

West Don Lands – Transit Class Environmental Assessment



February 2008



URS CANADA / DU TOIT ALLSOPP HILLIER / BA GROUP

Executive Summary

E1. Introduction

Waterfront Toronto (formerly the Toronto Waterfront Revitalisation Corporation, TWRC), was formed with the mandate and responsibility for developing Toronto's waterfront, including the West Don Lands area. The organization, which is jointly owned by the City of Toronto, the Province of Ontario and the Government of Canada, undertakes its work based on strong principles of excellence in environmental sustainability and urban design. Waterfront Toronto is the proponent for all redevelopment activities in the West Don Lands area and the West Don Lands Transit Environmental Assessment Study has been carried out under their auspices. They have funded the study, and plan to implement the recommendations of the study as part of their mandate, including all design and construction costs related to transit facilities required to service the West Don Lands area.

The West Don Lands development area located generally east of Parliament Street between King Street and the CN Rail corridor west of the Don River, which is shown in Exhibit E-1, is going through a transformation from derelict brown fields into a higher-density mix of new residential and commercial uses. The West Don Lands precinct is a 32-hectare site within this area that ultimately will have 6500 housing units, 1300 of which will be affordable rental housing and 1 million square feet of office and retail space.

The City of Toronto approved the Central Waterfront Secondary Plan in 2003, in part, to establish guiding principles for the redevelopment of brown-field sites such as the West Don Lands area. One of the principles established was the need to strongly encourage non-auto based travel in the newly developing areas and, as shown in Exhibit E-2, the plan envisioned a network streetcars operating in their own right-of-ways throughout the eastern waterfront. Council reinforced this principle by approving a "transit first" approach to waterfront development whereby surface rapid transit services are to be constructed at the earliest stage of the redevelopment process so that excellent transit services are in place as the first developments are occupied thereby encouraging non-auto travel patterns from the outset.

Exhibit E-1
West Don Lands Precinct Plan

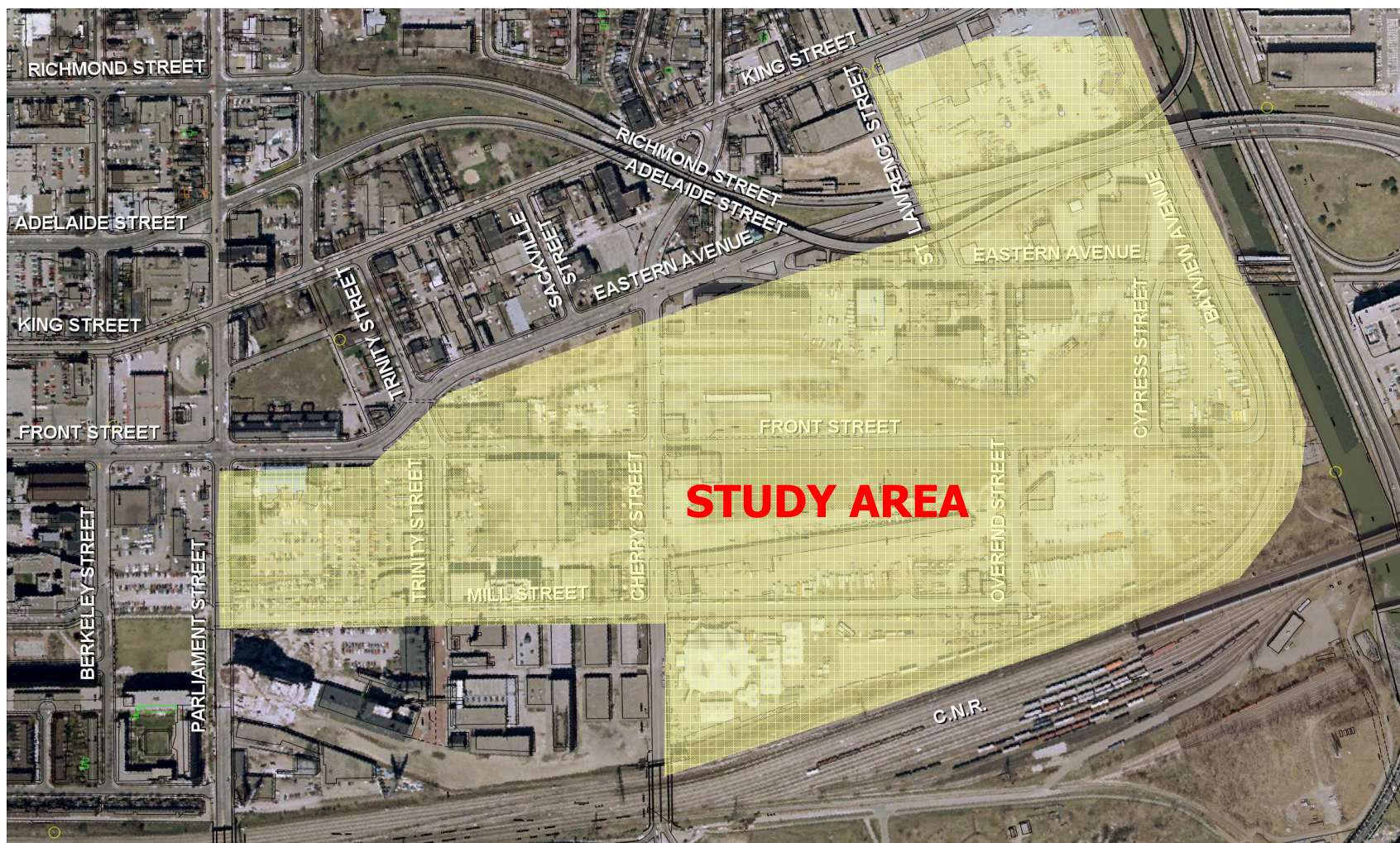
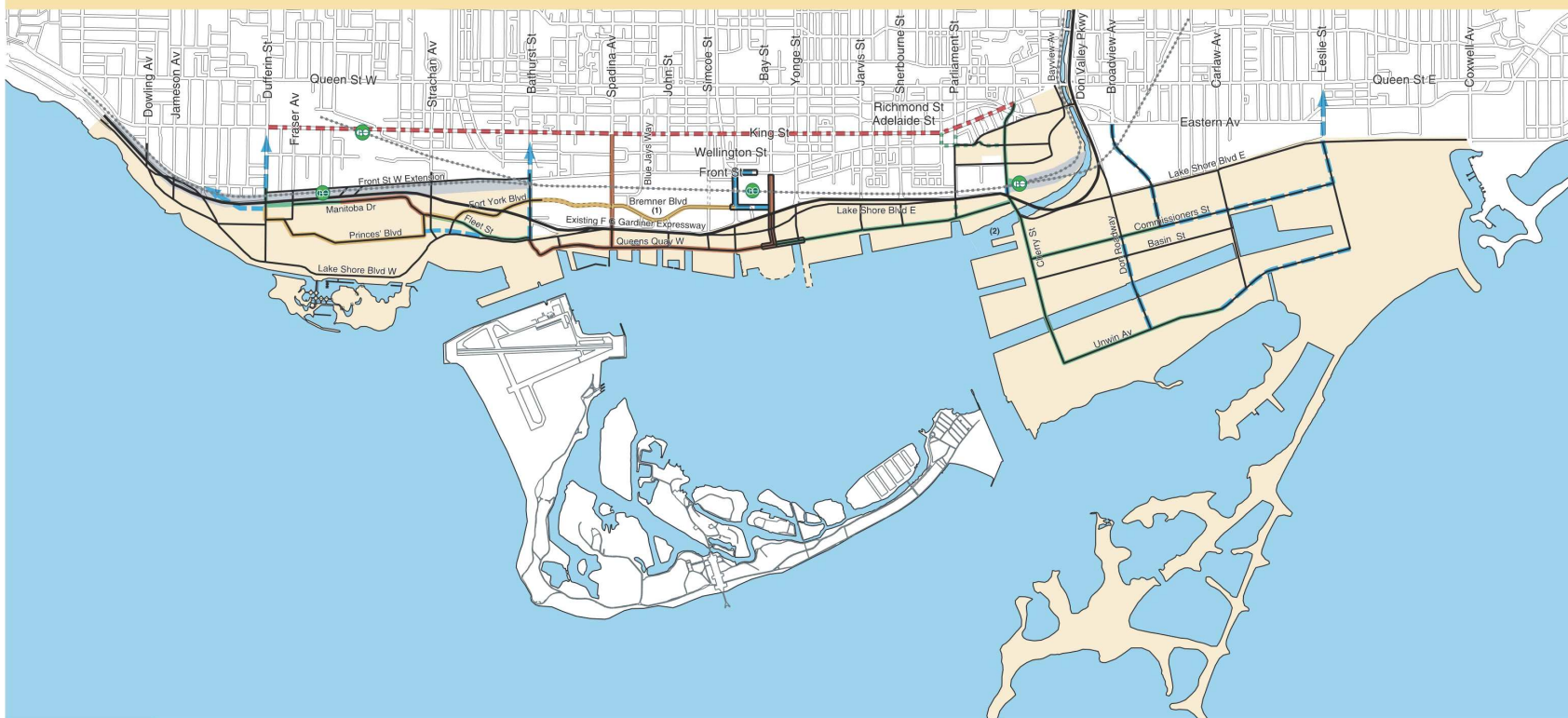


Exhibit E-2 Secondary Plan-Transit Plan Map



MAP B

CENTRAL WATERFRONT SECONDARY PLAN TRANSIT PLAN

NOTE: (1) COULD EVOLVE TO STREETCAR SERVICE, DEPENDING ON DEMAND / FEASIBILITY
(2) NEW MOUTH OF DON RIVER SHOWN CONCEPTUALLY

MAP INDEX

- EXISTING STREETCAR ROUTE
- EXISTING GO STATION
- TUNNEL SECTION

PLANNED NEW TRANSIT SERVICES

- TRANSIT PRIORITY IMPROVEMENTS
- BUSES OR STREETCARS IN OWN RIGHT-OF-WAY
- STREETCARS IN OWN RIGHT-OF-WAY
- ALTERNATIVE ALIGNMENT FOR STREETCARS IN OWN RIGHT-OF-WAY SUBJECT TO ENVIRONMENTAL ASSESSMENT
- NEW GO STATION
- POTENTIAL TRANSIT SERVICES (LONG TERM)
- STREETCARS IN OWN RIGHT-OF-WAY

October 17, 2005

In May 2005, City Council approved the West Don Lands Precinct Plan and Environmental Assessment Master Plan, which included the provision of exclusive transit rights-of-way on the roadways identified in the Secondary Plan. Concerns were raised at that time that the resulting roadway was too wide on Cherry Street and that the proposed design did not include provisions for bicycle lanes. It was recognized that a formal Environmental Assessment study would be required for the approval of the construction of a transit right-of-way so Council approved the EA Master Plan subject to, among others, the following conditions:

- “the preferred design for Cherry Street . . . being identified as ‘preliminary, subject to further evaluation’ in the context of the upcoming Transit EA Study.”
- “the provision of a continuous uninterrupted dedicated bicycle facility on Cherry Street . . . be endorsed in principle, subject to the findings of the Transit EA Study.”

In June 2005 the Commission authorized TTC staff to undertake Environmental Assessment studies for transit projects in the eastern waterfront including a study of transit needs in the West Don area on behalf of Waterfront Toronto. The study has been done in close co-operation with City of Toronto and Waterfront Toronto staff with a project team made up of representatives of the TTC, City of Toronto Planning, City of Toronto Transportation and Waterfront Toronto guiding the study. A consortium of consultants led by McCormick Rankin Corporation is undertaking Transit Environmental studies in the eastern waterfront, under the direction of the project team and URS Canada has taken the lead on the West Don Lands project.

The Environmental Assessment Study for transit services in the West Don Lands area was initiated as an Individual Environmental Assessment. Recently the Ministry of the Environment has approved an amendment to the Municipal Class Environmental Assessment to permit transit projects to be undertaken under the Municipal Class EA process and TTC staff have elected to formally convert the study to fall under the new Municipal Class EA process for transit projects.

This Executive Summary provides an overview of the accompanying Environmental Study Report and describes the key decisions that led to the recommendation for streetcars in their own right-of-way on the east side of Cherry Street/Sumach Street to serve the West Don Lands area.

E2. Existing Conditions

The West Don Lands Precinct area is currently a mostly-vacant brown field site, which has been considered a prime candidate for revitalization for decades. The Ontario Realty Corporation owns the majority of the land in the precinct with additional lands being owned by the City of Toronto. There are also a number of privately owned parcels. There are a number of historic buildings and structures on the site and some archaeological remnants as illustrated in Exhibit E-3.

Exhibit E-3 Existing Conditions in the Study Area



Based on the approved West Don Lands Precinct Plan and the EA Master Plan, Waterfront Toronto is proceeding with approvals, design and construction of a number of elements of the plan including:

- Construction of the flood protection and the 18 acre Don River Park
- Soil and ground water management
- Bayview Avenue realignment and River Street reconstruction

The area north of the West Don Lands precinct, between Eastern Avenue and King Street is a mix of low and medium density residential, offices and commercial development. There are a number of sites in this area with active proposals for redevelopment. The south-west portion of the study area includes the historic Distillery District which incorporates a number of historically-designated buildings. It is being redeveloped privately as a cultural

district including mixed-use development and a number of condominium residential projects.

Transit service to the area, currently, is on the periphery of the study area. The frequent 504 King streetcar provides transit service from the study area both to the downtown area and north to Broadview Station. However, it operates in a mixed-traffic condition, which would have a number of offsetting impacts on the King Street operations. TTC staff have proposed ways to make the 504 King service more reliable. North-south bus service is provided to the study area by the 65 Parliament route and weekday daytime service is provided by the 72 Pape service operating from the Port lands area through the southern portion of the study area and west to Union Station.

In addition, the 504 King service and other streetcar routes that operate without passenger platforms are not currently accessible for many people with mobility problems or passengers who use mobility aids. The Accessibility for Ontarians with Disabilities Act (AODA) requires the TTC to ensure that its services are accessible to people with mobility limitations. The TTC is in the process of purchasing replacement streetcars that will have low floors, which will help to address this problem, but passenger platforms are also an important element in making transit services fully accessible. The provision of passenger platforms is a requirement for any newly constructed streetcar/light rail line.

E3. Problem Statement

The redevelopment of the City's brown field waterfront sites, and in particular the West Don Lands precinct, represents a significant opportunity to attract people and jobs to the City as envisioned in the City's Official Plan. The Official Plan calls for an intensification of land uses in the city to make best use of existing infrastructure and to achieve the large environmental and sustainability benefits of a compact urban form. Transit plays a critical role in achieving this objective if it, along with pedestrian and cycling modes of travel, can provide a reasonable alternative to auto travel.

Ridership forecasts, and studies of existing higher-density mixed-use communities in the City, indicate that, if an effective transit system is in place, at peak times, non-auto mode splits of 50% 60% are achievable. In the West Don Lands area 40% of all trips are expected to use transit services. This is based on a number of factors including location, proposed land uses and the planned transit network. The approximate 6500 housing units and 1 million square feet of office and retail space are expected to generate 4 million annual passengers for the TTC each year when the area is fully developed.

The purpose of the West Don Lands Transit Environmental Assessment study has been to determine the transit facilities required to serve the long-term needs of the study area which achieve TTC's objectives for high quality, reliable transit services and the City's and Waterfront Toronto's objectives for design and environmental excellence.

Current transit services in the area are beyond a convenient walk for most of the large number of travelers expected to and from the new developments planned for the new West Don Lands community. The West Don Lands Precinct Plan established a goal of providing frequent and reliable transit service within a 5-minute walk of most residents of the West Don Lands area and current services do not meet this objective.

The redevelopment plans are based on the assumption that a high proportion of all travel to and from the community will be made by transit. To achieve this objective, it is essential that a high-quality transit service be provided. Transit service speed and reliability are important, as is the fundamental requirement for new streetcar facilities to have passenger platforms to provide access for passengers with mobility limitations.

In addition, developments in the West Don Lands are not occurring in isolation. A fundamental principle of the broader planning for the waterfront area is the need to tie future development into the fabric of city by encouraging linkages between existing communities and future communities. From a transit perspective this is achieved by providing an integrated network of transit services that link both north-south and east-west into and through the community. Transit services in the West Don Lands need to be integrated with redevelopment plans for the East Bayfront, Lower Don and Port Lands areas to achieve the overall benefits of the broader integrated planning approach being taken in the waterfront area.

E4. Consultation Process

Waterfront Toronto has established a high standard for public and community involvement in its work, and has been successful in engaging both the local community and a wider range of interested community groups and individuals in the planning process for the waterfront. This approach has been incorporated into the planning process for the West Don Lands Transit EA. A fourteen-member Community Liaison Committee was established for the study, which met 12 times during the course of the study to provide input and advice on the conclusions being reached and on mechanisms to achieve effective consultation. In addition to four formal public workshop/information centres conducted during the study, a community design charette was organized by Waterfront Toronto and members of the community to discuss broader urban design options and alternatives for Cherry Street. A drop-in style information centre and a site walk were also part of the public input process. In an evolutionary way, the feedback provided through the public input process has resulted in conclusions and a refined design concept that addresses the concerns and issues brought forward by the community.

E5. Approach to Assessment of Alternatives

The assessment was undertaken in two stages. The first related to assessing overall needs and the identification of a preferred corridor and vehicle technology. The second stage then looked at alternatives related to the preferred way of designing the road to best

accommodate the preferred vehicle type in the chosen corridor. In accordance with the Class EA process, input from the public and key stakeholders was sought at each key decision point.

A significant first step in the needs assessment was the undertaking of detailed travel demand forecasts to better-understand travel needs in the community and, in particular, the need for road capacity through the precinct. A key assumption in the analysis was that a high-quality transit service will be provided to the area that will be successful in attracting a high-mode split to transit. The detailed traffic analysis concluded that one through auto lane in each direction on Cherry Street, with turning lanes at intersections, will be adequate to handle future traffic volumes to and within the West Don Lands development. There will be limited capacity for autos to travel on Cherry Street but it was determined that this condition is acceptable and will be of some benefit to the local community itself, as the lack of road capacity has the potential to discourage transient auto traffic.

This conclusion represents a significant refinement of the original requirement for two auto lanes in each direction included in the West Don Lands Precinct Plan and EA Master Plan. It results in benefits for Cherry Street from a community and urban design perspective and provides an opportunity to narrow the right-of-way on Cherry Street compared to what was included in the EA Master Plan. This conclusion has been used as an important input into the second stage of the assessment process related to the preferred design for Cherry Street.

Another key conclusion of the initial needs assessment is that bicycle lanes should be included in the overall road design. This is an important factor in meeting the objective of reducing auto travel and it also serves as a key link in the greater network of cycling facilities, which helps to integrate neighbourhoods.

E6. Preferred Corridor – Cherry Street

The Project team assessed four corridor options to serve West Don Lands area as illustrated in Exhibit E-4:

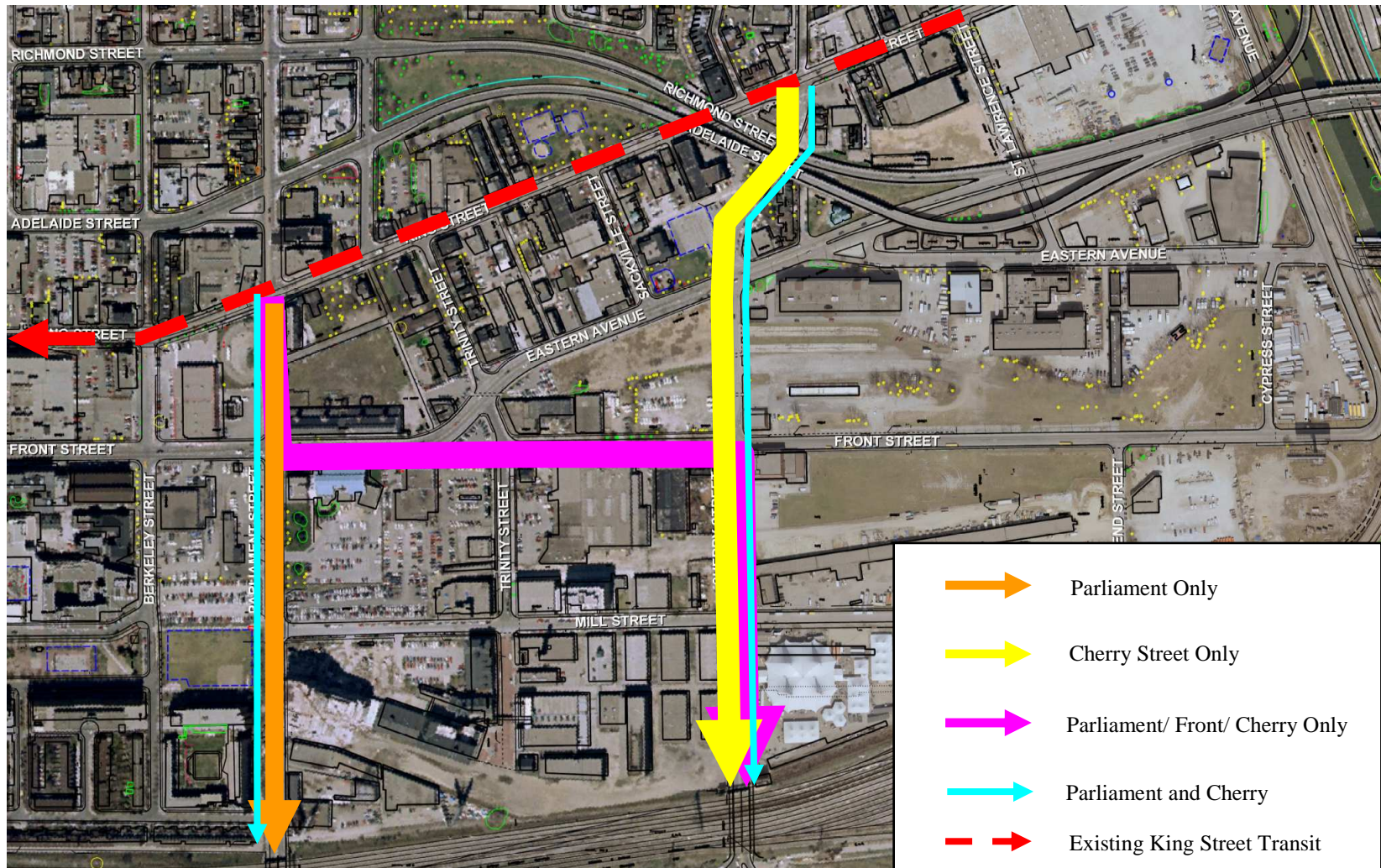
- Cherry Street and Sumach Street from the CN Rail corridor to King Street
- Cherry Street from the CN Rail corridor north to Front Street, west to Parliament Street and north to King Street
- Parliament Street from Queens Quay East north to King Street
- A combination of services both on Cherry Street and Parliament Street

The options were evaluated based on formal screening process and a comprehensive set of evaluation criteria to determine the preferred alternative. The option of providing service on Parliament Street alone was screened out as not providing adequate coverage in the new West Don Lands area as most residents would be beyond a 5-minute walk of transit services. Options involving both Parliament Street and Cherry Street were identified as being less cost-effective than the option of providing service on Cherry Street alone with

respect to serving the West Don Lands area specifically. The option of providing service on Cherry Street and Sumach Street to King Street is preferred over the Cherry Street/Front Street option because of the additional transit operational delays in negotiating an additional traffic signal at the Front/Eastern intersection.

The assessment confirmed the need, ultimately, for transit services on Cherry Street in the West Don Lands to connect with planned services on Queen's Quay East in the Lower Don Lands area and to the Portland area to the south. These connections are elements of the Lower Don Lands EA Master Plan, which is being undertaken by Waterfront Toronto. The preferred design for these connections will be addressed in that study.

Exhibit E-4 Alternative Corridors



E7. Preferred Technology: Streetcars on a Dedicated Right-of-Way

The project team began with considering a wide range of possible transit technologies. It was determined that the anticipated travel demand in the corridor does not warrant the expense of fully-grade separated facilities (such as a subway) and these options were screened from further consideration. A number of bus propulsion technologies were identified including bus technologies that would eliminate local emissions such as electric or fuel-cell technology buses. The assessment was done based on the best future technology. For example, it was assumed for this comparison that buses, in future, will have zero local emissions (assuming fuel cell or electric propulsion).

The Project Team assessed four technology options to serve West Don Lands area:

- Conventional bus service on existing roads (do nothing alternative)
- Bus service on a dedicated surface right-of-way
- Conventional streetcar service on existing roads
- Streetcar service on a dedicated right-of-way

Conventional buses in mixed traffic were screened out as not providing a high enough quality of transit service (reliability, speed, comfort) to achieve the fundamental objective of competing effectively with the automobile and attracting a high mode split to transit services. Bus services in a dedicated right-of-way, while potentially providing adequate capacity, speed and reliability of service within the community, can not be integrated well with the existing east-west downtown transit network, which is primarily streetcars, and are not preferred for this reason.

The Project Team, with extensive community input through the community design charrette, developed a range of possible approaches to providing degrees of transit priority with streetcars in various combinations of transit right-of-way and combined-traffic-lane operations. However, it was determined that for streetcars to operate effectively and to meet the accessibility requirements provided through transit passenger platforms, streetcars require a dedicated right-of-way.

E8. Recommended Design – Exclusive Transit on the East Side of Cherry

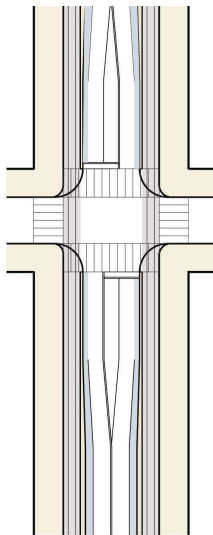
The project team evaluated a long list of eight alternative designs for the operation of streetcars on Cherry Street and Sumach Street which were:

- Mixed traffic
- Transit in Outside Lane – Dedicated at Mid-block Only

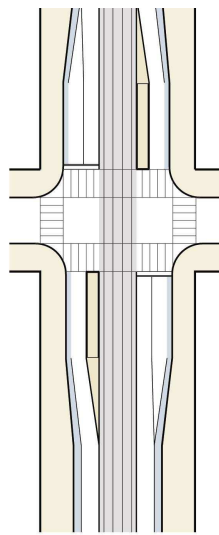
- Dedicated Transit East Side
- Dedicated Transit West Side
- Dedicated Transit in Median with one traffic lane per direction
- Transit Mall
- Dedicated Transit in Median with two traffic lanes per direction (from EA Master Plan)
- Dedicated Transit in Outside Lanes

Through a screening process to evaluate the alternatives with respect to transit, traffic, pedestrian and urban design objectives, the long list of design alternatives was screened down to three alternatives, all of which have transit in a dedicated right-of-way but with the right-of-way in different locations in the roadway cross-section. The three options are illustrated in Exhibit E-5 and discussed below:

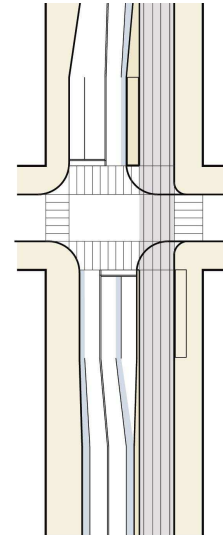
Exhibit E-5
Short listed Design Concepts for Dedicated Transit Lanes



Outside Lanes



Centre Median



East-side

Alternative 1 – Dedicated Transit in the Outside Lanes

Streetcars operating in the outside lanes provide an opportunity to integrate transit into the pedestrian realm and provide for good flexibility for locating transit stops. However, this alternative limits access to a number of existing properties on both sides of Sumach Street north of Eastern Avenue, and limits the opportunity to provide for access to future developments on both sides of Cherry Street south of Eastern Avenue. In addition there is no opportunity to provide for on-street parking with this alternative and drop-off/pickup activities would be difficult to accommodate and potentially create safety issues. Due to operational concerns this option is not recommended.

Alternative 2 – Dedicated Transit in the Centre Median

This option is good from a transit and traffic operations perspective. It is a typical arrangement in Toronto and autos, pedestrians and transit operators are familiar with the arrangement. It requires, however, that transit stops be fixed from the outset and has limited flexibility to change operating arrangements over time. In addition, from a passenger perspective the provision of waiting areas in the middle of the roadway is less desirable than integrating the transit stop into the sidewalk area, as is possible with the other options. The provision of transit in the median adds to the real and perceived width of the street and creates a sense of isolation for transit passengers because the separation from the sidewalks and adjacent land uses by through traffic and bicycles. Also, the design would require two separate treed medians (on either side of the streetcar right-of-way) to effectively enhance the public realm and to be successful, such treed medians would require greater right-of-way width and a high degree of resources for ongoing maintenance. The provision of transit in the median results in the perception of a wide transportation corridor and there are limited opportunities for innovative urban design treatments.

