

West London Dyke Flood Control Structure Master Plan

UPPER THAMES RIVER
CONSERVATION AUTHORITY



Stantec

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1.0 Introduction

1.1 PURPOSE

This Master Plan sets out design recommendations, which will guide detailed design development for the various phases of the West London Dyke and Thames Valley Parkway upgrade and replacement. Preparation of the Master Plan was undertaken after careful examination of existing conditions and findings gathered through the consultation process.

The Master Plan report format is structured as follows:

- Overview of the background leading to the initiation of the Master Planning process for the West London Dyke;
- Goals and objectives;
- Description of the existing context to provide readers with an understanding of the current conditions, opportunities and constraints;
- Summary of the design charrette which was held to obtain input and design ideas from key stakeholders;
- Recommendations and design guidelines relating to various components of the West London Dyke and adjacent pathway system, such as wall structure, activity / use areas, natural environment, heritage features and interpretation, safety, access, etc.
- Implementation recommendations and process.

1.2 BACKGROUND

The West London Dyke is primarily an engineered structure, which protects life and property during periods of extreme river flows. According to the Upper Thames Conservation Authority (UTRCA), construction of the West London Dyke began in the 1880s, with extensions, reinforcements and height increases occurring at least twice by the early 1900s. The dyke was raised in sections west of Queens Avenue after the 1937 flood and before another major flood in 1947. Despite the fact that the flood of 1937 overtopped portions of the dyke, it has and continues to serve a critical flood control function as well as being an integral component of the City's recreational pathway system.

In 2004, a 'condition assessment' of London's flood control structures identified a need for repairs to sections of the dyke, with the highest priority being in the area north of Queens Avenue. However, in 2005 while undertaking the initial stages of the concrete repair program for the West London Dyke between the Queens Ave Bridge and Rogers Ave, it was determined that this section needed to be replaced rather than repaired due to structural deficiencies. A

preliminary design process was then undertaken by Stantec Consulting Limited to determine the type of replacement structure best suited to the technical and regulatory requirements for this section of the dyke. The current dyke structure in this location only protects against the 1:100 year flood event, while regulations require that the flood control structure protect against the 1:250 year flood event (Fig. 1.1, pg. 1.2). Public input was solicited at a Public Information Centre meeting held on May 25, 2006. An introduction to the history of the dyke and background information on how the design alternatives had been arrived at were presented. A design option review, which outlined how each design alternative ranked within several categories, was also conveyed to the public during the meeting. Public input from this meeting was incorporated into the final preliminary design report. After consideration and evaluation of various alternatives, it was determined that a near-vertical, pre-cast reinforced earth system was the preferred alternative for phase 1 of the replacement as it best met requirements relating to pathway integration, aesthetics, ability to provide required flood protection and constructability due to existing site constraints.

In addition to the functional flood protection requirements, a number of other major design considerations were addressed in the preliminary design report including the need to minimize impacts on the environment, maintain / enhance recreational use of the dyke, and consider aesthetics given the high visibility of the structure and its proximity to the downtown core. A conceptual illustration of the phase 1 preferred alternative is shown below. Additional information regarding the technical investigation and other alternatives that were evaluated is provided in Appendix A.

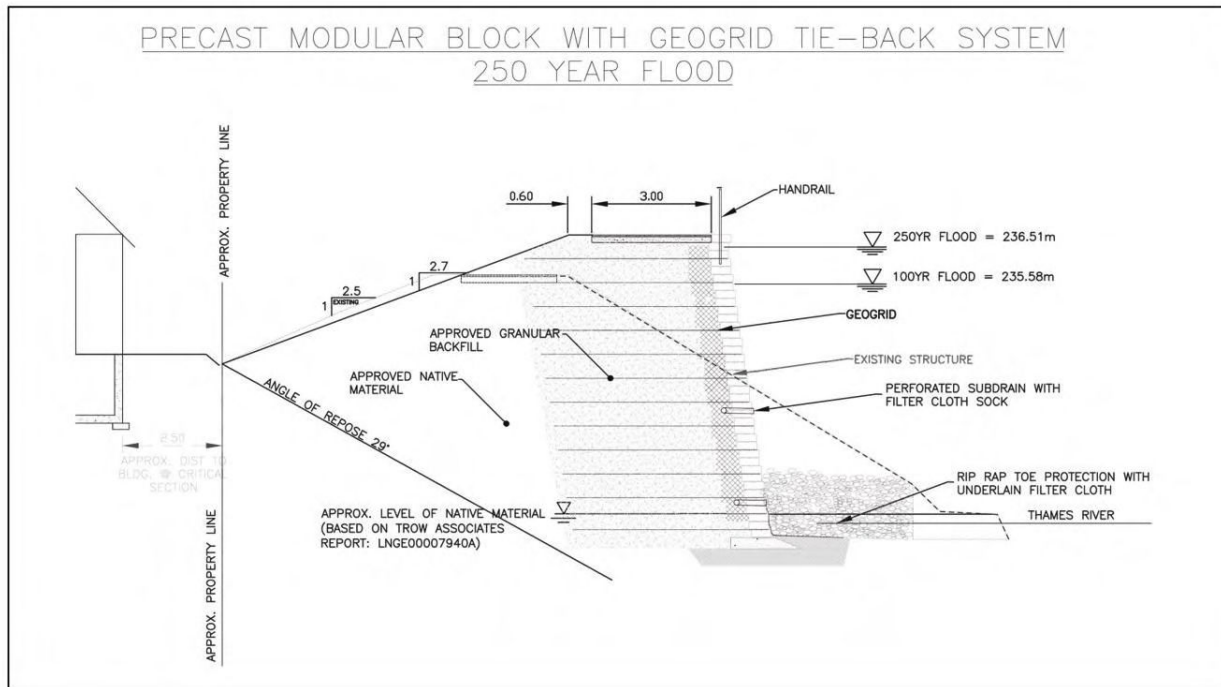


Fig. 1.1 Cross-section of proposed dyke solution for Phase 1 of development.

Benefits of the selected alternative for Phase 1 identified through the evaluation included the following:

- It can be built to either the 1:100 or 1:250 Regulatory Flood Level within the available footprint;
- Various aesthetic options (colour, texture and block size) are available for the modular blocks, allowing for greater design flexibility;
- Near vertical face allows for construction of pathway to City standards for width, while also maintaining appropriate slope to adjacent property lines;
- Constructability and staging of construction are considered easier than some other options considered;
- No curing time is required for pre-manufactured products, as would be required for a poured in place structure;
- It is the least cost option.

Other benefits include:

- More efficient use of limited publicly owned space;
- More flexibility with the use of space at the top of the dyke i.e. planting, multi-use pathway system;
- The pathway can be moved further away from private residences allowing for enhanced neighbour privacy;
- Potential for ecological enhancement at the toe of the dyke structure;
- New design will allow for pathway to move under bridge structures;
- Improved aesthetics, as existing damaged site furnishings and materials will be replaced.

