

# Redevelopment of Canada's Second Busiest Border Crossing – An Exercise in Consensus Building

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Paper prepared for presentation  
at the  
'Geometric Design for Better Border Crossings'  
Session  
of the 2006 Annual Conference of the  
Transportation Association of Canada  
Charlottetown, Prince Edward Island

## **Abstract**

Over the last two decades, Canada and the US have developed the largest bilateral trading partnership in the world. Commercial and passenger traffic crossing the border has increased so significantly that many land border operating authorities are forced to expand their facilities to accommodate this growth. The Canadian Authority for Blue Water Bridge (BWB) between Point Edward/Sarnia in Ontario and Port Huron in Michigan has recently completed a Master Plan addressing these growing demands and evolving border operating policies. The longer-term needs for the Plaza were identified through pro-active consultations with a multitude of stakeholders as well as a thorough assessment of the future traffic and infrastructure requirements.

At the outset of the planning exercise, the study team identified a list of key objectives that the eventual plan had to meet. Sensitivity tests on future projected traffic and various processing rates were conducted in determining the processing infrastructure requirements, e.g. inspection and toll lines. Significant cooperation was fostered with a wide variety of stakeholders involving in inter-related issues such as border security, traffic flow & safety, plaza operations, land exchange, cost sharing, neighbourhood impacts, local access and tourism.

Specific Plaza operational issues were identified and used as input to develop alternative plaza layouts which ultimately resulted in the development of the recommended plan creating an optimum balance in terms of meeting the requirements of the various users and stakeholders.

Although Plazas at a border crossing have no standard layout or size, they all consist of similar infrastructure: toll (usually), duty free, primary inspection lanes, secondary inspection areas, administration & maintenance facilities, and ITS installation. In developing the BWB Canadian Plaza Master Plan, about twenty alternative plaza layouts were considered including many sub-options. These included layouts of primary and secondary inspection areas addressing various geometric challenges, as well as the location and configuration of buildings and parking areas. A screening assessment of the long list of alternatives led to a detailed analysis of a short listing of four alternatives and the selection of a preferred layout. The Plan included a phasing plan and a construction staging plan in which the key challenge is maintaining operations and traffic on a 24/7 basis.

## **Keywords**

Border crossing, inspection plaza, plaza alternatives, stakeholder consultation

## **1.0 Overview**

### **1.1 Introduction**

In 2001, the Blue Water Bridge Authority (BWBA), in recognition of the growing volume of international travel and the associated demands on the Canadian Plaza of the Blue Water Bridge, embarked upon the preparation of a Master Plan for the plaza. The intent of the Master Planning exercise was to identify a longer-term plan for the Canadian Plaza that would handle the growing travel demands and which could be stage-constructed in response to the growth rate of these demands.

This paper documents the overall planning process and the conclusions and recommendations reached as a result of the study.

Section 2 of this paper provides information on the overall study process followed and the involvement of various stakeholder groups; Section 3 describes the existing Canadian Plaza and the identified longer term needs for the Plaza; Section 4 describes the matter of the property requirements of a longer-term Plaza layout; Section 5 describes how these alternatives were short listed and evaluated, leading to the selection of a preferred plan; Section 6 discusses the Recommended Plan.

### **1.2 Background**

The Blue Water Bridge is a key infrastructure component in major Canadian and U.S. trade corridors (see Exhibit 1). The Bridge links Canadian Highway 402 and U.S. Interstate Highways I-69 and I-94 and provides overall linkages between the Greater Toronto Area and the U.S. Mid-West and also to points south in the U.S.

The following is a summary of some key statistics and an indication of the importance of the Blue Water Bridge international gateway, specifically:

- Over the last ten years, Canada/U.S. Trade has resulted in the largest bilateral trading partnership in the world;
  - Canada/U.S. Trade worth \$590B/year, \$1.6B/day (twice Canadian trade with Mexico and five times that with the UK);
  - Ontario/U.S. Trade is over \$350B/year, \$1B/day.
- Value of trade crossing the Blue Water Bridge:
  - Over \$50B/year;
  - \$150M/day;
  - 10% of Canada/U.S. Trade;
  - 15% of Ontario/U.S. Trade.
- Blue Water Bridge Traffic:
  - Second busiest commercial crossing on the entire Canada/U.S. border;
  - Over 1.6 million trucks/year;
  - Fifth busiest (in total vehicles) crossing on the border;
  - Over 5 million vehicles/year.

The Bridge is also a fundamentally important factor in the economic health of the local and regional areas from the points of view of tourism and economic development:

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- Over 2 million autos/year enter Canada via the Bridge – over 15,000 passenger vehicles/day during peak summer season;
- The Bridge facilitates traffic flow into and around the Greater Blue Water Tourist Area;
- 3,500 visitors per day to local gaming facilities (Point Edward Charity Casino, Hiawatha Horse Park and Slots and area bingo facilities);
- 70% of visitors to Casino are from the U.S.;
- 2,000 direct jobs service the tourism industry in the area;
- The Bridge is an essential link onto the 401/402 and I-69/I-94 trade corridor;
- Quick access to U.S. market has encouraged new industry to locate in the area;
- About 1,000 new industrial jobs (with an annual payroll of about \$35M) created in the area since 1997 due to ready access to the U.S. market;
- Over 520 people currently employed at Blue Water Bridge Canadian Plaza.

The Bridge itself was “twinned” in 1997. The original bridge was rehabilitated and reopened for traffic in 2000 resulting in the provision of 6 lanes crossing the St. Clair River at this key international border crossing.