Alternative 3 – Dedicated Transit on the East Side

This alternative represents a compromise that provides some of the benefits of each of the alternatives described above. It provides opportunities for urban design treatments that can reduce the scale of the roadway and improve the public realm. A key factor is that the distance for pedestrians crossing general traffic is reduced. The passenger loading and unloading areas are also less impacted by the sense of isolation associated with the middle of the road option. Northbound passengers, in particular, benefit from having the waiting area integrated with the sidewalk, and pedestrians on the sidewalk have a greater buffer from traffic. The design also requires a single median to separate general traffic from the transit right-of-way. This provides the opportunity for a median width that is generous enough to support the healthy growth of trees and to separate the street into corridors that create a comfortable public realm.

Many of the benefits of this design also address concerns, which have been identified during the public consultation process. This option was, in fact, the second choice during a

public design charette exercise that was conducted by the community in conjunction with the study. The first choice was a transit mall design (i.e., general automobile traffic would be eliminated from a section of Cherry Street), which does not support many of the City's policies and objectives for a balanced public street design.

The alternative addresses the significant operational concerns related to dedicated transit in the outside lanes (alternative 1) with respect to pick up/drop-off and can accommodate a limited amount of on-street parking. Operationally it can be designed to provide acceptable transit, traffic and pedestrian operations. Simulations of morning rush hour operations indicate that, with this alternative, transit services will operate slower on Cherry Street than the alternative with dedicated transit in the centre median. While this lower speed is undesirable, it is necessary to achieve the public realm benefits associated with this alternative and it occurs over a short distance - just over 700 metres in length - in an area where the close signal spacings would result in relatively slow transit speeds, regardless of the design selected. There are a number of existing properties that have their access restricted or eliminated as a result of this option but these access issues can be mitigated in various ways as described below. This alternative is recommended because, on balance, the benefits of improving the public realm and innovative design treatments outweigh the difficulties related to operations and property access.

Table E-1 summarized the selection of dedicated transit on the east side of Cherry Street and Sumach Street as the preferred design.

E9. Description of the Preferred Design

The recommended design concept is illustrated in Exhibit E-6 to Exhibit E-8.

Table E-1: Selection of the Preferred Design

	Transit in outside lanes	Transit in centre median	Transit on east side
Pedestrian/transit passenger environment	<ul style="list-style-type: none"> • Integrates transit and public realm • Transit stops integrated with sidewalks 	<ul style="list-style-type: none"> • Stops in middle of road • Perception of wide road 	<ul style="list-style-type: none"> • Integrates transit and public realm • Transit stops integrated with east-side sidewalks
Urban design opportunities	<ul style="list-style-type: none"> • Opportunities for some innovative public realm treatments 	<ul style="list-style-type: none"> • Some opportunity for streetscape improvement with increased width 	<ul style="list-style-type: none"> • Streetscaping possible between transit and road with little additional width
Socio-economic impacts	<ul style="list-style-type: none"> • Limits access to existing driveways on both sides • No street parking possible 	<ul style="list-style-type: none"> • Negligible affect on existing access • Street parking possible with additional width 	<ul style="list-style-type: none"> • Limits access to existing driveways on east side • Street parking possible
Transportation system	<ul style="list-style-type: none"> • Poor or pickup/drop off • Possible to modify road and transit operations without reconstruction 	<ul style="list-style-type: none"> • Preferred for transit and traffic operations • Typical arrangement driver/pedestrian familiarity • Limited flexibility 	<ul style="list-style-type: none"> • Acceptable transit road and pedestrian operations • Possible to modify road and transit operations without reconstruction
Summary			Recommended

Exhibit E-6 Recommended Design

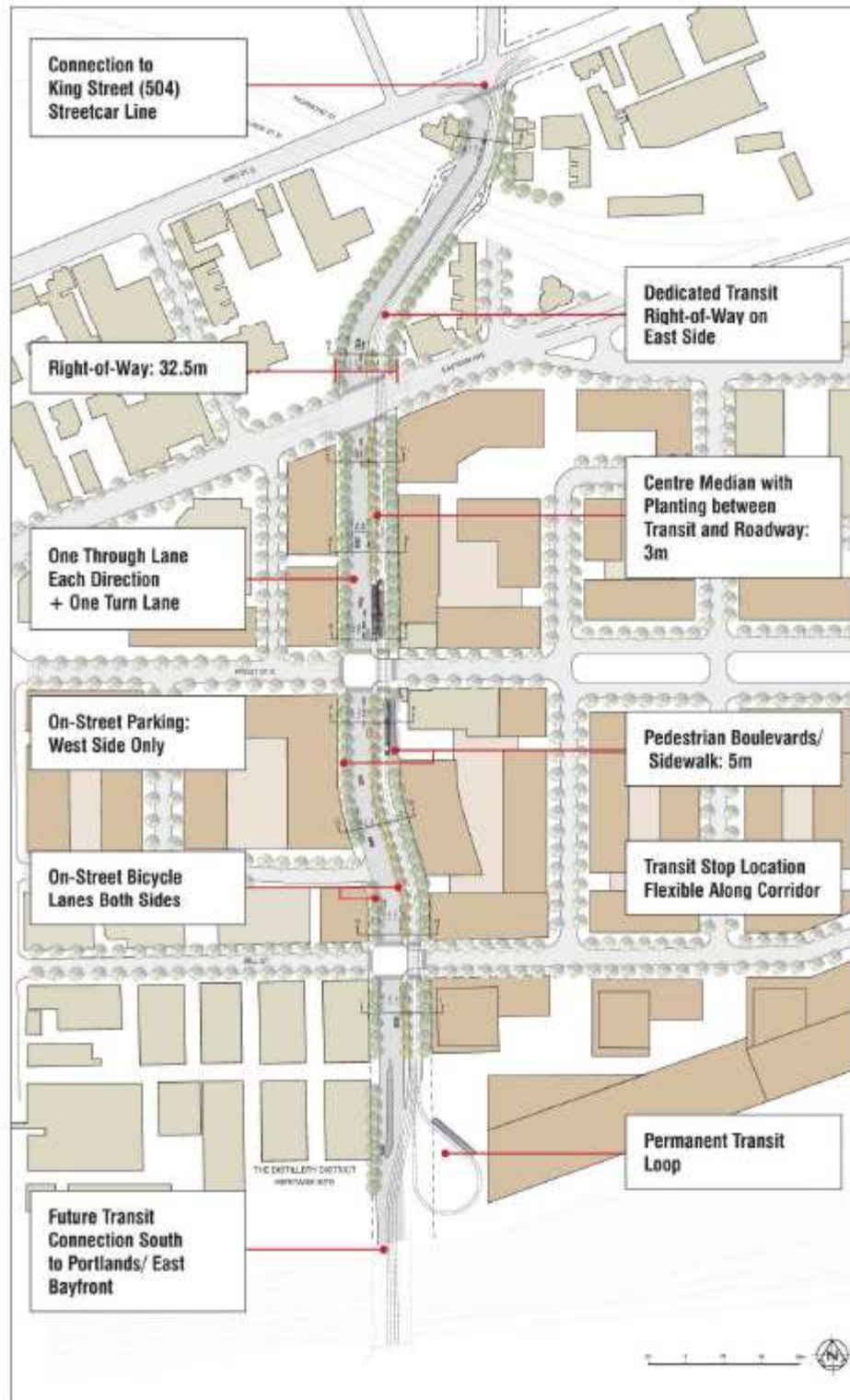


Exhibit E-7 Recommended Design - Perspectives



View North of Front Street Intersection from Above



Looking Northeast from the West Side of Cherry Street

Exhibit E-8
Recommended Design - Perspectives



Looking Northwest from the East Side of Cherry Street



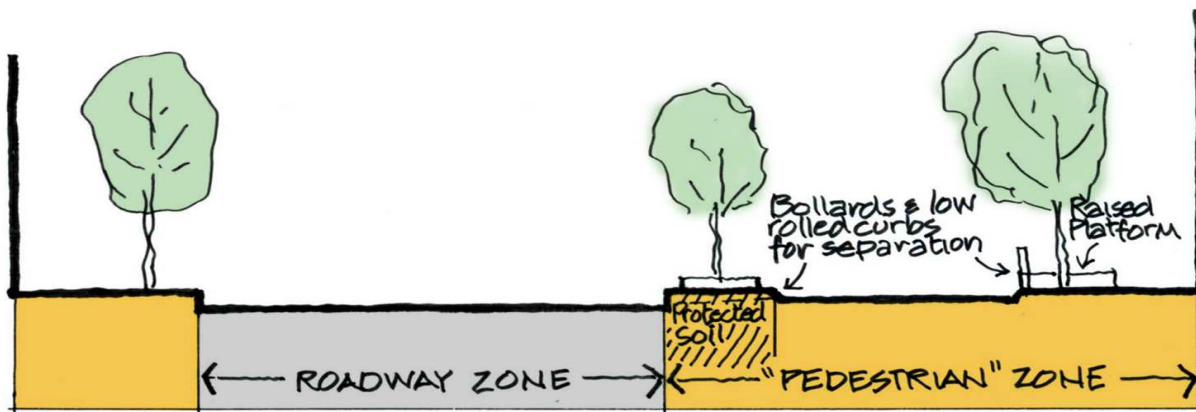
Looking Northwest from the East Side of Cherry Street

One of the key considerations in selecting transit on the east side was the potential to visually associate the transit right-of-way with the adjacent east side boulevard. A fundamental element of the urban design approach in the study has been to consider the street as an urban place, not simply a corridor for movement. This embodies the principles of:

- Designing for spatial comfort and human scale
- Making a place not a thoroughfare
- Orienting to the pedestrian
- Protect heritage buildings and resources

The preferred design provides an opportunity to visually expand the non-auto portion of the street, as illustrated in Exhibit E-9.

**Exhibit E-9
Roadway Zone versus Pedestrian Zone**



Between the CN Rail corridor and Eastern Avenue, the Cherry Street right-of-way will be composed of:

- | | |
|---------------------------------------|---------------------------|
| ▪ Two sidewalk/boulevards at 5 m each | 10.0 m |
| ▪ A roadway | 12.8 m |
| ▪ A raised, planted centre median | 3.0 m |
| ▪ A dedicated transit right-of-way | 6.7 m ¹ |
| TOTAL RIGHT OF WAY | 32.5 m¹ |

¹ Tangent sections only – Increases in width to transit right-of-way is required to accommodate vehicle outswing/inswing. This minor increase may affect overall right-of-way width.

In accordance with City of Toronto Council direction, the detailed design process should consider options and refinements, with a goal of achieving a roadway width of less than 12 metres if possible, while preserving bicycle lane widths of 1.8 metres.

This standard right-of-way cannot be maintained north of Eastern Avenue where the Richmond Street and Adelaide Street ramps require that the right-of-way be narrower beneath the overhead structures. On Sumach Street between Eastern Avenue and King Street the raised median will be reduced to 1m and the roadway to 9.8m, which represents the elimination of on street parking. Also in this block, the boulevard space is variable reflecting constraints of existing properties. Each component of the right-of-way is described below.

E.9.1 Roadway and Traffic Signals

The recommended design provides for one traffic lane and one bike lane per direction. At intersections one auxiliary turn lane is provided at each intersection and on street parking is provided at mid-block locations along the west side of the street. As illustrated in Exhibit E-10, this can be accommodated within a uniform 12.8 m roadway width from Eastern Avenue to Mill Street. The final roadway width will be confirmed during the detailed design phase, with consideration of the aforementioned council direction.

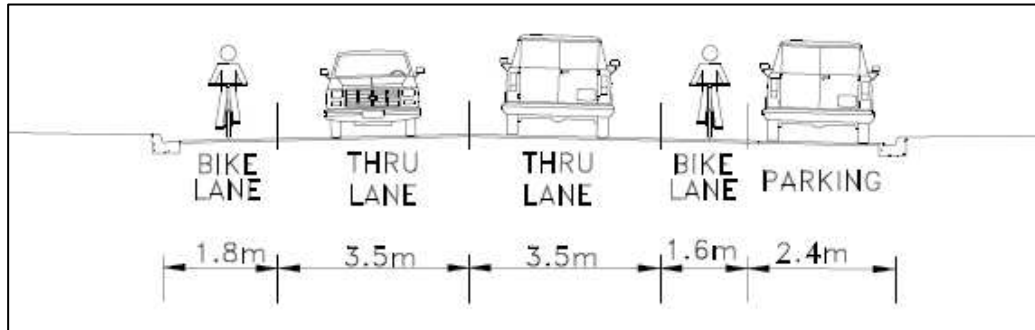
The east-side transit option requires that all vehicle turning movements across the transit right-of-way be signal controlled, so the installation of traffic control signals at the intersections on Cherry Street at Front Street East and Cherry Street at Mill Street is required. To maintain a 12.8m roadway cross-section only one turn lane can be accommodated at each intersection so the following turn prohibitions will be required:

- Southbound left turns from Sumach Street to eastbound Eastern Avenue
- Southbound left turns from Cherry Street to eastbound Front Street
- Northbound right turns from Cherry Street to eastbound Mill Street

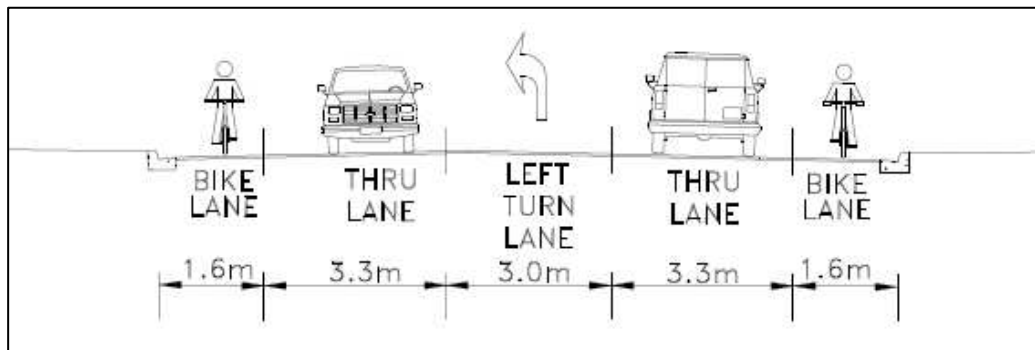
These turn prohibitions and the related signal control plan may be refined during the detailed design and West Don Lands development stage. However, changes in operational strategies will preserve the uniform road width at all intersections.

Exhibit E-10
Alternate configurations for 12.8 m Roadway

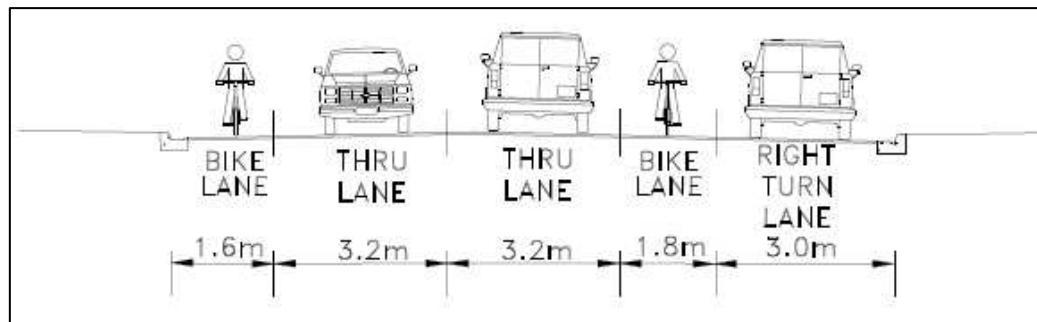
Parking One Side



Left-Turn Lane at Intersection



Right-Turn Lane at Intersection



Note: In accordance with City of Toronto Council direction, the detailed design process should consider options and refinements, with a goal of achieving a roadway width of less than 12 metres and providing 1.8 m bicycle lanes.

E.9.2 Pedestrian Zone and Boulevard Space

The transit-on-the-east-side option offers the potential to visually expand the “non-auto” street area without automobiles through the use of consistent colour/texture treatments for both the pedestrian area and the transit right-of-way. Generous boulevard space and a continuous median provides considerable space for street trees and additional planting to reduce the “scale” of the street and bollards, curbs and trees will be used to delineate the transitway from the sidewalk. A 3m wide landscaped median will separate the transit right-of-way from the roadway. The median will serve as the platform for the transit stop at Front Street and, other than at transit stops, the median will be constructed with a continuous trench along with an irrigation and drainage system to allow for the planting, and long-term survival, of trees.

E.9.3 Transit Right-of-Way

The transit right-of-way will generally be 6.7m wide with overhead traction power suspended from guy wires attached to poles on either side of the right-of-way (i.e. one pole in the landscaped median and one pole in the boulevard). Toronto Fire prefers this configuration as the clear 6.7m provide additional drivable surface in the event of an emergency. The poles can be stand alone or used in combination with streetlights. At King Street a half grand union track configuration will be provided to allow for streetcars to travel both from the east and the west to southbound Sumach Street.

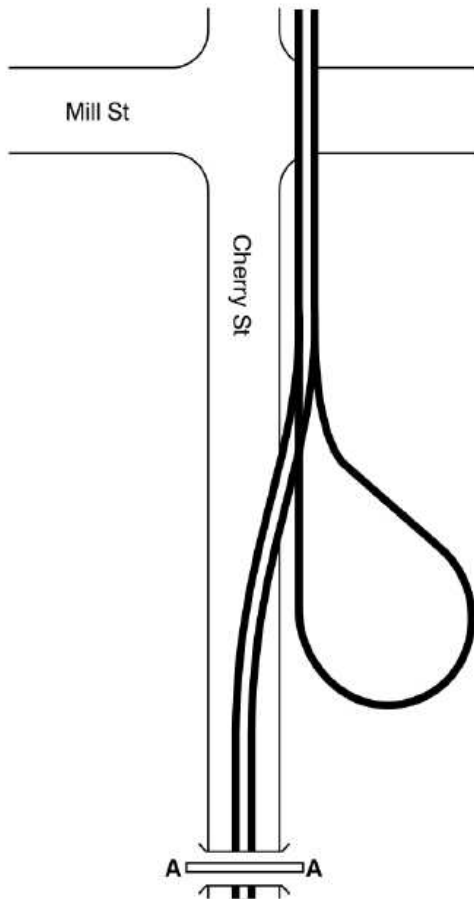
South End Transit Loop

A permanent streetcar loop will be constructed on the east side of Cherry Street immediately north of the CN tracks to allow for service to be turned to and from the north. It is expected that Cherry Street service will eventually be extended to the south in conjunction with the re-development of the Lower Don area ultimately to connect with future streetcar service on Queens Quay East through the East Bayfront area and into the Port Lands, as called for in the Central Waterfront Secondary Plan. The design for the loop will protect for two possible options for an extension of future services to the south as illustrated in Exhibit E-11. One option would use the existing bridge with streetcars operating in the centre of the roadway and the second option would require the construction of a new tunnel under the CN rail corridor to accommodate streetcars on the east side of the existing bridge structure.

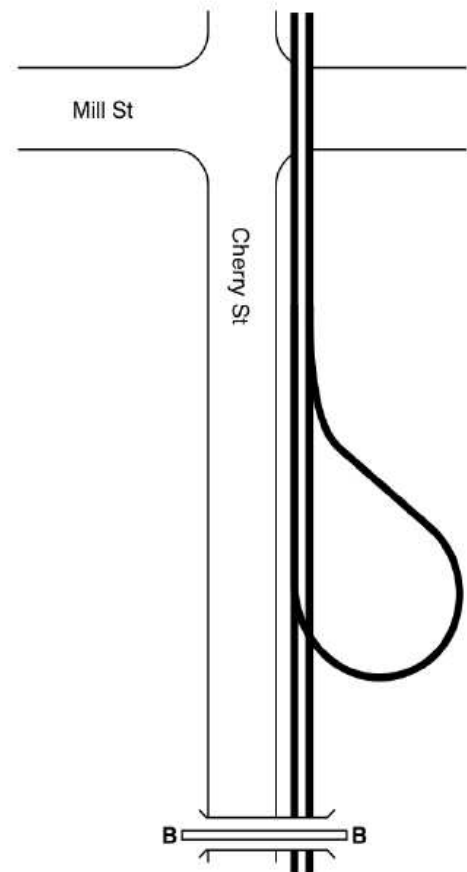
Waterfront Toronto is undertaking a Municipal Class EA Master Plan for the Lower Don area and they have agreed to specifically include the resolution of this issue in the scope of work for that study.

Exhibit E-11
Alignment Alternatives for a southern extension

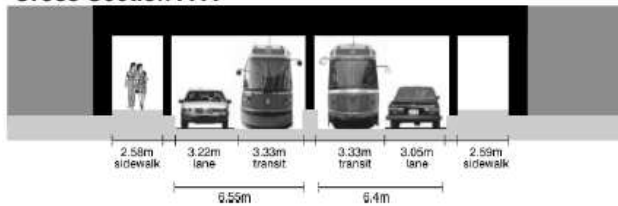
**South End - Option 1
Centre of the Road**



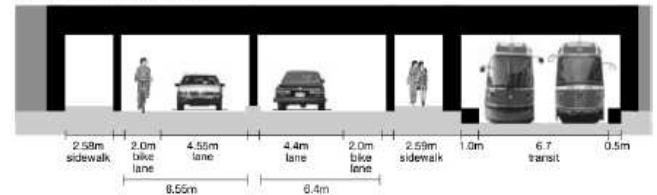
**South End - Option 2
East Side with New Tunnel**



Cross Section A-A



Cross Section B-B



E10. Property Requirements and Access Issues

The recommended option requires that Cherry Street be widened from the current 20m right-of-way to approximately 33m. While this is less than the amount originally included in the West Don Lands EA Master Plan, land needs to be acquired for the proposed road right-of-way. All of the land requirements south of Eastern Avenue are from property owned by Ontario Realty Corporation who is aware of the requirement through their involvement with Waterfront Toronto. North of Eastern Avenue the recommended option requires that a strip of land be acquired from the Toronto District School Board property on the northwestern corner of Eastern Avenue and Sumach Street. The land required is from the schoolyard and parking area at the back of the Inglenook Alternative School on Sackville Avenue. A triangular piece of land is required on the east side of the school property which is approximately 10m wide at Eastern Avenue narrowing to the north at the north property line of the school. TTC and City staff have met with the Toronto District School Board and they are aware of this property requirement. In addition, partial takings of property are required from 511 King Street and 525 King Street.

There are six private property owners on the east side of Cherry Street and Sumach Street who will have access to their property restricted as a result of the implementation of the recommended alternative. Staff have attempted to contact these property owners in a number of ways during the study process including hand-delivered notifications. To date, staff have been successful in contacting three of the six property owners individually about the proposed plan, and will continue to work to contact the remaining owners. There are opportunities to physically reconstruct access locations in some cases, which will be required as part of the project, however in other cases some form of direct compensation to individual property owners may be required as part of the project.

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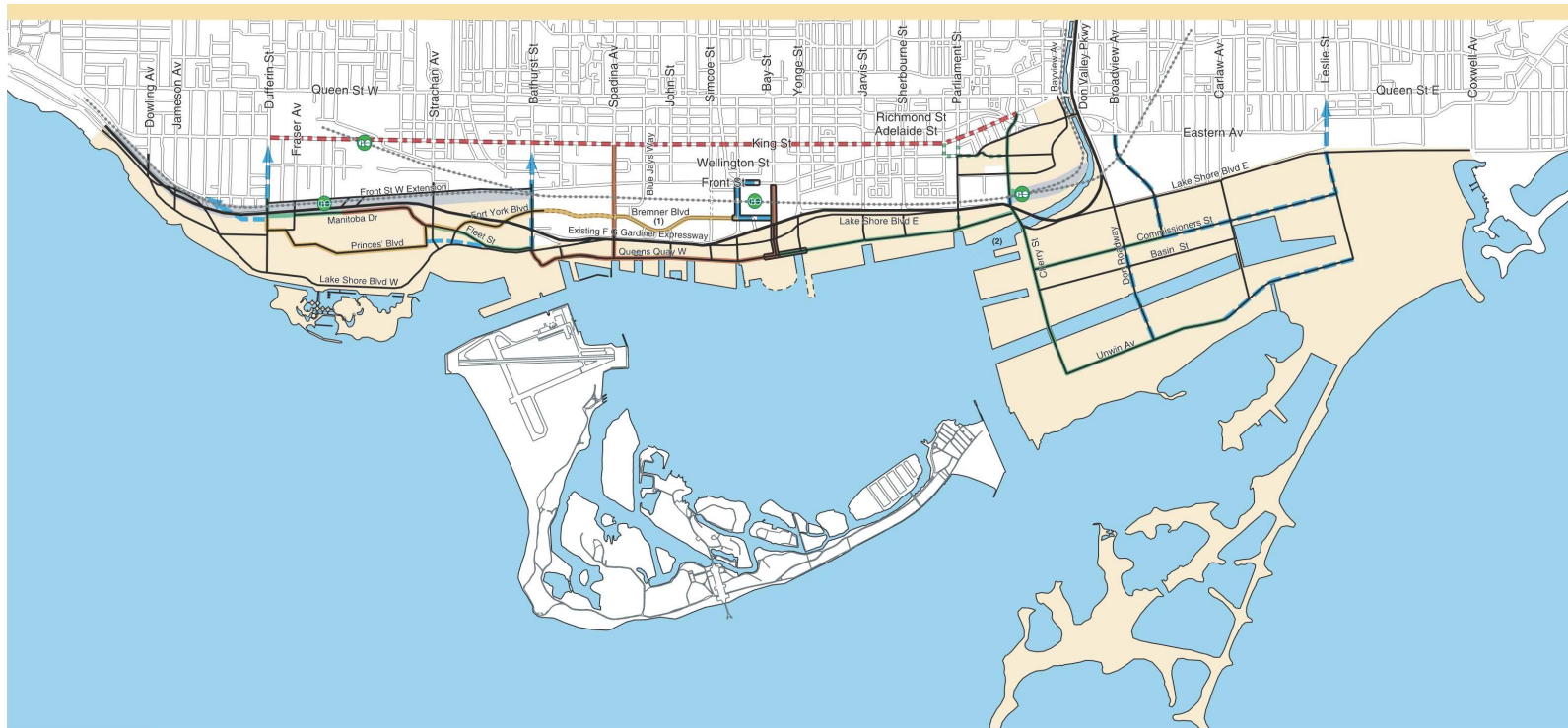
1. INTRODUCTION

Sustainable redevelopment and revitalization of Toronto's Waterfront will require an effective transportation system to service the large number of planned residential and employment opportunities. While roads will provide some of the transportation capacity in and out of the area, a high transit modal split is absolutely essential to achieve Waterfront Toronto's and the City's objectives.

The formal framework for achieving these objectives was set out in the Central Waterfront Secondary Plan, which was approved by City Council on April 16, 2003 (BY-LAW No. 346-2003). It identifies a transportation strategy to provide a sustainable network in, to and from the waterfront communities with a particular focus on encouraging walking, cycling, transit use and water transportation. A number of policies are noted including:

1. A "Transit First" approach will be adopted which provides for the early construction and operation of planned higher-order transit services at an early stage in the development process so that the transit-oriented objectives of the plan are achieved from the outset;
2. The provision of the rights-of-way required to accommodate the proposed waterfront transit network over time as shown in Exhibit 1-1. The rights-of-way are to accommodate travel lanes, transit, pedestrian and cycling requirements and are to be refined through further detailed study;
3. The existing transit network will be extended into the waterfront area providing numerous connections north-south to connect the waterfront with existing nearby communities;
4. New streetcar routes will operate in exclusive rights-of-way on existing and proposed streets to ensure efficient transit movement; and
5. Waterfront streets will be renamed as "places" with distinct identities; Streets will act as lively urban connections as well as traffic arteries. The needs of motorists will be balanced with efficient transit service and high-quality amenities for pedestrians and cyclists.

Exhibit 1-1 Secondary Plan-Transit Plan Map



MAP B

CENTRAL WATERFRONT SECONDARY PLAN TRANSIT PLAN

NOTE: (1) COULD EVOLVE TO STREETCAR SERVICE, DEPENDING ON DEMAND / FEASIBILITY
(2) NEW MOUTH OF DON RIVER SHOWN CONCEPTUALLY

MAP INDEX

- EXISTING STREETCAR ROUTE
- EXISTING GO STATION
- TUNNEL SECTION

PLANNED NEW TRANSIT SERVICES

- TRANSIT PRIORITY IMPROVEMENTS
- BUSES OR STREETCARS IN OWN RIGHT-OF-WAY
- STREETCARS IN OWN RIGHT-OF-WAY
- ALTERNATIVE ALIGNMENT FOR STREETCARS IN OWN RIGHT-OF-WAY SUBJECT TO ENVIRONMENTAL ASSESSMENT
- NEW GO STATION
- POTENTIAL TRANSIT SERVICES (LONG TERM)
- STREETCARS IN OWN RIGHT-OF-WAY

October 17, 2005

The West Don Lands precinct is a 32-hectare (80 acre) area located generally between Parliament Street on the west, the Don River to the east, Front Street, Eastern Avenue and King Street to the north and Mill Street and the railway corridor to the south. (See Exhibit 1-2). The approximate 6500 housing units and 1 million square feet of office and retail space are expected to generate 4 million annual passengers for the TTC each year when the area is fully developed.