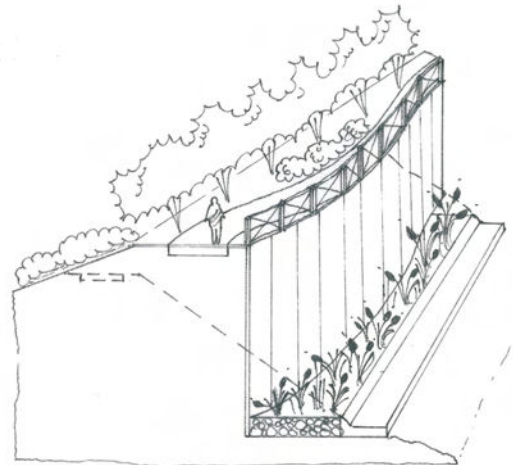


Fig. 1.2 Isometric sketch of what proposed pathway might look like.

Although the initial section of the dyke requiring replacement extends from the Queens Avenue Bridge to Rogers Avenue, it is anticipated that over a period of years, additional sections will also need to be replaced. The pathway at the top of the dyke will then also need to be replaced with appropriate integration and transitions made between the existing and new path systems. The UTRCA, City and Stantec recognized that the dyke replacement program presented a unique opportunity to look at long-term design options for the Thames Valley Pathway system in this area. Approval was given by the City of London and UTRCA for Stantec to prepare a Conceptual Master Plan for the section of the dyke and pathway extending from Oxford Street

to Cavendish Park so that design enhancements for the dyke and pathway system could be considered during the detailed engineering design for the flood control structure.

1.3 GOALS AND OBJECTIVES

Specific goals and objectives of the design enhancement program, as established in the staff report to the Environment and Transportation Committee to seek approval for the project are as follows:

Goal - Optimize the aesthetic and functional contribution that replacement of the dyke can provide to the surrounding landscape.

Objectives and Principles

- Meet functional requirements as a flood control structure;
- Not significantly increase cost or approval time frame for Phase 1;
- Incorporate linkages to ensure continuity and accessibility to City's trail and pathway system;
- Take advantage of public viewpoints and access to river's edge to encourage public use;
- Complement Forks of Thames parkland and open space enhancements;
- Incorporate aesthetic enhancements through variety in form and texture;
- Provide an attractive interface with land uses to west;
- Accommodate opportunities for re-naturalization at river's edge, where feasible.

1.4 MASTER PLAN DEVELOPMENT

Key steps taken in the development of this Master Plan include the following:

- On-site field visits and photo documentation to gain an in-depth appreciation of the dyke and pathway system and to identify opportunities and constraints;
- Review of existing cultural and historical material;
- Preparation of preliminary design concepts for discussion purposes;
- Organized and held a Design Charrette with key stakeholders;
- Preparation of the draft Master Plan;
- Circulated draft document for comments;
- Finalized Master Plan Document.

2.0 Context

The subject area reaches from the Oxford Street Railway Bridge, south along the west side of the Thames River, to Cavendish Park. A context map (Fig. 2.4) can be found on page 2.2. Descriptions of the dyke and pathway system have been broken down into four distinct sections and can be found below.

2.1 OXFORD STREET TO BLACKFRIARS BRIDGE

The dyke and pathway system between Oxford Street and Blackfriars Bridge abuts a mixture of residential and park space. This section of path and dyke has quite an open character with more expansive views to both Blackfriars Bridge and Oxford Street and the railway bridges (Fig. 2.1, pg. 2.1), as well as to the east side of the river which is quite heavily treed directly across (Fig. 2.2, pg. 2.1). The pathway is particularly narrow in this section. There is little vegetation at the base of this section of dyke, with the exception of the area directly adjacent to the Oxford Street Bridge. This fact, combined with generally more open views, results in the existing dyke structure being very visible from the pathway and from the Oxford Street Bridge.



Fig. 2.1 View North towards Oxford Street Bridge.

2.2 BLACKFRIARS BRIDGE TO LABATT PARK

The area between Blackfriars Bridge and Labatt Park is adjacent to residential land use. Characteristics along this section of the pathway range from fairly open views that highlight Blackfriars Bridge as a focal point, to relatively narrow sections shaded by trees and shrubbery on both sides, creating a more intimate experience (Fig. 2.3, pg. 2.1). A number of extremely



Fig. 2.2 View North-East from Blackfriars Bridge.



Fig. 2.3 View North on pathway between Leslie Street and Carrothers Avenue.



Fig. 2.4 Context Map – dyke and pathway extend from Cavendish Park to the Oxford St. railway bridges.

old cottonwood trees are situated along the west side of the pathway, primarily between Labatt Park and Leslie Street, shading both the pathway and residences. The path in this section is slightly narrower than the City’s standard width of 3 metres, and access via stairs or ramps exist at all abutting streets. Sections of the railing along the pathway are in relatively poor condition and do not meet current standards (Fig. 2.6, pg. 2.7). They are interspersed by old cast iron streetlight bases (Fig. 4.12, pg. 4.8), which have an attractive design and historical pedigree, but are generally in poor repair (rusting, chipped paint, broken fronts) and tend to be used for garbage.



Fig. 2.5 Access to the river at the bend in Cummings Avenue.

There is a significant amount of vegetation at the base of the dyke along the section between Leslie Street and Blackfriars Bridge (Fig. 2.5, pg. 2.3), and much of the dyke in this area is only faintly visible. A small, relatively hidden, informal access path to the river is situated approximately one block south of Blackfriars Bridge. In general, this section of the pathway and dyke presents a softer, more natural edge along the river due to the mix of vegetation along both the west side of the path and the base of the dyke. A small playground is located at the bend in Cummings Avenue.

The section of pathway between Leslie Street and Labatt Park offers views into Harris Park and conversely is very visible from Harris Park (Fig. 4.3, pg. 4.6, Fig. 4.23, pg. 4.11). Events occurring in Harris Park tend to draw crowds of onlookers to this section of pathway.

2.3 LABATT PARK TO WHARNCLIFFE ROAD

The area between Labatt Park and Wharncliffe Road abuts Labatt Park and the open space surrounding the Kiwanis Senior’s Centre. Labatt Park is North America’s oldest operating baseball park and is a historical feature along the pathway. The baseball park is obscured from the dyke and pathway system by a cedar hedge (Fig. 2.6, pg. 2.3) except for one small gap in the hedge.



Fig. 2.6 View North on pathway. Cedar hedge outside Labatt Park to the left.

