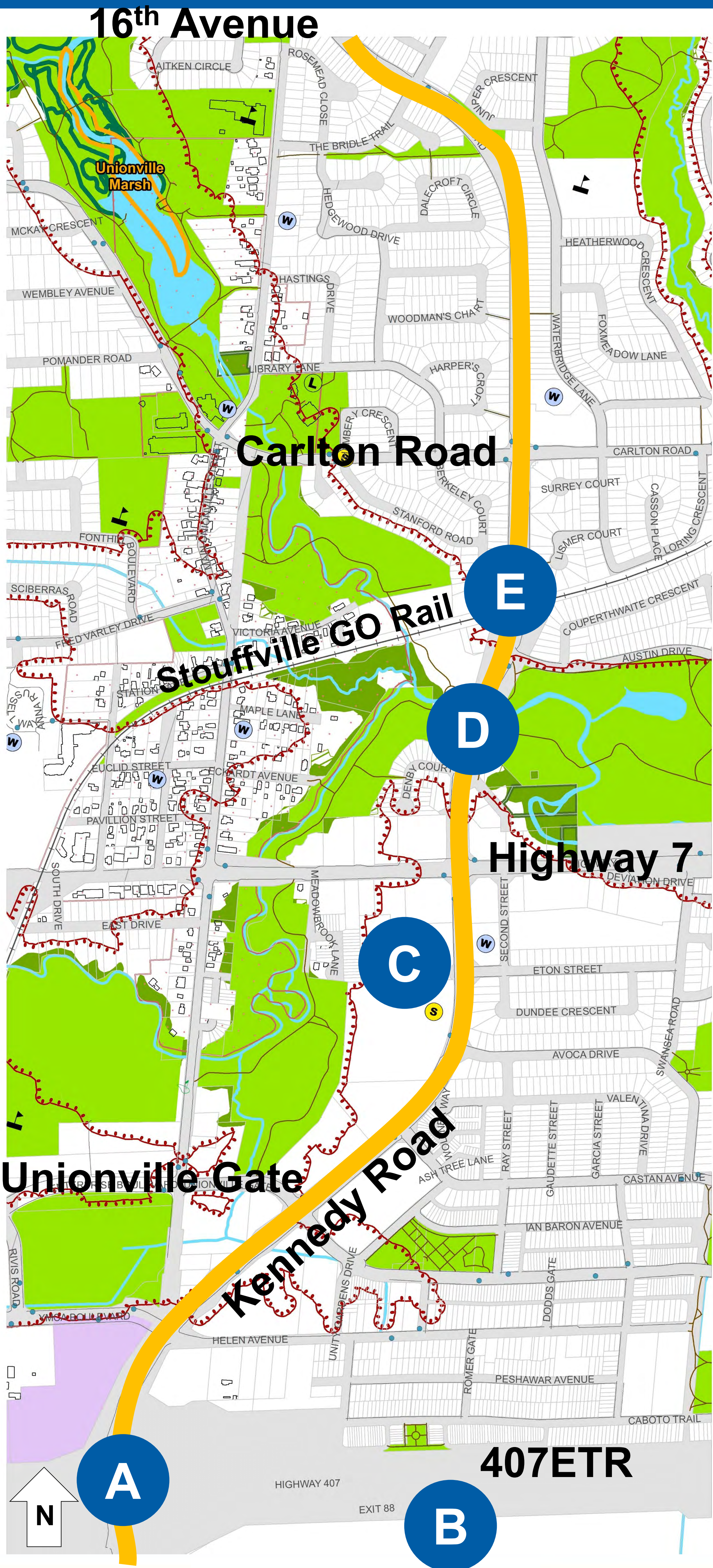
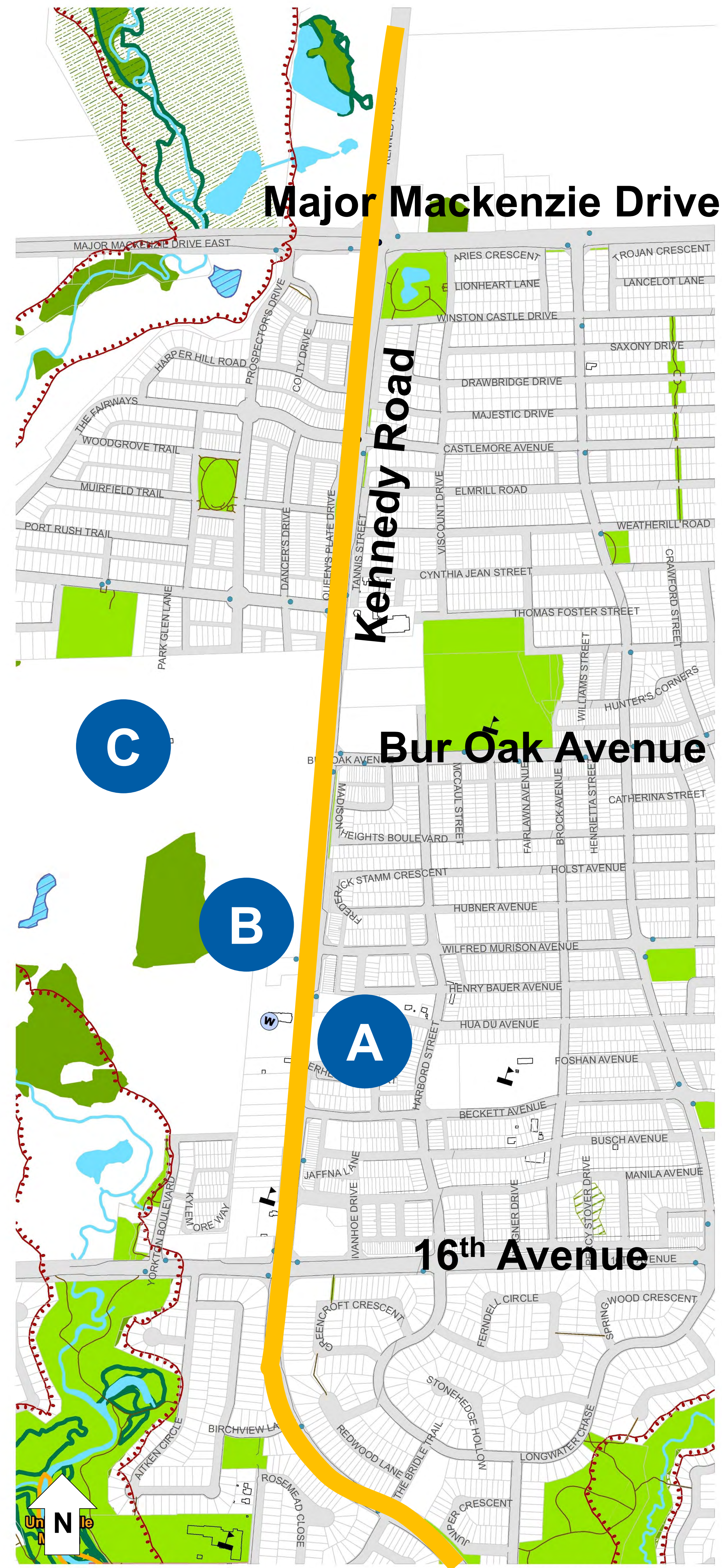
