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CITY OF CAMPBELL RIVER

DOWNTOWN AND CAMPBELLTON AREA TRANSPORTATION NETWORK AND PARKING PLAN

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CITY OF CAMPBELL RIVER

DOWNTOWN AND CAMPBELLTON AREA TRANSPORTATION NETWORK AND PARKING STUDY

Final Report – 17 July 2007

Opus Hamilton Consultants Ltd.

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EXECUTIVE SUMMARY

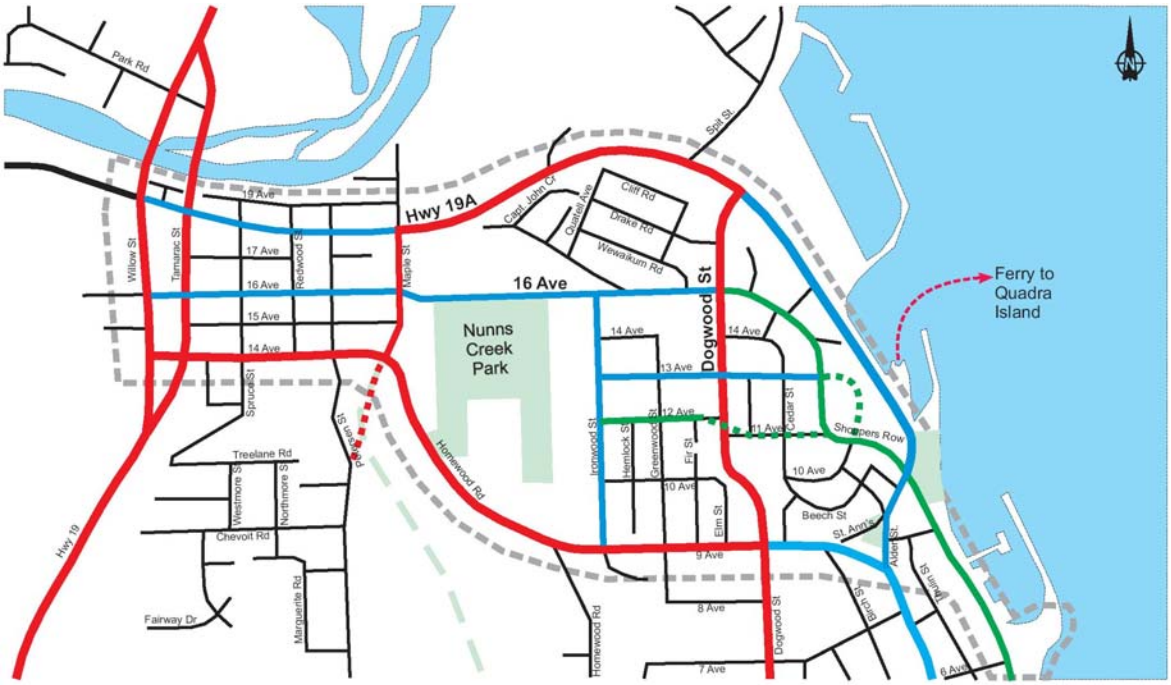
The Downtown and Campbellton Area Transportation Network and Parking Plan envisions a truly multimodal strategy, in which initiatives for all modes, plus a parking strategy, are integrated into an overall plan. This document is intended to guide transportation-related decisions in the Downtown and Campbellton area of the City of Campbell River for the next 20 years.

Major elements of the plan include:

- Greatly improved pedestrian facilities to create a continuous, aesthetically-pleasing pedestrian network in support of tourism and local businesses;
- Reduced vehicular capacity on the waterfront portion of the Island Highway (19A) from Dogwood Street to the ferry terminal, with greatly improved pedestrian and cycling facilities and improved landscaping and aesthetics;
- A new role for 16th Avenue as a multimodal corridor, with improved infrastructure for transit, pedestrians and cyclists, while still maintaining good vehicular access;
- Designation of two Pedestrian Priority Zones − one Downtown centered around Shoppers Row and the Downtown commercial area, and one in the residential area of Campbellton − which are joined by a continuous multimodal route on 16th Avenue;
- Designation of Maple Street as both an arterial and a truck route, with new signals;
- Removal of Petersen Road, a residential street, from the truck route system;
- Long-term plans to connect 11th and 12th Avenues across Dogwood Street, in order to create greater continuity across Dogwood, which is currently perceived as splitting Downtown into two separate halves;
- An update of the bicycle plan, based upon new functions of roads within the study area, and a plan for marking and signing designated routes in order to improve safety and encourage alternative modes of transportation;
- Road network and intersection plans that will serve new automobile-oriented development without sacrificing other modes; and

- An overall transportation network that is supportive of increasing residential density in the Downtown and Campbellton area.

The conceptual road network plan is shown in FIGURE ES-1.



LEGEND

Arterial Road	Pedestrian-Oriented Street
Proposed Future Arterial	Future Pedestrian-Oriented Street
Multimodal Street	Study Area Boundary

FIGURE ES-1 ROAD NETWORK PLAN

For this plan, three new road "designations" were developed that were deemed appropriate for the study area, as the commercial and social centre of Campbell River. These road designations are not intended to replace existing road classifications (Arterial, Collector, Local, etc.), but rather overlay the existing vehicle-oriented classifications with additional design parameters for other modes. Descriptions of each of the new designations for roads within the study area follow.

Downtown Arterial

This designation is similar to the current City of Campbell River "Arterial" road classification which prioritizes vehicle movement, but also recognizes the need to provide facilities for other modes within the Downtown/commercial context of the study area. The current design standard, which includes minimum 2.0-metre sidewalks on both sides with a boulevard strip, is appropriate for these roads. However, many arterial roads are not currently built to this standard. It was recognized that as new development occurs along these roads, the City needs to reinforce and augment current standards to ensure the inclusion of infrastructure for non-automobile modes. This is particularly important within the Downtown/Campbellton study area, as it experiences relatively high pedestrian volumes and caters to tourism, which is expected to grow.

Multimodal Street

A multimodal street is one that is designed to facilitate access by all or most modes of travel, that is, pedestrians, cyclists and transit, as well as vehicles. A multimodal street should have sidewalks on both sides and signed and marked crosswalks at regular intervals. These streets would likely also include bicycle lanes and/or transit-supportive designs (e.g. bus bulges, benches, bus shelters and lighting) where these types of routes are present. This road classification was developed out of recognition that alternative modes have traditionally been under-served in Campbell River and need to be accommodated as the City grows in order to keep traffic growth at bay and support tourism economy. An example of an existing multimodal Street in Campbell River is the re-designed portion of the Island Highway (19A) through Willow Point.

Pedestrian-Oriented Streets

This classification was developed in response to previous plans that envision increased residential land uses within the study area and the desire of residents to create an aesthetically-pleasing, walkable Downtown. In addition, it will help to support the growing tourism economy generated in part by the new cruise ship terminal being built adjacent to the study area.

Pedestrian-oriented streets still allow an adequate level of vehicle access, but create an environment that is safe and comfortable for pedestrians, and thus encourages use of this mode. These streets may also serve cyclists and transit, and are expected to have relatively low vehicle speed limits. A typical pedestrian-oriented street would include narrow vehicle travel lanes, wide sidewalks, landscaping, curb extensions and frequent crosswalks, among other features. An example of an existing pedestrian-oriented street in Campbell River is Shoppers Row.

Short-Term Road Network Recommendations

- *Tyee Plaza Road Network Extension* - With the redevelopment of Tyee Plaza, an opportunity exists to create better connectivity between Shoppers Row and the adjacent waterfront by extending 10th Avenue and 13th Avenue into the Plaza, as recommended in the Downtown Study.
- *Re-designation of Streets to Improve Downtown Liveability* - Functions of Downtown and Campbellton roads should be evaluated and designated as Pedestrian-Oriented, Multimodal and Arterial Streets, in order to improve travel routes for all modes. Design guidelines for these three recommended classifications should be developed and formally adopted as part of the road design standards.
- *Operational-level Study of Highway 19A Along Waterfront* - Examine future BC Ferries operations to assess the impacts of potentially reducing Highway 19A north of the terminal access to one lane. The study would have to sufficiently demonstrate that Ferry operations will not be compromised due to capacity reductions on this 0.9-kilometre stretch of Highway 19A.

In addition to the road network plan, intersection, pedestrian, bicycle, truck route, and parking plans were developed as well. Transit services were reviewed as well, but as no major changes to routing were recommended, it is not discussed in this Executive Summary.

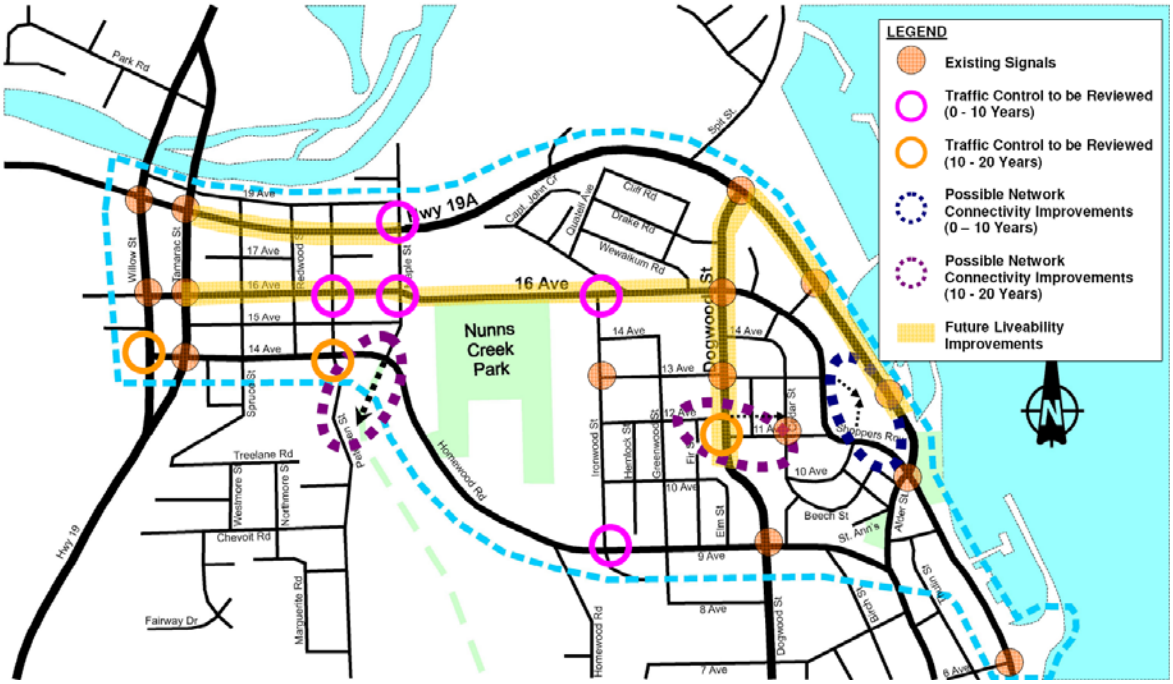


FIGURE ES-2 RECOMMENDED INTERSECTION IMPROVEMENTS BY 2027

A summary of the proposed short-term intersection improvements is provided in TABLE ES-1.

TABLE ES-1 SHORT-TERM RECOMMENDATIONS

INTERSECTION OR LOCATION	IMPROVEMENT
Maple Street / Highway 19A	Traffic Signal
Maple Street / 16th Avenue	Traffic Signal
Ironwood Street / 16th Avenue	Traffic Signal
Petersen Road / 16th Avenue	Traffic Signal from All-Way STOP
Ironwood Street / 9th Avenue	Traffic Signal
Tyee Plaza	Extension of 10th and 13th Avenues into Plaza

FIGURE ES-3 PROPOSED CHANGES TO BICYCLE ROUTES

Short-term recommendations of the Bicycle Plan include:

- Allocate an annual budget for cycling infrastructure and maintenance as part of the City's financial plan;
- Require new developments being built on designated cycling routes to incorporate cycling safety features into road upgrades;
- Require new developments to provide secure bicycle parking (in a well-lit location near the main entrance) as part of their parking requirements; and
- Prioritize the construction of cycling routes on 16th Avenue, the waterfront (19A south of Dogwood), Maple Street and Ironwood Street, in that order.

FIGURE ES-4 RECOMMENDED PEDESTRIAN ROUTE UPGRADES

Short-term recommendations of the Pedestrian Plan include:

- Allocate an annual budget for sidewalk construction and maintenance as part of the City's financial plan;
- Prioritize sidewalk construction based upon criteria such as: short missing links, streets with no sidewalks on either side, and then provision of sidewalks on both sides of street;
- Review pedestrian priority streets to ensure they have crosswalks at every intersection and a minimum of one crosswalk every 100 metres; and
- Develop procedures to ensure all new development applications have undergone a pedestrian audit to ensure infrastructure is provided for this mode.

LEGEND

- Current & Proposed Future Route
- Current Truck Routes Proposed for Removal from Route Network
- Proposed New Route

FIGURE ES-5 PROPOSED CHANGES TO TRUCK ROUTE SYSTEM

Short-term recommendations of the Truck Route Plan include:

- Remove Petersen Road from truck route network;
- Add Maple Street to truck route network; and
- Consult trucking companies regarding the removal of 16th Avenue and North Dogwood Street from truck route system.

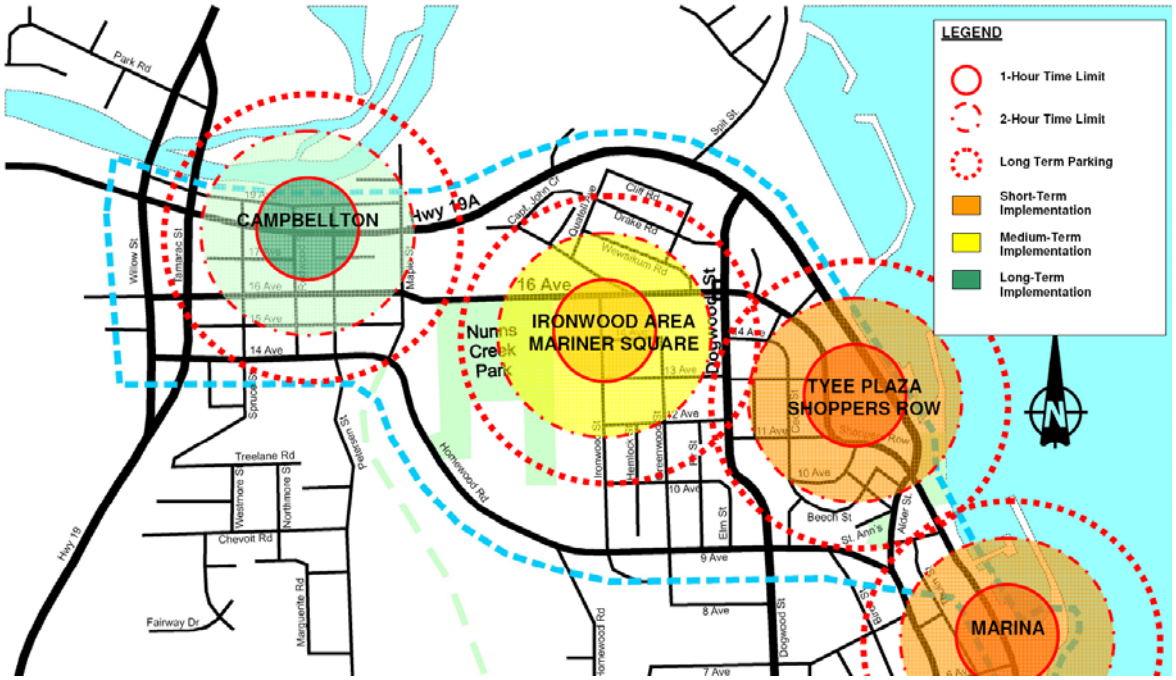


FIGURE ES-6 RECOMMENDED PARKING MANAGEMENT STRATEGY

Short-term recommendations of the Parking Management Plan include:

Downtown Off-Street Parking

- Implement a parking management strategy to ensure that long-term parking is not occurring in areas intended for short-term parking (e.g. on-street and in the Tyee Plaza parking lot);
- Provide better signing, naming, clarity of purpose and a coherent pricing program to encourage people to use the off-street lots;
- Inform employers of the suggested employee parking areas; and
- Provide Downtown workers with the option of purchasing monthly permits from the City for reserved parking in City lots.

Downtown On-Street Parking

- Employ a pricing and time limit strategy in the Downtown for on-street parking; and

- Where pay parking is unachievable, implement clear, consistent parking regulations and enforcement to short-term encourage parking in areas nearest to commercial areas, and longer-term parking away from the commercial areas.

Additional report sections include:

Road Safety Strategy – This module contains recommendations for improving the safety of all modes.

Sustainable Transportation Strategy – This module contains recommendations for improving the sustainability of the City's transportation system through infrastructure and land use measures.

Policy Review and Recommendations – This module contains recommendations for new and revised City policies that will support this plan.

Plan Implementation and Monitoring – This module contains recommendations for turning this plan into an on-the-ground reality.

1.0 INTRODUCTION

The Downtown and Campbellton Area Transportation Network and Parking Plan envisions a truly multimodal strategy, in which initiatives for all modes, plus a parking strategy, are integrated into an overall plan. This document is intended to guide transportation-related decisions in the Downtown and Campbellton area − the commercial and social centre of the City − for the next 20 years.

The plan includes an *Implementation and Monitoring* section, which is considered a vital bridge between the study recommendations and achieving on-the-ground results. These tools are intended to help the City move forward with the plan and turn it into a reality.

The plan consists of a series of modules, each of which identifies short- (0 to 5 year), medium- (6 to 10 year) and long-term (11 to 20 year) priorities to guide future investments in specific areas.

Comprehensive plans are most useful when they represent a compilation of up-to-date strategies in one stand-alone document. This document will serve as the main reference for Downtown and Campbellton area transportation decisions, with modules to be updated on a regular schedule.

1.1 Background

This study was commissioned by the City of Campbell River as a follow-up to the recommendations made in the Downtown Study for the City of Campbell River (2005) and the Master Transportation Plan for Area Roads (2004). The City is anticipating significant growth, and plans call for the densification and redevelopment of both the Downtown and Campbellton areas in order to accommodate this growth without encouraging sprawl or the unnecessary loss of green space. The City also wishes to encourage economic growth in these areas through revitalization and an enhanced pedestrian environment.

The study area is shown in FIGURE 1.1.

FIGURE 1.1 STUDY AREA

Major features of the study area include:

- Primarily a commercial area with three residential neighbourhoods (one in Campbellton, one west of Dogwood at the south end of the study area and one west of Dogwood at the north end of the study area);
- New medium- to high-density residential is being planned for the Downtown;
- Several new retail developments are being planned (Wal-Mart, Home Depot) or built (Mariner Square);
- A large park, Nunns Creek Park, is at the centre of the study area;
- Some roads have steep grades; and
- A ferry terminal for a 70-vehicle ferry serving Quadra Island generates moderate traffic along the waterfront.

1.2 Study Purpose

The goals of this study are to:

- Develop a long-term, multimodal transportation strategy for the Downtown and Campbellton area;
- Support economic growth and new development; and
- Promote a vibrant, walkable Downtown that will attract new residents.

The objectives of this study are to:

- Identify transportation requirements for all modes;
- Develop a long-term parking management strategy; and
- Recommend appropriate circulation, access and through routes.

1.3 Method

The following list outlines the major tasks completed as part of the planning process:

1) Start-up meeting with City staff
2) Review of background information, previous studies and plans
3) Formation of Steering Committee
4) Steering Committee Meeting #1
5) Public consultation regarding issues and opportunities (Open House #1)
6) Data collection
7) Network assessment
8) Development of three plan options
9) Steering Committee Meeting #2
10) Public consultation regarding the three plan options (Open House #2)
11) Further network assessment
12) Selection of preferred option

13) Refinement of preferred option

14) Steering Committee Meeting #3

15) Public consultation regarding preferred option (Open House #3)

16) Refinement of preferred plan option

17) Draft Report

18) Final Report

Sections 1.0 through 3.0 serve as an introduction to the plan, which then consists of a series of modules. Each module identifies short- (0 to 5-year), medium- (5- to 10-year), and long-term (10- to 20-year) priorities to guide future investments in specific areas. The modules are listed below:

A. Road Network Plan
B. Intersection Plan
C. Transit Service Plan
D. Bicycle Plan
E. Pedestrian Plan
F. Truck and Hazardous Goods Movements Plan
G. Parking Strategy
H. Road Safety Strategy
I. Sustainable Transportation Strategy
J. Policy Review and Recommendations
K. Plan Implementation and Monitoring

Each module of the plan is intended to be able to be updated on an individual basis and include a clear “latest update” date per module. Future updates to each module can then easily be inserted into a singular master document.

2.0 REVIEW OF PRECEEDING DOCUMENTS

Several background documents that are either directly related to or will have an impact on the study area were reviewed. The documents reviewed included:

- Downtown Study for the City of Campbell River (2006)
- Official Community Plan (2005)
- Master Transportation Plan for Area Roads (2004)
- Dogwood Street Corridor Safety and Traffic Review - Phase 1 (2002)
- Downtown Transportation and Parking Study (1995)
- Traffic Impact Studies (2005-2006)

The following is a summary of the findings of the above-listed reports that are relevant to this study.

2.1 Downtown Study for the City of Campbell River (2006)

This study, jointly commissioned by the City of Campbell River and the owners of Tyee Plaza, reviewed opportunities for new development in the Downtown core. The study created a strategy for revitalizing the Downtown area, creating new linkages to the waterfront, and adding new residential development. In particular, a more vibrant Downtown shopping area with better pedestrian and transportation network connections with higher density residential uses are envisioned in the plan.

Transportation-related design principles developed as part of the study include:

- Integrating Tyee Plaza with the established road and pedestrian network;
- Providing for transit and parking options for Tyee Plaza; and
- Reinforcing pedestrian connections to the waterfront.

The findings of the study included:

- Downtown is lacking a hierarchy of shopping or business streets: need to concentrate uses for a more vibrant, pedestrian experience.
- Shoppers Row is the most pedestrian-friendly road with wide sidewalks and pedestrian friendly land use and setbacks.
- Dogwood Street is the major arterial that carries traffic north and south on the far west side, primarily via 11th Avenue.
- Island Highway serves as a major connector to the ferry terminal, bypassing Tyee Plaza and Shoppers Row leading to the new Inland Island Highway.
- Island Highway acts as "a physical and psychological barrier to the waterfront for pedestrians in the downtown core".
- The ferry terminal is uninviting to pedestrians.
- The bicycle plan for the Downtown area needs to be re-examined for current and future opportunities.
- Most businesses have surface parking lots.
- The large parking lot at Tyee Plaza acts as physical barrier between the plaza and Downtown.
- A stronger connection strategy must be developed for both automobiles and pedestrians.
- 10th & 13th should be extended as streets into the Tyee Plaza parking lot and incorporate traffic control (i.e. four way stops).
- Implement shared parking responsibility between developers and the City.
- A parking study should be conducted for Tyee Plaza due to the redevelopment plans, which would cause the loss of approximately 100 parking spaces out of an existing supply of 525 spaces.

2.2 Official Community Plan (2005)

The Official Community Plan (OCP) for the City of Campbell River establishes the vision for future land use in the City. As land use is inextricably tied to transportation requirements, the document will have a profound impact on the transportation system. As such, it is important to review the land use vision for the Downtown and Campbellton area as specified in the OCP. As the OCP deals with

Downtown and Campbellton separately and specifies different land uses for each area, the OCP's vision for each area will be discussed separately below.

The OCP vision for Downtown states:

- Downtown is the central business area of Campbell River;
- Downtown will be maintained as the primary commercial area for the City and will include a mix of commercial residential, civic and cultural uses;
- New residential developments are encouraged in order to bring vitality and help make it a more "people-oriented" place;
- Downtown has considerable redevelopment potential and many under-developed properties;
- Revitalization initiatives are encouraged as a means to stimulate redevelopment;
- Consideration should be given to incentive programs intended to attract residential projects Downtown, including assistance with street front improvements;
- The City should provide and build upon pedestrian linkages to and along the waterfront; and
- Downtown should be pedestrian-friendly.

The OCP vision for Campbellton states:

- Many of the older residential dwellings are slowly disappearing and being converted to commercial use;
- Sites provide an opportunity for home-based business, due to the current residential/commercial mix;
- Redevelopment potential exists for more service and highway commercial uses;
- Small-scale retail activities are encouraged along Island Highway 19A and 16th Avenue; and
- New pedestrian connections to existing sidewalks and trails should be provided.

In addition to the Downtown- and Campbellton-specific guidelines, the OCP provides general goals, principles and policies for the City's transportation network. In general, the OCP broadly states that the transportation system should:

- Encourage the efficient movement of people and goods;
- Promote all modes of transportation, including transit, walking and cycling; and
- Accommodate all ages and abilities.

2.3 Master Transportation Plan for Area Roads (2004)

The Master Transportation Plan for Area Roads (MTP) recommends improvements to address current and anticipated future deficiencies in the road network to the year 2023.

The study found that the City's increasing population over the last few decades has placed significant stress on the few continuous roads connecting Downtown to the rest of the City and region. The major roads leading into Downtown are:

- Inland Island Highway 19 – Highway
- Island Highway 19A – Highway
- Dogwood Street – Arterial Road
- Alder Street – Arterial Road

In particular, Island Highway 19A (known as Discovery Crescent through the Downtown area), Alder Street, and Dogwood Street are the only north-south through routes connecting the mainly residential south Campbell River with Downtown. While the existing road network generally accommodates the recorded traffic volumes, the stretch of Island Highway 19A between Downtown and Rockland Road was found to exceed the theoretical road capacity. There were in excess of 1,000 vehicles during the PM peak hour carried in a single traffic lane on a road with an intended capacity of approximately 850 to 900 vehicles in the peak hour.

