

Ontario Ministry of Transportation

**Pelee Island Transportation Needs Study -**

Generation and Selection of Alternatives for a 20-Year Transportation Strategy  
from 2012 to 2032

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# 1. Introduction

## 1.1 Study Background

The Township of Pelee consists of nine islands being Pelee Island, North Harbour Island, Middle Sister Island, Middle Island, East Sister Island, Hen Island, Chick Island, Big Chick Island and Little Chick Island. Pelee Island is the only inhabited island in the township. The northern tip of Pelee Island is located approximately 26 kilometres (km) south of the Municipality of Leamington, in the western basin of Lake Erie and approximately the same latitude as the Ohio-Michigan border. The largest Lake Erie island, Pelee Island is 14.5 km long and 5.6 km wide and comprises approximately 10,000 acres with about 6,400 acres of arable land. Much acreage is dedicated to conservation and natural heritage, which includes tourist attractions for bird watchers, hunters and eco-tourism activities.

Pelee Island is accessible from mainland Ontario and Ohio, US by ferry and air services and personal watercraft. The Ontario Ministry of Transportation (MTO) provides ferry services via Leamington (April – August) and Kingsville (August – December), Ontario, Sandusky, Ohio, US and Pelee Island's West Dock. Currently ferry trip distance to Pelee Island from mainland Ontario and the US are roughly the same, as shown in **Exhibit 1-1**, at 34 km and 37 km, respectively. Note that the distance between Pelee Island's Scudder (North) Dock and mainland Ontario is approximately 26 km. Air transportation is provided by MTO during the winter months between Pelee Island Airport and Windsor, Ontario. These services provide for travel needs of Pelee Island's permanent and seasonal residents, tourists and visitors, island employees and agricultural and construction industries.

## 1.2 Study Purpose

The Pelee Island Transportation Needs Study was initiated by MTO to identify opportunities to alleviate existing capacity concerns and future constraints to transportation services provided by the province of Ontario.

The key objectives of the study are as follows:

- Identify Pelee Island transportation service problems and transportation needs;
- Consider alternatives to address those problems and transportation needs; and
- Develop a 20-year strategy for the Pelee Island transportation service.

## 1.3 Purpose of this Report

This report builds on the information provided in the 'Existing Conditions and Transportation Needs Report' prepared for this study. Fifty-eight alternatives within twelve categories were assessed and evaluation to address problems identified with the Pelee Island Transportation System. Collectively, the alternatives selected constitute a 20-year strategy for the Pelee Island Transportation System.

**Exhibit 1-1: Map of Pelee Island Ferry Service Routes**



## 2. Key Problems Associated with Transportation Services to Pelee Island

### 2.1 Identification of Key Problems

Key concerns (problems) regarding transportation services to Pelee Island identified by the study team and by the system users are provided in **Exhibit 2-1** below:

**Exhibit 2-1: Detailed List of Key Problems Regarding Pelee Island Transportation System**

Detailed List of Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
<b>Ferry System Vehicle Capacity</b>		
Ferry system vehicle-carrying capacity is insufficient to meet service demand/need, particularly with respect to semi tractor trailer trucks: <ul style="list-style-type: none"> <li>Ferry vessels do not have adequate vehicle-carrying capacity</li> <li>Jiimaan weight capacity/load line sometimes reached before vehicle deck is full due to weight of cargo on tractor trailers and large trucks</li> <li>Pelee Islander cannot carry large trucks.</li> </ul>	High	High
Excessive and last-minute cancellation of trip reservations unnecessarily wastes ferry system vehicle capacity, limits trip access for other users, and damages the Pelee Island economy.	Medium	High
Lack of readily available motorized vehicle alternatives to the private car on Pelee Island drives up demand for car capacity on the ferry system: <ul style="list-style-type: none"> <li>No on-Island public passenger service to attractions and/or activities to facilitate passengers leaving their cars on mainland.</li> </ul>	Low	Low
<b>Ferry System Reliability</b>		
Trip cancellations due to inadequate ferry system reliability are caused by inability to manoeuvre under high wind conditions and vessel mechanical breakdowns: <ul style="list-style-type: none"> <li>Jiimaan Bow thruster is inadequate under high wind conditions</li> <li>Wind/wave conditions sometimes result in the ferry docking at a different mainland Ontario port than was scheduled</li> <li>The lack of extra engines means that the ferries cannot operate through a breakdown while repairs are being made</li> <li>Use of an improved Scudder Dock/North Dock could reduce sailing cancellations under some wind conditions</li> <li>Trip cancellations hamper financial sustainability for businesses and cause reluctance of some tourists to return to the Island.</li> </ul>	High	High
The Pelee Islander is approaching the end of its service life, and will likely be withdrawn from service at the end of 2016.	High	High
Periodic loss of all early spring ferry service because the second vessel is not ready for sailing if the operational vessel breaks down.	High	High
<b>Ferry System Convenience</b>		
Long ferry trip duration: <ul style="list-style-type: none"> <li>The ferry boats have a slow service speed</li> <li>The duration of the trip between mainland Ontario and Pelee Island is longer than it would be if Scudder North Dock were utilized for a shorter travel distance.</li> </ul>	High	Medium

Detailed List of Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Inadequate communication system for advising users of ferry trip cancellation or rescheduling: <ul style="list-style-type: none"> <li>Phone line and website do not always provide up to date daily sailing status</li> <li>Travelers often left sitting in parking lot without being notified of trip delays and reason for same</li> <li>Inadequate information is provided to ferry users regarding the severity and anticipated duration of breakdowns.</li> </ul>	Medium	Medium
Some aspects of the current ferry system, or aspects of some alternatives, are inadequate or inconvenient for the users: <ul style="list-style-type: none"> <li>Ferry Vessels:                             <ul style="list-style-type: none"> <li>Lack adequate racks for bicycles</li> <li>Enclosed Jiimaan vehicle deck means that some dangerous goods cannot be carried</li> <li>Side-load Pelee Islander vehicle access makes loading / off-loading difficult, and it must be done by crew</li> <li>Jiimaan elevator is unreliable and passengers sometimes get trapped in it</li> <li>Need to refuel during daytime services causes service delays.</li> </ul> </li> <li>Ferry Schedule:                             <ul style="list-style-type: none"> <li>Inadequate number of daily trips during summer peak season and fall season</li> <li>Departure time of the last Friday evening sailing from mainland Ontario is too early for many travellers</li> <li>Inadequate number of daily trips during peak tourism season</li> <li>Inadequate on-Island time for single-day trippers from Ontario mainland.</li> <li>Schedule does not provide for U.S. ferry service in early spring and late fall weekends, May/June weekdays, or for July/August single-day return visits to the Island from the U.S.</li> <li>Schedule layout and web site difficult for some users to understand</li> <li>Refuelling during daytime services causes service delays.</li> </ul> </li> <li>Ferry Reservation and Cancellation System:                             <ul style="list-style-type: none"> <li>Users experience significant switchboard answering delays during peak booking periods (March)</li> <li>System does not allow for the purchase of roundtrip tickets, which could prevent return-trip passengers being stranded and alleviate some waiting times at the ticket booth</li> <li>Reservation system does not allow for "standbys" to eliminate low ridership when individuals cancel reservations.</li> </ul> </li> <li>Ferry Ports:                             <ul style="list-style-type: none"> <li>Limited passenger amenities (e.g., weather protection for walk-on passengers; facilities for disabled passengers; provisions for walk-on passengers with luggage; washroom facilities at the Pelee terminal)</li> <li>Design of ports requires pedestrians to cross live lanes of traffic when disembarking from the ferries at all of the terminals</li> <li>Limited parking, particularly outside border-secure area on Pelee Island</li> <li>Inadequate provision is made for individuals who have difficulties walking the far distance between the ferry and terminal</li> <li>Stakeholder perception that border security provisions are unnecessarily interfering with West Dock operation during off-season when no US service is provided (perception that security provisions in the US interfere to a lesser degree)</li> </ul> </li> <li>Signage, maps and schedules are confusing to some tourists because only one of the two mainland Ontario ports is in service at any time.</li> </ul>	Medium	Medium
Provision of ferry service to the U.S. greatly decreases flexibility for ferry service to the Ontario mainland, with respect to vessel alternative selection, schedule and Pelee Island port location.	Not determined	Medium

Detailed List of Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
<b>Ferry System Cost</b>		
Changes in ferry service schedule, capacity, cost, or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors.	High	High
High MTO implementation cost for some alternatives.	Low	High
High MTO annual operational cost for some alternatives: <ul style="list-style-type: none"> <li>• Fuel consumption for the trip between mainland Ontario and Pelee Island is higher than it would be if Scudder North Dock were utilized for a shorter travel distance.</li> </ul>	Medium	Medium

Additional information is available in the 'Existing Conditions and Needs Assessment Report' prepared for this study.

### 3. Overview of Alternatives and the Process for their Evaluation

#### 3.1 Identification of Alternatives

A set of 58 alternatives within 12 categories were carried forward for consideration in addressing the concerns identified in Section 2 of this report. The 12 categories of alternatives are the following:

1. M.V. Pelee Islander replacement alternatives;
2. M.V. Jiimaan major vessel improvement alternatives;
3. Sandusky U.S. ferry service alternatives;
4. Ferry schedule trip frequency/timing alternatives;
5. Ferry reservation and cancellation alternatives (applies to vehicles only);
6. Communications alternatives with ferry system users;
7. Pelee Island port location alternatives;
8. Ontario mainland port location alternatives;
9. Ontario ports facilities alternatives;
10. Vessel preparedness alternatives for early spring sailing season;
11. On-Island transit alternatives; and
12. Island winter transportation service alternatives.

A list of the 58 alternatives carried forward for assessment and evaluation is provided in **Exhibit 3-1** below:

**Exhibit 3-1: Summary List of Alternatives Carried Forward for Assessment and Evaluation**

Pelee Island Transportation System Alternatives
<b>1. M.V. Pelee Islander Replacement Alternatives</b>
1(a) Replace the Pelee Islander with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with length similar to the existing vessel
1(b) Replace the Pelee Islander with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions
1(c) Replace the Pelee Islander with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp, and with hull dimensions maximized to suit existing Ontario docking facilities
1(d) Replace the Pelee Islander with a new combined passenger / car / truck roll-on roll-off ferry that is "open flat deck self-propelled barge" type, and has hull dimensions maximized to suit existing Ontario docking facilities
1(e) Enhance the Pelee Islander replacement alternatives by increasing service speed to 18 knots (for each of alternatives 1(b), 1(c) and 1(d))
1(f) Replace the Pelee Islander with a new "high speed" roll-on roll-off combined passenger / car / truck ferry, with hull dimensions maximized to fit existing Ontario docking facilities
1(g) Replace the Pelee Islander with a new high speed passenger-only ferry
<b>2. M.V. Jiimaan Major Vessel Improvement Alternatives</b>
2(a) Make no major improvements to the Jiimaan
2(b) Provide the Jiimaan with improved manoeuvrability through a second bow thruster
2(c) Provide the Jiimaan with improved manoeuvrability through a second bow thruster; provide propulsion system redundancy through a four-engine diesel power plant
2(d) Extend the Jiimaan for increased vehicle capacity; provide improved manoeuvrability through a second bow thruster; provide propulsion system redundancy through a four-engine diesel power plant (hull dimensions maximized to suit existing Ontario dock facilities)
2(e) Extend the Jiimaan for increased vehicle capacity; provide improved manoeuvrability through a second bow thruster; provide propulsion system redundancy through a twin-engine diesel-electric power plant including two azimuth electric stern drive units (hull

Pelee Island Transportation System Alternatives
dimensions maximized to suit existing Ontario dock facilities)
2(f) Enhance Jiimaan improvements by increasing service speed to 18 knots (for each of alternatives 2(c), 2(d) and 2(e))
2(g) Increase Jiimaan car carrying capacity by installing a hoistable car deck
Note: Jiimaan vessel alternatives 2(a) through 2(g) each include replacement of its elevator
<b>3. Two-Vessel vs. One-Vessel Ferry System Alternatives</b>
3(a) <u>Two-vessel</u> ferry system with service to <u>both U.S. and Ontario mainland</u> comprised of Pelee Islander replacement plus Jiimaan improvement alternatives (shortlisted from vessel alternative categories 1 and 2)
3(b) <u>Two-vessel</u> ferry system with service to <u>Ontario mainland only</u> comprised of Pelee Islander replacement plus Jiimaan improvement alternatives (shortlisted from vessel alternative categories 1 and 2)
3(c) <u>One-vessel</u> ferry system with service to the <u>Ontario mainland only</u> comprised of a Pelee Islander replacement with hull dimensions maximized to suit existing Ontario docking facilities ( <u>Pelee Islander replacement Alternative 1(c)</u> )
3(d) <u>One-vessel</u> ferry system with service to the <u>Ontario mainland only</u> comprised of Jiimaan with extended hull and vehicle deck, improved maneuverability, and propulsion system redundancy through a four-engine diesel power plant ( <u>Jiimaan improvement Alternative 2(d)</u> )
3(e) <u>One-vessel</u> ferry system with service to the <u>Ontario mainland only</u> comprised of Jiimaan extended hull and vehicle deck, improved maneuverability, and propulsion system redundancy through twin diesel-electric power plant ( <u>Jiimaan improvement Alternative 2(e)</u> )
<b>4. Ferry Schedule Trip Frequency/Timing Alternatives</b>
4(a) Make no significant ferry schedule changes
4(b) Increase number of daily/weekly ferry trips to provide additional ferry system vehicle carrying capacity
4(c): Delay first and last Friday Ontario mainland departure times during July and August by 2 hours so that the 8:00pm last departure time better accommodates user travel time to ports with respect to the end of a standard working day
4(d) Provide one additional return trip from the Ontario mainland during each day of Pelee Fest, and on the Friday and Monday of each of Victoria Day weekend, Canada Day weekend, Civic Holiday weekend, Labour Day weekend
4(e) During May, June and September weekends, extend the time period between first departure from Ontario mainland and last departure from Pelee Island to provide for 7.5-hour single-day visits to the Island (same as July/August), and pro-rate the additional operating cost to all Ontario mainland trip fares
4(f) Extend U.S. ferry service to include early spring and late fall weekends, May and June weekdays, and a second July/August daily return trip to allow single-day Island visits
4(g) Limit access to ferry trips between Pelee Island and the U.S. to non-commercial vehicles
<b>5. Ferry Reservation and Cancellation Alternatives (applies to vehicles only)</b>
5a) Continue current tariff / fee regime for reservations and cancellations
5(b) Require <u>5 Day</u> minimum advance notification to cancel a credit card guaranteed trip reservation without forfeiture of trip fare (increased from 48 hours)
5(c) Charge a fee to cancel each one-way trip reservation regardless of the timing of cancellation (guaranteed through credit card number provided at time of trip reservation)
5(d) At the time of a reservation or a change of reservation, charge on a credit card a non-refundable fee to reserve each one-way trip that is credited to the trip fare at time of boarding
5(e) At the time of a reservation or change of a reservation, charge on a credit card a non-refundable fee to reserve each one-way trip (not credited to trip fare)
5(f) For spring-time advance-booking of pheasant hunt sailing season trips, at the time of a reservation, charge on a credit card the full fare of each one-way trip, which is not eligible for refund in the event of a trip cancellation, and allow hunters to book their next year's trip during their hunt on the Island
5(g) For farm crop shipments only, no reservation fee, and 48 hour minimum advance notification without trip fare forfeiture. If more than 10% of annual crop shipments are cancelled less than 5 days in advance, this policy exemption to be revisited
5(h) Provide an on-request standby / call-back service in which the reservation desk advises travelers if openings occur for trips that were

<b>Pelee Island Transportation System Alternatives</b>
previously fully booked.
<b>6. Communications Alternatives With Ferry System Users</b>
6(a) Make no changes to communications processes with ferry system users
6(b) Provide additional telephones and staff for period of peak spring start-up ferry trip reservations
6(c) Provide on-line ferry trip reservations and cancellations (software specific to vessels must be developed)
6(d) Notify users of ferry trip cancellations or delays through timely recorded messages at the reservation desk and announcements at the ferry terminals
6(e) Issue "return tickets" for walk-on passengers during Pelee Fest Saturday and Sunday, on Civic Holiday Monday, and on Labour Day Monday, so fewer passengers are marooned on the Island at end of day because of vessel capacity
6(f) In the event of trip cancellations from Pelee Island, provide notification of the Legion Hall's "Golden Era" program to provide overnight accommodation to stranded users
<b>7. Pelee Island Port Location Alternatives</b>
7(a) Continue both Ontario mainland service and Sandusky U.S. service at Pelee Island's West Dock
7(b) Rebuild Pelee Island's Scudder Dock port and move both Ontario mainland service and Sandusky U.S. service to Scudder Dock
7(c) Rebuild Pelee Island's Scudder Dock port for Ontario mainland service, and leave Sandusky U.S. service at West Dock
<b>8. Ontario Mainland Port Location Alternatives</b>
8(a) Continue operating both ports on the Ontario mainland with each of Leamington and Kingsville operating for only half of the sailing season, and modify Ontario roadmap and road signs to reflect the seasonal nature of their operation.
8(b) Close Leamington and make port modifications at Kingsville that are necessary to consolidate all Ontario mainland operations in Kingsville
8(c) Close Kingsville to consolidate all Ontario mainland operations in Leamington (no port modifications necessary)
<b>9. Ontario Port Facility Alternatives</b>
9(a) Make no changes to Ontario ports for improved user convenience
9(b) Make changes to security provisions at all Ontario ports for easier access to ferries
9(c) Increase size of passenger wait area at Pelee Island West Dock
9(d) Provide more parking at Pelee Island West Dock
9(e) Provide public washrooms at Pelee Island West Dock
9(f): Provide a for-fee stevedore "valet service" to load and unload tractor trailer trucks when owner/operator not available at sailing times
<b>10. Early Spring Sailing Season Vessel Preparedness Alternatives</b>
10(a) Continue current approach of only one vessel "ready to go" during early spring sailing season
10(b) Ensure both ferry vessels are "ready to go" during early spring sailing season to provide back-up in event of mechanical breakdowns
<b>11. On-Island Transit Alternatives</b>
11(a) Continue on-Island transit as a private sector endeavour
11(b) Provide government funded on-Island transit service
<b>12. Island Winter Transportation Service Alternatives</b>
12(a) Continue to provide Island winter access through an aircraft service
12(b) Change Island winter access to a hovercraft service

### 3.2 Rationale for Order in Which Alternatives are Considered

The rationale for the order in which alternatives have been considered is the following:

1. Alternatives that address vessel vehicle carrying capacity, were addressed in the following order:
  - a) Evaluation of Pelee Islander replacement alternatives, Jiimaan major vessel improvement alternatives, and two-vessel versus one-vessel ferry system alternatives were undertaken together, because:
    - In different combinations, they collectively address each of above problems to a varying degree
    - Some vessel alternatives cannot perform some aspects of the ferry service, or they impact the number of trips required to deliver the service
    - A system approach was therefore required to undertake their evaluation.
  - b) Evaluation of ferry schedule trip frequency/timing alternatives must consider Pelee Islander replacement and Jiimaan vessel improvement, and two-vessel versus one-vessel ferry system recommendations in order to ensure that sufficient vehicle carrying capacity is provided.
  - c) Evaluation of reservation and cancellation alternatives is the last of the alternatives that affect vehicle capacity, by addressing the issue of frequent "last minute" cancellations and the resulting inefficient use of vessel capacity and its effect on the Island tourist business.
2. Because system users recognize the inter-relationship of reservation and cancellation and communications, these alternatives are considered consecutively.
3. Evaluation of Pelee Island port location alternatives must consider the recommended U.S. service alternative and its effect on overall operational costs.
4. Evaluation of Ontario port facility alternatives must consider the recommended Pelee Island port locations and recommended Ontario mainland port locations.
5. Evaluation of on-Island transit service alternatives must consider the recommended Pelee Islander replacement alternative (i.e. whether or not passenger-only).
6. Evaluation of the remaining alternatives is independent of the other alternatives that are recommended.

### 3.3 Process for the Assessment and Evaluation of Alternatives

For each category of alternatives, the process for assessment and evaluation was composed of the following steps:

- identification of the assumptions for the assessment and evaluation for most categories of alternatives;
- identification of alternatives, and for many categories, an initial screening which resulted in a short-list of alternatives carried forward;
- background issues/constraints that may be associated with the category of alternatives;
- a description and assessment of each alternative carried forward, which includes:
  - description and comments;
  - costs for vessel and Pelee Island port location alternatives only; and
  - the degree of impact each alternative would have on the transportation problems identified in Section 2.1 of this report.
- a comparative evaluation of alternatives within each category that considered all of the above; and
- selection of a recommended set of alternatives that was based on all of the above.

## 4. M.V. Pelee Islander Vessel Replacement Alternatives

### 4.1 Identification and Screening of Pelee Islander Vessel Replacement Alternatives to be Carried Forward for Assessment and Evaluation

The following Pelee Islander vessel replacement alternatives have been carried forward for assessment and evaluation:

M.V. Pelee Islander Replacement Alternatives
1(a) Replace the Pelee Islander with a new roll-on roll-off combined passenger / car / truck ferry of similar length to the existing vessel
1(b) Replace the Pelee Islander with a new moderately larger combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp
1(c) Replace the Pelee Islander with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with hull dimensions maximized to suit existing Ontario docking facilities
1(d) Replace the Pelee Islander with a new "open flat deck self-propelled barge" roll-on roll-off combined passenger / car / truck ferry, and with hull dimensions maximized to suit existing Ontario docking facilities
1(e) Replace the Pelee Islander with a new roll-on roll-off combined passenger / car / truck ferry and provide an 18 knot service speed
1(f) Replace the Pelee Islander with a new "high speed" roll-on roll-off combined passenger / car / truck ferry, with hull dimensions maximized to fit existing Ontario docking facilities
1(g) Replace the Pelee Islander with a new high speed passenger-only ferry

The alternative of rehabilitating the Pelee Islander so that it will have another 20 years of service life was not carried forward because the limitations of the current vessel with respect to current service needs do not justify the expenditure on a vessel that is nearing the end of its service life.

The key problems identified in Section 2.1 that are impacted by vessel alternatives, and the evaluation of the vessel alternatives is provided in Section 7 or this report.

### 4.2 Background Issues/Considerations Associated with Pelee Island Vessel Replacement Alternatives

#### **Ontario Ports Configuration Limits New Vessel Dimensions**

New vessel alternatives will be constrained by the current operating Ontario port facilities so that they "fit" current dock length, dock loading ramp location/dimensions, and current port navigation space/dimensions. As a result, a new ferry could have a maximum beam of 14.5 metres (same as Jiimaan), and could be a maximum length of 73 metres (12 m longer than the Jiimaan).

#### **Other New Vessel Design Considerations**

The Pelee Island Transportation Committee has requested that, with the loading ramps down, the replacement vessel for the Pelee Islander have bow and stern openings that provide an effective clearance of no less than 6.1 metres (20 feet) so that there is adequate clearance to accommodate modern farm machinery. This would not require modification of the Ontario dock facilities.

#### **Time Required to Place a New Vessel in Service**

The time required to place a new vessel in service would be approximately 60 months, comprised of the following (assuming concept design is completed as part of this study):

- pre-order engines and gearboxes – 18 months;
- develop a concept design and outline specification - 12 months;
- tender design-build contract - 18 months;
- management and supervision - 66 months; and
- construct vessel, and prepare it for commercial sailing - 24 months.

#### **Changes to Sandusky Dock Required for a New Vessel**

Changes to the Sandusky Dock would be required to accommodate a replacement ferry vessel for the Pelee Islander. Therefore these changes would have to be completed prior to commencement of its first sailing season.

#### **Some Vessel Alternatives Impact the Number of Sailing Trips**

##### Some Jiimaan Alternatives Would Not be Used for Ontario Mainland Shoulder Season Service

For Jiimaan Alternatives 2(a) and 2(b), the Jiimaan would not be used for March-through-April shoulder season trips or mid-November-through-mid-December shoulder season trips for the following reasons:

- Alternative 2(a) does not have sufficient maneuverability under high cross-wind conditions;
- Alternatives 2(a) and 2(b) do not have mechanical redundancy in the event of an engine breakdown under high wind conditions; and
- Alternatives 2(a) and 2(b) cannot sail in the spring until inspection / testing / crew training procedures associated with emergency escape chutes (see **Section 14**) have been completed after the ice is out of the lake.

Accordingly, if the service assignments of the Pelee Islander replacement vessel and one of Jiimaan Alternatives 2(a) or 2(b) are switched, the Jiimaan can be reassigned to joint U.S./ Ontario mainland late spring / summer / early fall service, but it cannot perform the Ontario mainland shoulder season service (early spring / late fall) currently performed by the Pelee Islander. As a result, if this switch in service assignments occurs, the Pelee Islander replacement vessel will still have to provide the Ontario mainland shoulder season service which averages 168 trips per year.

##### Vessels with Larger Vehicle Carrying Capacity Would Not Provide U.S. Service More Than Once Daily

This study has assumed that any vessel alternative that has a vehicle carrying capacity of 34 or more cars (the capacity of the current Jiimaan will provide service to Sandusky U.S. no more than once per day because:

- During the summer sailing season, a vessel having a capacity of 34 cars sailing only one daily round trip to the U.S. every day of the week (14 weekly one-way trips), 476 cars can be carried per week.
- By comparison, during the summer sailing season with the Pelee Islander having a capacity of 10 cars sailing two daily round trips to the U.S. Fridays and Sundays, and one daily round trip to the U.S. every other day of the week (18 weekly one-way trips), 180 cars can be carried per week.

Vessel alternatives that have a vehicle carrying capacity of 34 or more cars will therefore include elimination of one of the two daily return trips on Fridays and Sundays that are currently provided for 13 weekends each year. This results in a reduction of 13 weekends X 2 days X 2 one-way trips = 52 less one-way trips for Pelee Islander replacement alternatives 1(c), and 1(d), if they are assigned to U.S. service.

##### Impact of the Above on Number of Sailing Trips

Based on the above and on the 5-year average number of annual one-way sailing trips of the Pelee Islander (719) and the Jiimaan (1013):

- If the Pelee Islander replacement vessel remains assigned to joint U.S. / Ontario mainland late spring / summer / early fall service plus Ontario mainland shoulder season service, the average number of annual one-way sailing trips would be as follows:

- For alternatives 1(a) and 1(b): **719 trips**;
- For alternatives 1(c) and 1(d): 719 minus 52 = **667 trips**.
- If the Pelee Islander replacement vessel is reassigned to Ontario mainland late spring / summer / early fall service without Ontario mainland shoulder season service, the average number of annual one-way sailing trips for all Pelee Islander replacement alternatives would be **1013 trips**; and
- If the Pelee Islander replacement vessel is reassigned to Ontario mainland late spring / summer / early fall service PLUS Ontario mainland shoulder season service, the average number of annual one-way sailing trips for all Pelee Islander replacement alternatives would be 1013 plus 168 = **1181 trips**.

- \$971,000 if 1013 one-way trips per year (Ontario mainland service only);
- \$1,132,000 if 1181 one-way trips per year (Ontario mainland service when paired with Alternatives 2(a) or 2(b) which can't do the shoulder seasons); and
- plus \$40,000 in additional annual fees for port facilities at a different dock location in Sandusky U.S.

Note that the five (5)-year 2005 to 2009 average annual fuel + crew costs for the Pelee Islander undertaking an average of 719 one-way trips per year is \$685,000.

#### 4.3.2 Alternative 1(b): Replace the Pelee Islander with a New Moderately Larger Combined Passenger / Car / Truck Roll-On Roll-Off Ferry with Conventional Bow Visor/Stern Ramp

##### **Description and Comments**

This alternative would look much like an off-shore supply boat, and would include the following:

- Hull dimensions of 50m length and 14.5m beam
- Partially enclosed superstructure with open vehicle deck aft
- Sail area of the top sides kept to a minimum
- Two bow thrusters in same compartment, which provides bow thruster redundancy, and which provides maneuverability for high wind conditions
- Four (4) engine diesel power plant with two (2) engines per shaft line, which provides engine redundancy
- Installed engine power of 2220 KW (3000HP)
- 6.1m opening to accommodate modern farm machinery
- Variable pitch propellers
- 13 knot service speed
- Vehicle capacity of two (2) tractor trailers plus 12 cars, or 20 cars if no tractor trailers
- Passenger capacity of 196 (as per existing)
- Crew compliment of eight (8)
- "Moderate" passenger facilities
- Emergency evacuation from vehicle deck level
- Passenger elevator
- Overnight sleeping accommodation for the crew
- Bow and stern ramp hull opening able to clear 6m wide farm equipment
- Compliance with Inland Waters Class II per Transport Canada regulations
- Racks for bicycles
- To accommodate roll-on roll-off design at Sandusky requires a different dock location and dock facilities, and therefore modification of border processing if deployed to U.S. service.

##### **Cost of Vessel Replacement Alternative**

Order of magnitude key vessel implementation cost is \$45M (plus \$600,000 cost of upgrading Sandusky dock facilities at a different location if vessel deployed to U.S. service).

Estimated vessel key annual operating costs (fuel plus crew costs) are:

- \$920,000 if 719 one-way trips per year (joint U.S. / Ontario mainland service);
- \$1,398,000 if 1013 one-way trips per year (Ontario mainland service only);
- \$1,629,000 if 1181 one-way trips per year (Ontario mainland service when paired with Alternatives 2(a) or 2(b) which can't do the shoulder seasons); plus
- \$40,000 in additional annual fees for port facilities at a different dock location in Sandusky U.S.

### 4.3 Description and Assessment of Pelee Islander Vessel Replacement Alternatives

#### 4.3.1 Alternative 1(a): Replace the Pelee Islander with a New Roll-On Roll-Off Combined Passenger / Car / Truck Ferry of Similar Length to the Existing Vessel

##### **Description and Comments**

This alternative would look much like an off-shore supply boat, and would include the following:

- The hull dimensions of the Pelee Islander are 41.6m length, 9.75m beam, and 3.50m depth. The new vessel may require an increase in beam and/or depth (hence draft) to suit current stability requirements and deadweight capacity
- Partially enclosed superstructure with open vehicle deck aft
- Sail area of the top sides kept to a minimum
- Two bow thrusters in same compartment, which provides bow thruster redundancy, and which provides maneuverability for high wind conditions
- 4 engine diesel power plant with two (2) engines per shaft line, which provides engine redundancy
- Installed engine power of 888 KW (120HP)
- 6.1m opening to accommodate modern farm machinery
- Variable pitch propellers
- 12 knot service speed
- Vehicle capacity of one (1) tractor trailer plus 10 cars, or 14 cars if no tractor trailer
- Passenger capacity of 196
- Crew compliment of eight (8)
- "Limited" passenger facilities
- Emergency evacuation from vehicle deck level
- Passenger elevator
- Overnight sleeping accommodation for the crew
- Bow and stern ramp hull opening able to clear six (6)m wide farm equipment
- Compliance with Inland Waters Class II per Transport Canada regulations
- Racks for bicycles
- Would require drop-in fenders at each Ontario dock
- To accommodate roll-on roll-off design at Sandusky requires a different dock location and dock facilities, and therefore modification of border processing if deployed to U.S. service.

##### **Cost of Vessel Replacement Alternative**

Order of magnitude vessel implementation cost is \$30M (plus \$600,000 cost of upgrading Sandusky dock facilities at a different location if vessel deployed to U.S. service)

Estimated vessel key annual operating costs (fuel plus crew costs) are:

- \$689,000 if 719 one-way trips per year (joint U.S. / Ontario mainland service);

Note that the five (5)-year 2005 to 2009 average annual fuel + crew costs for the Pelee Islander undertaking an average of 719 one-way trips per year is \$685,000.

#### 4.3.3 Alternative 1(c): Replace the Pelee Islander with a New Combined Passenger / Car / Truck Roll-On Roll-Off Ferry with Conventional Bow Visor/Stern Ramp and with Hull Dimensions Maximized to Suit Existing Ontario Docking Facilities

##### **Description and Comments**

This vessel alternative includes the following:

- Hull dimensions of 73m length and 14.5m beam
- Partially enclosed superstructure with open vehicle deck aft
- Sail area of the top sides kept to a minimum
- Two bow thrusters in same compartment, which provides bow thruster redundancy, and which provides maneuverability for high wind conditions
- 4 engine diesel power plant with two (2) engines per shaft line, which provides engine redundancy
- Installed engine power of 2960 KW (4000HP)
- 6.1m opening to accommodate modern farm machinery
- Variable pitch propellers
- 13 knot service speed
- Vehicle capacity of four (4) tractor trailers plus 26 cars, or 42 cars if no tractor trailers
- Maximum passenger capacity of 389
- Crew compliment of 11 with 389 passengers and eight (8) with 196 passengers
- “Moderate” passenger facilities
- Emergency evacuation from vehicle deck level
- Passenger elevator
- Overnight sleeping accommodation for the crew
- Bow and stern ramp hull opening able to clear 6m wide farm equipment
- Compliance with Inland Waters Class II per Transport Canada regulations
- Racks for bicycles
- To accommodate roll-on roll-off design at Sandusky requires a different dock location and dock facilities, and therefore modification of border processing if deployed to U.S. service.

The Island Transportation Committee has indicated that a Sea Boat with the above attributes would achieve most of their objectives for a replacement vessel.

