5.3.2 Traffic Conditions

The traffic volume data was used to analyze the existing AM and PM peak hour traffic conditions using Synchro software. Synchro is a two part software program that models and micro-simulates traffic conditions. Synchro utilizes the Highway Capacity Manual methodology. The Synchro analysis yields measures of effectiveness – Level of Service (LOS), queue lengths, and delays. LOS is based on the type of traffic control and delay and ranges from LOS A (excellent operations) to LOS F (unstable/failing). Movements at a LOS C or better are considered to be acceptable and reasonable conditions in Parksville. LOS D is considered to be the threshold, particularly at traffic signals, for when improvements should be considered. See *Appendix C* for additional information on Levels of Service.

The AM and PM peak hour conditions are the two highest periods of traffic within the twenty-four hour period and therefore represent the worst conditions. Conditions may remain poor between the peak hours due to higher through volumes on Highway 19A reducing the amount of time / gaps for side street traffic to access Highway 19A; however, they are typically better than the peak hours.

AM Peak Hour (8:00am-9:00am)

The signalized intersections within the City of Parksville operate at a LOS C or better with the exception of the southbound left turn at Highway 19A/Pym Street and the northbound left/through movement at Highway 19A/McMillan Street which are at a LOS D. The unsignalized intersection of Finholm Street/Highway 19A is operating at a LOS D due to the volume of traffic on Highway 19A. All other unsignalized intersections are operating at a LOS C or better in the AM peak hour. Table 4 outlines the movements that are operating at a LOS D/E/F.

Table 4: AM Peak Hour Turning Movements with LOS D or Below

Intersection	Turning Movement	Volume (per hr)	LOS
Highway 19A / Pym Street (signal)	Southbound Left	139 vph	D
Highway 19A / Finholm Street (unsignalized)	Northbound Left	18 vph	D
	Northbound Right	30 vph	D
Highway 19A / McMillan Street (signal)	Northbound Left/Through	79 vph (L)/ 4 vph (T)	D

PM Peak Hour (3:00pm-4:00pm)

In the PM peak hour the signalized intersections with movements at a LOS D are Highway 19A/Pym Street, Highway 19A/McMillan Street, and Highway 19A/Corfield Street. The unsignalized intersections with LOS E/F include Highway 19A/Finholm Street and Highway 19A/Shelley Road.

See **Figure 6** for PM Peak Hour LOS. Table 5 outlines the PM peak hour movements at a LOS D or worse.

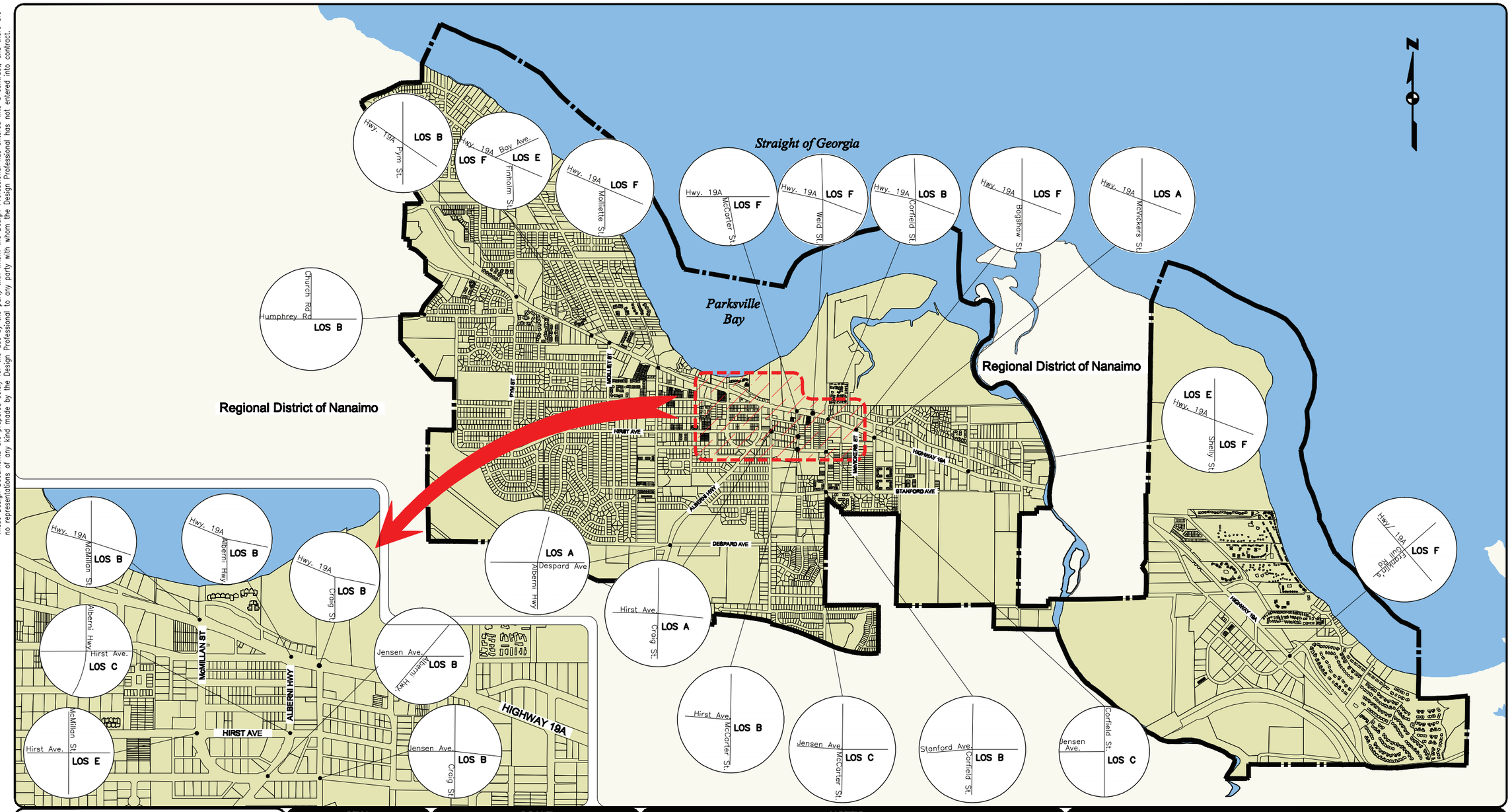
Table 5: PM Peak Hour Turning Movements with LOS D or Below

Intersection	Turning Movement	Volume (per hr)	LOS
Highway 19A / Pym Street (signal)	Southbound Left	120 vph	D
Highway 19A / Finholm Street (unsignalized)	Northbound Left	15 vph	E
	Northbound Right	27 vph	E
Highway 19A / McMillan Street (signal)	Northbound Left/Through	211 vph (L) / 1 vph (R)	D
Highway 19A / Corfield Street (signal)	Northbound Left	3 vph	D
	Southbound Left	38 vph	D
Highway 19A / Shelley Road (unsignalized)	Northbound Left	12 vph	F
	Northbound Through	3 vph	F
	Northbound Right	74 vph	F
	Southbound Left	7 vph	F
	Southbound Right	32 vph	F

5.3.3 Traffic Speeds

Vehicle speed data was collected from the City of Parksville's 2008 traffic count program and the automatic counts undertaken in 2015. This information was collected at the same time as the 24 hour traffic volumes. The 85th percentile speed is the speed at which 85% or vehicles are travelling at or below and typically indicates the running speed on a roadway. The 85th percentile is seen as the speed at which motorists are driving at a reasonable speed for the road geometrics and conditions.

