

Qualicum Beach Cycling Plan

For the:
Town of Qualicum Beach



Submitted by:

HB LANARC

with

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Qualicum Beach Cycling Plan
prepared by **HB Lanarc Consultants Ltd.**



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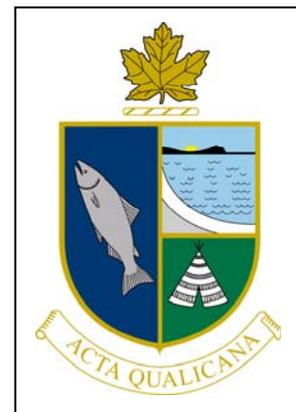


Table of Contents

Introduction and Summary	1
Cycling Standards.....	3
Bikeway Priority Selection Process.....	4
Recommended Priorities: 10-11 Year Plan.....	8
Short Term Improvement Priorities	11
Project Segments.....	12
Implementation Steps.....	31
Changes to Related Policy Documents.....	33
Appendix A	Qualicum Beach Maps
Appendix B	Cycle Project Segment Illustrations
Appendix C	Bicycle Facility Design Guidelines
Appendix D	Public Input Results
Appendix E.....	Cycle Facility Budgeting Tool
Appendix F.....	Slide Show and DVD

Introduction and Summary

Qualicum Beach residents love to cycle, as evident in both the number and variety of cycling groups in the Town. However, as the Town seeks to lower green house gas emissions and reduce the dependence of the automobile through a sustainable transportation system, bicycle facilities need to be improved to standards that address commuter and recreational needs.

The existing Official Community Plan includes a long-term system of interconnected loop circuits throughout the Town—shown on the Recreational Greenways map. As a long-term goal, this map remains valid. This cycling strategy provides a more detailed assessment of implementation, priorities, and design standards for cycling facilities to be implemented in phases towards the Recreational Greenways long-term vision.

Short term priorities are driven by a strong demand for improvements from citizens. A pathway system including both on street facilities and separate pathways are planned to connect the elementary, middle, and secondary schools to the neighbourhoods, downtown core, and Regional cycling routes. This continuous route will form a 'Spine' in the cycling system in the short term. Longer term priorities will extend the cycle loops to the waterfront and other Qualicum Beach amenities.

In general, the Cycling Plan encourages Council to fund a 10-11 year program of cycle system improvements. Funding will tend to follow matching grants from senior governments, with a general intent of a \$100K plus soft costs per year investment from the Town if annual budgets allow, and if matching funding from other sources is available.

A Cycling Budgeting Tool is provided in Appendix F that will allow regular staff review and update.



Two types of bicycle facilities are introduced in this report: on-street and off-street:

1. On street facility types depend on several factors: the width of the road, volume and speed of motor vehicle traffic, number of turning vehicles, and presence of on-street parking and buses.

- On street types addressed in the Cycling Plan are shared routes, bicycle lanes, and paved shoulders.

2. Off street facility types are generally separate from the road network.

- The off street type addressed in the Cycling Plan is a multi-use pathway serving a wide range of users; cyclists, pedestrians, in-line skaters, skateboarders, persons with strollers and pets, and persons in wheelchairs.
- Refer to the Bicycle Facility Design Guidelines in Appendix C for descriptions and guidelines for each facility type.

Cycling Standards

Qualicum beach hosts a wide range of trails, pathways, and on street facilities for pedestrians and cyclists. Most are decent for pedestrian walk-ability, but many are not suitable for the requirements of cyclists. Cycling routes in Qualicum Beach need to be brought to both provincial and national standards to accommodate the local and regional interest in cycling - refer to Design Guidelines for details.

- On-street cycling facilities require the safest way to accommodate cyclists by treating them as vehicles with roadways designed accordingly.
- Off-street Pathway widths and surface treatments need to be improved to a multi-use standard.



Example of off-street pathway



Example of on-street bikelane

Bikeway Priority Selection Process



The Qualicum Beach Cycling Plan is grounded in both a technical process and a public consultation process. The process:

- Gathered and examined existing maps and land databases, the OCP, completed field tours of neighbourhoods and destination points such as schools, job sites, and recreation areas.
- Mapped and analyzed known gaps in the existing trail system.
- Identified existing cycling routes in need of improvements through examination of maps, on-site visits, and consultation with local cyclists.
- Consulted with the Island Corridor Foundation regarding the study area undertaken, and with the railway operator concerning current engineering and design standards for rail-side trails and crossings.
- Discussed with town staff upcoming capital improvements; facilitating better linkages (e.g. Berwick Road crossing).
- Summarized opportunities and constraints in maps and text. Discussed findings with Town staff and the public in open houses, through posters presented, inventories of site areas, and locations of constraints and opportunities. Verbal and video presentations of findings also explored existing conditions in relation to international and other regional solutions regarding active transport solutions.
- Presented a draft vision of a cycling system which meets community needs, refines the OCP routes, and discussed priorities.