The City of London is in the process of extending the Forks of the Thames development into its fourth phase, which will be located on the west side of the river, south of the Queens Avenue and Dundas Street bridges. The West London Dyke pathway will pass through this space and is identified on the Master Plan Concept (Fig. 4.1, pg. 4.2).

The hard structure gives way to a natural edge between the Dundas Street and Wharncliffe Road bridges (Fig. 2.7, pg. 2.4). Pathway connections across the two bridges are currently at grade and include both ramps and stairs.

2.4 WHARNCLIFFE ROAD TO CAVENDISH PARK

The stretch from Wharncliffe Road to Cavendish Park is the only portion with an unpaved pathway. This section of path has a more natural character, given the vegetation and pathway surface (Fig. 2.8, pg. 2.4). This section runs next to a residential area, which leads into Cavendish Park and the Cavendish Nature Trail (Fig. 2.9, pg. 2.4). The crossing at the Wharncliffe Bridge is also at grade (Fig. 4.26, pg. 4.12).



Fig. 2.7 Pathway East of Kiwanis Senior's Centre, looking West to the Wharncliffe Road Bridge.

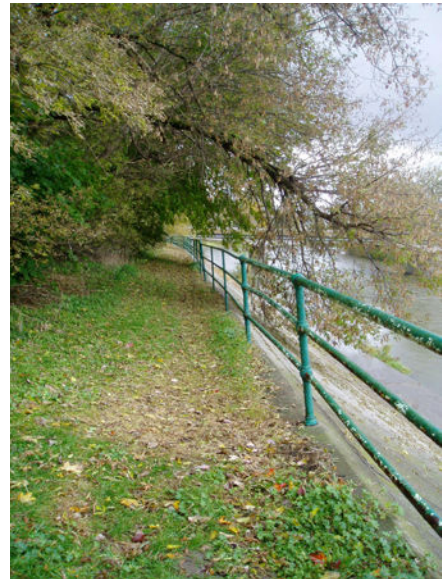


Fig. 2.8 Unpaved pathway, view East towards Wharncliffe Road.



Fig. 2.9 View West into Cavendish Park and the start of the Nature Trail.

3.0 Design Charrette

3.1 PURPOSE

The Project Team (UTRCA, The City of London and Stantec Consulting Ltd.) felt it was important to involve key stakeholders in the Master Plan process, not only to keep them informed, but more importantly to obtain the benefit of their creativity and insight into specific issues and concerns. Representatives from adjacent neighbourhood associations, the arts community, Friends of Labatt Park, users of the Thames River, and City and Council representatives were invited to a Design Charrette, held on November 21, 2006. A total of 14 representatives participated in the charrette and assisted in:

- Confirming goals and objectives;
- Identifying opportunities, needs, issues and concerns;
- Sharing ideas for the design of the dyke and pathway system;
- Providing feedback on three preliminary concept plans;
- Creating and refining design concepts.

3.2 PROCESS

The design team prepared for the Charrette by reviewing background information, completing site walks and preparing design concepts. At the Charrette, the design team introduced the project by explaining the purpose of the Charrette, giving an overview of background information and a photo-tour of the study area. An opportunity for discussion was given to allow the group to identify preliminary opportunities and challenges. Three preliminary design concepts were then presented to stimulate responses, help generate additional ideas and/or form a basis for further plan refinement. The three concepts were intended to present a range of general options / themes and visual examples. The next section outlines key findings from the Charrette.

3.3 RESULTS

The Charrette generated a great deal of discussion from those in attendance. The primary issues, concerns and ideas that were most commonly shared or generated the most discussion are listed below:

- Importance of considering the view of the wall from across the Thames River, as the dyke is a big, tall expanse of retaining wall;
- Need to create interest on the wall face;

- Need for longevity of the design and materials and need for a “template for the design vocabulary”;
- Timing, sequence and location of future replacement sections and the implications on transition areas and overall continuity;
- Retention and preservation of mature trees and existing vegetation at the top and bottom of the dyke structure;
- Consideration of wildlife habitat on / along dyke structure and opportunities to maintain or create habitat;
- Impacts of the project on the adjacent neighbourhood, particularly as it relates to zoning and future development potential/threats in the Blackfriars neighbourhood as a result of the increase in height;
- Concern that economics was the driving factor in the selection of the dyke replacement alternative;
- Phase I is a very visible section and aesthetics should be a primary consideration;
- The need for access to the river for both humans and wildlife;
- The retention/enhancement of significant views;
- The need/opportunity to preserve and enhance natural and cultural heritage in the area.



Fig. 3.1 Brainstorming session during the West London Dyke Design Charrette.

3.4 DESIGN IDEAS

The following is a summary of some of the ideas and themes that came out of the individual group discussions. A detailed summary of Charrette results, specifics on individual group discussions and copies of the three preliminary concepts are provided in Appendix B. Refer to Appendix C for responses to issues.

Wall / Face of Dyke

- Build the new structure “for the ages”;
- Limit number of materials used and utilize natural or natural-looking materials;
- Product selected should be relatively neutral, available long term and have a large module with texture and depth;

- Create interest on the wall – potential ideas included ‘breaking up’ the wall both vertically and horizontally, adding colour or texture banding in the wall to depict significant flood events, designing the wall so that the bottom half is angled and top half vertical;
- Incorporate planting at the toe of slope;
- Add steps / sloped wall sections for wildlife to access the river.

Pathway

- Minimize footprint of pathway, maintain existing width;
- Discourage active recreation / gathering places adjacent to residential areas;
- West of Wharncliffe maintain footpath – do not pave.

Lighting and Site Furnishings

- Install lighting on the river side of the walkway and direct light downwards so it doesn't affect residences;
- Add more benches, sitting areas and trash receptacles;
- Uplight the wall at night to add interest;
- Select site furnishings that can withstand vandalism.

River Access

- Do not add formal docks between Oxford Street and Queens Avenue, but maintain pedestrian access to the river;
- Add steps / sloped wall sections for wildlife to access the river;
- Enhance access to the river at appropriate locations.

Vegetation and Landscaping

- Extremely important to preserve and minimize impact on existing trees and vegetation;
- Implement an Urban Tree Management Program;
- Utilize native vegetation for new planting



Fig. 3.2 Brainstorming session during the West London Dyke Design Charrette.

areas;

- Incorporate planting at the toe of slope to enhance natural elements and create habitat;
- Retain, emphasize and augment natural environment at and near Cavendish;
- Plant more native vegetation between Blackfriars and Oxford to create more open and closed views for interest.

Blackfriars Neighbourhood

- Preserve the sense of individual/unique residential neighbourhood through Blackfriars area – keep intimate;
- Maintain/provide access from all streets, but not necessarily ramped access at all connections;
- Replicate or reuse historical elements such as the streetlight bases and railing;
- Implement historical interpretive signage / plaques at key locations.