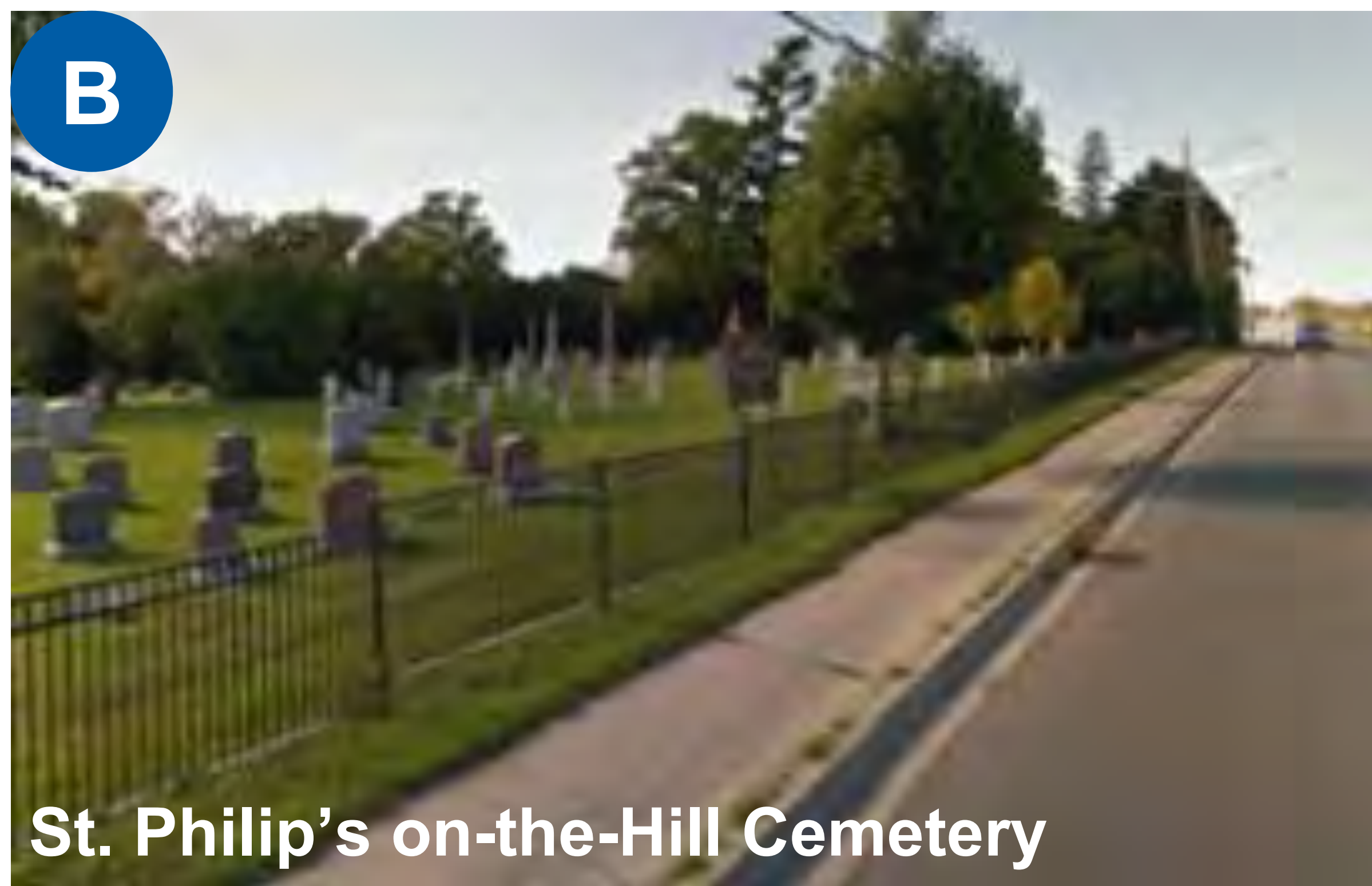
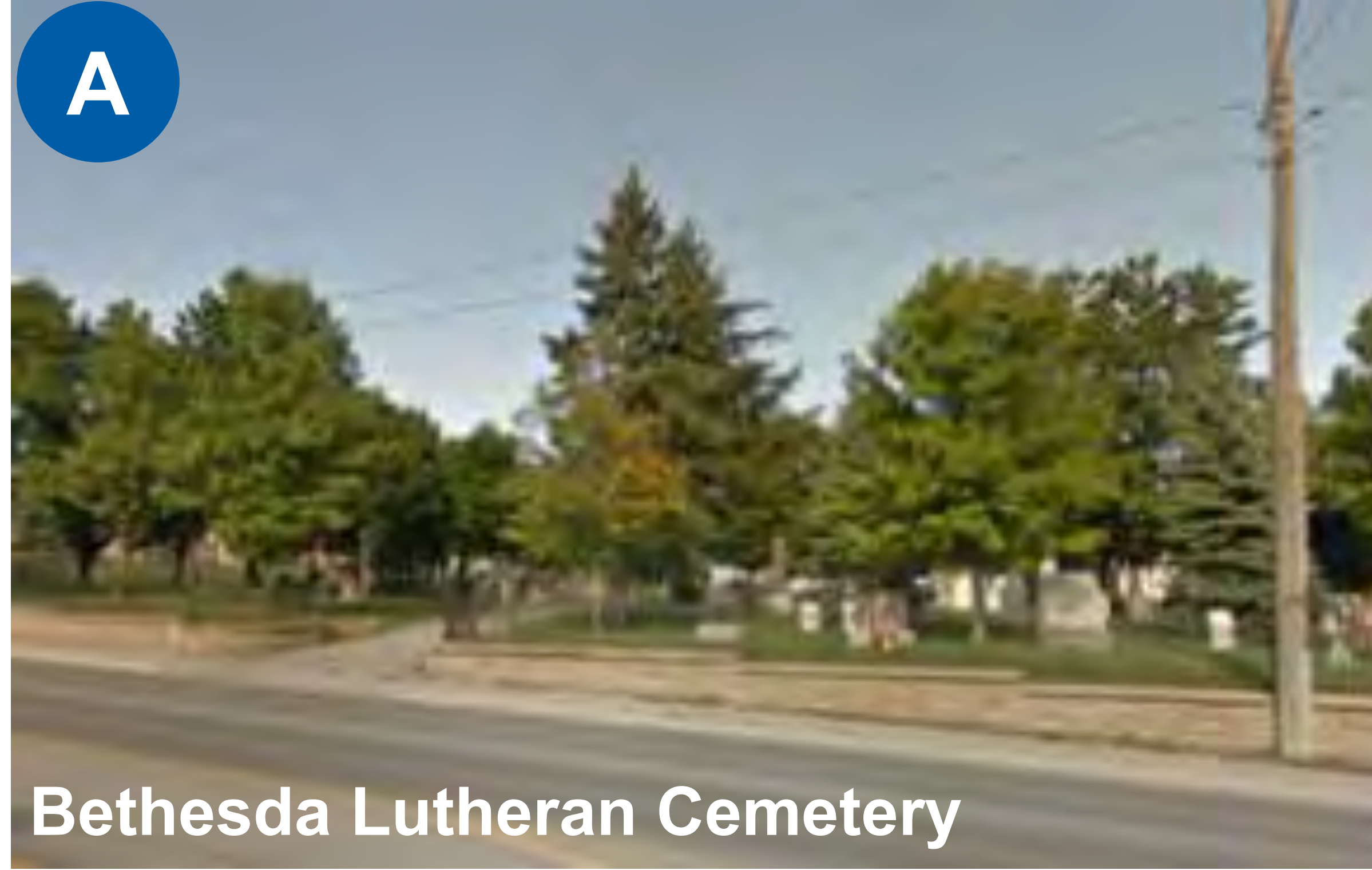