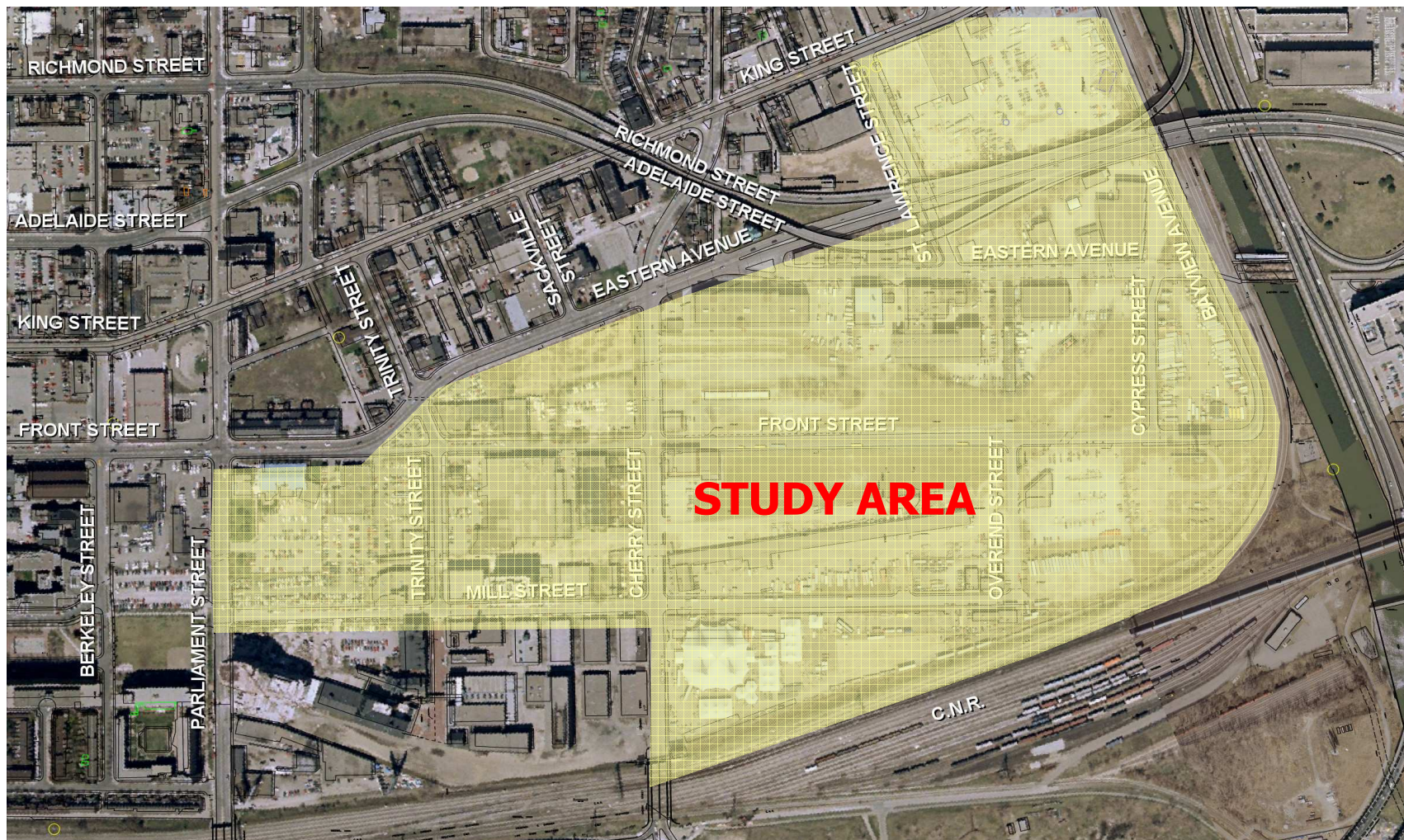
As a result of this future development, a significant transportation demand will result. As noted previously, in order to accommodate these demands on the proposed and existing transportation network and reducing auto dependence, the Council of the City of Toronto has adopted among other things, a “transit first” policy to service the revitalization of the lands within the Waterfront Secondary Plan area. The transit first policy establishes the goal of providing frequent and reliable transit service within a 5-minute walk of most residents of the West Don Lands area and current services do not meet this objective.

1.1 Study Area

The Study Area is bounded by Queen Street East, the Don River, the Harbourfront and Parliament Street. This Study Area was developed in consultation with key stakeholders and reflects the fact that:

- The increase in travel demand for the area will be created by new development in the West Don Lands and these-lands are captured within the Study Area
- The alternative solutions will consider reasonable alternatives that utilize existing corridors, such as Cherry Street, Parliament Street and Front Street
- The recommended design must connect to the existing transit network (on King) and future (on Queen’s Quay- East Bayfront). This has set the north and south limits

Exhibit 1-2
West Don Lands Precinct Plan



1.2 The Purpose of this Study

The Toronto Transit Commission (TTC) is proceeding with this Class Environmental Assessment (Class EA) study to identify the transit improvements required to support planned development in the West Don Lands Precinct. Specially, the overall purpose of the undertaking embodied in this EA is:

“To determine the transit facilities appropriate to serve the long term residential, employment, tourism and waterfront access needs in the study area while achieving the City’s and Waterfront Toronto objectives for land use, design and environmental excellence.”

In the spring of 2006, the TTC, Toronto Waterfront and the City of Toronto commenced an Individual Environmental Assessment in support of this undertaking. In accordance with the Environmental Assessment Act a Terms of Reference (ToR) was filed and subsequently approved by the Ministry of the Environment. Based on the approved ToR, the project planning commenced in the winter of 2007 with the intent of filing an Individual Environmental Assessment for the West Don Lands Transit.

In the fall of 2007, the Minister of the Environment (MOE) approved the Municipal Engineer’s Association (MEA) Class EA process, which now allows certain transit projects to be planned in accordance with the process.

In October 2007, the Toronto Transit Commission (TTC) advised the MOE that this undertaking would be switched to the class process.

1.3 The EA Process

This Environmental Study Report (ESR) has been prepared to fulfill the requirements of the Municipal Class Environmental Assessment (Municipal Engineers Association) as approved by the Minister of Environment under the Environmental Assessment Act for municipal infrastructure projects. It describes the project, its purpose, the need, the evaluation of alternatives and the likely environmental effects and mitigation measures associated with the preferred alternative.

The proposed project has been categorized as a schedule “C” project under the Municipal Class EA based on the expected cost of the project and magnitude of its anticipated environmental impact.

The Municipal Class EA process involves five-phase planning and design process summarized as follows:

Phase 1 - Problem Identification

Phase 2 - Alternative Solutions

Phase 3 - Alternative Design Concepts for Preferred Solutions

Phase 4 - Environmental Study Report

Phase 5 - Implementation

Phase 1 - Identify the problem or opportunity that the study is to address (documented in chapter 3 of this Environmental Study Report)

Phase 2 - Identify alternative solutions to address the problem and opportunity by taking into consideration the existing environment (chapter 4), and establish the preferred solution taking into account public and review agency input (chapter 5).

Phase 3 - Examine alternative methods of implementing the preferred solution, based upon the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects (chapter 5, 6 and 7).

Phase 4 - Document, in an Environmental Study Report a summary of the rationale, and the planning, design and consultation process of the project as established through the above phases, and make such documentation available for scrutiny by review agencies and the public.

Phase 5 - Complete contract drawings and documents, and proceed to construction and operation; monitor construction for adherence to environmental provisions and commitments. Where special conditions dictate, also monitor the operation of the completed facilities.

An EA study must allow a reviewer to trace each step of the process. The analysis and documentation should explain the reasons for the criteria used to identify and assess the alternatives; the proponent's weighting of these criteria and the decision making process that was followed.

An essential feature of successful planning and approval, under the Act, involves early consultation with the affected parties. Hence, the study was organized so that affected parties were:

- Involved throughout the study at appropriate times
- Provided access to information
- Provided sufficient time to respond to questions and data requested
- Encouraged to participate in issue identification

Government agencies, as well as the public, have had the opportunity to examine the study findings at each phase of the process. The public and agency consultation process is documented in detail in chapter 2 of this report. Based on the review of alternatives, and input received from the public and agencies, a preferred solution was selected, including appropriate mitigation measures.

1.4 Class EA Approval Process

The ESR is prepared for the public record and provides the opportunity for the public to review the planning process. At the culmination of the planning and decision-making process, the ESR is placed on the public record with the Toronto Transit Commission for a 30-day review period. If the members of the public have concerns that cannot be resolved in discussions with the municipality, they may request that the Minister of the Environment grant a "Part II Order" which would elevate the project's approval process to an Individual Environmental Assessment. A "Part II Order" is a decision by the Minister of the Environment that the environmental significance of a project is of such importance that the procedures for environmental assessment under the Class EA process are not sufficient and that an individual EA is required. Such requests shall be forwarded to the Minister of the Environment at the following address:

The Honourable John Gerretsen
Minister of the Environment
135 St. Clair Avenue West, 12th Floor
Toronto, ON
M4V 1P5

A copy of the request must be forwarded to the Toronto Transit Commission at 1900 Yonge Street, Toronto, ON M4S 1Z2.

If at the end of the 30-day review period, no Part II orders have been received, the proponent will proceed with design and construction in accordance with this Environmental Study Report (ESR).

2. CONSULTATION

This chapter documents the consultation process. The integration of the results of this process into the technical assessment is reflected in the following chapters, addressing the various phases of the EA.

2.1 Overview of the Public Participation Process

The Class Environmental Assessment document sets out a combined technical and consultative process that must be followed for this type of study. This process includes identifying the problem, alternative solutions and designs, the analysis and evaluation of the alternatives and their impacts, and study documentation. Public involvement in each phase of the EA process has been integral to this study. The study process reflected the needs and concerns of the various distinct communities along Cherry Street, including business associations and residential groups through on-going consultation.

This extensive consultation program with stakeholder and community groups was undertaken in parallel with the technical work and formal meetings, in order to facilitate meaningful two-way dialogue between the Project Team and all affected parties, including:

- The project website (accessed from www.waterfrontoronto.ca) provided interested visitors with up-to-date study information, background materials, meeting notification, project newsletters, information on how to participate, contact details and online commenting opportunities
- Letters were sent by mail and hand delivered to property owners potentially affected by the West Don Lands Transit EA and one on one meetings were held
- The Study Team met with agencies and key stakeholders to foster a collaborative planning process
- Ongoing outreach through community, stakeholder, and interest groups meetings
- Public Walk-Around meeting (September 29, 2007)
- Incorporation of work undertaken by a local community through a design charrette
- Three rounds of formal public meetings were held encompassing all phases of the project. All formal of consultation rounds were advertised in the Toronto Star in accordance with the requirements as set out in the Municipal Class EA process.

2.2 Public Meetings and Community Workshop

During the ToR and this EA, public consultation centres provided information panels and visual presentations for viewing (see Appendix A for details). The Study Team was in attendance to answer questions regarding the West Don Lands Transit EA.

Commenting areas (with tables and chairs) were set up to encourage members of the public to sit comfortably and make their comments following their review of the information panels and discussions with the Project Team. Comment Workbooks, project email address and a fax number were provided to help the public provide their comments.

All events were hosted in publicly accessible locations with the Study Area.

The first round (mandatory) of Public Consultation obtained input on (March 21, 2007);

- A summary of the Transportation Problem/Opportunity
- The generation and evaluation alternative solutions to the Transportation Problem (planning alternatives)
- Review design considerations during the next stage (Design Alternatives stage) of the EA process

The second round (Supplemental) of Public Consultation obtained input on (July 26, 2007):

- The long list of alternative designs considered
- The evaluation of design alternatives
- Short List Alternatives to be assessed in greater detail

The third round (mandatory) of Public Consultation obtained input on (October 11, 2007):

- The Selection of the preferred design alternative
- Possible refinements to the preferred design alternative
- Opportunities to mitigation potential adverse impacts of the preferred design alternative

All meetings gave the public and stakeholders the opportunity to comment on issues of concern regarding the existing environment and to obtain information on project progress. These meetings also gave the Project Team an opportunity to understand the community's concerns and suggestions, and to discuss the potential 'trade-offs' within each of the alternatives for proposed improvements.

2.3 Supplemental Consultation

2.3.1 Community Liaison Committee (CLC) During the ESRs

A Community Liaison Committee (CLC) was established to discuss and receive feedback from key stakeholders on a continuous basis. (See Appendix B for meeting minutes). This group offered valuable input regarding local issues and assisted in the identification of local interest groups that should be consulted.

2.3.2 Regulatory Agency and Municipal Consultation During the ESRs

Government agencies and other departments within the City of Toronto provided input related to compliance issues (laws, regulations, policies and programs) and other areas of concern within their jurisdiction.

A Technical Advisory Committee (TAC) was established to assist in the preparation of this EA. The specific agencies included on the TAC are outlined in the Consultation Record. Consultation with the TAC involved in reviewing, commenting and providing input to the environmental assessment study, the technical analysis and the ongoing comment/input to the consultation process. TAC meetings were held to coincide with key study stages/milestones. Additional meetings were held with individual agencies during the ESR's as required to assist in agency specific issues (See Appendix C for details).

No involvement with federal agencies occurred as no CEAA triggers or issues of federal jurisdiction were identified during the course of this ESR.

2.4 First Nations Consultation during the ESR

The 1991 Statement of Political Relationship with First Nations of Ontario confirmed the right of First Nations in Canada to have an inherent right to self-government. While the study area is urbanized and disturbed, they encompass lands related to Lake Ontario and the mouth of the Don River. The Don River and associated tributaries and ravines functioned as major portage and transportation routes up until the late 18th century. The Lake Ontario shoreline functioned as a source of fishing, area of aboriginal occupation and transportation routes. In addition, the study area may have been an area of traditional land use.

First Nations were invited to participate in all rounds of consultation. Follow up calls were made to each First Nation and they were asked for comments on the ToR. They were also asked for their advice on how they wish to be consulted during the Individual EA. The Iroquois and Allied First Nation participated in the second workshop and a follow-up one on one meeting was convened. Other First Nations were invited to attend. These included: Alderville First Nation, Mississaugas of Scugog Island First Nation, Mississaugas of the New Credit First Nation, Six Nations of the Grand Territory, Hurons-Wendat First Nation, Metis Nation, Beausoliel First Nation, Chippewas of Georgina Island, Chippewas of Rama, Curve Lake First Nation, Hiawatha First Nation

Discussions with First Nations occurred from the outset of the Class Environmental Assessment and continue in a manner appropriate to them. Consultation activities were adjusted during the Class EA's to meet particular needs of specific First Nations as those needs were made apparent. As a minimum, each First Nation was asked to comment at each benchmark, before decisions are made pertaining to planning and design alternatives.

3. TRANSPORTATION PROBLEM

Based on the approved West Don Lands Precinct Plan and EA Master Plan, Waterfront Toronto is proceeding with the development of the 32-hectare site. The redevelopment plans are based on the assumption that an appropriate transportation network can be developed that will satisfy the resultant demand generated by all proposed waterfront development initiatives. The West Don Lands Class EA Master Plan outlined the transportation network improvements required to support the West Don Lands development, as well as other waterfront initiatives.

The purpose of the West Don Lands Transit Class Environmental Assessment has been to build on the conclusions from the previous studies in order to determine the transit facilities required to serve the long-term needs of the study area.

3.1 Updates to the West Don Lands Travel Demand

A significant first step in the needs assessment was the undertaking of detailed travel demand forecast to better-understand travel needs in the community and, in particular, the need for road capacity through the precinct. Appendix E contains the demand forecasting report prepared by the Demand Forecasting Sub-Group of the Waterfront East EA study. This report contains the travel demand forecasts for future Waterfront East road and transit base networks under the future land use for the Waterfront, with a specific focus on the eastern precincts of East Bayfront, West Don Lands, and the Port Lands.

The City of Toronto's GTA Model was used to generate the travel forecasts for 2021, which estimate auto and transit demands on a GTA wide level. Forecasts are also presented at the precinct level. The forecasts predict the degree of use for roads and transit lines from the trips that are generated from and attracted to each precinct. Two key findings from this travel demand exercise were:

- The majority of transit trips originating from or destined to the West Don Lands precinct are travelling westbound to/from the Central Business District or to the Yonge subway and Union station for longer distance transit trips throughout the city.
- The detailed traffic analysis concluded that one through auto lane in each direction on Cherry Street, with turning lanes at intersections, will be adequate to handle the future traffic volumes to and within the West Don Lands development. This conclusion represents a significant change from the requirement for two auto lanes in each direction included in the West Don Lands Precinct Plan and EA Master Plan. It results in benefits for Cherry Street from a community and urban design perspective and provides an opportunity to narrow the right-of-way on Cherry Street compared to what was included in the EA Master Plan.

3.2 Challenges to Encouraging Transit Use

In order to create an environment that fosters a high transit mode split, TTC and the City of Toronto focus on two main principles (based on TTC survey data - see Exhibit 3-1):

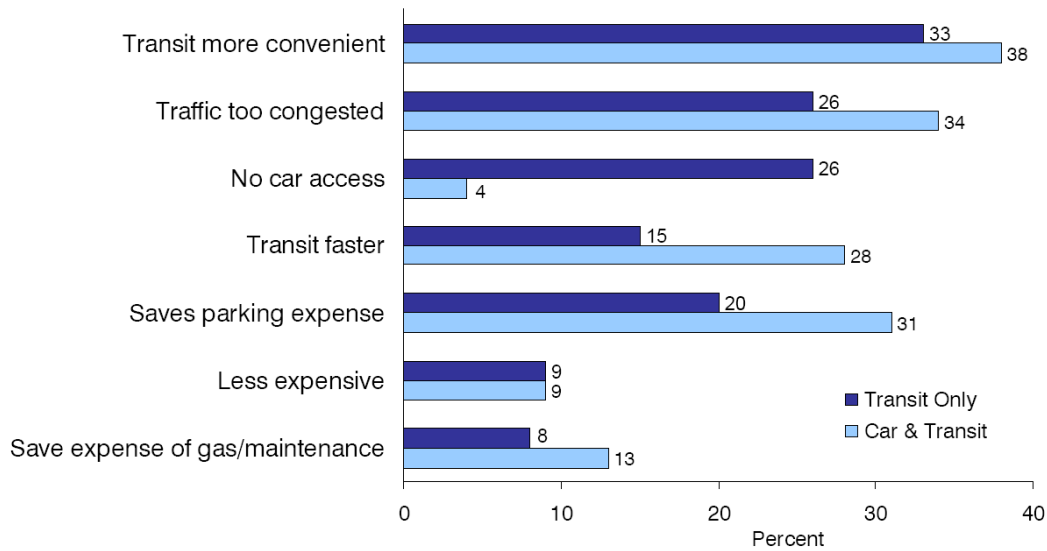
- Transit must be convenient and close
- Transit must offer fast and reliable service

Other important considerations to successful transit service include providing barrier free access, so that individuals with mobility difficulties can use the service and providing transit at the outset of the development of a new community, so that people selectively choose to live in the neighbourhood given the presence of quality transit service.

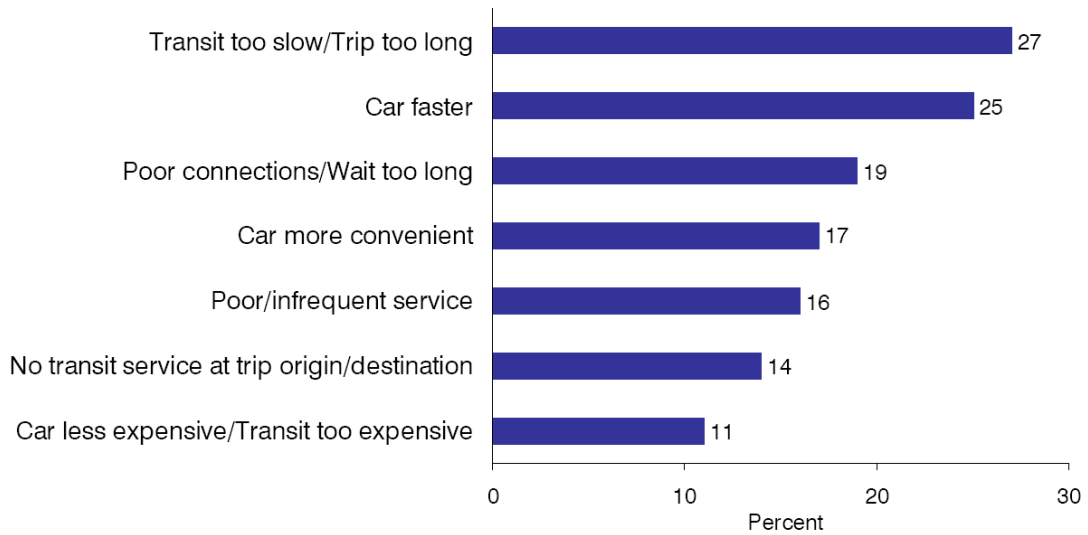
At present, the existing transit service in the West Don Lands precinct does not satisfy these aforementioned objectives. Current transit services in the area are beyond a convenient walk for most of the large number of travellers expected to and from the new developments planned for the new West Don Lands community. The Secondary Plan established a goal of providing frequent and reliable transit service within a 5-minute walk of most residents of the West Don Lands area and current services do not meet this objective.

**Exhibit 3-1
Public opinion polls regarding transit choice**

Why People Choose Transit



Why People Don't Choose Transit



3.2.1 Other Influences on Transit Demand in the West Don Lands

The West Don Lands development is not occurring in isolation. Other major development includes:

East Bayfront:

- Total area – approximately 36 hectares (90 acres)
- Land use type – employment and residential functions
- Population – approximately 14,400 residents
- Employment – approximately 3,800 employees

Port Lands

- Total area – approximately 400 hectares (1000 acres)
- Land use type – mixed use (residential, employment, industrial)
- Population - approximately 32,900 residents
- Employment – approximately 24,700 employees

A fundamental principle of the broader planning for the waterfront area is the need to tie future development into the fabric of the city by encouraging linkages between existing communities and future communities. From a transit perspective this is achieved by providing an integrated network of transit services that link both north-south and east-west into and through the community. Transit services in the West Don Lands need to be integrated with redevelopment plans for the East Bayfront, Lower Don and Port Lands areas to achieve the overall benefits of the broader integrated planning approach being taken in the waterfront area (see Exhibit 3-2 for details).

The development of this network evolved through the Secondary Planning process, which determined that the major destinations for the future residents of the West Don Lands are predicted to be:

- Into the Central Business District
- Union Station to connect with GO Rail and the TTC subway system

Less significant travel desire lines, such as to the east or west are facilitated through streetcar service on Broadview (the King Streetcar) to the Bloor-Danforth subway and the Parliament bus.

Exhibit 3-2 Base Network for Waterfront East



3.3 Problem Statement – The Need for Higher Order Transit in the West Don Lands

The redevelopment of the City’s brown field waterfront sites, and in particular the West Don Lands precinct, represents a significant opportunity to attract people and jobs to the City as envisioned in the City’s Official Plan. The Official Plan calls for an intensification of land uses in the city to make best use of existing infrastructure and to achieve the large environmental and sustainability benefits of a compact urban form. Transit plays a critical role in achieving this objective if it, along with pedestrian and cycling modes of travel, can provide a reasonable alternative to auto travel.

Ridership forecasts, and studies of existing higher-density mixed-use communities in the City, indicate that, if an effective transit system is in place, at peak times, non-auto mode splits of 50% 60% are achievable. In the West Don Lands area, 40% of all trips are expected to use transit services. This is based on a number of factors including location, proposed land uses and the planned transit network. The approximate 6500 housing units and 1 million square feet of office and retail space are expected to generate 4 million annual passengers for the TTC each year when the area is fully developed.

The redevelopment plans are based on the assumption that a high proportion of all travel to and from the community will be made by transit. To achieve this objective, it is essential that a high-quality transit service be provided. Transit service speed and reliability are important, as is the fundamental requirement for new streetcar facilities to have passenger platforms to provide access for passengers with mobility limitations.

Current transit services in the area are beyond a convenient walk for most of the large number of travellers expected to and from the new developments planned for the new West Don Lands community. The West Don Lands Precinct Plan established a goal of providing frequent and reliable transit service within a 5-minute walk of most residents of the West Don Lands area and current services do not meet this objective.

The purpose of the West Don Lands Transit Environmental Assessment study has been to determine the transit facilities required to serve the long-term needs of the study area which achieve TTC’s objectives for high quality, reliable transit services and the City’s and Waterfront Toronto’s objectives for design and environmental excellence.

In addition, developments in the West Don Lands are not occurring in isolation. A fundamental principle of the broader planning for the waterfront area is the need to tie future development into the fabric of city by encouraging linkages between existing communities and future communities. From a transit perspective this is achieved by providing an integrated network of transit services that link both north-south and east-west into and through the community. Transit services in the West Don Lands need to be integrated with redevelopment plans for the East Bayfront, Lower Don and Port Lands areas to achieve the overall benefits of the broader integrated planning approach being taken in the waterfront area.

4. EXISTING AND FUTURE CONDITIONS IN THE STUDY AREA

This chapter describes existing conditions for each component of the environment along Cherry Street. “Environment” includes the natural, social and economic nature of the area.

In considering the introduction of a new surface transit connection serving the West Don Lands Precinct area, it is necessary to understand the environment in which the improvements are being considered. The majority of the data used in this EA was previously obtained in support of the West Don Lands Precinct and EA Master Plan.

This includes the physical and operational characteristics of the various roads and streets within the Study Area vicinity today and in the future including candidate corridors for potential new transit linkages. A series of improvements and modifications are planned for the area road network in conjunction with the development of the West Don Lands Precinct, as determined by the Precinct Plan and the Class EA Master Plan completed in 2005.

4.1 Existing Natural Environment

The West Don Lands precinct study area is an extensively developed environment. It is an urban brown field site containing some buildings occupied by industrial or commercial uses, with large areas of vacant or underused sites.

4.1.1 Terrestrial Environment

The West Don Lands precinct study area is an extensively developed environment including roads, a rail corridor, and industrial, commercial and residential buildings. Furthermore, as part of a flood protection initiative, the current landform is undergoing extensive change (major earthworks). As a result there are no terrestrial environmental features of significance that occur in this area.

Within the section of the Study Area north of Eastern Avenue (north of the West Don Lands precinct), there are a number of isolated trees. In support of the recommended design, those trees that are potentially within the zone of influence were inventoried by a licensed arborist (see Appendix H for more details).

4.1.2 Natural (Aquatic) Environment

There are no watercourses traversing the West Don Lands. The eastern boundary of the study area is west of the Don River, which originates in York Region and discharges into Lake Ontario via the Keating Channel. The Canadian National (CN) Rail subdivision divides the precinct area from the river.

According to the Draft Don Watershed Fish Community and Habitat Management Plan (TRCA, 1997), the Lower Don River in the vicinity of the West Don Lands is classified as

estuarine habitat with the water levels being directly influenced by Lake Ontario. The Toronto Region Conservation Authority (TRCA) considers the aquatic habitat in the Lower Don River to be poor as a result of limited in-stream cover, excessive sedimentation, the straightened channel and lack of riparian cover and buffer strips (MTRCA, 1994). As water flows from the Lower Don River through the Keating Channel and further west, it continues to impact the quality of habitat in Lake Ontario due to suspended sediment transport that affects water clarity. Fish habitat including water clarity and cover provided by aquatic vegetation improves when further west from the Don River along the Lake Ontario shoreline (G. MacPherson, pers. comm., 2003). The high sediment load of the Lower Don River is likely impacting available aquatic habitat (water clarity, silt deposition) in Lake Ontario within the vicinity of the West Don Lands.

4.1.3 Groundwater Conditions

The depth to the water table generally varies between 0.3 m and 3 m (MacLarentch Inc., 1989; Golder Associates, 1988). In places, it resides in the fill materials and, in others, in the underlying silts and tills. It can be expected that little lateral groundwater flow occurs within the till unit between the bedrock and the fill materials. Lateral flow occurs within the fill materials and is likely much influenced by buried infrastructure such as deep sewers. In the east, the direction of flow tends to be toward the West Don River. In the west, the groundwater tends to flow toward Lake Ontario. A small portion of the recharge occurring within the West Don Lands likely flows vertically downward to the fractured shale bedrock then laterally through the bedrock fractures. Regionally, groundwater flows through the fractured shale bedrock. The groundwater appears to flow toward the south and the east, reflecting the bedrock surface slopes (Trow, Dames & Moore, 1991).

While more groundwater quality information must be obtained before risks associated with the contaminants transported by the groundwater can be assessed, a reasonable appreciation of the general conditions can be gained by reviewing the available information. Some important findings are briefly described below. As with the soil quality data, the groundwater quality data were collected in the late 1980s and early 1990s.

Based on the available information, groundwater flowing through the overburden (in particular, the fill materials) generally does not contain contaminants at concentrations exceeding the applicable generic MOE criteria. In fact, the quality of the groundwater leaving the site was found to be very similar to the quality of the water entering the site.