- Assisted Town staff in synchronizing bikeway priorities with matching provincial challenge grants, such as Local Motion and the Cycling Infrastructure Partnerships Program (CIPP).
- Assisted in application preparation for priority projects.

The public expressed a need for a sustainable transportation network that prioritized a cycling plan for both commuting and recreational purposes. Two public events were held, as well as two planning sessions with town staff. Town staff and the public expressed the need for safety and usability upgrades to the Towns existing trails, paths, and roadways to meet a provincial cycling standard.

Refer to the **Recreational Greenways** Map from the OCP (Appendix A, Page 1 Qualicum Beach Maps)

- The public expressed a clear need to improve commuter levels of cycling facilities, as well as the pursuit of a healthy active lifestyle.
- Many of the public identified with cycling groups: The A-Team Cycle Group, Airport Group, Paraiso, Wayne's Group, and the Comox/Courtenay Group.
- Safety, due to poor conditions of pathways and compromised roadway conditions, was cited as the highest limitation to cyclist use, regarding trip lengths and frequency.
- In addition, cyclists reported that lack of signage, way-finding, and lack of trail maps add to confusion of what routes exist, and to how they are connected. Coordination of all information with existing and proposed routes is required.
- The presentations created high levels of discussion regarding the route maps, improvement projects, and detailed design work presented by the consultant. The



Qualicum Beach Cycling Plan

events led to refinements to cycling routes and other recommendations.

- 100% of respondents to the survey supported cycling on multi-use paths.
- Skateboarding on multi-use paths is not supported by the respondents.
- All other non-motorized transportation options are generally highly supported.

General Constraints and Opportunities

The Cycling Plan was influenced by both constraints and opportunities presented by conditions in the Town. Refer to the **Constraints & Opportunities Map** (Appendix A, Page 2 Qualicum Beach Maps)



Bark-mulched trail at Kwalikum Secondary school

List of Constraints:

- Many existing trail, pathway, and roadway conditions are generally not suitable for cycling due to widths, surfacing, safety and gaps in the route.
- Ravines. In the Northwest part of Town, along West Hoylake Road crossing steep slopes into the Grandon Creek ravine discourages road widening or adjacent pathways, thus constraining use by cyclists or pedestrians. Ravines at Beach Creek in central areas also provide terrain constraints.
- Beach cliff. Long sections along the waterfront shows exposed cliffs, acting as a constraint to path and cycle connections.
- Slope. The section between downtown and the waterfront presents challenging slope conditions for cyclists, affecting cycling route choices.

List of Opportunities:

- E&N right of way corridor – includes a right of way approximately 100 feet wide. Although subject to specific approvals and design restrictions, the outer parts of this corridor may have opportunities for cycle or pedestrian use in a ‘rails with trails’ arrangement.
- Links to Regional trails and pathways such as the Trans Canada Trail can be maintained and reinforced.
- All school locations are in close proximity to the proposed cycling spine, parallel to the E&N.
- The waterfront currently already sees heavy use by pedestrians and cyclists as this is a prime area for recreation.
- Strong support from council is evident in the OCP – with goals of a sustainable transportation strategy prioritizing cycling needs and requirements.
- Access to existing and proposed parks and recreation areas would be strengthened by the establishment of a cycling plan achieving provincial standards in regards to pathways and on road facilities.



Qualicum beach train station

Recommended Priorities: 10-11 Year Plan

The priorities for the next 10-11 years are to begin projects that will create a central spine and key connections of multi-use pathways and on-street cycling facilities. As conceived with major stakeholders, the first priority is the school connector spine, followed by the downtown to waterfront connector, and the third priority is waterfront walkway and bikeway improvements.

Refer to the **Recommended Priorities Map** (Appendix A, Page 3 Qualicum Beach Maps)

Connector spine

- The spine runs loosely parallel to the E&N corridor and Fern Rd, and along Bennett Rd between Highway 19a to the E&N railway. The route connects the elementary schools, middle school, secondary school, and related residential neighbourhoods. This would also connect to existing and proposed regional trail systems.

Downtown to waterfront connector

- The waterfront connector could provide a cycle and pedestrian corridor between the downtown and waterfront. Details of this connection should be incorporated into the redevelopment of Memorial Ave roadway. In concept, a two-way multi-use path is proposed on one side of the right of way, separated by the roadway by a boulevard. A raised sidewalk and one-way downhill cycle provision is proposed for the other side.
- Where possible a boulevard should be provided to separate sidewalk and multi-use pathway from the travelled road. Better topographic and GIS information is required to develop the possibility of such

boulevards, as they relate to space available and adjacent grade constraints.

