



Transportation Feasibility Study

Nanaimo Event Centre
1 Port Drive, Nanaimo, BC

Final Draft Report v3.1

Prepared for
City of Nanaimo

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CORPORATE AUTHORIZATION

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EXECUTIVE SUMMARY

The construction of a new multi-use arena and event centre in the City of Nanaimo represents a significant re-development project. The 1 Port Drive development parcel, located in the south sector of the City's downtown area is one of two sites being considered for the new Nanaimo Event Centre (NEC). A portion of the development parcel continues to be used as an inter-modal marine shipping terminal though the City of Nanaimo has now formally acquired ownership of the lands.

The NEC is best described as a multi-purpose event activity centre for professional and amateur sports, entertainment, athletic, cultural and commercial events. The NEC will be a civic gathering place, drawing the community together to enjoy first-class seating and viewing options, unique public spaces, restaurants and other amenities. The arena must meet WHL facility requirements and have the capacity and amenities to compete with other modern arenas for major sporting events, national and international concert tours, family shows, business conventions and other events that otherwise would not come to the region because of the inadequacy of current venues.

The transportation plan for the NEC should take advantage of existing municipal transportation facilities including existing roadways and parking facilities, existing and future transit systems and existing and future pedestrian and bicycle infrastructure.

The NEC is anticipated to host approximately 126 events per year including family shows, WHL hockey games, sporting events, concerts, conventions, trade shows, and other miscellaneous events. Key NEC program highlights include:

- Maximum Capacity for up to 8,300 patrons (potentially a few occasions per year);
- Design Load Conditions of 6,400 patrons;
- Large Event Typical Attendance 5,000 patrons;
- Valet operated, event parking for up to 100 vehicles.

Spectator attendance related to the NEC will vary depending on the type of event being held. The frequency and size of events will vary throughout the calendar year. The largest events exceeding the 6,400 person design load condition will typically occur only on a very occasional basis (about 7-8 times per year), while smaller, more typical events are anticipated to occur on a more regular basis.

Travel Demand Forecasts

For the purposes of developing a parking and traffic demand forecast model, anticipated event types at the proposed NEC were organized into four event categories based upon the relative size of attendance and their typical frequency throughout the year. The maximum capacity condition of up to 8,300 event attendees was not specifically modeled as this type of event, occurring just a few times per year, would more typically have an event specific Parking and Traffic Management Plan developed for it to be reviewed and approved by the City.

For the four event categories modeled, the travel characteristics and the patron attendance expected for each differ based on the nature of the events to be held within each grouping as presented below:

Event Categories and Associated Design Attendance

Event Type	Design Attendance	Events Per Year	Comments
Design Load	6,400	7 to 8	Concerts, family shows, etc.
Major Events	4,000 to 6,400	50 to 70	WHL Hockey games, etc.
Mid-Size Events	2,500 to 4,000	25 to 30	Other concerts, sport events, etc.
Small Events	500 to 2,500	25 to 30	Could include conferences, trade shows, etc.

Travel Mode

Travel demands generated by the NEC will be influenced by a number of factors and variables that could affect travel to and from facility events such as the type of event. These factors were considered in the evaluation to determine the number of vehicles that will require parking in the vicinity of the NEC and that would be driven to and from the NEC before and after events. The travel mode assumptions assumed for assessment purposes include:

Event Categories and Assumed Mode Split

Event Type	Private Automobile	Transit /Charter Bus Taxi, Drop-Off, Walk
Design Load Events	80%	20%
Major Events	80%	20%
Mid-Size Events	85%	15%
Small Events	90%	10%

It is anticipated that the mode split for the largest events exceeding the 6,400-person design load condition (about 7-8 times per year) would include a special event traffic management plan which would result in a higher mode split to alternative modes and a corresponding reduction in the use of private automobile as the primary means of transportation to/from events.

Parking Projections

Parking projections for the NEC were developed for the four event categories by taking into account the modal split and vehicle occupancy characteristics of the different event categories. The projected peak attendance and parking demands for each event type are summarized below.

An assumed auto occupancy of 2.7 was applied to the Design Load event attendance as it is recognized that these types of events may also include a complementary special event traffic and parking management program which may result in increased auto occupancy rates.

Event Category Parking Demand Estimates

Event Type	Assumed Patron Attendance	Mode Split to Auto	Patrons Arriving by Private Auto	Assumed Auto Occupancy	Projected Parking Demand
Design Load	6,400	80%	5,120	2.7	1,900
Major Events	5,000	80%	4,000	2.5	1,600
Mid-Size Events	3,250	85%	2,750	2.0	1,375
Small Events	1,500	90%	1,350	1.8	750

Parking Availability: Downtown Parking

A series of parking surveys were undertaken by Bunt & Associates to ascertain in a preliminary fashion the on- and off-street parking inventory in the immediate area of the NEC and to identify current on- and off-street parking utilization characteristics.

There is presently a total of approximately 1,180 parking spaces located in several off-street parking facilities within an 800 metre (10 minute) walking distance of the 1 Port Drive site, with nearly 60% of this supply within a 5-6-minute walk. This supply figure does not include the approximately 800 parking spaces located at the Port Place Mall shopping centre.

In addition to off-street parking, there are over 1,300 on-street parking spaces within 800 metres (10 minute walking distance) of the 1 Port Drive site. Of this amount, approximately 770 spaces operate without any street parking regulation while approximately 590 spaces presently operate with some form

of restriction, most commonly a 2-hour maximum duration of stay. Fewer than one hundred of the restricted parking spaces are for area resident use only.

Based on weekday and weekend parking utilization surveys completed, it has been estimated that there are approximately 1,400 (weekday) to 1,450 (weekend) surplus on- and off-street spaces that would continue to be available for event patrons (over and above existing parking demand levels for the area).

It should be noted that this available surplus parking supply does not include any parking spaces associated with the Port Place Shopping Centre located directly opposite from the 1 Port Drive site (with available parking for anywhere from 370 to over 400 vehicles on weekday and Saturday evenings) nor does this stall supply include the roughly 100 on-street residential restricted parking spaces within a 10 minute walking distance of the 1 Port Drive site that have resident only parking restrictions in place.

Based on peak period event parking demand estimates of 1,600 and 1,900 spaces for Major and Design Load events respectively, and accounting for the up to 100 parking spaces planned for the NEC site, it has been concluded that the available on- and off-street parking supply would be able to accommodate up to approximately 97% of the parking associated with a Major Event at the NEC, and over 80% of the parking associated with Design Load event conditions.

The resulting parking shortfall of approximately 50-100 spaces for the Major Events (50-70 events per year) and 350-400 spaces for Design Load condition (7-8 times per year) may require remote parking outside of the downtown area and shuttle bus service connecting these locations to the NEC site.

For the maximum capacity conditions of up to 8,300 event attendees, an organized bus shuttle service would be further ramped up and documented as part of a Special Event Parking and Traffic Management Plan prepared for these special events occurring but a few times a year.

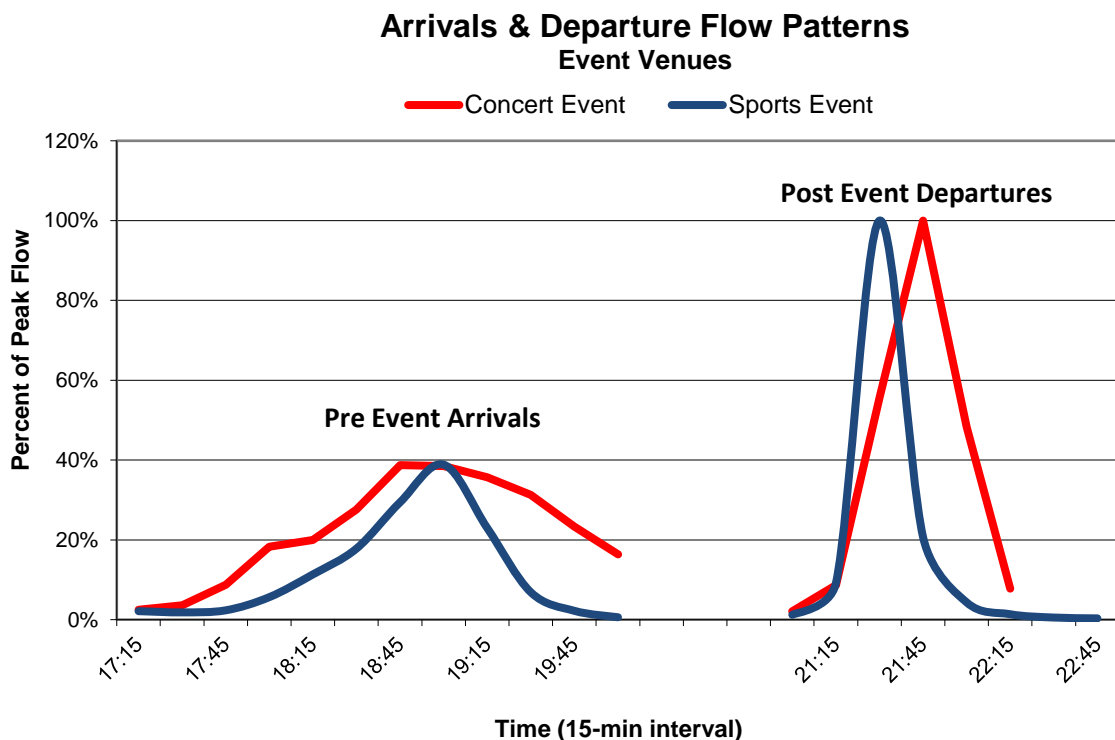
From a traffic and parking management/impact perspective, it has also been concluded that consideration should be given to proceeding with a minimal amount of parking on the site versus providing a significant amount of the required parking on the site.

Arrival and Departure Patterns

The activities at the NEC will generate, at times, increases in traffic activity on the area road network surrounding the development site. These increases will be dispersed throughout the downtown grid system of the existing roadway network given that available parking demands will also be dispersed across a variety of street and off-street parking facilities located within the downtown and downtown fringe area.

The following chart depicts the typical “pre-event” and “post-event” arrival and departure profiles respectively for both a major concert event and large attendance sports event, as observed by Bunt & Associates as part of previous project work at Rogers Arena in Vancouver. The flow profiles clearly indicate the dispersed nature of arrivals to the venue in the “pre-event” period as a number of patrons take

advantage of on-site or area restaurants ahead of the event, while the “post-event” flows are considerably more spiked as attendees depart back for home in the later evening. Area background traffic flow using the downtown street system is significantly diminished in the evening. As such, even with this more spiked event traffic flow profile post-event it has been concluded that event traffic activity can be accommodated on area roadways, particularly as the parking locations are distributed across the precinct.



The periods of increased traffic and parking activity are anticipated to be short term and typically confined to an hour period pre- and post-event following an event. These periods will, for the most part, occur during the early and late evenings outside of the peak periods of typical peak weekday and weekend traffic and parking activity.

