

OAK BAY ACTIVE TRANSPORTATION STRATEGY

District of Oak Bay, BC

Prepared by Boulevard Transportation Group
12 September 2011



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12 September 2011

District of Oak Bay
2167 Oak Bay Avenue
Victoria, B.C. V8R 1G2

Attn: John Herbert, Councillor

Re: OAK BAY ACTIVE TRANSPORTATION STRATEGY

Dear Sir,

Boulevard Transportation Group Ltd. is pleased to present here within the Oak Bay Active Transportation Strategy, which sets forth a vision and recommended strategies toward facilitating increased use of active travel modes in Oak Bay.

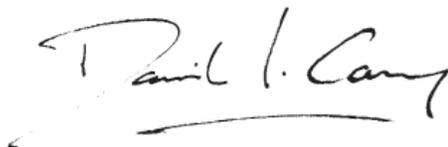
We believe that Oak Bay is a desirable residential community with a high-level of walkability. It is our hope, through this document, that the District can continue to build on its strengths and develop an active transportation network that accommodates all modes equally in a safe, comfortable, and efficient manner. We thoroughly enjoyed the opportunity to work with District council and staff in developing this document. We hope that it meets your needs and expectations.

Should you have any questions or concerns regarding this document, please do not hesitate to contact me directly.

Yours truly,

BOULEVARD TRANSPORTATION GROUP LTD.

per,



Daniel Casey, MCIP, M. Plan
Transportation Planner

Executive Summary

The District of Oak Bay, with the assistance of Boulevard Transportation Group, have developed the Oak Bay Active Transportation Strategy. This strategy seeks to build on already strong active transportation conditions in Oak Bay by identifying routes, facilities, programs, and regulations that facilitate an increase in active transportation and work toward creating a safer, healthier, more sustainable community.

Active transportation refers to any human powered travel mode. It typically refers to walking and cycling, but also considers options that support active travel, such as transit. The benefits of increased active transportation are as follows.

- Improved community health;
- Reduced greenhouse gas (GHG) emissions;
- More equitable spending on transportation infrastructure; and
- Improved affordability.

The District's existing character presents both challenges and opportunities to active transportation. Topography is relatively flat and local climate is mild, resulting in favourable conditions for active modes. The District is surrounded by water on two sides and as a result has a limited number of "pass through" trips. The majority of travel within the community is generated by Oak Bay residents, the primary exceptions being the University of Victoria and Camosun College campuses, both of which attract a significant number of daily commuters. A relatively high median age suggests that infrastructure must accommodate a higher proportion of residents with mobility challenges. Recreation centres and schools are popular destinations for residents of all ages. Additionally, the Capital Regional District (CRD) recently completed the Pedestrian and Cycling Master Plan which proposed walking and cycling routes in Oak Bay and must be considered in this strategy.

This strategy sets forth recommended actions for the District to facilitate increased demand for active transportation in the future. The primary recommendation is to work toward an envisioned long-term active transportation network comprised of routes and facilities that facilitate active transportation, as follows:

- Pedestrian network improvements including pathways through Oak Bay High School, along Elgin Avenue, adjacent Henderson Recreation Centre, and new signage at existing trailheads.
- Extension of existing Bowker Creek Walkway and new multi-use trail adjacent Cedar Hill Cross Road.
- Commuter bike routes along Cadboro Bay Road, Henderson Road / Foul Bay Road, Oak Bay Avenue, Lansdowne Road, McNeill Avenue, Bowker Avenue, and Beach Drive.

- Three new neighbourhood bikeways on Musgrave Street, Hampshire Road and Monterey Avenue, Henderson Road from UVic to Oak Bay High School, and east-west along Haultain Road and Estevan Avenue. Bikeway connections are identified for the east end of McNeill Avenue and Oak Bay Avenue.
- Identifying five existing east-west laneway connections with new pedestrian wayfinding signage.

Beyond developing a network to accommodate safe, comfortable travel by active modes, the strategy identifies additional infrastructure, policies, and programs to encourage active transportation. The following actions are recommended:

- Policies : adopt a “complete streets” policy and develop mode split targets, alter cash in-lieu of parking policy, provide bike parking requirement in zoning bylaw, and address regulations restricting active modes in public spaces.
- Infrastructure: continue working with Accessibility Committee to identify improvements, increase public bike parking supply, create public bike station for bicycle maintenance, create electric charge station for electric bikes and scooters, and increase the provision of bus stop amenities.
- Marketing: create a marketing campaign for active travel including a logo and website, create transportation coordination position, offer bicycle skills course and walking events, and generally promote active modes throughout the community.

An implementation plan is presented which summarizes each of the key recommendations of the document. While many are infrastructure related and will require significant budgets and long-term planning, there are a number of smaller, less expensive strategies (regulations, signage) that the District should consider pursuing immediately.

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1.0 Introduction

Automobile use has been a central component of a lifestyle which, for years, Oak Bay residents have been drawn to, a lifestyle characterized by a freedom of mobility, reliance on available, cheap fossil fuels, and a short-term comprehension of the long-term repercussions of travel choices. Gradually a shift is occurring to a built environment that puts self-propelled travel on par with vehicle travel. Residents are looking more and more to incorporate active modes of travel into their lifestyle, with opportunities to satisfy both mobility needs and recreation needs in the same activity and under conditions that are not only safe, but also enjoyable. There is also a push to remove physical and perceived mobility barriers so that individuals of all physical abilities, including seniors and handicapped residents, can fulfill their transportation needs safely and without assistance.

In undertaking the development of an active transportation strategy for Oak Bay, the District is demonstrating a recognition that active transportation is to become an important piece of Oak Bay's future. Included in this active transportation strategy are:

- An explanation of active transportation and why it is important;
- A review of the Oak Bay community, including its geography, demographics, land use, transportation options and travel characteristics, and existing plans and policies;
- A recommended active transportation network consisting of pedestrian routes, multi-use trails, cycling routes, and laneways;
- Recommendations on active transportation infrastructure, including accessible design, signage, bus stops, charging stations for electric modes, and cycling infrastructure;
- Recommended programs to facilitate increase use of active modes, and policies, and regulations that ensure active modes are accommodated into the future and through new development; and
- An implementation section which summarizes actions for the District to undertake and potential funding opportunities.

2.0 Background

2.1 What is Active Transportation?

Active transportation is any method of human-powered transportation -- walking, cycling, skateboarding, rollerblading, electric-assisted bicycles, foot-powered scooters, horseback riding, wheelchair travel, and even cross country skiing and snowshoeing.

Active transportation can be utilitarian – the act of going to a destination for a specific purpose. It may also be recreational, meaning personal travel for leisure purposes.

Active transportation is supported by a network of routes that connect residents to destinations within the community, such as schools, parks, recreation, and shopping.

Active Transportation and Sustainable Transportation

Active transportation objectives are similar to sustainable transportation in that they present the community with viable alternatives to vehicle travel. However, where active transportation focuses on human-powered travel modes, sustainable transportation considers any mode that is a more environmentally sustainable option than single-occupancy vehicle travel, including motorized travel via transit and ridesharing. From this perspective, the primary objectives of active transportation and sustainable transportation are the same: increasing non-vehicular travel.

Active Transportation and Transportation Demand Management

Transportation demand management (TDM) is an emerging, integrated approach to improving the efficiency and sustainability of a transportation network through managing travel demand and modal integration. By definition, TDM does not preclude vehicle travel, but in reality, transportation networks are already developed to facilitate widespread vehicle use. Accordingly, TDM tends to encourage all self-propelled and multi-passenger travel modes, as well as look at factors that influence travel behavior, such as land use and work arrangements. Active transportation plans support TDM and TDM measures encourage active transportation.



2.2 What are the Benefits of Active Transportation?

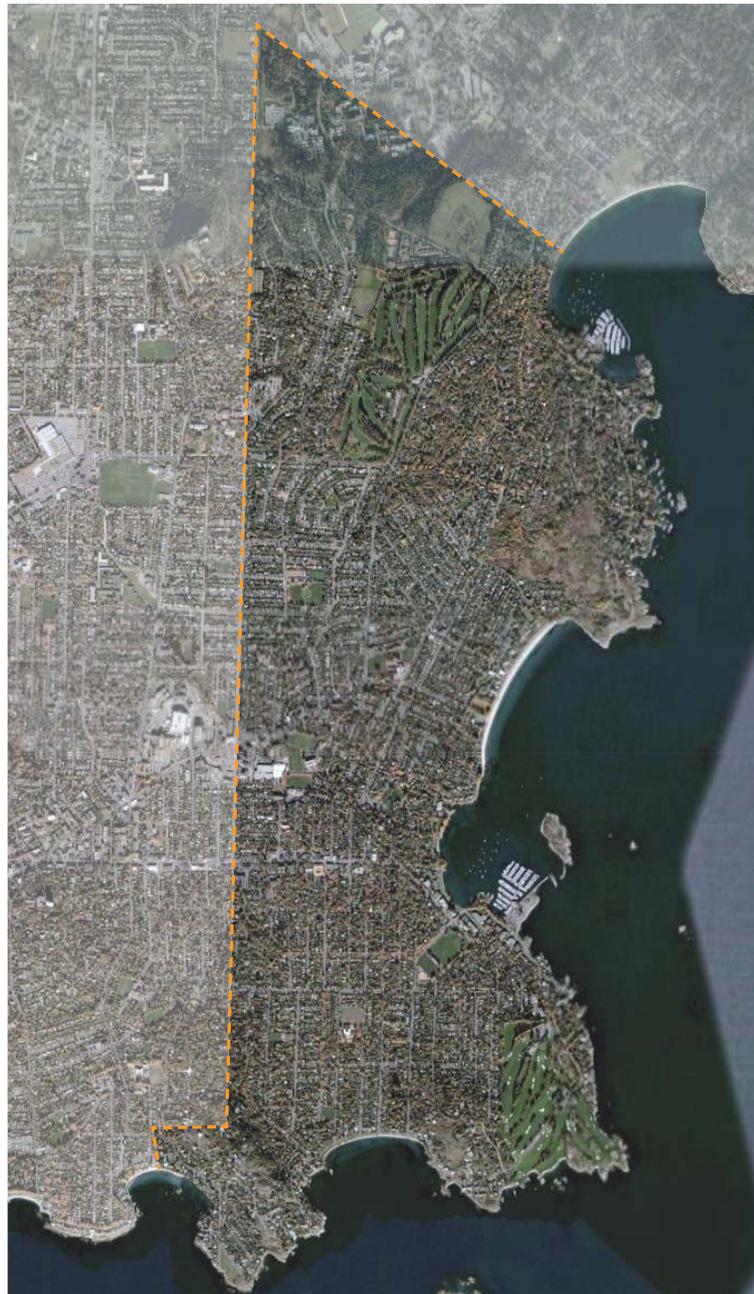
1. A 15-minute trip to work, school, a shop, or a social visit and back by foot or by bike would fulfill daily requirements. This incorporates physical activity into a daily travel habits, and since it can serve as a substitute for auto trips, it may not require any additional time commitment. Active transportation interventions have been shown to be more effective (i.e., more “sticky”) at increasing activity levels in the long term than going to the gym or jogging.
2. Passenger vehicle travel is responsible for approximately 35% of BC’s greenhouse gas (GHG) emissions. Replacing vehicle trips with active transportation reduced negative **environmental** impacts associated with transportation reducing GHG emissions, as well as reducing airborne pollutants and noise, preserving rural lands, and reducing interruptions to natural systems.
3. A portion of the community is unable to operate a motor vehicle. Youth, elderly and those with disabilities all rely on alternative modes to meet transportation needs. Quality active transportation infrastructure results in a **more equitable** distribution of public funds in meeting transportation demand across all modes.
4. Active transportation is available to everyone, it can be less expensive, require less up-front cost, and fewer on-going maintenance.
5. Increasing active travel leads to mixed land use and compact development, thereby addressing regional objectives around **Smart Growth land use planning**.
6. Where active transportation serves as a substitute for automobile travel, it will **reduce traffic congestion** and reduce vehicle parking requirements.
7. Individuals who travel by active modes have higher levels of personal contact with others, develop more social capital for their community and have a **strong sense of community** and place.



3.0 Community Context

3.1 Location, Geography, and Population

The District of Oak Bay is located on the southeast tip of Vancouver Island, in the Capital Regional District. It is approximately 10.38 km² in area, and is adjacent the City of Victoria (west), District of Saanich (northwest), and the Strait of Georgia (east).