The plan also noted a lack of east-west connections between Campbell River's growth areas and the commercial/industrial area of Campbellton. Other identified issues with implications for Downtown and Campbellton include:

- Many of the intersections on the major north-south arterials of Dogwood Street and the Island Highway have no left-turn lanes, thereby reducing the capacity of these arterial roads and increasing the possibility of collisions.
- Lack of traffic signals at the 9th Avenue/Ironwood Street intersection causes significant delays to buses.
- Dogwood Street and Island Highway 19A are carrying high volumes of north-south traffic. Through traffic should be encouraged to utilize the Inland Island Highway 19 to a greater extent.
- An east-west connection between Island Highway and Willis Road is needed.
- The ferry terminal marshalling area at Island Highway requires improvement
- High collision intersections within the study area include:
    - 9th Avenue/Dogwood Street
    - Highway 19A/Willow Street
    - Island Highway/Shoppers Row/St. Anns Road
    - 13th Avenue/Shoppers Row

In planning for the future road network in Campbell River, traffic was forecast to the year 2023 based on population and employment estimates. Based on the traffic forecasts, the following improvements were recommended for the Downtown area road network.

Dogwood Street to the Downtown Area

- Widen to 4-lane cross-section (17.3 metres) with left-turn lanes at Merecroft Street, Evergreen Road, and 2nd Avenue.

- To remain a 4-lane cross-section from Robron Street north to 9th Avenue (slightly outside the study area of this project), it would require the Petersen Road/Dogwood Street connector project to proceed.

Alder Street through Downtown Area

- Upgrade to 3-lane cross-section with centre left turn lanes north of Robron Road, or to a 4-lane cross-section by restricting parking during peak periods.

Island Highway19A

- Reclassify from a highway to an arterial road.
- 2-lane-cross-section with centre left turn lanes where required.
- With its reclassification to an arterial road, can normalize and “calm” intersections with traffic control devices as desired.
- Modify the Island Highway to create a centre left-turn lane to accommodate vehicles arriving from the north and waiting to turn into the ferry terminal parking area.
- Can be upgraded with a landscaped median.
- Realign the intersection of Jubilee Parkway/Island Highway such that the continuity between Island Highway south of this intersection and Jubilee Parkway to the west is disrupted to encourage longer distance through traffic to bypass the Island Highway and use the Inland Island Highway.

Willis Road

- Connector project extending Willis Road from Dogwood Avenue to Petersen Road is considered to be a strategic link to connect the Campbellton Area with the major arterials carrying north-south traffic.

The study also recommends bicycle routes in the Downtown area. Generally, it is suggested that on existing roads, cyclists should be accommodated by widening the pavement on each side of a designated bike route to create a cycling lane. Alternatively, the report suggests some roads could be modified to incorporate wide curb lanes (a type of cycling route) within a standard 14.4 metre road width.

Commuter bike routes were designated on Highway 19A, 16th Avenue and Alder Street.

2.4 Dogwood Street Corridor Safety and Traffic Review, Phase 1 (2002)

The Dogwood Street Corridor between 9th Avenue and Robron Street was reviewed from a traffic safety perspective, due to high collision rates along the corridor. The segment of Dogwood reviewed is just outside the boundaries of this study.

The collisions occurred primarily at intersections along Dogwood Street, which was attributed to the lack of left-turn lanes (among other factors).

Due to the constraints along the corridor, the study recommended that Dogwood Street be modified to a three lane cross-section with one lane in each direction and a centre left-turn lane. This was determined to be the lowest-cost option, as it did not require additional land for the widening of Dogwood Street.

2.5 Traffic Impact Studies for Proposed Developments

Several new developments are being proposed within the study area – primarily in the Downtown area. Their traffic impact studies are summarized below in table format.

Mariners Quay Shopping Mall

Status	Approved
Proposal	98,500 SF Retail; 5,000 SF Bank; 4,600 SF Drive-Thru Fast Food; 108,100 GFA
Highlights	▪ Generates 1,061 two-way Saturday peak hour trips, 769 PM peak hour trips based on assumptions used. ▪ 54% of traffic expected to come from the south cumulatively, and as such, greater volumes utilizing Dogwood Avenue.
Recommendations	▪ Dogwood/13th Avenue add island in the 2nd northbound lane. ▪ Signalized Dogwood/Site Access. ▪ Dogwood/13th Avenue southbound 1 lane from 16th to Access. ▪ 14th to Dogwood becomes RIRO only, one thru lane northbound, left turn lane into site.

Community Gaming Centre

Status	Pending Review
Proposal	Convert existing bingo hall to 275 seat bingo hall, 100 slot machines, 34 seat café.
Highlights	▪ Development generates an additional 40 trips during the PM peak hour and 31 trips during the Sat peak hour. ▪ Impact is negligible, should only look at improving geometry of Alder/St. Ann's/2nd Avenue intersection.
Recommendations	▪ Implement 30 km/h speed zone from Alder Street at 9th Avenue to Shoppers Row/St. Ann's/Highway 19A. ▪ Change some of the current laning characteristics.

Wal-Mart and Home Depot Traffic Impact Study

Status	First Wal-Mart proposal rejected; second Wal-Mart proposal under review.
Proposal	173,300 SF Wal-Mart store; 104,000 SF Home Depot
Highlights	▪ Cumulatively, the developments generate 1,055 and 1,797 PM and Saturday peak hour trips respectively. ▪ Generally, unsignalized intersections on Highway 19A will experience extended delays due to an increase in through traffic travelling along Highway 19A to the site. ▪ Approximately 50% of traffic is estimated to utilize Dogwood Avenue to arrive at the site and a further 10% from the Inland Island Highway. This implies that a major draw for the developments will be from the mainly residential south sector of Campbell River.
Recommendations	▪ No off-site improvements necessary except for a shared traffic signal between the sites along Island Highway. ▪ New traffic signal at 16th Avenue and Maple Street intersection ▪ Minor changes to lane configurations at various intersections

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3.0 PUBLIC CONSULTATION AND OTHER PROJECT IMPACTS

3.1 Public Consultation

Public consultation was considered an important element of this plan to ensure that the goals and strategies are consistent with the needs and vision of the community.

A Steering Committee was formed, which included representatives from stakeholder groups, primarily businesses within the study area and government agencies (including MOT, ICBC, BC Ferries). Three rounds of public consultation were held, each of which included a Steering Committee meeting and a public open house.

Public Consultation - Round 1

The goal of the first round of public consultation was to provide an opportunity, prior to developing the plan, for residents and stakeholders to give input regarding issues and opportunities within the study area.

The Steering Committee stated the need for revitalization in the area, concerns regarding road capacity with the anticipated population growth and new development, as well as concerns regarding parking in the Downtown area.

Comments most often made during the first public open house included the need for improved pedestrian and cycling facilities, improved transit service, and the need for improved operations at the intersection of Highway 19A and Maple Street and the intersection of 16th Avenue and Maple Street. Open house attendees were asked to prioritize the need for improvements of seven different aspects of the transportation system for Downtown and Campbellton separately. A total of 19 survey forms were completed and returned. The averaged results are shown in TABLE 3.1 (1= highest priority, 7 = lowest priority).

TABLE 3.1 RESIDENT PRIORITIES FOR IMPROVEMENTS IN DOWNTOWN AND CAMPBELLTON

DOWNTOWN	CAMPBELLTON
1. Transit service	1. Cycling facilities
2. Pedestrian facilities	2. Pedestrian facilities
3. Cycling facilities	3. Transit service
4. Road upgrading	4. Road upgrading
5. Location of parking	5. Traffic calming
6. Amount of parking	6. Location of parking
7. Traffic calming	7. Amount of parking

For both Downtown and Campbellton, alternative forms of transportation (transit, walking and cycling) were ranked as the top three priorities, although not in the same order. Road upgrading fell in the middle in both surveys and parking issues and traffic calming were the last three priorities in both areas, although again not in the same order. Traffic calming ranked slightly higher in Campbellton, which is expected since it is partly a residential area and Downtown is not.

Public Consultation – Round 2

During the second round of consultation, three options for the road network within the study area were presented, and the Steering Committee and Campbell River residents were asked to provide feedback on which option they preferred. The three options presented were:

- Option A: Tamed Streets (pedestrian-oriented streets, traffic calming)
- Option B: Balanced Modes (maintains current traffic levels, but improves other modes)
- Option C: Current Trends (allows for traffic growth, while still improving other modes)

Conceptual diagrams of the three options are attached in APPENDIX A. Public feedback indicated a strong preference for Option A. The public also strongly favoured better pedestrian amenities along the waterfront. However, the Steering Committee preferred Options B and C or a combination of the two.

Public Consultation – Round 3

The purpose of the third round of consultation was to present the Preferred Option, based upon feedback from the prior round. The Preferred Option was a revised version of Option B: Balanced Modes, and was titled Option B-2: Preferred Option.

The Preferred Option was generally acceptable to the Steering Committee and received fairly positive feedback during Open House #3. A total of 14 comment forms were returned. The following is a summary of feedback received.

- A total of 64% of respondents chose either "Strongly Like" or "Somewhat Like" when asked how they felt about the proposed redesign of Highway 19A along the waterfront; 27% chose "Strongly Dislike"; and the remainder chose "Neutral / Not Sure".
- A total of 70% of respondents chose either "Strongly Like" or "Somewhat Like" when asked how they felt about the proposed redesign of 16th Avenue; 15% chose "Strongly Dislike"; and the remainder chose "Neutral / Not Sure".
- When asked to state whether they agreed or disagreed with the "arterial" designation of the following streets, the results were as follows:
  - Dogwood Street: 46% Agree; 23% Disagree; 31% Neutral
  - Highway 19A from Dogwood to Maple: 62% Agree; 15% Disagree; 23% Neutral
  - Maple Street: 61% Agree; 31% Disagree; 8% Neutral
  - 14th Avenue / Homewood Road / 9th Avenue corridor: 75% Agree; 18% Disagree; 8% Neutral
- When asked, on a scale of 10 (Stongly Like) to 1 (Strongly Dislike), how the respondent felt about the Preferred Option, the average rating was 6.1 and the median rating was 7.5. All responses are summarized in FIGURE 3.1.

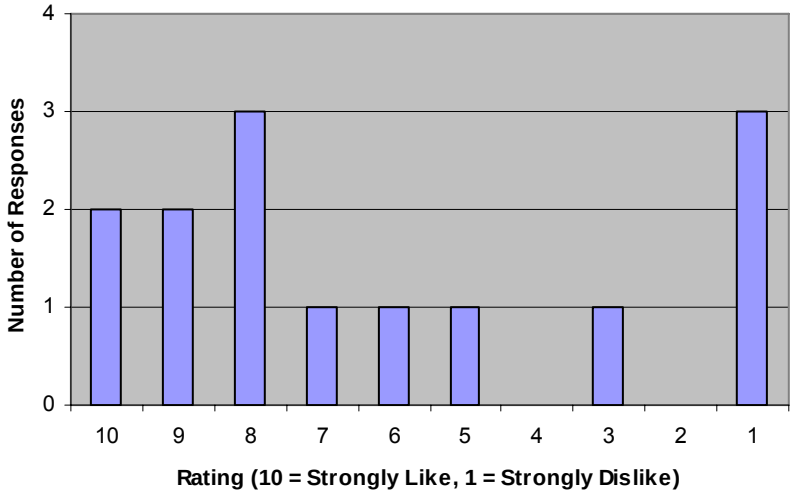


FIGURE 3.1 OVERALL PLAN RATING

3.2 Impact of Other Plans and Projects

The following is a discussion of previous studies, as well as issues that lie outside the study area, that will have a significant impact on this plan and that need to be considered for their influence on the study area.

Cruise Ship Terminal

A new cruise ship terminal is being built in Discovery Harbour, directly adjacent to the study area. The terminal has the potential to bring up to 4,000 visitors in one day into the Downtown area. In order to support this additional tourism economy and ensure that visitors will contribute to the economic health of the community it is important that:

- An attractive, safe, coherent pedestrian link be created between the cruise ship terminal and the Downtown.
- The waterfront is a vibrant, aesthetic community amenity.
- The Downtown shopping area is pedestrian-friendly.
- The cruise ship terminal provides convenient transit connections to major tourist destinations in Campbell River.

Downtown Plan / Living Downtown Strategy

As one of the goals of this plan is to promote a walkable Downtown, land use, site design and Downtown residential development will play critical roles in achieving this goal. This plan is intended to support the Downtown Plan and likewise, the implementation of the Downtown Plan is critical to supporting an increase in the use of alternative modes.

As the population of Campbell River grows, it will place a greater demand on City infrastructure, including roads. The more of that population that can be directed into the Downtown (and other established employment and commercial centres, such as Campbellton), the less impact it will have on traffic growth due to more people living within close proximity to major destinations, making walking, cycling and transit more feasible modes of transportation. Furthermore, more people living within walking distance to Downtown will reduce the need for additional parking spaces in the future, freeing up land for new development and thus promoting the economic sustainability of Downtown.

North-South Road Capacity / East-West Connector Roads

The Master Transportation Plan (MTP) identified several possibilities for new transportation connections south of the study area within Campbell River. Currently, access to the Downtown/Campbellton area is limited to four continuous north-south connections: Dogwood Street, Alder Street, Island Highway (19A) and the Inland Island Highway (19). The Inland Island Highway appears to be under-utilized due to a lack of east-west roads to connect the residential areas in South Campbell River − where a majority of the population lives − to the highway, which results in drivers using the Downtown/Campbellton area as a through-route to the highway.

In 2003 during the PM peak hour, Dogwood, Alder and the Island Highway (19A) all carried greater traffic volumes than the Inland Island Highway (19), as shown in TABLE 3.2.

TABLE 3.2 NORTH-SOUTH ROAD CAPACITY

NORTH-SOUTH CORRIDOR	2003 PM PEAK HOUR TRAFFIC VOLUME (South of Highway 28)		THEORETICAL CAPACITY
	Southbound	Northbound	Each direction
Inland Island Highway (19)	440	230	3000
Dogwood Street	1070	690	1500
Island Highway (19A)	1040	500	850
Alder Street	470	210	560

TABLE 3.2 shows that Dogwood Street and the Island Highway are each carrying more than twice the amount of traffic being carried on the Inland Island Highway. New east-west connector roads, as identified in the MTP would allow residents of south Campbell River to use the Inland Island Highway to a greater degree which would reduce the demand on Dogwood Street.

The MTP states that projected traffic growth to the year 2023 “indicates a need to provide additional capacity in the north-south direction in order to accommodate the increased traffic resulting from growth in the municipality.” However, there is existing, under-utilized capacity on the Inland Island Highway. The highway has the ability to easily accommodate the projected traffic growth, as only about 10% of its capacity was being used during the 2003 PM peak period on the segment south of the study area. In order to facilitate the greater use of the Inland Island Highway, it will be important to pursue the new east-west connections outlined in the MTP.

4.0 MODULE A: ROAD NETWORK PLAN

This module provides an assessment of the road network performance within the study area and identifies and prioritizes network links that need to be completed (new connections) or improved (capacity expansions) within the next 10 to 20 years. The scope of this module also includes an assessment of possibilities for traffic calming (vehicular capacity reductions) in order to encourage the use of non-automobile modes (walking, cycling, transit).

External influences on the Downtown and Campbellton area transportation network - including the links that connect the area to the rest of Campbell River - were assessed, with recommendations for changes that promote consistency and liveability.

4.1 Short-term Recommendations

- *Tyee Plaza Road Network Extension* - With the redevelopment of Tyee Plaza, an opportunity exists to create better connectivity between Shoppers Row and the adjacent waterfront by extending 10th Avenue and 13th Avenue into the Plaza, as recommended in the Downtown Study. The City should take action to resolve any outstanding issues regarding the network extension.
- *Designation of Streets to Improve Downtown Liveability* - Functions of Downtown and Campbellton roads should be evaluated and designated (or re-classified) as Pedestrian-Oriented, Multimodal and Arterial Streets, in order to improve travel routes for all modes. Design guidelines for these three recommended classifications should be developed and formally adopted as part of the road design standards.
- *Operational-level Study of Highway 19A Along Waterfront* - Examine future BC Ferries operations to fully assess the impacts of reducing Highway 19A north of the terminal access to one lane. The study would have to sufficiently demonstrate that Ferry operations will not be compromised due to capacity reductions on this short stretch of Highway 19A.

4.2 Road Network

The City of Campbell River has a well established road network. Within the Campbellton area, the road network forms a typical grid-like pattern. In the Downtown, due to the shape of the waterfront area, the road network is not a typical grid-like system with equal spacing. Instead, the roads into the Downtown area exhibit several different orientations.

Each road within the Campbell River road network is currently classified according to its function. Generally, there are four classifications for the roads within the study areas of Campbellton and the Downtown. The main roads in the study area are discussed below.

Highways

There are three highways that provide access into and out of Campbell River in addition to the Ferry Terminal. All highways are under the jurisdiction of the British Columbia Ministry of Transportation, with the exception of Highway 19A south of the ferry terminal, which is under the jurisdiction of the City. Highways are generally intended for environments suitable to higher operating speeds and regional mobility. Within the study area, highways include:

- Highway 19 (Inland Island Highway);
- Highway 19A (Island Highway); and
- Highway 28.

Arterial Roads

The City has a network of arterial roads, where the main focus and function of the road is for the movement of traffic within the City. Within the study area, arterial roads include:

- 16th Avenue;
- Dogwood Street;
- Petersen Road;
- 14th Avenue; and
- Alder Street.

Collector Roads

The City has several collector roads, where the main focus is to collect traffic from the local road network and provide a feasible route to the arterial roads. Within the study area, collector roads include:

- Maple Street
- Ironwood Street

Other Important Downtown Roads

- Shoppers Row – the main commercial roadway through the Downtown Area. It is generally a two lane road, with angled parking on the east side and parallel parking allowed on the west side. There are no posted speed limits for Shoppers Row, and operating speeds are generally low through this pedestrian-oriented, retail zone. It directly connects with east-west roads in the Downtown area including 13th, 11th and 10th Avenues.
- Cedar Street – a minor local roadway that provides a continuous connection through Downtown connecting Alder Street to Dogwood Street. Past 10th Avenue, Cedar Street transitions to Beech Avenue and continues as Beech Avenue to Alder Street.

4.3 Existing Traffic

Turning Movement Counts

Turning movement counts were undertaken by Opus Hamilton staff during the AM peak and PM peak periods on the week of September 25, 2006. The traffic survey data supplemented existing turning count information provided by the City and forms the basis of the network analysis work completed as part of this study.

The survey revealed that the AM peak hour for the road network occurred from 0745 to 0845 and the PM peak hour from 1615 to 1715. The recorded traffic volumes during the PM peak hour are displayed as FIGURE 4.1. For the most part, the operational analysis focuses on the PM peak hour as the design hour, as this is the overall peak traffic hour for the City over the course of a 24-hour period.

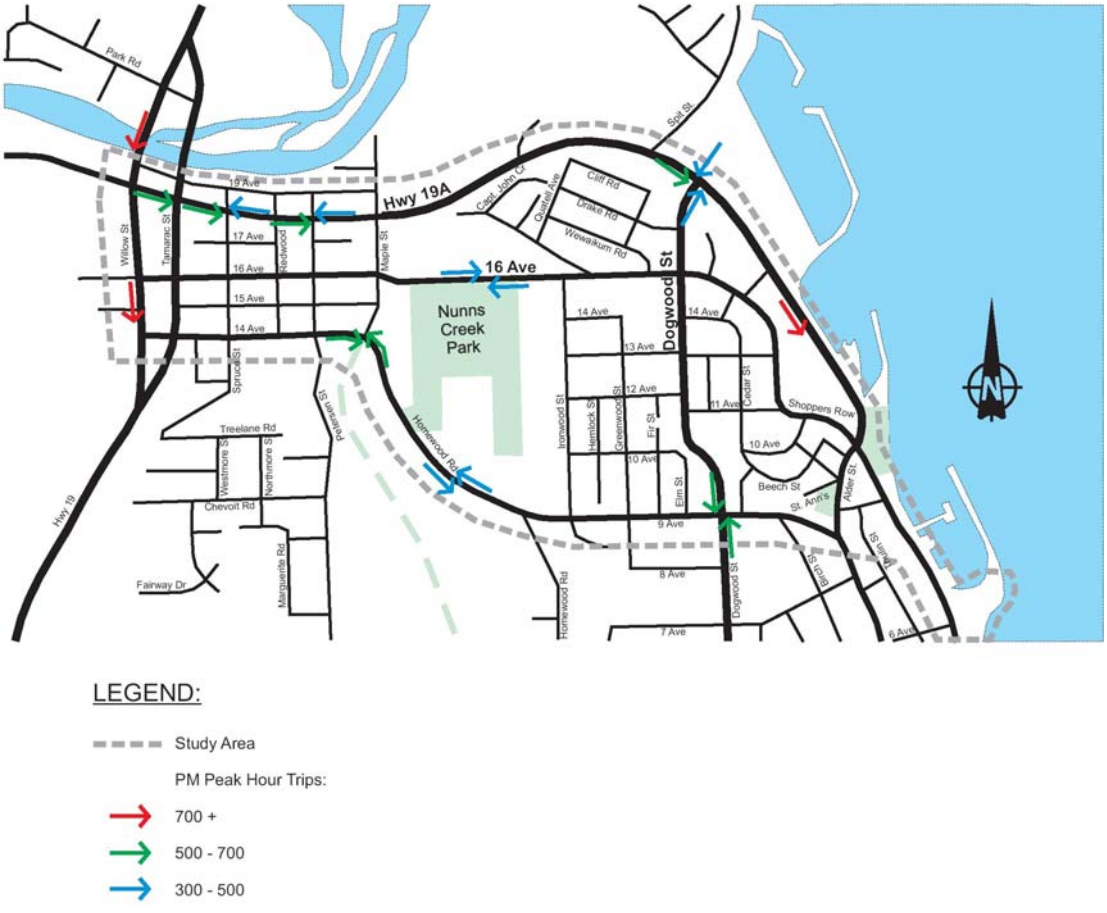


FIGURE 4.1 WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

Traffic Growth

Campbell River's Master Transportation Plan for Area Roads suggests that traffic growth is on the order of 1.5 percent per annum. For analysis purposes, this growth rate was applied to the 2006 traffic volumes in order to predict volumes for the 10- and 20-year horizons.

Traffic Volume Trends

In terms of vehicular access to the City, there are five major routes into Campbellton and the Downtown (as defined by the study area boundaries): via the Island Highway (19A), 16th Avenue and 14th Avenue at the western boundary, and via the Island Highway and Dogwood Street at the southern boundary. A summary of the general traffic flows in and out of the study area during the PM peak hour is provided in TABLE 4.1 below. The AM peak hour usage is similar, except in the opposing direction (i.e. the directional flows are reversed).

TABLE 4.1 INBOUND AND OUTBOUND PM PEAK HOUR TRAFFIC TRENDS

ROUTE	PM PEAK HOUR INBOUND TRAFFIC VOLUME		PM PEAK HOUR OUTBOUND TRAFFIC VOLUME	
	Volume	Percent	Volume	Percent
Highway 19A (western boundary)	700	27%	600	18%
Highway 19A (southern boundary)	600	23%	1100	33%
16th Avenue	200	8%	200	6%
14th Avenue	400	15%	400	12%
Dogwood Street	700	27%	1000	30%
TOTAL	2,600	100%	3,300	100%

Based on the traffic data, a total of approximately 2,600 inbound trips and 3,300 outbound trips are made during a typical PM peak hour to and from the study area. This corresponds to approximately 5,900 two-way vehicular trips during the PM peak hour.

According to the statistics, the majority of trips into and from Downtown originate from and are destined for south Campbell River. Of the routes through

Campbellton, motorists mainly choose Highway 19A or 14th Avenue. 16th Avenue is well-used, however, the vehicular volumes on this route are lower than those on Highway 19A and 14th Avenue through Campbellton.

4.4 Issues and Opportunities

Issues

- The combination of wide cross-sections and few traffic signals has resulted in significant residual capacity and high speeds along Highway 19A through Downtown. High speeds may lead to higher accident rates and an unfriendly environment for other modes of transportation, including pedestrians and cyclists.
- Concerns have been expressed regarding the impact of the automobile-oriented nature of Highway 19A through Downtown on pedestrians and cyclists, and on the vitality of the Downtown from an economic perspective. The impact on pedestrian and cyclist operations are discussed in greater detail in Sections 7.0 and 8.0.
- Tyee Plaza acts as a physical barrier between Downtown and the waterfront. Improved pedestrian and network connections that would extend the road network grid should be explored with future redevelopment.
- In the future as south Campbell River continues to develop, Downtown roads should be designated such that their function of providing access primarily for local trips be maintained. Through traffic should be encouraged to use the currently underutilized Inland Island Highway instead.

Opportunities

- The existing LOS in Downtown indicates that vehicles experience little delay at all intersections, even during peak periods. This excess network capacity provides many opportunities to accommodate future traffic growth as well as facilities for other modes of transportation, such as walking and cycling.

- Short blocks throughout the Downtown core provide multiple routes for drivers allowing them to bypass congested areas. Short blocks also provide a pedestrian friendly environment by reducing the distance pedestrians have to walk to reach their destination.
- The Campbellton area's road network is a grid system with short blocks. However, the main constraint is the number of driveways in close proximity to each other between Tamarac Street and Maple Street along Highway 19A. Making it policy to consolidate driveways through the area as properties redevelop may provide greater opportunities for on-street parking and a safer, more comfortable pedestrian environment.
- A future link from the south end of Maple Street to Petersen Road would provide greater connectivity.
- Functions of some Downtown and Campbellton roads can be evaluated and classified in order to accommodate all modes. Non-automobile modes have not been encouraged in the past, and the study area, with its more traditional street grid, is a good place to begin to redress this issue within the City. Guidelines for arterial roads, multimodal streets, and pedestrian-oriented streets should be considered and adopted as recommended.