Labatt Park

- At Labatt Park maintain the ‘wall of green’ with one open vista;
- Locate an interpretive signage feature or plaque near gap in the hedge.

Transition of Old Dyke Structure to New Dyke Structure

- Add a ‘lookout’ at the end of Rogers Ave. to ease the transition zone – maintain ‘lookout’ when next section is installed;
- Consider cantilevered viewing areas to help with transition.

4.0 Design Guidelines

The Design Guidelines have been prepared to provide guidance for detailed design of the West London Dyke and Thames Valley Parkway redevelopment, extending from Oxford Street to Cavendish Park. Examples and illustrations are provided to help give direction, but are not intended to presuppose specific design solutions, materials or products that are to be determined during the detailed design stages. The Master Plan Concept is provided on the following page (Fig. 4.1).

This section discusses the following subjects:

- Vision;
- Areas of use;
- Wall structure;
- Natural environment;
- Heritage;
- Safety;
- Access to the river;
- Gateways.

4.1 VISION

The vision statement below was prepared after examination of existing site conditions and the results of the consultation process. The vision will be achieved through implementation of the design guidelines.

The West London Dyke is directly connected with both the culture and environment of the Forks of the Thames area in London. The natural processes of the river have been intertwined with culture throughout the City's history and they continue to play a part in everyday lives. In addition to the obvious need for improved flood control, the vision for the West London Dyke is to preserve the natural environment, historic character and cultural connections to the river, while creating a usable, attractive and distinct place within the City.

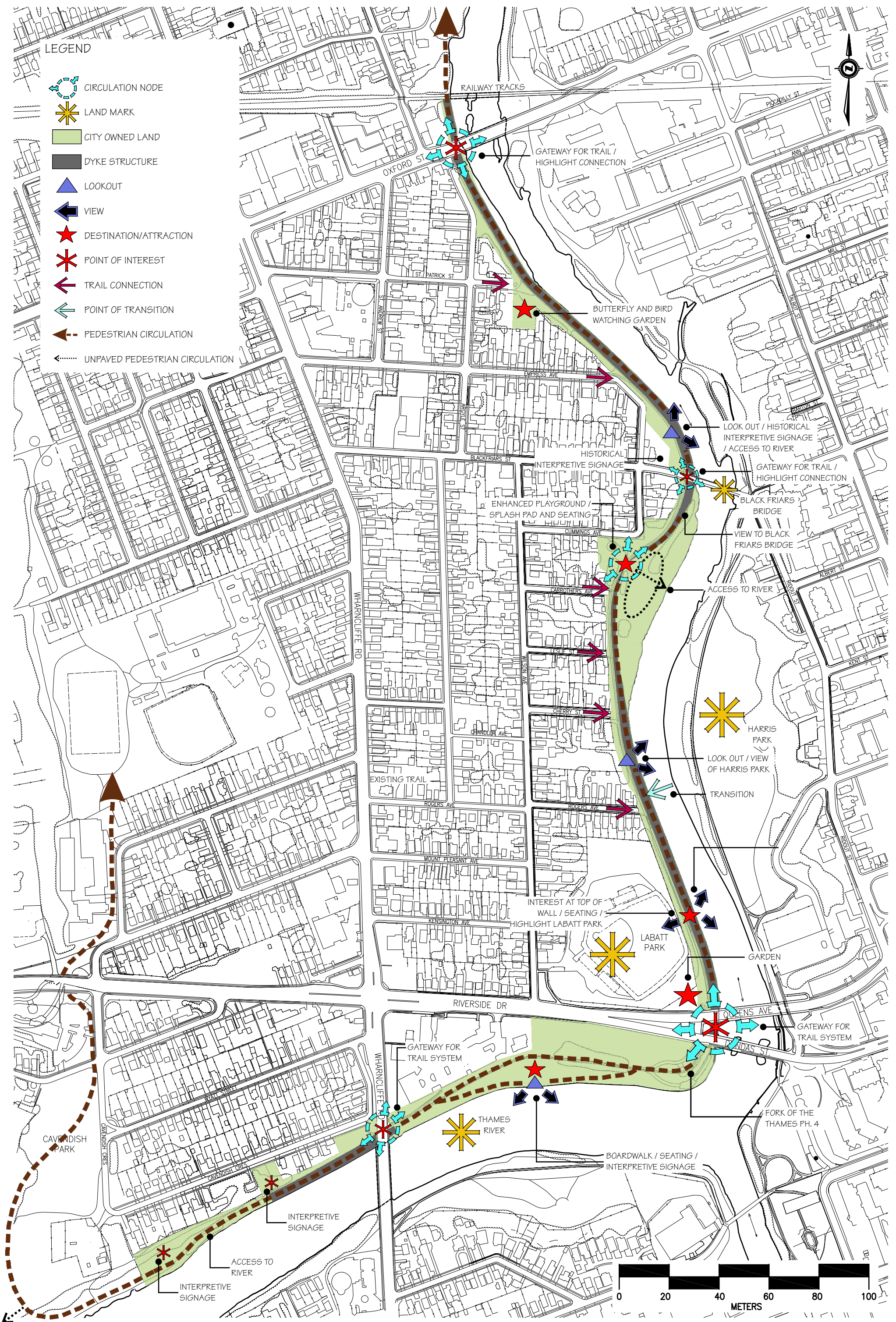


Fig. 4.1 Master Plan Concept

4.2 AREAS OF USE

The dyke and the land surrounding it has many uses for people, which include biking, running, walking, fishing, sitting, bird watching, playing, commuting and dog walking. Improvements for these uses and expanding the range of uses are important and necessary, but certain sections are better suited for particular activities. Four distinct areas along the West London Dyke have been identified as having different uses and are listed below:

1. Oxford Street to Blackfriars Bridge
2. Blackfriars Bridge to Labatt Park
3. Labatt Park to Wharnccliffe Road
4. Wharnccliffe Road to Cavendish Park

4.2.1 Oxford Street to Blackfriars Bridge

The top of the dyke between Oxford Street and Blackfriars Bridge abuts a mixture of residential and park space. The areas adjacent to open space have been identified as having potential as gathering spaces. Access to the river and variations in the wall structure are desirable. Areas, which are in close proximity to houses, should be sensitive to such uses and minimize the potential for activities that would generate excessive noise or impact resident privacy.

4.2.2 Blackfriars Bridge to Labatt Park

The section between Blackfriars Bridge and Labatt Park abuts only residential land use. Because of the limited space and close proximity to houses this section should keep much of its existing character. The following points describe the items that can help achieve this.

- Maximize the landscape buffer to residences;
- Minimize the number of gathering spaces and locate gathering spaces away from residential buildings / in higher visibility areas;
- Use of natural looking materials is preferred where it is practical and feasible;
- Implement informal native planting;
- Preserve existing trees.