Oak Bay is small in area and has a unique location within the Capital Regional District. It is bound by water on two sides and, as a result, has few external trips through the District.

Oak Bay is relatively flat with the majority of the District within 15m of sea level, which is ideal for active travel. Steep north-south slopes in immediately south of Lansdowne Road present a challenge for walking and cycling. The District's extensive coastline and natural vegetation are assets which attract residents and visitors to engage in active transportation.

Oak Bay has a temperate climate with cool damp winters and warm dry summers, during the winter there are only limited periods of snow and freezing weather, which allows for active travel throughout the year.

Oak Bay has a population of 17,910 people. See **Table 1**. The population is older than most communities in British Columbia, with the median age approximately nine years higher than the provincial average. Oak Bay is a desirable residential community and contains a significant number of families. The community also includes a number of "long time" residents and a high average income.

Table 1. Oak Bay Demographic Characteristics, 2006¹

Age	Oak Bay	British Columbia
0 - 14	2,425 (14%)	17%
15 - 29	2,770 (15%)	19%
30 - 44	2,410 (13%)	14%
45 - 59	4,575 (26%)	23%
60 - 75	2,865 (16%)	13%
75+	2,870 (16%)	7%
Total Population	17,910	
Median Age	49.9	40.8

¹ Source: Statistics Canada

3.2 Community

The following is an inventory of many of the important origins and destinations for active travel in Oak Bay. See **Map 1**.

Education

Schools are destinations for a large number of active travel trips for families and students within Oak Bay. Oak Bay is home to the following public and private schools:

- Willows Elementary School (French immersion), 2290 Musgrave Street
- Monterey Middle School, 851 Monterey Avenue
- Oak Bay High School, 2101 Cadboro Bay Road
- St. Michael's University School (private school), 3400 Richmond Road
- Glenlyon Norfolk School (private school), 1701 Beach Drive

Oak Bay residents also fall within catchment areas that require they attend schools outside the District, including the following:

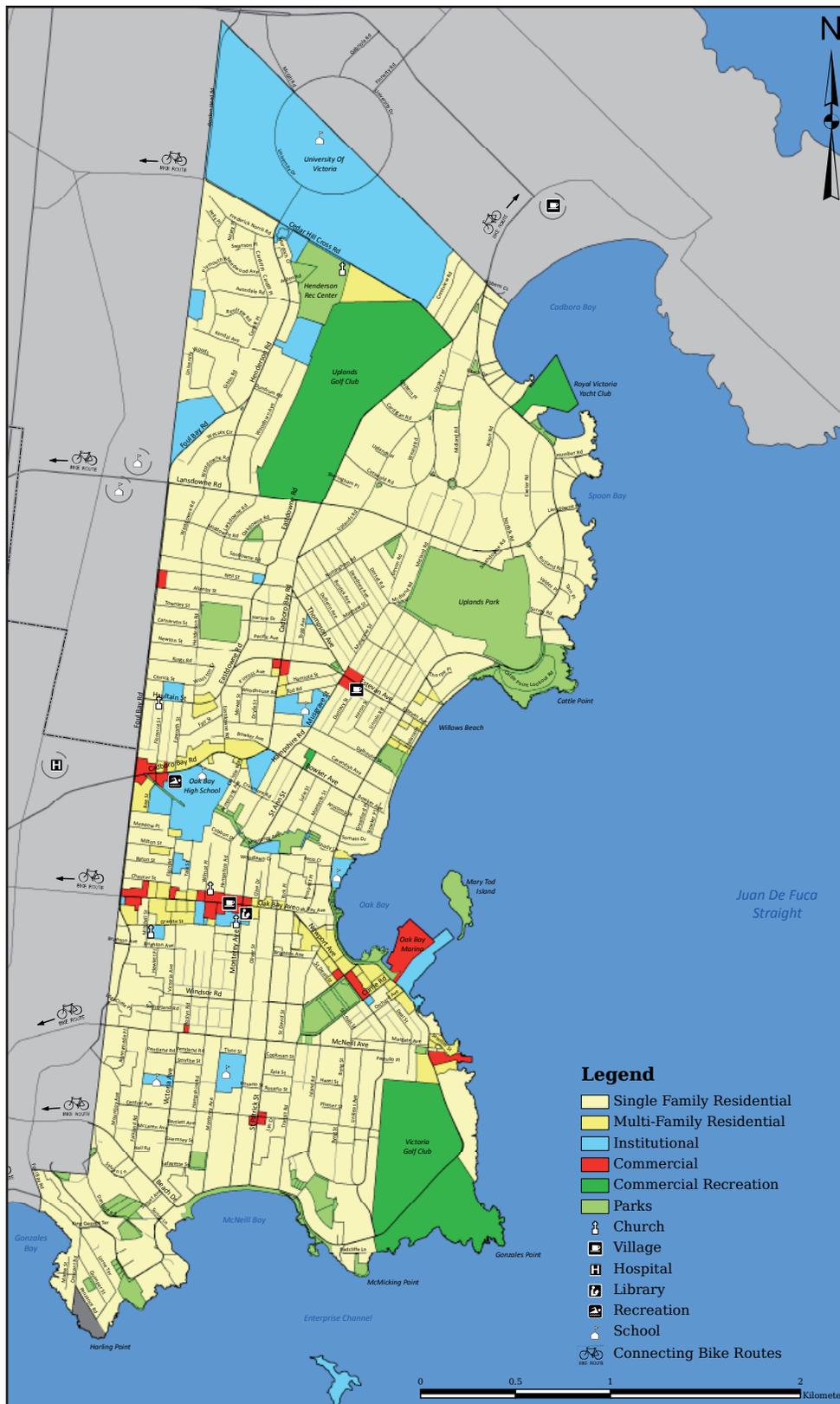
- Campus View Elementary School, 3900 Gordon Head Road
- Margaret Jenkins Elementary School (French immersion), 1824 Fairfield Road
- Central Middle School, 1280 Fort Street
- Lansdowne Middle School, (French immersion) 1765 Lansdowne Road

The University of Victoria (Gordon Head campus) and Camosun College (Lansdowne campus) are both located in Oak Bay. These two campuses have a population in excess of 29,000 students and attract a significant number of active trips each day.



The redevelopment of Oak Bay High School offers opportunities to increase active transportation options by creating stronger connections.

MAP 1 - OAK BAY COMMUNITY DESTINATIONS



Recreation

Recreation facilities are important community facilities with a large proportion of active trips due to their nature. The following are important recreation destinations in Oak Bay:

- Oak Bay Recreation Centre includes an arena, swimming pool, indoor tennis, fitness, skateboard area, food services, teen centre and indoor sports field.
- Henderson Recreation Centre includes a gym, fitness studio, outdoor tennis, par 3 golf course, multipurpose rooms, therapy services and a baseball diamond.
- Monterey Recreation Centre includes programs for seniors and adults, meeting rooms, and a computer lab.
- Carnarvan Centre includes daycare, preschool, outdoor tennis, lacrosse, sports fields (baseball, rugby, soccer), waterpark, and lawn bowling club.
- Windsor Park includes outdoor tennis, sports fields, baseball, cricket, field hockey, rugby, soccer and lighted practice area and a Pavillion with meeting rooms.
- Greater Victoria Public Library's Oak Bay branch is one of the busiest in Victoria.
- Both Victoria Golf Club and Uplands Golf Club are private golf courses assumed to have a number of members from Oak Bay.



Oak Bay has many parks with walking trails connecting the community.

Parks

Parks are a common destination for active travel. Oak Bay has 25 beach accesses and 22 parks, the largest are listed below:

- Anderson Hill Park - natural area with benches, trails and views
- Bowker Creek Park - multi-use trail with benches
- Carnarvon Park - multi-use sports park
- Henderson Park - multi-use sports park
- Walbran Park / Gonzales Hill - regional park / point of interest
- Willows Beach Park - park with beaches, playground and other amenities
- Windsor Park - multi-use sports park
- Uplands Park - nature area

Shopping / Services

Oak Bay includes three key shopping and service areas:

- Oak Bay Village includes groceries, banking and medical services.
- Estevan Village is a small area of restaurants and small-scale retail.
- Fort Street / Foul Bay Road includes a variety of retail, restaurants, and offices.



Oak Bay Village and Estevan Village offer a variety of services for residents and visitors.

Seniors Housing

Seniors residences are the origin of a high concentration of walking trips. The following seniors residences are located in Oak Bay:

- Carlton House, 2080 Oak Bay Avenue
- Oak Bay Lodge, 2251 Cadboro Bay Road
- Elgin Gardens, 1787 Elgin Road
- Marrion Village, 1950 / 1980 Bee Street
- Shannon Oaks, 2000 Goldsmith Street

Three seniors residences are located outside Oak Bay's boundary, but are close enough that residents are expected to regularly visit Oak Bay:

- Abbeyfield De Mezey Seniors Home, 931 Foul Bay Road
- Hart House Seniors Home, 1961 Fairfield Road
- Shelmarie Resthome, 630 Foul Bay Road

Destinations at the Border of Oak Bay

Beyond those mentioned above, there are three important destinations located outside Oak Bay's border which are key destinations for Oak Bay residents:

- Royal Jubilee Hospital is one of two regional hospitals and is an important employment destination.
- Hillside Mall is a regional shopping centre providing shopping/services and a large employment base.
- Cadboro Bay Village offers basic retail and employment for north Oak Bay.

3.3 Transportation Facilities

Oak Bay is comprised of a number of existing sidewalks, quiet streets, alleys, cycling routes, and trails that facilitate active transportation and provide connections throughout and beyond the community.

3.3.1 Road Network

The southern portion of Oak Bay has a traditional grid road network that provides consistent block sizes and a high level of connectivity. The portion of Oak Bay north of Estevan Village presents a modified grid network, with Uplands and the “Henderson” areas introducing cul-de-sacs and fewer continuous routes.

Roadway classification is identified in the District’s OCP, which includes four distinct classifications:

- Special Roads - Oak Bay Avenue, Beach Drive
- Arterial Roads - Foul Bay Road / Henderson Road, Cadboro Bay Road
- Collector Roads - Henderson Road, Lansdowne Road, Eastdowne Road, Haultain Street, Thompson Avenue, Estevan Avenue, Musgrave Street, Bowker Avenue, St Ann Street, Monterey Avenue, Oak Bay Avenue (east of Monterey), St Patrick Street, Newport Avenue, Currie Road, Windsor Road, McNeil Avenue, Victoria Avenue
- Local Roads - all other.



Oak Bay is a attractive community where active transportation is already an important part of the community.

3.3.2 Walking

Sidewalks exist on many Oak Bay streets. The District is largely built out and there are no immediate plans to expand the sidewalk network. Many road rights-of-way are narrow and could not accommodate sidewalks without removing on-street parking and/or acquiring adjacent property. The District is working with the Accessibility Committee as part of an on-going program to identify areas in need of improvement as part of its aim to improve accessibility in Oak Bay Village.

The District has a series of walking trails which provide opportunities primarily for recreational travel, but also for purpose-driven trips. The following trails currently exist:

- The Bowker Creek Walkway runs along the “day lighted” portions of Bowker Creek, between Monterey Avenue and the east of the Oak Bay High School grounds.
- The Willows Beach Walkway follows Willows Beach from Cattle Point to Bowker Avenue, and includes a wide walkway with lighting and benches.
- The Shoal Bay Walkway follows the waterfront adjacent Oak Bay Marina.
- Former laneways have been designated and designed as trails throughout Oak Bay, including Camas Lane and Centennial Trail.
- A series of walking routes have been identified which follow sidewalks, trails, and laneways. Walking routes are outlined in the *Oak Bay Walking Trails* brochure.



Walking in Oak Bay is popular for all ages. The District provides a variety of recreational walking trails and routes.

3.3.3 Cycling

While a series of cycling routes are identified in the District's OCP and in other regional documents, few cycling facilities have been developed in Oak Bay:

- Foul Bay Road has bike lanes on both sides from Lansdowne Road to Fort Street / Cadboro Bay Road.
- Foul Bay Road is signed as a shared roadway from Fort Street / Foul Bay Road to McNeil Avenue.
- Cadboro Bay Road includes bike lanes approximately 100m north and south of its intersection with Bowker Avenue (constructed Spring 2011).
- Cedar Hill Cross Road has a bike lane on the north side between Henderson Road and Gordon Head Road (Saanich border).
- Beach Drive is signed as a shared roadway from Crescent Road to the City of Victoria border.
- Beach Drive is identified as a scenic route throughout Oak Bay (and beyond), but does not include dedicated facilities.