4.5 New Road Designations

For this plan, three new road "designations" were developed that were deemed appropriate for the study area, being the commercial and social centre of Campbell River:

1. Downtown Arterial
2. Multimodal Street
3. Pedestrian-Oriented Street

These road *designations* are not intended to replace existing road *classifications* (Arterial, Collector, Local, etc.), but rather overlay the existing vehicle-oriented classifications with additional design parameters for other modes. Therefore, a "Pedestrian-Oriented Street" does not exclude vehicles, but overlays new features for pedestrian comfort and safety onto a vehicle-oriented road classification. Descriptions of each of the new designations for roads within the study area follow.

Downtown Arterial

This classification is similar to the current City of Campbell River "Arterial" road classification, but recognizes the need to provide facilities for other modes within the Downtown context, as well as the commercial context of Campbellton. The current design standard, which includes minimum 2.0-metre sidewalks on both sides with a boulevard strip, is appropriate for these roads. However, it was recognized that as new development occurs along arterial roads within the study area, the City needs to have standards in place to ensure the inclusion of infrastructure for other modes. This is particularly important in the Downtown/Campbellton study area, as it experiences relatively high pedestrian volumes and caters to tourists, which are expected to grow in number with the new cruise ship terminal.

The City could improve on the aesthetics and pedestrian-friendliness of current and future roads designated as Downtown Arterials. Various measures such as landscaping, decreased roadway widths, and reduced curb radii are effective in improving aesthetics and safety for other mode users while maintaining road functionality. Some examples of arterial road improvements are provided in TABLE 4.2. It should be noted that these examples are not intended to show an exact design for the roads, but rather give a general idea of the type of design that is intended for a Downtown Arterial.

TABLE 4.2 DOWNTOWN ARTERIAL DESIGN RECOMMENDATIONS

CURRENT	PROPOSED FUTURE
 19A near proposed Wal-Mart site	 Pedestrian-friendly features along arterial road
 Large curb radius on Shoppers Row north of Tyee Plaza (closed road)	 Curb radius reduced by adding landscaped medians
 Highway 19A north of ferry terminal	 Decreased roadway width to make space for waterfront recreational access (see below).

CURRENT	PROPOSED FUTURE
 Highway 19A north of the ferry terminal	 A recreation-oriented waterfront with on-street parking
 Crosswalk at ferry terminal	 A more inviting atmosphere for pedestrians.

Multimodal Street

A multimodal street is one that is designed to facilitate access by all or most modes of travel, that is, pedestrians, cyclists and transit, as well as vehicles. A multimodal street should have minimum 1.5-metre sidewalks on both sides (preferably 2.0 metres or greater) and signed and marked crosswalks at regular intervals. These streets would likely also include bicycle lanes and/or transit-supportive designs and street furniture (benches, bus shelters and lighting) where these types of routes are present.

This road classification was developed out of recognition that alternative modes have traditionally been under-served in Campbell River and need to be addressed as the City grows, in order to keep traffic growth at bay and support a tourism-based economy.

An example of an existing multimodal Street in Campbell River is the re-designed portion of the Island Highway (19A) through Willow Point. The road is constructed to standards which serve all modes well, and the landscaped boulevards add aesthetic value. Some examples of road improvements to create multimodal routes are provided in TABLE 4.3. Again, it should be noted that these examples are not intended to show an exact design for the roads, but rather give a general idea of the type of design that is intended for a Multimodal Street.

TABLE 4.3 MULTIMODAL ROAD DESIGN RECOMMENDATIONS

CURRENT	PROPOSED FUTURE
 16th Avenue	 Landscaped median and on-street parking
 16th Avenue through Campbellton	 Bike lanes, landscaped buffer zone and median
 16th Avenue east of Maple	 Landscaped median and two-way left-turn lane

Pedestrian-oriented Streets

This classification was developed in response to previous plans that envision increased residential land uses within the study area and the desire of residents to create and aesthetically-pleasing, walkable Downtown. In addition, it will help to support the growing tourism economy generated in part by the new cruise ship terminal being built adjacent to the study area.

Pedestrian-oriented streets still allow an adequate level of vehicle access, but create an environment that is safe and comfortable for pedestrians, and thus encourages use of this mode. These streets may also serve cyclists and transit, and are expected to have relatively low vehicle speed limits. A typical pedestrian-oriented street would include narrow vehicle travel lanes, wide sidewalks, landscaping, curb extensions and frequent crosswalks, among other features.

An example of an existing pedestrian-oriented street in Campbell River is Shoppers Row. Features that make Shoppers Row a pedestrian-oriented street are presented in TABLE 4.4.

TABLE 4.4 PEDESTRIAN-ORIENTED STREET DESIGN RECOMMENDATIONS

DESCRIPTION	ILLUSTRATION
▪ Shoppers Row is a good example of a "Pedestrian-Oriented Street" ▪ Comfortable and convenient for pedestrians, while still allowing good vehicular access and parking opportunities ▪ Wide sidewalks with paving treatments ▪ Frequent, well-marked crosswalks ▪ On-street parking and lack of driveways ▪ Minimal building setbacks ▪ Aesthetically pleasing with landscaping, street trees and artistic banners.	 Shoppers Row in Downtown Campbell River

4.6 Road Network Options

Prior to selecting the Preferred Option, three preliminary options were developed in order to present a variety of possible futures for Campbell River's transportation network. The three plan options were presented to the Steering Committee at the second of the three Steering Committee meetings and to the public at Open House #2. The full details of the options examined are summarized in APPENDIX A. The three options are briefly described below.

Option A: Tamed Streets

Option A envisioned a Downtown and Campbellton area that would be traffic calmed, as well as promote walking, cycling and transit use. The primary intention was to reduce traffic that was using the area as a through-route to the highway, while maintaining multimodal access for people traveling into area. Through traffic would be routed onto Highway 19 at the southern border of the study area via the 14th Avenue/Homewood Road/9th Avenue corridor, in order to "tame" the streets of the study area, with the Downtown catering to pedestrians.

Option B: Balanced Modes

Option B envisioned a Downtown/Campbellton area that maintained current traffic levels, while improving other modes. This option creates an "access loop" into the Discovery Crescent area where new automobile-oriented development is being planned. The plan envisions 16th Avenue and 19A from Dogwood to Alder Street as multimodal routes.

Option C: Current Trends

Option C was based upon the current trend of steady traffic growth and prioritizes automobile travel, as well as using the Downtown/Campbellton road network for through traffic, while still maintaining and improving the pedestrian orientation of the Downtown area. In this option, Dogwood is tamed in order to re-unite the east and west sides of the street. With this option, intersection capacity is likely to increase as several major arterial connections are improved.

4.7 Preferred Road Network Option

In consideration of the current traffic volumes and travel patterns, public feedback, and other plans and projects, Option B was chosen and modified into the Preferred Option. The Preferred Option is sensitive to all mode users while recognizing that certain roads should be maintained as arterials in order to serve automobile-oriented land uses. The main roads within the study area are proposed to be designated as follows:

Downtown Arterial Designations

- 14th Avenue/Homewood Road/9th Avenue
- Dogwood Street
- Maple Street
- Highway 19A from Maple Street to Dogwood Street

Multimodal Street Designations

- Highway 19A from Willow Street to Maple Street
- 16th Avenue
- Ironwood Street
- 13th Avenue
- 9th Avenue from Dogwood Street to Alder Street
- Alder Street
- Highway 19A from Dogwood Street to St. Ann's Road

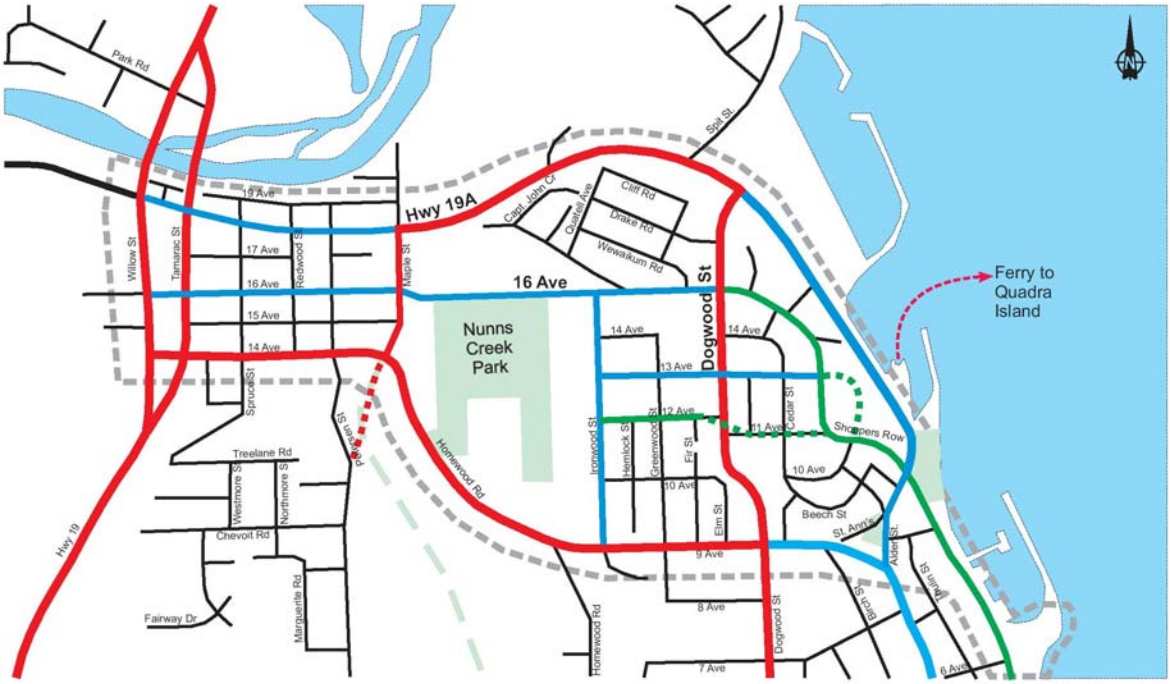
Pedestrian-Oriented Street Designations

- Shopper's Row
- Pier Street
- 12th Avenue and future 12th Avenue extension
- Future Tyee Plaza road network extensions

A conceptual representation of the Preferred Option is shown in FIGURE 4.2. Both the Steering Committee and members of the public have indicated that they can be supportive of this option, with BC Ferries support dependent upon no loss

of ferry operational efficiency. Most importantly, the City's Downtown Liveability Strategy may be carried out with the plan's implementation and Downtown will be made more pedestrian and cycling friendly while maintaining access to other parts of the City.

To evaluate the feasibility of this option, future intersection capacity was assessed and found to be functional. The full details of the capacity analysis can be found in Section 5.0.



LEGEND

Arterial Road	Pedestrian-Oriented Street
Proposed Future Arterial	Future Pedestrian-Oriented Street
Multimodal Street	Study Area Boundary

FIGURE 4.2 PREFERRED OPTION

To aid in visualizing the recommended road network plan, cross-sections for two major roads in the study area are presented as FIGURE 4.3 and FIGURE 4.4, and discussed below.

16th Avenue

16th Avenue is currently an east-west two-lane roadway classified as an Arterial road. It is generally one lane in each direction with turning lanes at major

intersections. It connects to the Inland Island Highway (Highway 19) and north to Shoppers Row. On-street parking is allowed on both sides of the road for most sections, but did not appear to be highly utilized during site visits.

Since 16th Avenue is wide for a two-lane roadway, numerous opportunities exist to make the road friendlier for other mode users, without significantly affecting vehicle capacity. 16th Avenue can easily accommodate two travel lanes in each direction or one travel lane in each direction with on-street parking on both sides based on the current road width. However, with current and immediate future road volumes being sufficiently accommodated by one travel lane, opportunities exist to make 16th Avenue into a multimodal roadway by introducing a landscaped median and bike lanes in each direction while still accommodating one travel lane in each direction within the existing road width. A sample cross-section displaying the current condition and the potential future condition for 16th Avenue is shown in FIGURE 4.3.

16TH Avenue – Current Cross-section

16th Avenue – Recommended Cross-section

FIGURE 4.3 RECOMMENDED CHANGES TO 16TH AVENUE

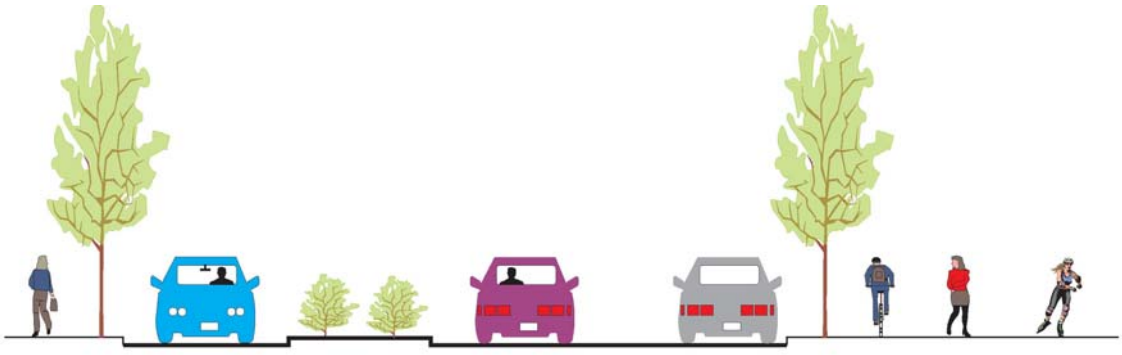
Highway 19A Along the Waterfront

Highway 19A from Dogwood Street to St. Ann's Road through the Downtown is currently designed for high speed vehicular travel. It is currently classified as a highway under the jurisdiction of the Ministry of Transportation. It has two travel lanes in each direction with a wide centre median with dedicated turn lanes at intersections.

Since the Downtown Study and the City's Official Community Plan both identify the need to create a more liveable Downtown, the concept of converting Highway 19A along the waterfront (between Dogwood Street and the Ferry Terminal access) into a traffic-calmed, pedestrian- and bicycle-friendly link was explored. The Downtown Study suggests that this stretch of Highway 19A could be reduced to one travel lane in each direction with the introduction of wider sidewalks and dedicated bicycle lanes (potentially off-road). This concept was tested in the traffic modeling scenarios described in *Module B: Intersection Plan.* The results showed that the capacity reduction would not cause the road network to fail. More details can be found in *Module B*.

An illustration displaying the current cross-section (top) and the proposed future cross-section (bottom) of Highway 19A is shown in FIGURE 4.4, and a conceptual design for the waterfront portion of the highway (between the ferry terminal and Robert's Reach) is shown in FIGURE 4.5. Please note that drawings are not to scale and are intended for illustration purposes only.

Highway 19A North of Ferry Terminal – Current Cross-section



Highway 19A North of Ferry Terminal – Recommended Cross-section

FIGURE 4.4 RECOMMENDED CHANGES TO HIGHWAY 19A, NORTH OF THE FERRY TERMINAL

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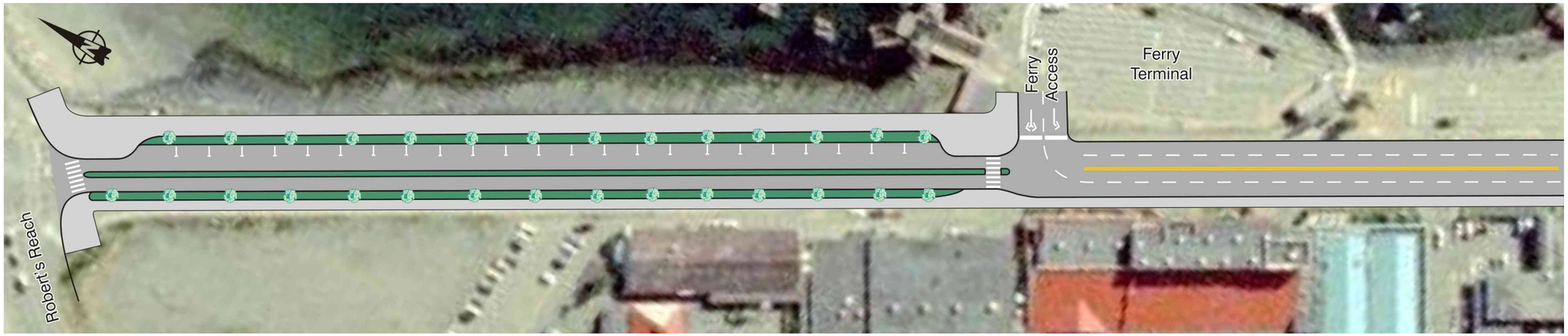

FIGURE 4.5 CONCEPTUAL DESIGN OF WATERFRONT PORTION OF HIGHWAY 19A

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4.8 Medium- to Long-term Recommendations

- *11th/12th Avenue Connection* – Members of the Steering Committee and the public generally agreed that the current misalignment of 11th Avenue and 12th Avenue is awkward for users of all modes. Reconnecting these two streets across Dogwood would address this discontinuity, and would create connectivity across both sides of Dogwood Street, which is currently perceived as splitting Downtown into two halves.
- *Reduce Highway 19A north of the Ferry Terminal to Two Travel Lanes* – Reducing Highway 19A from Dogwood Street to the Ferry Terminal to one travel lane in each direction with the potential to provide on-street parking should be fully studied. This would improve Downtown liveability and recreation opportunities, while encouraging the use of alternative modes, in support of the Downtown Study.
- *Maple/Petersen Corridor Extension* - With increasing development pressures to the south, this network link may alleviate the use of other through routes in the Downtown core. It is expected that demand in this area of Campbellton will likely increase due to additional traffic associated with the proposed Wal-Mart and Home Depot developments to the north. This is suggested as a longer-term measure (11 -20 years).

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5.0 MODULE B: INTERSECTION PLAN

Intersections are a critical component of the road network, acting as primary determinants of efficiency and safety performance. This module will provide an assessment of all major intersections in the study area.

Future intersection capacity improvement requirements were identified and prioritized for the next 20 years. A high-level capacity analysis was conducted using Synchro software and microsimulation was also examined using SimTraffic software. The analysis accounted for base traffic growth and planned developments, including Mariner Square, and the proposed Wal-Mart and Home Depot.

The analysis accounts for medium-term (10 year) and long-term (20 year) scenarios. However, the analysis indicates that certain improvements will likely result in the short-term (0–5 years), based on proposed developments constructed within the next 5 years. A summary of the necessary intersection-level improvements in the short-, medium-, and long-term are described in greater detail below.

5.1 Short-Term Recommendations

A summary of the proposed short-term intersection improvements is provided in TABLE 5.1.

TABLE 5.1 SHORT-TERM RECOMMENDATIONS

INTERSECTION OR LOCATION	IMPROVEMENT
Maple Street / Highway 19A	Traffic Signal
Maple Street / 16th Avenue	Traffic Signal
Ironwood Street / 16th Avenue	Traffic Signal
Petersen Road / 16th Avenue	Traffic Signal from All-Way STOP
Ironwood Street / 9th Avenue	Traffic Signal
Tyee Plaza	Extension of 10th and 13th Avenues into Plaza

5.2 Medium-Term (10-Year) Traffic Conditions

Based on current traffic characteristics and future development traffic, future traffic was forecast for the medium- and long-term horizons. Development traffic includes Mariner Square, Wal-Mart, and Home Depot, and traffic volumes for the respective developments were derived from previous studies. The medium-term horizon refers to the 10-year scenario while the long-term horizon refers to the 20-year scenario.

Medium-term traffic was forecast by applying a growth rate of 1.5 percent per annum to the existing volumes up to the year 2017 (the growth rate used in the Master Transportation Plan) and adding the development traffic volumes to the current year volumes.

Traffic volumes for the medium-term scenario were compiled and the volumes during the busiest time period, the PM peak hour, were used to examine capacity performance of major signalized and unsignalized intersections in the study area. Traffic volumes for the medium-term scenario are summarized in TABLE 5.2.

TABLE 5.2 MEDIUM-TERM PM PEAK HOUR TRAFFIC VOLUMES

ROUTE	PM PEAK HOUR INBOUND TRAFFIC VOLUME	PM PEAK HOUR OUTBOUND TRAFFIC VOLUME
Highway 19A from west of study area	700	800
Highway 19A from south of study area	800	1,150
16th Avenue	400	400
14th Avenue	500	500
Dogwood Street	800	1000
TOTAL	3,200	3,850

Capacity analysis was conducted using the Synchro 6.0 software developed by Trafficware (2004) adhering to the methodologies outlined in the Highway Capacity Manual. The study intersections were evaluated by calculating the intersection and approach vehicular delays to determine Levels Of Service (LOS). Level of Service “A” and “B” represents conditions with minimal or no control delays. Levels of Service “C” and “D” are generally associated with operating conditions of some delay. Typically, Levels of Service “E” and “F” are associated with congested conditions whereby functional improvements should be considered.

To test how the future vision for Downtown - with improvements toward liveability and a multimodal focus - would affect future traffic operations, the road network was set up to test operations of Highway 19A from Dogwood Street to the ferry terminal access as being reduced to one travel lane in each direction. It is recognized that an operational-level study of future ferry terminal operations is required prior to finalizing plans to reduce the capacity of Highway 19A. This analysis should include:

- An examination of whether on-street parking (with possible peak hour parking restrictions, if deemed necessary) could be introduced on Highway 19A north of the ferry terminal;
- Confirmation that ferry off-loading can continue to be conducted within the same amount of time as it currently is; and
- An examination of whether a dedicated left-turn lane into the ferry terminal can be accommodated based on the existing road width without reducing capacity to accommodate ferry operations.

In addition, development-driven road improvements such as proposed signalized intersections were assessed as signalized intersections. These locations are noted in the summary table along with a summary of the levels of service at major intersections for the medium-term scenario in the study area in TABLE 5.3.

TABLE 5.3 MEDIUM-TERM LEVELS OF SERVICE AT EXISTING AND POTENTIAL SIGNALIZED INTERSECTIONS

INTERSECTION	OVERALL LOS (2017, PM PEAK)
EXISTING SIGNALIZED INTERSECTIONS	
Willow Street and Highway 19A	C
Willow Street and 16th Avenue	B
Tamarac Street and 14th Avenue	B
Tamarac Street and 16th Avenue	B
Tamarac Street and Highway 19A	B
Dogwood Street and Highway 19A	D
Dogwood Street and 16th Avenue	B
Dogwood Street and 13th Avenue	C
Dogwood Street and 9th Avenue	C
Roberts Reach and Highway 19A	D
Ferry Terminal and Highway 19A	C
St.Ann's Road/Alder Street/Highway 19A	D
PROPOSED SIGNALIZED INTERSECTIONS (DEVELOPMENT-DRIVEN)	
Petersen Road and 16th Avenue	B
Maple Street and 16th Avenue	B
Maple Street and Highway 19A	B
Ironwood Street and 9th Avenue	B
Ironwood Street and 16th Avenue	A

As the operational analysis indicates, the overall intersection Levels Of Service are within the acceptable range for traffic in an urban environment. Highway 19A will continue to be operational with a reduction to one travel lane between Dogwood Street and the signalized Ferry Terminal access. Since traffic trends (i.e. use of alternate routes) may change due to the future improvements, actual traffic in the year 2017 are expected to vary. However, the analysis represents a conservative estimate, as it is expected, for example, that less traffic would use Highway 19A following a capacity reduction and would likely divert to other streets (e.g. Dogwood Street). A graphical description of expected intersection operations to 2017 is shown in FIGURE 5.1.

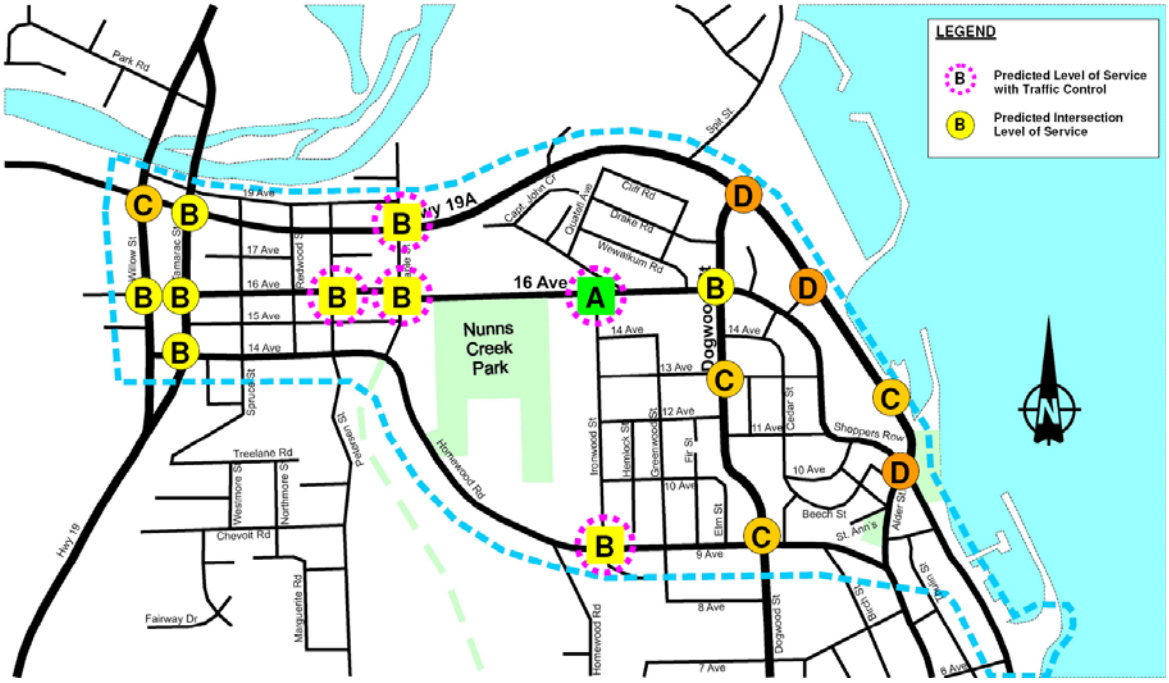

FIGURE 5.1 2017 (MEDIUM-TERM) LEVELS OF SERVICE AT EXISTING AND POTENTIAL SIGNALIZED INTERSECTIONS

5.3 Long-Term (20-Year) Traffic Conditions

Long-term traffic was forecast by applying the growth rate (1.5 percent per annum) to the existing volumes for an additional 10-year period beyond the 2017 traffic volumes. This yields the long-term traffic scenario to the forecast year 2027. Development traffic is also accounted for in the long-term scenario.