Traffic Impact

A comprehensive traffic survey program was conducted to document existing (Year 2016) traffic volumes (vehicles, pedestrians and cyclists) at a number of intersections in the vicinity of the 1 Port Drive site, including Nicol Street at Esplanade and along Front Street from Esplanade around to Museum Way. The key observations from this survey are as follows:

- For both the weekday afternoon/evening and Saturday afternoon/evening periods, area traffic at all locations surveyed show a significant decrease in volume from the mid-afternoon peak activity periods by as much as 40% to 60% by the time of the 6:30pm to 7:30pm “pre-event” condition when traffic arriving to the area is becoming more active.
- Traffic volumes on the Saturday at all the intersections covered by the traffic survey were generally up to 30% lower than for the weekday survey, particularly during the early to mid-afternoon period. Into the early evening period, the weekday and Saturday volumes at the surveyed intersections were more closely matched. The Saturday volumes on Front Street opposite the 1 Port Drive site were approximately 15% lower than the weekday volumes, likely on account of the Saturday traffic generated by Port Place Mall.
- The highest volume traffic in the area is on the Nicol Street and Terminal Avenue arterial corridor connecting the downtown to northern and southern neighbourhoods in Nanaimo and to other communities beyond the City of Nanaimo. Traffic volumes on the streets adjacent the 1 Port Drive site including Esplanade and Front Street are considerably lower, by as much as 50% to 70% during the peak mid afternoon traffic periods for the downtown.
- On Front Street directly opposite the 1 Port Drive site, the weekday mid-afternoon traffic volume is approximately 565 vehicles per hour (350 vph southbound and 215 vph northbound), while on the Saturday mid-afternoon period the volume on this section of Front Street is approximately 485 vehicles per hour (315 vph southbound and 170 vph northbound).
- This level of traffic on Front Street is well within the capacity of the four-lane geometry of this section of Front Street and in fact could be accommodated by a single lane both northbound and southbound.

The 2012 Nanaimo Transportation Survey process identified the profile of all vehicle traffic inbound and outbound to the downtown area (through a downtown cordon survey) over the course of a 24-hour weekday period. From this survey work in 2012, key findings are as follows:

- The busiest one hour volume of traffic arriving into the downtown area is approximately 3,800 vehicles per hour and occurs both in the early morning period from 8:00-9:00am, and in the mid afternoon from 4-5pm (commuter traffic passing through the downtown).
- By the early evening period from 6:00-8:00pm which would be the typical pre-event period for the larger events at the proposed Event Centre, the inbound volume to the downtown has decreased to about 2,200 vehicles per hour, over a 40% decrease from the mid-afternoon peak volume.
- For Major and Design Load Events at the new Event Centre, with potentially up to 1,600 and 1,900 vehicles respectively arriving to the downtown seeking parking on the 1 Port Drive site (100 vehicles) and elsewhere in the area. With the more dispersed profile of arriving patrons to these types of events, this amounts to inbound vehicle volumes for the larger events of an estimated 1,050 to 1,250 vehicles over an hour. This amounts to roughly half of the 2,200 vehicles noted above as the decrease of inbound vehicle trips in the early evening period compared to the early morning and mid-afternoon peak conditions.

- The downtown traffic cordon count further identified a peak outbound volume of vehicle traffic departing the downtown area of approximately 4,400 vehicles per hour from 4-5pm. For the later evening post-event period from 9:00-11:00pm, the outbound volume from the downtown is approximately only 1,200 vehicles per hour, or only about one quarter of the mid-afternoon peak condition. This 3,200 vehicle per hour reduction in trips departing the downtown from the weekday mid-afternoon period to the later evening post-event condition is nearly double the volume of added post-event vehicle traffic that would be utilizing this spare capacity on larger event days.

Transit Exchange

The 1 Port Drive site has been identified as a potential location for a new downtown transit exchange facility.

The section of Front Street directly adjacent the 1 Port Drive site presents an opportunity to develop an urban on-street transit exchange to serve the Event Centre, the Port Place shopping centre, the Gabriola Ferry Terminal, and the nearby downtown area more generally. Existing weekday and Saturday afternoon peak hour traffic volumes on this section of Front Street (ranging from 170 vehicles per hour up to 350 vehicles per hour in either direction) can be suitably provided for with a narrowed two-lane (single lane in either direction) roadway.

Even with a reduction in the number of through traffic travel lanes, accommodation of bus bays, turn lanes, bike lanes, space for pedestrians, event attendees, transit shelters and transit riders would require a widening of Front Street towards the site, the scale of which would depend on the specific elements to be included in the future roadway. In addition, by lengthening the transit area and adding more bays, this on-street configuration could be scaled to accommodate, if desired, a more significant transit facility moving forward.

Transportation Management

Parking Management

As part of an overall Transportation Demand Management program, it is recommended that parking management for the NEC be coordinated through the completion of an overall parking management plan.

The intent of a Parking Management Plan is to establish a parking organizational system where patrons park in targeted areas within the 800m walking distance radius in the most efficient manner in order to minimize overall travel time and to distribute traffic across all of the multiple arrival and departure routes and available parking garages, and minimize impacts to existing parking users in the area. This review should include an overall review of the existing on-street restricted parking program.

Pre- and Post-Event Transportation Management Plan

The completion of a comprehensive Pre- and Post-Event Transportation Management Plan has been identified as a project mitigation measure. The completion of this plan is the responsibility of the NEC

operators and should be completed in conjunction with the City of Nanaimo. The Pre- and Post-Event Transportation Management Plan would provide a more detailed framework for managing all aspects of transportation for events.

The Plan will provide an initial blueprint for transportation management, but will also be dynamic, flexible, and capable of responsiveness to the actual transportation conditions that may occur once the NEC is in operation. The Plan would be a multi-modal plan that addresses transit, autos, taxis, yellow and charter bus operations, parking, pedestrians, and bicycles.

1. INTRODUCTION

1.1 Preface

A new multi-use Event Centre is being proposed to be constructed and operated in the City of Nanaimo. The Nanaimo Event Centre (NEC) is planned to include a new arena facility with seating capacity for several thousand spectators and will be capable of hosting a Western Hockey League (WHL) franchise. Additional site development could potentially include complementary commercial uses.

The NEC would be constructed in the south sector of the City's downtown area. At the present time, the development parcel is being used as a truck staging area for trucks generated by the adjacent marine shipping terminal.

It is anticipated that the construction and operation of a new multi-use event facility will facilitate, and could trigger the development of, a vibrant, high quality entertainment, residential and commercial district which complements other Downtown Nanaimo initiatives and which will aid and support the revitalization of this particular sector of Nanaimo's downtown core. The area will be characterized by a pedestrian-friendly street environment and iconic architecture.

The development of the new event centre will take advantage of existing municipal transportation facilities including existing roadways, existing and future transit systems and existing and future pedestrian and bicycle infrastructure.

1.2 Study Rationale

To maintain the function and the integrity of existing and future transportation infrastructure systems including parking and pedestrian infrastructure and to ensure that an appropriate on-site traffic, service vehicle, parking and pedestrian plan is provided, careful consideration must be given to the projected increases in traffic and parking demand associated with new land use development activity.

The completion of this preliminary traffic and parking assessment provides the City of Nanaimo with an introductory appreciation for the extent of traffic demands associated with the re-development initiative and identifies preliminary traffic and parking accommodation strategies and tactics. In general, impacts on traffic and parking accommodation resulting from the construction and operation of the project and the impacts on on-site and adjacent land holdings are reviewed at a master plan level of assessment. The completion of this preliminary assessment will ensure that an on-site and off-site parking inventory is of a suitable size to accommodate cumulative facility parking demands without creating neighbourhood parking spill-over concerns.

The completion of more detailed traffic and parking assessments will be advanced when more definitive information regarding the district's land use schedule and staging of development activity are confirmed.

The development of the mixed-use facility will provide parking benefits through shared use parking opportunities given the different land uses planned for the site and their individual parking requirements. Sharing parking spaces will avoid parking duplication (reducing costs and supporting more efficient use of land) and will preserve open space for other amenities.

1.3 Study Purpose

The City has recently approved the project to move into a Stage Two level of consideration which among other items will require that a transportation rationale be prepared for two prospective sites under consideration.

The purpose of this study is to review the 1 Port Drive site option. The study assesses the parking supply/demand requirements of the development within the context of the 1 Port Drive area and adjacent neighbourhoods. The study also reviews the traffic access requirements and ability of the existing street network to accommodate the incremental traffic loads generated by the development and identifies a recommended transportation strategy in terms of parking supply, vehicle access, pedestrian and cyclist connections and transit service levels.

2. PROPOSED DEVELOPMENT

2.1 Site Location

The development parcel within which the NEC is situated in the south Downtown sector of Nanaimo. **Exhibit 2-1** illustrates the general location of the development parcel.

The 10.8 ha (26.7 acre) parcel has been acquired by the City of Nanaimo as a strategic site for future development to further activate the downtown area including possibly the location of a future transit exchange facility. There are no buildings on the site though a portion of the lands continue to be used for marine shipping purposes (SeaSpan Ferries for intermodal container shipping for both truck and rail). Driveway access to the site is provided at two locations on Front Street opposite the Port Place Mall shopping centre.

Specifically, the development parcel is bounded by Front Street on its northwest edge, Esplanade on its south west edge and Port Drive on its southeast frontage. The NEC building will likely be situated within the development parcel between Front Street and an existing railway spur line that provides access to a ferry terminal dock.

The City's downtown central core area is located to the north of the Port Place shopping centre. Low to medium density residential development is located to the northwest, west and southwest.

2.2 Development Concept

The NEC is best described as a multi-purpose event activity centre for professional and amateur sports, entertainment, athletic, cultural and commercial events. The NEC will be a civic gathering place, drawing the community together to enjoy first-class seating and viewing options, unique public spaces, restaurants and other amenities. The arena must meet WHL facility requirements and have the capacity and amenities to compete with other modern arenas for major sporting events, national and international concert tours, family shows, business conventions and other events that otherwise would not come to the region because of the inadequacy of current venues.

The NEC will serve as a catalyst for other civic and commercial projects, enhancing the development of downtown Nanaimo into a vibrant urban destination.

Although the capacity for the NEC will be approximately 8,300 people, the design load is 6,400 people. The final seating capacities will be adjusted to match market demands and design considerations. Valet operated, event parking for up to 100 vehicles on the NEC site is planned. The majority of the parking activity generated by the facility, most of which will occur during the evening period, will be accommodated in existing parkades and parking lots in the downtown area, located within a convenient 5-15 minute walk of the Event Centre. There is also considerable street parking in the vicinity of the proposed site to augment the supply available in the off-street parking facilities.



Exhibit 2-1 Area Context Map

Nanaimo Event Centre - 1 Port Drive
4103-09 December 2016

Exhibit 2-2 illustrates a building footprint of the NEC within the development parcel at a concept level of planning. As indicated, a main entry plaza for the facility is located at the north end of the building positioned near to Front Street and a contemplated future extension of Front Street (Front Street Extension) for vehicle and pedestrian traffic connecting to the cruise ship terminal located to the south and east of the NEC site. This possible future connection was identified as part of the City of Nanaimo initiated Transportation Planning Study¹ for the Assembly Wharf/CP Lands in 2010.

The service vehicle loading court for the building is located on the opposite (south) end of the building with direct driveway access to Front Street approximately 40 metres north of the Front Street intersection with Esplanade Street. This service court will be used for valet operated, event parking with capacity for up to 100 vehicles.

As mentioned earlier, the 1 Port Drive site has been considered as a possible location for a downtown transit exchange facility for Nanaimo. As the site is limited in size, it is unlikely that the transit exchange can be developed on the site itself but rather as a more urban, street based exchange. The prospect of a transit exchange directly adjacent the NEC would be a tremendous asset both for the Event Centre and for the downtown area more generally, for event patrons, visitors and employees in the downtown, and area residents.

2.3 ZONING

The current land use designation for the proposed development parcel is a Community Service zone, CS3. This zone allows for the use of the development parcel for transportation terminals, depots, corridors and other similar infrastructure. The use of the development parcel for a recreational facility is currently not permitted. It is anticipated that the development parcel will require redistricting approvals to allow for the construction and operation of the NEC.