Fig. 4.2 Playground at Cummings Avenue.

The only existing gathering space is a small playground located at the bend in Cummings Avenue (Fig. 4.2, pg. 4.3). Serving an expanded use for play would make better use of this space.

4.2.3 Labatt Park to Wharncliffe Road

The portion of the dyke and pathway system between Labatt Park and Wharncliffe Road has been identified as a section that suits higher use because it runs next to Labatt Park and the open space around the Kiwanis Senior's Centre. As mentioned previously, the pathway will pass through Phase 4 of the Forks of the Thames project. As the Forks of the Thames will have a very different character and appearance from the dyke, the West London Dyke and Thames Valley Parkway redevelopment can be an extension of what will be high volume usage and should cater to people with a variety of interests. Look outs, gardens, interpretive and seating areas should be incorporated. Where the hard structure gives way to a natural edge, access to the river is desirable, but the existing edge condition should be preserved (Fig. 4.6, pg. 4.5).

4.2.4 Wharncliffe Road to Cavendish Park

The area between Wharncliffe Road and Cavendish Park is the only portion with an unpaved pathway. This section abuts a residential area and the pathway leads into Cavendish Park and the Cavendish Nature Trail. The paved pathway should blend into the open space system making the required community linkages and support the recommendations of the recreational routes of the City of London Bicycle Master Plan. Unpaved side trails will be maintained in this area to preserve the character of the natural space (Fig. 4.29, pg. 4.14).

4.3 WALL STRUCTURE

The West London Dyke structure is primarily an engineered structure to protect life and property during periods of extreme river flows. As such there are many technical considerations, which determine its functional design. Therefore, the design concept presented in this section is intended to complement the overall design and not to take precedence over functional considerations. The wall structure will have the most visual impact upon the area because of its sheer vertical size. Creating an aesthetically pleasing and interesting view from the east side of the river has been identified as a major consideration, as well as creating continuity throughout the structure and creating interest from across the river (Fig. 4.3, pg. 4.4).

4.3.1 Wall Material

The wall material should be selected based on the overall vision for the dyke replacement. The material must have a natural appearance and give the greatest chance for long-term availability to ensure continuity throughout the phases of the structure replacement process. To create this natural look, large, gray, roughly textured blocks that resemble natural stone are preferable. The use of large wall blocks/modules rather than small will also help to reduce the perceived scale of the wall. Wall material selection should also consider how



Fig. 4.3 View west from Harris Park towards dyke.

evenly each material weathers to ensure a natural appearance as it ages. Figures 4.4 and 4.5 (pg. 4.5) show examples of the type of pre-cast wall material that is being considered for Phase 1 of the redevelopment. Because the dyke will be replaced in phases there is a possibility that the same wall material will not be available at such time that the next section is ready for construction. Accordingly, it is strongly suggested that sections are replaced in sequence to

give the appearance of a seamlessly constructed structure

or else replaced in sections allowing for logical termination points, i.e. bridges, natural edge areas, etc.

4.3.2 Creating Interest

Creating an interesting, aesthetically pleasing and culturally significant structure is key to achieving the vision for the dyke. The wall should be visually varied, horizontally and vertically. Horizontal and/or vertical banding, possibly to indicate significant flood levels, could be considered.

Planting at the toe of the slope would shorten the wall visually and give some softness to the hard structural components (Fig. 4.7, pg. 4.5). The use of lighting on the wall face would give interest at night, but lighting should not shine directly on water, so it does not adversely affected wildlife. The application of shape and form to create interest should be strongly considered in the context of technical requirements of the wall construction. A smooth, natural curve to the wall (Fig. 4.6, 4.7, pg. 4.5), creating platforms at the top of wall or closer in elevation to the water would accomplish this (refer to Section 4.7, pg. 4.13). Large shade trees, plantings, railings and lighting will give interest and texture to the top of the wall and offset its overall dominance.



Fig. 4.4 Pre-cast wall material.



Fig. 4.5 Pre-cast wall material.



Fig. 4.6 Natural curve observed in existing structure.

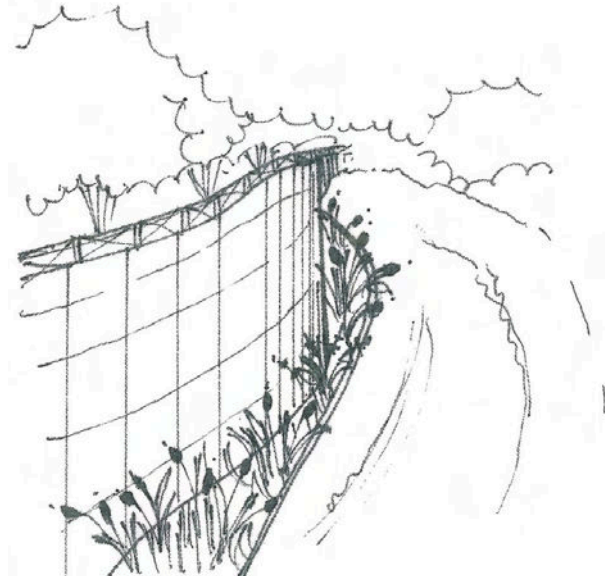


Fig. 4.7 Curved wall gives varying amounts of space between wall and toe structure.

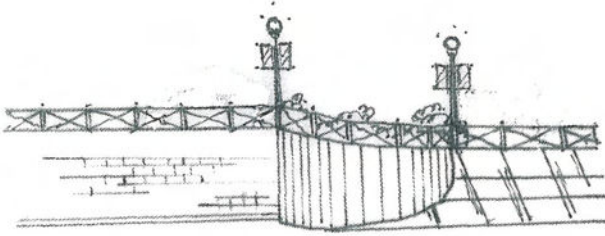


Fig. 4.8 Sketch illustrates integration of old and new wall structure.

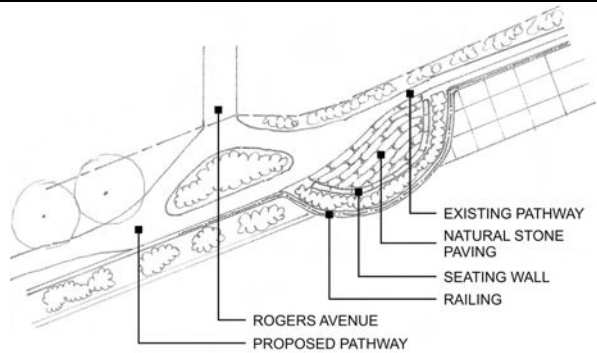


Fig. 4.9 Concept sketch of transition (plan view).