Otherwise, many major roadways are identified as appropriate bike routes using signage, but do not include specific on-street cycling provisions. Bowker Creek Walkway is also used as a off-road cycling route, however under the Parks Vision Report it is not intended for cycling.

Bicycle parking is provided throughout Oak Bay, concentrated in Village Centres (ie. Oak Bay Ave, Estevan Village), schools, UVic, Camosun, recreation centres, and at parks.

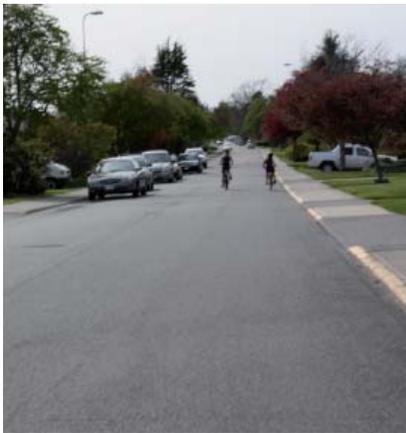


Covered bike parking makes riding to the Oak Bay and Monterey Recreation Centres more comfortable and safe upon arrival.

3.3.4 Other Facilities / Programs

Additional facilities and programs are already in place in Oak Bay which influence conditions for active travel.

- Oak Bay has an existing public bench donation program. The program has been extremely successful, to the point that there are few parks and public spaces that do not already have a bench.
- Oak Bay has established an accessibility committee to advise on issues of universal design. The committee is currently undertaking a survey of Oak Bay Village to identify and prioritize infrastructure upgrades to improve accessibility.
- Oak Bay has developed a series of distinctive wayfinding signs that give distances and directions to local destinations.
- The Municipal Fire Hall on Monterey Avenue currently offers an air hose free of charge.
- An existing agreement is in place where the municipal water meter reader identifies sidewalk repairs with spray paint, and the District makes the repairs as soon as possible.



Cyclists are currently accommodated in Oak Bay through a series of bicycle facilities, but they generally lack connectivity and do not form a community-wide network.

3.4 Travel Characteristics

Of all Oak Bay residents with a usual place of work, only 14% work in Oak Bay. See **Table 2**. The majority (82%) work elsewhere in the CRD and contribute to a strong outbound commute in the morning and inbound commute in the early evening. This is largely a result of the nature of Oak Bay as a residential community with few major employment areas.

Table 2. Location of Employment, 2006²

Work Location	Percentage
Home	13%
Outside of Canada	< 1%
No fixed location	7%
Usual Place of work	80%
In Oak Bay	14%
Outside of Oak Bay in CRD	82%
Outside CRD	4%
Different Province	< 1%

Oak Bay is located in relatively close proximity to some of the most significant commute destinations in Greater Victoria - UVic, Camosun College, Royal Jubilee Hospital, and downtown Victoria. As a result, Oak Bay exhibits some of the highest walking and cycling mode shares in the Capital Region. See **Table 3**. In 2006, 19% of all commute trips were made by walking or cycling, and 3% fewer trips were made by driving as compared to the average for the Capital Region. The CRD has determined that approximately 4,700 bicycle trips per day are made in Oak Bay, representing approximately 8% of all trips. Bicycle trips in Oak Bay have increased approximately 21% since 2001 and represent the largest per capita mode share in the region³.

Table 3. Oak Bay Commute Characteristics, 2006⁴

Commute Method	Oak Bay	Greater Victoria
Drive	62%	65%
Passenger	8%	7%
Transit	9%	10%
Walk / Cycle	19%	16%
Other	2%	2%

² Source: Statistics Canada

³ Source: CRD Presentation, Sustainable Transportation, Building Momentum by Su Hallatt, Nov 2010

⁴ Source: Statistics Canada, CMA - Census Metropolitan Area as defined by Statistics Canada

3.5 Plans + Policies

3.5.1 Existing Plans / Studies

A number of plans and studies already exist which formulate a strong baseline for this document. The following documents are identified for consistency in this document and may be consulted for further detail.

Oak Bay Official Community Plan, 1997

The Oak Bay Official Community Plan at present includes the following directions specific to active transportation:

- Provide adequate health and recreation facilities to meet the needs of residents
- Provide interesting travel ways
- Support the development of cycling infrastructure
- Parks are considered a public service rather than a luxury
- Walking and strolling are considered important pastimes
- Consideration for auto-free public walkways
- Preserve existing public laneways wherever possible.

Oak Bay Parks and Open Space Plan, 2005

Oak Bay completed a study of parks, park infrastructure, and objectives of the park spaces in the District. A brochure was then made available to help residents identify and use area parks.

Oak Bay Climate Change Report, 2008

The Oak Bay Climate Change Report outlines opportunities for pedestrian and cycling infrastructure and improvements, and recognizes the opportunity to link community services and destinations by walkways and greenways. The report reiterates the need to maintain greenspace and recognizes the opportunities to use undeveloped road right of ways to provide active transportation infrastructure.

Oak Bay CIC Accessibility Study, 2011

The Oak Bay Accessibility Committee is currently undertaking a survey of Oak Bay Village's existing infrastructure to identify problem areas and prioritize improvements. Proposed improvements will be based on best practices in accessible design, which should also be considered in any infrastructure design associated with this document.

Safer School Travel Plans (Monterey and Willows Schools), 2007

The Safer School documents identified safety concerns from families and staff of Monterey and Willows schools. Recommendations vary from policies on trimming hedges to installing traffic signals to improve safety in the vicinity of these two schools.

3.5.3 Plans from the Region + Neighbouring Municipalities

Planning documents from the District of Saanich, City of Victoria and Capital Regional District were considered for the impact they may have on future active transportation facilities in Oak Bay and to ensure consistency across jurisdictions.

Capital Regional District

The CRD **Regional Growth Strategy** (RGS) generally supports the development of cycling and pedestrian infrastructure as a means to encourage modal shift toward sustainable travel modes across the region. More specifically, the RGS identifies mode share targets for the region:

- By 2026, achieve a minimum PM peak period mode share by non–auto modes of 40% for trips to, from and within the Metropolitan Core.
- By 2026, achieve a minimum cycling mode share of 10% within the Victoria Census Metropolitan Area for journey-to-work trips (4.9% in 1996); and 15% for journey–to–work trips for residents of the combined areas of the City of Victoria, Oak Bay, Esquimalt, and urban Saanich (6.2% in 1996)



Oak Bay already has relatively high active travel mode shares, likely a result of strong a sidewalk, trail, and laneway network.

The CRD completed the ***Regional Pedestrian and Cycling Masterplan*** (PCMP) in March 2011. The PCMP provides design guidelines, and existing and future network plans, as well as education/encouragement, enforcement, and funding strategies. Generally, the PCMP seeks to ensure pedestrian and cycling facilities are developed in a consistent and coordinated manner across the Capital Region. The District was represented in developing the PCMP. This document aims for consistency with the PCMP, but ensures directions are set forth that are specific to Oak Bay and in the best interest of the community. It is strongly suggested that the District make reference to the PCMP in the future planning and design of active transportation facilities.

Details of the CRD's Regional Pedestrian + Cycling Masterplan are available at:
www.crd.bc.ca/regionalplanning/transportation/cycling-walking

The PCMP includes recommendations that specifically influence active transportation in Oak Bay, as follows:

- Cadboro Bay Road is identified as “separated on-street bikeway” (highest bikeway classification).
- Cedar Hill Cross Road, Lansdowne Road, Oak Bay Avenue, McNeil Avenue, Beach Drive / Crescent Road, and Foul Bay / Henderson Road are all identified as “bicycle lane / shoulder bikeway”.
- Bowker Avenue and McNeill Avenue (east end only) are identified as “shared lane bikeway”.
- Bowker Creek is identified as a “future multi-use trail” with the alignment subject to change.
- Oak Bay is suggested to have the population necessary to support a bike share program if one were to go ahead in the region.

District of Saanich

“Sustainable Saanich”, the District’s 2008 Official Community Plan (OCP) supports the development of trails and walk/cycle ways connecting major centres, recreational facilities, parks and schools. Saanich’s OCP outlines potential major trails at Midgard Avenue leading into the University of Victoria and along the Bowker Creek corridor. Saanich’s Local Area Plans (LAP) provide additional details, as follows:

- The Shelbourne LAP calls for the preparation of an action plan for a multi-use trail / greenway parallel to Bowker Creek and adjacent parks on the B.C. Hydro lands at Kings Road and the Bishop of Victoria lands in accordance to the District of Saanich Greenways Strategy. *This strategy will directly affect the Bowker Creek trail in Oak Bay, it may require further addressing the Bowker Creek trail within Oak Bay.*

- The Cadboro Bay LAP proposes Cadboro Bay Road as a Boulevard Street and the expansion of the trail from Hobbs Road to Cedar Hill Cross Road, and along Cadboro Bay as a future greenways.

For more details on active transportation in Saanich’s Official Community Plan, please refer to: www.saanich.ca/living/ocp

City of Victoria

The City issued their draft Official Community Plan in April 2011. The draft OCP provides direction for growth and change in Victoria over the next 30 years and includes consideration for greenways, cycling routes, and transit infrastructure that directly abut Oak Bay, as follows:

- Brighton Avenue as a “people only” greenway.
- Leighton, Crescent, Kings, and Haultain Road as “people priority” greenways.
- Fairfield Road as a shared greenway.
- Fort Street and Crescent Road as existing bikeways.
- Oak Bay Avenue, Richardson Street, and Fairfield Road as future bikeways.
- Fort Street / Foul Bay Road intersection as a potential transit exchange location.

For more details on active transportation in Victoria’s Official Community Plan, please refer to: www.shapeyourfuturevictoria.ca

While the OCP was only available in draft during this planning process, it is expected that the majority of its findings will be included in the final document. The draft OCP suggests that neighbourhood plans will be revised for each Victoria neighbourhood. Withstanding, existing neighbourhood plans are in place which have implications for active transportation in Oak Bay, as follows:

- The Gonzales Neighbourhood Plan identifies Brighton Avenue and Crescent Road as future greenway connections to Oak Bay. Support is given to maintaining laneways as pedestrian facilities. The Plan also notes a need for consultation with schools, recreation facilities, and Oak Bay in developing these facilities.
- The Jubilee Neighbourhood Plan seeks to develop safe routes and end-of-trip facilities for active transportation from area schools and the Royal Jubilee Hospital, as well as improve pedestrian safety at the intersection of Fort Street / Foul Bay Road.

The City of Victoria has undertaken additional studies with implications for active transportation in Oak Bay, as follows:

- The *Victoria Pedestrian Master Plan* outlines strategies to make sidewalks, pathways, and crosswalks safer and more accessible, and prioritizes construction of new sidewalks,
- The *Victoria Bicycle Master Plan* outlines the bicycle connections within Victoria and opportunities for Oak Bay to develop any links which currently do not connect to Oak Bay's bicycle route network.



Around the CRD municipalities like Oak Bay are striving to increase active transportation by creating a cohesive network of cycling routes and improving pedestrian infrastructure, like recent improvements at Cadboro Bay Road and Bowker Avenue (shown above).

4.0 Recommended Network

The development of an active transportation network creates opportunities for Oak Bay's residents to more easily participate in active transportation on a daily basis for recreational, commuting and personal trips. The following sections identify recommended improvements for the pedestrian network, multi-use trail network, regional cycling network, neighbourhood bikeway network, laneway network, and safe routes to schools.

