

## 5.0 Identification and Evaluation of Alternative Designs

For this EA, the Preferred Solution is a widening of both Arterial Road corridors to four-lanes and providing a new road connection to Walkley Road and Uplands Drive. The following stage in the Class EA process is to identify and evaluate alternative designs to implement this solution.

### 5.1 Design Guidance and Functional Options Analysis

This section provides a summary of the overall principles and design criteria that would guide the identification and evaluation of alternative designs. This includes an environmental impact-based analysis of various transportation corridor design options. The analysis is sensitive to the site-specific conditions found along the Airport Parkway and Lester Road corridors, drawing from the findings of existing conditions as documented in Section 3.0 of this Environmental Study Report.

#### 5.1.1 General Planning and Design Principles

The following general principles will apply to all alternative designs for the transportation infrastructure being considered. They are tailored to the environmental context of the Airport Parkway and Lester Road, having regard for the varied urban rural policy frameworks, the planned transportation functions, the natural and Greenbelt settings, the adjacency of natural features including the Lester Road Wetland Complex, the watercourse crossings, the proximity of residences and urban open spaces, and relationship to the airport and its area employment lands.

In addition to achieving the transportation objectives established in the City's OP, TMP (2013), the project should include the following principles:

1. **Avoidance & Minimization:** Choose alignments that avoid the greatest amount of displacement of valued environmental features, open spaces, development land, and built resources, where practical:
  - a. Follow existing developed right-of-ways
  - b. Utilize existing infrastructure where possible
  - c. Avoid fragmentation of land use planning units
  - d. Align facilities to minimize displacement of valued features
2. **Compactness:** Use compact, efficient transportation cross-sections that minimize the spatial footprint:
  - a. Use the minimal acceptable road design criteria including lane widths
  - b. Use wide medians only where necessary based on road safety considerations
  - c. Use an urban (curbed) cross-section if/where appropriate to reduce facility width
  - d. Consider land area implications of roundabouts versus signalized intersections
3. **Managed Drainage:** Manage the quality, quantity and rate of flow of road drainage entering into natural areas:
  - a. Intercept and manage road drainage prior to discharge into the wetlands and watercourses
  - b. Consider options other than wide roadside ditches that contribute to wetland displacement
  - c. Consider a range of treatment options including linear bioswales, ditch outlet control devices
  - d. Use low maintenance, rooted grasses along slopes
  - e. Use frequent culverts that join low-lying areas across the roadway
4. **Wildlife Movement:** Provide for the movement of wildlife under and/or across the facility:

- a. Design culverts to accommodate the range of species expected to cross the corridor
  - b. Consider potential impacts (or not) of curbed cross-sections and medians on wildlife crossing
  - c. Consider the appropriateness of fencing and eco-passages
5. **Net Environmental Gain**: Strive for a result that improves the social and natural environments:
- a. Minimize undesirable effects on adjacent land uses
  - b. Augment displaced natural areas with improved or additional natural areas elsewhere
  - c. Improve water quality
  - d. Improve habitat and connectivity
6. **Efficiency and Cost Effectiveness**: Use designs that are cost-effective to implement:
- a. Utilize existing infrastructure where possible
  - b. Minimize the need to acquire lands or compensate for loss of assets
  - c. Use materials and design treatments that have favourable life-cycle costs
7. **During Construction Impacts**: Use construction techniques and that minimize the effects of site alteration:
- a. Complete works during non-sensitive periods, including critical fish and wildlife reproductive periods
  - b. Employ best management practices for erosion and sediment control
  - c. Provide for east of phasing, staging, and traffic management during construction

### 5.1.2 Roadway Interconnectivity Options

The Airport Parkway and Lester Road are Arterial Roads and serve as spine routes within the City's transportation network. In addition to intersecting with each other in the airport area, they provide for intersections with Walkley Road, Hunt Club Road, Alert Drive, Albion Road, Meandering Brook Drive, and Bank Street. There are alternative means to provide roadway inter-connectivity, including:

- Ramp Interchanges, as free-flowing controlled access routes;
- Grade-separated crossings (below or above grade);
- Signalized intersections; and
- Roundabouts.

