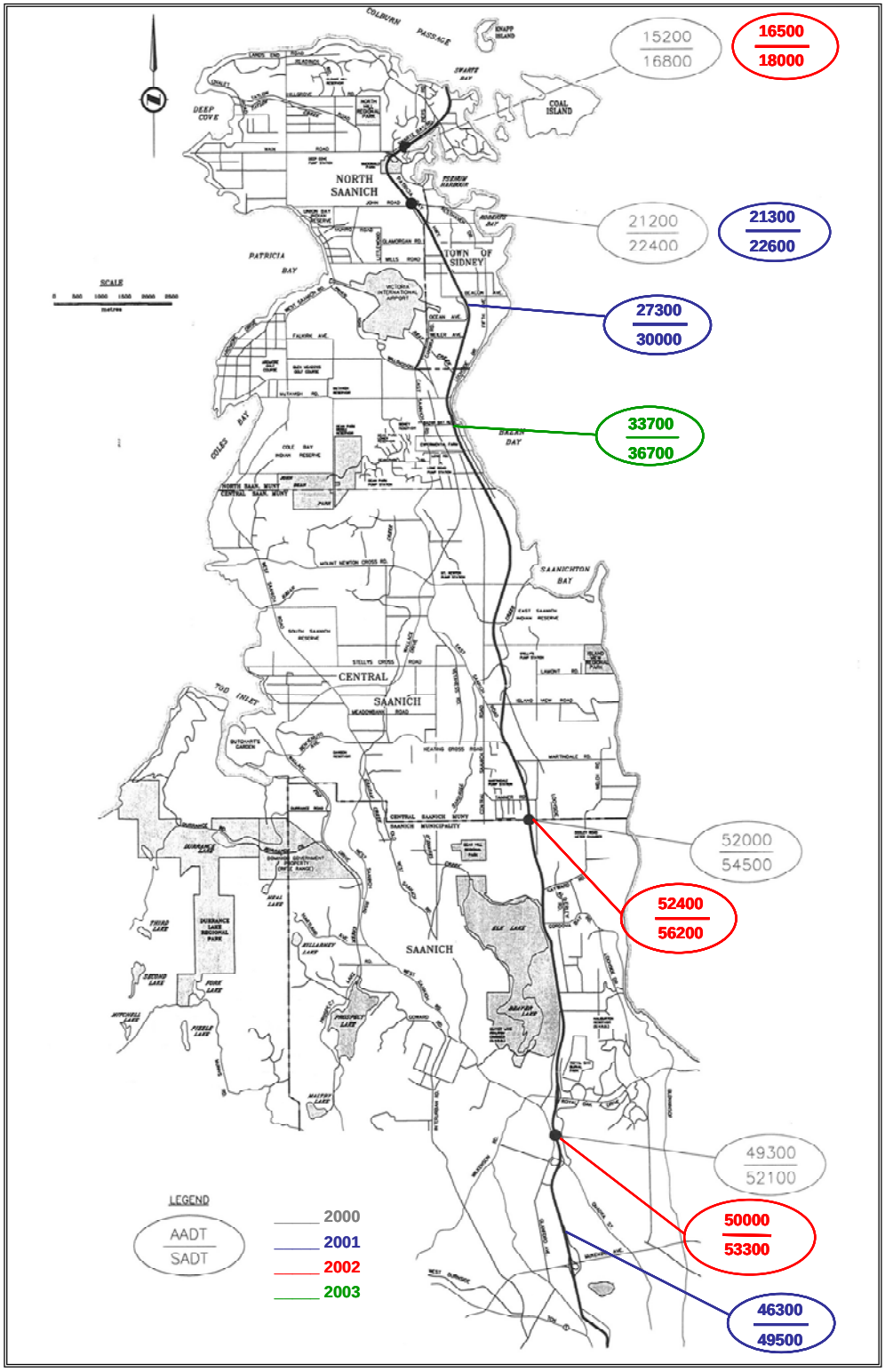
- ***Highway geometry & speeds.*** The Highway 17 corridor is a four-lane corridor with varying features that are typical of both an urban arterial and rural expressway corridor. Although some issues have been addressed through recent road rehabilitation initiatives, Figure B.1 indicates that the primary geometric deficiencies are located in the southern areas of the corridor.

- ***Intersection & access spacing and controls***. Royal Oak Drive and Wain Road, the Highway 17 corridor consists of six at-grade signalized intersections, eighteen restricted movement intersections, as well as accesses to approximately 75 private driveways and commercial properties, particularly in the southern sections of the Highway south of Tanner Road. Figure B.2 illustrates the existing intersection controls and spacing of major intersections along the Pat Bay Highway. These patterns underscore the immense challenges of achieving the standards and expectations for a grade-separated highway facility.

- ***Traffic volumes & delays***. The existing daily and peak hour traffic volumes are summarized in Figures B.3 and B.4 respectively. These patterns show that the daily volumes along the southern sections of the highway are two to three times higher than the northern sections of the corridor. For example, the annual average daily traffic (AADT) along the Highway north of Sayward is over 50,000 vehicles, and 21,000 south of Wain Road. During the PM peak hour, the variation in traffic volumes at key intersections is still significant, but not as dramatic as the daily patterns. In fact, many of the signalized intersections throughout the corridor are operating at or below desired levels of service (LOS D or worse) during the afternoon peak hour. These delays are exacerbated by the "surges" of traffic along the Highway created by the Ferry, particularly in the southbound direction.

  The historical traffic volumes illustrated in Figure 2.3 indicate that traffic levels have not changed dramatically since the completion of the Vision document. In the southern areas of the Highway, traffic volumes have changed by less than 1% over the past few years. Additionally, population and employment levels have also increased modestly at approximately 2% to 3% over the past five years. Based on these comparisons, the corridor delays illustrated in Figure B.4 still exist today.

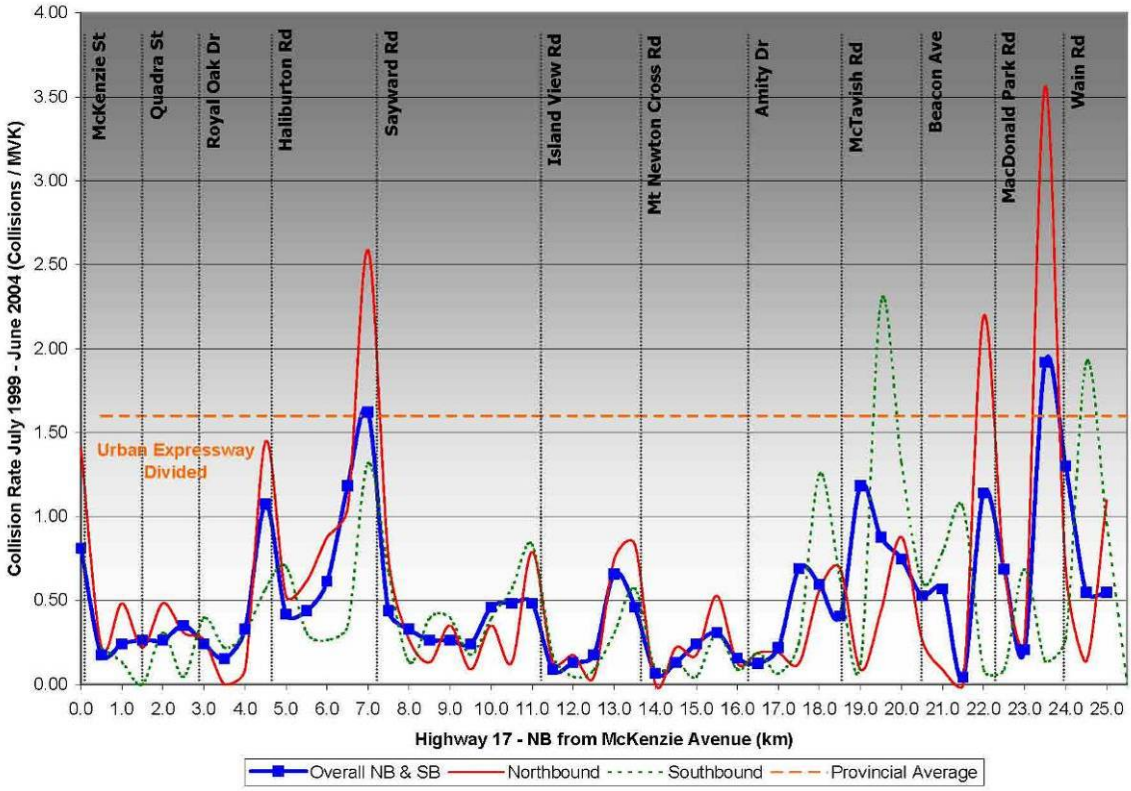
Figure 2.3 – Daily Traffic Volume Comparisons



Source: Vision for Highway 17, EarthTech, May 2001; MoT traffic data

- ***Collision patterns***. The historical collision patterns – accident rates and severity indices – documented through previous studies are illustrated in Figure B.5. Although some Highway improvements have been implemented over the past five years, collision patterns remain problematic at Sayward Road, McTavish Avenue and Beacon Avenue as illustrated below in Figure 2.4.

Figure 2.4 – Historical Collision Patterns (1999-2004)



Source: MoT, HAS data for period July 1st 1999 to July 1st 2004.

2.3.2 Forecast Conditions

The Vision document highlighted forecast 2026 traffic volumes and intersection delays as illustrated in Figure B.4 (Appendix B), which was based on the regional transportation planning model – EMME/2. The results indicate that forecast traffic volumes along the Highway 17 corridor were projected to increase by as much as one percent per year over the next 25 years. As indicated by the forecast levels of service for all signalized intersections, this growth will result in further increases in delays and travel times. Most intersections would operate at a level of service (LOS) 'E' and 'F' and are expected to experience significant delays – not accounting for the ferry traffic "surges."

Some of these intersections were also identified as primary connections to some key land use generators. As Figure B.5 (Appendix B) indicates, Beacon Avenue, McTavish Road and Island View Road/Keating Cross Road serve as the primary access for the Victoria International Airport, the Town of Sidney and the Keating Industrial Park on the west side of the highway.

2.3.3 Other Factors to Consider

In April of 2005, the Capital Regional District approved the first long-term regional transportation strategy – ***TravelChoices.*** The technical reports prepared as part of the development of the long-term Strategy recognize the ultimate configuration of the Highway 17 corridor as a four-lane grade-separated highway. Additionally, the regional significance of this corridor and intersecting roadways are also identified in terms of the inter-municipal network, primary transit services and facilities, movement of goods, as well as the cycling network. The following discussion highlights the directions for a regional serving, multi-modal transportation system that are being considered with any future concepts for the Highway 17 corridor, and identifies those local plans and policies that will influence the planning along the highway.

- ***Inter-municipal Corridors.*** The regionally significant roadways in the Capital Region include those existing and future corridors that serve an important inter-municipal function and support planned facilities for all priority modes (such as trucks, transit, bicycles and pedestrians). Figure 2.5 illustrates the primary inter-municipal corridors in the Region as contained in TravelChoices. The strategy highlights the need for an approach that manages long-term mobility along these key inter-municipal corridors, maximizes effectiveness of existing facilities and concentrates intersection and corridor improvements on those corridors that support priority modes as necessary. The Highway 17 corridor is identified as a primary inter-municipal corridor, with Keating Cross Road and West Saanich Road as the only connecting and parallel corridors of significance in serving inter-municipal travel.

  The Official Community Plans and Transportation Plans of each municipality are also considered in the development and evaluation of improvements along the Highway 17 corridor, particularly when connecting to major cross-streets. Other major roads connecting and/or crossing Highway 17 include Lands End, Wain Road, Mills Road, Beacon Avenue, McTavish Road, Amity Drive, Mt Newton Cross Road, Island View Road, East Saanich Road, Keating Cross Road, Martindale Road, Gliddon Road, Tanner Road, Old East Road, Wells Road, Sayward Road, Cordova Bay Road, Piedmont Drive, Claremont Avenue, and Haliburton Road.

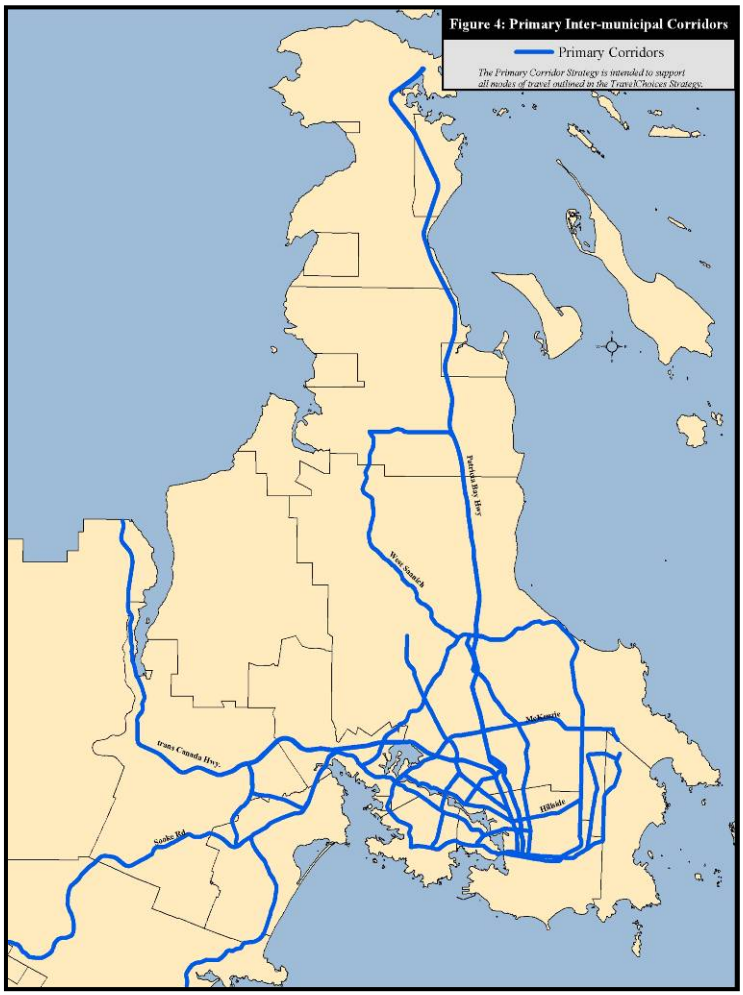
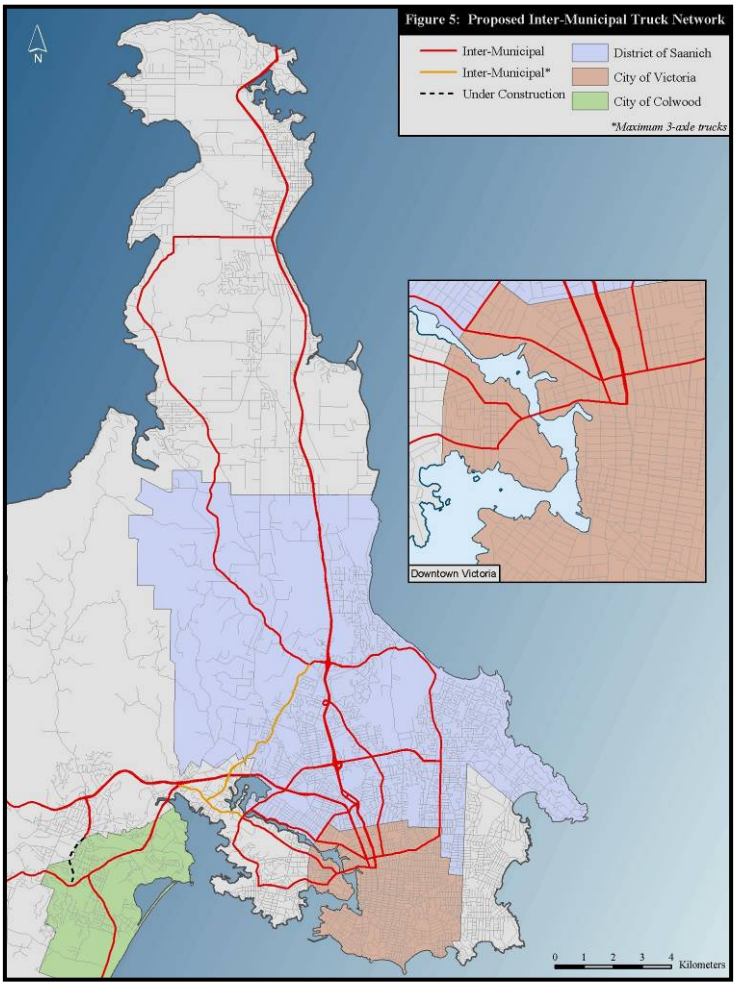


Figure 2.5 – Primary Inter-municipal Corridors

Source: TravelChoices Strategy, Capital Regional District, April 2005

- ***Truck Routes.*** The movement of goods is an important element of the overall economic strategy for the Capital Region. As part of the TravelChoices strategy, commercial vehicles are recognized as a "priority" mode in which a network of inter-municipal routes is needed to support the movement of trucks. Figure 2.6 illustrates the inter-municipal truck routes that connect major generators of large truck activity within and outside the region, including the primary gateways, inter-modal linkages with air, water and rail as well as local area activity nodes such as the Keating industrial area. Within the Peninsula area, the inter-municipal truck network essentially includes Highway 17, Keating Cross Road as well as the southern section of West Saanich Road.