The majority of locations are within 10km/h of the posted speed limit; however there are several locations at 15km/h over the posted speed limit. Locations with 85th percentile speeds greater than 10km/h may be locations where traffic calming measures or changes to the road environment are necessary to bring 85th percentile speeds in line with the posted speed limit. See **Figure 5** and Table 6 for details.



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986	DECEMBER 2016	NK	gs

SEAL

SCALE

NTS

NOTES

1. FOR SIGNALIZED INTERSECTIONS, THE LEVEL OF SERVICE (LOS) SHOWN IS THE OVERALL LEVEL OF SERVICE FOR THE INTERSECTION.
2. FOR UNSIGNALIZED INTERSECTIONS, THE LEVEL OF SERVICE (LOS) SHOWN IS THE LEVEL OF SERVICE FOR THE WORST MOVEMENT AT THE INTERSECTION.

FIGURE 6
2009 PM PEAK HOUR LEVEL OF SERVICE
CITY OF PARKSVILLE TRANSPORTATION MASTER PLAN

REV.

DRAWING FILE: Figure 4 Mar 19-10

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PLOTTED BY: BHollo

Table 6: 2008 85th Percentile Speeds

Location	85th Percentile Speed	Posted Speed Limit
Corfield Street, south of Stanford Avenue	61-65km/h	50 km/h
Church Road, south of Humphrey Road	61-65km/h	50 km/h
Morison Avenue, west of Acacia Street	56-60km/h	40 km/h
Church Road, north of Humphrey Road	56-60km/h	50 km/h
Despard Avenue, west of Alberni Highway	56-60 km/h	50 km/h
Corfield Street, north of Stanford Avenue	51-55km/h	50 km/h
Pym Street, south of Humphrey Road	51-55km/h	40 km/h
Humphrey Road, west of Renz Road	51-55km/h	50 km/h
Stanford Avenue, east of Corfield Street	51-55 km/h	50 km/h
Stanford Avenue, west of Corfield Street	51-55 km/h	50 km/h
Highway 19A, west of Wright Road	74.5 km/h	60km/h
Highway 19A, east of McMillan Road	52.9 km/h	50km/h
Highway 19A, east of Franklin's Gull	78.1 km/h	60 km/h

5.3.4 Short Term Improvements

Based on the above existing traffic operations and anecdotal safety concerns short term improvements were identified to improve traffic conditions.

The following improvements were undertaken between 2010 and 2016:

- Signal review of Highway 19A corridor
- Westbound protected left turn at Highway 19A/Corfield Street
- Signalization of Highway 19A/Shelly Road
- Signalization of Hirst / McMillan Street
- Management of Highway 19A accesses at Finholm (left turn bay), Bay (signal), and Moilliet (signal)

At Highway 19A/Pym Street a protected/permitted southbound left turn phase should be implemented to improve the southbound left turn delays and LOS. At the intersection of Highway 19A/McMillan Street add a northbound protected/permitted left turn phase. The implementation of the phase will improve the LOS at the intersection to LOS C or better. The implementation of the protected/permitted left turn phase may require upgrading of the wiring and/or the traffic controller.

The intersection of Tuan Road and Highway 19A is located immediately east of the signal at Highway 19A/Resort Road. The close proximity of the unsignalized full movement intersection to the signalized intersection creates potential conflicts. The City should restrict access for Tuan Road to right-out only until a long term solution can be implemented.

Based on speeds and volume on Morison Avenue the City may consider undertaking a traffic calming review of the corridor to assess potential options for the corridor

5.4 Traffic Projections

Traffic projections for the 20 year horizon were developed using the Official Community Plan land uses and modelled using VISUM software. VISUM is a macroscopic travel demand modelling software program used for transportation planning. The model utilizes land use data to develop trips through the road network allowing for traffic volume projections.

5.4.1 Zonal Boundaries

The initial stage of the development of the VISUM model for the City is to delineate zones (or areas). The zones for the model were based on the 2001 model and include 92 internal zones (within the City) and 5 external zones.

Land use information from the 2001 model was compared to the 2008 land use to determine the changes in land use.

5.4.2 Future Traffic Conditions

Based on discussions with City staff and a review of previous reports, five long term major network link options were determined. These include:

- 'do-nothing' (keep existing major road network)
- Despard Avenue Extension west to Church Road
- Despard Avenue Extension west to Church Road plus an interchange at Highway 19/Church Road
- Despard Avenue Extension to Tuan Road
- Despard Avenue extended to Church Road and Tuan Road plus the interchange at Highway 19/Church Road

5.4.3 Future Network Link Options

The major network link options that included an interchange at Highway 19/Church Road were eliminated since the location of the interchange would not conform to Transportation Association of

Canada (TAC) guidelines for interchange spacing on rural freeways and therefore would not be supported by MoT.

The network link option of extending of Despard Avenue to link to Church Road and/or Tuan Road would require coordination with RDN and MoT since portions of each extension would be through RDN. A further complication to developing these roads is that multiple agricultural land reserve (ALR) properties would be impacted and applications to the Agricultural Land Commission would be required to designate the right of way. There are no alternative routes that would avoid the ALR properties. The extension towards Tuan Road would also require a second bridge crossing of the Englishman River. Based on the modelling less than several hundred vehicles per hour would utilize the major network links. Based on these factors (cost, environmental impacts, and low volumes) the extension of Despard Avenue to Church Road and/or Tuan Road were deemed to have limited benefits for the cost and impact to ALR lands and the complexity of connecting roads through the Regional District.

Two minor road network links were identified as needed for the long term – the connection of a multi-use path from Beachside Drive to the Community Park, and the realignment of Tuan Road at Highway 19A. The Beachside Drive connections to the Community Park will provide an alternative pedestrian and bicycle corridor to Highway 19A. Tuan Road currently connects to Highway 19A immediately east of the signal at Highway 19A/Resort Road. This intersection adjacent to a signalized intersection creates potential conflicts between turning vehicles at the unsignalized intersection and through vehicles at the traffic signal. The City should work towards obtaining right-of-way to realign Tuan Road to create a four legged intersection at the traffic signal as a long term minor network link.

The Jensen Avenue extension is not required based on existing or projected traffic volumes. Traffic flows will remain similar on Highway 19A with and without the extension in the long term. The City does currently own the right-of-way for this potential extension. The right-of-way should be maintained by the City and should be utilized as a multi-use trail link.

5.4.4 Downtown Road Network

A working paper was developed for the downtown road network in Parksville (*Working Paper on Downtown Road Network Review* dated: March 30, 2010). The working paper outlines the options reviewed for the downtown network (Highway 19A and Jensen Avenue) – maintaining existing Highway 19A and Jensen Avenue laning, reducing Highway 19A to two travel lanes, and creating a one way couplet with Highway 19A one way westbound and Jensen Avenue one way eastbound. Each option was reviewed based on a technical assessment through modelling, parking, pedestrian and

cycling connectivity, impacts to side streets, vehicle exposure and cost. The conclusion of the review was the existing four lanes on the Highway were the best option. For more details see the *Working Paper on Downtown Road Network Review* dated: March 30, 2010.

