

TRANSPORTATION ENVIRONMENTAL STUDY REPORT

Highway 401 Planning, Preliminary Design and Class Environmental Assessment, Brockville, GWP 4003-19-00

November 2023

**APPENDIX P:
LANDSCAPE COMPOSITION PLAN**



Highway 401 Brockville - Planning Study

Landscape Composition - Existing Conditions



Both sides of Highway 401 have vegetative buffers that provide visual interest. The landscape is dominated by significant woodlands composed primarily of deciduous species to the south. To the north, there is a mix of woodlands and open meadows.



Both sides of Highway 401 have vegetative buffers that provide visual interest. To the north, the landscape is fragmented and composed of forests, woodlands, and open meadows.



Both sides of the highway have a vegetative buffer, but this buffer is relatively open with glimpses of open meadows and fields beyond. There are some farmhouses and residential buildings visible from the highway.



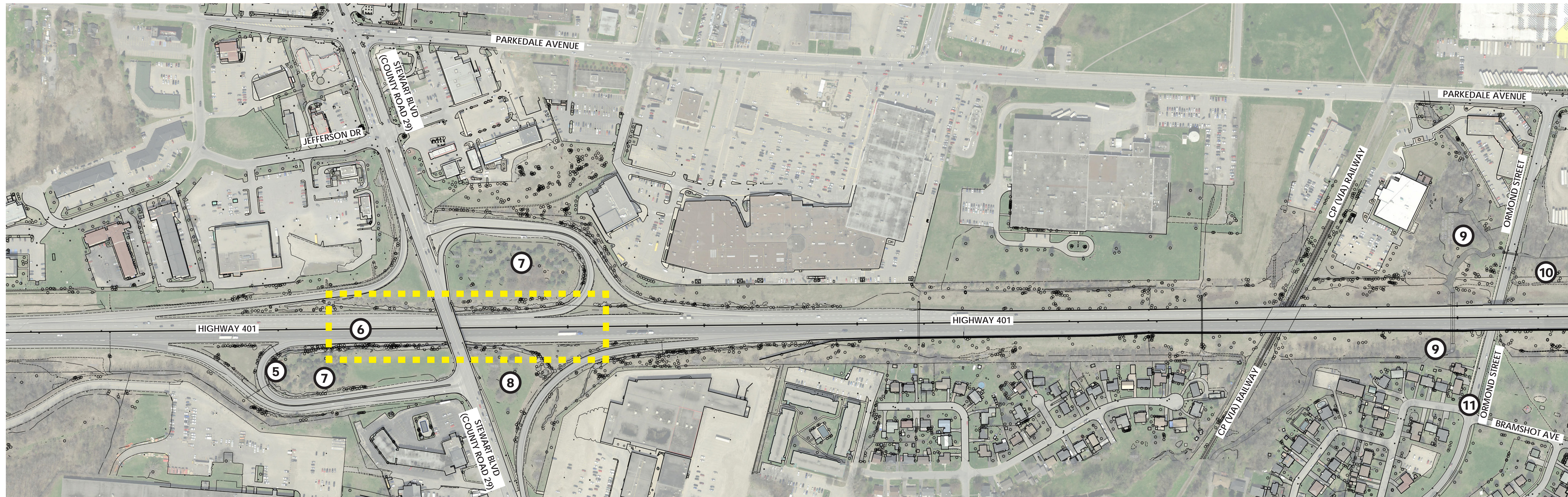
Close to the Stewart Boulevard Interchange, the rural landscape transitions into a commercial area to the north, and a low density residential area to the south. There is a vegetative buffer on the south side of the highway providing visual interest.

WEST OF STEWART BOULEVARD

This section of Highway 401 is approximately 1.5 kilometres (km) in length and has a largely natural aesthetic. A significant woodland is located south of the highway which, in addition to providing visual interest, also serves an important ecological function. This forest is mostly deciduous, consisting of hardwood species, such as sugar maples and elms. On the north side of the highway, the landscape is more fragmented composed of smaller parcels of forest, woodlands, and open meadows.

Highway 401 Brockville - Planning Study

Landscape Composition - Existing Conditions



5
Brockville Gateway Feature provides a significant landmark, which is partially obscured by large commercial and directional signage. The entrance sign is set against a limestone outcrop and a large planting area.



6
The highway is framed with limestone outcrops on both sides of the roadway. The limestone outcrops partially screen views of the highway from Stewart Boulevard.



7
Planted area with large conifers, including white pines (*Pinus strobus*) and Scots pines (*Pinus sylvestris*). The vegetation provides visual interest along the highway and acts as a visual screen to and from adjacent land uses.