4.1.4 Air Quality

There is currently no area-specific air quality information available for the West Don Lands. Air pollutants in the City of Toronto originate from a variety of source categories including industry, transportation, fuel combustion, and miscellaneous activities (primarily dry cleaning, painting, solvent use, and fuel marketing). There are five commonly recognized, standard primary air contaminants. They include volatile organic compounds

(VOC), particulates (PM), carbon monoxide (CO), nitrogen dioxide (NO₂), and sulphur dioxide (SO₂) (City of Toronto, 2000).

Air quality in the City is influenced by a multitude of parameters, some of which are increasing in concentration while others are decreasing. For instance, while atmospheric concentrations of sulphur dioxide, lead and particulates have dropped significantly since 1970, while the number of Air Quality Advisories have increased from 1996 to 1999.

A recent study in Toronto suggests that in Toronto, nitrogen dioxide is the air pollutant with the greatest adverse impact on human health followed by carbon monoxide (City of Toronto, 2000). Downtown Toronto experienced 11 incidences of poor air quality between May 14, 2002 and November 11, 2002. Air quality warnings were issued due to elevated concentrations of ground-level ozone with five incidences of poor air quality in July and three incidences in each of August and September. Due to Toronto's dense population, large number of vehicles, industry, light winds, and optimal summer temperatures, the city provides ideal conditions for the formation of ground-level ozone.

4.2 Existing Cultural Environment

4.2.1 Built Heritage Resources

Built heritage resources fall into two categories: listed and designated. Designated properties have designation under the Ontario Heritage Act (OHA) and listed properties have been identified as having cultural and/or historical significance and are placed on the City of Toronto's Inventory of Heritage Properties.

There are number of built heritage resources within the Study Area that need to be considered. They are as follows (See Exhibit 4-1 for location):

**Exhibit 4-1
Location of Heritage and Archaeological Resources**



1. **Tank House (Distillery District)** – The property is located on the southwest corner of Cherry Street and Mill Street. In 1885, the Gooderham family (responsible for the Gooderham and Worts distillery) maintained a large residence on this property immediately north of the distillery. Two tank warehouses and a multi-storied barrelhouse eventually replaced the house. It is designated under Part IV of the Ontario Heritage Act. (Archaeological Services Inc., 2004)



Tank House, Distillery District, southwest corner of Cherry St. and Mill St.

2. **409 Cherry Street (Palace Street School; Cherry Street Hotel; Easter Star Hotel; Canary Restaurant)** – The property was initially developed as the Palace Street School in 1859 due to the growing residential population in the area. In 1890, the school was converted to the Cherry Street Hotel, which was enlarged in 1900 and renamed the Easter Star Hotel. The hotel later became a warehouse until 1965 when it was redeveloped into the Canary Street Restaurant, which still stands today. The property is designated under the Ontario Heritage Act. (Archaeological Services Inc., 2004)



Canary Restaurant, Southeast Corner of Cherry St. and Front St. East (TRCA, 2004)

3. **445 Cherry Street (CN Police Building)** – This property is currently being researched for possible inclusion on the City of Toronto’s Inventory of Heritage Properties.



CN Police Building, Northeast corner of Cherry St. and Front St. East

4.2.2 Archaeology

According to the Cultural Heritage Study prepared by the Toronto Region Conservation Authority's Archaeological Resource Management Unit, the Thornton Blackburn site, located (Location #4 on Exhibit 4-1), is a homestead/schoolyard/outbuildings site with historic 19th century Euro-Canadian and Afro-American (relating to the Underground Railroad) cultural affiliations. This location also has a thin scatter of Late Woodland/Iroquoian campsite artifacts that were disturbed by 19th century land clearing and grading of the schoolyard. The presence of these Woodland period artifacts indicates that these Pre-Contact peoples inhabited the Lower Don, as would be expected of such a vibrant river system at that time (TRCA, 2004).

Field investigations indicate that archaeological potential exists in vacant portions of the site that may yield the foundations of now-demolished distillery structures, once a part of the Gooderham and Worts distillery. The field investigations include an examination of features associated with the Worts family residence, rackhouses and early shoreline cribbing (City of Toronto, 2002). Recent discoveries confirmed the location of the windmill immediately north of the railway embankment at the southern edge of the property near Parliament Street (ASI - April 2004).

A detailed Stage 1 archaeological assessment suggests that subsurface remains of an early rail mill established by Gzowski and partners, as well as the Grand Trunk Railway Shop, may exist. Deposits associated with individual structures in the area of the Palace Street School may be relatively intact. A piece of land used as a city market and containing a municipal weigh scale are unlikely to have survived in the subsurface remains given the extensive redevelopment in the area (Archaeological Services Inc., 2004).

A further Stage 2 Archaeological Assessment will provide a clear understanding of the soil stratigraphy throughout the study area in general and within the zones of potential. Depending on the outcome of the assessments within the proposed development impact areas, recommendations concerning the need for further archaeological assessment would be made. The additional assessments would be designed according to, and incorporated within, any development plans and schedules that are proposed for the study areas prior to the start of construction (Archaeological Services Inc., 2004).

4.2.3 First Nations Interests

From the end of the first millennium A.D. until the end of the 1600s the dominant aboriginal group in the Toronto area seems to have been culturally Iroquoian. After 1690, the Mississauga, took over the villages and camps of the Iroquoians and were the culture of record when the land treaties were enacted following 1788.

There are several references to the Mississauga occupation of the Humber, Don and Rouge Rivers and the use of the river systems as routes into and out of the backcountry and the

Upper Lakes region. Although no sites have been identified, excavated or analyzed in the study area, there are late 18th and early 19th century references to the presence of persistent encampments between the forks of the Don and the lands around the mouth. (Archaeological Services Inc., 2004).

The Toronto Purchase (1787 and 1805) appears to be the only Treaty within the study area whereby the Mississauga Nation surrendered the lands north of Lake Ontario, not including the Toronto Islands. (www.newcreditfirstnation.com).

There is no apparent current use of the lands by First Nations for traditional uses.

4.2.4 Existing Tourism and Recreation Environment

The Distillery District is a significant heritage and tourism destination. There is a pathway located on the west side of the Don River (east of the precinct) that is an important component of Toronto's recreational trail system.

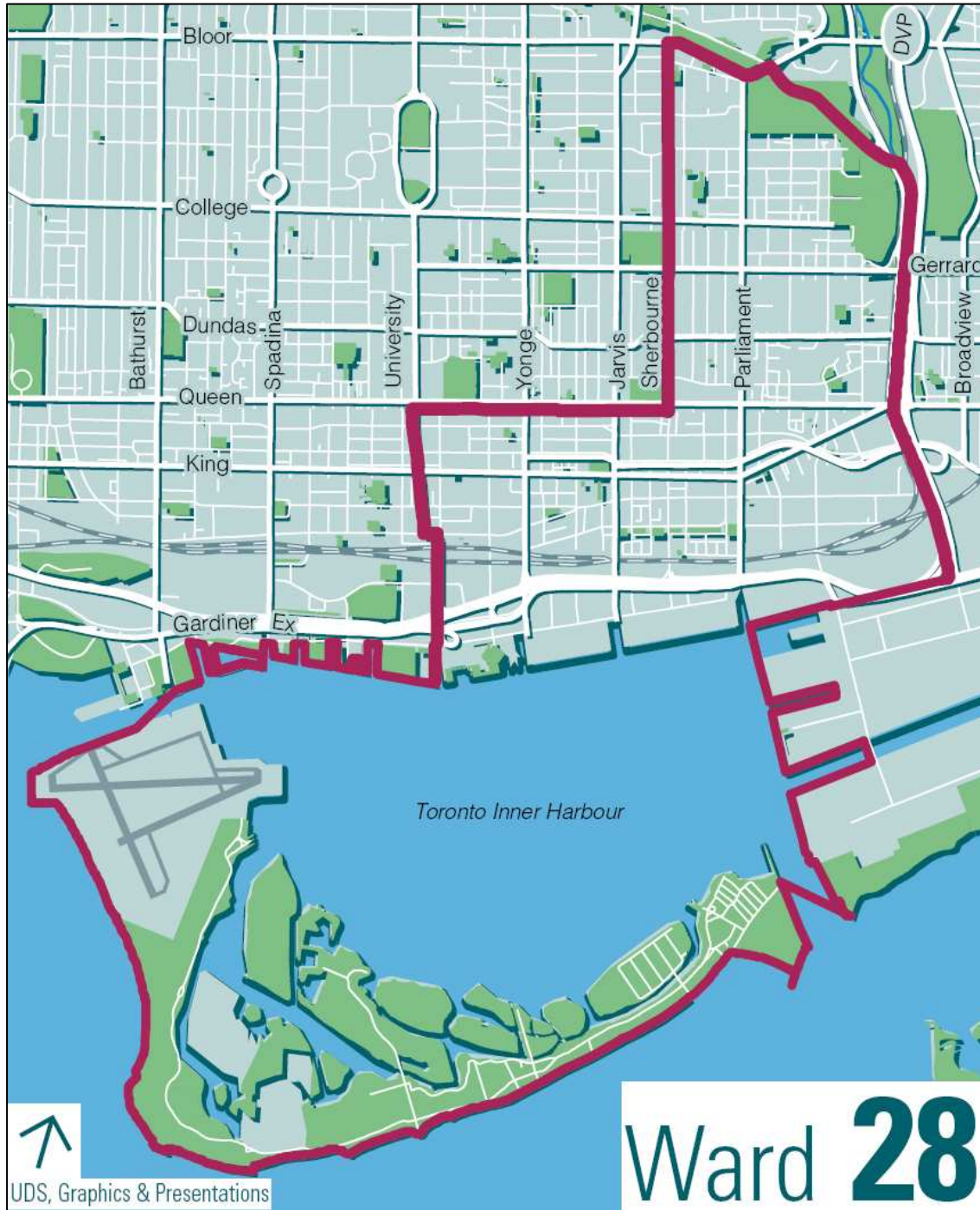
To create additional local park and recreation spaces and to help address flood protection and stormwater management issues, a flood protection landform is being studied through a parallel EA process adjacent to the Don River and will be integrated into the perimeter park. This open space, coupled with the proposed naturalization of the mouth of the Don River to the south, will introduce significant naturalized open spaces and active parklands to the District.

4.3 Existing Socio-Economic Profile

The City of Toronto Community Profiles includes the West Don Lands study area in part of Ward 28 Toronto Centre-Rosedale Profile (Exhibit 4-2). The population of Ward 28 grew by 7.9% between 1996 and 2001. The total population of this ward is 59,160 and in 2001 it consisted of 28,585 households, almost entirely outside of the West Don Lands Precinct Plan area.

In Ward 28 the highest percentage of the population works in the Sales and Services sector (26.1%) with employment in the Business, Finance and Administration sectors at 20.1%. The lowest labour force by occupation was within the Unique to Primary Industry sector 0.3% and Health Occupations rating 3.9%. The other labour force make up the rest of the working force with Management at 13.2% and the rest in the low 3 to 9 percent range.

Exhibit 4-2
Ward 28



4.4 Existing Transportation Systems

4.4.1 TTC Transit System

The TTC operates several bus and streetcar routes through the West Don Lands. Since development in the West Don Lands is relatively sparse, most of these routes are located on the periphery of the precinct. These existing routes are described below.

Route 65 - PARLIAMENT

Provides bus service between the Castlefrank subway station of the Bloor-Danforth subway line and the downtown line via Front Street. The **PARLIAMENT** (65D) provides extended service during the summer along Mill Street and Eastern Avenue. There do exist streetcar tracks on portions of Parliament Street mainly used for short turn operation. There is no regular streetcar service at present on Parliament.

Route 72A - PAPE

Provides bus service between Union Station and Pape Station via Commissioner Street through the Port Lands. In the West Don Lands this route uses Cherry Street from the Port Lands to Mill Street, Mill Street between Cherry Street and Parliament Street, and Parliament Street between Mill Street and Front Street.

Route 143 - DOWNTOWN BEACH EXPRESS

Express bus service along Queen Street through the Beaches community across the Don River to Eastern Avenue Diversion and Front Street. There are no stops near the West Don Lands.

Route 504 - KING STREETCAR

The frequent 504 King streetcar provides transit service from the study area both to the downtown area and north to Broadview Station. It operates in a mixed-traffic condition, which results in slow and unreliable service at peak times.

Route 503 - KINGSTON ROAD STREETCAR

Operates on Kingston Road, Queen Street and King Street between Victoria Park Avenue and York Street.

Route 508 - LAKE SHORE STREETCAR

Provides service on King Street from Long Branch, through the downtown area to Parliament Street, where it loops and returns to the west.

4.4.2 GO Transit

GO Transit's Lakeshore East and Stouffville services operate along the main rail-line running east-west through the southern portion of the study area boundary. The nearest station is Union Station within downtown Toronto. Union Station is served by seven inter-regional commuter rail services. GO Transit's downtown bus terminal is also located just east of Union Station.

4.4.3 Existing Bicycle and Pedestrian Facilities

To the north of the West Don Lands there are bicycle lanes on River Street from Gerrard Street to King Street and on Shuter Street from River Street to Victoria Street. There is also a shared roadway facility (i.e. no pavement markings that allocate part of the pavement to cyclists) on Sumach Street and Cherry Street from Shuter Street through the West Don Lands to Lake Shore Boulevard and on Mill Street between Cherry Street and Parliament Street. The route on Mill Street crosses Parliament Street and continues west along the Esplanade where it connects to the bicycle lanes on Sherbourne Street. There is also an off-road, multi-use trail (the Lower Don Trail) located between the west side of the Don River and the existing railway tracks. The trail extends north in the Don Valley where it connects to other trails. To the south, the trail passes under the rail bridge over the Don River and connects to another off-road path that extends east across the Don River and west to Cherry Street on the south side of the rail corridor. At Cherry Street the trail crosses Lake Shore Boulevard and connects to the Martin Goodman Trail on the south side of Lake Shore Boulevard, which extends to Queens Quay East. Aside from this multi-use trail, the existing pedestrian facilities are limited to sidewalks on some streets in the precinct and crosswalks at signalized intersections.

4.5 Existing Road Network

The classification and rights-of-way of existing roads within and around the EA Study Area is summarized in Table 4-1.

Table 4-1: Existing Road Classifications and Rights of Way

Street	Classification	Right-of-Way (Meters)	Notes
Gardiner Expressway	Expressway	-	-
Lake Shore Boulevard East	Major arterial	Varies	-
Parliament Street	Minor arterial	20.0	-
Cherry Street	Collector	20.0	Future alignment and right-of-way to be determined as part of this study
Eastern Avenue Diversion - overpass over Don River	Minor arterial	20.0	-
King Street East	Major arterial	20.0	-
Eastern Avenue - east of Cherry Street	Minor arterial	20.0	Road alignments and configurations to be modified as per West Don Lands Precinct Plan
Bayview Avenue	Collector - south of Queen Street East Major arterial - north of Queen Street East	20.0	
Front Street East	Minor arterial	20.0	
Mill Street	Local	20.0	
Sumach Street	Local	20.0	

Existing Intersection Control and Turn Restrictions

Existing area intersection control measures (i.e., traffic signal or STOP control) and turn restrictions are shown on Exhibit 4-3.

Existing Traffic Volumes – Study Area Vicinity

Existing baseline traffic volumes for the morning and afternoon street peak hours are illustrated on Exhibit 4-4.

Existing base traffic volumes were established at the area intersections within the Study Area vicinity for the morning and afternoon street peak hours are based upon traffic count survey information collected by the City of Toronto and others as part of the following studies:

- Transportation Precinct Planning, Draft Final Transportation Plan, The West Don Lands report prepared by LEA Consulting Ltd. in June 2004.
- River Street Extension and Bayview / River Unnamed Road Connection, West Don Lands EA Addendum report prepared by MMM in May 2006.
- West Don Lands Traffic and Functional Design Analysis Summary letter prepared by MMM in November 2006.
- East Bayfront Precinct Traffic Assessment reports prepared by BA Group in 2003 and 2004.

Count dates are indicated on the exhibit and reflect traffic conditions on the area street network prior to the recent closures of existing Mill Street, Front Street and Bayview Avenue east of Cherry Street to facilitate and flood protection construction work within the West Don Lands Precinct area.

It is noteworthy that existing traffic activity levels on a number of streets within the Study Area are heavily influenced by commuter usage patterns. This particularly relates to usage of Front Street and Cherry Street by motorists routing between downtown and the Bayview Avenue corridor.

Exhibit 4-3 Existing Area Intersection Traffic Control

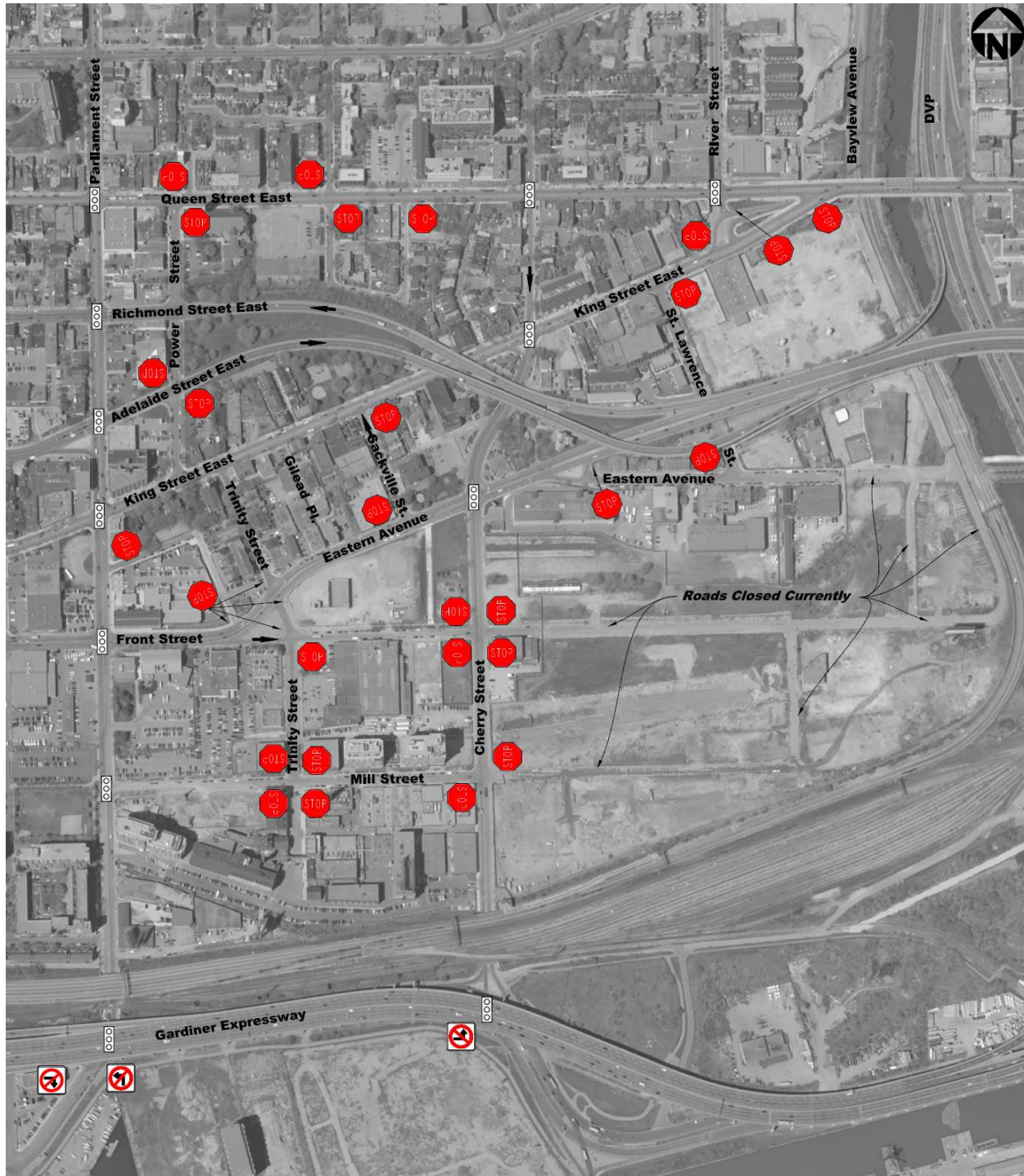
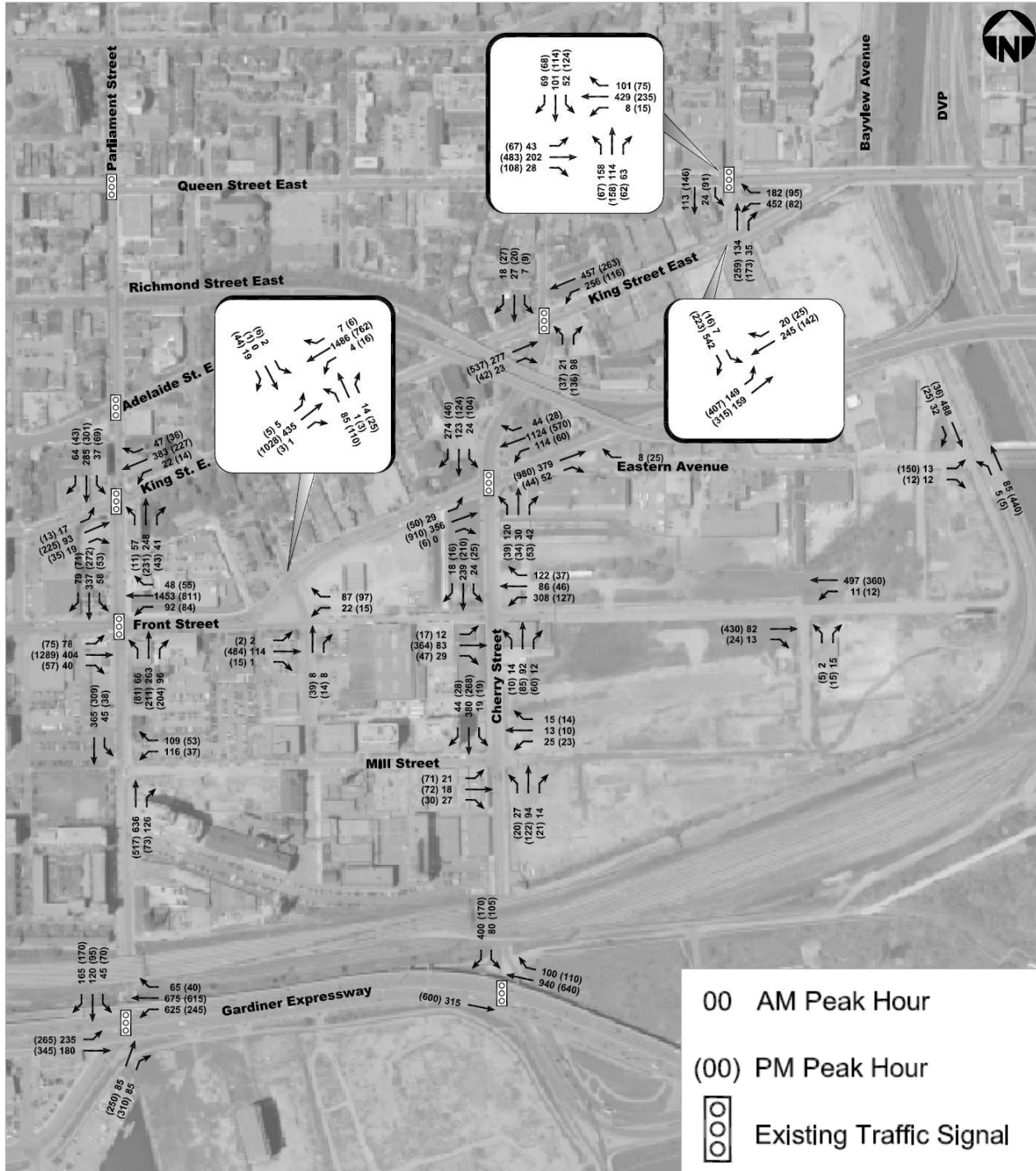


Exhibit 4-4 Existing Area Volumes



4.6 Future Land Use – The West Don Lands Precinct

The West Don Lands precinct is a 32-hectare area located generally east of Parliament Street, south of King Street, west of the Don River and north of the Gardiner Expressway.

The West Don Lands is a large precinct that will be implemented over a number of years, with full build-out estimated to take fifteen years. The development of the West Don Lands will be integrated with the neighborhoods surrounding it in character and quality, but will be distinguished by a new major park on the Don River. The precinct is designed to strengthen north/south connections to benefit neighbourhoods east of the Downtown.

The West Don Lands is expected to be the gateway neighbourhood from the Downtown to the Port Lands and will be a collection of districts offering a variety of housing types from townhouses to condominium blocks. The West Don Lands will consist of a collection of five districts:

- The Mill Street District will consist of the Distillery District and extend east of Cherry Street into the West Don lands on Mill Street. It will contain loft style living and live/work opportunities.
- The Front Street District will extend into the West Don Lands forming the urban core of the neighbourhood with shops, restaurants, offices and residences. Buildings will be predominantly eight floors or 31 meters in height. Larger towers will punctuate critical street corners. Front Street between Trinity and Cherry Streets will form the retail core of the community.
- River Square would include an extension of River Street south to a new square at the Don River Park. Mid-rise residential buildings would line the Don River corridor and a cluster of townhouses would extend the character of Corktown into the district. The Richmond Adelaide ramps would be encased by buildings reducing their impact on adjacent properties. River Square is located south of King Street East and west of Bayview Ave.
- In the Don River Park District, Front Street will widen east of Cherry Street into eight story residential buildings. The Don River Park will form a focus to the urban neighbourhood edged by a curving wall of residential buildings.
- The Don River Mews District will extend Corktown south behind which there will be a series of courts and mews offering garden settings for family living. (WATERFRONT TORONTO, 2004).

Key elements of the proposed West Don Lands Precinct Plan are:

- 23 acres of parks and public spaces, including a 17 acre park next to the Don River
- 1,300 affordable rental housing units
- 5,200 additional housing units that accommodate a range of family sizes and income levels

-
- Mixed residential and commercial land use like the successful King/Spadina development
 - Building character that reflects surrounding communities – Distillery District, St. Lawrence and Corktown
 - Public transit within a five minute walk of all residences
 - Bikeways throughout the precinct and connecting to the wider city
 - Transit connections to the King streetcar and the Port Lands
 - Pedestrian connections to East Bayfront via an extension of Trinity Street
 - One million square feet of office and retail space
 - Flood protection for the downtown core

Sustainable development, including the construction of green, energy efficient buildings, together with affordable rental housing, are Waterfront Toronto's top priorities for the first phase of development in the West Don Lands.

Development controls also need to be established before construction can start. Waterfront Toronto and the City are working on mechanisms to ensure that height limits are not exceeded, design and sustainability standards are adhered to and that developers make appropriate contributions to infrastructure, affordable housing and community services.

5. ALTERNATIVE SOLUTIONS TO THE PROBLEM

5.1 Introduction

As part of the Class EA planning process, all reasonable alternative solutions were identified and evaluated while taking into account public and review agency input.

In consideration of all the reasonable alternative transportation solutions to provide a much faster and more reliable surface transit connection for commuters, the solutions, which most effectively address the following objectives, were carried forward for further investigation:

- Provides the best overall transit service to serve the long term residential, employment, tourism and waterfront access.
- Respects other road users, adjacent properties and the natural environment.
- Can be implemented quickly at a cost that is compatible with the interim nature of the undertaking.
- Supports other City and Waterfront Toronto objectives such as good urban design and more attractive walking and biking environment.

Alternative solutions or the basic planning alternatives considered as part of this EA included corridors and technologies. Both are described in greater detail in the following section.

5.2 Screening Process for Alternative Solutions to the Problem

The municipal class process requires a proponent to consider all reasonable alternatives. As part of the Terms of Reference prepared and approved by the MOE in support of this undertaking (prior to the Class EA process being approved), planning alternatives were to be assessed through a screening process. The criteria were set so that all alternatives must be able to address key project objectives and must be consistent with the proponent's policies and standards. Those screening criteria had been developed in consultation with key stakeholders and agencies, as well as the public in response to the transportation problem statement and were:

- Must be capable of accommodating travel demand – In order to support the development aspirations of the City and TWRC, the proposed transit systems must be able to satisfy the anticipated transit demand resulting from the forecasted development.
- Must meet City's Official Plan Policies and Principles – This project builds on considerable planning and policy decisions that have already been made for the area and therefore a solution that is in conflict with one or more of these previous decisions is not considered reasonable.

- Must promote high transit mode splits - Must promote transit modal splits at least as good as comparable communities (such as the St. Lawrence neighbourhood).
- Must provide service to future inhabitants for the West Don Lands Precinct – In order to be considered as “serviced by transit” the majority of future inhabitants must be within a 500m walking distance of existing or future transit.
- Must be able to connect to other planned Waterfront Precincts at boundaries of study area – For the West Don Lands, this means that a corridor must have the possibility of connecting to the south (under the CN Rail corridor) in order to connect to the East Bayfront and Port Lands.
- Must accommodate people with mobility difficulties – whichever corridor or technology selected, service must be fully accessible / of a barrier free design.

