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Item No. 13.1.1
Transportation Standing Committee
August 29, 2024

TO: Chair and Members of the Transportation Standing Committee

FROM: Brad Anguish, Acting Chief Administrative Officer

DATE: July 29, 2024

SUBJECT: **Implementation of Peninsula South Complete Streets: University Avenue and West and East Connections**

ORIGIN

Action #72 of Halifax's Integrated Mobility Plan (IMP): Deliver the Regional Centre all ages and abilities bicycle network by 2022.

Recommendation #20 of the Halifax Active Transportation Priorities Plan 2014-2019: To achieve the goal of doubling of AT mode share, the Municipality needs to focus AT Plan implementation for cycling on the types of infrastructure preferred by new bicyclists.

Recommendation #23 of the Halifax Active Transportation Priorities Plan 2014-2019 states that when making decisions about potential trade-offs needed to establish bicycle lanes in the Regional Centre, there should be:

1. More detailed review of each corridor under criteria listed in Appendix E of the plan;
2. Public engagement; and
3. Regional Council approval.

EXECUTIVE SUMMARY

This report recommends an east-west "All Ages and Abilities" (AAA) set of cycling facilities in the south end of the Halifax peninsula and related changes. If approved, it will guide staff on changing Morris Street, University Avenue, and segments of South Street, Cartaret Street and Oakland Road. The result will be a key link in the Regional Centre Bikeway Network identified in the Integrated Mobility Plan.

Three options were explored on University Avenue, and a two-way bikeway in the median is recommended. While all options would provide an AAA cycling facility, the one recommended is the least expensive, least complex, and most preferred by the public. It also retains the most mature trees and has minimal impact to on-street parking and loading. It would involve closing some of the north-south local streets at the University Avenue median. This option is not preferred by Dalhousie University. The estimated cost for the recommended option is $8.6 million.

A two-way bikeway is recommended for Morris Street as the "East Connection". This would be achieved by converting the street to one-way (eastbound) for motor vehicles. This change would involve major changes to the street and area motor vehicle movements as it would displace west-bound car traffic, transit and trucks to adjacent local and collector streets. A wide range of options for this segment were explored,

RECOMMENDATION ON PAGE 2

and this option was deemed the best for cycling with the least impact on mature trees and parking. The estimated cost is $5.1 million.

A “West Connection” is proposed to complete the AAA bikeway connection to the Halifax Urban Greenway on Beaufort Street. This connection includes a local street bikeway route on Seymour Street, Cartaret Street, and Oakland Road with a short section of two-way bikeway on South Street. The cost estimate for this segment is $1.2 million.

The above cost estimates include various complete streets elements (curb extensions, trees, tactile curb ramps, placemaking) as well as 35% contingency. The project recommends the *Peninsula South Streetscape Design* Guidelines to inform the design of the corridor, especially University Avenue.

If Council approves these recommendations, staff will proceed to refine the design and coordinate construction with planned regular road rehabilitation work to maximize efficiencies. Staff will also explore short-term tactical opportunities that could be implemented in advance of the rehabilitation projects.

RECOMMENDATION

It is recommended that the Transportation Standing Committee recommend that Regional Council:

1. Approve the installation of bicycle facilities and related changes on University Avenue from LeMarchant Street to South Park Street as described in the *Discussion* section of this report.
2. Subject to the approval of Recommendation 1 above, approve the use of the *Peninsula South Streetscape Design Guidelines* as a guide for the implementation of the public realm improvements along University Avenue.
3. Approve the installation of bicycle facilities and related changes on Morris Street from South Park Street to Lower Water Street, including conversion of Morris Street to one-way eastbound for motor vehicle traffic, as described in the *Discussion* section of this report.
4. Approve the installation of bicycle facilities and other related changes to Seymour Street (University Avenue to South Street), South Street (Seymour Street to Cartaret Street), Cartaret Street, and Oakland Road (Robie Street to Beaufort Avenue) as described in the *Discussion* section of this report.

BACKGROUND

The University Avenue/Morris Street corridor represents a key connection in the Regional Centre All-Ages-and-Abilities (AAA) Bikeway Network with both local and regional importance. The proposed east-west route would connect Dalhousie University’s Studley, Carleton, and Sexton Campuses, the QEII and IWK hospital sites, downtown Halifax and the waterfront. The proposed route would connect existing protected bikeways on South Park Street, Hollis Street, and Lower Water Street, as well as the Vernon-Seymour Local Street Bikeway**,** the Halifax Urban Greenway**,** a planned bikeway or multi-use pathway on Robie Street (Robie Street to Saint Mary’s campus), and the existing Sexton Campus multi-use pathway (Morris Street to Spring Garden Road on Dalhousie property).

Policy Rationale

The project supports the following HRM policies:

- Integrated Mobility Plan (IMP): University Avenue and Morris Street are identified as candidate bicycle routes designed to be suitable for riders of all ages and abilities (AAA). Proposed changes to the streets also support the complete street objectives of the IMP (Actions 31, 37-40, 72).
- Regional Municipal Planning Strategy: The proposed bikeway supports the Regional Plan's transportation objectives and modal share targets and the mobility objectives of the Centre Plan.
- Making Connections: 2014-19 Halifax Active Transportation Priorities Plan: University Avenue and Morris Street are identified as candidate bicycle route.
- HRM's Strategic Road Safety Framework: The proposed bicycling facility aligns with two of the seven "emphasis areas" in the plan: *bicyclist collisions* and *intersection related*. Protected bicycle lanes are one of the identified countermeasures in the plan.
- HalifACT: The proposed bikeways support HalifACT objectives related to decarbonizing transportation.
- Local Street Bikeway Administrative Order: The project followed the process to designate Local Street Bikeways as outlined in the Administrative Order.
- Halifax Common Master Plan: The proposed bikeway, sidewalk widening, and streetscape design guidelines support the Halifax Common Master Plan key considerations and policy directions pertaining to University Avenue.

Project Context

Figure 1: Planning Context – Proposed Regional Centre AAA Bicycle Network, Integrated Mobility Plan

Current Context of Peninsula South Study Area Streets

University Avenue

University Avenue is a 1.0km long collector street between Dalhousie University's Studley Campus and South Park Street. It has a 40-45m wide right-of-way and 15m treed median currently used as greenspace by healthcare workers, patients and students. University Avenue provides a unique experience within the Institutional District, connecting two Dalhousie campuses, the IWK Health Centre and the QEII Health Sciences Centre's VG site. Sidewalks are generally narrow relative to the high volume of pedestrians,

especially near Dalhousie buildings where footpaths are common adjacent to the sidewalk. Marked pedestrian crossings are infrequent across the median and dirt pathways at desire lines are often seen.

One-way buffered bike lanes are located on each side of the street between LeMarchant Street and Robie Street, and there were an average of 82 weekday one-way bicycle trips in 2023. One regular transit route (route 90) and nine express routes (routes 135, 136, 137, 138, 158, 159, 161, 165, 168A/B) run on University Avenue. Daily weekday transit ridership on University Avenue totals 766 passengers. University Avenue between LeMarchant Street and Robie Street is a planned BRT route. There are 98 on-street parking spaces between Robie Street and Cathedral Lane and the street carries daily traffic volumes of 3,000 vehicles/day west of Robie Street and 6,000 vehicles/day (2019) east of Robie Street.

Morris Street
Morris Street is a 0.83km long collector street between South Park Street and Lower Water Street that passes through the historic Schmidtville neighbourhood and connects to Saint Mary's Elementary School, Dalhousie's Sexton Campus and the southern end of downtown Halifax. Morris Street has a two-lane cross-section with sidewalks and treed boulevards on both sides of the street, approximately 55 mature street trees, and approximately 68 on-street parking spaces located mostly on the north side. The right-of-way abuts building fronts and has a varying width to as narrow as 18.0m. Morris Street is served by one conventional transit route (route 90), carries the same express routes as University Avenue (above) and sees 583 passengers each weekday. Traffic volumes range from 2000 to 5000 vehicles/day (2019).

Seymour Street
Seymour Street between University Avenue and South Street is approximately 160m long and classified as a local street. It has a curb-to curb width of approximately 9.0m with sidewalks on both sides, a treed boulevard on the west side, on-street parking, multiple driveways, and short-term parking (15 minutes) near the daycare on the south end of the street.

South Street, Cartaret Street and Oakland Road
The proposed South Street segment is only 50 metres. Cartaret Street and Oakland Road are primarily residential, have low traffic volumes, two-lane cross sections, no transit service, and serve predominantly residential land uses. Speed tables for traffic calming were installed on Oakland Road between Studley Avenue and Robie Street in 2021.

Robie Street
Robie Street between University Avenue and its southern terminus was part of the planning study, however changes for a bike route are not proposed at this time. It is not part of the proposed Regional Centre AAA Bikeway network and there needs to be additional planning considering bus rapid transit to determine a preferred facility for cycling.

DISCUSSION

Project Objectives and Scope
Objectives of the project include applying a "complete streets" approach to improving mobility for people travelling through the south end of the Halifax peninsula, with a focus on improving comfort, safety and convenience for people walking and cycling while also considering transit, accessibility, placemaking, emergency services, urban forestry, vehicle traffic, loading, parking and other factors.

A functional planning process was initiated in 2019 to help meet these objectives which included: connects the Halifax Urban Greenway to Lower Water Street, as well as Dalhousie University's three campuses and the hospitals along the way.

- connects University Avenue to the Saint Mary's University campus.

The project also included an objective to establish a common design vocabulary, or "District Identity," for University Avenue that reflects the unique character of the area and will shape future changes to the street. The deliverable for this objective, the *Peninsula South Streetscape Design Guidelines*, included as

Appendix A, includes a Vision Statement, Guiding Principles, landscape concepts for each University Avenue option, and proposed guidance on site furnishings and interpretation.

Planning Process, Concept Evaluation, and Recommended Concepts
The planning process included two rounds of public engagement, development and evaluation of concepts, significant internal and external stakeholder discussions, and the preparation of 30% drawings and cost estimates.

The study area, as shown in Figure 2, was divided into four segments for concept development and evaluation:

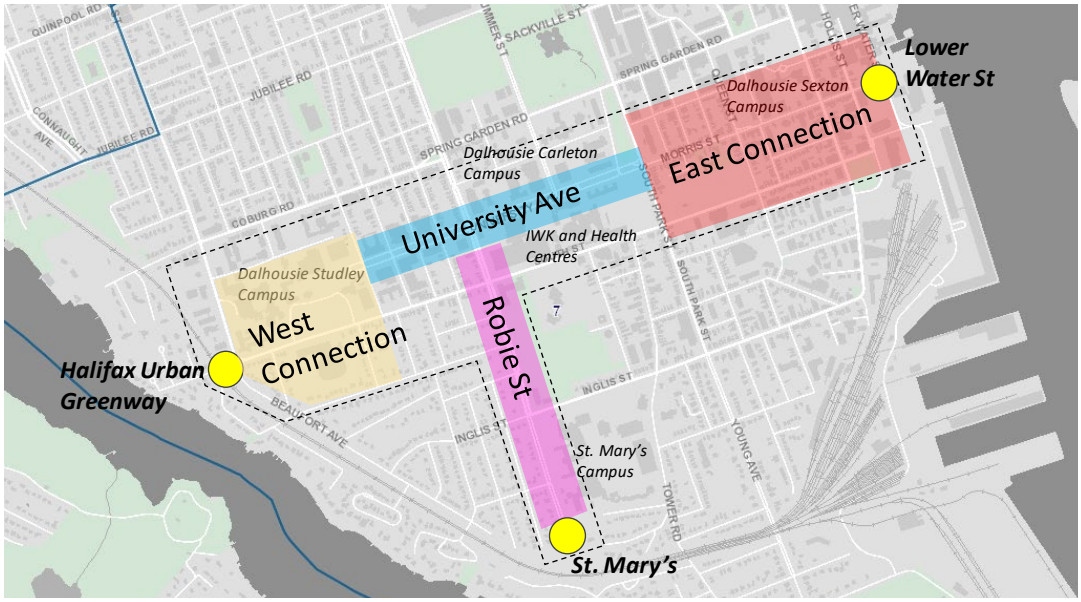
1. **West Connection**, between the Halifax Urban Greenway to University Avenue
2. **University Avenue** from LeMarchant Street to South Park Street
3. **East Connection**, from University Avenue to Lower Water Street; and
4. **Robie Street**, connecting University Avenue to Saint Mary's University campus

Evaluation Framework

An evaluation matrix was created to evaluate the concepts for each segment. The evaluation criteria and weighting are available in Appendix B. The evaluation criteria include:

- Pedestrian Movement and Safety
- Bicycle Movement and Safety
- Transit Service Accommodation
- Vehicular and Truck Traffic; Parking Supply; Loading Requirements
- Trees and Greenspace
- Fire and Emergency Services
- Property Requirements
- Capital Cost
- Public and Stakeholder Engagement
- Project Complexity & Constructability

Figure 2: Peninsula South Complete Streets Study Area



University Avenue Concepts

Three (3) concepts were evaluated for University Avenue:

- One-Way Raised Bicycle Lanes (Concept 2A)
- Two-Way Bikeway in Median (Concept 2B)
- Two-Way Bikeway North of Median (convert south side to two-way vehicle traffic) (Concept 2C)

More detail on Concepts 2A and 2C are available in Appendix B.

University Avenue Recommended Concept

Two-Way Bikeway in Median (Concept 2B) is the recommended concept for University Avenue. The following is an overview of the concept:

- Sidewalks would be widened on both sides of the street to provide widths of 2-3m. Existing boulevards would be maintained but narrowed.
- Designated pedestrian crossings would be added.
- A 3m two-way bikeway would be added to the center median.
- To minimize conflicts between cyclists and drivers, changes would be made at three intersections with local streets (Seymour Street, Henry Street, Edward Street) west of Robie Street to restrict vehicle movements across some, or all, of the intersections. Special consideration to enable emergency vehicle and Dalhousie University maintenance vehicle crossings will be part of the preliminary design phase.
- Existing on-street parking (east of Robie Street) would be maintained.
- Curbside space west of Robie Street could be reallocated for other uses with the removal of existing on-street bike lanes or could be used as on-street parking. The decision on how to reallocate space would be part of the preliminary design process.
- 23 of 326 street trees would be removed and replaced in the median or within the project area.
- The addition of traffic and bicycle signals would be considered for the University Avenue/Summer Street intersection.
- Bicycle signals would be added to signalized intersections where appropriate.
- “Placemaking” elements such as seating areas would be added.

Figure 5: University Avenue Concept 2B - Two-way Bikeway in Median (looking east from LeMarchant Street)

While all three concepts for University Avenue were roughly equal in their evaluation, the Two-Way Bikeway in Median option (Concept 2B) was slightly more preferred by 2022 survey respondents, and it was the top ranked concept following the final evaluation scoring.

Benefits of the University Avenue Two-Way Bikeway in Median (Concept 2B)

- Widened sidewalks
- Avoids conflicts with curbside loading and driveway access
- Wide buffer between bikeway and adjacent vehicle traffic
- Minimal impacts to transit, emergency services, and on-street parking
- Lowest cost and complexity of the three concepts. (see Table 1)

Table 1: University Avenue Concept Cost Estimates (with 35% contingency)

University Avenue 2A	University Avenue 2B	University Avenue 2C
$12.7 million	$8.6 million	$13.1 million

Key Implications of Recommended Concept 2B

Bicycle Level of Service

- People cycling to/from destinations on University Avenue would have to cross vehicle lanes from the median to start/end their trip.
- Potential conflicts with cyclists if people walk and roll in the median bikeway.

Impacts to the Urban Forest and Greenspace

- Removal of approximately 23 of 236 street trees would be required. Given that most of these are mature, it would be a greater than one to one replacement.
- Greenspace within the center median would be reduced. There would be potential for conflicts with cyclists and people using the space for leisure recreation.

Proposed University Avenue Median Restrictions

- Will result in increased u-turning traffic at LeMarchant Street and Robie Street.
- Reduced accessibility for general traffic and Dalhousie service vehicles resulting in longer, more indirect trips.

Dalhousie University's Position

Dalhousie University is a significant stakeholder for the project and has offered immediate and potential ongoing funding for the Two-Way Bikeway North of Median option (Concept 2C). This option is consistent with Dalhousie's 2010 Campus Master Plan and University Avenue Renewal Plan. Dalhousie has offered $600,000 as a contribution to the capital project and future contributions to public realm improvements in front of their buildings as funds become available if Concept 2C is implemented.

Initially, in fall 2022, Dalhousie preferred the One-Way Raised Bicycle Lanes (Concept 2A) option but changed their position in February 2024. HRM has considered how the recommended Two-Way Bikeway in Median (Concept 2B) could be enhanced to address Dalhousie's interest in gathering space in front of the Dalhousie Arts Centre and other gathering spaces for students and staff, as well as how impacts to Dalhousie operations from the proposed median closures could be mitigated. HRM intends to share these with Dalhousie and collaborate with Dalhousie on the preliminary design process.

East Connection Concepts

Ten (10) concepts along three (3) routes were developed and evaluated for the East Connection. Morris Street is the desired bikeway connection as per the IMP and AT Priorities Plan, but alternative routes following South Street and Clyde Street to Bishop Street through Dalhousie's Sexton Campus were also investigated given the significant trade-offs involved with Morris Street. The East Connection concepts evaluated were:

- Morris Street Two-way Raised Bikeway and Two-way Traffic with narrower vehicle lanes (Concept 1)
- Morris Street Two-way Raised Bikeway and One-way Traffic (Concept 1A)
- Morris Street Two-way Raised Bikeway and Two-way Traffic (Concept 1B)
- Morris Street One-way Raised Bicycle Lanes and One-way Traffic (Concept 1C)
- Clyde Street Raised Bikeway (4 options) with Sexton Campus Local Street Bikeway and with Bishop Street Raised Contra-flow Bicycle Lane (westbound) and Shared Lane (eastbound) (Concept 1D)
- South Street One-way Raised Bicycle Lanes or Two-way Raised Bikeway with Two-way Traffic (Concept 1E)
- Two Street Bikeway Couplet Concept: Morris Street One-way Westbound Bicycle Lane with Clyde Street One-way Eastbound Bicycle Lane or with South Street One-way Eastbound Bicycle Lane

There is additional information on the East Connection Concepts in Appendix C.

Prior to Phase 2 public engagement, Concepts 1B, 1C, 1D, and 1E were eliminated from further consideration due to severe tree and parking impacts, relatively low scores, and/or the inability to meet the AAA objectives of the project due to significant constraints such as the steep 12% grade on Bishop Street between Hollis Street and Lower Water Street. A version of Concept 1 with a non-standard narrower curb-to-curb width was investigated, but not retained due to concerns about the emergency response impact.

Concept 1A emerged as the only option that would achieve the AAA bikeway objective of the project while minimizing impacts to mature trees and it was shared with the public for feedback in summer 2022.

East Connection Recommended Concept

Two-way Raised Bikeway and One-way Eastbound Traffic on Morris Street (Concept 1A) is the recommended concept for the East Connection. The following is an overview of the concept:

- 1.8m Sidewalks would be maintained on both sides and widened to 2.0m where space permits.
- A 3m two-way raised bikeway would be added to the north side of Morris Street between the traffic lanes and treed boulevard.
- Motor vehicle traffic flow would be converted to one-way eastbound for the full length of Morris Street.
- All existing Halifax Transit routes and other planned routes would likely be rerouted.
- Up to 4 of 55 street trees would be removed and replaced on Morris Street or within the study area.
- An alternative truck route is recommended to replace Morris Street as a westbound secondary daytime truck route (see *Truck Route Impacts* section for more information).
- The Morris Street / Queen Street intersection would be redesigned and with proposed addition of traffic and bicycle signals.
- On-street parking would be maintained on the south side of Morris Street, with a net loss of five parking spaces. There would be no stopping on the north side of the street except for approximately six spaces near South Park Street.
- Three loading zones would accommodate student drop-off/pick-up at Saint Mary's Elementary School, an Access-a-Bus stop at Spencer House, and commercial/residential loading between Barrington Street and Hollis Street.

Figure 6: Morris Street Concept 1A - Two-way Bikeway with One-way Traffic (looking east)

Benefits of the Morris Street Two-Way Bikeway and One-Way Traffic and Parking (Concept 1A)

- Achieves a direct and continuous (with University Avenue) bicycle route with average grades of 5% or less.
- Bicycle-vehicle conflicts with the two-way bikeway are reduced with conversion to one-way vehicle traffic.
- A wide treed and grass buffer separates the bikeway from the sidewalk.
- Removal of the right turn channel at Queen Street shortens the pedestrian crossing distance and reallocates space to the pedestrian realm and off-street bikeway.
- Maintains existing location of south side curb to minimize impacts to mature trees.
- Most on-street parking and three loading zones are maintained.