Figure 2.6 – Inter-municipal Truck Network



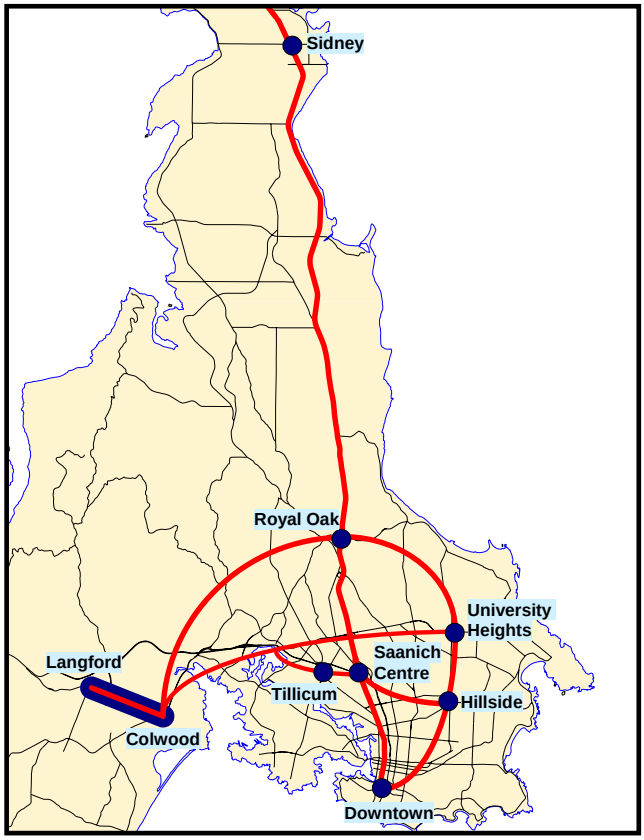
Source: TravelChoices Strategy, Capital Regional District, April 2005

In addition to the inter-municipal truck network, existing plans or policies for the District of Saanich and Central Saanich include local truck routes that are considered as part of the Highway 17 Corridor Planning Strategy. The key roads that are part of the local truck network include Mount Newton Cross Road, Island View Road, Keating Cross Road, Sayward Road, Royal Oak Drive, Quadra Street, and McKenzie Avenue.

- ***Express Bus Corridors.*** Today, Highways 1, 14 and 17 are the primary corridors for regional transit services connecting suburban communities and key nodes to downtown Victoria. Many of those transit services operating along the Highways also serve local travel needs. In order to make the longer distance travel in the Region more attractive, the TravelChoices strategy identified the potential of express bus services to provide frequent, direct and fast service between key regional destinations as illustrated in Figure 2.7. Express bus services are identified along the Highway 17 corridor to provide a direct service between Swartz Bay Ferry Terminal and the Royal Oak Transit Exchange,

and then to downtown Victoria. New interchanges along Highway 17 should be planned and designed to allow express buses to exit the highway, stop at a bus stop and re-enter the highway easily.

Figure 2.7 – Express Transit Service Corridors

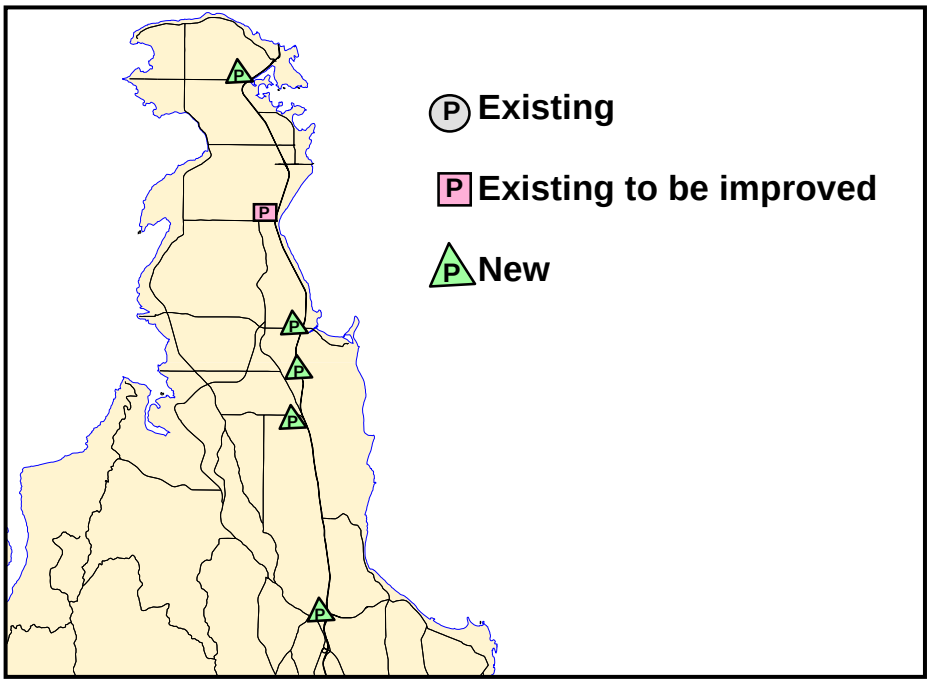


Source: TravelChoices Strategy, Capital Regional District, April 2005

- ***Transit Facilities (exchanges & park-and-ride).*** Transit exchanges and park-and-ride facilities are provided in several areas of the region. The Royal Oak exchange is located along Royal Oak Drive just west of Highway 17.

  A park-and-ride lot is also located on the west side of the Highway north of McTavish Road and an informal facility is located on Elk Lake Drive south of Haliburton Road. The addition of express bus services along the Highway 17 corridor will increase the need to modify the transit exchange and park-and-ride facilities. As part of the TravelChoices strategy, the need for new and modified transit supportive facilities were identified at Keating Cross Road, Island View Road and Mt. Newton Cross Road as illustrated in Figure 2.8.

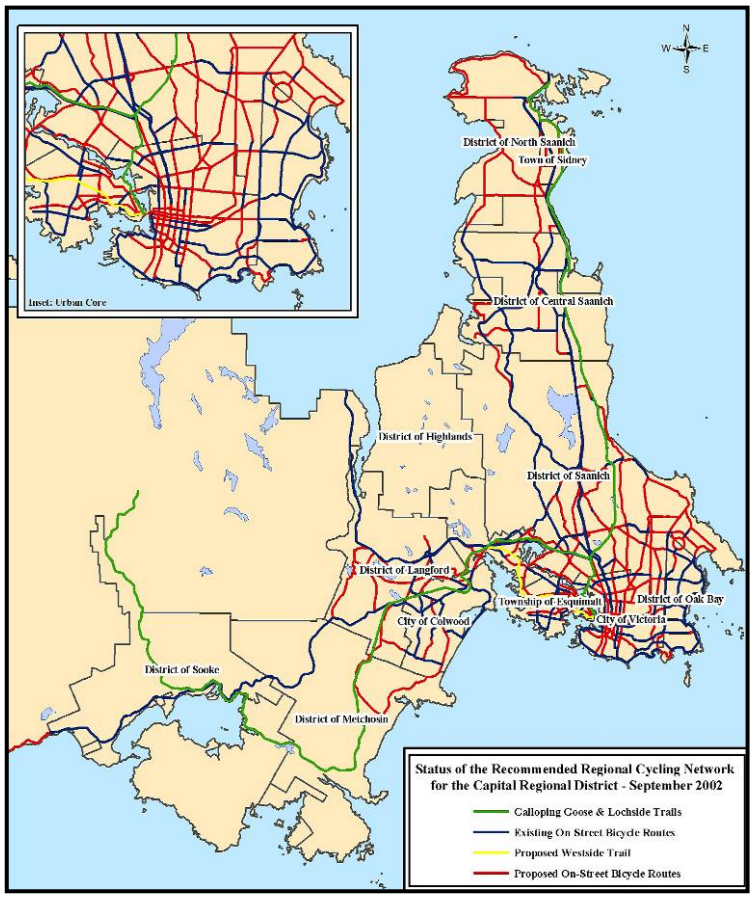
Figure 2.8 – Park-and-Ride Facilities



Source: TravelChoices Strategy, Capital Regional District, April 2005

- ***Bike Routes.*** Bicycle use in the Capital Region is the highest in Canada – approximately 28,000 bicycle trips are made on a typical weekday. The provision of more on-street and off-street routes as well as support facilities is considered to be essential toward encouraging more people to bike. The bicycle plan developed for the region includes approximately 550 km of bicycle routes and is illustrated in Figure 2.9. In the Peninsula area, Royal Oak Drive, Sayward Road, Tanner Road, Island View Road, Mt Newton Cross Road, Amity Drive, McTavish Road, Beacon Avenue and Wain Road are identified as bicycle routes crossing the Highway 17 corridor.

Figure 2.9 – Cycling Network Plan



Source: TravelChoices Strategy, Capital Regional District, April 2005

3.0 IMPROVEMENT OPTIONS

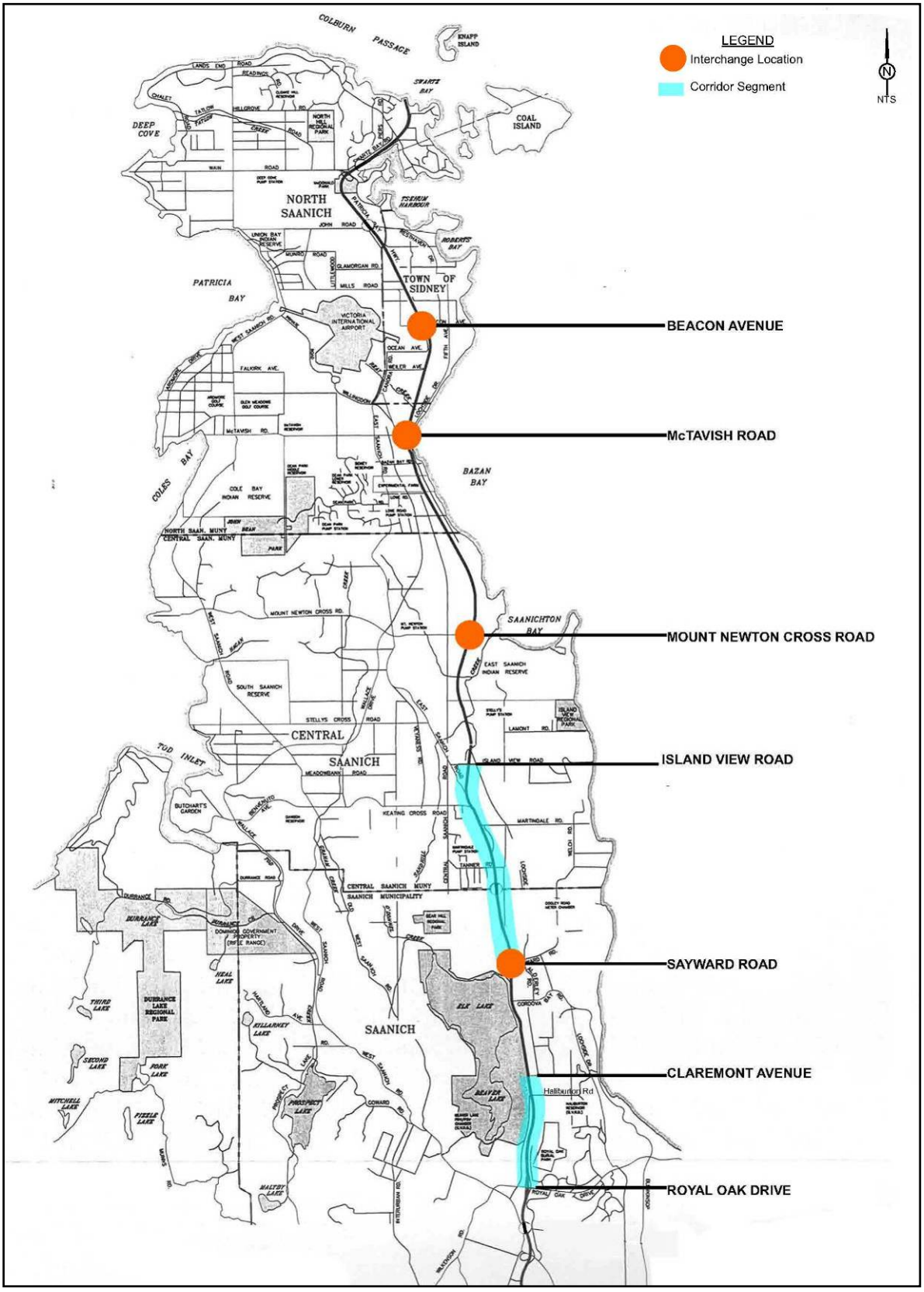
Ultimately, the Ministry wants to develop consensus on a long-term strategy for the Highway 17 corridor in terms of the location of grade-separated interchanges and essential support roadways. Additionally, the Strategy also identifies and examines feasible improvement options for the Highway 17 corridor at a conceptual level of detail in response to concerns and issues raised by Steering Committee members regarding the concepts contained in the ***Vision for Highway 17*** document. I n order to define an overall strategy and to address those issues, the six corridor segments and locations illustrated in Figure 3.1 and described below are examined in greater detail.

1. ***Royal Oak to Claremont.*** Potential locations and configurations of conceptual interchanges along with support roadway network improvements are identified and evaluated.
2. ***Sayward Interchange.*** Optional conceptual layouts of the interchange are considered and evaluated along with support roadway connections to confirm conceptual feasibility and preliminary preferences.
3. ***North of Sayward to Island View.*** Alternative conceptual interchange locations and configurations are examined and evaluated along with the essential and potential support roadway network improvements.
4. ***Mt Newton Interchange.*** An interchange concept is examined to confirm conceptual feasibility.
5. ***McTavish Interchange.*** Optional interchange concepts are identified and evaluated to confirm feasibility and preliminary preferences.
6. ***Beacon Interchange.*** Conceptual level feasibility of the interchange is examined.

For each alternative concept, the potential impacts and benefits of the interchange and essential roadway connections are compared in relative terms using a high level Multiple Account Evaluation (MAE) as described below.

- ***Traffic***
  - Forecast 2026 peak hour volumes using the interchange based on the regional transportation model – EMME/2.
  - Extent of traffic diversion to the municipal street system.
  - Operation of the potential interchange concept.
- ***Network***
  - Connectivity to primary municipal roads (i.e. arterials or collectors).
  - Support for other priority modes such as transit, cycling and pedestrian facilities.

Figure 3.1 – Location of Improvement Concepts



- ***Community***
  - Impacts on private properties.
  - Impacts on other community uses.
  - Impacts on parkland or environmentally sensitive areas.
- ***Costs***
  - Conceptual level cost estimate for construction (Class D). These costs should not be used for budgeting purposes as they are based a conceptual level assessment of potential concepts that will be defined during subsequent stages of functional planning and preliminary design.
  - Property costs.

As part of the assessment, the support roadway networks are also identified. It is important to recognize that the interchange and support roadway improvements are being defined at a conceptual level of detail to confirm feasibility of a grade-separated connection to the Highway. ***As such, alternative interchange concepts and layouts should be considered further with technical and other stakeholder input before proceeding to subsequent stages of design and implementation. It should also be recognized that any long-term improvement concept may be implemented in stages based on available resources and potential transportation benefits to be determined through a business case analysis.***

3.1.1 Royal Oak Drive to Claremont Avenue

The section of Highway 17 between Royal Oak Drive and Claremont Avenue is entirely located within the District of Saanich. Today, traffic signals are provided at Haliburton Road and Elk Lake Drive intersection with the Highway, supporting all-way access to and from the community. Elk Lake Drive and Haliburton Road are classified as collector roads in the District of Saanich (Official Community Plan, Appendix A, June 2000). Claremont Avenue connects to Highway 17 on the east side and operates as an unsignalized intersection to accommodate northbound right-in, westbound right-out and southbound left-in traffic movements.

The *Vision for Highway 17* document identified the potential of closing the Haliburton Road and Claremont Avenue connections to the highway in favour of using the existing interchange at Royal Oak Drive or the planned Sayward Road Interchange. The primary issues and concerns raised by municipalities about the proposed concept at the outset of the study are briefly summarized as follows:

- The distance between the Sayward Road and Royal Oak Drive Interchanges of 4.3 km would inconvenience several residential communities on the east side of the Highway;

- Perceived levels of congestion and delays experienced at the existing Royal Oak Drive Interchange would worsen with the diversion of more traffic to this area;
- Potential for increased traffic volumes along municipal street system; and
- Restricted connections to the Elk Beaver Lake Regional Park for residents on the east side of the Highway.

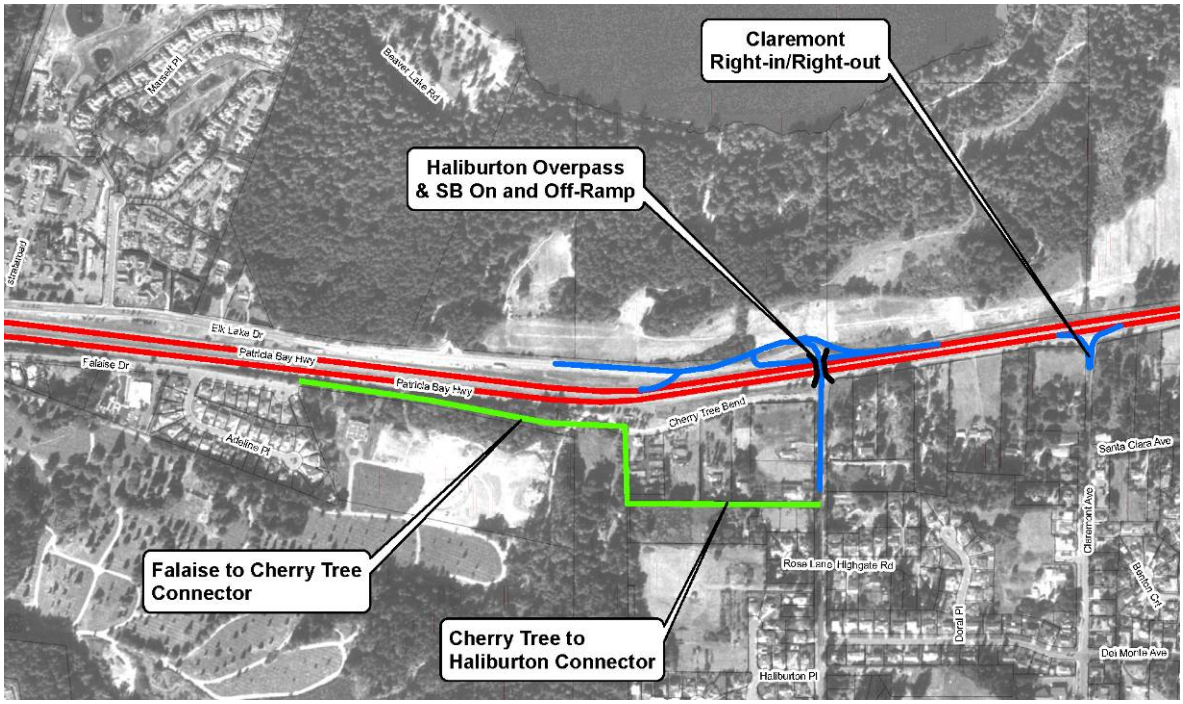
In order to address these issues and concerns, two concepts with grade-separated connections to Highway 17 were identified and evaluated.