4.1 Pedestrian Network

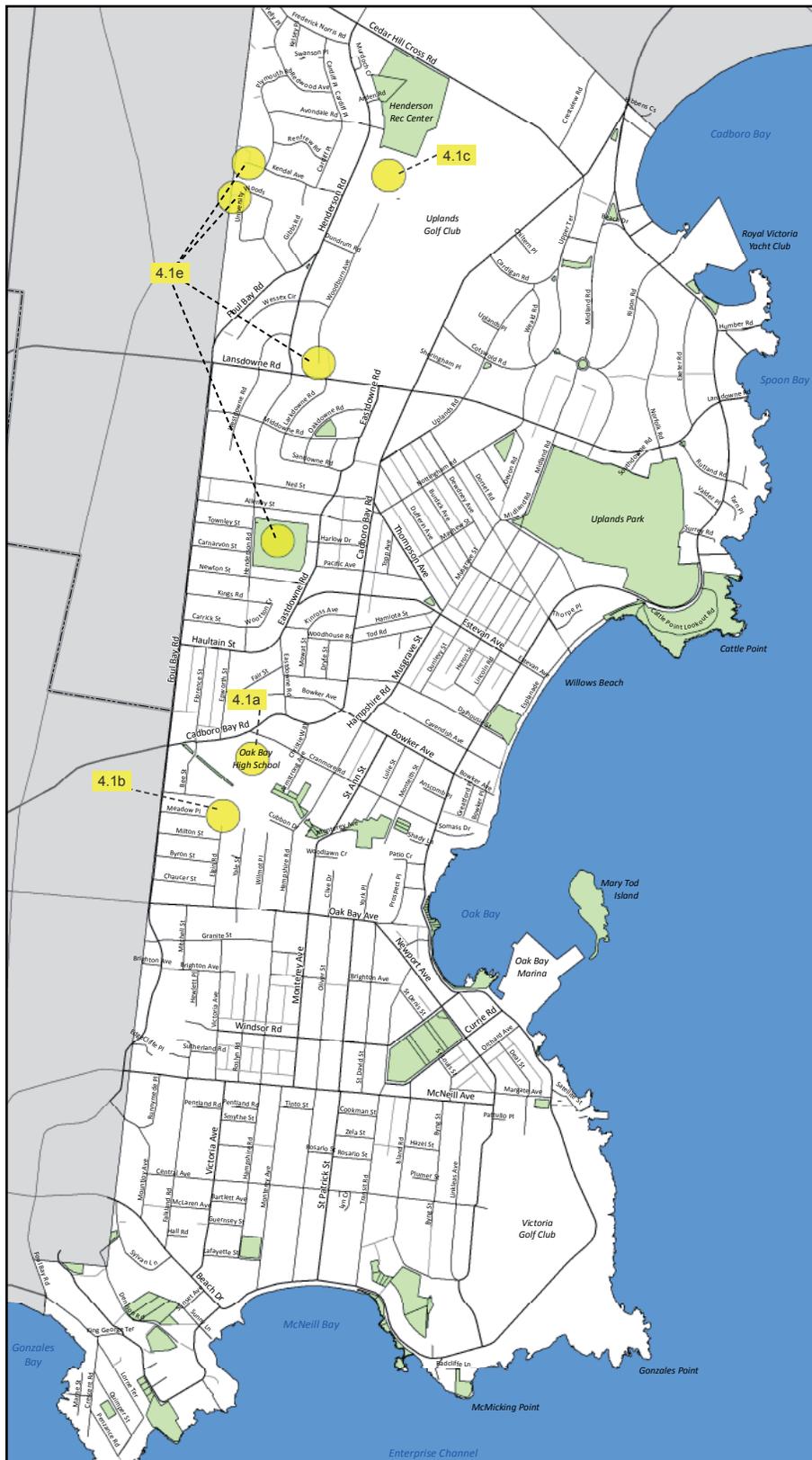
The pedestrian network consists of sidewalks, trails, and walkways. It is intended to provide comfortable and safe walking conditions, and connections for frequent and efficient access throughout the District. The pedestrian network should consist of routes that have utility for both commuter and recreational trips. All facilities should be designed to universal accessibility standards in order to accommodate community members with varying physical abilities.

Oak Bay currently exhibits a strong network of sidewalks and recreational trails, largely a result of its traditional street grid and strong emphasis on parks and recreation. A series of pedestrian network improvements are recommended in the following sections which are meant to address the short-comings of the existing network. See **Map 2**. Design of these facilities should be based on the District's sidewalk designs standards and in coordination with the Sections 2.1 and 2.2 of the CRD's PCMP design guidelines.



Sidewalks, crosswalks and walking trails are the basis of the pedestrian network. Their appropriate design and maintenance makes the network available to pedestrians of all abilities.

MAP 2 - RECOMMENDED PEDESTRIAN NETWORK IMPROVEMENTS

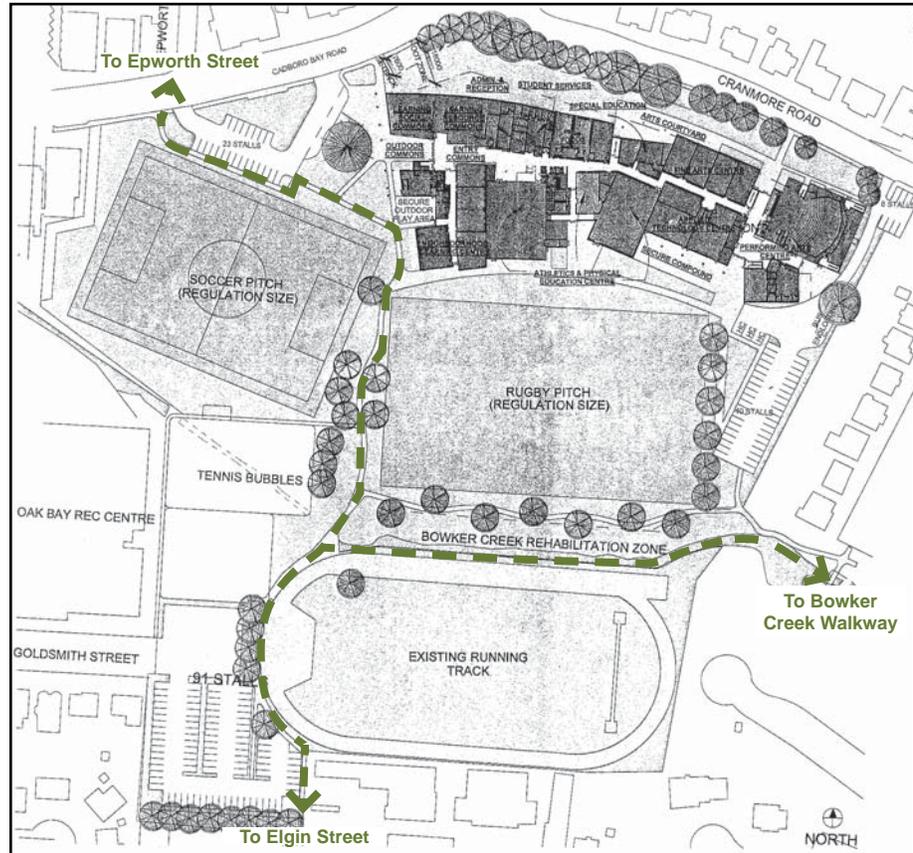


Legend

- 4.1a - Oak Bay High School connections
- 4.1b - Elgin Avenue walkway
- 4.1c - Henderson Rec Centre Trail
- 4.1d - Walkway signage (various)

4.1a. Oak Bay High School Connections

The planned redevelopment of Oak Bay High School will create improved opportunities for walking and cycling through the site. The proposal includes an extension of the Bowker Creek multi-use trail along the south of the school site, and north-south connections from Cadboro Bay Road and Epworth Street to the north end of Elgin Street. This alignment is also consistent with the north-south neighbourhood bikeway suggested in Section 4.4b.



Proposed trail routes through the Oak Bay High School site upon redevelopment.

4.1b. Elgin Avenue / Public Works Walkway

Elgin Avenue and the walkway adjacent the District's public works yard provides a valuable north-south connection between Oak Bay Avenue, Oak Bay High School, Oak Bay Recreation Centre, and a number of seniors residences on the route. The redevelopment of the High School site will add additional users to the walkway and strengthen connections. The walkway is currently in poor condition and should be improved through the following actions:

- Add a sidewalk to Elgin Street's east side, near the north end. Wear on the grass adjacent the roadway indicates areas of high pedestrian traffic. Caution must be used in mixing pedestrians at the end of Elgin Street and vehicles using the entrance to the public works yard.
- Widen sidewalk on north-side of Oak Bay Avenue, immediately east of Elgin Street. This route provides an important link from adjacent seniors' homes and experience high volumes of users with mobility aids.
- Improve walkway "aesthetics" adjacent public works yard. This area should be altered to be more comfortable for pedestrians. Give consideration to new lighting and murals on large adjacent wall, perhaps in coordination with Oak Bay High School arts program.

Section 4.4b identifies this route as a continuation of a north-south bikeway along Henderson Road. Further consideration may be needed to determine the design of this connection and the anticipated user groups (ie. walkers, cyclists, etc).



A need for sidewalks is evident in the northern portion of Elgin Street (left) and the large wall adjacent the District's public works yard (right) creates an uninviting walking environment.

4.1c. Henderson Recreation Centre / Uplands Campus Trail

A walking trail is recommended that would connect the north end of Woodburn Avenue to Henderson Recreation Centre and Cedar Hill Cross Road. This route would facilitate access to the recreation centre and to UVic for Oak Bay residents, and extend the recreational walking trails surrounding Henderson Recreation Centre and Henderson Golf Course. A direct trail route should be provided at the east edge of the property and trailhead signage at each entrance that identify the trail.

4.1d. Walkway Signage

A number of walkways were identified that are already constructed to an appropriate standard, but which do not include the necessary signage indicating their presence and the locations they serve. It is recommended that the District include trailhead markers on the following walkways:

- Carnarvan Park, Townley Street to Harlow Drive;
- Kendal Avenue, west end;
- University Woods, west end; and
- Woodburn Avenue, south end.

This action should be conducted in coordination with consultation with neighbours adjacent these walkways to ensure they are aware of these changes.

4.1e. Safe Routes to Schools

Oak Bay should review the 2007 Safe Routes to School Travel Plans to prioritize the remaining implementation actions. Not all of the actions recommended in these reports are the responsibility of the District of Oak Bay, however Oak Bay should work with the School District, Parent Advisory Groups and schools to improve active transportation conditions around schools. Some remaining projects include improving crosswalks at mid-block and intersection locations particularly near Monterey School, along Cadboro Bay Road, and in school zones.

4.2 Multi-use Trail Network

The multi-use trail network consists of routes intended to provide comfortable and safe conditions for all non-vehicular travel modes, including both walking and cycling. Routes are to be continuous and direct, and provide off-road connections between other routes within and beyond Oak Bay.

Oak Bay's only existing multi-use trail is the Bowker Creek Walkway. The following recommends an extension of the existing Bowker Creek Walkway and a new multi-use route adjacent Cedar Hill Cross Road. Design of these facilities should be based on the designs standards in Section 2 of the CRD's PCMP design guidelines.

4.2a. Bowker Creek Multi-use Trail

The Bowker Creek Multi-use Trail is a regional plan to connect Oak Bay and Saanich to the Galloping Goose Regional Trail. This plan provides a conceptual route from the Willows Beach boardwalk (Esplanade), through the community gardens, baseball diamond, onto the existing Bowker Creek Walkway, through Oak Bay High School / Recreation Centre to Cadboro Bay Road, where it enters the District of Saanich. Various plans have suggested that the Bowker Creek trail should be a pedestrian-only walking trail⁵, while others have suggested the trail be multi-use⁶. This document recommends that the Bowker Creek trail is designed as a multi-use trail, intended for all active travel modes.

The existing portions of the trail, from Oak Bay High School to StAnn Street are designed for low travel speeds but could be used by all modes. The pathway is approximately 3.0m and is aligned with a gentle meander. Gates are installed at roadway intersections to require cyclists to slow before crossing. It is suggested that the existing design standard is appropriate for the remaining portions of the trail, with consideration given to widening portions to 4.0m to provide for safer and more comfortable integration of cyclists and pedestrians. Existing road crossing at Hampshire Road may require further study to ensure safe and accessible design.



The Bowker Creek Walkway is currently built to a high standard for both walking and cycling, but only spans two blocks providing limited connectivity.

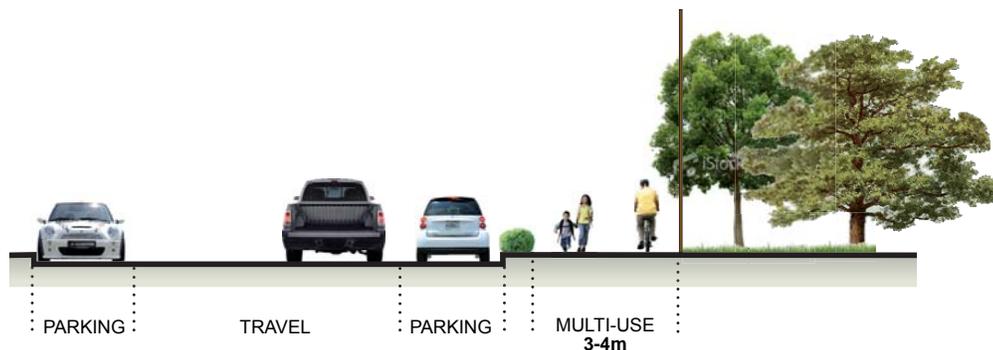
⁵ Oak Bay Parks and Open Space Plan, Bowker Creek Initiative, CRD Regional Green/Blueways.