Waterfront walkway and bikeway improvements

- Bike lanes are proposed on either side of Highway 19a along the waterfront; from Memorial Ave to Crescent Road West. To provide space for the bicycle lanes, there will be a need to prohibit vehicle parking on constrained sections of the route – generally on the south side of the highway and at some constrained areas on the north side. The addition of cycle lanes works with coordination of other traffic calming techniques, such as limiting the road way widths and creating landscape islands where space permits, to encourage active transportation access to the waterfront rather than driving single occupancy vehicles to this destination.

These three priorities will provide a short-term framework that will be a major step towards the optimal active transportation system in the Recreation Greenways Map of the Town of Qualicum Beach Official Community Plan.

Refer to **Recommended Priorities** Map (Map section, Page 3)

Related Potential Linkages

Three additional linkages should be pursued. However, the timing of each of these links is related to other projects:

- When major downtown redevelopment projects are active east of Town Hall, adjacent works should include a downtown urban cycling connector between the proposed Berwick crossing and Beach road. The route would be between the E&N tracks and adjacent roadway lanes – generally located to avoid existing flower beds, steep slopes and trees, but perhaps

impacting existing parking in some areas. This connection should be to a high level of urban design and finish, to the level of quality of the downtown precedents in the Appendix F DVD. See project segments and related map for details.

- In addition to the Memorial Ave cycle improvements, it is desirable to find a route with a more gentle grade to connect downtown to the waterfront. In concept, we encourage a route that would run from Memorial at the Golf Course Clubhouse area along Crescent Road East – this leg could continue between the Road and Golf Course all the way to the Old Island Highway – providing a loop route for this part of the waterfront. But to connect to downtown, a connecting route could follow St. Andrews Road (a signed route using the existing quiet roadway). At Sunningdale Road East, there will be a need for property acquisition to provide a connection for a multi-use pathway through to Village Way – this connection could be taken as highway right of way associated with subdivision, or purchased if there is no subdivision in the area. From Village Way, the route would include a marked road crossing and then a cycle route through the Qualicum School property and adjacent town roads to connect to the Spine Trail at the E&N, and thereby to Downtown and Regional systems.
- If the waterfront cycle lanes were completed, there will be the opportunity to consider a better connection from the Old Island Highway cycle lanes up the hill to Laburnum road, the Middle School, and the E&N spine trail. This connection could provide a loop network circuit to join the Waterfront to the E&N Spine and the Ring

Road pathway systems at a more gentle grade than existing roadside routes. Better topographic and GIS information is needed to explore potential alignments in this area.

Short Term Improvement Priorities

Short term priorities are to complete specific sections that provide maximum benefit to the Town citizens. Existing sections along the school connector spine are in need of major improvements due to their general conditions.

Refer to **Connector spine priority segment improvements** map, for project segment placements. (Appendix A, Page 4 Qualicum Beach Maps)

- Existing walkway sections are narrow and surfaced with bark mulch, unsuitable for most cycling. Widening of the walkway and asphalt surface treatments are required to create multi-use cycling pathways at a provincial standard.
- Existing pathway gravel sections are narrow and need to be updated to provincial multi-use cycling standards.
- Several sections of on road cycling facilities are inadequate due to lane widths, lack of on road markings, and signage. All three areas need to be improved to provincial cycling standards.
- Several existing routes are challenged with missing linkages. Improvements for safe cycling and pedestrian crossings are required at strategic locations for where sections meet.

Project Segments

Refer to Appendix B, **Projects segments list Maps**, for photos, drawings and maps of the proposed projects.

The project list is presented as defined segments of cycle routes. Each project can be undertaken in its own timeframe. Although the projects are listed in alphabetical order here, the actual construction priorities depends on co-funding and grants, as well as the timing of related projects like road or utility improvements.

- **Project A** Middle School Access
- **Project B** West Hoylake Rd Connector
- **Project C** Arbutus Crossing
- **Project D** Harlech Road
- **Project E1, E2, E3** Dollymount / Fern
- **Project F1,F2, F3** Bennett / Arrowview
- **Project M1, M2** Memorial
- **Project W1** Waterfront
- Project Berwick Crossing
- Beach Creek Bridge Replacement

Project Series E and F are high priority projects due to a number of conditions. They are most suitable to match provincial challenge grants, and complete an important commuter and recreational section in the southern half of the pathway spine in the Cycling Plan. The projects also work

concurrently with proposed projects such as the Berwick Road crossing.

Refer to **Connector Spine priority segment improvements** map, (Appendix A, Page 4)

The recommended spine connector route is broken down into project segments. Under each project segment, existing conditions are noted, with details of recommended improvements. A high to low priority is stated regarding projects importance to the integrity of the spine connector.