The Canadian Plaza of the Bridge is owned and managed by the Blue Water Bridge Authority, an entity that was deemed a Canadian Crown Corporation in 2002. The U.S. Plaza of the Bridge is owned and operated by the Michigan Department of Transportation (MDOT). MDOT also recognized the growing demands on their plaza and embarked upon a similar Plaza Master Planning exercise in 2002.

The context of the Canadian Plaza and the core study area is shown on Exhibit 2. The core study area was identified at the start of the project as the area within which specific bridge plaza infrastructure elements could be sited for various layout options.

The original Master Planning Schedule called for the completion of the project within about one year. There were, however, various related events that caused a significant delay in the overall development of the preferred Plaza Plan. These issues related to the environmental assessment and preliminary design study being carried out by the Ontario Ministry of Transportation (MTO) for Highway 402 from the bridgehead easterly. It was not appropriate to complete the Plaza Master Plan until the Ministry had completed its Transportation Environmental Study Report (TESR) and filed it in the public record. It was necessary that the Plaza Master Plan be consistent with the Ministry's TESR, particularly from the point of view of various local road issues that were of direct interest to the Village of Point Edward. These issues were resolved and the TESR was finally filed in the public record in the spring of 2003. In addition, during this timeframe, the events of September 11, 2001 occurred. The BWBA decided that the Master Plan should not be finished until any potential ramifications from those events and likely specific implications with respect to plaza infrastructure were known.

## **2.0 Planning Process**

### **2.1 Stakeholders**

The BWBA recognized the fundamental need for input to the planning exercise by various external and internal stakeholders. These stakeholders were considered under four categories:

- The on-plaza users which, as the name suggests, represents a group of agencies, some external and some internal to the BWBA, which have a day-to-day interest in the specific operations of the plaza;
- External agencies, which is a group of organizations that have an interest in the development and configuration of the plaza but are not involved in the day-to-day management or operation of the facility;
- Bridge neighbours who are members of the public and are resident or own property in the immediate vicinity of the Bridge; and,
- The general public.

The stakeholders were involved in the process at various key milestones. In addition, many one-on-one meetings with specific agencies, particularly individual plaza users, were held as required.

### **2.2 Key Planning Steps**

Briefly, the key study steps were as follows:

First, the Planning team identified and confirmed certain "givens" regarding any future plans for the Canadian Plaza and also identified certain "functional priorities" for the plaza. The identified and confirmed "givens" were that all alternatives must:

- Match the existing two spans of the Blue Water Bridge;
- Protect the new Maintenance Facility completed in 2000;
- Protect the new Duty Free Shop opened in 2001; and,
- Recognize that the Canadian and U.S. Plazas currently operate independently.

The functional priorities for any Plaza Plan were:

1. Safety for the travelling public and plaza users;
2. Efficiency of customs and immigration processing;
3. Efficiency of toll collection; and,
4. Provision of traveler-related commercial facilities (e.g. Duty Free, Currency Exchange, etc.)

Next, the longer-term needs for the plaza were identified. This was done by holding focused meetings with all the plaza users in order to identify their concerns and issues with the current plaza and to discuss their longer-term objectives for the ultimate Master Plan given the mandates of the various agencies. Secondly, detailed technical analysis was carried out using traffic forecasts and operating parameters of key plaza functions (e.g. primary inspection, dwell times, secondary inspection requirements, toll collection dwell times, etc.) to identify specific longer-term infrastructure needs.

A long list of plaza layout alternatives was then developed. This long list was screened to a reasonable shortlist that was then subjected to further analysis leading to the identification of a preferred plan. Given the number of operating functions and users of the existing plaza, the originally preferred plan was adjusted and modified to create a recommended overall Master Plan. The Recommended Plan was then detailed and a staging and implementation strategy developed.

As noted earlier, safety for the travelling public and plaza users was considered a top functional priority of the planning exercise. Consequently, as a part of the process, the services of a road safety expert were employed to provide comments on various alternative layouts. In addition, serious consideration was given at all times to factors such as likely operating speeds through the plaza and sightlines to various key decision points.

### **2.3 Consultation with Bridge Neighbours and the General Public**

While the Blue Water Bridge was not, at the time of the study, legislatively obliged to follow formal environmental assessment procedures requiring public consultation, nevertheless Bridge staff felt it important to involve the bridge neighbours and the public at key stages of the study. Consequently, two Open Houses were held during the course of the Master Planning exercise.

Attendance at both Open Houses was good. In general, all comments received were positive and in support of the process and also generally in support of the preferred alternative. Various specific comments were made with respect to issues such as visual and noise mitigating measures to be applied to the recommended Plaza Plan. There were also questions raised about local road closures and access issues. In addition, there were comments on other day-to-day bridge operating issues, not directly related to the Master Plan itself.

### **2.4 First Nation**

The Aamjiwnaang First Nation is a key stakeholder involved in most construction activities on the Canadian side of the bridge. The Point Edward area has long been known as an important historical settlement for First Nations peoples. Much of the Canadian Plaza of the Bridge and adjacent development in the locale has been constructed on landfill within the historical boundaries of the St. Clair River. Any construction activity on the original land side of this shoreline (i.e. not on the subsequent landfill) is likely to impact any number of archaeological artifacts that abound in the area. Consequently, the Aamjiwnaang First Nation representatives were consulted early on in the planning process and throughout at key milestones.

The Bridge staff has established an excellent ongoing working relationship with the Aamjiwnaang First Nation representatives. This relationship led to the preparation and signing of a Memorandum of Agreement (MoA) between the Aamjiwnaang First Nation and the BWBA. This document confirms both parties' understanding of the historical and spiritual significance of the area to the First Nations. It also outlines mutual objectives, such as public education programs about the significance of the area and the project to construct the Souls Commemorative now in place on the Canadian shore of the St. Clair River near the bridge. Building on the MoA, the Ontario Ministry of Culture's procedures and protocols for construction in archaeologically sensitive areas have been adjusted to create specific procedures acceptable to all parties for construction and appropriate

archaeological mitigation in the area around the Blue Water Bridge Canadian Plaza. Avoidance or pre-construction mitigation of potential archaeological impacts are now automatic prerequisites for all relevant construction projects in the area.