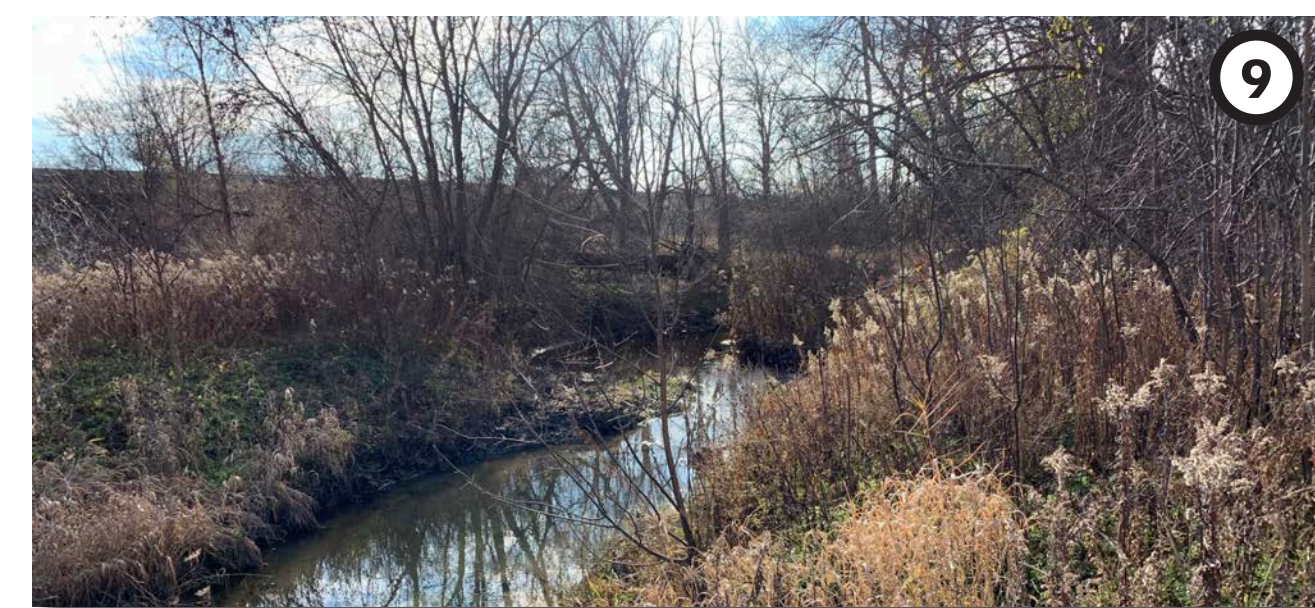
8
Large deciduous and coniferous trees provide visual interest and partially screen the highway from Stewart Boulevard.

STEWART BOULEVARD INTERCHANGE

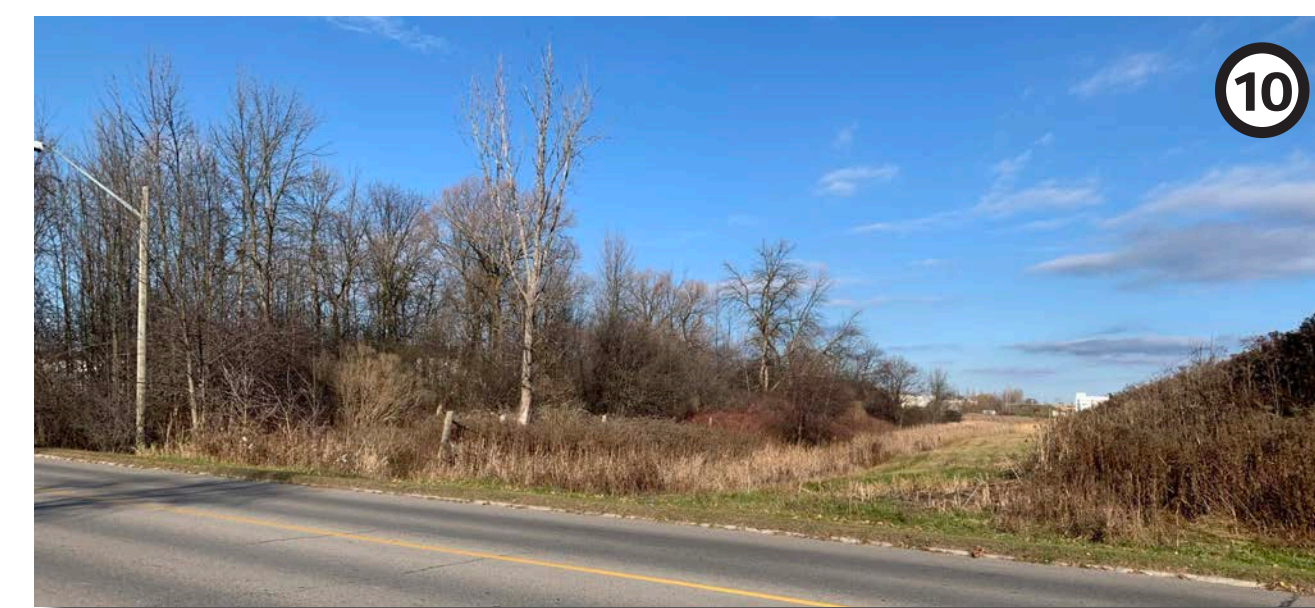
This section of Highway 401 is approximately 1.7 km long and includes the east and west approaches to the Stewart Boulevard Interchange, as well as the Ormond Street Overpass. Along the section of the highway between Stewart Boulevard and North Augusta Road, a continuous noise barrier wall on the south side physically and visually separates the highway corridor from the adjacent residential areas.

On the north side of the highway, there are large commercial and retail areas, as well as some smaller residential areas. These are partially screened from Highway 401.

The Brockville Gateway Feature is a significant landmark, which is partially hidden by large commercial signs.