Traffic volumes for the long-term scenario were compiled and the volumes from the busiest time period, the PM peak hour, were used to examine the capacity performance of major signalized and unsignalized intersections in the study area. The methodology used to complete the analysis is the same as those described under the medium-term traffic scenario. Traffic volumes for the long-term scenario are summarized in TABLE 5.4 below.

TABLE 5.4 LONG-TERM PM PEAK HOUR TRAFFIC VOLUMES

ROUTE	PM PEAK HOUR INBOUND TRAFFIC VOLUME (ONE-WAY)	PM PEAK HOUR OUTBOUND TRAFFIC VOLUME (ONE-WAY)
Highway 19A from west of study area	1,200	900
Highway 19A from south of study area	950	1,350
16th Avenue	450	500
14th Avenue	600	600
Dogwood Street	900	1,200
TOTAL	4,100	4,550

Like the medium-term scenario, the network analysis of long-term traffic also accounts for Highway 19A from Dogwood Street to the ferry terminal access being one travel lane in each direction. Unsignalized intersections that were predicted to experience noticeable delays were then analysed as signalized intersections (14th Aveune at Willow Street and 14th Avenue at Petersen). TABLE 5.5 shows the predicted Levels Of Service at major intersections which are currently signalized, as well as at those intersections which are proposed for signalization.

TABLE 5.5 LONG-TERM LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS

INTERSECTION	OVERALL LOS (2027, PM PEAK)
SIGNALIZED INTERSECTIONS (BY 2027)	
Willow Street and Highway 19A	D
Willow Street and 16th Avenue	C
Tamarac Street and 14th Avenue	B
Tamarac Street and 16th Avenue	C
Tamarac Street and Highway 19A	C
Dogwood Street and Highway 19A	D
Dogwood Street and 16th Avenue	C
Dogwood Street and 13th Avenue	D
Dogwood Street and 9th Avenue	D
Roberts Reach and Highway 19A	E
Ferry Terminal and Highway 19A	C
St.Ann's Road/Alder Street/Highway 19A	E
Petersen Road and 16th Avenue	B
Petersen Road and 14th Avenue	B
Maple Street and 16th Avenue	B
Maple Street and Highway 19A	C
Ironwood Street and 16th Avenue	B
PROPOSED SIGNALIZED INTERSECTIONS (BY 2027)	
14th Avenue and Willow Street	B
14th Avenue and Petersen Road	B

As the operational analysis indicates, the overall intersection Levels of Service are within the acceptable range for traffic in an urban environment, albeit with increases in delay due to background traffic growth for 10 years. Highway 19A will continue to be operational with one travel lane between Dogwood Street and the signalized Ferry Terminal access. Again, since traffic trends (i.e. use of alternate routes) may change due to the future improvements, actual traffic patterns in the year 2027 are expected to vary. A graphical description of expected intersection operations to 2027 is shown in FIGURE 5.2.

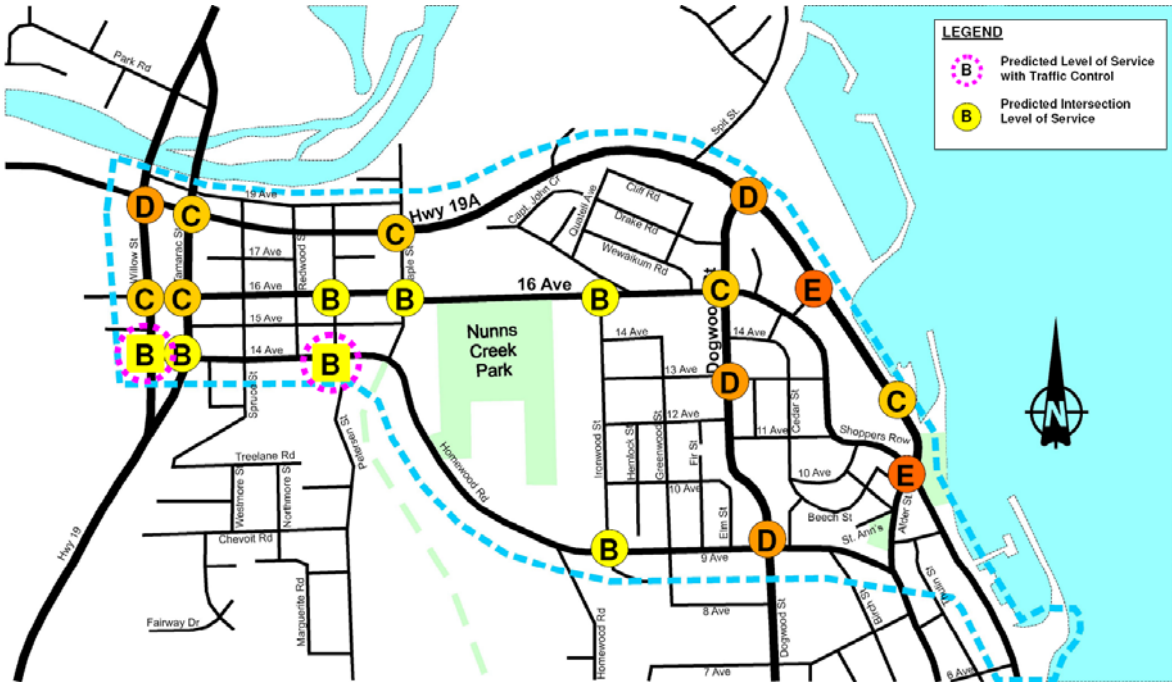

FIGURE 5.2 2027 (LONG TERM) LEVELS OF SERVICE AT EXISTING AND POTENTIAL SIGNALIZED INTERSECTIONS

5.4 Medium- and Long-Term Recommendations

A summary of proposed medium- to long-term intersection improvements is provided in TABLE 5.6.

TABLE 5.6 MEDIUM- TO LONG-TERM SUGGESTED IMPROVEMENTS

INTERSECTION OR LOCATION	IMPROVEMENT
Highway 19A north of Ferry Terminal to Dogwood Street	Reduce to one lane in each direction; improve pedestrian amenities
Petersen Road / 14th Avenue	Traffic Signal
Highway 19A from Tamarac Street to Maple Street	Two-Way Centre Left-Turn Lane
12th Avenue east of Dogwood Street	Road Extension
Willow Street/14th Avenue	Traffic Signal
Maple Street/Petersen Road	North-South Connector

Finally, a summary of all improvements categorized as medium- and long-term are displayed cumulatively in FIGURE 5.3.

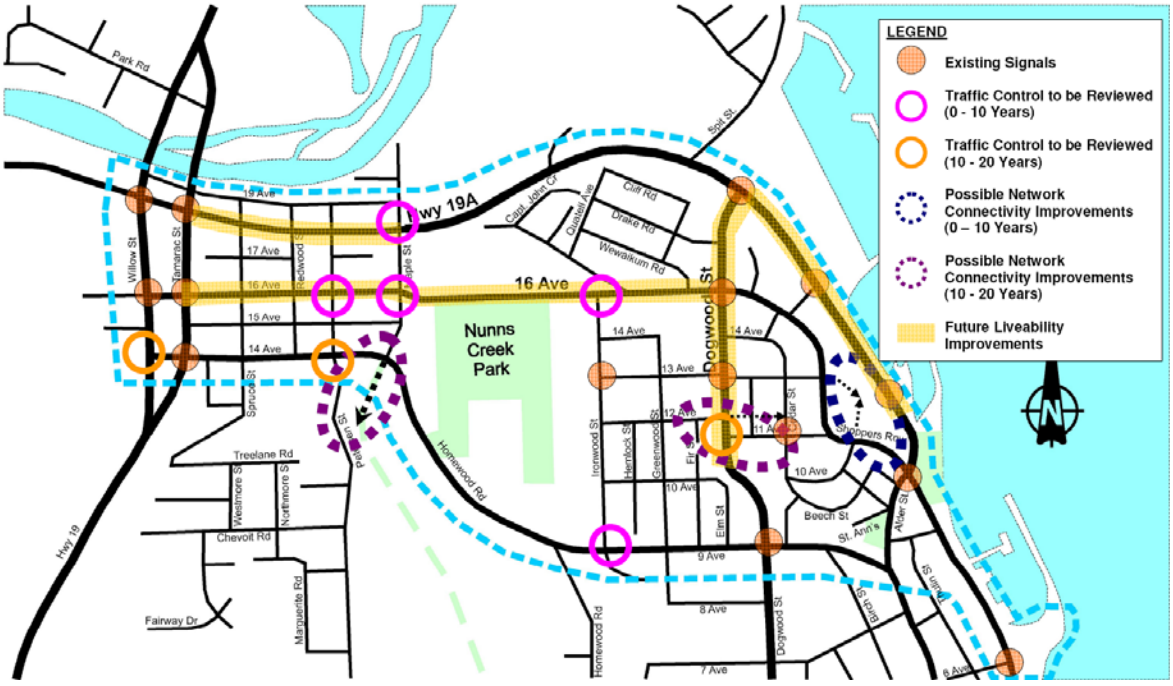

FIGURE 5.3 RECOMMENDED INTERSECTION IMPROVEMENTS BY 2027

In summary, the intersection improvements identified in this section will allow the Downtown/Campbellton road network to operate with good conditions to the year 2027. The network will function adequately with any of the network options discussed in Section 4, including the Preferred Road Network Option.

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6.0 MODULE C: TRANSIT SERVICE PLAN

6.1 Short-Term Recommendations

- Install traffic signal or other measure to reduce transit delays at Ironwood Street and 9th Avenue intersection.
- Ensure that sidewalks are available on both sides of every street within a 400-metre radius of all transit stops, and in particular, install a continuous sidewalk on the north side of 16th Avenue.
- Install adequate weather protection (shelter) and other amenities (benches, trash cans, lighting) at all bus stops, to alleviate discomfort during long wait times; explore public-private partnership for provision of shelters.
- Conduct a wheelchair-accessibility audit of all bus stops and surrounding areas, starting with those that are the most used and those that are near hospitals and disabled housing.
- Increase frequency of service to LOS E (20-30 minute headways) on all routes during peak periods.
- Prior to new developments being approved (e.g. Discovery Harbour Cruise Ship Terminal, Wal-Mart, Home Depot), review the need for improved transit service to the newly- or re-developed areas. Impacts on transit service should be reviewed in detail at the development permit stage and opportunities for improved transit infrastructure (sidewalks, bus shelters, lighting, etc.) should be considered at this time as well.

6.2 Route Coverage

There are nine transit routes within the City of Campbell River, most of which stop at the Downtown Transit Exchange. The exchange appears to be well-used, based upon observations during site visits. Existing transit routes within the study area are shown in FIGURE 6.1, along with the location of the Downtown transit exchange.

Route coverage within the study area is good, reaching most major destinations. As more new developments are built along the Discovery Crescent, transit service

should be reviewed to determine if routing should include this area. Another major new development that will likely increase transit demand is the new cruise ship terminal in Discovery Harbour. An express bus from the cruise ship terminal to the Downtown Transit Exchange along Shoppers Row should be explored as well.

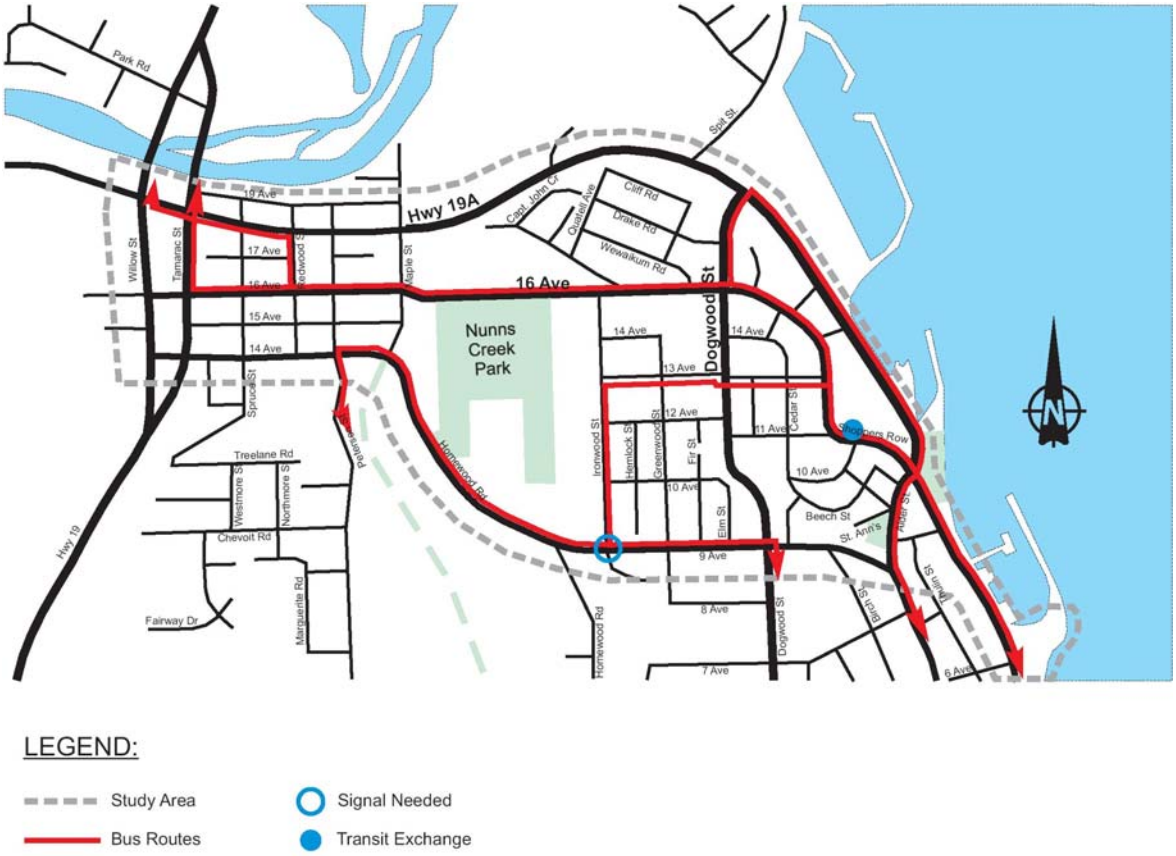


FIGURE 6.1 DOWNTOWN & CAMPBELLTON AREA TRANSIT SERVICE

6.3 Frequency of Service

Most transit routes run approximately once per hour during the day, with more limited service on Saturdays and no service on Sundays. A few of the routes run every half hour during the AM and PM peak periods. As the City's population grows, more frequent and Sunday service should be provided.

The Transit Capacity and Quality of Service Manual, First Edition (Transit Cooperative Research Program, 1999) notes the following:

> In measuring transit quality of service, the size of the city, metropolitan area, "commutershed," or transit service area may need to be taken into account. A small city could regard transit service on a route every 30 minutes for 12 hours per day, 6 days per week to be good…for a city with a population under 50,000, where it is possible to drive virtually anywhere in the city in 10 to 15 min, the walk and wait time for transit by itself is nearly as much as the total automobile travel time, and the calculated LOS will suffer as a result. In general, for small cities or for short trips, the total transit travel time will generally be significantly longer than the automobile travel time.

The report identifies the following as Level Of Service (LOS) criteria, outlined in TABLE 6.1, where "Travel time difference" refers to the difference between travel by bus and automobile.

TABLE 6.1 TRANSIT LOS

LOS	Travel time difference (min)	Description
A	≤ 0	Faster by transit than automobile
B	1 – 15	About as fast by transit as by automobile
C	16 – 30	Tolerable for choice riders
D	31 – 45	Round-trip at least an hour longer by transit
E	46 – 60	Tedious for all riders; may be best possible in small cities
F	> 60	Unacceptable to most riders

According to these LOS guidelines, the City's current transit service would be considered LOS F, because a transit passenger could potentially have a total wait time of two hours, plus walk time to and from the bus stop. However, as noted, LOS E would be an acceptable level of service for a relatively small city such as Campbell River, which would require half-hour headways. When and if the City reaches a population of 50,000 (including tourist population), transit service should be further upgraded to LOS D (15-20 minute headways).

The Master Transportation Plan noted the long delays to buses at the intersection of Ironwood and 9th Avenue due to the lack of a signal and determined that a signal was necessary in order to improve transit travel times.

6.4 Other Transit Issues

Bus Stops

Due to the long headways of one hour on most routes, it is important that the City provide comfortable waiting areas. This includes some form of weather protection (bus shelter), benches, trash cans and lighting for security at night. Currently, many bus stops provide benches, but few bus stops within the study area – aside from the Downtown Transit Exchange (photo) - provide weather protection, which is important for a city with Campbell River's weather conditions.

Some North American municipalities have engaged in public-private partnerships to provide new, modern bus shelters with amenities that include interior lighting and space to accommodate wheelchair users. Solar-powered lighting is a possibility for locations that do not have power connections.

Accessible Facilities

Since every transit rider is a pedestrian at the beginning and end of every trip, it is important that accessible pedestrian facilities and safety features be present within a reasonable walking distance (400 metres) of every transit stop. Streets which are transit routes should provide sidewalks on both sides of the street and well-marked crossing facilities at intersections nearest to transit stops. It was noted, in particular, that bus stops are present along the portion of 16th Avenue that has no sidewalk. These types of locations should have priority for new sidewalk construction. It is also important to consider the needs of persons in wheelchairs at transit stops as these individuals are typically transit-dependent. Therefore, curb ramps, wheelchair accessible bus shelters, and a minimum 1.5-metre clear zone should be provided at bus stops as well.

7.0 MODULE D: BICYCLE PLAN

7.1 Short-term Recommendations

- Allocate an annual budget for cycling infrastructure as part of the City's financial plan. Specific projects, their prioritization and budget needs can be further clarified through an updated Master Bicycle Plan (for the entire City).
- Require new developments being built on designated cycling routes to incorporate cycling safety features into road upgrades.
- Require new developments to provide secure bicycle parking (in a well-lit location near the main entrance) as part of their parking requirements.
- Prioritize the construction of cycling routes on 16th Avenue, the waterfront (19A south of Dogwood), Maple Street and Ironwood Street, in that order.

7.2 Overview

This module contains a review of the current and planned bicycle network initiatives within the study area and suggests changes that are needed to ensure that cycling is accommodated and to improve safety for cyclists.

Promoting the use of non-auto modes and expanding facilities that will help promote these modes is a key objective of this study. Alternative modes have not received an adequate level of funding in the past to make them viable alternatives to the private automobile, therefore the importance of providing adequate and on-going funding for these modes in order to create a vibrant and liveable Downtown and Campbellton Area is strongly emphasized.

During site visits and public open houses conducted for this study, it was apparent that cycling is a preferred transportation mode for a significant number of Campbell River residents. The ERT bicycle route is an important link which is highly valued by residents.

While some cycling infrastructure exists within the City, more needs to be done to create a complete network. Currently, none of the designated routes within the study area have been signed or marked as bicycle routes.

The bicycle routes proposed in the Master Transportation Plan are shown in FIGURE 7.1, along with proposed new routes.

FIGURE 7.1 PROPOSED CHANGES TO BICYCLE ROUTES

Proposed new cycling routes within the study area:

- Ironwood Street from 16th Avenue to 9th Avenue (with possible future link to ERT)
- Maple Street from the north end of the ERT to its northern terminus
- 12th Avenue (long-term goal, upon its extension to the east)
- Shoppers Row from 16th Avenue to Roberts Reach

- Roberts Reach

Ironwood Street is being recommended as a cycling route due to the mixed land uses along it and because it is one of the few straight, continuous routes in the Downtown/Campbellton area.

Maple Street is being recommended due to its connection to the ERT at one end of the study area, and its terminus at near recreational trails along the river.

It was recommended as part of the Road Network Plan, that 12th Avenue be extended east to Shoppers Row. As adding cycling lanes at the design stage is much easier than adding them after a road has been constructed, it is being recommended that 12th Avenue be redesigned as a cycling connection between Ironwood and Shoppers Row.

A short portion of Shoppers Row and Roberts Reach are also being recommended as a lower-speed, lower-traffic alternative Dogwood Street for gaining access to the waterfront route.

Comments received from the City's Bicycle Advisory Group are shown in TABLE 7.1, along with recommendations on how their concerns may be addressed.

TABLE 7.1 BICYCLE ADVISORY GROUP COMMENTS

Bicycle Advisory Group Comment	Recommendation
Curb bulges force bicyclists from the shoulder into the vehicle travel lane. They are also not clearly marked and easy to run into. Either consider alternate forms of traffic calming or make curb bulges more bicycle friendly.	Ensure that curb extensions installed on bicycle routes still allow the route to meet the design criteria described in this section (below). Pavement markings on the curb and 'Share the Road' signage should be installed where curb extensions are present on streets which are not designated as cycling routes.
Nunn's Creek Park has numerous trails, which are becoming overgrown. These trails should be better maintained to provide cross paths through the park.	Ensure that maintenance is included in an annual bicycle budget in addition to a construction budget.
There is a new BMX Park on one side of Nunn's Creek Park (fronting onto Homewood) which could use safer access for bicycles.	New cycling routes are being proposed on roads adjacent to Nunn's Creek Park. Consult with the advisory group on route construction prioritization.

7.3 Proposed Route Design

The following table outlines the four types of bicycle routes recommended for Campbell River.

TABLE 7.2 BICYCLE ROUTE TYPES

TYPE	DESCRIPTION	ILLUSTRATION
Conventional Bicycle Lane	Typically used on high-volume, high-speed roads. Lane within the roadway that is separated from traffic with a painted white line and marked with bicycle symbols for the exclusive use of cyclists.	
Hybrid Bicycle Lane	Typically used on roads with moderate volumes and speeds. A wide curb lane that is marked with bicycle symbols, but has no line separating the two modes of traffic. The lane is shared between the two modes, but is wide enough for cyclists and vehicles to ride side by side.	
Paved Shoulder	Typical on highways and rural roads. In general, it functions like a Conventional Bicycle Lane on roads where no curb and gutter are present (e.g. the Inland Island Hwy). Can be signed and/or marked.	
Signed Bicycle Route	Typically used on low-volume, low-traffic residential roads, where special treatment or pavement markings are generally not necessary. The route has only signs to indicate it is a cycling route that connects to other routes.	

Typical design dimensions for the above listed lane types (other than a signed bicycle route) are shown in FIGURE 7.2 through FIGURE 7.4. TABLE 7.3 outlines

the recommended design guidelines for bike routes, in order of priority for implementation.