##### **Cost of Vessel Replacement Alternative**

Order of magnitude key vessel implementation cost is \$57M (plus \$600,000 cost of upgrading Sandusky dock facilities at a different location if vessel deployed to U.S. service).

Estimated vessel key annual operating costs (fuel plus crew costs) are:

- \$1,173,000 if 667 one-way trips per year (joint U.S. / Ontario mainland service);
- \$1,751,000 if 1013 one-way trips per year (Ontario mainland service only);
- \$2,021,000 if 1181 one-way trips per year (Ontario mainland service when paired with Alternatives 2(a) or 2(b) which can't do the shoulder seasons); plus
- \$40,000 in additional annual fees for port facilities at a different dock location in Sandusky U.S.

Note that the 5-year 2005 to 2009 average annual fuel + crew costs for the Pelee Islander undertaking an average of 719 one-way trips per year is \$686,000.

#### 4.3.4 Alternative 1(d): Replace the Pelee Islander with a New “Open Flat Deck Self-Propelled Barge” Roll-On Roll-Off Combined Passenger / Car / Truck Ferry, and with Hull Dimensions Maximized to Suit Existing Ontario Docking Facilities

##### **Description and Comments**

This alternative includes the following:

- Hull dimensions of 73m length and 14.5m beam (same as “stretched” Jiimaan)
- Fully open deck area, with exception of passenger cabin on one side, similar to Kelley’s Island Shirley Irene
- Bow and stern ramps only (no bow visor)
- Two (2) bow thrusters in same compartment, which provides bow thruster redundancy, and which provides maneuverability for high wind conditions
- Four (4) engine diesel power plant with 2 engines per shaft line, which provides engine redundancy
- Installed engine power of 2220 KW (3000HP)
- Variable pitch propellers
- 10 knot service speed
- Vehicle capacity of four (4) tractor trailers plus 22 cars, or 40 cars if no tractor trailers
- Passenger capacity of 196 (as per existing)
- Crew compliment of eight (8)
- “Minimal” passenger facilities
- Emergency evacuation from vehicle deck level
- Bow and stern ramp hull opening able to clear 6m wide farm equipment
- Compliance with Inland Waters Class II per Transport Canada regulations
- Racks for bicycles
- To accommodate roll-on roll-off design at Sandusky requires a different dock location and dock facilities, and therefore modification of border processing if deployed to U.S. service.

The Kelly Island ferry operates in waters which are considered as “sheltered” in accordance with Transport Canada regulations whereas the “Jiimaan” operates in “Inland Waters Class II”. A broad flat ramp bow is therefore a concern. Note that Kelly Island schedule has a proviso about sailing trips being contingent upon weather.

The Kelly Island sailing trip is 20 minutes versus approximately two (2) hours Ontario mainland to Pelee Island with the barge (slower than other vessels). Passenger facilities on board will therefore need to allow for the length of sailing trip. Passenger discomfort during heavy wave conditions because of “rough” ride should also be considered.

The Island Transportation Committee has indicated that it disagrees with the premise that a broad flat ramp bow is a concern with respect to the open waters of Lake Erie, but also acknowledged that Canadian regulations must be complied with. The Committee also indicated that a Sea Boat as described in Alternative 1(b) above would achieve the objectives behind their wish to have this alternative considered.

Additional benefits are manoeuvrability, low wind profile, open vehicle deck for dangerous goods. The need to provide overnight sleeping accommodation for the crew (vessel is docked overnight at Pelee Island) is not possible. Crew accommodation would need to be provided on shore.

##### **Cost of Vessel Replacement Alternative**

Order of magnitude key vessel implementation cost is \$42M (plus \$600,000 cost of upgrading Sandusky dock facilities at a different location if vessel deployed to U.S. service).

Estimated vessel key annual operating costs (fuel plus crew costs) are:

- \$1,137,000 if 667 one-way trips per year (Joint U.S. / Ontario mainland service);
- \$1,726,000 if 1013 one-way trips per year (Ontario mainland service only);
- \$2,012,000 if 1181 one-way trips per year (Ontario mainland service when paired with Alternatives 2(a) or 2(b) which can't do the shoulder seasons); plus
- \$40,000 in additional annual fees for port facilities at a different dock location in Sandusky U.S.

Note that the 5-year 2005 to 2009 average annual fuel + crew costs for the Pelee Islander undertaking an average of 719 one-way trips per year is \$686,000.

4.3.5 Alternative 1(e): Replace the Pelee Islander with a New Roll-On Roll-Off Combined Passenger / Car / Truck Ferry and provide an 18 Knot Service Speed

**Description and Comments**

This vessel alternative includes the same vessel as one of alternatives 1(a), 1(b), 1(c), or 1(d) but with increased engine power for a service speed of 18 knots.

The engines would be heavier, and much more expensive to purchase, operate and maintain.

Because of the time spent maneuvering in port, accelerating to service speed, and decelerating to docking speed, the time saving for the trip would be 15 to 20 minutes. This is not a big enough time saving to allow an additional round trip to/from the Island in an eight (8)-hour work day. These limited benefits, make it difficult to justify an increase in fuel consumption by factor of between 2.7 and 3.4 from both cost and environmental perspectives.

**Cost of Vessel Replacement Alternative**

The increase in service speed, power load, fuel consumption and annual fuel costs are provided in the following table.

Details of Increase in Service Speed to 18 knots for Alternatives 1(a), 1(b), 1(c), and 1(d)						
Alternative	Increase in Service Speed	Factor Increase of Power Load and Fuel Consumption	Increase in Fuel Consumption In Litres per One-Way 35 km Trip	Increase in Annual Fuel Cost if Vessel Replacement Continues in U.S. Service	Increase in Annual Fuel Cost if Vessel is Reassigned to Ontario Mainland Late Spring / Summer / Late Fall WITHOUT Shoulder Season	Increase In Annual Fuel Cost If Vessel Is Reassigned To Ontario Mainland Late Spring / Summer / Late Fall PLUS Shoulder Season Service
Alternative 1(a)	Increase from 12 knots to 18 knots	3.4	Increases from 280 litres to 952 litres	For 719 annual one-way trips, increases from \$163,000 to \$554,000	For 1013 annual one-way trips, increases from \$230,000 to \$781,143	For 1181 annual one-way trips, increases from \$268,000 to \$910,690
Alternative 1(b)	Increase from 13 knots to 18 knots	2.7	Increases from 800 litres to 2,160 litres	For 667 annual one-way trips, increases from \$432,000 to \$1,167,000	For 1013 annual one-way trips, increases from \$656,000 to \$1,772,000	For 1181 annual one-way trips, increases from \$765,000 to \$2,066,000
Alternative 1(c)	Increase from 13 knots to 18 knots	2.7	Increases from 1,080 litres to 2,916 litres	For 667 annual one-way trips, increases from \$583,000 to \$1,575,000	For 1013 annual one-way trips, increases from \$886,000 to \$2,393,000	For 1181 annual one-way trips, increases from \$1,033,000 to \$2,789,000
Alternative 1(d)	Increase from 10 knots to 18 knots	Considered not feasible				

Note: The service speeds of the Pelee Islander and the Jiimaan are 11.5 knots and 12.5 knots respectively

Because of the considerable ongoing operational cost premium associated with fuel consumption and engine maintenance for this alternative it is not considered feasible. Accordingly, implementation costs and staff costs, and were not prepared.

4.3.6 Alternative 1(f): Replace the Pelee Islander with a New “High Speed” Roll-On Roll-Off Combined Passenger / Car / Truck Ferry, with Hull Dimensions Maximized to Fit Existing Ontario Docking Facilities

**Description, Comments and Costs**

This alternative would have water jet propulsion and a hull design that is either:

- Incat wave piercing design with a service speed of 37 knots; or
- a Catamaran similar to “Scruton Marine” PV 2021 with a service speed of 28 knots

In both cases, the engines would be heavier, and much more expensive to purchase, operate and maintain.

Given the restriction in beam and length to avoid major modifications to the Ontario ports, a catamaran designed for trucks, cars and passengers would have a carrying capacity of approximately 60% of a mono hull of same overall dimensions

All high speed craft tend to be of aluminum construction for weight saving purposes. Hull repair costs then also become a factor in maintenance. Because of the light-weight aluminum hull, this alternative could not be operated in early spring or late fall as can the Pelee Islander when there is floating ice conditions.

At speeds actually required in the Pelee Island service the water jet becomes less efficient than conventional propellers.

The issue of higher fuel consumption with higher service speed is discussed in Section 4.3.5. Because of the considerable ongoing operational cost premium associated with fuel consumption and engine maintenance, and the associated environmental concerns for this alternative it is not considered feasible. Accordingly, key design details, implementation costs, fuel costs and staff costs were not prepared.

#### 4.3.7 Alternative 1(g) Replace the Pelee Islander with a New High Speed Passenger-Only Ferry

##### **Description, Comments and Costs**

High speed passenger-only ferry alternatives are:

- Catamaran Water Jet Propelled (e.g. Jet Express – Incat Designs – Gladding Hearn Shipbuilder, which has a typical service speed of 30.4 knots / 35 mph);
- High Speed Mono Hull; and
- Hydro Foil.

Because of the time spent maneuvering in port, accelerating to service speed, and decelerating to docking speed, a service speed of approximately 30 knots could reduce the time by half.

A high speed passenger-only ferry vessel could become part of the “tourist experience” (an attraction in itself) for increased Pelee tourism. Increased speed could mean more trips possible each day to/from Pelee than would a “standard” second vehicle-carrying ferry, and the shorter trip might increase interest of casual tourist to go to Pelee Island.

The Pelee Island Transportation Committee has indicated that:

- This alternative must be paired with reliable on-Island transit to move tourist around Island so that tourists/passengers aren’t “marooned” at the Island port without a car. However, MTO is not in the business of operating or providing ongoing funding for municipal transit, and Pelee Island doesn’t have the tax base to support it;
- This alternative would have to include an easily accessible location for passengers to stow their baggage (as on a train) and easily accessible carts to get baggage from port parking area to vessel (currently a challenge given the walking distance from terminal to dock at each port);
- With this alternative the Jiimaan would have to be reserved for Ontario mainland service only (because of high demand for movement of trucks and cars) and that the high speed passenger only ferry would service both U.S. and Ontario mainland. However, Transportation Committee indicated that the lack of vehicle service to the U.S. and the challenges of obtaining private sector U.S. carrier access for carrying vehicles to MTO ports are a serious concern with respect to this alternative. They also expressed concern about so many people arriving with no personal on-Island transportation coupled with the fact that most of the Island attractions and services are widely spaced and distanced from the ports; and
- Given the above, more of their objectives for the service might be attained through a combined passenger / truck / car ferry (see alternatives 1(e)) that is capable of service speed of 18 knots (like the M.V. Confederation operated in P.E.I. by Wood Island / Northumberland Ferries, but smaller), which is an increase from the Jiimaan service speed of 12.5 knots.

With this alternative there is a net reduction of vehicle carrying capacity, and there would be no vehicle-carrying capacity to Pelee Island if the Jiimaan breaks down.

With this alternative there is the need to consider concerns that:

- a high speed ferry would be susceptible to more weather-related trip cancellations;
- there would be passenger discomfort during heavy wave conditions (because of rough ride);
- high speed passenger vessels are costly to operate (fuel) and high speeds are only possible in relatively calm waters;
- no overnight sleeping accommodation for the crew (would need to be provided onshore);
- no vehicle capacity for U.S. service;

- because of the high cost and high financial risk, trip fares would need to be increased; and
- passenger utilization a key issue; available statistics for the Pelee Island service do not currently indicate a high walk-on capacity requirement; and such a service requires some reasonable guarantee of passenger utilization.

Should a vessel of this type be introduced in the service it will be classed as Inland Waters Class II and will need to meet all current requirements of Transport Canada for Stability, Fire Fighting and Lifesaving.

Should a High Speed Passenger Only Ferry service be selected, the Jiimaan would need modifications to provide increased maneuverability and propulsion system redundancy (see Alternatives 2(c-e)) because it would likely be the only ferry sailing during “shoulder seasons” (needed to carry vehicles). Unfortunately, the Jiimaan hull construction does not allow it to be operated under conditions of floating ice, so the shoulder season service would have to be shortened.

Because there is an overall reduction of ferry service vehicle carrying capacity, high speed cannot be reasonably maintained under high wave conditions, and most people need a car while on the Island because its attractions and services are for the most part widely spaced and distanced from the ports, this alternative is not considered feasible. Accordingly, key design details, implementation costs, fuel costs, staff costs, and life cycle costs were not prepared for this vessel alternative.

## 5. M.V Jiimaan Major Vessel Improvement Alternatives

### 5.1 Identification and Screening of Jiimaan Major Vessel Improvement Alternatives to be Carried Forward for Assessment and Evaluation

The following Jiimaan major vessel improvement alternatives have been carried forward for assessment and evaluation:

M.V. Jiimaan Major Vessel Improvement Alternatives
2(a) Make no major improvements to the Jiimaan
2(b) Improve Jiimaan manoeuvrability by installing an additional bow thrusters, with no other major improvements
2(c) Improve Jiimaan manoeuvrability by installing an additional bow thruster, provide engine redundancy by installing a four-engine diesel power plant, without extending the hull
2(d) Improve Jiimaan manoeuvrability by installing an additional bow thruster, provide engine redundancy by installing a four-engine diesel power plant, and increase vehicle carrying capacity by extending the hull
2(e) Improve Jiimaan manoeuvrability by installing an additional bow thruster, provide engine redundancy by installing a twin-engine diesel-electric power plant and two azimuth electric drive units, and increase vehicle carrying capacity by extending the hull
2(f) Improve Jiimaan manoeuvrability by installing an additional bow thruster, provide engine redundancy, and increase service speed to 18 knots (for each of alternatives 3(c), 3(d) and 3(e))
2(g) Increase Jiimaan car carrying capacity by installing a single panel hoistable car deck
Note: Jiimaan vessel alternatives 2(a) through 2(g) each include replacement of its elevator

The alternative of taking the Jiimaan out of service and replacing it with a new vessel was not carried forward, because its problems can be reasonably addressed, and it has an anticipated remaining life expectancy of another 20 years.

The key problems identified in Section 2.1 that are impacted by vessel alternatives, and the evaluation of the vessel alternatives is provided in Section 7 or this report.

### 5.2 Background Issues/Considerations Associated with Jiimaan Major Vessel Improvement Alternatives

#### *Jiimaan Condition*

The Jiimaan was built in 1992, and is primarily in “like-new” condition. Given its condition, and the fact that the vessel is in service for only approximately seven months per year in fresh water, it is reasonable to expect that the Jiimaan has a future lifespan extending to 2032 and possibly 2037.

#### *Ontario Ports Configuration Limits Vessel Dimensions*

If the Jiimaan is lengthened to provide space for additional vehicles and space for additional engines, the vessel lengthening will be constrained by the dimensions of the current operating Ontario port facilities, in order that the Jiimaan continues to fit current dock length, dock loading ramp location/dimensions, and current port navigation space/dimensions. As a result, the current beam of 14.5 metres must be maintained, and the current length could be increased by a maximum 12 metres to 73 metres.

#### *Other Design Considerations*

The elevator in the Jiimaan is unreliable, and passengers sometimes get stuck in it until released by the crew. It is past its useful life expectancy and needs to be replaced.

#### *Timing of Major Jiimaan Improvements*

All of the Jiimaan vessel improvement alternatives can occur during the winter period that the vessel is not in service, providing all components are available for fitting. This will ensure that the Jiimaan is ready to sail at the beginning of the next “early spring” sailing season without any loss of service time. The ideal time to implement major Jiimaan improvements is during its mandatory five-year out-of-water dry dock inspection, which must next occur during the winter of 2013 / 2014.

#### *Some Vessel Alternatives Impact the Number of Sailing Trips*

##### Some Jiimaan Alternatives Would Not be Used for Ontario Mainland Shoulder Season Service

For Jiimaan Alternatives 2(a) and 2(b), the Jiimaan would not be used for March-through-April shoulder season trips or mid-November-through-mid-December shoulder season trips for the following reasons:

- Alternative 2(a) does not have sufficient maneuverability under high cross-wind conditions; and
- Alternatives 2(a) and 2(b) do not have mechanical redundancy in the event of an engine breakdown under high wind conditions; and
- Alternatives 2(a) and 2(b) cannot sail in the spring until inspection / testing / crew training procedures associated with emergency escape chutes (see Section 14) have been completed after the ice is out of the lake.

Accordingly, if the service assignments of the Pelee Islander replacement vessel and one of Jiimaan Alternatives 2(a) or 2(b) are switched, the Jiimaan can be reassigned to joint U.S./ Ontario mainland late spring / summer / early fall service, but it cannot perform the Ontario mainland shoulder season service (early spring / late fall) currently performed by the Pelee Islander. As a result, if this switch in service assignments occurs, the Pelee Islander replacement vessel will still have to provide the Ontario mainland shoulder season service which averages 168 trips per year.

##### Some Jiimaan Alternatives Could be used for Ontario Mainland Shoulder Season Service

Jiimaan Alternatives 2(c), 2(d) and 2(e) could be used for March-through-April shoulder season trips or mid-November-through-mid-December shoulder season trips for the following reasons:

- with a second bow thruster, these Jiimaan alternatives have sufficient maneuverability under high cross-wind conditions;
- with engine redundancy, these Jiimaan alternatives can continue to sail in the event of an engine breakdown under high wind conditions; and
- with a modified passenger evacuation system, there is no spring service start-up delay due to inspection / testing / crew training procedures.

##### Vessels with Larger Vehicle Carrying Capacity would not Provide U.S. Service More than Once Daily

This study has assumed that any vessel alternative that has a vehicle carrying capacity of 34 or more cars (the capacity of the current Jiimaan will provide service to Sandusky U.S. no more than once per day because:

- During the summer sailing season, a vessel having a capacity of 34 cars sailing only one daily round trip to the U.S. every day of the week (14 weekly one-way trips), 476 cars can be carried per week.
- By comparison, during the summer sailing season with the Pelee Islander having a capacity of 10 cars sailing two daily round trips to the U.S. Fridays and Sundays, and one daily round trip to the U.S. every other day of the week (18 weekly one-way trips), 180 cars can be carried per week.

Vessel alternatives that have a vehicle carrying capacity of 34 or more cars will therefore include elimination of one of the two daily return trips on Fridays and Sundays that are currently provided for 13 weekends each year. This results in a reduction of 13 weekends X 2 days X 2 one-way trips = 52 less one-way trips for all Jiimaan major vessel improvement alternatives, if the Jiimaan is assigned to U.S. service.

#### Impact of the Above on Number of Sailing Trips

Based on the above and on the five (5)-year average number of annual one-way sailing trips of the Pelee Islander (719) and the Jiimaan (1013):

- If any Jiimaan alternative remains assigned to Ontario mainland late spring / summer / early fall service without Ontario mainland shoulder season service, the average number of annual one-way sailing trips would remain at **1013 trips**.
- If Jiimaan Alternatives 2(d) or 2(e) are assigned to Ontario Mainland late spring / summer / early fall PLUS Ontario mainland shoulder season trips, the average number of annual one-way sailing trips would be 1013 plus 168 = **1181 trips**.
- If any Jiimaan alternative is reassigned to joint U.S. / Ontario mainland late spring / summer / early fall service PLUS Ontario mainland shoulder season service, the average number of annual one-way sailing trips would remain at **719 trips**.
- If any Jiimaan alternative is reassigned to joint U.S. / Ontario mainland late spring / summer / early fall service without Ontario mainland shoulder season service, the average number of annual one-way sailing trips would be 719 – 168 = **551 trips**

### 5.3 Description and Assessment of Jiimaan Major Vessel Improvement Alternatives

#### 5.3.1 Alternative 2(a): Make No Major Improvements to the Jiimaan

##### **Description and Comments**

Other than minor enhancements associated with the ongoing operation of the vessel, this alternative involves the status quo:

- Retain hull dimensions of 61m length and 14.5m beam
- Retain one bow thruster, which allows the vessel to maneuver in a maximum 20 knot cross-wind, and which provides no bow thruster redundancy
- Retain two diesel engines with one engine per shaft, which provides no engine redundancy (not permitted to sail on one engine/shaft by Transport Canada regulations)
- Retain installed propulsion power of 2280KW (3056HP)
- Retain 12.5 knot service speed
- Retain vehicle capacity of two (2) tractor trailers plus 25 cars, or 34 cars (provided within load line limitations)
- Retain passenger capacity of 385
- Retain crew compliment of 15 (which vessel design requires for emergency response)
- Replace elevator cab and mechanism in the existing trunk
- Provide racks for bicycles
- To accommodate roll-on roll-off design at Sandusky, requires a different dock location and dock facilities, and therefore modification of border processing if deployed to U.S. service.

This alternative addresses none of the problems identified for the Jiimaan.

##### **Cost of Vessel Alternative**

Order of magnitude key vessel implementation cost is \$300,000 (plus \$600,000 cost of upgrading Sandusky dock facilities at a different location if vessel deployed to U.S. service).

Estimated vessel key annual operating costs (fuel plus crew costs) are:

- \$1,169,000 if 551 one-way trips per year (Joint U.S. / Ontario mainland service without shoulder season)
- \$2,149,000 if 1013 one-way trips per year (Ontario mainland service only – same as current); plus
- \$40,000 in additional annual fees for port facilities at a different dock location in Sandusky U.S.

#### 5.3.2 Alternative 2(b): Improve Jiimaan Manoeuvrability by Installing an Additional Bow Thruster, with No Other Major Improvements

##### **Description and Comments**

This alternative involves:

- Retain hull dimensions of 61m length and 14.5m beam
- Provide an additional bow thruster in the same compartment, which would allow vessel to maneuver in 28 knot cross-winds, and which would provide bow thruster redundancy
- Increase genset capacity in order to power the additional thruster
- Retain two (2) diesel engines with one engine per shaft, which provides no engine redundancy (not permitted to sail on one engine/shaft by Transport Canada regulations)
- Retain installed propulsion power of 2280kW (3056HP)
- Retain 12.5 knot service speed
- Retain vehicle capacity of two (2) tractor trailers plus 25 cars, or 34 cars (provided within load line limitations)
- Retain passenger capacity of 385
- Retain crew compliment of 15 (which vessel design requires for emergency response)
- Replace elevator cab and mechanism in the existing trunk
- Provide racks for bicycles
- To accommodate roll-on roll-off design at Sandusky, requires a different dock location and dock facilities, and therefore modification of border processing if deployed to U.S. service.

The time required to install a second bow thruster for the Jiimaan would be 19 months, based upon the following:

- complete design – three (3) months;
- pre-order bow thruster and two new generators – six (6) months;
- tender contract – six (6) months;
- management and supervision - 19 months; and
- install (includes switchboard and panel modules during dry docking – five (5) months.

##### **Cost of Vessel Alternative**

Order of magnitude key vessel implementation cost is \$2.1M (plus \$600,000 cost of upgrading Sandusky dock facilities at a different location if vessel deployed to U.S. service).

Estimated vessel key annual operating costs (fuel plus crew costs) are:

- \$1,169,000 if 551 one-way trips per year (Joint U.S. / Ontario mainland service without shoulder season);
- \$2,149,000 if 1013 one-way trips per year (Ontario mainland service only – same as current); plus
- \$40,000 in additional annual fees for port facilities at a different dock location in Sandusky U.S.

### 5.3.3 Alternative 2(c) Improve Jiimaan Manoeuvrability by Installing an Additional Bow Thruster, Provide Engine Redundancy by Installing a Four-Engine Diesel Power Plant, Without Extending the Hull

#### **Description and Comments**

This alternative involves:

- Retain hull dimensions of 61m length and 14.5m beam
- Provide an additional bow thruster in the same compartment, which would allow vessel to manoeuvre in 28 knot cross-winds, and which would provide bow thruster redundancy
- Increase genset capacity in order to power the additional thruster
- Remove two (2) existing diesel engines and replace with four (4) engines of smaller dimensions and same horsepower, with two (2) engines per shaft line, which provides engine redundancy, and retains total Installed propulsion power of 2280KW (3056HP)
- Install new gearboxes
- Replace controllable pitch (CP) propeller units and shaft lines to be compatible with new gearboxes
- Retain 12.5 knot service speed
- Retain vehicle capacity of two (2) tractor trailers plus 25 cars, or 34 cars (provided within load line limitations)
- Retain passenger capacity of 385
- Retain crew compliment of 15 (which vessel design requires for emergency response)
- Remove existing elevator and install a new elevator in a different location (elevator must be moved to accommodate four (4) diesel engines)
- Modified passenger evacuation system
- Provide racks for bicycles
- To accommodate roll-on roll-off design at Sandusky requires a different dock location and dock facilities, and therefore modification of border processing if deployed to U.S. service.

The time required to undertake Jiimaan major vessel improvements for Alternative 2(d) would be 34 months (requiring management and supervision), comprised of the following:

- pre-order engines, gearboxes, generators - 18 months;
- complete design - six (6) months (concurrent with item (i));
- tender contract – six (6) months (concurrent with item (i), following Item (ii));
- contractor fabrication and installation phase 1 (first winter) – five (5) months;
- contractor fabrication and installation phase 2 (second winter) – five (5) months; and
- complete improvements, and prepare vessel for commercial sailing - five (5) months.

#### **Cost of Vessel Alternative**

Order of magnitude key vessel implementation cost is \$13.25M (plus \$600,000 cost of upgrading Sandusky dock facilities at a different location if vessel deployed to U.S. service)

Estimated vessel key annual operating costs (fuel plus crew costs) are:

- \$1,415,000 if 667 one-way trips per year (Joint U.S. / Ontario mainland service with shoulder season)
- \$2,149,000 if 1013 one-way trips per year (Ontario mainland service only); plus
- \$40,000 in additional annual fees for port facilities at a different dock location in Sandusky U.S.

### 5.3.4 Alternative 2(d): Improve Jiimaan Manoeuvrability by Installing an Additional Bow Thruster, Provide Engine Redundancy by Installing a Four-Engine Diesel Power Plant, and Increase Vehicle Carrying Capacity by Extending the Hull

#### **Description and Comments**

This alternative involves:

- Lengthen hull by 12 m for hull dimensions of 73m length and 14.5m beam, with the extension to provide open vehicle deck aft (which allows some dangerous goods to be carried)
- Provide an additional bow thruster in the same compartment, which would allow vessel to maneuver in 28 knot cross-winds, and which would provide bow thruster redundancy
- Increase genset capacity in order to power the additional thruster
- Remove two (2) existing diesel engines and replace with four (4) engines of same total horsepower (2280KW (3056HP)), with two engines per shaft line, which provides engine redundancy
- Install new gearboxes
- Replace controllable pitch (CP) propellers and shaft lines to be compatible with new gearboxes
- Extend shafting for full 12 m of lengthening
- Retain 12.5 knot service speed
- Increase vehicle capacity to four (4) tractor trailers plus 26 cars, or 42 cars (provided within load line limitations)
- Retain passenger capacity of 385
- Retain crew compliment of 15 (which vessel design requires for emergency response)
- Remove existing elevator and install a new elevator in a different location (elevator must be moved to accommodate four (4) diesel engines)
- Firefighting equipment and stern fire door modifications
- Modified passenger evacuation system
- Provide racks for bicycles
- To accommodate roll-on roll-off design at Sandusky requires a different dock location and dock facilities, and therefore modification of border processing if deployed to U.S. service.

It has been assumed that hull lengthening would not be undertaken without also providing both propulsion system redundancy and equipment for improved manoeuvrability under high wind conditions. Four tractor trailers can only be accommodated if two of them protrude into the extended vehicle deck.

Extension details are the following:

- The extension length would be kept open to minimize additional structure thus maximizing increased deadweight carrying capacity
- The optimum cut line for hull extension would be 75 mm aft of watertight bulkhead (WTB) frame 11 with a longitudinal cut running aft to the transom 250 mm below the vehicle deck thus keeping the existing deck intact; and
- The increase in displacement at the current load line is in the order of 300 metric tonnes. Assuming 50% of this total for additional structure gives an increase in deadweight capacity of 150 MT.

Lengthening the hull by this modest amount does not increase fuel consumption.

The time required to undertake Jiimaan major vessel improvements for Alternative 2(d) would be 34 months (requiring management and supervision), comprised of the following:

- pre-order engines, gearboxes, generators - 18 months;
- complete design – six (6) months (concurrent with item (i));

- iii. tender contract – six (6) months (concurrent with item (i), following Item (ii));
- iv. prefabricate hull section – six (6) months;
- v. contractor fabrication and installation phase 1 (first winter) – five (5) months;
- vi. contractor fabrication and installation phase 2 (second winter) – five (5) months; and
- vii. complete improvements, and prepare vessel for commercial sailing – five (5) months.

#### **Cost of Vessel Alternative**

Order of magnitude key vessel implementation cost is \$18M (plus \$600,000 cost of upgrading Sandusky dock facilities at a different location if vessel deployed to U.S. service)

Estimated vessel key annual operating costs (fuel plus crew costs) are:

- \$1,415,000 if 667 one-way trips per year (Joint U.S. / Ontario mainland service with shoulder season);
- \$2,149,000 if 1013 one-way trips per year (Ontario mainland service only – same as current); plus
- \$40,000 in additional annual fees for port facilities at a different dock location in Sandusky U.S.

#### 5.3.5 Alternative 2(e): Improve Jiimaan Manoeuvrability by Installing an Additional Bow Thruster, Provide Engine Redundancy by Installing a Twin-Engine Diesel-Electric Power Plant and Two Azimuth Electric Drive Units, and Increase Vehicle Carrying Capacity By Extending the Hull

##### **Description and Comments**

This alternative involves:

- Lengthen hull by 12 m for hull dimensions of 73m length (to accommodate azimuth units) and 14.5m beam, with the extension to provide open vehicle deck aft (which allows some dangerous goods to be carried)
- Provide an additional bow thruster in the same compartment, which would allow vessel to maneuver in 28 knot cross-winds, and which would provide bow thruster redundancy
- Increase genset capacity in order to power the additional thruster
- Remove existing gearboxes, shafts and rudders
- Keep existing diesel engines and link each of them to a generator to create two diesel-electric units, with installed propulsion power of 2280KW (3056HP). In the event that one of the diesel electric power plants breaks down, the vessel can remain in service while it is repaired, since the remaining diesel-electric power plant can safely propel the vessel a speed of approximately 10 knots
- Install two (2) azimuth units in the stern
- Retain 12.5 knot service speed
- Increase vehicle capacity to four (4) tractor trailers plus 26 cars, or 42 cars (provided within load line limitations)
- Retain passenger capacity of 385
- Retain crew compliment of 15 (which vessel design requires for emergency response)
- Replace elevator (cab and mechanism) in existing trunk
- Firefighting equipment and stern fire door modifications
- Modified passenger evacuation system
- Provide racks for bicycles
- To accommodate roll-on roll-off design at Sandusky, requires a different dock location and dock facilities, and therefore modification of border processing if deployed to U.S. service.

It has been assumed that hull lengthening would not be undertaken without also providing both propulsion system redundancy and equipment for improved manoeuvrability under high wind conditions. Four tractor trailers can only be accommodated if two of them protrude into the extended vehicle deck.

With electric drive azimuth units, manoeuvrability is substantially improved.

As with **Alternative 2(d)** extension details are the following:

- The extension length would be kept open to provide “dangerous goods” area (which will be required when the Pelee Islander is retired from service);
- The optimum cut line for hull extension would be 75 mm aft of watertight bulkhead (WTB) frame 11 with a longitudinal cut running aft to the transom 250 mm below the vehicle deck thus keeping the existing deck intact; and
- The Increase in displacement at the current load line is in the order of 300 metric tonnes. Assuming 50% of this total for additional structure gives an increase in deadweight capacity of 150 MT.

Lengthening the hull by this modest amount does not increase fuel consumption.

The time required to undertake Jiimaan major vessel improvements for Alternative 2(e) would be 29 months (requiring management and supervision), comprised of the following:

- i. pre-order engines, gearboxes, generators - 18 months;
- ii. complete design – six (6) months (concurrent with item (i));
- iii. tender contract – six (6) months (concurrent with item (i), following item (ii));
- iv. prefabricate hull section – six (6) months;
- v. complete improvements, and prepare vessel for commercial sailing – five (5) months

#### **Cost of Vessel Alternative**

Order of magnitude key vessel implementation cost is \$16.5M (plus \$600,000 cost of upgrading Sandusky dock facilities at a different location if vessel deployed to U.S. service).

Estimated vessel key annual operating costs (fuel plus crew costs) are:

- \$1,415,000 if 667 one-way trips per year (Joint U.S. / Ontario mainland service with shoulder season);
- \$2,149,000 if 1013 one-way trips per year (Ontario mainland service only); plus
- \$40,000 in additional annual fees for port facilities at a different dock location in Sandusky U.S.

#### 5.3.6 Alternative 2(f): Improve Jiimaan Manoeuvrability By Installing An Additional Bow Thruster, Provide Engine Redundancy, And Increase Service Speed To 18 Knots

##### **Description and Comments**

This vessel alternative includes the same vessel as either **2(c), 2(d) or 2(e)** but with increased engine power for a service speed of 18 knots. The engines would be heavier, and much more expensive to purchase, operate and maintain.