Key Implications of Recommended Concept 1A

Impacts to Transit Service

- Halifax Transit's route network for the area would be re-examined, and public consultation would be undertaken to determine routing changes.
- It is likely that the route network in the immediate area would undergo significant changes, which may have broader impacts through the network.
- It is expected that all transit service on Morris Street would be removed. Although it is possible to operate service in one direction, with the other direction running on a parallel street, due to the limited street options and block sizes in the area, that would not be recommended in this case.
- It is possible that routing changes would also see the removal of transit service on University Avenue, in addition to Morris Street.
- The Morris Street and University Avenue corridor currently serves as an important transit corridor for passengers and provides direct access to thousands of employment opportunities at the university and health care facilities along those streets.
- The Route 90 is an important and high ridership route in the transit network. Options for re-routing would include Spring Garden Road and South Street. However, the various transit routes function as a network to provide travellers with options. Relocation to Spring Garden Road would result in further redundancy with the Route 8, which like the Route 90, travels on the Bedford Highway to this area. As such, broad consideration needs to be given to how the routes interact and function, which may result in changes that impact large numbers of passengers.
- Spring Garden Road east of South Park Street currently experiences approximately 6,000 vehicles per day, including 850 Halifax Transit buses. Bus Rapid Transit is also proposed for Spring Garden Road in the future. The addition of more transit service, specifically nine additional express routes at peak times, may result in operational challenges and delays for passengers.
- Relocation to South Street may be preferable but is also likely to bring passengers further from their destinations.
- Morris Street would not be available as a westbound detour route for buses.

- Permanent changes to service would be planned and included in a future transit service plan.

Impacts to Truck Routes

- Conversion of Morris Street to one-way eastbound would require that an alternative truck route be identified for westbound truck movements when Lower Water Street is unavailable. An assessment of alternative truck routes considered two conditions:
  - An alternative truck route for routine heavy truck traffic (e.g., typical tractor trailer)
  - An alternative truck route for special (oversized) moves
- Based on the assessment of alternative routes, Inglis Street is the recommended alternative outbound route for routine truck traffic to replace westbound Morris Street. The alternative route from the port, would follow Terminal Road, Hollis Street, Barrington Street, Inglis Street, and Robie Street. While Inglis Street is already a daytime truck route, the others are already fulltime truck routes. A change to the median on Robie Street at Inglis Street would be required to accommodate truck turns.
- There is no easy alternative for the accommodation of oversized loads, and it is difficult to assess the geometry of alternative routes given the variability in oversized load sizes and carrier configurations.
- It would be technically feasible to continue using Morris Street for westbound special moves as the entire street could be shut down to traffic to accommodate the move. However, this would be logistically challenging, complex, and costly.

Impacts to Traffic Capacity and Network

- Converting Morris Street to one-way eastbound is a significant change to the vehicular street network, resulting in one fewer westbound route for drivers.
- The conversion would result in diversion of traffic to adjacent streets such as South Street, Clyde Street, Terminal Road, as well as into the residential areas of Dresden Row, Birmingham Street and Brenton Street.
- One-way eastbound on Morris Street is acceptable for Halifax Fire and Emergency Services.
- Traffic analyses concluded that there is sufficient capacity along alternate routes in the vicinity of Morris Street to allow for its conversion to one-way eastbound operation. The analysis assumed the transit-only pilot project on Spring Garden Road would be in place, restricting access for private vehicles between South Park Street and Queen Street from 7am to 8pm every day, which further limits vehicle circulation options. With both of these changes in place, the surrounding road network was still shown to operate at or above target levels of service for intersections within the Regional Centre.
- Sensitivity testing of the vehicle volumes to add an additional 10% to account for COVID-19, seasonal fluctuations and potential future growth in demand for driving showed that some operational issues may arise at the unsignalized intersections at Barrington Street/South Street and Spring Garden Road/Brunswick Street. An option to add signals to these intersections would be considered during the preliminary design phase and would increase estimated costs.

West Connection Concepts

Four (4) concepts along three (3) routes were developed for the West Connection. The West Connection concepts were:

- South Street Two-way Raised Bikeway (Concept 3A)
- Cartaret Street and Oakland Road Local Street Bikeway (Concept 3B)
- South Street Off-Street Multi-Use Pathway (Concept 3C)
- Studley Campus Multi-Use Pathway (Concept 3D)

Concept 3D was not advanced to the functional design or evaluation stage as the University's Campus Master Plan includes a project that could conflict with the proposed multi-use pathway routing. Also,

implementation of the Master Plan over several years would likely have delayed construction of an AT facility for this segment.

Prior to Phase 2 public engagement, Concept 3C was eliminated from further consideration given it's relatively low ranking compared to Concepts 3B and 3A and a key concern being the mixing of high volumes of pedestrians with cyclists on a multi-use pathway along South Street between Seymour Street and Oxford Street.

Both LeMarchant Street and Seymour Street were reviewed as potential routes for linking the West Connection to University Avenue. Seymour Street was identified as the preferred route as it aligns with the existing Vernon Street Local Street Bikeway and avoids the heavier transit activity on LeMarchant Street. Three possible cross sections were considered for Seymour Street between University Avenue and South Street:

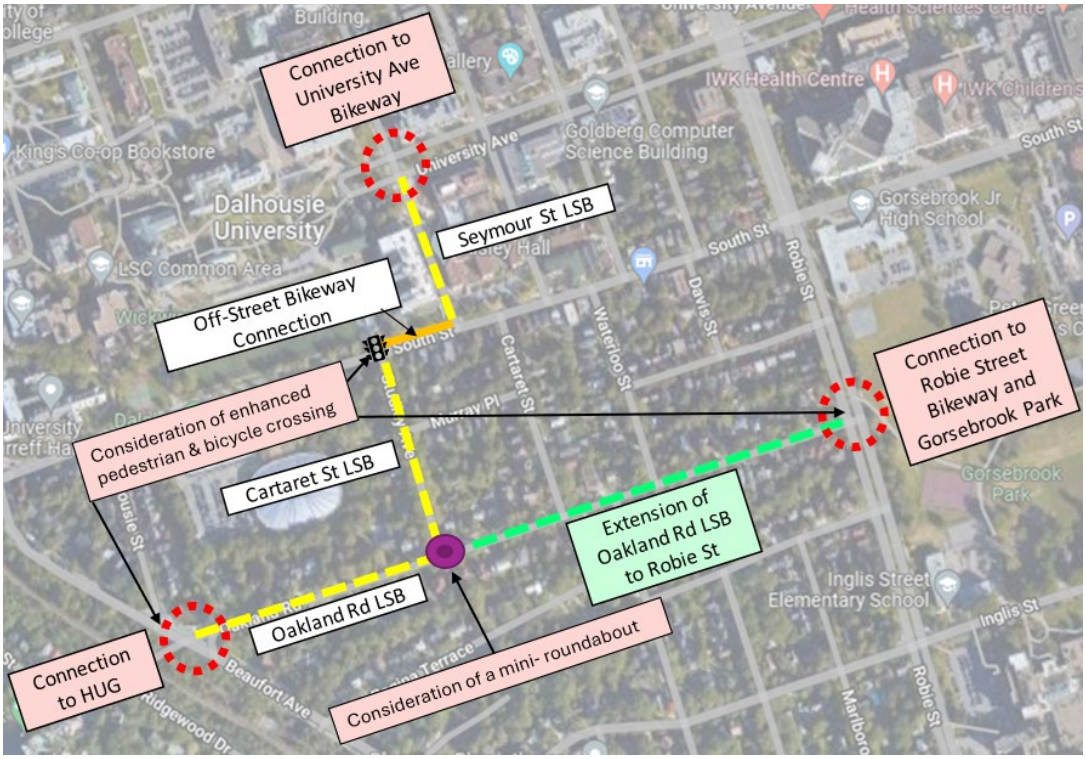
1. Local Street Bikeway
2. Two-Way Bikeway with Two-Way Traffic
3. Two-Way Bikeway with One-Way Traffic

Recommended Concept for the West Connection
Cartaret Street and Oakland Road Local Street Bikeway with an extension of the Seymour Street Local Street Bikeway to South Street (Concept 3B) is the recommended concept for the West Connection. Although this route is less direct than South Street, it does satisfy the objective to connect the Halifax Urban Greenway to University Avenue and can be implemented at lower cost compared to Concept 3A. Concept 3B was preferred by survey respondents over Concept 3A (58% and 43%, respectively).

The following is an overview of the concept:

- Travel lanes on Seymour Street, Cartaret Street, and Oakland Road would be shared between motorists and cyclists.
- A short section of protected two-way bikeway would be added to the north side of South Street to connect Cartaret Street to Seymour Street.
- Wayfinding and pavement markings would be installed to identify the route.
- Traffic calming features would be further considered during the preliminary design phase. Speed tables have already been installed on Oakland Road.
- Additional marked crosswalks and / or enhanced crossing treatments to prioritize people walking and cycling would be further considered at South Street/Cartaret Street, Oakland Road/Robie Street, and Dalhousie Street/Beaufort Avenue during the preliminary design phase.

Figure 7: Seymour Street–Cartaret Street–Oakland Road Local Street Bikeway (Concept 3B)



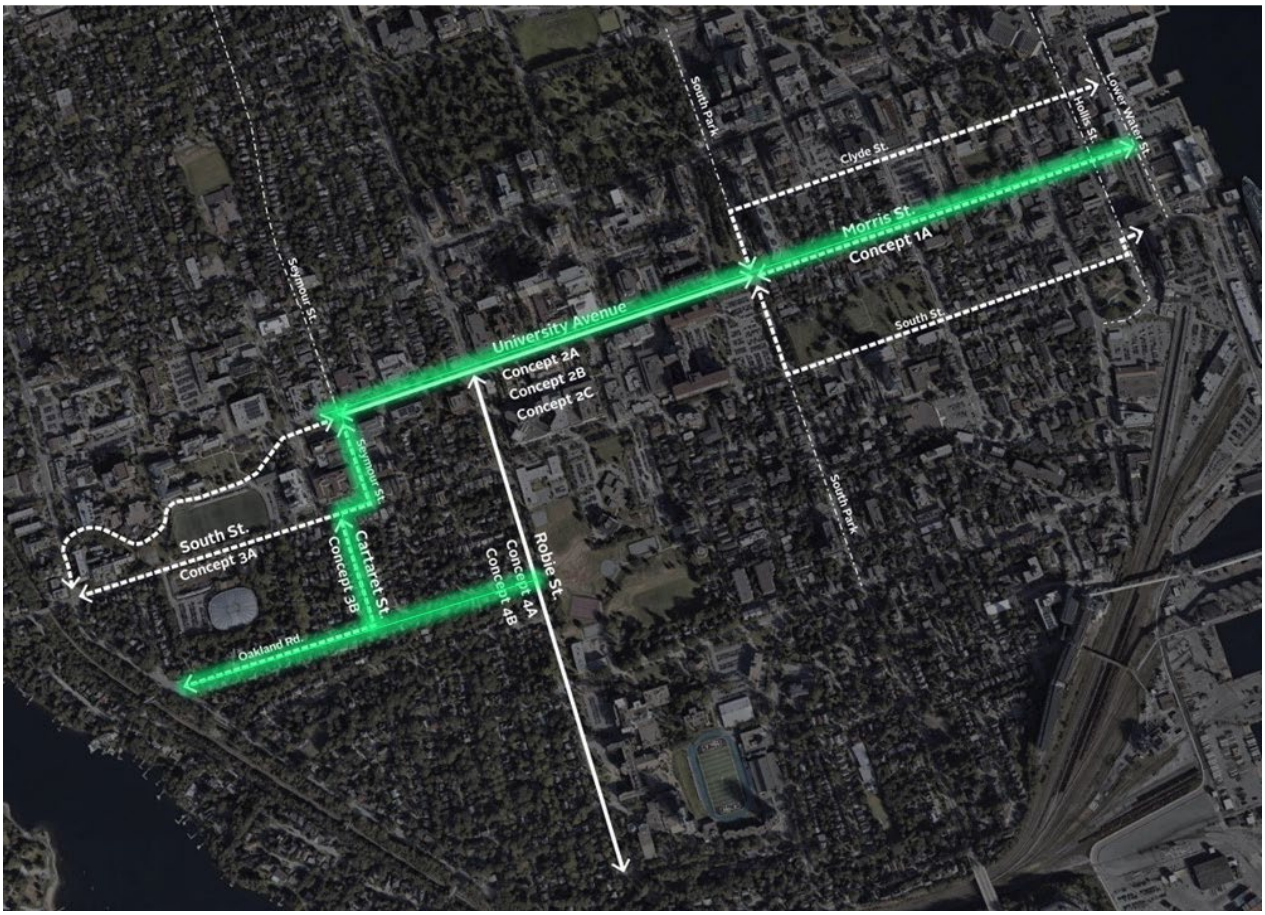
Benefits of the Cartaret Street and Oakland Road Local Street Bikeway (Concept 3B)

- AAA bicycle route connecting to the existing Halifax Urban Greenway would be achieved with minimal impacts to trees, transit service, vehicle traffic, and on-street parking.
- Extending the proposed Oakland Road Local Street Bikeway to Robie Street would provide an AAA cycling connection to the planned cycling facility on Robie Street and a connection to the planned gateway entrance to Gorsebrook Park at Robie Street/Oakland Road

Robie Street Concepts

Staff are not proceeding with a recommended concept for the Robie Street segment at this time as HRM is initiating preliminary design of transit lanes on Robie Street from Cunard Street to Inglis Street. The scope of the transit priority project includes consideration of AT facilities between University Avenue and Inglis Street. The functional planning work completed for Robie Street as part of the Peninsula South Complete Streets project will inform the transit priority design process.

Figure 8: Recommended Concepts for University Avenue, West and East Connections



Note the recommended options in this report represent a 30% design, which could be modified during preliminary and detailed design. Any changes to the right-of-way that do not meet HRM's Municipal Design Guidelines would require approval from the Municipal Engineer.

Implementation

A more focused implementation plan will be devised following a decision by Regional Council. The Morris Street-University Avenue corridor is due for more significant recapitalization of pavement, curb, sidewalk and related infrastructure. Adding the proposed bicycle infrastructure in conjunction with this recapitalization would offer overall savings in time, money, and disruption. Full recapitalization of the University-Morris corridor would take approximately two to three years and the goal is for this work to take place before 2028. If there is an opportunity, more immediate tactical changes would be explored.

Planning for and implementing the other changes required for this project also need to be factored. This includes the time required for Halifax Transit to plan and implement changes to their services on Morris Street and in the area and to prepare for the changes to the vehicle network and truck routes.

Implementation would include ongoing monitoring of utilization of the new facilities, as well as promotion and education on how to navigate the changes from the perspective of various users.

As well, there will be other municipal plans that will be factored in implementation such as the soon-to-be-updated Urban Forest Management Plan and the Halifax Commons Master Plan.

FINANCIAL IMPLICATIONS

Capital

The class C cost estimates (which include 35% contingency) for construction of the recommended pedestrian and bicycle infrastructure and associated changes to the rights-of-way are as follows:

- University Avenue Concept 2B: $8.6 million (including net HST)
- Morris Street Concept 1A: $5.1 million (including net HST)
- Seymour Street-Cartaret Street-Oakland Road Local Street Bikeway (Concept 3B): $1.2 million (including HST)

These projects are included in the HRM Capital Budget Plan and will be funded from Capital Project Account No. CR200007-Reginal Centre AAA Bikeways. As detailed design proceeds the Budget Plan will be adjusted to reflect the most up to date costs.

Regardless of the proposed changes described above in the Discussion section, several of the candidate streets are due for rehabilitation of sidewalk, curb, and asphalt and the goal would be to integrate construction of the recommended concepts with this work. Estimates for the cost of the rehabilitation work are as follows:

- University Ave: $1.7 million (including net HST)
- Morris Street: $1.4 million (including net HST)

The rehabilitation work will be funded from Capital Project Account No. CR200006-Street Recapitalization, these costs are included in the HRM Capital Budget Plan.

	2025/26-Budget	2026/27-Budget	2027/28-Budget	Total
Total CR200007- Regional Centre AAA Bikeways	$ 13,500,000	$ 11,000,000	$ 13,700,000	$ 38,200,000
Implementation of Peninsula South Complete Streets: University Avenue and West and East Connections (Net HST Included)				$ 14,900,000

	2025/26-Budget	2026/27-Budget	2027/28-Budget	Total
Total CR200006- Street Recapitalization	$ 58,920,000	$ 64,205,000	$ 64,205,000	$ 187,330,000
Estimated rehabilitation work cost (Net HST Included)				$ 3,100,000

Operating

The estimated annual operating cost for year-round maintenance of the proposed 1.9 km of protected bicycle facilities is approximately $21,000 which is estimated to start in fiscal 2027/28. Most of this cost is for snow clearing. There would be no additional cost for winter maintenance for the local street bikeway segments as the proposed treatment is shared lanes and the current approach to snow clearing could continue. There are also additional operating and maintenance costs associated with pavement markings, signage, pedestrian signals, and traffic signals.

RISK CONSIDERATION

This section identifies safety and maintenance risks and how they are being managed. These include: Overall risk to vulnerable road users. This is being managed by having protected bike lanes, intersection treatments and design that accommodates vulnerable road users.

There is a risk to the resilience of the roadway network due to the conversion of Morris Street to one-way. With reduced capacity for west-bound traffic more cars on area local and collector streets is anticipated.

COMMUNITY ENGAGEMENT

Stakeholders and the public were invited to learn more about the project and provide their feedback on the complete street concepts. Information about the project is available on the Halifax.ca website at: www.halifax.ca/transportation/cycling-walking/expanding-network/regional-centre-bikeway-update#PeninsulaSouthCompleteStreets

Additional information, including the Phase 1 and 2 *What We Heard* summary reports and links to four short videos explaining the project, are available on the Shape Your City project page: www.shapeyourcityhalifax.ca/peninsula-south-complete-streets

Peninsula South Complete Streets Summary of Community Engagement
Phase 1 engagement spanned October and November 2019 and activities included two community workshops, five pop-up sessions, an online survey, and an interactive map. The focus of phase 1 engagement was learning about participant's experiences travelling through the study area and exploring their vision for the ideal future experience. Four primary themes emerged from these discussions: parking & conflict mitigation; safety & accessibility; and, place, trees & placemaking. More detail on the outcome of phase 1 engagement is available in the summary report on Shape Your City (see link above).

Phase 2 engagement spanned July 7 to August 17, 2022, and activities included virtual small group discussions, in-person pop-up sessions, an online survey, and an online interactive map. To visualize and communicate the complexities and trade-offs between the proposed concepts, 3D animations and renderings were developed and used to prepare four short videos. Over the course of the engagement activities, there were more than 9000 interactions with the project. This included:

- 46 registered participants in two small group discussions
- More than 20 participants at two in-person pop-up engagement sessions
- 17 e-mail submissions
- 281 responses to the online survey
- 8618 visits to the online map, made by 3411 unique participants who left a total of 627 comments

Survey respondents were asked to rank their preference for the concepts for each segment – see the appendices (B, C, D) for the results. In considering all the feedback gathered throughout Phase 2 public engagement, six primary themes and four secondary themes emerged. The primary themes are connectivity, intersections, parking and loading, safety and accessibility, street design, and trees and greenspace. For more detail on the themes, refer to the phase 2 What We Heard summary report.

As per Administrative Order 2016-002-OP Respecting the Implementation of Local Stret Bikeways, property owners and residents of candidate local street bikeway streets were notified by addressed mail in July 2022 of the changes being considered for their streets and how they could provide feedback through the various phase 2 engagement activities.

Additional feedback was submitted by Dalhousie University, Saint Mary's University, and Nova Scotia Health in September 2022 and is summarized in the Phase 2 Supplementary Report.

In addition to the activities described above, institutional and community stakeholders were also engaged through the project Advisory Committee, which met four times from late 2019 through late 2020. Committee members included representatives of the universities, hospitals, local business associations, AT advocacy organizations, and neighbourhood associations, among others.

ENVIRONMENTAL IMPLICATIONS

This project is supportive of the sustainability objectives of the municipality as it aims to make it safer and more comfortable for residents to choose sustainable transportation options for everyday transportation purposes.

ALTERNATIVES

The Transportation Standing Committee could choose to recommend that Regional Council not proceed with some or all the proposed bikeways due to the implications described above. Transportation Standing Committee could also recommend that Regional Council:

1) For University Avenue, proceed with Concept 2C to satisfy Dalhousie University's request. This could mean higher costs and project complexity but would still achieve the objective of an AAA bicycle facility.
2) For the East Connection, not approve Morris Street Concept 1A and direct the CAO to undertake further design and engagement on one, two, or all of the following:
    a. The Clyde Street-Sexton Campus-Bishop Street corridor, accepting that it would not achieve the desired All Ages and Abilities connection;
    b. A two-street bikeway couplet with a westbound bikeway on Morris Street and an eastbound bikeway on a parallel street such as South Street. This option would enable retaining two-way vehicle traffic and transit services on these streets but would separate the bike route;
    c. A two-way bikeway while maintaining two-way traffic on Morris Street and a minimum 8m curb-to-curb dimension, accepting the removal of most mature trees with limited space for replanting and the removal of most on-street parking.
3) For the East Connection, given the multiple challenges and trade-offs, not proceed with building an east-west connection for this part of the AAA bicycle network.
4) For the West Connection, proceed with the South Street Two-Way Raised Bikeway (Concept 3A), accepting the tree and parking impacts and higher cost.
5) For the West Connection, not proceed with implementation and determine a west connection at a future date.