### **3.0 Inspection Plaza Needs**

Long-term needs for the Canadian Plaza were developed through two avenues: the discussion and documentation of the requirements and mandates of the various plaza users and through a technical analysis of traffic volume growths and resulting infrastructure requirements.

A plan showing the existing plaza is included on Exhibit 3.

#### **3.1 Plaza Users Requirements**

The overall planning process was presented to the users on January 17, 2001. Specific groups in attendance were:

- Canada Customs
- Canada Immigration
- Brokerage Company representatives
- Canadian Food Inspection Agency
- Duty Free operation
- Currency Exchange
- Bridge Operations
- Bridge Maintenance

At that meeting, the representatives were asked to provide comments on existing problems and issues and to also follow up with written comments. Below is a summary of the key comments made by the various user group representatives. Clearly at this point in the study, the user representatives were making comments and observations based on their experiences of the existing plaza and not in response to any longer-term plan alternatives, which, at that time, had not been developed. During the course of the project and after reviewing various layout alternatives, the various user representatives were able to add comments and provide additional information on their longer-term requirements. The initial comments summarized below were valuable input to the original preparation of alternatives.

#### **Canada Customs**

##### **Public Safety**

- Pedestrians on plaza
- Route for vehicles returned from Canada Customs back to the U.S.
- Entering/leaving secondary inspection area

##### **Officer Safety:**

- Access from parking lot
- Booth/vehicle collisions
- Rejected visitors

##### **Access**

- Some confusion re: cars/bus access to secondary inspection area
- Delivery vehicle building access

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- Public access problems
- Poor access to Canada Customs and Immigration and to the Agricultural Building for U.S.-bound travellers wishing to stop for information

Transportation/Traffic

- Control/management of trucks in secondary inspection area

Security

- Inappropriate mixing of vehicles in the truck compound (vehicles sent to secondary area are in the same general area as vehicles parked while drivers visit the brokerage offices)
- Public (pedestrian) access to Duty Free is not secure
- Pedestrian access to Canada Customs and Immigration after crossing the Bridge

**Citizenship/Immigration**

Access

- Complex public access to buildings
- Difficult for truck drivers to find immigration office
- Buses block view of secondary inspection area

Safety

- Liability/Safety of officers directing vehicles back to U.S.

Infrastructure

- Concerns over limited space

**Brokers**

Safety

- Passing through brokers' offices
- Access from parking lot
- Pedestrian crossing in front of Truck Primary Line

Access

- Location of brokers' offices
- Truck drivers sent to immigration pass through brokers' offices
- General deliveries take place in a secure zone (secondary inspection area)

**Canadian Food Inspection Agency**

Safety

- Route for returning trucks to U.S.
- U.S. truck drivers park on shoulder – cross Highway 402 to office

Transportation Traffic

- Unrelated truck parking at off-loading facility

Operations

- Current Plaza requires a split operation between their main building and a "satellite" facility in the Customs building.

**Duty Free**

Safety

- Truck parking at Duty Free (capacity/access)



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Access

- Access from staff parking area
- Egress from staff parking lot to Highway 402 eastbound

Signage

- Duty Free needs better signage

**Blue Water Bridge Authority**

Safety

- Truck parking on shoulder between toll plaza and Duty Free
- Cars parked on shoulder to use Currency Exchange
- Walk-up customers to Currency Exchange must cross traffic

Access

- Public access to toll building
- Employee access to workplace
- U-turns from Bridge Street
- U-turn access to BWBA building

Transportation/Traffic

- Management of trucks parking at Duty Free
- Traffic control at Currency Exchange
- Marina Road truck/auto conflicts
- Vehicle speeds through plaza

Infrastructure

- Inadequate bus parking
- Booths too small
- May need space for RCMP
- Possibly need to protect space for the sale of Duty Free fuel (eventually rejected)
- Incorporate vehicle inspection/repair facility
- Need additional Currency Exchange parking
- Additional services for employees and travellers
- Provide wider lanes for snow removal/storage
- Miscellaneous comments re: office space, fencing, etc.

Signage

- Currency Exchange needs advanced signage
- Consider variable message signs

**3.2 Travel Demands and Needs**

To identify specific infrastructure needs over the 20-year planning horizon, future travel forecasts for automobiles and commercial vehicles were compared with various international travel processing features (e.g. customs primary and secondary dwell times, toll collection dwell times, etc.). This analysis included:

- The likely requirements for "conventional" processing and toll collection;
- Sensitivity analysis for different assumptions for parameters such as dwell times, etc.; and
- Likely realistic allowances for more "high tech" processing technologies such as NEXUS and electronic toll collection.

Longer-term 20-year traffic volume forecasts for both automobiles and commercial vehicles were based on earlier work done by the consulting team in developing travel

forecasts and predicted revenue streams as part of a bond issue secured by the BWBA in 2002. Existing and potential future dwell times at key plaza activities including Auto and Truck Primary Inspection Lines and toll booths were identified based on agency input and on field observations. Using a computer modeling technique, future infrastructure requirements for these facilities were determined in a way that predicted no queues would occur under the 20-year forecasted traffic conditions. Sensitivity analysis was carried out with respect to different assumptions and generally plaza alternatives were based on the "conservative" assumptions that demanded a higher number of infrastructure components such as Primary Inspection Booths, etc.