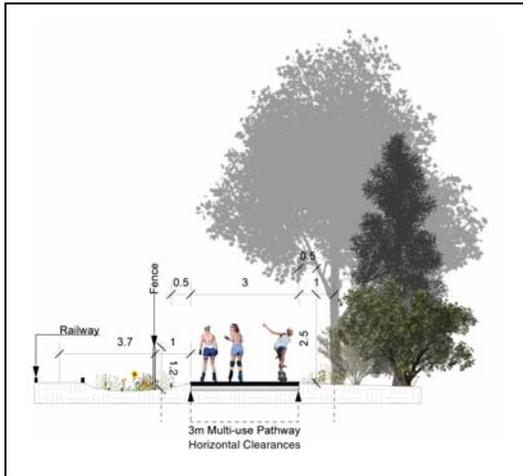


Fig. 1
Project A: Middle School Access pathway.

Project A: Middle School Access

Refer to (Appendix B, Page 1 Projects segments list Maps)

- Segment is at the Northern tip of the spine connector at Qualicum Beach Middle school to West Hoylake road, South of the E&N railway.

Purpose: To raise pathway standards to allow multi-use and more safe links to schools and neighbourhoods.

- The existing conditions consists of two dirt trails suitable for walking only, beginning at the gate of Qualicum Beach Middle school recreation field to Hoylake Road West.
- The trail needs to be upgraded to a multi-use pathway standard and adhere to railway safety standards.

Priority: High priority due to safety conditions, existing trail location to railway is problematic.

Description: Multi-use path should meet the following standards.

- Install a 3m wide 118m paved surface path, geometric design radius min 33m to satisfy 35 km/h cycling speeds. 1m clear zone on either side of path to keep users safe of obstructions.
- Install 3 Barrier Posts spaced a minimum of 1.5m apart.
- Install fence barrier running parallel to railway tracks, min height 1.5m
- Signage and railway crossing design at existing lane crossing that meets safety standards.
- Refer to bicycle facility design guidelines.

Capital budget. See Appendix E

Project B: W. Hoylake Connector

Refer to (Appendix B, Page 2 Projects segments list Maps)

- Segment is between Grandon Creek to the Arbutus road and West Hoylake road intersection.

Purpose: To raise pathway standards for multi-use.

- Existing conditions consist of a bark mulch walking path approximately 1.5m wide.
- A multi-use pathway is needed. Constraints include narrow road conditions on Hoylake road, existing ditches limiting bikelanes on either side of the road and an area south of the road where a significant amount of existing trees would need to be removed if a multi-use path were on that side.

Priority: High priority due to existing route use by students of Qualicum Beach Middle school and residents of the Canyon Crescent neighborhood to and from the downtown core and other amenities.

Description: Multi-use path should meet the following standards.

- The existing pedestrian trail on the north side of HoyLake Road should be upgraded to a cycle standard – this route would cross HoyLake Road east of the Grandon Creek Ravine, and continue on the south side of Hoylake Road in the E&N right of way to connect to trails to the west.
- A pedestrian crossing meeting safety standards should be installed South of Grandon Creek connecting the Northern entrance/exit of the pathway to the

Qualicum Beach Cycling Plan

shoulder lane on the West side of Hoylake road providing safe travel for cyclists.

- Install a 3m wide 235m paved surface path, geometric design radius min 33m to satisfy 35 km/h cycling speeds. 1m clear zone on either side of path to keep users safe of obstructions.
- Install 3 Barrier Posts spaced a minimum of 1.5m apart on both ends of segment, setback from the road.
- The open ditch between Hoylake road and the existing trail to be covered by a 230m bioswale infiltration system.
- Refer to bicycle facility design guidelines.

Capital budget. See Appendix E

Project C: Arbutus Crossing

Refer to (Appendix B, Page 3 Projects segments list Maps)

- Railway crossing between Arbutus road and Hoylake road intersection and Arbutus road and Harlech road intersection.

Purpose: A railway safety level standard pedestrian/cycling crossing is required.

- Connections are required for Project segment B to the walking trail North of the E & N railway and to the existing bikeway along Harlech road.

Priority: Medium priority. Priority rises with the completion of segment B. Area needs further examination and consultation with railway operator.

Description:

- An existing bikelane runs along Harlech road from downtown to the Arbutus road and Hoylake intersection.
- A pedestrian/cycling crossing is required on the North side of the railway.
- Install a push button signalized crossing at segment B on the North side of railway
- Install a 3m multi-use pathway on the East side of Arbutus road from the proposed crosswalk to the bikelane, South on Harlech road.
- Install traffic islands min 1.5m, West of pathway running parallel.
- Refer to bicycle facility design guidelines.

Capital budget. See Appendix E

Project D: Harlech Road

Refer to (Appendix B, Page 4 Projects segments list Maps)

- Pedestrian crossing, Memorial Avenue South of the E&N railway.

Purpose: A crossing treatment is required as proposed bicycle routes intersect Memorial Avenue

- To link bikelanes recommended along Harlech road West of Memorial Avenue and East of Memorial Avenue to a proposed crossing at Berwick road.