9
Low lying area with mostly black willows (*Salix nigra*) growing along Buells Creek.



10
Treed area with mostly hardwood species of deciduous trees creating visual interest.



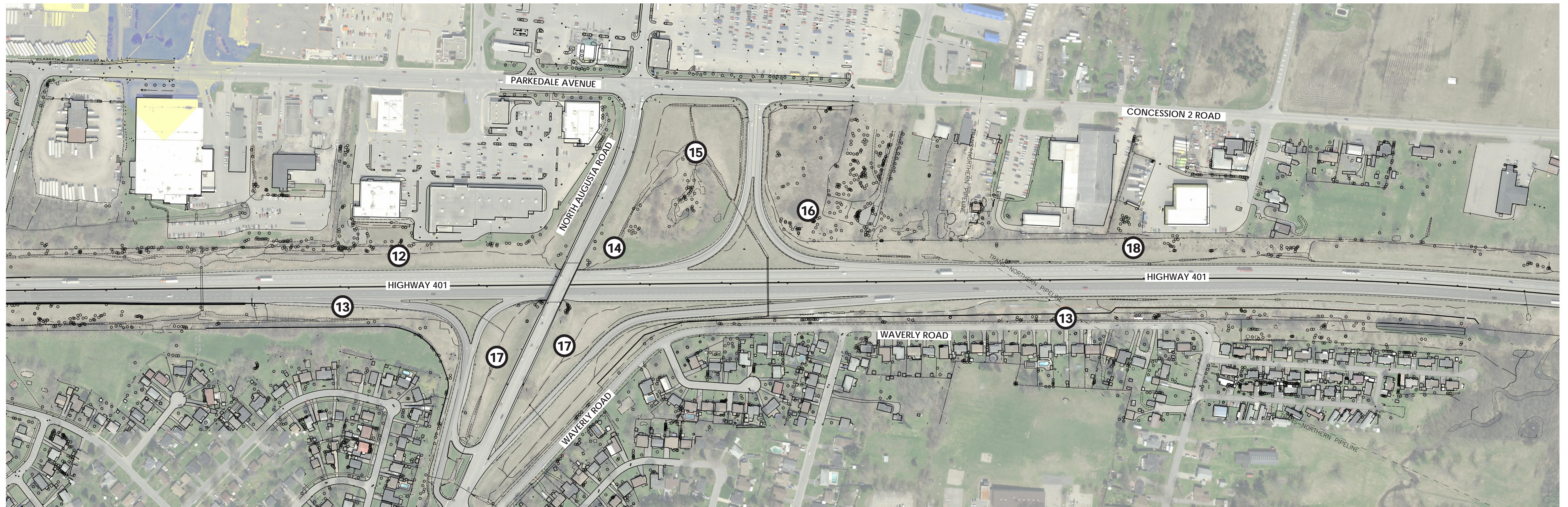
11
The approach to Highway 401 on Ormond Street features a parkland setting with large mature trees, a playground and open space for passive and active recreation. Tree species include maples, oaks, and elms.

BUELLS CREEK AND ORMOND STREET OVERPASS

From Highway 401, views of the vegetation are possible providing greenery around and in between the surrounding commercial / industrial areas and the noise barrier walls on both sides of the highway. Buells Creek is visible from Ormond Street only.

Highway 401 Brockville - Planning Study

Landscape Composition - Existing Conditions



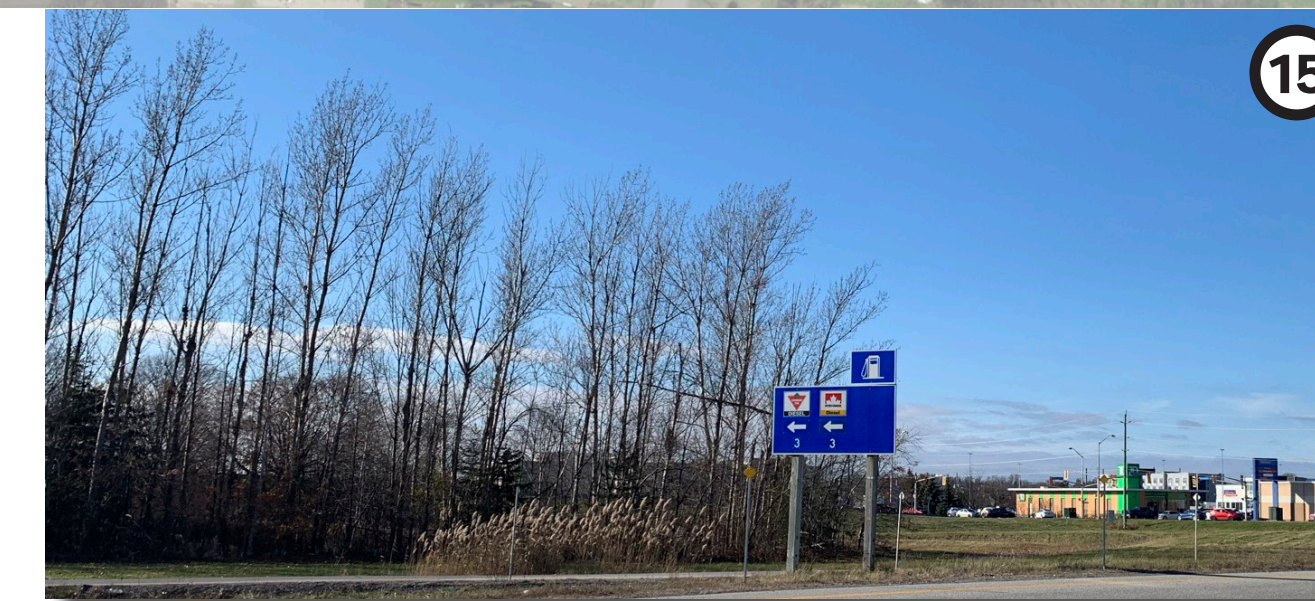
Open area with very limited vegetative screening of adjacent commercial, retail and hospitality land uses.



Noise barrier wall along the southern edge of Highway 401 screens view into the adjacent residential areas. Some vegetative buffer is provided between the highway and noise barrier.