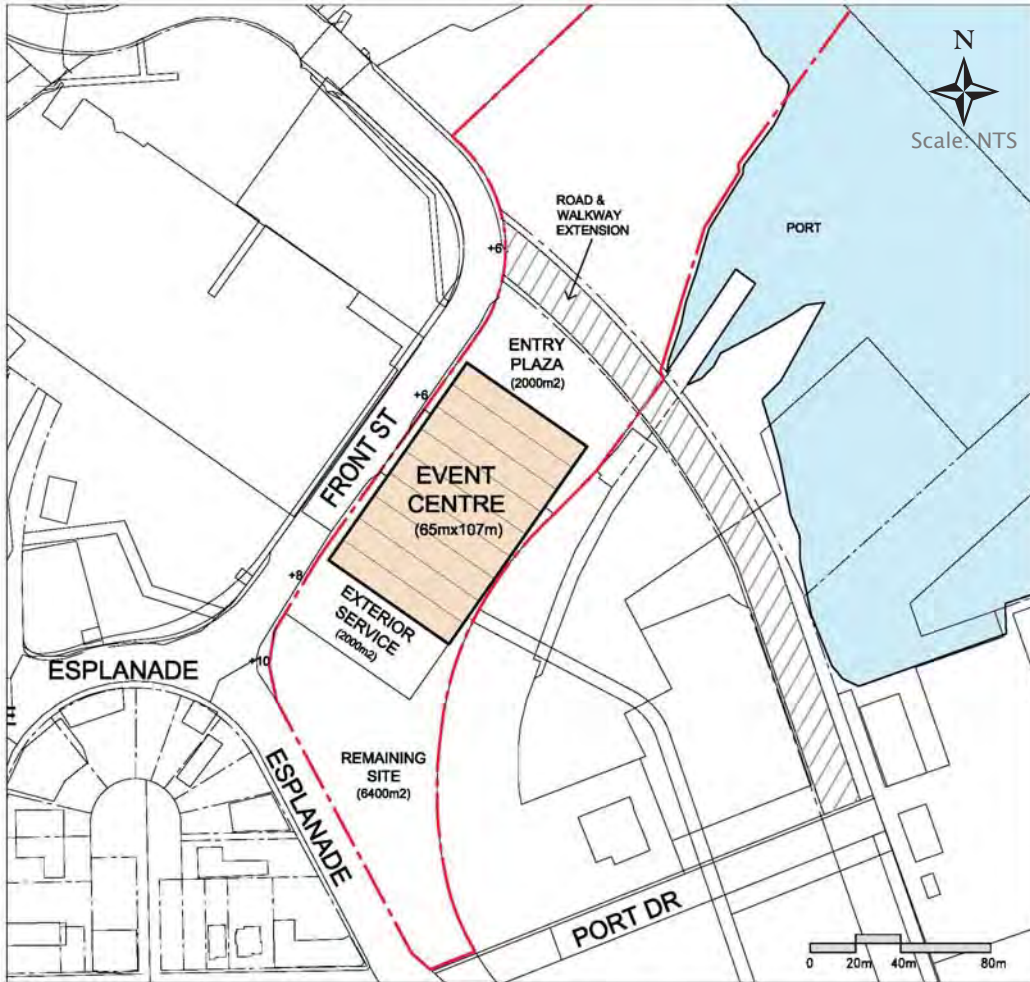
It is anticipated that given the proximity of the development parcel to the provincial highway system, Provincial Highway MOT approval will likely be required prior to City approvals.

2.4 Overarching Strategic Documents

2.4.1 Official Community Plan

On September 8, 2008 City Council adopted an Official Community Plan (OCP) - planNanaimo which replaces the former community plan adopted in 1996. The process reaffirmed strategies contained in planNanaimo 1996 and provided new strategies for meeting the many growth challenges the City continues to face.

¹ Transportation Plan for the Assembly Wharf/CP Lands, Nanaimo, BC, Part 1 – Interim Cruise Facility Access Plan, EBA, August 2010



EVENT CENTRE

1 PORT DRIVE SITE PLAN

BRISBIN
BROOK
BEYNON
ARCHITECTS

OCTOBER 13, 2016

Exhibit 2-2 1 Port Drive Site Plan

Nanaimo Event Centre - 1 Port Drive
4103-09 December 2016



The OCP designates the development site as an Urban Node. The OCP recognizes the downtown as a city-wide and regional centre for arts, tourism and commercial services, along with higher density residential, supports in principle the redevelopment of the site as currently proposed. The OCP recognizes that in the longer term, it is likely that the present ferry, port and industrial uses will change over time.

2.4.2 Downtown Plan 2002

Nanaimo's Downtown plan - 2002 includes this site within Future Study Area 2. While the plan does not make formal recommendations regarding the land use in this area it does recognize the importance of this site as a major gateway into the core.

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3. TRANSPORTATION PLANNING CONSIDERATIONS

3.1 Event Type Categorization

Spectator attendance generated by the NEC will vary depending on the type of event. The frequency and size of events is expected to vary throughout the course of a typical year. The largest events will typically occur only on a very occasional basis, while the smaller, more typical events, are anticipated to occur on a more regular basis. It is anticipated that the NEC could host in the order of 126 events on a yearly basis. The most common event is expected to be a WHL hockey game. Between 35 and 40 of the events are expected to be WHL hockey games.

In developing parking and traffic forecasts for the new NEC, expected event types and conditions at the NEC were segmented into four event types based upon the relative size of event attendance and their typical frequencies throughout a year.

The NEC is anticipated to host a range of events and functions including sporting events, concerts, family and other entertainment shows, community events, and conventions/conferences. The travel and parking characteristics and number of patrons expected for each of the four event categories are expected to differ based on the nature of the event.

Key NEC program highlights include:

- Maximum Capacity for up to 8,300 patrons (potentially a few occasions per year);
- Design Load Conditions of 6,400 patrons;
- Large Event Typical Attendance 5,000 patrons;
- Valet operated, event parking for up to 100 vehicles.

Spectator attendance related to the NEC will vary depending on the type of event being held. The frequency and size of events will vary throughout the calendar year. The largest events exceeding the 6,400 person design load condition will typically occur only on a very occasional basis (about 7-8 times per year), while smaller, more typical events are anticipated to occur on a more regular basis.

Table 3.1 presents a summary of the four event categories assumed for assessment purposes.

Table 3.1: Event Categories

Event Type	Design Attendance	Events Per Year	Comments
Design Load	6,400	7 to 8	Concerts, family shows, etc.
Major Events	4,000 to 6,400	50 to 70	WHL Hockey games, etc.
Mid-Size Events	2,500 to 4,000	25 to 30	Other concerts, sport events, etc.
Small Events	500 to 2,500	25 to 30	Could include conferences, trade shows, etc.

3.2 Travel Mode

Travel demands generated by the NEC will be influenced by a number of factors and variables that could affect travel to and from facility events. Factors include the type of event and the mode of travel. These factors were considered in the evaluation to determine the number of vehicles that will require parking in the vicinity of the NEC and that would be driven to and from the NEC before and after events.

Major and Design Load events held at the NEC will generate the greatest number of vehicular trips and other (i.e. bus and pedestrian) travel activity. As a result, these events will also require to the greatest parking supply and will, for the most part, inform the amount of parking required.

Table 3.2 presents an overview of modal split that has been anticipated for the proposed NEC. Travel mode will vary depending on event type.

Table 3.2: Event Categories and Assumed Mode Split

Event Type	Private Automobile	Transit /Charter Bus Taxi, Drop-Off, Walk
Design Load Events	80%	20%
Major Events	80%	20%
Mid-Size Events	85%	15%
Small Events	90%	10%

3.3 Event Auto Occupancy Characteristics

For the purpose of this assessment, based upon experience and the review of the literature, it has been concluded that auto occupancy characteristics tend to be higher for larger events such as concerts, family shows, where patrons expect a large attendance and where such events are considered to be “special.”

Lesser auto occupancies are more characteristic of more regular types of events. The vehicle occupancies for smaller typical events will tend to be lower than that for more regular events.

Table 3.3 presents the auto occupancies assumed for assessment purposes.

A higher assumed auto occupancy of 2.7 was applied to the Design Load event attendance as it is recognized that these types of events may also include a complementary special event traffic and parking management program which may result in increased auto occupancy rates.

Table 3.3: Event Categories Auto Occupancy Characteristics

Event Type	Design Attendance	Anticipated Auto Occupancy
Design Load Events	6,400	2.7
Major Events	4,000 to 6,400	2.5
Mid-Size Events	2,500 to 4,000	2.0
Small Events	500 to 2,500	1.8

3.4 Arrival and Departure Patterns

At times, event activities at the NEC will generate increased traffic activity on the immediately adjacent roadway network and on local area roadways area roadways located in the general area of the NEC development parcel. Given the grid network of roadways in the area of the development site, the incremental increase in sit generated traffic loads are expected to be dispersed throughout the downtown given the available roadway capacity and parking opportunities that exist during prep and post event time periods.

It is projected that periods of increased traffic and parking activity will be short-term in nature and limited to an approximate one hour period immediately preceding and following an event. These periods will, for the most part, occur during the early and late evenings outside of the peak periods of traffic and parking activity within the general area of the development parcel.

3.5 Critical Success Factors

A number of significant development related issues will be acknowledged during the development of the preliminary traffic and parking review including:

- ability to develop a comprehensive plan which can be easily integrated into the existing and future downtown plan area;
- general location of the major transportation network for vehicular and truck circulation, parking accommodation, area access, transit, pedestrian and bicycle routes, in consideration of physical

features and the manner in which area characteristics influence transportation development patterns;
and

- need to continue to provide and accommodate for traffic movements associated with downtown area developments (cumulative impacts).

Acknowledging the aforementioned issues will ensure that the preferred end use concept plan and its inherent traffic and transportation requirements are satisfied in terms of internal circulation and access, integration with the adjacent regional system, emergency response accessibility, service vehicle requirements and compliance with current standards and policies.

3.6 Transportation and Sustainability Concepts

Municipal government agencies within British Columbia and across Canada continue to debate the relationship between urban land use planning and transportation. The City of Nanaimo recognizes the long term social, environmental and economic benefits associated with sustainable development activity on the community and has developed guidelines which are supportive of a sustainable lifestyle.

Sustainability has been identified as a strategic element associated with the construction and operation of the mixed-use event complex. This project represents an excellent opportunity for the owners and operators of the Event Centre to pursue sustainable development practices (including traffic and parking related measures) and to provide leadership in implementing policies to ensure sustainable future growth.

The development of the NEC's traffic and parking plan represents an excellent opportunity to reflect the goals and objectives inherently enshrined within the City's sustainability guidelines and will be founded on the principles of sustainability. To ensure that the NEC will be developed in a sustainable fashion, a multiple land uses have been incorporated into the plan area to allow for synergies to be developed between the various land use groups.

To achieve a sustainable development, the transportation system will include a wide range of transportation choices that promote more sustainable modes of transportation. To achieve the sustainability goals established by the City, transportation strategies will be aimed at balancing the overall system including reducing single occupancy vehicle trips, improving and leveraging transit use, implementing parking management tactics, improving pedestrian and bicycle linkages and ensuring a strong transit orientation is achieved through development.

To ensure that land use development activity will be developed in a sustainable fashion, Travel Demand Management (TDM) program strategies and tactics to facilitate the on-going task of managing area-wide traffic, parking, transit and pedestrian flows in an orderly fashion should be considered and incorporated into the overall transportation plan, particularly to accommodate events with expected capacities of over 6,000 people.

In addition, the location of the development area relative to the existing and future transit routes and transit exchanges and other residential and non-residential land uses located in the immediate area will further increase joint use opportunities and market synergies and will reduce reliance on the automobile as the primary means of transportation to the development site.

From an urban design and transportation planning perspective, the development of a sustainable mixed-use site has the following advantages:

- Reduces site generated traffic and parking demands as a result of possible land use synergies;
- Reduces the amount of pavement infrastructure required to accommodate traffic and parking demands;
- Allows for a more compact development to facilitate pedestrian movement activity; and
- Allows development staging to be considered in a sensitive fashion, therefore reducing the off-site roadway improvement requirements until required by development activity.