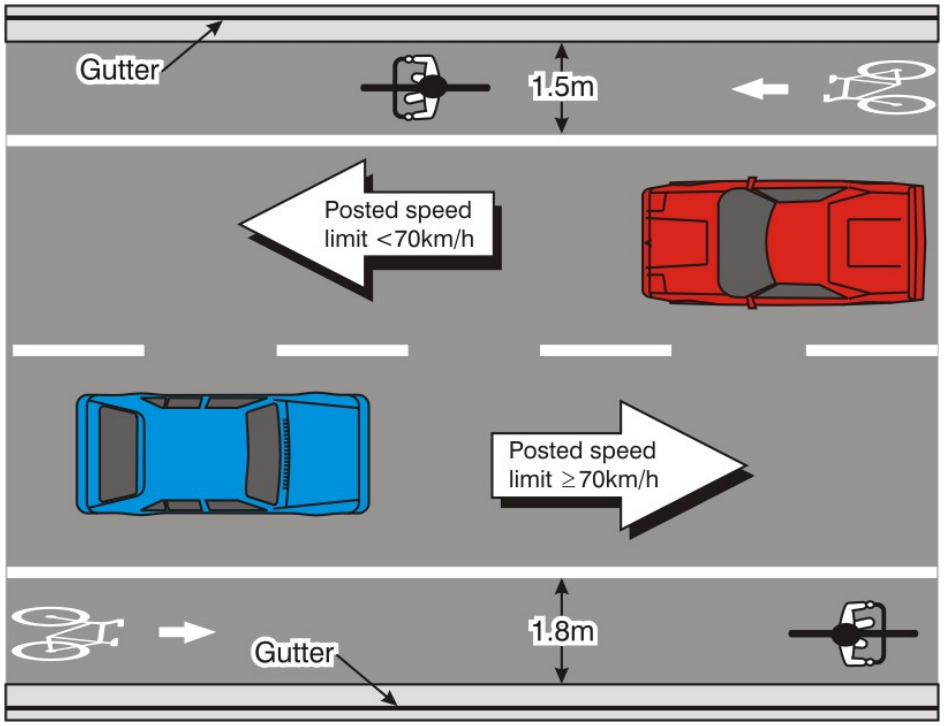


FIGURE 7.2 CONVENTIONAL BICYCLE LANE DIMENSIONS AND MARKING

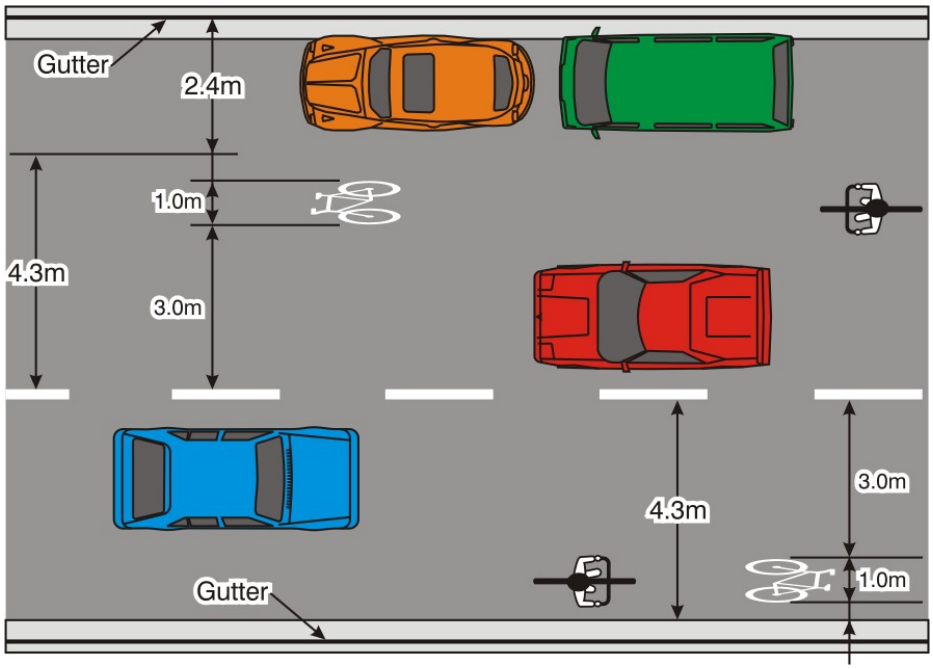


FIGURE 7.3 HYBRID LANE DIMENSIONS AND MARKING

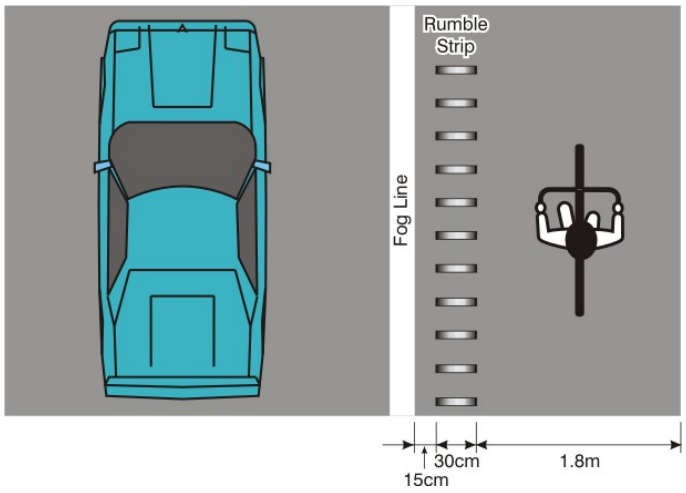


FIGURE 7.4 PAVED SHOULDER DIMENSIONS AND MARKING

TABLE 7.3 PROPOSED DESIGN GUIDELINES

ROUTE	PROPOSED ROUTE TYPE*	RECOMMENDED FEATURES
1. 16th Avenue	Hybrid or Conventional	▪ Pavement markings ▪ Bicycle route signs ▪ Intersection treatments ▪ Cyclist-activated crossing signals ▪ Bicycle parking at commercial properties
2. Waterfront Route	Hybrid or Conventional (on-road) or Off-road route	▪ Public bicycle parking ▪ Bike route signage
3. Ironwood Road	Hybrid or Conventional	▪ Pavement markings ▪ “Share the Road” signs ▪ Intersection treatments ▪ Cyclist-activated crossing signals ▪ Bicycle parking at commercial properties
4. Maple Street	Conventional Bicycle Lane	▪ Cyclist-activated crossing signal at intersection with 14th Avenue (for connection to ERT route) ▪ Pavement markings ▪ Bicycle route signs ▪ Safety features at intersections

*Appropriate route type to be determined at detailed design stage.

8.0 MODULE E: PEDESTRIAN PLAN

Encouraging walking as a viable transportation choice has long-term benefits that extend beyond transportation. Increased walking improves many aspects of community liveability, including the physical health of residents, and helps to achieve Canada's climate change objectives.

8.1 Short-term Recommendations

- Allocate an annual budget for sidewalk construction and maintenance as part of the City's financial plan. Specific projects, their prioritization and budget needs can be further clarified through the development of a Master Pedestrian Plan (for the entire City).
- Prioritize sidewalk construction based upon criteria such as: short missing links; streets with no sidewalks on either side; and then provision of sidewalks on both sides of street.
- Review pedestrian priority streets to ensure they have crosswalks at every intersection and a minimum of one crosswalk every 100 metres.
- Develop procedures to ensure all new development applications have undergone a pedestrian audit to ensure infrastructure is provided for this mode.

NOTE: The Downtown and Campbellton areas currently have very different environments and levels of pedestrian activity and pedestrian-generating land uses, and therefore will be discussed separately in this section.

8.2 Downtown

The City of Campbell River is already providing some excellent pedestrian amenities in the Downtown area. Additionally, Shoppers Row and Pier Street provide a pleasant walking experience with ample and continuous sidewalks, landscaping, an interesting array of store fronts, slow-moving traffic and frequent, well-marked crossing opportunities. However, some issues remain in the Downtown area. TABLE 8.1 provides a summary of good pedestrian infrastructure in the Downtown that should be replicated throughout the study area, particularly

on those streets designated as Pedestrian-Oriented. TABLE 8.2 provides examples of pedestrian issues in the Downtown that need improvement.

TABLE 8.1 PEDESTRIAN-FRIENDLY PRACTICES CURRENTLY IN PLACE (DOWNTOWN AREA)

GOOD PRACTICE	REASONS	ILLUSTRATION
Landscaping and buffer zone	▪ Provides pleasant walking experience ▪ Trees provide protection from sun in summer ▪ Landscaped "buffer zone" between sidewalk and street creates greater level of pedestrian safety and comfort	
Well signed and marked crosswalks	▪ Provides clearly defined crossing areas ▪ Warns drivers of the presence of pedestrians	
Pedestrian refuge islands with curb cuts	▪ Provides refuge for pedestrians who are unable to complete the entire crossing distance before light changes ▪ Curb cuts make crossing navigable for wheelchairs, strollers, and other persons with mobility issues	
Consistent presence of curb let-downs	▪ Removes barriers for persons in wheelchairs, persons pushing strollers, and those with other mobility issues	

GOOD PRACTICE	REASONS	ILLUSTRATION
Pavement treatments on sidewalks (previous photo) and at pedestrian crossings	▪ Color and texture change cues motorists that they should be slowing down ▪ Aesthetically pleasing design	
Pedestrian-friendly urban design	▪ Minimal set-backs create interest for pedestrians and keep “eyes on the street” to help prevent crime ▪ On-street parking (versus off-street) creates a continuous sidewalk unimpeded by driveways, which improves pedestrian safety and convenience	

TABLE 8.2 PEDESTRIAN ISSUES (DOWNTOWN AREA)

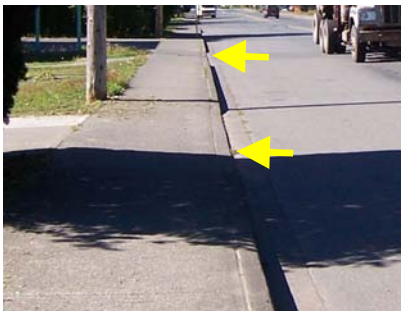
ISSUE	REASONS	ILLUSTRATION
Lack of sidewalks	▪ Forces pedestrians onto street ▪ Lack of continuous pedestrian network ▪ Discourages walking due to unpleasant walking experience	
Discontinuous sidewalks	▪ May force pedestrians onto street to reach destination ▪ Creates significant barriers for persons in wheelchairs ▪ Residents may feel that provision of sidewalks is unreliable and therefore be less likely to choose to walk	
Inadequate, inconvenient sidewalks	▪ Unusable for people with mobility issues ▪ Pedestrians prefer “path of least resistance” and may choose to walk in the street instead (photo)	
Lack of street trees or “buffer zone”	▪ Lack of separation between pedestrians and vehicles can create perceived or actual safety issues ▪ Trees provide an aesthetically pleasing pedestrian realm and create shade in the summer	
Parking fronting the street (versus on-street or behind building)	▪ Necessitates driveway onto property, which means that cars will be crossing the sidewalk ▪ In this particular example, no buffer is provided between the parking lot and the sidewalk ▪ Creates less pesant pedestrian experience	

ISSUE	REASONS	ILLUSTRATION
Inconsistent "Pedestrian Crossing" signs	▪ Consistency creates greater awareness and less information for drivers to process ▪ The walking pedestrian symbol sign (left photo) is easier to read and understand than the "PEDESTRIAN X" sign (right photo)	 
Frequent driveways	▪ Vehicles frequently crossing pedestrian path ▪ Creates additional conflict points for pedestrians ▪ Decreases perception of safety ▪ Creates less convenient walking environment	
Obstructions in sidewalk; lack of "clear zone"	▪ Creates difficulties for persons in wheelchairs ▪ Creates unpleasant walking environment ▪ Minimum 1.5-metre consistent "clear zone" should be provided on all sidewalks	
Large curb radii	▪ Encourages higher vehicle turning speeds ▪ Creates long crossing distances ▪ Inappropriate for low-speed streets	
High proportion of road width dedicated to automobiles (unwarranted number of lanes or lane width)	▪ Unnecessary on low-volume roads ▪ Decreases space available for other modes ▪ Decreases space available for pedestrian safety and comfort features (boulevard strips, curb extensions, landscaping) ▪ Increases crossing distance for pedestrians	

8.3 Campbellton

The Campbellton area does not provide consistent pedestrian amenities or a continuous sidewalk network. This area has unique needs in that it is both a residential and an industrial/commercial area, therefore particular consideration needs to be given to the safety of pedestrians. TABLE 8.3 provides examples of pedestrian issues in the Campbellton area that need improvement.

TABLE 8.3 PEDESTRIAN ISSUES (CAMPBELLTON AREA)

ISSUE	REASONS	ILLUSTRATION
Lack of sidewalks and curbs	▪ Forces pedestrians onto street ▪ Creates significant barriers for persons in wheelchairs ▪ Lack of separation between pedestrians and vehicles discourages walking due to unpleasant walking experience and/or safety concerns	
Lack of marked crosswalks	▪ Should be considered for higher-volume pedestrian crossings and high-volume roads near residential areas	
Frequent driveways	▪ Vehicles frequently crossing pedestrian path ▪ Creates additional conflict points for pedestrians ▪ Creates less convenient walking environment ▪ Constant changes in crossfall (slope) are inconvenient to wheelchair users	

ISSUE	REASONS	ILLUSTRATION
Lack of street trees or "buffer zone"	▪ Lack of separation between pedestrians and vehicles creates perceived and actual safety issues ▪ Landscaping (e.g. trees, grass) provides an aesthetically pleasing pedestrian realm	

8.4 Importance of Site Design

Site design has a great impact on the pedestrian realm: pedestrian access not only improves safety, but generally improves aesthetics as well, leading to community revitalization, economic stimulus, and incentives for residents to use alternate modes and thus keep traffic growth at bay. Furthermore, inclusion of sidewalks at the time of site construction, when roads are often being redesigned and parking lots built, is much more cost-efficient than adding them at a later date.

Essential elements to include in site plans in order to improve the pedestrian realm include:

- Inclusion of pedestrian infrastructure in all development plans (provision of sidewalks should be included in the Development Cost Charges);
- Provision of sidewalks on all sides of the development that are adjacent to a municipal road right-of-way;
- Clearly marked crosswalks at site accesses (driveways);
- Landscaping, as a buffer between the sidewalk and the road and/or parking lot (see FIGURE 8.1); and
- Clearly marked, direct pedestrian connection from the sidewalk to the main entrance of the site.

FIGURE 8.1 EXAMPLE OF LANDSCAPING BUFFER AROUND SITE
(Photo credit: Singer Properties / www.singerproperties.com)

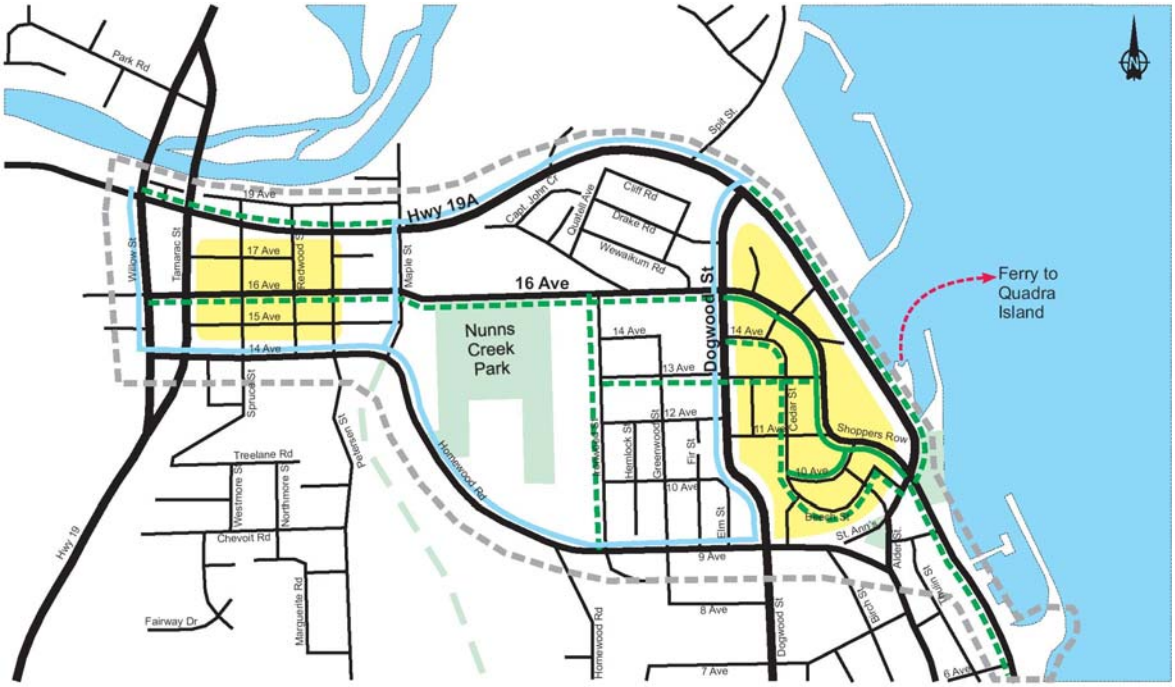
8.5 Opportunities for Improvement

In determining areas and streets where the greatest opportunities for improvement of the pedestrian realm exist, the following criteria were used:

- The street/area is in or adjacent to a residential area (e.g. 16th Avenue).
- The street has a mix of land uses (e.g. commercial and residential) which tends to encourage walking (e.g. Ironwood Street).
- The street is a transit route, therefore generating walking trips to and from the bus stops (e.g. 16th Avenue).
- The street links two distinct areas within the study area together (e.g. the Campbellton residential area to Downtown).

- The street currently has a high number of pedestrians using it (e.g. Shoppers Row).
- The street has potential to be a community and tourism asset due to unique features (e.g. Highway 19A along the waterfront).

A map of the areas and streets that were identified as having the greatest opportunities for pedestrian improvements are shown in FIGURE 8.2. A discussion of the map follows.



LEGEND:

- Study area
- Existing pedestrian - oriented street
- Priority for pedestrian upgrades
- Major vehicle arterial: sidewalks on both sides and upgraded pedestrian safety features
- Pedestrian priority zone

FIGURE 8.2 RECOMMENDED PEDESTRIAN ROUTE UPGRADES

Based upon land use and transportation characteristics, the following streets are recommended for pedestrian priority designation or pedestrian upgrades.

Pedestrian Priority Designation:

- Shoppers Row
- Pier Street
- 12th Avenue
- 11th Avenue
- All Downtown streets within Pedestrian Priority Zone

Pedestrian Upgrades:

- 16th Avenue
- Ironwood Street
- Dogwood Street
- Highway 19A
- 13th Avenue

An additional street that should be considered for pedestrian upgrades is 10th Avenue. The Downtown segment (east of Dogwood) is already a pedestrian-friendly street and the portion west of Dogwood is a residential street. Opportunities exist to unite the two halves of the street with a pedestrian link connecting the residential area with Downtown. An underpass or overpass may be necessary to get pedestrians safely across Dogwood. In addition, appropriate pedestrian infrastructure would need to be built on the steep slope (currently a vacant, City-owned lot) just east of Dogwood Street (see photo).

Pedestrian Priority Zones

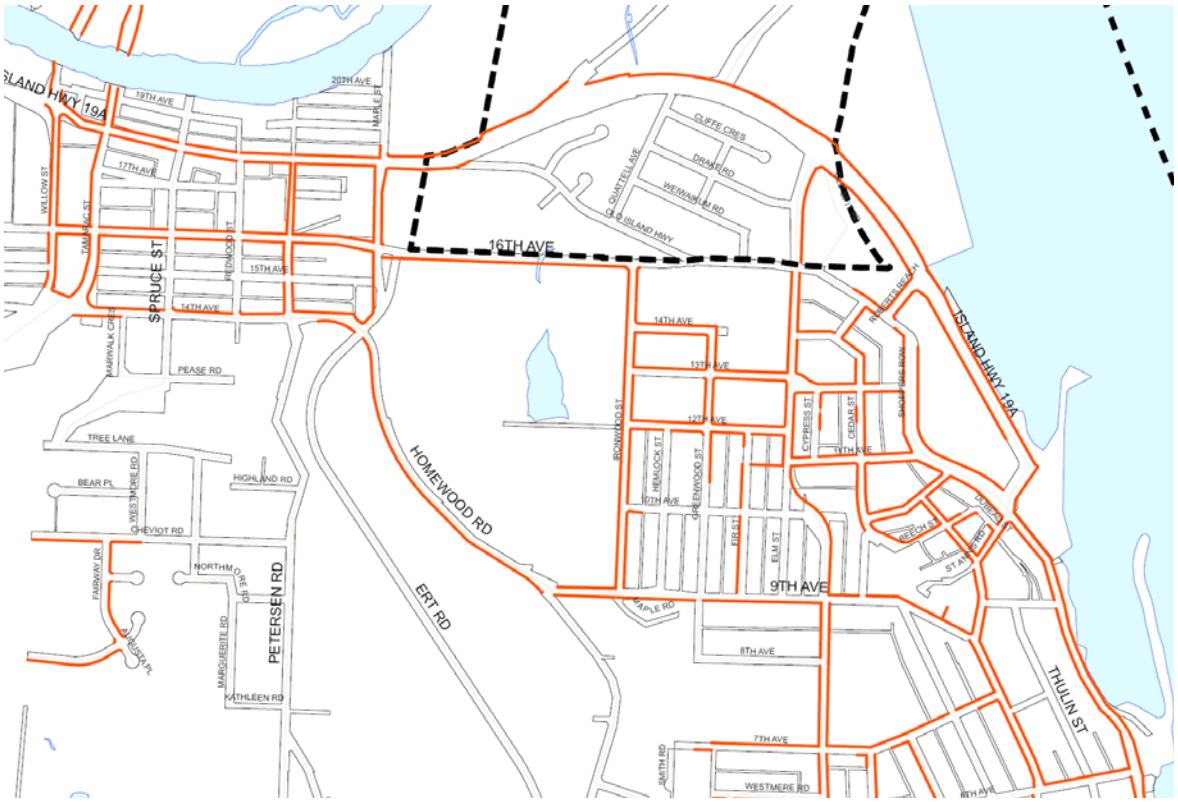
A "pedestrian priority zone" is an area that allows for access by all modes, but prioritizes the comfort and safety of pedestrians over moving vehicles quickly through the area. A pedestrian priority zone should have features such as sidewalks on both sides of every street, frequent crosswalks (generally approximately 50-60 metres apart, with a maximum distance of 100 metres apart), slow-moving vehicle traffic, and traffic calming measures such as on-street parking, narrow vehicle lanes, curb extensions, special textured pavement treatments, and perhaps raised crosswalks or intersections. Two potential pedestrian priority zones, as shown in FIGURE 8.2, have been identified:

- In Downtown, centered around Shoppers Row extending west to Dogwood Street and east to the waterfront.
- In Campbellton, encompassing the entirety of the residential area, which is centered around 16th Avenue.

The need for a Downtown pedestrian priority zone was identified due to the currently high level of pedestrian traffic, which is anticipated to grow when the new cruise ship terminal is completed, and because new medium- to high-density residential development is anticipated in the area as well. New residential buildings and a new "village commons" public square in Downtown will make it a mixed-use area, with residences, offices, shopping and a gathering place all within close proximity, which will likely generate a significant number of pedestrian trips. The area is currently a major shopping and tourist destination with many pedestrian-friendly features which could be improved upon.

Introducing a pedestrian priority zone that encompasses the Campbellton residential area will make this neighbourhood more liveable and could improve pedestrian safety. Currently, Petersen Road, which is a residential street, is designated as a truck route, which is not an appropriate use of this type of street, since the purpose of truck routes is to "keep heavy truck traffic and potentially harmful goods away from residential areas," according to the City's truck routes brochure. More information regarding truck routes can be found in Section 9.0: Truck and Hazardous Goods Movement.

A sidewalk inventory has been completed (FIGURE 8.3), which is an essential first step to prioritizing and implementing this pedestrian plan. Streets within the Pedestrian Priority Zones and 16TH Avenue, which connects the two zones, should have priority for new sidewalk construction.



LEGEND

Existing Sidewalks

FIGURE 8.3 SIDEWALK INVENTORY

8.6 Medium- to Long-Term Recommendations

- Build curb extensions on streets that have some or all of the following features:
  - High pedestrian volumes;
  - Particularly wide cross-sections; and/or
  - On-street parking.

- Remove driveways from Pedestrian Priority and Multimodal streets, moving accesses to side streets or lanes, upon redevelopment.
- Improve Pedestrian Priority and Multimodal streets to include boulevard strips (median buffers) and landscaping as redevelopment occurs or funds become available.

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9.0 MODULE F: TRUCK AND HAZARDOUS GOODS ROUTE PLAN

Truck routes were established in the Master Transportation Plan for Area Roads and have since been updated. A review of the current routing through Downtown and Campbellton was undertaken for this study to ensure that goods movement is safe and efficient and that current and future residents will not be adversely affected by truck traffic.

9.1 Short-term Recommendations

- Remove Petersen Road from truck route network.
- Add Maple Street to truck route network.
- Consult trucking companies regarding the removal of 16th Avenue and North Dogwood Street from truck route system.

9.2 Proposed Changes

The existing truck routes within the study area include the following:

- Highway 19 (Inland Island Highway)
- Highway 19A (Island Highway)
- 16th Avenue
- Petersen Road
- 14th Avenue
- Homewood Road
- Dogwood Street

Currently, there are three truck routes heading east from Highway 19 (Highway 19A, 16th Avenue, and 14th Avenue) all within approximately one-half kilometer distance. It is deemed unnecessary to have this many truck routes within such close proximity to one another. The existing truck routes and proposed changes are shown in FIGURE 9.1.

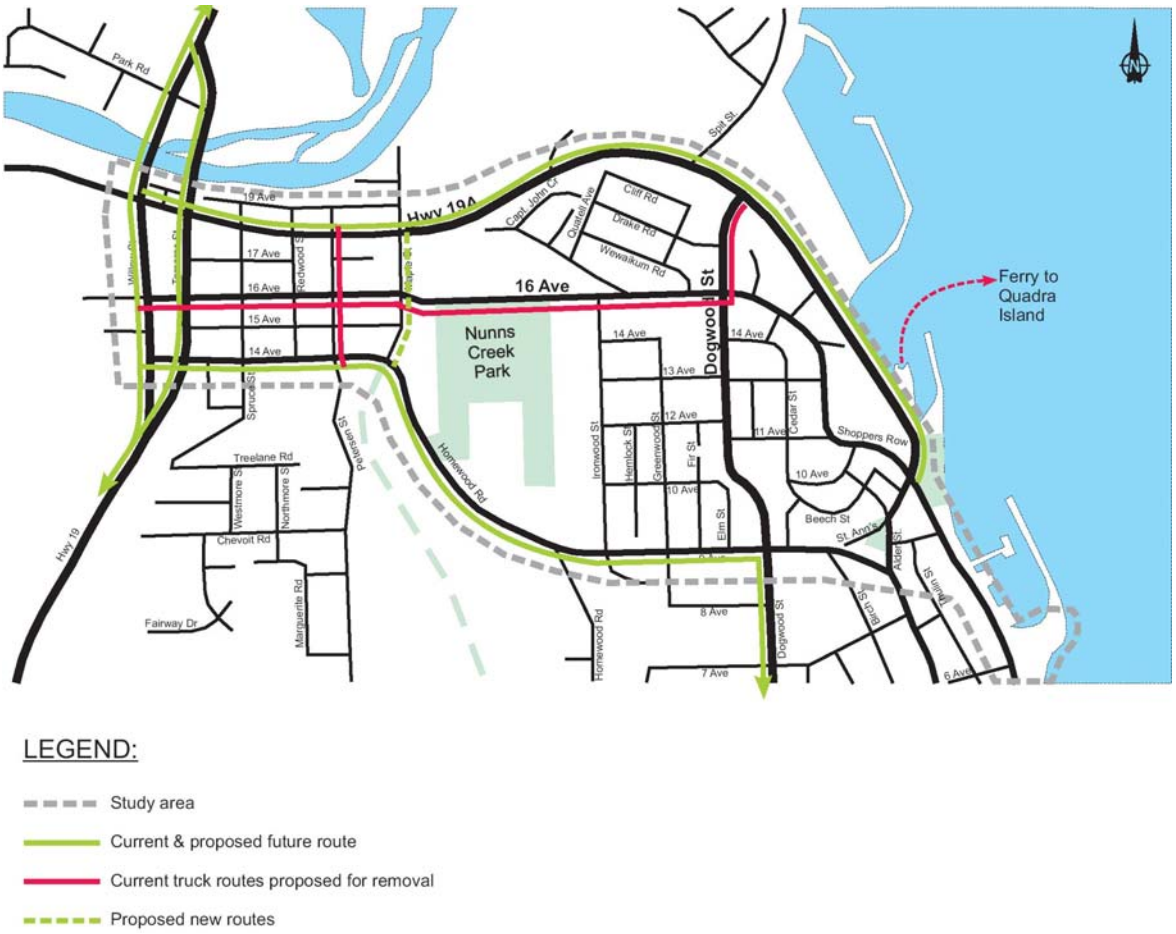


FIGURE 9.1 PROPOSED CHANGES TO TRUCK ROUTE SYSTEM

No changes to the truck route status of Highway 19, Highway 19A, 14th Avenue, Homewood Road or Dogwood Street are proposed. It is recommended that 16th Avenue and Petersen Road be removed from the truck route system, and Maple Street added, for the following reasons.