Exhibit 4 shows traffic forecast growth rates used in the Master Planning exercise. (An update review of the traffic projections were conducted in late 2005 based on current experience with respect to traffic flows, border security requirements, national economics and trade relations. The updated projections fall within the lower range of the previous projections).

Exhibit 5 shows a summary of the analysis done to determine infrastructure needs at the Plaza. It will be noted that the existing truck compound has more capacity than the one proposed. The existing compound is located immediately downstream of the existing truck Primary Inspection Line and all trucks must traverse the compound to access Highway 402. This leads to a situation whereby truckers often park in the compound for reasons unrelated to their processing needs. With the new layout, this will not be the case and truckers will be discouraged from using the compound for reasons other than those directly related to processing. Canada Customs and Immigration are strongly in support of this change. The new compound provides adequate capacity for travellers parked in the area while drivers carry out activities related to customs, immigration or brokerage requirements.

During the course of the project, meetings were held with the planning team for the U.S. Plaza of the bridge. While some differences were identified with respect to basic infrastructure needs, these differences were rationalized based on different assumptions for parameters such as dwell times, etc. that would apply to the U.S. situation and not the Canadian situation. Consequently, the data and conclusions being reached for the Canadian Plaza are not inconsistent with those for the U.S. Plaza.

#### **4.0 Longer Term Plaza Property Requirements**

From the outset of the project, it was realized that to develop a layout to handle the volume of international traffic predicted for the 20-year planning horizon would require more property on the approaches to the bridgehead than is currently owned by the BWBA. Consequently, an early decision was made by the BWBA to embark on a process for the acquisition of provincially-owned land from Front Street westerly to the bridgehead. The majority of this land is owned by the Ministry of Transportation Ontario in the form of the Highway 402 right-of-way. The property surrounding the existing Tourist Information Centre on the south side of Highway 402 is owned by the Ontario Realty Corporation (ORC) and leased to the Ontario Ministry of Tourism and Recreation (MTR). The Bridge Authority realized that most or all of the Provincial holdings west of Front Street would be needed to develop a plaza layout that would allow the safe and efficient management of travellers and goods entering Canada via the Blue Water Bridge.

Very extensive negotiations were carried out and are ongoing between BWBA, MTO, ORC and MTR regarding the mechanisms, procedures and compensation for the transfer of the relevant lands from the Province to the BWBA.

The areas that would be transferred to the BWBA were subsequently agreed to. The BWBA will acquire Provincial land from the bridgehead up to Front Street, with the exception of the northwest quadrant of Highway 402 and Front Street that accommodates westbound exit ramps to Front Street. All feasible alternatives developed for the Canadian Plaza assumed that the BWBA would acquire the Provincial lands.

## **5.0 Development and Evaluation of Alternatives**

### **5.1 Original Long List of Options**

Once the basic technical requirements for the future plaza infrastructure were identified, the challenge in developing alternatives was to strike the best compromise between the wishes and objectives of the many stakeholders and users. The preparation of preliminary layout alternatives and the discussion of these options with the plaza users generated further ideas and comments, which in turn led to more alternatives. In total, between 30 and 40 layout alternatives and sub-options were developed over the course of the project. Many of these alternatives were set aside comparatively quickly due to overriding disadvantages and few or no advantages compared to other options. It is not intended in this report to discuss this long list of options and the process for dealing with them. In Section 5.3 below, we have included a discussion of the more realistic "families of alternatives" and how this led to a short list of specific layout alternatives

Section 5.2 below does include a discussion on two alternatives that, even though they were set aside comparatively early on in the process, are worthy of documentation given that either they were perceived to be a "minimum cost" alternative or an alternative that did not require the acquisition of any Provincial lands.

### **5.2 Minimum Property and Minimum Cost Alternatives**

Section 4 discussed the BWBA initiative to acquire Provincially-owned lands west of Front Street in order to create a property envelope that could accommodate a plaza layout sufficient to handle forecasted traffic volume. It was decided, however, that as a starting point an attempt should be made to develop the best option in the event that the BWBA was unsuccessful in acquiring the Provincial lands west of Front Street. This alternative (Alternative 'J') is shown on Exhibit 6A. It will be noted that all immediate plaza operations are accommodated on the existing bridge property envelope west of existing Marina Road without the need to acquire Provincially-owned lands. For this and all alternatives, the Bridge would in the longer term need to acquire the privately owned properties on the south side of St. Clair Street. This is considered to be a reasonable assumption for all options. In addition, Alternative 'J' shows the "truck ramp" connecting the Canada Customs Commercial Facility to Highway 402 eastbound and the associated modifications to the Highway 402/Front Street Interchange together with the construction of a new Tourist Information Centre given that the existing one would be displaced by the truck ramp. Clearly these features are on Provincially-owned land. With this alternative, however, they are not considered a component of the plaza given that these features and the configuration shown are consistent with MTO's plans for Highway 402 east of Marina Road, based on their approved Highway 402 Environmental Assessment

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Report. As can be seen, this plan creates significant constraints on future plaza operations, including:

- The requirement that line-released trucks must travel through the Secondary Inspection Area to access the truck ramp and hence pre-processed and prepared trucks are inconvenienced;
- No flexibility for future expansion;
- Inferior geometrics and access locations;
- Overly restricted Auto Secondary Area; and,
- Poor layout and constrained area for the Currency Exchange.

This plan does not address many of the concerns brought up by the plaza user group. Given that the Province was amenable to negotiations regarding BWBA acquiring additional lands between Marina Road and Front Street, it was not considered necessary to pursue Alternative 'J' any further.