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4. EXISTING CONDITIONS

This section describes the key elements of the existing transportation system in the vicinity of the Nanaimo Event Centre facility contemplated for the One Port Drive site. The study considers a zone of up to approximately 800 metres or roughly a 10 to 15-minute walking distance from the site and considers the following transportation system components:

- Parking supply and demand,
- Pedestrian and cycling facilities,
- Public transit routes and stop locations,
- Road network and traffic operations.

4.1 Downtown Location

The location of the NEC is strategically located on the south fringe of the City's downtown core. The construction and operation of the NEC in this particular location will help drive positive awareness of the City's downtown area. Bringing people from areas out of the downtown core and from regional destinations on a more regular basis will assist in making citizens and visitors more aware of the unique amenities that exist in the central part of the City's downtown area.

From a traffic and parking accommodation perspective, there are benefits associated with locating the NEC on the south fringe of the downtown area. Evening and weekend events able to capitalize on the existing transportation infrastructure's evening period excess capacity in place to accommodate peak daytime traffic, parking and transit activity. For this and other economic and land use stimulus reasons, it is indeed increasingly common for event centre uses to be located in downtown environments in major centres and smaller communities alike.

The NEC would also benefit from the concentration of restaurants and hotels in the area which patrons can access either pre-or post-event to disperse the otherwise spiked or surge like nature of event travel patterns, particularly during the post event period.

Similar to other event centres in downtown areas, a significant portion of the parking activity is distributed within the greater downtown area in fringe downtown neighbourhoods. Three implications with this are (i) traffic loads at the facility itself can be relatively light as vehicle trips are generated at some distance away from the venue itself where the vehicles are parked, (ii) the walk time between the parking and the venue tends to disperse the peak surges in traffic arrivals (pre-event) and departures (post-event), and (iii) pedestrian activity concentration at the site itself can be significant potential require special traffic management interventions.

4.2 Parking

4.2.1 Existing Parking Supply

The availability of parking during key periods including the weekday daytime, weekday evening and weekend periods were assessed in a preliminary fashion to evaluate the ability for NEC parking demands to be reasonably accommodated within available parking facilities and precincts within the immediate downtown area and fringe areas. These periods were selected to reflect the following basic conditions:

- Peak weekday daytime periods when area parking demands may coincide with large meetings, conferences and matinee family show performances;
- Early evening weekday and weekend periods which would coincide with pre-event parking demands associated with larger and capacity events.

The City of Nanaimo has provided Bunt & Associates with a mapped inventory of the area parking supply (**Exhibit 4-1**) including both street parking as well as off-street parking facilities (parking lots) within approximately an 800 metre (10 minute) walking distance of the proposed NEC located at 1 Port Drive.

4.3 Availability of Public Off-Street and Curbside Parking

4.3.1 Establishment of Existing Parking Inventory

There are three basic types of parking provided in the vicinity of the NEC. These include privately owned parking lots, as well as the on and off-street publicly owned parking facilities. Only the publicly available parking supply (on and off-street) was considered “available”, as these spaces are managed and controlled by the City of Nanaimo.

4.3.2 Off-Street Parking Lots (not including Port Place Shopping Centre)

There are presently a total of approximately 1,180 parking spaces located in several off-street parking facilities within the 800 metre (10 minute) walking distance of the 1 Port Drive site, with nearly 60% of this supply within a 5-6-minute walk.

This supply figure does not include the approximately 800 parking spaces located at the Port Place Mall shopping centre, located at 650 Terminal Avenue, directly opposite Front Street from the proposed Event Centre. This parking is privately owned and operated and cannot be relied on for Event Centre parking unless an agreement with the Port Place owners regarding use of this parking can be secured.

4.3.3 On - Street Parking

In addition to the off-street parking described above, there are over 1,300 street parking spaces within 800 metres (10 minutes walking distance) of the 1 Port Drive site. Of this amount, approximately 770 spaces operate without any street parking regulation while approximately 590 operate with a maximum two-hour duration of stay (residents exempted).



Exhibit 4-1 1 Port Drive - Area Parking Supply

Nanaimo Event Centre - 1 Port Drive
4103-09 Month 20xx

4.3.4 Changes to Existing Parking Inventory

It is anticipated that as a result of the construction and operation of the NEC there may be changes implemented to the existing downtown on-street and residential neighbourhood parking supply. In addition, private developers may also choose to construct new off-street parking spaces. These possible on and off-street parking supply were not considered at this preliminary level of parking assessment.

4.3.5 Existing Parking Demand

To establish the number of parking spaces that are typically occupied during late weekday and weekend afternoon and early evening hours and to determine the number of parking spaces that should be made available to help support the parking needs of the NEC, Bunt & Associates conducted parking demand surveys over the period from 3:00pm to 7:00pm, on Friday, December 1, 2016 and again on Saturday, December 2, 2016. The number of vehicles parked and the remaining available parking supply was recorded on an hourly basis to develop parking demand profiles both for the street parking and off-street parking facilities.

The afternoon into early evening survey period was specifically chosen to assess the actual availability of parking as the daytime peak parking activity in the downtown area diminishes leading into the 'pre-event' period build-up of parking activity ahead of a typical 7:00pm or 7:30 pm event start time.

The December 1st and 2nd survey dates were chosen specifically to gauge parking activity in the downtown area both for an evening with no scheduled events at the nearby 800 seat Port Theatre (125 Front Street) as was the case on the Friday evening, and with a scheduled event as was the case on the Saturday evening with a near sellout (estimated 750+ attendees) for the Vancouver Island Symphony "Holiday Spirit" concert performance.

Table 4.1 presents a summary of the observed available parking supply, i.e., the actual supply of both off-street and on-street parking available for use by the proposed Nanaimo Event Centre within approximately an 800 metre (10 minute) walking distance, for the typical 7:00pm "pre event" time period, for both the observed Friday and Saturday evening conditions on December 2nd and 3rd respectively. Again it is noted that this available parking supply measure does not include parking at the adjacent Port Place shopping centre.

As indicated in Table 4.1, for the observed Friday evening "pre-event" condition there were a total of 1,095 available parking spaces within a 10 minute walking distance of 1 Port Drive including 425 spaces in the downtown area parkades to the north, and 670 spaces of unrestricted street parking. For the Saturday evening "pre event" condition there were a total of 1,060 observed available spaces, including 225 spaces in the downtown area parkades (with an event on at the Port Theatre) and 835 spaces of unrestricted street parking.

If the restricted street parking (2 Hour maximum – resident exempt) is factored in, the observed available parking within a 10 minute walk of 1 Port Drive increases to about 1,400 spaces for the Friday evening "pre-event" condition, and 1,450 spaces for the Saturday evening "pre-event" condition.

Table 4.1: Observed Available Parking Supply (7:00pm)

Parking Type	Friday December 2, 2016	Saturday December 3, 2016
Parkades	425	225
Street Parking - Unrestricted	670	835
Street Parking - 2 Hour Max	330	395
Total Available Supply (not incl. 2 Hr Max)	1,095 spaces	1,060 spaces
Total Available Supply (incl. 2 Hr Max)	1,425 spaces	1,455 spaces

4.3.6 Port Place Shopping Centre

In addition to our survey of the existing parking demand of off-street parking structures (publically accessible) and area on-street parking, Bunt & Associates also observed and document the parking demand and remaining available parking supply at the adjacent Port Place Shopping Centre for both the Friday, December 2nd and Saturday, December 3rd afternoon and early evening survey periods. As noted previously, this property presently has a parking supply of approximately 800 stalls.

For the Friday survey day, the supply of available parking at Port Place was approximately 175 spaces during the mid afternoon (3-4pm) and increased to approximately 370 available spaces by the 7pm observation.

For the Saturday survey day, the supply of available parking at Port Place was approximately 225 spaces during the mid afternoon period (3-4pm) and increased to approximately 415 available spaces by the 7pm observation.

4.4 Pedestrian and Cyclist Facilities

Exhibit 4-2 provides a summary of the existing City of Nanaimo (NanaimoMap) inventory of pedestrian sidewalk conditions (i.e., whether or not sidewalks are in place and if so, the sidewalk surface type - brick, concrete, asphalt). Also indicated are pedestrian crosswalk locations for the area road system and existing public bus transit stop locations.

With regard to the proposed NEC at the 1 Port Drive location, the most notable deficiencies with the area pedestrian sidewalk infrastructure is the lack of the sidewalk along the east side of Esplanade along the site frontage, and a not well delineated pedestrian crossing of the main access driveway to Port Place along the northeast side of Terminal Avenue. This route will likely become a well used pedestrian corridor between the Event Centre and the downtown parkades accessed via the Terminal Avenue/Gordon Street intersection (Vancouver Island Conference Centre parkade, Harbourfront Centre parkade, and the Pioneer Parkade), and improved crosswalks and widened sidewalks would be beneficial.



Exhibit 4-2 City of Nanaimo Pedestrian Sidewalk Inventory

Nanaimo Event Centre - 1 Port Drive
4103-09 December 2016

Exhibit 4-3 illustrates the City of Nanaimo Bike Map, including an inset showing the downtown area. Also indicated are pedestrian crosswalk locations for the area road system and existing public bus transit stop locations. As indicated, the 1 Port Drive site is directly access by existing signed, on-street bike routes along Esplanade and Front Street, with connections to the nearby Albert Street and Wallace Street signed, on-street bike routes.

4.5 Transit Routes and Stop Locations

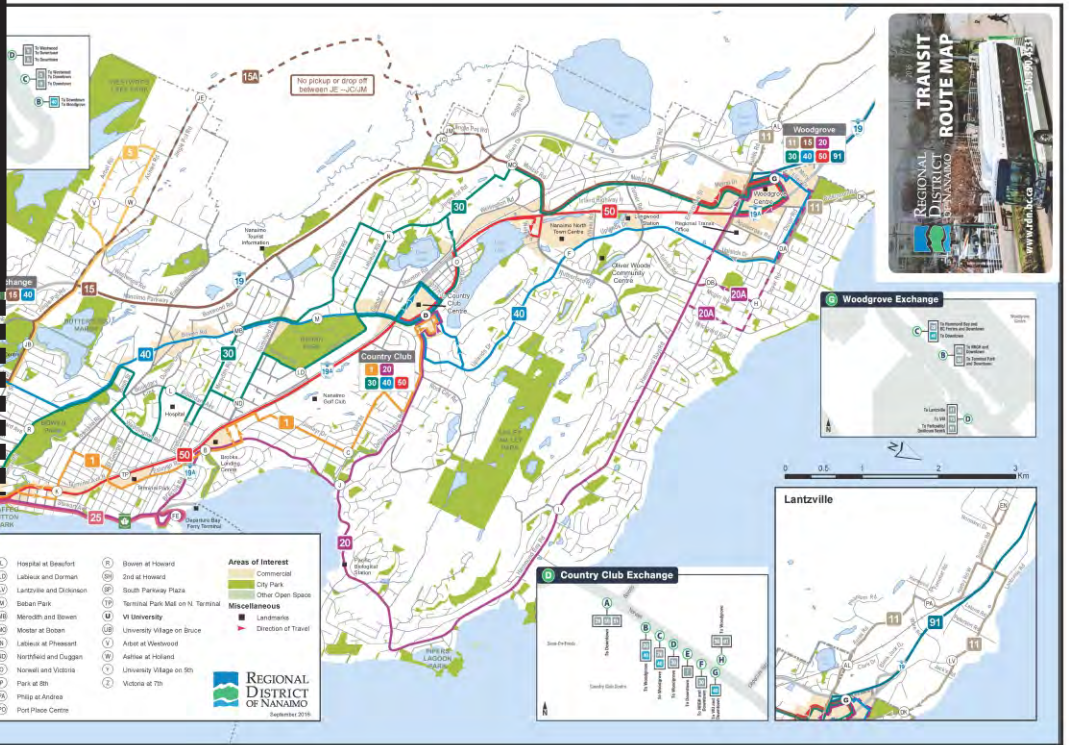
Exhibit 4-4 illustrates the existing Nanaimo Regional Transit bus route map including a detail of the downtown area. As indicated, a total of five transit routes travel directly adjacent the 1 Port Drive site with bus stops located on Front Street serving both directions. These routes converge at the existing Prideaux Bus Transit Exchange several blocks away near the intersection of Prideaux and Fitzwilliam Streets.