4.3.3 Transition

The transition is the point where the first phase of reconstruction ends and must meet the existing structure. Again, it is important that an aesthetically pleasing, semi-permanent solution be implemented. The change in grades and pathway alignment, and change to the shape of the structure presents a challenge for design development. The transition should continue the theme of natural looking materials, native plant material, and discreet, informal design. As the transition is at the end of Rogers Avenue, the view from the street must be appealing and the view of the trees on the other bank should be obscured as little as possible. The shape of the transition shown in the concept sketch above (Fig. 4.8 and 4.9, pg. 4.6) offers more of a buffer between residences and pathway users and allows viewers of events in Harris Park to step off the pathway. Introducing a third wall material for the transition would make it stand out and would move attention away from the sharp contrast between the old and new wall.

4.4 NATURAL ENVIRONMENT

The naturally vegetated areas along the waters edge and the native trees existing at the top of the wall are significant to the character of the dyke. The trees give shelter from the wind, shade from the sun, homes for wildlife, and provide a colourful and varied backdrop through the four seasons. Existing significant vegetation must be preserved and protected. Where appropriate the shape of the wall and/or pathway alignment should be altered to save trees of significance.

4.4.1 Environmental Enhancement

An attempt should be made to plant native aquatic material at the toe of the dyke structure that will soften hard surfaces and stabilize soils. Vegetation will introduce itself by means of erosion and deposition, so establishing desirable, non-invasive native species is valuable. An effort should be made to create habitat for aquatic and terrestrial life along the edge of the river where conditions allow for self-sustaining habitat. It is important to preserve and enhance all existing natural edges for this reason (Fig. 4.10, pg. 4.7). If these remaining natural edges become unstable, bioengineering should be considered as a method of stabilization. Management of vegetation to remove invasive species will go a long way to reestablishing native plant diversity.

4.4.2 Urban Tree Management

Through the consultation process it was determined that there is a need for an urban tree management program. There should not only be documentation of trees of significance, but also identification of areas in need of maintenance, plantings and/or removals.



Fig. 4.10 Natural edge condition between Dundas Street and Wharncliffe Road.

4.4.3 Plant Design

Informal, natural plantings are suited for areas of lower use, particularly where the site borders on residential land use. Areas identified as gathering spaces should make use of more formal plantings to create emphasis. Native plant material should be used throughout to create continuity and protect the natural environment, but varying layouts can identify the intended use. Year round form and colour should be taken into consideration at the planting design stage. Planting should also be used to emphasize significant views. The creation of these views is discussed further in Section 4.4.5 and 4.5.3.

4.4.4 Signage

There is an opportunity to expand the existing interpretive signage program to incorporate information on natural systems and natural heritage in the area. Refer to section 4.5.2 (pg. 4.10) where the interpretive signage program is discussed further. Trail information signage should also be incorporated throughout the trail system. Suitable locations for signage are identified on the Master Plan Concept (Fig. 4.1, pg. 4.2).

4.4.5 Views

Several significant views were identified as having connections with the river and natural heritage. These views should be preserved and enhanced. They have been identified in Section 4.5.3 (pg. 4.10) along with suggestions for preservation and enhancement.

4.4.6 Bird and Butterfly Garden

The opportunity for users to participate in passive recreation activities was established as an important attribute of the trail system. Activities such as sitting, reading, people watching, bird and butterfly watching and walking are all considered types of passive recreation. A portion of the small open space at the end of St. Patrick Street is currently used as a community garden (Fig. 4.1, pg. 4.2). It seems natural that this area be expanded to incorporate a seating area and a garden that attracts birds and butterflies (Fig. 4.11, pg.

4.8). This would serve as a destination along the pathway.



Fig. 4.11 Highbush Cranberry – native shrub with berries that are liked by birds.

4.5 HERITAGE

The West London Dyke and the surrounding area have a strong historic character. The most significant features to recognize are the existing Dyke itself, the Thames River, Labatt Park and Blackfriars Bridge. In addition, Eldon House and the Old Courthouse are important heritage buildings in the area. The dyke replacement is an opportunity to create a place, which provides information on the area's rich history while meeting the current needs of users.

4.5.1 Lighting and Site Furnishings

Through the consultation process it was determined that site lighting and furnishings should be consistent with the dyke's strong links to cultural heritage. The existing light post base design should be used as inspiration for new light posts (Fig. 4.12, pg. 4.8). Figure 4.13 (pg. 4.8) shows the historic style of post and fixture found in front of the Nancy Campbell Institute and fits with the character of the post base.



Fig. 4.12 Historic light base incorporated into existing dyke railing.



Fig. 4.13 Historic light post in front of Nancy Campbell (London, ON).

Figure 4.15 (pg. 4.9) illustrates what the proposed light post might look like. All furnishings should be durable, vandal resistant and cohesive with the area's cultural heritage. The existing railing was also recognized as significant to the identity of the dyke (Fig. 4.14, pg. 4.9). This railing should be used as inspiration for the new railing design (Fig. 4.16, pg. 4.9) that will meet safety codes. In addition, trash receptacles, additional benches and more consistent lighting are needed. Figures 4.17 and 4.18 (pg. 4.9) show site furnishings that are consistent with the historic style of the light post, light base and railing. The use of public art within destination areas or incorporating art within site furnishing design should be considered.



Fig. 4.14 Existing dyke railing.



Fig. 4.15 Light post sketch.

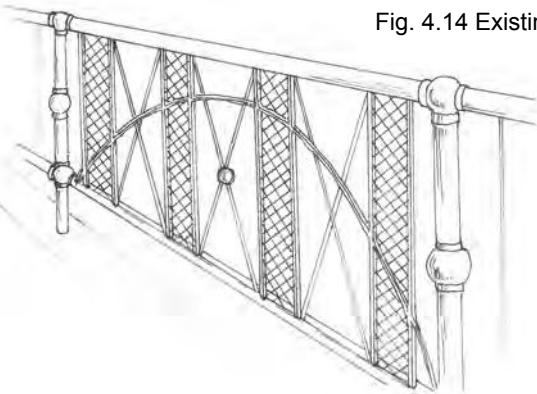


Fig. 4.16 Railing sketch.



Fig. 4.17 Wrought iron bench in Victoria Park (London, ON)

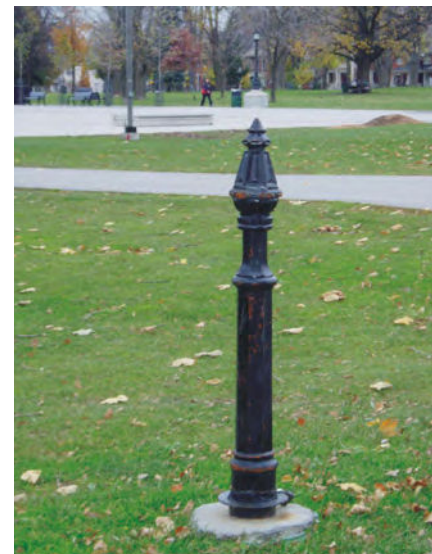


Fig. 4.18 Bollard in Victoria Park (London, ON).