LEGISLATIVE AUTHORITY

Motor Vehicle Act, R.S., c. 293, as amended:
90 (3) The traffic authority may also mark lanes for traffic on street pavements at such places as they may deem advisable, consistent with this Act and may erect traffic signals consistent with this Act to control the use of lanes for traffic.

Halifax Regional Municipal Charter, S.N.S. 2008, c. 39
322(1) Council may design, lay out, open, expand, construct, maintain, improve, alter, repair, light, water, clean and clear streets in the Municipality.

Administrative Order One, the Procedures of Council Administrative Order,
Schedule 7, Transportation Standing Committee Terms of Reference:

7 The Transportation Standing Committee shall… (b) promote and encourage the Municipality's Active Transportation corridor initiatives which supports the overall Transportation Strategy as outlined in the Regional Plan.

ATTACHMENTS

Attachment A: Peninsula South Streetscape Design Guidelines
Attachment B: Additional Information on University Avenue
Attachment C: Additional Information on the East Connection
Attachment D: Additional Information on the West Connection
Attachment E: Appendix E from the Active Transportation Priorities Plan

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Report Prepared by: Mark Nener, Supervisor, Active Transportation Planning, Project Planning and Design, 902.490.8474

COMPLETE STREETS PROJECT

PENINSULA SOUTH

Streetscape Design Guidelines

November 2022

UPLAND

TABLE OF CONTENTS

01 INTRODUCTION

The **Peninsula South Complete Streets Project** is a functional planning study considering design options for all ages and abilities (AAA) bicycle facilities with a "complete streets" approach along two corridors within the Halifax Peninsula:

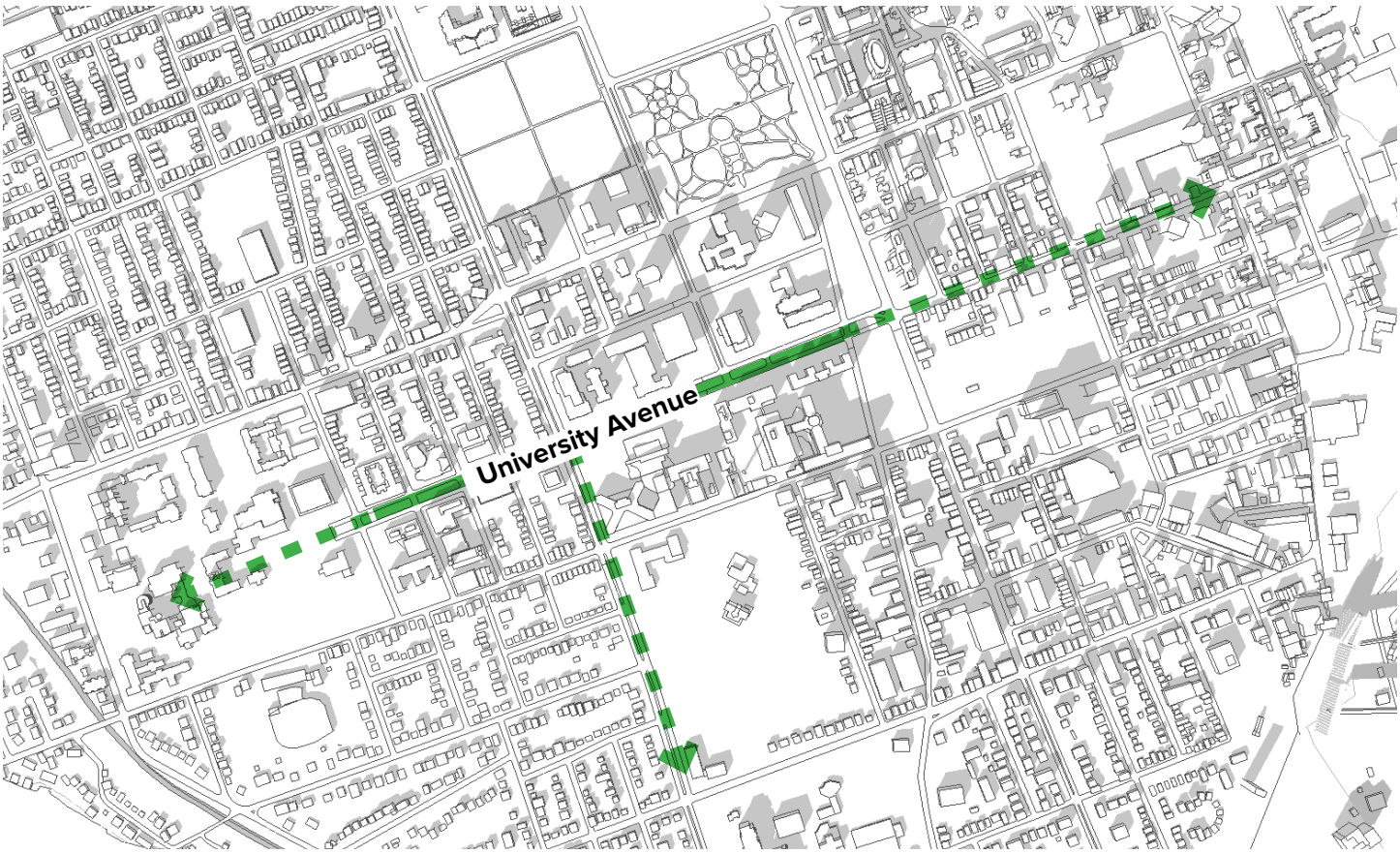
- University Avenue/Morris Street corridor from Dalhousie University's Studley campus to Lower Water Street.
- Robie Street from University Avenue to Saint Mary's University.

As a component study, the **Streetscape Design Guidelines** specifically focuses on public realm improvements on University Avenue. The purpose of these Guidelines is to link the functional planning aspects of the Project to public realm enhancements that would round out the 'complete streets' approach by considering the corridor's role as a 'place' as well as mobility 'link'. The overall goal is to reflect the unique district identity and strengthen University Avenue's role as one of Halifax's most prominent street corridors and a key parkway traversing the historic Halifax Common.

STUDY AREA

The Study Area below shows the project limits for both the Complete Streets Project (green dashed line), and the University Avenue project area for the Streetscape Design Guidelines (green solid line). Specifically, the public realm design development of this document focuses on one sample block of University Avenue between Lemarchant Street and Seymour Street. It is anticipated that the design principles of this sample block can be replicated along the entire length of University Avenue, with modifications that respond to the needs of the abutting institutions on each block.

DESIGN GUIDELINE SAMPLE BLOCK



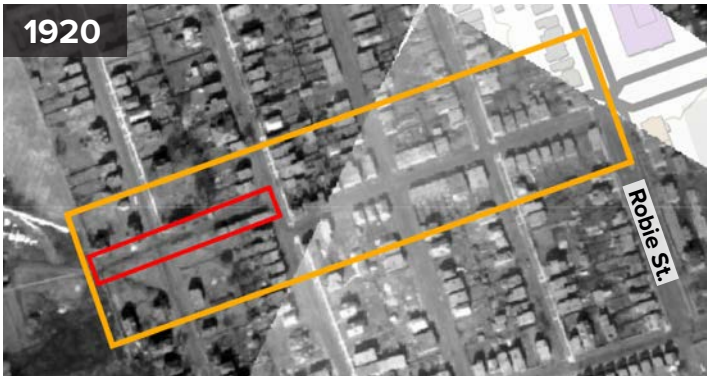
STUDY AREA

BRIEF HISTORY

As significant changes to the function and appearance of University Avenue are considered as part of the Peninsula South Complete Streets Project, understanding and respecting the history of the street's evolution are key to making design decisions impacting its role within Halifax's urban fabric.

The grand boulevard, as University Avenue is experienced today, is the outcome of over four decades of careful planning and rigorous efforts that transitioned an 1880s unpaved narrow road to a wide avenue and front door to some of Halifax's most prolific institutions.

Around 1865, the area west of Robie Street was largely unoccupied and the lands that eventually became the Dalhousie Studley Campus were privately owned. Morris Street terminated at Robie Street and was not yet connected to the street network further west.

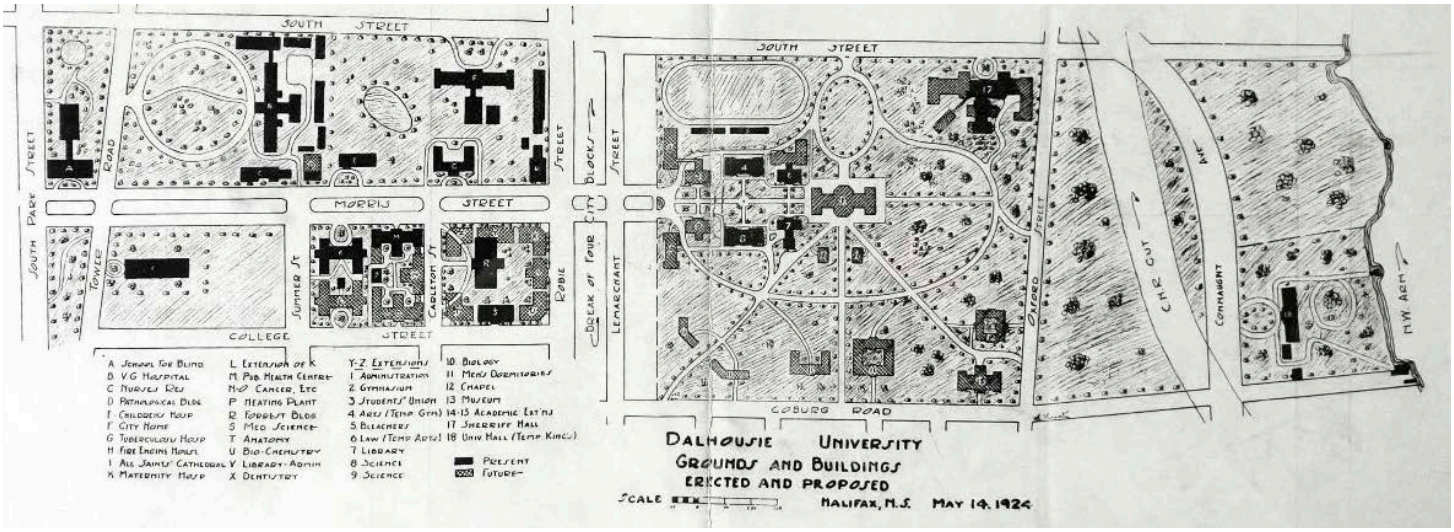


In 1911, City Council proposed the new median option for University Avenue and in response, the Dalhousie College Board of Governors hired a landscape architect to layout the new property with "due regard to the considerations of economy and of beauty" (Dalhousie Presidents Office, 1959).

The 'Grand Boulevard' began to take shape by the early 1920s with the first section between Seymour Street and Lemarchant Street (marked in red). Most of the streets in this area were still unpaved until 1921. Paving would happen sometime between 1921 and 1931.

It took considerable efforts, correspondence and negotiations between the City, Dalhousie University concerned citizens and abutting property owners to eventually realize the vision of the 'Grand Boulevard'.

By 1931, the University had begun planning new buildings along University Avenue. By 1947, much of the property expropriation had ensued, and the road work was in progress. On October 12th, 1948, final approval was granted to commence the layout of the roadway, including the broad central median.



1924 - The proposed layout of Dalhousie University depicting the intention of the 'Grand Boulevard'.

1950 - The median is beginning to take shape (with one remaining building in it's way). Sidewalks were being laid out and the shape of the area was beginning to form.

1954 - A total of 19 substantial buildings exist on the campuses, compared to the single non-wooden structure which existed there in 1912.

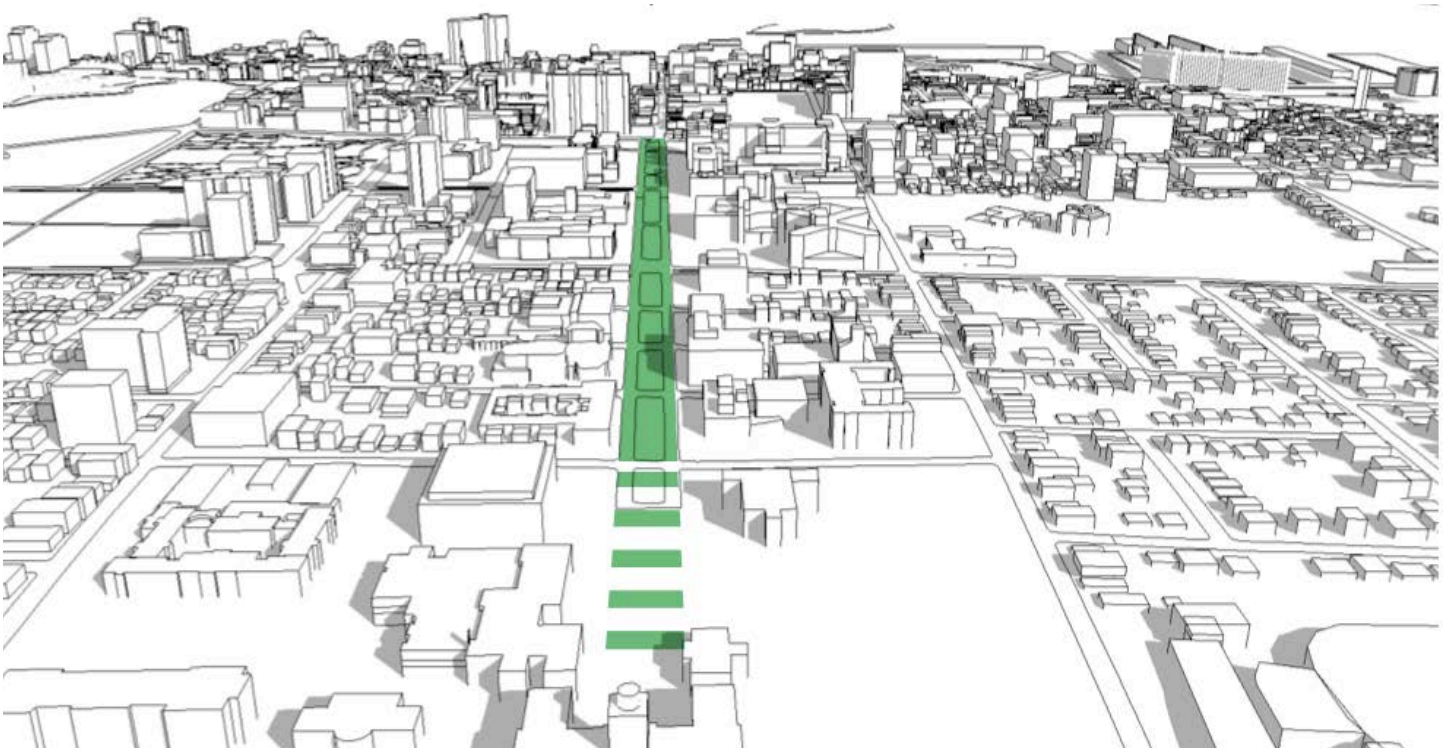
1960 - With the median and roadwork completed, the University began creating concepts for how it would eventually be laid out.

1982 - Dalhousie interim plans in the 1970s would see the median whittled down to make room for additional buildings. However, this wasn't realized and throughout the 1980s and until today, University Avenue continued to play a central role as visual axis of the campus.

02 VISION STATEMENT

The vision and guiding principles are intended to convey the strategic direction, goals, values and focus upon which public realm decisions are made for University Avenue. The vision identifies a shared concept of future outcomes, and the guiding principles articulate a series of criteria to which the plans and future actions should adhere.

The legacy and historic significance of University Avenue as a “grand boulevard” will be safeguarded while it transitions into its next chapter as a complete street. While continuing to serve a range of modes of transportation, it will provide an inviting open space to serve the contemporary needs of Halifax’s residents, and a welcoming foreground to three major institutions.



GUIDING PRINCIPLES

1. **Multi-Modal Transportation:** Prioritize the movement of people walking, rolling, and cycling while accommodating the needs for vehicular, transit, emergency and loading access.

2. **Public Realm and Open Space:** Create an attractive, inspriring and well maintained public realm that maximizes the potential of publicly owned lands and relates to the function of various buildings lining the corridor.

3. **Inclusivity:** Enable access, participation, mobility and the enjoyment of public space across all ages and abilities.

4. **History and Legacy:** Safeguard the character of the grand boulevard and its role in framing the built heritage along the street.

5. **Legibility:** Maintain visual connectivity and coherence between the bookends of University Avenue.

6. **Interpretation:** Celebrate the cycle of life as it takes place at University Avenue's institutions from birth through education to the end of life with subtle and respectful means of interpretation in the public realm.

03

CONCEPT DEVELOPMENT

The functional design phase of the Peninsula South Complete Streets Project has resulted in three distinct options for the University Avenue portion of the corridor.

- **Concept 2A** locates unidirectional bicycle lanes beside existing sidewalks along the edge of the street.
- **Concept 2B** locates a bidirectional bikeway in the grassed centre median of the street.
- **Concept 2C** locates a bidirectional bikeway in the westbound traffic lanes of the street and converts the southern travel lane into a two-way travelway for vehicles.

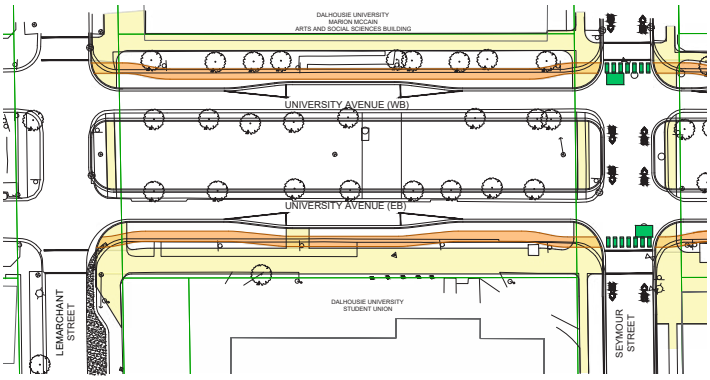
The public realm design guidelines further develop one sample block of University Avenue between Lemarchant Street and Seymour Street into illustrated plans depicting tree planting, hardscapes, street furniture and lighting options. Conceptual renderings and a proposed street furniture catalogue conclude the proposed guidelines.

The functional design options 1 and 3 necessitate a certain amount of tree removal in the median. Removed trees would be replaced in equal or greater number.

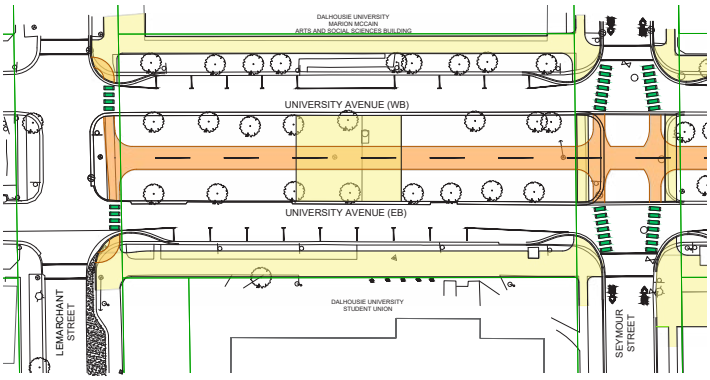
The purpose of these guidelines is:

- To suggest treatments (materials, furnishings, lighting) for the enhancement of public space along the corridor for HRM's consideration.
- To illustrate how these treatments can be applied to enhance the street as place, in addition to it's function as a link.