The 1 Port Drive site has been identified as a potential location for a new downtown transit exchange facility. Front Street presents adjacent the 1 Port Drive site presents an opportunity to develop an urban on-street transit exchange to serve the Event Centre, the Port Place shopping centre, the Gabriola Ferry Terminal, and the nearby downtown area more generally. Existing weekday and Saturday afternoon peak hour traffic volumes on this section of Front Street (ranging from 150 vehicles per hour up to 350 vehicles per hour in either direction) can be suitably provided for with a narrowed two lane (single lane in either direction) geometry through the on-street transit exchange, leaving the existing curb lanes available for transit bus passenger loading/unloading and layover activity.

4.6 Road Network and Traffic operations

A comprehensive traffic survey program was conducted to document existing (Year 2016) traffic volumes (vehicles, pedestrians and cyclists) at a number of intersections in the vicinity of the 1 Port Drive site, including Nicol Street at Esplanade and along Front Street from Esplanade around to Museum Way. This data was collected by Transtech Data Services for the purpose of this study. The data was collected for the 3:00pm to 8:00pm time periods for both the Friday, December 2nd and Saturday, December 3rd survey days.

Exhibit 4-5 provides a summary of the observed weekday and Saturday afternoon peak period traffic volumes at intersections in the vicinity of the 1 Port Drive site.



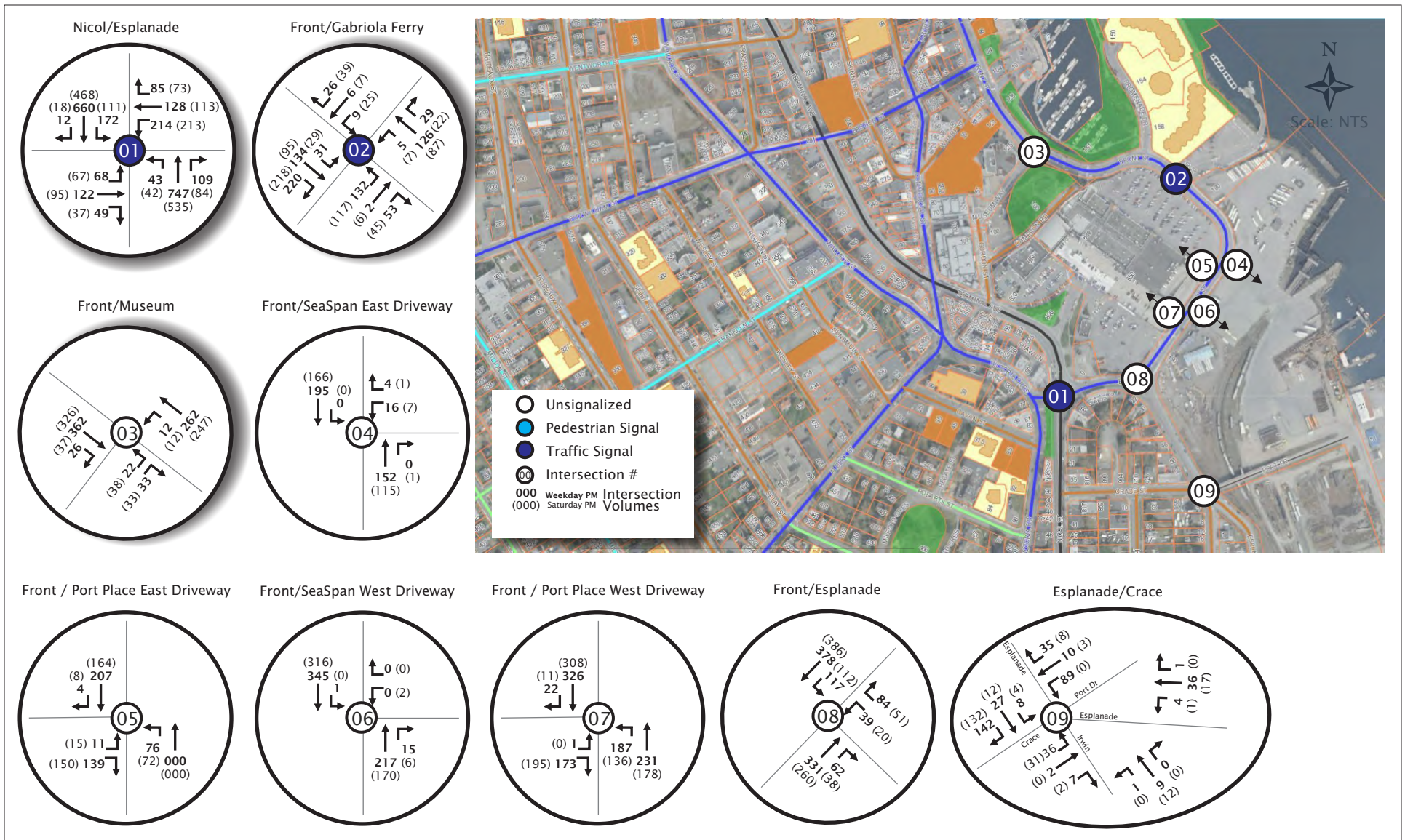
Regional District of Nanaimo 2016 Transit Map

Transit Routes	Timing Point Locations	Areas of Interest
<ul style="list-style-type: none"> 1 Country Club / Downtown 2 Falmere 3 Hazelwood / VU University 7 Combar / Cedar 11 Lantzville 15 VU Connector 15A VU Connector Alt. 20 Hammond Bay 20A Hammond Bay / Dover At. 25 BC Ferries 30 NRGH 40 VU Express 50 Downtown / Woodgrove 51 Intertown 	<ul style="list-style-type: none"> A Princes Exchange B Bay at Cleary C Cedar at Cleary D Centre at Cleary E Country Club Exchange F Dover and Appleston G Dover Bay High School H Division at Seohok I Extension at Conobar J Eastend and Northend K Nanaimo North Town Centre L BC Ferries Terminal at Departure Bay M Woodgrove Exchange N Wardsman at Millar O Hammond Bay at Malaspina P Hammond Bay at Departure Bay Q Jingle Pitt at Bird Sanctuary R Jingle Pitt at Cascardan S Jingle Pitt at East Wellington T Jingle Pitt at Monterey U Tsemetle at Terminal V Hospital at Bowditch W Laboux and Demian X Lantzville and Dickson Y Boban Park Z Meroueth and Bowen AA Mosier at Stobbs AB Laboux at Pleasant AC Northfield and Cuggan AD Norwall and Victoria AE Park at 8th AF Philip at Andrea AG Port Place Centre AH Bowen at Howard AI 2nd at Howard AJ South Parkway Plaza AK Terminal Park Mat on N. Terminal AL VU University AM University Village on Bruce AN Astair at Woodson AO Ashlaw at Holland AP University Village on 9th AQ Victoria at 7th 	<ul style="list-style-type: none"> Commercial City Park Other Open Spaces Landmarks Direction of Travel

Exhibit 4-4 City of Nanaimo Transit Routes

Nanaimo Event Centre - 1 Port Drive
4103-09 December 2016





2016 Existing Weekday & Saturday Afternoon Peak Hour Traffic Volumes

Exhibit 4-5

The key observations from this survey are as follows:

- For both the weekday afternoon/evening and Saturday afternoon/evening periods, area traffic at all locations surveyed show a significant decrease in volume from the mid afternoon peak activity periods by as much as 40% to 60% by the time of the 6:30pm to 7:30pm “pre-event” condition when traffic arriving to the area is becoming more active.
- Traffic volumes on the Saturday at all the intersections covered by the traffic survey were generally up to 30% lower than for the weekday survey, particularly during the early to mid afternoon period. Into the early evening period, the weekday and Saturday volumes at the surveyed intersections were more closely matched. The Saturday volumes on Front Street opposite the 1 Port Drive site were approximately 15% lower than the weekday volumes, likely on account of the Saturday traffic generated by Port Place Mall.
- The highest volume traffic in the area is on the Nicol Street and Terminal Avenue arterial corridor connecting the downtown to northern and southern neighbourhoods in Nanaimo and to other communities beyond the City of Nanaimo. Traffic volumes on the streets adjacent the 1 Port Drive site including Esplanade and Front Street are considerably lower, by as much as 50% to 70% during the peak mid afternoon traffic periods for the downtown.
- On Front Street directly opposite the 1 Port Drive site, the weekday mid-afternoon traffic volume is approximately 565 vehicles per hour (350 vph southbound and 215 vph northbound), while on the Saturday mid-afternoon period the volume on this section of Front Street is approximately 485 vehicles per hour (315 vph southbound and 170 vph northbound).
- This level of traffic on Front Street is well within the capacity of the four-lane geometry of this section of Front Street and in fact could be accommodated by a single lane both northbound and southbound.

Exhibit 4-6 provides a summary of the hourly traffic volumes at key intersections along Esplanade and Front Street through the 3:00pm to 8:00pm time period for both the Friday, December 2nd and Saturday, December 3rd survey days.

The key takeaway from Exhibit 4-6 is the very clear decrease in downtown traffic activity as the afternoon period, both weekday and on Saturday, moves into the late afternoon and early evening period. As the majority of the larger attendance events at the proposed NEC would be scheduled for the evening period, typically with event start times at 7:00pm, 7:30pm or even 8:00pm, background traffic volumes and traffic operations in the area are anywhere from 40% to 60% lower than during afternoon peak periods. This would suggest that there is available capacity on the roadway network during evening periods to accommodate increased traffic demands.