Physical and Environmental Features to Consider Highway 407 to 16th Avenue



Physical and Environmental Features to Consider 16th Avenue to Major Mackenzie Drive



Problem and Opportunity Statement

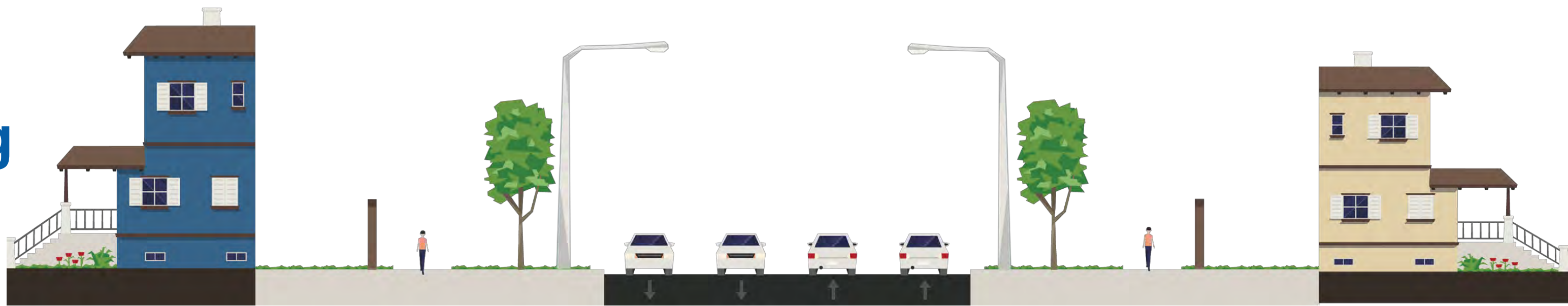
PROBLEM		OPPORTUNITY
Existing road and intersections cannot accommodate future traffic volumes	➡	Improve Kennedy Road capacity to accommodate projected traffic demand and maximize person-carrying capacity
Increased local road traffic due to regional roads being at capacity	➡	Facilitate York Region's Finer Grid Network Strategy including the review of York Region's access management guidelines, and removal of turning and vehicle restrictions where appropriate
Lack of continuous pedestrian and cyclist facilities	➡	Improve pedestrian and cycling facilities to encourage other modes of transportation to reduce congestion and single occupancy vehicle (SOV) use
Existing infrastructure does not support enhanced transit service and results in delays	➡	Improve the efficiency and reliability of transit
Anticipated delays at the existing at-grade Stouffville GO Rail crossing(s)	➡	Improve the Stouffville GO Rail crossing(s) and reduce delays and congestion with the associated crossing
Safety and operational concerns at various locations, include Stouffville GO Line crossings	➡	Improve safety, performance, and operational efficiency for all modes along the study corridor



Summary of Alternative Solutions Considered

York Region’s 2016 Transportation Master Plan considered the following Alternative Solutions:

1. Do Nothing



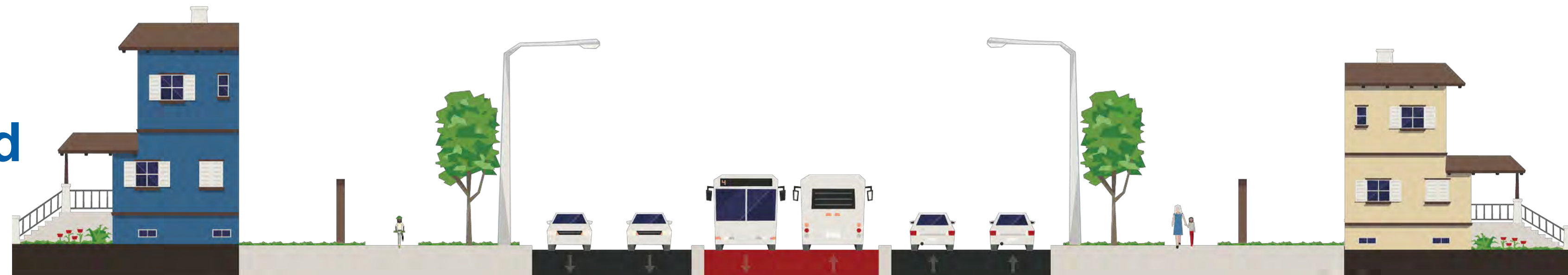
4. Widen to 6 Lanes for HOV/Transit



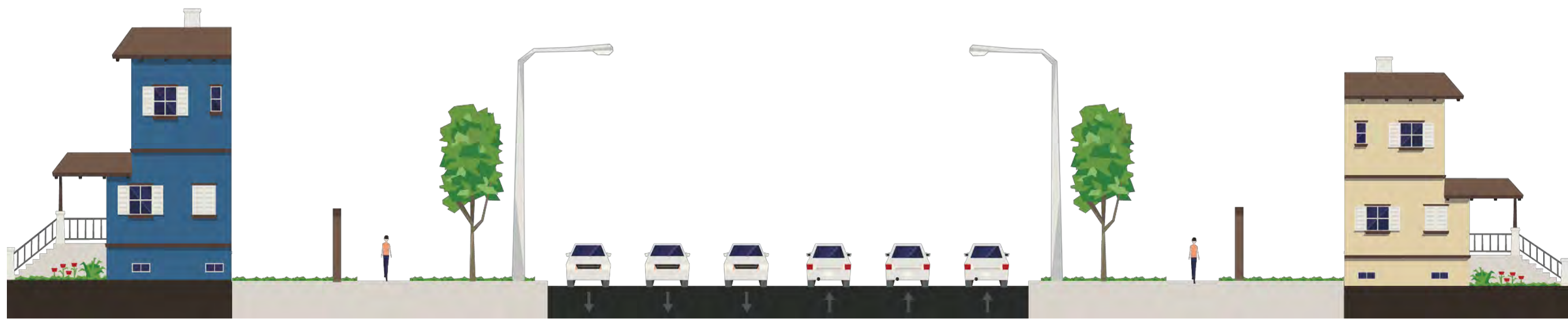
2. Optimize Existing Facility with Intersection Improvements