Priority: Medium priority. As a bikelane route along Harlech road is developed, a pedestrian crossing at Memorial Avenue is required to enable cyclists and pathway users to cross safely.

Description:

- At Memorial, install a signalized crossing for pedestrians and cyclists, as this is a major road between the town and waterfront. Timing of this would correspond to overall signalization of the intersection to assist vehicle movements as well.
- Marked crossing hatches applied to road surface.
- Install 3 Barrier Posts spaced a minimum of 1.5m apart on both ends of segment, setback from the road.
- Install a roadside multi-use pathway (3-4m plus boulevard) between Memorial Ave., running North along Harlech road to Beach road. Road markings and signage to be included. Some impacts on existing parking may occur. This link should be to a high

standard of urban design, landscape and signage.

- In consideration of new urban developments, an information gazebo, cycle rentals, and biking facilities such as storage/lockup should be provided at the intersection of First Avenue West and Harlech road. This may occur in tandem with redevelopment of the existing Fire Station site.
- From this cycle parking location, an improved pedestrian walkway from the downtown connector pathway to the pedestrian corridor off Second street is desirable, perhaps along the existing alley alignment
- Refer to bicycle facility design guidelines, and to the video for an example of an appropriate level of urban design for this downtown cycle facility (see Roadside Innovations section).

Capital budget. See Appendix E

Qualicum Beach Cycling Plan

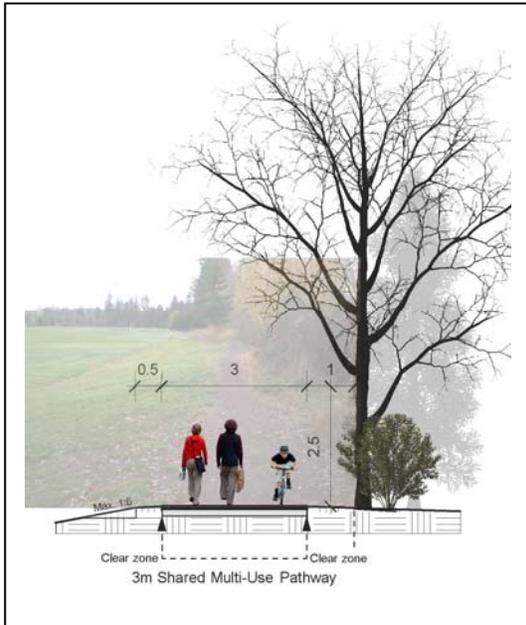


Fig. 2

Project E1 pathway: Dollymount/Fern Rd at Kwalicum Secondary School



Fig. 3

Project E2 pathway: Dollymount/Fern Rd South of E1

Project E1, E2, E3: Dollymount/Fern

Refer to (Appendix B, Page 5 & 6 Projects segments list Maps)

- Dollymount and Kwalicum School Connection Projects are broken into 3 segments as existing conditions vary sharply.
- Segment E1 at 485m is from Berwick road, running along the unopened Dollymount road right of way to the forested section at the edge of Kwalicum secondary recreational grounds.
- Segment E2 at 293m runs through a wooded area between existing residences (Cottonwood Drive and the E&N railway.
- Segment E3 at 527m is between Hemsworth Road and Qualicum Road along the Fern Road unopened right of way.

Purpose: E1, E2, E3, To raise pathway standards for multi-use opportunities and provide safe connections to schools. To connect to other trails and pathways that form a recreational loop that provides health-walking circuits in the neighborhoods.

- Existing conditions for E1, and E2 segments are narrow bark mulched walkway trails approximately 1-1.5m wide.
- Existing conditions for the E3 segment consists of crush gravel approximately 2m wide
- A continuous multi-use paved pathway connecting all three segments will complete a pathway system from the downtown to the arterial Bennett Road which includes the F series of projects.

Priority: High priority due to the number of neighbourhoods and schools that will be connected to a commuter route that connects the

downtown to the South of Qualicum Beach residential and recreational areas.

Description:

- E1. Install a 3m wide, 485m length paved surface path, geometric design radius min 33m to satisfy 35 km/h cycling speeds. 1m clear zone on either side of path to keep users safe of obstructions.
- E1. Install 3 Barrier Posts spaced a minimum of 1.5m apart on North side of segment at Burwick Road.
- E2. Install a 3m wide 393m paved surface path, geometric design radius min 33m to satisfy 35 km/h cycling speeds. 0.5m clear zone on either side of path to keep users safe of obstructions. 1m clear zone where significant trees are located in the .5m clear zone.
- E2. Install 3 Barrier Posts spaced a minimum of 1.5m apart on South side of segment at Hemsworth Road with setback.
- E3. Install a 3m wide, 527m length paved surface path, geometric design radius min 33m to satisfy 35 km/h cycling speeds. 1m clear zone on either side of paths to keep users safe of obstructions.
- Fences installed at 1.4m min height where open water ditch depths require barrier with a clear distance of .5m minimum.
- E3. Install 3 Barrier Posts spaced a minimum of 1.5m apart on both North and South side of segment.
- Refer to bicycle facility design guidelines.