Because of the time spent maneuvering in port, accelerating to service speed, and decelerating to docking speed, the time saving for the trip would be 15 to 20 minutes.

**Cost of Vessel Alternative**

In order to increase the service speed from 12.5 knots to 18 knots, the power requirement would have to be increased by a factor of three (3), with fuel consumption cost increase in direct proportion. Based upon five (5)-year fuel cost averages in Section 6.3, fuel consumption and costs would increase as follows:

- For an average 35 km trip, fuel consumption would increase from 800L to 2400L;
- The cost of fuel per trip would increase from \$650 to \$1,900;
- The annual fuel cost would increase from \$66,000 to \$1,970,000 if the vessel continues Ontario mainland late spring / summer / early fall service (1013 annual one-way trips – same as current); and
- The annual fuel cost would increase from \$320,000 to \$970,000 if the vessel is reassigned to U.S summer service (499 one-way trips).

Because of the considerable ongoing operational cost premium associated with fuel consumption and engine maintenance for this alternative it is not considered feasible. Accordingly, implementation costs and staff costs were not prepared.

**5.3.7 Alternative 2(g): Increase Jiimaan Car Carrying Capacity by Installing a Single Panel Hoistable Car Deck****Description and Comments**

This alternative involves the following:

- installation of a new single-panel light-weight hoistable car deck (e.g. McGregor Ramps) in the centre section over the vehicle deck to provide for an additional 10 autos (i.e. cars only) when trucks are not carried; and
- the hoistable deck would be stowed when not in use to allow for trucks underneath (deckhead clearance over the centre section is sufficient for it to be retracted).

This alternative would not be necessary if the hull is extended for additional vehicle-carrying capacity.

Nothing bigger than a car (with nothing on its roof and with no trailer) can be accommodated under the hoistable deck when it is deployed. It would be very seldom that that the centre 2 lanes of the vehicle deck would have nothing bigger than a car with nothing on its roof and no trailer, thereby allowing deployment of the hoistable deck. Accordingly, this alternative is not recommended.

**Cost of Vessel Alternative**

Estimated cost is \$2 million. This improvement does not require the vessel to be in dry dock, and therefore work could be undertaken during any winter between sailing seasons.

Since the hoistable deck could seldom be used and is not recommended, no staff costs or life cycle costing has been prepared for this vessel improvement alternative.

## 6. Two-Vessel versus One-Vessel Ferry System Alternatives

### 6.1 Assumptions

Consideration of two-vessel versus one-vessel ferry system alternatives assumes that:

- operation of more than two ferry vessels for the Pelee Island service is not affordable;
- MTO will not subsidize private sector ferry operations; and
- the primary purpose of the Pelee Island Transportation Service is to connect Pelee Island to the rest of Ontario.

### 6.2 Identification of Two-Vessel versus One-Vessel Ferry System Alternatives to be Carried Forward for Assessment and Evaluation

The following ferry service alternatives have been carried forward for assessment and evaluation:

Two-Vessel versus One-Vessel Ferry System Alternatives
3(a) <u>Two-vessel</u> ferry system with service to <u>both U.S. and Ontario mainland</u> comprised of Pelee Islander replacement plus Jiimaan improvement alternatives (shortlisted from vessel alternative categories 1 and 2)
3(b) <u>Two-vessel</u> ferry system with service to <u>Ontario mainland only</u> comprised of Pelee Islander replacement plus Jiimaan improvement alternatives (shortlisted from vessel alternative categories 1 and 2)
3(c) <u>One-vessel</u> ferry system with service to the <u>Ontario mainland only</u> comprised of a Pelee Islander replacement with hull dimensions maximized to suit existing Ontario docking facilities (Pelee Islander replacement <u>Alternative 1(c)</u> )
3(d) <u>One-vessel</u> ferry system with service to the <u>Ontario mainland only</u> comprised of Jiimaan with extended hull and vehicle deck, improved maneuverability, and propulsion system redundancy through a four-engine diesel power plant ( <u>Jiimaan improvement Alternative 2(d)</u> )
3(e) <u>One-vessel</u> ferry system with service to the <u>Ontario mainland only</u> comprised of Jiimaan extended hull and vehicle deck, improved maneuverability, and propulsion system redundancy through twin diesel-electric power plant ( <u>Jiimaan improvement Alternative 2(e)</u> )

The alternative of a cross-lake ferry service between U.S. and Ontario mainland ports as an alternative to highway land connections around Lake Erie was not carried forward, because the purpose of the current ferry service is to provide transportation connections to Pelee Island, and the primary purpose of the U.S. component of the service is to provide Island access for cottagers and other tourists. If a broader cross-lake ferry service were to be pursued, it would have to be the subject of a separate study, most likely by a proponent other than MTO.

The key problems identified in Section 2.1 that are impacted by vessel alternatives, and the evaluation of the vessel alternatives is provided in Section 7 of this report.

### 6.3 Description and Assessment of Two-Vessel versus One-Vessel Ferry System Alternatives

6.3.1 Alternative 3(a): Two-vessel ferry system with service to both U.S. and Ontario mainland comprised of Pelee Islander replacement plus Jiimaan improvement alternatives (shortlisted from vessel alternative categories 1 and 2)

#### Description and Comments

This alternative would involve:

- One ferry providing service to the Ontario mainland only:

- either the Pelee Islander replacement vessel or the Jiimaan with vessel improvements assigned to this service.
- A second ferry providing joint U.S. / Ontario service:
  - either the Pelee Islander replacement vessel or the Jiimaan with vessel improvements assigned to this service; and
  - annual trips split balance being approximately 27% U.S. service and 73% Ontario mainland service (same as current).

This alternative would:

- be well received by a number of Pelee Island tourist businesses, as it maintains service for U.S.;
- be well received by U.S. cottage owners, since during this study a number of U.S. cottagers indicated that they felt they were “entitled” to the Sandusky U.S. ferry service because of their family history on the Island, their contribution to the municipal tax base on the Island, and their contribution to the Pelee Island economy; and
- avoid the risk of the private sector not picking up the service and thereby leaving Island access for U.S. cottagers and other tourists to be via ferry from the Ontario mainland, or via their own boats or air service from Sandusky (it is assumed that private ferry service would be more expensive than the Ontario-subsidized service).

However, this alternative:

- constrains flexibility in the selection of a replacement vessel for the Pelee Islander;
- constrains flexibility in the scheduling of ferry trips between Pelee Island and the Ontario mainland;
- tends to favour the use of West Dock (essentially equidistant between Ontario mainland and Sandusky U.S.) rather than Scudder (North) Dock (closer to the Ontario mainland but further from the U.S.) on Pelee Island;
- misses the opportunity to reduce annual ferry service operating costs paid by the province of Ontario, as a result of its subsidy of the U.S. service;
- does not align with practices at Wolfe Island in Lake Ontario, where MTO provides ferry service between the Ontario mainland and Wolfe Island, but the private sector provides the ferry service between Wolfe Island and the U.S. mainland; and
- would not be supported by some Ontario stakeholders, since during this study they indicated that Ontario taxpayers should not be subsidizing ferry service for U.S. cottage owners, particularly since there is no property tax premium for out-of-province owners as there is in many U.S. states.

6.3.2 Alternative 3(b): Two-vessel ferry system with service to Ontario mainland only comprised of Pelee Islander replacement plus Jiimaan improvement alternatives (shortlisted from vessel alternative categories 1 and 2)

#### Description and Comments

This alternative would involve:

- termination of The Pelee Island ferry service to the U.S.;
- both the Pelee Islander replacement vessel and the Jiimaan with vessel improvements providing Ontario mainland service; and
- allowing private sector carriers to provide U.S. service with no Ontario government subsidy, if they determine that this is a market they wish to pursue.

This alternative would:

- provide increased flexibility in the selection of a replacement vessel for the Pelee Islander;
- provide increased flexibility in the scheduling of ferry trips between Pelee Island and the Ontario mainland;
- simplify the decision of using Scudder (North) Dock (which is closer to the Ontario mainland) versus West Dock (which is essentially equidistant between Ontario mainland and Sandusky U.S.) on Pelee Island;
- reduce annual ferry service operating costs paid by the province of Ontario, as a result of its subsidy of the U.S. service;
- aligns with practices at Wolfe Island in Lake Ontario, where MTO provides ferry service between the Ontario mainland and Wolfe Island, but the private sector provides the ferry service between Wolfe Island and the U.S. mainland; and
- be supported by some Ontario stakeholders, since during this study they indicated that Ontario taxpayers should not be subsidizing ferry service for U.S. cottage owners, particularly since there is no property tax premium for out-of-province owners as there is in many U.S. states.

However, this alternative:

- would not be well received by a number of Pelee Island tourist businesses, since the impact due to lost U.S. customers could be considerable for some Pelee Island tourist businesses;
- would not be well received by U.S. cottage owners, since during this study a number of U.S. cottagers indicated that they felt they were “entitled” to the Sandusky U.S. ferry service because of their family history on the Island, their contribution to the municipal tax base on the Island, and their contribution to the Pelee Island economy; and
- has the risk that the private sector would not choose to provide the U.S. service, leaving Island access for U.S. cottagers and other tourists to be via ferry from the Ontario mainland, or via their own boats or air service from Sandusky. It is assumed that private ferry service would be more expensive than the Ontario-subsidized service.

6.3.3 Alternative 3(c): One-vessel ferry system with service to the Ontario mainland only comprised of a Pelee Islander replacement with hull dimensions maximized to suit existing Ontario docking facilities (Pelee Islander replacement Alternative 1(c))

#### **Description and Comments**

This alternative would involve:

- termination of The Pelee Island ferry service to the U.S;
- Pelee Islander replacement alternative 1(c) being the one vessel providing Pelee Island ferry service;
- both the Pelee Islander and the Jiimaan retired from Pelee Island transportation service; and
- allowing private sector carriers to provide U.S. service with no Ontario government subsidy, if they determine that this is a market they wish to pursue.

This alternative would:

- provide increased flexibility in the selection of a replacement vessel for the Pelee Islander;
- provide increased flexibility in the scheduling of ferry trips between Pelee Island and the Ontario mainland;
- simplify the decision of using Scudder (North) Dock (which is closer to the Ontario mainland) versus West Dock (which is essentially equidistant between Ontario mainland and Sandusky U.S.) on Pelee Island;
- reduce annual ferry service operating costs paid by the province of Ontario, as a result of its subsidy of the U.S. service;
- aligns with practices at Wolfe Island in Lake Ontario, where MTO provides ferry service between the Ontario mainland and Wolfe Island, but the private sector provides the ferry service between Wolfe Island and the U.S. mainland; and

- be supported by some Ontario stakeholders, since during this study they indicated that Ontario taxpayers should not be subsidizing ferry service for U.S. cottage owners, particularly since there is no property tax premium for out-of-province owners as there is in many U.S. states.

However, this alternative:

- would not be well received by a number of Pelee Island tourist businesses, since the impact due to lost U.S. customers could be considerable for some Pelee Island tourist businesses;
- would not be well received by U.S. cottage owners, since during this study a number of U.S. cottagers indicated that they felt they were “entitled” to the Sandusky U.S. ferry service because of their family history on the Island, their contribution to the municipal tax base on the Island, and their contribution to the Pelee Island economy; and
- has the risk that the private sector would not choose to provide the U.S. service, leaving Island access for U.S. cottagers and other tourists to be via ferry from the Ontario mainland, or via their own boats or air service from Sandusky. It is assumed that private ferry service would be more expensive than the Ontario-subsidized service.

6.3.4 Alternative 3(d): One-vessel ferry system with service to the Ontario mainland only comprised of Jiimaan with extended hull and vehicle deck, improved maneuverability, and propulsion system redundancy through a four-engine diesel power plant (Jiimaan improvement Alternative 2(d))

#### **Description and Comments**

This alternative would involve:

- termination of The Pelee Island ferry service to the U.S;
- Jiimaan vessel improvement alternative 2(d) providing Ontario mainland service; and
- the Pelee Islander retired from Pelee Island transportation service without being replaced; and
- allowing private sector carriers to provide U.S. service with no Ontario government subsidy, if they determine that this is a market they wish to pursue.

This alternative would:

- provide increased the vehicle-carrying capacity and reliability of the Jiimaan;
- provide increased flexibility in the scheduling of ferry trips between Pelee Island and the Ontario mainland;
- simplify the decision of using Scudder (North) Dock (which is closer to the Ontario mainland) versus West Dock (which is essentially equidistant between Ontario mainland and Sandusky U.S.) on Pelee Island;
- reduce annual ferry service operating costs paid by the province of Ontario, as a result of its subsidy of the U.S. service;
- be in line with practices at Wolfe Island in Lake Ontario, where MTO provides ferry service between the Ontario mainland and Wolfe Island, but the private sector provides the ferry service between Wolfe Island and the U.S. mainland; and
- be supported by some Ontario stakeholders, since during this study they indicated that Ontario taxpayers should not be subsidizing ferry service for U.S. cottage owners, particularly since there is no property tax premium for out-of-province owners as there is in many U.S. states.

However, this alternative:

- would not be well received by a number of Pelee Island tourist businesses, since the impact due to lost U.S. customers could be considerable for some Pelee Island tourist businesses;
- would not be well received by U.S. cottage owners, since during this study a number of U.S. cottagers indicated that they felt they were “entitled” to the Sandusky U.S. ferry service because of their family history

on the Island, their contribution to the municipal tax base on the Island, and their contribution to the Pelee Island economy; and

- has the risk that the private sector would not choose to provide the U.S. service, leaving Island access for U.S. cottagers and other tourists to be via ferry from the Ontario mainland, or via their own boats or air service from Sandusky. It is assumed that private ferry service would be more expensive than the Ontario-subsidized service.

6.3.5 Alternative 3(e): One-vessel ferry system with service to the Ontario mainland only comprised of Jiimaan extended hull and vehicle deck, improved maneuverability, and propulsion system redundancy through twin diesel-electric power plant (Jiimaan improvement Alternative 2(e))

**Description and Comments**

This alternative would involve:

- termination of The Pelee Island ferry service to the U.S.;
- Jiimaan vessel improvement alternative 2(e) providing Ontario mainland service;
- the Pelee Islander retired from Pelee Island transportation service without being replaced; and
- allowing private sector carriers to provide U.S. service with no Ontario government subsidy, if they determine that this is a market they wish to pursue.

This alternative would:

- provide increased the vehicle-carrying capacity and reliability of the Jiimaan;
- provide increased flexibility in the scheduling of ferry trips between Pelee Island and the Ontario mainland;
- simplify the decision of using Scudder (North) Dock (which is closer to the Ontario mainland) versus West Dock (which is essentially equidistant between Ontario mainland and Sandusky U.S.) on Pelee Island;
- reduce annual ferry service operating costs paid by the province of Ontario, as a result of its subsidy of the U.S. service;
- align with practices at Wolfe Island in Lake Ontario, where MTO provides ferry service between the Ontario mainland and Wolfe Island, but the private sector provides the ferry service between Wolfe Island and the U.S. mainland; and
- be supported by some Ontario stakeholders, since during this study they indicated that Ontario taxpayers should not be subsidizing ferry service for U.S. cottage owners, particularly since there is no property tax premium for out-of-province owners as there is in many U.S. states.

However, this alternative:

- would not be well received by a number of Pelee Island tourist businesses, since the impact due to lost U.S. customers could be considerable for some Pelee Island tourist businesses;
- would not be well received by U.S. cottage owners, since during this study a number of U.S. cottagers indicated that they felt they were “entitled” to the Sandusky U.S. ferry service because of their family history on the Island, their contribution to the municipal tax base on the Island, and their contribution to the Pelee Island economy; and
- has the risk that the private sector would not choose to provide the U.S. service, leaving Island access for U.S. cottagers and other tourists to be via ferry from the Ontario mainland, or via their own boats or air service from Sandusky. It is assumed that private ferry service would be more expensive than the Ontario-subsidized service.

## 7. Concurrent Evaluation and Selection of Pelee Islander Replacement, Jiimaan Major Improvement and U.S. Ferry Service Alternatives

### 7.1 Background Issues/Considerations

The following facts were considered:

- 5-year 2005-2009 percentage of Pelee Islander Annual Trips to U.S. =  $193/719 \times 100 = 27\%$ ;
- 5-year 2005-2009 percentage of Total Ferry System Annual Trips to U.S. =  $193 / (719 + 1013) \times 100 = 11\%$ ;
- U.S. property ownership on Pelee Island is in the range of 40% (many cottage properties have been held by the same U.S. families for several generations); and
- An analysis of 2008 travel showed that 27% of the inbound tourist visits to Pelee Island were from the Ohio mainland (seasonal residents and overnight tourists).

### 7.2 Process for Evaluation of Vessel Alternatives

The three categories of vessel alternatives were evaluated together:

- Category #1: Pelee Islander Replacement
- Category #2: Jiimaan Major Vessel Improvements
- Category #3: Two-Vessel versus One-Vessel Ferry System

The following key problems identified in Section 2.1 are impacted by the vessel alternatives carried forward.

Key Pelee Island Transportation System Problems	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Ferry system vehicle-carrying capacity is insufficient to meet service demand/need, particularly with respect to semi tractor trailer trucks: <ul style="list-style-type: none"> <li>• Ferry vessels do not have adequate vehicle-carrying capacity</li> <li>• Jiimaan weight capacity/load line sometimes reached before vehicle deck is full due to weight of cargo on tractor trailers and large trucks</li> <li>• Pelee Islander cannot carry large trucks.</li> </ul>	High	High
Trip cancellations due to inadequate ferry system reliability are caused by inability to manoeuvre under high wind conditions and vessel mechanical breakdowns <ul style="list-style-type: none"> <li>• Jiimaan Bow thruster is inadequate under high wind conditions.</li> <li>• Wind/wave conditions sometimes result in the ferry docking at a different mainland Ontario port than was scheduled</li> <li>• The lack of extra engines means that the ferries cannot operate through a breakdown while repairs are being made</li> <li>• Use of an improved Scudder Dock/North Dock could reduce sailing cancellations under some wind conditions</li> <li>• Trip cancellations hamper financial sustainability for businesses and cause reluctance of some tourists to return to the Island.</li> </ul>	High	High
The Pelee Islander is approaching the end of its service life, and will likely be withdrawn from service at end of 2016.	High	High
Long ferry trip duration: <ul style="list-style-type: none"> <li>• The ferry boats have a slow service speed</li> <li>• The duration of the trip between mainland Ontario and Pelee Island is longer than it would be if Scudder North Dock were utilized for a shorter travel distance.</li> </ul>	High	Medium
Some aspects of the current ferry system, or aspects of some alternatives, are inadequate or inconvenient for the users: <ul style="list-style-type: none"> <li>• Ferry vessels: Lack adequate racks for bicycles</li> <li>• Enclosed Jiimaan vehicle deck means that some dangerous goods cannot be carried</li> <li>• Side-load Pelee Islander vehicle access makes loading / off-loading difficult, and it must be done by crew</li> <li>• Jiimaan elevator is unreliable and passengers sometimes get trapped in it</li> <li>• Ferry vessels need to refuel during daytime services causes service delays.</li> </ul>	Medium	Medium
Changes in ferry service schedule, capacity, cost, or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors.	High	High
High MTO implementation cost for some alternatives.	Low	High
High MTO annual operational cost for some alternatives.	Medium	Medium

The rationale for evaluating these categories together was the following:

- In different combinations, they collectively address each of above problems to a varying degree
- Some vessel alternatives cannot perform some aspects of the ferry service, or they impact the number of trips required to deliver the service
- A “system approach” was therefore required to undertake their evaluation.

Evaluation of vessel alternatives was done through a sequence of four screenings. The sequence of screenings, and the benchmarks used for each screening are shown on the following page.

- 1. Vessel alternatives or combinations were screened out if they do not provide adequate weekly Ontario mainland vehicle and passenger capacity:**
- Inadequate if the increase in July/August weekly car capacity is less than 304 (what could be provided by extending the Jiimaan to the maximum length that could be accommodated at the existing Ontario dock facilities (12m))
  - Inadequate if the increase in July/August weekly transport truck capacity is less than 28 during harvest season (per the Island transportation committee).
  - Inadequate if the primary vessel providing Ontario service has a passenger capacity less than the Jiimaan

- 2. Remaining vessel alternatives or combinations were screened out if they do not provide adequate reliability to sail:**
- Jiimaan alternatives inadequate if not provided with sufficient improvement to maneuverability and propulsion system redundancy.
  - Pelee Islander replacement alternatives inadequate if they have a hull shape that is poor in heavy wave action.

- 3. Remaining vessel alternatives or combinations were screened out if they do not have an acceptable implementation cost:**
- Implementation cost unacceptable if it results in over-servicing (i.e. if an increase in July/August weekly car-carrying capacity for Ontario mainland of more than 476 cars (what could be provided by running the Jiimaan with its current vehicle capacity one more round trip each day)) at an excessive implementation cost

- 4. Remaining vessel alternatives or combinations were screened out if they don't provide as good ferry system value as other remaining alternatives**

**Remaining vessel alternative or combination is:  
BEST OVERALL ALTERNATIVE**

### 7.3 Evaluation of Vessel Alternatives

**Exhibit 7-1** provides the evaluation of two-vessel ferry alternatives with service to both U.S. and Ontario mainland.

**Exhibit 7-2** provides the evaluation of two-vessel ferry system alternatives with service to the Ontario mainland only.

**Exhibit 7-3** provides the evaluation of one-vessel ferry system alternatives with service to the Ontario mainland only.

Additional vessel evaluation detail is provided in the appendices of this report.

The colour coding above is used to highlight the application of this screening in the **Exhibits 7-1, 7-2 and 7-3** on the following pages.

**Exhibit 7-1: Evaluation of Two-Vessel Ferry System Alternatives With Service to Both U.S. and Ontario Mainland (Ferry System Alternative 3(a))**

M.V. Pelee Islander Short-Listed Replacement Alternatives (Per trip capacity of the Pelee Islander is zero "trucks", 10 cars, and 196 passengers)		M.V. Jiimaan Short-Listed Major Vessel Improvement Alternatives (Per trip capacity of the current Jiimaan is 2 "trucks", 34 cars if no "trucks", and 385 passengers)							
		Jiimaan Improvement Alternative 2(b): Provide the Jiimaan with improved maneuverability		Jiimaan Improvement Alternative 2(c): Provide the Jiimaan with improved maneuverability, and provide propulsion system redundancy		Jiimaan Improvement Alternative 2(d): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a four-engine diesel power plant		Jiimaan Improvement Alt. 2(e): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a twin-engine diesel-electric power plant with azimuth	
		"Summer" Service of Ont. Mainland Only	"Summer" Service of U.S. & Ont. Mainland	"Summer" Service of Ont. Mainland Only	"Summer" Service of U.S. & Ont. Mainland	"Summer" Service of Ont. Mainland Only	"Summer" Service of U.S. & Ont. Mainland	"Summer" Service of Ont. Mainland Only	"Summer" Service of U.S. & Ont. Mainland
Alternative 1(a): Replace the Pelee Islander With Vessel of Similar Length as Existing Vessel, with Conventional Bow Visor / Stern Ramp	"Summer" Service of U.S. & Ont. Mainland	Inadequate weekly increase in Ontario mainland capacity of "trucks" (+14 vs. +28) or cars without "trucks" (+56 vs. +304)		Inadequate weekly increase in Ontario mainland capacity of "trucks" (+14 vs. +28) or cars without "trucks" (+56 vs. +304)		Alt 1(a) provides less system value than 1(b) because has lower capacity of "trucks" (1 vs. 2) or cars if no "trucks" (14 vs. 20) @ \$15M less		Alt 1(a) provides less system value than 1(b) because has lower capacity of "trucks" (1 vs. 2) or cars if no "trucks" (14 vs. 20) @ \$15M less	
	"Summer" Service of Ont. Mainland only		Decrease in Ontario mainland weekly car and truck capacity Alt 1(a) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)		Decrease in Ontario mainland weekly car and truck capacity Alt 1(a) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)		Decrease in Ontario mainland weekly car and truck capacity Alt 1(a) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)		Decrease in Ontario mainland weekly car and truck capacity Alt 1(a) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)
Alternative 1(b): Replace the Pelee Islander With Moderately Larger Vessel, with Conventional Bow Visor / Stern Ramp	"Summer" Service of U.S. & Ont. Mainland	Inadequate weekly increase in Ontario mainland capacity of cars without "trucks" (+140 vs. +304)		Inadequate weekly increase in Ontario mainland capacity of cars without "trucks" (+140 vs. +304)		<b>BEST OVERALL COMBINATION FOR TWO-VESSEL JOINT U.S / ONT. SERVICE</b>		Alt 2(e) provides less system value than 2(d) because has less propulsion system redundancy (2 diesel electric vs. 4 diesel) @ \$1.2M less	
	"Summer" Service of Ont. Mainland only		Decrease in Ontario mainland weekly car capacity Alt 1(b) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)		Decrease in Ontario mainland weekly car capacity Alt 1(b) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)			Decrease in Ontario mainland weekly car capacity Alt 1(b) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)	
Alternative 1(c): Replace the Pelee Islander With Vessel of Hull Dimensions Maximized to Suit Existing Ont. Ports, with Conventional Bow Visor / Stern Ramp	"Summer" Service of U.S. & Ont. Mainland	Alt. 2(a) has no power plant redundancy		Less system value with 1.4 times the 304 car benchmark @ \$7.5M higher implementation cost of Alt 1(b) with Alts 2(d) or 2(e)		Don't require 4.7 times the 28 "truck" benchmark, or 2.5 times the 304 car benchmark @ \$12.1M higher implementation cost of Alt 1(b) with Alts 2(d) or 2(e)		Don't require 4.7 times the 28 "truck" benchmark, or 2.5 times the 304 car benchmark @ \$10.9M higher implementation cost of Alt 1(b) with Alts 2(d) or 2(e)	
	"Summer" Service of Ont. Mainland only		Alt. 2(a) has no power plant redundancy		Less system value with 1.4 times the 304 car benchmark @ \$7.5M higher implementation cost of Alt 1(b) with Alts 2(d) or 2(e)		Don't require 4.7 times the 28 "truck" benchmark, or 2.5 times the 304 car benchmark @ \$12.1M higher implementation cost of Alt 1(b) with Alts 2(d) or 2(e)		Don't require 4.7 times the 28 "truck" benchmark, or 2.5 times the 304 car benchmark @ \$10.9M higher implementation cost of Alt 1(b) with Alts 2(d) or 2(e)
Alternative 1(d): Replace the Pelee Islander With Open Flat Deck Self-Propelled Barge, & Hull Dimensions Maximized to Suit Existing Ont. Ports	"Summer" Service of U.S. & Ont. Mainland	Alt 1(d) has poor hull design for rough water service		Alt 1(d) has poor hull design for rough water service		Alt 1(d) has poor hull design for rough water service		Alt 1(d) has poor hull design for rough water service	
	Summer Service of Ont. Mainland only		Alt 1(d) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)		Alt 1(d) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)		Alt 1(d) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)		Alt 1(d) has inadequate passenger capacity to be primary Ontario mainland service (196 vs. 385)

Note: The colour coding used is explained in Section 7.2.

Exhibit 7-2: Evaluation of Two-Vessel Ferry System Alternatives With Service to Ontario Mainland Only (Ferry System Alternative 3(b))				
M.V. Pelee Islander Short-Listed Replacement Alternatives	M.V. Jiimaan Short-Listed Major Vessel Improvement Alternatives			
	Jiimaan Improvement Alternative 2(b): Provide the Jiimaan with improved maneuverability	Jiimaan Improvement Alternative 2(c): Provide the Jiimaan with improved maneuverability, and provide propulsion system redundancy	Jiimaan Improvement Alternative 2(d): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a four-engine diesel power plant	Jiimaan Improvement Alternative 2(e): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a twin-engine diesel-electric power plant with stern azimuth electric drive units
<b>Alternative 1(a): Replace the Pelee Islander With Vessel of Similar Length as Existing Vessel, with Conventional Bow Visor / Stern Ramp</b>	Alt 2(b) has no power plant redundancy	Alt 1(a) provides less system value than 1(b) because has lower capacity of "trucks" (1 vs. 2) or cars if no "trucks" (14 vs. 20) @ \$15M less	Alt 1(a) provides less system value than 1(b) because has lower capacity of "trucks" (1 vs. 2) or cars if no "trucks" (14 vs. 20) @ \$15M less	Alt 1(a) provides less system value than 1(b) because has lower capacity of "trucks" (1 vs. 2) or cars if no "trucks" (14 vs. 20) @ \$15M less
<b>Alternative 1(b): Replace the Pelee Islander With Moderately Larger Vessel, with Conventional Bow Visor / Stern Ramp</b>	Alt 2(b) has no power plant redundancy	Alt 2(c) provides less system value than 2(d) because has lower capacity of cars (34 vs. 42) and trucks(4 vs. 2) @ \$4.6M less	<b>BEST OVERALL COMBINATION FOR TWO-VESSEL ONTARIO-ONLY SERVICE</b>	Alt 2(e) provides less system value than 2(d) because has less propulsion system redundancy (2 diesel electric vs. 4 diesel) @ \$1.2M less
<b>Alternative 1(c): Replace the Pelee Islander With Vessel of Hull Dimensions Maximized to Suit Existing Ont. Ports, with Conventional Bow Visor / Stern Ramp</b>	Alt 2(b) has no power plant redundancy	Don't require 4 times the 28 "truck" benchmark, or 3.4 times the 304 car with no "truck" benchmark @ \$8.9M higher implementation cost of combinations with 1(b)	Don't require 6.7 times the 28 "truck" benchmark, or 4.4 times the 304 car with no "truck" benchmark @ \$13.5M higher implementation cost of combinations with 1(b)	Don't require 6.7 times the 28 "truck" benchmark, or 4.4 times the 304 car with no "truck" benchmark @ \$12.3M higher implementation cost of combinations with 1(b)
<b>Alternative 1(d): Replace the Pelee Islander With Open Flat Deck Self-Propelled Barge, with Hull Dimensions Maximized to Suit Existing Ont. Ports</b>	Alt 2(b) has no power plant redundancy  Alt 1(d) has poor hull design for rough water service	Alt 1(d) has poor hull design for rough water service	Alt 1(d) has poor hull design for rough water service	Alt 1(d) has poor hull design for rough water service

Note: The colour coding used is explained in Section 7.2.

Exhibit 7-3 Evaluation of One-Vessel Ferry System Alternatives to Ontario Mainland Only (Ferry System Alternatives 3(c), 3(d) And 3(e))		
Alternative	Evaluation	
<b>Alternative 3(c): One-vessel ferry system comprised of new combined passenger / truck / ferry with hull maximized to suit Ontario docks</b> (see Alternative 1(c))	Inadequate weekly increase in Ontario mainland car capacity (164 vs. 304)	There is no ferry service if the vessel breaks down
<b>Alternative 3(d): One-vessel ferry system comprised of Jiimaan with extended hull and vehicle deck, improved maneuverability, and propulsion system redundancy through a four-engine diesel power plant</b>  (see Alternative 2(d))	Inadequate weekly increase in Ontario mainland car capacity (164 vs. 304)	There is no ferry service if the vessel breaks down
<b>Alternative 3(e): One-vessel ferry system comprised of Jiimaan with extended hull and vehicle deck, improved maneuverability, and propulsion system redundancy through a twin-engine diesel-electric power plant with stern azimuth electric drive units</b>  (see Alternative 2(e))	Inadequate weekly increase in Ontario mainland car capacity (164 vs. 304)	There is no ferry service if the vessel breaks down
<p><b>All one-vessel ferry system alternatives screened out because:</b></p> <ul style="list-style-type: none"> <li>• they didn't meet the benchmark of providing a minimum weekly Ontario mainland capacity increase of 304 cars; and</li> <li>• overall system reliability is at risk</li> </ul> <p>Pelee Islander would remain in service after its scheduled winter 2012 / 2013 dry docking and lower hull shell repairs, until further major repairs required</p> <p>With only one ferry vessel servicing the Ontario mainland only:</p> <ul style="list-style-type: none"> <li>• The early morning departure from Pelee Island is lost.</li> </ul> <p>There is less flexibility in the ferry system with respect to schedule.</p>		

## 7.4 Vessel Alternatives Selected

The “best” of the vessel combinations in Ferry System Alternative 3(a) is selected:

- **Two-vessel ferry system with service to both U.S. and the Ontario mainland** comprised of the following:
  - **Pelee Islander Replacement Alternative 1(b)** to provide service to both the U.S. and Ontario mainland with:
    - a moderately larger combined passenger/car/truck roll-on roll-off ferry, with conventional bow visor / stern ramp.
  - **Jiimaan improvement Alternative 2(d)** to provide service to the Ontario mainland only, with key improvements including:
    - extend the Jiimaan hull and vehicle deck for increased vehicle-carrying capacity, provide improved maneuverability with a second bow thruster, and provide propulsion system redundancy through a four-engine diesel power plant.