- ***Concept 1 – Haliburton Overpass and Claremont Right-on/ Right-off Ramps (see Figure 3.2)***. This concept is designed to provide "full-movement" access to and from Highway 17 in the southbound direction at Haliburton Road and in the northbound direction at Claremont Avenue. The potential two lane overpass of Highway 17 at Haliburton Road would connect with Elk Lake Drive and continue to serve its current function to provide access to Elk Beaver Lake Regional Park for residents on the east side, as well as an alternative route through to Royal Oak Drive. Southbound on and off-ramps could be provided in the immediate vicinity of the overpass which is located approximately 1.7 kilometres north of the Royal Oak Interchange. The existing right-on and right-off the highway at Claremont Avenue would be upgraded slightly to accommodate a highway standard facility. Each of these connecting municipal streets is classified by the District of Saanich as collectors to distribute traffic to adjacent neighbourhoods.

  In support of the Haliburton Overpass, essential support roads would be needed to provide alternative connections to Haliburton Road for those residing on Cherry Tree Bend. One option would be to acquire the property and extend Cherry Tree Bend east and then north to Haliburton Road. T his route would include 400 metres of new roadway surface. An alternative support road connection – and perhaps an effective municipal serving street – is the provision of a connector road between Falaise Drive and Cherry Tree Bend. Both support roadways would likely be classified as 'locals' and owned by the District of Saanich.

  The Haliburton Overpass could be planned and designed to support pedestrians and cyclists between Elk Beaver Lake Regional Park and the residential areas on the east side of the Highway. Additionally, express bus transit service could be supported as part of the on-and off-ramps to the Highway, or alternatively could connect directly with the park-and-ride facility on Elk Lake Drive or the Royal Oak transit exchange.

Figure 3.2 – Concept 1 – Haliburton Overpass and Claremont Right-in/Right-out



- ***Concept 2 – Claremont Overpass and Haliburton Right-on / Right-off Ramps (see Figure 3.3).*** The Claremont Overpass concept is similar to the first, but with reverse connections to the highway. The two-lane overpass and southbound connections to and from the Highway are located at Claremont Avenue. Haliburton Road would support northbound right-on and right-off traffic connecting with Highway 7. On the west side of the highway, Claremont Avenue would extend south through the park to connect with Elk Lake Drive as an alternative north-south route to and from the Royal Oak area. No other changes to the municipal roadway network would be required to support this concept.

  Afternoon peak hour travel patterns for this concept are similar to Concept 1, with northbound traffic on the highway moderately higher than southbound traffic (approximately 35 percent). Daily traffic volumes on Claremont Avenue and Haliburton Road would be similar as they share access to/from the highway.

  The Claremont Overpass could also be designed with pedestrian and bicycle facilities to provide access to the Regional Park for residents on the east side of the Highway. Additionally, stops for express bus services could be accommodated on the off and on-ramps to permit easy access to and from the Highway.

A variation of this concept may also include extension of the new north-south connector on the west side further north to Elk Lake. This would provide an alternative route to the Rowing Club where the existing highway access may potentially be closed.

Figure 3.3 – Concept 2 – Claremont Overpass and Haliburton Right-in/Right-out

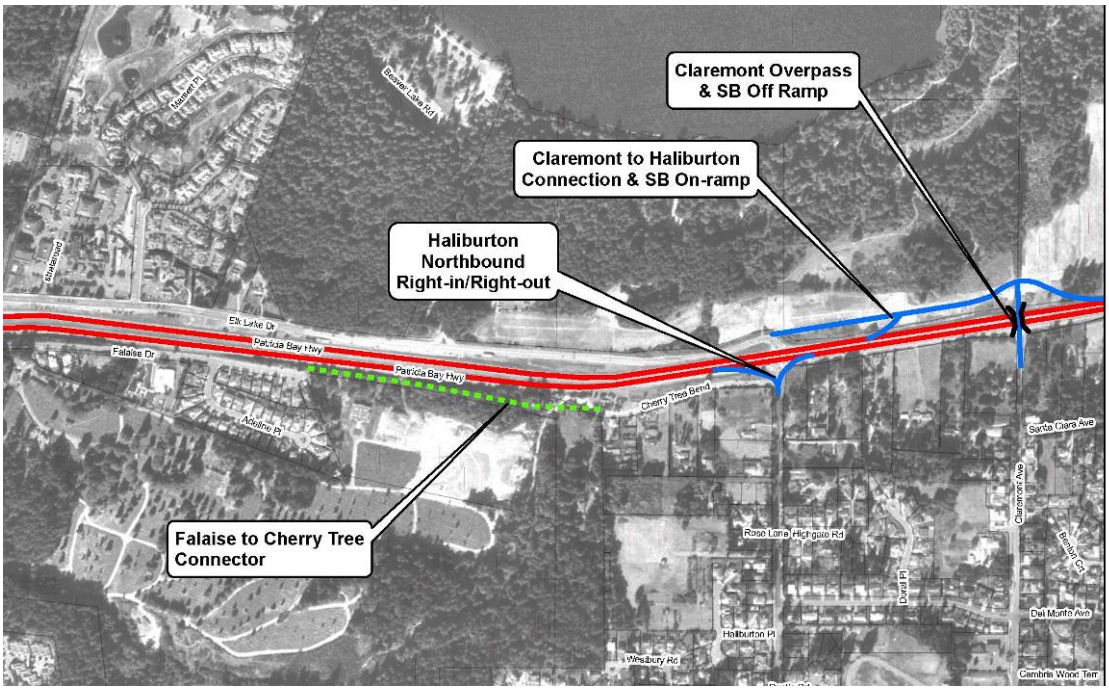


Table 3.1 below provides a summary of the comparative assessment of these concepts. Based on the above evaluation, both concepts are feasible and will provide a benefit to the highway and the community. Because full movement four legged intersection currently exists at Haliburton Road, and impacts to the parkland is anticipated to be lower for Concept 1, Concept 1 has a slight technical advantage and potential for community support. Otherwise, both options are very similar based on the assessment of most other accounts.

Table 3.1 – Evaluation of Royal Oak to Claremont Concepts

Factors	Concept 1 Haliburton Overpass and Claremont Right-in / Right-out	Concept 2 Haliburton Right-in / Right-out and Claremont Overpass
Traffic	▪ Modestly reduces reliance on municipal roads ▪ Operates effectively ▪ Modest increase in traffic along Claremont Avenue, Haliburton Road, Delmonte Avenue and Wesley Road	▪ Modestly reduces reliance on municipal roads ▪ Operates effectively ▪ Modest increase in traffic along Claremont Avenue, Haliburton Road, Delmonte Avenue and Wesley Road
Network	▪ Connects with collector roads ▪ Could support bicycle, pedestrian and transit connections ▪ Connects residents with Elk Lake Drive ▪ Could connect to park trails for cyclists and pedestrians ▪ Closure of Elk Lake Drive connection to Highway ▪ Requires support roadways to serve residents on Cherry Tree Bend to access Haliburton Road	▪ Connects with collector roads ▪ Could support bicycle, pedestrian & transit connections ▪ Connects residents with Elk Lake Drive ▪ Closer proximity of Overpass to Rowing Club could provide pedestrian / bike access ▪ Closure of Elk Lake Drive connection to Highway ▪ Support roadway improvements are not required
Community	▪ Moderate impact on parkland west of Highway ▪ Slightly greater traffic impacts on school located on Claremont Avenue at Delmonte Avenue	▪ Slightly greater impact on parkland west of Highway ▪ Modest traffic impacts on school located on Claremont Avenue at Delmonte Avenue
Cost (Class D)* **Construction** **Property**	$10 million $1.3 million	$10 million $1.95 million
Overall Summary	Traffic: ▪ Daily traffic patterns will be similar for both options and therefore no significant differences in terms of operation or impacts. Network: ▪ Concept 2 does not require any support roadway network improvements. Community: ▪ Community perception of an Overpass at Haliburton Road may be modest because of full movement signalized intersection that exists today. ▪ Impacts on parkland slightly lower for Concept 1.	

Note: * Costs should be examined further as part of the preliminary design stage. The Class D cost estimate for each of the proposed concepts is based on a conceptual level of design in 2006 dollars.

In order to advance either of these concepts, the Ministry will need to work with the District of Saanich as well as other agencies and stakeholders to plan and design either the technically preferred concept, or both concepts for further review and evaluation. The following Table 3.2 summarizes the key issues that need to be addressed for either concept, in order to advance the essential highway and municipal roadway improvements, as well as

the support roadway network. These initiatives could be advanced with the goal to implement an ultimate grade-separation and/or intermediate stages of improvements.

Table 3.2 – Issues to Address
(Royal Oak Drive to Claremont Avenue)

Areas of Need	Issues to Address	Concepts	
		1	2
Further Planning and Design	▪ Functional plans and designs of alternative interchange configurations	✓	✓
	▪ Community and stakeholder consultation to determine preferred concept	✓	✓
	▪ Memorandum of understanding for primary and support roadway network improvements (if any)	✓	✓
	▪ Staging and constructability issues to be identified	✓	✓
Community Assessment	▪ Property acquisition for interchange	✓	✓
	▪ Property acquisition for essential support roadways required	✓	
	▪ Specific impacts on parkland need to be identified and assessed	✓	✓
	▪ Agreements with municipality on desired land use and aesthetics to be planned around the highway connections	✓	✓
Roadway Network	▪ Define specific property impacts and requirements for the interchange	✓	✓
	▪ Define specific property impacts and requirements for support roadways	✓	
	▪ Municipal connection between Cherry Tree Bend and Falaise Drive should be examined and designed to support municipal traffic through to Royal Oak Drive	✓	✓
	▪ Examine potential impacts of increased traffic on Claremont Avenue and Haliburton Road, as well as mitigation strategies	✓	✓
Alternative Modes	▪ Integration of transit services and facilities in the short-term and long-term should be defined	✓	✓
	▪ Bicycle and pedestrian facilities crossing the highway should be confirmed and included in the functional design	✓	✓
Finances & Agreements	▪ Prepare Class B project cost estimates	✓	✓
	▪ Prepare business case with associated project benefits and costs	✓	✓
	▪ Define financial responsibilities	✓	✓
	▪ Partnership opportunities with municipality should be explored	✓	✓
	▪ Establish implementation strategy in terms of timing and priorities	✓	✓

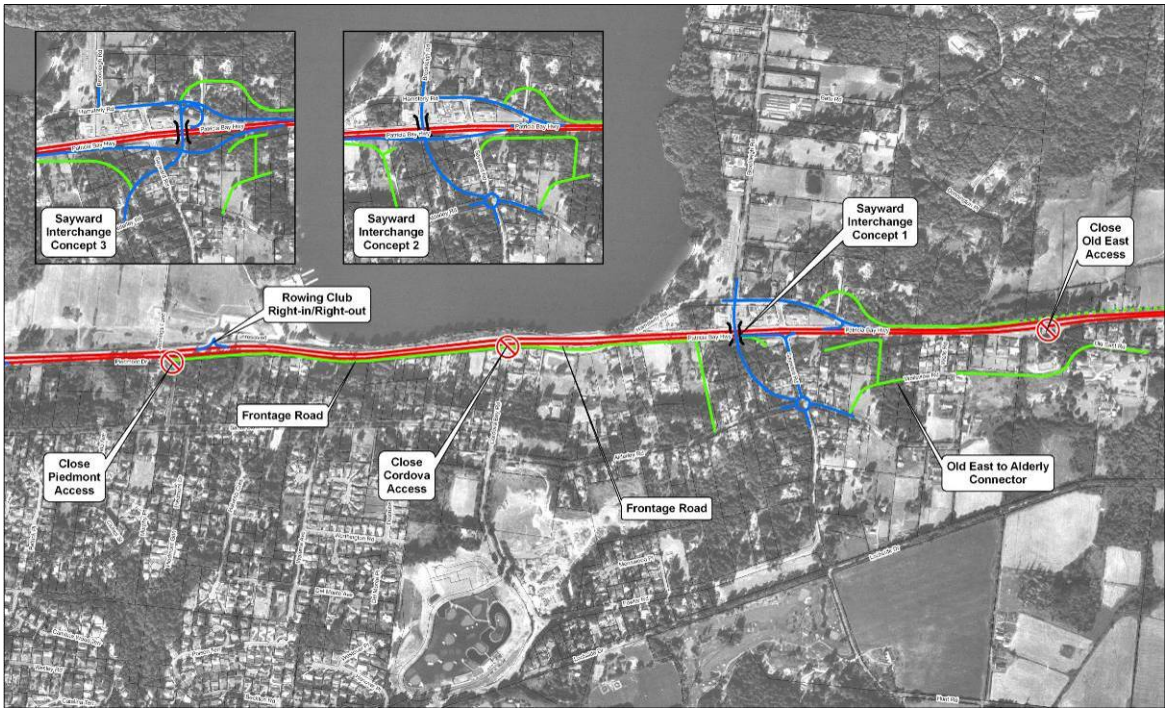
3.1.2 Sayward Interchange

The Sayward Road and Highway 17 intersection is located just north of Elk Lake in the District of Saanich. The intersection is currently signalized permitting full access to either side of the Highway. Sayward Road is an east-west major road that connects to Hamsterly Road on the west side of Highway 17. Hamsterly Road is a short north-south collector road that is parallel to Highway 17 and intersects with Brookleigh Road. Brookleigh Road is also a collector road, but runs east-west between Hamsterly Road and Oldfield Road.

As part of the long-term direction presented in the *Vision* document, Sayward Road is identified as the primary interchange providing access to the area. As part of this concept, potential closures were identified at Piedmont Drive, Rowing Club, Cordova Bay Road, Hamsterly Road, Wells Road and Old East Road. Ultimately, this strategy would also reduce the number of direct property access locations along this segment of the highway through the provision of support roads.

In addition to the historical collision patterns, the primary concerns with the Sayward interchange concept was the potential impacts of any candidate interchange configuration on the surrounding commercial and residential properties. To address these issues, three feasible improvement concepts with grade-separated connections for the planned Sayward Road interchange were developed and evaluated at a concept level of detail – see Figure 3.4. Consistent with the long-term vision, all proposed concepts include the closure of Piedmont Drive, Cordova Bay Road, Hamsterly Road, Sayward Road (west side), Wells Road, and Old East Road connections to the highway. The closure of Hamsterly Road, particularly on the east side of the Highway would require the existing weigh scale facility to be relocated. At the Rowing Club access, on the west side of the Highway and north of Piedmont Drive, a right-in and right-out movement would be permitted. These concepts were examined as part of a parallel initiative for the Ministry of Transportation conducted by McElhanney.

Figure 3.4 – Sayward Road Interchange Concepts



- ***Concept 1 – Brookleigh Overpass with At-Grade Ramps.*** This concept provides full movements at the interchange to accommodate access to the various land uses in the area. It reduces the number of direct accesses to the highway, by providing a direct connection between Sayward Road and Brookleigh Road via an overpass across the highway south of the existing Sayward Road intersection. On the west and east sides of the highway, the overpass would form a 4-legged intersection at Brookleigh Road and Hamsterly Road and a 5-legged roundabout at Sayward Road and Alderley Road, respectively. Highway access would be provided with right-in and right-out ramps just north of the overpass. The northbound ramps would be located at the existing Sayward Road connection with the Highway, and the southbound ramps would be at the north end of Hamsterly Road. The existing weigh scale facility would be relocated outside the study area.

  The forecast afternoon peak hour traffic on the highway in the northbound direction is slightly higher than southbound traffic. Similar to today, a large proportion of traffic entering and leaving the highway is generated north of Sayward Road. A majority of this traffic originates from or is destined to the east side of the highway (approximately 500 vehicles per hour).

  In support of this concept, essential support roads also include the extension of the existing municipal and frontage road system to eliminate the direct accesses to the highway (see Figure 3.4). On the west side, Hamsterly Road would be extended north to serve the residential properties located adjacent to the Highway. This frontage road could potentially be extended further north and over to the west to connect with Central Saanich Road as an alternative local route between the municipalities of Saanich and Central Saanich. On the east side, a frontage road for local residential access would run between Piedmont Drive to just south of Sayward Road, where it would extend easterly to connect with Alderley Road. Similarly, north of Sayward Road, Old East Road would be extended south to connect with Wellsview Road and Alderley Road.

  Sayward Road is a major road that is part of a designated truck route, and commuter bicycle route in the District of Saanich. The Brookleigh Overpass would be planned and designed to provide safe access for pedestrians and cyclists between the Regional trail along Lochside Drive on the east side with the commercial and residential areas on the west side of the Highway. Express bus transit service could also be provided by using the Highway on- and off-ramps to connect with potential feeder bus services from the existing local public transit service in the area.

