
Victoria Avenue Bikeway, Pedestrian and Traffic Safety Improvement Project Follow-Up

ISSUE

This report provides a discussion on approaches that impact overall project costs and outlines strategies that will promote design consistency on active transportation corridors.

BACKGROUND

City Council, at its Regular Business meeting held on April 26, 2021, considered a report on the Victoria Avenue Bikeway, Pedestrian and Traffic Safety Improvement Project, and resolved, in part:

- “2. That Administration report further on approaches that would reduce the overall project cost, including innovative design and construction approaches and external funding options such as the federal AT funding, and Gas Tax funding; and
3. That Administration report back with options to ensure design consistency on identified AT corridors.

CURRENT STATUS

Planning Approach

At its Regular Business Meeting held on March 25, 2019, City Council received a report regarding the Active Transportation (AT) Implementation Plan that outlined five key components of the implementation strategy: 1) integration with standard practice, 2) leverage other projects, 3) develop shelf-ready projects, 4) leverage all funding opportunities, and 5) measure and report progress. These five components also apply to the implementation of individual projects within the AT Plan:

Integration with standard practice	All design projects take into consideration current design standards and industry best practices. Desirable and minimum thresholds for design standards are often established for infill projects, as desirable standards may not be achievable in all retrofit conditions.
Leverage other projects	Alignment with other work in the area is reviewed to leverage all work being completed. Where possible, alignment of projects is preferred to maximize cost efficiencies and minimize disruption to the neighbourhood.
Shelf-ready projects	Completing design projects is foundational to developing shelf-ready projects. Having shelf-ready projects allows the City to benefit from grant funding opportunities.
Leverage all funding opportunities	Civic staff monitor internal and external opportunities that provide funding for the delivery of active transportation projects. Having shelf-ready projects is key in leveraging funding opportunities as they arise and to align projects with other work.
Measure and report progress	When projects are implemented, the installation is reviewed and modified as needed. For complex projects, a detailed monitoring and evaluation plan may be developed. Progress is reported through annual reports to City Council.

Design Approach

For cycling networks to be user friendly, the network needs to be convenient, connected, and comfortable for people of all ages and abilities. This approach also applies to the individual route design. Currently, treatments for corridors are selected based on several factors:

- The design needs to be convenient for people on bikes. The design should be intuitive, easy to understand, the route is continuous (not frequently changing streets), minimal number of stop control intersections, safe crossings of major intersections are provided, and the route is clear from snow, ice, gravel, and debris. The provision of wayfinding signs for people to easily navigate the route also enhances convenience.
- The design needs to be connected. The route should be direct and take people where they want to go with minimal detours or deflections, connects to major destinations, connects to major crossing points such as bridges, overpasses, and underpasses, and connects to existing cycling routes.
- The design needs to be comfortable. People of all ages and abilities feel confident using the infrastructure, by design elements such as intersection treatments, traffic calming measures, and, where appropriate, separation from traffic and buffer types. These elements are applied based on the context of the route, including adjacent land uses, traffic patterns, traffic speeds and volumes, as well as other factors such as parking, loading, and utility collection considerations.

Build Approach

For active transportation projects, the Administration typically follows the traditional design-bid-build approach. The design is completed (either in-house or by a consulting firm), then the project is tendered and awarded to a contractor to build. Construction contracts are typically awarded to the contractor with the lowest bid price, or with the best value by evaluating other criteria.

DISCUSSION/ANALYSIS

Design Standard Impacts to Overall Project Costs

All transportation projects have design standards or minimum thresholds that must be met for an active transportation facility to be safe and comfortable for the intended user and meet the maintenance and preservation requirements of the City. A discussion of these elements is included in Appendix 1.

For the minimum design, transportation facilities must include the design elements necessary to achieve the desired safety and comfort of the facility for all users.

Minimum thresholds and design standards vary depending on the street type and will vary in cost depending on the specific street context. Retrofit projects tend to have higher costs than new development projects due to the additional removal and regrading work that is required to 'retrofit' the street to accommodate infrastructure not previously provided. The provision of design elements required to meet the minimum threshold is the minimum cost associated with installing the facility.

In retrofit situations, the minimum design may not be adequate to meet the community's expectations for their street. Additional design elements may be introduced to ensure that the active transportation facility and street meets the needs of the neighbourhood and creates an inviting space for people, such as relocating curb, providing additional landscaping or urban design elements, selecting visually appealing materials, etc. These additional design elements increase the cost of the overall project. While not necessary for the safety and function of the facility or street itself, the design elements may be necessary to achieve community acceptance, and long-term success of the project.

Project Implementation Strategies Impacts to Overall Project Costs

There are three different elements to consider when discussing strategies to implement active transportation facilities:

- Installation treatment type: pertains to the materials used;
- Installation approaches: pertains to the construction delivery methods; and
- Project delivery models: pertains to the procurement process for project delivery.