4.5.2 Signage

An interpretive signage program for the dyke and pathway system exists and it is seen to be an inherent element to incorporate into and expand on in such a culturally rich area. The content of the existing interpretive signage program should be carried through, but it is suggested that a new format and unique appearance be implemented throughout the dyke and pathway system. This altered signage program should be in keeping with site lighting and furnishings, be durable, unique in appearance and vandal resistant. Consideration should be given to incorporating signage into the design of site elements, i.e. railings and pavement. Unique signage will assist in establishing the distinct character of the dyke. Suitable locations for interpretive signage are identified on the Master Plan Concept (Fig. 4.1, pg. 4.2). As noted in Section 4.4.4 (pg. 4.7) trail information signage is valuable and should be incorporated throughout the pathway system as well.

4.5.3 Views

It was determined that views of significance along the dyke and pathway system have direct links with cultural and natural heritage in the area. Significant views are identified below, along with suggested approaches to preserve/enhance these views.

- View of the Wharnccliffe Road Bridge, Thames River and the Fork of the Thames from Kiwanis – marked by lookout, seating area and interpretive signage (Fig. 4.10, pg. 4.7);
- View of Dyke structure and Thames River from the Queens Avenue Bridge – implement attractive wall structure and a discrete, aesthetically pleasing transition (Fig. 4.19, pg. 4.10);
- View of the Queens Avenue Bridge and the Fork of the Thames from outside of Labatt Park – look out and interpretive signage to remark on significant features (Fig. 4.20, pg. 4.10);



Fig. 4.19 West side of dyke, looking North from the Queen St. Bridge.



Fig. 4.20 View of Queens Avenue Bridge and the Fork of the Thames.

- View into Labatt Park – allow controlled view into the park, mark with interpretive signage and seating area (Fig. 4.21, pg. 4.11);
- View of Harris Park – look out and interpretive signage to allow users to stop along pathway (Fig. 4.22, Fig 4.23 pg. 4.11);
- View of Blackfriars Bridge from the South – should not be obscured (Fig. 4.24, pg. 4.11);
- View of Blackfriars Bridge from the North – look out and interpretive signage to mark point of significance (Fig. 4.25, pg. 4.11).



Fig. 4.21 View into Labatt Park, through cedar hedge, from pathway.



Fig. 4.22 View of river and Harris Park from dyke.



Fig. 4.23 View into Harris Park from top of dyke.



Fig. 4.24 View of Blackfriars Bridge from South.



Fig. 4.25 View of Blackfriars Bridge from North.

4.5.4 Labatt Park

This baseball park has a long-standing history in London that many residents are unaware of. Creating a controlled view into the Park from the pathway, with interpretive signage about its role in the City's History, would bring an interesting element to the dyke replacement and create further visibility to the Park. Fig. 4.21 (pg. 4.11) shows the break in vegetation that inspired the idea. This location provides an opportunity to create a gathering space that is a destination along the trail. The line of cedars that shield the park from those on the pathway has been identified as a positive element because it creates an intimate feel, and natural appearance. This green backdrop should be a component in the proposed design whether it is preserved or reintroduced.

4.6 SAFETY

Improved site features and pathway system improvements will increase the number of users. With this increase, improved safety becomes a very necessary consideration. Circulation, visibility, lighting and vandalism are among those items that must be addressed.

4.6.1 Circulation

The existing pathway system crosses five major streets, without any form of traffic control to give users the right-of-way. Not only is this dangerous, but it is inconvenient for pathway users. Access under the bridges would increase safety for pedestrians and cyclists and improve circulation for those who choose to use the pathway functionally as a green method of transportation. A continuous path encourages users, especially cyclists, to make use of a pathway system because of its convenience. For the reasons noted above, implementing pathways under each bridge should be given serious consideration. The existing pathway also varies in width and material. As the pathway is redeveloped, its design should be consistent with City of London Standard Multi-Use Pathway to improve circulation, safety, and create continuity.



Fig. 4.26 View West to the Wharncliffe Road crossing.

4.6.2 Lighting

As noted earlier, lighting can aid in creating continuity and cultural connections with the dyke system in the daylight. In the evening hours lighting will not only create continuity, but will have a direct impact on the safety of the pathway system. A well-lit pathway will encourage people to make use of it during evening hours. The existing lighting system is not consistent and leaves dark patches due to the presence of overgrown vegetation or a lack of light posts and fixtures. The dyke system requires consistent lighting throughout. The use of full cut-off optics will help decrease light pollution to adjacent areas. Light post placement and the use of housing shields should be given careful consideration when adjacent to residential areas.

4.6.3 Vegetation

Vegetation can play a role in how safe a pathway system is and how safe users perceive it to be. Existing vegetation and proposed planting should adhere to CPTED (Crime Prevention Through Environmental Design) principles.

4.6.4 Vandalism

The existing dyke and pathway system has been subject to numerous acts of vandalism over the years (Fig. 4.27, pg. 4.13). A reduction in vandalism can be achieved through appropriate lighting and site design. CPTED principles should be considered during design development in order to reduce occurrences of vandalism. Vandal-resistant site furnishings are available and should be used wherever possible.



Fig. 4.27 Existing signage has been badly damaged by vandals.

4.7 ACCESS TO THE RIVER

It was identified that access to the river is very important to users, whether it is just to be near the edge to look into the water or to fish, feed the geese or canoe. Although the river can be more readily accessed from the east side of the river there are still several existing access points. Access is provided at Cummings Avenue (Fig. 2.5, pg. 2.7), the Kiwanis Senior's Centre (Fig. 2.7, pg. 2.8) and at Cavendish (Fig. 4.29, pg. 4.14) and should be preserved/enhanced as described below. It becomes challenging to provide access when the wall structure exists.

4.7.1 Cummings Avenue

Access to the water is currently available, but not encouraged at Cummings Avenue. As noted previously, the natural vegetation in this area should be preserved and maintained. A wood chip path or gravel path should be provided to encourage users to stay on the path, and to reduce soil compaction and damage to plant material. Steps should be taken during design development to ensure that the water's edge is protected from pedestrian traffic. Access to cyclists should be restricted to protect the natural area from damage. Providing seating at the water's edge would allow for sitting, reading and fishing and should be incorporated.

4.7.2 Blackfriars Bridge

The area north of the bridge has been suggested as a possible location for access to the river by alterations to the design of the wall structure. This area has more room to work with than many other locations along the dyke.