⁶ CRD Pedestrian Cycling Master Plan, Saanich corridors.

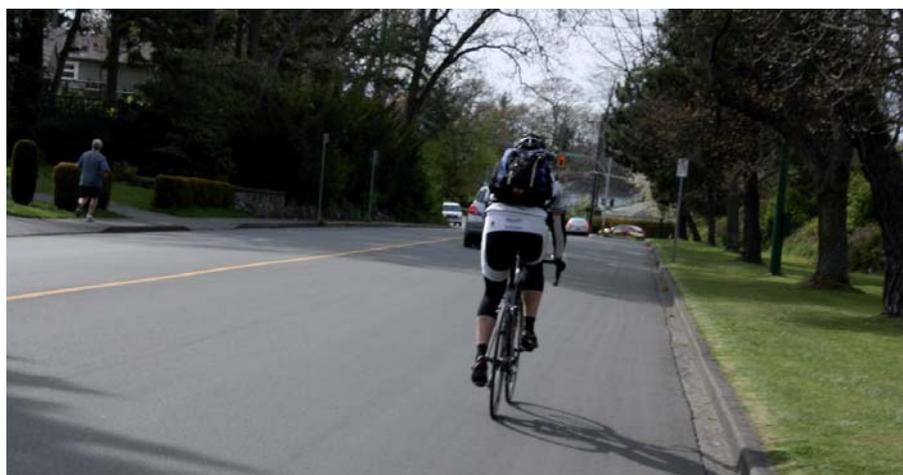
4.2b. Cedar Hill Cross Road Multi-use Trail

It is recommended that a roadside multi-use trail is explored along the northside of Cedar Hill Cross Road, adjacent the University of Victoria. It is suggested that the road right-of-way may be wide enough to include a 3.0 - 4.0m trail within the right-of-way, requiring no University property. Should there not be sufficient right-of-way, the District should work with the University to explore opportunities to acquire property as needed.

If unsuccessful in developing a roadside multi-use trail, the District should install bike lanes the length of Cedar Hill Cross Road. Bike lanes currently exist on the portion west of Henderson Road.



Cedar Hill Cross Road (looking west) currently has a wide area between the roadway and north property line which should be utilized as a multi-use trail.



Cedar Hill Cross Road is well used by pedestrians and cyclists, and offers unique potential for a road side multi-use trail along the north boundary of the University of Victoria.

4.3 Commuter Cycling Network

Commuter cycling routes are those that provide continuous routes along which long distance cycling trips are encouraged. They are typically located on major roadways and provide a level of protection from vehicle traffic either through physical separation, bike lanes, and/or signage.

Oak Bay’s existing commuter cycling network includes Cedar Hill Cross Road, Henderson Road / Foul Bay Road, Lansdowne Road, Cadboro Bay Road, Oak Bay Avenue, and McNeill Avenue. These routes facilitate connection to the area’s primary cycling destinations, including the University of Victoria, Camosun College, Oak Bay High School and Recreation Centre, Monterey School, Willows Elementary, and Glenlyon-Norfolk School. In addition, commuter routes provide an important function in connecting to destination beyond the District’s boundaries such as downtown Victoria, Royal Jubilee Hospital, Hillside Shopping Centre, and schools in Victoria and Saanich. At present, little of the commuter cycling network includes dedicated cycling facilities - Foul Bay Road has bike lanes along it, and both Cadboro Bay Road and Cedar Hill Cross Road with bike lanes on small portions.

Commuter cycling routes should be designed according to the CRD Pedestrian and Cycling Master Plan. The PCMP suggests that commuter routes should include a bike lane wherever possible, with consideration given to buffering the bike lane from vehicle traffic if space permits. Where bike lanes are not included in the interim, appropriate signage and paint markings should be included. See **Map 3**.

Design of commuter cycling routes should be done in accordance with the CRD Pedestrian and Cycling Master Plan and the TAC Bikeway Traffic Control Guidelines for Canada.

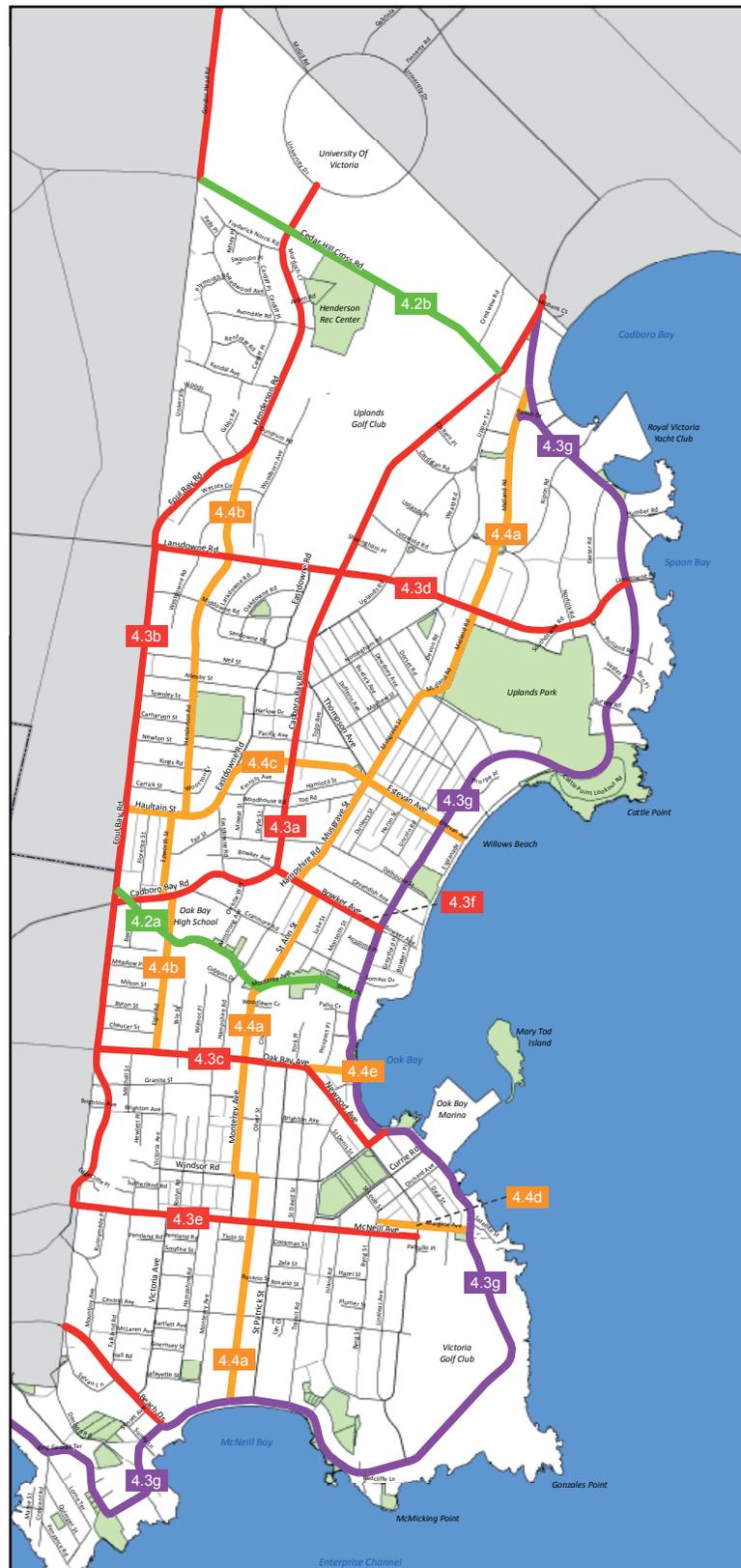
A summary of the recommended commuter cycling network is as follows:

Cadboro Bay Road	Bike lanes / shared lane
Henderson / Foul Bay Road	Bike lanes (complete)
Oak Bay Avenue	Bike lanes / shared lane
Lansdowne Road	Bike lanes / shared lane
McNeill Avenue	Shared lane
Bowker Avenue	Shared lane
Beach Drive	Shared lane

MAP 3 - RECOMMENDED TRAIL + BICYCLE NETWORK

TYPES OF ROUTES

- **MULTI-USE TRAILS** are typically paved off-road routes for all non-vehicular travel modes, including walking and cycling.
- **COMMUTER BIKE ROUTES** are typically major roadways with either bike lanes or wide shoulder lanes.
- **SCENIC BIKE ROUTES** are signed touring routes that follow pleasant cycling scenery and include limited dedicated cycling facilities.
- **NEIGHBOURHOOD BIKE ROUTES** include signs and paint markings along continuous routes, typically with limited vehicle traffic.



4.3a. Cadboro Bay Road Commuter Route

Cadboro Bay Road is an important commuter cycling route in the regional network, providing north-south access through the District, connecting to the neighbourhoods of Cadboro Bay Village, Uplands, Lansdowne, and Estevan Village, and linking at its south with bike lanes on Fort Street which is a primary route in the City of Victoria's bicycle network.

It is recommended that Cadboro Bay Road is developed along its length to include 1.8m bike lanes, at minimum. Where sufficient roadway width exists, consideration should be given to providing bike lanes that are buffered from vehicle traffic by 0.5m to provide a cushion of space and allow for cyclists to pass one another without entering the vehicle travel lane. The portions of Cadboro Bay Road north of Estevan Avenue are considerably wider than the southern portion and is more comfortable for cyclists at present, and should be considered a lower priority for improvement.

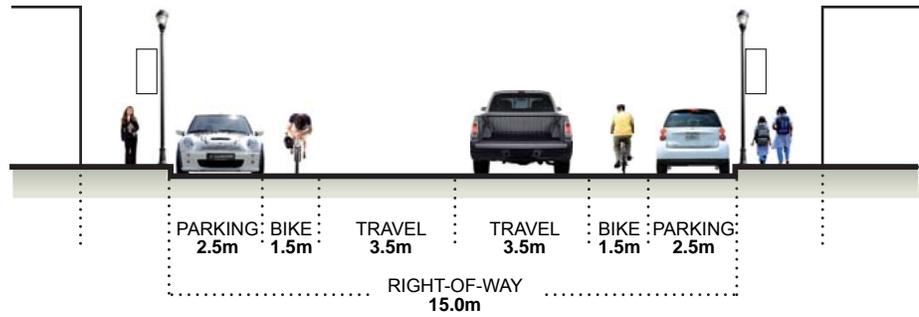
4.3b. Henderson Road / Foul Bay Road Commuter Route

Foul Bay Road and Henderson Road provides an important bicycle route to the University of Victoria, Camosun College, and significant residential populations within Oak Bay. The route currently has bike lanes along its length, which should remain into the future. Additionally, the following issues should be addressed:

- Portions of Foul Bay Road south of Cadboro Bay Road may be designed to a lower classification as they will be less heavily trafficked by cyclists.
- Henderson Road bike lanes are currently reserved for cyclists 7am-7pm Monday through Friday, otherwise they are available for on-street parking. It is recommended that the time restriction is eliminated and lanes made available to cyclists at all times. It is suggested that adjacent properties have sufficient off-street parking and additional parking is available on side streets as needed.

4.3c. Oak Bay Avenue Commuter Route

Oak Bay Avenue is the community's main street for shopping and services and should be designed to permit access by active travel modes. It is currently 14.5 - 15.0m in width from curb-to-curb and includes two vehicle lanes and on-street parking on either side. It is recommended that short-term the District look at opportunities to increase driver awareness of cyclists through signage and/or paint marking. Long-term the District may consider exploring opportunities to alter the road cross-section to include 3.5m travel lanes, 1.5m bike lanes, and 2.5 on-street parking spaces. Where roadway widths are slightly less than 15.0m, consideration should be given to narrowing lane widths to 3.2m. In the interim the District should develop signs reminding drivers that Oak Bay Village is a 'Bicycle Friendly Area' and encourage users to share the roadway.



Potential long-term roadway cross-section for Oak Bay Avenue, including bike lanes.

4.3d. Lansdowne Road Commuter Route

Lansdowne Road is identified as a commuter cycling route to include bike lanes. It is suggested that the portion of Lansdowne Road west of Cadboro Bay Road should include 1.5m lanes, widening to 1.8m where sufficient space exists. Consideration may also be given to providing a buffer between the bike lane and vehicle lane. The portion of Lansdowne Road east of Cadboro Bay Road in Uplands is of lesser importance as vehicle volumes are less. The District may choose not to install bike lanes on this portion, only provide pavement markings and signage.