Brockville Gateway Feature provides a significant landmark, which is partially obscured by large commercial and directional signage when using the ramp to North Augusta Road.



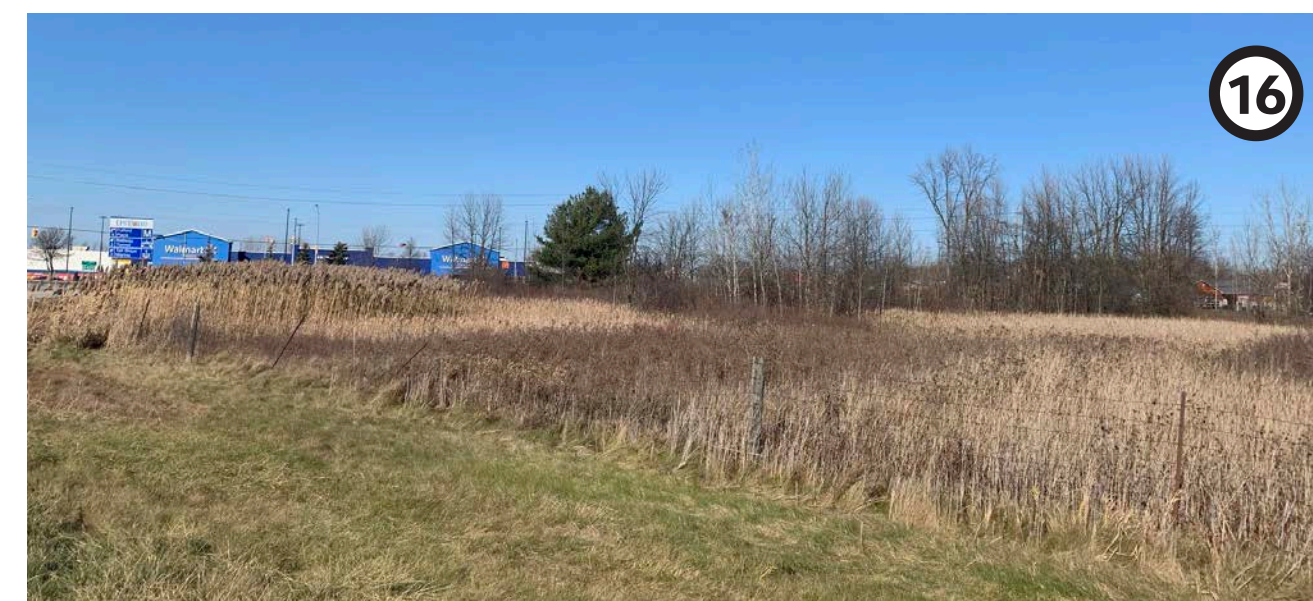
Planted area with a mix of deciduous and coniferous trees, including white pine (*Pinus strobus*), Scots pine (*Pinus sylvestris*), trembling aspen (*Populus tremuloides*), white spruce (*Picea glauca*), and willows. This grouping of vegetation provides a visual interest from the highway.

NORTH AUGUSTA ROAD INTERCHANGE

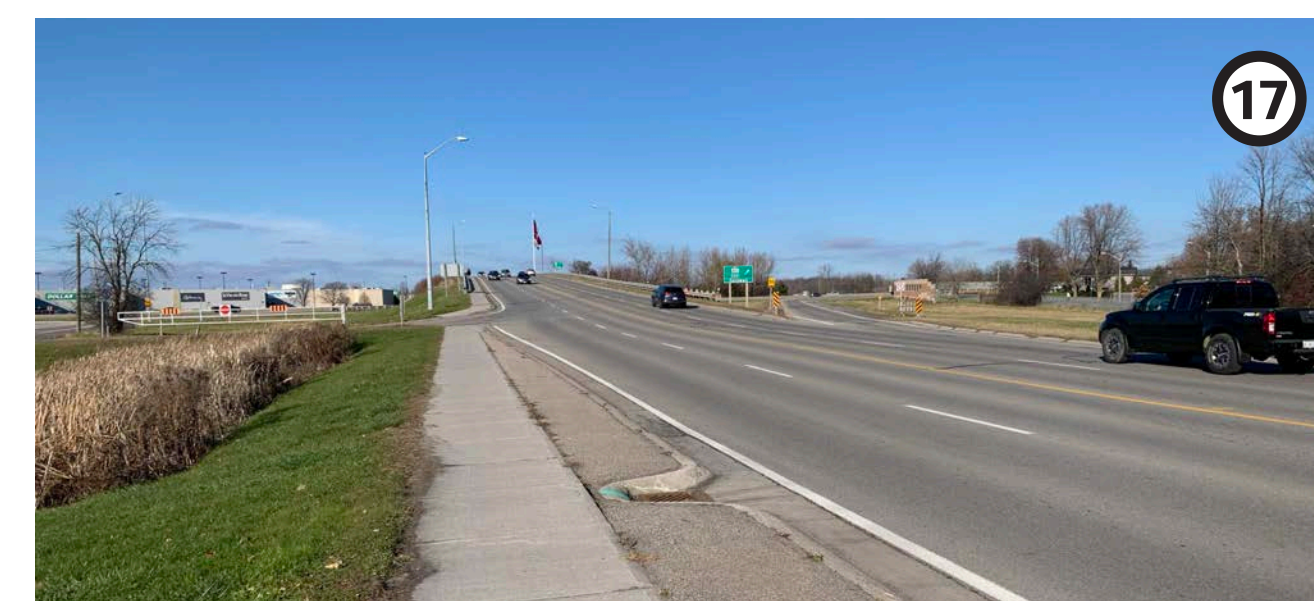
This section of Highway 401 is approximately 1.3 km long and includes the east and west approaches to the North Augusta Road Interchange structure.