### Rationale for Selection of Vessel Alternatives

- If the current ferry schedule is retained, the necessary increase in weekly July/August Ontario mainland truck and car carrying capacity is exceeded without over-servicing:
  - weekly July/August Ontario mainland transport truck capacity is 180, which is an increase of 136%;
  - weekly July/August Ontario mainland car capacity if no transport trucks is 1876, which is an increase of 31%; and
  - weekly July/August U.S car capacity is doubled.
- Increase in shoulder season capacity:
  - increase shoulder season vehicle capacity and capacity not currently available.
- The necessary Ontario mainland passenger capacity is provided:
  - Jiimaan continues to provide the primary Ontario mainland service.
- The recommended vessel alternatives provide the necessary improvements in ferry system reliability:
  - Pelee Islander replacement alternative 1(b) is designed to have necessary maneuverability and propulsion system redundancy; and
  - Jiimaan Vessel improvement alternative 2(d) provides an additional bow thruster for necessary maneuverability, and four diesel engines for necessary propulsion system redundancy.
- Replacement vessel for Pelee Islander is identified with sufficient time to commission its construction.
- U.S. cottagers and tourists continue to have the convenience of direct access to the ferry system from the U.S. (30% of Island tourists are from the U.S.).
- Supports increased vehicle capacity and Pelee Island tourism industry is improved.
  - 38% of tourists surveyed who came by vehicle would not come to Pelee Island if they could not bring their car.
- Given the necessary improvements in vehicle capacity and system reliability that are provided, estimated costs are considered to be reasonable:
  - \$63M implementation cost for vessels' construction/reconstruction; and
  - \$0.24M increase in MTO key annual operating costs (fuel plus crew).

## 8. Ferry Schedule Trip Frequency/Timing Alternatives

### 8.1 Assumptions for Consideration of Ferry Schedule Trip Frequency/Timing Alternatives

Based upon evaluation of the previous categories of alternative, consideration of ferry schedule trip frequency/timing alternatives assumes that:

- The Pelee Islander will be replaced with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions;
- The Jiimaan will be extended for increased vehicle capacity, a second bow thruster will be installed to provide improved manoeuvrability and an upgraded four-engine diesel power plant will be installed to provide propulsion system redundancy (hull dimensions will be maximized to suit existing Ontario dock facilities);
- MTO will continue to operate a two-vessel ferry system with service to both the U.S. and the Ontario mainland, with the Pelee Islander replacement vessel providing joint U.S. Ontario service, and the improved Jiimaan providing service to the Ontario mainland only;
- The primary purpose of the Pelee Island Transportation Service is to connect Pelee Island to the rest of Ontario;
- The primary purpose of the ferry service to the U.S. is to provide access to Pelee Island for cottagers and other tourists during peak periods of tourist travel;
- It is not practical for either of the ferry vessels to undertake more than 3 return trips per day;
- Schedule alternatives should not result in the need for the hiring of additional crew;
- Schedule changes should be offset by either schedule changes to minimize crew over time and MTO operational cost increases; and
- Not a daily commuter service.

### 8.2 Identification and Screening of Ferry Schedule Trip Frequency/Timing Alternatives to be carried forward for Assessment and Evaluation

The following ferry schedule trip frequency/timing alternatives have been carried forward for assessment and evaluation:

Ferry Schedule Trip Frequency/Timing Alternatives
4(a) Make no significant ferry schedule changes
4(b) Increase number of daily/weekly ferry trips to provide additional ferry system vehicle carrying capacity
4(c): Delay first and last Friday Ontario mainland departure times during July and August by 2 hours so that the 8:00pm last departure time better accommodates user travel time to ports with respect to the end of a standard working day
4(d) Provide one additional return trip from the Ontario mainland during each day of Pelee Fest, and on the Friday and Monday of each of Victoria Day weekend, Canada Day weekend, Civic Holiday weekend, Labour Day weekend
4(e) During May, June and September weekends, extend the time period between first departure from Ontario mainland and last departure from Pelee Island to provide for 7.5-hour single-day visits to the Island (same as July/August), and pro-rate the additional operating cost to all Ontario mainland trip fares
4(f) Extend U.S. ferry service to include early spring and late fall weekends, May and June weekdays, and a second July/August daily return trip to allow single-day Island visits
4(g) Limit access to ferry trips between Pelee Island and the U.S. to non-commercial vehicles

The ferry schedule trip frequency/timing alternatives identified above all result in modifying where or when the ferry service will be provided, rather than increasing the total number of routine annual sailing trips above that provided in the current schedule (this relates specifically to alternatives 4(b) and 4(d)).

Ferry schedule trip/frequency alternatives that would increase the total number of routine annual sailing trips above that provided in the current schedule were not carried forward because they would result in the need to hire additional officers and crew members because of the additional shifts that would be required. This would result in a considerable increase in operating costs, which could be unwarranted if the selected Pelee Islander replacement alternative and the selected Jiimaan major vessel improvement alternatives made such additional routine annual sailing trips unnecessary (because of added capacity).

The following key problems identified in Section 2.1 are impacted by the ferry schedule alternatives carried forward:

Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Ferry system vehicle-carrying capacity is insufficient to meet service demand/need, particularly with respect to semi tractor trailer trucks.	High	High
Some aspects of the ferry system, or aspects of some alternatives, are inadequate or inconvenient for the users: <ul style="list-style-type: none"> <li>• Inadequate number of daily trips during summer peak season and fall season</li> <li>• Departure time of the last Friday evening sailing from mainland Ontario is too early for many travellers</li> <li>• Inadequate number of daily trips during peak tourism season</li> <li>• Inadequate on-Island time for single-day trippers from Ontario mainland</li> <li>• Schedule does not provide for U.S. ferry service in early spring and late fall weekends, May/June weekdays, or for July/August single-day return visits to the Island from the U.S.</li> <li>• Schedule layout and web site difficult for some users to understand</li> <li>• Refuelling during daytime services causes service delays.</li> </ul>	Medium	Medium
Changes in ferry service schedule, capacity, cost or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors.	Low	Low
High MTO annual operational cost for some alternatives.	Medium	Medium

### 8.3 Background Issues/Considerations Associated with the Category of Alternatives

Ferry services are provided from Leamington, Ontario from April through early August, and then Kingsville, Ontario from August through December. From both locations, the Pelee Island-Ontario mainland trip duration is approximately 1.5 hours. The most extensive ferry services operate during the Early Summer (June 25-August 2), Late Summer (August 3-September 6) and Pheasant Hunt (October 18-November 6) periods, with round-trips operating three (3) to four (4) times each day during the summer, and two (2) to eight (8) times each day during the Pheasant hunt. During the spring and fall, round-trip ferry services operate between two (2) and four (4) times each day.

Ferry services to Sandusky, Ohio are provided on weekends from April 30 to June 24, and then once to twice daily through September 6. Weekend services are provided in the fall from September 7 to October 17. The Pelee Island – Sandusky trip duration is approximately 1.75 hours. (Note that all dates listed above relate to the 2010 schedule; these dates shift each year.)

The earliest ferry to Pelee Island from the Ontario mainland is at 10:00 am, except during the fall pheasant hunt. The earliest ferry from Pelee Island to the Ontario mainland is on Mondays at 7:00 am, with a ferry at 8:00 am from Tuesday-Sunday. The last ferry from Ontario mainland to Pelee Island during the summer sailing season is at 6:00 pm. This makes the last ferry from Pelee Island to the Ontario mainland during the summer sailing season at 8:00 pm.

Comments received from ferry users with respect to the existing schedule include the following:

- Ontario
  - Inadequate on-island time for tourist day-trippers from mainland Ontario; ferries depart and return too early in the day
  - Departure time of the last Friday evening sailing from mainland Ontario is too early for many travellers
  - Inadequate number of daily trips during peak tourism season
  - Inadequate number of trips during the fall season
  - Better use could be made of available vehicle capacity during peak periods.
- Sandusky, Ohio
  - Schedule does not allow tourist day-trippers from Sandusky, Ohio
  - Schedule does not provide any Early Spring and Late Fall service for US cottagers
  - Schedule does not provide May and June weekday service for US cottagers.

Providing a later departure time for the last Friday evening sailing from the Ontario mainland was part of the 2005, 2006 and 2007 sailing schedules with an 8:45 pm sailing time on Friday and Sunday during the summer season. The return ferry corresponded with a 10:30 pm departure time on Pelee Island. Through discussion with the OSTC and Municipality of Pelee Island, it was understood that this late departure time was eliminated due to low ridership.

With relation to the peak period sailings, during the 2010 Pelee Fest many pedestrian ferry users were unable to obtain a return ticket at their preferred sailing time because the ferry boats had reached their passenger capacity.

## 8.4 Description and Assessment of Ferry Schedule Trip Frequency/Timing Alternatives

### 8.4.1 Alternative 4(a): Make No Significant Ferry Schedule Changes

#### **Description and Comments**

During the peak season of July/August, this alternative involves the following:

- Three (3) round trips to the Ontario mainland on Tuesday and Wednesday;
- Four (4) round trips to the Ontario mainland on the remaining days of the week;
- One (1) round trip to Sandusky Ohio on Monday through Thursday and on Saturday; and
- Two (2) round trips to Sandusky Ohio on Friday and Sunday.

Given the assumptions provided in Section 8.1, this peak season schedule:

- allows the replacement of the Pelee Islander (alternative 1(b)) to provide round trip carriage of two (2) semi tractor trailers trucks to the Ontario mainland every day; allows the improved Jiimaan to provide round trip carriage of twelve semi tractor trailers trucks to the Ontario mainland on Tuesday and Wednesday and sixteen semi tractor trailers trucks on the other days of the week; and therefore provides more than the maximum required capacity of six (6) or seven (7) semi tractor trailer trucks every day of the week.
- allows the replacement of the Pelee Islander to provide round trip carriage of up to 20 cars between Pelee Island and the Ontario mainland; allows the improved Jiimaan to provide round trip carriage of up to 126 cars on Tuesday and Wednesday and up to 168 cars on the other days of the week; and therefore provides more than the current maximum of 70 cars on Tuesday and Wednesday and 100 cars every other day of the week.

Given the assumptions provided in Section 8.1, this peak season schedule:

- provides round trip carriage between Pelee Island and Sandusky of 40 cars on Fridays and Sundays, and 20 cars every other day of the week, which with respect to the current Pelee Islander and current schedule, is greater than the 20 car capacity on Fridays and Sundays, and is also greater than the 10 car capacity every other day of the week.

### 8.4.2 Alternative 4(b): Increase Number of Daily/Weekly Ferry Trips to Provide Additional Ferry System Vehicle Carrying Capacity

#### **Description and Comments**

During the peak season of July/August, this alternative involves the following:

- Four (4) round trips to the Ontario mainland on Monday through Sunday; and
- One (1) round trip to Sandusky on Monday through Sunday.

Given the assumptions provided in Section 8.1, this peak season schedule:

- allows the replacement of the Pelee Islander to provide round trip carriage of two (2) semi tractor trailers trucks to the Ontario mainland every day;
- allows the Jiimaan to provide round trip carriage of 16 semi tractor trailers trucks to the Ontario mainland every day; and
- greatly exceeds the maximum required capacity of six (6) to seven (7) semi tractor trailer trucks per day.

Given the assumptions provided in Section 8.1, this peak season schedule provides round trip carriage of 20 cars every day between Pelee Island and Sandusky. With respect to the current Pelee Islander and current schedule, this is the same as the 20 car capacity on Fridays and Sundays, and is greater than the 10 car capacity every other day of the week.

U.S. cottagers would not look favourably upon the loss of the second round trip for Sandusky. service on Fridays and Sundays because of the impact on weekend travel.

### 8.4.3 Alternative 4(c) Delay First and Last Friday Ontario Mainland Departure Times During July and August by 2 Hours so that the 8:00pm Last Departure Time Better Accommodates User Travel Time to Ports With Respect to the End of a Standard Working Day

#### **Description and Comments**

This alternative would involve delaying the last ferry departure on Friday from 6:00pm until 8:00pm would allow additional travel time to the mainland ports for weekend travellers. The first departure from the Ontario mainland is also delayed by two (2) hours in order to avoid crew overtime.

The 8:00pm departure time was requested by the Pelee Island Transportation Committee.

### 8.4.4 Alternative 4(d): Provide One Additional Return Trip from the Ontario Mainland during each Day of Pelee Fest, and on the Friday and Monday of each of the Victoria Day weekend, Canada Day weekend, Civic Holiday Weekend and Labour Day weekend.

#### **Description and Comments**

This alternative would include an additional trip during each day of Pelee Fest and on the Friday and Monday of each of the Victoria Day weekend, Canada Day weekend, Civic Holiday weekend and Labour Day weekend.

In order to have minimal additional MTO operational costs, ferry trips during non-peak times would be eliminated to maintain the same number of trips per season.

8.4.5 Alternative 4(e) During May, June And September Weekends, Extend the Time Period Between First Departure from Ontario Mainland and Last Departure From Pelee Island to Provide For 7.5-Hour Single-Day Visits To The Island (Same As July/August), and Pro-Rate the Additional Operating Cost To All Ontario Mainland Trip Fares

**Description and Comments**

This alternative provides for a longer single-day trip to the Island by a combination of earlier first departure time from the Ontario mainland and later last departure from Pelee Island. The opportunity for longer single-day trips to the Island during spring and fall weekends was requested by the Pelee Island Transportation Committee. Because this will require the payment of crew overtime, the additional operating cost is pro-rated to all Ontario mainland fares.

8.4.6 Alternative 4(f): Extend U.S. ferry Service to Include Early Spring and Late Fall Weekends, May and June Weekdays, and a Second July/August Daily Return Trip to Allow Single-Day Island Visits.

**Description and Comments**

This alternative provides the same level of service to the U.S. as is provided for the Ontario mainland for most of the sailing season.

However, this alternative does not reflect the fact that the purpose of the U.S. service is to provide access for cottagers and other tourists during periods of peak tourist travel (i.e. when it has the highest potential to benefit the Pelee Island economy).

8.4.7 Alternative 4(g): Limit Access to Ferry Trips between Pelee Island and the U.S. To Non-Commercial Vehicles

**Description and Comments**

This alternative allows service to private vehicles only, in recognition that the primary purpose of the ferry service to the U.S. is to provide access to Pelee Island for cottagers and other tourists during peak periods of tourist travel.

**8.5 Evaluation of Alternatives and Selection of Recommended Ferry Schedule Trip Frequency/Timing Alternative**

Based upon the detail provided in **Exhibit 8-1**, the following alternatives are recommended:

- Alternative 4(c): Delay first and last Friday Ontario mainland departure times during July and August by two (2) hours so that the 8:00pm last departure time better accommodates user travel time to ports with respect to the end of a standard working day
- Alternative 4(d): Provide one additional return trip from the Ontario mainland during each day of Pelee Fest, and on the Friday and Monday of each of Victoria Day weekend, Canada Day weekend, Civic Holiday weekend and Labour Day weekend.
- Alternative 4(e): During May, June and September weekends, extend the time period between first departure from Ontario mainland and last departure from Pelee Island to provide for 7.5-hour single-day visits to the Island (same as July/August), and pro-rate the additional operating cost to all Ontario mainland trip fares

- Alternative 4(g): Limit access to ferry trips between Pelee Island and the U.S. to non-commercial vehicles

**Rationale for Recommendations:**

- The recommended vessel alternatives provide considerable increase in ferry system vehicle-carrying capacity and eliminate the need for additional daily/weekly trips with their associated increased in crew and fuel costs;
- Alternatives 4(c) and 4(d):
  - improve convenience for the system users
  - support the Island tourist industry with better trip timing for whole-weekend stays and with more trips during busy summer events/weekends
  - provide the above with minimal additional MTO operational cost (fuel plus crew)
- Alternative 4(e): allows single-day tourists more time to enjoy the Island's attractions and hospitality without increasing ferry system operating costs
- Alternative 4(g): recognizes that the purpose of the U.S. service is to provide access for cottagers and other tourists and support the Pelee Island tourist industry, and not a cross-lake truck ferry.

Exhibit 8-1 : Evaluation of Ferry Schedule Alternatives							
Key Problems Regarding Transportation Services to Pelee Island that are Impacted by Ferry Schedule Alternatives	Degree to Which Alternative Addresses Problem						
	Alternative 4(a): Make no significant ferry schedule changes	Alternative 4(b): Increase number of daily/weekly ferry trips to provide additional ferry system vehicle carrying capacity	Alternative 4(c): Delay first and last Friday Ontario mainland departure times during July and August by 2 hours so that the 8:00pm last departure time better accommodates user travel time to ports with respect to the end of a standard working day	Alternative 4(d): Provide one additional return trip from the Ontario mainland during each day of Pelee Fest, and on the Friday and Monday of each of Victoria Day weekend, Canada Day weekend, Civic Holiday weekend and Labour Day weekend	Alternative 4(e): During May, June and September weekends, extend the time period between first departure from Ontario mainland and last departure from Pelee Island to provide for 7.5-hour single-day visits to the Island (same as July/August), and pro-rate the additional operating cost to all Ontario mainland trip fares	Alternative 4(f): Extend U.S. ferry service to include early spring and late fall weekends, May and June weekdays, and a second July/August daily return trip to allow single-day Island visits.	Alternative 4(g): Limit access to ferry trips between Pelee Island and the U.S. to non-commercial vehicles
<p><b>Ferry system vehicle-carrying capacity insufficient to meet service demand/need, particularly with respect to semi tractor trailer trucks</b></p> <p>(The importance of this problem is ranked "high" by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Alternative 4(a) has no impact on ferry system vehicle capacity</li> <li>However, vessel Alternatives 1(b) and 2(d) and 3(a) provide a significant increase in vehicle-carry capacity</li> </ul>	<ul style="list-style-type: none"> <li>During the summer sailing season, Alternative 4(b) would increase the vehicle-carrying capacity on Tuesdays and Wednesdays for Ontario mainland service by 30%. However, Alternatives 1(b) and 2(d) and 3(a) already provide a significant increase in vehicle-carry capacity</li> <li>Because vessel alternative 2(b) has double the car-carrying capacity of the Pelee Islander, Alternative 4(b) has no impact on car-carrying capacity to the U.S.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(c) has no impact on ferry system vehicle capacity</li> <li>However, vessel Alternatives 1(b) and 2(d) and 3(a) provide a significant increase in vehicle-carry capacity</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(d) would provide additional capacity of 42 cars one round trip on the Jiimaan Pelee Fest, Victoria Day weekend, Canada Day weekend, Civic Holiday weekend and Labour Day weekend</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(e) has no impact on ferry system vehicle capacity</li> <li>However, vessel Alternatives 1(b) and 2(d) and 3(a) provide a significant increase in vehicle-carry capacity</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(f) provides increased vehicle carrying capacity to the U.S during periods of low tourist travel</li> <li>However, vessel Alternatives 1(b) and 2(d) and 3(a) provide a significant increase in vehicle-carry capacity</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(g) protects the maximum car-carrying capacity of Vessel Alternative 1(b) for U.S. service (doubled over that of the Pelee Islander)</li> <li>Alternative 4(g) does not allow the increased truck capacity provided by Alternative 1(b) to be utilized for U.S. service, but has no impact to the Ontario mainland service</li> </ul>
<p><b>Some aspects of the ferry system, or aspects of some alternatives, are inadequate or inconvenient for the users</b></p> <p>(The importance of this problem is ranked "medium" by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Alternative 4(a) would provide an improvement to the capacity shortage for ferry users because of increased car and passenger capacity from vessel Alternatives 1(b) and 2(d).</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(b) would improve convenience for Ontario mainland travellers by providing more options for arrival and departure on Tuesdays and Wednesdays.</li> <li>The loss of the second return trip to the U.S. on Fridays and Sundays during the summer sailing season would be an inconvenience for some users</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(c) would provide improved convenience for ferry users on Friday evenings during the peak summer period.</li> <li>Alternative 4(c) would be inconvenient to users who want early departure</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(d) would provide improved convenience for ferry users during Pelee Fest, Canada Day weekend, Civic Holiday weekend and Labour Day weekend.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(e) improves convenience for single day visitors to the Island, but it would be an inconvenience for most other travellers</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(f) provides increased convenience for U.S. cottagers, but because it is affects periods of low overall tourist travel, the vessel carrying capacity is likely to be under-utilized at considerable expense to the Ontario taxpayer</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(g) protects the maximum car-carrying capacity of Vessel Alternative 1(b) for U.S. service (doubled over that of the Pelee Islander) for convenience of U.S. cottagers and other tourists</li> <li>Alternative 4(g) is inconvenient for commercial carriers from the U.S., but the purpose of the U.S. service is to provide access for cottagers and other tourists during periods of peak tourist travel</li> </ul>
<p><b>Change in ferry service schedule, capacity, cost or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors</b></p> <p>(The importance of this problem is ranked "high" by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Alternative 4(a) would provide an improvement to truck capacity and have a positive impact on local commercial (agricultural) sectors because required truck capacity would be achieved.</li> <li>Alternative 4(a) would also have a positive impact on tourist operators because of increased car and passenger capacity.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(b) would provide additional capacity for trucks on Tuesdays and Wednesdays in addition to Alternative 4(a) and have a positive impact on local commercial (agricultural) sectors because required truck capacity would be achieved.</li> <li>Alternative 4(b) would little impact on tourist operators to Alternative 4(a) because Tuesdays and Wednesdays are non-peak sailing periods for tourists.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(c) would have the same impact as Alternative 4(a) for local commercial (agriculture) sectors.</li> <li>Alternative 4(c) would provide an improved Friday schedule for weekend visitors to Pelee Island and have a positive impact on local tourist operators.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(d) would have the same impact as Alternative 4(a) for local commercial (agriculture) sectors.</li> <li>Alternative 4(d) would improve the capacity and schedule for ferry users during Pelee Fest, Canada Day weekend, Civic Holiday weekend and Labour Day weekend and have a positive impact on local tourist operators.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(e) could be of slight benefit to the Island tourist businesses because of increased opportunity to utilize their services</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(f) would have no impact to Island businesses</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(g) would have no impact to Island businesses</li> </ul>
<p><b>High MTO annual operational cost for some alternatives</b></p> <p>(The importance of this problem is ranked "medium" by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Alternative 4(a) would not change the annual operational cost</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(b) would increase the annual operational costs because the additional weekday trips cause an increase in both fuel and crew costs.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(c) would not change annual operational costs</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(d) would have minimal impacts on the annual operational costs, as trips during low ridership periods would be eliminated to accommodate the additional sailings during peak periods.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(e) would not increase annual operational costs because cost of crew overtime would be added to the trip fares</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(f) provides increased convenience for U.S. cottagers, but because it is affects periods of low overall tourist travel, the vessel carrying capacity is likely to be under-utilized at considerable expense to the Ontario taxpayer (would require additional crew)</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4(g) would not change annual operational costs</li> </ul>
<b>RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>Do Not Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Do Not Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Do Not Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Carry Forward</li> </ul>

## 9. Ferry Trip Reservation and Cancellation Alternatives

### 9.1 Assumptions for Consideration of Ferry Trip Reservation and Cancellation Alternatives

Based upon evaluation of the previous categories of alternative, consideration of ferry trip reservation and cancellation alternatives assumes that:

- The Pelee Islander will be replaced with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions;
- The Jiimaan will be extended for increased vehicle capacity, a second bow thruster will be installed to provide improved manoeuvrability and an upgraded four-engine diesel power plant will be installed to provide propulsion system redundancy (hull dimensions will be maximized to suit existing Ontario dock facilities);
- MTO will continue to operate a two-vessel ferry system with service to both the Sandusky, Ohio and the Ontario mainland, with the Pelee Islander replacement vessel providing joint Sandusky, Ohio and Ontario service, and the improved Jiimaan providing service to the Ontario mainland only;
- The first and last Friday Ontario mainland departure times during July and August will be delayed by 2 hours so that the 8:00pm last departure time better accommodates user travel time to ports with respect to the end of a standard working day;
- During Pelee Fest and on the Friday and Monday of each of the Victoria Day weekend, Canada Day weekend, Civic Holiday weekend and Labour Day weekend one additional trip will be provided;
- During May, June and September weekends, extend the time period between first departure from Ontario mainland and last departure from Pelee Island to provide for 7.5-hour single-day visits to the Island (same as July/August), and pro-rate the additional operating cost to all Ontario mainland trip fares;
- Access to ferry trips between Pelee Island and the U.S. to will be limited to non-commercial vehicles; and
- The primary purpose of the ferry service to the Sandusky, Ohio is to provide access to Pelee Island for cottagers and other tourists during peak periods of tourist travel.

### 9.2 Identification and Screening of Ferry Trip Reservation and Cancellation Alternatives to be Carried Forward for Assessment and Evaluation

The following ferry reservation and cancellation fee and penalty alternatives have been carried forward for assessment and evaluation:

Ferry Reservation and Cancellation Alternatives (applies to vehicles only)
5a) Continue current tariff / fee regime for reservations and cancellations
5(b) Require <u>5 Day</u> minimum advance notification to cancel a credit card guaranteed trip reservation without forfeiture of trip fare (increased from 48 hours)
5(c) Charge a fee to cancel each one-way trip reservation regardless of the timing of cancellation (guaranteed through credit card number provided at time of trip reservation)
5(d): At the time of a reservation or a change of reservation, charge on a credit card a non-refundable fee to reserve each one-way trip that is credited to the trip fare at time of boarding
5(e) At the time of a reservation or change of a reservation, charge on a credit card a non-refundable fee to reserve each one-way trip (not credited to trip fare)
5(f) For spring-time advance-booking of pheasant hunt sailing season trips, at the time of a reservation, charge on a credit card the full fare of each one-way trip, which is not eligible for refund in the event of a trip cancellation, and allow hunters to book their next year's trip during their hunt on the Island
5(g) For farm crop shipments only, no reservation fee, and 48 hour minimum advance notification without trip fare forfeiture. If more than 10% of annual crop shipments are cancelled less than 5 days in advance, this policy exemption to be revisited
5(h) Provide an on-request standby / call-back service in which the reservation desk advises travelers if openings occur for trips that were previously fully booked.

The alternative of charging both a reservation fee as well as a cancellation fee was not carried forward because it would be unnecessarily punitive for the system users and would be no more effective than alternative 5(c) or 5(d) on its own.

The following key problems identified in Section 2.1 are impacted by the ferry reservation and cancellation fee and penalty alternatives carried forward:

Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Excessive and last-minute cancellation of trip reservations unnecessarily wastes ferry system vehicle capacity, limits trip access for other users, and damages the Pelee Island economy	Medium	High
Change in ferry service schedule, capacity, cost or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors	High	High

### 9.3 Background Issues/Considerations Associated with Ferry Trip Reservation and Cancellation Alternatives

Reservations are only accepted for vehicles, not walk-on passengers. There is currently no tariff/fee charged to make or cancel a reservation. Reservations must be guaranteed by providing a credit card number. However, there is currently no penalty for cancelling a reservation, provided the cancellation is made no less than 48 hours before sailing time. Reservations cancelled later than 48 hours before sailing time, and reservations associated with “no show” result in forfeiture of fare to the user’s charge card.

Because of the perception (and fact) of limited ferry boat vehicle carrying capacity regular ferry system users tend to call at the first opportunity at the beginning of each sailing season and book their potential travel needs for the entire sailing season. This is particularly the case for weekend cottagers and farm produce shipments.

In order to guarantee a space on the ferry boat, many regular users reserve vehicle space on a speculative basis, and cancel little more than 48 hours before sailing time (to avoid cost penalty), which results in tourists having been unnecessarily turned away prior to these late reservation cancellations. This practice also contributes to the challenge in determining the true vehicle carrying capacity requirements of the ferry system.

Pelee Island Inns and Bed & Breakfasts have an average occupancy of 44% during the operating season, which operators attribute in part to customers’ inability to reserve vehicle space (fully booked when attempted). Many customers will not attempt to book accommodation until they have a ferry reservation. However, it is not unusual during the summer to be unable to make a reservation early in the week (fully booked) for weekend trips, but to be able to make those reservations on Thursday and Friday because of “last minute” cancellations by other users. Unfortunately, for many visitors/travellers, this is too late in the week to consider booking a weekend holiday.

During this study, a review of other Canadian and northern US ferry reservation services was undertaken, and it was found that many of them (e.g., BC Ferries, Northumberland Ferries Ltd) charge a non-refundable fee to make a reservation.

## 9.4 Description and Assessment of Ferry Trip Reservation and Cancellation Alternatives

### 9.4.1 Alternative 5(a): Continue Current Tariff / Fee Regime for Reservations and Cancellations

#### **Description and Comments**

This alternative makes no tariff/fee changes to address the problems associated with trip cancellations.

This is a 'do nothing' alternative and does not address the concerns identified.

### 9.4.2 Alternative 5(b): Require 5 Day Minimum Advance Notification to Cancel a Credit Card Guaranteed Trip Reservation without Forfeiture of Trip Fare (Increased From 48 Hours)

#### **Description and Comments**

This alternative involves increasing the minimum notification to cancel reservations without forfeiture of fare from 48 hours to five (5) days. By increasing the time period, this could help to reduce last-minute cancellations and improve access opportunities for other users. This could also help address the concerns of tourist operators as discussed in **Section 9.3** of this report.

### 9.4.3 Alternative 5(c): Charge a Fee to Cancel Each One-Way Trip Reservation Regardless of the Timing of Cancellation (guaranteed through credit card number provided at time of trip reservation)

#### **Description and Comments**

This alternative involves charging a cancellation fee for each one-way trip reservation. The cancellation fee for a standard car would be \$10.00, and would be proportionately greater for larger vehicles. This fee would assist in discouraging large numbers of "just-in-case bookings" by single individuals/organizations and ensure that all vehicle capacity is better utilized for each sailing. In addition, it avoids cost increases associated with Alternative 5(e) for passengers who do not cancel.

This reservation fee is based on the low end of reservation fees charged by other ferry services (e.g. BC Ferries, Northumberland Ferries Ltd).

### 9.4.4 Alternative 5(d): At the Time of a Reservation or a Change of Reservation, Charge on a Credit Card a Non-Refundable Fee to Reserve Each One-Way Trip that is Credited to the Trip Fare at Time of Boarding

#### **Description and Comments**

This alternative involves charging a reservation fee to reserve each one-way trip that is credited towards the trip fare at the time of boarding. This alternative would help to discourage "just-in-case bookings" and ensure that vehicle capacity is better utilized for each sailing. The reservation fee for a standard car would be \$10.00, and would be proportionately greater for larger vehicles.

### 9.4.5 Alternative 5(e): At the Time of a Reservation or Change of a Reservation, Charge on a Credit Card a Non-Refundable Fee to Reserve Each One-Way Trip (not credited to trip fare)

#### **Description and Comments**

This alternative involves charging a credit card guaranteed non-refundable fee for each and every trip that is reserved. For this alternative, the reservation fee is not credited to the trip fare, as with Alternative 5(d). The reservation fee for a standard car would be \$10.00, and would be proportionately greater for larger vehicles. This would reduce the number of "speculative" reservations by users, and improve access opportunities for other users. This could also help address the concerns of tourist operators as discussed in Section 9.3 of this report

Funds generated could support additional administrative costs of improving telephone reservation service and cancellation notifications. However, charging a non-refundable fee could be a substantial change to cost of ferry trip and could also inhibit travel to Pelee Island.

### 9.4.6 Alternative 5(f): For Spring-Time Advance-Booking of Pheasant Hunt Sailing Season Trips, at the Time of a Reservation, Charge on a Credit Card the Full Fare of Each One-Way Trip, Which is not Eligible for Refund in the Event Of A Trip Cancellation, and Allow Hunters to Book their Next Year's Trip During their Hunt on the Island

#### **Description and Comments**

This alternative involves charging the full fare of each one-way trip during the spring-time advance booking of Pheasant Hunt sailing Season Trips. This would reduce "speculative" multi-vehicle bookings and improve access opportunities throughout the booking period.

### 9.4.7 Alternative 5(g): For farm crop shipments only, no reservation fee, and 48 hour minimum advance notification without trip fare forfeiture. If more than 10% of annual crop shipments are cancelled less than 5 days in advance, this policy exemption to be revisited

#### **Description and Comments**

This alternative exempts farm crop shipments from payment of a reservation fee and reduces the 5-day advance notification period to 48 hours without trip fare forfeiture. However, in recognition of the impacts to other Island economic sectors, this policy exemption will be monitored if more than 10% of crop shipments are cancelled less than five (5) days in advance.

This alternative was developed in consultation with the Pelee Island Transportation Committee, to recognize that farmers can't predict the influence of weather variations on the timing of crop harvest.

### 9.4.8 Alternative 5(h): Provide an On-Request Standby / Call-Back Service in which the Reservation Desk Advises Travelers if Openings Occur for Trips that were Previously Fully Booked

#### **Description and Comments**

This alternative would involve a parallel "shadow" reservations system in which a list would be kept for every departure (hundreds of lists). This would result in an additional administrative overhead that is the same as that of the reservation system itself because:

- The matching of cancellations and stand-by bookings would not be as simple as matching the name at the top of the list
- It would require the agent to match the vehicle size of the cancellation to the first stand-by vehicle of the same size

The current system of stand-by vehicles that wait in the line-up at the port would reduce the benefits of an on-request standby / call-back service because it would not be clear who should be granted the standby space..