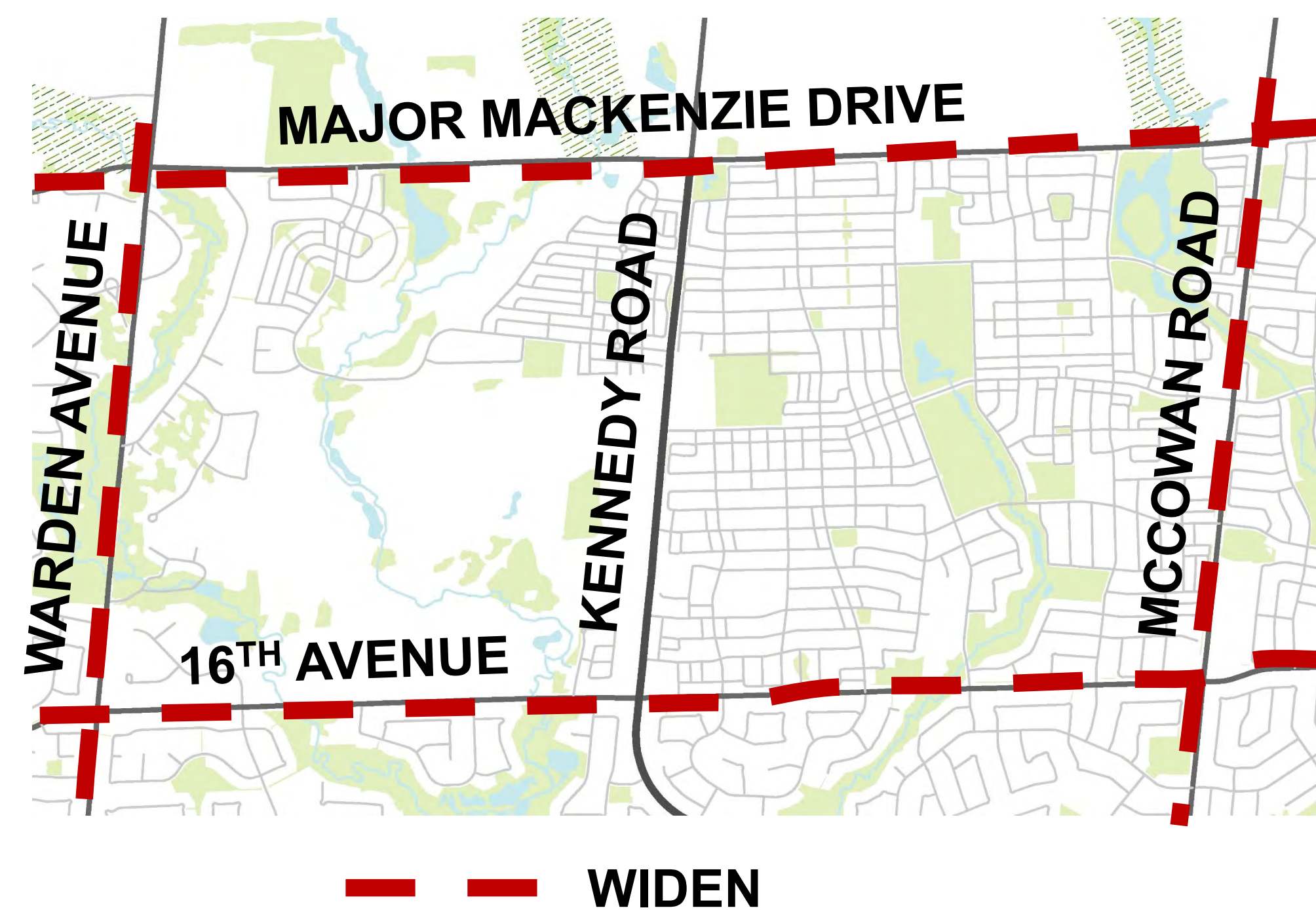
5. Widen to Implement Rapid Transit



3. Widen to 6 Lanes for Capacity Improvements



6. Widen Parallel/Adjacent Corridor (i.e. Warden Avenue, Major Mackenzie Drive, 16th Avenue, McCowan Road)



Alternatives were evaluated based on their Alignment with TMP Objectives:



Support Transit



Support Road Network



Support Active Transportation



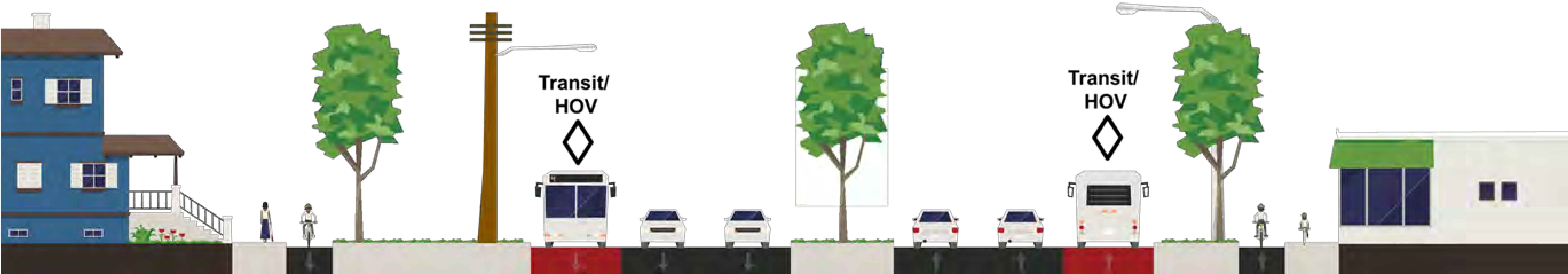
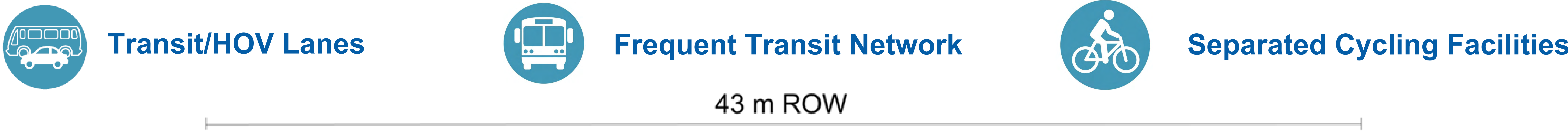
Support Goods Movement