It was also felt appropriate early on to consider an alternative that could have been construed as a possible "minimum cost" option that salvages the majority of existing infrastructure on the plaza. Such an option is shown as Alternative 'A' on Exhibit 6B. This alternative maintains the following existing facilities on the plaza:

- Auto Primary Inspection Line;
- Truck Primary Inspection Line; and,
- The existing BWBA customs and brokerage buildings, although somewhat reconfigured.

The major reasons for rejecting this option are:

- Very complex operating (and consequently cost) implications in attempting to reconfigure the existing buildings during operating conditions;
- Restricted area and little expansion flexibility;
- Safety and operational issues for vehicles returned to the U.S.;
- Safety and security concerns over brokerage staff crossing the truck compound; and,
- Significant plaza expansion to the north with increased proximity impacts to the residences north of St. Clair Street and with major impacts on the archeologically sensitive area along the original shoreline as shown on Exhibit 6B.

### **5.3 Feasible Alternatives and Short Listing**

All alternatives developed for the Canadian Plaza of the Blue Water Bridge have observed certain "givens" or common elements. In summary, these are as follows:

- The current Duty Free Shop opened in 2001 must remain with all alternatives;
- The new BWBA Maintenance Facility opened in 2000 must also be protected with all alternatives;
- The "truck ramp" connecting the Canadian Commercial Facility to eastbound Highway 402 and associated modifications to the Front Street/Highway 402 Interchange are common to all alternatives and are consistent with MTO's recommendations for Highway 402 in this area;

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- The site of the new Tourist Information Centre is common to all alternatives and is also consistent with the Ministry's Highway 402 Transportation Environmental Study Report;
- All alternatives require the closure of Marina Road consistent with the Ministry's Highway 402 recommendations;
- All alternatives accommodate the treatment for Bridge Street as recommended in MTO's Highway 402 Report that the road be gated with the gate (and hence Bridge Street) being closed at times deemed appropriate by the OPP; and,
- Impacts on the historic shoreline through this area, which has archaeological, historical and spiritual significance to the Aamjiwnaang First Nation, a key consideration, are minimized.

About twenty "reasonable" alternative layouts for the Plaza were considered under five groupings or families of alternatives. In addition, many sub-options, such as the configuration of the Currency Exchange, the arrangement of parking areas and the layout of Auto Secondary, etc., were also considered.

Briefly, the planning process involved the setting aside of various alternatives and sub-options when major concerns without overriding advantages were identified. This process led to a short listing of four different Plaza alternatives which were subject to a more thorough analysis leading to the selection of a preferred plan. The preferred plan was then itself subject to improvements and modifications in order to optimize its performance from the points of view of the many functions on the Plaza. As noted earlier, on-plaza users, key stakeholders and the Bridge neighbours and public were involved in the process to varying degrees at different times during the study.

#### **5.4 Selection of Preferred Concept**

The four shortlisted alternatives were considered in some detail and were discussed at length with the plaza users. All these alternatives are reasonable and meet the mandatory "givens" and address the functional priorities of the plaza.

The preferred alternative is Alternative 'K1' (Exhibit 7). Canada Customs noted that K1 was significantly superior given that it assembles the truck compound, Customs and Immigration for truckers, and the brokerage representatives in one site south of the maintenance building. This enhances Customs and Immigration operations and security and also provides for an excellent and efficient route to Highway 402 for trucks released at the Primary Line. In addition, with Alternative 'K1' the Canadian Food Inspection Agency Building is located adjacent to Canada Customs Commercial: a desirable situation.

Canada Customs and Immigration also noted that the safety and security of their works is enhanced with this alternative. In addition, the geometry of Alternative 'K1' is conducive to reduced vehicle operating speeds through the plaza, thus enhancing overall safety.

K1 also has some construction staging advantages, which is a key consideration given that the plaza must be in operation 24 hours a day, 7 days a week. Clearly, with Alternative 'K1' the entire Customs Commercial Facility, including the new Agricultural

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Building, could be constructed without any impacts on existing operations. This would significantly facilitate the development of the entire plaza. K1 also provides flexibility to expand the truck compound, given that there is a comparatively large tract of land south of the existing bridges. The truck compound shown on Alternative 'K1' has been sized to meet what is expected to be the future demands. The available land in this area, however, would suggest that the compound could be expanded further should security or processing requirements so demand or should truck volume growth significantly exceed that projected over the planning period. This flexibility is not available with the other three alternatives.

Another key consideration in the development of plaza layout options was the desire to minimize impacts on the single family neighbourhood and the historic shoreline and the associated archaeological and spiritual importance to the Aamjiwnaang First Nation. The location of the Canada Customs Commercial Facility and the truck compound with Alternative 'K1' provides the opportunity to generally align the plaza to the south and minimize impacts to the north.

Another advantage of Alternative 'K1' compared to the other three shortlisted alternatives is that the location of the truck compound creates an opportunity for landscaping and visual impact mitigation between the plaza and Venetian Boulevard in the vicinity of Venetian and Mariner Villages, the Holiday Inn and adjacent uses. This was deemed an important factor in the opinion of the bridge neighbours and general public.

Consequently, taking all the above points into consideration, Alternative 'K1' was selected as the preferred alternative. The plaza users supported this decision unanimously. Furthermore, as noted elsewhere in this report, the Recommended Plan was supported during information centres with the bridge neighbours and the general public.