4.3e. McNeill Avenue Commuter Route

McNeill Avenue provides an east-west cycling route for south Oak Bay residents to Richardson Street in the City of Victoria. It is recommended that McNeill Avenue include paint markings (ie. “sharrows”) indicating the appropriate bicycle travel location and signage identifying McNeill Avenue as a bike route.

The west end of McNeill Avenue should include signage guiding cyclists to Beach Drive, as described in Section 4.4d.

4.3f. Bowker Avenue Commuter Route

Bowker Avenue provides a convenient connection between Cadboro Bay Road and Beach Drive. It is recommended that Bowker Avenue includes paint markings and signage.

4.3g. Beach Drive Scenic Route

Beach Drive is a regional touring route used predominantly by recreational cyclists as a sight seeing route, as well as by local competitive cyclists as a long distance training route. Cyclists currently share the roadway with motorists and in most locations there is sufficient road width for vehicles to safely pass cyclists. It is recommended that the route includes better signage identifying it as a scenic route.

The portion of Beach Drive between Dorset Road and Broom Road is narrow, includes on-street parking and a number of driveways, and includes Willows Park and Glenlyon Norfolk School, which have large numbers of vehicles who enter/exit during certain periods. It is recommended that the District consider signage and paint markings that encourage cyclists to ride in the middle of the travel lane and require motorists to travel single file with cyclists. This will inconvenience motorists who are required to travel single file with cyclists, but will reduce safety concerns of motorists overtaking cyclists on this constrained portion of roadway.



Beach Drive is a regional touring route popular with recreational and competitive cyclists. The scenic vistas and look outs attract locals and visitors from across the region.

4.4 Neighbourhood Bikeway Network

The neighbourhood bikeway network is intended to provide a series of local connections within Oak Bay, linking villages, schools, and recreation destinations. See **Map 3**. These routes should be designed to increase the profile of cyclists relative to vehicles, to include features such as traffic calming diversions, bicycle pavement markings, and signage indicating appropriate usage. Signage needs to indicate the route as a neighbourhood bikeway and identify destinations along its length. Design guidance is provided in Section 1.7 of the PCMP design guidelines and in the TAC Bikeway Traffic Control Guidelines.

4.4a. Central Oak Bay Neighbourhood Bikeway

The Central Oak Bay Neighbourhood Bikeway will provide a continuous priority cycling route along low volume roadways connecting Estevan Village, Willows Elementary School, Oak Bay High School, Oak Bay Avenue, and Monterey Middle School. This will be a desirable alternative to travelling on Cadboro Bay Road or Beach Drive. The route consists of three sections.

1. The northern-most portion starts north of the Uplands neighbourhood, travels southbound along Midland Road / Musgrave Street to the intersection with Estevan Avenue. This section may be designed with minor improvements that may include minimal local traffic calming and intersection treatments, signs to indicate the route and local destination, and paint markings.
2. The central portion consists of the portions of Musgrave Street / Hampshire Road, between Estevan Avenue and Oak Bay Avenue. This section is referred to as the “Village to Village”. This portion of the bikeway bisects roadways with higher vehicle volumes, and will require more significant bikeway design features including traffic calming, paint markers, intersection treatments and signs.
3. The southern-most portion consists of Monterey Avenue and Oliver Street, from Oak Bay Avenue to Beach Drive. This section may be designed with minor bikeway improvement that include signs indicating the route and local destinations, paint markings, road surface improvements and minor traffic calming if required.

A concept plan will need to be developed to provide direction on the specific signage, paint markings, and traffic features that will be included along the bikeway. Any traffic calming undertaken during the development of Neighbourhood Bikeways should be developed using the processes and features outlined in the Canadian Guide to Neighbourhood Traffic Calming. It is suggested the central portion of the bikeway should be highest priority.

4.4b. Henderson Road Neighbourhood Bikeway

The Henderson Road Neighbourhood Bikeway will provide a continuous priority cycling route along Henderson Road and a series of undeveloped rights-of-way, connecting Oak Bay Avenue, Oak Bay High School, Carnarvan Park, and the University of Victoria. This will be a desirable alternative to cycling on Foul Bay Road and Cadboro Bay Road.

- The northern-most portion of the bikeway follows Henderson Road, from Foul Bay Road to Kings Road. This section may be designed with minor improvements, including minimal local traffic calming and intersection treatments, signs to indicate the route and local destination, and paint markings.
- The middle portion of the bikeway is the undeveloped portion of the Henderson Road right-of-way, between Kings Road and Haultain Street. This right-of-way should be developed to a multi-use pathway standard, per the PCMP design guidelines.
- Epworth Street should be designed similar to Henderson Road and Elgin Road.
- A multi-use route should be identified through the Oak Bay High School site and adjacent the District's public works yard, per Sections 4.1a and 4.1b.
- Elgin Road should be designed similar to Henderson Road and Epworth Street.

4.4c. Haultain-Estevan Neighbourhood Bikeway

The Haultain-Estevan Neighbourhood Bikeway route helps address the gap in east-west cycling routes between Lansdowne Road and Cadboro Bay Road / Bowker Avenue. This route will connect Willows Beach, Beach Drive, Estevan Village, and Cadboro Bay Road, while allowing for connection to the greenway priority route on Haultain Road in the City of Victoria. The route should be designed with minor improvements, including minimal local traffic calming and intersection treatments, signs to indicate the route and local destination, and paint markings.

4.4d. McNeill Avenue - Beach Drive Neighbourhood Connection

An eastward extension of the McNeill Avenue cycling route to Beach Drive can be achieved along St Louis Street and Margate Avenue, connecting to the new Oak Bay Beach Hotel and a higher density residential pocket. Signage and paint markings should be included along St Louis Street and Margate Avenue as wayfinding for cyclists and to indicate the presence of cyclists to motorists.

4.4e. Oak Bay Avenue - Beach Drive Neighbourhood Connection

Currently cyclists cannot travel directly between Beach Drive and Oak Bay Avenue, as there is a steep embankment with a staircase. Instead they must use Windsor Road and Newport Avenue, which introduces inconvenience and confusion.

It is recommended that a direct connection is established at the eastern end of Oak Bay Avenue. This could be accomplished by providing ramps adjacent the existing pathway that accommodate cyclists and wheelchairs or retrofitting the existing staircase to include a bicycle channel (see photos below). The District may also consider reviewing the Oak Bay Avenue / Newport Avenue intersection to ensure safe cycling conditions.



A bicycle stairway channel (left) and wheelchair accessible ramps (right) are examples of features that can be built into staircases to better accommodate bicycle and wheelchairs.

4.5 Laneway Network

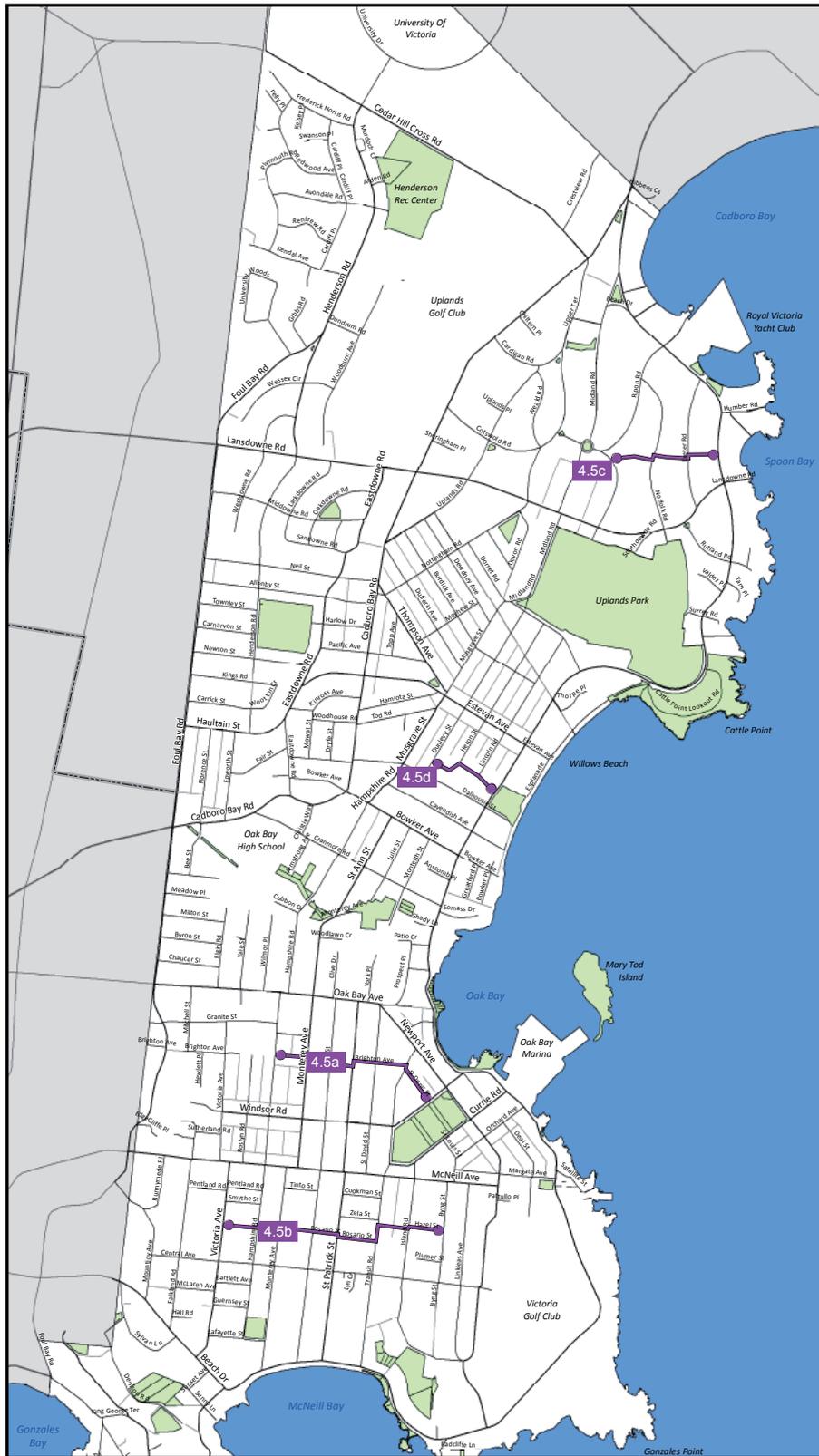
Laneways provide an important secondary network in the walking and cycling networks. It is recommended that the existing laneway network is enhanced to strengthen continuous connection along the following laneway routes (see **Map 4**):

- **4.5a.** Hampshire Road - Windsor Park Connection
- **4.5b.** Victoria Avenue - Byng Street Connection
- **4.5c.** Ripon Road - Beach Drive Connection
- **4.5d.** Dunlevy Street - Beach Drive Connection

No new laneways are recommended, only enhancements to existing routes. Each route should be considered for enhancement using the following features:

- Trailhead signs should identify laneway routes and destinations along the route
- Surface conditions should be maintained to a reasonable walking condition
- Crossing points should include warning signage for motorists (MUTCD, WC-7)
- General safety should be assessed using CEPTED criteria

MAP 4 - RECOMMENDED LANEWAY NETWORK



Legend

- 4.5a** - Hampshire - Windsor Park
- 4.5b** - Victoria Ave - Byng St
- 4.5c** - Ripon Rd - Beach Dr
- 4.5d** - Dunlevy St - Beach Dr

5.0 Recommended Infrastructure

Active transportation infrastructure is the facilities that support the network by improving safety, security, comfort, and overall options for active transportation in Oak Bay. The following section identifies infrastructure options for Oak Bay.

5.1 Accessibility

Accessible infrastructure and buildings allow residents with mobility challenges to successfully navigate their community independent of assistance. This can be an empowering experience for those who would otherwise require the assistance of others to meet their own personal mobility needs. It is also a means to create a community that is inclusive and enjoyed by all.



Example of recent curb ramp improvements in Oak Bay aimed at ensuring an appropriate slope and tactile warning strips that identify the crossing point.

5.1a. Pursue Accessibility Committee Actions

Oak Bay's Accessibility Committee is in the process of surveying and prioritizing accessibility improvements in Oak Bay Village. Rather than identify additional improvements, this document recommends that the District use the findings of this study to improve community accessibility and commit funds to ensuring the studies recommendations are implemented over time. The accessibility committee should also be encouraged to undertake audits in other areas of the community.