5.4.5 Highway 19A Cross Section

The section of Highway 19A between Bay Street and east of Pym Street is a two lane cross section; however, on either side of this section the highway is a five lane cross section (two travel lanes per direction plus median/turn lanes). To provide continuity in the road network, reduce number of merges, increased capacity, and dedicated left turn lanes at key intersections this section of Highway 19A should be upgraded to a five lane cross section. In the short term left turn lanes should be added to increase the cross section to three lanes as was completed at Finholm Avenue / Highway 19A. Property is required along the corridor to complete the widening to the five lane cross section. The City should acquire property along the corridor as development occurs.

5.4.6 Future Intersection Improvements

Although no major network links are proposed for the long term conditions, minor network links and intersection improvements will be required over the next 20 years as traffic volumes increases with changes in land use. The following intersection improvements should be planned for:

- Implementation of a four way stop at Hirst Avenue/Alberni Highway
- Implementation of a single lane roundabout (or traffic signal and associated turn lanes) at Jensen Avenue/Craig Street
- Implementation of a single lane roundabout (or traffic signal and associated turn lanes) at Jensen Avenue/Corfield Street
- Implementation of a northbound protected/permitted left turn phase at Alberni Highway/Despard Avenue
- Provide a multi-use connection from Beachside Drive to the Community Park that may or may not include vehicle access
- Re-align Tuan Road at Highway 19A to connect to Resort Road (requires redevelopment)

See Section 10 (Implementation Plan) for details on when these improvements need to be implemented.

5.5 Roundabouts

The City of Parksville currently has one roundabout within the city limits that was installed, in support of a new subdivision, at Church Road / Humphrey Road. Properly designed and implemented roundabouts operate safer than conventional intersections (signals, two and four way stops) due to

reduced speeds and significantly lower conflict points. Collisions in roundabouts are typically side swipes or right turn collisions. These types of collisions are typically less severe than other types (head on, left turns, etc.) The lower speeds on the approach and through a roundabout also reduce the severity of collisions and allow for cyclists to safely integrate with motor vehicles.

Typically roundabouts operate more efficiently than traffic signals since vehicles yield upon entering rather than having to stop at a traffic signal (even if there are no vehicles on the adjacent street). While there are decreased speeds through a roundabout, overall traffic typically spends less time traversing the intersection compared to a traffic signal where vehicles may be required to stop (when light is red) even if there is no traffic on the adjacent street. Roundabouts are better able to adapt to time of day traffic fluctuations compared to a traffic signal. Less stop and go traffic (more continuous movement) relates to a decrease in carbon and general emissions due to reduced idling at intersections.

Examples of Roundabouts in North Cowichan, BC

Roundabouts allow for crosswalks on all legs of the intersection and allow pedestrians to cross one lane of traffic at a time with a splitter island refuge to stop and observe the next lane of traffic. Cyclists are accommodated by integrating with the vehicle traffic, which is travelling at similar speeds to the cyclist, while travelling through the roundabout.

Roundabouts also provide an opportunity to landscape and beautify an intersection and create a gateway to an area. Roundabouts can be more expensive to implement than traffic signals during construction; however, the long term maintenance costs are typically lower as there is no need for signal installation and maintenance.

Roundabouts require more right of way at the intersection of two roads compared to traffic signals, but they generally require less on the approaches due to the lack of turn lanes. Typical inscribed diameters

for single lane roundabouts are between 35m and 46m. For two lane roundabouts the inscribed diameter ranges from 45m to 60m.

5.5.1 Roundabout Policy

Roundabouts are not recommended to replace an existing signalized intersection unless significant changes are proposed for the intersection. In this situation, a cost-benefit analysis would need to be undertaken to determine if the upgrade/replacement of the signal is better than implementing a roundabout.

For unsignalized intersections a roundabout review should be undertaken for any intersection proposed to be signalized. The review should include an evaluation of traffic operations (comparison of delays, queues, and emissions), geometrics (number of lanes, grades, inscribed diameter, entries and exits), drainage, right of way identification and cost for a roundabout or a signal. This analysis would include determining the capacity of single lane roundabout, multi-lane roundabout, and a traffic signal at a location. Based on a review of each location, the ability to provide a roundabout will be identified. Depending on the location signals may be a preferred option to a roundabout based on capacity, property, sightlines, and grades. Many existing intersections may not have sufficient right of way to accommodate a roundabout without property acquisition.

5.6 Traffic Calming

Traffic Calming has been described as "mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behaviour and improve conditions for non-motorized street users." Streets are modified to create a driving environment that encourages appropriate vehicle speeds, discourages cut-through traffic and makes walking and cycling more comfortable and safe. Traffic calming measures are aimed at motor vehicles but should not negatively impact pedestrians, cyclists, transit or emergency and service vehicles.

The number of requests received by the City for traffic calming have been increasing; therefore the City established and formally adopt a traffic calming policy in 2016.

5.7 Safe Routes to School

In 2014, School District 69 closed Parksville Elementary and Winchelsea Elementary Schools and converted Springwood Middle School and Oceanside Middle School to K-7 elementary schools. Ballenas High School is now for grades 8-12.

Safety of school children is a priority for parents, schools, and municipalities. The provision of safe pedestrian and bicycle infrastructure facilities within close proximity to schools is important and will encourage students to use alternative modes of transportation. Encouraging students to use alternative modes of transportation at an early age may impact transportation choice behaviours in the long term. Another benefit of alternative transportation use is in the reduction of vehicles picking up and dropping off at schools. Reducing the number of vehicles will improve the level of safety for students who are biking and walking, and lower the level of vehicle emissions.

The '*Way to Go!*' school program for elementary and middle schools should be developed for all schools in Parksville. A resource kit is available through ICBC for schools and parent advisory committees. The resource kit includes a manual on collecting data on the number of students bicycling, walking, or being driven, mapping exercises to identify hazards and safe routes, how to determine the best routes to school, information on how to integrate pedestrian and cycling education into the classroom. Also included in the program are safe transportation ideas from other communities and programs and suggested activities to encourage involvement by students, parents, and teachers. The development of safe routes to school plans for each school will help the City identify the need for improvements near schools. These improvements may include improved off-street parking / pick-up areas, better bicycle facilities, and sidewalks and crosswalks to provide connectivity to the schools. Traffic counts in the areas of the schools should be undertaken, post 2014, to identify current traffic patterns / changes in traffic patterns due to school closures.

6.0 BICYCLE AND TRAIL NETWORK

Bicycle use is an environmentally, socially and economically viable alternative to automobile travel. Bicycles offer additional mobility options for those looking for an economical alternative and can cover fairly significant distances while being virtually carbon-zero. Bicycling offers health benefits to users, while being a relatively safe travel mode when operated on designated routes. Bicycles are highly flexible, allowing users to choose from a variety of routes and with the possibility of combining with other travel modes such as transit, vehicles, walking, etc. In order to promote bicycle use, it is necessary to ensure appropriate infrastructure is provided. This section of the master plan identifies bicycle infrastructure and programs to encourage Parksville residents and tourists to cycle. See **Figure 7** for the Bicycle Network Plan. This plan outlines the existing and proposed bicycle facilities within Parksville.