## 9.5 Evaluation of Alternatives and Selection of Recommended Ferry Reservation and Cancellation Fee and Penalty Alternative

Based upon the detail provided in **Exhibit 9-1**, the following alternatives are recommended:

- Alternative 5(b): Require 5 Day minimum advance notification to cancel a credit card guaranteed trip reservation without forfeiture of trip fare (increased from 48 hours);
- Alternative 5(d): At the time of a reservation or a change of reservation, charge on a credit card a non-refundable fee to reserve each one-way trip that is credited to the trip fare at time of boarding; and
- Alternative 5(f): For spring-time advance-booking of pheasant hunt sailing season trips, at the time of a reservation, charge on a credit card the full fare of each one-way trip, which is not eligible for refund in the event of a trip cancellation, and allow hunters to book their next year's trip during their hunt on the Island
- Alternative 5(g): For farm crop shipments only, no reservation fee, and 48 hour minimum advance notification without trip fare forfeiture. If more than 10% of annual crop shipments are cancelled less than 5 days in advance, this policy exemption to be revisited.

### Rationale for Recommendations:

- Discourage multi-trip "just-in-case" reservations made by many users;
- Protect the increase in vehicle-carrying capacity provided by the recommended vessel alternatives for use more beneficial to the Island economy;
- Increase "reservable" vehicle carrying capacity for tourists, hunters, and other users who otherwise forego an Island visit/stay or Island business if ferry trip reservations are not available when they attempt to reserve their trip;
- Thereby support the Island tourist industry (Inns and B&B's currently average only 44% occupancy during operating season, and the number of hunters has dropped over last few years even though pheasant hunt trip reservations are fully booked at beginning of sailing season); and
- Recognize that farmers can't predict influence of weather variations on timing of crop harvest.

Exhibit 9-1: Evaluation of Ferry Reservation and Cancellation Alternatives								
Key Problems Regarding Transportation Services to Pelee Island that are Impacted by Ferry Reservation and Cancellation Fee and Penalty Alternatives	Degree to Which Alternative Addresses Problem							
	Alternative 5(a) Continue current tariff / fee regime for reservations and cancellations	Alternative 5(b): Require 5 Day minimum advance notification to cancel a credit card guaranteed trip reservation without forfeiture of trip fare (increased from 48 hours)	Alternative 5(c): Charge a fee to cancel each one-way trip reservation regardless of the timing of cancellation (guaranteed through credit card number provided at time of trip reservation)	Alternative 5(d): At the time of a reservation or a change of reservation, charge on a credit card a non-refundable fee to reserve each one-way trip that is credited to the trip fare at time of boarding	Alternative 5(e): At the time of a reservation or change of a reservation, charge on a credit card a non-refundable fee to reserve each one-way trip (not credited to trip fare)	Alternative 5(f): For spring-time advance-booking of pheasant hunt sailing season trips, at the time of a reservation, charge on a credit card the full fare of each one-way trip, which is not eligible for refund in the event of a trip cancellation, and allow hunters to book their next year's trip during their hunt on the Island	Alternative 5(g): For farm crop shipments only, no reservation fee, and 48 hour minimum advance notification without trip fare forfeiture. If more than 10% of annual crop shipments are cancelled less than 5 days in advance, this policy exemption to be revisited	Alternative 5(h): Provide an on-request standby / call-back service in which the reservation desk advises travelers if openings occur for trips that were previously fully booked
<p><b>Excessive cancellation of trip reservations unnecessarily wastes ferry system vehicle capacity, limits trip access for other users, and damages the Pelee Island economy.</b></p> <p>(The importance of this problem is ranked "medium" by the Pelee Island Transportation Committee and "high" by the Study Team)</p>	<ul style="list-style-type: none"> <li>Alternative 5(a) does not address the issue of excessive cancellation of trip reservations.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(b) may improve trip access for other users and reduce wasted vehicle capacity.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(c) may reduce the excessive trip cancellation by requiring a cancellation fee for each direction regardless of the timing of the cancellation</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(d) may reduce the excessive trip cancellation by requiring a reservation fee at the time of booking.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(e) would reduce "speculative" reservations by users, and improve access opportunities for other users.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(f) may decrease pheasant hunters from making "speculative" reservations if they are required to pay the full fare upfront. This may provide greater trip numbers to the Pelee Island during the Pheasant Hunt.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(g) may minimize trip cancellations by farmers because they won't want to lose this policy exemption and its associated financial benefits.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(h) may improve trip access for other users through call back service for standbys and reduce wasted vehicle capacity.</li> </ul>
<p><b>Change in ferry service schedule, capacity, cost or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors</b></p> <p>(The importance of this problem is ranked "high" by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Alternative 5(a) would not change capacity issues, and would maintain the existing impact on local commercial sectors.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(b) will reduce last minute trip cancellations and may address concerns of tourist operators as weekend ferry capacity may be increased earlier in the week.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(c)'s reduction in trip cancellation may address concerns of tourist operators and have a positive impact on local commercial sectors.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(d) may decrease travellers/vacationers from making reservations if they have to pay a fee upfront.</li> <li>However, Alternative 5(d)'s reduction in trip cancellation may address concerns of tourist operators and have a positive impact on local commercial sectors.</li> </ul>	<ul style="list-style-type: none"> <li>The additional reservation cost for Alternative 5(e) may inhibit travel to Pelee Island. This could have a negative impact on local tourist operators.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(f) requirement for full fare payment to guarantee a reservation will improve the capacity on each vessel during the Pheasant Hunt and have a positive impact on local tourist operators.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(g) provides a fair mechanism to protect farmers from the influence of weather variations on timing of crop harvest</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 5(h) may increase cost of fare because of additional staff required at the reservation desk to provide additional services.</li> </ul>
<b>RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>Do Not Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Do Not Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Do Not Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Carry Forward</li> </ul>	<ul style="list-style-type: none"> <li>Do Not Carry Forward</li> </ul>

## 10. Communications Alternatives with Ferry System Users

### 10.1 Assumptions for Consideration of Communications Alternatives

Based upon evaluation of the previous categories of alternative, consideration of ferry schedule trip frequency/timing alternatives assumes that:

- The Pelee Islander will be replaced with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions;
- The Jiimaan will be extended for increased vehicle capacity, a second bow thruster will be installed to provide improved manoeuvrability and a four-engine diesel power plant will be installed to provide propulsion system redundancy (hull dimensions will be maximized to suit existing Ontario dock facilities);
- MTO will continue to operate a two-vessel ferry system with service to both Sandusky, Ohio and the Ontario mainland, with the Pelee Islander replacement vessel providing joint Sandusky, Ohio and Ontario service, and the improved Jiimaan providing service to the Ontario mainland only;
- The first and last Friday Ontario mainland departure times during July and August will be delayed by 2 hours so that the 8:00pm last departure time better accommodates user travel time to ports with respect to the end of a standard working day;
- During Pelee Fest and on the Friday and Monday of each of the Victoria Day weekend, Canada Day weekend, Civic Holiday weekend and Labour Day weekend one additional trip will be provided;
- During May, June and September weekends, extend the time period between first departure from Ontario mainland and last departure from Pelee Island to provide for 7.5-hour single-day visits to the Island (same as July/August), and pro-rate the additional operating cost to all Ontario mainland trip fares;
- Access to ferry trips between Pelee Island and the Sandusky to will be limited to non-commercial vehicles;
- The primary purpose of the ferry service to the Sandusky is to provide access to Pelee Island for cottagers and other tourists during peak periods of tourist travel;
- 5 Day minimum advance notification will be required to cancel a credit card guaranteed trip reservation without forfeiture of trip fare (increased from 48 hours);
- At the time of a reservation or a change of reservation, a non-refundable fee will be charge on a credit card to reserve each one-way trip that is credited to the trip fare at time of boarding;
- For spring-time advance-booking of pheasant hunt sailing season trips, at the time of a reservation, charge on a credit card the full fare of each one-way trip, which is not eligible for refund in the event of a trip cancellation, and hunters will be allowed to book their next year's trip during their hunt on the Island; and
- For farm crop shipments only, there will be no reservation fee, and minimum advance notification without trip fare forfeiture will be 48 hours. If more than 10% of annual crop shipments are cancelled less than 5 days in advance, this policy exemption to be revisited.

### 10.2 Identification and Screening of Alternatives to be Carried Forward for Assessment and Evaluation

The following communications alternatives with ferry system users have been carried forward for assessment and evaluation:

Communications Alternatives With Ferry System Users
6(a) Make no changes to communications processes with ferry system users
6(b) Provide additional telephones and staff for period of peak spring start-up ferry trip reservations
6(c) Provide on-line ferry trip reservations and cancellations after Pelee Islander replacement is in service (software specific to vessels must be developed)
6(d): Notify users of ferry trip cancellations or delays through timely recorded messages at the reservation desk and announcements at the ferry terminals
6(e) Issue "return tickets" for walk-on passengers for Pelee Fest, Canada Day weekend, Civic Holiday weekend, and Labour Day weekend, so fewer passengers are unable to leave the Island at the end of day because vessel capacity has been "maxed out".
6(f) In the event of trip cancellations from Pelee Island, provide notification of the Legion Hall's "Golden Era" program to provide overnight accommodation to stranded users

It is recognized that the schedule is complicated for first-time users and those unfamiliar with the organization of multiple ports and vessels. However, the alternative of changing the format of the printed and internet ferry schedule was not carried forward because:

- the schedule will always be "complicated" given four ports (two of which alternate mid-season with one-another), two vessels, and a schedule that varies with the season and day-of-week; and
- Recent improvements have been made so the current schedule is easier to read and understand.

The following key problems identified in Section 2.1 are impacted by the communications alternatives with ferry system users carried forward:

Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Inadequate communication system for advising users of ferry trip cancellation or rescheduling	Medium	Medium
Some aspects of the ferry system, or aspects of some alternatives, are inadequate or inconvenient for the users	Medium	Medium
Changes in ferry service schedule, capacity, cost or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors	High	High

### 10.3 Background Issues/Considerations Associated with Communications Alternatives

The OSTC's main Pelee Island Ferry website provides information on ferry sailing status, changes in ferry sailing seasons and the local weather. Daily ferry status updates are available by telephone.

As discussed in Section 9.2, ferry reservations for vehicles are available by telephone for each sailing season and in 2011 they began on March 1<sup>st</sup>. Spring time reservations usually result in long waits because of limited phone staff. Reservations are not available online. In addition, pedestrian passengers cannot make reservations and must therefore purchase tickets on a first come first serve basis. Many passengers are stranded because vehicle capacity does not allow additional pedestrian passengers.

Ferry users feel that the existing Communication System is not transparent to stakeholders and that:

- Phone lines and website do not always provide up to date daily sailing status.
- Users are unable to get advance notice by phone when individual sailings are delayed or cancelled due to inclement weather or mechanical breakdowns.
- Inadequate information is provided to ferry users regarding the severity and anticipated duration of breakdowns.

#### 10.4 Description and Assessment of Communications Alternatives

##### 10.4.1 Alternative 6(a): Make No Changes to Communications Processes with Ferry System Users

###### **Description and Comments**

This alternative would continue the existing communications provided and does not address the concerns expressed by ferry users.

##### 10.4.2 Alternative 6(b): Provide Additional Telephones and Staff for Period of Peak Spring Start Up Ferry Trip Reservations

###### **Description and Comments**

This alternative involves hiring temporary administrative staff and telephone service for approximately 3-5 days total, in late February (hunting season) and early March (regular season). This would alleviate frustration and customer complaints during waiting periods at the opening of the booking season. Cost implications are minimal, because of the short period required for additional staff.

##### 10.4.3 Alternative 6(c): Provide On-Line Ferry Trip Reservations and Cancellations after Pelee Islander replacement is in service (Software Specific to Vessels must be Developed)

###### **Description and Comments**

This alternative involves development of software specific to the ferry vessels so that users can make on-line sailing trip reservations and cancellations.

This approach is used by airlines and some other ferry systems. It would alleviate frustration and customer complaints at waiting periods upon opening of booking season. It would require specialized software developed specifically for the Jiimaan and the replacement vessel for the Pelee Islander.

This alternative may not be necessary if 6(b), additional telephone and staff during peak reservation periods, is implemented.

##### 10.4.4 Alternative 6(d): Notify Users of Ferry Trip Cancellations or Delays Through Timely Recorded Messages at the Reservation Desk and Announcements at The Ferry Terminals

###### **Description and Comments**

This alternative involves development of mechanisms that will allow timely advisories to users in the event of trip cancellations due to weather or mechanical breakdowns.

Some improvements have already been made with respect to early morning voicemails. Development of a text message system and placement of advisories on the ferry web site may also be possible. In the longer term, some users have suggested variable message signs on mainland approach roads.

This alternative would alleviate frustration and customer complaints due to late trip cancellations and could prevent some unnecessary travel to the ports when cancellations occur. That said, it must be recognized that there will continue to be situations where weather conditions are variable, and the decision on whether or not to sail cannot be made until virtually the last minute.

Phone message and text message service would require some additional staff time.

##### 10.4.5 Alternative 6(e): Issue “return tickets” for walk-on passengers for Pelee Fest, Canada Day weekend, Civic Holiday weekend, and Labour Day weekend, so fewer passengers are unable to leave the Island at the end of day because vessel capacity has been “maxed out”.

###### **Description and Comments**

This alternative involves providing return tickets for walk-on passengers for Pelee Fest, Canada Day weekend (or weekday), Civic Holiday weekend, and Labour Day weekend. This is a result of the incident during the 2010 Pelee Fest weekend, held from August 6-8 where walk-on passengers were unable to leave the Island because passenger capacity was maxed out on the last ferry sailing of the day.

##### 10.4.6 Alternative 6(f): In the Event of Ferry Trip Cancellations from Pelee Island, Provide Notification of the Legion Hall’s “Golden Era” Program to Provide Overnight Accommodation to Stranded Users

###### **Description and Comments**

This alternative provides the mechanism to ensure that users stranded on the Island due to Ferry trip cancellations are made aware of the Legion Hall’s “Golden Era” program. This is a volunteer program in which Island residents provide the hospitality of overnight accommodation to travellers who can’t avail themselves of commercial accommodations.

#### 10.5 Evaluation of Alternatives and Selection of Recommended Ferry System Communications Process Alternatives

Based upon the detail provided in **Exhibit 10-1**, the following alternatives are recommended:

- Alternative 6(b): Provide additional telephones and staff during for period of peak spring start-up ferry trip reservations
- Alternative 6(c): Provide on-line ferry trip reservations and cancellations after Pelee Islander replacement is in service (software specific to vessels must be developed)
- Alternative 6(d): Alternative 6(d): Notify users of ferry trip cancellations or delays through timely recorded messages at the reservation desk and announcements at the ferry terminals
- Alternative 6(e): Issue “return tickets” for walk-on passengers for Pelee Fest, Canada Day weekend, Civic Holiday weekend, and Labour Day weekend, so fewer passengers are unable to leave the Island at the end of day because vessel capacity has been maxed out.
- Alternative 6(f): In the event of ferry trip cancellations from Pelee Island, provide notification of the Legion Hall’s “Golden Era” program to provide overnight accommodation to stranded users

**Rationale for Recommendations:**

- Alternatives 6(b) and 6(c) will improve user convenience by eliminating periods of long “on-hold” waiting to make trip reservations;
- Alternatives 6(d) and 6(f) will reduce the problem of inadequate communication advising users of ferry trip cancellation or rescheduling. Some improvements have already been made in this regard, and the vessel alternatives that have been recommended will reduce the incidence of trip cancellations because of increased vessel reliability due to improved maneuverability and propulsion system redundancy; and
- Alternative 6(e) will address the only periods where current Jiimaan passenger capacity has been “maxed out”, typically because too many walk-on passengers wait for the last trip of the day to leave the Island.

Exhibit 10-1: Evaluation of Ferry System Communications Process Alternatives						
Key Problems Regarding Transportation Services to Pelee Island that are Impacted by Ferry System Communications Process Alternatives	Degree to Which Alternative Addresses Problem					
	Alternative 6(a): Make no changes to communications processes with ferry system users	Alternative 6(b): Provide additional telephones and staff for period of peak spring start-up ferry trip reservations	Alternative 6(c): Provide on-line ferry trip reservations and cancellations after Pelee Islander replacement is in service (software specific to vessels must be developed)	Alternative 6(d): Notify users of ferry trip cancellations or delays through timely recorded messages at the reservation desk and announcements at the ferry terminals	Alternative 6(e): Issue “return tickets” for walk-on passengers for Pelee Fest, Canada Day weekend, Civic Holiday weekend, and Labour Day weekend, so fewer passengers are unable to leave the Island at the end of day because vessel capacity has been maxed out	Alternative 6(f): In the event of trip cancellations from Pelee Island, provide notification of the Legion Hall’s “Golden Era” program to provide overnight accommodation to stranded users
<p><b>Inadequate communication system for advising users of ferry trip cancellation or rescheduling</b> (The importance of this problem is ranked “medium” by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Alternative 6(a) does not address the communication system problems.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(b) would not address inadequate communication system for advising users of ferry trip cancellations or rescheduling.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(c) would not address the inadequate communication system for advising users of ferry trip cancellations or rescheduling.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(d) would allow timely advisories to users in the event of trip cancellation or rescheduling due to weather or mechanical breakdowns.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(e) would not address the inadequate communication system for advising users of ferry trip cancellations or rescheduling.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(f) would allow timely advisories to users of accommodation opportunities in the event of trip cancellation from the Island.</li> </ul>
<p><b>Some aspects of the ferry system, or aspects of some alternatives, are inadequate or inconvenient for the users</b> (The importance of this problem is ranked “medium” by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Alternative 6(a) does not address the inadequacy of the communication system for users.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(b) would alleviate the booking delays associated with the spring reservation booking season.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(c) would alleviate the booking delays associated with the spring reservation booking season by providing users with an alternative.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(d) would address the inadequacy of the communication system with respect to the lack of timely notification of trip cancellations due to weather or mechanical breakdown.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(e) would address the inconvenience of walk-on passengers who are normally unable to make purchase advance return trips.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(f) would address the inadequacy of the communication system because travellers would not left wondering if accommodation will be possible when they find that they cannot get back to the mainland at the time they planned.</li> </ul>
<p><b>Change in ferry service schedule, capacity, cost or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors</b> (The importance of this problem is ranked “medium” by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Alternative 6(a) continues with the status quo with respect to ferry service and provides the same level of impact on local commercial sectors.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(b) would alleviate customer frustration and complaints resulting from long waiting periods during the opening of ferry reservation booking season. This may have a positive impact on local commercial sectors as they would not need to wait as long to make reservations for commercial bookings.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(c) would alleviate frustration and customer complaints resulting from long waiting periods on the telephone during the opening of booking season. This may have a positive impact on commercial sectors as visitors/travellers will be able to book trips without a delay.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(d) would have a positive impact on local commercial sectors as it would provide up to date information for tourists, local residents and cottagers.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(e) would provide a positive impact on local commercial sectors because it would allow walk-on passengers to purchase return tickets, ensuring that visitors are unable to leave the Island. It would also provide additional guaranteed trips for users when vehicle capacity has been reached.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 6(f) could have no impact on the local commercial sectors.</li> </ul>
<b>RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li><b>Do Not Carry Forward</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Carry Forward</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Carry Forward</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Carry Forward</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Carry Forward</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Carry Forward</b></li> </ul>

## 11. Pelee Island Port Location Alternatives

### 11.1 Assumptions for Consideration of Pelee Island Port Location Alternative

Based upon evaluation of the previous categories of alternative, consideration of Pelee Island port location alternatives assumes that:

- The Pelee Islander will be replaced with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions;
- The Jiimaan will be extended for increased vehicle capacity, a second bow thruster will be installed to provide improved manoeuvrability and an improved four-engine diesel power plant will be installed to provide propulsion system redundancy (hull dimensions will be maximized to suit existing Ontario dock facilities);
- MTO will continue to operate a two-vessel ferry system with service to both the U.S. and the Ontario mainland, with the Pelee Islander replacement vessel providing joint Sandusky, Ohio and Ontario service, and the improved Jiimaan providing service to the Ontario mainland only; and
- The primary purpose of the ferry service to the Sandusky, Ohio is to provide access to Pelee Island for cottagers and other tourists during peak periods of tourist travel.

### 11.2 Identification and Screening of Pelee Island Port Alternatives to be Carried Forward for Assessment and Evaluation

The following Pelee Island port location alternatives have been carried forward for assessment and evaluation:

Pelee Island Port Location Alternatives
7(a) Continue both Ontario mainland service and Sandusky, Ohio service at Pelee Island's West Dock
7(b) Rebuild Pelee Island's Scudder Dock port and move both Ontario mainland service and Sandusky, Ohio service to Scudder Dock
7(c) Rebuild Pelee Island's Scudder Dock port for Ontario mainland service, and leave Sandusky, Ohio service at West Dock

The alternative of continuing Sandusky U.S service at Pelee Island's West Dock and moving Ontario mainland service to Pelee Island's Scudder Dock was not carried forward, because of the cost and complications associated with operating two ports on the Island including: user confusion associated with operating two ports concurrently on an ongoing daily basis; and the need to move the ferry and port staff from one Pelee Island port to the other when the destination of voyages shifts alternate.

The following key problems identified in Section 2.1 are impacted by the Pelee Island port location alternatives carried forward:

Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Long ferry trip duration	High	Medium
Changes in ferry service schedule, capacity, cost, or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors	High	High
High MTO implementation cost for some alternatives	Low	High
High MTO annual operational cost for some alternatives	High	High

### 11.3 Background Issues/Considerations Associated with Pelee Island Port Location Alternatives

#### Scudder Dock

Pelee Island Scudder North Dock, which is owned by the Government of Canada, was built in the 1930s. In 1995, MTO installed a ferry ramp for roll-on roll-off vehicle access to the Jiimaan, but this ramp, and the majority of the wharf is no longer used, and it is not structurally suitable for ferry access by large truck with heavy loads (load capacity is less than 25 tonnes).

Scudder Dock has no vehicle staging area, virtually no parking, no terminal buildings, and no secure area for border processing / customs inspection.

Some constraints that would have to be considered if Scudder Dock were to be reconstructed include the following:

- Soil contamination issues in approach road at south end of existing structure would have to be resolved;
- Westerly limit of Transport Canada waterlot is approximately 50m to the west of the existing wharf. At the shoreline, however the lot is only 15m west of the existing wharf. The riparian rights of the contiguous property will limit potential in-water expansion on the west side;
- Small craft operations are on-going in the inner harbour. Recreational vessels berth along the east side of the existing wharf; and
- Potential new costs of relocating border processing / customs inspection from West Dock would have to be resolved.

#### West Dock

Pelee Island West Dock is owned by the MTO. The majority West Dock was constructed in the 1991 through 1993 period. However, the original west wharf, which forms the north end of the port, was constructed in the 1950s.

The original west wharf requires patching of its sheet piling in order to eliminate an ongoing fill subsidence problem. The rest of the dock facilities are in good condition, due to \$90,000,000 of work completed in 2007. This work included:

- stabilization of the sheet pile dock walls through installation of concrete caissons and a cap beam, all located below lake bed level
- restoration of settlement areas behind the dock walls
- repair of deteriorated components of the docks
- upgrading handrails on the adjustable pedestrian ramps
- modification of the bearings of the roll-on / roll-off (RORO) ramps.

The 2005-2009 five (5)-year average key annual operating cost of Pelee Island West Dock are approximately \$355,000.

#### Sailing Distances and Travel Times

Key sailing distances and travel times with respect to Pelee Island port location are the following:

- sailing distance from Ontario mainland to Pelee Island West Dock is 34km
- sailing distance from Ontario mainland to Pelee Island Scudder Dock is 26km
- current travel time for the 34 km trip between the Ontario mainland and Pelee Island West Dock is 90 minutes
- travel time for the 26km trip between the Ontario mainland and Pelee Island Scudder Dock would be about 70 minutes
- sailing distance from Sandusky to Pelee Island West Dock is 37km
- sailing distance from Sandusky to Pelee Island Scudder Dock is 46km

- current travel time for the 37 km trip between Sandusky and Pelee Island West Dock is 90 minutes
- travel time for the 47 km trip between Sandusky and Pelee Island Scudder Dock would be about 110 minutes.

Based upon the 2005 to 2009 five (5)-year annual sailing records:

- the Jiimaan currently makes 1013 annual (one way) sailing trips between Pelee Island and the Ontario mainland;
- the Pelee Islander currently makes 525 annual (one way) sailing trips between Pelee Island and the Ontario mainland;
- there is a total of 1538 sailing trips (one way) between Pelee Island and the Ontario mainland; and
- the Pelee Islander makes 194 annual (one way) sailing trips between Pelee Island and Sandusky.

#### **Estimate of Fuel and Crew Costs, West Dock versus Scudder:**

The following are approximate order of magnitude costs that do not consider the potential impact on crew shifts and overall staffing.

If West Dock is utilized for both Ontario mainland and Sandusky, Ohio service:

- with Jiimaan providing Ontario mainland service according to its current schedule of 1013 annual one-way trips, based on 2005-2009 average annual operating costs, fuel plus crew costs would be approximately \$2,150,000
- with Pelee Islander replacement vessel providing joint Sandusky, Ohio and Ontario mainland service according to the current schedule of 525 annual one-way trips to Ontario and 194 annual one-way trips to Sandusky, estimated fuel plus crew costs would be approximately \$990,000
- Total annual fuel and crew costs for the two (2) ferry vessels using West Dock would be approximately \$3,140,000.

If Scudder North Dock is utilized for both Ontario mainland and Sandusky service:

- With Jiimaan providing Ontario mainland service according to its current schedule of 1013 annual one-way trips, based on 2005-2009 average annual operating costs, fuel plus crew costs would be approximately \$1,990,000
- With Pelee Islander replacement vessel providing joint Sandusky and Ontario mainland service according to the current schedule of 525 annual one-way trips to Ontario and 194 annual one-way trips to the U.S, estimated fuel plus crew costs would be approximately \$970,000
- Total annual fuel and crew costs for the two (2) ferry vessels using West Dock would be approximately \$2,950,000.

If Scudder North Dock is utilized for Ontario mainland service, and West Dock is utilized for Sandusky service:

- With Jiimaan providing Ontario mainland service according to its current schedule of 1013 annual one-way trips, based on 2005-2009 average annual operating costs, fuel plus crew costs would be approximately \$1,990,000
- With Pelee Islander replacement vessel providing joint Sandusky, Ohio and Ontario mainland service according to the current schedule of 525 annual one-way trips to Ontario and 194 annual one-way trips to the U.S, estimated fuel plus crew costs would be approximately \$970,000.
- Total annual fuel and crew costs for the two ferry vessels using West Dock would be approximately \$2,970,000.

## **11.4 Description and Assessment of Pelee Island Port Location Alternatives**

### **11.4.1 Alternative 7(a): Continue Both Ontario Mainland Service and Sandusky U.S. Service at Pelee Island's West Dock**

#### **Description and Comments**

This alternative involves keeping all of the Pelee Island ferry services on Pelee Island at West Dock.

### **11.4.2 Alternative 7(b): Rebuild Pelee Island's Scudder Dock Port and Move both Ontario Mainland Service and Sandusky U.S. Service to Scudder Dock**

#### **Description and Comments**

This alternative involves moving all The Pelee Island ferry services on Pelee Island from West Dock to Scudder (north) dock, and probably divesting West Dock from MTO ownership. The order-of-magnitude cost of rebuilding Scudder is \$15,000,000.

A class environmental assessment study would be required and it would have to receive environmental clearance before:

- construction could commence on the new port / ferry connection; and
- West Port could be closed as the current port / ferry connection.

Order of magnitude annual cost saving in fuel plus crew costs would be \$190,000.

### **11.4.3 Alternative 7(c): Rebuild Pelee Island's Scudder Dock Port for Ontario Mainland Service, and Leave Sandusky U.S. Service at West Dock**

#### **Description and Comments**

This alternative involves MTO operating two ports concurrently on Pelee Island for much of the sailing season, with:

- Ontario mainland service provided from Scudder Dock for the entire sailing season by both the Jiimaan and the Pelee Islander replacement vessel;
- U.S. service provided from West Dock according to the current schedule by the Pelee Islander replacement vessel only;
- the Pelee Islander replacement vessel moving from one port to the other as required between Ontario and U.S service trips in order to accommodate the above; and
- staffing of both ports for the portion of the sailing season that both are operational.

Order of magnitude annual cost saving in fuel plus crew costs would be \$175,000. However, there would be the additional cost of operating two ports on the Island and additional costs to have the Pelee Islander vessel going to both ports.

## **11.5 Evaluation of Alternatives and Selection of Recommended Pelee Island Port Location Alternative**

Based upon the detail provided in **Exhibit 11-1**, Alternative 7(a) is recommended: Continue both Ontario mainland service and Sandusky U.S. service at Pelee Island's West Dock.

**Rationale for Recommendation:**

- Maintains the current situation of almost equal trip distances between Pelee Island and both Ontario mainland and Sandusky. Trip duration to Ontario mainland is therefore not reduced at the expense of trip duration to the Sandusky;
- Avoids negative impact to businesses near West Dock that would occur if they lost their exposure and proximity to the operating ferry terminal. Keeps the ferry terminal at Pelee Island's only "downtown" area; and
- Cost of rebuilding Scudder Dock to current ferry terminal standards estimated at \$15,000,000, and return on this investment is low because some of the annual operating cost savings (fuel and crew) between Pelee Island and Ontario mainland are lost due to increased operating costs between Pelee Island and Sandusky.

Exhibit 11-1 : Evaluation of Pelee Island Port Location Alternatives			
Key Problems Regarding Transportation Services to Pelee Island that are Impacted by Pelee Island Port Location Alternatives	Degree to Which Alternative Addresses Problem		
	Alternative 7(a) Continue both Ontario mainland service and Sandusky U.S. service at Pelee Island's West Dock	Alternative 7(b) Rebuild Pelee Island's Scudder Dock port and move both Ontario mainland service and Sandusky U.S. service to Scudder Dock	Alternative 7(c): Rebuild Pelee Island's Scudder Dock port for Ontario mainland service, and leave Sandusky U.S. service at West Dock
<p><b>Long ferry trip duration</b> (The importance of this problem is ranked "high" by the Pelee Island Transportation Committee and "medium" by the Study Team)</p>	<ul style="list-style-type: none"> <li>Since it is the status quo situation, Alternative 7(a) provides <b>no reduction in ferry trip duration</b></li> </ul>	<ul style="list-style-type: none"> <li>The <b>reduction</b> in length of a one-way trip between the Ontario mainland and Pelee Island is approximately 20 minutes.</li> <li>The <b>increase</b> in length of a one-way trip between the U.S. and Pelee Island is approximately 20 minutes.</li> <li><b>Overall reduction in trip duration is minimal.</b></li> </ul>	<ul style="list-style-type: none"> <li>The <b>reduction</b> in length of a one-way trip between the Ontario mainland and Pelee Island is approximately 20 minutes.</li> <li>The <b>increase</b> in length of a one-way trip between the U.S. and Pelee Island is approximately 20 minutes.</li> <li><b>Overall reduction in trip duration is minimal.</b></li> </ul>
<p><b>Changes in ferry service schedule, capacity, cost, or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors</b> (The importance of this problem is ranked "high" by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Since it is the status quo situation, Alternative 7(a) has <b>no effect on the local commercial sectors</b></li> </ul>	<ul style="list-style-type: none"> <li>Alternative 7(b) would have the following effects:                             <ul style="list-style-type: none"> <li>Accommodation and particularly the restaurant at West Dock could suffer some business loss.</li> <li>Accommodation and restaurants near Scudder Dock, and the Coop Store at Scudder Dock could experience some business gain</li> </ul> </li> <li><b>The overall effect of Alternative 7(b) on the local commercial sectors is expected to be moderately negative.</b></li> </ul>	<ul style="list-style-type: none"> <li>Alternative 7(c) would have the following effects:                             <ul style="list-style-type: none"> <li>Accommodation and particularly the restaurant at West Dock could suffer some business loss.</li> <li>Accommodation and restaurants near Scudder Dock, and the Coop Store at Scudder Dock could experience some business gain</li> </ul> </li> <li><b>The overall effect of Alternative 7(b) on the local commercial sectors is expected to be moderately.</b></li> </ul>
<p><b>High MTO implementation cost for some alternatives</b> (The importance of this problem is ranked "low" by the Pelee Island Transportation Committee and "high" by the Study Team)</p>	<ul style="list-style-type: none"> <li>Since Alternative 7(a) is the status quo situation, there is <b>zero implementation cost</b></li> </ul>	<ul style="list-style-type: none"> <li><b>The order of magnitude cost to implement Alternative 7(b) is \$ 15,000,000</b></li> </ul>	<ul style="list-style-type: none"> <li><b>The order of magnitude cost to implement Alternative 7(c) is \$ 15,000,000</b></li> </ul>
<p><b>High MTO annual operational cost for some alternatives</b> (The importance of this problem is ranked "high" by the Pelee Island Transportation Committee and "medium" by the Study Team)</p>	<ul style="list-style-type: none"> <li>Since Alternative 7(a) is the status quo situation, there is <b>zero impact on annual operating costs</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Zero change in annual port operating costs</b>, since only one port remains open.</li> <li><b>Minimal reduction in key annual vessel operating costs</b>, because the shorter distance between the Island and the Ontario mainland is offset by the increased distance between the Island and the U.S.</li> </ul>	<ul style="list-style-type: none"> <li><b>Annual port operating costs, would almost double</b>, since both port remains open for much of the sailing season</li> <li><b>Minimal reduction in annual key vessel operating costs</b>, because the shorter distance between the Island and the Ontario mainland is offset by the increased distance between the Island and the U.S.</li> </ul>
<p><b>RECOMMENDATIONS</b></p>	<ul style="list-style-type: none"> <li><b>Carry Forward</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Do Not Carry Forward</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Do Not Carry Forward</b></li> </ul>

## 12. Ontario Mainland Port Location Alternatives

### 12.1 Assumptions for Consideration of Ontario Mainland Port Location Alternatives

Based upon evaluation of the previous categories of alternative, consideration of Ontario mainland port location alternatives assumes that:

- The Pelee Islander will be replaced with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions;
- The Jiimaan will be extended for increased vehicle capacity, a second bow thruster will be installed to provide improved manoeuvrability and an improved four-engine diesel power plant will be installed to provide propulsion system redundancy (hull dimensions will be maximized to suit existing Ontario dock facilities);
- MTO will continue to operate a two-vessel ferry system with service to both the Sandusky, Ohio and the Ontario mainland; and
- Ferry access for all vehicle types will be allowed for Ontario mainland service.