5.2 Signs

Signage is an important component of the pedestrian, cycling, and trail routes identified in *Section 4.0*, and include informational, warning, and regulatory signs. It is important that signs are installed according to regional and national standards, but also which reflect the character of Oak Bay. The following guidance is provided.

Generally, signs should be installed per the Transportation Association of Canada (TAC) Manual of Uniform Traffic Control Devices for Canada (MUTCD), with reference to the CRD's Pedestrian and Cycling Masterplan (PCMP) design guidelines. The following provides guidance on specific signs in Oak Bay.



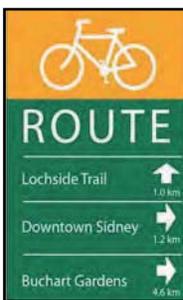
Pedestrian Wayfinding Signs

Oak Bay has a series of existing pedestrian wayfinding signs that are yellow-black and provide direction and distance information to important community destinations. Although different from those suggested in the PCMP, the District should continue using the yellow-black pedestrian wayfinding signs currently in use.



Trailhead Markers

Oak Bay's trailhead markers are a wooden pillar with the trail name and directional arrows to mark the beginning of the trail. These signs should continue to be used to mark trailheads in Oak Bay.



Bicycle Wayfinding Signs

Bicycle wayfinding signs are those that indicate the presence of a bike route for both cyclists and motorists, and provide information to cyclists on direction and distance to other bike routes. The District currently uses standard green bike route signs on most routes, and yellow "tabs" on Beach Drive. It is recommended that the District adopt the recommended bike route sign from the PCMP (shown at left) for consistency with the rest of the Capital Region.

5.3 Cycling Trip End Facilities

Cycling trip end facilities provide the items needed to ensure cyclist comfort and convenience, as well as safety and security for their bicycle. They typically include bike parking, bike racks, and shower/change facilities.

5.3a. Establish Bike Parking Requirements in Zoning Bylaw

Bicycle parking may be provided as one of two types:

1. Long-term parking is covered, secure, and weather protected. It is intended for employees and residents.
2. Short-term parking is a typical “bike rack”, and is intended for shoppers and residential visitors.



Bicycle parking is either intended for long-term (left) or short-term use (right).

Many municipalities in the Capital Region have provided bicycle parking requirements in their zoning bylaw, including Victoria, Saanich, Langford, Colwood, Central Saanich, and Sidney. The District should alter the Zoning Bylaw to require that all future multi-family residential, office, retail and institutional development includes bicycle parking. Suggested bicycle parking rates are below. Consideration should also be given to a requirement for all employment land uses (ie. office, retail, etc) to provide showers, change rooms, and lockers available to cyclists. For detailed bike rack specifications see the PCMP design guidelines Section 6.2.

Multi-family Residential	One rack at the main entrance, plus 0.5 long-term spaces per unit.
Retail	One rack at the main entrance, plus 1.0 long-term space per 400m ² GFA
Office	One rack at the main entrance, plus 1.0 long-term space per 200m ² GFA
Institutions	One rack at each major entrance, plus a quantity of long-term spaces determined in consultation with District staff.

5.3b. Increase Public Bike Racks

Previous consultation and communication with the local bicycle community suggests that there are key locations in Oak Bay lacking bicycle parking, including Monterey and Willows Schools, Estevan Village, and along Cadboro Bay Road. It is suggested that the District establish an annual budget to supply bike racks throughout the community. The District should also work with the Community Initiatives Committee (CIC) and the local cycling community to identify and prioritize locations for new bike racks. Local schools have been identified as a location where bike racks do not meet demand, and it is suggested that the District work with the School District to install new facilities.

KELOWNA'S BIKE RACK PROGRAM

The City of Kelowna has bike rack cost-sharing program where the City and a local business will split the cost of installing a new bike rack, with the City retaining responsibility for design, siting, and installation of the bike rack.

For details refer to: www.city.kelowna.bc.ca/CM/Page1059.aspx

VICTORIA'S BIKE CORRALS

The City of Victoria has allowed in two locations for parking spaces to be replaced with bike parking corrals. These facilities can accommodate a number of bicycle parking spaces in a single vehicle space, and signify the importance of bicycles in the area. The example shown below is at Johnson / Government St in downtown Victoria. Bike corrals are appropriate where bike parking is proven well utilized and no additional sidewalk width is available.



5.4 Bike Station

A bike station is a kiosk for basic bicycle maintenance, typically including a series of bike stands, air pump, wash station, and options to access basic tools. It may also be integrated with bicycle parking and electric charging facilities.

5.4a. Create Public Bike Station

The District should create a public bike station on a one-year trial basis. The station should be located on Oak Bay Avenue, in front of Municipal Hall and should be coordinated with proposed electric charge stations for scooters / electric bicycles. The District should also consider coordinating with local businesses (ie. bike shop) to provide information on where additional bicycle-related services are available. The bike station should be signed from cycling routes and identified with Oak Bay's active transportation colours / logo. If the station is well-used the District should consider expanding the program to establish additional stations at Oak Bay Recreation Centre, the Fort Street / Foul Bay Road intersection, and/or the Estevan Village. The Municipal Fire Hall on Monterey Avenue currently offers an air hose free of charge.

UVIC'S BIKE KITCHEN

UVic's "Bike Kitchen" is an outdoor facility occupying a former bus shelter available at all hours. The Bike Kitchen allows cyclists to make repairs and includes several bike stands, a variety of tools, and compressed air. UVic also operates a part-time bicycle tune-up facility with skilled bicycle mechanics and opportunities to purchase bicycle parts.

For more information refer to web.uvic.ca/uvbikes/pages/bikekitchen.html



5.5 Electric Charge Station

In future, electric charge stations could provide charging facilities for those using electric scooters (ie. motorized wheelchairs) and electric bicycles. These facilities are importation if electric travel modes are to be encouraged for longer trips. The University of Victoria has installed electric bike charging stations on campus free of charge to users. The stations are simply near an existing bike rack with a plug in and space to park and lock a bicycle or electric scooter. (see photos to the right)



5.5a. Create Electric Charge Station

It is recommended the District develop one charging station with space for two scooters to charge in front of the Municipal Hall on a trial basis. This station may be integrated with the bike station identified in Section 5.3a. If the charge station is well-used, the District should consider expanding the program to include charge stations in other areas, including Estevan Village, recreation centres, the library, and major parks such as Willows Beach and Windsor Park.



Example of the electric bike charging stations at UVic.

5.6 Bus Stops

While transit itself is not active transportation, walking is a requisite portion of a transit trip and therefore contributes to active transportation. Transit service planning is the responsibility of BC Transit, however the design, construction, and maintenance of bus stops is the District's responsibility.

Well designed bus stops improve the experience of waiting for transit. Bus stops should be universally accessible and include quality walking routes leading to them, with sidewalks of sufficient width and curb ramps. Bus stops must include basic identification signage and curb markings, but consideration should also be given to including route information, a bench, shelter, garbage bin, and lighting.

BC Transit's Infrastructure Design Guidelines (2010) provides detailed guidelines for bus stop design and accessibility.

5.6a. Increase Bus Stop Amenities

Oak Bay should undertake an audit of existing bus stops to ensure routes leading to all bus stops are accessible and basic amenities are provided. The District should allocate an annual budget to increase the amenities supplied at bus stops, with priority on stops with greatest need and the highest passenger volumes.

6.0 Recommended Programs, Policies, and Regulations

The following sections identify programs, policies, and regulations to create a framework to encourage active transportation in Oak Bay.

6.1 Policies / Regulations

6.1a. Develop Mode Split Targets

Mode split refers to the percentage of the communities trip made by each travel mode, and typically accounts for trips made by single-occupant vehicle, shared vehicle, transit, cycling, and walking. Many municipalities monitor their travel mode split over time to determine the effectiveness of their efforts in affecting changes in travel habits. The District should consider developing mode split targets using a method consistent with that used in CRD planning (see *Section 3.5.3*).

6.1b. Create Complete Streets Policy

The National Complete Streets Coalition defines complete streets as follows....

“Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are able to safely move along and across a complete street. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations.”

The District should consider developing a “complete streets” policy which specifies that all modes will be considered equally when undertaking upgrades to transportation infrastructure. As an example, the policy would require that the public works department consider the need for bike lanes and road surface repairs are being planned. This will ensure that the non-vehicular network will be improved as on-going road maintenance is undertaken, as well as ensure that upgrades to the network are made in an efficient, coordinated manner across municipal departments.

COMPLETE STREETS

For more information on Complete Streets and some of the innovative approaches other communities are taking, visit the National Complete Streets Coalition’s website - www.completestreets.org

6.1c. Alter Parking Cash In-lieu Policy

The Local Government Act (LGA), Section 906 includes a provision for municipalities to accept “cash in-lieu” of required parking supply. The District currently has the cash in-lieu rate at \$9,700 per space only for properties where an off-street public parking facility is located within 250m. The LGA has more recently been amended to permit municipalities to accept cash in-lieu of parking and use toward infrastructure that supports walking, bicycling, public transit or other alternative forms of transportation. The District has established a separate Alternative Transportation Infrastructure Reserve Fund based on recent LGA provisions.

The District should consider the following opportunities to make better use of cash in-lieu funds for alternative transportation.

1. The Parking Reserve Fund consists of over \$800,000 and has not been actively used (no expenditures in 2010), while almost half of the Alternative Transportation Infrastructure Reserve Fund’s \$50,000 were spent in 2010. The concern is that a lack of reserve funds is contributing to low annual budgets for alternative transportation infrastructure, while parking funds remain under-utilized. The District transfers funds from the Parking Reserve to the Alternative Transportation Reserve as needed. It is suggested the District continue transferring funds as needed, while continuing to involve the Business Improvement Association in these decisions.
2. The District should continue working with the Business Improvement Association to monitor parking conditions in the Oak Bay Village. Should it become necessary to alter current parking management practices, it is recommended that the District first seek options to better manage existing parking supply rather than use the Reserve Fund to construct addition spaces. This would be a more efficient means of satisfying parking demand, while retaining funds for use toward alternative transportation facilities.
3. The District should eliminate the clause that properties must be within 250m of public parking facility in order to be eligible for cash in-lieu, as those funds are now being used for reasons other than parking (ie. alternative transportation).

6.1d. Address Restrictive Regulations

Two regulations were discovered which restrict the use of wheeled apparatuses in the community and discourage active transportation. It is suggest the District review and consider revising the following regulations:

- Regulations that restrict the use of wheeled apparatuses in parks; and
- Regulations limiting the use of skateboards and rollerblades on certain blocks.

TORONTO SIDEWALK BYLAWS

The City of Toronto passed a bylaw allowing bikes with tire radius of less than 24" / 61 cm to ride on the sidewalk - allowing children to ride within the safety of the sidewalk while they learn and gain experience. The City of Toronto also allows rollerskaters, inline skaters, scooters and skateboarders to use the sidewalk provided they use due care.

For details see: toronto.ca/cycling/safety/sidewalk/sidewalk.htm

6.2 Community Programs

6.2a. Create a Logo / Image

Oak Bay should develop a logo / image for active transportation in the community. The logo / image would be branded through the Parks and Recreation department and used throughout the community on signs, bike routes, event materials and the Internet.



Examples of logos / images used in other communities to promote active transportation.

6.2b. Offer Web-based Travel Information

The District should develop a website to provide information on travel options in the community. The website should provide information on the benefits of active travel, options available, schedules / maps, operating tips, weather updates, and a calendar of events. Much of this information is already available on the web in one form or another, but is not available all in one place and is not tailored for residents of Oak Bay.

It is suggested that the District consider including the following information on the website:

- Background on the benefits of healthy living and active transportation, with links to other websites of interest.
- Walking / hiking route maps, which are already available on Oak Bay's website.
- Jogging route maps that provide routes of varying length and difficulty. Suggested routes are included in the Appendix, but should be reviewed in consultation with representatives of the local running community.
- Cycling route maps showing designated commuter routes and neighbourhood bikeways. Should also include bike parking locations, bike station, and private services.
- Links to transit maps and schedules. May also include maps showing the location of bus stops in Oak Bay, including those that are accessible.
- News, articles of interest, and a schedule of special events.