16th Avenue (Proposed Removal)

From west to east, 16th Avenue is a residential street through Campbellton, then a commercial street between Maple Street and Dogwood Street, and finally it becomes Shoppers Row at its east end. While trucks will need to use 16th Avenue to access commercial developments, it is recommended that trucks be discouraged from using it as a through route, especially as it traverses a

residential neighbourhood west of Maple Street and, as mentioned above, two alternate truck routes already exist 300 metres to the north and south.

Current truck traffic volumes do not warrant three truck routes within this short distance from one another. Traffic data collected showed that trucks are already using Highway 19A and 14th Avenue to a greater degree than 16th Avenue. As 16th Avenue is envisioned as a future multimodal street, a reduction in truck traffic will help to achieve this goal of a more pedestrian-, bicycle-, and transit-friendly street.

The intent is not that trucks would be prohibited from using 16th Avenue should drivers need to used to access Downtown or businesses along 16th, but due to design changes recommended for this current route, trucks would be required to travel slower and therefore encouraged to select the two alternative routes immediately north and south of 16th as through-routes.

Petersen Road (Proposed Removal)

A very short segment of Petersen Road – from Highway 19A to 14th Avenue currently serves as a truck route. This portion of Petersen has residential uses along it. However, Maple Street, which lies just east of Petersen is a primarily industrial street, which is currently used as a through-route by both trucks and general traffic. It is therefore proposed that Petersen Road be removed from the truck route system and replaced by Maple Street, which has more appropriate land uses for a truck route.

Maple Street (Proposed New Route)

Maple Street is proposed as an alternative to Petersen Road. It is similar to Petersen in length, connecting roads, and general location, but has the advantage of being adjacent to industrial land uses versus residential land uses. Furthermore, if the proposed Maple-Petersen connector is built, Maple will likely become a major north-south corridor for accessing Campbellton and Downtown.

9.3 Medium- to Long-term Recommendations

- Reconstruct the intersection of Dogwood Street and 9th Avenue to accommodate truck turning movements; and/or
- Develop new truck routes south of Downtown as part of the recommended new east-west connector roads to Highway 19 (see the Master Transportation Plan for further information).

10.0 MODULE G: PARKING STRATEGY

This module focuses on the balance between parking demand and supply in the short-, medium- and long-term. Issues such as population and employment patterns; tourism and economic growth; parking level of service (a measure of availability and location); and short- to long-term parking requirements were taken into account. The goal of this module is to ensure that the parking strategy serves the objectives of the study area as a vibrant, multimodal economic hub of the City.

The principle of Downtown parking demand and supply is that sufficient parking needs to be available for the Downtown to be an attractive destination. However, over-supply should be avoided, as it discourages non-auto modes, and results in the low-value utilization of valuable Downtown land.

The City currently supplies free parking in the area called the *Downtown Off-Street Parking Specified Policy Area*. The Downtown has a supply of parking comprised of both on-street and off-street parking. The Tyee Plaza shopping centre accounts for a major source of off-street parking in the Downtown area. With the impending redevelopment of the Tyee Plaza, the site is expected to lose approximately 100 parking spaces. There is a potential to regain some of the lost parking directly adjacent to Tyee Plaza if Highway 19A north of the ferry terminal is re-designed to include on-street parking.

In order to assess current supply, demand, and parking duration in the Downtown area, physical surveys were conducted on a typical weekday and Saturday.

The Campbellton area has different issues as it is primarily an industrial and residential area; although, some retail, commercial and tourism-related businesses are located in the area as well.

10.1 Short-Term Recommendations

Downtown Off-Street Parking

- Improve management of all Downtown off-street parking in order to create a consistent system which encourages short-term parking near major shopping destinations (e.g. Shoppers Row and Tyee Plaza) and longer-term parking at off-street lots and areas further away from high-turnover shopping areas. Currently, the Tyee Plaza parking lot is frequently used for long-term parking (likely Downtown employees or ferry patrons), where parking should instead be primarily for retail patrons.
- Encourage long-term parking in off-street lots not associated with retail development in order to free up on-street parking for short-term demand by:
  - Providing better directional signing, naming, and clarity of use
  - Developing a coherent pricing program;
  - Informing employers in the area of the long-term parking areas appropriate for employee use;
  - Providing Downtown employees with the option of purchasing monthly permits from the City for reserved parking in City lots;

Downtown On-Street Parking

- A pricing and time limit strategy in the Downtown for on-street parking should be employed. Recommendations include:
  - Establishing a new system of time-limited parking immediately; and
  - Establishing consistent parking pricing (medium- to long-term).
- Consistent parking regulations encouraging parking in areas nearest to commercial areas for short-term parking and further away from the commercial areas for longer-term parking is suggested. Typically, zones can be established which have shorter duration limits (e.g. one to two hours), with longer durations in each subsequent zone further away from the core. A graphical representation of such a strategy is provided in FIGURE 10.1

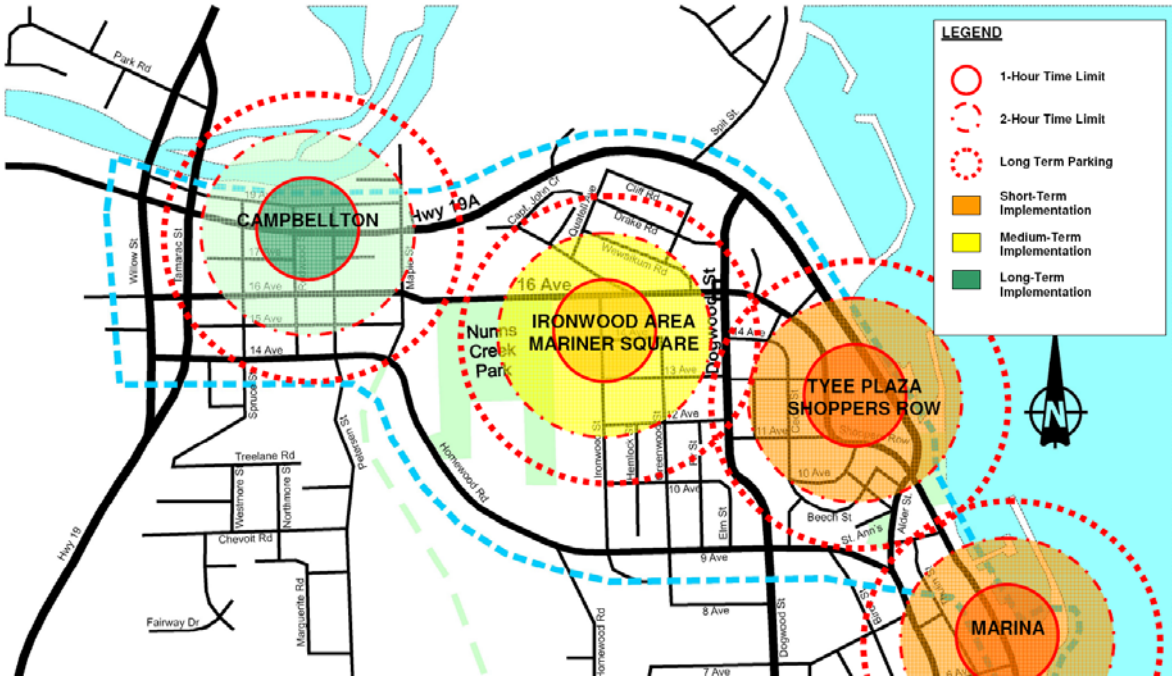


FIGURE 10.1 RECOMMENDED PARKING MANAGEMENT STRATEGY

- The City of Campbell River has several noticeable nodes where this parking management strategy can be implemented – the Marina, Downtown/Tyee Plaza, Ironwood, and Campbellton. The more immediate areas where this management system should be considered are the Downtown and Marina areas with longer-term implementation in the Ironwood and Campbellton areas.

Parking Supply

- In the Downtown, the parking supply is likely to decrease on the order of 100 spaces due to the redevelopment of the Tyee Plaza. However, on-street parking gains would be possible if Highway 19A north of the Ferry Terminal were reduced from two lanes to one lane and on-street parking provided. The potential gains in on-street parking are expected to offset the losses experienced in the Tyee Plaza such that parking supply would remain relatively constant into the future.
- The City should examine providing specialized parking for motorcycles or scooters.

- In Campbellton, on-street parking supply would likely increase if policies to remove excess driveways along Highway 19A through Campbellton are in place. Large trip generating land uses should continue to provide their own parking on-site in accordance to City by-laws.

10.2 Issues Identified in Public Consultation

Several parking issues emerged from the public consultation process:

- Parking issues emerged as a low priority relative to improving non-automobile modes and upgrading roads;
- Desire for more 2-hour parking;
- Parking is a perceived by some as a problem in the Downtown;
- Anecdotal reports of what are termed “chronic parkers”, i.e. Downtown workers who move their car every two hours, on-street and in Tyee Plaza;
- Customers of Bingo Palace (151 St. Ann's Road) are using spots that are intended for merchants and retail customers;
- Parking restrictions in Campbellton, particularly on Highway 19A, make it difficult for small businesses to survive;
- More emphasis should be placed on utilizing City-owned lots for development in conjunction with improved pedestrian connections; and
- Desire for motorcycle/scooter spaces, as well as bicycle parking (in the form of bicycle racks provided on sidewalks).

10.3 Existing Conditions, Parking Demand and Supply

The Downtown area was the main focus of the parking analysis. Sample surveys of the Campbellton area indicated that there was continuous ample on-street parking. Surveys of parking inventory, parking utilization, and parking duration in the Downtown were conducted for both on-street and off-street facilities, and a parking inventory was conducted for Campbellton as well. Recognizing the extent to which parking is consumed by Downtown employees and retail shoppers, a weekday survey was completed, as well as a Saturday survey to cover the majority of the peak shopping times.

Survey Methodology

Parking surveys were conducted on Monday, September 25, 2006 and Saturday, September 30, 2006 in the Downtown area.

Parking occupancy (the proportion of spaces occupied) was measured and recorded at hourly intervals. Surveyors counted all occupied spaces on the route at approximately one hour intervals. Parking duration (the length of time a vehicle was parked) was also recorded by taking down the first four digits of license plates and noting whether the vehicle occupied the same space every hour.

Parking Inventory

Parking inventories for Downtown and Campbellton areas are provided in TABLE 10.1 and TABLE 10.2, respectively.

TABLE 10.1 DOWNTOWN PARKING INVENTORY

SPACE TYPE	LOCATION	NUMBER OF SPACES	PARKING SPACE CATEGORY	NUMBER OF SPACES
On-Street	St. Ann's Rd (19A to Alder)	5	General	5
	Alder St (St. Ann's to 10th Ave)	4	General	4
	Beech St (entire length)	100	General	100
	10th Avenue (entire length)	60	General	58
			Disabled	2
	Dubeau (entire length)	25	General	24
			Disabled	1
	Shoppers Row (Alder to Roberts Reach)	110	General	104
			Disabled	6
	16th (Robert Reach to Dogwood)	13	General	13
	14th (Dogwood to Cedar St)	24	General	24
	Cedar (14th to 16th)	14	General	14
	14th (13th to Cedar)	40	General	40
	13th (entire length)	25	General	20
			15 minute	5
	Cypress (entire length)	40	General	40
	11th (Dogwood to Cedar)	60	General	60
	11th (Cedar to Shoppers)	17	General	15
			10 minute	2
	Cedar (11th to 13th)	30	General	30
Off-Street (Lot)	Robert Ostler Park	134	General	130
			Disabled	4
	Coast Marina Lot	35	General	32
			Disabled	3
	Public Lot (Beech)	78	General	56
			Reserved	22
	Public Lot (Cedar)	74	General	74
	Government Wharf Marina	179	General	140
			Disabled	6
			Reserved	33
	Unpaved Surface Lot (Cypress)*	60	General	60
	Unpaved Surface Lot (Cedar)*	60	General	60
	Tyee Plaza	525	General	525
TOTAL				**1,712**

* Unavailable in winter months due to snow storage

TABLE 10.2 CAMPBELLTON PARKING INVENTORY

LOCATION	NUMBER OF SPACES
Highway 19A - Tamarac to Maple	70
16th Avenue - Tamarac to Maple	170
14th Avenue - Tamarac to Maple	60
Maple Street	100
TOTAL	**400**

As TABLE 10.1 and TABLE 10.2 indicate, there is an estimated inventory of approximately 1,700 parking spaces in the Downtown and approximately 400 in Campbellton. In actuality, there are more parking opportunities in both areas than what was surveyed, as private/commercial facilities were excluded from the data collection.

In the Downtown, 35 percent of the spaces surveyed were on-street spaces, while the remaining 65 percent were off-street public parking facilities (both municipal and private), with the majority of the off-street spaces located in the Tyee Plaza parking lot.

In Campbellton, all parking spaces surveyed were on-street spaces. Although off-street parking also exists in Campbellton, the facilities are intended as parking for private site-specific uses.

Existing Parking Utilization

Parking utilization is the demand (the number of parked vehicles at a given time) as a proportion of the available parking supply. The following statistics represent the surveyed hourly utilization rates.

Summaries of the peak parking utilization for the weekday and Saturday are provided in TABLE 10.3 and TABLE 10.4, respectively. A graphical representation of the data is provided in FIGURE 10.2 and FIGURE 10.3.

TABLE 10.3. DOWNTOWN OFF-STREET PARKING UTILIZATION (WEEKDAY)

STREET OR LOT	LOCATION	COMBINED			
		TOTAL SUPPLY	PEAK UTILIZATION	PEAK UTILIZATION (%)	OVERALL (%)
Street	St. Ann's Rd (19A to Alder)	5	4	80%	30%
	Alder St (St. Ann's to 10th Ave)	4	3	75%	
	Beech St (entire length)	100	9	9%	
	10th Avenue (entire length)	60	23	38%	
	Dubeau (entire length)	25	20	80%	
	Shoppers Row (Alder to Roberts Reach)	110	52	47%	
	16th (Robert Reach to Dogwood)	13	2	15%	
	14th (Dogwood to Cedar St)	24	8	33%	
	Cedar (14th to 16th)	14	1	7%	
	14th (13th to Cedar)	40	8	20%	
	13th (entire length)	25	14	56%	
	Cypress (entire length)	40	3	8%	
	11th (Dogwood to Cedar)	60	13	22%	
	11th (Cedar to Shoppers)	17	3	18%	
	Cedar (11th to 13th)	30	6	20%	
Lot	Robert Ostler Park	134	74	55%	66%
	Coast Marina Lot	35	31	89%	
	Public Lot (Beech)	78	37	47%	
	Public Lot (Cedar)	74	35	47%	
	Government Wharf Marina	179	62	35%	
	Unpaved Surface Lot (Cypress)*	60	30	50%	
	Unpaved Surface Lot (Cedar)*	60	30	50%	
	Tyee Plaza	525	451	86%	
	TOTAL	1,712	919	54%	

TABLE 10.4. DOWNTOWN OFF-STREET PARKING UTILIZATION (SATURDAY)

STREET OR LOT	LOCATION	COMBINED			
		TOTAL SUPPLY	PEAK UTILIZATION	PEAK UTILIZATION (%)	OVERALL (%)
Street	St. Ann's Rd (19A to Alder)	5	4	80%	24%
	Alder St (St. Ann's to 10th Ave)	4	1	25%	
	Beech St (entire length)	100	4	4%	
	10th Avenue (entire length)	60	14	23%	
	Dubeau (entire length)	25	9	36%	
	Shoppers Row (Alder to Roberts Rch)	110	67	61%	
	16th (Robert Reach to Dogwood)	13	5	38%	
	14th (Dogwood to Cedar St)	24	3	13%	
	Cedar (14th to 16th)	14	4	29%	
	14th (13th to Cedar)	40	1	3%	
	13th (entire length)	25	11	44%	
	Cypress (entire length)	40	2	5%	
	11th (Dogwood to Cedar)	60	8	13%	
	11th (Cedar to Shoppers)	17	3	18%	
	Cedar (11th to 13th)	30	1	3%	
Lot	Robert Ostler Park	134	37	28%	41%
	Coast Marina Lot	35	32	91%	
	Public Lot (Beech)	78	15	19%	
	Public Lot (Cedar)	74	3	4%	
	Government Wharf Marina	179	72	40%	
	Unpaved Surface Lot (Cypress)*	60	30	50%	
	Unpaved Surface Lot (Cedar)*	60	30	50%	
	Tyee Plaza	525	294	56%	
	TOTAL	1,712	650	38%	

FIGURE 10.2 UTILIZATION OF DOWNTOWN PARKING (WEEKDAY)

FIGURE 10.3 UTILIZATION OF DOWNTOWN PARKING (SATURDAY)

For the Downtown area, off-street lot utilization was higher than on-street utilization for both the weekday and Saturday. Overall utilization was much higher on the weekday than the Saturday. This is likely driven by the office worker-generated demand for spaces in the Downtown area on a typical weekday. The average off-street utilization on the weekday is 66 percent and on-street utilization approximately 30 percent; compared to Saturday, which had 41 percent off-street utilization and 24 percent on-street.

A large component of the off-street parking demand occurs at the Tyee Plaza, which reached a peak utilization of 86 percent at 12:00 on the weekday and 56 percent on the Saturday. The higher weekday peak utilization at the Tyee Plaza indicates a high component of Downtown employee parking occurs at this location. The other off-street municipal parking lots in Downtown have an average utilization of approximately 66 percent, indicating an ample supply of available long-term parking.

On-street parking occupancy was highest for Shoppers Row at approximately 50 percent on the weekday and 60 percent on the Saturday. However, the remainder of on-street parking spaces had a peak utilization for of only 30 percent on the weekday and 24 percent on the Saturday. These results indicate a higher demand for parking on Shoppers Row than other areas.

There appears to be an adequate supply of on-street parking for both the Downtown and Campbellton areas, based upon the survey results. Off-street facilities in the Downtown farther away from Shoppers Row are underutilized, and there is ample supply of on-street parking along both the major streets and residential streets in Campbellton. However, there is a perception among some members of the Steering Committee that Shoppers Row and Campbellton have an undersupply of parking.

The parking survey did not indicate demand exceeding capacity, as off-street parking had low use. Parking issues in Campbellton may be related to the lack of management and enforcement of private off-street facilities, rather than inadequate supply. Perceived parking issues in Downtown are likely related to expectations of residents in a small, automobile-oriented community such as Campbell River, that parking should always be free and available directly in front of their desired location.
As both the Downtown and Campbellton areas grow and continue to develop, there will be fewer opportunities to park directly in front of the front door of a

desired destination, as is currently expected by residents. However, residents, workers, and tourists will still find parking spaces that are convenient and within a reasonable walking distance of a few blocks from their destination. This is one of the normal transitions that all thriving cities encounter. Good parking management, including rational time restrictions, fair and consistent pricing, and good signing become essential to facilitate this transition.

Parking Duration

Parking duration refers to the length of time the same vehicle is parked in the same parking space. Durations of two hours or less are considered short-term and are typically associated with Downtown shopping and personal visits. Parked vehicles associated with Downtown workers typically have longer durations.

Consideration has been given to vehicles that enter and exit a parking area repeatedly throughout the day. For example, many employees will park for the morning period, leave during the lunch hour, and return during the afternoon period. As such, their parking demand is effectively for the entire day; however, given that the vehicle was not in the parking area over the lunch hour, it was not included in the parking count for that hour. The corresponding data thus reflects parking demands for two separate periods – the weekday morning and the weekday afternoon. Saturday demands tend to remain fairly constant throughout the day, characterized by higher turnover.

The parking duration surveys were undertaken both in on-street facilities in the Downtown and in Tyee Plaza. A summary of the resulting on-street parking durations is provided in TABLE 10.5 and 10.6, respectively. Those same results are presented graphically in FIGURE 10.4 and FIGURE 10.5, respectively.

TABLE 10.5 DOWNTOWN ON-STREET PARKING DURATIONS

DURATION	0 - 1 HOURS	1 - 2 HOURS	2 - 3 HOURS	3 - 4 HOURS	4+ HOURS
Saturday	71.7%	20.8%	5.7%	0.0%	1.9%
Weekday	73.8%	15.8%	3.8%	4.4%	2.2%

TABLE 10.6 TYEE PLAZA PARKING DURATIONS

DURATION	0 - 1 HOURS	1 - 2 HOURS	2 - 3 HOURS	3 - 4 HOURS	4+ HOURS
Saturday	48.1%	23.1%	13.5%	0.0%	15.4%
Weekday	41.2%	22.7%	8.2%	8.2%	19.6%

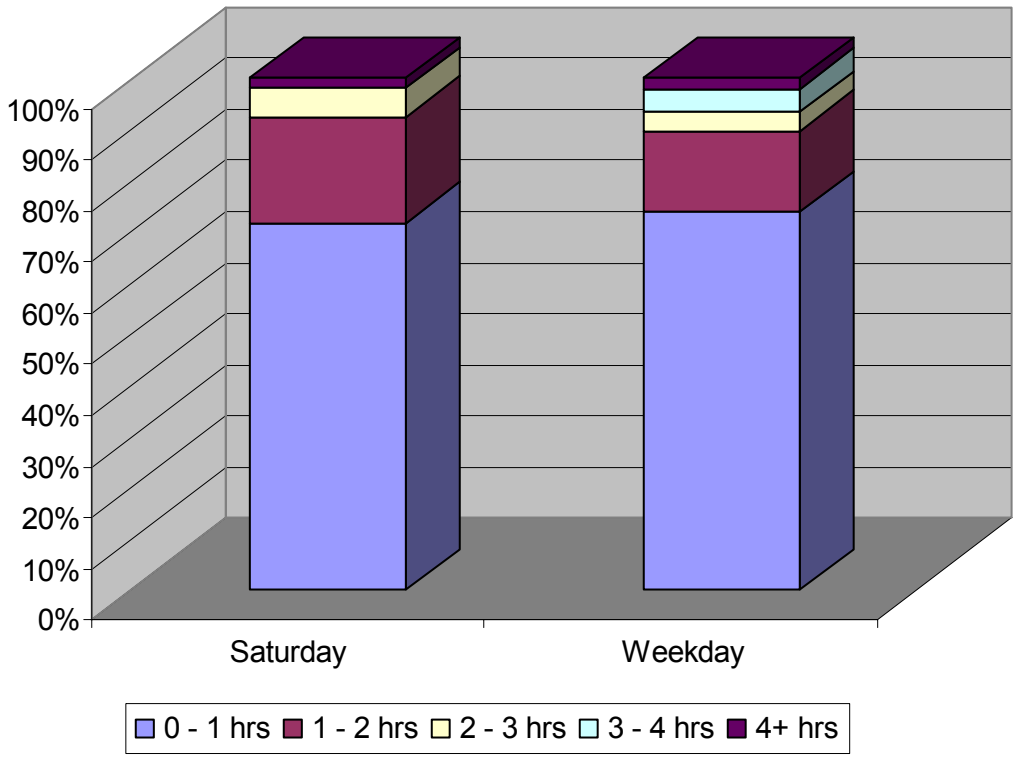


FIGURE 10.4 DOWNTOWN ON-STREET PARKING DURATIONS

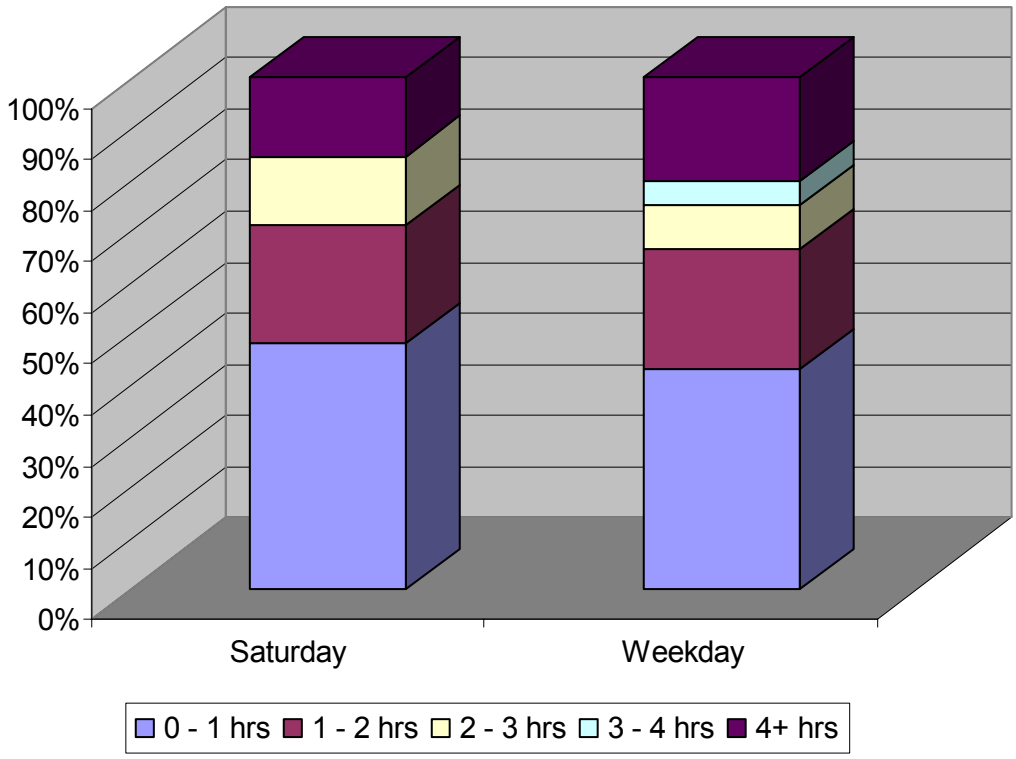


FIGURE 10.5 TYEE PLAZA PARKING DURATIONS

As expected, the majority of the vehicles utilizing municipal on-street parking had durations of 1 hour or less. Approximately 72 percent of vehicles surveyed were parked in their spaces for less than one hour on the weekday and 74 percent on the Saturday. Durations of over two hours occurred only 8 percent and 10 percent of the time on the weekday and Saturday, respectively.