Support Last Mile

YR-TMP 2016 – Preferred Solution

Preferred Solution



Widen to 6 Lanes for HOV/Transit was identified as the preferred alternative due to its alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
<ul style="list-style-type: none">Support for Frequent Transit NetworkProvides connections to Milliken and Unionville GO Stations	<ul style="list-style-type: none">Volume-to-Capacity (V/C) Ratio improves but maximum V/C Ratio remains above 1.0	<ul style="list-style-type: none">Provision of separated cycling facilities where ones currently do not exist	<ul style="list-style-type: none">Improvement on Secondary Strategic Goods Movement Network	<ul style="list-style-type: none">New/improved cycling infrastructure and continuous pedestrian facilities adjacent to major transit stations

Preferred Solution (YR-TMP 2016)

Alignment with Study Opportunities

Opportunity	Preferred Solution’s Alignment with Study Opportunities
Improve Kennedy Road capacity to accommodate projected traffic demand and maximize person-carrying capacity	Maximization of person-carrying capacity through the provision of Transit/HOV lanes
Facilitate York Region’s Finer Grid Network Strategy including the review of York Region’s access management guidelines, and removal of turning and vehicle restrictions where appropriate	Where possible, the facilitation of York Region’s Finer Grid Network will be applied
Improve pedestrian and cycling facilities to encourage other modes of transportation to reduce congestion and single occupancy vehicle (SOV) use	Provision of separated active transportation facilities
Improve the efficiency and reliability of transit	Supports Kennedy Road as a Frequent Transit Network through the provision of Transit/HOV lanes
Improve the Stouffville GO Rail crossing(s) and reduce delays and congestion with the associated crossing	Alternative design concepts with the preferred solution will be assessed for the Stouffville GO Rail Crossing(s)
Improve safety, performance, and operational efficiency for all modes along the study corridor	The preferred solution accommodates the safety, performance and operational efficiency for all modes



Design Concepts for Consideration

York Region outlines typical Cross-Sections for Regional Streets based on road typologies

Elements of a Roadway Cross-Section

Vehicular Elements

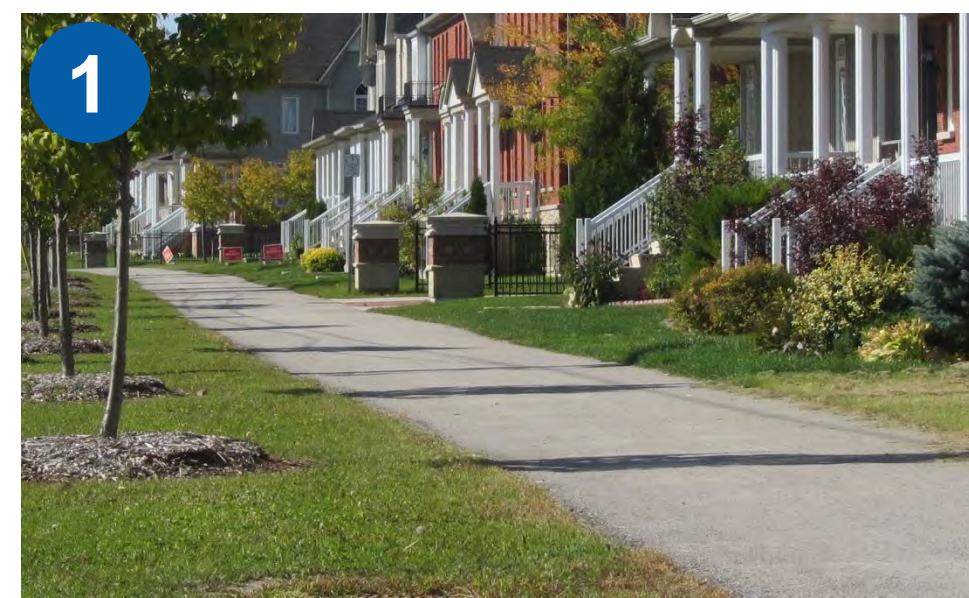


Curb Lane

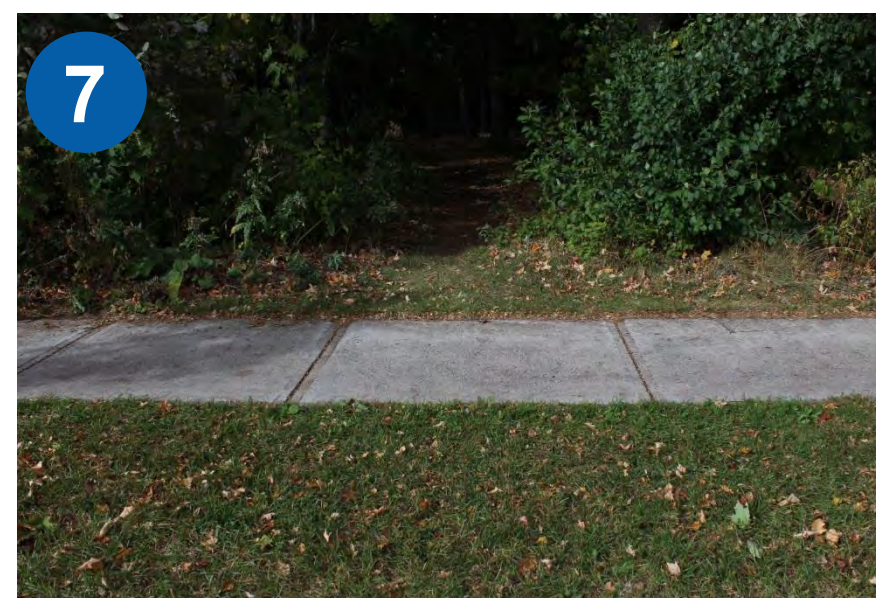


Drive Lane

Active Transportation



Multi-Use Path



Sidewalk



Cycle Track

Other Elements



Streetscaping
/Boulevard



Curb and
Gutter



Utilities/
Streetlighting

Kennedy Road between Steeles Avenue and Major Mackenzie Drive identified as a Connector

Connectors are categorized by:



Generous landscaped boulevards



Enhanced Active Transportation Elements

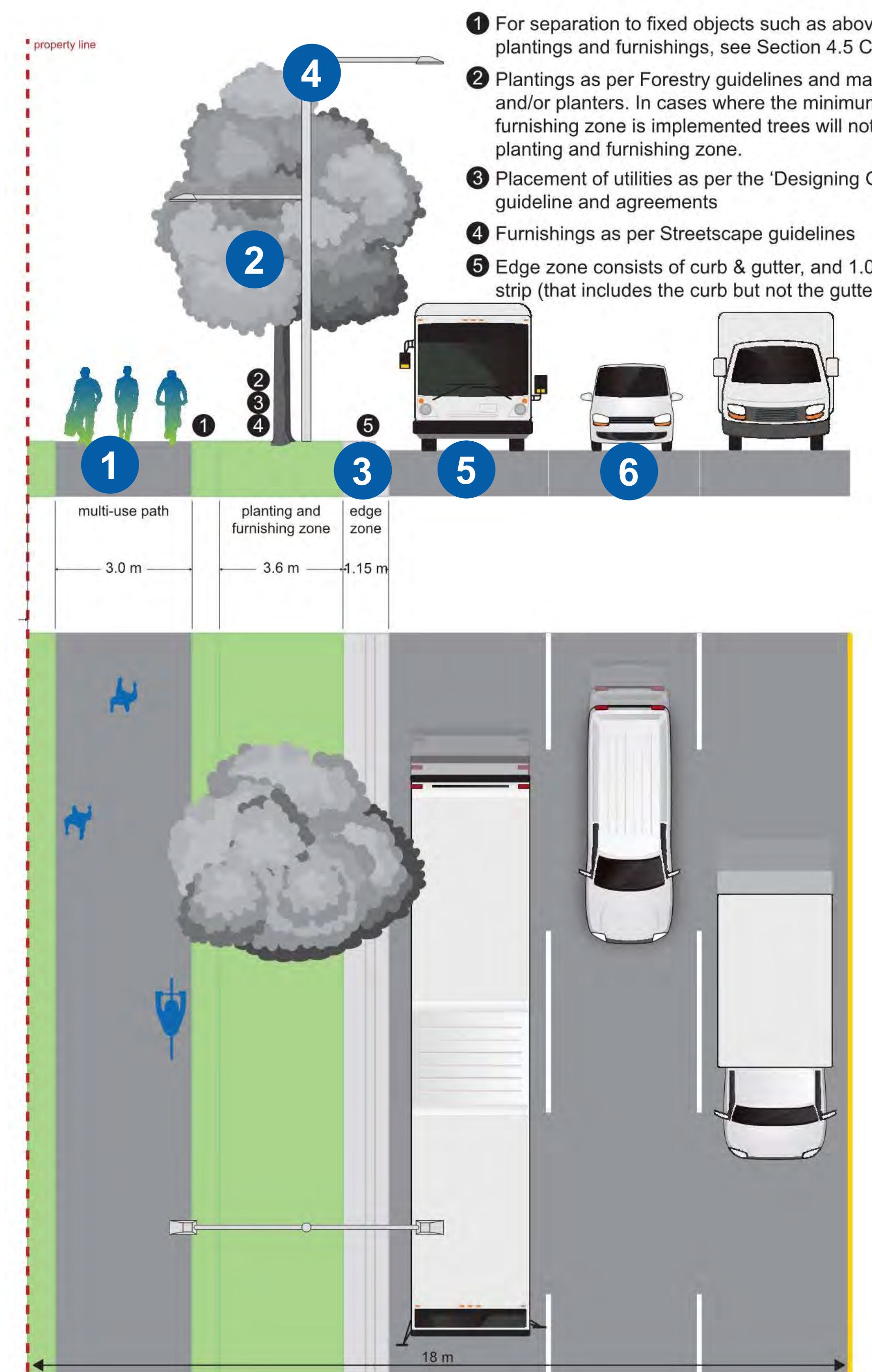


Enhanced Transit Elements

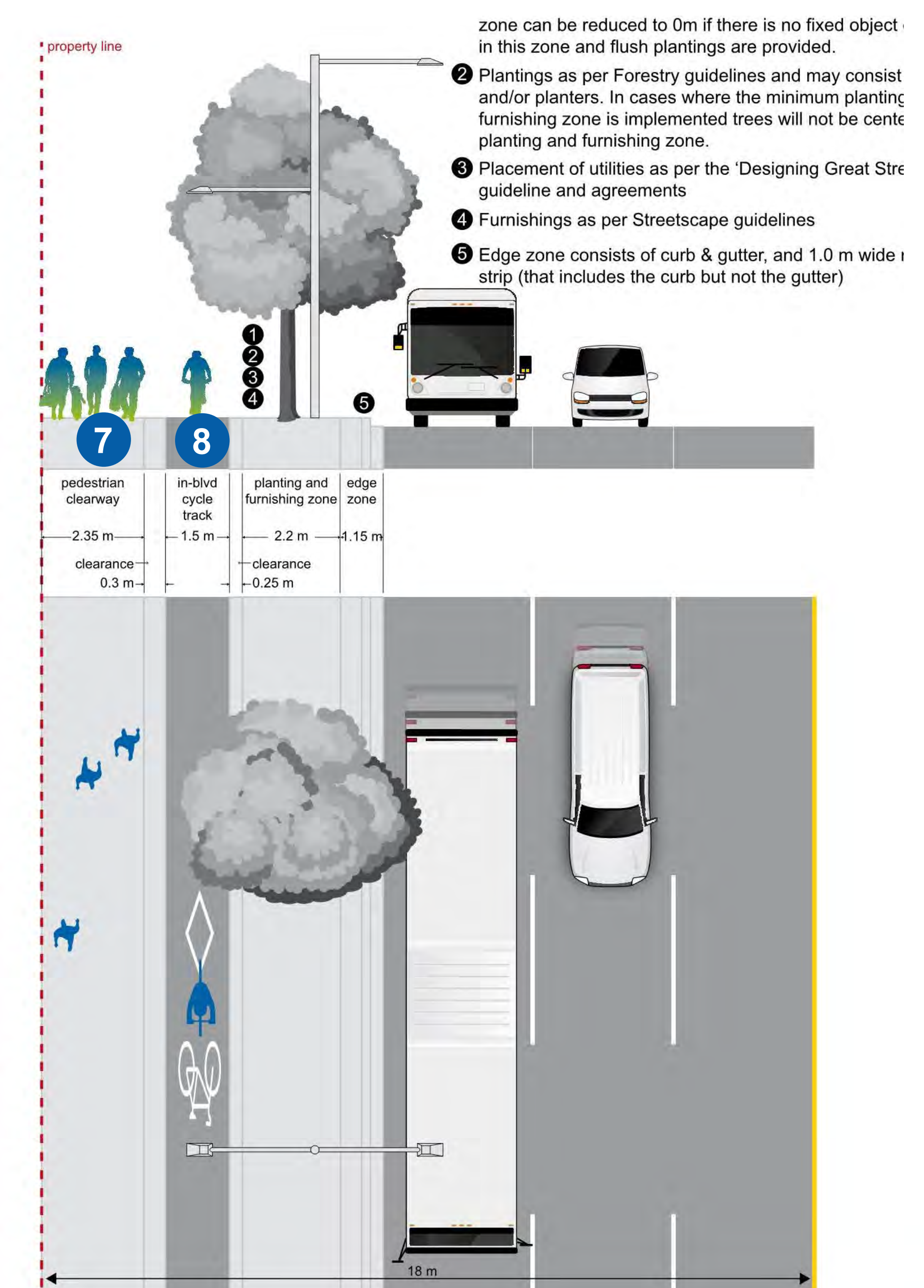


Predominantly residential land-uses along Right-of-Way

Typical 36 m ROW Connector Cross-Section (Multi-Use Path)



Typical 36 m ROW Connector Cross-Section (Cycle Track and Sidewalk)