- ***Concept 2 – Brookleigh Overpass and Partial Diamond***

  This alternative concept is similar to Concept 1 and also includes an overpass that connects Sayward Road directly with Brookleigh Road. The location of the northbound ramps would join at the east end of the overpass forming a partial diamond interchange. The intersection of Sayward Road and Alderley Road would be a 4-legged roundabout with the weigh scale station potentially located adjacent to the northbound off-ramp.

  In comparison to Concept 1, there is no significant difference in traffic on the overpass, however two-way traffic volumes along the realigned Sayward Road section is anticipated to increase (by approximately 700 vehicles per hour), as a result of the partial diamond configuration.

  Similar to Concept 1, frontage roads would exist on both sides of the Highway to support the Sayward Road intersection improvements and to serve local access and circulation within the area.

  Concept 2 would also support facilities for safe pedestrian and bicycle facilities to connect between the Regional trail on the east side, and the commercial and residences on the west side of the Highway. Express bus services may be integrated with the local transit service in the area.

- ***Concept 3 – Parclo Option***

  This concept is also designed to provide an overpass across the Highway, but at a location north of Sayward Road and without a direct connection to Brookleigh Road. The concept consists of a partial diamond interchange with a tight loop southbound on-ramp on the west side. On the east side, alignment of the proposed overpass along the existing Sayward Road to Alderley Road intersection would not be desirable due to steep approach grades of approximately 12 percent. Therefore, the overpass would connect at a new intersection south of the existing Sayward Road at Alderley Road. Similar to Concept 2, the weigh scale station may potentially be located adjacent to the northbound off-ramp.

  In general, the municipal and frontage road system would be similar to Concepts 1 and 2, with essential road connections to Piedmont Drive, Alderley Road and Old East Road, and a potential connection to Central Saanich Road on the west side (see Figure 3.4).

  The parclo concept could support pedestrian and bicycle facilities, however the disjointed connection between Brookleigh Road, Sayward Road and Alderley Road would create an indirect route for pedestrians and cyclists. Similar to the previous two concepts, express bus service may be provided on the on- and off-ramp system, and integrated with the local transit service in the area.

A comparative assessment of all three concepts for the Sayward Interchange is highlighted in Table 3.3.

Table 3.3 – Evaluation of Sayward Interchange Concepts

Factors	Concept 1 Brookleigh Overpass with At-Grade Ramps	Concept 2 Brookleigh Overpass with Partial Diamond	Concept 3 Parclo Option
Traffic	▪ Increases reliance on municipal roads locally ▪ Operates effectively ▪ Majority of truck traffic diverted as a result of relocation of the weigh scale station outside the study area ▪ Lowest potential for collisions	▪ Increases reliance on municipal roads locally ▪ Operates effectively ▪ Truck traffic using the weigh scale station on the northbound off-ramp would be required to travel east through the diamond signal intersection with the overpass to re-enter the highway via the northbound on-ramp ▪ Average potential for collisions	▪ Increases reliance on municipal roads locally ▪ Operates effectively ▪ Truck traffic using the weigh scale station on the northbound off-ramp would be required to travel east through the diamond signal intersection with the overpass to re-enter the highway via the northbound on-ramp ▪ Highest potential for collisions due to number of new intersections
Network	▪ Continuity of Brookleigh and Sayward Road corridor ▪ New frontage roads ▪ 5-leg roundabout at Sayward Road and Alderley Road less desirable geometrically ▪ Could support bicycle, pedestrian and transit connections ▪ Relocation of weigh scale station outside study area ▪ Tight loop on the southbound on-ramp (30km/hr) ▪ Indirect travel for west side to access highway (via Alderley Road)	▪ Continuity of Brookleigh and Sayward Road corridor ▪ New frontage roads ▪ 4-leg roundabout at Sayward Road and Alderley Road will operate well ▪ Could support bicycle pedestrian and transit connections ▪ Relocate weigh scale station to northbound off-ramp ▪ Tight loop on the southbound on-ramp (30km/hr)	▪ Disjointed connection between Brookleigh Road and Sayward Road ▪ New frontage roads ▪ Offset intersection on Alderley Road creates circuitous service ▪ Could support bicycle, pedestrian and transit connections ▪ Relocate weigh scale station to northbound off-ramp ▪ Tight loop on the southbound on-ramp (30km/hr)

Factors	Concept 1 Brookleigh Overpass with At-Grade Ramps	Concept 2 Brookleigh Overpass with Partial Diamond	Concept 3 Parclo Option
Community	▪ Eliminates direct access to commercial properties ▪ Numerous residential property impacts (35) ▪ Some business property impacts (3) ▪ Slight corner impact to Elk Lake Regional Park ▪ Lower noise levels due to relocation of weigh scale station outside study area	▪ Eliminates direct access to commercial properties ▪ Numerous residential property impacts (36) ▪ Some business property impacts (3) ▪ Slight corner impact to Elk Regional Lake Park ▪ Slight increase in noise levels due to elevated ramps and potential weigh scale station on the northbound ramp	▪ Eliminates direct access to commercial properties ▪ Numerous residential property impacts (32) ▪ Some business property impacts (2) ▪ Slight increase in noise levels due to elevated ramps, potential weigh scale station on the northbound ramp and additional intersections
Cost (Class D)* Construction Property	$18.1 million $ 9.7 million	$20.3 million $10.3 million	$20.4 million $10.2 million
Overall Summary	Traffic: ▪ All concepts have similar peak hour travel patterns and levels of operation on highway and ramp merge/diverge points ▪ Concept 3 has the highest potential for collisions due to the number of new intersections Network: ▪ Both Concepts 1 and 2 have good connectivity between Sayward Road and Brookleigh Road ▪ All concepts have similar extended municipal and frontage road system Community: ▪ All concepts have considerable property impacts due to the primary and support road system ▪ Although all concepts eliminate direct access to the commercial properties on the west side, Concepts 1 and 2 provide convenient access to Brookleigh Road and Hamsterly Road to encourage commercial activity		

Note: * Costs should be examined further as part of the preliminary design stage. The Class D cost estimate for each of the proposed concepts is based on a conceptual level of design in 2006 dollars.

The comparative evaluation indicates that all concepts are feasible. However, since Concepts 1 and 2 provide a direct connection between Brookleigh Road and Sayward Road and have lower potential for collisions, these concepts have technical advantages that may be supported by the community.

The Ministry will need to develop a plan for consultation with the District of Saanich, relevant agencies and stakeholders to advance the planning and design of the technically preferred concept. Some of the key issues that will need to be addressed as part of the consultation, planning and design process for the preferred concept(s) are summarized in Table 3.4 below. These initiatives could be advanced with the goal to implement an ultimate grade-separation and/or immediate stages of improvements.

Table 3.4 – Issues to Address (Sayward Road Interchange)

Areas of Need	Issues to Address	Concepts		
		1	2	3
Further Planning and Design	▪ Functional plans and designs of alternative interchange configurations	✓	✓	✓
	▪ Community and stakeholder consultation to determine preferred concept	✓	✓	✓
	▪ Memorandum of understanding for primary and support roadway network improvements	✓	✓	✓
	▪ Examine staging and constructability of interchange improvements with the municipal and frontage road system	✓	✓	✓
	▪ Examine potential parkland environmental impacts due to close proximity of Elk Lake Regional Park particularly at Hamsterly Road and Brookleigh Road	✓	✓	
Community Assessment	▪ Phase property acquisition for interchange and extension of municipal and frontage road system in the context of a long-term plan	✓	✓	✓
	▪ Agreements with municipality on aesthetics to be planned around the highway connections	✓	✓	✓
Roadway Network	▪ Define specific property impacts and requirements for the interchange and support roadways	✓	✓	✓
	▪ Municipal connections on the west and east sides of the highway should be examined and designed to support municipal traffic	✓	✓	✓
	▪ Examine potential impacts of increased traffic on Brookleigh Road, and Alderley Road, as well as mitigation strategies	✓	✓	✓
Alternative Modes	▪ Integration of transit services and facilities in the short-term and long-term should be defined	✓	✓	✓
	▪ Bicycle and pedestrian facilities crossing the highway should be confirmed and included in the functional design	✓	✓	✓
Finances & Agreements	▪ Prepare Class B project cost estimates	✓	✓	✓
	▪ Prepare business case with associated project benefits and costs	✓	✓	✓
	▪ Define financial responsibilities	✓	✓	✓
	▪ Partnership opportunities with municipality should be explored	✓	✓	✓
	▪ Establish implementation strategy in terms of timing and priorities	✓	✓	✓

3.1.3 North of Sayward Road to Island View Road

The section of Highway 17 from Sayward Road to Island View Road is located within the Districts of Saanich and Central Saanich. Main connections to the Highway exist at Tanner Road, Gliddon Road, Rey Road, Martindale Road, Keating Cross Road, East Saanich Road, and Island View Road. Of these main highway connections, Tanner Road, Keating Cross Road and Island View Road are classified as major municipal roads and/or truck routes. In particular, Keating Cross Road is a major employment destination, and is also the only connecting corridor of significance in serving inter-municipal travel.

Along this highway section, Island View Road is the only signalized intersection, while unsignalized restricted movements are provided at East Saanich Road, Keating Cross Road, Martindale Road, Rey Road, Gliddon Road and Tanner Road.

The *Vision for Highway 17* document identified several improvements for this section of the corridor. They included planned intersection improvements such as a mini interchange at Island View Road and a northbound flyover at Keating Cross Road. Accesses to individual properties alongside the corridor would be eliminated and several cross-streets would be closed – such as Gliddon Road, Rey Road, Martindale Road, and East Saanich Road. Tanner Road would be restricted to southbound right-in and right-out movements only. To support these improvements, several frontage and interconnecting roadway possibilities were identified in very general terms at the following locations:

- ***Tanner Road to Keating Cross Road (west side).*** A short east-west connecting road between Rey Road and Bella Vista Drive to be defined further by the District.
- ***Tanner Road to Island View Road (east side).*** Frontage roads that would connect Tanner Road with Martindale Road, and Danica Nursery entrance to Martindale Road.
- ***Island View Road (west side).*** A roadway connection between Island View Road and Keating Cross Road that would provide access to the Keating Industrial area.

The issues and concerns identified with the proposed improvement concepts between Keating Cross Road and Island View are briefly highlighted as follows:

- Potential impacts of the interchange locations on the municipal road system, such as Saanich Cross Road. Saanich Cross Road is classified as a major municipal road and truck route. The road also has steep grades, and a school is located at Central Saanich Road. Potential impacts of increased traffic and trucks on the road may arise.
- Although support road locations were identified as part of the long-term vision, there is no clear indication which support roads are essential to the interchange and surrounding road network and which would potentially serve the municipal roadways effectively.
- Uncertainty regarding the potential configuration of the mini interchange proposed for Island View Road.

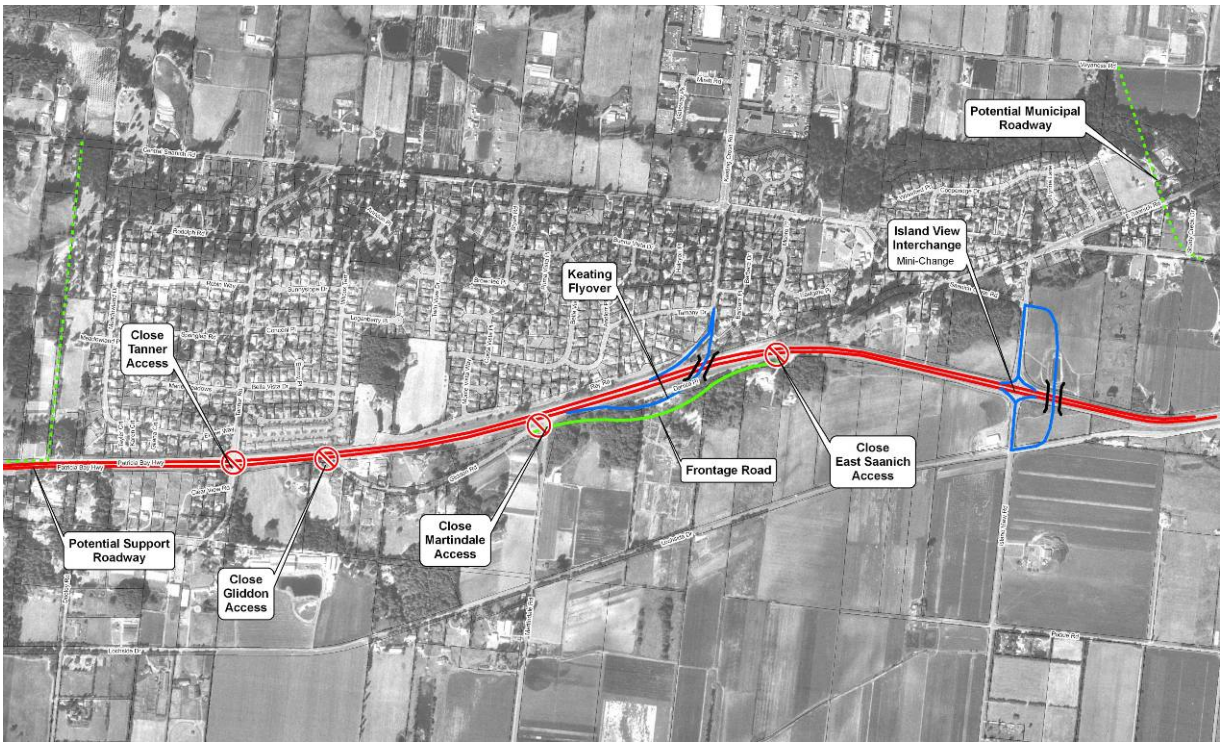
In order to address these issues, it will require managing the potential impacts on properties and the municipal road system and clarifying feasible concepts for the planned improvements at Keating Cross Road and Island View Road. For the section north of Sayward Road to Island View Road, three feasible concepts for the interchange arrangements were developed and evaluated at a concept level of detail.

The first concept is consistent with the long-term vision where it includes grade-separated connections at Keating Cross Road and Island View Road. The other two concepts involve a consolidated full movement interchange at either Keating Cross Road, or Island View Road since the intersection spacing between the two locations is approximately one kilometre apart. Highway connection closures include Tanner Road (Concepts 1 & 2 only), Gliddon Road, Martindale Road, Rey Road and East Saanich Road.

- ***Concept 1 – Keating Flyover and Island View Interchange (see Figure 3.5).*** This concept includes grade-separated connections at both Keating Cross Road and Island View Road. Highway access to and from Keating Cross Road would be provided by a northbound flyover and a southbound on-ramp respectively. Based on peak hour traffic forecasts for the corridor (two-way volumes of 1,200 vehicles per hour), Keating Cross Road would be a two-lane roadway with signal control at the intersection of Keating Cross Road and Central Saanich Road.

  The mini interchange at Island View Road includes an overpass of the Highway slightly north of the current cross-street alignment and upgraded northbound and southbound right-on and right-off ramps at the existing location. The overpass would connect Lochside Drive on the east side with Saanich Cross Road on the west side. To adequately accommodate forecast corridor volumes (approximately 450 vehicles during the PM peak hour), Island View Road would be two lanes with a signalized intersection at Saanich Cross Road.

Figure 3.5 – Concept 1 – Keating Flyover and Island View Interchange



To support the proposed interchange arrangements at Keating Cross Road and Island View Road, the concept also includes a frontage road on the east side of the highway that would connect Gliddon Road at Martindale Road with East Saanich Road. This new road would provide the essential local area connections to the existing roadway network. Other effective support municipal roadways could include a new connection to the Sayward Interchange by either a new east-west road link between Central Saanich Road and a potential frontage road along the west side of the highway, or an extension of Central Saanich Road further south to directly connect with Brookleigh Road. North of Island View Road, a new local roadway may also be established to connect Central Saanich Road with Veyaness Road.

Keating Cross Road and Island View Road are identified as bicycle routes in the District of Central Saanich. Both the Keating Flyover and Island View Interchange would be planned and designed to accommodate pedestrians and cyclists to provide access between the Regional trail (Lochside Drive) and Island View Beach Regional Park on the east side with the Keating area (Keating industrial area, residential area, and school) on the west side. Express bus transit services could also be accommodated at the Island View Interchange, with transit support facilities such as a park-and-ride lot. However, provision of the express transit services at this location may not be desirable as agricultural lands dominate the area and it would be remotely situated away from the populated areas of the community.

- ***Concept 2 – Keating Interchange (see Figure 3.6).*** This concept provides a consolidated full movement interchange at Keating Cross Road and is anticipated to support projected growth for the Keating area. The Island View Road connection to the highway would be closed, and other interconnecting roadways described as part of Concept 1 would remain unchanged.