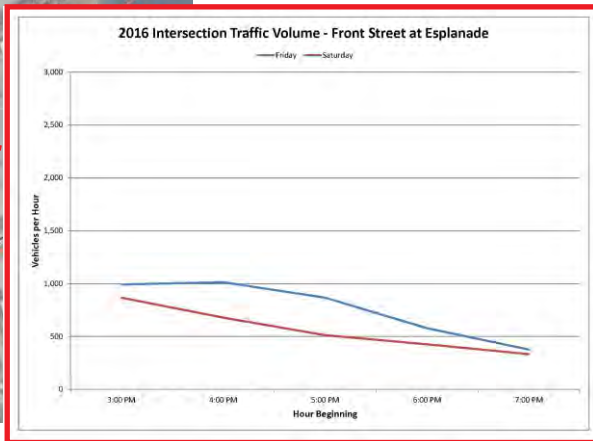
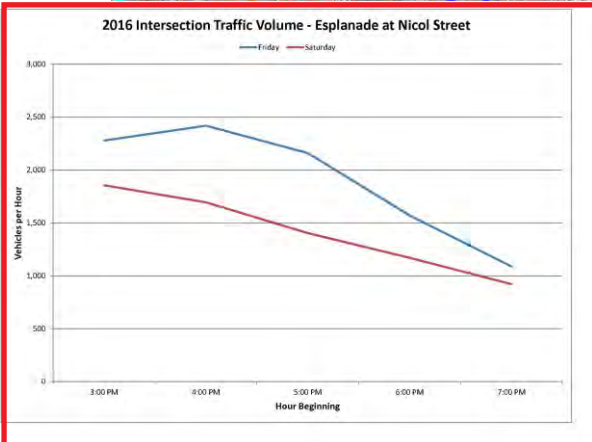
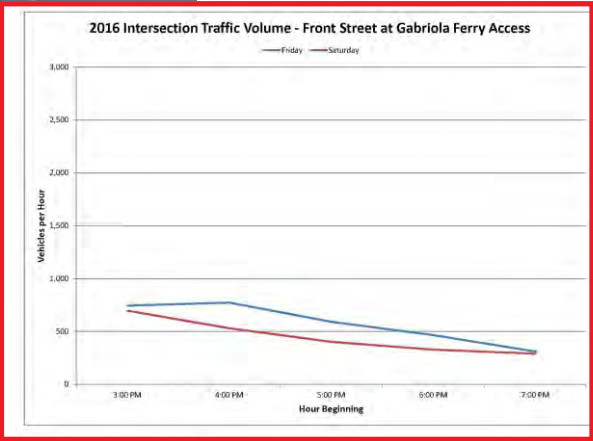
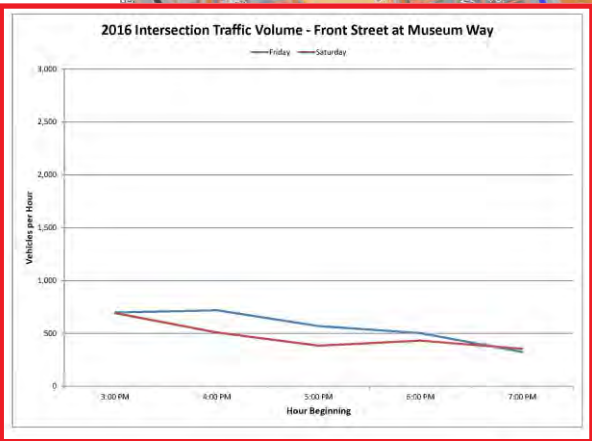
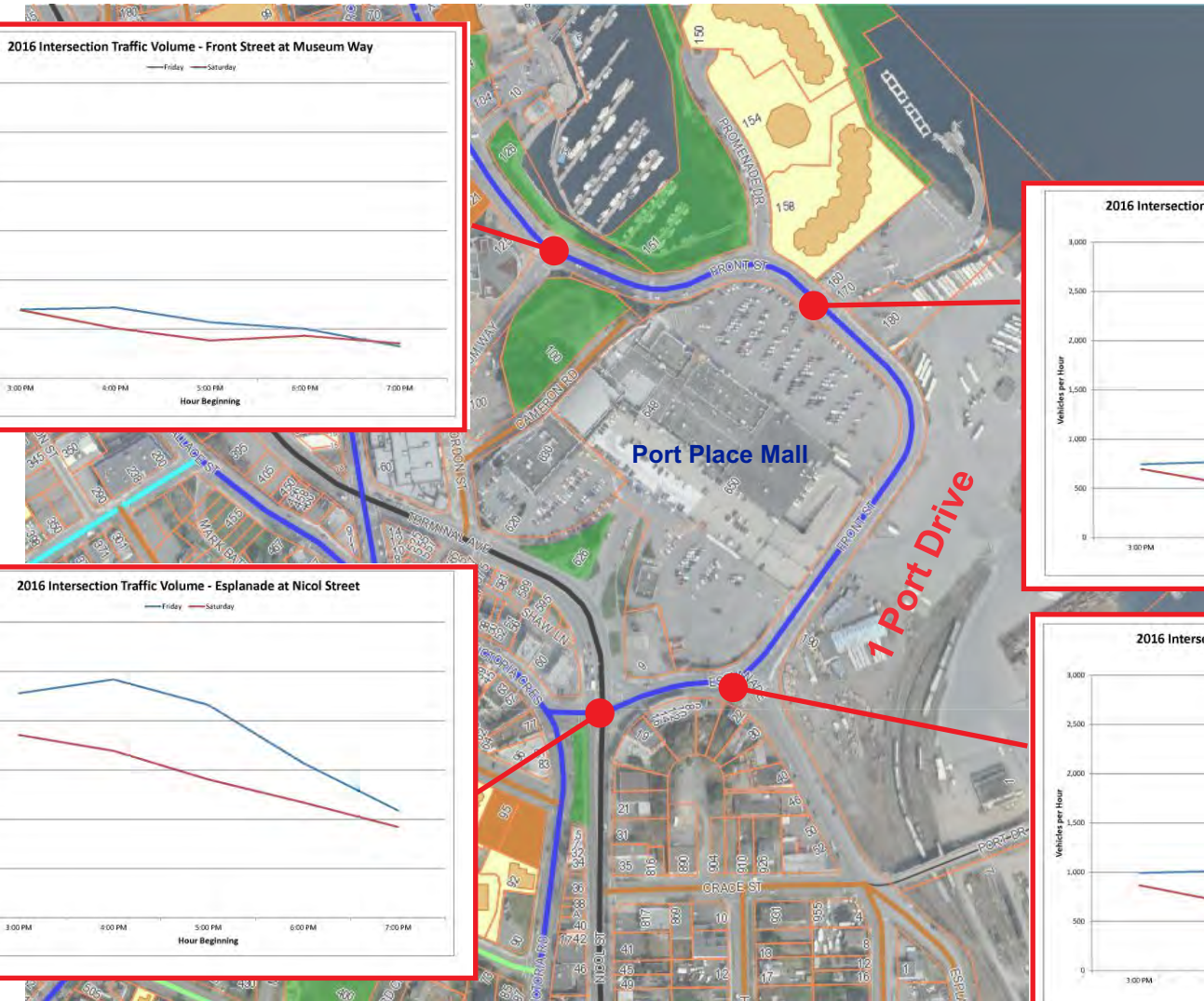


Exhibit 4-6 2016 Existing Weekday & Saturday Afternoon Hourly Traffic Profiles

Nanaimo Event Centre - 1 Port Drive
4103-09 December 2016



5. NANAIMO EVENT CENTRE PARKING ANALYSIS

5.1 Introduction

The provision of adequate parking facilities is important when developing an effective parking deployment plan that accommodates the impact of event related vehicular activity for the proposed NEC. The key principles relating to parking supply include providing an appropriate supply of parking to adequately support the NEC, and optimizing the use of available area parking facilities (off-street, on-street and municipal) that could be reasonably utilized to meet NEC related demands.

5.2 Influencing factors

In completing an assessment of projected parking demands associated with the operation of the NEC, the need to acknowledge various factors and variables which contribute and influence patron parking demand was considered. These factors include event type, estimated event patron loads, the mode of travel patrons may choose to take, whether the event is on a weekday or weekend and during what time of day the event is being held.

It is anticipated that the most concentrated levels of parking demand will be related to the largest events which only occur on a relatively small number of occasions over the course of a year.

The parking strategy for the project is based on the use of the considerable available parking supply that currently exists in the immediate area of the NEC. For the analysis of future conditions, the parking supply was not adjusted to account for any displaced or new parking facilities.

5.3 Projected Parking Demand

Table 5.1 on the following page presents the estimated peak attendance for each event type, typical modal split to auto, applicable auto occupancy and resultant projected parking demand.

Table 5.1: Event Category Parking Demand Estimates

Event Type	Assumed Patron Attendance	Mode Split to Auto	Patrons Arriving by Private Auto	Assumed Auto Occupancy	Projected Parking Demand
Design Load	6,400	80%	5,120	2.7	1,900
Major Events	5,000	80%	4,000	2.5	1,600
Mid-Size Events	3,250	85%	2,750	2.0	1,375
Small Events	1,500	90%	1,350	1.8	750

As presented in Table 5.1, the projected parking demands associated with Design Load events has been projected to be in the order of 1,900 spaces while the anticipated parking demands associated with Major Events is projected to be in the order of 1,600 parking stalls. It is noted however that Design Load events and events which will generate greater than Design Load patronage are anticipated to generate the greatest number of parking spaces. These events are anticipated to be infrequent and would likely be accompanied by a special event traffic management and parking program which could include remote event parking locations.

5.4 Time of Day and Weekly Variations

A large proportion of events are scheduled to occur at times of the day when downtown parking demands are reduced (i.e. weekday evenings and weekends). For example, capacity and major events, which occur infrequently throughout the year (about 10 events/year), typically occur on weekday evenings and weekends outside of the peak daytime parking demand.

It is anticipated that the majority of capacity, major and mid-size events will occur during weekday evening hours or on weekends and will likely include WHL Hockey games. A review of the current 2016-2017 WHL schedule would suggest for example that about 70% of the games are held on Friday evenings, Saturdays and Sundays. These time frames do not coincide with typical peak central business district parking periods. It is anticipated that a significant proportion of large events (i.e. WHL games and minor concerts) which represent approximately 30% of all events to be held at the NEC annually are also generally held on off-peak times (i.e. weekday evenings and weekends).

In regards to the above, it is noted that based on a review of the literature (Source: Thunder Bay Event and Convention Centre, Transportation Considerations, BA Group, 2014), it has been identified that typical vehicular arrival/departure profiles for an Ontario Hockey League (OHL) hockey game would suggest that in the order of 80 to 90% of an event attendance arrives within 60 minutes of the start of the event while 75% leave within 45 minutes of the end. The remaining people arrive early or after the event starts and/or before the end of the event. These arrival and departure patterns suggest that pre-event parking demand activity would not overlap with a typical weekday PM peak hour.

Smaller events (i.e. meetings and conferences) are likely to be held during the weekday period and on weekends but typically experience much smaller parking demands than other event types.

5.5 Parking Demand Distribution

Available parking locations and associated walking distance to and from the NEC will vary based upon the type of event and patron attendance. A preliminary evaluation of the extent to which NEC parking demands would extend across south downtown area parking facilities for the NEC event categories was completed to provide an understanding of the relative proximity of parking to the NEC during event times.

A summary of off-site parking demand for each event condition is outlined below (assuming that about 100 spaces are developed on-site):

- Small Events - 650 vehicles - within 200 - 400 metres (average walk of 5 minutes)
- Mid-Size Event - 1,275 vehicles - within 400 metres (average 5 to 10-minute walk)
- Major Events - 1,500 vehicles - within 800 metres (average 10-minute walk)
- Design Load Events - 1,800 vehicles - within 800 to 1,200 metres (average 10 to 15-minute walk)

In regards to the above, it is noted that for Design Load events which occur very infrequently, special event parking management techniques should be employed to reduce the demand for parking in the immediate vicinity of the NEC.

Table 5.2 on the following page presents a possible parking demand and supply scenario by time of day for a typical weekday time period.

Table 5.2: Weekday Parking Accommodation Scenario

Event Type		Pre-Event			Post-Event	
		5:00 PM	6:00 PM	7:00 PM	9:00 PM	10:00 PM
Small Event	Total Parking Demand	120	560	750	600	75
	Parking Accommodated On-site	100	100	100	100	100
	Parking Accommodated Off-site	20	460	250	500	
Mid-Size Event	Total Parking Demand	200	1,000	1,375	1,100	140
	Parking Accommodated On-site	100	100	100	100	100
	Parking Accommodated Off-site	100	900	1,275	1,000	40
Major Event	Total Parking Demand	250	1,200	1,600	1,350	160
	Parking Accommodated On-site	100	100	100	100	100
	Parking Accommodated Off-site	150	1,100	1,500	1,250	60
Design Load Event	Total Parking Demand	300	1,400	1,900	1,500	190
	Parking Accommodated On-Site	100	100	100	100	100
	Parking Accommodated Off-Site	200	1,300	1,800	1,400	90

As illustrated in Table 5.2, it has been estimated that during Major and Design Load Events, between 1,500 and 1,800 off-site parking spaces could be required at about 7:00 PM. This time period is considered to represent a peak period of parking demand activity.