### 12.2 Identification and Screening of Ontario Mainland Port Location Alternatives to be Carried Forward for Assessment and Evaluation

The following Ontario mainland port location alternatives have been carried forward for assessment and evaluation:

Ontario Mainland Port Location Alternatives
8(a) Continue operating both ports on the Ontario mainland with each of Leamington and Kingsville operating for only half of the sailing season and modify Ontario roadmap and road signs to reflect the seasonal nature of their operation.
8(b) Close Leamington and make port modifications at Kingsville that are necessary to consolidate all Ontario mainland operations in Kingsville
8(c) Close Kingsville to consolidate all Ontario mainland operations in Leamington (no port modifications necessary)

The alternative of closing both Leamington and Kingsville to establish a single Ontario mainland port mid-way between them (a location some stakeholders suggested be revisited) was not carried forward because the considerable cost did not appear to be offset by any appreciable benefit.

The following key problems identified in Section 2.1 are impacted by the Ontario mainland port location alternatives carried forward:

Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Changes in ferry service schedule, capacity, cost, or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors	High	High
High MTO implementation cost for some alternatives	Low	High
High MTO annual operational cost for some alternatives: <ul style="list-style-type: none"> <li>• Fuel consumption for the trip between mainland Ontario and Pelee Island is higher than it would be if Scudder North Dock were utilized for a shorter travel distance.</li> </ul>	Medium	Medium

### 12.3 Background Issues/Considerations Associated with Ontario Mainland Port Location Alternatives

Because only one mainland port is open at any given time, the incremental annual cost of operating two versus one port is essentially the cost of routine maintenance.

### 12.4 Description and Assessment of Ontario Port Location Alternatives

12.4.1 Alternative 8(a): Continue Operating Both Ports on the Ontario Mainland with each of Leamington and Kingsville Operating for Only Half of the Sailing Season and Modify Ontario Roadmap And Road Signs to Reflect The Seasonal Nature of Their Operation.

#### Description and Comments

This alternative continues operation of both Ontario mainland ports, with April through June (3 months) sailings to/from Leamington, and July through mid-December sailings (5.5 months) to/from Kingsville port.

The Island Transportation Committed has indicated that:

- There is little Islander benefit to operating two Ontario mainland ports;
- It is unnecessarily confusing tourists; and
- If it continues, need better road signing to reduce first time user confusion regarding which port is actually operational at any given time.

12.4.2 Alternative 8(b): Close Leamington and Make Port Modifications at Kingsville that are Necessary to Consolidate all Ontario Mainland Operations in Kingsville

#### Description and Comments

This alternative involves consolidating all ferry operations at the Ontario mainland at the Kingsville port, and closing the ferry port in Leamington and disposing of the property.

For this to occur, Kingsville port would have to be modified so that both vessels could be docked at the same time. This would involve enlarging the basin between the ferry pier and Kingsville’s “East Dock”, by removing a portion of the East Dock and installing sheet piling along the new east face.

In addition, the parking lot should be enlarged by expanding into greenspace on the ferry terminal property, or building an ancillary parking lot on commercial property to the north.

12.4.3 Alternative 8(c): Close Kingsville to Consolidate all Ontario Mainland Operations in Leamington (No Port Modifications Necessary)

#### Description and Comments

This alternative involves consolidating all ferry operations at the Ontario mainland at the Leamington port, and closing the ferry port in Kingsville and disposing of the property. No changes would have to be made to the Leamington port.

## 12.5 Evaluation of Alternatives and Selection of Recommended Ontario Mainland Port Location Alternative

Based upon the detail provided in **Exhibit 12-1**, the recommended Ontario mainland port location alternative is Alternative 8(a): Continue operating both ports on the Ontario mainland with each of Leamington and Kingsville operating for only half of the sailing season.

### Rationale for Recommendation:

- Closing of either mainland port would have negative economic impacts for the host community;
- Closing of Kingsville port would have negative impact on the Pelee Island agriculture industry, because their products are shipped to Kingsville and points westerly, and tractor-drawn trailers for some shipments are not appropriate for use through downtown Leamington;
- No significant saving in current operating costs if one of the mainland ports are closed; and
- Could revisit this issue in the future, if either of the mainland ports face significant upgrading costs.

Exhibit 12-1 : Evaluation of Ontario Mainland Port Location Alternatives			
Key Problems Regarding Transportation Services to Pelee Island that are Impacted by Ontario Mainland Port Location Alternatives	Degree to Which Alternative Addresses Problem		
	Alternative 8(a) Continue operating both ports on the Ontario mainland with each of Leamington and Kingsville operating for only half of the sailing season and modify Ontario roadmap and road signs to reflect the seasonal nature of their operation.	Alternative 8(b) Close Leamington and make port modifications at Kingsville that are necessary to consolidate all Ontario mainland operations in Kingsville	Alternative 8(c) Close Kingsville to consolidate all Ontario mainland operations in Leamington (no port modifications necessary)
<p><b>Changes in ferry service schedule, capacity, cost, or ports serviced, that are associated with some alternatives may have a negative impact on local commercial sectors</b></p> <p>(The importance of this problem is ranked “high” by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Since it is the status quo situation, Alternative 8(a) has <b>no effect on the local commercial sectors</b></li> </ul>	<ul style="list-style-type: none"> <li>Virtually all agricultural crops grown on Pelee Island are destined for Kingsville and points westerly, and shipped during the period that the Kingsville port is in service.</li> <li>If Kingsville port were closed, it would be too far for the winery to ship grapes via their grape wagons. The winery would have switch to using semi tractor trailer trucks. This would also put pressure on the ferry vehicle carrying capacity</li> <li>The loss of the ferry port would have a negative effect on the Leamington business community. Given the relative sizes of Leamington and Kingsville, the degree of impact to the Leamington economy is likely to be lower than for Kingsville in Alternative 8(c)</li> <li>Alternative 8(c) has a <b>moderate negative effect on the local commercial business sectors</b></li> </ul>	<ul style="list-style-type: none"> <li>Virtually all agricultural crops grown on Pelee Island are destined for Kingsville and points westerly, and shipped during the period that the Kingsville port is in service.</li> <li>If Kingsville port were closed, it would be too far for the winery to ship grapes via their grape wagons. The winery would have switch to using semi tractor trailer trucks. This would also put pressure on the ferry vehicle carrying capacity.</li> <li>The loss of the ferry port would have a negative effect on the Kingsville business community. Given the relative sizes of Leamington and Kingsville, the degree of impact to the Kingsville economy is likely to be higher than for Leamington in Alternative 8(b)</li> <li>Alternative 8(c) has a <b>high negative effect on the local commercial business sectors</b></li> </ul>
<p><b>High MTO implementation cost for some alternatives</b></p> <p>(The importance of this problem is ranked “low” by the Pelee Island Transportation Committee and “high” by the Study Team)</p>	<ul style="list-style-type: none"> <li>Since Alternative 8(a) is the status quo situation, there is <b>zero implementation cost</b></li> </ul>	<ul style="list-style-type: none"> <li><b>The order of magnitude cost to implement Alternative 8(b) is \$1.5M</b></li> </ul>	<ul style="list-style-type: none"> <li>Since no improvements would have to be made in order to consolidate all ferry operations in Leamington, <b>the order of magnitude cost to implement Alternative 8(c) is zero</b></li> </ul>
<p><b>High MTO annual operational cost for some alternatives</b></p> <p>The importance of this problem is ranked “medium” by both the Pelee Island Transportation Committee and the Study Team)</p>	<ul style="list-style-type: none"> <li>Since Alternative 8(a) is the status quo situation, there is <b>no change in annual operating costs</b></li> </ul>	<ul style="list-style-type: none"> <li>Because only one mainland port is open at any given time, the incremental annual cost saving of operating one versus two ports is essentially the cost of routine maintenance. <b>Change in annual operating costs is minimal.</b></li> </ul>	<ul style="list-style-type: none"> <li>Because only one mainland port is open at any given time, the incremental annual cost saving of operating one versus two ports is essentially the cost of routine maintenance. <b>Change in annual operating costs is minimal.</b></li> </ul>
<p><b>RECOMMENDATIONS</b></p>	<ul style="list-style-type: none"> <li><b>Carry Forward</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Do Not Carry Forward</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Do Not Carry Forward</b></li> </ul>

### 13. Ontario Ports Facility Alternatives

#### 13.1 Assumptions for Consideration of Alternatives

Based upon evaluation of the previous categories of alternative, consideration of Ontario mainland port location alternatives assumes that:

- The Pelee Islander will be replaced with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions;
- The Jiimaan will be extended for increased vehicle capacity, a second bow thruster will be installed to provide improved manoeuvrability and an improved four-engine diesel power plant will be installed to provide propulsion system redundancy (hull dimensions will be maximized to suit existing Ontario dock facilities);
- MTO will continue to operate a two-vessel ferry system with service to both Sandusky, Ohio and the Ontario mainland;
- Ferry access for all vehicle types will be allowed for Ontario mainland service;
- Both Ontario mainland service and Sandusky, Ohio service will continue at Pelee Island’s West Dock; and
- Both ports on the Ontario mainland will remain in operation, with each of Leamington and Kingsville operating for only half of the sailing season.

#### 13.2 Identification and Screening of Alternatives to be Carried Forward for Assessment and Evaluation

The following Ontario port alternatives to improve user convenience have been carried forward for assessment and evaluation:

Ontario Ports Facility Alternatives
9(a) Make no changes to Ontario ports for improved user convenience
9(b) Make changes to security provisions at all Ontario ports for easier access to ferries
9(c) Increase size of passenger wait area at Pelee Island West Dock
9(d) Provide more parking at Pelee Island West Dock
9(e) Provide public washrooms at Pelee Island West Dock
9(f) Provide a for-fee stevedore “valet service” to load and unload tractor trailer trucks when owner/operator not available at sailing times

The alternative of increasing the size of the passenger wait area at Leamington and Kingsville was not carried forward because they are much larger than that of Pelee Island’s West Dock, and the need is less because the incidence of pedestrian passengers without a vehicle in the parking lot to wait in is much lower on the Ontario mainland.

The following key problems identified in Section 2.1 are impacted by the Ontario port alternatives to improve user convenience that were carried forward:

Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Some aspects of the current ferry system, or aspects of some alternatives, are inadequate or inconvenient for the users: <ul style="list-style-type: none"> <li>• Ferry Vessels:                             <ul style="list-style-type: none"> <li>○ Lack adequate racks for bicycles</li> </ul> </li> </ul>	Low	Low

<ul style="list-style-type: none"> <li>○ Enclosed Jiimaan vehicle deck means that some dangerous goods cannot be carried</li> <li>○ Side-load Pelee Islander vehicle access makes loading / off-loading difficult, and it must be done by crew</li> <li>○ Jiimaan elevator is unreliable and passengers sometimes get trapped in it</li> <li>○ Need to refuel during daytime services causes service delays.</li> <li>• Ferry Schedule:                             <ul style="list-style-type: none"> <li>○ Inadequate number of daily trips during summer peak season and fall season</li> <li>○ Departure time of the last Friday evening sailing from mainland Ontario is too early for many travellers</li> <li>○ Inadequate number of daily trips during peak tourism season</li> <li>○ Inadequate on-Island time for single-day trippers from Ontario mainland.</li> <li>○ Schedule does not provide for U.S. ferry service in early spring and late fall weekends, May/June weekdays, or for July/August single-day return visits to the Island from the U.S.</li> <li>○ Schedule layout and web site difficult for some users to understand</li> <li>○ Refuelling during daytime services causes service delays.</li> </ul> </li> <li>• Ferry Reservation and Cancellation System:                             <ul style="list-style-type: none"> <li>○ Users experience significant switchboard answering delays during peak booking periods (March)</li> <li>○ System does not allow for the purchase of roundtrip tickets, which could prevent return-trip passengers being stranded and alleviate some waiting times at the ticket booth</li> <li>○ Reservation system does not allow for “standbys” to eliminate low ridership when individuals cancel reservations.</li> </ul> </li> <li>• Ferry Ports:                             <ul style="list-style-type: none"> <li>○ Limited passenger amenities (e.g., weather protection for walk-on passengers; facilities for disabled passengers; provisions for walk-on passengers with luggage; washroom facilities at the Pelee terminal)</li> <li>○ Design of ports requires pedestrians to cross live lanes of traffic when disembarking from the ferries at all of the terminals</li> <li>○ Limited parking, particularly outside border-secure area on Pelee Island</li> <li>○ Inadequate provision is made for individuals who have difficulties walking the far distance between the ferry and terminal</li> <li>○ Stakeholder perception that border security provisions are unnecessarily interfering with West Dock operation during off-season when no US service is provided (perception that security provisions in the US interfere to a lesser degree)</li> </ul> </li> </ul> <p>Signage, maps and schedules are confusing to some tourists because only one of the two mainland Ontario ports is in service at any time.</p>		
High MTO implementation cost for some alternatives	Low	High

### 13.3 Description and Assessment of Ontario Port Facility Alternatives

#### 13.3.1 Alternative 9(a): Make No Changes to Ontario Ports for Improved User Convenience

##### Description and Comments

This alternative is status-quo for facilities at all Ontario port locations.

#### 13.3.2 Alternative 9(b): Make Changes to Security Provisions at all Ontario ports for Easier Access to Ferries

**Description and Comments**

This alternative would involve making the “secure area” at each port smaller, so that the walking distance is reduced, and passenger “kiss-and-ride” arrangements are easier, particularly for individuals who are disabled.

At Pelee Island, this could also include removal of border security provisions during the shoulder seasons when the service to Sandusky is not operating.

Reduction in security arrangements would be a concern from two aspects:

- general liability and asset security; and
- ISPF regulations.

**13.3.3 Alternative 9(c): Increase Size of Passenger Wait Area at Pelee Island West Dock****Description and Comments**

This alternative would involve providing additional under-cover passenger West Dock passenger wait area (so that waiting passengers don't have to stand in the rain) by one of the following:

- expand the terminal building to the south, to enlarge its passenger wait area;
- repurpose half of the border processing / customs inspection building, which is considerably under-utilized; or
- construct a small long and narrow building on a portion of the old “West Wharf”.

**13.3.4 Alternative 9(d): Provide more Parking at Pelee Island West Dock****Description and Comments**

This alternative would involve enlarging the parking area by a combination of lake fill and re-arrangement of the vehicle staging and internal port roads.

**13.3.5 Alternative 9(e): Provide Public Washrooms at Pelee Island West Dock****Description and Comments**

This alternative would involve:

- expansion of the terminal building to the south to provide a passenger washroom area;
- replacement of the existing sewage holding tank with a much larger one; and
- elimination of the portable washroom facilities.

**13.3.6 Alternative 9(f): Provide a For-Fee Stevedore “Valet Service” to Load and Unload Tractor Trailer Trucks when Owner/Operator Not Available at Sailing Times****Description and Comments**

This alternative would involve crew members driving tractor trailer trucks onto the ferry from the port staging area, and driving tractor trailer truck off of the ferry to be parked on the shoulder of mainland port exit road, and on Island municipal road.

This alternative would require some crew members to have the necessary classification of Ontario driver's license, and would require the ferry operator to carry additional insurance. Since there is competition between shipping lines to hire sufficient crew on the Great Lakes, the requirement for crew members with a trucker's license would be a concern. Accordingly, this alternative is not recommended.

**13.4 Evaluation of Alternatives and Selection of Recommended Ontario Ports Facility Alternatives to Improve User Convenience**

Alternative 9(c) is recommended: Increase size of passenger wait area at Pelee Island West Dock.

**Rationale for Recommendation:**

- Capital expenditures for alternatives 9(b), 9(d) and 9(e) are not justified:
  - current Owen Sound Transportation Company (OSTC) operating procedures (e.g. short-term terminal vehicle passes) provide means to address inconvenience of security provisions when needed;
  - municipal parking lot near town hall provides overflow parking on Pelee Island; and
  - municipal public washroom near town hall is in excellent condition.
- Passenger wait area at Pelee Island West Dock is so small, that in the event of a rainstorm, it is not unusual for walk-on passengers to be huddled under the building eaves while awaiting the next ferry. Capital expenditure expected to be relatively low.

## 14. Vessel Preparedness Alternatives for Early Spring Sailing Season

### 14.1 Assumptions for Consideration of Vessel Preparedness Alternatives

Based upon evaluation of the previous categories of alternative, consideration of vessel preparedness alternatives for early spring sailing season assumes that:

- The Pelee Islander will be replaced with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions;
- The Jiimaan will be extended for increased vehicle capacity, a second bow thruster will be installed to provide improved manoeuvrability and an improved four-engine diesel power plant will be installed to provide propulsion system redundancy (hull dimensions will be maximized to suit existing Ontario dock facilities);
- MTO will continue to operate a two-vessel ferry system with service to both the U.S. and the Ontario mainland;
- Ferry access for all vehicle types will be allowed for Ontario mainland service;
- Both Ontario mainland service and Sandusky, Ohio service will continue at Pelee Island’s West Dock; and
- Both ports on the Ontario mainland will remain in operation, with each of Leamington and Kingsville operating for only half of the sailing season.

### 14.2 Identification and Screening of Vessel Preparedness Alternatives to be Carried Forward for Assessment and Evaluation

The following shoulder season vessel preparedness alternatives have been carried forward for assessment and evaluation:

Vessel Preparedness Alternatives for Early Spring Sailing Season
10(a) Continue current approach of only one vessel “ready to go” during early spring sailing seasons
10(b) Ensure both ferry vessels are “ready to go” during early spring sailing season to provide back-up in event of mechanical breakdowns (if Jiimaan modifications permit this)

The following key problems identified in Section 2.1 are impacted by the shoulder season vessel preparedness alternatives carried forward:

Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Periodic loss of all early spring ferry service because the second vessel is not ready for sailing if the operational vessel breaks down	High	High
High MTO annual operational cost for some alternatives: <ul style="list-style-type: none"> <li>• Fuel consumption for the trip between mainland Ontario and Pelee Island is higher than it would be if Scudder North Dock were utilized for a shorter travel distance.</li> </ul>	Medium	Medium

### 14.3 Background Issues/Considerations Associated with Vessel Preparedness Alternatives

The Marine Evacuation Chute (MEC) deployment/training/inspection is scheduled for early April each year. This is the earliest it can be done for the following reasons:

- As part of Transport Canada regulations, one chute must be deployed and used by crew for re-training every year. The training must be witnessed by the DBC inspectors. Once the chute has been deployed, it has to be serviced, inspected and repacked in a certified facility by the DBC inspectors. This process requires five (5) days to complete.
- The inspectors are DBC Worldwide inspectors and come from British Columbia. Inspection dates must be scheduled months in advance and cannot be changed as the same team travels around the world performing this same task for other operators.
- A chute cannot be deployed onto ice – and it is too big a risk to anticipate that there is no ice on Lake Erie in March.
- There is a huge disadvantage to performing the inspection/deployment/training in the fall, at the end of the operating season. The training would be lost on the employees in the fall because they are laid off for several months before the knowledge gained from the training is used in the spring. It is best to do the training at the beginning of the season to ensure the knowledge is retained. As well, there is often have a large number of new crew signing on in the spring who were not there in the fall, and who would not have been trained on MEC operations. In addition, the OSTC would be required to have the chute deployed, do the training and have the chute repacked (a 5 day process) again in the spring, even though the chute had been inspected in the fall.
- The OSTC cannot operate without both chutes on board. Regulations require a chute on each side of the ship because in most critical situations, the ship is listing to one side and the chute on the opposite side to the list becomes inoperable. Therefore both MECs are taken off the ship and transported to Toronto for the inspection each year.

As noted in the second bullet, inspection dates are scheduled months in advance and if scheduled too early, ice on the lake will require the inspection to be delayed until an opening is available later in the season for the DBC Inspectors. By rescheduling the inspection, there is a huge risk that the sailing season for the Jiimaan could be delayed beyond the standard end of April sailing start-up and even into the summer sailing season.

As part of the preferred Alternative 2(d) improvements for the Jiimaan, slides will be installed to replace the chutes. Installing slides will allow for the spring inspection to occur on land and will not require the lake to be ice free. This eliminates the need to wait until early April to complete the inspection.

### 14.4 Description and Assessment of Spring Vessel Preparedness Alternatives

#### 14.4.1 Alternative 10(a): Continue Current Approach of Only One Vessel “Ready To Go” during Early Spring Sailing Season

##### Description and Comments

This alternative makes no changes to the spring vessel preparedness, and does not address the problems associated with the loss of ferry service if there is a mechanical breakdown during the early spring sailing season.

14.4.2 Alternative 10(b): Ensure both Ferry Vessels are “Ready to Go” during Early Spring Sailing Season to Provide Back-Up in Event of Mechanical Breakdowns (after 2015 when Jiimaan modifications permit this)

**Description and Comments**

After the recommended improvements of Alternative 2(d) are completed, an earlier inspection and maintenance schedule will be established in the spring to ensure that both ferry vessels are ‘ready to go’ during the early spring sailing season.

This alternative would avoid “surprise” breakdowns and cancellations when the ferries are brought into service at the start of the season and would ensure that ferry service is never totally unavailable (except for air service).

**14.5 Evaluation of Alternatives and Selection or Recommended Spring Vessel Preparedness Alternative**

Alternative 10(b) is recommended: Ensure both ferry vessels are “ready to go” during early spring sailing season to provide back-up in event of mechanical breakdowns (if Jiimaan modifications permit this).

**Rationale for Recommendation:**

- Recommended Jiimaan improvements include replacement of passenger emergency escape chutes with slides:
  - this eliminates the need to book late spring inspection, testing and crew training of escape chute deployment which isn’t possible if ice conditions present (inspectors work on international basis and not readily available for quick rebooking if ice conditions were to interfere); and
  - Jiimaan could sail at beginning of early spring sailing season immediately after inspection and on-land training of crew on slide deployment.

## 15. On Island Transit

### 15.1 Assumptions for Consideration of On-Island Transit Alternatives

Based upon evaluation of the previous categories of alternative, consideration of on-Island transit alternatives assumes that:

- The Pelee Islander will be replaced with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions;
- The Jiimaan will be extended for increased vehicle capacity, a second bow thruster will be installed to provide improved manoeuvrability and an improved four-engine diesel power plant will be installed to provide propulsion system redundancy (hull dimensions will be maximized to suit existing Ontario dock facilities);
- MTO will continue to operate a two-vessel ferry system with service to both the Sandusky, Ohio and the Ontario mainland;
- Ferry access for all vehicle types will be allowed for Ontario mainland service;
- The last Friday evening sailing from the Ontario mainland will be delayed from a departure time of 6:00 pm to 7:00 pm to better accommodate travel time to ports; and
- During Pelee Fest and on the Friday and Monday of each of the Canada Day weekend, Civic Holiday weekend and Labour Day weekend one additional trip will be provided.

### 15.2 Identification and Screening of On-Island Transit Alternatives to be Carried Forward for Assessment and Evaluation

The following on-Island transit alternatives have been carried forward for assessment and evaluation:

On-Island Transit Alternatives
11(a) Continue on-Island transit as a private sector endeavour
11(b) Provide government funded on-Island transit service

The following key problems identified in Section 2.1 are impacted by the on-Island transit alternatives carried forward:

Key Problems Regarding Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Lack of readily available motorized vehicle alternatives to the private car on Pelee Island drives up demand for car capacity on the ferry system: <ul style="list-style-type: none"> <li>• No on-Island public passenger service to attractions and/or activities to facilitate passengers leaving their cars on mainland.</li> </ul>	Low	Low
High MTO annual operational cost for some alternatives: <ul style="list-style-type: none"> <li>• Fuel consumption for the trip between mainland Ontario and Pelee Island is higher than it would be if Scudder North Dock were utilized for a shorter travel distance.</li> </ul>	Medium	Medium

### 15.3 Background Issues/Considerations Associated with On-Island Transit Alternatives

Motorized vehicle alternatives on Pelee Island are limited for individuals who do not wish to bring their vehicle to the Island. Currently, on-Island Transit on Pelee Island is available from May until September through Essex County

Tours. The Essex County Tours provides two services: an Island tour on the “Big Blue Bus”; and taxi services outside of tour times.

The Island tour is approximately one and a half (1.5) to two (2) hours in length. The tour begins at the West Dock when the Ontario mainland ferry arrives and concludes at the West Dock with the opportunity for individuals/groups to stop at Pelee Island Art Works or the Pelee Island Winery Wine Pavilion. There is one tour per day from May until June 24<sup>th</sup> and for the month of September (following Labour Day weekend). During the peak tourist season from June 25 until Labour Day weekend in September, there are two tours per day. The cost of the tour is \$23 per person or \$18 for seniors.

Taxi services are available by reservation for persons seeking transportation outside of the scheduled tour times. The cost is \$5 per person with a minimum of four persons or \$20 base fee.

There are no other advertised motorized vehicle alternatives for individuals travelling to Pelee Island who do not wish to bring their personal vehicles.

The Pelee Island Tourism Experience Survey was completed in 2010. Findings show that for the 38% of individuals who came to Pelee Island said that they would not come if they could not bring their car. Of this group only 40% said that their answer would be different if there was a tourist shuttle service provided on the island.

Note that MTO is not in the business of providing municipally-based transit directly or through ongoing funding arrangements, and that Pelee Island does not have the property tax base to support the cost of a municipally operated transit service.

### 15.4 Description and Assessment of On-Island Transit Alternatives

#### 15.4.1 Alternative 11(a): Continue On-Island Transit as a Private Sector Endeavour

##### Description and Comments

Continue on-Island transit through Essex County Tours as the actual demand for an additional transit service is currently unknown (e.g. may only need weekend service).

#### 15.4.2 Alternative 11(b): Provide Government Funded On-Island Transit Service

##### Description and Comments

As vehicle capacity is often a limiting factor on ferry travel, on-island transit would provide an alternative to private vehicle travel on-island and the limited private trips available through Essex County Tours.

The government funded on-Island transit would consider that:

- Service may only be required on weekends;
- Travelers may require amenities/comforts above that provided by basic “school bus” type equipment; and
- Handling of passengers’ baggage, shopping, etc., may be required.

As noted in Section 16.3, MTO does not usually provide municipally-based transit directly or through ongoing funding arrangements. The cost to maintain an on-island transit service may be expensive for MTO if the usage is low.

## 15.5 Evaluation of Alternatives and Selection of Recommended On-Island Transit Alternative

Alternative 11(a) is recommended: Continue on-Island transit as a private sector endeavour.

### Rationale for Recommendation:

- Some on-Island transportation is available through taxi, shuttle service provided by some B&Bs, Pelee Island Winery bus, and for Island tours, the “big blue bus”;
- MTO is not in the practice of providing municipally-based transit through ongoing funding arrangements, and Pelee Island does not have the property tax base to provide transit; and
- On-Island transit would not likely see much usage any way because:
  - most people (other than single-day trippers) arrive on the Island with luggage and/or supplies, and want/need use of a private vehicle to move them
  - Island attractions and services are for the most part not distant to each other, and a private vehicle is needed for visitors to access and enjoy them at their own pace.

## 16. Island Winter Transportation Service Alternatives

### 16.1 Assumptions for Consideration of Island Winter Transportation Service Alternatives

Based upon evaluation of the previous categories of alternative, consideration of Island Winter Transportation Service alternatives assumes that:

- The Pelee Islander will be replaced with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions;
- The Jiimaan will be extended for increased vehicle capacity, a second bow thruster will be installed to provide improved manoeuvrability and an improved four-engine diesel power plant will be installed to provide propulsion system redundancy (hull dimensions will be maximized to suit existing Ontario dock facilities);
- MTO will continue to operate a two-vessel ferry system with service to both the Sandusky, Ohio and the Ontario mainland; and
- Ferry access for all vehicle types will be allowed for Ontario mainland service.

### 16.2 Identification and Screening of Island Winter Transportation Service Alternatives to be carried forward for Assessment and Evaluation

The following Island winter transportation service alternatives have been carried forward for assessment and evaluation:

Island Winter Transportation Service Alternatives
12(a) Continue to provide Island winter transportation service by aircraft
12(b) Change Island winter transportation service to a hovercraft

The following key problems identified in Section 2.1 are impacted by the Island winter transportation service alternatives carried forward:

Key Problems Regarding Winter Transportation Services to Pelee Island	Importance Determined by Pelee Island Transportation Committee	Importance Determined by Study Team
Some aspects of the current ferry system, or aspects of some alternatives, are inadequate or inconvenient for the users: <ul style="list-style-type: none"> <li>• Ferry Vessels:                             <ul style="list-style-type: none"> <li>○ Lack adequate racks for bicycles</li> <li>○ Enclosed Jiimaan vehicle deck means that some dangerous goods cannot be carried</li> <li>○ Side-load Pelee Islander vehicle access makes loading / off-loading difficult, and it must be done by crew</li> <li>○ Jiimaan elevator is unreliable and passengers sometimes get trapped in it</li> <li>○ Need to refuel during daytime services causes service delays.</li> </ul> </li> <li>• Ferry Schedule:                             <ul style="list-style-type: none"> <li>○ Inadequate number of daily trips during summer peak season and fall season</li> <li>○ Departure time of the last Friday evening sailing from mainland Ontario is too early for many travellers</li> <li>○ Inadequate number of daily trips during peak tourism season</li> <li>○ Inadequate on-Island time for single-day trippers from Ontario mainland.</li> <li>○ Schedule does not provide for U.S. ferry service in early spring and late fall weekends,</li> </ul> </li> </ul>	Medium	Medium

<ul style="list-style-type: none"> <li>○ May/June weekdays, or for July/August single-day return visits to the Island from the U.S.</li> <li>○ Schedule layout and web site difficult for some users to understand</li> <li>○ Refuelling during daytime services causes service delays.</li> <li>• Ferry Reservation and Cancellation System:                             <ul style="list-style-type: none"> <li>○ Users experience significant switchboard answering delays during peak booking periods (March)</li> <li>○ System does not allow for the purchase of roundtrip tickets, which could prevent return-trip passengers being stranded and alleviate some waiting times at the ticket booth</li> <li>○ Reservation system does not allow for "standbys" to eliminate low ridership when individuals cancel reservations.</li> </ul> </li> <li>• Ferry Ports:                             <ul style="list-style-type: none"> <li>○ Limited passenger amenities (e.g., weather protection for walk-on passengers; facilities for disabled passengers; provisions for walk-on passengers with luggage; washroom facilities at the Pelee terminal)</li> <li>○ Design of ports requires pedestrians to cross live lanes of traffic when disembarking from the ferries at all of the terminals</li> <li>○ Limited parking, particularly outside border-secure area on Pelee Island</li> <li>○ Inadequate provision is made for individuals who have difficulties walking the far distance between the ferry and terminal</li> <li>○ Stakeholder perception that border security provisions are unnecessarily interfering with West Dock operation during off-season when no US service is provided (perception that security provisions in the US interfere to a lesser degree)</li> </ul> </li> </ul> Signage, maps and schedules are confusing to some tourists because only one of the two mainland Ontario ports is in service at any time.		
High MTO implementation cost for some alternatives	Low	High
High MTO annual operational cost for some alternatives: <ul style="list-style-type: none"> <li>• Fuel consumption for the trip between mainland Ontario and Pelee Island is higher than it would be if Scudder North Dock were utilized for a shorter travel distance.</li> </ul>	Medium	Medium

### 16.3 Background Issues/Considerations Associated with Island Winter Transportation Service Alternatives

Air service is provided for travel during the tourist and hunting seasons and is the only link to the Island during the winter months. Air travel is also required in case of emergency. Pelee Island features an international airport on its west side in proximity to the West Dock.

Winter service to the Island operates 3.5 months per year (from mid-December through to the end of March). The current arrangement for air service is with Cameron Air Services, hired by the OSTC on behalf of MTO. Facilities and equipment are not owned by the MTO; the Municipality of Pelee Island owns the Pelee Island airport and the City of Windsor owns the Windsor Airport.

The aircraft used during the winter service season is a C-208 Caravan with a capacity of eight (8) passengers and two (2) crew members. The winter schedule for 2010-2011 was as follows:

- Four (4) round trips on Fridays;
- Three (3) round trips on Sundays; and
- Two (2) round trips each day from Monday to Thursday and Saturdays.

There is an additional freight only flight on Tuesdays.