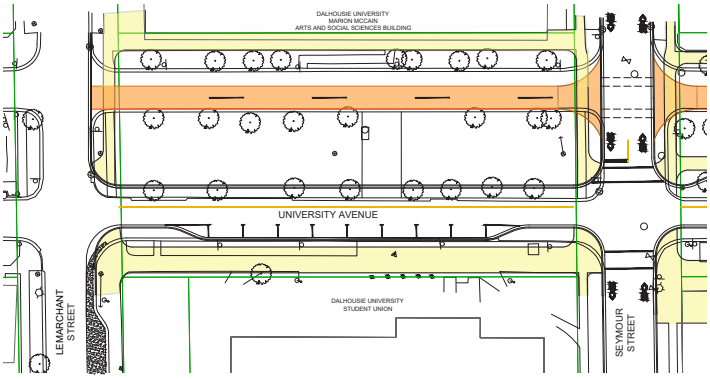
FUNCTIONAL DESIGN CONCEPTS



FUNCTIONAL DESIGN - CONCEPT 2A



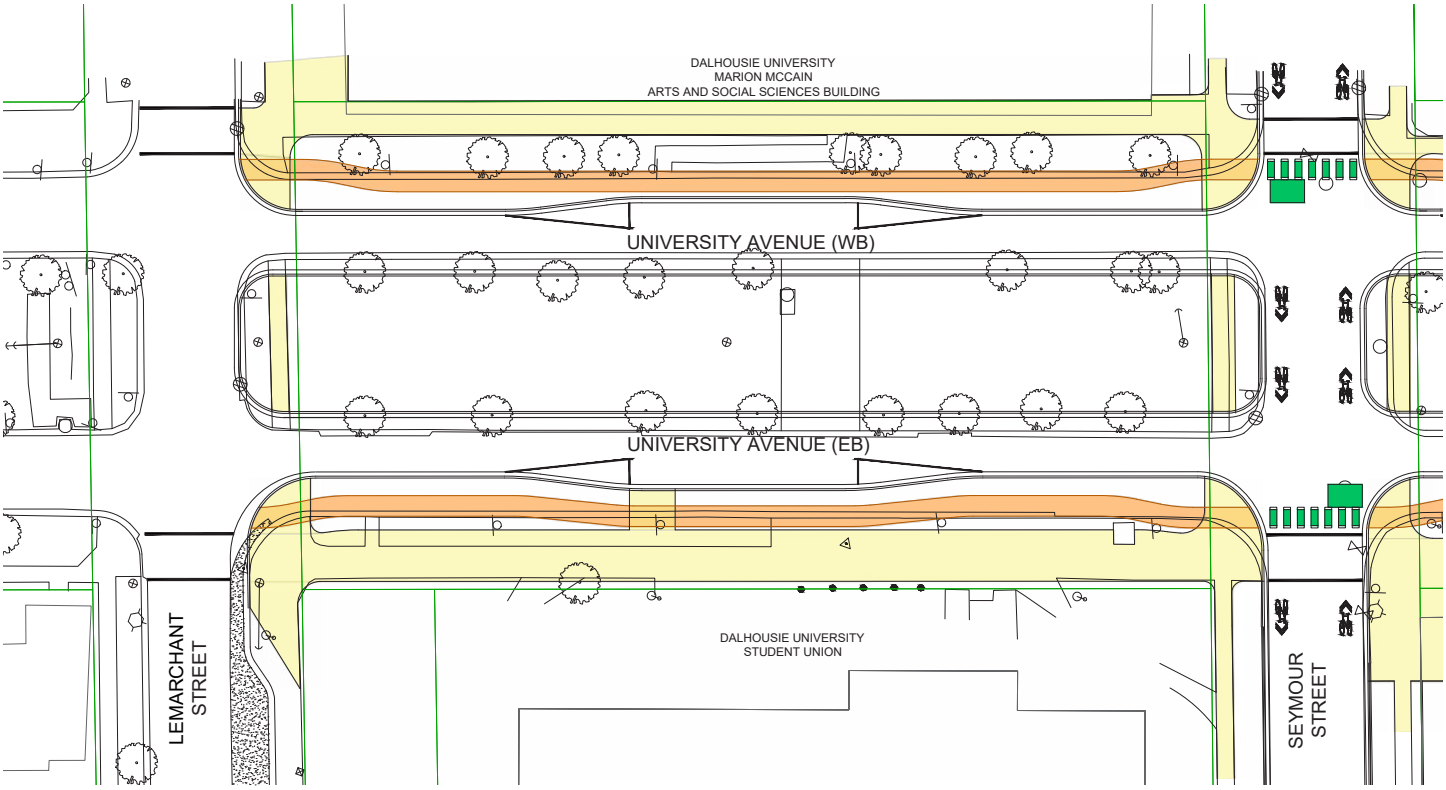
FUNCTIONAL DESIGN - CONCEPT 2B



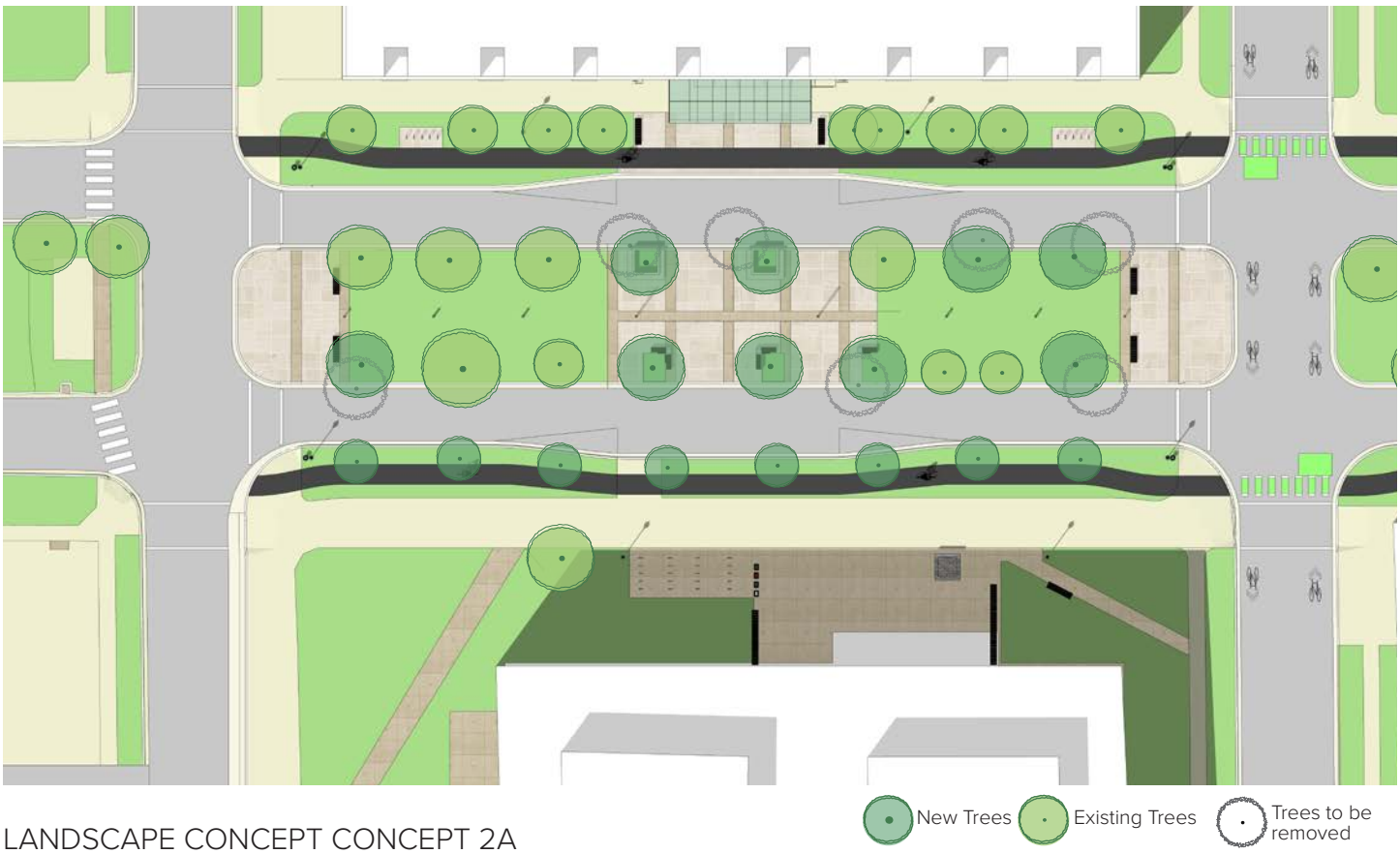
FUNCTIONAL DESIGN - CONCEPT 2C

- To show how treatments can relate to the function of various buildings by providing space for gathering, contemplation, interpretation.

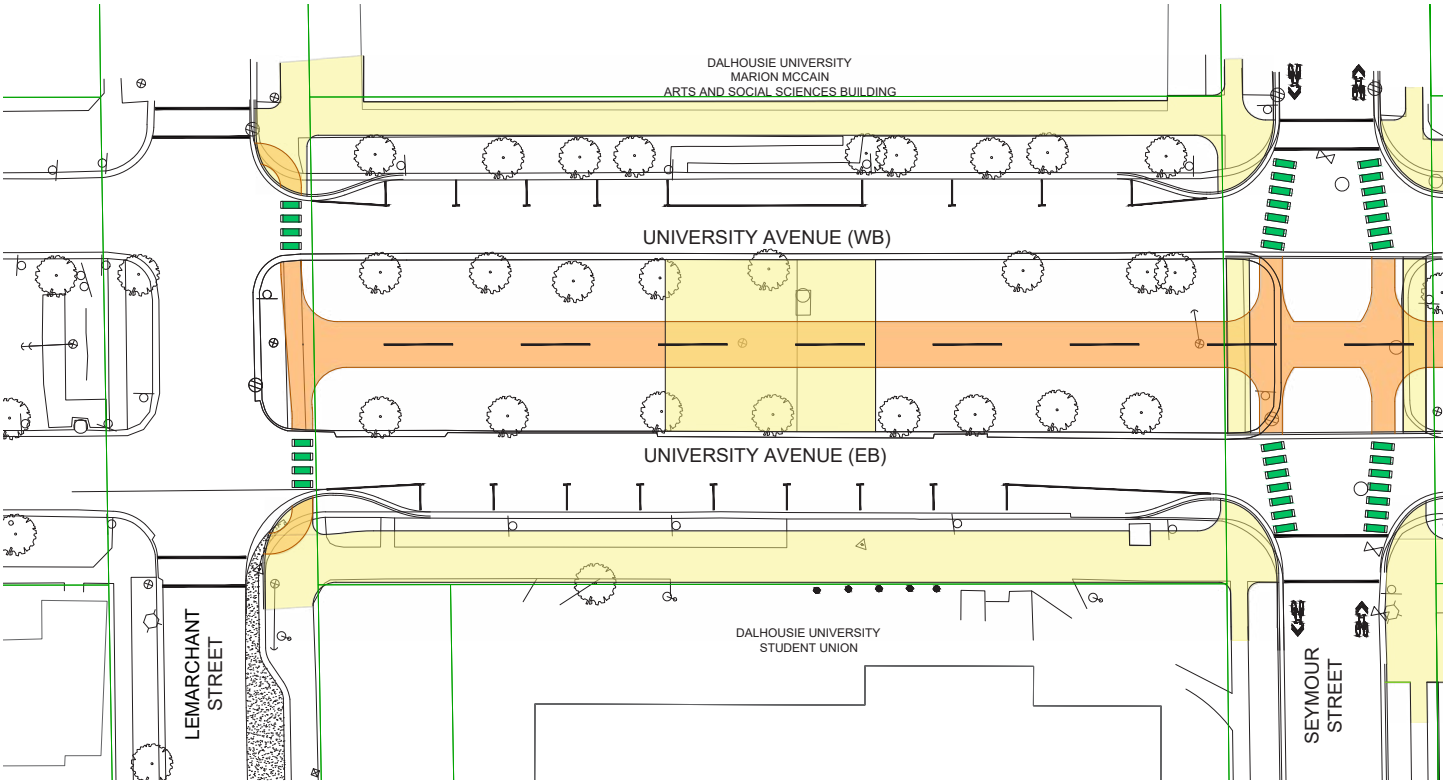
Once approved, treatments will be incorporated into the Municipal Design Guidelines for Streets.



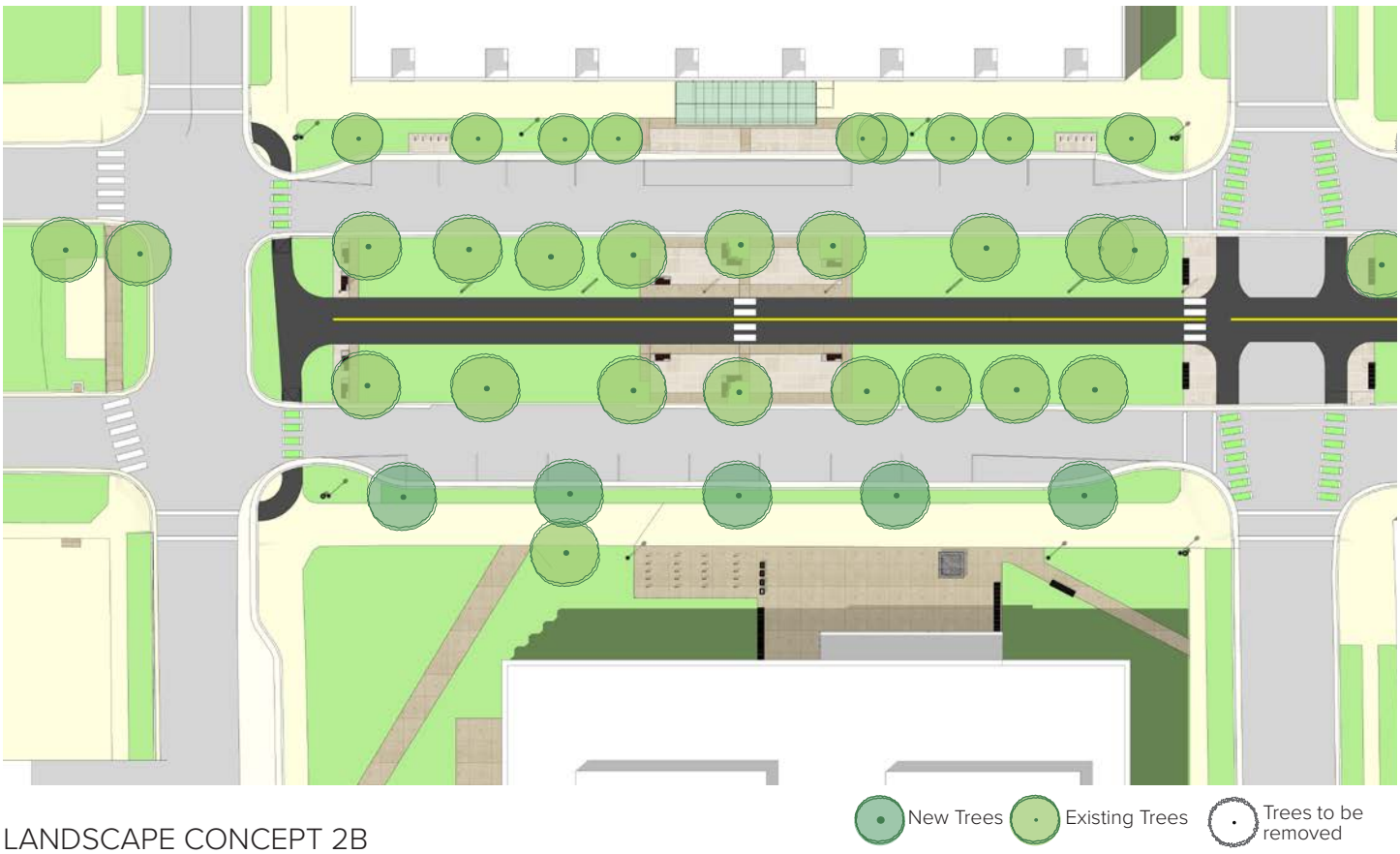
FUNCTIONAL DESIGN CONCEPT 2A
One-Way Raised Bicycle Lanes



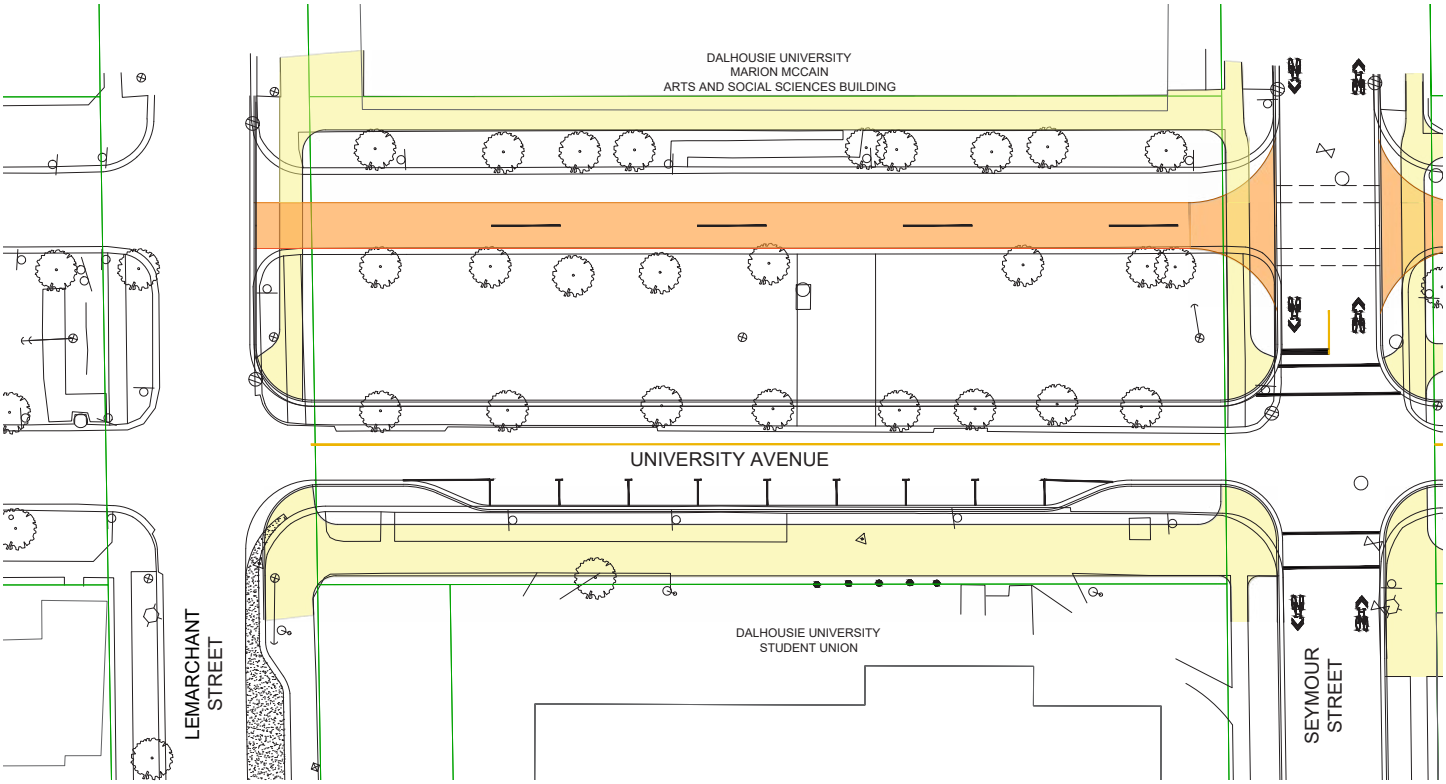
LANDSCAPE CONCEPT CONCEPT 2A
One-Way Raised Bicycle Lanes



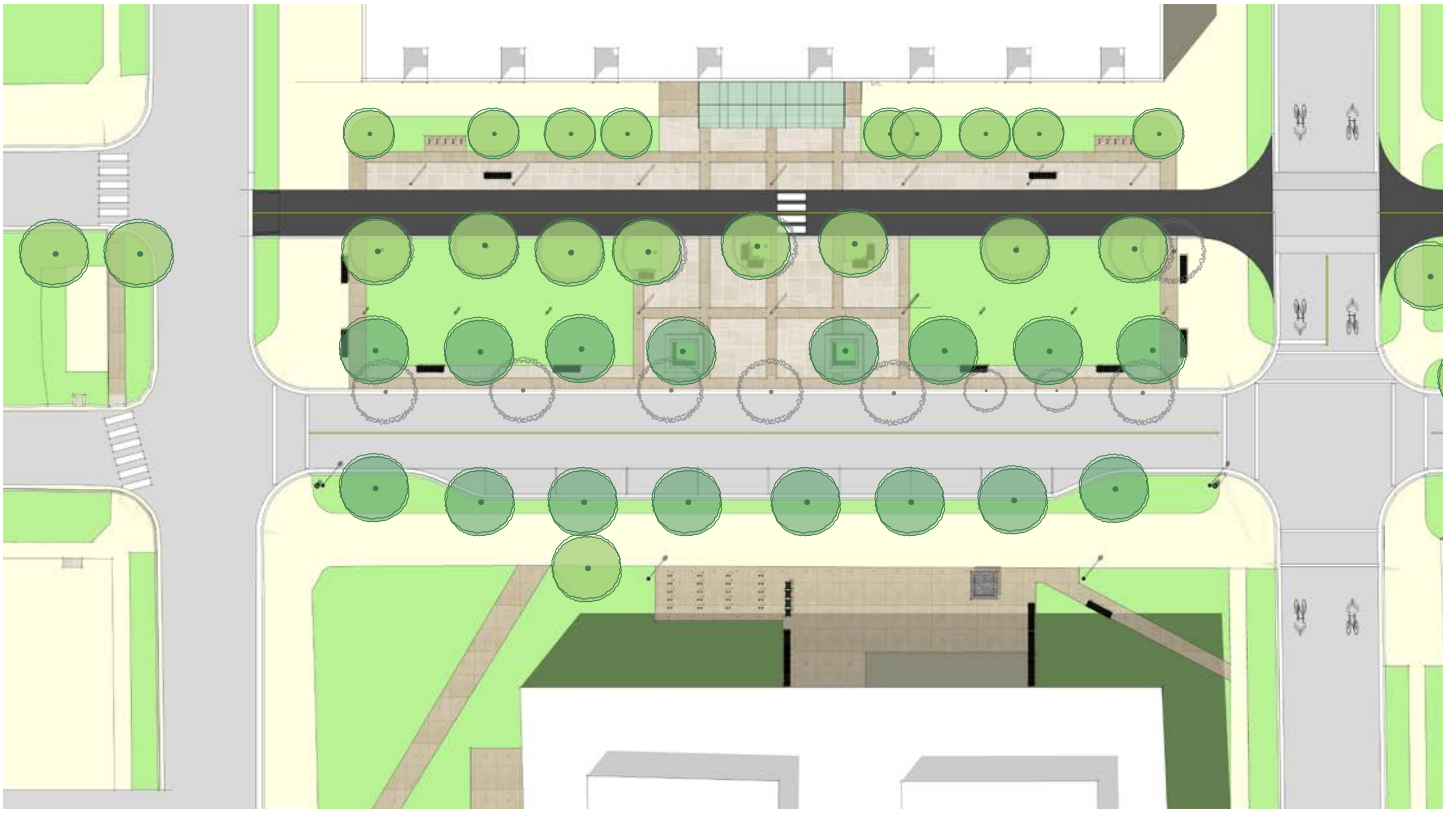
FUNCTIONAL DESIGN CONCEPT 2B
Two-Way Bikeway in Median



LANDSCAPE CONCEPT 2B
Two-Way Bikeway in Median



FUNCTIONAL DESIGN CONCEPT 2C
Two-Way Bikeway North of Median



LANDSCAPE CONCEPT 2C
Two-Way Bikeway North of Median

04 SITE FURNISHINGS

The Peninsula South area currently features a variety of styles of site furnishings along the streetscape, ranging from Dalhousie's ornamental fixtures along University Avenue to more contemporary fixtures in the Bicentennial Common, Spring Garden Road and the Halifax Public Library. Throughout the historic Halifax Common, both ornamental and contemporary furniture styles are present.