5.6 Parking Assessment

Based on the parking supply and utilization surveys completed by Bunt & Associates on Friday December 2, 2016 and Saturday, December 3, 2016, it has been determined that there were approximately 1,000 to 1,230 vacant curbside spaces within the area of significant parking influence that could be used by patrons attending to events at the arena. Of these vacant spaces, about 330-395 spaces are restricted parking spaces (2-hour parking spaces) representing an available parking supply of about 670 and 835 on-street unrestricted parking spaces during a weekday and weekend respectively.

In addition to the available curbside parking spaces, it was observed that City operated parking garages were not 100% occupied during this time slot. The surveys identified that at approximately 7:00 PM, City operated parking garages exhibited parking surpluses of about 425 spaces when there were no events occurring at the Port Theatre and a reduced parking surplus of about 225 spaces when there was a near sold out performance at the Port Theatre.

In total, it has been estimated that the combination of on-street and off-street parking spaces represents an available surplus parking supply of about 1,400 to 1,450 stalls (including 2-hour restricted parking spaces). In order to improve access to on-street parking spaces that are currently governed by restricted parking regulations, an updated parking program should be developed particularly for those areas that may be impacted by event traffic. The updated parking management program could result in modifications to existing restrictions which would allow some access for event patrons to use existing curbside parking spaces. It is also noted that the updated parking management program may also result in increasing the number of restricted residential parking spaces to better protect residents in the area.

Based on peak period event parking demand estimates of 1,600 and 1,900 spaces for Major and Design Load events respectively, and accounting for the up to 100 parking spaces planned for the NEC site, it has been concluded that the available on- and off-street parking supply (including currently restricted on-street parking spaces) would be able to accommodate up to approximately 97% of the parking associated with a Major Event at the NEC, and over 80% of the parking associated with Design Load event conditions.

The resulting parking shortfall of approximately 50-100 spaces for the Major Events (50-70 events per year) and 350-400 spaces for Design Load condition (7-8 times per year) may require remote parking outside of the downtown area and shuttle bus service connecting these locations to the NEC site.

It should be noted that the available parking supply identified (1,400 to 1,450 stalls) does not include any parking spaces associated with the Port Place Shopping Centre located directly opposite from the 1 Port Drive site. (In this regard, it is noted that on both Dec. 2 and Dec. 3, there were about 400 vacant spaces within the confines of the shopping centre at about 7:00 PM).

For the maximum capacity conditions of up to 8,300 event attendees, an organized bus shuttle service would be further ramped up and documented as part of a Special Event Parking and Traffic Management Plan prepared for these special events occurring but a few times a year.

From a traffic and parking management/impact perspective, it has also been concluded that consideration should be given to proceeding with a minimal amount of parking on the site versus providing a significant amount of the required parking on the site.

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6. NANAIMO EVENT CENTRE TRAFFIC AND TRANSIT REVIEW

6.1 Introduction

Trips generated by the new NEC are anticipated to be dispersed among a number of roadways within the area given the various locations of both existing and future parking opportunities.

In order to assess the impact of the buildout of the NEC on study area roadways and intersections, trips anticipated to be generated by the proposed development were considered at a Master Plan level of assessment.

6.2 Influencing Factors

The proposed NEC is situated on the south side of the City's downtown core. The general area, and the site itself, is well connected from a vehicular perspective to other areas of Nanaimo and surrounding residential neighbourhoods to the north west and south.

The locational attributes and site context of the proposed NEC development parcel adjacent to Nanaimo's downtown core, in combination with the decentralized nature of event parking, presents three key influencing factors from a transportation perspective:

1. The location of the NEC adjacent to the downtown core offers enhanced potential for event attendees to travel by transit given the level of transit service currently afforded within and to the downtown area.
2. NEC parking demands will be met in a distributed fashion across a number of parking facilities (on- and off-street) around the downtown and in fringe downtown areas. This will disperse event traffic across the downtown area during the pre- and post-event periods as opposed to concentrating traffic on a limited number of access corridors.
3. The extensive road network supporting the downtown area provides numerous road linkages to/from parking areas that can be used by event attendees. The number of routes serving the downtown combined with the distribution of parking facilities tends to diminish the reliance placed upon any one access routing into or out of the downtown area.

The combined effect of these three considerations, and particularly the use of multiple parking locations served by multiple and different road connections, serves to greatly disperse the majority of the pre- and post-event traffic activity across a broad area and onto a number of routing options. This has the effect of reducing event related traffic volumes at any one location (i.e. streets or intersections) within the downtown area before and after events.

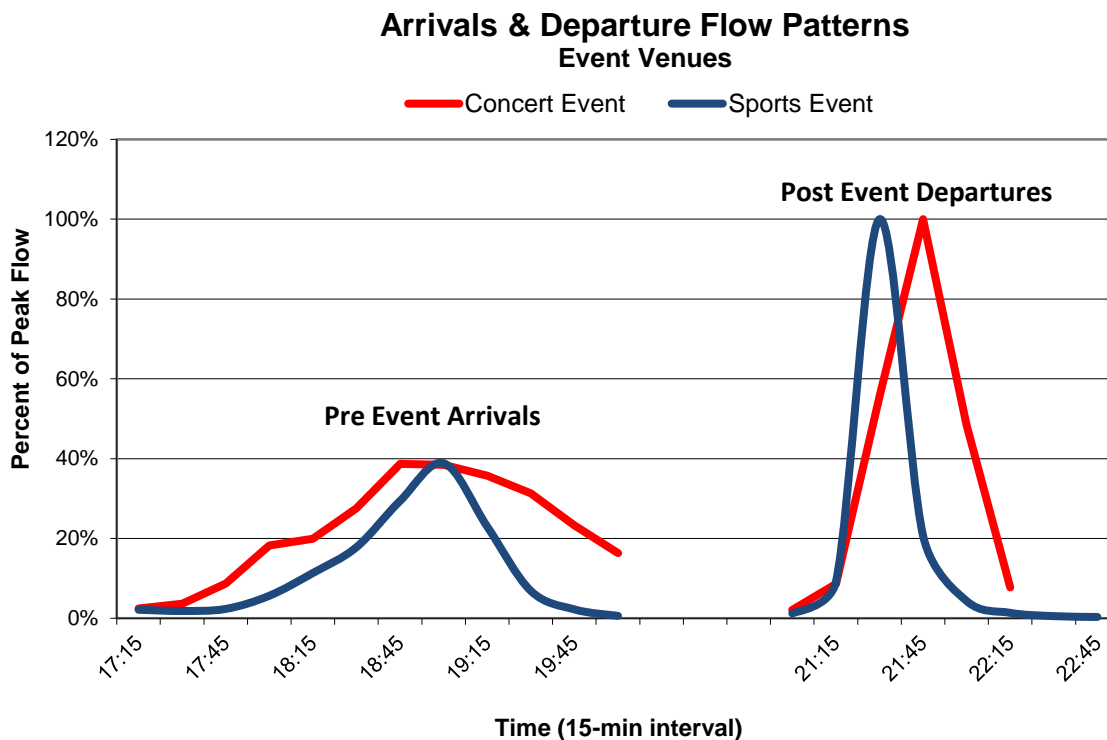
It is important to consider that NEC traffic demands are typically short-lived and occasional in that they are focused generally in the periods immediately before and after an event. Furthermore, the most intense periods of activity related to the largest events only occur on a relatively small number of occasions over

the course of a year with the key post-event (departure) period typically occurring outside of the weekday peak hour periods when traffic activity on the area road network is reduced compared to the rush hour periods.

6.3 Arrival and Departure Patterns

The activities at the NEC will generate, at times, increases in traffic activity on the area road network surrounding the development site. These increases will be dispersed throughout the downtown grid system of the existing roadway network given that available parking demands will also be dispersed across a variety of street and off-street parking facilities located within the downtown and downtown fringe area.

The following chart depicts the typical “pre-event” and “post-event” arrival and departure profiles respectively for both a major concert event and large attendance sports event, as observed by Bunt & Associates as part of previous project work at Rogers Arena in Vancouver. The flow profiles clearly indicate the dispersed nature of arrivals to the venue in the “pre-event” period as a number of patrons take advantage of on-site or area restaurants ahead of the event, while the “post-event” flows are considerably more spiked as attendees depart back for home in the later evening. Area background traffic flow using the downtown street system is significantly diminished in the evening. As such, even with this more spiked event traffic flow profile post-event it has been concluded that event traffic activity can be accommodated on area roadways, particularly as the parking locations are distributed across the precinct.



The periods of increased traffic and parking activity are anticipated to be short term and typically confined to an hour period pre- and post-event following an event. These periods will, for the most part, occur during the early and late evenings outside of the peak periods of typical peak weekday and weekend traffic and parking activity.

6.4 Preliminary Traffic Review

The 2012 Nanaimo Transportation Survey process identified the profile of all vehicle traffic inbound and outbound to the downtown area (through a downtown cordon survey) over the course of a 24-hour weekday period. From this survey work in 2012, key findings are as follows:

- The busiest one hour volume of traffic arriving into the downtown area is approximately 3,800 vehicles per hour and occurs both in the early morning period from 8:00-9:00am, and in the mid afternoon from 4-5pm (commuter traffic passing through the downtown).
- By the early evening period from 6:00-8:00pm which would be the typical pre-event period for the larger events at the proposed Event Centre, the inbound volume to the downtown has decreased to about 2,200 vehicles per hour, over a 40% decrease from the mid-afternoon peak volume.

- For Major and Design Load Events at the new Event Centre, with potentially up to 1,600 and 1,900 vehicles respectively arriving to the downtown seeking parking on the 1 Port Drive site (100 vehicles) and elsewhere in the area. With the more dispersed profile of arriving patrons to these types of events, this amounts to inbound vehicle volumes for the larger events of an estimated 1,050 to 1,250 vehicles over an hour. This amounts to roughly half of the 2,200 vehicles noted above as the decrease of inbound vehicle trips in the early evening period compared to the early morning and mid-afternoon peak conditions.
- The downtown traffic cordon count further identified a peak outbound volume of vehicle traffic departing the downtown area of approximately 4,400 vehicles per hour from 4-5pm. For the later evening post-event period from 9:00-11:00pm, the outbound volume from the downtown is approximately only 1,200 vehicles per hour, or only about one quarter of the mid-afternoon peak condition. This 3,200 vehicle per hour reduction in trips departing the downtown from the weekday mid-afternoon period to the later evening post-event condition is nearly double the volume of added post-event vehicle traffic that would be utilizing this spare capacity on larger event days.

Based on the above, it has been concluded that at a preliminary level of assessment, there should be sufficient roadway capacity on area roadways to accommodate the incremental increase in traffic demands generated by the NEC.

6.5 Transit Exchange

The 1 Port Drive site has been identified as a potential location for a new downtown transit exchange facility.

The section of Front Street directly adjacent the 1 Port Drive site presents an opportunity to develop an urban on-street transit exchange to serve the Event Centre, the Port Place shopping centre, the Gabriola Ferry Terminal, and the nearby downtown area more generally. Existing weekday and Saturday afternoon peak hour traffic volumes on this section of Front Street (ranging from 170 vehicles per hour up to 350 vehicles per hour in either direction) can be suitably provided for with a narrowed two-lane (single lane in either direction) roadway.

Even with a reduction in the number of through traffic travel lanes, accommodation of bus bays, turn lanes, bike lanes, space for pedestrians, event attendees, transit shelters and transit riders would require a widening of Front Street towards the site, the scale of which would depend on the specific elements to be included in the future roadway. In addition, by lengthening the transit area and adding more bays, this on-street configuration could be scaled to accommodate, if desired, a more significant transit facility moving forward.