Capital budget for application purposes.
 \$291.620 See Appendix E for a budget with contingency, design, and additional elements.

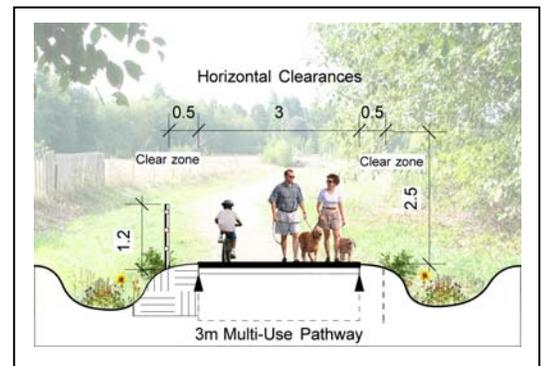


Fig. 4

Project E3 pathway: Dollymount/Fern Rd South of E2

Note: This budget does not widen the bridge crossing of Beach Creek. Such a project could be handled as a lower priority in a multi-year plan.

Project F1, F2, F3: Bennett / Arrowview

Refer to (Appendix B, Page 7 Projects segments list Maps)

Purpose: To raise pathway standards for pedestrian and cycling opportunities. To connect to other trails and pathways that form a recreational loop that provides health-walking circuits in the neighborhoods. To raise the existing roadway shoulders to bikelane standards.

- An existing section (F1) consists of a dirt trail from the North boundary of Arrowview school to the vehicle entrance to the school on Bennet road.
- An existing section (F2) consists of a dirt trail South of the vehicle entrance to Cardinal way Road.
- F2. Open ditches are present on the East side of Bennett road.
- Existing paved shoulders on both sides of the roadway on Bennett road have inconsistent widths and surface conditions from Highway 19A to the E&N railway.

Priority: High priority due to existing conditions and need to upgrade safety around Arrowview Elementary School. The completion of walking pathways and bike lanes will connect the school to the end of the connector spine cycling route, and regional routes East. Neighbourhoods to the East will be integrated fully with the other cycling and pedestrian networks existing and proposed.

Description:

- F1. Install 3m gravel surfaced pathway along segment F1 and to pedestrian crossing at the intersection of Bennett road and Highway 19A.
- F1. Install fence, min height at 1.4m along Bennett road section to provide safety for pathway users.
- F2. Install a 1.2m crushed gravel trail from Arrowview school driveway entrance to pedestrian crossing South of Cardinal Way road.
- F2. Replace open ditches with bioswales. From Cardinal Way road to Miraloma Drive in 3 sections.
- F2. Install 1.5m asphalt pathway on the East side of bioswales from the pedestrian crosswalk South of Cardinal Way road to existing walking trail at Miraloma Drive in 3 sections.
- F3. Install in sections where appropriate a continuous 1.5m bikelane with markings on both sides of Bennett road from Highway 19A to the E&N railway South. Install signage and road markings indicating bikelanes along roadway.
- Install pedestrian crossing markings, (See map).
- Refer to bicycle facility design guidelines.

Capital budget. \$224,000 for application purposes. See Appendix E for a budget with contingency, design, and additional elements. The Appendix E budget in this case is significantly larger due to the standard unit prices used in Appendix E which likely over-state the allowances for stormwater and roadside bikelane improvements given the existing conditions at Bennett Road.

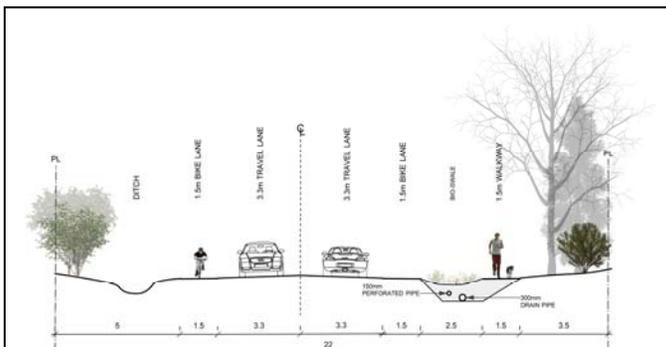


Fig. 5

Project segments F2 & F3

Project M1/M2 Memorial

The Memorial Avenue connector plays a significant role by connecting the downtown to the waterfront.

Refer to (Appendix B, Page 8 & 9 Projects segments list Maps)

Purpose: To raise sidewalk and bikelane standards for pedestrian and cycling opportunities. To connect to other trails and pathways that form a recreational loop that provides health-walking circuits in the neighbourhoods, downtown core, and along the waterfront.