Each of these elements contain a variety of opportunities and challenges and have different costs associated, additional details can be found in Appendices 2, 3, and 4.

Appendix 2 discusses the installation treatment types. Tactical installations, such as posts and paint, and sometimes planters or bollards, are often used by other cities to rapidly install cycling infrastructure at a low cost. Intermediate installations may be used when higher-grade materials are desired. Both tactical and intermediate installations require most of the existing curb to remain.

Appendix 3 outlines the different ways construction projects can be delivered. The Administration has had success with the installation of sidewalks and pedestrian accessibility curb ramps through leveraging existing construction and preservation project contracts at the time of reconstruction. Phase 1 of Victoria Avenue is a successful example of aligning major reconstruction work with retrofit installations.

Appendix 4 discusses procurement approaches. The Administration believes most active transportation projects are too small to engage the industry using Design-Build or Public-Private Partnerships models.

For all AT projects, Administration will closely scrutinize the detailed design and construction approaches and leverage available opportunities, including innovation, to reduce the overall project costs.

External Funding Options

1. Federal and Provincial Funding

Civic staff monitor federal and provincial opportunities that provide funding for the delivery of active transportation projects. Often, these programs require completion of the functional design and City Council approval of the project. Projects are often required to be "shelf ready", and detailed cost estimates completed. Examples of

funding applied for in the last five years for active transportation projects include the Rail Safety Improvement Program, Public Transportation Infrastructure Fund, Investing in Canada Infrastructure Fund, Municipal Economic Enhancement Program, and the Canada Healthy Communities Initiative.

The federal government recently announced Canada's First National Active Transportation Strategy, which identified \$400 million over five years to help build new and expanded networks of pathways, bike lanes, trails, and pedestrian bridges. As more details are released, the Administration will identify eligible projects and will make recommendations to City Council, if appropriate, on which project applications should be undertaken.

2. Gas Tax Funding

The Gas Tax program states local roads and bridges are eligible for Gas Tax Funding. This includes roads, bridges, and active transportation infrastructure (active transportation refers to investments that support active methods of travel and can include cycling lanes and paths, sidewalks, hiking, and walking trails).

The City allocates Gas Tax Funding through the Business Plan and Budget Options process where all projects are submitted, prioritized and then decisions are made during budget deliberations on which ones to fund. Active transportation projects are submitted through the Business Plan and Budget Options process for consideration for funding with all other city projects.

Design Consistency on Identified Active Transportation (AT) Corridors

Before proceeding to the design of individual corridors, the Administration uses the AT Plan as the road map for selecting project corridors. The AT Plan established the overall cycling network by selecting future routes for the development of the all ages and abilities cycling network. Routes selected for the overall AT Plan cycling network provide an interconnecting system of facilities that are comfortable and attractive for all users, ensuring that the highest standards of safety and comfort are provided throughout the network, with direct connections to key destinations to ensure cycling is a viable transportation option.

The most important factor for design consistency along AT corridors is ensuring a consistent level of protection. If a route is designed for all ages and abilities, the design should incorporate elements that support that user group, regardless of facility type (i.e., multi-use pathway or neighbourhood bikeway). While continuity of facility type is desirable, it may not always be possible in retrofit conditions due to the changing street context. That said, it is not desirable to have several changes in facility type over short distances (such as one to three blocks) unless extenuating circumstances apply (for example, a shared-use pathway through a park that bisects a street with the bicycle boulevard).

As discussed in the background section of this report, there are many factors that go into designing an AT corridor. When a route extends over a long distance, it is likely that

the route will encounter a variety of land uses such as single-family, multi-family, or high-density residential, commercial uses, institutional uses, or industrial land uses. Traffic volumes, speeds and patterns can also vary over the length of the corridor. Another factor to consider are street characteristics such as parking, loading and utility collection needs. For an AT corridor to be comfortable for people of all ages and abilities, all these factors must be considered.

For example, an arterial roadway that has restricted access (with no driveways), with high traffic volumes and speeds, signalized intersections, and large boulevard areas is more conducive to a multi-use pathway than a residential street with multiple driveways. Whereas a local street with low-density residential and low traffic volumes and speeds may be more conducive to a neighbourhood bikeway.

Another important consideration in design is the transition between facility types. These transitions often occur at intersections and must be intuitive to all street users to ensure the safety of our vulnerable road users. Transitions include intersection treatments that make the change in facility type safe and intuitive for all users such as bicycle boxes, bicycle signals, and dedicated bicycle signal phases.

Route consistency is addressed through the various phases of a project's life. A general overview of the process is provided in Appendix 5.

OTHER IMPLICATIONS

There are no financial implications. The privacy, legal, social, and environmental implications have not been assessed at this time.

APPENDICES

1. Design Standards for AT Facilities
2. Installation Treatment Type: Materials Used
3. Installation Approaches: Construction Delivery Methods
4. Project Delivery Models: Procurement Process
5. Plan-Design-Build Process Framework

Report Approval

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