These criteria have been applied to both the alternative corridors and technologies as documented in the following sections.

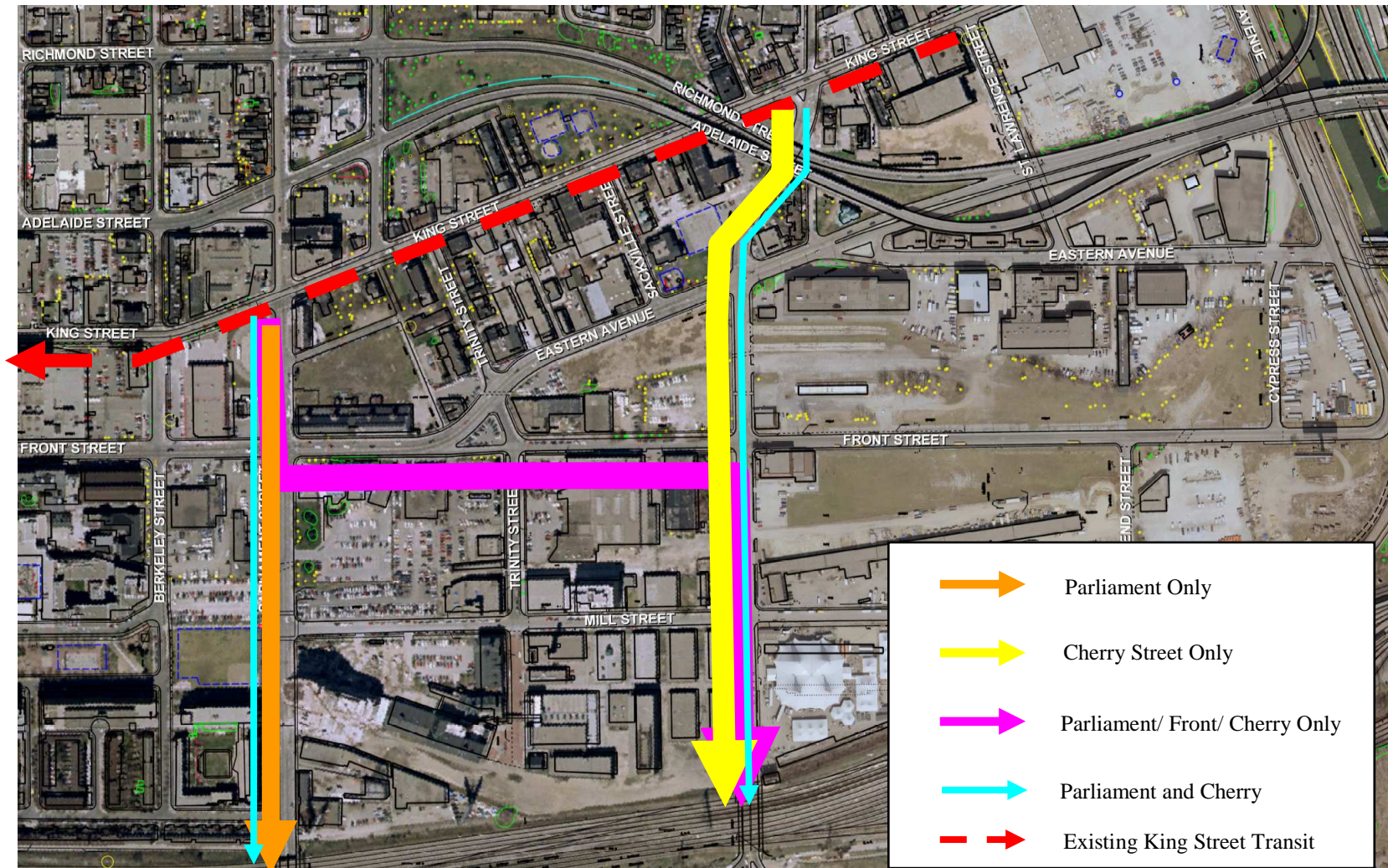
5.3 Alternative Corridors

With respect to corridors there are a number of possible options in the study area that will serve the existing and future development and provide connections north to the King streetcar service, south to connect to the future Port Lands development and south and west to connect to a new transit facility(s) serving the East Bayfront. The potential corridors considered as part of the West Don Lands EA included:

1. Cherry Street and Sumach Street from the CN Rail corridor to King Street
2. Cherry Street from the CN Rail corridor north to Front Street, west to Parliament Street and north to King Street
3. Parliament Street from Queens Quay East north to King Street
4. A combination of services both on Cherry Street and Parliament Street

The alternative corridors are illustrated in Exhibit 5-1.

Exhibit 5-1 Alternative Corridors



5.3.1 Screening of Alternative Corridors

The results of the screening criteria applied against the corridors under consideration are summarized in Table 5-1.

Of all alternative corridors considered, only the Parliament Street (only) from King Street to Lakeshore Boulevard was screened out. As illustrated in Exhibit 5-2, Parliament Street is too far west to service the West Don Lands with transit within a 500m walking distance.

Notwithstanding that Parliament Street as a transit corridor has been screened out as part of this study, the City of Toronto and TTC will reconsider the Parliament corridor as part of the Don Mills Transit EA.

Exhibit 5-2
Parliament Only Corridor Screened Out

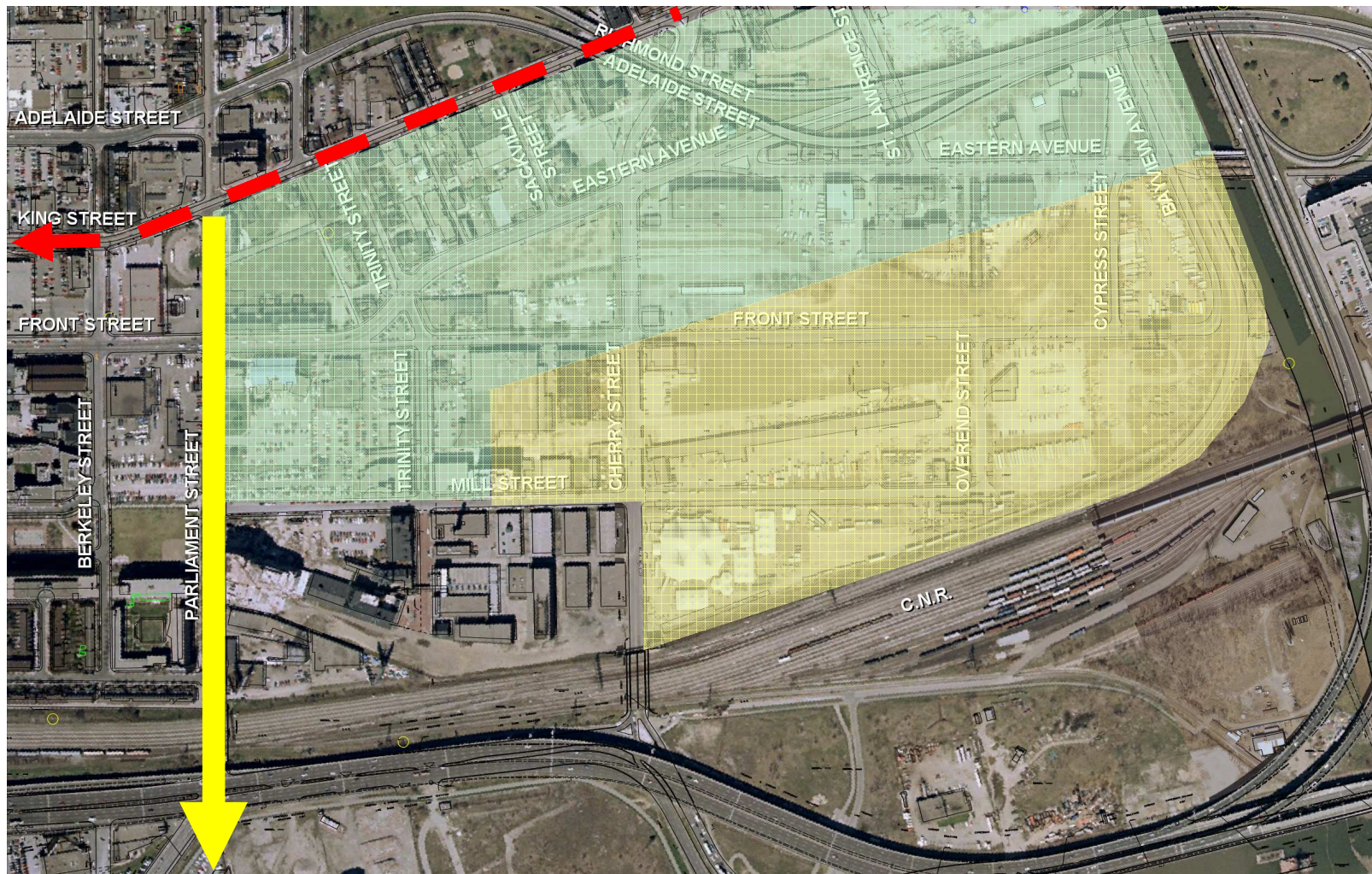


Table 5-1: West Don Lands Planning Alternatives - Minimum requirements (“Must”) Review

Corridor Option Description	Cherry Street corridor, from King Street to Lakeshore	Parliament, Front and Cherry Streets from King Street to Lakeshore	Parliament Street from King Street to Lakeshore	Parliament and Cherry Streets from King Street to Lakeshore
The alternative must be capable of accommodating travel demand from forecasted development.	Yes	Yes	Yes	Yes
Must meet City's Official Plan Policies and Principles.	Yes	Yes	Yes	Yes
Must promote transit modal splits at least as good as comparable communities (such as the St. Lawrence neighbourhood).	Yes	Yes	Yes	Yes
Must provide transit service to majority of future inhabitants within 500 m of transit.	Yes	Yes	No	Yes
Must accommodate people with mobility difficulties.	Yes	Yes	Yes	Yes
Recommendation:	Carried Forward	Carried Forward	Not Carried Forward	Carried Forward

5.3.2 Analysis and Evaluation of the Alternative Corridors

The remaining options were evaluated based on formal process and a comprehensive set of evaluation criteria to determine the preferred alternative. The detailed analysis and evaluation tables are provided in Appendix D. A summary of the relative performance of each alternative to the undertaking is presented in Exhibit 5-3. Options involving both Parliament Street and Cherry Street were identified as being less cost-effective than the option of providing service on Cherry Street alone with respect to serving the West Don Lands area specifically. The option of providing service on Cherry Street and Sumach Street to King Street is preferred over the Cherry Street/Front Street option because of the additional transit operational delays in negotiating an additional traffic signal at the Front/Eastern intersection.

Cherry Street from King Street to Lakeshore is the preferred corridor because it:

- Is the most cost effective plan
- Provides good central location and serves residents on both side of Cherry Street from King Street to the Lake
- Minimizes potential conflicts with Cultural Heritage Resources
- Has the ability to expand in future to connect to transit service to the south

Exhibit 5-3
Summary Evaluation of Alternative Corridor Solutions

Objectives	Cherry Street	Cherry / Front / Parliament	Cherry and Parliament
Land Use	●	◐	○
Transportation	◐	○	●
Socio-Economic	●	◐	○
Natural	●	●	●
Cultural	●	◐	◐
Cost	●	◐	○
OVERALL	●	◐	○

5.4 Alternative Technologies

There is a wide range of transit technologies available to consider. As part of the early planning process, the technologies considered were limited by the anticipated demand in the corridor. As a result, a fully grade separated facility such as a subway is not required to service this level of demand and will not be considered further in the West Don Lands EA study (Exhibit 5-4).

For the bus technology options, consideration was given to the range of propulsion systems, both existing, and under development, that could have a significant effect on the results of the evaluation. For example, bus technologies that eliminate local emissions (e.g. fuel cell or fully-electric buses) were considered in the evaluation and the benefits of these technologies weighed against the costs associated with their use.

The resultant technology options considered within the Cherry Street corridor includes:

1. Bus service on existing roads (do nothing alternative).
2. Bus Service on a dedicated right-of-way
3. Conventional Streetcar Service on existing roads.
4. Streetcar Service on a dedicate right-of-way

5.4.1 Screening of Alternative Technologies

As identified in Table 5-2, conventional buses in mixed traffic were screened out as not providing a high enough quality of transit service (reliability, speed, comfort) to achieve the fundamental objective of competing effectively with the automobile and attracting a high mode split to transit services.

Exhibit 5-4
Range of Capacity for Various Transit Technology

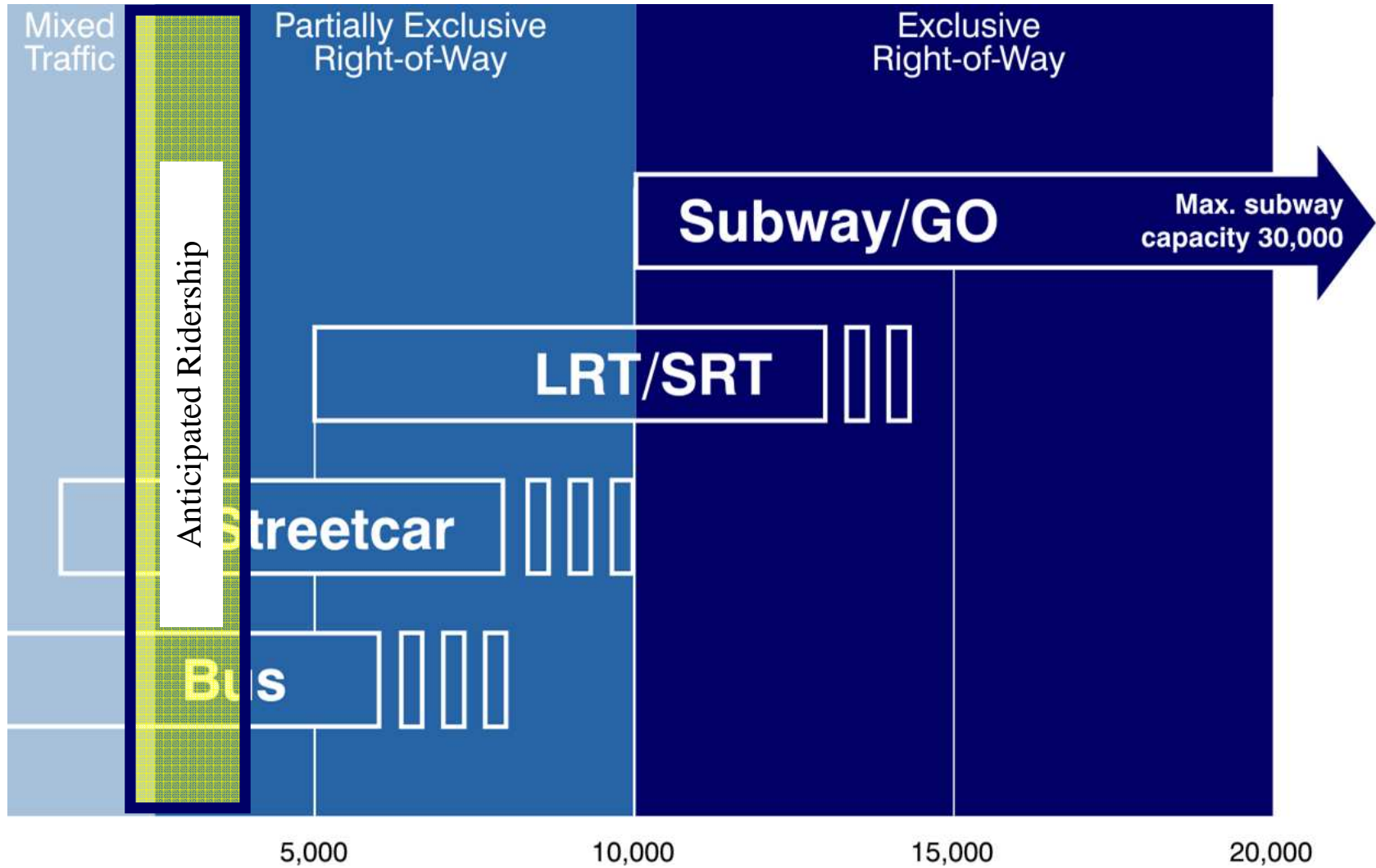


Table 5-2: West Don Lands Technology Alternatives - Minimum requirements (“Must”) Review

Technology Considered / Minimum Requirement	"Do Nothing"	Streetcar, with platforms in Mixed Traffic	Streetcar, in Dedicated Lanes	Buses in Dedicated Lanes
The alternative must be capable of accommodating travel demand from forecasted development.	Yes	Yes	Yes	Yes
Must meet City's Official Plan Policies and Principles.	No	Yes	Yes	Yes
Must promote transit modal splits at least as good as comparable communities (such as the St. Lawrence neighbourhood).	No	Yes	Yes	Yes
Must provide transit service to majority of future inhabitants within 500 m of transit.	Yes	Yes	Yes	Yes
Must accommodate people with mobility difficulties.	Yes	Yes	Yes	Yes
Recommendation:	Carried Forward for Comparison Purposes Only	Carried	Carried	Carried

5.4.2 Analysis and Evolution of the Alternative Technologies

The preferred alternative to the undertaking was evaluated against the project objectives and the key net environmental impacts and benefits are highlighted. The detailed analysis and evaluation tables are contained in Appendix D. A summary of the relative performance of each alternative to the undertaking is presented in Exhibit 5-5.

The cultural environment and natural environment were considered not to be a major issue in deciding on technology and right-of-way.





























From a cost perspective, although for buses, both vehicle and right-of-way construction costs are lower than streetcar, the operating costs for streetcar are lower. Therefore, it was determined that cost is not a significant deciding factor.

Bus services in a dedicated right-of-way, while potentially providing adequate capacity, speed and reliability of service within the community, can not be integrate well with the existing east-west downtown transit network, which is primarily streetcars, and are not preferred or this reason.

The Project Team, with extensive community input through the community design charrette, developed a range of possible approaches to providing degrees of transit priority with streetcars in various combinations of transit right-of-way and combined-traffic-lane operations. However, it was determined that for streetcars to operate effectively and to meet the accessibility requirements provided through transit passenger platforms, streetcars require a dedicated right-of-way.

However, based on some of the desires expressed by the local community and in light of the solutions that were developed during the community design charrette, the project team agreed to carry both right-of-way treatments for streetcar forward to the alternative design phase.

**Exhibit 5-5
Summary Evaluation of Alternative Technology Solutions**

Objectives	Bus Mixed Traffic	Streetcar Mixed Traffic	Streetcar Dedicated ROW	Bus Dedicated ROW
Land Use				
Transportation				
Socio-Economic				
Natural				
Cultural				
Cost				
OVERALL				

5.5 Phase One Consultation: Planning Alternative

The consultation objectives during Phase One were to:

1. Introduce the public to this EA.
2. Provide opportunities for the public to comment or to ask questions.
3. Gather public and stakeholder input on the Phase One work including the Study Area boundaries, inventory of existing conditions, routes and general station locations, and evaluation criteria and indicators.
4. Make the public aware that consultation would be conducted during Phases Two and Three of the study.

March 21, 2007 at Enoch Tuner Schoolhouse (6:00pm to 9:30 pm). 45 attendees signed in at the event.

5.5.1 Notification

A notice of the workshop was advertised in the Toronto Star on March 7, 2007 and approximately 120 notices were also hand delivered to residents/businesses located within a 200m radius of the King Street / Sumac Street intersection. In addition, notices were mailed to property owners in the same area based on the addresses obtained from the City's Assessment Roll (tax records).

5.5.2 Event Highlights and Key Issues

The workshop was held as an open house during which those who arrived could review the available display panels and discuss the study with Project Team staff. Following the open house session, the TWRC, the TTC, and the Consultant made a formal presentation.

The presentation was followed with a workshop group discussion session. The discussion session provided an opportunity for the public to provide their views on the Study Team's recommendations on the Planning Alternatives proposed to be carried forward. Approximately 45 people participated in this workshop and the attendees formed 5 working groups for discussion. The responses to four key questions are summarized in Table 5-3:

Additional comments were provided on key considerations for the alternative design phase (see Appendix A for details).

Table 5-3: Summary of Key Questions from PIC #1

Question	Summary Response
<p>1. What are your views on ‘Cherry Street’ being recommended as the preferred corridor for providing transit service to the West Don Lands?</p>	<p>Strengths: Serves West Don Lands Residence, Potential to expand.</p> <p>Weaknesses: Does not serve North-South traffic; area badly served for northward connections to Bloor-Danforth subway.</p>
<p>2. What are your views on streetcars being recommended as the preferred technology for providing transit service to the West Don Lands?</p>	<p>Strengths: Environmentally friendly, high carrying capacity, lower opportunity costs, connections, people prefer streetcars, better in bad weather, more fun – Toronto Icon.</p> <p>Weaknesses: Power failure</p>
<p>3. There are various things to consider when designing the right-of-way along Cherry Street to provide for streetcar service, which are of greatest importance and should be given primary emphasis in the design of the right-of-way?</p>	<p>A: Suggestions: Pedestrian comfort should have priority.</p> <p>B: Greatest consideration: Narrowest possible community friendly street, discourages traffic, transit replaces cars</p>
<p>4. Although the preferred solution to the ‘transit first’ approach for Cherry Street is to run streetcars in a <i>dedicated right-of-way</i> (this would separate the streetcars from all other traffic), the option of <i>streetcars running in mixed traffic</i> is also being carried forward for further consideration. What are your views on the various options presented in support of the transit-first objective?</p>	<p>Dedicated Transit lanes: Street too short to make a difference</p> <p>Transit Mall: Preferred solution</p> <p>Separate Turn lanes: No turn lane to Mill – E/W traffic, can use Front & Eastern & Lakeshore.</p> <p>Transit priority signal: Always</p>

6. DESIGN ALTERNATIVES

Alternative designs are different ways of doing the same activity as selected through the planning alternative phase. Alternative designs considered cross-section elements including lane widths and number, dedicated versus non-dedicated right-of-way for transit, boulevard treatment, sidewalks, bike paths and pedestrian walkways.

This stage builds upon the information obtained from the impact assessment stage and involves a comparative analysis of the advantages and disadvantages of the alternatives considered to select a preferred alternative.

This section describes the development, analysis and evaluation of alternative designs. The process used to ultimately select a preferred design follows the steps as identified for Phase 3 of the Municipal Class EA process.

6.1 Identification of Alternative Designs

The following alternatives were examined as possible means to introduce streetcar along Cherry Street, from King Street to the CN Rail corridor (see Exhibit 6-1 for more details).

Alternative #1 – Mixed Traffic: Both transit tracks are located in the centre of a four lane Cherry Street, and operate in mixed traffic. Passenger loading and unloading is accommodated by an on-street platform.

Alternative #2 – Transit Outside Lane – Dedicated at Mid-block Only: Each transit track is located outside the general-purpose lanes in between intersections. The outside lanes are dedicated to transit and designed to inhibit auto use, however general purpose traffic would need to cross over streetcar tracks to access right-turn lanes at intersections.

Alternative #3 – Dedicated Transit East Side: Both transit tracks are located side-by-side on the east side of Cherry Street in an exclusive ROW, designed to inhibit auto use. Two general-purpose traffic lanes are provided on the west side, **one** in each direction.

Alternative #4 – Dedicated Transit West Side: Both transit tracks are located side-by-side on the west side of Cherry Street in an exclusive ROW, designed to inhibit auto use. Two general-purpose traffic lanes are provided on the east side, **one** in each direction.

Alternative #5 – Dedicated Transit Median, 1 traffic lane per direction: Both transit tracks are located side-by-side in the centre of Cherry Street, dedicated to transit. The outer two lanes are for general-purpose use, with **one** general-purpose lane for vehicles provided in each direction.

Alternative #6 – Transit Mall: Cherry Street is a transit mall, closed between Mill and Eastern.



Alternative #7 – Dedicated Transit Median, 2 traffic lanes per direction (West Don Lands Master Plan): Both transit tracks are located side-by-side in the centre of Cherry Street, dedicated to transit and designed to inhibit auto use. The outer four lanes are for general-purpose use, **two** in each direction.

Alternative #8 – Transit Outside Lane – Dedicated throughout: Each transit track is located outside of the general-purpose lanes. The outside lanes are dedicated to transit. The inner two lanes are for general-purpose use, **one** general-purpose lane for vehicles provided in each direction.

Exhibit 6-1 Examples of Alternative Design Treatments



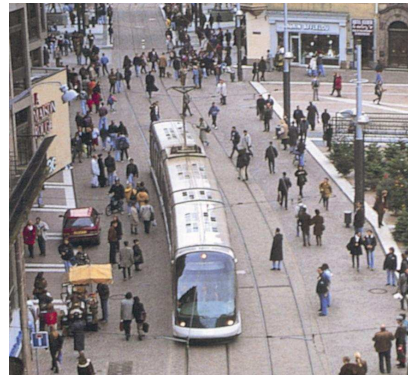
Transit Mixed with Traffic
(Alternative 1)



Dedicated Transit at Outside Lane
(Alternative 2 & 8)



Dedicated Transit in Middle
(Alternative 5 & 7)



Transit Mall
(Alternative 6)



Dedicated Transit at side (Alternative 3 & 4)

6.2 Screening of Design Alternatives

In consultation with key Stakeholders and the public, the following screening criteria were developed to identify reasonable alternative designs:

1. Develop the new transit infrastructure required to encourage transit use and reduce auto dependence. Specifically, the alternative must provide Transit Priority:

North / south transit operations must be given at least as much “green time” at signals as north south traffic (to minimize delay to transit vehicles at intersections);

Designs should not create situations where vehicles have the potential to block streetcar operations.
2. Develop new infrastructure in accordance with TTC, Toronto and WATERFRONT TORONTO design criteria/guidelines. This includes provision for Bicycles, Platforms for Barrier Free Design, an improved Pedestrian Realm, provision for emergency vehicles and sufficient road capacity to address future traffic demand of 1,300 to 1,400 vehicles per hour.
3. Minimize street and right-of-way (ROW) widths. By comparison, the EA master plan recommended a 35m to 37m right-of-way, which was not supported by the community.
4. Establish transit network connections to integrate the recommended services with the existing transit system in accordance with an integrated systems plan. This includes a connection to King Street tracks and protection for connection to East Bayfront and the Port Lands.
5. Avoid, or where this is not possible, minimize impacts to natural systems with particular emphasis on natural features, functions, systems and communities. Significant existing features for the Cherry Street corridor are illustrated in Exhibit 5-2.

For the purposes of this EA, all design alternatives must be able to address the aforementioned key considerations. These key considerations were refined to develop specific screening criteria to focus the range of design alternatives that should be carried forward to more detailed analysis and evaluation. The results of the screening process are summarized in Table 6-1.

Table 6-1: Screening of long-list of alternative designs

Criteria Alternative	Alternatives must Encourage Transit Use and Reduce Auto Dependence	Alternatives must meet TTC, City and Waterfront Toronto Design Criteria /	Alternatives must provide a right-of-way narrower than EA Master Plan	Alternatives must provide Network Integration	Alternatives must Avoid Significant Impacts
1: Transit Mixed with Traffic	x	✓	✓	✓	✓
2: Transit Outside Lane (Dedicated through Mid-block)	x	✓	✓	✓	✓
3: Dedicated Transit East Side	✓	✓	✓	✓	✓
4: Dedicated Transit West side	✓	✓	✓	✓	x
5: Dedicated Transit in Median – 2 lanes	✓	✓	✓	✓	✓
6: Transit Mall	✓	x	✓	✓	✓
7: Dedicated Transit in Median – 4 lanes (from the EA Master Plan)	✓	✓	x	✓	✓
8: Dedicated Transit Outside Lane (Dedicated Throughout)	✓	✓	✓	✓	✓

6.3 Short Listing of Alternative Designs

Notwithstanding the urban design opportunity created by narrower alternatives, the elimination of the mixed traffic (alternative 1) or partially dedicated (alternative #2) designs was based on a number of transit operational concerns including:

- Passengers and many in the local community have already identified the mixed traffic design used for existing streetcar services through the downtown area as unacceptably slow and unreliable. The implementation of streetcars on Cherry Street in a similar configuration would create a future operational issue.
- With curb-side operations, ‘quick’ deliveries, or vehicles experiencing mechanical trouble which are pulled over against the curb will result in a blockage to streetcar operation.
- Although alternative #2 does reduce the interaction between traffic and transit, separating the transit lanes in some physical way from the auto lanes between intersections, barriers between the lanes (raised track bed, etc.) would create significant merging hazards when other vehicles are eventually required to cross the streetcar tracks to reach a right-turn lane at the end of the physical separation. Recent TTC/City experience on Spadina Avenue in attempting to separate traffic from transit lanes demonstrated that it is unrealistic to expect drivers to always understand the intent of such barrier/signage systems and respond in a safe way.

With the combined impact of the factors listed above, the option of operating streetcars in the outside lanes on Cherry Street would result in poorer streetcar service than is currently provided elsewhere in the downtown area, which is already unacceptable from a passenger quality of service perspective. On this basis, this option does not meet the pass/fail screening criteria of providing “transit priority” service that encourages increased transit use. For these reasons, option 2 was dropped from further consideration in the West Don Lands Transit EA.