A purposeful blend of these two styles is proposed along the roadway and pedestrian spaces of University Avenue. Along the roadway, Dalhousie's approved site furnishings will continue to be used. These attractive, ornamental fixtures are reflective of the historical significance of the university district. Furthermore, the 18 foot height of the light fixtures are ideal for illuminating both the roadway and pedestrian environments.

For the proposed pathways and plaza spaces, a more contemporary family of fixtures and benches are proposed, including light columns along active transportation facilities that are lower and more pedestrian oriented. Similar contemporary light columns as well as seating walls can already be found on the North and Central Commons, the municipal parkland parcels commonly referred to as the "Halifax Common".

Larger and potentially covered bike coralles that can accommodate future bikeshare parking and/or e-scooter parking, should be placed where building setbacks allow and high visitor numbers and inter-modal connections exist (for example at the Student Union Building and the hospitals).

ROADWAY SITE FURNISHINGS
(DALHOUSIE APPROVED)

Canaan Metal Backless Park Bench CAL-957B, or similar

Canaan Flair Top Metal Trash Can CAY-119, or similar

Canaan Wave Bike Rack CAH-715-1, or similar

Sky Cast Washington Lamp Post, or similar

PATHWAY/PLAZA SITE FURNISHINGS

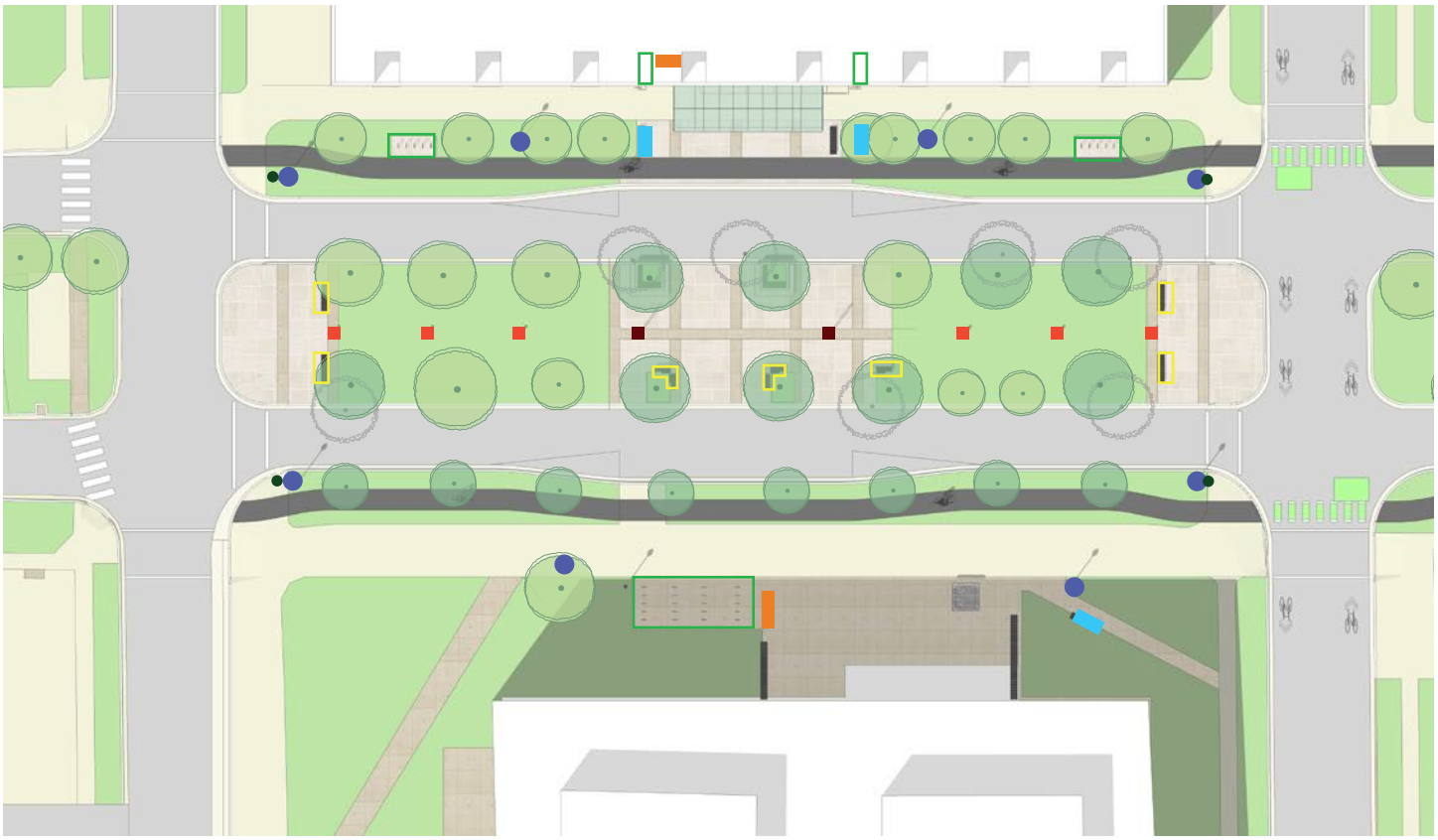
Bega Bollard 84063K3, or similar
HRM Approved, used at
Halifax Public Library

Bega Light Building Element 84754K3, or similar
HRM Approved, used at Halifax Public Library

Bigbelly Waste/Recycle Receptacle
HRM Approved, used at Spring Garden
Road

Custom
designed

FURNISHING CONCEPT 2A
One-Way Raised Bicycle Lanes



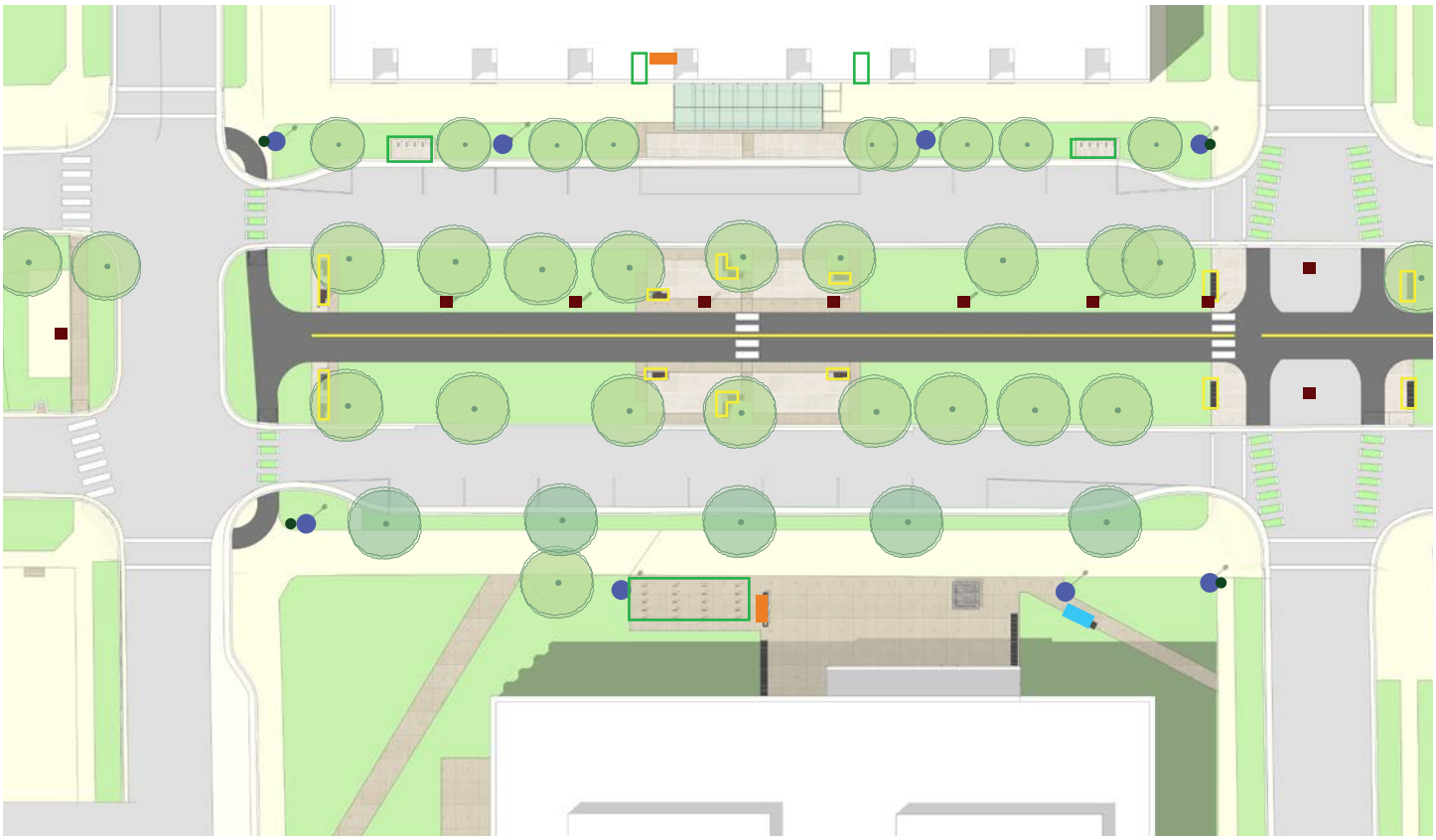
ROADWAY SITE FURNISHINGS

- Metal Bench
- Bicycle Parking
- Ornamental Lamp Post
- Metal Garbage Bin

PATHWAY/PLAZA SITE FURNISHINGS

- Concrete Bench
- Bollard
- Light Column
- Waste Station

FURNISHING CONCEPT 2B
Two-Way Bikeway in Median



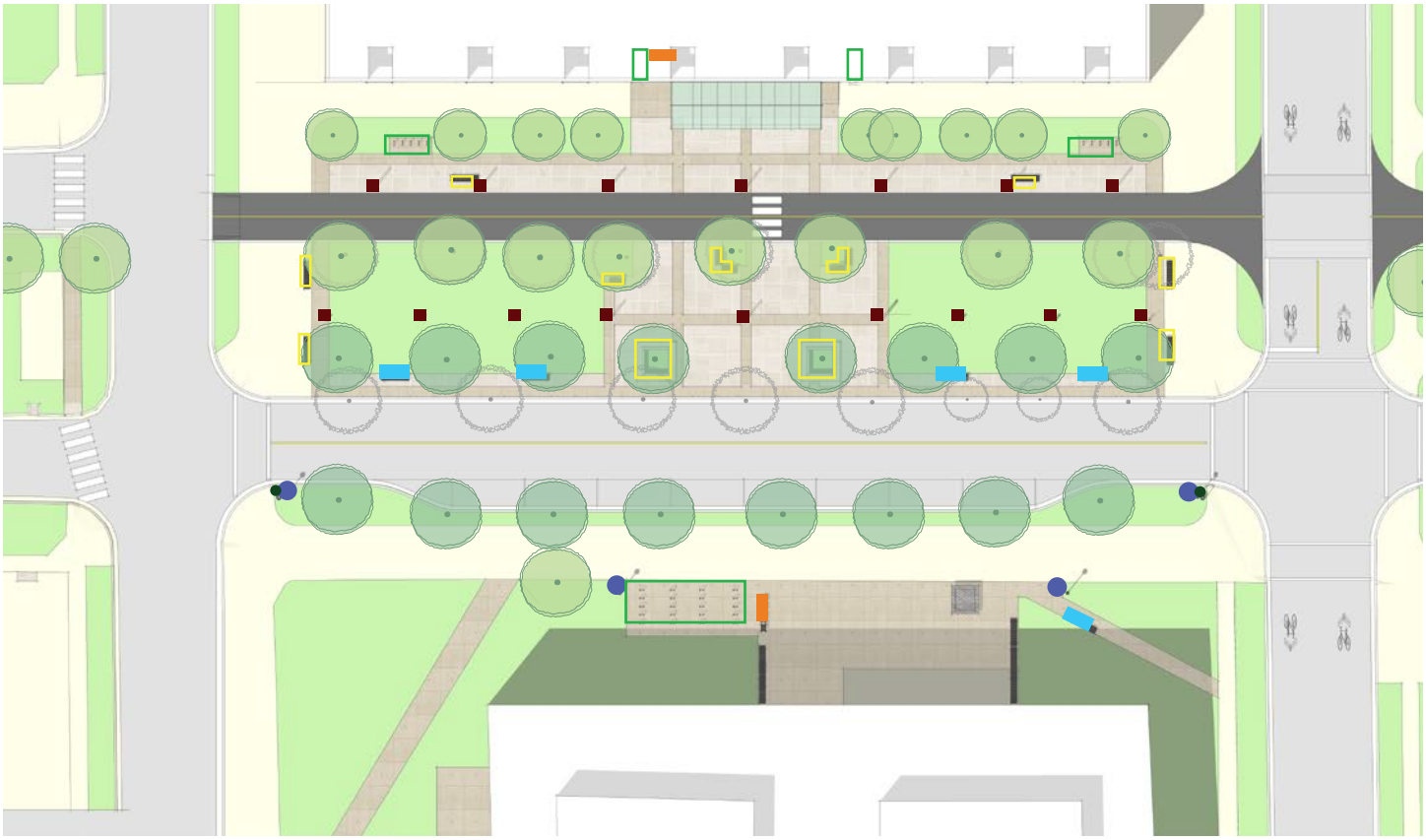
ROADWAY SITE FURNISHINGS

- Metal Bench
- Bicycle Parking
- Ornamental Lamp Post
- Metal Garbage Bin

PATHWAY/PLAZA SITE FURNISHINGS

- Concrete Bench
- Bollard
- Light Column
- Waste Station

FURNISHING CONCEPT 2C
Two-Way Bikeway North of Median



ROADWAY SITE FURNISHINGS

- Metal Bench
- Bicycle Parking
- Ornamental Lamp Post
- Metal Garbage Bin

PATHWAY/PLAZA SITE FURNISHINGS

- Concrete Bench
- Bollard
- Light Column
- Waste Station

05
COMMEMORATION

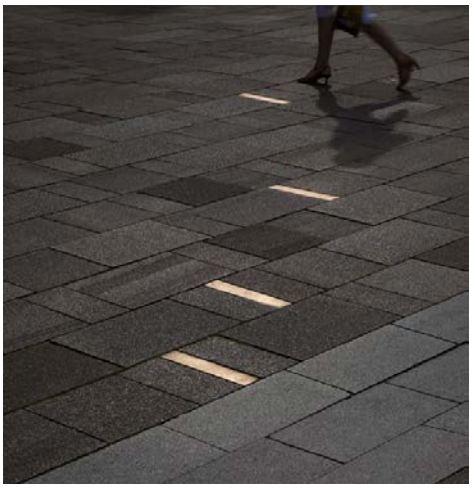
As University Avenue is an integral part of the Halifax Common, public art and commemoration along the corridor could reference both the significance of the Halifax Common as well as interpretive themes with relevance to the immediate surroundings of University Avenue.

As envisioned in the Halifax Common Master Plan, the Halifax Common could be demarcated by common markers and common reminders. Along University Avenue, these elements could be placed where users enter the Halifax Common at Robie Street or Southpark Street, as well as at the intersection with Summer Street, which is envisioned to serve as a unifying 'spine' that ties the Halifax Common's various character areas together.

Area-specific interpretive themes that emerged through the public and stakeholder consultation included health, sustainability, growth (personal & innovation), and history. The cycle of life symbolized by the presence of University Avenue's key institutions - the IWK Health Centre, Dalhousie University and the Victoria General Hospital - also transpired as a potential theme for interpretation.

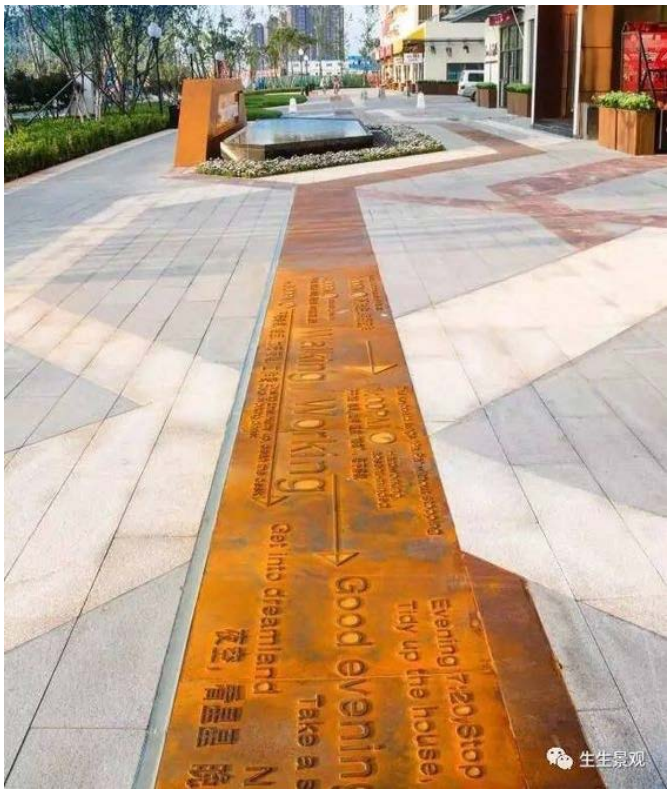
Generally, interpretive and wayfinding elements should encompass more than traditional signage. Subtle cues, such as markers embedded in sidewalk entry points, lighting, paving materials and vegetation can demarcate routes, thresholds and district edges. More explicit cues and installations could be accommodated in the entry plazas that bookend the University Avenue median or in mid-block median gathering places.

IDEAS BOARD - WAYFINDING, COMMEMORATION AND INTERPRETATION




INABA STREET


MERCHANDISE IN VESSELS from the Hawkesbury
1810


Working
Good evening
Tidy up the house,
Get into dreamland
生生景观


PERCORSO ARCHEOLOGIA INDUSTRIALE
E ALESSANDRO ROSSI
Monumento al Tessitore

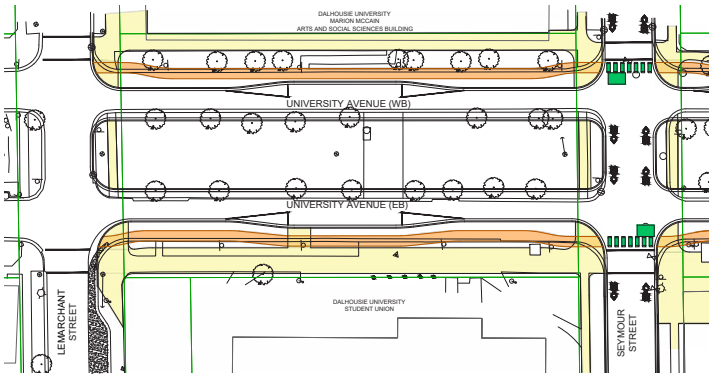

WELCOME

06

RENDERS

CONCEPT 2A
One-Way Raised Bicycle Lanes

The renderings on the following pages illustrate the landscape concepts for the University Avenue sample block between Lemarchant Street and Seymour Street presented in chapters 3 and 4.