There was a marked difference in the duration patterns at Tyee Plaza. There was a higher frequency of longer duration stays at the Plaza, especially on the weekday.

Downtown Off-Street Parking Specified Area

All parking surveyed in the Downtown area is administered through a Downtown Parking Commission following the policies set out in By-Law No. 522, 1972. FIGURE 10.6 displays the Downtown Off-Street Parking Specified Area.

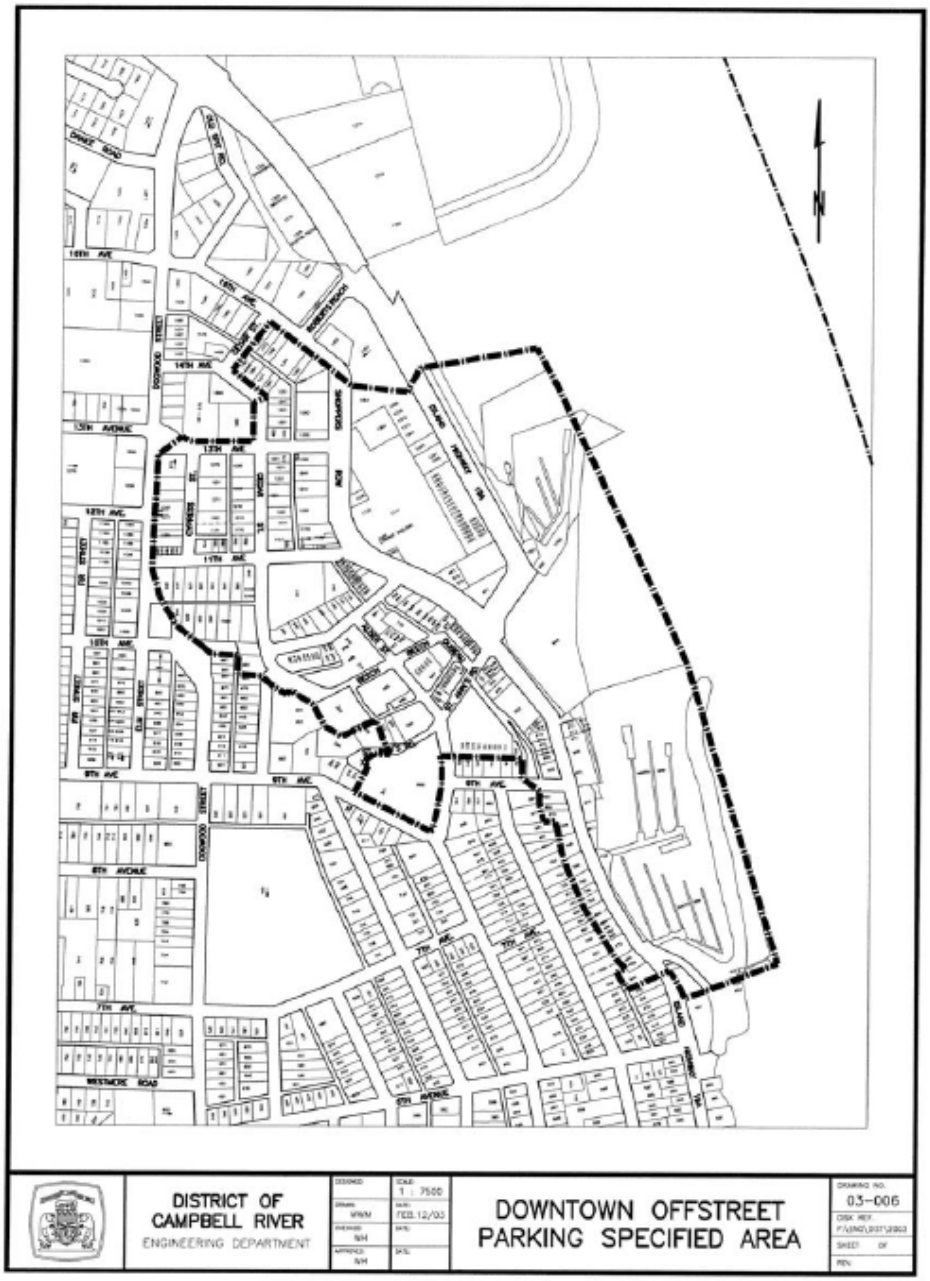


FIGURE 10.6 DOWNTOWN OFF-STREET PARKING SPECIFIED AREA

By-Law No. 522 stipulates that the City and Council are responsible for providing all off-street parking within the *Downtown Off-Street Parking Specified Policy Area* and that the entire cost of providing off-street parking and improvements in the specified area shall be borne by the owners of the land. If the revenue from the off-street parking facility in any year is not sufficient to meet operating costs, the City is in its right to levy a rate on land or improvements or both within the specified area to make up for deficiencies. Future recommended policies may affect the delivery of parking by the City and administration of the Downtown Off-Street Specified Parking Policy Area.

The implication of this Policy Area is that when developments occur in this area, parking is not required to be provided by the developer. The recommendations following this parking analysis indicate that the future policy for providing Downtown parking needs to be addressed.

Future Parking Demand – Current Development Levels

Based on conservative population estimates, parking demand was forecast for the medium- and long-term horizons (10- and 20-years). The future demand was estimated by applying a uniform growth rate based on the estimated population growth rate. The weekday parking demands were projected as they were predicted to have a higher demand than weekends. The projections are shown in FIGURE 10.7.

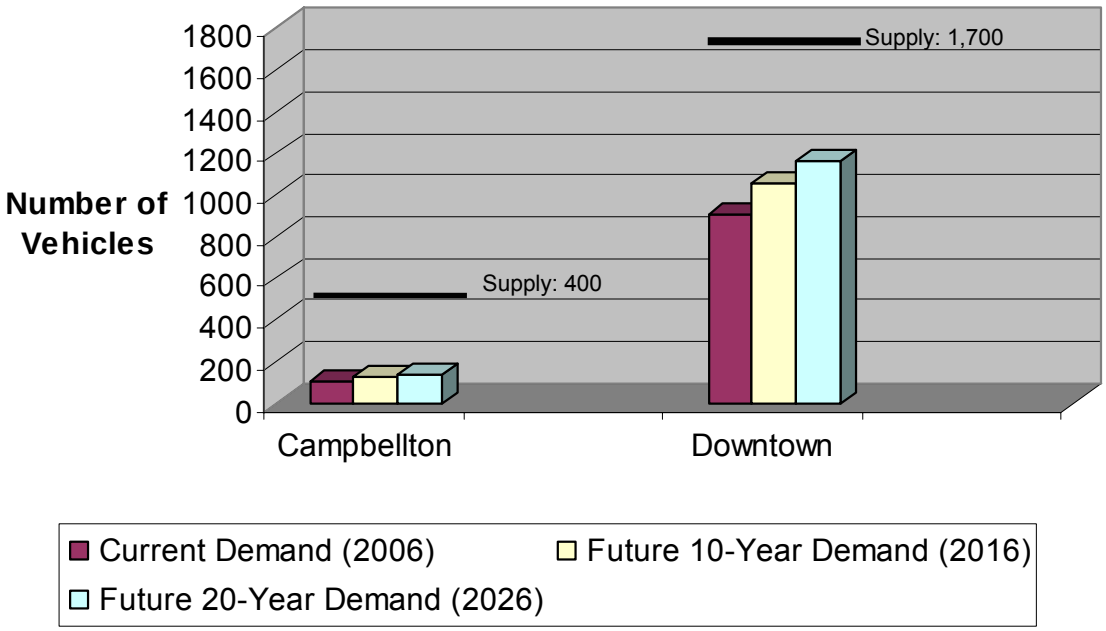


FIGURE 10.7 FUTURE UTILIZATION OF DOWNTOWN PARKING

Based on the projections, the peak parking demands in Campbellton and the Downtown in 20 years can be satisfied by the current parking supply in both areas. It is likely that the supply may change in the future due to redevelopment of the Tyee Plaza, however, on-street facilities should sufficiently absorb the displaced demand.

Future Parking Demand – Build-Out Conditions

The City plans that within the next 25 years, up to an additional 1,000 residential units will be built within the study area. It is unclear, however, what the level of corresponding commercial development may be. But with most of the development being mixed-use in the downtown, the most likely scenario would be an increase in pedestrian-oriented retail developments instead of larger automobile-oriented commercial developments. This retail space would likely be an associated use to the primarily high-density residential units, and as such, automobile trip generation (and associated parking demand) would be minimized. Any other larger commercial developments would be expected to provide sufficient parking supply to meet their generated demand.

According to the future parking demand analysis, which is based upon current parking demand, supply and population growth to the year 2027, a residual capacity of approximately 600 spaces is expected. Should the City move towards the construction of new residential developments, the likely sites for this construction would be the current off-street parking lots located on Beech Street and Cedar Street and some other minor off-street lots. If this redevelopment occurs, the City could expect a loss of up to 200 spaces. However, it is likely that these losses will be recovered when residential developments provide parking for their units. Thus, the City is deemed to have a sufficient supply of parking to accommodate current developments and the expected future levels of residential development.

Should additional commercial or residential developments be considered beyond the development levels considered in this analysis, parking requirements should be re-evaluated at that time.

The other strategy would be to require developments that replace current parking sites provide their own parking based on the expected demand for their use or replace parking which is lost. These strategies are better described in Section 10.7 below, where medium- to long-term parking strategies are discussed in greater detail.

10.4 Parking Pricing and Regulation

Parking Pricing

The City does not currently collect fees for parking Downtown or in Campbellton. As mentioned, parking is generally time-restricted, and both on-street and off-street parking are free. There are some off-street parking lots administered by private operators; however, the parking spaces in these lots are generally leased long-term (i.e. monthly passes) to patrons.

Parking Regulation

Downtown area parking has varying time restrictions. Parking regulations (time limits) in the Downtown and Campbellton are shown in FIGURE 10.8 and FIGURE 10.9, respectively. Generally, Downtown parking has a one-hour time limit.

In the short-term, where parking pricing may be infeasible, consistent parking regulations encouraging parking in areas nearest the commercial areas for the short-term and away from the commercial areas for longer-term parking is recommended. Typically, zones can be established where shorter-duration limits are established, and longer durations in each subsequent zone further away from the core. For example, walking distances can be used as a proxy for creating different zones. Using the “five-minute walk” principle, areas within the “five-minute walk” zone may be signed for one-hour parking, with the next zone being two-hour parking, while the third zone, corresponding to a 15-minute walk, may be unsigned for long-term parking. This concept is recommended for adoption by the City (see FIGURE 10.1).

FIGURE 10.8 DOWNTOWN ON-STREET PARKING TIME LIMITS

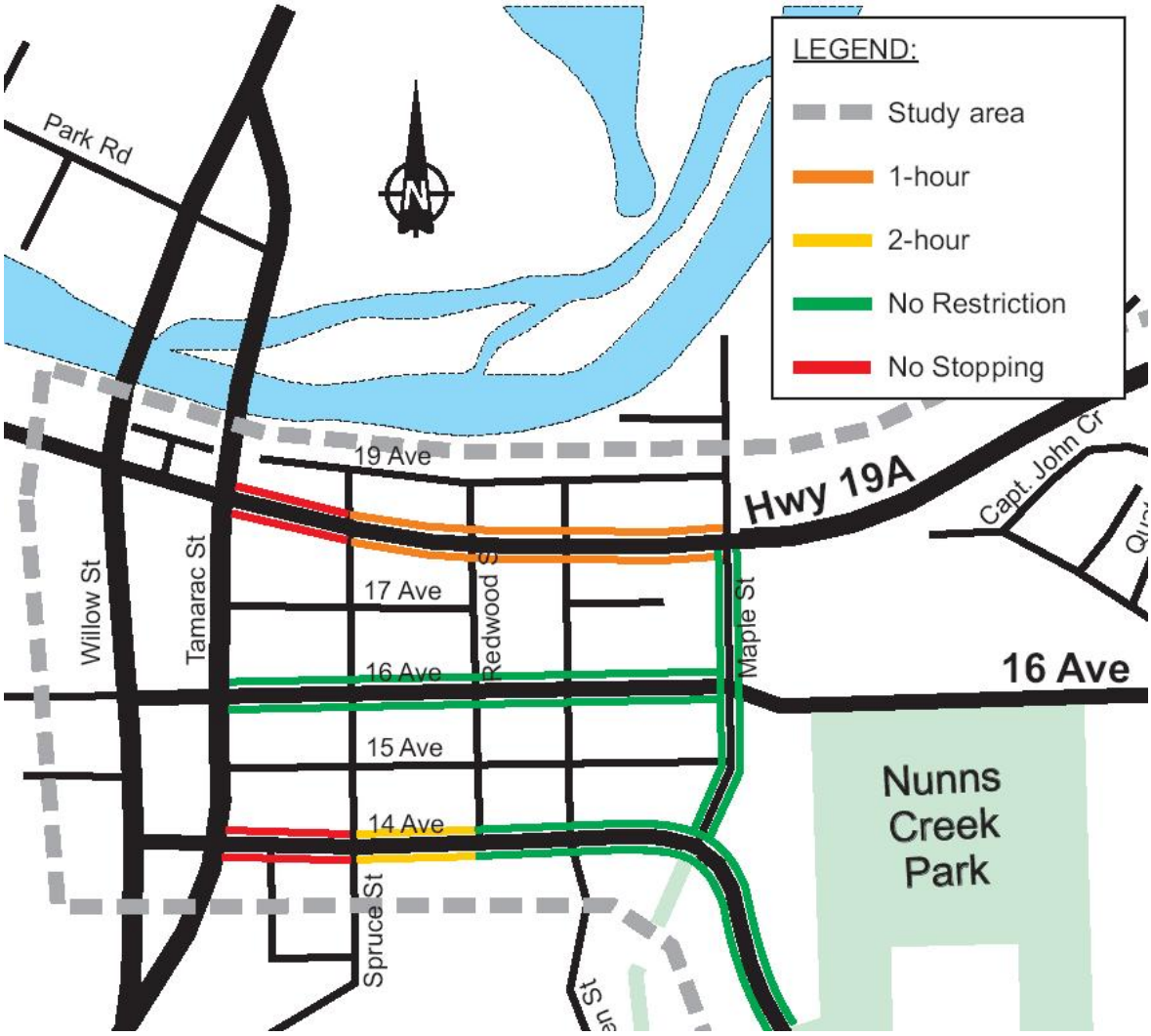


FIGURE 10.9 CAMPBELLTON ON-STREET PARKING TIME LIMITS

10.5 Issues and Opportunities

Issues

- There is no formal parking management strategy currently in place in Downtown in areas where primarily short-term parking should be encouraged. This is particularly the case in Tyee Plaza on weekdays when there is a large proportion of long-term parking on site. The current strategy likely needs to be revised.
- On-street parking regulations are not consistent. On-street parking in areas where high turnover should be encouraged generally have 1-hour time

limits, although 10th Avenue, for example, has 2-hour limits. Streets farthest away from Downtown where longer-term parking can be encouraged were also found to have 1-hour time limits. The conversion of 1-hour limits to 2-hour (or longer) limits should be explored for areas farther away from the commercial core.

- A lack of policies for dedicated spaces (for example, taxi, disabled, motorcycle, etc.) results in ad hoc responses to requests and potentially inequitable distribution of spaces.

Opportunities

- The City has a growing Downtown and will likely have to move towards formal parking management and pricing since current parking in the Downtown is administered by the City free-of-charge. Policy areas may be adopted whereby parking requirements for large commercial uses are distinguished from smaller pedestrian-oriented retail uses which share available on- and off-street parking. In the medium-term, the City should consider low-cost, consistent parking rates throughout the Downtown core, including Tyee Plaza. Over the longer term, an increase in parking rates could be used to encourage higher turnover and alternative modes.
- There is currently an ample supply of on-street parking. These spaces may be better used if off-street parking lots are re-developed into another land use such as residential use allowing the City to achieve its Official Community Plan goals. The parking analysis indicates that on-street supplies can sufficiently absorb the losses experienced should off-street parking in the Downtown area be redeveloped; however, further study would be required at the time of redevelopment to adequately account for the parking requirements of the particular land use being proposed. It is also expected that upon redevelopment, the developer would supply some parking.

- There is currently an excess supply of on-street parking throughout the day, as peak parking demand is not approaching 85 percent utilization. This provides an opportunity for re-allocating on-street parking spaces to other uses, such as bicycle lanes, wider sidewalks or landscaped boulevard strips.
- Other financing opportunities exist for the City to consider, such as cash-in-lieu parking policies, or public-private partnerships for the construction and operation of new parking facilities.

10.6 Medium- to Long-Term Recommendations

- New technology exists that might alleviate some of the issues surrounding on-street parking revenue for the City. For example, the “Pay ‘n’ Display“ system has gained popularity in many North American cities.
- Implement maximum parking supply by-laws - Observations suggest that Downtown Campbell River currently has a sufficient supply of parking. Setting maximum parking supply limits for new developments is an appropriate way of handling parking demand into the future.
- Downtown redevelopment - The City could consider recovering the parking lost at underutilized surface parking lots for conversion into development sites. The City should examine and establish a policy whereby all new development would be required to provide parking, including residential developments.
- Establishment of a Parking Authority - The City could consider establishing a Parking Authority in the future, to manage downtown parking affairs.

- New Parking Policies, which may include:
  - Parking Policy Zones/Areas – may be delineated where parking requirements for large commercial uses are distinguished from smaller pedestrian-oriented commercial developments.
  - Large Commercial Uses – supply and management of parking should remain the responsibility of the developer. This would be a condition of obtaining a building permit or development permit.
  - Smaller Pedestrian-Oriented Retail Uses – the City may consider a "Shared Parking Approach" to provide common facilities between uses. If sufficient on-street supply is available in the vicinity of the development, then the applicant should not be required to provide additional parking.

- Financing Options, which may include:
  - Cash-In-Lieu – Requires the developer to pay the City a certain sum for each parking space not provided to meet the by-law requirements. The City "reserves" the monies which would be used to provide future parking facilities.
  - Local Improvement By-Law – the City may wish to define a local improvement area and pass a by-law for an "improvement tax" which is allocated to the cost of providing a future Downtown parking facility.
  - Build-Operate Transfer – This is in the form of a public-private partnership where the private sector is invited to invest in the construction of a parking facility whereas the City may contribute public land.

A summary of the suggested parking management options is provided in FIGURE 10.10.

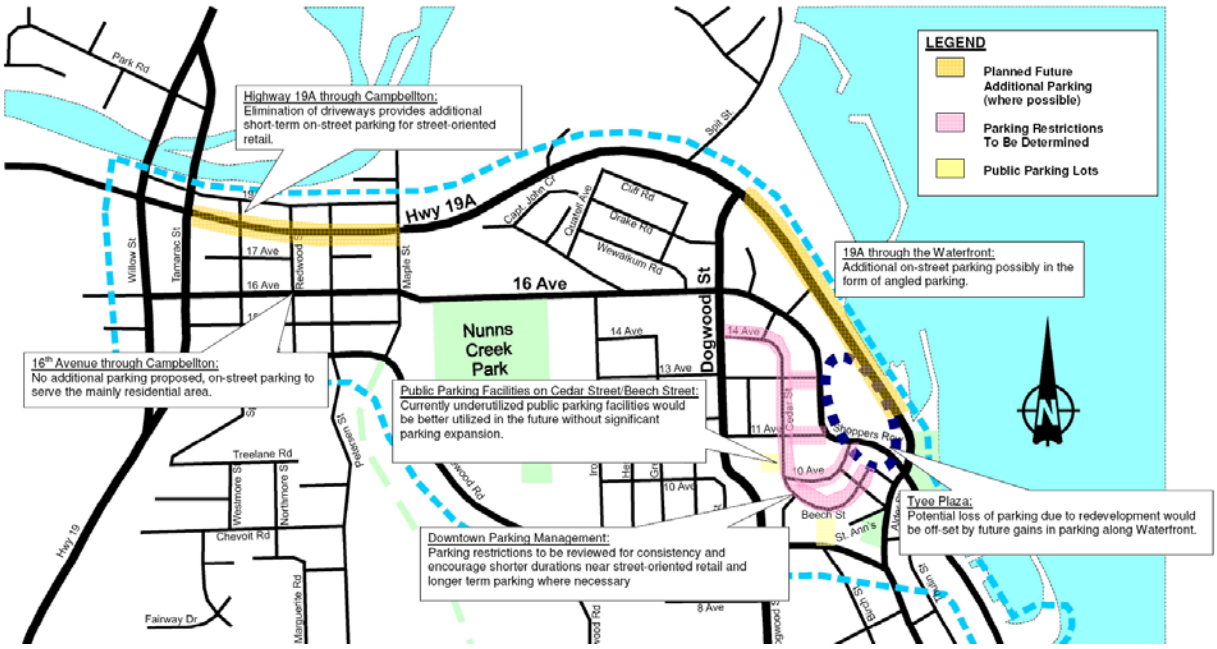


FIGURE 10.10 PARKING MANAGEMENT OPTIONS

11.0 MODULE H: ROAD SAFETY STRATEGY

The module summarizes the safety performance of the transportation network within the study area for all modes and establishes improvement strategies.

11.1 Short- to Long-term Recommendations

Pedestrians

- Complete the sidewalk network, starting with the recommended Pedestrian Priority Zones.
- Ensure sidewalks are built on both sides of all new roads.
- Remove or consolidate driveways to reduce the number of pedestrian-vehicle conflict points.
- Consider pedestrians at the site design stage of new developments and require clearly marked pedestrian routes and crossings from the public sidewalk to building entrances.
- Build boulevard strips (landscaped buffer zones) on new or redesigned roads.
- Construct curb extensions at high-volume pedestrian crossings.
- Develop a crosswalk and sidewalk review and maintenance plan.
- The Dogwood Street Corridor Traffic and Safety Review (2002) noted limited pedestrian facilities and mountable curbs as creating safety hazards for pedestrians. Better pedestrian crossing facilities and median refuges were recommended.

Bicycles

- Clearly sign and/or mark all bicycle routes.
- Install cyclist-activated crossing signals on major cycling routes.
- Require that any new road construction on cycling routes provide cycling upgrades.

Vehicles

- Conduct road safety audits (for all modes) on all new road construction projects during the design stage.
- Conduct a road safety review of 13th Avenue and Shoppers Row due to its ranking as a high-crash location and several public requests that safety issues be addressed at this location.
- Reduce the number of driveways along arterial roads, such as the Island Highway (19A), 16th Avenue, and Dogwood Street to reduce the number of conflict points along these roads.

11.2 Crash History

The Master Transportation Plan summarized the top 15 high-crash locations for vehicles (not including pedestrian or bicycle collisions). Four of the high-crash locations are within the study area:

- 13th Avenue & Shoppers Row;
- Island Highway / Shoppers Row / St. Ann's Road;
- Dogwood Street & 9th Avenue; and
- Willow Street & Old Island Highway.

In addition to these high-crash locations, ICBC provided a summary of crashes within the study area during the years 2001 through 2005 for all modes. This data is summarized in TABLE 11.1.

TABLE 11.1 COLLISIONS WITHIN STUDY AREA

CRASH TYPE	TOTAL CRASHES (2001-2005)	ANNUAL AVERAGE (2001-2005)
Vehicle (Injury and Fatality Only)	270	54
Pedestrian (Injury and Fatality Only)	11	2.2
Cyclist (Injury and Fatality Only)	7	1.4

While the numbers for pedestrians and cyclists may seem low compared to the number of vehicle crashes, when compared to mode share, a pedestrian or cyclist is just as likely to be involved in an injury or fatality crash as a motorist. In addition to the crashes summarized above, there were 301 vehicle crashes within the study area which resulted in property damage only.

The high-crash intersection of Dogwood Street and 9th Avenue was reviewed as part of the Dogwood Street Corridor Traffic and Safety Review. The study recommended a three-lane cross-section, re-alignment of the western edge of the road, and a protected left-turn only phase for northbound turns.

Currently, some intersections are not constructed to standards which would be appropriate to users of those intersections. For example, the intersection of Dogwood Street and 9th Avenue has a high volume of truck traffic. However, some curbs are not constructed with sufficient radii to accommodate the turning of these vehicles. In this instance, trucks have to "climb" the curb in order to make their turn, which consequently has an impact on pedestrian safety at the intersection. Conducting road safety audits with the reconstruction of intersections in Campbell River may potentially resolve this problem in the future. Proper signage may also be introduced at this stage.

Finally, policies to minimize the number of driveways abutting an adjacent roadway and imposing minimum distances between driveways and adjacent intersections would effectively improve vehicular safety. Appropriate measures will need to be determined specific to those locations. Certain improvements with corresponding benefits may include:

- Consolidating points of access near intersections to reduce access and intersection friction;
- Introducing separate turn lanes to reduce vehicular conflicts; and
- Proper signing of speed limits and enforcement to reduce vehicular speeding.

11.3 Safety and Sustainability

In order to promote alternative modes and encourage City residents to walk, bike and take transit, it is important that road safety be considered not just to reduce vehicle collisions, but also to ensure the safety of vulnerable road users. A discussion of safety for each of these modes follows.