6.1 Existing Conditions

Within the City of Parksville there are limited existing designated bicycle lanes. Bicycle lanes have recently been added to Highway 19A, east of Shelly Road and for 2km on Temple Street. Bicycle lanes are also in place along Stanford Avenue, Despard Avenue, Hirst Avenue, Pym Street, Renz Road, Stanhope Road, McMillan Street, and Moilliet Street.

Several multi-use paths have been constructed within Parksville including, the waterfront pathway, Despard Avenue and Franklin's Gull Way to the beach.

6.2 Proposed Bicycle and Trail Network

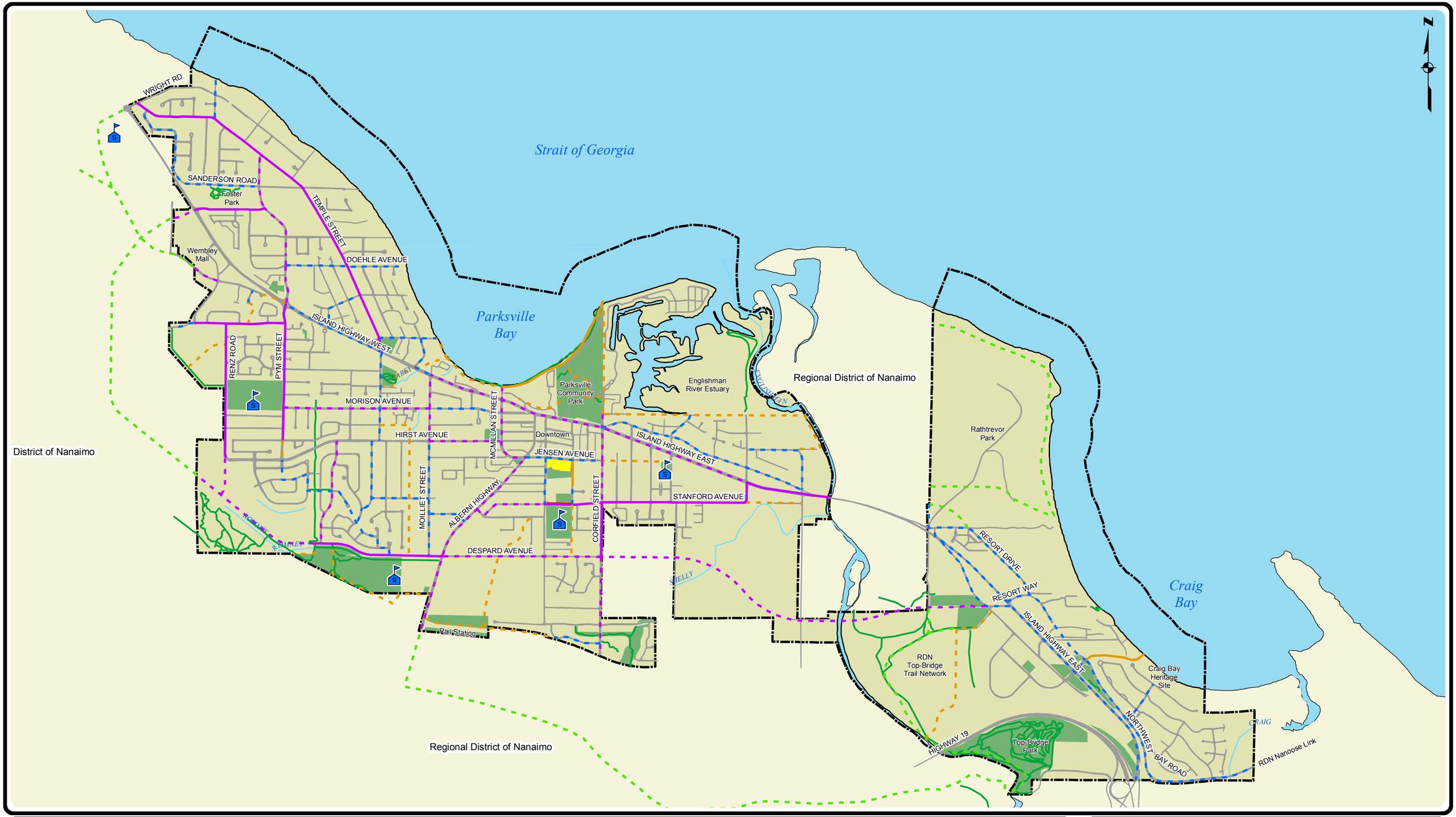
Three types of bicycle facilities are proposed for the City of Parksville:

i) designated bicycle lanes

ii) bicycle routes

iii) multi-use trails

The City's intent with the bicycle network is to create primary east-west and north-south routes to allow cyclists to travel through the City. Secondary routes are provided to key destinations such as the Community Park, Downtown Business area, the Resort Area, the Industrial Park area, and residential areas. Route planning considered existing parks and trails within the City and RDN. Continued planning and connections between trails and the bicycle network should be made as additional trails are added; especially those at the municipal boundaries.



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File	Date	Drawn
#986	DECEMBER, 2016	MP

Legend

- Existing Bicycle Lanes
- Proposed Bicycle Lanes
- Proposed Bicycle Route
- Existing Multi-Use Trail
- Proposed Multi-Use Trail
- RDN Trails
- Existing Trails
- School
- Parks
- Institutional