Along the southern side of the highway, a continuous noise barrier wall physically and visually separates the highway corridor from the adjacent residential areas. In some areas, there is a narrow vegetative band of deciduous trees growing along the noise barrier wall. On the north side of the highway, there are large commercial, industrial and retail areas, as well as some smaller residential areas. These are partially screened from the 401 by vegetation.

The Brockville sign is a significant landmark, which is partially hidden by large commercial signs.



Open meadow landscape with reed grasses and a few deciduous trees, including trembling aspen (*Populus tremuloides*), Manitoba maple (*Acer negundo*), and American elm (*Ulmus americana*). This open meadow provides a view of the commercial area from Highway 401 and the exit ramp to North Augusta Road.



Open meadow landscape with very few trees, including Manitoba maple (*Acer negundo*), an opportunistic tree.

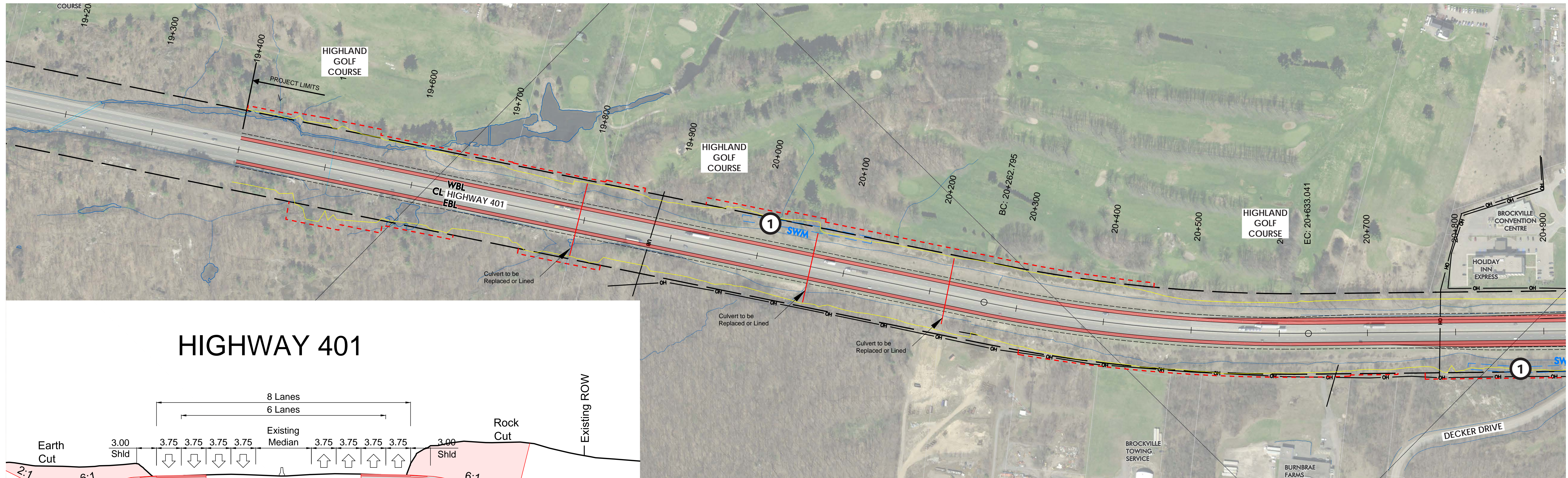


Narrow vegetation buffer along the northern edge of Highway 401 screens views of commercial and industrial areas.