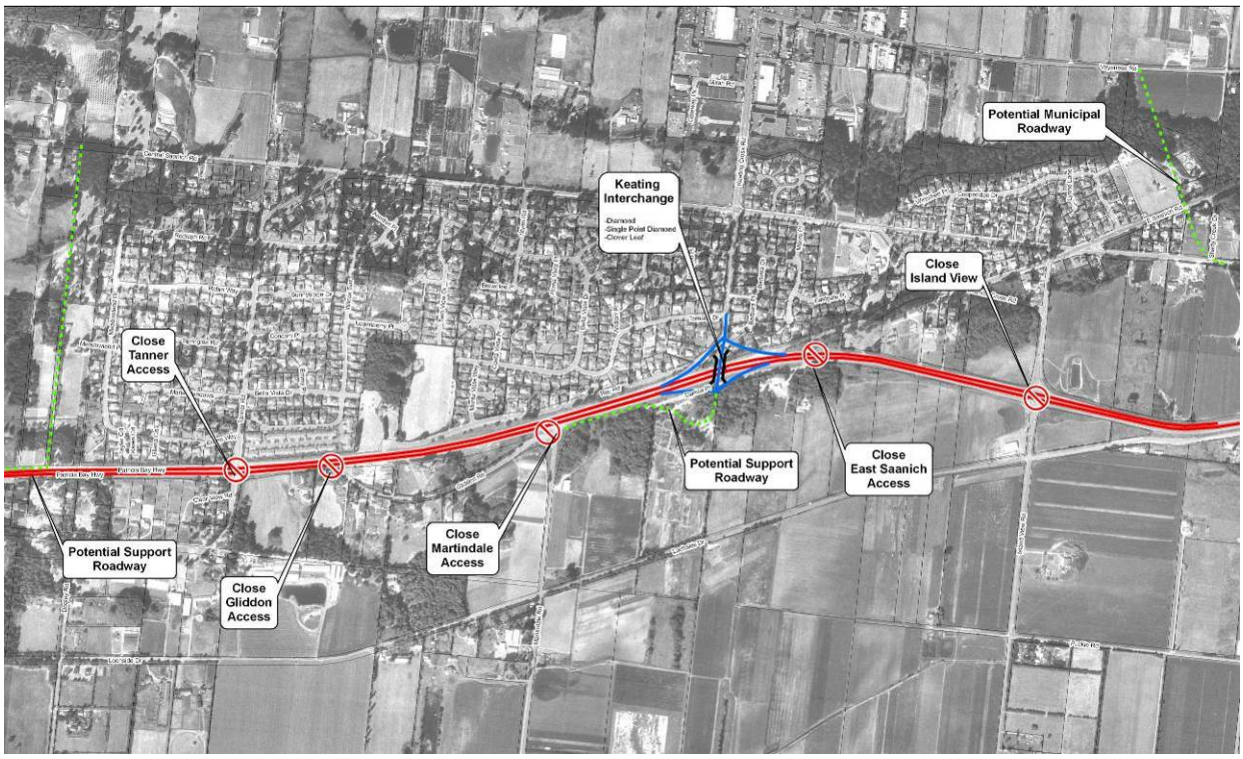
  The Keating Cross Road interchange could be configured either as a diamond, single point diamond, or clover leaf layout. A diamond interchange would include a three-lane overpass with highway access via northbound and southbound on- and off-ramps. Keating Cross Road would be a four-lane roadway with signalized intersections at the ramps to accommodate the forecast two-way traffic volumes of approximately 2,100 vehicles per hour (PM peak hour). Forecast travel patterns along the highway are similar to Concept 1, however Keating Cross Road would have increased traffic due to the closure of the Island View Road connection.

  As illustrated in Figure 3.6, essential support roads for this concept are not required. Potential support roadways are similar to Concept 1, in addition to the extension of Keating Cross Road east of the overpass to Martindale Road.

  As Keating Cross Road is part of the bicycle network in the District of Central Saanich, the Keating Interchange would support pedestrian and bicycle facilities. Express bus transit

services and a park-and-ride facility could also be accommodated at the Keating Interchange to integrate with the local transit service.

Figure 3.6 – Concept 2 – Keating Interchange



- ***Concept 3 – Island View Interchange and Tanner Road Right-in/Right-out (see Figure 3.7).*** This concept is a reverse of Concept 2, where the full movement interchange is at Island View Road and the Keating Cross Road connection to the highway would be closed. Similar to the Keating Interchange concept, feasible interchange configurations at Island View Road could include a diamond, single point diamond, or clover leaf. The diamond interchange would include a three-lane overpass and connecting northbound and southbound ramps. Island View Road would be four lanes connecting to Lochside Drive on the east side. The on- and off-ramp connections to the overpass would be signalized.

  The forecast afternoon peak hour traffic south of the Island View Interchange indicates that traffic in the northbound direction is moderately higher than southbound traffic. Similar to the previous two concepts, a significant portion of traffic entering and leaving the highway is generated south of Island View Road. Because the Keating Cross Road connection to the highway is closed for this concept, traffic entering and exiting the Highway could increase at Tanner Road.

In support of this concept, Saanich Cross Road would be closed at Island View to limit growth in non-local traffic, but the intersection with Central Saanich Road and East Saanich Road would be improved to accommodate forecast traffic that would access the Keating industrial area.

Pedestrian, bicycle and transit facilities for the Island View Interchange would be similar to those described for Concept 1.

Figure 3.7 – Concept 3 – Island View Interchange

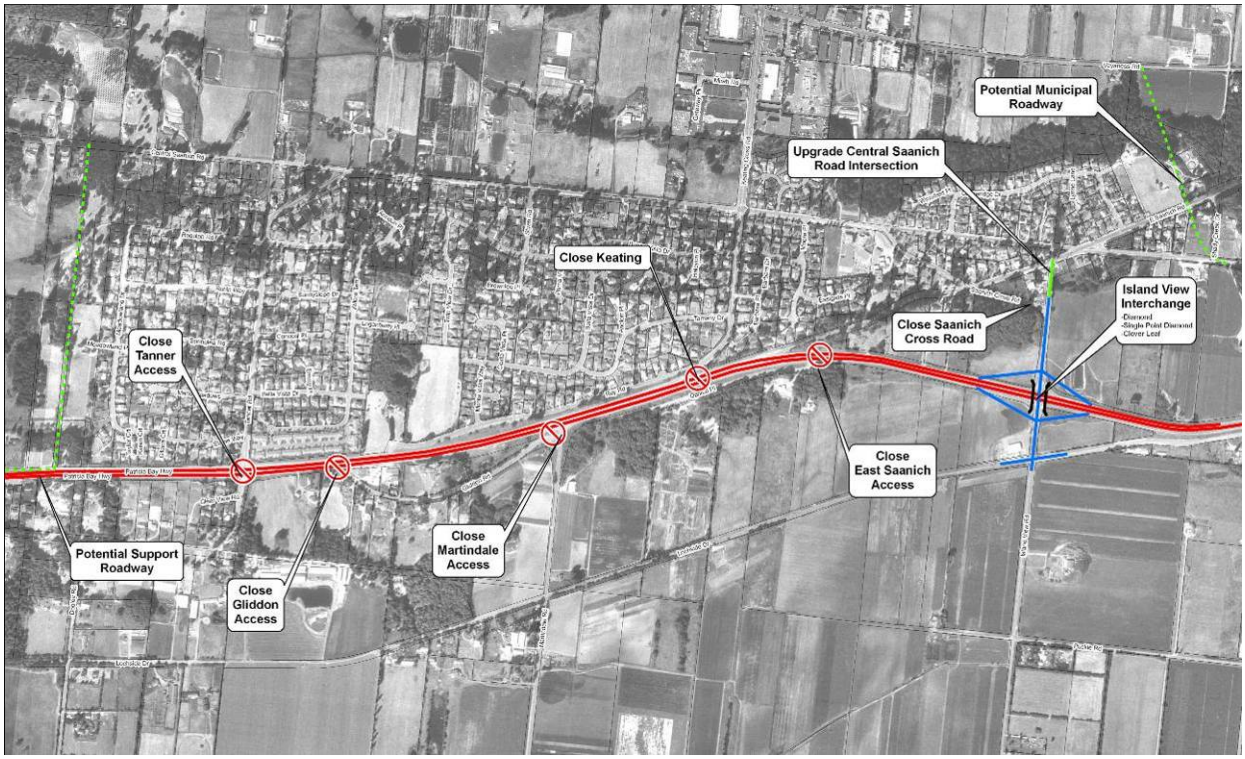


Table 3.5 below provides a comparative assessment of the three feasible concepts for the corridor segment north of Sayward Road to Island View Road.

Table 3.5 – Evaluation of Keating & Island View Interchange Concepts

Factors	Concept 1 Keating Flyover and Island View Interchange	Concept 2 Keating Interchange	Concept 3 Island View Interchange and Tanner Right-in/ Right-out
Traffic	▪ Traffic primarily concentrated at Keating Cross Road (remains 2 lanes) ▪ Overall traffic volumes similar to today ▪ Truck traffic distributed between Keating Cross Road and Island View Road	▪ Traffic entirely concentrated at Keating Cross Road (4 lanes) ▪ Marginal change in traffic along other municipal roads ▪ Truck traffic concentrated on Keating Cross Road	▪ Traffic entirely concentrated at Island View Road (4 lanes) ▪ Increased traffic along Tanner Road and Central Saanich Road ▪ Truck traffic concentrated on Island View Road, and Saanich Cross Road or Central Saanich Road
Network	▪ Island View Road and Keating Cross Road are major roadways and truck routes ▪ Saanich Cross Road is a major roadway, but could remain 2 lanes ▪ Could support bicycle, pedestrian connections at Island View Road to connect with Lochside Drive ▪ Transit concentrated at Island View Road are challenging ▪ Could support park-and-ride facility	▪ Keating Cross Road is a major roadway and truck route ▪ Potential connection to Martindale Road ▪ Could support bicycle, pedestrian connections at Keating Cross Road ▪ Transit concentrated at Keating Cross Road ▪ Could support park-and-ride facility ▪ Would limit farm vehicles crossing the Highway to Keating and Mount Newton interchanges	▪ Island View Road is a major road and local truck route ▪ Connects to Lochside Drive ▪ Could support bicycle, pedestrian connections at Island View Road ▪ Transit concentrated at Island View Road on- and off-ramps are challenging ▪ Could support park-and-ride facility
Community	▪ Impacts approximately 4 properties ▪ Truck traffic impact to School on Central Saanich Road ▪ Visual impacts for Keating area residents ▪ Moderate impacts on ALR land	▪ Impacts approximately 8 properties ▪ Supports growth plans in the Keating Industrial Park area ▪ Visual impacts for Keating area residents ▪ Minor impact on local access off Keating Cross Road ▪ Minor impacts on ALR land	▪ Impacts approximately 4 properties ▪ Truck traffic impact to School on Central Saanich Road ▪ Moderate impacts on ALR land

Factors	Concept 1 Keating Flyover and Island View Interchange	Concept 2 Keating Interchange	Concept 3 Island View Interchange and Tanner Right-in/ Right-out
Cost (Class D) **Construction** **Property**	$28 - 30 million $ 1.65 million	$25 million $2.2 million	$18 million $0.2 million
Overall Summary	Traffic: ▪ All concepts have similar highway peak hour travel patterns. ▪ Traffic is primarily concentrated at Keating Cross Road for Concepts 1 and 2. Network: ▪ All concepts support pedestrian/bicycle/transit service facilities. ▪ Transit service provisions for Concepts 1 and 3 are challenging. Community: ▪ Concept 2 property impacts are twice the number for the other concepts, however it has minor impacts on ALR land. ▪ Concept 2 supports growth plans in the Keating Industrial Park area. ▪ Concepts 1 and 3 have truck traffic impacts to the School on Central Saanich Road.		

Note: * Costs should be examined further as part of the preliminary design stage. The Class D cost estimate for each of the proposed concepts is based on a conceptual level of design in 2006 dollars.

The comparative evaluation indicates that all concepts are feasible. However, Concepts 1 and 2 retain the Keating Cross Road connection to the highway in support of the potential growth anticipated for the area. Therefore, these concepts have technical advantages that may be supported by the community in the Keating area.

The Ministry and District of Central Saanich recognize that selecting a preferred concept in this area of the corridor will require input from local area public stakeholders. In fact, the District of Central Saanich may wish to consider integrating the discussion of options with the planned update to the Official Community Plan. Table 3.6 highlights all key issues that must be addressed before any significant improvement concepts can implemented in this area.

Table 3.6 – Issues to Address for All Concepts (North of Sayward Road to Island View Road)

Areas of Need	Issues to Address
Further Planning and Design	▪ Functional plans and designs of alternative interchange configurations ▪ Community and stakeholder consultation to determine preferred concept ▪ Memorandum of understanding for primary and support roadway network improvements ▪ Examine staging and constructability of interchange improvements with support roadways ▪ Examine potential impacts to the Agricultural Land Reserve (ALR)
Community Assessment	▪ Property acquisition for interchange and support roadways required ▪ Agreements with municipality on aesthetics to be planned around the highway connections
Roadway Network	▪ Define specific property impacts and requirements for the interchange and support roadways ▪ Municipal connections on the west and east sides of the highway should be examined and designed to support municipal traffic ▪ Examine potential impacts of increased traffic on Keating Cross Road, Island View Road, Saanich Cross Road, Central Saanich Road and Tanner Road, as well as mitigation strategies
Alternative Modes	▪ Integration of transit services and facilities in the short-term and long-term should be defined ▪ Bicycle and pedestrian facilities crossing the highway should be confirmed and included in the functional design
Finances & Agreements	▪ Prepare Class B project cost estimates ▪ Prepare business case with associated project benefits and costs ▪ Define financial responsibilities ▪ Partnership opportunities with municipality should be explored ▪ Establish implementation strategy in terms of timing and priorities

3.1.4 Mount Newton Interchange

Mount Newton Cross Road is located approximately 2.5 kilometres north of Island View Road and is a major east-west municipal road and truck route that connects with Highway 17 in the District of Central Saanich. The intersection is currently signalized permitting full access to either sides of the Highway. Land use on the west side is mainly agricultural, but also includes a community hospital (Saanich Peninsula Hospital) and residential area southwest of Mount Newton Cross Road and Highway 17. The Tsawout First Nation land occupies the east side with commercial properties located adjacent to the highway, and residential neighbourhoods along Lochside Drive.

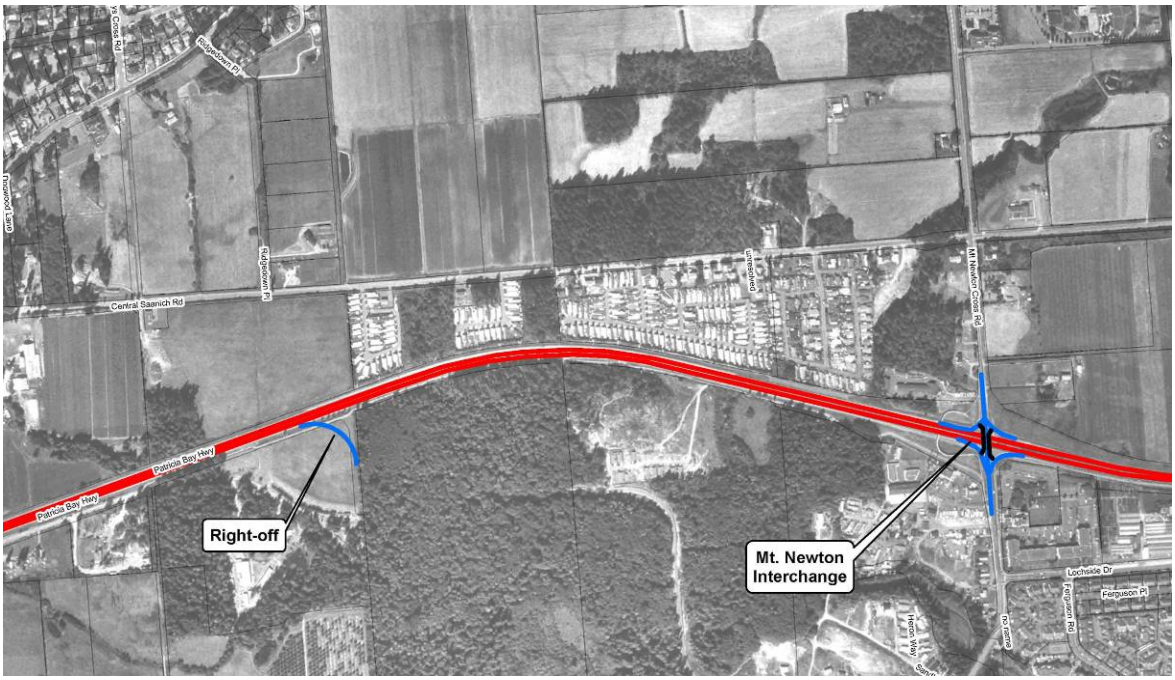
Mount Newton Cross Road was identified in the *Vision for Highway 17* document as a major connection to the highway with a planned interchange. The only outstanding issue concerning the planned interchange at Mount Newton Cross Road is the potential configuration and impacts on adjacent properties. It should be noted that the Ministry will continue to work with the Tsawout First Nation to examine planned growth and development adjacent to the highway and other possible improvements that may be required.

In order to minimize impacts on adjacent properties, a tight diamond interchange is recommended as illustrated in Figure 3.8. Based on the grades of the highway and cross-street, as well as the proximity of nearby accesses to adjacent properties along Mount Newton Cross Road, the interchange could be configured with a three lane underpass. The ramp intersections would likely be stop controlled and accesses to nearby commercial properties on the east side will need to be reconfigured.

In general, the forecast afternoon peak hour traffic on the highway in the northbound direction (south of the interchange) is slightly higher than southbound traffic. A significant proportion of northbound traffic would exit the highway (approximately 20 percent) to access Lochside Drive on the east side. Similarly, the majority of traffic from Lochside Drive would head westbound on Mount Newton Cross Road with approximately half of the traffic entering the highway to travel south.

No support roads are required to support this interchange configuration at Mount Newton Cross Road. However, existing access locations near the proposed ramps must be examined through preliminary design for any modification or relocation.

Figure 3.8 – Mount Newton Interchange



Mount Newton Cross Road is also a bicycle route that connects with other major roads such as East Saanich Road, West Saanich Road and Wallace Drive on the west side, as well as Lochside Drive on the east side. The Mount Newton Interchange would be planned and designed to provide safe pedestrian and bicycle facilities to serve the residential neighbourhoods on the west side (at East Saanich Road) and the Regional trail along Lochside Drive on the east side. Express bus services may also be accommodated along the on- and off-ramps, with transit support facilities such as a park-and-ride lot if appropriate.

Table 3.7 provides a summary evaluation of the feasible concept for the Mount Newton Interchange.