Scale

0 0.225 0.45 0.9 km

City of Parksville

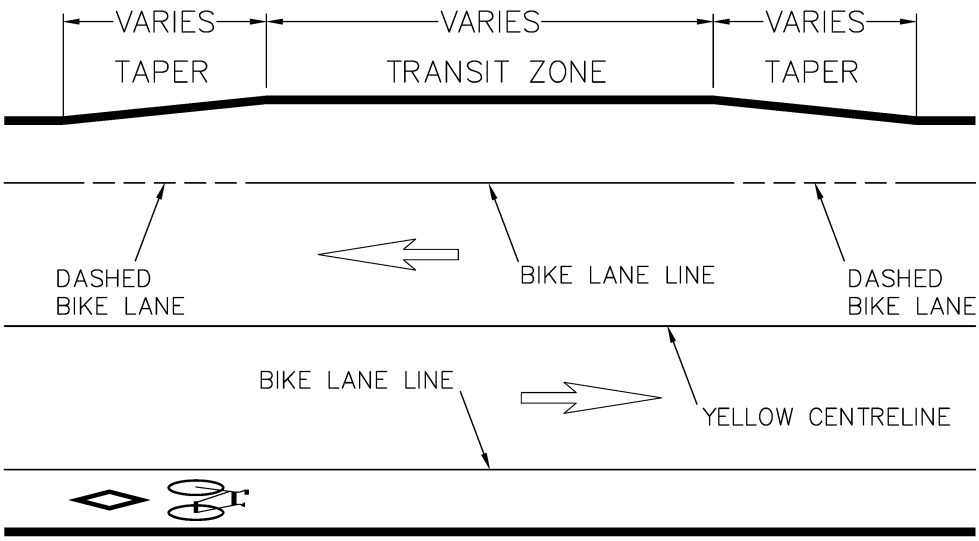
Title

FIGURE 7: BICYCLE NETWORK

CITY OF PARKSVILLE TRANSPORTATION MASTER PLAN

6.2.1 Bicycle Lanes

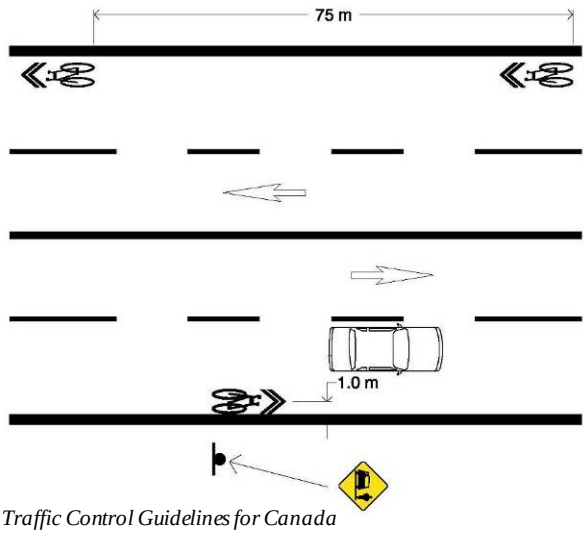
Designated bicycle lanes are a 1.5m to 1.8m lane adjacent to the curb or edge of the road that is striped, signed, and marked for bicycle use. Bicycle lanes are proposed for arterials where traffic volumes are highest and there is room to accommodate both vehicles and bicycles. Additional bicycle lanes are proposed along collector roads and several local roads to provide a connective bicycle lane network. Typically these routes are utilized by commuter cyclists.



Typical Paint Markings for Bicycle Lanes ***Source: Bikeway Traffic Control Guidelines for Canada***

6.2.2 Bicycle Routes

Bicycle routes are proposed to support the bicycle lane network and provide connections between the bicycle lane network and the multi-use trail network. Bicycle routes will be routes marked with signs, stencils and/or sharrows. Sharrows are a shared-use lane marking/stencil that indicates the intended area of travel for cyclists. Sharrows consist of two white chevron markings with the bicycle symbol. Shared lanes are typically 4.2 to 4.3m in width. Bicycle routes are proposed for Doehle Avenue, Sanderson Road, Jensen Avenue, Craig Street, Pioneer Crescent, Turner Road/Martindale Road, Community Park, Highway 19A east of Rath Road / Grieg Road, Resort Drive, Industrial Way/Tuan Road, Morison Avenue, and Northwest Bay Road. These routes are meant for commuters and recreational users.



Source: Bikeway Traffic Control Guidelines for Canada

6.2.3 Multi-use Trails

The City's *Parks and Open Space Master Plan* identified existing and proposed multi-use trails. The bicycle lanes and bicycle routes, together with the multi-use trails create a comprehensive and connected network for bicycles to travel throughout the City. An engineering feasibility study is being undertaken to understand the challenges of creating a multi-use trail between the Community Park and Rathtrevor Provincial Park. This project requires right-of-way permission to cross RDN property (San Pareil), a pedestrian bridge across the Englishman River Bridge as well as an agreement with the provincial park for access.

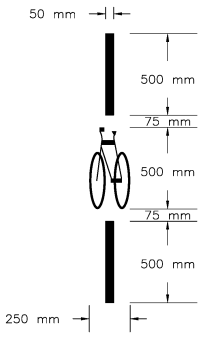
The three types of bicycle facilities provide safe environment for all types and levels of cyclists.

6.3 Additional Bicycle Improvements

The provision of bicycle lanes and routes is a key starting point in providing for cyclists within a community; however, additional measures should be implemented to provide a better cycling environment and to encourage cycling over the use of single occupied vehicles.

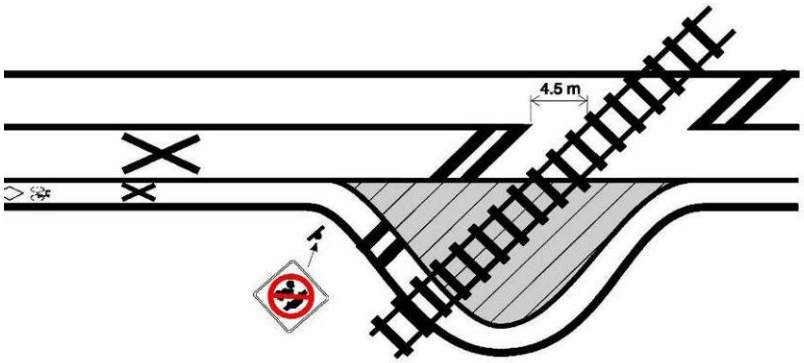
6.3.1 Bicycle Detection at Traffic Signals

Bicycle detection marking uses a line with a bicycle symbol to identify the most sensitive area of detection on a *signal actuation loop* where a bicycle will activate the traffic signal if no vehicles are present.



6.3.2 Railway Crossings

There are two locations within the City of Parksville where railway tracks cross a road (Highway 19A at Craig's Crossing Interchange, and Alberni Highway). Railway tracks create a significant hazard for cyclists if cyclists do not cross the tracks at a 90 degree angle. When crossed at an angle other than 90 degrees bicycle wheels can easily slip into the gap of the tracks causing injuries to cyclists and damage to bicycle wheels. Therefore the bicycle lanes at the two railway crossings require extra care in the design process and extra emphasis on pavement markings and signage.

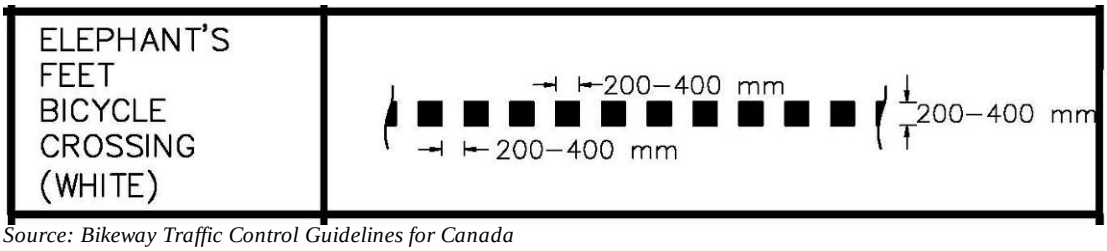


UNRESTRICTED RIGHT-OF-WAY WIDTH - NO GATE

Source: Bikeway Traffic Control Guidelines for Canada

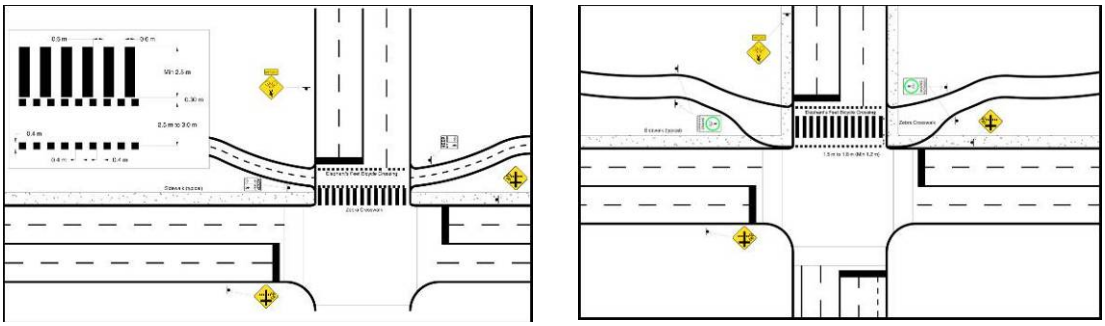
6.3.3 Multi-use Trail Crossings

The TAC *Bikeway Traffic Control Guidelines for Canada* recommend that 'elephant's feet' paint markings be used to identify bicycle crossing locations. These paint markings can be placed on either side of a marked crosswalk or parallel, on one side, to the marked crosswalk.