## **6.0 The Recommended Plan**

The Recommended Plan for the Canadian Plaza is shown on Exhibit 7. The following are key elements of the Recommended Plan:

- Provides for a new dedicated truck ramp connecting the Canada Customs Commercial Plaza with Highway 402 eastbound thus allowing trucks to bypass other traveler activities on the Plaza area;
- Modifications to local road connections to Highway 402 need to be carried out and these have been agreed to with the Village of Point Edward and MTO;
- The Plan is consistent with the Ministry of Transportation's current Transportation Environmental Study Report (TESR) for Highway 402 improvements in the areas;
- The current Duty Free Shop (which was opened in 2001) is maintained without modification, although parking for Duty Free visitors is enhanced;
- The Plan accommodates a new and expanded Tourist Information facility;

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- From air quality and noise points of view, there are no significant differences between the Recommended Plan and existing conditions;
- Screening and landscaping were identified as important components of the Plaza by Bridge neighbours and this will be undertaken with further input from Bridge neighbours;
- The Plan accommodates all facilities required to handle forecasted traffic growth;
- The Plan can be stage-constructed while maintaining Bridge operations; Exhibit 7 shows the Recommended Plan superimposed on the existing plaza using an air photo as a base. This clearly illustrates the ability to stage construct the Recommended Plan.
- Operational and security issues with respect to the interrelationship between Plaza users are well addressed; and,
- The Plan enhances the overall security of Plaza infrastructure.

## **7.0 Concluding Thoughts**

The planning project documented in this paper combined sound technical analysis and pro-active stakeholder consultation in preparing a Master Plan for the Canadian Plaza of the Blue Water Bridge. The Plan addresses the growing demands of Canada-U.S. traffic and evolving border operating policies.

Specific Plaza operational issues were identified and used as input to develop alternative plaza layouts which ultimately resulted in the development of the recommended plan creating an optimum balance in terms of meeting the requirements of the various users and stakeholders.

In developing the BWB Canadian Plaza Master Plan, about twenty alternative plaza layouts were considered including many sub-options. These included layouts of primary and secondary configuration of buildings and parking areas. A screening assessment of the long list of alternatives led to a detailed analysis of a short listing of four alternatives and the selection of a preferred layout.

The recommended Plan fulfils the goals and objectives set out at the beginning of the project and provides the BWBA with a master plan to meet future border needs. In fact, the BWBA is currently embarking in a multi-year design and construction program in expanding the Canadian Plaza based on this master plan.

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Exhibit 1 - Trade Corridors





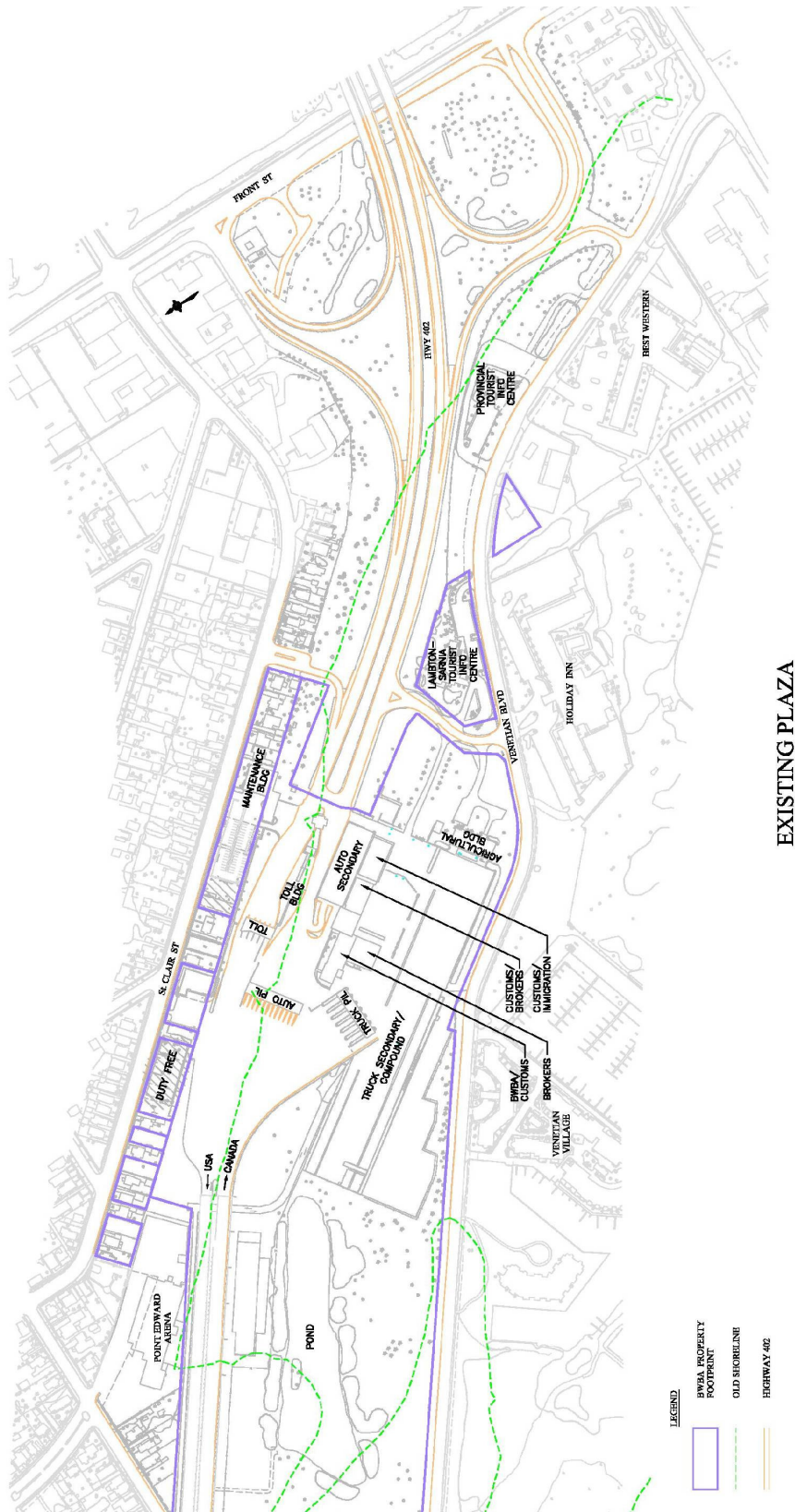
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*Exhibit 2 – Plaza Context*