Table 3.7 – Mount Newton Interchange Concept Evaluation

Factors	Assessment
Traffic	▪ Modest increase in traffic volumes on Mount Newton Cross Road ▪ Ramps and intersections operate effectively
Network	▪ Mount Newton Cross Road is classified as a major road ▪ Could support planned east-west bike route and pedestrian connections at Mount Newton Cross Road ▪ Could support transit connections along ramp systems
Community	▪ Impacts approximately 2 properties ▪ Property accesses need to be modified along Mount Newton Cross Road ▪ Development of Indian Reserve (IR) lands may impact configuration
Cost (Class D) **Construction** **Property**	 $10 million $6.0 million

Note: * Costs should be examined further as part of the preliminary design stage. The Class D cost estimate for each of the proposed concepts is based on a conceptual level of design in 2006 dollars.

In order to advance the concept, the Ministry will need to work with the District of Central Saanich and other relevant agencies and stakeholders to develop the preferred concept. Table 3.8 summarizes the key issues that need to be addressed to advance planning and design of the Mount Newton Interchange.

Table 3.8 – Issues to Address (Mount Newton Interchange)

Areas of Need	Issues to Address
Further Planning and Design	▪ Functional plans and designs of alternative interchange configurations and property access changes ▪ Community and stakeholder consultation to determine preferred concept ▪ Memorandum of understanding for primary roadway network improvements and access modifications ▪ Examine staging and constructability of interchange improvements ▪ Examine potential impacts to Indian Reserve Land
Community Assessment	▪ Property acquisition for interchange required ▪ Agreements with municipality on aesthetics to be planned around the highway connections
Roadway Network	▪ Define specific property impacts and requirements for the interchange ▪ Examine potential impacts of increased traffic on Mount Newton Cross Road, as well as mitigation strategies
Alternative Modes	▪ Integration of transit services and facilities in the short-term and long-term should be defined ▪ Bicycle and pedestrian facilities crossing the highway should be confirmed and included in the functional design
Finances & Agreements	▪ Prepare Class B project cost estimates ▪ Prepare business case with associated project benefits and costs ▪ Define financial responsibilities ▪ Partnership opportunities with municipality should be explored ▪ Establish implementation strategy in terms of timing and priorities

3.1.5 McTavish Interchange

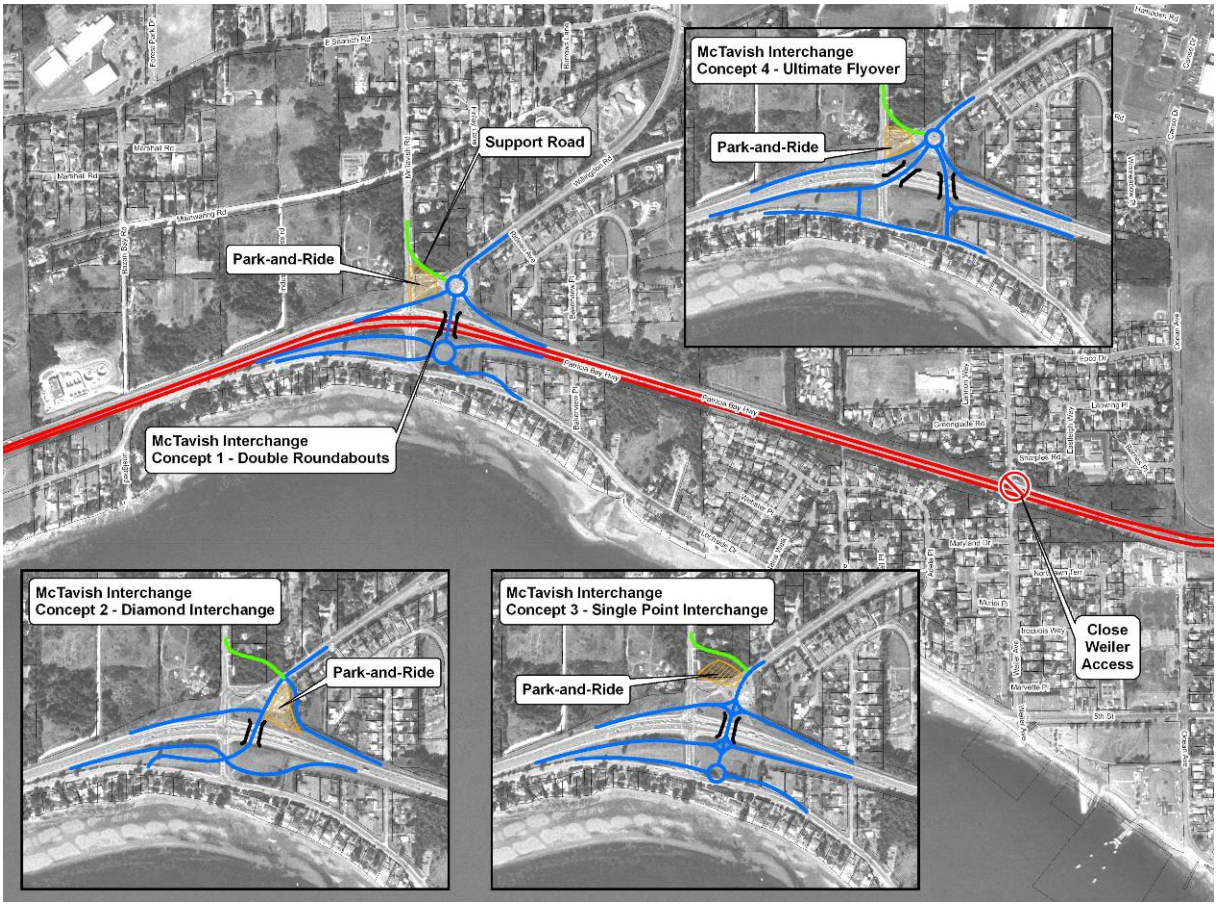
McTavish Road is a major east-west arterial that connects with Highway 17 and is located approximately seven kilometres south of Swartz Bay. The intersection is currently signalized providing full access to the waterfront properties along Lochside Drive on the east side, and the Victoria International Airport via Canora Road on the west side.

McTavish Road was identified in the *Vision for Highway 17* document and the Official Community Plan (Schedule D, February 1998) as a major connection to the Highway with a planned full or partial grade-separated interchange. The only outstanding issue concerning the planned interchange at McTavish Road is confirming the range and feasibility of potential concepts.

As part of this Strategy, four ultimate interchange concepts with grade-separated connections to Highway 17 were developed and evaluated at a concept level of detail as illustrated in Figure 3.9.

Some of the concepts are based on previous work and discussions with the Ministry of Transportation, and stakeholders including the Victoria Airport Authority.

Figure 3.9
McTavish Interchange Optional Concepts



- ***Concept 1 – Roundabout Interchange.*** This concept involves a two-lane roundabout on each side of the highway which is connected by a four-lane overpass between Lochside Drive and McTavish Road/Canora Road. Highway access would be provided by elevated northbound and southbound on- and off-ramps that would also connect with the roundabouts. The existing park-and-ride facility in the northwest quadrant would be relocated to the southwest corner of the interchange. On the east side, the realignment of Lochside Drive would require westward extension of existing driveways and shared driveway arrangements along the south side of Lochside Drive. Traffic control signals are not required for this concept.

Based on annual growth projections in the airport area, the roundabouts may be stageable from single lane to double lane, with slip lanes for selected right turns. The single-lane roundabouts would accommodate an average annual growth rate of three percent over a twenty-year period. Over the same period, an increase in airport related traffic resulting in annual growth levels of approximately 5% would require two-lane roundabouts.

The forecast peak hour traffic on the highway in the northbound direction is slightly higher than southbound traffic. A significant proportion of northbound traffic would exit the highway (approximately 35 percent) to access McTavish Road/Canora Road on the west side. A majority of traffic would also head south from the airport area along Canora Road to enter the Highway and continue travelling south towards Victoria.

In support of the interchange arrangements, McTavish Road west would be realigned to form a short road linkage to Canora Road.

Presently, there are no bicycle facilities along McTavish Road however an unsigned shoulder bikeway exists on Canora Road. Future bicycle lanes, pathways, or routes are planned for McTavish Road west of East Saanich Road (District of North Saanich OCP, Schedule D, February 1998). McTavish Road is also identified as part of the Capital Regional District's recommended regional cycling network. Therefore, the interchange at McTavish Road would be planned and designed to accommodate safe bicycle and pedestrian facilities to provide access between the Lochside Trail on the east side and the community on the west side. The park-and-ride facility could support express bus transit services that would use the on- and off-ramps to the Highway and connect with local bus services as well as the park-and-ride.

- ***Concept 2 – Diamond Interchange.*** This alternative concept is a diamond interchange configuration with a diagonal four-lane overpass crossing the Highway and connecting Canora Road on the west side with Lochside Drive on the east side. Highway access would be provided by northbound and southbound on- and off-ramps. Three closely spaced traffic signals along McTavish Road/Canora Road would control the ramp connections to McTavish Road/Canora Road.

  The existing park-and-ride facility situated in the northwest quadrant of the interchange would remain in its present location. On the east side, a tight S-curve characterizes the McTavish Road east approach to Lochside Drive. Large trucks that would travel along this portion of the roadway may encroach into opposing lanes due to limited manoeuvring space. Forecast travel patterns during the afternoon peak hour along the highway and at the interchange are similar to Concept 1.

  The essential support road for this concept is the same as Concept 1 where McTavish Road on the west side would be realigned to connect with Canora Road.

The diamond interchange would support pedestrian and bicycle facilities. It would also include provision for express bus transit service, and convenient connections with local bus services and the park-and-ride facility.

- ***Concept 3 – Single Point Interchange.*** This concept retains the at-grade highway alignment, but provides an elevated signalized intersection with northbound and southbound on- and off-ramp connections to provide full access to either side of the Highway. On the west side, the T-intersection of McTavish Road and Canora Road would be signalized. The existing park-and-ride facility in the northwest quadrant would also need to be relocated to the southwest corner of the interchange.

  On the east side, a single-lane roundabout would exist at McTavish Road and Lochside Drive. The elevation of the roundabout at Lochside Drive would require westward extension of existing driveways and shared driveway arrangements along the south side of Lochside Drive.

  Forecast travel patterns, essential support roads, and provision of pedestrian/bicycle/express bus transit services for this concept are similar to Concept 1.

- ***Concept 4 – Flyover Interchange.*** The flyover concept as shown in Figure 3.8 is an ultimate interchange configuration that includes a two-lane roundabout on the west side, and a directional two-lane flyover and overpass crossing the Highway with connections to the roundabout. The northbound flyover would provide access to Lochside Drive and McTavish Road/Canora Road on the east and west sides, respectively, while the overpass north of the flyover would serve eastbound movements to northbound Highway 17 and Lochside Drive. The flyover and overpass connections with Lochside Drive on the east side would be unsignalized. Steep grades exist along these short sections (approximately 8 percent).

  Similar to Concepts 1 and 3, the existing park-and-ride facility in the northwest quadrant would need to be relocated to the southwest corner of the interchange.

  Forecast travel patterns, essential support roads, and provision of pedestrian/bicycle/ express bus transit services for the ultimate concept are similar to Concept 1.

Table 3.9 provides a comparative assessment of the four feasible concepts for the McTavish Interchange.

Table 3.9 – Evaluation of McTavish Interchange Concepts

Factors	Concept 1 Roundabout Interchange	Concept 2 Diamond Interchange	Concept 3 Single Point Interchange	Concept 4 Flyover Interchange
Traffic	▪ Supports 5 percent annual growth in airport traffic ▪ May accommodate small traffic increase ▪ Stageable from single-lane roundabouts ▪ Operates effectively on highway and ramp merge/diverge points	▪ Supports 5 percent annual growth in airport traffic ▪ Accommodates additional traffic ▪ Tight radius curve at Lochside Drive approach may increase collision proneness ▪ Operates effectively on highway and ramp merge/diverge points	▪ Supports 5 percent annual growth in airport traffic ▪ Least potential for absorbing additional traffic ▪ Operates effectively on highway and ramp	▪ Supports 5 percent annual growth in airport traffic ▪ Accommodates additional traffic ▪ Stageable from base flyover ▪ Operates effectively on highway and ramp merge/diverge points
Network	▪ Good continuity between Lochside Drive and McTavish Road/Canora Road ▪ Park-and-ride facility relocated to southwest quadrant ▪ Could support bicycle, pedestrian and transit connections	▪ Less desirable continuity between Lochside Drive and McTavish Road/Canora Road ▪ Park-and-ride facility remain in northwest quadrant ▪ Could support bicycle, pedestrian and transit connections	▪ Good continuity between Lochside Drive and Canora Road ▪ Park-and-ride facility relocated to southwest quadrant ▪ Could support bicycle, pedestrian and transit connections	▪ Good continuity between Lochside Drive and Canora Road ▪ Park-and-ride facility relocated to southwest quadrant ▪ Could support bicycle, pedestrian and transit connections
Community	▪ Potential for developable land (1.27 ha) ▪ 4 residential properties impacted ▪ Impacts to driveways on Lochside Drive ▪ Some potential impacts to ALR land ▪ No impact to parks	▪ Potential for developable land (1.86 ha) ▪ 4 residential properties impacted ▪ No impact to driveways on Lochside Drive ▪ Some potential impacts to ALR land ▪ No impact to parks	▪ Potential for developable land (2.26 ha) ▪ 5 residential properties impacted ▪ Impacts to driveways on Lochside Drive ▪ Some potential impacts to ALR land ▪ No impact to parks	▪ Potential for developable land (2.34 ha) ▪ 2 residential properties impacted ▪ Access to driveways on Lochside Drive may require crossing left turn storage lane ▪ Some potential impacts to ALR land ▪ No impact to parks

Factors	Concept 1 Roundabout Interchange	Concept 2 Diamond Interchange	Concept 3 Single Point Interchange	Concept 4 Flyover Interchange
Cost (Class D) Construction Property	$17.2 million $ 1.6 million	$17.1 million $ 1.1 million	$17.6 million $ 2.4 million	$17.3 million $ 0.95 million
Overall Summary	Traffic: ▪ All concepts have similar highway peak hour travel patterns and levels of operation on highway and ramp merge/diverge points ▪ Concept 2 has higher collision proneness due to number of new intersections and the tight curve at the Lochside Drive approach ▪ Concept 3 has the least potential to absorb additional traffic Network: ▪ All concepts support pedestrian/bicycle/transit service facilities ▪ All concepts have good access to park-and-ride facility ▪ Concept 2 has less desirable connection along Canora Road between east and west communities Community: ▪ All concepts have potential impacts to ALR land, however no impact to parks ▪ Concept 4 would provide the greatest potential developable land within the interchange ▪ Concept 4 has the least property impacts ▪ Concepts 1 and 3 would have impacts to driveways on Lochside Drive			

Note: * Costs should be examined further as part of the preliminary design stage. The Class D cost estimate for each of the proposed concepts is based on a conceptual level of design in 2006 dollars.

The comparative evaluation indicates that all concepts are feasible. However, Concepts 1, 3 and 4 would provide good local connectivity between the communities on the east and west sides of the Highway.

In order to advance these concepts, the Ministry will need to continue to work with the District of North Saanich, Victoria Airport Authority, and relevant agencies and stakeholders to plan and design for a preferred concept. As part of the consultation process, key issues that will need to be addressed for each of the feasible concepts are summarized in Table 3.10.

Table 3.10 – Issues to Address for All Concepts (McTavish Interchange)

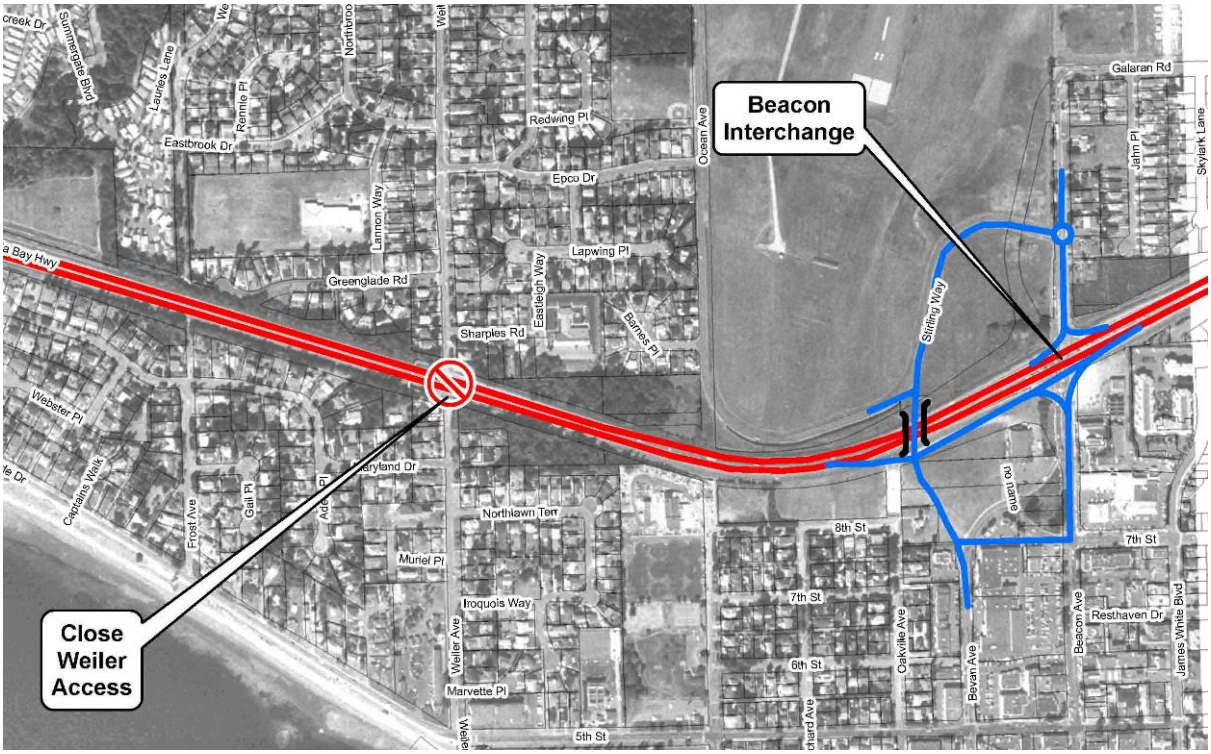
Areas of Need	Issues to Address
Further Planning and Design	▪ Functional plans and designs of alternative interchange configurations and property access changes ▪ Community, agency and stakeholder consultation to determine preferred concept ▪ Memorandum of understanding for primary roadway network improvements and access modifications ▪ Examine staging and constructability of interchange improvements ▪ Examine potential impacts to Agricultural Land Reserve (ALR)
Community Assessment	▪ Property acquisition for interchange required ▪ Agreements with municipality on aesthetics to be planned around the highway connections
Roadway Network	▪ Define specific property impacts and requirements for the interchange ▪ Examine potential impacts of increased traffic on McTavish Road, Canora Road, and Lochside Drive as well as mitigation strategies
Alternative Modes	▪ Integration of transit services and facilities in the short-term and long-term should be defined ▪ Bicycle and pedestrian facilities crossing the highway should be confirmed and included in the functional design
Finances & Agreements	▪ Prepare Class B project cost estimates ▪ Prepare business case with associated project benefits and costs ▪ Define financial responsibilities ▪ Partnership opportunities with municipality and agencies should be explored ▪ Establish implementation strategy in terms of timing and priorities

3.1.6 Beacon Interchange

Beacon Avenue is an east-west arterial road that connects with Highway 17 in the Town of Sidney. The intersection of Beacon Avenue and Highway 17 is signalized and provides full movement access to Victoria International Airport (via Sterling Way and Ocean Avenue) and the industrial area (south of Henry Avenue) on the west side, as well as the commercial, institutional and residential land uses on the east side. Major arterial roads that connect with Beacon Avenue include Stirling Way/Ocean Avenue, Galaran Road, Bevan Avenue, 7th Street, and Resthaven Drive.