EXAMPLE WEBSITES

The City of Vancouver has an excellent transportation options home page entitled "Clean, Green & Healthy Transportation". The website is shown at right and can be seen at - www.vancouver.ca/engsvcs/transport/cleanGreen/index.htm

Other examples are listed below:

- Saanich - www.saanich.ca/services/roads/index.html
- Kelowna - www.kelowna.ca/CM/Page633.aspx
- Kamloops - www.kamloops.ca/transportation/index.shtml
- Portland - www.portlandonline.com/transportation
- Seattle - www.seattle.gov/transportation/citytrip.htm

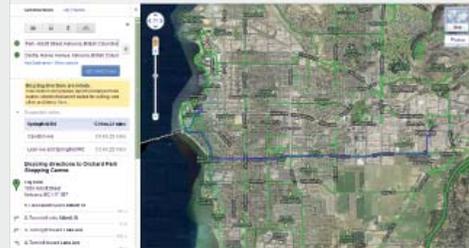


GOOGLE MAPPING OPPORTUNITIES

Google Maps has become a valuable resource for communities to provide their residents with information and tools in making transportation choices.

Online Bicycle Route Finding

Recently Google Maps added nine Canadian communities to their online bicycle route mapping system. This service allows a user to enter their origin and destination, and Google Maps provides travel directions along marked bicycle routes. Kelowna (right) and Vancouver are the two BC communities currently available.



Portland's 'Hot Spots'

Portland has developed a system which allow users to input cycling "problem areas" throughout the city. These comments can then be reviewed and acted upon by the municipality as necessary.



6.2c. Create a Transportation Coordinator Position

Develop a position within the municipality whose role is to champion active transportation in the community. The position could be a new position or it could be a new responsibility placed on an existing employee. The responsibilities of this position would include coordinating the recommendations of this document, promoting active transportation and special events, liaising with external agencies and community groups, and ensuring that the District's continues to meet the transportation needs of residents in its on-going operations.

CHICAGO'S BIKE AMBASSADORS

The City of Chicago has a team of bike ambassadors (and junior ambassadors) who ride around the city, attend events and provide education, demonstrations, helmet fittings and tips and tricks for better cycling related experiences for everyone! They also encourage more people to bike!



For details see: www.bicyclingambassadors.org

6.2d. Promote Events

It should be the responsibility of the transportation coordinator to organize and promote special events that encourage the use of active modes. This can be done through the website (Section 6.2b), community groups, media, and by organizing with various external agencies. Some of the events that promote active transportation include:

- Bike to Work Week (June)
- Jane's Walk
- World Carfree Day (Sept 22)
- Earth Day (April 22)
- Family Bike Rides
- Tweed Ride

6.2e. Offer Bicycle Skills Courses

Oak Bay should partner with local bicycling groups and shops to offer bicycle skills courses, which teach the “rules of the road” for cyclists, tips for confident cycling, and the basics of bicycle maintenance. Programs should be tailored for children, adults and seniors, as well as for recreational and commuter cyclists. Children's courses could be offered at school or at local parks on weekends or after school, adults and seniors programs should be offered at a variety of times. Bicycle skills courses are a relatively inexpensive way to increase activity, improve cyclists confidence, and encourage cycling in Oak Bay residents, particularly those at a young age.

The Canadian Cycling Association's CAN-BIKE program organizes bicycle skills courses throughout Canada. For more information see - www.canbike.net



Bike skills courses can be fun and educational for any level of riders.

6.2f. Community Consultation

In order to move forward with the implementation of this Strategy and other active transportation work in Oak Bay, the District will need to undertake community consultation to gather ideas and input from throughout the community. The consultation process should enable residents to provide feedback help to drive the process of implementing active transportation strategies, as well as build momentum and support for the spending of public monies on active transportation infrastructure.

The process of developing this document did not include any consultation with Oak Bay citizens. It is recommended that the District host a community event to present the findings of this document and gather feedback on the proposed network plans and specific recommendations.

Secondly, consultation will be required when creating concept plans for the various pedestrian routes, commuter cycling and neighbourhood bikeway routes, and multi-use trails proposed in this document. The District must work with adjacent property owners to ensure they are aware of proposed changes and have the change to provide input. The broader community must also be consulted to ensure that routes are developed that meet community needs.

The District should also give consideration to building on the ideas, thoughts, and enthusiasm from existing community groups who work on active transportation related events and work. Events like these help the community become more aware of the travel options available and become more engaged in communicating the programs and facilities they would like to see in their community.

7.0 Implementation

7.1 Summary of Actions

The following is a summary of the recommended actions identified in Section 4 - 6. It is suggested that the District should consider these actions and description of each in developing a comprehensive implementation plan.

Pedestrian Network

4.1a - Oak Bay Highschool Connections	To be undertaken in coordination with the redevelopment of Oak Bay Highschool.
4.1b - Elgin Avenue / Public Works Walkway	To be undertaken in coordination with the redevelopment of Oak Bay Highschool and the Henderson Neighbourhood Bikeway.
4.1c - Henderson Recreation Centre / Uplands Campus Trail	Will require coordination with School District and University of Victoria. Should be integrated with Cedar Hill Cross Road Multi-Use Trail (4.2b).
4.1d - Walkway Signage	Short-term action item, only signage is required.
4.1e - Safe Routes to Schools	Pursue recommendations of the 2007 studies.

Multi-Use Trails

4.2a - Bowker Creek Multi-use Trail	May be complete in sections / blocks. Coordination with regional plans needed.
4.2b - Cedar Hill Cross Road Multi-use Trail	Coordination required with University of Victoria. If unsuccessful, on-street option may be pursued in short-term.

Commuter Cycling Network

4.3a - Cadboro Bay Road Commuter Route	High priority in southwest portion. May be addressed in Oak Bay Highschool redevelopment. Northeast portion lower priority.
4.3b - Henderson Road / Foul Bay Road Commuter Route	Much of the route is already developed, only minor improvements needed.
4.3c - Oak Bay Avenue Commuter Route	Further study needed to determine cross section, including potential for narrowing lane widths and/or narrower bike lanes.
4.3d - Lansdowne Road Commuter Route	Western portion higher priority. Further study needed to determine available width.
4.3e - McNeil Avenue Commuter Route	Minimal upgrades needed, most markings/signage already in place.
4.3f - Bowker Avenue Commuter Route	Minimal upgrades needed, most markings/signage already in place.
4.3g - Beach Drive Scenic Route	Minimal improvements needed for majority of route. Further study needed on portion between Dorset Road and Broom Road

Neighbourhood Bikeways

4.4a - Central Oak Bay Neighbourhood Bikeway	Some infrastructure improvements needed. Should be highest priority bikeway route.
4.4b - Henderson Road Neighbourhood Bikeway	Infrastructure improvements associated with creating pathway. May be coordinated with Oak Bay Highschool redevelopment.
4.4c - Haultain - Estevan Neighbourhood Bikeway	Minor infrastructure improvements required.
4.4d - McNeill - Beach Neighbourhood Connection	Requires only signage / paint markings. Should be coordinated with McNeill Avenue commuter route improvements (4.3e).
4.4e - Oak Bay - Beach Neighbourhood Connection	Requires infrastructure improvements and consultation with adjacent property owners.

Laneway Network

4.5a - Hampshire Road - Windsor Park Connection	Requires only minor upgrades. Should be addressed with other laneway routes.
4.5b - Victoria Avenue - Byng Street Connection	Requires only minor upgrades. Should be addressed with other laneway routes.
4.5c - Ripon Road - Beach Drive Connection	Requires only minor upgrades. Should be addressed with other laneway routes.
4.5d - Dunlevy Street - Beach Drive Connection	Requires only minor upgrades. Should be addressed with other laneway routes.

Infrastructure

5.1a - Pursue Accessibility Committee Actions	To be addressed once Accessibility Committee report is complete.
5.3a - Establish Bike parking Requirements	Short-term administrative action.
5.3b - Increase Public Bike Racks	On-going action, requires annual budget.
5.4a / 5.5a - Create Public Bike Station and Electric Charge Station	Short-term action requiring funding.
5.6a - Increase Bus Stop Amenities	Requires on-going funding and coordination with regional transit authority.

Policies / Regulations

6.1a - Establish Mode Split Targets	Requires further consultation with community and external jurisdictions.
6.1b - Create Complete Street Policy	Short-term action, requires only administrative work.
6.1c - Alter Cash In-Lieu Policy	Short-term action, requires only administrative work.
6.1d - Address Restrictive Regulations	Short-term action in need of further study.

Community Programs

6.2a - Create a Logo / Image	Short-term action to be coordinated with other community programs.
6.2b - Offer Web-based Travel Information	To be coordinated with other community programs.
6.2c - Create a Transportation Coordinator Position	On-going action. Requires on-going budget.
6.2d - Promote Events	On-going action.
6.2e - Offer Bicycle Skills Courses	On-going action.
6.2f - Community Consultation	On-going action. Consult with community on outcomes of this plan, as well as in future implementation stages.

7.2 Funding Opportunities

Monetary Donations

It is common-place for residents or organizations to donate property and/or funds toward community infrastructure as a form of philanthropy. Any donations, either land or funds for facilities, will help the District work toward the future active transportation network. There are a number of ways the District may facilitate this process by making it simpler and more attractive to potential donors.

- The District could establish an endowment fund to instill confidence in potential donors that their contributions will be used for the intended purpose;
- The District may issue official donation receipts for the appraised market value of donated property or facilities, which the donor may use as a tax credit;
- The District could promote the donation process so any potential donors are aware of the process and the benefits to them; and
- Donors should be recognized in the media to honour donors and develop a sense of pride around community development. Suggested media could include the Oak Bay News and the District's website.

Oak Bay has been very successful with its bench program and it is possible this program could be expanded to incorporate other opportunities for donations. Oak Bay could expand this program and develop an 'adopt a...' and in memoriam program for community features including:

- Bike racks
- Section of trail
- Brick pavers
- Garden planters

Donations of Time or Funds

Oak Bay has many active social groups who provide time and/or funds in support of various community initiatives, such as the native plant garden and portions of the Centennial Trail. The District should continue to solicit help in either time or monies toward some the recommendations contained in this document.

Grants

There are a variety of Provincial and Federal infrastructure grant programs that Oak Bay may pursue as a sources of funding for active transportation infrastructure. Grant programs are constantly changing and the District should remain active in seeking out new Provincial or Federal funding initiatives. The following is a sampling of the grant programs currently available.

- The Canadian Gas Tax Fund provides support toward infrastructure that contributes to cleaner air and reduced greenhouse gas emissions. The District has committed the majority of these funds to other projects.
- The Green Municipalities Fund provides loans and grants to implement capital projects, funding is granted in five categories, Oak Bay may consider applying under the Transportation category. Intake until December 2011.
- EcoAction Community Funding Program - community groups and associations can apply for this grant, municipalities are not eligible but can partner with community groups to support the applications. Applications are accepted up until 11 November 2011.
- ICBC Road Safety Improvements - ICBC provides funding for road safety improvements in communities across BC. Currently no intake.

Land Development

The Local Government Act (LGA) includes a number of opportunities to leverage funds for active transportation infrastructure through land development, including sidewalk requirements, development cost charges, density bonusing, and parks provision through subdivision. Land development occurs infrequently in Oak Bay, however when it does occur the District should look for opportunities to leverage funds for active transportation.

References

- BC Transit (2010). Infrastructure Design Guidelines
- Canadian Automobile Association (CAA). Driving Costs, 2007 Edition.
- Canadian National Institute for the Blind (1998). "Clearing Our Path"
- Canadian Standards Association (2004). Accessible Design for the Built Environment (CAN/CSA-B651-04 (R2010))
- Capital Regional District (2011). Pedestrian & Cycling Master Plan
- Go for Green (1998). "1998 national survey on active transportation: summary report". Ottawa.
- Jacobsen, P. L. (2003). "Safety in numbers: more walkers and bicyclists, safer walking and bicycling." Injury Prevention 9(3): 205-209.
- Katzmarzyk PT (2002). "The Canadian obesity epidemic: an historical perspective." Obesity Research 10(7): 666-74.
- Katzmarzyk, P. T., N. Gledhill, et al. (2000). "The economic burden of physical activity in Canada." Canadian Medical Association Journal. 163(11): 1435-1440.
- Luton J (2005). "Bicycles at rest: a bicycle parking best practices guide." Capital Bike and Walk Society.
- Provincial Health Services Authority (2007). "Creating a Healthier Built Environment in British Columbia".
- Public Health Agency of Canada (2008). Obesity in Canada – Snapshot.
- Sari N (2009). "The impact of physical inactivity on Canadian health care". Alberta Centre for Active Living.
- Transportation Association of Canada (2010). Bikeway Traffic Control Guidelines for Canada.
- Transportation Association of Canada (1998). Canadian Guide to Neighbourhood Traffic Calming.