Source: Bikeway Traffic Control Guidelines for Canada

For multi-use trail crossing signalization guidance (for both the intersection and midblock applications) the TAC *Traffic Signal Guidelines for Bicycles* should be referenced.



Examples of Bicycle Pavement Markings at multi-use trail crossing (unsignalized intersection) *Source: Bikeway Traffic Control Guidelines for Canada*

6.3.4 Bicycle Parking

Bicycle parking facilities are a major factor in choosing bicycling as a mode choice. If a potential bicycle rider is unable to securely park their bicycle, they are less likely to cycle. In addition to the provision of parking, it is essential that bicycle parking facilities offer an element of comfort, including being well-lit and protected from weather. Bicycle parking is typically provided as part of a private development and/or may be provided by the municipality in appropriate public places. Existing commercial destinations should be encouraged to provide short and long term bicycle facilities. Additional bicycle parking at the PCTC would be a benefit as this location has the bus exchange as well as City Hall, School District and Vancouver Island University staff and students as well as the community library.

Long Term Parking

Class I parking facilities are intended for bicycle users parking a minimum of four (4) hours, typically residents of a residential development, employees of a commercial development or transit users. Class I parking must be fully secure and weather protected, as the bicycle may be unattended for a long period of time. Each bicycle must be independently accessible and securable, and an enclosure should provide protection from theft and damage to both the bicycle and its accessories. There are two types of Class I parking – secured rooms/cages and bicycle lockers. Typically secured rooms/cages are utilized in multi-family and commercial developments within underground parking lots or a room within the building. Bicycle lockers can utilize locks (provided by user) or on a swipe card/user pay system if in a public location (ie. transit exchange). As the bus stops at Jensen Avenue/Craig Street are proposed to become the downtown transit and shuttle exchange location the addition of user pay bicycle lockers would be a significant benefit to both transit users and employees/visitors to the Parksville Civic and Technology Centre.

Example of Secured Room/Cage

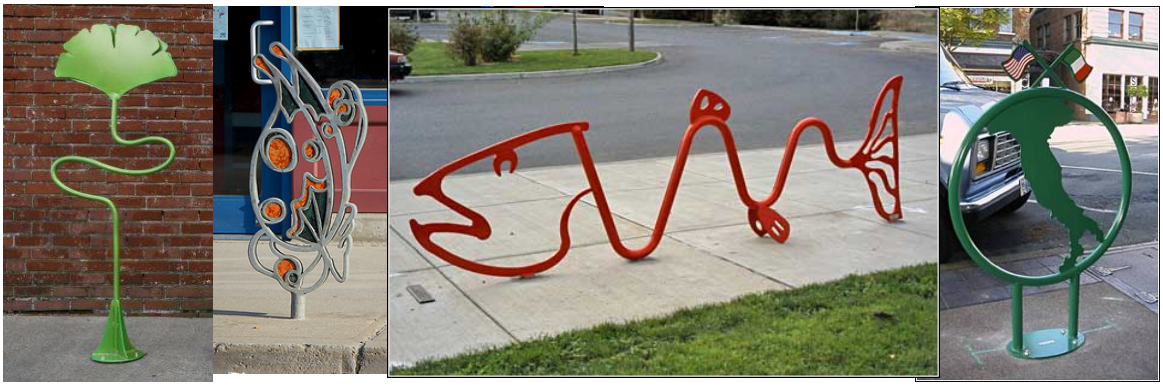
Example of Bicycle Lockers

Short Term Parking

Class II facilities are intended for short-term users, typically visitors and customers, and are not meant to accommodate bicycles overnight. They should provide theft protection to the bicycle and core components (ie. frame, wheels, etc.), but do not protect from theft of accessories such as a pump or water bottle. Class II facilities are not required to be weather protected. Facilities should secure a bicycle in such a way as to not damage the frame and wheels, and must permit both the frame and wheels to be locked by the users own locking device. Class II facilities should be located no more than fifteen (15) metres from the building entrance.

Within the downtown core of Parksville there is limited visible bicycle parking. Bicycle parking was found on Alberni Highway and within the Community Park. Additional Class II bicycle parking should be provided within the downtown core to encourage the use of cycling. Key locations to provide bicycle parking include recreation areas and parks, Parksville Civic and Technology Centre, coffee shops, schools, Stedmans, and SOS Thrift Shop. The design of these bicycle parking racks could be inspired by an existing theme on the Alberni Highway or one that represents Parksville. The options for bicycle rack design are endless and can be more than the standard triangles and circles. Examples and best practices for bicycle parking can be found in *Bicycles at Rest* by John Luton and *Bicycle Parking Guidelines* by the Association of Pedestrian and Bicycle Professional.

Existing Bicycle Racks in Parksville – Hwy 19A/Bagshaw (Eat Fresh), Community Park and Alberni Highway



Examples of Bicycle Racks which are designed to reflect a theme

6.3.5 Bicycle Parking Requirement

The City of Parksville's Zoning Bylaw does not currently require developers to provide off street bicycle parking. The City's bylaw should be amended to require class I and class II parking stalls as part of a new or re-developed site. The bylaw should require a development application to include details indicating the size of Class I and Class II parking facilities, as well as specifications for the fixtures and security measures. See the *Core Area Parking Study* for suggested bicycle parking requirements.

Shower/change facilities remove one of the primary barriers to bicycle commuting, which is that business attire is not conducive to cycling. Shower facilities and change areas for employees could be a negotiated condition of approval for new retail and office developments with more than ten (10) employees.