Pedestrians

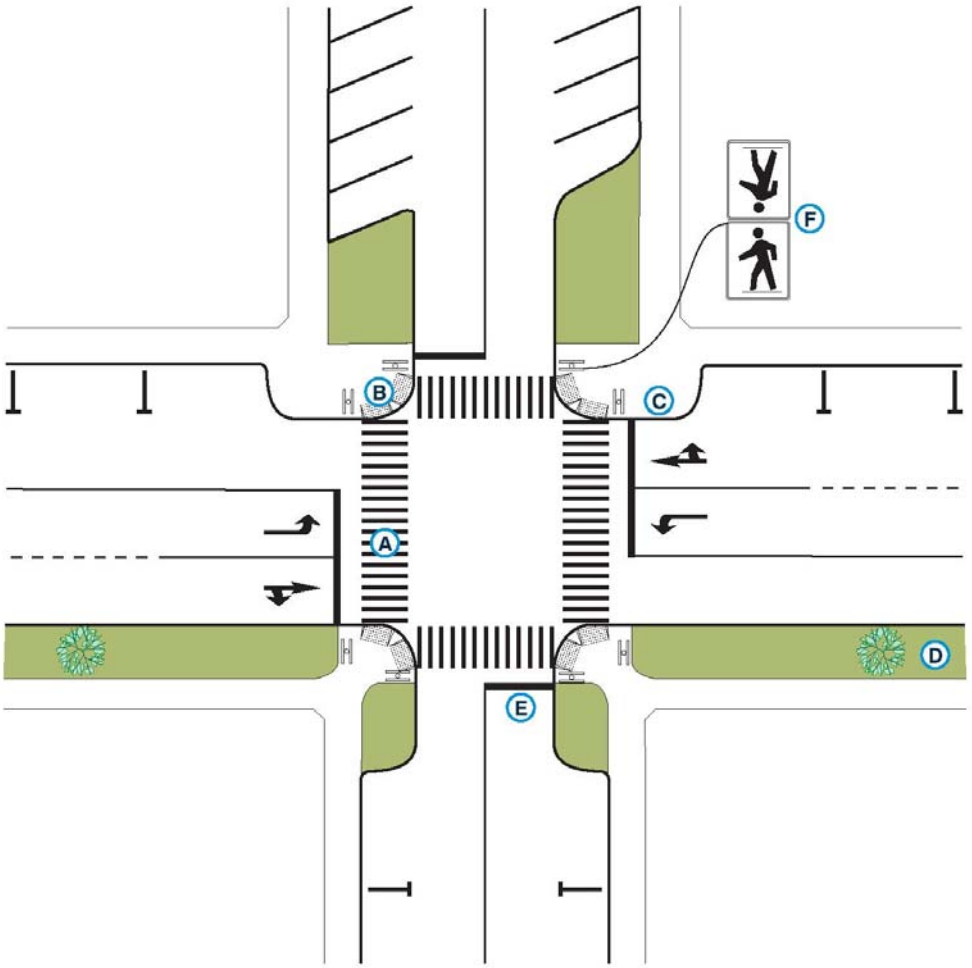
This mode not only applies to those who use walking as a form of transportation, but also to transit users, as every transit passenger is a pedestrian at the beginning and end of each transit trip. A continuous sidewalk network is imperative to pedestrian safety, so that pedestrians are not forced to walk in the road right-of-way. The design of intersections is an important consideration as well, and is particularly important in areas with high pedestrian volumes or where the City is encouraging walking and slower traffic speeds. An example of pedestrian-friendly intersection design is shown in FIGURE 11.1.

It is also important to consider the needs of wheelchair users, as they are highly dependent upon non-automobile modes for transportation. Creating a continuous, well-maintained sidewalk network, with curb ramps at all intersections is imperative to ensuring the safety of these users.

Bicycles

Currently there are no signed or marked cycling routes in the Downtown and Campbellton area. As the area has high traffic volumes, it is important to create bicycle routes appropriate for the traffic volumes and traffic speeds of each on-road route. The City should begin immediately signing and marking cycling routes that do not require geometric changes or major construction.

On local and some collector roads which have cycling routes on them, it is important to ensure that motorists comply with the speed limits. Many cycling routes incorporate traffic circles or cycling-friendly diverters in order to create a safer cycling environment. Appropriate measures will need to be determined on a route by route basis.



LEGEND:

- (A) - Clearly marked crosswalks
- (B) - Curb let-downs at both ends of all crosswalks
- (C) - Curb extensions to reduce crossing distance & improve pedestrian visibility
- (D) - Landscaped boulevard strip
- (E) - Stop bars prior to crosswalk
- (F) - Pedestrian crossing sign

FIGURE 11.1 INTERSECTION DESIGN FOR PEDESTRIAN SAFETY

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12.0 MODULE I: SUSTAINABLE TRANSPORTATION STRATEGY

Provision of infrastructure for non-automobile modes is an important factor in achieving a sustainable transportation system; however, the single most important factor influencing transportation demand is how land is used. The correlation between urban density and the level of mixing of land uses and the use of sustainable modes has been well-established in many studies.[1] Increasing residential density within the study area, which already has many non-residential uses, will provide attractive opportunities for non-auto travel. This module presents strategies that promote on-the-ground sustainable transportation choices.

As the City grows, both in terms of new residents and tourism, it is important to provide useful, continuous pedestrian and cycling networks, as well as convenient transit service, in order to keep traffic growth to a minimum. The new cruise ship terminal creates an unprecedented opportunity for the City to obtain funding for improved pedestrian amenities that will link the terminal with major shopping and tourism destinations, such as the Downtown area.

12.1 Short-term Recommendations

- Allocate an annual budget for non-automobile modes, which have been traditionally under-served in Campbell River.
- Implement the Living Downtown Strategy (Downtown Plan) in order to minimize traffic growth by mixing land uses.
- Encourage new, higher-density development in already-developed areas in order to minimize the need for new roads and other infrastructure.
- Ensure that new highway-oriented (i.e. “big box”) developments provide sidewalks and pedestrian safety features on adjacent road right-of-ways.
- Create a road network that better utilizes the capacity of the Inland Island Highway for north-south travel before building new lanes on other north-south corridors (e.g. Dogwood Street).

[1] See Victoria Transport Policy Institute (www.vtpi.org) or SmartGrowth BC (www.smartgrowth.bc.ca) for examples of such studies.

- Consider further re-designs of the Island Highway (19A), similar to the recent re-design of the Willow Point section, so that it becomes more pedestrian- and bicycle-friendly.
- Complete the sidewalk network within the study area, starting with the two designated Pedestrian Priority Zones and 16th Avenue, which connects the two zones.
- Begin upgrading planned bicycle routes for safe bicycle travel, starting with signage and pavement markings to increase public awareness.

13.0 MODULE J: POLICY REVIEW AND RECOMMENDATIONS

This module includes a compilation of all policies that may need to be reviewed, changed, or introduced in order to support the priorities that were identified in the Downtown and Campbellton Area Transportation Network and Parking Plan.

13.1 Policy Review

Sidewalk and Road Maintenance - The latest version of the City of Campbell River Council Policy document shows that the sections regarding road maintenance, sidewalk maintenance and winter sidewalk maintenance were all deleted. As the City's sidewalk network grows and the road network ages, it will become increasingly necessary to maintain them and the City should reconsider allocating budget for these items.

Access Management - While the City of Campbell River Council Policy document describes the typical function of roads based on their hierarchy (including potential traffic control warrants), there is no specific policy regarding access management particularly for sites adjacent to arterial roads. The disadvantage of not having an access management policy is that site plans will be reviewed only on an individual basis.

13.2 Recommendations

Sidewalk and Road Maintenance - Allocate budget for maintaining sidewalks and roads that is incorporated into the annual construction budget.

Access Management - Develop an access management policy limiting the number of driveways to arterial roads and prohibiting points of access to a minimum distance nearest adjacent intersections to ensure safety.

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14.0 MODULE K: PLAN IMPLEMENTATION AND MONITORING

This module outlines the implementation, monitoring and updating processes that will maintain the plan as a current and relevant blue-print for action until the next major update. It is important to establish a regular process for evaluating progress and managing changes to the priorities as the area evolves through new development, redevelopment, and upgrading of existing infrastructure.

14.1 Early Winners

The first step in implementing the plan should be to complete low-cost projects which will have a significant impact, in order to "jump start" the plan. The following items are "early winners": low-cost items that can be implemented immediately to make progress on the plan within a short timeframe.

Change truck route from Petersen Road to Maple Street
During site visits to Campbell River, trucks were observed to already be utilizing Maple Street. It is likely that moving the truck route will have little impact on current truck travel patterns, however, the City may wish to consult with local trucking companies to confirm this.

Sign and Mark Bicycle Routes
Determine routes that already have an appropriate lane width for cycling routes and add signs and pavement markings (see Module D: Bicycle Plan for details). Many motorists are unaware that bicycles are allowed on the roadway, and signs and pavement markings will create greater awareness among motorists and cyclists alike that bicycles can be expected on the road.

New City Policies
Develop new City policies that are supportive of the plan, for example a City policy could require all developers to show that they have addressed the needs of pedestrians, cyclists and transit users (if within proximity of a transit stop) in their site design. The City should also consider a policy that no new north-south road capacity will be built until all possibilities for encouraging residents to utilize the Inland Island Highway have been exhausted (e.g. building new east-west connector roads).
Collect Traffic Data

Hire a contractor to do week-long 24-hour tube counts on streets that have been proposed for re-design. Specific locations where counts should be collected include:

- Island Highway between the ferry terminal and Dogwood Street
- Island Highway between the ferry terminal and Shoppers Row
- 16th Avenue east of Maple Street
- 16th Avenue west of Maple Street
- Maple Street
- Island Highway between Maple Street and Tamarac

Counts should be obtained for both winter (off-season for tourism) and summer (at tourism peak) traffic volumes, and should be broken down by vehicle class in order to collect truck volumes. Turning movement counts during the peak hours may also confirm laning requirements at intersections.

16th Avenue Parking Survey
As a preliminary step to re-design, determine the utilization of on-street parking and the impact of removing on-street parking from 16th Avenue.

Transit Shelters
Explore opportunities for public-private partnerships in order to provide transit shelters throughout the City, prioritizing the most heavily used transit routes.

14.2 Highest Priority (1-Year Timeframe)

16th Avenue and Downtown Waterfront
Conduct a detailed analysis and pre-design study for 16th Avenue and the Island Highway (19A) between the Dogwood Street and the ferry terminal. It may be possible to economize if a single consultant is hired to do both studies at the same time.

Sidewalk Construction Plan

Allocate budget and develop a prioritization scheme for completing the sidewalk network within the Pedestrian Priority Zones.

14.3 3-Year Timeframe (by 2010)

16th Avenue and Downtown Waterfront
Produce a detailed design of 16th Avenue and the Island Highway (19A) between the ferry terminal and Dogwood Street.

Waterfront Pedestrian Amenities
Further to the re-design of Island Highway (19A) between the ferry terminal and Dogwood Street, a plan should be developed for creating a continuous waterfront pedestrian route from the new cruise ship terminal into the Downtown.

Reconnecting Tyee Plaza with the Downtown Road Network
The extension of 10th and 13th Avenue into the Tyee Plaza with redevelopment of the site will enhance multimodal connections to the Waterfront.

12th Avenue
Determine which additional properties would need to be acquired in order to extend 12th Avenue east across Dogwood to Shoppers Row and develop a plan for acquiring the properties.

Island Highway (19A) through Campbellton
Develop a detailed plan for the 2-lane section of the Island Highway through Campbellton (from Maple Street to Tamarac Street or Willow Street), to improve pedestrian access and aesthetics.

Install Traffic Signals
Locations that will likely need signals within a 3-year timeframe include:

- Maple at 16th
- Maple at Island Highway (19A)
- Ironwood Street at 9th Avenue

Sidewalk Construction Plan
Begin constructing new sidewalks.

Monitor the Plan
Review the plan and develop an assessment of progress made and next steps.

14.4 5-Year Timeframe (by 2012)

16th Avenue and Downtown Waterfront
Begin construction on 16th Avenue and the Downtown waterfront portion of the Island Highway (19A).

Update the Plan
Hire a consultant to update the plan.

Extension of 12th Avenue
The extension of 12th Avenue has the potential to connect the west and east sides of Dogwood Street with the Downtown area. This not only provides a direct connection into the Downtown, but also opportunities for redevelopment of properties in this area. This step could only be completed if sufficient property is acquired by the City, however it is considered feasible as the City already owns several properties within the anticipated right-of-way.

Install Traffic Signals
Locations that will likely need signals within a 5-year timeframe include:

- Petersen Road and 14th Avenue
- Petersen Road and 16th Avenue

14.5 Monitoring the Plan

This plan should be updated on a 5-year cycle. With adoption of the plan anticipated for 2007, updates should occur on the following timeline:

- First Update: 2012
- Second Update: 2017
- Third Update: 2022

The prioritized action items from all the other modules are harmonized into TABLE 14.1. The table may be utilized by the City to assign responsibilities and target timeframes for the implementation of recommendations, monitoring, and updating the plans as improvements occur. For each update, 5-year action plans should be developed specific to the programs and recommendations of this report to ensure that progress is being made.

TABLE 14.1 PLAN MONITORING AND UPDATING BASED ON RECOMMENDATIONS

Strategic Short-term Recommendations					
#	Recommendation	Responsibility	Target dates		Actual Completion Date
			Initiation	Completion	
MODULE A: ROAD NETWORK					
1	Tyee Plaza Road Network Extension				
2	12th Avenue Extension Preliminary Planning				
3	Perform operational-level study for re-design of Highway 19A north of the ferry terminal				
MODULE B: INTERSECTION ASSESSMENT					
6	Assess signalization of Maple Street/19A				
7	Assess signalization of Ironwood Street/16th Avenue				
8	Assess signalization of Petersen Road/16th Avenue				
9	Design and implement Two-Way Left Turn Lane on Highway19A from Tamarac Street to Maple Street				
10	Assess signalization of Ironwood Street/9th Avenue				
MODULE C: TRANSIT SERVICE PLAN					
13	Examine measures to reduce transit delay at Ironwood Street/9th Avenue intersection				
14	Sidewalk construction plan for areas within 400-metre radius of all transit stops				
15	Install adequate weather protection and other amenities at all bus stops				
16	Conduct a wheelchair accessibility audit of all bus stops				
17	Increase frequency of transit service to LOS E on all routes during peak periods.				
18	Assess viability of transit service to/from new cruise ship terminal				

MODULE D: BICYCLE PLAN					
19	Sign and/or mark all cycling routes that are currently up to safety standards				
20	Require new developments on designated cycling routes to incorporate cycling safety features into road upgrades and provide secure bicycle parking.				
22	Change the cycling network in the study area to include new recommended routes.				
MODULE E: PEDESTRIAN PLAN					
23	Allocate annual budget for sidewalk construction and develop construction prioritization criteria				
24	Review crosswalk provision in Pedestrian Priority Zones				
25	Prioritize streets which have high pedestrian volumes, particularly wide cross-sections, and on-street parking and construct curb extensions.				
MODULE F: TRUCK AND HAZARDOUS GOODS MOVEMENT					
28	Remove Petersen Road from truck route network.				
29	Add Maple Street to truck route network.				
30	Consult trucking companies regarding the removal of 16th Avenue and North Dogwood Street from the truck route system.				
MODULE G: PARKING STRATEGY					
31	Develop consistent parking regulations in the Downtown with time-limits based upon demand				
MODULE H: ROAD SAFETY STRATEGY					
37	Ensure that sidewalks are built on both sides of all new roads.				
38	Consider pedestrians at the site design stage of new developments entrances.				
40	Clearly sign and/or mark all bicycle routes.				

41	Install cyclist-activated crossing signals on major cycling routes.				
42	Require that any new road construction on cycling routes provide cycling upgrades.				
MODULE I: SUSTAINABLE TRANSPORTATION STRATEGY					
45	Allocate an annual budget for non-automobile modes				
46	Implement the Living Downtown Strategy				
47	Encourage new, higher-density development in already-developed areas				
48	Ensure that new highway-oriented developments provide sidewalks and pedestrian safety features on adjacent road right-of-ways.				
MODULE J: POLICY REVIEW AND RECOMMENDATIONS					
51	Review Road Design Standards				
52	Review Zoning By-Law, especially areas pertaining to Parking and the Downtown Off-Street Parking Specified Zone Policy.				
53	Re-instate Sidewalk and Road Maintenance Policies				
54	Policies to enhance greenery or urban forestry opportunities.				
55	Develop access management policies to minimize number of accesses to pedestrian-generating land uses				

APPENDIX A
PLAN OPTIONS

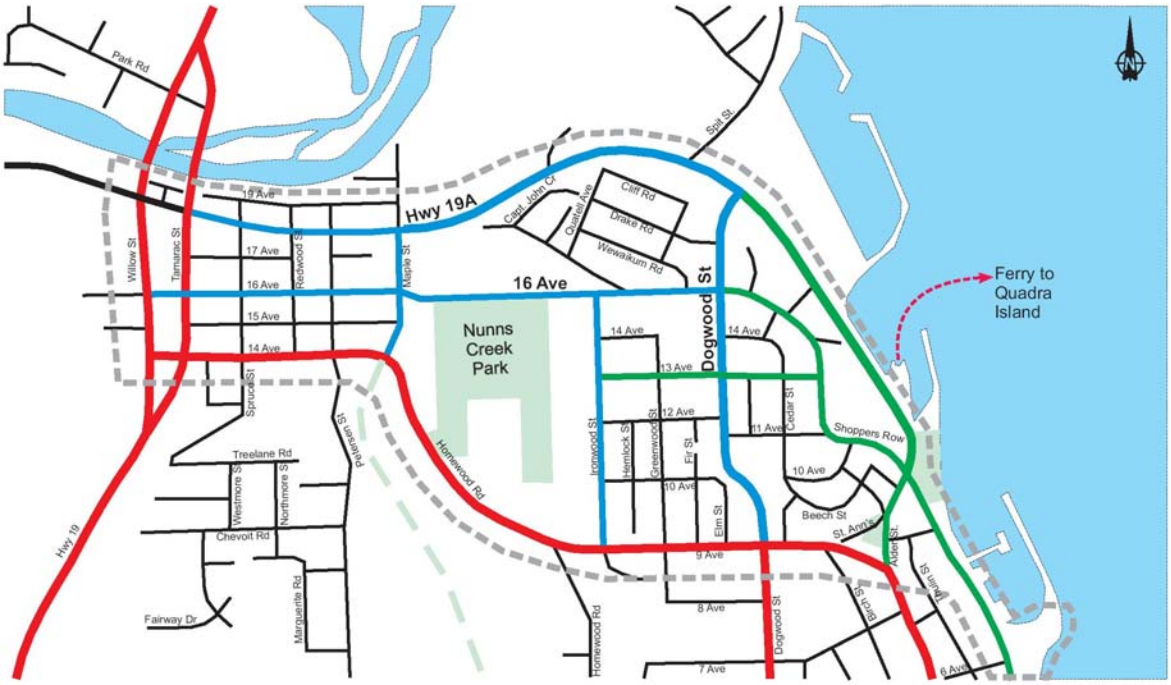
PLAN OPTIONS

Prior to selecting the Preferred Option, 3 preliminary options were developed in order to present a variety of possible futures for Campbell River's transportation network. The three plan options were presented to the Steering Committee at the second of the three Steering Committee meetings and to the public at Open House #2.

The three options are shown as conceptual diagrams below, with brief descriptions following each. The legend applies to all of the options.

LEGEND

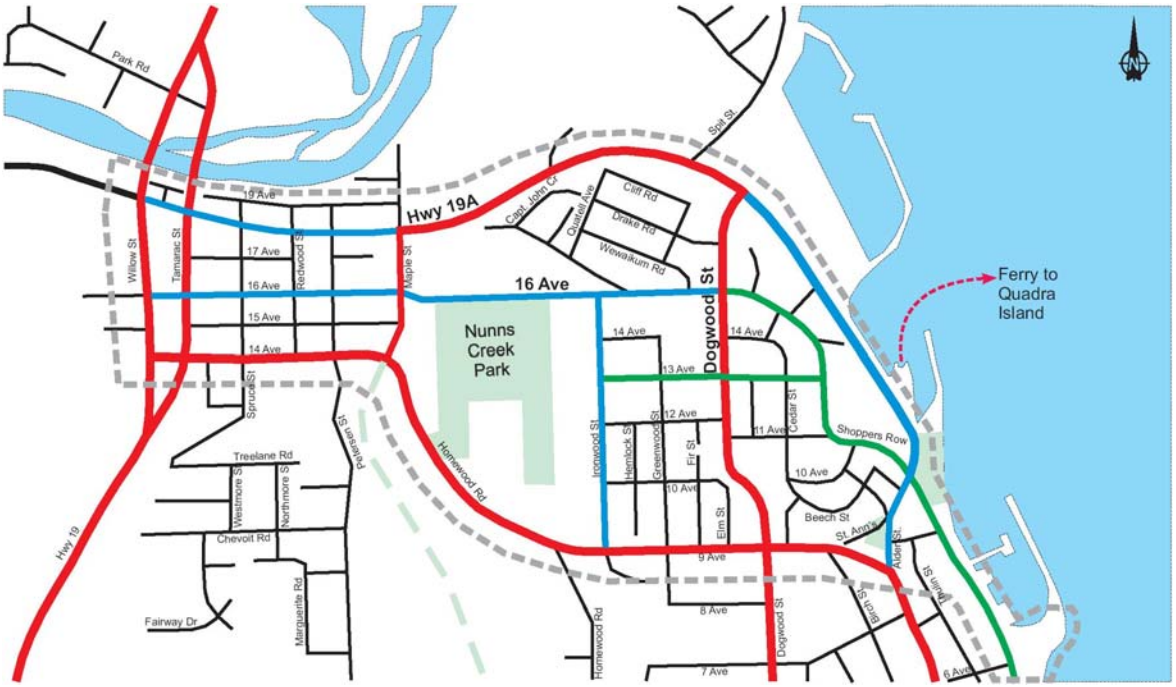
- Arterial Road
- Multimodal Street
- Pedestrian-oriented Street



OPTION A: TAMED STREETS

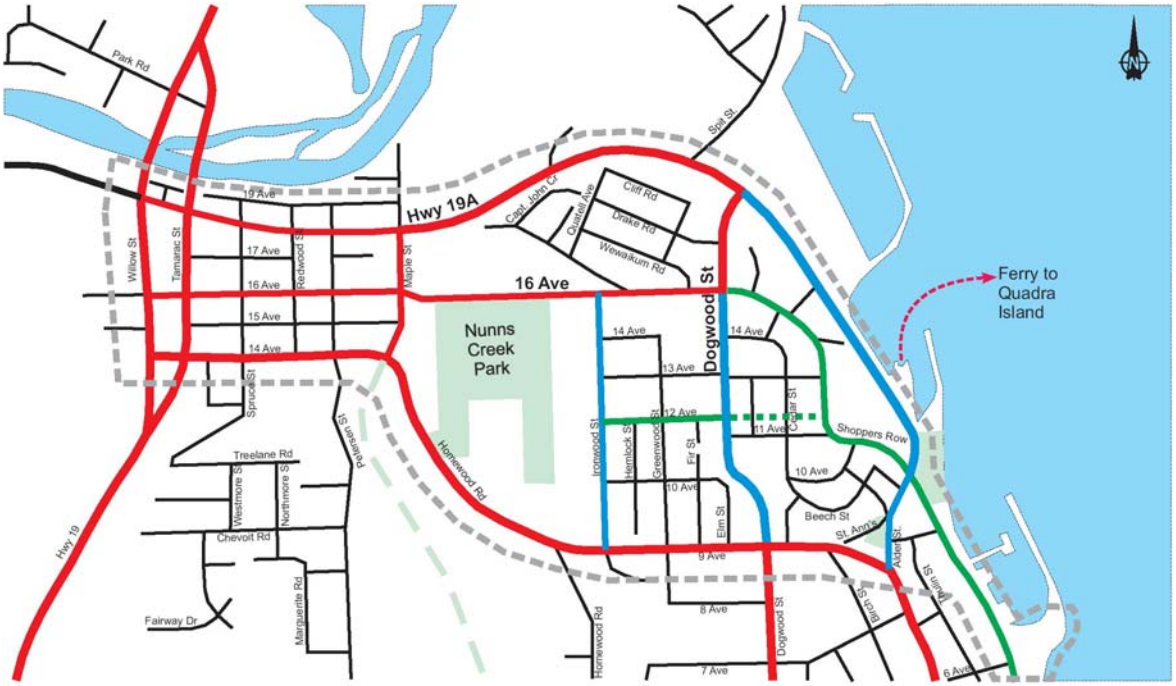
Option A envisioned a Downtown and Campbellton area that would be very pedestrian-friendly, as well as promote cycling and transit use. The primary intention was to significantly reduce traffic that was using the area as a through-route to the highway, while maintaining multimodal access for people traveling into

area. Through traffic would be routed onto the highway at the southern border of the study area via the 14th Avenue/Homewood Raod/9th Avenue corridor, in order to "tame" the streets of the study area, with the Downtown catering to pedestrians.



OPTION B: BALANCED MODES

Option B envisioned a Downtown/Campbellton area that maintained current traffic levels, while improving other modes. This option creates an "access loop" into the Discovery Crescent area where new automobile-oriented development is being planned. The plan envisions 16th Avenue and 19A from Dogwood to Alder Street as multimodal routes.



OPTION C: CURRENT TRENDS

Option C was based upon the current trend of steady traffic growth through the area and prioritizes automobile travel, as well as using the Downtown/Campbellton road network for through traffic, while still creating a more tamed Downtown area. In this option, Dogwood is tamed in order to re-unite the east and west sides of the street.

OPUS HAMILTON

- Traffic Operations
- Transportation Planning
- Road Safety Engineering
- Transit and Sustainability
- Asset Management
- Project Management