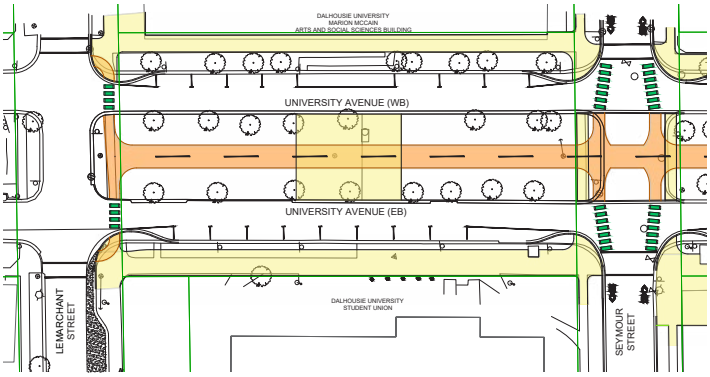
Looking West

Looking West

Looking East

Looking South

CONCEPT 2B
Two-Way Bikeway in Median



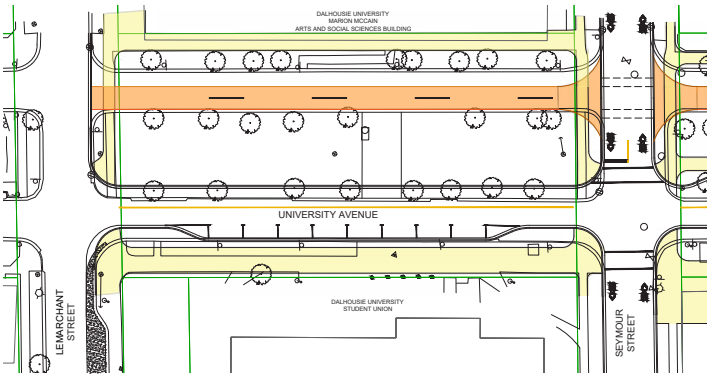
Looking East

Looking North

Looking East

Looking West

CONCEPT 2C
Two-Way Bikeway North of Median



Looking South

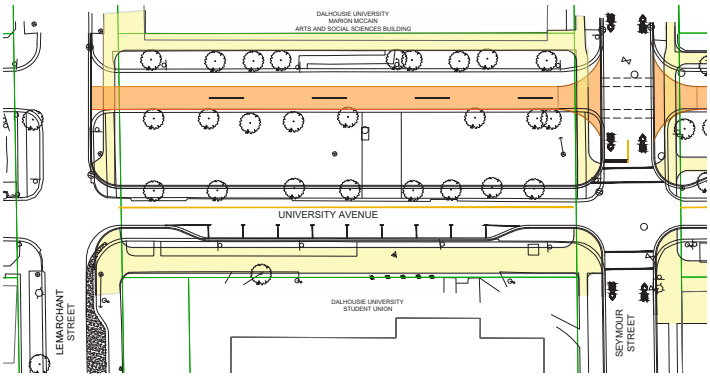
Looking West

Looking South

Looking West

CONCEPT 2C

Two-Way Bikeway North of Median (Pedestrian Path in Center Median)



Looking East

Looking West

Looking East

Looking North

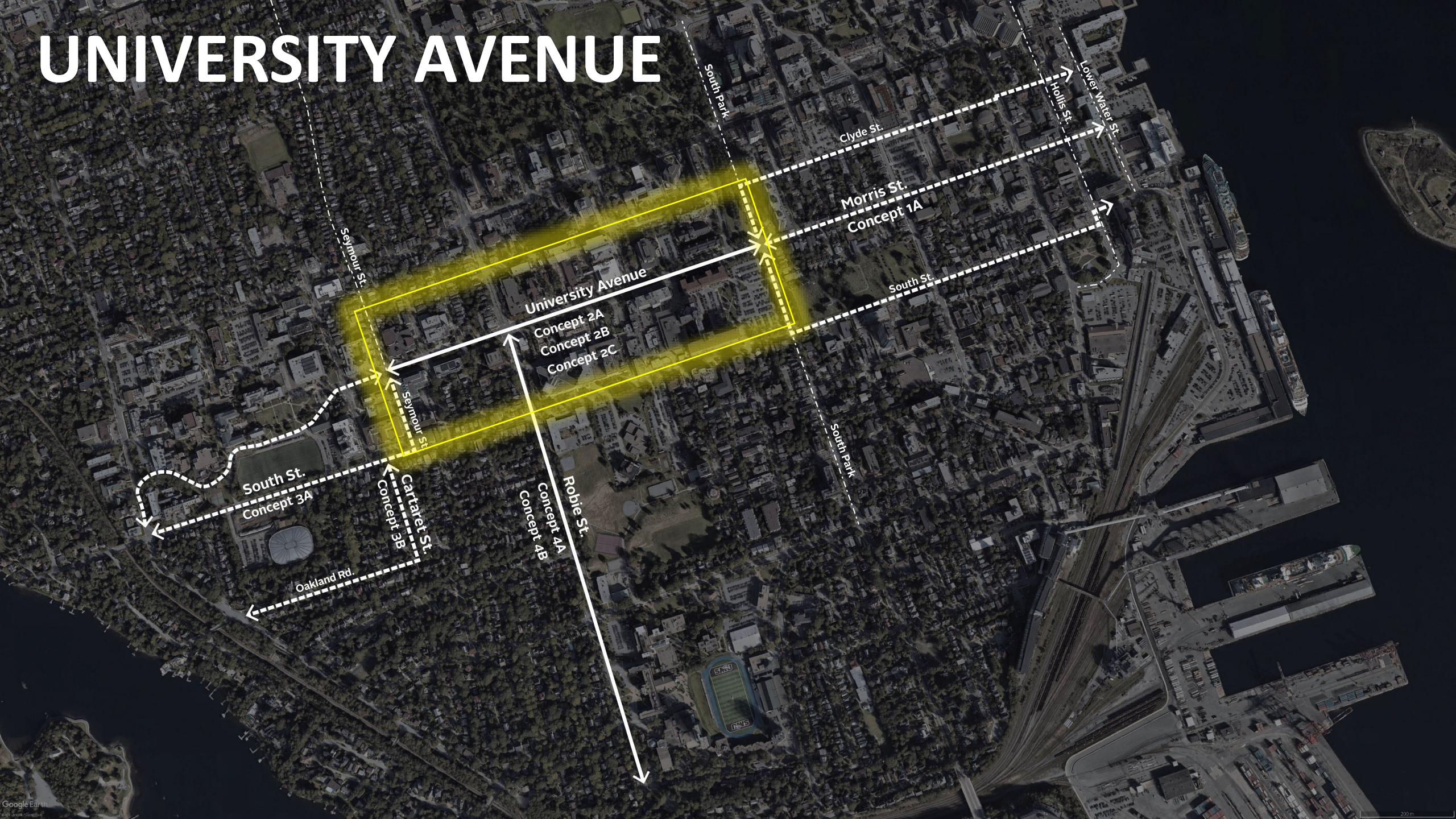
UPLAND

HALIFAX

Implementation of Peninsula South Complete Streets: University Avenue and West and East Connections

Transportation Standing Committee Report Attachment B: Additional Information on University Avenue

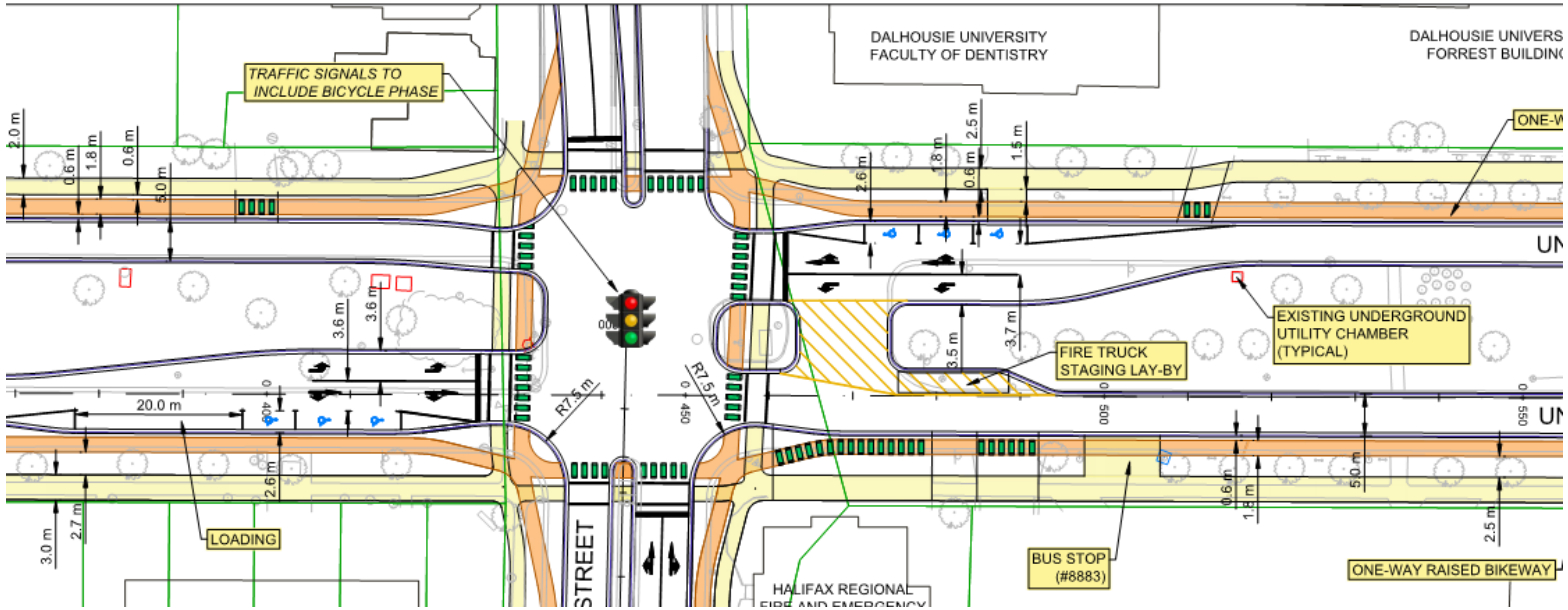
August 2024


UNIVERSITY AVENUE
South Park
Clyde St.
Hollis St.
Lower Water St.
Morris St.
Concept 1A
Seymour St.
University Avenue
Concept 2A
Concept 2B
Concept 2C
South St.
Seymour St.
South Park
South St.
Concept 3A
Cartaret St.
Concept 3B
Robie St.
Concept 4A
Concept 4B
Oakland Rd.
Google Earth

University Ave Concept 2A: One-Way Raised Bicycle Lanes

Concept Overview

- 1.8m one-way raised bicycle lane along each side of the street with 0.6m buffer to the curb
- One 4.0m vehicle traffic lane provided in each direction
- On-street parking would be removed on both sides east of University Avenue
- 13 accessible spaces would be maintained
- Loading zones maintained on each block
- Median would be narrowed west of Robie St
- 44 of 326 trees would need to be removed, mostly in the median



University Ave Streetscape Design Guide

Concept 2A

One-Way Raised Bicycle Lanes

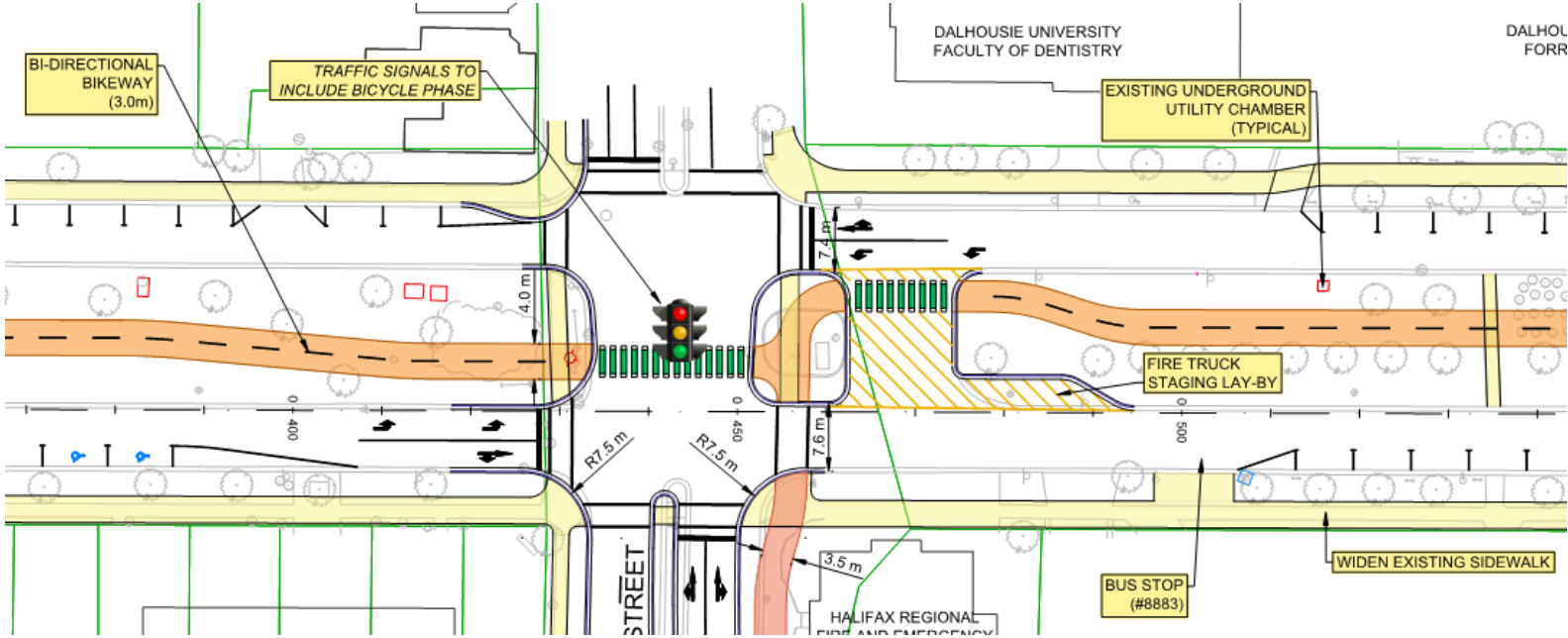
Looking West

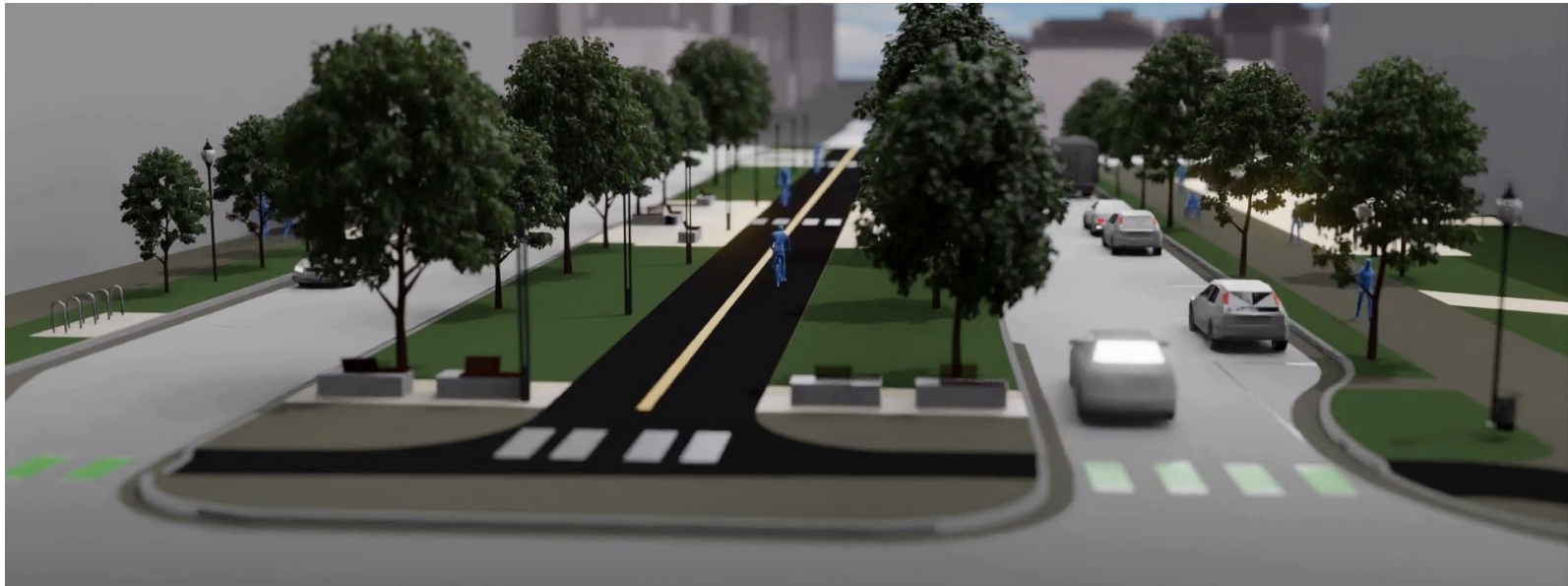
Looking West

University Ave Concept 2B: Two-Way Bikeway in Median

Concept Overview

- 3.0m two-way bikeway in the center median
- Median would be closed at five minor intersections, limiting vehicle access but mountable to emergency vehicles
- Closing of the median at minor intersections could result in an increase in u-turning traffic at LeMarchant Street and Robie Street
- Median bikeway avoids conflicts with loading vehicles and driveway movements
- Existing on-street parking is maintained
- Minimal impacts to transit and emergency services
- Most of the existing curb location is maintained
- 23 of 326 trees would need to be removed
- Bikeway would be served by a dedicated bicycle phase at signals





University Ave Streetscape Design Guide

Concept 2B

Two-Way Bikeway
in Median

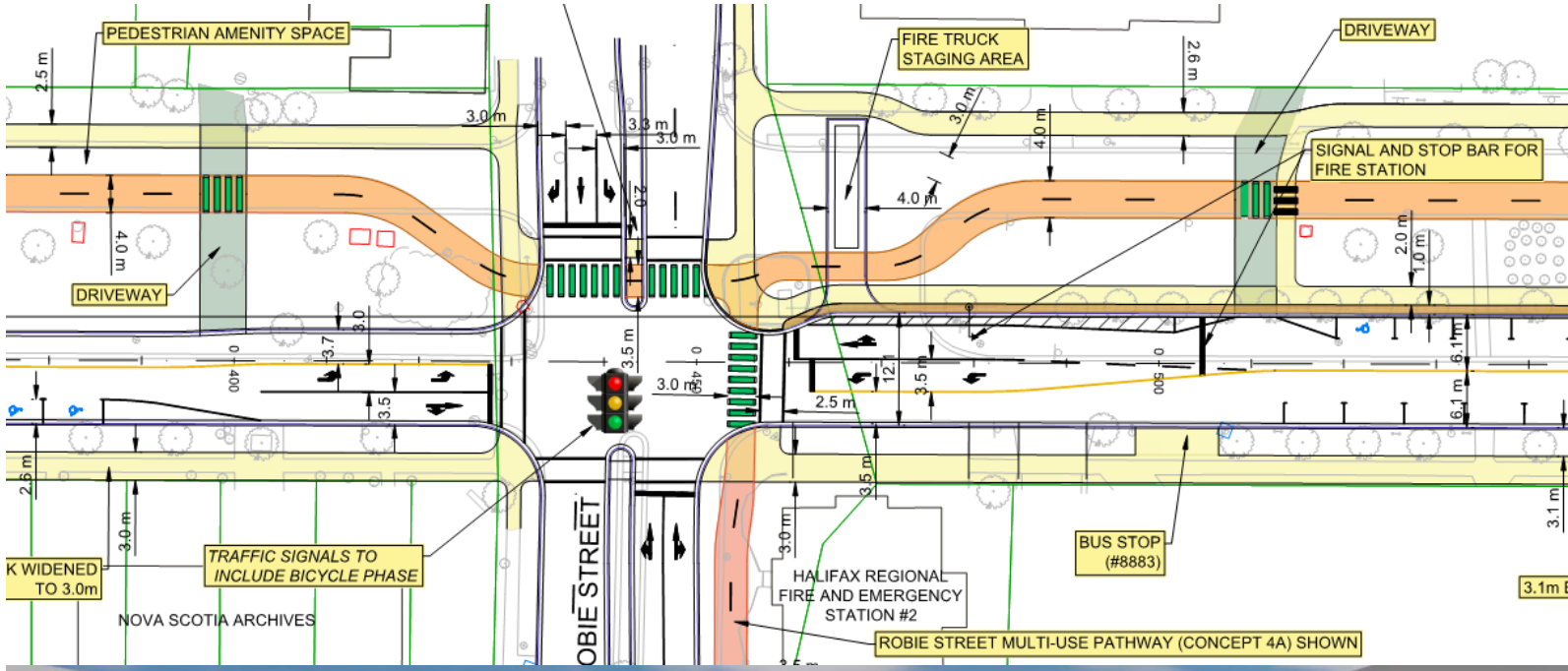
Looking East

Looking West

University Ave Concept 2C: Two-Way Bikeway North of Median

Concept Overview

- 4.0m two-way bikeway on the north side of the University Ave
- Median reimagined as pedestrian plaza on blocks outside Dalhousie buildings
- Reconfigured eastbound traffic lanes provide two-way traffic with on-street parking & loading zones on most blocks
- All intersections become more compact and simplified compared to existing conditions
- Pedestrian access across University Ave is improved with shorter crossings
- Vehicle and ambulatory access in and out of the IWK is simplified
- Loading & accessible parking less convenient for north side properties
- Emergency vehicle access to northside properties may be impacted, bikeway might be used for emergency access
- 56 of 326 trees would need to be removed
- Potential for significant utility pole impacts