Right-of-Way along Kennedy Road

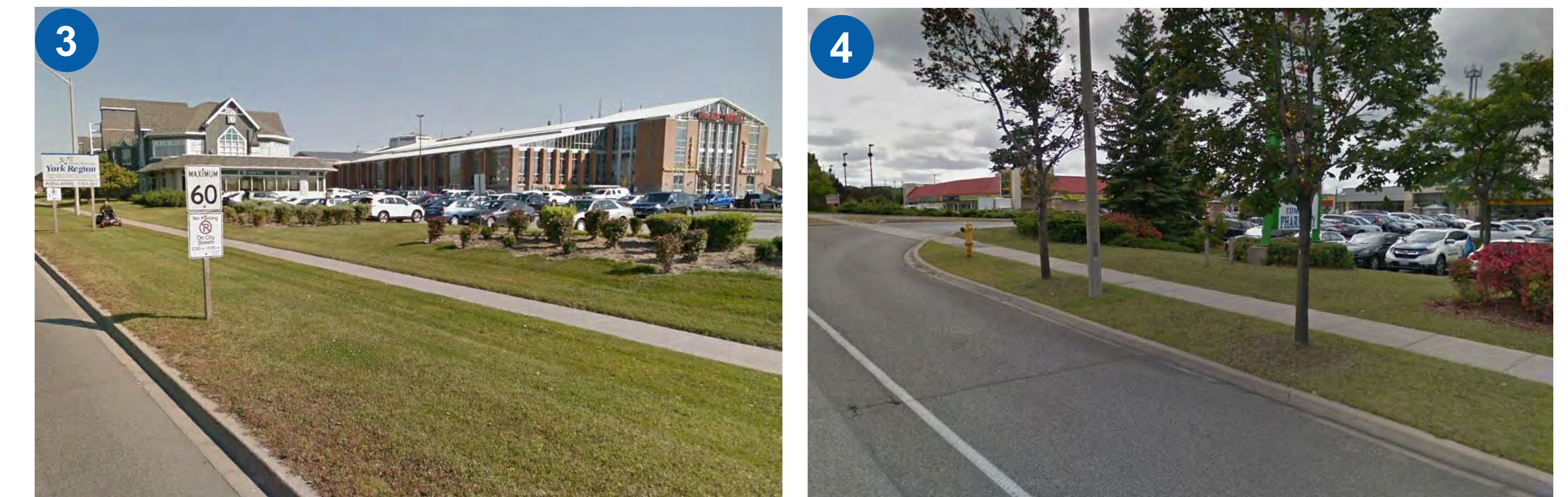


< 36m Right-of-Way



- No separation between various modes of travel
- No landscaped boulevard within this section
- Land-use is primarily cemetery uses

> 36m Right-of-Way



- Some separation between modes of travel
- Narrow landscaped boulevard within this section
- Land-use is primarily residential with commercial plazas at major intersection

Approximate 43m Right-of-Way



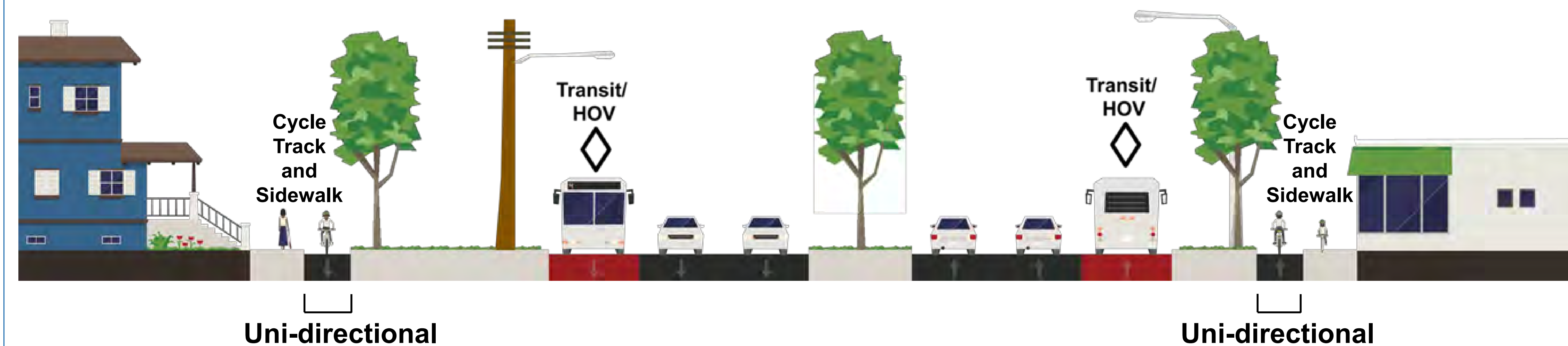
- Greater separation among modes of travel
- Wide landscaped boulevards exist within this segment
- Land-use is primarily commercial and residential

Design Concepts – Typical 43m Cross-Sections

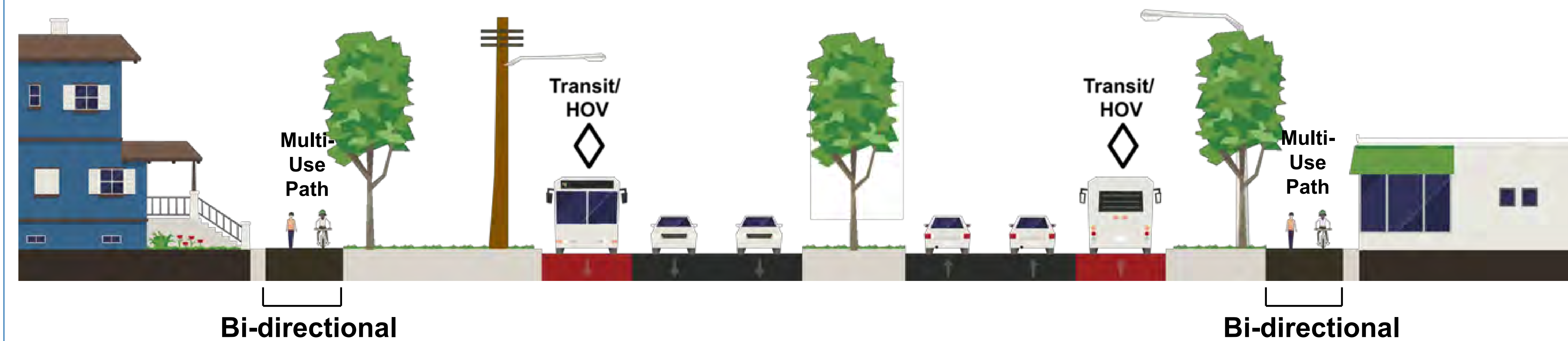
The following design alternatives were identified for 43m typical cross-sections along the Kennedy Road study corridor:

Place a dot beside your preferred image(s)

Alternative 1: Cycle Track and Sidewalk on Both Sides



Alternative 2: Multi-Use Path on Both Sides



Cross-Section Trade-offs between Alternative 1 and Alternative 2:

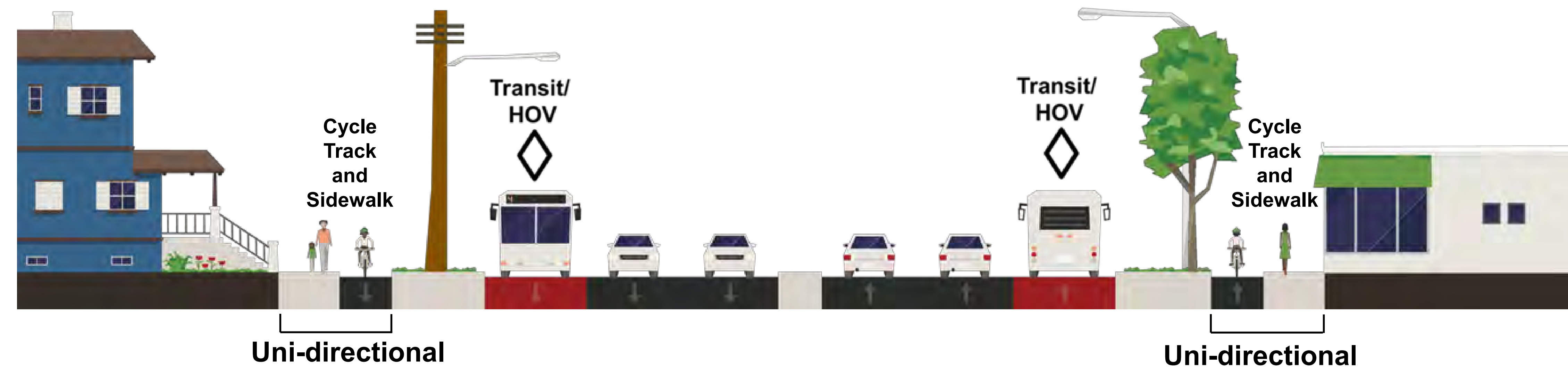
- Slightly reduced landscaping opportunities for Alternative 1 due to width requirements of cycle track and sidewalk component
- Pedestrian and cyclists have exclusive facilities in Alternative 1, whereas facilities are combined in Alternative 2
- Cycle tracks in Alternative 1 are one-directional, whereas multi-use paths in Alternative 2 are bi-directional
- Less potential for pedestrian and cyclist conflicts in Alternative 1 due to the separation of pedestrian and cyclist facilities

Design Concepts – Typical 36m Cross-Sections

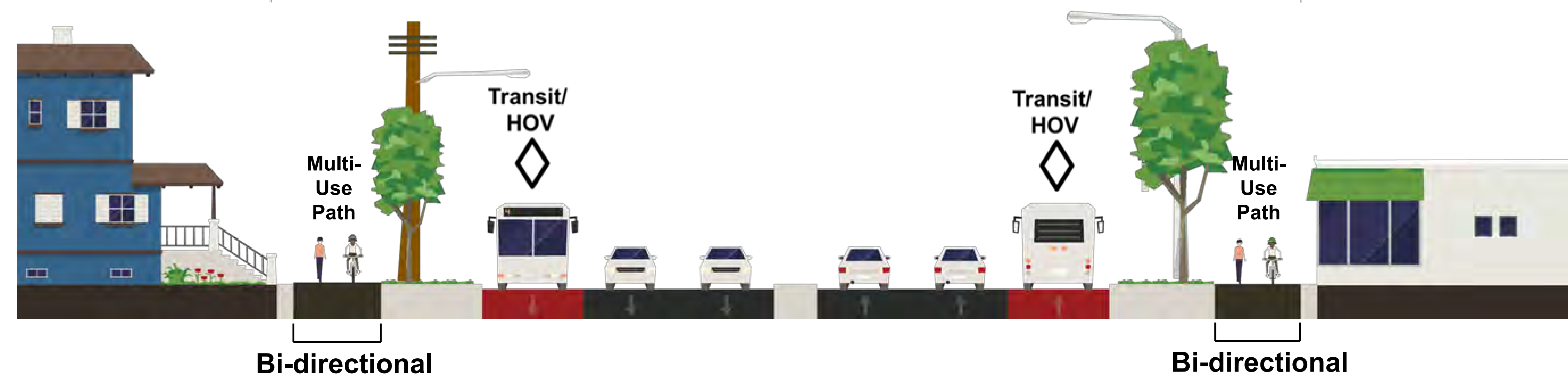
The following design alternatives were identified for 36m typical cross-sections along the Kennedy Road study corridor:

Place a dot beside your preferred image(s)

Alternative 1: Cycle Track and Sidewalk on Both Sides



Alternative 2: Multi-Use Path on Both Sides



Cross-Section Trade-offs between Alternative 1 and Alternative 2:

- Reduced landscaping opportunities in Alternative 1 due to width requirements of cycle track and sidewalk component
- Pedestrian and cyclists have exclusive facilities in Alternative 1, whereas facilities are combined in Alternative 2
- Cycle tracks in Alternative 1 are one-directional, whereas multi-use paths in Alternative 2 are bi-directional
- Less potential for pedestrian and cyclist conflicts in Alternative 1 due to the separation of pedestrian and cyclist facilities

Cross-Section Trade-offs between 43m and 36 m Typical Cross Sections:

- Reduced landscaping opportunities within the boulevard and median in Typical 36m Cross-Section alternatives due to Right-of-Way constraints
- Separation between travel lanes and active transportation facilities is reduced in Typical 36m Cross-Section alternatives as boulevard width is reduced

Design Concepts - Roundabout Screening and Results

What is a Roundabout?

A roundabout is a circular intersection control in which drivers travel around a center island. There are no traffic signals in a roundabout and drivers yield at entry to traffic, and exit at the desired street.

Why Roundabouts?

Research has demonstrated that roundabouts are safer than traditional intersection controls due to:



Lower operating speeds



Elimination of “Beating the Light”



One-way travel and the reduction of angle collision



ROUNDABOUT SCREENING ANALYSIS



Number of lanes required based on intersection volumes



Not recommended if candidate intersection requires more than 2 lanes



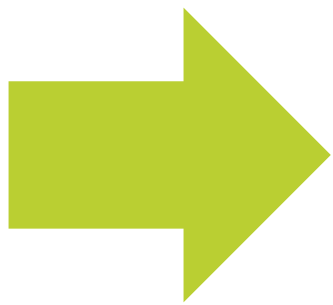
Proximity to nearest intersection, access, or rail crossing



Queuing can adversely affect roundabout operations, not recommended if the nearest intersection is less than 215m away



The need for a signalized pedestrian crossing



Not recommended if there is a high demand for pedestrians or need for a pedestrian crossing at the selected intersection

Due to the number of lanes recommended for the preferred solution (2 general purpose lanes and 1 Transit/HOV in each direction), and the anticipated future quantity of pedestrian demand, roundabouts have not been carried forward as a treatment for intersection improvements