7. TRANSPORTATION AND PARKING DEMAND MANAGEMENT

7.1 Preamble

In order to minimize traffic congestion, maintain transportation system reliability, and achieve customer service expectations of all road users, a proactive approach to traffic and parking planning could be realized by considering the implementation of a special event traffic and parking program particularly for Major, Design Load, and Capacity events.

A special event traffic and parking program would encourage use of alternative travel modes to the extent possible and could promote the use of satellite parking facilities (with shuttle operations). The introduction of a special event traffic and parking management program will maximize efficient and safe travel for all modes accessing the Event Centre.

The special event traffic and parking management program should integrate the following three broad strategy groups to assist in the development of safe, efficient and effective transportation plans for the new multi-use event centre:

- Process strategies include guidelines for predicting event-generated travel and parking demands and impacts, procedures for developing traffic and parking management initiatives, methods for assessing facility/event impact mitigation proposals, guidelines on implementation activities and evaluation and monitoring frameworks;
- Operations strategies include a range of regulations, traffic, parking and pedestrian control strategies, and transit coordination strategies for operating the transportation system in a manner that meets event patron service requirements and other road users; and,
- Service strategies include travel demand management policies and other initiatives that strive to encourage the use of alternative transportation and improve the utility associated with available travel choices (e.g., mode, vehicle occupancy, and parking destination).

7.2 Special Event TDM Options

7.2.1 Transit Related

A number of transit related TDM strategies can be considered including:

- Promoting the use of the transit exchange facility located on Front Street for patrons and employees alike (recognizing that transit mode split is typically low for evening period events but would be assisted by having a modern, clean, safe transit facility next door);
- Ensuring that transit stops are located in close proximity to the NEC and that a frequent transit service is provided pre- and post-event;
- Pre-ticketing bundles for transit trips;
- Operating park and ride facilities from exiting transit garages or remote parking areas; and

- Encouraging the owners and operators of the NEC to work with the Nanaimo Regional District who manage the Nanaimo Regional Transit System to allow for an event ticket to be used as a transit pass. The cost of the transit fare or a portion thereof could be included in the price of an event ticket.

7.2.2 Pedestrian and Bicycle Related

- Ensuring that appropriate and strong pedestrian facilities and linkages are in place by improving adjacent and area sidewalks and crosswalk facilities;
- Identifying improvements that could be made to ensure and enhance safer, more visible and attractive street crossings by introducing traffic calming techniques, introducing sidewalk bulbining to reduce crossing distances where feasible, reducing the number of channelizing islands to reduce pedestrian crossing distances, utilizing leading pedestrian intervals to give pedestrians a head start in crossing prior to allowing motorists to turn, etc.;
- Increasing pedestrian connections beyond the sidewalk system where there is an opportunity to enhance or create public amenity space, including publicly accessible, privately-owned space;
- Incorporating pedestrian amenities including street furniture, trees, pedestrian lighting to enhance the pedestrian environment,
- Implementing intersection crossing improvements to increase convenience, safety and visibility where bicycle routes cross major roadways; and
- Providing an excess amount of covered and secure bike storage for employees and patrons. Bicycle parking should be located in clear view of ticketing/security staff for patrons.

7.2.3 Traffic Management Related

- Deploy new technologies for traffic control and monitoring, etc.;

7.2.4 Parking Related

- Consider the introduction of parking management programs within the Fort Place Shopping Centre to take advantage of available surplus parking spaces during weekday evening and Saturday evening time periods;
- Designate carpool spaces as appropriate;
- For significant events, employ shuttle buses to remote parking lots;
- Deploy new inbound guide signs for parking and technologies for parking wayfinding and monitoring, etc.
- Pre-ticketing bundles for parking at select downtown parking facilities to reduce an over reliance on area street parking;
- Consider the use of the use of cell phone technology to assist in guiding patrons to area parking garages and possibly to reserve a parking space near the arena.

7.2.5 Other Related TDM Strategies

- For significant events, Traffic Control Personnel (TCP) deployment at Front Street pedestrian crossing locations;
- For significant events, TCP deployment at the service area driveways to manage pedestrian and parking access (for the 100 -stall parking area);
- Implement a “How to Get There” or “Plan Your Trip” page on the NEC Web site which would provide supplemental information about travel, parking, transit, bicycles, taxis and limousines;
- Ensure that appropriate space is provided to accommodate charter and yellow school bus drop-off and pick up occurrences;
- Ensure that an appropriate service vehicle marshalling and parking plan is planned.

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8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Study Synopsis

The 1 Port Drive Transportation Considerations Feasibility Study was prepared to provide the City of Nanaimo with an introductory appreciation for the extent of traffic and parking demands associated with the operation of a multi-use event arena.

In general, impacts on traffic and parking accommodation resulting from the construction and operation of the project and the impacts on on-site and adjacent land holdings are reviewed at a master plan level of assessment. The completion of this preliminary assessment will ensure that an on-site and off-site parking inventory is of a suitable size to accommodate cumulative facility parking demands without creating neighbourhood parking spill-over concerns.

The primary objectives of the transportation review were to:

- Identify the most current land use schedule defined by the owners and project architects used as the basis for the transportation evaluation;
- Review existing area roadways serving the site and roadway characteristics;
- Identify the anticipated transportation characteristics of the land use program, including auto occupancies and mode split characteristics;
- Provide an initial estimate of likely trip generation characteristics;
- Compare projected traffic levels to existing traffic movements and the resultant roadway capacity of the principal approach roadway corridors to provide a preliminary indication of likely project traffic impacts;
- Provide an initial estimate of parking needs for the project and a comparative analysis of the adequacy of the proposed on- and off-site parking supply;
- Identify and discuss likely parking operation issues and advance potential ways to mitigate parking operational issues;
- Suggest roadway improvements and pedestrian accommodation improvement programs to accommodate the development initiative;
- Identify alternative parking and transportation considerations that could be considered to maximize existing and future parking capacities and transit; and
- Identifies strategies to encourage use of alternative transportation modes.

8.2 Summary of Key Study Findings

Program Statement

The NEC is anticipated to host approximately 126 events per year including family shows, WHL hockey games, sporting events, concerts, conventions, trade shows, and other miscellaneous events. Key NEC program highlights are as follows:

- Maximum Capacity for up to 8,300 patrons (potentially a few occasions per year);
- Design Load Conditions of 6,400 patrons;
- Large Event Typical Attendance 5,000 patrons;
- Valet operated, event parking for up to 100 vehicles.

Spectator attendance related to the NEC will vary depending on the type of event being held, as is typical among facilities of this nature. The frequency and size of events will vary throughout the calendar year. The largest events will typically occur only on a very occasional basis, while smaller, more typical events are anticipated to occur on a more regular basis.

Travel Demand Forecasts

For the purposes of developing a parking and traffic demand forecast model, the anticipated event types at the proposed NEC were organized into four event categories based upon the relative size of attendance and their typical frequency throughout the year. The travel characteristics and number of visitors expected for each of the four event categories differ based on the nature of the events to be held within each grouping as presented below:

Event Categories and Associated Design Attendance

Event Type	Design Attendance	Events Per Year	Comments
Design Load Events	6,400	7 to 8	Concerts, family shows, etc.
Major Events	4,000 to 6,400	50 to 70	WHL Hockey games, etc.
Mid-Size Events	2,500 to 4,000	25 to 30	Other concerts, sport events, etc.
Small Events	500 to 2,500	25 to 30	Could include conferences, trade shows, etc.

Travel Mode

Travel demands generated by the NEC will be influenced by a number of factors and variables that could affect travel to and from facility events. Factors include the type of event and the mode of travel. These factors were considered in the evaluation to determine the number of vehicles that will require parking in

the vicinity of the NEC and that would be driven to and from the NEC before and after events. The travel mode assumptions assumed for assessment purposes include:

Event Categories and Assumed Mode Split

Event Type	Private Automobile	Transit /Charter Bus Taxi, Drop-Off, Walk
Design Load Events	80%	20%
Major Events	80%	20%
Mid-Size Events	85%	15%
Small Events	90%	10%

Arrival and Departure Patterns

The activities at the NEC will generate, at times, increases in traffic activity on the area road network surrounding the development site. Given the grid system of the existing roadway network, these increases will be dispersed throughout the downtown given that available parking demands will also be dispersed across a variety of street and off-street parking facilities located within the downtown and downtown fringe area.

The periods of increased traffic and parking activity are anticipated to be short term and typically confined to an hour period pre- and post-event. These periods will, for the most part, occur during the early and late evenings outside of the peak periods of typical weekday and weekend traffic and parking activity.

Parking Projections

Parking projections for the NEC were developed for the four event categories by taking into account the modal split and vehicle occupancy characteristics of the different event categories. The projected peak attendance and parking demands for each event type are summarized in the following table.

Event Category Parking Demand Estimates

Event Type	Assumed Patron Attendance	Mode Split to Auto	Patrons Arriving by Private Auto	Assumed Auto Occupancy	Projected Parking Demand
Design Load	6,400	80%	5,120	2.7	1,900
Major Events	5,000	80%	4,000	2.5	1,600
Mid-Size Events	3,250	85%	2,750	2.0	1,375
Small Events	1,500	90%	1,350	1.8	750

Parking Availability: Downtown Parking

A series of parking surveys were undertaken by Bunt & Associates to ascertain the on and off-street parking inventory in the immediate area of the NEC and to identify in a preliminary fashion current on and off-street parking utilization characteristics.

In total, it has been estimated that the combination of on-street and off-street parking spaces represents an available surplus parking supply of about 1,400 to 1,450 stalls that could be used by event patrons. It should be noted that this available parking supply does not include any parking spaces associated with the Port Place Shopping Centre located directly opposite from the 1 Port Drive site.

Based on peak period event parking demand estimates of 1,600 and 1,900 spaces for Major and Design Load events respectively, and accounting for the up to 100 parking spaces planned for the NEC site, it has been concluded that the available on- and off-street parking supply (including currently restricted on-street parking spaces) would be able to accommodate up to approximately 97% of the parking associated with a Major Event at the NEC, and over 80% of the parking associated with Design Load event conditions.

The resulting parking shortfall of approximately 50-100 spaces for the Major Events (50-70 events per year) and 350-400 spaces for Design Load condition (7-8 times per year) may require remote parking outside of the downtown area and shuttle bus service connecting these locations to the NEC site.

From a traffic and parking management/impact perspective, it has also been concluded that consideration be given to proceeding with a minimal amount of parking on the site versus providing a significant amount of the required parking on the site.

Parking Management

As part of an overall Transportation Demand Management program, it is recommended that parking management for the NEC be coordinated through the completion of an overall parking management plan. The goal of this study is to minimize the parking seeking maneuver and to minimize traffic passing by the development area to find an available parking space on the opposite side from their direction of approach.

The Parking Management Plan should be designed to promote a parking organizational system where patrons park in targeted areas within the 800m walking distance radius in the most efficient manner in order to minimize overall travel time and to spread traffic across all of the multiple arrival and departure routes and available parking garages.

Pre- and Post-Event Transportation Management Plan

The completion of a comprehensive Pre- and Post-Event Transportation Management Plan has been identified as a project mitigation measure. The completion of this plan is the responsibility of the NEC operators and should be completed in conjunction with the City of Nanimo. The Pre- and Post-Event Transportation Management Plan would provide a more detailed framework for managing all aspects of transportation for events.

The Plan will provide an initial blueprint for transportation management, but will also be dynamic, flexible, and capable of responsiveness to the actual transportation conditions that may occur once the NEC is in operation. The Plan would be a multi-modal plan that addresses transit, autos, taxis, yellow and charter bus operations, parking, pedestrians, and bicycles.