- The existing section (A1) on upper Memorial Ave has inconsistent paved shoulders on both sides of the roadway.
- Existing sidewalk (A1) on the East side of Memorial Ave. is at the end of its service life.
- Open ditch/rock outcrops exist along sections of A1.
- The existing section (A2) on lower Memorial Ave has inconsistent paved shoulders on both sides of the roadway.
- The existing walkway (A2) is along the paved shoulders parallel to the roadway.

Priority: High priority due to existing un-desirable cycling and pedestrian conditions. The public has expressed an interest in moving between their neighborhoods, the downtown core, and along the waterfront for both commuter and recreational needs.

Description:

- M1. Install 2.4m bio-swales with weirs where open ditch sections appear, (West side) parallel to roadway.
- M1. Install 3.0m asphalt multi-use pathway (West side) parallel to roadway.
- M1. Install retaining wall along pathway where necessary.
- M1. Define 1.5m bikelane with markings and signage along (East side) of roadway.
- M1. Adjust roadway to include 3.5m lane widths.
- M1. Install stonewall/railing along East side of sidewalk where slope exposure occurs.
- M1 + M2. Install push button signalized cycle crossing
- M2. Define 1.5m bikelane with markings and signage on (West Side) of Memorial Ave from West island highway to Crescent Road West.
- A2. Install 2.4m bio-swales along (east side) of roadway.
- A2. Install 3.0m multi-use pathway along (east side) of roadway and bio-swales.
- A2. Adjust roadway to include 3.5m lane widths.
- A future alternate cycling connection to Heritage Woods and Qualicum Secondary along Crescent road East.

Qualicum Beach Cycling Plan

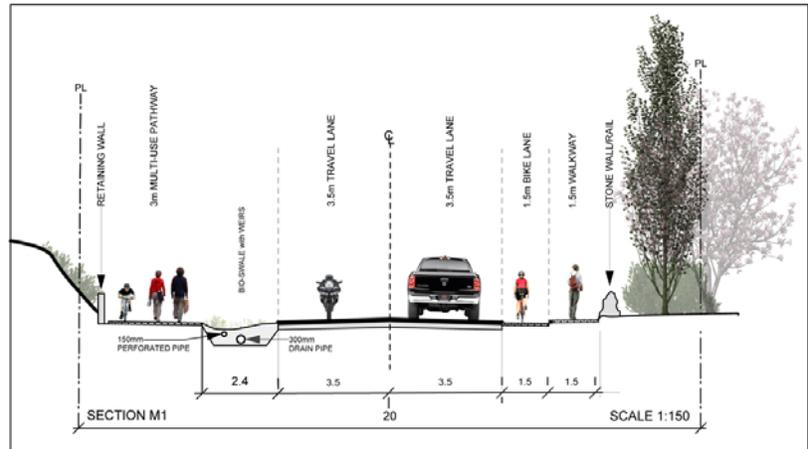
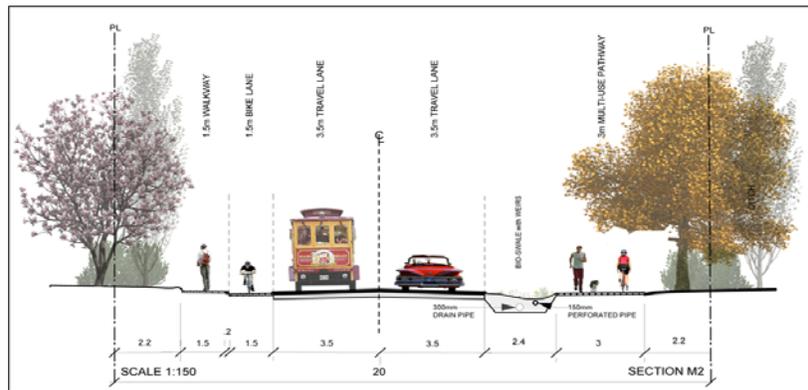


Fig.6 Memorial Ave. Section M1

Fig.7 Memorial Ave. Section M2



Capital budget. See Appendix E

Project W1: Waterfront

Refer to (Appendix B, Page 10 Projects segments list Maps)

Qualicum Beach's waterfront plays a significant role as part of the Town's resort identity. Residents and tourists alike are attracted to its spectacular natural setting. The opportunity to connect the area to the downtown core, and the neighbourhoods across Qualicum beach is important to the overall active transportation plan.

Purpose: To raise the Highway 19A design to standards that successfully integrate the roadway, bikelanes, and promenade and to connect them with active transportation opportunities with other areas of Qualicum Beach.

To connect to other trails and pathways that form a recreational loop that provides health-walking circuits in the neighbourhoods, downtown core, and along Memorial Avenue. To raise the existing roadway shoulders to cycle lane standards.