The other alternatives that were not carried forward included:

Elimination of dedicated transit on West Side – Although dedicated transit on the west side can meet the transportation needs of the corridor and presents some interesting urban design opportunities, due to direct impacts to existing businesses including the Distillery District and the Cat Hospital (Southwest corner of King and Cherry/Sumach) as well as access issues associated with laneways that connect to Cherry Street on the west side of the street, this alternative was not carried forward (see Exhibit 6-2).

Elimination of transit mall – Although the concept of a transit mall was perceived by the public as being a strong candidate, this option presented a number of issues relating to policy, which required serious consideration. In response, the City undertook a thorough assessment and determined that the Cherry Street Transit Mall Variant concept presents too many risks to achieving success, and too few benefits that cannot otherwise be achieved by

other concepts, to warrant being carried forward in the Transit EA evaluation (the supporting discussion paper is contained in Appendix D).

Elimination of Transit in Median (EA Master Plan concept) – Based on more comprehensive transportation demand analysis undertaken in support of this ESR (see Chapter 3), it was determined that two traffic lanes, plus turn lanes is not required. Furthermore, the provision of a 4m boulevard in the context of a 35m to 37m right-of-way results in a disproportionate use of space to the non-pedestrian realm.

Therefore, the three alternative designs that were carried forward includes:

Alternative 3: Dedicated Transit East Side (Exhibit 6-3)

Alternative 5: Dedicated Transit in Median – 2 lanes (Exhibit 6-4)

Alternative 8: Dedicated Transit Outside Lane (Dedicated Throughout), (Exhibit 6-5)

Exhibit 6-3 Dedicated Transit East Side

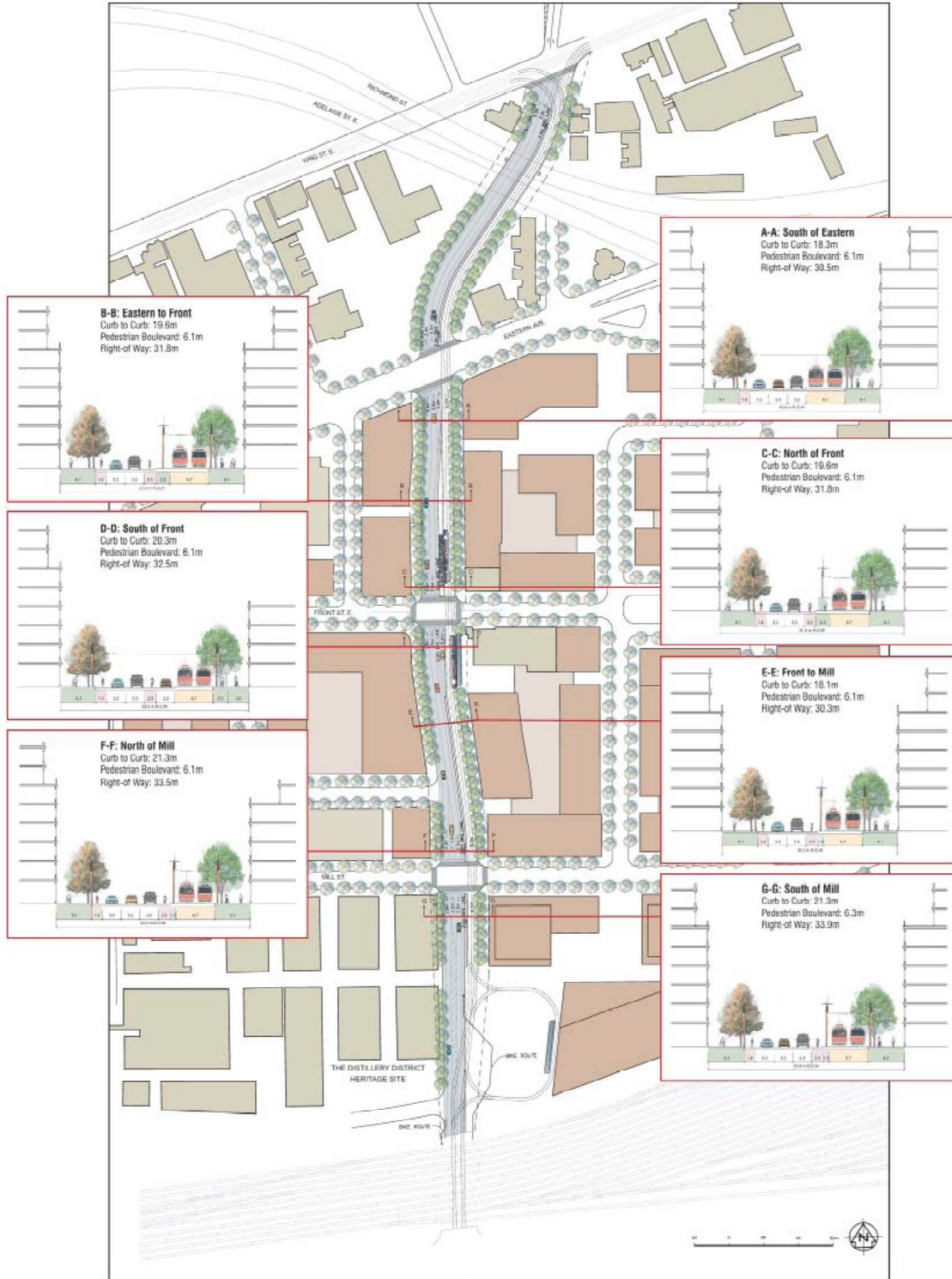


Exhibit 6-4 Dedicated Transit in Median

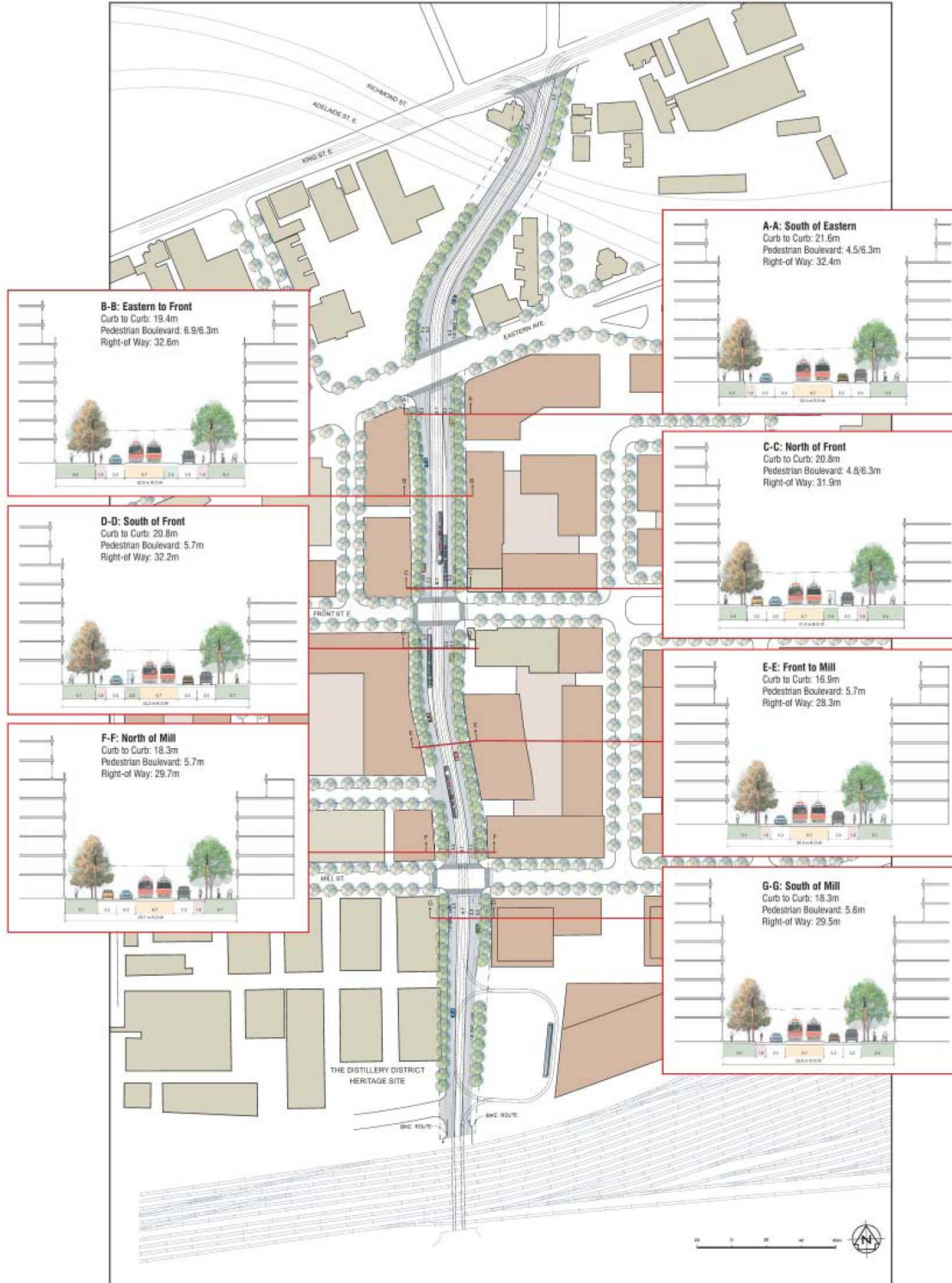
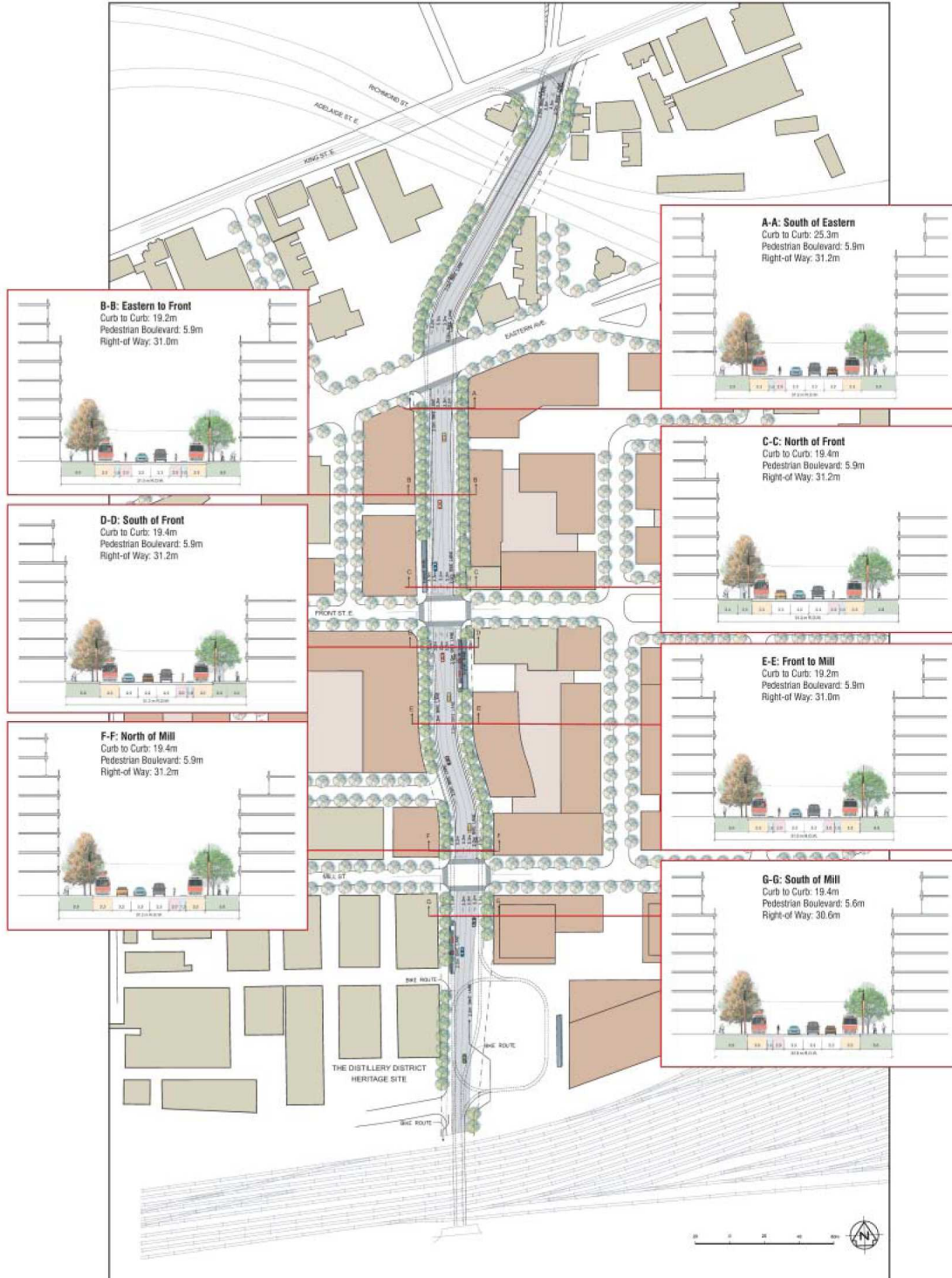


Exhibit 6-5
Dedicated Transit Outside Lane (Dedicated throughout)



6.4 Analysis of short listed alternative designs

In accordance with the Municipal Class EA process and in consultation with the Project Team, seven broad factors were used to assess the alternatives. The factors are land use, urban design, transportation, socio-economic environment, natural environment, cultural environment and cost. A detailed analysis and evaluation of the three short-listed alternative designs were conducted based on the measures and indicators (see Appendix D).

A summary of key observations is listed in Table 6-2: and the decision-making process developed by the proponents is listed below:

Dedicated Transit in the Outside Lanes

Streetcars operating in the outside lanes provide an opportunity to integrate transit into the pedestrian realm and provide for good flexibility for locating transit stops. However, this alternative limits access to a number of existing properties on both sides of Sumach Street north of Eastern Avenue, and limits the opportunity to provide for access to future developments on both sides of Cherry Street south of Eastern Avenue. In addition there is no opportunity to provide for on-street parking with this alternative and drop-off/pickup activities would be difficult to accommodate and potentially create safety issues. Due to operational concerns this option is not recommended.

Alternative 2 – Dedicated Transit in the Centre Median

This option is good from a transit and traffic operations perspective. It is a typical arrangement in Toronto and autos, pedestrians and transit operators are familiar with the arrangement. It requires, however, that transit stops be fixed from the outset and has limited flexibility to change operating arrangements over time. In addition, from a passenger perspective the provision of waiting areas in the middle of the roadway is less desirable than integrating the transit stop into the sidewalk area, as is possible with the other options. The provision of transit in the median adds to the real and perceived width of the street and creates a sense of isolation for transit passengers because the separation from the sidewalks and adjacent land uses by through traffic and bicycles. Also, the design would require two separate treed medians (on either side of the streetcar right-of-way) to effectively enhance the public realm and to be successful, such treed medians would require greater right-of-way width and a high degree of resources for ongoing maintenance. The provision of transit in the median results in the perception of a wide transportation corridor and there are limited opportunities for innovative urban design treatments.

Alternative 3 – Dedicated Transit on the East Side

This alternative represents a compromise that provides some of the benefits of each of the alternatives described above. It provides opportunities for urban design treatments that can reduce the scale of the roadway and improve the public realm. A key factor is that the distance for pedestrians crossing general traffic is reduced. The passenger loading and unloading areas are also less impacted by the sense of isolation associated with the middle of the road option. Northbound passengers, in particular, benefit from having the waiting area integrated with the sidewalk, and pedestrians on the sidewalk have a greater buffer from traffic. The design also requires a single median to separate general traffic from the transit right-of-way. This provides the opportunity for a median width that is generous enough to support the healthy growth of trees and to separate the street into corridors that create a comfortable public realm.

Many of the benefits of this design also address concerns, which have been identified during the public consultation process. This option was, in fact, the second choice during a public design charette exercise that was conducted by the community in conjunction with the study. The first choice was a transit mall design (i.e., general automobile traffic would be eliminated from a section of Cherry Street), which does not support many of the City's policies and objectives for a balanced public street design.

The alternative addresses the significant operational concerns related to dedicated transit in the outside lanes (alternative 1) with respect to pick up/drop-off and can accommodate a limited amount of on-street parking. Operationally it can be designed to provide acceptable transit, traffic and pedestrian operations. Simulations of morning rush hour operations indicate that, with this alternative, transit services will operate slower on Cherry Street than the alternative with dedicated transit in the centre median. While this lower speed is undesirable, it is necessary to achieve the public realm benefits associated with this alternative and it occurs over a short distance - just over 700 metres in length - in an area where the close signal spacings would result in relatively slow transit speeds, regardless of the design selected. There are a number of existing properties that have their access restricted or eliminated as a result of this option but these access issues can be mitigated in various ways as described below. This alternative is recommended because, on balance, the benefits of improving the public realm and innovative design treatments outweigh the difficulties related to operations and property access.

Therefore, transit on the east side was carried forward as the preferred design.

Table 6-2: Selection of preferred design

	Transit in outside lanes	Transit in centre median	Transit on east side
Pedestrian/transit passenger environment	<ul style="list-style-type: none"> • Integrates transit and public realm • Transit stops integrated with sidewalks 	<ul style="list-style-type: none"> • Stops in middle of road • Perception of wide road 	<ul style="list-style-type: none"> • Integrates transit and public realm • Transit stops integrated with east-side sidewalks
Urban design opportunities	<ul style="list-style-type: none"> • Opportunities for some innovative public realm treatments 	<ul style="list-style-type: none"> • Some opportunity for streetscape improvement with increased width 	<ul style="list-style-type: none"> • Streetscaping possible between transit and road with little additional width
Socio-economic impacts	<ul style="list-style-type: none"> • Limits access to existing driveways on both sides • No street parking possible 	<ul style="list-style-type: none"> • Negligible affect on existing access • Street parking possible with additional width 	<ul style="list-style-type: none"> • Limits access to existing driveways on east side • Street parking possible
Transportation system	<ul style="list-style-type: none"> • Poor or pickup/drop off • Possible to modify road and transit operations without reconstruction 	<ul style="list-style-type: none"> • Preferred for transit and traffic operations • Typical arrangement driver/pedestrian familiarity • Limited flexibility 	<ul style="list-style-type: none"> • Acceptable transit road and pedestrian operations • Possible to modify road and transit operations without reconstruction
Summary			Recommended

6.5 Consultation regarding the Alternative Designs

Consultation activities in support of selecting the preferred design involved numerous meetings with key stakeholders and two rounds of public consultation:

- Thursday July 26th, 2007 at Toronto Waterfront (4:00pm to 8:00pm) to present long list of design alternatives and recommend short list.
- Thursday October 11th, 2007 at Toronto Waterfront (4:00pm to 8:00 pm) to present short list of design alternatives and recommend design.

6.5.1 Summary of the July 26th PIC

This public event was held at Toronto Waterfront offices and was a drop-in centre format. Copies of display and workbook materials are contained in Appendix A. Forty (40) people signed in. Eighteen (18) comment sheets were filled out. The following is a summary of the comments:

- 6 out of 18 comments received from attendees preferred Dedicated Transit on Both Sides, 4 preferred Dedicated Transit in Middle and 3 out of 18 preferred Dedicated Transit on East Side.
- Several attendees had concerns regarding the Dedicated Transit on Both Sides and Dedicated Transit on East Side alternatives with respect to crossing tracks for the bike lanes.
- General comments included the provision of on-street parking to avoid illegal drop off / pick-ups and ongoing preservation of Heritage Buildings.

6.5.2 Summary of the October 11th PIC

This public event was held at the Enoch Turner schoolhouse and was a drop-in centre format. Display material is contained in Appendix A. A total of 50 people signed in and 18 comments were received.

- In general agreement with the recommended design (Transit on East Side).
- Support enhanced urban design initiatives, including trees in boulevard and median.

Subsequent to this PIC, a special meeting was held with the local community at the north end of the study area. Attended by residents of the Corktown Community, Percy Street and Old Sumach Street, local residents were given the opportunity to comment on specific design details and issues. Comments included:

- Look for opportunities to connect Percy Park to Cherry Street.
- Enhance the pedestrian realm including improved conditions under the Richmond / Adelaide bridges.
- Preserve existing accesses on King Street.

7. PREFERRED DESIGN

7.1 Approach and Guiding Principles

The typical environmental assessment process first seeks to solve the engineering and technical problem related to transportation and infrastructure, and then considers aesthetic and urban design improvements within the boundaries defined by the preferred alternative design concept. In some cases, this approach has led to a less than ideal design solution.

As part of this Transit Environmental Assessment, the urban design quality of the corridor was considered from the beginning of the process, alongside traffic and transit infrastructure needs. The level of public involvement was heightened beyond the level required in the EA legislation to ensure that the community could properly advise and comment on the direction of the preferred alternatives.

The study approach considers the street as an urban place, not simply a corridor for movement. The alternative design concepts were developed and evaluated using a set of principles to guide and direct the urban design aspect of the corridor. Each principle considers the myriad functions of streets in an urban setting. The three broad categories were:

- Designing for spatial comfort and human scale
- Making a place not a thoroughfare
- Orienting to the pedestrian

A larger comprehensive Public Realm Plan for West Don Lands, which is founded in design excellence and sustainability, will guide the public realm design for Cherry Street.

7.2 The Preferred Alternative Design

The preferred alternative design represents a “shift in the balance” or a re-ordering of the street right-of-way to better accommodate pedestrians and cyclists while still meeting the needs of transit and other vehicles. The existing Cherry Street right-of-way is 20 m, with a typical pavement width of 14 m. Although the preferred alternative design reduces the pavement width to 12.8 m, the total right-of-way increases to accommodate dedicated transit on the east side and provide appropriately-scaled pedestrian boulevards. However, the recommended right-of-way is still less than the 35-37 m from the West Don Lands EA Master Plan.

The West Don Lands Class Environmental Assessment Master Plan recommended that widening of the right-of-way occur selectively on both sides of Cherry Street to eliminate impact on existing heritage buildings and minimize impact on existing businesses. The recommended design is consistent with this approach, as illustrated in the plates following this chapter.

Between Eastern Avenue and King Street, the raised median is reduced to 1 m and the roadway to 9.8 m given the constraints of the Richmond Street and Adelaide Street overhead structures. This is accommodated through the elimination of on street parking. Pedestrian boulevard space is varied to reflect constraints posed by existing properties. The street design is described in greater detail below.

Exhibit 7-2 Aerial View of Proposed Design Alternative



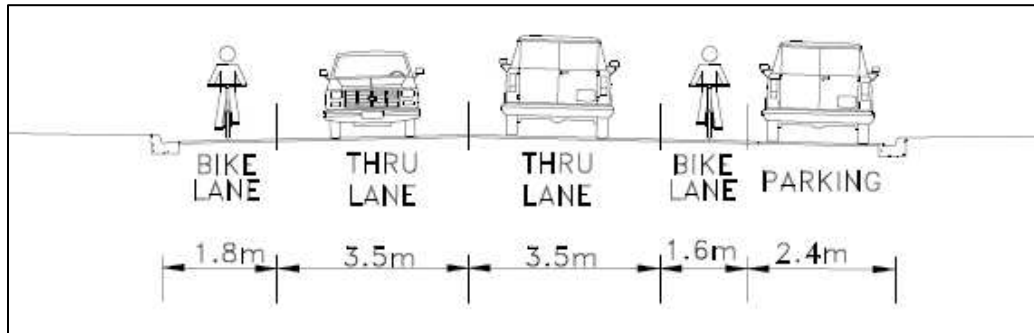
Aerial View Northeast towards the Front Street Intersection

7.3 Roadway

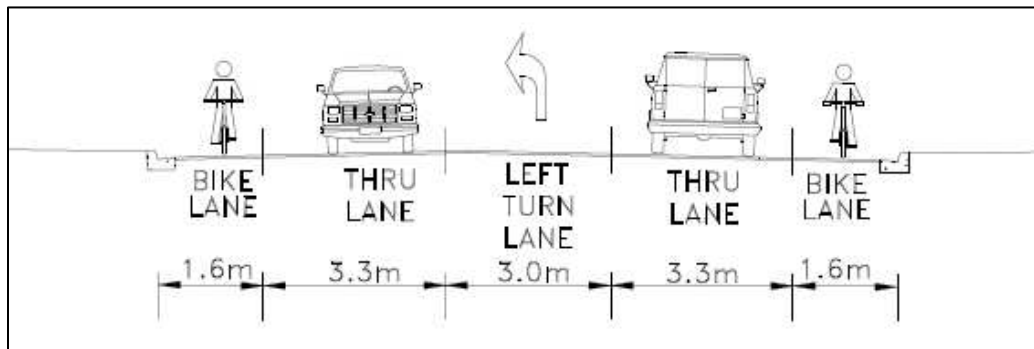
The recommended design provides one traffic lane and one bike lane per direction. Auxiliary turn lanes are provided at intersections (purpose and function are described below). On-street parking spaces are provided at mid-block locations along the west side of the street. A uniform 12.8 m width from Eastern Avenue to Mill Street (Exhibit 7-3) can accommodate these roadway elements.

**Exhibit 7-3
Alternate Configurations for 12.8 m Roadway**

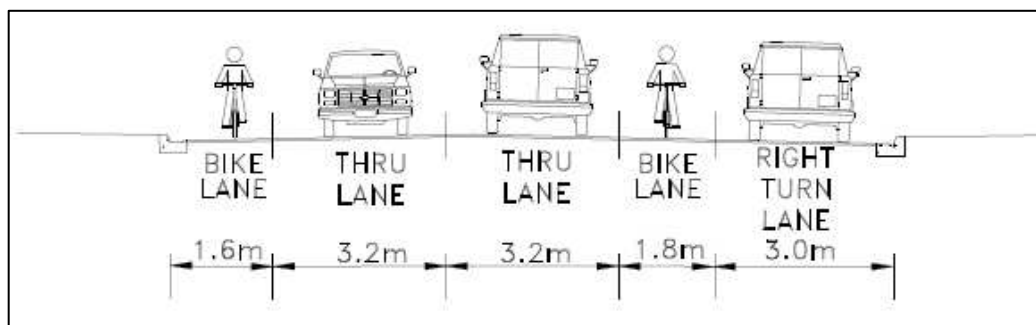
Parking One Side



Left-Turn Lane at Intersection



Right-Turn Lane at Intersection



Note: In accordance with City of Toronto Council direction, the detailed design process should consider options and refinements, with a goal of achieving a roadway width of less than 12 metres and providing 1.8 m bicycle lanes.

7.3.1 Intersection Traffic Controls

Turning movements that traverse the transit corridor from Cherry Street must be controlled to facilitate safe and efficient transit. This will require traffic signals at all intersections and removal of uncontrolled private access points (i.e. driveways) along the east side of the street. How to mitigate private access points is discussed in greater detail in Chapter 8.

A combination of traffic control measures is also necessary to safely manage possible vehicle / streetcar conflict points. This may require the prohibition of movements or specialized traffic control (i.e. special turn signals). The recommended operational controls (Table 7-1) are based on a preliminary traffic operational analysis of the most current road network and development plan for the West Don Lands (see Appendix E).

Table 7-1: Special Intersection Provisions

	Auxiliary Turn Lanes		Turn Restrictions
	Movement	Min. Storage (m)	
King Street *	none	-	NB No right turns on red
Eastern Avenue	NB Right	15 m	SB Left
Front Street	NB Right	15 m	SB Left
Mill Street	SB Left	15 m	NB Right

* The King / Cherry intersection will be equipped with a special transit only phase for northbound streetcars.

These controls may be refined during detailed design and further development of the West Don Lands. However, any changes in operational strategies will preserve the uniform road width at all intersections.

7.3.2 North of Eastern Avenue

For the block between Eastern Avenue and King Street, an alternate cross section and lane configurations were developed, recognizing the existing constraints within the right-of-way. Most notable are the columns supporting the Richmond Street / Adelaide Street overpasses. Therefore, north of Eastern Avenue, the roadway zone transitions from 12.8 m for proper lane geometry through the Eastern intersection, to 9.8 m at King Street. In order to reduce the width to 9.8 m in this section, the on-street parking was eliminated and there are no auxiliary turn lanes at the King Street intersection.

The resulting road and transit right-of-way occupy all available space between the bridge piers and therefore the sidewalks must be relocated to behind the piers. As discussed with the local community, this presents an opportunity to connect Cherry/Sumach to Percy Park and Old Sumach, thereby enhancing the local environment. The final design concept will be developed by Toronto Waterfront as part of the public space component of the West Don Lands.