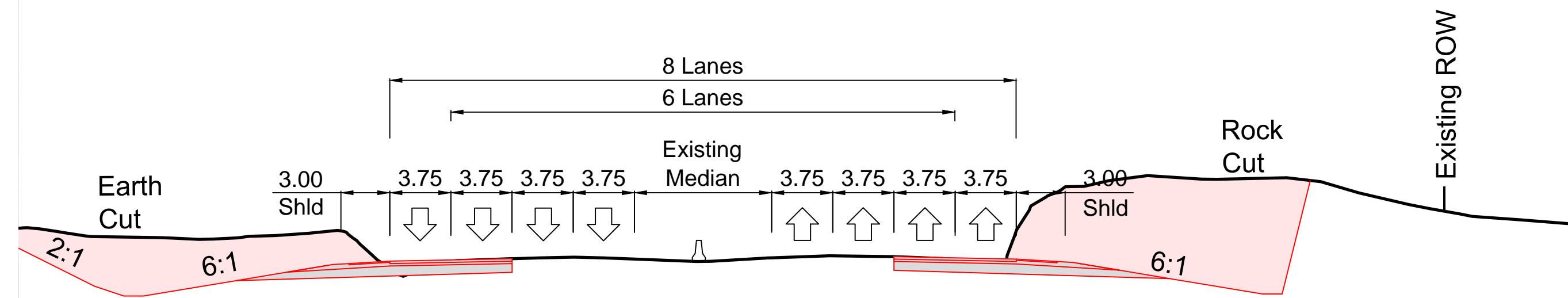
Highway 401 Brockville - Planning Study

Landscape Conceptual Plan

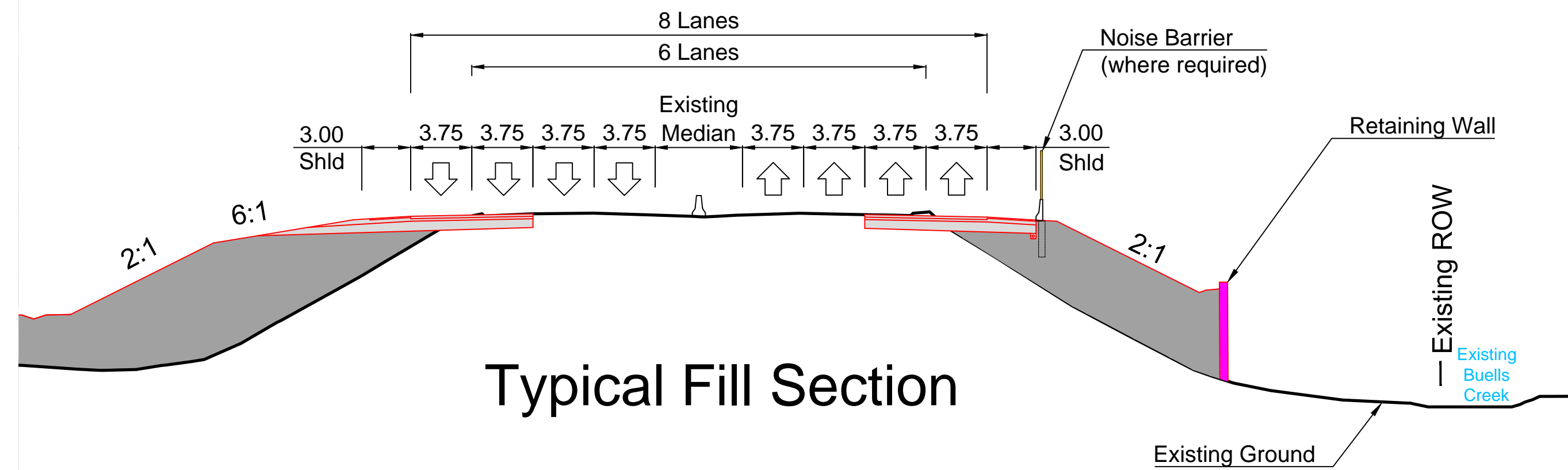
LEGEND	
	Limit of MTO right of way
	New Roadway - Initial (6-Lane Highway 401)
	New Roadway - Ultimate (8-Lane Highway 401)
	Property Required - Ultimate (8-Lane Highway 401)
	New Multi-Use Path (MUP) / Sidewalk
	Traffic Signal
	New Culvert
	Existing Noise Barrier Wall to Remain
	New Noise Barrier Wall
	New Retaining Wall
	Stormwater Management Facility
	New Accent Plantings
	New Screening Plantings
	Overhead Bell
	Underground Bell
	Overhead Hydro
	Underground Hydro
	Underground Gas
	Underground Gas
	Underground Pipeline
	Underground Cogeco Cable
	Overhead Cogeco Cable



HIGHWAY 401



Typical Cut Section



Typical Fill Section

PROPOSED LANDSCAPE FEATURES

- ① Proposed Stormwater Management Area. Stormwater Management Area to provide for quantity and quality treatment. Planting improvements to meet MNRF Stormwater Management Plan and SWMP Guidelines; plantings to include a mix of native trees, shrubs, and grasses.

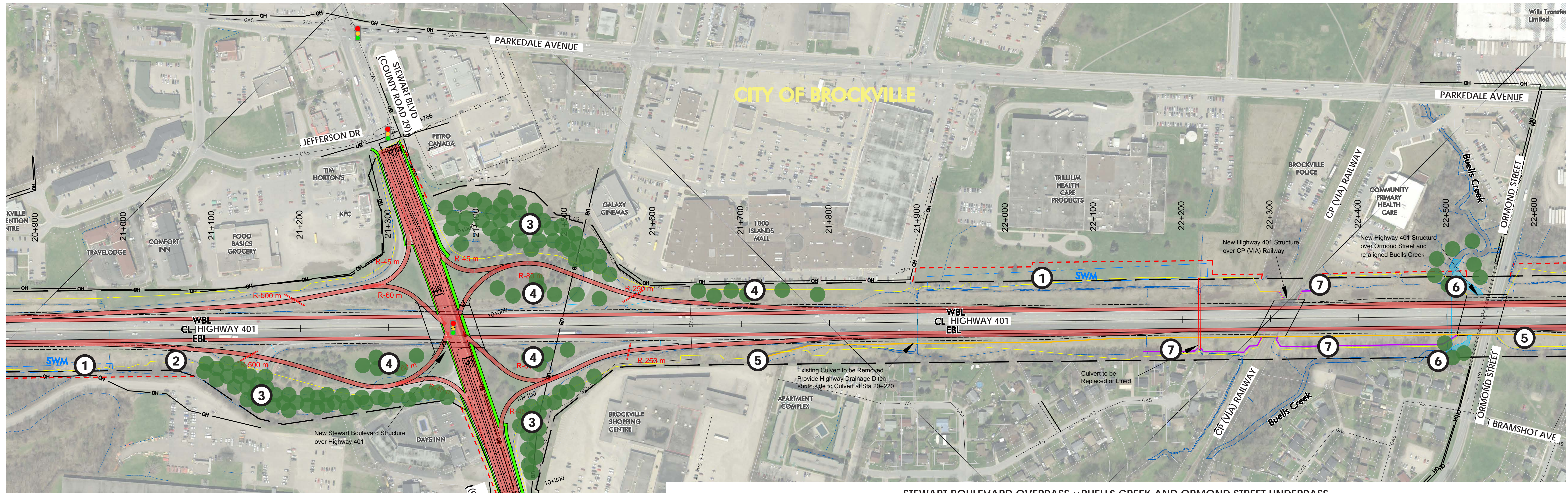
GENERAL NOTES:

- A. Limit disturbance to existing woodlands and vegetated screens.
- B. Disturbed roadway edges to be seeded with Standard MTO Roadside seedmix.
- C. Disturbed forest edges to be replanted with young reforestation material providing diversity in native plant species and responding to soil conditions.
- D. All stormwater management ponds to be seeded and planted with a mix of native plant species tolerant to salt and flooding conditions. Plant species to include trees, shrubs and grasses.