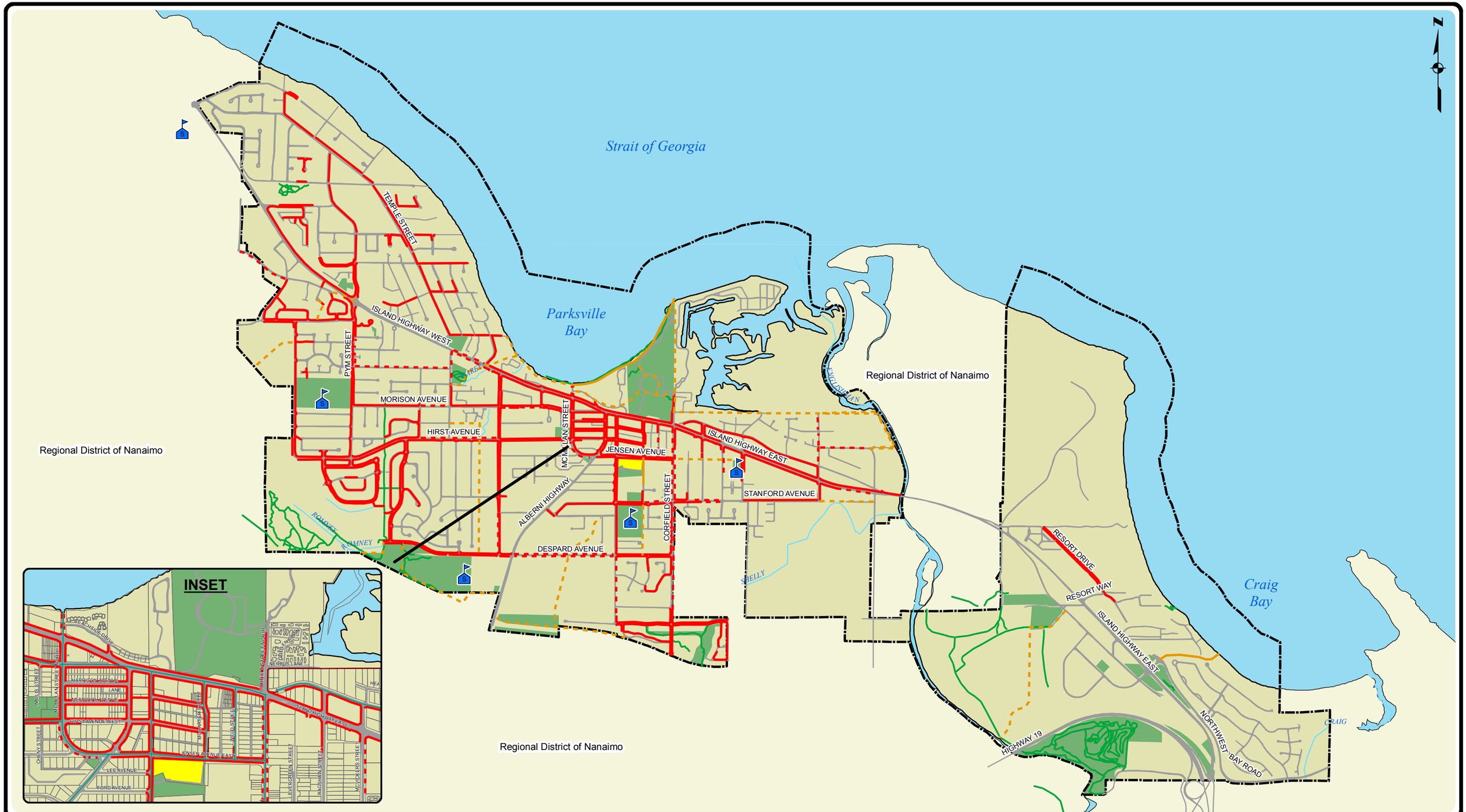
7.0 PEDESTRIAN NETWORK

Walking is a healthy, environmentally friendly, inexpensive mode of transportation, which the majority of people do on a daily basis whether it is walking to work, walking to catch a bus or walking from a vehicle to the store. The walking environment informs people's opinions on what mode they will choose and where they are willing to park and walk. Wide sidewalks with room to walk, benches to sit on, and/or enjoy a stop at the coffee shop, and boulevards that separate pedestrians from the roadway provide an inviting, walkable atmosphere. See **Figure 8** for the Pedestrian Network Plan.

Existing sidewalks within Parksville are mainly located within the downtown core, the Despard Avenue/Hirst Avenue/Pym Street area, Moilliet / Morison area, and newer subdivisions (ie. Maple Glen). Eighty percent (80%) of Highway 19A has sidewalks. The majority of these sidewalks are 1.5m in width and in varying condition. However, the City has already begun to provide wider sidewalks within the core area with the Jensen Avenue and Alberni Highway upgrades. Additional improvements have been made along McMillan Street and Temple Street. The waterfront walkway extends from the McMillan Street sidewalk along the waterfront to the Community Park.

Examples of Wider Sidewalks on Jensen Avenue and Alberni Highway

Example of Decorative Sidewalk on McMillan Street



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File	Date	Drawn
#986	DECEMBER, 2016	MP

Legend

- Sidewalk (Existing)
- Sidewalk (Proposed)
- Multi-Use Trail (Proposed
- Multi-Use Trail (Existing)
- Trails (Existing)
- School
- Parks
- Institutional

Scale

0 0.225 0.45 0.9 km

City of Parksville

Title

FIGURE 8: PEDESTRIAN NETWORK

CITY OF PARKSVILLE TRANSPORTATION MASTER PLAN

Example of sidewalk separated from the travelled roadway. (Memorial Avenue)

Wide boulevard allows for the sidewalk to remain at the same elevation, while the driveway drop is within the boulevard width.

Examples of driveway drops within sidewalk (difficult for mobility challenged to navigate) and obstacles within the sidewalk which further narrow the 1.5m sidewalk. Corfield Street (Left); Craig Street (Right)

7.1 Proposed Routes

While the City has sidewalks within downtown, there are areas of the downtown where sidewalks simply stop, forcing pedestrians to travel on gravel shoulders, dirt paths or if mobility challenged onto the roadway. The lack of connectivity and safe walking routes on some streets is encouraging people to drive to destinations within downtown rather than walking. Upgrades for these disconnected pedestrian routes should be a high priority. Key routes for sidewalk upgrades include Corfield Street, Morison Avenue (proposed safe route to school), and Despard Avenue.

The proposed pedestrian network plan identifies the areas where sidewalks should be implemented as well as the location of existing sidewalks. Sidewalks should be provided along all new urban development frontages when a site is developed regardless of when the sidewalk is proposed to be improved. Internal linkages within new developments should also be a priority.

7.2 Pedestrian Realm Design Considerations

Important considerations for the pedestrian realm include design elements to ensure the environment is attractive, safe and accessible. The following is a series of design guidelines that the City should incorporate into the design of pedestrian facilities.

7.2.1 Sidewalk Width

Sidewalks within the downtown core and areas of higher pedestrian activity are recommended to be a minimum of 2m and ideally 3m wide. To allow for two-way wheelchair passage a 2.4m width is required. In areas of lower pedestrian activity sidewalks should be a minimum of 1.8m and wider where possible. If benches, trees or other features are to be incorporated into the sidewalk area then the sidewalk may need to be widened to ensure a minimum of 1.8m to allow for two pedestrians to pass each other. Pedestrian friendly control joints are recommended for use as they reduce bumps and noise for wheels, wheelchairs, scooters, and strollers.

7.2.2 Safety

The pedestrian realm must be designed for safety and security. Pedestrian safety means protecting pedestrians from vehicle conflict, but it also means designing a built environment that reduces incidences of crime and the perception of crime. Fundamental built environment elements, such as natural surveillance, lighting, as well as programming and maintenance, are key is this regard. This also includes the City implementing new methods to prevent sidewalk vertical separation from occurring to prevent tripping hazards. The City has also implemented an Active Sidewalk Maintenance program to monitor hazards in the sidewalks.