University Ave Streetscape Design Guide

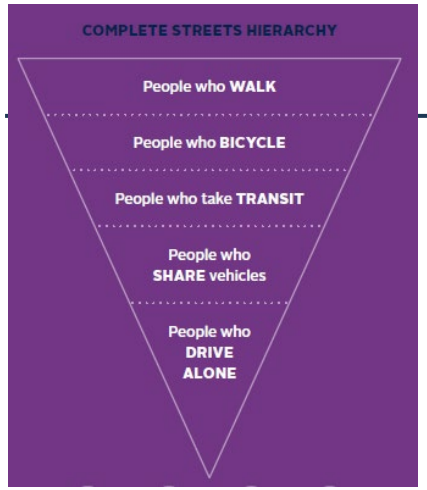
Concept 2C

Two-Way Bikeway
North of Median

Looking South

Looking West

Concept Evaluation



- An evaluation tool was created to inform decision making
- Criteria assigned weights informed by IMP Complete Street hierarchy
- Each concept was evaluated for its ability to satisfy criteria:
  - Scored 1-5;
  - 5 is most desirable
  - 1 is least desirable
- Total of weighted scores is the concept score

Criteria	Criteria Weight	Option Score
Pedestrian Movement and Safety	25	1-5
Bicycle Movement and Safety	20	1-5
Transit Service Accommodation	15	1-5
Vehicular and Truck Traffic Infrastructure Provisions	10	1-5
Parking Supply	10	1-5
Loading Requirements	10	1-5
Trees and Greenspace	10	1-5
Fire and Emergency Services	10	1-5
Property Requirements	5	1-5
TOTAL WEIGHTED SCORE	**575**	**###**

Concept Evaluation

- Additional criteria & weights to guide decision on preferred concepts

Criteria	Criteria Weight	Option Score
Cost Estimate • New AT infrastructure less planned street and sidewalk renewal	10	1-5
Phase 2 Public & Stakeholder Feedback • Preferred concept from SYC survey • Feedback from institutional stakeholders	15	1-5
Project Complexity & Constructability • Conflicts with utilities • Ability to maintain street functions during construction • Ability to align with 5-year capital plan • Barrier to phasing or dependence on other segment upgrades • Bonsu point for tactical implementation	10	1-5
TOTAL WEIGHTED SCORE	**175**	**###**

HALIFAX

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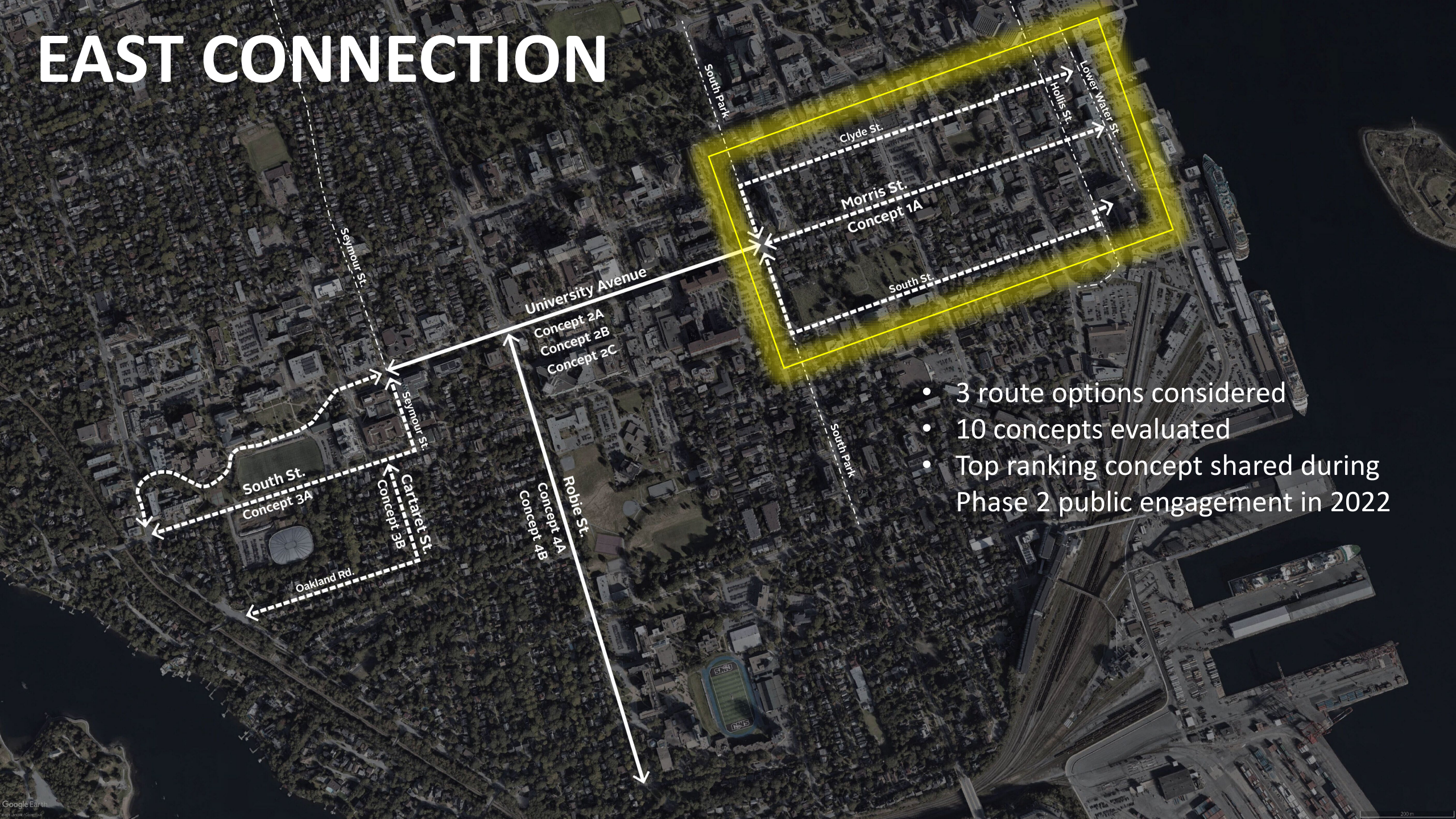
Implementation of Peninsula South Complete Streets: University Avenue and West and East Connections

Transportation Standing Committee Report Attachment C: Additional Information on the East Connection

August 2024

EAST CONNECTION



- 3 route options considered
- 10 concepts evaluated
- Top ranking concept shared during Phase 2 public engagement in 2022

East Connection Options

<u>6 Options evaluated:</u>

1 Morris Street Unidirectional Bike Lanes (2-way Traffic)

1A Morris Street Bidirectional Bikeway (1-way Traffic)

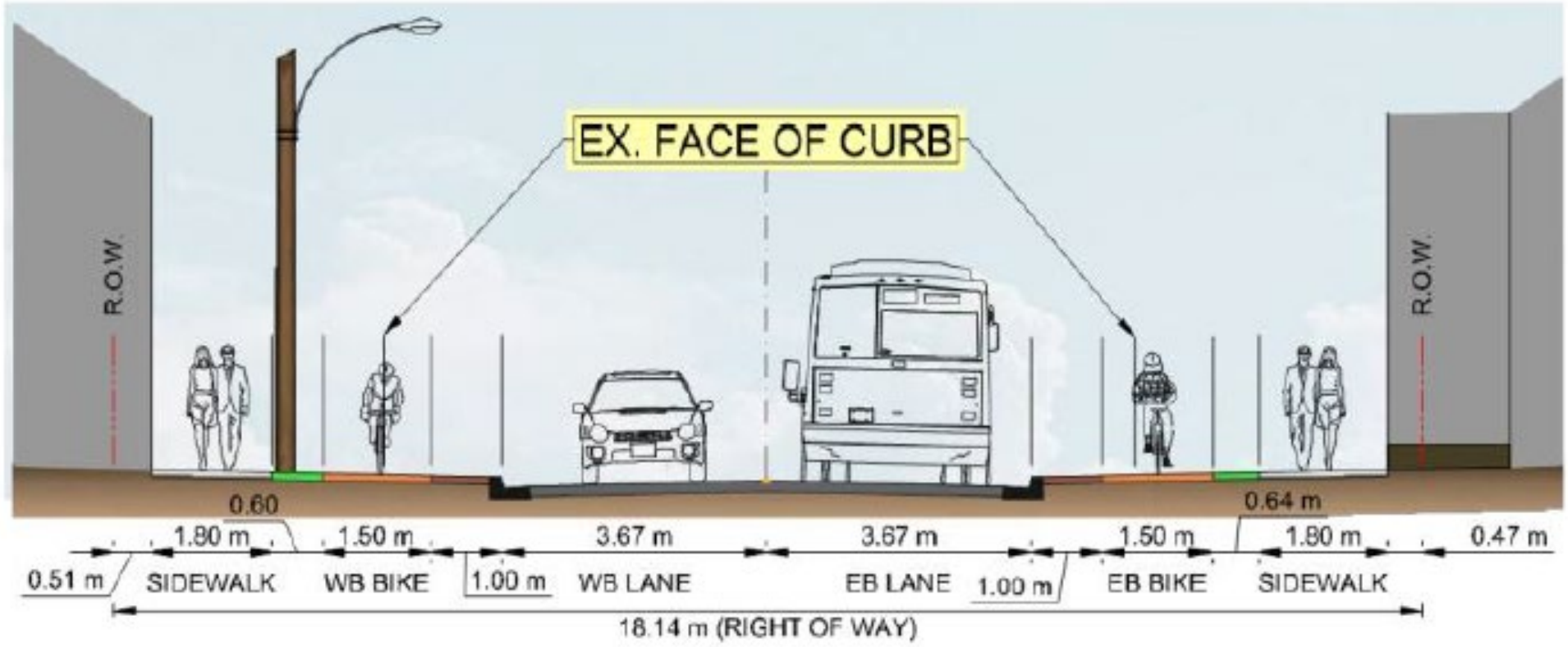
1B Morris Street Bidirectional Bikeway (2-way Traffic)

1C Morris Street Unidirectional Bike Lanes (1-way Traffic)

1D Clyde-Bishop Local Street Bikeway

1E South Street Bikeway (2-way Traffic)

East Connection Option 1:
Morris St 1-Way Bike Lanes, 2-way Traffic

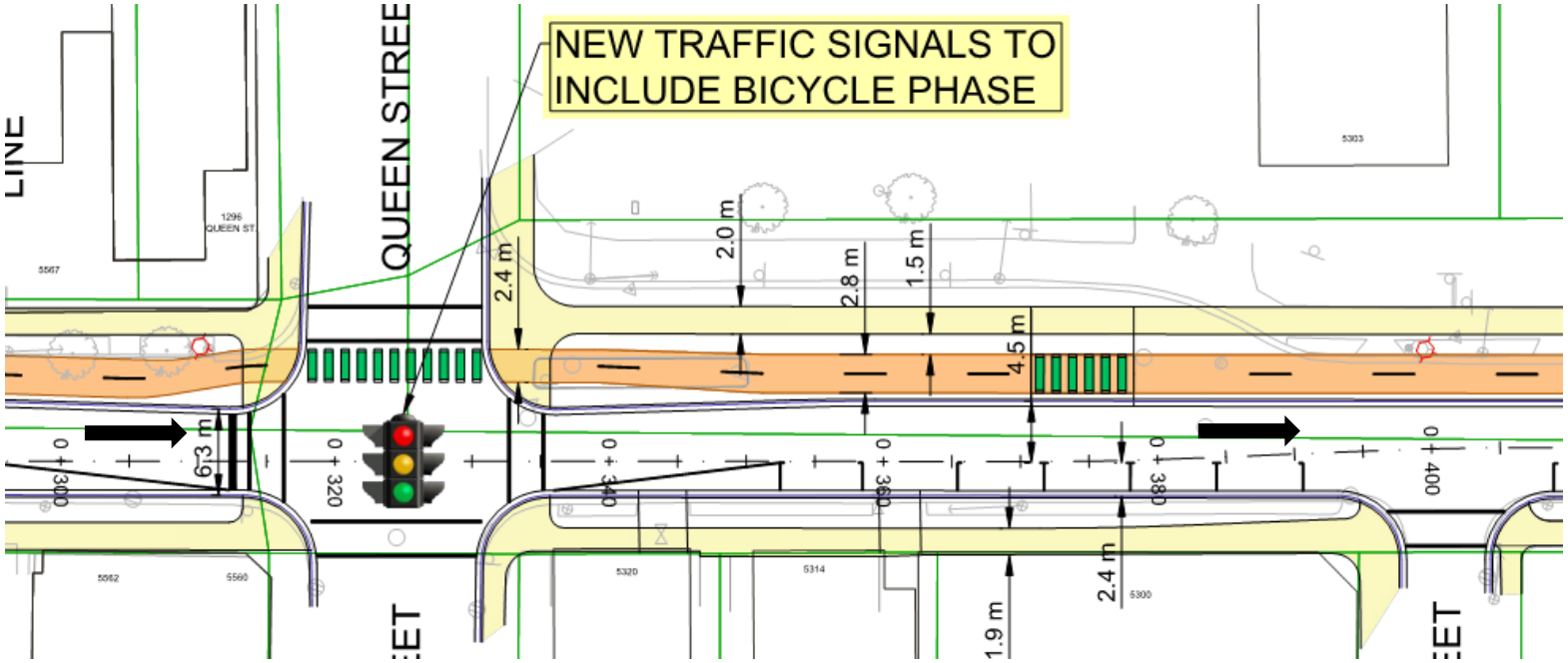


Features/Implications
• Option 1A was excluded from further evaluation given that the 7.4m street width does not satisfy the Variance Committee's requirement for 8.0m and street widening would cause other critical dimensions to fall below minimums.

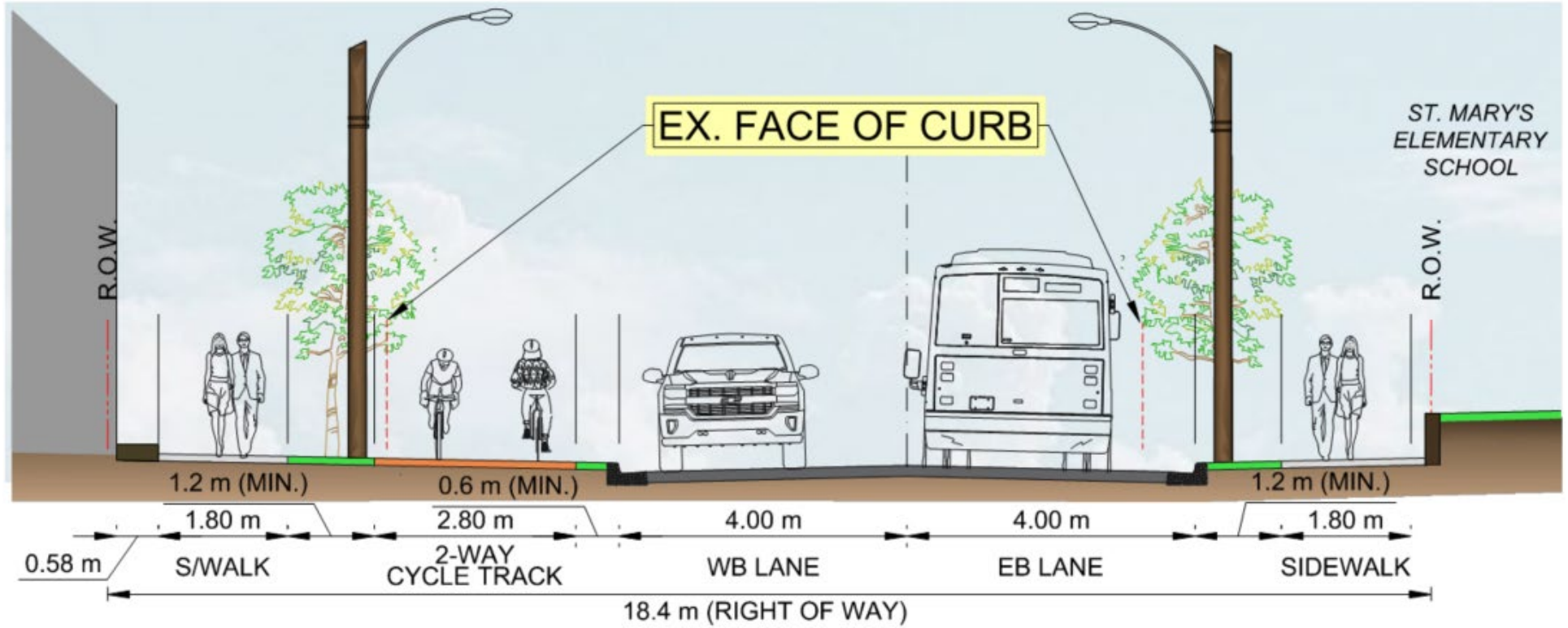
Morris Street Concept 1A: 2-Way Bikeway with 1-Way Traffic

Concept Overview

- 2.8-3.0m wide two-way raised bikeway
- Net loss of 5 parking spaces
- 0 to 4 tree removals expected
- Five (5) transit routes and future MFTP routes would be rerouted
- Results in diversion of westbound traffic to adjacent streets and less convenient access for drivers
- An alternative truck route is needed to replace Morris St as a westbound secondary daytime truck route
- One-way eastbound is acceptable for Halifax Fire and Emergency Services
- Traffic impact analysis (by Englobe and HRM) concluded concluded road network would continue to operate above target levels of service for intersections within the Regional Centre

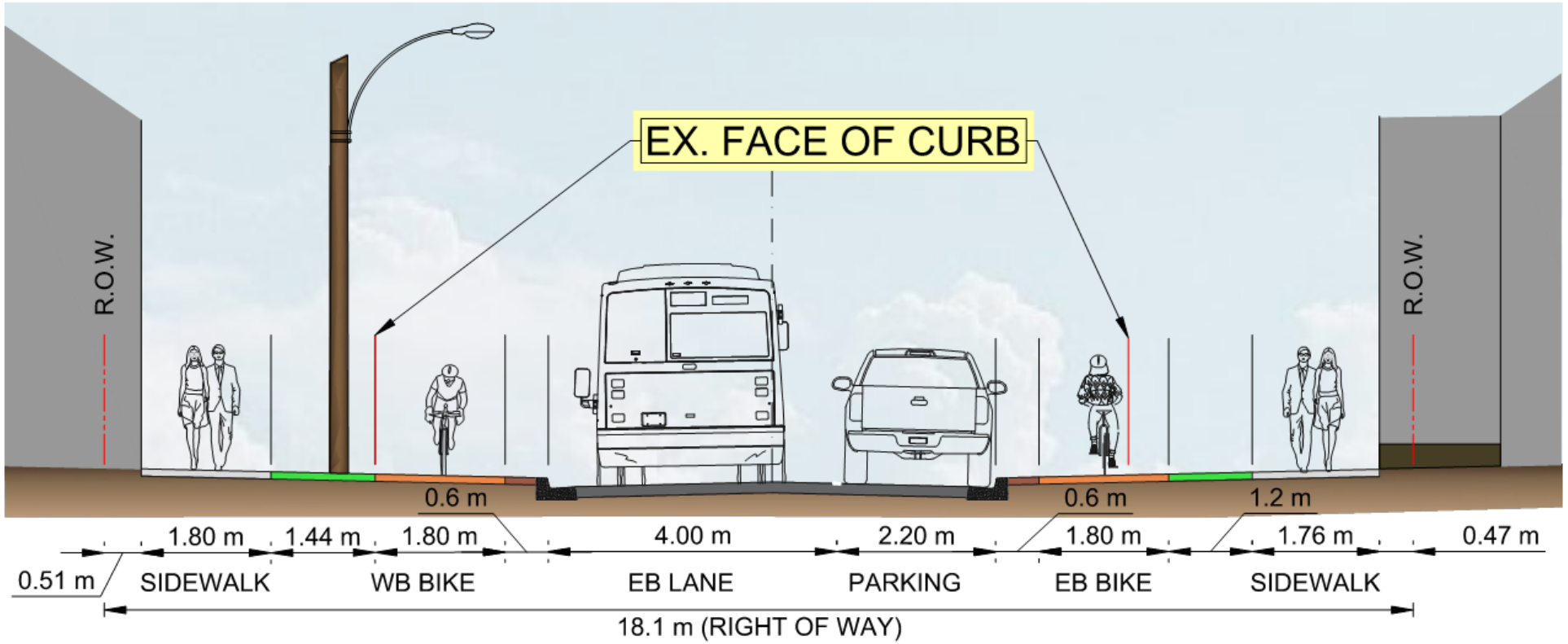


East Connection Option 1B:
Morris St 2-Way Bikeway, 2-way Traffic



Features/Implications
• Leaves very narrow (0.6m) boulevards for placement of utility poles and other utilities (signage, hydrants, etc.). Requires relocation of 25 utility poles • Requires removal of 58 of 67 parking spaces • Requires removal of 27 of 48 trees with some opportunity for replacement