7.3.3 Pedestrian Crosswalks

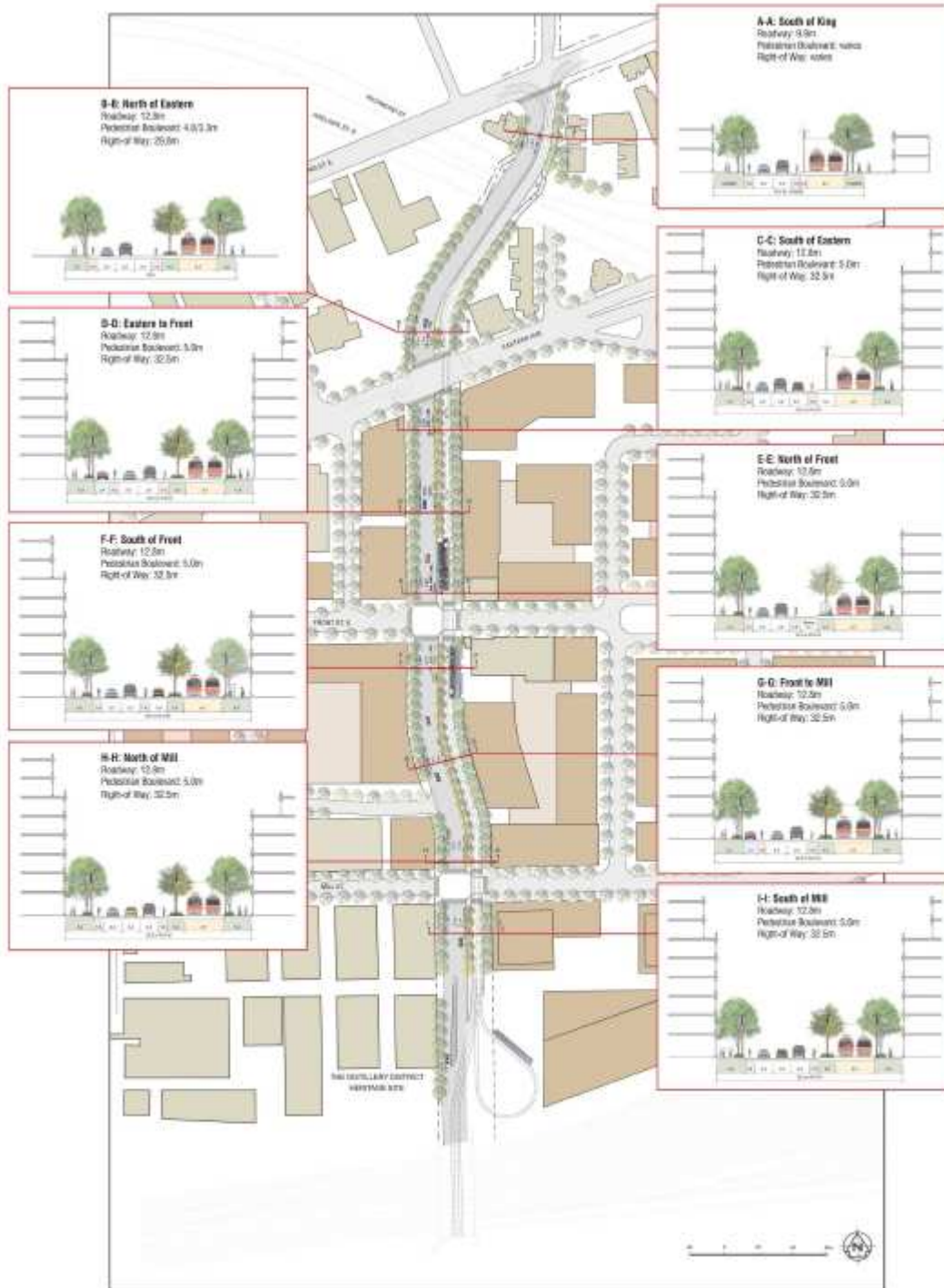
City policy enacted in September 2006 states that all crosswalks shall be of a zebra pavement marking (Detail T-310.030-5) using a durable marking material such as cold plastic or inlaid tape. The primary reason for this policy is for pedestrian safety. However, every effort should be made to find a suitable design solution that allows for the use of a wider range of materials in this application.

7.4 Pedestrian Zone

The pedestrian zone is defined as the portion of the street without automobiles. The preferred design alternative offers a visually expanded segment without automobiles by locating the dedicated transit lanes on the east side of the street adjacent to the pedestrian boulevard. Pedestrians, although permitted to cross the transit right-of-way as throughout the rest of the city, must be aware of and acknowledge that the primary function of this corridor is to serve transit vehicles.

The pedestrian zone consists of several key elements: pedestrian boulevard, central median and transit right-of-way. The overall relationship of each element is illustrated in Exhibit 7-4 with a more detailed description of each element provided below.

Exhibit 7-4 Preferred Design: Pedestrian Zone Treatment



7.4.1 Pedestrian Boulevard

One of the several urban design criteria used to evaluate the design alternatives was proportion of the right-of-way dedicated to pedestrians. The intent was to provide a more generous pedestrian zone – without obstacles such as street furniture – similar in proportion to those found in the historic downtown context. Further, the boulevards should be more in keeping with the proposed West Don Land family of streets. From the section south of Eastern Avenue, the preferred design alternative shall provide boulevards of a minimum 5 m in width from the right-of-way to the face of curb line. North of Eastern Avenue, the pedestrian zone narrows to 4 m for the west side and 3 m for the east side to reduce property impacts. The furnishings zone - the area for streetlights, furniture, trees and other - is located adjacent to the curb. The pedestrian clear zone shall be a minimum of 3.5 m, with a minimum 2.5 m at transit stop locations in the northbound direction. Elements such as bollards, trees, curbs, or a change in elevation, colour or texture shall define the edge of the boulevard from the transit right-of-way. Barrier fencing is not appropriate for this application and shall not be installed.

7.4.2 Central Median

From the section of roadway from Eastern Avenue southerly, the preferred design alternative proposes a central 3m-wide median that separates the transit right-of-way from the roadway. The median serves several functions: to reduce the scale of the street; to provide sufficient root zone space and protection for plantings from road salt spray, to provide a mid-street location for transit poles and street lighting, to provide a pedestrian refuge and provide space for transit platforms.

7.4.3 Transit Right of Way

As illustrated in the typical cross section, the transit right-of-way shall be generally 6.7 m wide³. Overhead traction power will be suspended from guy wires attached to poles on either side of the right-of-way (i.e. one pole in the central median and one pole in the boulevard). Toronto Fire Services prefer this configuration to an arrangement with a single pole between the tracks as it provides an additional drivable surface in the event of an emergency. The poles can be stand-alone or used in combination with streetlights, which are spaced a similar dimension to typical transit support wires throughout the city (30m).

7.5 Special Transit Track Work

In the long term, transit service on Cherry Street will be integrated into a larger network serving the waterfront to the south and other areas of Toronto via the King Streetcar line to the north. For this reason the track at Sumach Street and King Street will be constructed to

³ 6.7 m is based on straight track. Minor increases in the distance between tracks occur on curves to account for the swept path of the streetcar.

allow for streetcar movements to Sumach Street south of King Street from both the west and the east on King Street.

Subject to the approval of this EA, the Toronto Transit Commission, Waterfront Toronto and the City of Toronto intend to move immediately to design and construction. Streetcars on Cherry Street should be operational within five years, in advance of the East Bayfront and Port Lands transit lines. In the intermediate phase before connections to the south are possible, a loop is proposed in the southern portion of Cherry Street south and east of Mill Street. TTC has determined through an operational review that the loop is required for both the short term (Cherry Street only) and long term (Waterfront network). The loop is only required to allow streetcar to turn around from and to the north.

For future extension to the south, this study identified two possible alternatives.

Use the existing Cherry Street underpass (Exhibit 7-5): In order to accommodate this option, the existing roadbed would have to be lowered in order to provide adequate clearance under the existing structure. This alternative would require an extensive review of the existing structure including the determination of footing depths, impacts grades and operations on nearby driveways and intersections. Based on a preliminary understanding of groundwater issues, this design may only achieve a nominal pavement lowering at best and the more detailed evaluation of the structure may reveal that a lowering is not practical. Furthermore, a supplemental portal may be required if continuous bike lanes are required under this structure.

Construct a new structure for transit (Exhibit 7-6): In this scenario, a new structure is built immediately to the east of the existing bridge to accommodate the streetcars only. The existing structure would remain as is. Challenges associated with this alternative include constructability / construction constraints of building a new bridge while maintaining service on the existing CN tracks and the need to relocate the existing CN signaling building.

A bigger issue with either option is that the City of Toronto and Waterfront Toronto have yet to determine the precise transportation network location and configuration south of the CN tracks. In response, Waterfront Toronto has commenced a Master Planning process for the Lower Don. The final recommendation and EA approval for the connection from Cherry Street, south will be part of the Lower Don Master Plan.

Exhibit 7-5
View South – Connection Alternative 1: Use Existing Bridge

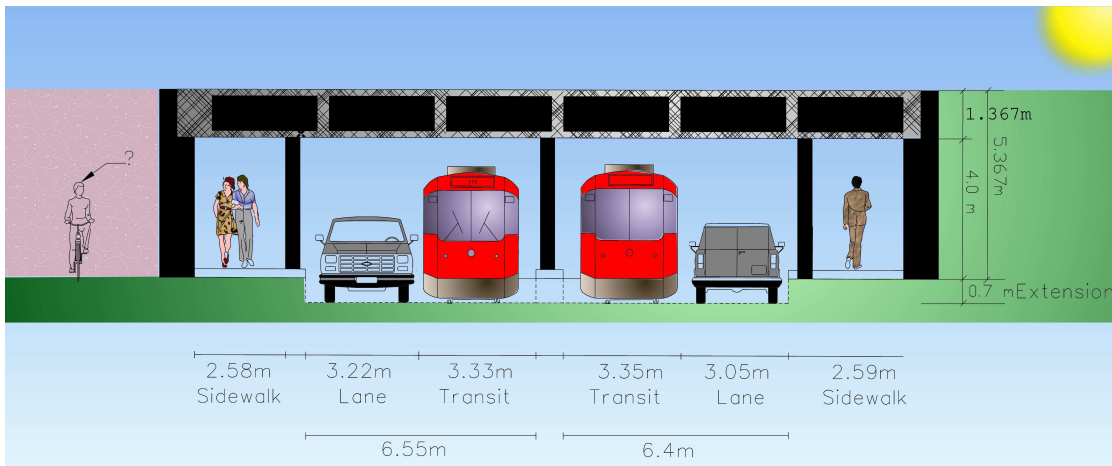
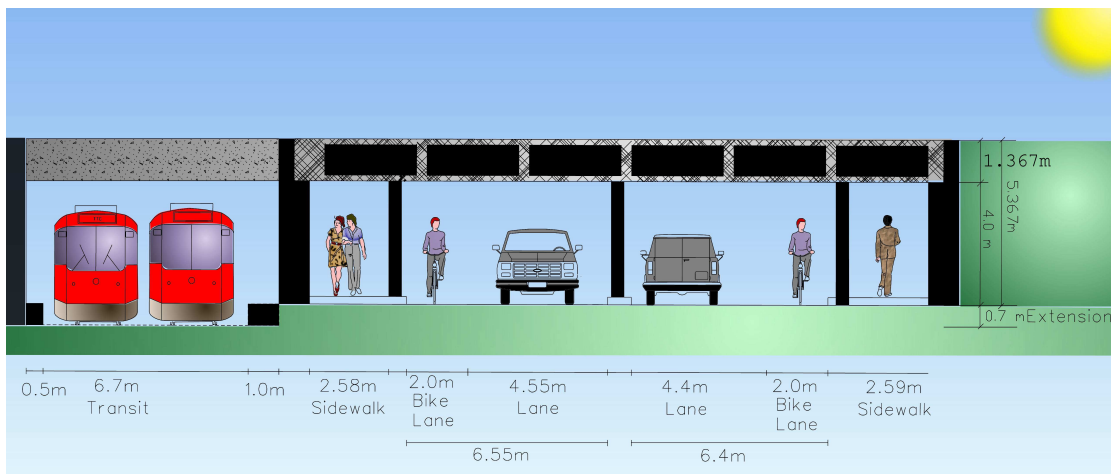


Exhibit 7-6
View South – Connection Alternative 2: New Structure



7.6 Materials and Techniques

7.6.1 Street Tree Planting

7.6.1.1 Pedestrian Boulevards

The City of Toronto has experimented with several tree-planting details over the years with varied levels of success. Street trees face several challenges to growing in a healthy and stress-free manner. With a dwindling urban forest, the City recognizes that to protect its further investment in “green infrastructure” will require a new approach. One of the primary obstacles identified has been low soil volume. Traditional street tree planters provided less than 1 cubic metre of soil for each tree. Those trees that managed to grow did so by finding soil outside of the planter in which to grow.

The current City of Toronto Urban Forestry standard is to try to achieve 30 cubic metres for each street tree. To provide this volume of soil within a pedestrian boulevard condition will require several techniques to protect the root zone from the adjacent track bed. The preferred design alternative recommends a continuous trench for root zone protection. The trench shall extend the entire length of the tree-planting zone. The root zone may extend beneath the pedestrian boulevard either through the use of structural soil or soil cells. An irrigation system shall be provided to ensure proper water levels are maintained. The planting area should be open air to allow for passive water infiltration and additional understory or groundcover plantings. If tree grates are required, they should be removable and permit adequate water and gas exchange. Furthermore, in order to achieve the soil volumes required by the City, Waterfront Toronto will likely need to pursue alternative technologies like structural sand and Silva cells as has been proposed elsewhere within West Don Lands.

7.6.1.2 Central Medians

Median planting will require a substantially improved planting detail over those currently used to ensure healthy growth. In Toronto, trees planted in a median between transit and road rights-of-way have had limited success (i.e., Spadina Avenue, sections of Front Street). The primary limiting factors have been sub-standard root zones, compaction of soils due to vibration, lack of water and gas exchange, and a compressed root zone due to the sub-grade structures required for the adjacent transportation infrastructure.

7.6.1.3 Paving Treatments

One of the main advantages of the preferred design alternative is the visually expanded segment without automobiles. Critical to delivering the intended result is the use of high quality paving materials within the transit right-of-way as well as the pedestrian boulevards. Suitable pavements include authentic stone like granite sets and pavers, or pre-cast concrete unit pavers. To accurately convey the design intent, consistent and/or complimentary color and texture between pedestrian boulevard and transit right-of-way is required. Examples of the types of treatments and arrangements are illustrated in Exhibit 7-7.

Exhibit 7-7
Example of Appropriate Streetscape Character and Materials



Exhibit 7-8
Model Views of Cherry Street Preferred Design Alternative Illustrating
Design Character and Quality



View Northwest at Front Street

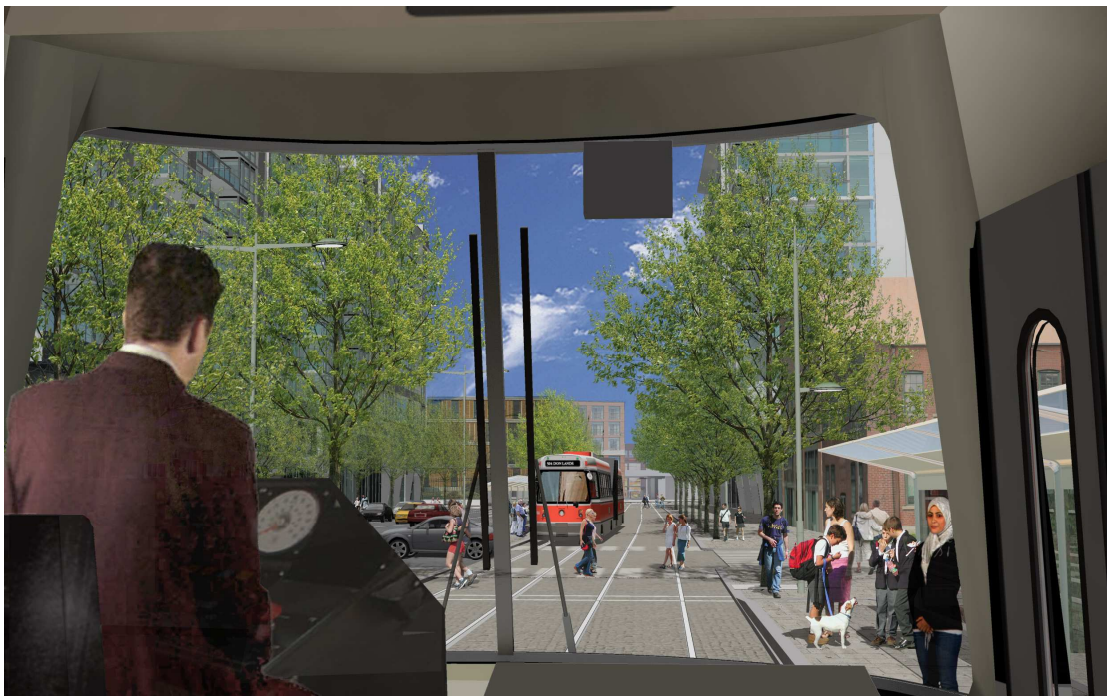


View from West Side of Cherry Street looking Northeast

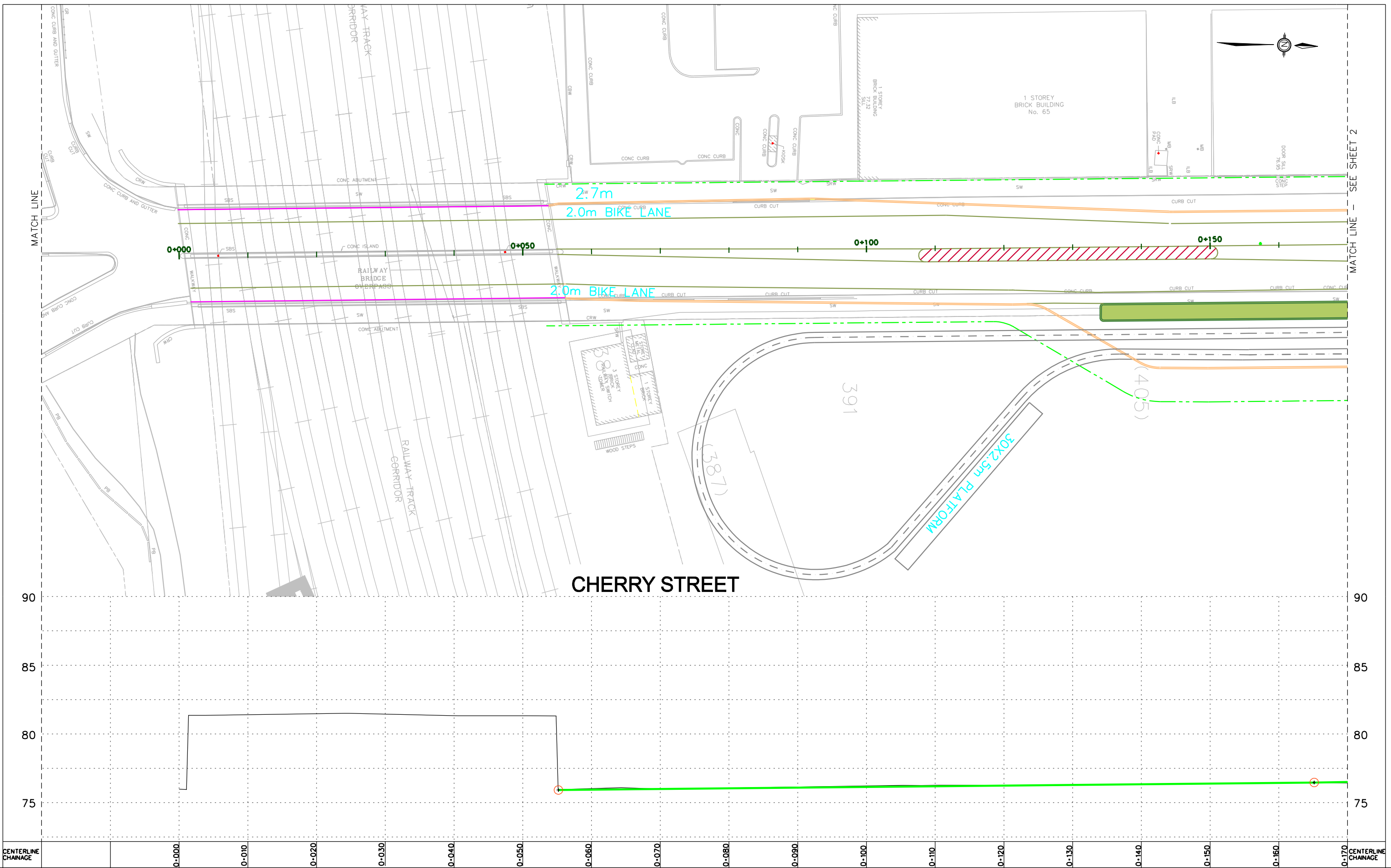
Exhibit 7-9
Model Views showing Transit Character and Features