- Existing roadway shoulder width is inconsistent and is often undefined.
- Existing roadway shoulder on the North side of the Highway does not provide a defined cycle route through vehicle parking lots in the vicinity.
- Parking exists in sections on the South side of the Highway, blocking cycling access.

Priority: A High priority is evident due to the increased use of the waterfront, for both daily activities and as a public event space.

Qualicum Beach Cycling Plan

Description:

- Install 1.5m cycle lanes on both sides of Highway 19A with markings and signage.
- Adjust roadway lane widths to accommodate cycle lanes.
- Install traffic calming boulevards or medians where possible to separate cycle lanes and parking from the travelled roadway. (limited locations).
- Capital budget. See Appendix E

Berwick Crossing

Refer to (Appendix B, Page 11 Projects segments list Maps)

Purpose: To raise pathway and bikelane standards for an urban setting. To connect to other trails and pathways that form a recreational loop that provides health-walking circuits in the neighbourhoods, downtown core, and along the waterfront. There are many challenges to this area due to a gap of cycling facilities along this section of the corridor.

- Berwick presently ends at the E&N railway
- Pedestrians currently cross the E&N railway without an identified crossing facility.
- Few cycling provisions exist along this section of the corridor.

Priority: High priority due to existing unsatisfactory cycling and pedestrian conditions. Timing of this improvement is likely tied to development of vacant lands in the area.

Description:

- A pathway railway crossing opportunity is evident due to the proposed Berwick roadway crossing. A two-way multi-use pathway should be integrated into the design of the roadway extension across the E&N. This pathway may be separated from the travelled road lanes by a raised island (see precedents in the Appendix F DVD)

Qualicum Beach Cycling Plan

- Install a 3m wide asphalt pathway from Berwick crossing along the E&N corridor to Memorial Ave.

Capital budget. See Appendix E

Implementation Steps

In general, this report recommends an annual investment of approximately \$100K plus soft costs from the Town. Decisions on this investment will be subject to budget deliberations each year, and also will be driven by access to partnership funding from senior governments and adjacent development projects (rezoning, works and services or DCC funds).

Soft costs in addition to the \$100K include detail design, marketing of cycling opportunities, and an allowance for inflation.

The Cycle Facility Budgeting Tool in Appendix E provides Class D (+/-30%) capital cost estimates for each project. The intent of Appendix E is not to be a final estimate, but to provide a coarse budgeting tool. Unit costs and quantities in the spreadsheet can be refined by Town staff or consultants as each project is considered. Details of inflation, unit costs, and quantity takeoffs should be refined prior to each project approval. In general, the budgets show that the priority projects described herein should be achievable over a 10-11 year period, provided partnership funding is available.

Implementation of each of the priority projects should involve the following steps:

- Confirmation of quantities and project scope, and the related capital budget. Approval of the capital budget, subject to partnership funding, by Council.
- Fund raising from programs such as LocalMotion and the Cycling Infrastructure Fund, and other such programs. If private development is occurring next to the projects, some aspects of the project may be funded by works and services or by amenity agreements associated with rezoning. In other cases (e.g. Memorial Avenue) there will be an overlap

Qualicum Beach Cycling Plan

between road improvement Development Cost Charge projects and these budgets.

- Detail Design and pre-tender cost control. Careful detail design of these facilities is required to reach the quality of facility that is shown in the Video (Appendix F), that is appropriate to the character and expectations of Qualicum Beach, and that has longevity and low maintenance costs. Construction without proper design and field reviews will lead to problems in aesthetics, safety and maintainability.
- Proper maintenance and operations funding. Appendix E provides approximate maintenance budgets that should be built into operating allowances. Regular maintenance will increase the usability and longevity of the facilities.

In general, this Cycling Plan is envisioned as a living document. The capital budgets should be updated as a part of each annual budget cycle. And the overall project budgets and priorities should be reviewed at least once in every 5-6 year period.

Changes to Related Policy Documents

The Cycling Plan is complementary to existing Town of Qualicum Beach policies and bylaws.

However, as these bylaws go through regular updates, the following refinements should be considered:

- In the Official Community Plan, the Recreational Greenways Map and policies could be updated to match the alignments shown in this Cycling Plan. Consideration could also be given to incorporating more specific policies for Active Transportation. Development Permit, Zoning or Amenity Zoning policies could include guidelines for cycling facilities such as cycle lanes and multi-use pathways, and cycle parking, to promote cycling use.
- If the Town's Engineering Standards were revisited, including provisions for cycling facilities in new road classes should be considered.
- Updates to the Town's Development Cost Charge Bylaw could reflect the recommendations of this report for street improvement (e.g. Memorial).
- Any Sustainability or Greenhouse Gas (GHG) studies done for the Town should consider the role of this cycling system in meeting objectives and targets.

Refer to Appendix C Bicycle Design Facility Guidelines for details of the design and operation of cycling facilities.

View the Appendix F DVD for urban design precedents.