Comments received from stakeholders with respect to the existing air service included:

- Pelee Island airport lacks essential amenities (potable water, washrooms, ground transportation);
- Pelee Island airport/runway design limits aircraft to none (9) passenger capacity;
- Inadequate Ontario mainland flight times for Pelee Island day trips;
- Business hours are inadequate for freight cargo and there are limited cargo options;
- Inclement weather causes cancellations; and
- Stakeholder perception that pre-boarding security is excessive.

#### **16.4 Description and Assessment of On-Island Transit Alternatives**

16.4.1 Alternative 12(a): Continue to provide Island Winter Transportation Service by Aircraft

##### ***Description and Comments***

MTO would continue to provide air service during the winter season from Windsor Airport to Pelee Island with the eight (8) passenger C-208 Caravan.

16.4.2 Alternative 12(b): Change Island Winter Transportation Service to a Hovercraft

##### ***Description and Comments***

MTO would change the air service carrier during the winter season from the existing C-208 to a hovercraft. This would allow daily commuter service for Islanders and potentially allow high school students to live on Pelee Island during the winter season.

#### **16.5 Evaluation of Alternatives and Selection of Recommended On-Island Transit Alternative**

Alternative 12(a) is recommended: Continue to provide Island winter transportation service by aircraft.

##### **Rationale for Recommendation:**

- The current air service has adequate capacity to service the low winter population of the Island;
- Recent changes to the operation have resulted in improvements to terminal access and goods shipments; and
- The cost of a hovercraft service is therefore not warranted since the:
  - performance of the current air service is high; and
  - Pelee Island transportation service is not intended to be a daily commuter service.

## 17. Summary of Alternatives Selected

**Exhibit 17-1** below summarizes the alternatives selected through the process described in the previous sections of this report.

<b>Exhibit 17-1: Summary of Alternatives Selected</b>	
<b>1. Recommended M.V. Pelee Islander Replacement Alternatives</b>	
1(b) Replace the Pelee Islander with a new combined passenger / car / truck roll-on roll-off ferry with conventional bow visor/stern ramp and with moderately larger hull dimensions	
<b>2. Recommended M.V. Jiimaan Major Vessel Improvement Alternative</b>	
2(d) Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a four-engine diesel power plant	
<b>3. Recommended Two-versus- One Vessel Ferry System Alternatives</b>	
3(a) Two-vessel ferry system with service to both U.S. and Ontario mainland, comprised of Pelee Islander replacement plus Jiimaan improvement alternatives	
<b>4. Recommended Ferry Schedule Trip Frequency/Timing Alternatives</b>	
4(c) Delay first and last Friday Ontario mainland departure times during July and August by 2 hours so that the 8:00pm last departure time better accommodates user travel time to ports with respect to the end of a standard working day	
4(d) Provide one additional return trip from the Ontario mainland during each day of Pelee Fest, and on the Friday and Monday of each of Victoria Day weekend, Canada Day weekend, Civic Holiday weekend, Labour Day weekend	
4(e) During May, June and September weekends, extend the time period between first departure from Ontario mainland and last departure from Pelee Island to provide for 7.5-hour single-day visits to the Island (same as July/August), and pro-rate the additional operating cost to all Ontario mainland trip fares	
4(g) Limit access for ferry trips between Pelee Island and the U.S. to non-commercial vehicles	
<b>5. Recommended Ferry Trip Reservations and Cancellation Alternatives (applies to vehicles only)</b>	
5(b) Require <u>5 Day</u> minimum advance notification to cancel a credit card guaranteed trip reservation without forfeiture of trip fare (increased from 48 hours)	
5(d): At the time of a reservation or a change of reservation, charge on a credit card a non-refundable fee to reserve each one-way trip that is credited to the trip fare at time of boarding	
5(f) For spring-time advance-booking of pheasant hunt sailing season trips, at the time of a reservation, charge on a credit card the full fare of each one-way trip, which is not eligible for refund in the event of a trip cancellation by the client, and allow hunters to book their next year's trip hunt during their hunt trip on the Island	
5(g) For farm crop shipments only, no reservation fee, and 48 hour minimum advance notification without trip fare forfeiture. If more than 10% of annual crop shipments are cancelled less than 5 days in advance, this policy exemption to be revisited	

<b>6. Recommended Communications Alternatives With Ferry System Users</b>
6(b) Provide additional telephones and staff for period of peak spring start-up ferry trip reservations
6(c) Provide on-line ferry trip reservations and cancellations after Pelee Islander replacement is in service (software specific to vessels must be developed)
6(d) Notify users of ferry trip cancellations or delays through timely recorded messages at the reservation desk and announcements at the ferry terminals
6(e) Issue "return tickets" for walk-on passengers for Pelee Fest, Canada Day weekend, Civic Holiday weekend, and Labour Day weekend, so fewer passengers are unable to leave the Island at end of day because vessel passenger capacity has been "maxed out"
6(f) In the event of trip cancellations from Pelee Island, provide notification of the Legion Hall's "Golden Era" program to provide overnight accommodation to stranded users
<b>7. Recommended Pelee Island Port Location Alternative</b>
7(a) Continue both Ontario mainland service and Sandusky, Ohio service at Pelee Island's West Dock
<b>8. Recommended Ontario Mainland Port Location Alternative</b>
8(a) Continue operating both ports on the Ontario mainland with each of Leamington and Kingsville operating for only half of the sailing season
<b>9. Recommended Ontario Port Facility Alternative</b>
9(c) Increase size of passenger wait area at Pelee Island West Dock
<b>10. Recommended Early Spring Sailing Season Vessel Preparedness Alternative</b>
10(b) Ensure both ferry vessels are "ready to go" during early spring sailing season to provide back-up in event of mechanical breakdowns
<b>11. Recommended On-Island Transit Alternative</b>
11(a) Continue on-Island transit as a private sector endeavour
<b>12. Recommended Island Winter Transportation Service Alternative</b>
12(a) Continue to provide Island winter transportation service by aircraft

## **Appendix 1: Trip Tables and Trip Costs**

**Two Vessel Ferry System Alternatives with Service to Both U.S. and Ontario Mainland (Pelee Island Ferry System Alternative 3(a)) – Impact of Alternatives on Number of Annual One-Way Trips**

Short-Listed Pelee Islander Replacement Alternatives	Short-Listed Jiimaan Improvement Alternatives	Jiimaan Improvement Alternative 2(b): Install Second Bow Thruster, With No Other Major Changes		Jiimaan Improvement Alternative 2(c): Install Second Bow Thruster, 4-Engine Diesel Power Plant, Without Lengthening Hull		Jiimaan Improvement Alternative 2(d): Install Second Bow Thruster, 4-Engine Diesel Power Plant, Plus Lengthen Hull		Jiimaan Improvement Alternative 2(e): Install Second Bow Thruster, Twin-Engine Diesel-Electric Power Plant, Two Stern Azimuth Units, Plus Extend Hull	
		Service Assignment*	2(b) Ontario Service	2(b) Joint U.S. Ontario Service	2(c) Ontario Service	2(c) Joint U.S. Ontario Service	2(d) Ontario Service	2(d) Joint U.S. Ontario Service	2(e) Ontario Service
<b>Alternative 1(a): Replace the Pelee Islander With Vessel of Similar Length as Existing Vessel, with Conventional Bow Visor / Stern Ramp</b>	1(a) Joint U.S. Ontario Service	2(b) 1013 to Ont. 1(a) 719 to Joint (1732)		2(c) 1013 to Ont. 1(a) 719 to Joint (1732)		2(d) 1013 to Ont. 1(a) 719 to Joint (1732)		2(e) 1013 to Ont. 1(a) 719 to Joint (1732)	
	1(a) Ontario Service		2(b) 551 to Joint 1(a) 1181 to Ont. (1732)		2(c) 667 to Joint 1(a) 1013 to Ont. (1680)		2(d) 667 to Joint. 1(a) 1013 to Ont. (1680)		2(e) 667 to Joint. 1(a) 1013 to Ont. (1680)
<b>Alternative 1(b): Replace the Pelee Islander With Moderately Larger Vessel, with Conventional Bow Visor / Stern Ramp</b>	1(b) Joint U.S. Ontario Service	2(b) 1013 to Ont. 1(b) 719 to Joint (1732)		2(c) 1013 to Ont. 1(b) 719 to Joint (1732)		2(d) 1013 to Ont. 1(b) 719 to Joint (1732)		2(e) 1013 to Ont. 1(b) 719 to Joint (1732)	
	1(b) Ontario Service		2(b) 551 to Joint 1(b) 1181 to Ont. (1732)		2(c) 667 to Joint 1(b) 1013 to Ont. (1680)		2(d) 667 to Joint. 1(b) 1013 to Ont. (1680)		2(e) 667 to Joint. 1(b) 1013 to Ont. (1680)
<b>Alternative 1(c): Replace the Pelee Islander With Vessel of Hull Dimensions Maximized to Suit Existing Ont. Ports, with Conventional Bow Visor / Stern Ramp</b>	1(c) Joint U.S. Ontario Service	2(b) 1013 to Ont. 1(c) 667 to Joint (1680)		2(c) 1013 to Ont. 1(c) 667 to Joint (1680)		2(d) 1013 to Ont. 1(c) 667 to Joint (1680)		2(e) 1013 to Ont. 1(c) 667 to Joint (1680)	
	1(c) Ontario Service		2(b) 551 to Joint 1(c) 1181 to Ont. (1732)		2(c) 667 to Joint 1(c) 1013 to Ont. (1680)		2(d) 667 to Joint 1(c) 1013 to Ont. (1680)		2(e) 667 to Joint 1(c) 1013 to Ont. (1680)
<b>Alternative 1(d): Replace the Pelee Islander With Open Flat Deck Self-Propelled Barge, with Hull Dimensions Maximized to Suit Existing Ont. Ports</b>	1(d) Joint U.S. Ontario Service	2(b) 1013 to Ont. 1(d) 667 to Joint (1680)		2(c) 1013 to Ont. 1(d) 667 to Joint (1680)		2(d) 1013 to Ont. 1(d) 667 to Joint (1680)		2(e) 1013 to Ont. 1(d) 667 to Joint (1680)	
	1(d) Ontario Service		2(b) 551 to Joint 1(d) 1181 to Ont. (1732)		2(c) 667 to Joint 1(d) 1013 to Ont. (1680)		2(d) 667 to Joint 1(d) 1013 to Ont. (1680)		2(e) 667 to Joint 1(d) 1013 to Ont. (1680)

\* Service Assignment: The "Ontario Service" and "Joint U.S. Ontario Service" row and column options shown for each of the Short Listed Ferry Vessel Replacement / Improvement Alternatives indicate which of the vessels servicing Ontario "only" or both "Ontario and US" ports. Total trips shown are in brackets. Improvements to vessels and ports served allow for reduced total trips in should season or weekends depending on the combination of alternatives chosen.

**Two Vessel Ferry System Alternatives with Service to Both U.S. and Ontario Mainland – Order of Magnitude Key Annual Operating Costs**

Short-Listed Vessel Alternatives	Total Annual Key Operating Costs		
	Joint U.S / Ontario Service	Ontario Mainland Service Only	Ontario Mainland Service When Paired with Alternatives 2(a) or 2(b) which can't do Shoulder Season
Alternative <b>1(a)</b> : Replace the Pelee Islander With Vessel of Similar Length as Existing Vessel, with Conventional Bow Visor / Stern Ramp	719 Trips <b>\$689,000</b>	1013 Trips <b>\$971,000</b>	1181 Trips <b>\$1,132,000</b>
Alternative <b>1(b)</b> : Replace the Pelee Islander With Moderately Larger Vessel, with Conventional Bow Visor / Stern Ramp	719 Trips <b>\$992,000</b>	1013 Trips <b>\$1,398,000</b>	1181 Trips <b>\$1,630,000</b>
Alternative <b>1(c)</b> : Replace the Pelee Islander With Vessel of Hull Dimensions Maximized to Suit Existing Ont. Ports, with Conventional Bow Visor / Stern Ramp (crew size varies with passenger load & time of year 11 or 8)	667 Trips <b>\$1,173,000</b>	1013 Trips <b>\$1,751,000</b>	1181 Trips <b>\$2,021,000</b>
Alternative <b>1(d)</b> : Replace the Pelee Islander With Open Flat Deck Self-Propelled Barge, with Hull Dimensions Maximized to Suit Existing Ont. Ports	667 Trips <b>\$1,137,000</b>	1013 Trips <b>\$1,726,000</b>	1181 Trips <b>\$2,012,000</b>
Jiimaan Improvement Alternative <b>2(b)</b> : Install Second Bow Thruster, With No Other Major Changes	551 Trips <b>\$1,169,000</b>	1013 Trips <b>\$2,149,000</b>	Not applicable
Jiimaan Improvement Alternative <b>2(c)</b> : Install Second Bow Thruster, 4-Engine Diesel Power Plant, Without Lengthening Hull	667 Trips <b>\$1,415,000</b>	1013 Trips <b>\$2,149,000</b>	Not applicable
Jiimaan Improvement Alternative <b>2(d)</b> : Install Second Bow Thruster, 4-Engine Diesel Power Plant, Plus Lengthen Hull	667 Trips <b>\$1,415,000</b>	1013 Trips <b>\$2,149,000</b>	Not applicable
Jiimaan Improvement Alternative <b>2(e)</b> : Install Second Bow Thruster, Twin-Engine Diesel-Electric Power Plant, Two Stern Azimuth Units, Plus Extend Hull	667 Trips <b>\$1,415,000</b>	1013 Trips <b>\$2,149,000</b>	Not applicable

**Two Vessel Ferry System Alternatives with Service to Both U.S. and Ontario Mainland – Order of Magnitude Total of Key Annual Operating Costs for Alternative Combinations**

Short-Listed Pelee Islander Replacement Alternatives	Short-Listed Jiimaan Improvement Alternatives	Jiimaan Improvement Alternative 2(b): Install Second Bow Thruster, With No Other Major Changes		Jiimaan Improvement Alternative 2(c): Install Second Bow Thruster, 4-Engine Diesel Power Plant, Without Lengthening Hull		Jiimaan Improvement Alternative 2(d): Install Second Bow Thruster, 4-Engine Diesel Power Plant, Plus Lengthen Hull		Jiimaan Improvement Alternative 2(e): Install Second Bow Thruster, Twin-Engine Diesel-Electric Power Plant, Two Stern Azimuth Units, Plus Extend Hull	
		Service Assignment	2(b) Ontario Service	2(b) Joint U.S. Ontario Service	2(c) Ontario Service	2(c) Joint U.S. Ontario Service	2(d) Ontario Service	2(d) Joint U.S. Ontario Service	2(e) Ontario Service
<b>Alternative 1(a): Replace the Pelee Islander With Vessel of Similar Length as Existing Vessel, with Conventional Bow Visor / Stern Ramp</b>	1(a) Joint U.S. Ontario Service	2(b) 1013 to Ont. = \$2,149,000 1(a) 719 to Joint = \$ 689,000 Total = \$2,838,000		2(c) 1013 to Ont. = \$2,149,000 1(a) 719 to Joint \$ = \$ 689,000 Total = \$2,838,000		2(d) 1013 to Ont. = \$2,149,000 1(a) 719 to Joint \$ = \$ 689,000 Total = \$2,838,000		2(e) 1013 to Ont. = \$2,149,000 1(a) 719 to Joint \$ = \$ 689,000 Total = \$2,838,000	
	1(a) Ontario Service		2(b) 551 to Joint = \$1,169,000 1(a) 1181 to Ont. = \$ 1,132,000 Total = \$2,301,000		2(c) 667 to Joint = \$1,415,000 1(a) 1013 to Ont. = \$ 971,000 Total = \$2,386,000		2(d) 667 to Joint = \$1,415,000 1(a) 1013 to Ont. = \$ 971,000 Total = \$2,386,000		2(e) 667 to Joint = \$1,415,000 1(a) 1013 to Ont. = \$ 971,000 Total = \$2,386,000
<b>Alternative 1(b): Replace the Pelee Islander With Moderately Larger Vessel, with Conventional Bow Visor / Stern Ramp</b>	1(b) Joint U.S. Ontario Service	2(b) 1013 to Ont. = \$2,149,000 1(b) 719 to Joint = \$ 992,000 Total = \$3,141,000		2(c) 1013 to Ont. = \$2,149,000 1(b) 719 to Joint = \$ 992,000 Total = \$3,141,000		2(d) 1013 to Ont. = \$2,148,573 1(b) 719 to Joint = \$ 992,220 Total = \$3,140,793		2(e) 1013 to Ont. = \$2,149,000 1(b) 719 to Joint = \$ 992,000 Total = \$3,141,000	
	1(b) Ontario Service		2(b) 551 to Joint = \$1,169,000 1(b) 1181 to Ont. = \$ 1,630,000 Total = \$2,798,000		2(c) 667 to Joint = \$1,415,000 1(b) 1013 to Ont. = \$ 1,398,000 Total = \$2,813,000		2(d) 667 to Joint = \$1,415,000 1(b) 1013 to Ont. = \$ 1,398,000 Total = \$2,813,000		2(e) 667 to Joint = \$1,415,000 1(b) 1013 to Ont. = \$ 1,398,000 Total = \$2,813,000
<b>Alternative 1(c): Replace the Pelee Islander With Vessel of Hull Dimensions Maximized to Suit Existing Ont. Ports, with Conventional Bow Visor / Stern Ramp</b>	1(c) Joint U.S. Ontario Service	2(b) 1013 to Ont. = \$2,149,000 1(c) 667 to Joint = \$1,173,000 Total = \$3,322,000		2(c) 1013 to Ont. = \$2,149,000 1(c) 667 to Joint = \$1,173,000 Total = \$3,322,000		2(d) 1013 to Ont. = \$2,148,573 1(c) 667 to Joint = \$1,173,004 Total = \$3,321,577		2(e) 1013 to Ont. = \$2,149,000 1(c) 667 to Joint = \$1,173,000 Total = \$3,322,000	
	1(c) Ontario Service		2(b) 551 to Joint = \$1,168,671 1(c) 1181 to Ont. = \$ 2,021,171 Total = \$3,190,000		2(c) 667 to Joint = \$1,414,707 1(c) 1013 to Ont. = \$ 1,751,228 Total = \$3,166,000		2(d) 667 to Joint = \$1,414,707 1(c) 1013 to Ont. = \$ 1,751,228 Total = \$3,166,000		2(e) 667 to Joint = \$1,415,000 1(c) 1013 to Ont. = \$ 1,751,000 Total = \$3,166,000
<b>Alternative 1(d): Replace the Pelee Islander With Open Flat Deck Self-Propelled Barge, with Hull Dimensions Maximized to Suit Existing Ont. Ports</b>	1(d) Joint U.S. Ontario Service	2(b) 1013 to Ont. = \$2,149,000 1(d) 667 to Joint = \$1,137,000 Total = \$3,285,000		2(c) 1013 to Ont. = \$2,149,000 1(d) 667 to Joint = \$1,137,000 Total = \$3,285,000		2(d) 1013 to Ont. = \$2,149,000 1(d) 667 to Joint = \$1,137,000 Total = \$3,285,000		2(e) 1013 to Ont. = \$2,149,000 1(d) 667 to Joint = \$1,137,000 Total = \$3,285,000	
	1(d) Ontario Service		2(b) 551 to Joint = \$1,169,000 1(d) 1181 to Ont. = \$ 2,012,000 Total = \$3,181,000		2(c) 667 to Joint = \$1,415,000 1(d) 1013 to Ont. = \$1,726,000 Total = \$3,141,000		2(d) 667 to Joint = \$1,415,000 1(d) 1013 to Ont. = \$1,726,000 Total = \$3,141,000		2(e) 667 to Joint = \$1,415,000 1(d) 1013 to Ont. = \$1,726,000 Total = \$3,141,000

**Two Vessel Ferry System Alternatives with Service to Ontario Mainland Only – Order of Magnitude Key Annual Operating Costs**

Short-Listed Vessel Alternatives	Total Annual Key Operating Costs	
	Late Spring / Summer / Early Fall Service (1013 trips)	Late Spring / Summer / Early Fall PLUS Shoulder Season Service (667)
Alternative <b>1(a)</b> : Replace the Pelee Islander With Vessel of Similar Length as Existing Vessel, with Conventional Bow Visor / Stern Ramp	\$971,000	\$640,000
Alternative <b>1(b)</b> : Replace the Pelee Islander With Moderately Larger Vessel, with Conventional Bow Visor / Stern Ramp	\$1,398,000	\$920,000
Alternative <b>1(c)</b> : Replace the Pelee Islander With Vessel of Hull Dimensions Maximized to Suit Existing Ont. Ports, with Conventional Bow Visor / Stern Ramp (crew size varies with passenger load & time of year 11 or 8)	\$1,751,000	\$1,195,000
Alternative <b>1(d)</b> : Replace the Pelee Islander With Open Flat Deck Self-Propelled Barge, with Hull Dimensions Maximized to Suit Existing Ont. Ports	\$1,726,000	\$1,137,000
Jiimaan Improvement Alternative <b>2(b)</b> : Install Second Bow Thruster, With No Other Major Changes	\$2,149,000	Not Applicable (can't do shoulder season)
Jiimaan Improvement Alternative <b>2(c)</b> : Install Second Bow Thruster, 4-Engine Diesel Power Plant, Without Lengthening Hull	\$2,149,000	\$2,505,000
Jiimaan Improvement Alternative <b>2(d)</b> : Install Second Bow Thruster, 4-Engine Diesel Power Plant, Plus Lengthen Hull	\$2,149,000	\$2,505,000
Jiimaan Improvement Alternative <b>2(e)</b> : Install Second Bow Thruster, Twin-Engine Diesel-Electric Power Plant, Two Stern Azimuth Units, Plus Extend Hull	\$2,149,000	\$2,505,000

**Two Vessel Ferry System Alternatives with Service to Ontario Mainland Only – Order of Magnitude Total of Key Annual Operating Costs for Alternative Combinations**

Short-Listed Pelee Islander Replacement Alternatives	Short-Listed Jiimaan Improvement Alternatives			
	Jiimaan Improvement Alternative 2(b): Install Second Bow Thruster, With No Other Major Changes	Jiimaan Improvement Alternative 2(c): Install Second Bow Thruster, 4-Engine Diesel Power Plant, Without Lengthening Hull	Jiimaan Improvement Alternative 2(d): Install Second Bow Thruster, 4-Engine Diesel Power Plant, Plus Lengthen Hull	Jiimaan Improvement Alternative 2(e): Install Second Bow Thruster, Twin-Engine Diesel-Electric Power Plant, Two Stern Azimuth Units, Plus Extend Hull
<b>Alternative 1(a): Replace the Pelee Islander With Vessel of Similar Length as Existing Vessel, with Conventional Bow Visor / Stern Ramp</b>	2(b) 1013 = \$2,149,000 1(a) 667 = \$640,000 Total = \$2,788,000	2(c) 1013 = \$2,149,000 1(a) 667 = \$640,000 Total = \$2,788,000	2(d) 1013 = \$2,149,000 1(a) 667 = \$640,000 Total = \$2,788,000	2(e) 1013 = \$2,149,000 1(a) 667 = \$640,000 Total = \$2,788,000
<b>Alternative 1(b): Replace the Pelee Islander With Moderately Larger Vessel, with Conventional Bow Visor / Stern Ramp</b>	2(b) 1013 = \$2,149,000 1(b) 667 = \$920,000 Total = \$3,069,000	2(c) 1013 = \$2,149,000 1(b) 667 = \$920,000 Total = \$3,069,000	2(d) 1013 = \$2,149,000 1(b) 667 = \$920,000 Total = \$3,069,000	2(e) 1013 = \$2,149,000 1(b) 667 = \$920,000 Total = \$3,069,000
<b>Alternative 1(c): Replace the Pelee Islander With Vessel of Hull Dimensions Maximized to Suit Existing Ont. Ports, with Conventional Bow Visor / Stern Ramp</b>	2(b) 1013 = \$2,149,000 1(c) 667 = \$1,195,000 Total = \$3,344,000	2(c) 1013 = \$2,149,000 1(c) 667 = \$1,195,000 Total = \$3,344,000	2(d) 1013 = \$2,149,000 1(c) 667 = \$1,195,000 Total = \$3,344,000	2(e) 1013 = \$2,149,000 1(c) 667 = \$1,195,000 Total = \$3,344,000
<b>Alternative 1(d): Replace the Pelee Islander With Open Flat Deck Self-Propelled Barge, with Hull Dimensions Maximized to Suit Existing Ont. Ports</b>	2(b) 1013 = \$2,149,000 1(d) 667 = \$1,137,000 Total = \$3,285,000	2(c) 1013 = \$2,149,000 1(d) 667 = \$1,139,000 Total = \$3,285,000	2(d) 1013 = \$2,148,573 1(d) 667 = \$1,136,568 Total = \$3,285,141	2(e) 1013 = \$2,149,000 1(d) 667 = \$1,137,000 Total = \$3,285,000

**Appendix 2: Detailed Evaluation Table for Two-Vessel Ferry System with Service to  
U.S. and Ontario Mainland**

**EVALUATION OF TWO-VESSEL FERRY SYSTEM ALTERNATIVES WITH SERVICE TO BOTH U.S. AND ONTARIO MAINLAND (FERRY SYSTEM ALTERNATIVE 3(a))**

Notes regarding use of terms in this table: <ul style="list-style-type: none"> <li>• “Imp. Cost” = implementation cost;</li> <li>• “Trip” = one-way trip</li> <li>• “Truck” = semi tractor trailer truck;</li> <li>• “Summer” Service = late spring + Summer + early fall sailing season;</li> <li>• “Increase in capacity” = capacity increase over that of the current vessel; and</li> <li>• “Shoulder Season Service” = early spring + late fall sailing season service.</li> </ul>		<b>M.V. Jiimaan Short-Listed Major Vessel Improvement Alternatives</b> (Per trip capacity of the current Jiimaan is 2 “trucks”, 34 cars if no “trucks”, and 385 passengers)									
<b>Color Legend and Order of Alternatives Screening</b>		<b>Jiimaan Improvement Alternative 2(b): Provide the Jiimaan with improved maneuverability</b>		<b>Jiimaan Improvement Alternative 2(c): Provide the Jiimaan with improved maneuverability, and provide propulsion system redundancy</b>		<b>Jiimaan Improvement Alternative 2(d): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a four-engine diesel power plant</b>		<b>Jiimaan Improvement Alt. 2(e): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a twin-engine diesel-electric power plant with azimuth</b>			
1 <sup>st</sup> Screened out on inadequate increase in weekly Ont. Mainland car capacity (up at least 304) or “truck” capacity (up at least 28), or on insufficient basic passenger capacity for Ont. Mainland service		2 <sup>nd</sup> Screened out on reliability to sail as scheduled (avoid trip cancellations due to wind, waves, power train failure)		• “Truck” Capacity: 2 • Car Capacity: 34 if no “trucks” • Passenger Capacity: 385 • Implementation Cost: \$2.05M		• “Truck” Capacity: 2 • Car Capacity: 34 if no “trucks” • Passenger Capacity: 385 • Implementation Cost: \$13.23M		• “Truck” Capacity: 4 • Car Capacity: 42 if no “trucks” • Passenger Capacity: 385 • Implementation Cost: \$17.79M		• “Truck” Capacity: 4 • Car Capacity: 42 if no “trucks” • Passenger Capacity: 385 • Implementation Cost: \$16.57M	
Since a weekly increase of 304 cars (at 38 trips / week) is provided by extending Jiimaan’s hull, this has been used as the benchmark increase.		3 <sup>rd</sup> Screened out on implementation cost if vehicle capacity increase is double or more the 304 benchmark		• Same Jiimaan “truck”, car & passenger capacity • Improves Jiimaan maneuverability • No power plant redundancy		• Same Jiimaan “truck”, car & passenger capacity • Improves Jiimaan maneuverability • Power plant redundancy		• Jiimaan capacity change: + 2 “trucks”, + 8 cars if no “trucks”, same passenger capacity • Improves Jiimaan maneuverability • Power plant redundancy		• Jiimaan capacity change: + 2 “trucks”, + 8 cars if no “trucks”, same passenger capacity • Improves Jiimaan maneuverability • Power plant redundancy	
Since the Island needs a capacity increase of 2 “trucks” round trip per day during peak shipping period, a weekly increase of 28 “trucks” has been used as the benchmark increase		4 <sup>th</sup> Screened out on comparative overall ferry system value versus another alternative		<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, no change in July/Aug. weekly Ontario mainland capacity of “trucks”, cars or passengers		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 “trucks” +336 cars if no “trucks” +2,646 passengers		<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, no change in July/Aug. weekly Ontario mainland capacity of “trucks”, cars or passengers		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 “trucks” +336 cars if no “trucks” +2,646 passengers	
<b>M.V. Pelee Islander Short-Listed Replacement Alternatives</b> (Per trip capacity of the Pelee Islander is zero “trucks”, 10 cars, and 196 passengers)		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +14 “trucks” +56 cars if no “trucks” zero passenger change		<b>“Summer” Service of Ont. Mainland only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: - 38 <u>fewer</u> “trucks” - 760 <u>fewer</u> cars if no “trucks” - 7182 <u>fewer</u> passengers		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +14 “trucks” +360 cars if no “trucks” Zero passenger change Total imp. cost: \$32.05M Total annual fuel & crew cost: \$2,837,950		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +14 “trucks” +360 cars if no “trucks” Zero passenger change Total imp. cost: \$43.24M Total annual fuel & crew cost: \$2,837,950		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +18 “trucks” - 312 <u>fewer</u> cars if no “trucks” - 4,536 <u>fewer</u> passengers Alt. 1(a) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service Total imp. cost: \$46.57M Total annual fuel & crew cost: \$2,837,950	
<b>Alternative 1(a): Replace the Pelee Islander With Vessel of Similar Length as Existing Vessel, with Conventional Bow Visor / Stern Ramp</b>		• Truck Capacity: 1 • Car Capacity: 14 if no “trucks” • Passenger Capacity: 196 • Implementation Cost: \$30m  • Capacity change: + 1 “truck” + 4 cars if no “trucks” + zero passengers  • Good maneuverability • Power plant redundancy		Total change in July/Aug. weekly Ontario mainland capacity is: <b>+14 “trucks”</b> <b>+56 cars if no “trucks”</b> Zero passenger change Total imp. cost: \$32.05M Total annual fuel & crew cost: \$2,837,950		Total change in July/Aug. weekly Ontario mainland capacity is: <b>+14 “trucks”</b> <b>+56 cars if no “trucks”</b> Zero passenger change Total imp. cost: \$43.24M Total annual fuel & crew cost: \$2,837,950		Total change in July/Aug. weekly Ontario mainland capacity is: <b>+90 “trucks”</b> <b>+360 cars if no “trucks”</b> Zero passenger change Total imp. cost: \$47.79M Total annual fuel & crew cost: \$2,837,950 <b>Alt. 1(b) provides better system value than 1(a) because has higher car capacity</b>		Total change in July/Aug. weekly Ontario mainland capacity is: <b>+90 “trucks”</b> <b>+360 cars if no “trucks”</b> Zero passenger change Total imp. cost: \$46.57M Total annual fuel & crew cost: \$2,837,950 <b>Alt. 1(b) provides better system value than 1(a) because has higher car capacity</b>	
				Total change in July/Aug. weekly Ontario mainland capacity is: <b>- 10 fewer “trucks”</b> <b>- 424 fewer cars if no “trucks”</b> <b>- 4,536 fewer passengers</b> Alt. 1(a) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service Total imp. cost: \$32.05M Total annual fuel & crew cost: \$2,301,000		Total change in July/Aug. weekly Ontario mainland capacity is: <b>- 10 fewer “trucks”</b> <b>- 424 fewer cars if no “trucks”</b> <b>- 4,536 fewer passengers</b> Alt. 1(a) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service Total imp. cost: \$43.24M Total annual fuel & crew cost: \$2,386,000		Total change in July/Aug. weekly Ontario mainland capacity is: <b>+18 “trucks”</b> <b>- 312 fewer cars if no “trucks”</b> <b>- 4,536 fewer passengers</b> Alt. 1(a) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service Total imp. cost: \$47.79M Total annual fuel & crew cost: \$2,386,000		Total change in July/Aug. weekly Ontario mainland capacity is: <b>+18 “trucks”</b> <b>- 312 fewer cars if no “trucks”</b> <b>- 4,536 fewer passengers</b> Alt. 1(a) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service Total imp. cost: \$46.57M Total annual fuel & crew cost: \$3,386,000	

**EVALUATION OF TWO-VESSEL FERRY SYSTEM ALTERNATIVES WITH SERVICE TO BOTH U.S. AND ONTARIO MAINLAND (FERRY SYSTEM ALTERNATIVE 3(a))**