View of Accessible Transit Platform at Front Street

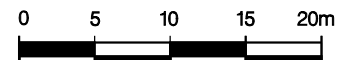


View North from Within TTC Transit Vehicle



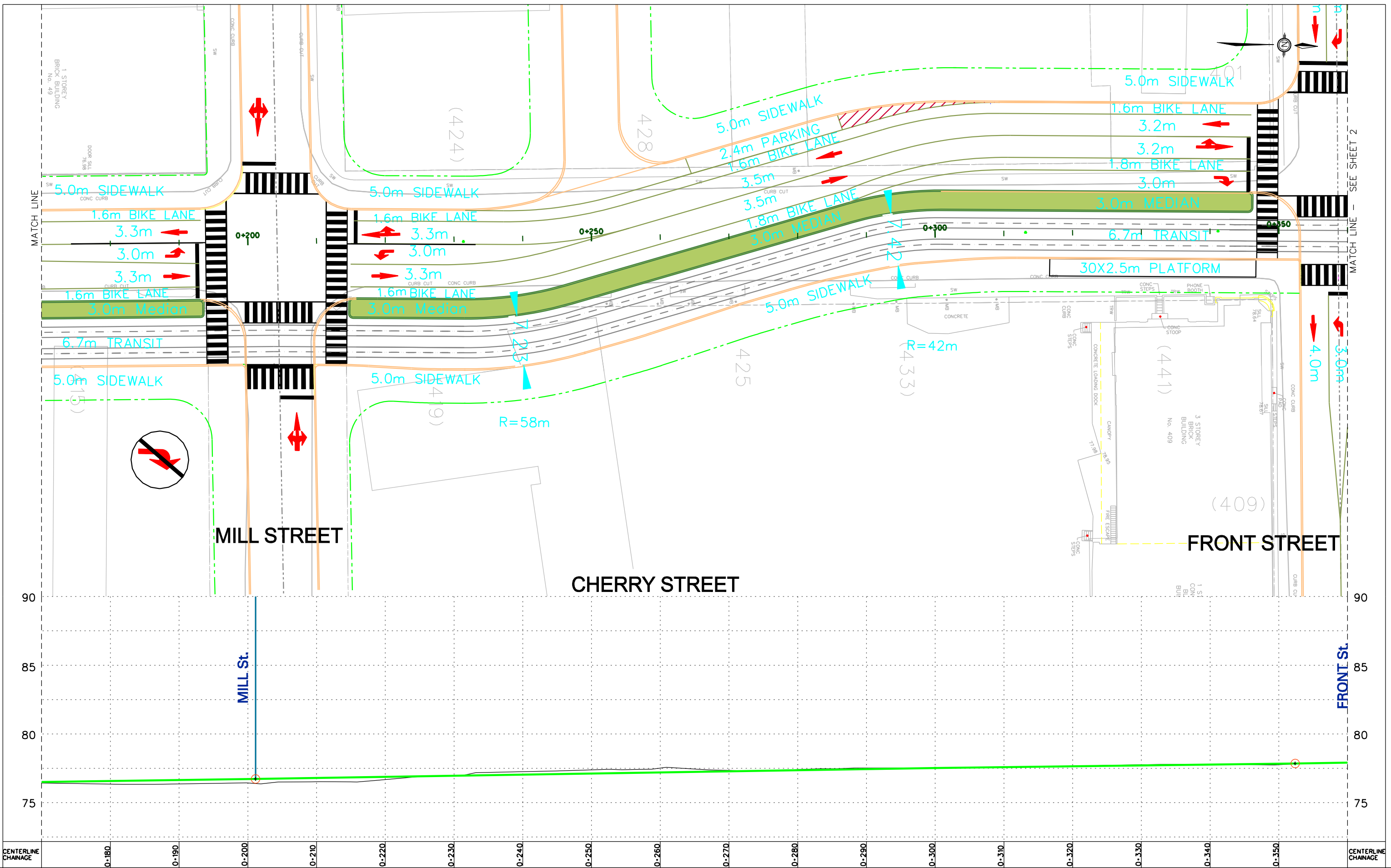
WEST DON LANDS TRANSIT EA
CHERRY STREET - RAILWAY CORRIDOR TO KING STREET

1:500



EXISTING FEATURES
 Stations: 0+000 to 0+170

PROJECT NO. 2007-032
 DRAWING NO. 33015532
 SHEET NO. 01



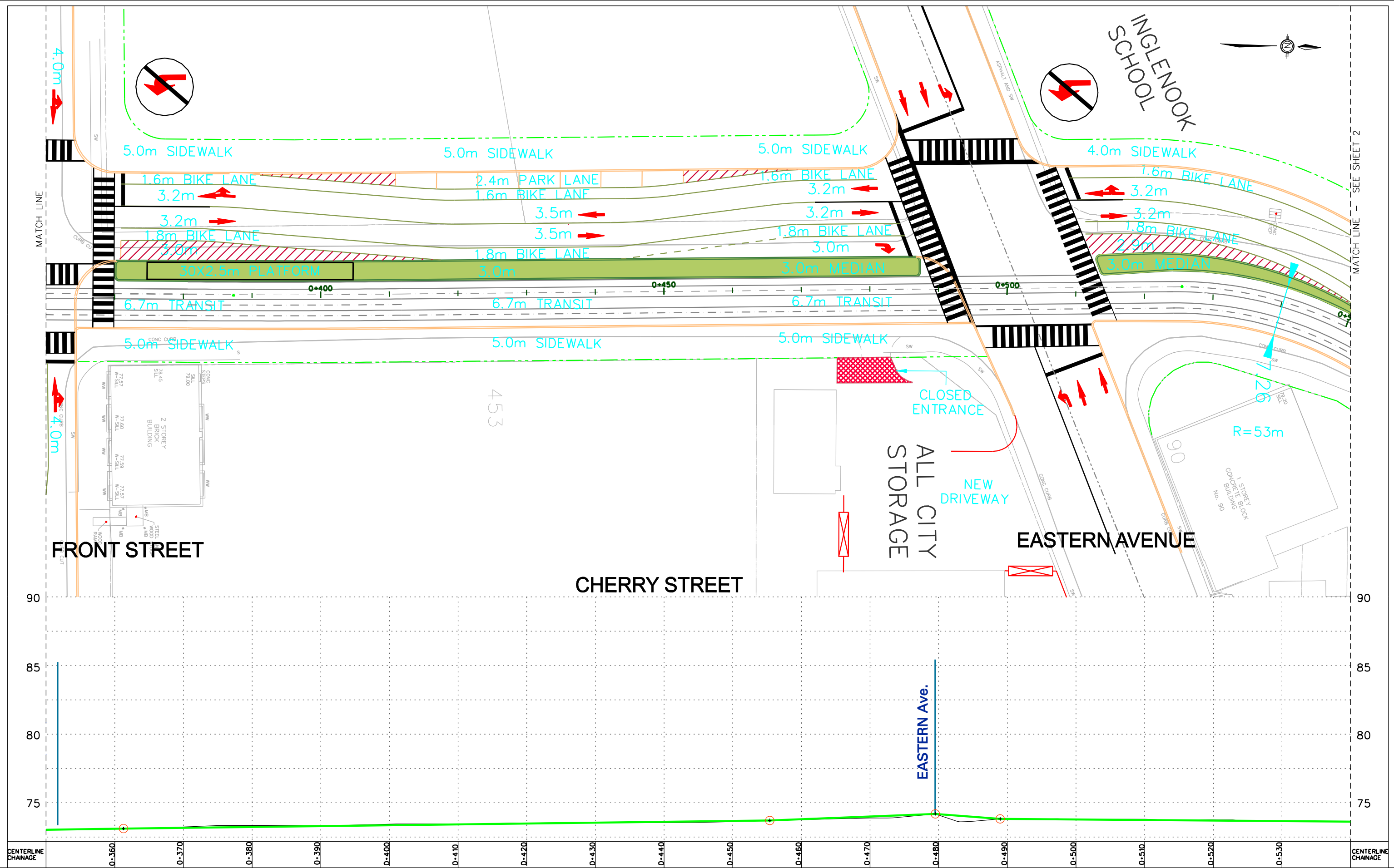
WEST DON LANDS TRANSIT EA
CHERRY STREET - RAILWAY CORRIDOR TO KING STREET

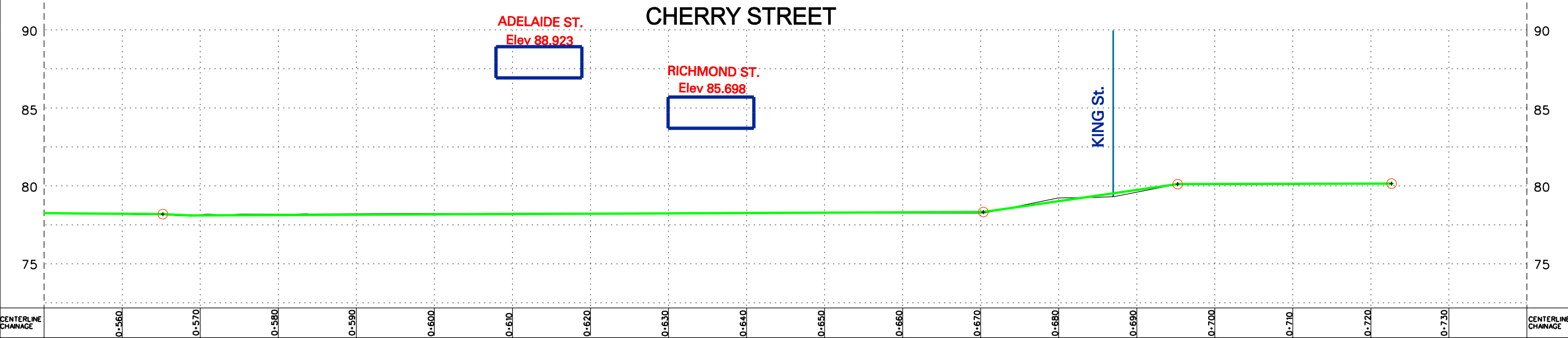
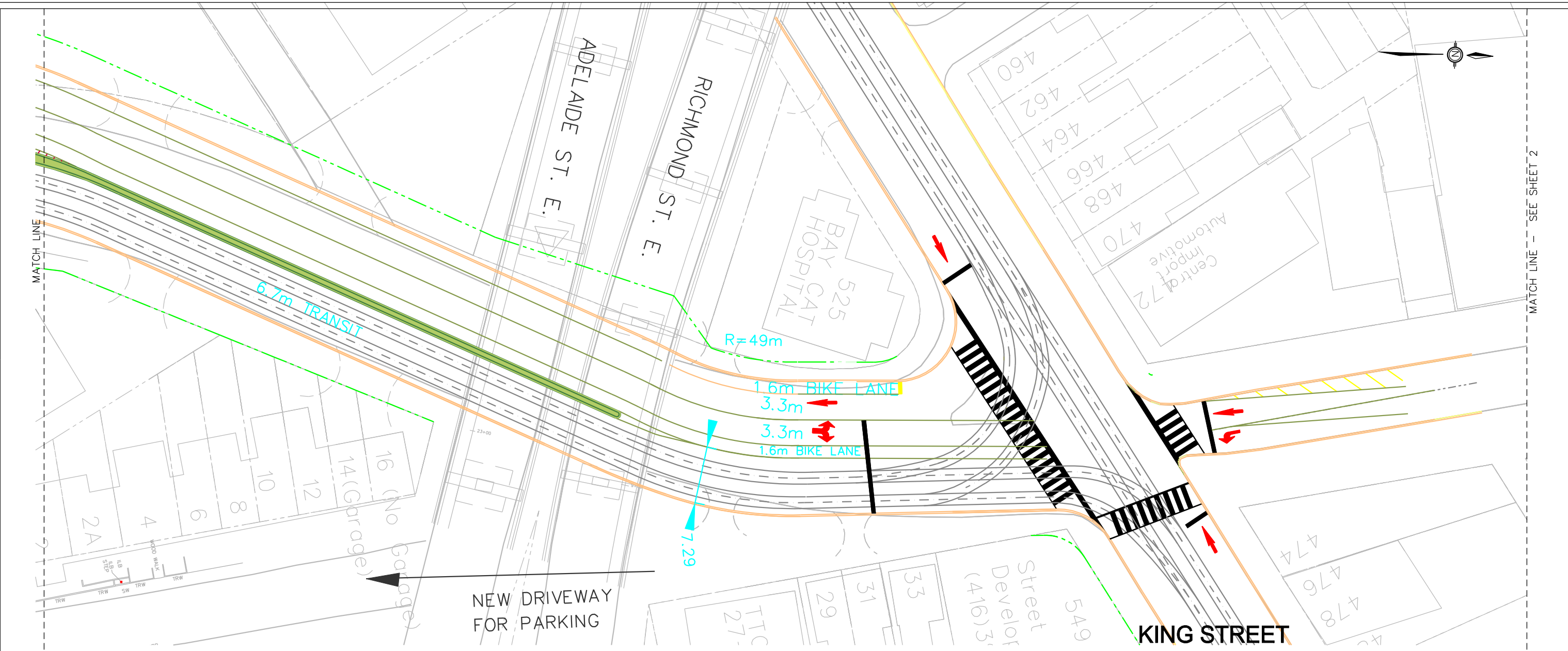
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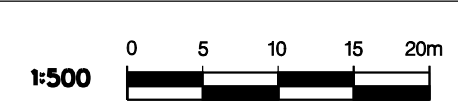
EXISTING FEATURES
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PROJECT NO. 2007-032
 DRAWING NO. 33015532
 SHEET NO. 02





WEST DON LANDS TRANSIT EA
CHERRY STREET - RAILWAY CORRIDOR TO KING STREET



EXISTING FEATURES
 Stations: 0+560 to 0+723

PROJECT NO. 2007-032
 DRAWING NO. 33015532
 SHEET NO. 04

8. POTENTIAL ENVIRONMENTAL CONDITIONS AND MITIGATING MEASURES

During the environmental assessment process undertaken for this project, potential environmental concerns related to the project have been investigated. Potential long term and short-term construction related environmental impacts are addressed in this section.

Waterfront Toronto will ensure that environmental protection commitments identified in this section, as well as subsequent agency approval conditions, are complied with during detail design and construction.

8.1 Natural Environment

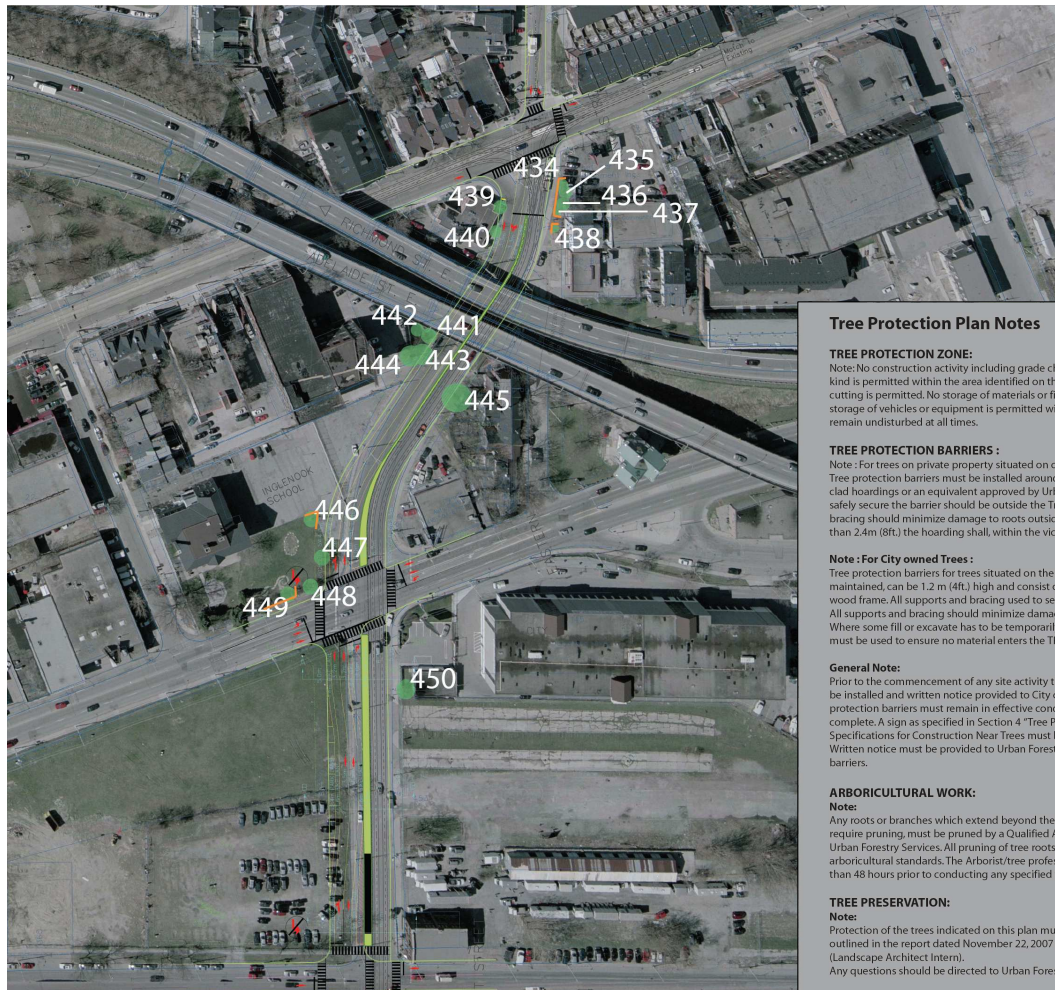
8.1.1 Terrestrial Environment

The undertaking will impact individual trees within the study area. As discussed in Section 4.1, no plant species identified in the study area are listed as rare, threatened or endangered and the study area mostly consists of planted vegetation. There are a number of trees that will be impacted by the preferred design. For trees within the West Don Land precinct (lands owned by ORC), an inventory and mitigation plan will be developed as part of the precinct development plan. For those trees on privately held lands, as well as all lands in the block between Eastern Avenue and King Street, a detailed inventory was undertaken in support of this EA (see Exhibit 8 1). Impacts fall into three categories:

- a) **Trees requiring protection** – A number of trees along Cherry Street will not be directly affected by the preferred design, but will require protection during construction to avoid accidental damage. Tree protection will be undertaken in accordance with the City’s standard.
- b) **Trees requiring pruning** –there is one tree on the east side of Cherry Street with a number of branches that will conflict with the overhead power system required for the streetcars. A licensed arborist as part of the detailed design will develop an appropriate pruning plan.
- c) **Trees requiring removal** – Trees within the proposed worksite or with a significant amount of root system within the construction limits must be removed as part of the preferred design. Where practical, the proponent will consider transplanting a tree. This practicality is based on tree size, health and species and will be determined by a licensed arborist.

A detailed replacement or relocation plan will be developed as part of the public realm design being undertaken by the Toronto Waterfront for the West Don Lands. The final mitigation plan will be developed during detail design in accordance with the City of Toronto Tree Bylaw. Tree removal and transplanting will be undertaken in accordance with the Migratory Birds Act.

Exhibit 8-1 Trees Inventoried (Non ORC Lands)



Tree Protection Plan Notes

TREE PROTECTION ZONE:
 Note: No construction activity including grade changes, surface treatments or excavations of any kind is permitted within the area identified on this plan as a Tree Protection Zone (TPZ). No root cutting is permitted. No storage of materials or fill is permitted within the TPZ. No movement or storage of vehicles or equipment is permitted within the TPZ. The area(s) identified as a TPZ must remain undisturbed at all times.

TREE PROTECTION BARRIERS :
 Note: For trees on private property situated on or adjacent to construction sites : Tree protection barriers must be installed around trees to be protected using 2.4m (8ft.) high plywood clad hoardings or an equivalent approved by Urban Forestry Services. All supports and bracing to safely secure the barrier should be outside the Tree Protection Zone (TPZ). All such supports and bracing should minimize damage to roots outside the TPZ. Where the branch(es) of a tree are lower than 2.4m (8ft.) the hoarding shall, within the vicinity, be a height to just below such branches).

Note : For City owned Trees :
 Tree protection barriers for trees situated on the City road allowance where visibility must be maintained, can be 1.2 m (4ft.) high and consist of orange plastic web snow fencing on a 2" x 4" wood frame. All supports and bracing used to secure the barrier should be located outside the TPZ. All supports and bracing should minimize damage to roots outside the TPZ. Where some fill or excavate has to be temporarily located near a tree protection barrier, plywood must be used to ensure no material enters the TPZ.

General Note:
 Prior to the commencement of any site activity the tree protection barriers specified on this plan must be installed and written notice provided to City of Toronto, Urban Forestry Services. The tree protection barriers must remain in effective condition until all site activities including landscaping are complete. A sign as specified in Section 4 "Tree Protection Signage" of Tree Protection Policy & Specifications for Construction Near Trees must be attached to all sides of the barrier. Written notice must be provided to Urban Forestry Services prior to the removal of the tree protection barriers.

ARBORICULTURAL WORK:
Note:
 Any roots or branches which extend beyond the tree protection zone(s) indicated on this plan which require pruning, must be pruned by a Qualified Arborist or other tree professional as approved by Urban Forestry Services. All pruning of tree roots and branches must be in accordance with good arboricultural standards. The Arborist/tree professional must contact Urban Forestry Services no less than 48 hours prior to conducting any specified work.

TREE PRESERVATION:
Note:
 Protection of the trees indicated on this plan must be in accordance with the recommendations outlined in the report dated November 22, 2007 prepared by Ecoplans Ltd., Amy Bennewies (Landscape Architect Intern). Any questions should be directed to Urban Forestry at (416) 338-TREE (8733).

LEGEND

446 Tree Tag No.

Tree Protection Fence

Drawing Notes:

Tree locations are approximate, if necessary, tagged trees will be surveyed at detailed design stage.

Additional opportunities for tree preservation will also be re-evaluated at that time, as well as mitigation strategies.

Refer to Tree Preservation Plan Report for Tree Protection Signage and Details.

Detail TP-2a

8.1.2 Stormwater Management

The West Don Lands Class EA Master Plan has determined the overall approach to stormwater drainage for Cherry Street and the recommended design. This addresses conveyance (overland and storm sewer system) as well as the overall approach to stormwater quantity and quality.

A new stormwater management facility will be implemented in the West Don Lands as identified in the Class EA Master Plan for the West Don Lands precinct. This facility will be located at the TTC loop primarily for stormwater water quality and will consist of an Oil Grit Separator as well as provisions for UV treatment. This facility will service the West Don Lands site. As a result of the construction of the West Don Lands flood protection landform the overland flow from the West Don Lands will be redirected to Cherry Street (formerly discharged to Don River). At the CN Rail Bridge, there is a low area in the road that would impede overland flow. The new outlet sewer on Cherry Street to the Keating channel, as identified in the West Don Lands Master Plan Class EA, will be designed to convey the 25-year storm to minimize the occurrence of flooding at this depressed area.

Within the area of the proposed TTC turning loop, Waterfront Toronto will be implementing a stormwater management facility and the site will also have park uses associated with it. During detail design, the track layout in this area may require refinement to allow these three uses to co-exist. Within this area both the TTC and Toronto Water (operator of storm water management facility) will require access to operate and maintain their facilities in terms of scheduling and specific space requirements. A pedestrian connection will be required from the Distillery District, and Parks will require a reasonable level of open space be achieved in a safe environment (as reflected in the West Don Lands Block Plan). Achieving this will require design flexibility and consultation between these parties.

8.1.3 Soil Contaminations

According to the “West Don Lands Soils and Groundwater Management Strategy – East of Cherry Street”, subsurface environmental investigations were undertaken during the late 1980s and early 1990s across the West Don Lands area. Soil impacted by environmental contaminants is found throughout the West Don Lands. However, the soil impacts are, for the most part, restricted to fill materials that were placed many years ago to elevate the land and allow development to proceed. In general, the contaminants are not found as buried wastes or liquids that have flowed downward into the subsurface. The contaminants are usually absorbed to soil particles and are present at concentrations that sometimes exceed the currently applicable MOE soil quality standards for industrial / commercial and / or residential / parkland land use.

Any lands currently owned by ORC will be decontaminated prior to conveying to the City of Toronto to form the Cherry Street right-of-way. The remaining lands will be addressed through the City of Toronto's normal property acquisition process.

8.2 Cultural Environment

8.2.1 Built Heritage

The recommended alignment has been developed in order to avoid direct impacts to the built heritage along the corridor. Therefore no impacts are anticipated.

8.2.2 Archaeological

Based on the Stage 1 Archaeological Assessment Study conducted within the study area (located in Appendix G), the following provides a summary of the recommendations:

- In view of the development history of the lands that comprise the study area, it is clear that all original A horizon deposits, and the uppermost levels of its B-horizon have been removed or redistributed to such a degree as to seriously compromise the potential for the presence of any Aboriginal archaeological deposits, which generally would have been ephemeral compared to later occupations. The same considerations apply for those 19th century resources that would otherwise be considered of potential heritage value according the criteria outlined in the Ministry of Culture's 2006 Draft Standards and Guidelines for Consulting Archaeologists.
- The only exception to the above generalization is the yard of the Inglenook Public School, which has not been redeveloped to the same degree and is the location of the Thornton Blackburn site (AjGu-16). Thornton Blackburn site (AjGu-16), is located in very close proximity to the study area. Because the 1985 excavations did not investigate the entire area of the site, archaeological deposits could extend into the proposed road right-of-way.

Therefore, a Stage 2 Archaeological Assessment should be conducted within the study area where land-disturbing activities on the alternative selected will impact areas with archaeological potential in accordance with the Ministry of Culture's draft Standards and Guidelines for Consulting Archaeologists (2006).

The above recommendation is subject to Ministry of Culture approval, and it is an offence to alter any archaeological site without Ministry of Culture concurrence. No grading or other activities that may result in the destruction or disturbance of an archaeological site are permitted until notice of Ministry of Culture approval has been received.

The following conditions also apply:

- Should deeply buried archaeological remains be found on the property during construction activities, the Heritage Operations Unit of the Ontario Ministry of Culture should be notified immediately.

- In the event that human remains are encountered during construction, the proponent should immediately contact both the Ontario Ministry of Culture and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Consumer and Business Services, Consumer Protection Branch at (416) 326-8404 or toll-free at 1-800-889-9768.

8.2.3 Tourism and Recreational Environment

The proposed design will displace the existing sidewalks in between the Richmond / Adelaide overpass piers and the Cherry Street roadway. The replacement strategy proposes to relocate these sidewalks to the outside of the piers. Based on discussions held with residents of Percy Street and Old Sumach Street, this presents an opportunity to enhance the pedestrian realm and connections to existing neighbourhood features. Specifically, the project will include direct pedestrian connections between Percy Park, Old Sumach Street (sidewalk on east side) and the Cherry Street right-of-way.

The public realm team as part of the detailed design stage will develop the final configuration.

8.3 Socio-Economic Environment

8.3.1 Noise and Vibration Assessment

TTC's streetcar operation has the potential to increase local noise and generate ground borne vibration. To mitigate this impact, TTC has developed a new rail technology comprising:

- Continuously welded rail eliminates the use of rail joints, providing a smooth operation
- Rubber sleeve isolates rail from concrete and helps reduce noise and vibration (see Exhibit 8-2)

This new technology also increases life of rails to 25 yrs+ and reduces the need for regular track maintenance.

As part of this Class EA Study, RWDI was commissioned to undertake a noise and vibration analysis (refer to Appendix K), including field measurements in for model calibration. The projected noise increases associated with the proposed works are less than 5 dBA; therefore consideration of noise mitigation is not required based on MOE criteria.

Exhibit 8-2
Rubber Isolating Sleeve for Streetcar Track



8.3.2 Property

The project team has employed a number of techniques to engage those directly affected during this EA. Table 8-1 lists all properties that are directly affected by the recommended design, issues discussed and resolved with the owners (if any). However, affected property owners were contacted during the course of this study, and will be consulted during the design phase.

Table 8-1: Property Needs / Impacts

Property	Description	Comments	Agreements to date with owner
West Don Lands (ORC owned)	Vacant land	Partial Taking Right of way taking previously identified in West Don Lands Class EA Master Plan. Reduced in overall size due to narrowing of right-of-way	ORC to convey as part of plan of subdivision
90 Eastern Avenue	Olympic Auto Body	Driveway Impact Existing driveway onto Cherry Street to be closed and relocated to Eastern Avenue frontage.	Land in process of changing ownership. TTC communicating with current owner's lawyer.
145 Eastern Avenue	All City Storage	Driveway Impact Existing driveway onto Cherry Street to be closed and relocated to Eastern Avenue frontage. Two options have been provided for owner's consideration.	Owner prefers to retain office at west end of site. Minor modifications to driveway, parking and security gates can be considered. Signage at corner to be retained.
19 Sackville Avenue	Inglenook School	Partial Taking Right of way taking previously identified in West Don Lands Class EA Master Plan. Reduced in overall size due to narrowing of right-of-way	Trees, basketball court and parking to be addressed as part of design mitigation.
16 Old Sumach	Private resident	Driveway at rear to be closed	No discussions to date
14 Old Sumach	Private resident	Driveway at rear to be closed	No discussions to date
511 King Street	Parking	Partial Taking Right of way widening and grading to accommodate new west sidewalk.	No discussions to date
525 King Street	Bay Cat Hospital	Partial Taking Right of way widening and grading to accommodate new west sidewalk.	No discussions to date



Property	Description	Comments	Agreements to date with owner
472 King Street	Central Import Automotive	Access Issue Only access into garage will be within King / Cherry intersection.	Discussed with City Transportation and no changes or restrictions will be imposed on “grand fathered” access.
549 King Street / 33 Sumach Street	Streetcar Developments	Grading only – no direct impacts	City Planning coordinating through Site Plan process.
31 Sumach Street	Obscura Visual Communication	Driveway Impact / Garbage Collection Existing driveway onto Cherry Street to be closed and relocated to Eastern Avenue frontage.	No discussions to date
29 Sumach Street	Private resident	Garbage Collection Direct access to Cherry Street (roadway) limited by proposed streetcar.	Owner has attended meetings but has not yet provided comments.

During construction, permissions-to-enter and temporary grading easements will be required for the affected property owner for grading, and sodding/seeding, in which case the City will seek formal consent from the property owner.

8.3.3 Technical - Utilities

A preliminary investigation of existing utilities within Cherry / Sumach corridor was undertaken based on the City utility dataset. Table 8-2 contains a listing of utilities that are potentially affected by the proposed changes to the road right-of-way. Conflicts are categorized into three distinct types:

Crossing – utilities along crossing street, such as Eastern Avenue are likely unaffected provided that they are sufficiently deep so as to not conflict with the road or transit roadbed.

Longitudinal – utilities that run for extended lengths under the proposed TTC tracks. Recognizing the potential challenges of utility maintenance without significant, long-term disruption to the tracks, these utilities should be relocated as part of the overall works. In many instances, these utilities are proposed to be replaced in support of the West Don Lands redevelopment.

Maintenance Chambers – notwithstanding that some utilities that fall into the crossing category, existing maintenance/access chambers fall within the proposed track area. If possible, these should be relocated.

Within the area of the proposed TTC turning loop, Waterfront Toronto will be implementing a stormwater management facility and the site will also have park uses associated with it. During detail design, the track layout in this area may require refinement to allow these three uses to co-exist. Within this area both the TTC and Toronto Water (operator of storm water management facility) will require access to operate and maintain their facilities in terms of scheduling and specific space requirements. A pedestrian connection will be required from the Distillery District, and Parks will require a reasonable level of open space be achieved in a safe environment (as reflected in the West Don Lands Block Plan). Achieving this will require design flexibility and consultations between these parties.

Utility companies will be contacted during detail design to define the impact to the individual utility plants and to develop a relocation strategy, if required.

Table 8-2: Potential Utility Conflicts

Block	Utility	Conflict
CN Tracks to North Limit of Mill Street	1 Stm MH	Y (On Future Tracks), Connected to East/West Pipes Along Mill Road
	1 San MH	Y (On Future Tracks), Connected to East/West Pipes Along Mill Road
	1 Valve chamber	Y (On Future Tracks), Connected to East/West Pipes Along Mill Road
North Limit of Mill Street To North Limit of Front Street	300 mm W/M+ 4 Valve Chamber	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	450mm San Sewer + 2 MH	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	1050MM X 1500 Comb sewer Culvert + 1 MH	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	T.H.E.S. Conduit	Y/N (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	Unknown Pipe (Or Conduit)+1 MH	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	Bell Canada Conduit + MH	Y (On Future Tracks) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
	100 mm Gas Pipe	(Y/N) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
North Limit of Front Street To North Limit of Eastern Street	300 W/M	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	450 mm San Sewer + 2 MH	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	1050mm X 1500 Comb Sewer culvert + 1 MH	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	300 W/M	(Y/N) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
	600 W/M	(Y/N) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
	3 T.H.E.S. Conduits	(Y/N) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
	1 San MH	Y (On Future Tracks), Connected to East/West Pipes Along Eastern Rd.
North Limit of Eastern To King Street	1 Stm MH	Y (On Future Tracks), Connected to 375 mm Stm Pipe
	Bell Canada Conduit	(Y/N) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
	450 mm Stm Sewer	(Y/N) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
	300mm W/M + Valve Chamber	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	600mm W/M	(Y/N) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
	30 mm Gas Main	(Y/N) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
	3X300 mm Gas Main	(Y/N) Longitudinal Crossing Transit R.O.W. (Perpendicular To Cherry)
	600 X 900 mm Comb Sewer+ 1 MH	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)
	T.H.E.S. Cable	Y (On Future Tracks), Perp.Crossing Transit R.O.W. (Along Cherry)

8.4 Short-term Construction Related Environmental Issues and Mitigating Measures

The proponent will undertake the following mitigating measures contained in Table 8-3 below in order to ensure that the construction of the project has a minimum effect on the environment.

Table 8-3: Potential Short-term Construction Related Environmental Impacts and Proposed Mitigation Measures

Factor Affected	Environmental Impact	Mitigation Measures
Natural Environment		
Erosion and Sedimentation	Slope erosion and stability Sediment transport in stormwater runoff.	Erosion control fencing to be placed around the base of all stockpiles. Vegetate all exposed slopes immediately after construction. Minimize extent and period of surface exposure, particularly for ditches and slopes.
Air Quality	Reduced air quality due to dust.	Apply water and calcium during construction as required.
Vegetation	Damage to vegetation in close proximity to work area.	Protective fencing should be placed around trees to reduce the potential for damage (see Terrestrial Environment for details). Should any trees be damaged or removed as a result of construction, replacement with a tree of similar species and dbh should be provided.
Migratory Birds Convention Act (MBCA)	No vegetation removals should occur during the nesting season.	No vegetation removals should occur during the nesting season. With several exceptions, this includes the period from April 1 to July 31.

Factor Affected	Environmental Impact	Mitigation Measures
<i>Social Environment</i>		
Maintenance of Traffic and transit	Delays to local traffic due to construction.	Maintain general traffic movements to commercial / institutional areas. Stage construction to minimize traffic delays. Detours or replacement of streetcars with buses may be required during the construction of the King Street / Cherry Street special track work.
Assurance of Traffic Safety	Roadway safety affected by construction activities.	Standard construction safety practices to be undertaken on site. Require contractor to prepare traffic management plan.
Noise	Increased noise levels.	Adhere to municipal by-law hours of construction operation. Ensure proper maintenance and type of construction equipment.

8.5 Monitoring

The proponents to ensure that the Contractor is implementing standard construction practices will monitor the construction of the proposed improvements on site. This will include erosion and sedimentation control, dust and noise control, protection of existing vegetation, assurance of traffic safety and maintenance of traffic flow without causing unnecessary delays, etc. The overall performance and effectiveness of the environmental mitigating measures specified will be monitored and assessed during and subsequent to the construction of the project.

As the environmental impacts outlined in this section are the normal impacts associated with the construction of roads and services in an urban environment, and are based on the established standard construction practices, the mitigating measures will be incorporated in the contract documents. The Contract Administrator will ensure that these mitigating measures are undertaken during construction. Should unforeseen environmental concerns and/or issues arise during the construction period, the appropriate Ministry and Agencies will be contacted and appropriate measures will be taken to mitigate the environmental concerns/issues.

Appendices

Appendix A – Public Consultation

Appendix A-1 – Phase One: Planning Alternatives, Public Information Centre, March 2007

Appendix A-2 – Phase Two: Design Alternatives, Public Drop In Centre, July 2007

Appendix A-3 – Phase Two: Design Alternatives, Public Information Centre, October 2007

Appendix B – Community Liaison Committee

Appendix B-1 – Community Liaison Committee, November 2006

Appendix B-2 – Community Liaison Committee, January 2007

Appendix B-3 – Community Liaison Committee, March 2007

Appendix B-4 – Community Liaison Committee, May 2007

Appendix B-5 – Community Liaison Committee, June 2007

Appendix B-6 – Community Liaison Committee, July 2007

Appendix B-7 – Community Liaison Committee, September 2007

Appendix C – TAC and Key Stakeholder Meetings

Appendix D – Detailed Analysis of Alternatives

Appendix E – Travel Demand and Operational Analysis

Appendix F – Noise and Vibration Analysis

Appendix G – Archaeological Assessment Report

Appendix G-1 – Stage 1 Archaeological Assessment, West Don Lands Transit Environmental Assessment, November 2007

Appendix G-2 – Stage 1 Archaeological Assessment, East Bayfront, West Don Lands and Port Lands Area, April 2004

Appendix G-3 – The Archaeological Master Plan of the Central Waterfront, September 2003

Appendix H – Arborist Report