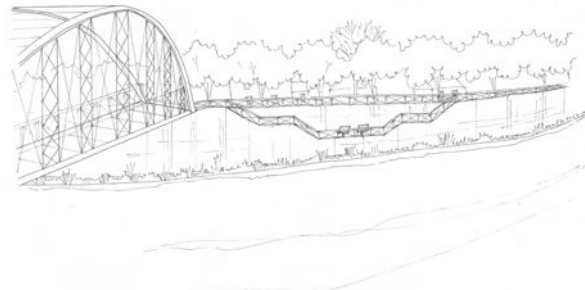


Fig. 4.28 Sketch illustrating possible outlook at Blackfriars bridge.

Figure 4.28 (pg. 4.13) illustrates this concept.

4.7.3 Kiwanis Senior's Centre

The stretch between the Queens Avenue Bridge and the Wharncliffe Bridge currently gives access to the river and has a natural edge condition. This natural edge should be maintained but this section has been identified as a place that would suit higher usage. There is potential for a discreet and unobtrusive boardwalk and lookout with seating and interpretive signage. Implementing a dock into the lookout for canoes and kayaks would expand the number of recreational activities in the area. Seating would allow for reading, people-watching and observing wildlife.



Fig. 4.29 Pathway looking West towards Cavendish Park.

4.7.4 Cavendish

There is currently access to the river between Cavendish Park and east to where the hard structure of the dyke begins (Fig. 4.29, pg. 4.14). This natural edge condition should remain in its present state or be enhanced. The existing edge gives an opportunity for fishing.

4.8 GATEWAYS

Gateways have been identified on the concept plan at various locations where the pathway system intersects major roadways. These specific nodes have the opportunity to identify where the pathway system connects with major streets, while being aesthetically pleasing. The gateways should be in keeping with the aesthetic of the pathway system and dyke redevelopment initiatives. As these connections are where many pedestrians and cyclists enter the pathway, these are ideal locations for trail information signage.

5.0 Implementation

The following notes outline how the recommendations detailed in the design guidelines section should be implemented during various phases of the redevelopment.

5.1 GENERAL RECOMMENDATIONS

The general recommendations found below detail how to specifically implement design recommendations, which apply to all phases of development. All recommendations, which apply, should be addressed during each phase of development.

- Options for creating a functional and interesting dyke layout and structure should be investigated during each Phase of the redevelopment and accordingly be detailed in each set of tender documents;
- Confirm the suitability of naturalization plantings at the toe of the dyke for potential environmental enhancement throughout all phases of development;
- Investigate opportunities for naturalization planting areas for environmental enhancement during design development;
- Investigate opportunities for terrestrial and aquatic habitat creation during design development;
- Seating should be incorporated into the pathway system at regular intervals throughout all phases of redevelopment;
- Lighting and furnishing design, including signage, should consider design guidelines and be determined through design development;
- Significant views / lookout locations should be identified and confirmed at the site design scale, during design development for each phase of redevelopment;
- Investigate opportunities to implement pedestrian underpasses under all bridges within the study area where appropriate;
- Lighting design for all phases of the redevelopment should have consistent lighting types and levels to increase safety and should be adjusted to suit adjacent land uses;
- Consider Crime Prevention Through Environmental Design (CPTED) principles when preparing planting plans for all phases of redevelopment;
- CPTED principles should be considered for all phases of redevelopment to reduce the occurrences of vandalism and increase safety for its users;

- Investigate all opportunities during each phase of the redevelopment to provide access to the river for a broad range of activities.
- Functionality and aesthetics should be key design considerations for any transitions in all phases of development;
- The buffer between residences and the pathway system should be maximized during all phases of design development;
- The wall layout determined through the design development stage should consider both technical requirements and the recommendations given in the design guidelines regarding shape and composition. Where possible it should be varied to create interest and give adequate room at the top of wall for things such as lookouts, buffers and gathering spaces.
- Public input should be solicited for each phase of the dyke replacement.

5.2 PHASE 1 RECOMMENDATIONS

The recommendations outlined in this section are specific to implementation of Phase 1 of the dyke and pathway replacement. Each item should be addressed during design development.

- The wall material selection should be investigated and selected during detailed design for Phase 1 of the redevelopment based on functional capability as well as aesthetic appeal, and be specified in the tender documents;
- Detailed design for Phase 1 of the redevelopment, should look at the functionality and aesthetics of the transition specifically;
- The urban tree management program should be initiated as soon as possible, so that an approach for all phases can be reached prior to construction of Phase 1;
- A native plant list should be prepared during design development for Phase 1 and be consistent through future phases of redevelopment;
- Site lighting and furnishings including seating, trash receptacles, railing and interpretive signage are to be vandal resistant, detailed during the detail design stage and be included in the tender documentation for Phase 1;
- Investigate opportunities to create a lookout and interpretive area in front of Labatt Park;
- Ensure all lighting has full cut-off optics, is documented during design development and is included in the tender documents for Phase 1;
- Consistent and identifiable gateways should be designed for all major roadway crossings and be included in the tender documents for Phase 1.

6.0 Conclusion

The West London Dyke and Thames Valley Parkway upgrade and replacement has come about because of structural deficiencies in the dyke itself, as identified in 2005. Thus, it is necessary to bring this flood control structure up to current technical standards. The dyke replacement gives the rare opportunity to create a dyke and pathway system that preserves and enhances the natural environment, historic character and cultural connections to the river, while improving safety and usability, and establishing an attractive and identifiable place within the City of London.

The process in developing the Master Plan document has involved:

- Review of background information including, technical investigation and PIC process;
- Review of site conditions and photo documentation;
- Analysis of existing conditions;
- Development of preliminary goals and objectives;
- Preparation of design concepts;
- Information gathering from key stakeholders during the design charrette process;
- Identification of primary issues, concerns and ideas generated at the charrette;
- Development of a vision and design guidelines for the dyke and pathway system;
- Refinement of the Master Plan Concept;
- Preparation of specific recommendations for implementation of design guidelines.

As noted in Section 1.2, a condition assessment identified that the portion of the dyke in the most need of replacement was between the Queens Avenue Bridge and Rogers Avenue. A preferred alternative was selected for Phase 1 of the redevelopment after careful evaluation of design alternatives. Specific benefits of the wall design selected for Phase 1 include more efficient use of public space and more flexibility in uses at the top of dyke, replacement of damaged site furnishings, the potential for pathways under existing bridges and for ecological enhancement at the top and toe of the dyke structure. Design recommendations need to be applied to Phase 1 to ensure that a cohesive dyke and pathway system is achieved.

The design guidelines and implementation recommendations within this document are intended to guide detailed design and to create continuity throughout all phases of the redevelopment. It is imperative that public consultation be solicited with each phase of the redevelopment. Through the creativity and insight of the community and the design team the vision for the West London Dyke and Thames Valley Parkway can be achieved.