Highway 401 Brockville - Planning Study

Landscape Conceptual Plan

LEGEND					
	Limit of MTO right of way		New Culvert		Overhead Bell
	New Roadway - Initial (6-Lane Highway 401)		Existing Noise Barrier Wall to Remain		Underground Bell
	New Roadway - Ultimate (8-Lane Highway 401)		New Noise Barrier Wall		Overhead Hydro
	Property Required - Ultimate (8-Lane Highway 401)		New Retaining Wall		Underground Hydro
	New Multi-Use Path (MUP) / Sidewalk		Stormwater Management Facility		Underground Gas
	Traffic Signal		New Accent Plantings		Underground Pipeline
			New Screening Plantings		Underground Cogeco Cable
					Overhead Cogeco Cable



PROPOSED LANDSCAPE FEATURES

- 1** Proposed Stormwater Management Area. Stormwater Management Area to provide for quantity and quality treatment. Planting improvements to meet MNRF Stormwater Management Plan and SWMP Guidelines; plantings to include a mix of native trees, shrubs, and grasses.
- 2** Proposed Relocation for Gateway Feature. Plantings to be provided to highlight the presence of Gateway Feature. Feature and plantings to be designed in coordination with the municipality. Plantings to provide a mix of deciduous and coniferous species of trees and shrubs; native, non-invasive species tolerant of drought and salt to be preferred.
- 3** Proposed Reforestation Plantings. Plantings to offer a mix of 50-60mm cal. deciduous trees and 200cm high coniferous trees with a diversity of shrub species; native, non-invasive species tolerant of drought and salt to be preferred.
- 4** Proposed Accent Plantings. Plantings to provide a mix of large deciduous and coniferous species of trees; native, non-native species tolerant of drought and salt to be preferred.

STEWART BOULEVARD OVERPASS // BUELLS CREEK AND ORMOND STREET UNDERPASS

- 5** Proposed Noise Barrier Wall. Noise barrier wall to provide visual interest and present context sensitive materials, colours, and shapes. Plantings to be provided along the wall where possible; plantings to include a mix of native trees, shrubs, and grasses.
- 6** Proposed Realignment of Buells Creek. Realignment of the creek is combined to the new highway structure at Ormond Street. Realigned creek to include enhanced fish habitat and be coordinated with fisheries biologists and fluvial geomorphologists. Creek embankments to be revegetated with a variety of native, non-invasive plant species responding to soil conditions.
- 7** Proposed Retaining Wall. Retaining wall to provide visual interest and allow for a diversity of native plantings on both sides of the wall. Plantings to be provided along the wall and to include a mix of native trees in a variety of sizes from 50-60mm cal. to 100cm high for deciduous trees and 200cm to 100cm high for coniferous trees. Plantings to also include a variety of native shrubs and grasses.

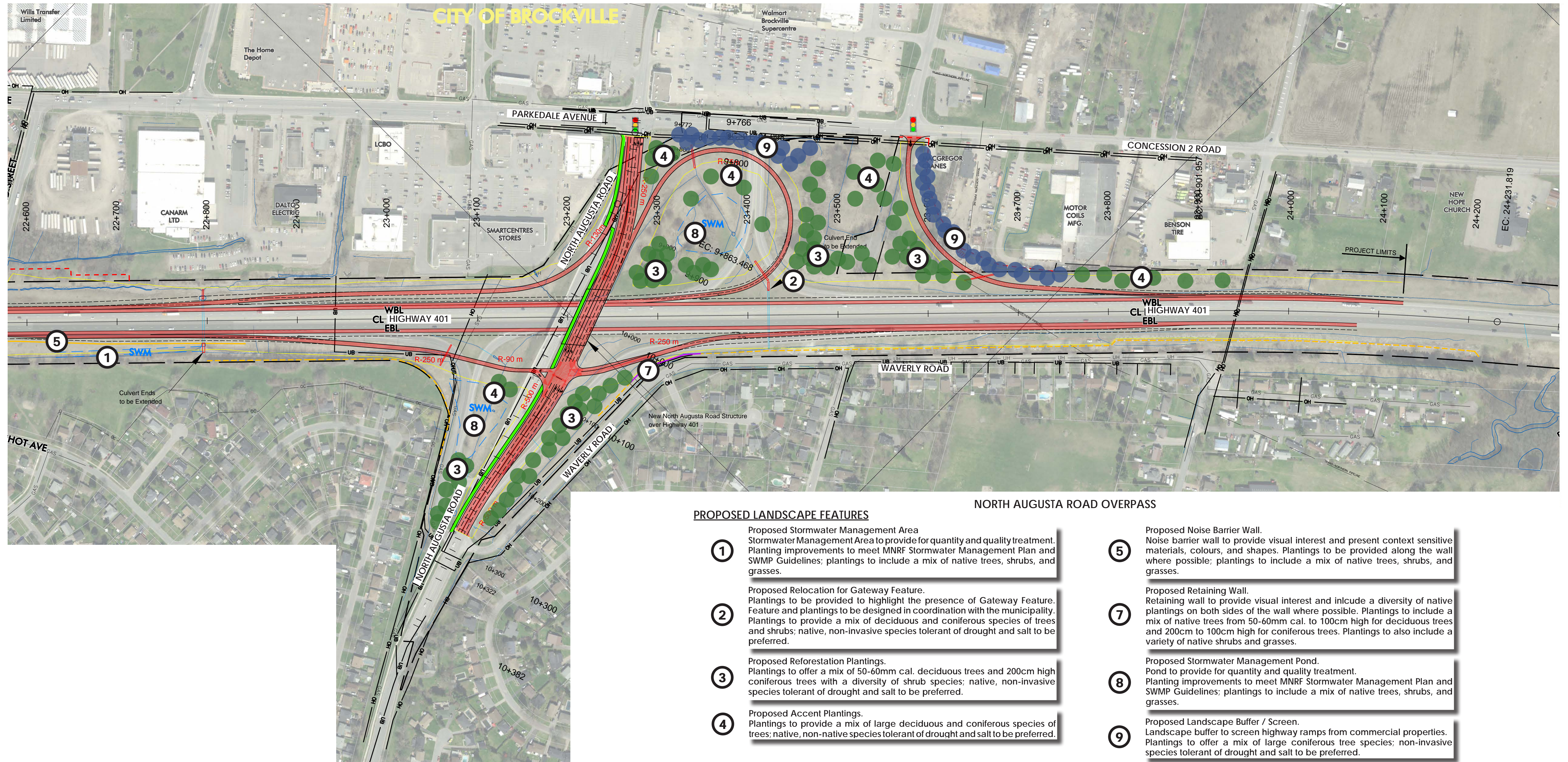
GENERAL NOTES:

- A. Limit disturbance to existing woodlands and vegetated screens.
- B. Disturbed roadway edges to be seeded with Standard MTO Roadside seedmix.
- C. Disturbed forest edges to be replanted with young reforestation material providing diversity in native plant species and responding to soil conditions.
- D. All stormwater management ponds to be seeded and planted with a mix of native plant species tolerant to salt and flooding conditions. Plant species to include trees, shrubs and grasses.

Highway 401 Brockville - Planning Study

Landscape Conceptual Plan

LEGEND					
	Limit of MTO right of way		New Culvert		Overhead Bell
	New Roadway - Initial (6-Lane Highway 401)		Existing Noise Barrier Wall to Remain		Underground Bell
	New Roadway - Ultimate (8-Lane Highway 401)		New Noise Barrier Wall		Overhead Hydro
	Property Required - Ultimate (8-Lane Highway 401)		New Retaining Wall		Underground Hydro
	New Multi-Use Path (MUP) / Sidewalk		New Screening Plantings		Underground Gas
	Traffic Signal		New Accent Plantings		Underground Pipeline
			New Screening Plantings		Underground Cogeco Cable
					Overhead Cogeco Cable



PROPOSED LANDSCAPE FEATURES

- 1** Proposed Stormwater Management Area
Stormwater Management Area to provide for quantity and quality treatment. Planting improvements to meet MNRF Stormwater Management Plan and SWMP Guidelines; plantings to include a mix of native trees, shrubs, and grasses.
- 2** Proposed Relocation for Gateway Feature.
Plantings to be provided to highlight the presence of Gateway Feature. Feature and plantings to be designed in coordination with the municipality. Plantings to provide a mix of deciduous and coniferous species of trees and shrubs; native, non-invasive species tolerant of drought and salt to be preferred.
- 3** Proposed Reforestation Plantings.
Plantings to offer a mix of 50-60mm cal. deciduous trees and 200cm high coniferous trees with a diversity of shrub species; native, non-invasive species tolerant of drought and salt to be preferred.
- 4** Proposed Accent Plantings.
Plantings to provide a mix of large deciduous and coniferous species of trees; native, non-native species tolerant of drought and salt to be preferred.

NORTH AUGUSTA ROAD OVERPASS

- 5** Proposed Noise Barrier Wall.
Noise barrier wall to provide visual interest and present context sensitive materials, colours, and shapes. Plantings to be provided along the wall where possible; plantings to include a mix of native trees, shrubs, and grasses.
- 7** Proposed Retaining Wall.
Retaining wall to provide visual interest and include a diversity of native plantings on both sides of the wall where possible. Plantings to include a mix of native trees from 50-60mm cal. to 100cm high for deciduous trees and 200cm to 100cm high for coniferous trees. Plantings to also include a variety of native shrubs and grasses.
- 8** Proposed Stormwater Management Pond.
Pond to provide for quantity and quality treatment. Planting improvements to meet MNRF Stormwater Management Plan and SWMP Guidelines; plantings to include a mix of native trees, shrubs, and grasses.
- 9** Proposed Landscape Buffer / Screen.
Landscape buffer to screen highway ramps from commercial properties. Plantings to offer a mix of large coniferous tree species; non-invasive species tolerant of drought and salt to be preferred.

GENERAL NOTES:

- A. Limit disturbance to existing woodlands and vegetated screens.
- B. Disturbed roadway edges to be seeded with Standard MTO Roadside seedmix.
- C. Disturbed forest edges to be replanted with young reforestation material providing diversity in native plant species and responding to soil conditions.
- D. All stormwater management ponds to be seeded and planted with a mix of native plant species tolerant to salt and flooding conditions. Plant species to include trees, shrubs and grasses.