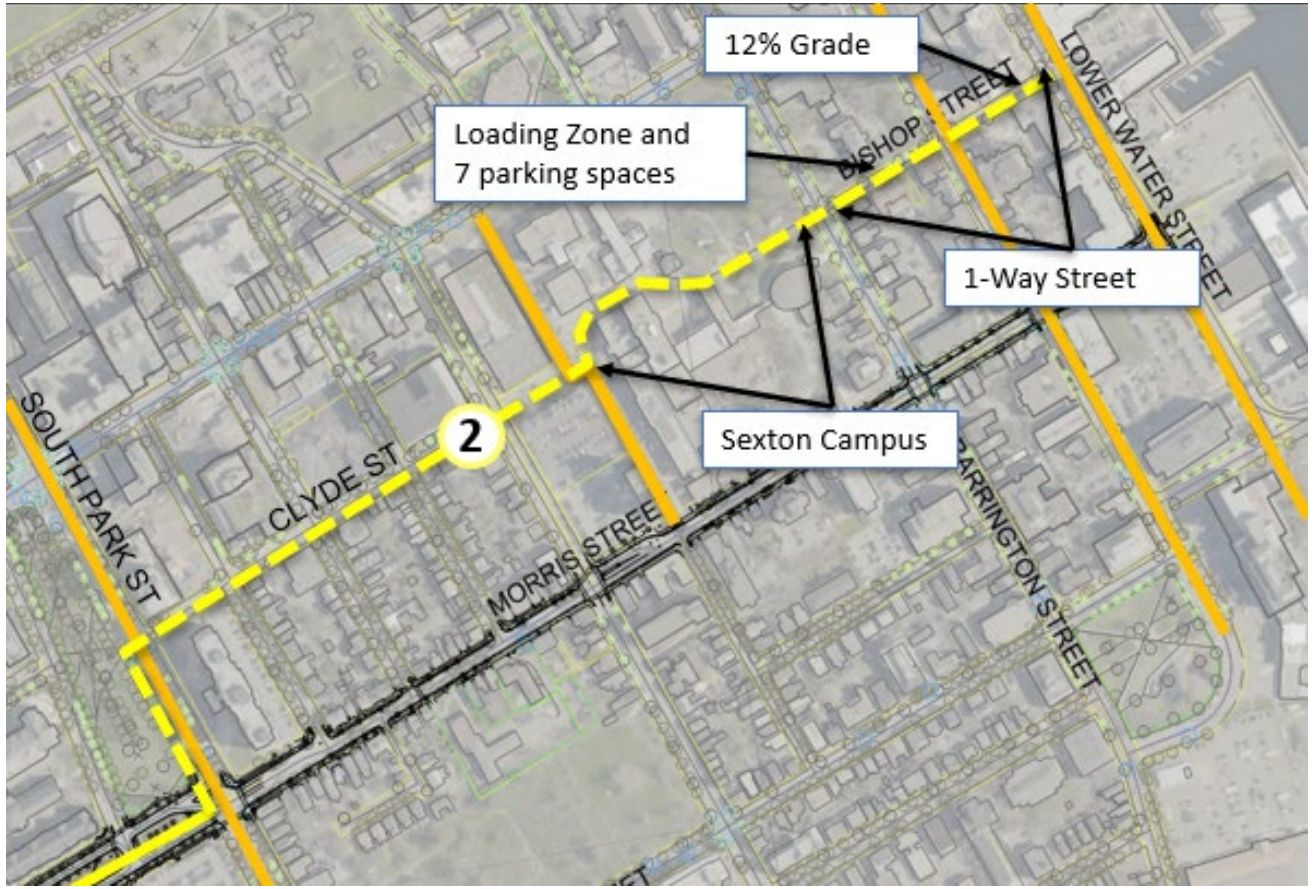
East Connection Option 1C:
Morris St 1-Way Bike Lanes, 1-way Traffic



Features/Implications

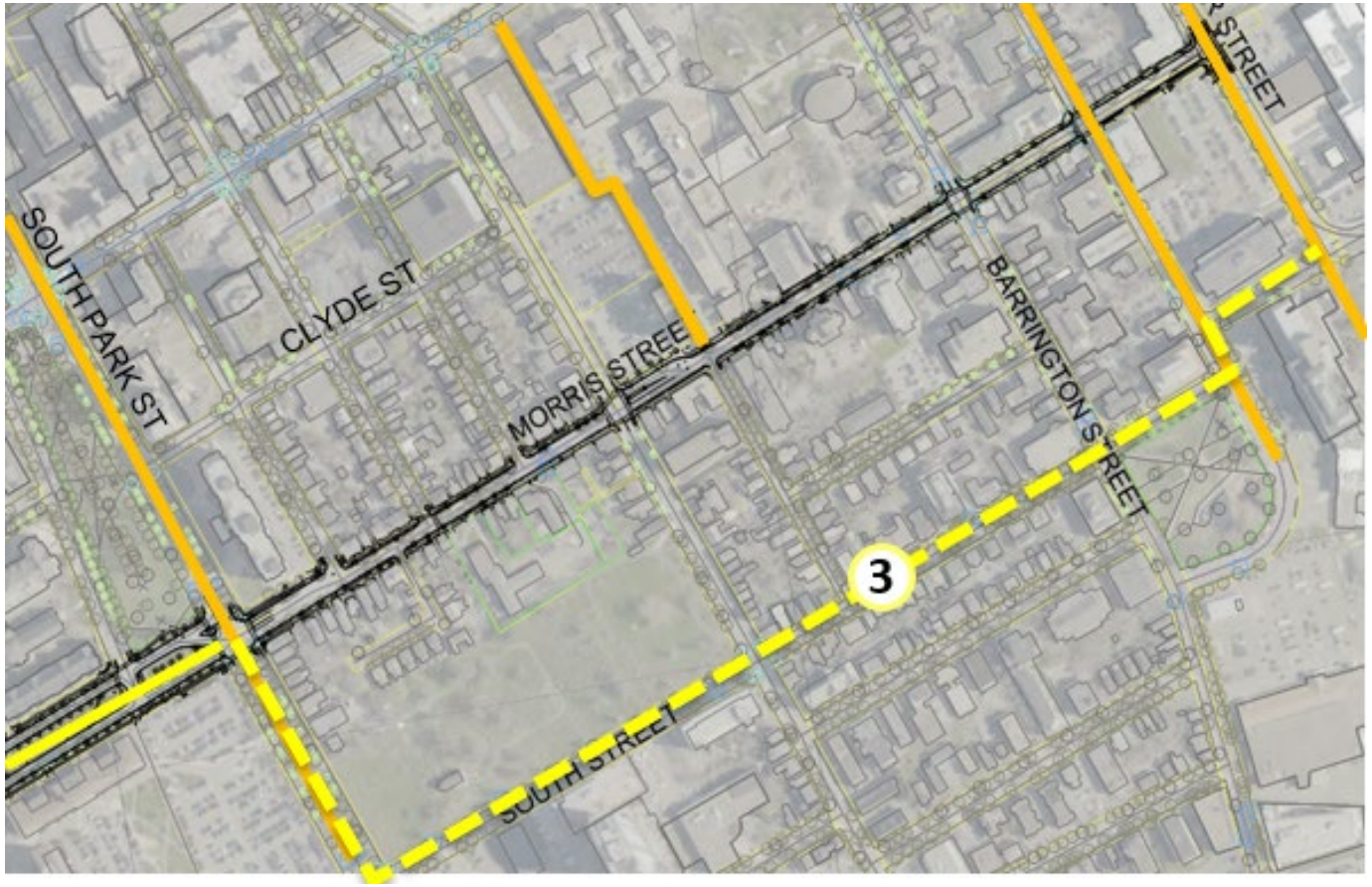
- **Transit**: One-way traffic would require changes to existing and planned service. Five (5) transit routes and future MFTP routes would be rerouted.
- **Truck Route**: An alternative truck route is needed to replace Morris St as a westbound secondary truck route.
- **Emergency Access**: One-way eastbound is suitable for Halifax Fire
- **Traffic**: A traffic analysis concluded that the surrounding road network has capacity to handle diverted traffic volumes.
- **Trees**: Removal of 20 of 48 trees.

East Connection Option 1D:
Clyde St-Bishop St Local Street Bikeway



Features/Implications
• The 12% grade on Bishop Street is a significant constraint for cyclists and does not meet the AAA biking facility criteria • Loss of 7 parking spaces and loading zone on Bishop • The route would travel through Dalhousie Sexton campus property • Minimal impacts to traffic, transit, and trucks

East Connection Option 1E:
South St Bikeway with 2-way Traffic



Features/Implications
• The 8-10% grade on South St near Queen St is a significant constraint for cyclists and does not meet the AAA biking facility criteria • Facility dimensions would be constrained throughout • Significant impacts to parking spaces and loading zone (similar to option 1B) • Significant impacts to trees (similar to Option 1B)

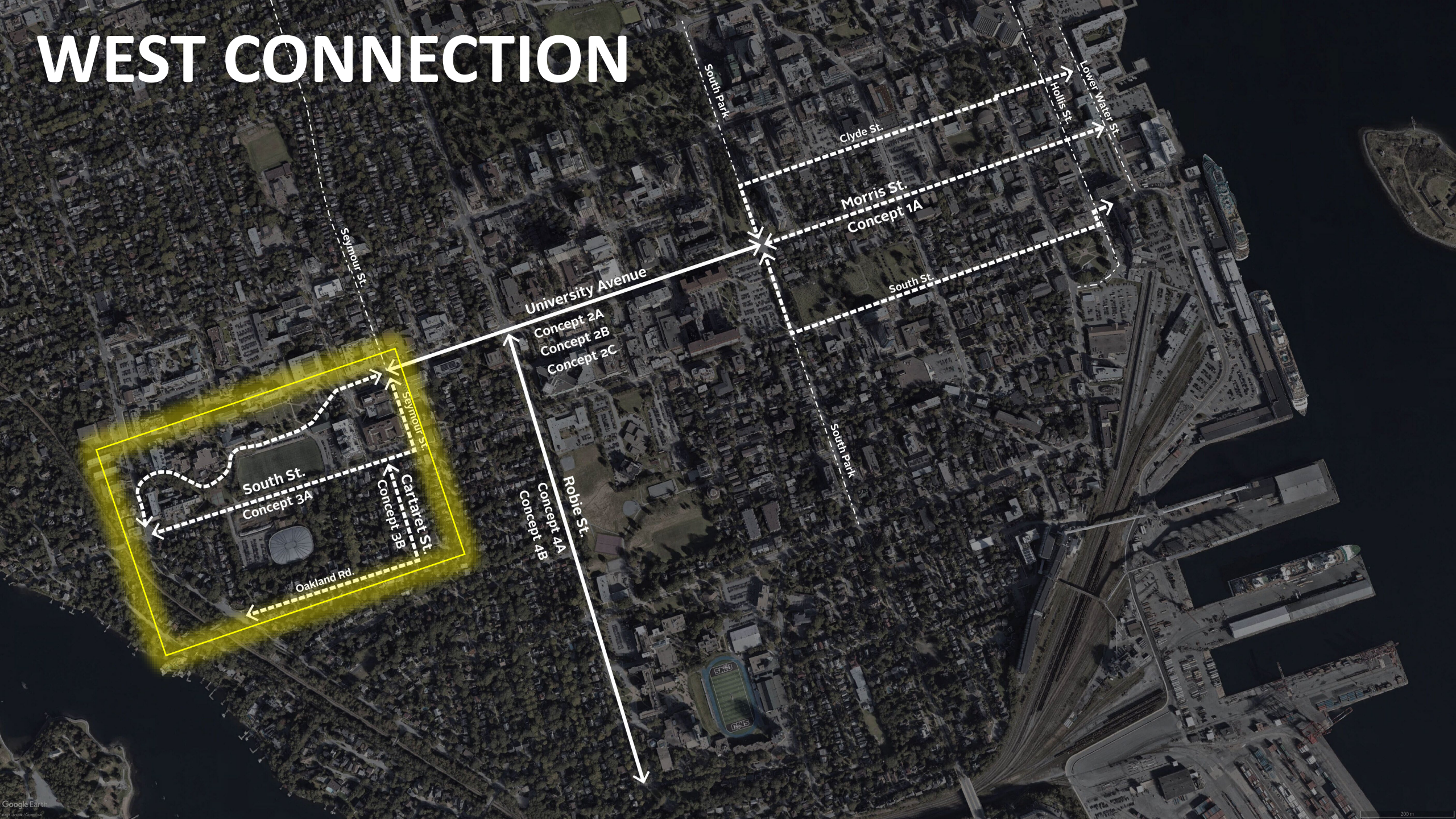
HALIFAX

Implementation of Peninsula South Complete Streets: University Avenue and West and East Connections

Transportation Standing Committee Report Attachment D: Additional Information on the West Connection

August 2024

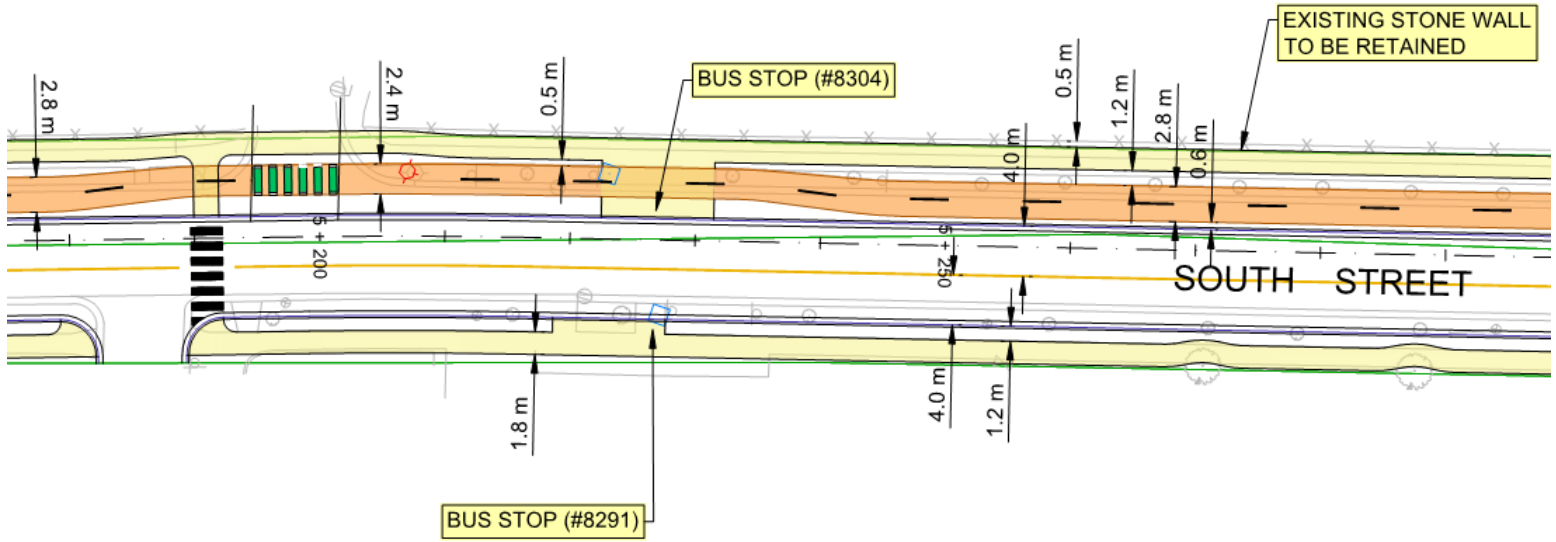
WEST CONNECTION



West Connection Concept 3A: South Street Two-Way Bikeway

Concept Overview

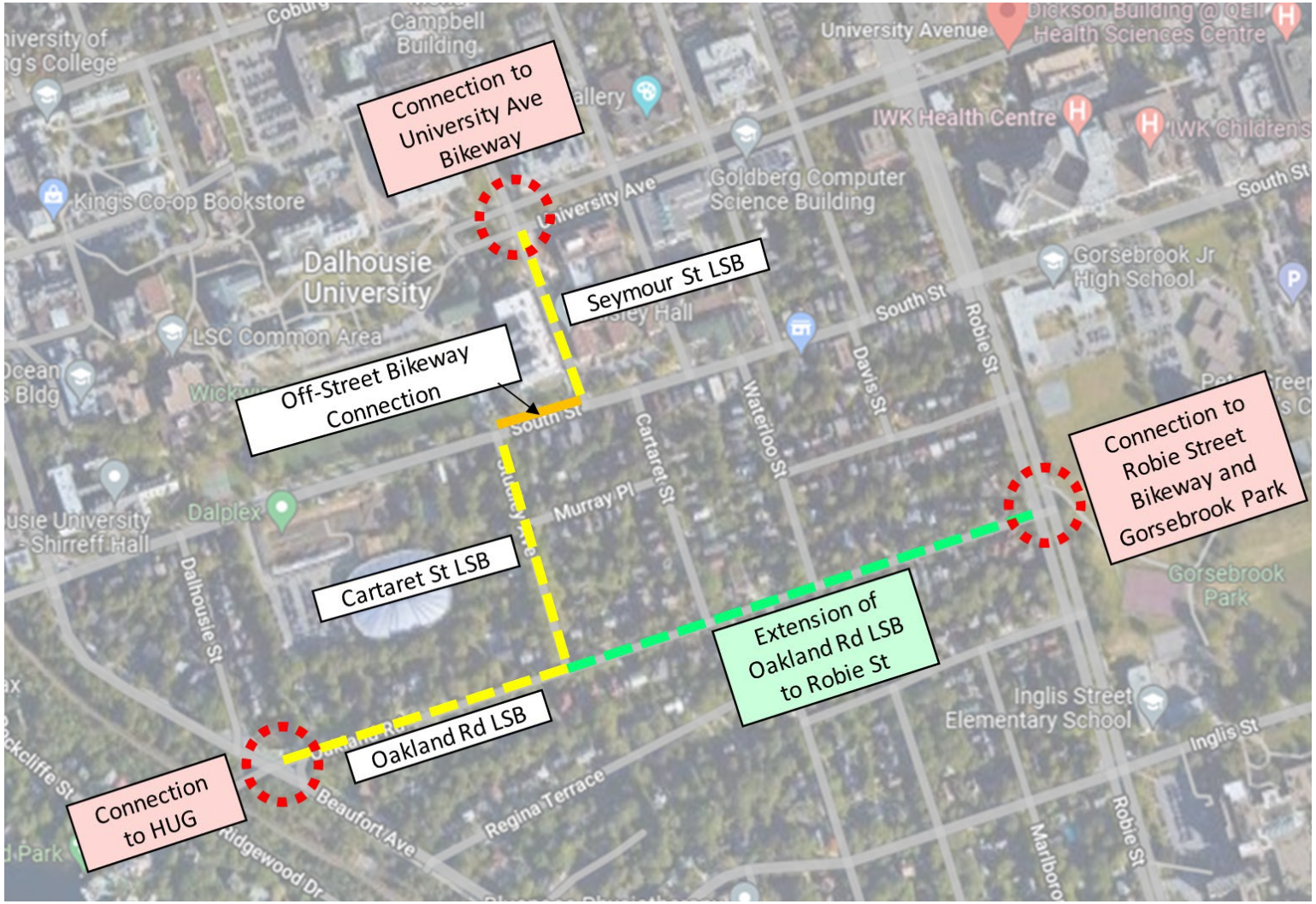
- Provides a 2.8m wide two-way bikeway on the north side of South Street
- Cyclists are separated from pedestrians
- Requires removal of approximately 52 of the 88 trees on South Street, although most of these are young trees. Trees could be replaced in the 1.2m boulevard with enhancements such as soil cells
- Requires removal of all 19 on-street parking on South Street
- A two-way bikeway on a two-way street is not ideal
- No impacts to transit are expected
- A Seymour Street local street bikeway would connect South Street to University Ave



West Connection Concept 3B: Cartaret Street and Oakland Road LSB

Concept Overview

- AAA bicycle route could be achieved with favourable grades
- Traffic volumes and speeds are favourable for a local street bikeway
- No impacts to trees, parking, or transit.
- Cycle route is less visible and bypasses key destinations, i.e., Dalplex
- Less direct connection between Halifax Urban Greenway and University Ave/Dalhousie
- Opportunity to extend the Oakland Rd LSB to Robie Street
- A Seymour Street local street bikeway would connect South Street to University Ave
- A short section of bikeway would be required on South Street to connect Cartaret Street to Seymour Street. This could be a multi-use pathway on the north side



HALIFAX

ATTACHMENT E:
Active Transportation Priorities Plan Appendix E: Evaluation Criteria for New Bicycle Facilities

Potential for Use/ Connectivity
High density of existing/ planned origins and destinations

- Residences
- Workplaces
- Shops
- Community Facilities
- Schools
- Other destinations
- Other AT infrastructure (bike lanes, local street bikeways, AT greenways)

Street Characteristics

- Favourable grades (preferably 6% or less)
- Low volume of motor vehicle traffic
- Low volume of large vehicles
- High volume of existing cyclists
- Speed of traffic
- Few complex intersections
- Safety issues
- Impact on traffic (i.e. of reducing vehicle travel or turn lanes to add a bike facility).
- Impact on green space
- Impact on commercial or residential parking
- The ability to mitigate losses to on-street parking

Alternative Route Analysis

- Consideration of the suitability of adjacent corridors (if applicable) which could be alternatives to the proposed route. Alternatives would be subject to the same criteria.

Public and Stakeholder Feedback

- Public support for the facility
- Stakeholder support for the facility
- Internal (HRM) review of the facility