Notes regarding use of terms in this table: <ul style="list-style-type: none"> <li>• "Imp. Cost" = implementation cost;</li> <li>• "Trip" = one-way trip</li> <li>• "Truck" = semi tractor trailer truck;</li> <li>• "Summer Service" = late spring + Summer + early fall sailing season;</li> <li>• "Increase in capacity" = capacity increase over that of the current vessel; and</li> <li>• "Shoulder Season Service" = early spring + late fall sailing season service.</li> </ul>		<b>M.V. Jiimaan Short-Listed Major Vessel Improvement Alternatives</b> (Per trip capacity of the current Jiimaan is 2 "trucks", 34 cars if no "trucks", and 385 passengers)							
<b>Color Legend and Order of Alternatives Screening</b>		<b>Jiimaan Improvement Alternative 2(b): Provide the Jiimaan with improved maneuverability</b>		<b>Jiimaan Improvement Alternative 2(c): Provide the Jiimaan with improved maneuverability, and provide propulsion system redundancy</b>		<b>Jiimaan Improvement Alternative 2(d): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a four-engine diesel power plant</b>		<b>Jiimaan Improvement Alt. 2(e): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a twin-engine diesel-electric power plant with azimuth</b>	
1 <sup>st</sup> Screened out on inadequate increase in weekly Ont. Mainland car capacity (up at least 304) or "truck" capacity (up at least 28), or on insufficient basic passenger capacity for Ont. Mainland service		2 <sup>nd</sup> Screened out on reliability to sail as scheduled (avoid trip cancellations due to wind, waves, power train failure)		3 <sup>rd</sup> Screened out on implementation cost if vehicle capacity increase is double or more the 304 benchmark		4 <sup>th</sup> Screened out on comparative overall ferry system value versus another alternative			
Since a weekly increase of 304 cars (at 38 trips / week) is provided by extending Jiimaan's hull, this has been used as the benchmark increase.		Since the Island needs a capacity increase of 2 "trucks" round trip per day during peak shipping period, a weekly increase of 28 "trucks" has been used as the benchmark increase							
<b>M.V. Pelee Islander Short-Listed Replacement Alternatives</b> (Per trip capacity of the Pelee Islander is zero "trucks", 10 cars, and 196 passengers)		<b>"Summer" Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, no change in July/Aug. weekly Ontario mainland capacity of "trucks", cars or passengers		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 "trucks" +336 cars if no "trucks" +2,646 passengers		<b>"Summer" Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, no change in July/Aug. weekly Ontario mainland capacity of "trucks", cars or passengers		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 "trucks" +336 cars if no "trucks" +2,646 passengers	
		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 "trucks" +140 cars if no "trucks" Zero passenger change Total imp. cost: \$47.05M Total annual fuel & crew cost: \$3,140,793				<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 "trucks" +140 cars if no "trucks" Zero passenger change Total imp. cost: \$58.23M Total annual fuel & crew cost: \$3,140,793		<b>BEST OVERALL ALT. FOR JOINT U.S / ONT SERVICE</b> Total change in July/Aug. weekly Ontario mainland capacity is: +104 "trucks" +444 cars if no "trucks" Zero passenger change Total imp. cost: \$61.57M Total annual fuel & crew cost: \$3,140,793 <b>Alt. 2(d) provides better system value than 2(d) from perspective of propulsion system redundancy</b>	
<b>Alternative 1(b): Replace the Pelee Islander With Moderately Larger Vessel, with Conventional Bow Visor / Stern Ramp</b>		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 "trucks" +140 cars if no "trucks" Zero passenger change		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 "trucks" +140 cars if no "trucks" Zero passenger change		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 "trucks" +140 cars if no "trucks" Zero passenger change		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 "trucks" +140 cars if no "trucks" Zero passenger change	
<ul style="list-style-type: none"> <li>• "Truck" Capacity: 2</li> <li>• Car Capacity: 20 if no "trucks"</li> <li>• Passenger Capacity: 196</li> <li>• Implementation Cost: \$45M</li> <li>• Capacity change: + 2 "trucks", + 10 cars if no "trucks" + zero passengers</li> <li>• Good maneuverability</li> <li>• Power plant redundancy</li> </ul>		<b>"Summer" Service of Ont. Mainland only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: Zero truck change - 532 fewer cars if no "trucks" -7,182 fewer passengers		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: Zero truck change - 196 <b>fewer</b> cars if no "trucks" - 4,536 <b>fewer</b> passengers <b>Alt. 1(b) has insufficient passenger capacity to replace the Jiimaan on Ont. mainland service</b> Total imp. cost: \$47.05M Total annual fuel & crew cost: \$2,798,000		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: Zero truck change - 196 <b>fewer</b> cars if no "trucks" - 4,536 <b>fewer</b> passengers <b>Alt. 1(b) has insufficient passenger capacity to replace the Jiimaan on Ont. mainland service</b> Total imp. cost: \$58.23M Total annual fuel & crew cost: \$2,813,000		<b>"Summer" Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: Zero truck change - 84 <b>fewer</b> cars if no "trucks" - 4,536 <b>fewer</b> passengers <b>Alt. 1(b) has insufficient passenger capacity to replace the Jiimaan on Ont. mainland service</b> Total imp. cost: \$61.57M Total annual fuel & crew cost: \$2,813,000	

**EVALUATION OF TWO-VESSEL FERRY SYSTEM ALTERNATIVES WITH SERVICE TO BOTH U.S. AND ONTARIO MAINLAND (FERRY SYSTEM ALTERNATIVE 3(a))**

Notes regarding use of terms in this table: <ul style="list-style-type: none"> <li>• “Imp. Cost” = implementation cost;</li> <li>• “Trip” = one-way trip</li> <li>• “Truck” = semi tractor trailer truck;</li> <li>• “Summer” Service = late spring + Summer + early fall sailing season;</li> <li>• “Increase in capacity” = capacity increase over that of the current vessel; and</li> <li>• “Shoulder Season Service” = early spring + late fall sailing season service.</li> </ul>		<b>M.V. Jiimaan Short-Listed Major Vessel Improvement Alternatives</b> (Per trip capacity of the current Jiimaan is 2 “trucks”, 34 cars if no “trucks”, and 385 passengers)									
<b>Color Legend and Order of Alternatives Screening</b>		<b>Jiimaan Improvement Alternative 2(b): Provide the Jiimaan with improved maneuverability</b>		<b>Jiimaan Improvement Alternative 2(c): Provide the Jiimaan with improved maneuverability, and provide propulsion system redundancy</b>		<b>Jiimaan Improvement Alternative 2(d): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a four-engine diesel power plant</b>		<b>Jiimaan Improvement Alt. 2(e): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a twin-engine diesel-electric power plant with azimuth</b>			
1 <sup>st</sup> Screened out on inadequate increase in weekly Ont. Mainland car capacity (up at least 304) or “truck” capacity (up at least 28), or on insufficient basic passenger capacity for Ont. Mainland service		2 <sup>nd</sup> Screened out on reliability to sail as scheduled (avoid trip cancellations due to wind, waves, power train failure)		• “Truck” Capacity: 2 • Car Capacity: 34 if no “trucks” • Passenger Capacity: 385 • Implementation Cost: \$2.05M		• “Truck” Capacity: 2 • Car Capacity: 34 if no “trucks” • Passenger Capacity: 385 • Implementation Cost: \$13.23M		• “Truck” Capacity: 4 • Car Capacity: 42 if no “trucks” • Passenger Capacity: 385 • Implementation Cost: \$17.79M		• “Truck” Capacity: 4 • Car Capacity: 42 if no “trucks” • Passenger Capacity: 385 • Implementation Cost: \$16.57M	
Since a weekly increase of 304 cars (at 38 trips / week) is provided by extending Jiimaan’s hull, this has been used as the benchmark increase.		3 <sup>rd</sup> Screened out on implementation cost if vehicle capacity increase is double or more the 304 benchmark		• Same Jiimaan “truck”, car & passenger capacity • Improves Jiimaan maneuverability • No power plant redundancy		• Same Jiimaan “truck”, car & passenger capacity • Improves Jiimaan maneuverability • Power plant redundancy		• Jiimaan capacity change: + 2 “trucks”, + 8 cars if no “trucks”, same passenger capacity • Improves Jiimaan maneuverability • Power plant redundancy		• Jiimaan capacity change: + 2 “trucks”, + 8 cars if no “trucks”, same passenger capacity • Improves Jiimaan maneuverability • Power plant redundancy	
Since the Island needs a capacity increase of 2 “trucks” round trip per day during peak shipping period, a weekly increase of 28 “trucks” has been used as the benchmark increase		4 <sup>th</sup> Screened out on comparative overall ferry system value versus another alternative		<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, no change in July/Aug. weekly Ontario mainland capacity of “trucks”, cars or passengers	<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 “trucks” +336 cars if no “trucks” +2,646 passengers	<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, no change in July/Aug. weekly Ontario mainland capacity of “trucks”, cars or passengers	<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 “trucks” +336 cars if no “trucks” +2,646 passengers	<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: +76 “trucks” +304 cars if no “trucks” Zero passenger change	<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +448 cars if no “trucks” +2,646 passengers	<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: +76 “trucks” +304 cars if no “trucks” Zero passenger change	<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +448 cars if no “trucks” +2,646 passengers
<b>M.V. Pelee Islander Short-Listed Replacement Alternatives</b> (Per trip capacity of the Pelee Islander is zero “trucks”, 10 cars, and 196 passengers)											
<b>Alternative 1(c): Replace the Pelee Islander With Vessel of Hull Dimensions Maximized to Suit Existing Ont. Ports, with Conventional Bow Visor / Stern Ramp</b>	• “Truck” Capacity: 4 • Car Capacity: 42 if no “trucks” • Passenger Capacity: 389 • Implementation Cost: \$56.5M  • Capacity change: + 4 “trucks”, + 32 cars if no “trucks” + 193 passengers • Good maneuverability • Power plant redundancy	<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +448 cars if no “trucks” +2,702 passengers	Total change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +420 cars if no “trucks” +2,702 passengers Total imp. cost: \$58.55M Total annual fuel & crew cost: \$3,322,000 <b>Alt. 2(a) has no power plant redundancy</b>		Total change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +420 cars if no “trucks” +2,702 passengers <b>Total imp. cost: \$69.73M</b> Total annual fuel & crew cost: \$3,322,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 “trucks” +752 cars if no “trucks” +2,702 passengers <b>Total imp. cost: \$74.29M</b> Total annual fuel & crew cost: \$3,322,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 “trucks” +752 cars if no “trucks” +2,702 passengers <b>Total imp. cost: \$73.07M</b> Total annual fuel & crew cost: \$3,322,000		
		<b>“Summer” Service of Ont. Mainland only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: +76 “trucks” +304 cars if no “trucks” +7,334 passengers	Total change in July/Aug. weekly Ontario mainland capacity is: +104 “trucks” +1,096 cars if no “trucks” +9,980 passengers Total imp. cost: \$58.55M Total annual fuel & crew cost: \$3,190,000 <b>Alt. 2(a) has no power plant redundancy</b>		Total change in July/Aug. weekly Ontario mainland capacity is: +104 “trucks” +1,096 cars if no “trucks” +9,980 passengers <b>Total imp. cost: \$69.73M</b> Total annual fuel & crew cost: \$3,166,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 “trucks” +752 cars if no “trucks” +9,980 passengers <b>Total imp. cost: \$74.29M</b> Total annual fuel & crew cost: \$3,166,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 “trucks” +752 cars if no “trucks” +9,980 passengers <b>Total imp. cost: \$73.07M</b> Total annual fuel & crew cost: \$3,166,000		

**EVALUATION OF TWO-VESSEL FERRY SYSTEM ALTERNATIVES WITH SERVICE TO BOTH U.S. AND ONTARIO MAINLAND (FERRY SYSTEM ALTERNATIVE 3(a))**

Notes regarding use of terms in this table: <ul style="list-style-type: none"> <li>• “Imp. Cost” = implementation cost;</li> <li>• “Trip” = one-way trip</li> <li>• “Truck” = semi tractor trailer truck;</li> <li>• “Summer” Service = late spring + Summer + early fall sailing season;</li> <li>• “Increase in capacity” = capacity increase over that of the current vessel; and</li> <li>• “Shoulder Season Service” = early spring + late fall sailing season service.</li> </ul>		<b>M.V. Jiimaan Short-Listed Major Vessel Improvement Alternatives</b> (Per trip capacity of the current Jiimaan is 2 “trucks”, 34 cars if no “trucks”, and 385 passengers)															
<b>Color Legend and Order of Alternatives Screening</b>		<b>Jiimaan Improvement Alternative 2(b): Provide the Jiimaan with improved maneuverability</b>		<b>Jiimaan Improvement Alternative 2(c): Provide the Jiimaan with improved maneuverability, and provide propulsion system redundancy</b>		<b>Jiimaan Improvement Alternative 2(d): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a four-engine diesel power plant</b>		<b>Jiimaan Improvement Alt. 2(e): Extend the Jiimaan hull and vehicle deck, provide improved maneuverability, and provide propulsion system redundancy through a twin-engine diesel-electric power plant with azimuth</b>									
1 <sup>st</sup> Screened out on inadequate increase in weekly Ont. Mainland car capacity (up at least 304) or “truck” capacity (up at least 28), or on insufficient basic passenger capacity for Ont. Mainland service  Since a weekly increase of 304 cars (at 38 trips / week) is provided by extending Jiimaan’s hull, this has been used as the benchmark increase.  Since the Island needs a capacity increase of 2 “trucks” round trip per day during peak shipping period, a weekly increase of 28 “trucks” has been used as the benchmark increase		2 <sup>nd</sup> Screened out on reliability to sail as scheduled (avoid trip cancellations due to wind, waves, power train failure)  3 <sup>rd</sup> Screened out on implementation cost if vehicle capacity increase is double or more the 304 benchmark		<ul style="list-style-type: none"> <li>• “Truck” Capacity: 2</li> <li>• Car Capacity: 34 if no “trucks”</li> <li>• Passenger Capacity: 385</li> <li>• Implementation Cost: \$2.05M</li> </ul> <ul style="list-style-type: none"> <li>• Same Jiimaan “truck”, car &amp; passenger capacity</li> <li>• Improves Jiimaan maneuverability</li> <li>• No power plant redundancy</li> </ul>		<ul style="list-style-type: none"> <li>• “Truck” Capacity: 2</li> <li>• Car Capacity: 34 if no “trucks”</li> <li>• Passenger Capacity: 385</li> <li>• Implementation Cost: \$13.23M</li> </ul> <ul style="list-style-type: none"> <li>• Same Jiimaan “truck”, car &amp; passenger capacity</li> <li>• Improves Jiimaan maneuverability</li> <li>• Power plant redundancy</li> </ul>		<ul style="list-style-type: none"> <li>• “Truck” Capacity: 4</li> <li>• Car Capacity: 42 if no “trucks”</li> <li>• Passenger Capacity: 385</li> <li>• Implementation Cost: \$17.79M</li> </ul> <ul style="list-style-type: none"> <li>• Jiimaan capacity change: + 2 “trucks”, + 8 cars if no “trucks”, same passenger capacity</li> <li>• Improves Jiimaan maneuverability</li> <li>• Power plant redundancy</li> </ul>		<ul style="list-style-type: none"> <li>• “Truck” Capacity: 4</li> <li>• Car Capacity: 42 if no “trucks”</li> <li>• Passenger Capacity: 385</li> <li>• Implementation Cost: \$16.57M</li> </ul> <ul style="list-style-type: none"> <li>• Jiimaan capacity change: + 2 “trucks”, + 8 cars if no “trucks”, same passenger capacity</li> <li>• Improves Jiimaan maneuverability</li> <li>• Power plant redundancy</li> </ul>							
		<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, no change in July/Aug. weekly Ontario mainland capacity of “trucks”, cars or passengers		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 “trucks” +336 cars if no “trucks” +2,646 passengers		<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, no change in July/Aug. weekly Ontario mainland capacity of “trucks”, cars or passengers		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +28 “trucks” +336 cars if no “trucks” +2,646 passengers		<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: +76 “trucks” +304 cars if no “trucks” Zero passenger change		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +448 cars if no “trucks” +2,646 passengers		<b>“Summer” Service of Ont. Mainland Only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: +76 “trucks” +304 cars if no “trucks” Zero passenger change		<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +448 cars if no “trucks” +2,646 passengers	
<b>M.V. Pelee Islander Short-Listed Replacement Alternatives</b> (Per trip capacity of the Pelee Islander is zero “trucks”, 10 cars, and 196 passengers)																	
<b>Alternative 1(d): Replace the Pelee Islander With Open Flat Deck Self-Propelled Barge, with Hull Dimensions Maximized to Suit Existing Ont. Ports</b>	<ul style="list-style-type: none"> <li>• “Truck” Capacity: 4</li> <li>• Car Capacity: 42 if no “trucks”</li> <li>• Passenger Capacity: 196</li> <li>• Implementation Cost: \$42M</li> </ul> <ul style="list-style-type: none"> <li>• Capacity change: + 4 “trucks”, + 32 cars if no “trucks” + zero passengers</li> <li>• Good maneuverability</li> <li>• Power plant redundancy</li> <li>• Poor hull design for rough water</li> </ul>	<b>“Summer” Service of U.S. &amp; Ont. Mainland</b> # July/Aug. weekly Ont. mainland trips is 14 Compared to Islander, change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +448 cars if no “trucks” Zero passenger change	Total change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +420 cars if no “trucks” Zero passenger change Total imp. cost: \$44.05M Total annual fuel & crew cost: \$3,285,000 <b>Alt 1(d) has poor hull design for rough water service</b>		Total change in July/Aug. weekly Ontario mainland capacity is: +56 “trucks” +420 cars if no “trucks” Zero passenger change Total imp. cost: \$55.23M Total annual fuel & crew cost: \$3,285,000 <b>Alt 1(d) has poor hull design for rough water service</b>		Total change in July/Aug. weekly Ontario mainland capacity is: +132 “trucks” +752 cars if no “trucks” Zero passenger change Total imp. cost: \$59.79M Total annual fuel & crew cost: \$3,285,000 <b>Alt 1(d) has poor hull design for rough water service</b>		Total change in July/Aug. weekly Ontario mainland capacity is: +132 “trucks” +752 cars if no “trucks” Zero passenger change Total imp. cost: \$58.57M <b>Total annual fuel &amp; crew cost: \$3,285,000</b> <b>Alt 1(d) has poor hull design for rough water service</b>		Total change in July/Aug. weekly Ontario mainland capacity is: +132 trucks +752 cars if no trucks +2,646 passengers <b>Alt. 1(d) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service</b> Total imp. cost: \$59.79M Total annual fuel & crew cost: \$3,141,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 trucks +752 cars if no trucks +2,646 passengers <b>Alt. 1(d) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service</b> Total imp. cost: \$58.57M Total annual fuel & crew cost: \$3,141,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 trucks +752 cars if no trucks +2,646 passengers <b>Alt. 1(d) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service</b> Total imp. cost: \$58.57M Total annual fuel & crew cost: \$3,141,000		
		<b>Summer Service of Ont. Mainland only</b> # July/Aug. weekly Ont. mainland trips is 38 Compared to current Jiimaan, change in July/Aug. weekly Ontario mainland capacity is: +76 trucks +304 cars if no trucks Zero passenger change	Total change in July/Aug. weekly Ontario mainland capacity is: +104 trucks +1,096 cars if no trucks +2,646 passengers <b>Alt. 1(d) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service</b> Total imp. cost: \$44.05M Total annual fuel & crew cost: \$3,181,000		Total change in July/Aug. weekly Ontario mainland capacity is: +104 trucks +1,096 cars if no trucks +2,646 passengers <b>Alt. 1(d) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service</b> Total imp. cost: \$55.23M Total annual fuel & crew cost: \$3,141,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 trucks +752 cars if no trucks +2,646 passengers <b>Alt. 1(d) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service</b> Total imp. cost: \$59.79M Total annual fuel & crew cost: \$3,141,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 trucks +752 cars if no trucks +2,646 passengers <b>Alt. 1(d) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service</b> Total imp. cost: \$58.57M Total annual fuel & crew cost: \$3,141,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 trucks +752 cars if no trucks +2,646 passengers <b>Alt. 1(d) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service</b> Total imp. cost: \$58.57M Total annual fuel & crew cost: \$3,141,000		Total change in July/Aug. weekly Ontario mainland capacity is: +132 trucks +752 cars if no trucks +2,646 passengers <b>Alt. 1(d) has insufficient passenger capacity to replace Jiimaan on this Ont. mainland service</b> Total imp. cost: \$58.57M Total annual fuel & crew cost: \$3,141,000				

### **Appendix 3:** Detailed Evaluation Table for Two-Vessel Ferry System with Service to Ontario Mainland Only

**EVALUATION OF TWO-VESSEL FERRY SYSTEM ALTERNATIVES WITH SERVICE TO ONTARIO MAINLAND ONLY (FERRY SYSTEM ALTERNATIVE 3(b))**

Notes regarding use of terms in this table: • "Imp. Cost" = implementation cost; "Trip" = one-way trip • "Truck" = semi tractor trailer truck; • "Summer" Service" = late spring + Summer + early fall sailing season; • "Increase in capacity" = capacity increase over that of the current vessel; • "Shoulder Season Service" = early spring + late fall sailing season service.		<b>M.V. Jiimaan Short-Listed Major Vessel Improvement Alternatives (Per trip capacity of the current Jiimaan is 2 "trucks", 34 cars if no "trucks", and 385 passengers) 38 trips per week</b>				
<b>M.V. Pelee Islander Short-Listed Replacement Alternatives</b> (Per trip capacity of the Pelee Islander is zero "trucks", 10 cars, and 196 passengers)  <b>28 trips per week</b>		<b>Jiimaan Improvement Alternative 2(b): Install Second Bow Thruster, With No Other Major Changes</b>	<b>Jiimaan Improvement Alternative 2(c): Install Second Bow Thruster, 4-Engine Diesel Power Plant, Without Lengthening Hull</b>	<b>Jiimaan Improvement Alternative 2(d): Install Second Bow Thruster, 4-Engine Diesel Power Plant, Plus Lengthen Hull</b>	<b>Jiimaan Improvement Alternative 2(e): Install Second Bow Thruster, Twin-Engine Diesel-Electric Power Plant, Two Stern Azimuth Units, Plus Extend Hull</b>	
<b>Alternative 1(a): Replace the Pelee Islander With Vessel of Similar Length as Existing Vessel, with Conventional Bow Visor / Stern Ramp</b>	<ul style="list-style-type: none"> <li>Truck Capacity: 1</li> <li>Car Capacity: 14 if no "trucks"</li> <li>Passenger Capacity: 196</li> <li>Implementation Cost: \$30M</li> </ul>	<ul style="list-style-type: none"> <li>Capacity change: + 1 "truck" + 4 cars if no "trucks" + zero passengers</li> <li>Good maneuverability</li> <li>Power plant redundancy</li> </ul>	Total change in July/Aug. weekly Ontario mainland capacity is: + 28 "trucks" + 252 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$32.05M Total annual fuel & crew cost: \$2,788,000 <b>Alt 2(a) has no power plant redundancy</b>	Total change in July/Aug. weekly Ontario mainland capacity is: + 28 "trucks" + 252 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$43.24M Total annual fuel & crew cost: \$2,788,000 <b>Alt 1(b) provides better system value than 1(a) because has higher car capacity</b>	Total change in July/Aug. weekly Ontario mainland capacity is: + 104 "trucks" + 556 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$47.79M Total annual fuel & crew cost: \$2,788,000 <b>Alt 1(b) provides better system value than 1(a) because has higher car capacity</b>	Total change in July/Aug. weekly Ontario mainland capacity is: + 104 "trucks" + 556 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$46.57M Total annual fuel & crew cost: \$2,788,000 <b>Alt 1(b) provides better system value than 1(a) because has higher car capacity</b>
<b>Alternative 1(b): Replace the Pelee Islander With Moderately Larger Vessel, with Conventional Bow Visor / Stern Ramp</b>	<ul style="list-style-type: none"> <li>"Truck" Capacity: 2</li> <li>Car Capacity: 20 if no "trucks"</li> <li>Passenger Capacity: 196</li> <li>Implementation Cost: \$45M</li> </ul>	<ul style="list-style-type: none"> <li>Capacity change: + 2 "trucks" + 10 cars if no "trucks" + zero passengers</li> <li>Good maneuverability</li> <li>Power plant redundancy</li> </ul>	Total change in July/Aug. weekly Ontario mainland capacity is: + 56 "trucks" + 420 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$47.05M Total annual fuel & crew cost: \$3,069,000 <b>Alt 2(a) has no power plant redundancy</b>	Total change in July/Aug. weekly Ontario mainland capacity is: + 56 "trucks" + 420 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$58.23M Total annual fuel & crew cost: \$3,069,000 <b>Alt 2(d) provides better system value than 2(c) because has higher car capacity</b>	<b>BEST OVERALL FOR ONTARIO-ONLY SERVICE</b> Total change in July/Aug. weekly Ontario mainland capacity is: + 132 "trucks" + 724 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$62.79M Total annual fuel & crew cost: \$3,069,000	Total change in July/Aug. weekly Ontario mainland capacity is: + 132 "trucks" + 724 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$61.57M Total annual fuel & crew cost: \$3,069,000 <b>Alt 2(d) provides better system value than 2(e) because has better propulsion system redundancy</b>
<b>Alternative 1(c): Replace the Pelee Islander With Vessel of Hull Dimensions Maximized to Suit Existing Ont. Ports, with Conventional Bow Visor / Stern Ramp</b>	<ul style="list-style-type: none"> <li>"Truck" Capacity: 4</li> <li>Car Capacity: 42 if no "trucks"</li> <li>Passenger Capacity: 389</li> <li>Implementation Cost: \$56.5M</li> </ul>	<ul style="list-style-type: none"> <li>Capacity change: + 4 "trucks" + 32 cars if no "trucks" + 193 passengers</li> <li>Good maneuverability</li> <li>Power plant redundancy</li> </ul>	Total change in July/Aug. weekly Ontario mainland capacity is: + 112 "trucks" + 1,036 cars if no "trucks" + 8,148 passenger change Total imp. cost: \$58.55M Total annual fuel & crew cost: \$3,344,000 <b>Alt 2(a) has no power plant redundancy</b>	Total change in July/Aug. weekly Ontario mainland capacity is: + 112 "trucks" + 1,036 cars if no "trucks" + 8,148 passenger change Total imp. cost: \$69.73M Total annual fuel & crew cost: \$3,344,000	Total change in July/Aug. weekly Ontario mainland capacity is: + 188 "trucks" + 1,340 cars if no "trucks" + 8,148 passenger change Total imp. cost: \$74.29M Total annual fuel & crew cost: \$3,344,000	Total change in July/Aug. weekly Ontario mainland capacity is: + 188 "trucks" + 1,340 cars if no "trucks" + 8,148 passenger change Total imp. cost: \$73.07 Total annual fuel & crew cost: \$3,344,000
<b>Alternative 1(d): Replace the Pelee Islander With Open Flat Deck Self-Propelled Barge, with Hull Dimensions Maximized to Suit Existing Ont. Ports</b>	<ul style="list-style-type: none"> <li>"Truck" Capacity: 4</li> <li>Car Capacity: 42 if no "trucks"</li> <li>Passenger Capacity: 196</li> <li>Implementation Cost: \$42M</li> </ul>	<ul style="list-style-type: none"> <li>Capacity change: + 4 "trucks", + 32 cars if no "trucks" + zero passengers</li> <li>Good maneuverability</li> <li>Power plant redundancy</li> <li>Poor hull design for rough water</li> </ul>	Total change in July/Aug. weekly Ontario mainland capacity is: + 112 "trucks" + 1,036 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$44.05M Total annual fuel & crew cost: \$3,285,000 <b>Alt 2(a) has no power plant redundancy</b> <b>Alt 1(d) has poor hull design for rough water service</b>	Total change in July/Aug. weekly Ontario mainland capacity is: + 112 "trucks" + 1,036 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$55.23M Total annual fuel & crew cost: \$3,285,000 <b>Alt 1(d) has poor hull design for rough water service</b>	Total change in July/Aug. weekly Ontario mainland capacity is: + 188 "trucks" + 1,340 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$59.79M Total annual fuel & crew cost: \$3,285,000 <b>Alt 1(d) has poor hull design for rough water service</b>	Total change in July/Aug. weekly Ontario mainland capacity is: + 188 "trucks" + 1,340 cars if no "trucks" + 2,744 passenger change Total imp. cost: \$58.57M Total annual fuel & crew cost: \$3,285,000 <b>Alt 1(d) has poor hull design for rough water service</b>
<b>Color Legend and Order of Alternatives Screening</b>	1 <sup>st</sup> Screened out on inadequate increase in weekly Ont. Mainland car capacity (up at least 304) or "truck" capacity (up at least 28), or on insufficient basic passenger capacity for Ont. Mainland service Since a weekly increase of 304 cars (at 38 trips / week) is provided by extending Jiimaan's hull, this has been used as the benchmark increase. Since the Island needs a capacity increase of 2 "trucks" round trip per day during peak shipping period, a weekly increase of 28 "trucks" has been used as the benchmark increase		2 <sup>nd</sup> Screened out on reliability to sail as scheduled (avoid trip cancellations due to wind, waves, power train failure)	3 <sup>rd</sup> Screened out on implementation cost if vehicle capacity increase is double or more the 304 benchmark	4 <sup>th</sup> Screened out on comparative overall ferry system value versus another alternative	

**Appendix 4: Detailed Evaluation Table for One-Vessel Ferry System with Service to Ontario Mainland Only**

**EVALUATION OF ONE-VESSEL FERRY SYSTEM ALTERNATIVES TO ONTARIO MAINLAND ONLY**

**(FERRY SYSTEM ALTERNATIVES 3(c), 3(d) and 3(e))**

Number of annual one-way trips is 1181

Alternative	Details	Evaluation	
<b>Ferry System Alternative 3(c): One-vessel ferry system comprised of new combined passenger / truck / ferry with hull maximized to suit Ontario docks</b> (see Alternative 1(c))	<ul style="list-style-type: none"> <li>• “Truck” Capacity: 4</li> <li>• Car Capacity: 42 if no “trucks”</li> <li>• Passenger Capacity: 389</li> <li>• Implementation Cost: \$56.5M</li> <li>• Capacity change over Jiimaan is + 2 “trucks”, + 8 cars if no “trucks”, + 4 passengers</li> <li>• Good maneuverability</li> <li>• Power plant redundancy</li> </ul>	Total change in July/Aug. weekly Ontario mainland capacity is: +76 “trucks” +164 cars if no “trucks” -2,592 fewer passengers* Total change in July/Aug. weekly ferry service capacity from current two-vessel service to the Island is: + 76 trucks - 16 fewer cars if no “trucks” - 6,120 fewer passengers* Imp cost: \$56.5M Annual fuel & crew cost: \$2,021,171 Alt.2(c) and 2(d) provide better system value than 1(c) if only one vessel and no U.S. service	There is no ferry service if the vessel breaks down
<b>Ferry System Alternative 3(d): One-vessel ferry system comprised of Jiimaan with extended hull and vehicle deck, improved maneuverability, and, and propulsion system redundancy through a four-engine diesel power plant</b> (see Alternative 2(d))	<ul style="list-style-type: none"> <li>• “Truck” Capacity: 4</li> <li>• Car Capacity: 42 if no “trucks”</li> <li>• Passenger Capacity: 385</li> <li>• Implementation Cost: \$17.79M</li> <li>• Jiimaan capacity change: + 2 “trucks”, + 8 cars if no “trucks”, same passenger capacity</li> <li>• Improved Jiimaan maneuverability</li> <li>• Power plant redundancy</li> </ul>	Total change in July/Aug. weekly Ontario mainland capacity is: +76 “trucks” +164 cars if no “trucks” -2,744 fewer passengers* Total change in July/Aug. weekly ferry service capacity from current two-vessel service to the Island is: + 76 trucks -16 fewer cars if no “trucks” - 6,272 fewer passengers* Imp. cost: \$17.79M Annual fuel & crew cost is \$2,504,901	There is no ferry service if the vessel breaks down
<b>Ferry System Alternative 3(e): One-vessel ferry system comprised of Jiimaan with Extended the hull and vehicle deck, improved maneuverability, and propulsion system redundancy through a twin-engine diesel-electric power plant with azimuth</b> (see Alternative 2(e))	<ul style="list-style-type: none"> <li>• “Truck” Capacity:4</li> <li>• Car Capacity: 42 if no “trucks”</li> <li>• Passenger Capacity: 385</li> <li>• Implementation Cost: \$16.57M</li> <li>• Jiimaan capacity change: + 2 “trucks”, + 8 cars if no “trucks”, same passenger capacity</li> <li>• Improved Jiimaan maneuverability</li> <li>• Power plant redundancy</li> </ul>	Total change in July/Aug. weekly Ontario mainland capacity is: +76 “trucks” +164 cars if no “trucks” -2,744 fewer passengers* Total change in July/Aug. weekly ferry service capacity from current two-vessel service to the Island is: + 76 trucks - 16 fewer cars if no “trucks” - 6,272 fewer passengers* Imp. cost: \$17.79M Annual fuel & crew cost is \$2,504,901	There is no ferry service if the vessel breaks down

**All one-vessel ferry system alternatives screened out because:**

- they didn’t meet the benchmark of providing a minimum weekly capacity increase of 304 cars
- overall system reliability is at risk.

Pelee Islander would remain in service after its scheduled winter 2012 / 2013 dry docking and lower hull shell repairs, until further major repairs required.

With only one ferry vessel servicing the Ontario mainland only:

- The early morning departure from Pelee Island is lost.
- There is less flexibility in the ferry system with respect to schedule.

\* Note: the 385 passenger capacity of the Jiimaan is rarely filled. The only exceptions have been the last trips of the day from the Island on the weekends of Pelee Fest, Canada Day, Civic Holiday, and Labour Day (too many people maximized their stay and waited for the last departing voyage of the day)