Consistent with the long-term vision in the *Vision for Highway 17* document, highway access would be concentrated in this area on a grade-separated connection at Beacon Avenue. This includes the potential closure of the existing right-in only movement at Weiler Avenue which is located on the west side of the highway and south of Beacon Avenue.

Figure 3.10 – Beacon Interchange Concept



Over the last five years, the Ministry has been working with the Town of Sidney, Victoria International Airport and the District of North Saanich on a range of concepts to develop a preferred configuration described below. The only outstanding issues concerning the planned interchange at Beacon Avenue is the general configuration and operation of the interchange as well as the feasibility of the concept given the challenging grades as well as the established uses at Beacon Avenue as well as at Bevan Avenue.

It should be noted that preliminary discussions regarding an alternate location for the interchange further south at Ocean Avenue were held with agency stakeholders. These options were rejected through historical discussions due to potential impacts on property, local area roadways as well as air space for the Victoria International Airport.

The planned Beacon Interchange concept consists of a full movement access with a three-lane overpass located south of the existing intersection, which would provide an improved linkage between east and west Sidney at Stirling Way and Bevan Avenue, respectively. On- and off-ramps would generally be located at Beacon Avenue. The northbound off-ramp proposed for Bevan Avenue could be extended beneath the overpass structure to connect further north to

Beacon Avenue. Additionally, traffic from the east side of the Highway crossing at Bevan Avenue could access the Highway with a southbound on-ramp.

Intersection control includes signalization of the Bevan Avenue ramp connections to the overpass and the intersection of Bevan Avenue and 7th Street. A three-legged roundabout is proposed for the intersection of Beacon Avenue with Stirling Way.

Forecast traffic volumes indicate that highway traffic in the northbound direction is slightly higher than southbound traffic. A majority of the northbound highway traffic (approximately 50 percent) would exit onto Bevan Avenue and continue eastbound toward Sidney, or travel north on 7th Street.

No additional support roads are needed for the interchange at Beacon Avenue and Bevan Avenue, however existing access locations near the proposed overpass and connecting ramps will need to be examined in future stages of planning and design.

In the District of North Saanich, Beacon Avenue, Stirling Way and Ocean Avenue are identified as future bicycle routes (Draft Official Community Plan, District of North Saanich, May 2006). In the Town of Sidney, Lochside Drive has a bike lane that connects to a signed shared roadway on Ocean Avenue. There are no other designated bicycle routes, though the Town's objective is to develop a safe and convenient integrated bicycling network (Official Community Plan, Town of Sidney, 2000). Consistent with the future bicycle network, the Beacon Interchange would accommodate an east-west bicycle route and pedestrian facilities that would connect with the cycling corridor on Lochside Drive.

A park-and-ride lot is currently located on the west side of the Highway north of McTavish Road. Express bus transit service could be accommodate as part of the on-and off-ramps to the Highway with local service connections. Alternatively, the express bus services could connect directly at the McTavish Park and Ride facility with community transit services between the Airport and Sidney.

Table 3.11 summarizes the evaluation of the Beacon Interchange.

Table 3.11 – Beacon Interchange Concept Evaluation

Factors	Assessment
Traffic	▪ Increase in traffic along Bevan Avenue ▪ Ramps and intersections operate effectively
Network	▪ Beacon Avenue is classified as a major arterial road ▪ Bevan Avenue connection provides alternative route to and from the Town of Sidney ▪ Could support planned east-west bike route and pedestrian connections at Bevan Avenue ▪ Could accommodate redirected Lochside Drive cycling corridor immediately east of highway ▪ Could support northbound and southbound transit connections on ramp system
Community	▪ Impacts approximately 5 properties ▪ Slight increase in elevation at Bevan Avenue and 7th Street ▪ Some impacts to driveways
Cost (Class D) **Construction** **Property**	 $15 million $1.6 million

Note: * Costs should be examined further as part of the preliminary design stage. The Class D cost estimate for each of the proposed concepts is based on a conceptual level of design in 2006 dollars.

In order to advance the concept, the Ministry will need to work with the municipalities (District of North Saanich and Town of Sidney), Victoria Airport Authority, and other relevant agencies and public stakeholders to establish a preferred concept. Table 3.12 summarizes the key issues that need to be addressed as part of the planning and design in order to advance the preferred concept.

Table 3.12 – Issues to Address
(Beacon Interchange)

Areas of Need	Issues to Address
Further Planning and Design	▪ Functional plans and designs of alternative interchange configurations ▪ Community and stakeholder consultation to determine preferred concept ▪ Memorandum of understanding for primary roadway network improvements and access modifications ▪ Examine staging and constructability of interchange improvements ▪ Examine potential impacts to properties adjacent to the highway on the east side
Community Assessment	▪ Property acquisition for interchange required ▪ Agreements with municipality on aesthetics to be planned around the highway connections
Roadway Network	▪ Define specific property impacts and requirements for the interchange ▪ Examine potential impacts of increased traffic on Bevan Avenue, as well as mitigation strategies
Alternative Modes	▪ Integration of transit services and facilities in the short-term and long-term should be defined ▪ Bicycle and pedestrian facilities crossing the highway should be confirmed and included in the functional design
Finances & Agreements	▪ Prepare Class B project cost estimates ▪ Prepare business case with associated project benefits and costs ▪ Define financial responsibilities ▪ Partnership opportunities with municipalities, and Victoria Airport Authority should be explored ▪ Establish implementation strategy in terms of timing and priorities

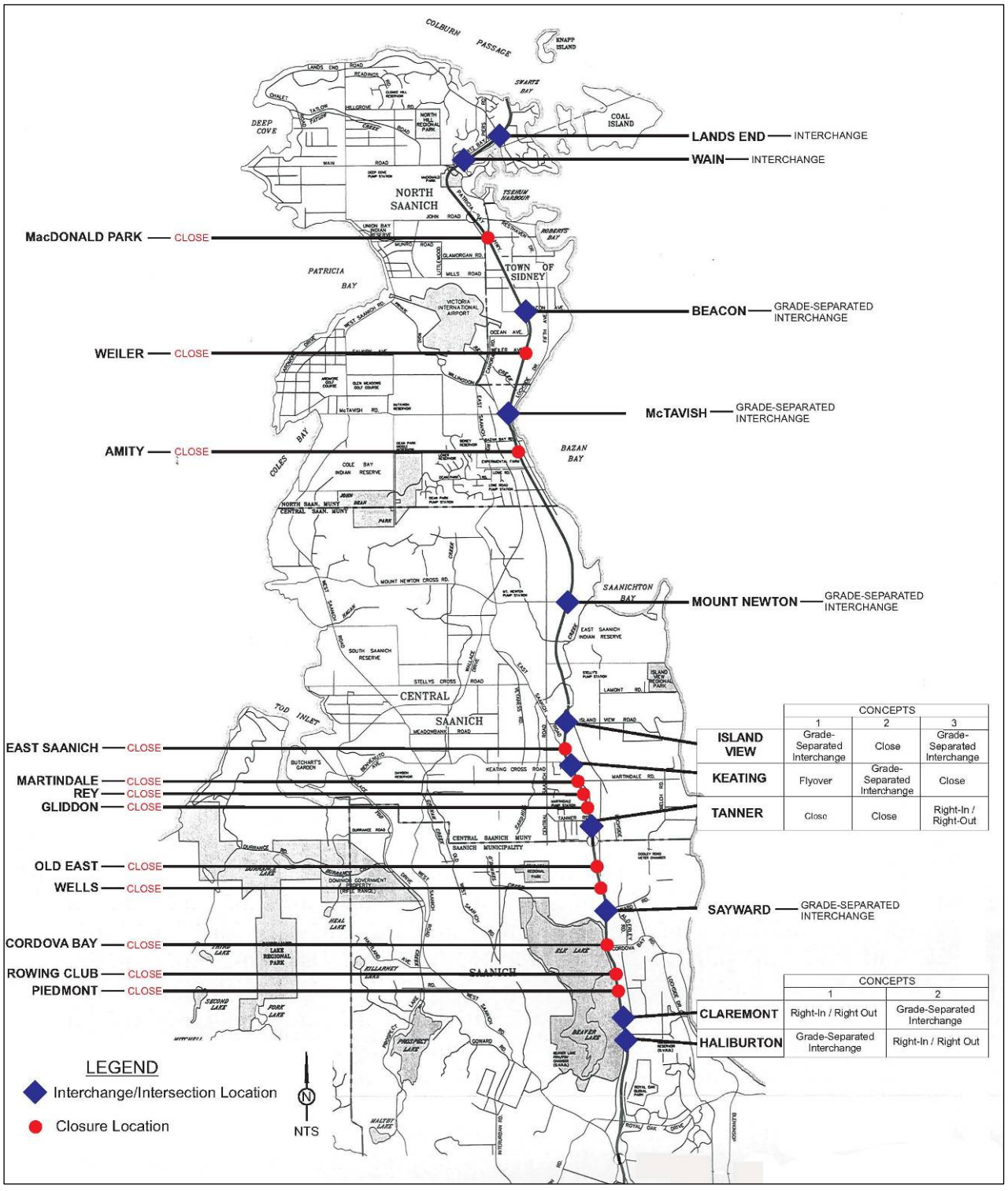
4.0 CONCLUSIONS

The Corridor Strategy was designed to build onto the ***Vision for Highway 17*** report prepared in 2001. Through discussions with the study Steering Committee as represented by all agency stakeholders on the Peninsula, several key issues and concerns regarding the Vision were identified at the outset of the assignment. Some of those concerns were related to the lack of connections to the highway in the southern portions of the corridor between Royal Oak Drive and Sayward Avenue. Other issues included the provision of essential roadways to support the planned grade-separated connections to the Highway and the closure of some cross-streets and direct accesses along the Highway. In general, there was some uncertainty regarding the potential configuration of interchanges along the Highway 17 corridor as identified in the Vision document.

The purpose of the Corridor Strategy was not to address every outstanding issue and concern. Rather, the Strategy was designed to provide a long-term direction for the corridor. The Corridor Strategy illustrated in Figure 4.1 highlights the fundamental features of the long-term plan. In particular, the Strategy defines the preferred interchange locations and cross-street closures to achieve the planning principles previously described. The preferred interchange locations north of the Royal Oak interchange include Sayward Road, Mount Newton Cross Road, McTavish Road, Beacon Avenue, Wain Road and Lands End Road. Options for interchange locations have been identified at Claremont Road and Haliburton Avenue as well as at Keating Cross Road and Island View Road. These alternatives should be examined further with local area communities and other agencies. All other intermediate cross-streets and accesses along the corridor should be closed and essential support roadways have been identified as described in Section 3 of the Strategy.

Achieving the Corridor Strategy requires significant effort, resources as well as consultation with all stakeholders, including the Tsawout First Nation. For example, alternative concepts and configurations must be reviewed with public stakeholders with greater levels of information that would only be available through subsequent stages of functional and preliminary planning and design of alternative interchange configurations. Additionally, the property required for the preferred interchanges configurations or essential support roadways need to be defined and protected either through future redevelopment or processes to advance intermediate or the ultimate highway improvements. In all instances, business cases are needed for any form of improvement along the highway that define the financial requirements and benefits, including opportunity for partnerships with municipalities, other agencies, First Nations and/or private land owners.

Figure 4.1 – Recommended Corridor Strategy



	CONCEPTS		
	1	2	3
ISLAND VIEW	Grade-Separated Interchange	Close	Grade-Separated Interchange
KEATING	Flyover	Grade-Separated Interchange	Close
TANNER	Close	Close	Right-In / Right-Out

	CONCEPTS	
	1	2
CLAREMONT	Right-In / Right Out	Grade-Separated Interchange
HALIBURTON	Grade-Separated Interchange	Right-In / Right Out

Table 4.1 summarizes the relative degree of complexity for implementing the ultimate highway improvements described in Section 3 of the Strategy document according to the areas of need (further planning and design, community assessment, roadway network, alternative modes, and finances & agreements). It should be recognized that the Ministry will want to explore intermediate improvement concepts that advance the Corridor Strategy where there are significant benefits relative to the impacts and costs, and where potential partnerships with other stakeholders can be identified.

Table 4.1 – Implementation Complexity [1]

Highway Section / Interchange	Key Challenges				
	Further Planning and Design	Community Assessment	Roadway Network	Alternative Modes	Finances & Agreements
Royal Oak Drive to Claremont Avenue	◐	◐	◔	◔	◐
Sayward Interchange	◕	●	◕	◐	●
North of Sayward Road to Island View Road	◕	◕	◐	◕	◕
Mount Newton Interchange	◔	◔	○	◔	◐
McTavish Interchange	◔	◔	◔	◔	◐
Beacon Interchange	◐	◔	◔	◔	◐

[1] Measures of Complexity: ○ Low ◔ Low to Medium ◐ Medium ◕ Medium to High ● High

To be successful, the powers and legislative authorities available to each agency to establish plans, policies, bylaws, regulations and designs that protect for and complement an ultimate configuration for the Highway 17 corridor should be utilized. In broad terms, these authorities may be accessed in several ways as briefly highlighted below.

- ***Land Uses.*** The Ministry and municipalities may want to establish guidelines for appropriate land uses that are compatible with the interchange and access requirements at planned interchanges and along the corridor. Additionally, municipalities will want to consider services and connections that may be ultimately provided to properties along local roads. Municipalities can provide further guidance on interchange locations and land requirements through local area processes such as updates to the Official Community Plans (OCP). Land uses can be designated through both the OCP and zoning bylaws, and servicing objectives can be reiterated in both these documents.

- ***Road Network.*** The Ministry will want to work with municipalities to not only protect for the primary interchanges and closures, but to establish the frontage and essential support roadway networks that would ultimately become municipal facilities. Further, municipalities should also be exploring alternative network improvements that accommodate and support local and inter-municipal trips wherever possible. Legislative tools to facilitate agreement on these initiatives may include the OCP, transportation plans and subdivision and servicing bylaws.

- ***Aesthetics.*** Although the aesthetics of the corridor are not critical to achieving the Strategy, protecting and addressing visual impacts of the highway is essential given that the corridor is a gateway to the region and Vancouver Island. Possible areas for consideration could include the landscaping and screening of development along the corridor, maintenance of natural views as well as signage. The goals for aesthetics can be preserved or achieved through development permit areas or design guidelines.

- ***Partnerships.*** The Ministry's highway investment program requires significant financial resources and commitment. At the same time, the extent of public funding available for transportation infrastructure is constrained by growing demands, increased costs as well as limited resources. Although all investments are considered within the context of the Ministry's business case which examines benefits and costs, interests and opportunities for partnership with other levels of government, public agencies and the private sector to deliver capital programs are encouraged.

As suggested, the implementation of the corridor improvements may be staged, or in an ultimate form as described in the Strategy. Rather than await a commitment toward building the ultimate scheme however, the Ministry, municipalities, as well as public and private stakeholders can continue to work on initiatives that support this direction.

Although there is limited Ministry funding available, any major investments on the Highway 17 corridor would require a consensus among Peninsula municipalities and other agency stakeholders on the long-term Corridor Strategy. In other words, agency stakeholders need to be in support of the general location of preferred or optional interchange locations, closure of cross-streets and accesses as well as the provision of essential and other support roadways. In those communities where optional interchange locations have been identified, it is anticipated that the Ministry will work collaboratively with local municipalities and the public on assessing preferred interchange arrangements.