7.2.3 Connectivity

A key element of this transportation study is to identify and improve connectivity throughout the community. A major component of this connectivity is linking the downtown area with the Community Park (as per the *Downtown Revitalization Strategies* report). The Community Park is a valuable asset to the City of Parksville and draws a significant number of tourists and visitors to the community. The Community Park is located approximately 6m (or 2 storeys) below Highway 19A and the downtown area. This difference in elevation makes the two areas seem disconnected even though there is less than 700m (horizontally) between the waterfront and the downtown area. Current options to access the waterfront from downtown lack connectivity and wayfinding signage. North-south options to access the waterfront include McMillan Street, a pedestrian path along the east side of the Beach Club, a stairway from baseball fields to McCarter Street, and a sidewalk along Corfield Street. The path along the east edge of the Beach Club is a starting point to connectivity; however signage is required to inform pedestrians that they can utilize the path. In addition, this path does not

connect to Highway 19A or any crossing point to access downtown. Additional north-south paths through the waterfront properties between McMillan Street and the Community Park should be obtained by the City. These paths need to be connected to Highway 19A at Alberni Highway through the City's lands. A strong pedestrian link through the City's lands would connect downtown to Beachside Drive and allow pedestrians to choose a path to the waterfront depending on their destination. This pedestrian connection should take into consideration the significant grade difference at the location and accessibility requirements for the physically challenged. Alberni Highway is the ideal location for a pedestrian connection between downtown and the waterfront as Alberni Highway is the 'centre' of downtown; however, if alternative properties become available for pedestrian access they should be considered. The stairway at McCarter Street should be improved to include wayfinding signage for tourists. As Beachside Drive extends from McMillan Street to the Community Park pedestrian facilities should be included to provide a second east-west connection through the waterfront area.

Improving connectivity of the pedestrian network is one method to encourage walking as a travel mode. The more pedestrian connections available the more convenient walking becomes compared to driving. Connectivity is measured by a ratio of intersections to links. Increasing the number of links increases connectivity. Pedestrian connectivity should be increased in Parksville by providing mid-block connections on properties that allow it, particularly in areas of high density and high pedestrian volumes. Connectivity is also improved by improving existing walking routes along streets with sidewalks. These areas are identified by worn paths along the road.

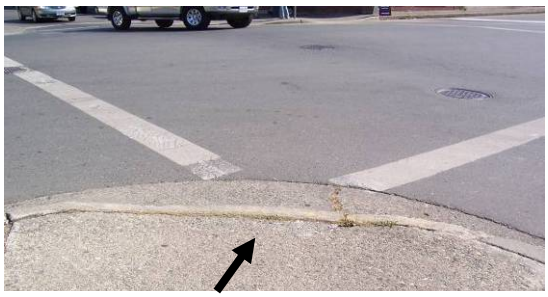
7.2.4 Accessibility

Accessibility refers to the provision of infrastructure that is accessible to all users, including those with physical, visual and other disabilities. Disabled users require specific design features to allow them to fulfil all their trips without compromise to safety or mobility. The Canadian Standards Association provides standards for accessibility in *CSA-B651-04 Accessible design for the built environment*. The City should always consider accessibility (as per the CSA standards) in their design of pedestrian infrastructure, including:

- Tactile surface marking to aid navigation by visually-impaired users
- Letdowns at road crossings to permit wheelchair access
- Minimum sidewalk clearings acceptable for two-way wheelchair passage (2.4m) in the downtown
- Location and design of street furniture to permit use by all users
- Keep grades of paths at less than 5% where possible

There are numerous locations within the downtown area where the existing pedestrian letdowns are too narrow for wheelchairs, too steep for mobility challenged, there is an elevation difference between the edge of the curb and the asphalt, there is no curb letdown to access the sidewalk, and/or direct pedestrians into the middle of an intersection. The City should inventory these locations and upgrade the letdowns to allow all users safe access. The City has been moving towards smooth let-down transitions being used at mountable curb locations in subdivisions.

Elevation difference between curb and gutter



Narrow, steep letdown that directs pedestrians into the intersection

Example of a safe accessible letdown

The City now incorporates audible signals and wheel chair accessible sidewalk letdowns along with suitably graded sidewalks (for accessibility) and pedestrian friendly sidewalk control joints in all new projects. The City also liaises with local advisory groups, to gain insight into problem areas and issues, on a regular basis.

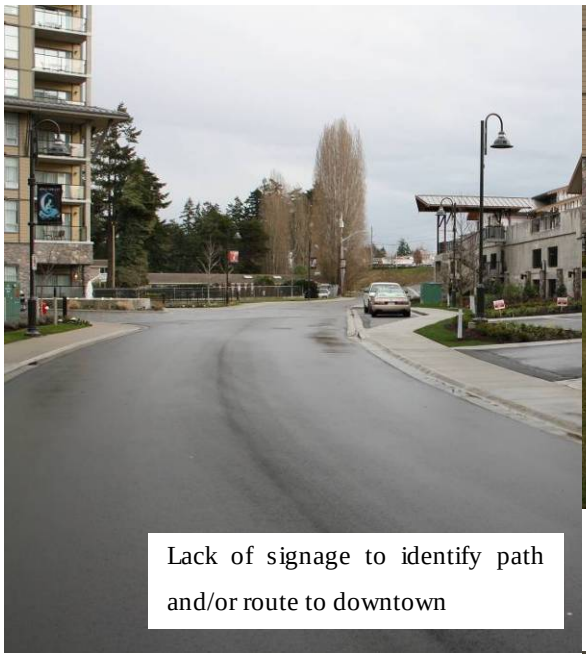
7.2.5 Signage/Wayfinding

The City has started a wayfinding / signage program that directs motorists to key destinations and parks. This program should be continued and expanded to include key pedestrian routes. This signage should be on a smaller scale than the signage for motorists. Signage to guide pedestrians to the location of popular pedestrian destinations, typically civic or institutional destinations, should be

added. Signage should be in keeping with established signage themes for the City and should be consistent throughout the pedestrian network.

Examples of Wayfinding Signage to Parks in Parksville

Wayfinding may employ such vague elements as distinctions in colour or materials to guide users. It can also use specific treatments for specific objectives, such as tactile patterns to guide visually-impaired users or audible indicators to guide the deaf. The City should build on and incorporate wayfinding elements from the *Downtown Revitalization Strategies* report into the pedestrian realm to ensure that as the pedestrian network expands it includes appropriate signage/wayfinding.



Lack of signage to identify path and/or route to downtown

Pathway lacks wayfinding elements and signage that make it feel like a public path

7.3 Crosswalk Warrants

Crosswalks are an integral part of the pedestrian network. Consideration for crosswalks within the downtown area may be different from the areas outside of the core area. All intersections are legal crossing locations, whether they are unmarked or have a higher level of crossing control (ie. signed and marked). The warrant criteria in the *Pedestrian Crossing Control Manual for BC* should be used to determine the type of crossing at an intersection or mid-block location. The manual's warrant utilizes pedestrian type (children, adults and seniors/disabilities) and volumes, crossing opportunities (number of safe gaps in traffic for pedestrian to cross), and an adjustment for community population to determine the level of crossing.