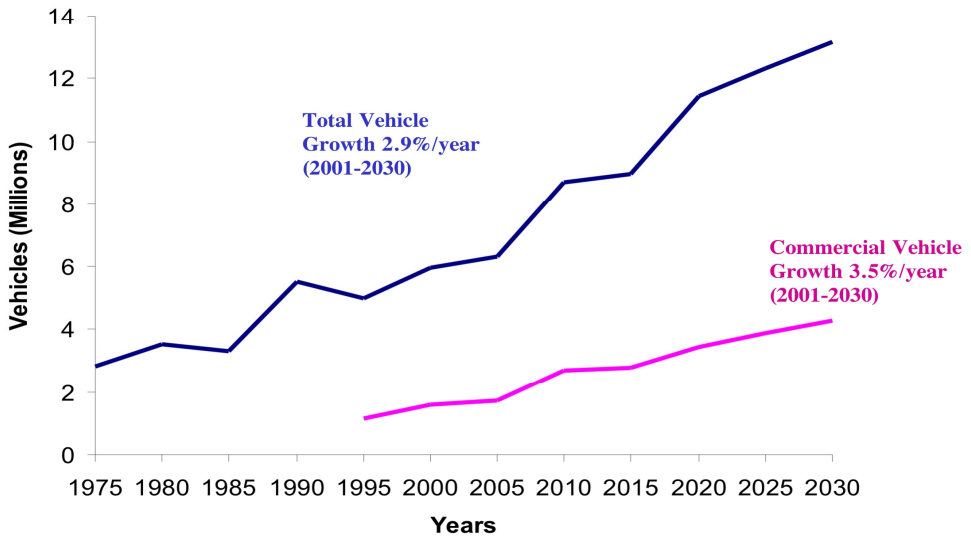
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*Exhibit 3 – Existing Plaza*



*Exhibit 4 – Traffic Growth*

### Historic & Forecast Blue Water Bridge Traffic Flows



*Exhibit 5 – Summary of Infrastructure Needs*

### Future Plaza Needs

Based on traffic forecasts, if there is no expansion of the existing facilities, the potential queue (back-up) in 2020 could be as follows:

POTENTIAL QUEUE		
	Existing	Queue (Year 2020)
Auto Inspection	10 booths	> 1.5 km
Truck Inspection	7 booths	> 2 km
Toll Lanes	5 booths	> 10 km

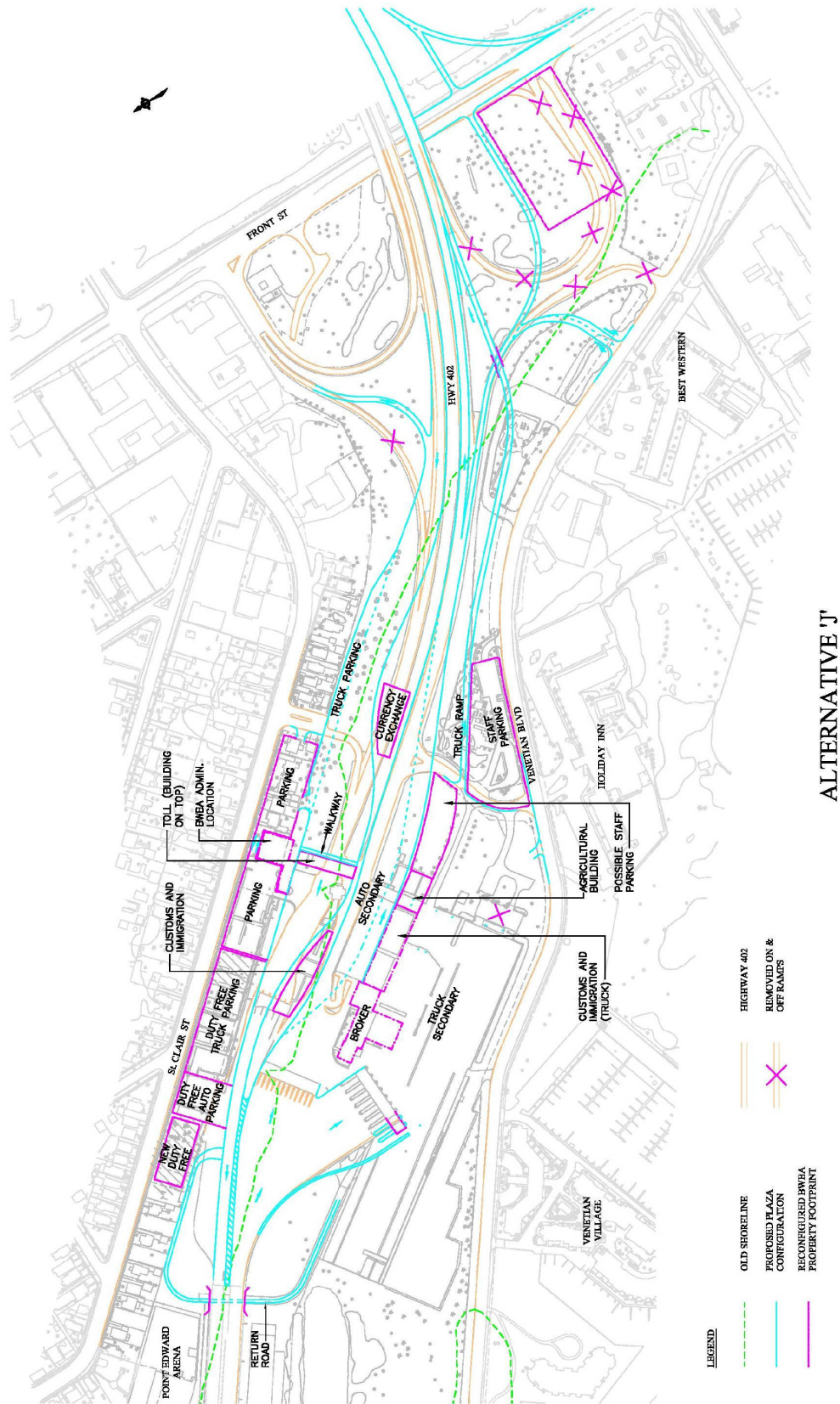
Such queues and delays would create unacceptable economic, safety and environmental impacts.