APPENDIX A

Highway 17 Corridor: Intersection Levels of Service

Highway 17 Corridor : Intersection Level of Service

Location on Hwy 17	Approach/ Movement	1998			2026 (4-Lane)			2026 (6-Lane)		
		Volume (vph)	Level of Service	Approach Delay (sec/veh)	Volume (vph)	Level of Service	Approach Delay (sec/veh)	Volume (vph)	Level of Service	Approach Delay (sec/veh)
Haliburton	All	4805	E	66	5757	F	126	5757	D	50
	Eastbound	140	F	318	308	F	802	308	F	118
	Westbound	145	F	123	180	F	135	180	D	45
	Northbound	2540	F	87	2937	F	130	2937	E	60
	Southbound	1980	C	20	2332	C	31	2332	C	29
Sayward	All	4935	E	75	6047	F	198	6047	F	101
	Eastbound	145	D	45	280	F	201	280	F	161
	Westbound	270	D	44	340	F	272	340	F	106
	Northbound	2360	E	66	2935	F	251	2935	F	141
	Southbound	2160	F	88	2492	F	125	2492	D	47
Island View	All	3595	D	36	4346	E	55	4346	C	34
	Eastbound	330	C	34	397	E	77	397	D	35
	Westbound	115	C	30	71	D	42	71	C	33
	Northbound	1600	D	40	2103	D	54	2103	C	34
	Southbound	1550	C	34	1775	D	54	1775	C	33
Mt. Newton	All	4069	D	39	4695	E	69	4695	D	47
	Eastbound	480	D	39	631	F	206	631	D	53
	Westbound	260	C	30	319	D	39	319	C	27
	Northbound	1670	D	49	1916	E	60	1916	D	53
	Southbound	1659	D	30	1829	D	37	1829	D	41
McTavish	All	4000	D	49	4409	F	99	4409	D	55
	Eastbound	615	D	44	743	F	93	743	C	28
	Westbound	384	D	64	597	F	162	597	E	61
	Northbound	1757	E	54	1774	F	96	1774	E	65
	Southbound	1244	D	40	1295	E	79	1295	D	52
Beacon	All	3865	E	65	4298	F	84	4298	E	58
	Eastbound	647	F	129	783	E	67	783	D	48
	Westbound	951	E	74	1167	F	81	1167	E	67
	Northbound	1415	D	49	1521	F	105	1521	E	60
	Southbound	852	C	34	827	E	43	827	D	50

Source: Vision for Highway 17, Table 3.3 (EarthTech, May 2001)

APPENDIX B

Excerpts from Vision for Highway 17

Geometric Deficiencies

Network Connections & Spacing

Year 2000 Average Daily Traffic Volumes

Intersection Turning Volumes & Operations – PM Peak Hour

Accident Statistics

Figure B.1 – Geometric Deficiencies

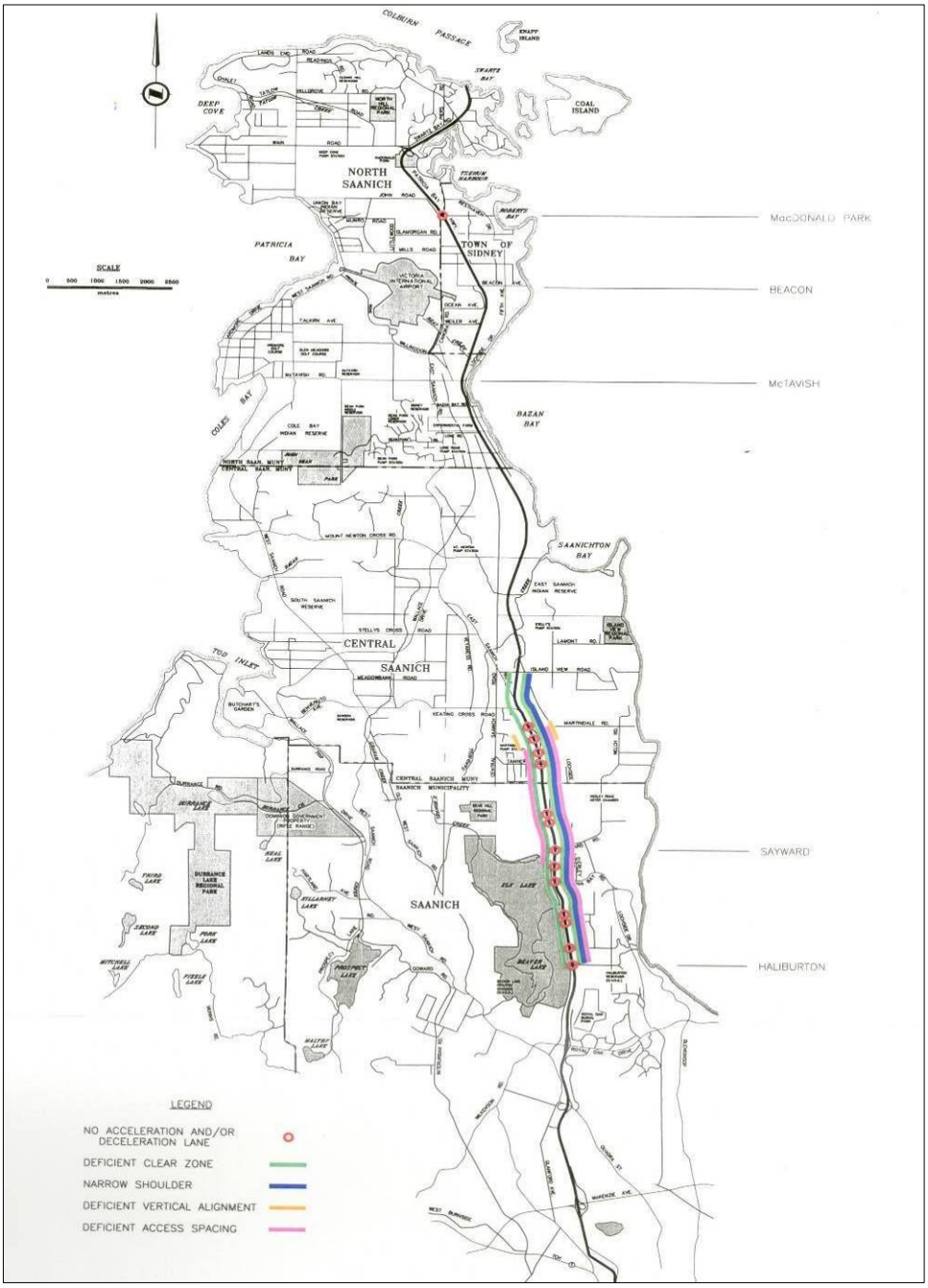


Figure B.2 – Network Connections and Spacings

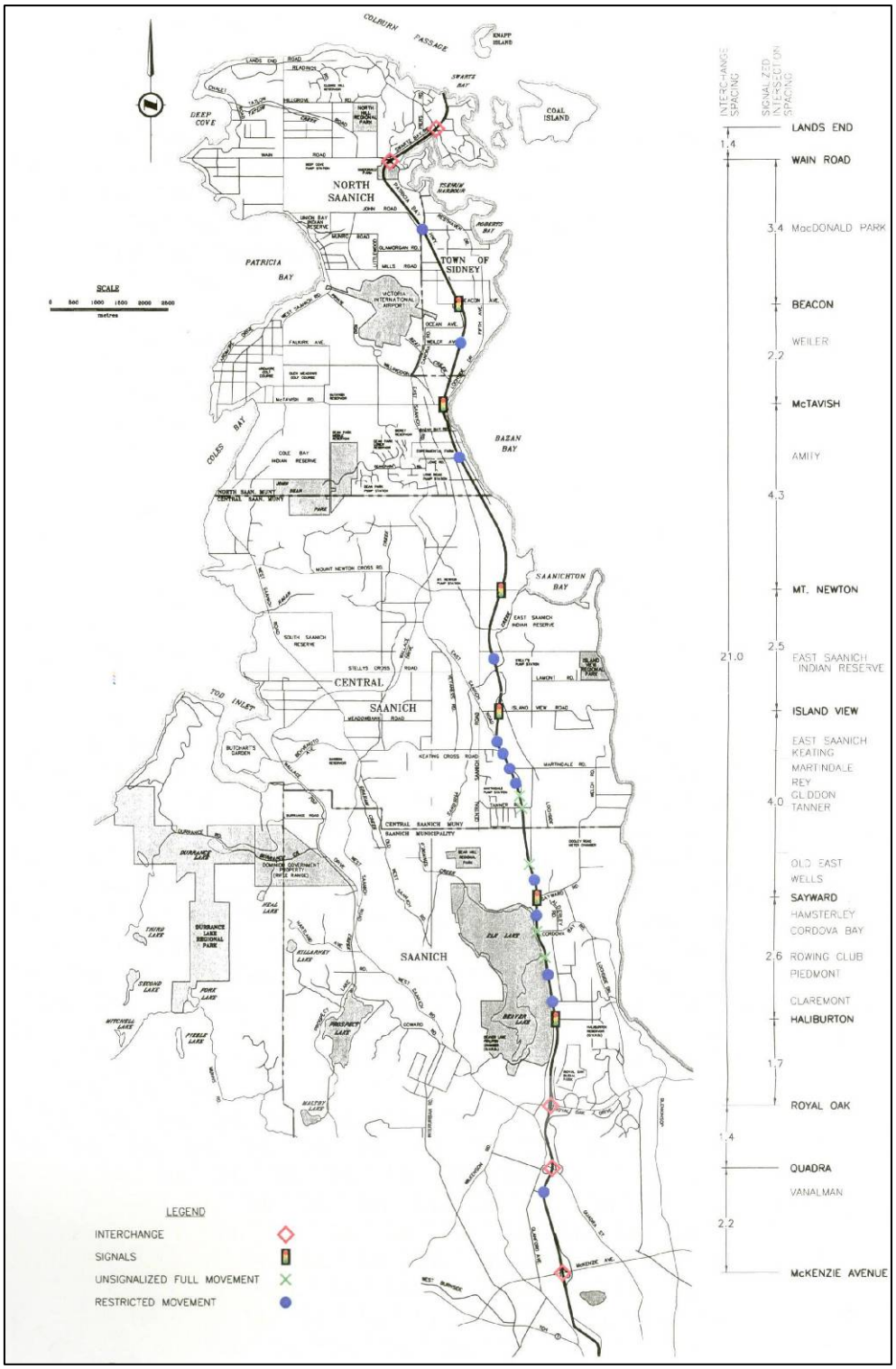


Figure B.3 – Year 2000 Average Daily Traffic Volumes

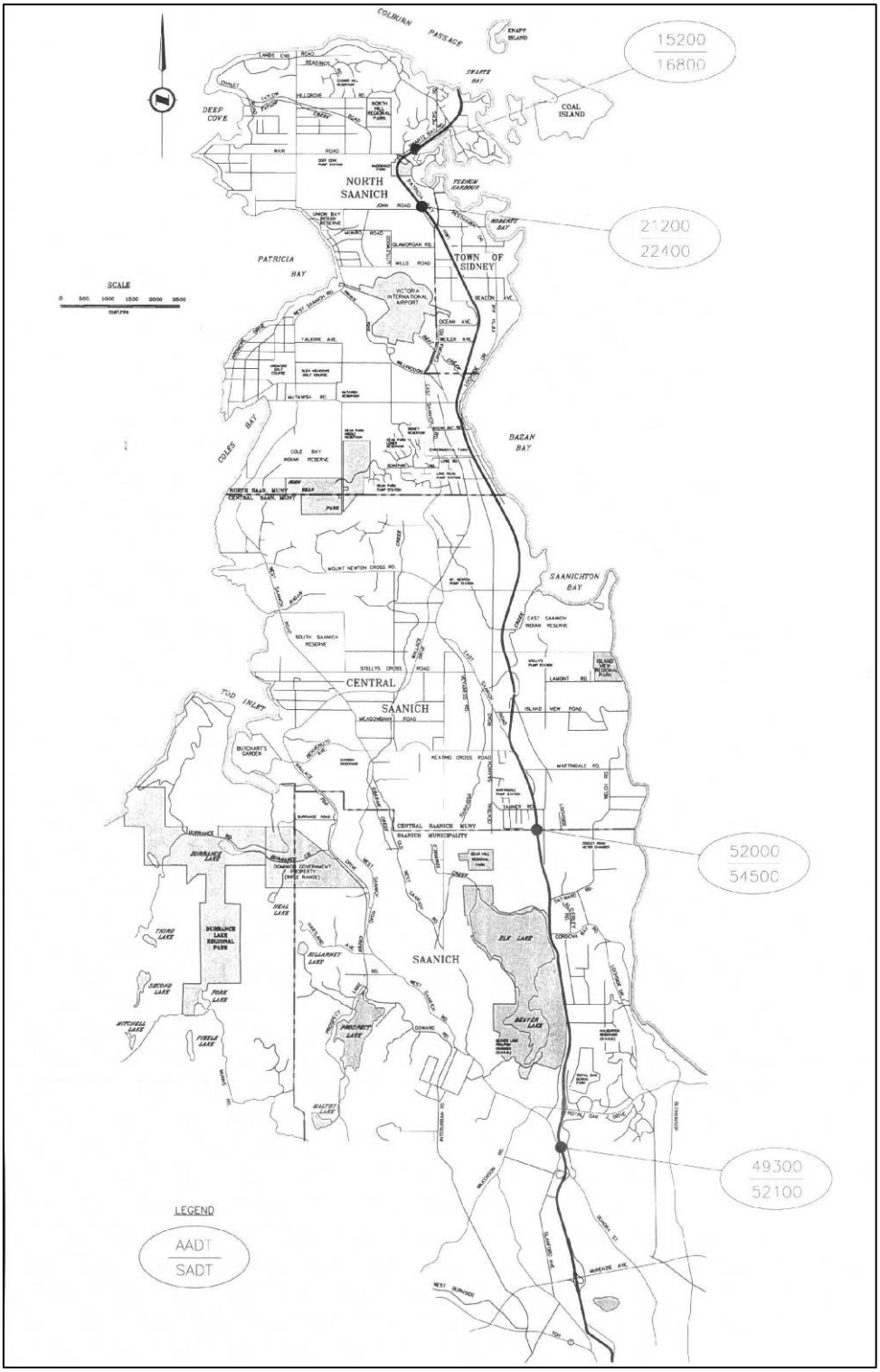


Figure B.4 – Intersection Turning Volumes & Operations – PM Peak Hour

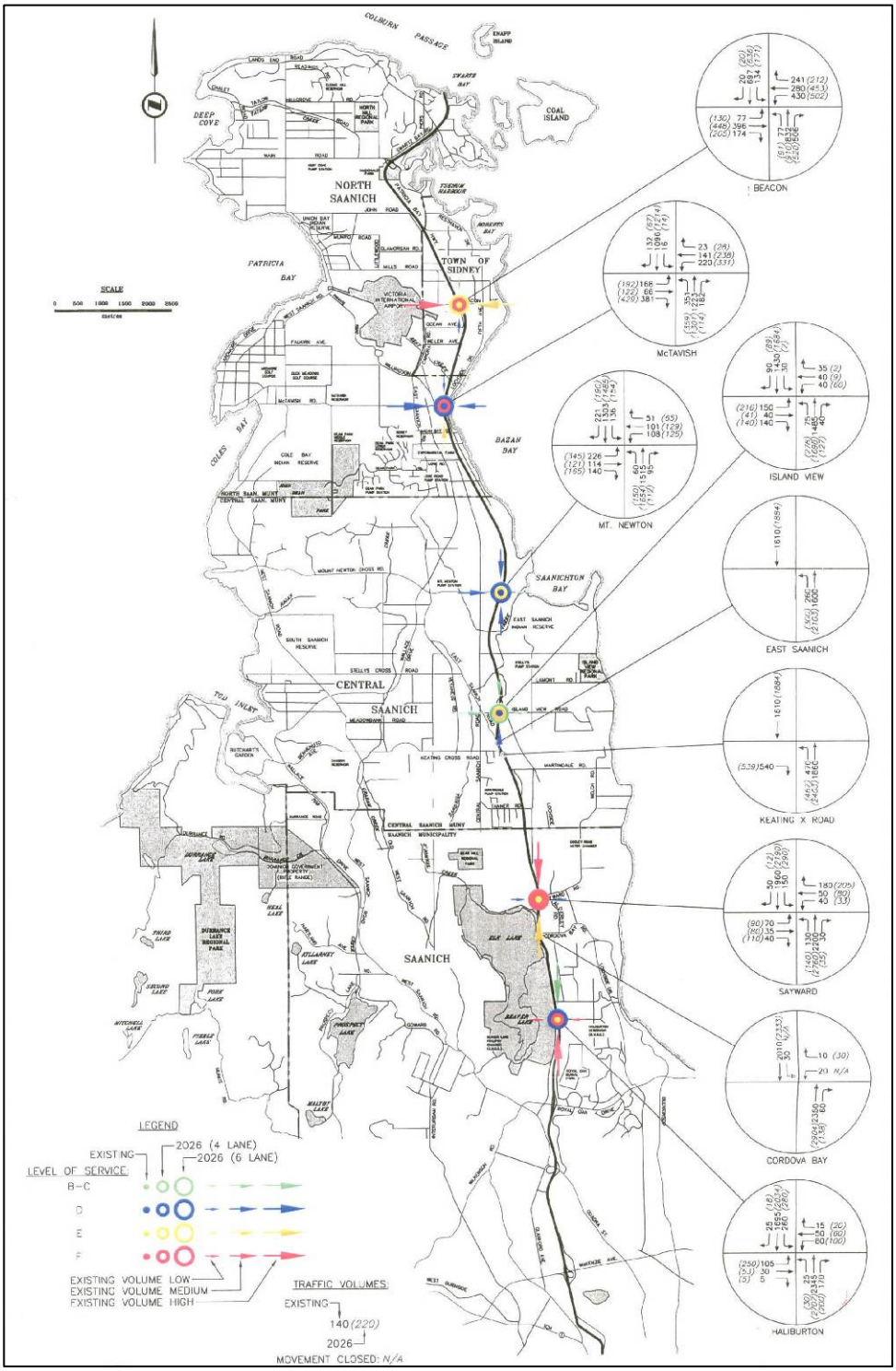


Figure B.5 – Accident Statistics