Based on future forecasts, the inspection and toll requirements have been determined as follows:

Design Elements	Existing	Future
<b>Auto</b>		
Primary Inspection Booths	9 + 1 'NEXUS' (and 2 Not Used)	14
Secondary Inspection Spaces	35	45 +/-
<b>Trucks</b>		
Primary Inspection Booths	7	10
Secondary Inspection Bays	5	6
Truck Compound Spaces	100	75 +/-
<b>Toll</b>		
Auto	5 (and 1 Not Used) including: 2 autos, 2 trucks & 1 shared	11 including: 6 autos & 5 trucks
Truck		

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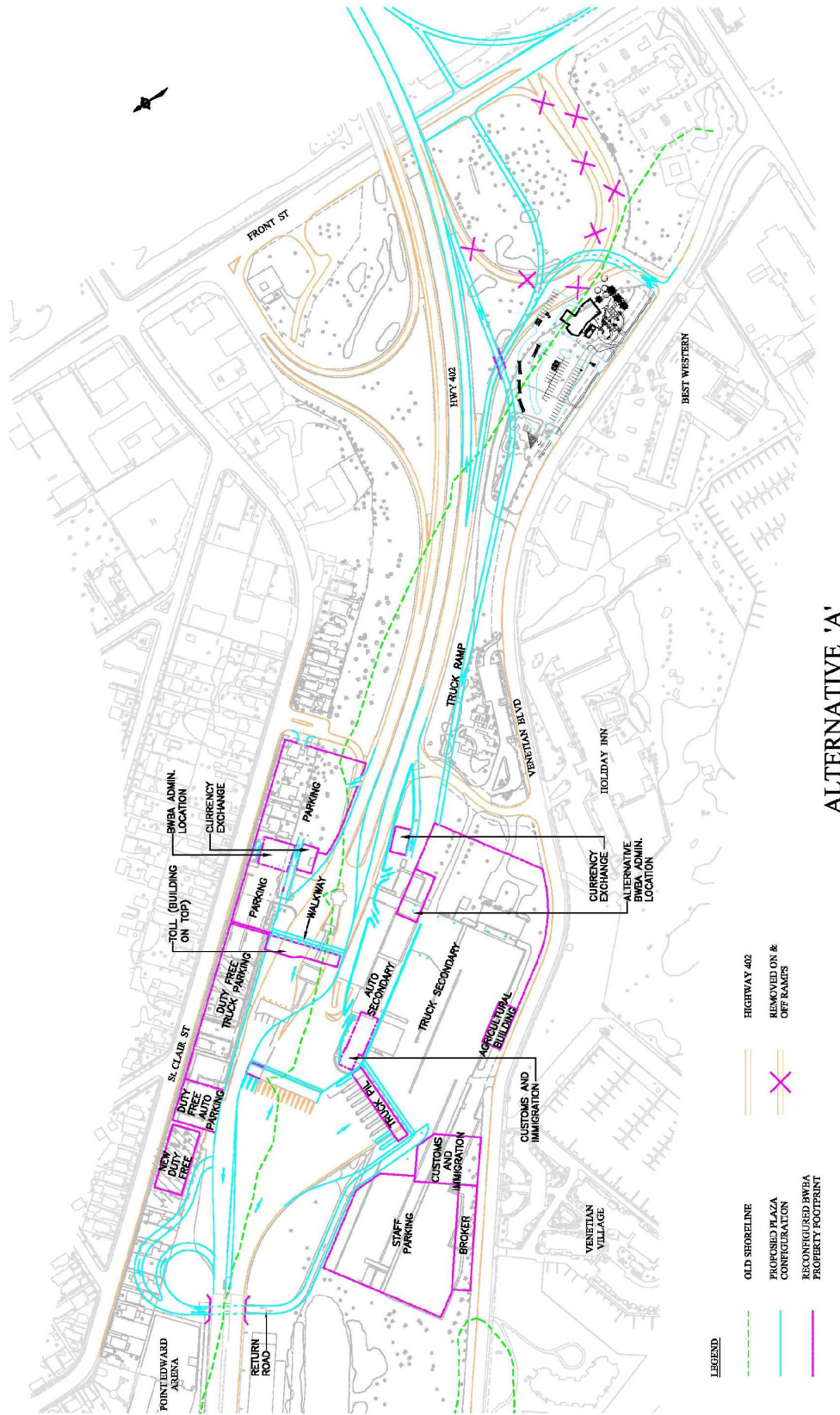
Exhibit 6A – Concept Layouts – Alternative 'J'



ALTERNATIVE 'J'

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*Exhibit 6B – Concept Layouts – Alternative 'A'*



**ALTERNATIVE 'A'**

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Exhibit 7 – Recommended Plan – Alternative 'K1'