Each intersection has its own characteristics and a site-specific intersection/interchange choice is appropriate. The following considerations influenced the evaluation and eventual selection of roadway inter-connectivity choices:

1. Type of existing intersection/interchange that can be re-used;
2. Road function within the network;
3. Need or not for free-flowing traffic conditions, normally associated with controlled access highways;
4. Directional balance of traffic flow;
5. Number of intersecting routes (i.e. T-intersection, or four-way intersection);
6. Adjacent land use and the need for access, or not;
7. Footprint and land required; and
8. The visual environment, as a designated scenic route (Airport Parkway).

On the basis of this evaluation, the following performance standards are recommended to be part of all alternative designs to be considered:

- The Airport Parkway is to remain an access-controlled, grade-separated, free-flowing roadway along the project limits;
- Intersections with Walkley Road and Hunt Club Road are to continue to be served by ramps, as an interchange;
- The connectivity of Lester Road with the Airport Parkway is to be served by ramps, as an interchange;
- The potential for new ramp connections is to be determined as part of the Recommended Plan; and
- Lester Road can intersect with Alert Drive, Albion Road, Meandering Brook Drive and Bank Street either as signalized intersections or roundabouts, with the choice of intersection to be indicated in the Recommended Plan.



Once a preliminary Preferred Design is established, the use of roundabout to serve as the intersection of Lester Road at Albion Road (and Alert Drive and Meandering Brook Drive) will be evaluated. It is acknowledged that the choice of intersection at Albion Road may have an influence on the perceived directness of the northbound travel route from Albion Road south of Lester Road toward the Blossom Park community.

### 5.1.3 Rural versus Urban Cross Section Options

The Airport Parkway and Lester Road both have a rural road cross-sections except where traversing grade separated crossings. Both facilities are identified in the TMP as retaining their rural cross-section when widened. It is however appropriate to review this policy direction as part of this EA study.

In general terms, the road edge design of urban roads is influenced by adjacent land uses, buildings, pedestrian activity, and public space functions, whereas in the rural area, road edge design is more influenced by its integration with the landscape and natural processes. The Airport Parkway and Lester Road are unique in that they are located in part, in urban contexts (backing onto residential communities) as well as rural, major open space areas, environmental lands, and uniquely with the National Capital Greenbelt in some locations. The roadway designs for the Airport Parkway and Lester Road must consider this unique context.

Two main options for road cross-sections that have been evaluated include:

- Urban cross-section, consisting of asphalt travel lanes, barrier curbs, catch basins, with stormwater outletting to existing piped municipal drainage systems, or to new road-edge facilities; and
- Rural cross-section, consisting of asphalt travel lanes, narrow paved shoulder, gravel rounding, vegetated gently-sloping fore slope, vegetated drainage channel, and vegetated back slope, with stormwater primarily managed within the right-of-way and outletting to watercourses subsequent to in-corridor treatment.



A derivative of the rural cross-section as above, with a road edge vehicle barrier installed with a steeply-sloping ditch fore slope, is also evaluated to be used to reduce the width of the cross-section and to be used in constrained areas. This treatment exists along Lester Road west of Bank Street.

On this basis, the environmental benefits of these cross-sections have been evaluated with the results provided on Table 5-1.

**Table 5-1: Evaluation of Urban Versus Rural Corridor Cross-Section Options**

Criteria	Road Edge Design		
	Urban Cross-Section	Rural Cross-Section	Rural Cross-Section, With Road Edge Barrier
Land Implications	More compact design and less width of land required to construct. End of pipe solution may be associated with additional land requirements however can be located where land exists.	Considerable width of land required to construct ditch drainage due to safety considerations. Can be partially mitigated by barrier solutions to allow for steeper side slopes.	More compact design and less width of land required to construct than standard rural cross-section with wide, gently-sloping ditch fore slope.
Community Interface and Access	Provides for direct and at-grade mid-block access to sidewalks and multi-use pathways, and the roadway	Can cut off mid-block access to sidewalks and multi-use pathways, and the roadway (users need to traverse grassy slopes and cross swale)	Can cut off mid-block access to sidewalks and multi-use pathways, and the roadway (users need to traverse grassy slopes and cross swale)
Road and Pathway Lighting	In-corridor pathways and sidewalks can be located near to the roadway, and roadway lighting can illuminate all facilities	In-corridor pathways and sidewalks are typically located behind the road-edge drainage system, and ability to illuminate with the roadway lighting can be challenging	In-corridor pathways and sidewalks are typically located behind the road-edge drainage system, and ability to illuminate with the roadway lighting can be challenging
Stormwater Management	Stormwater to be managed within the ROW (such as filter, storage systems) and at urban drainage outlets (where available) including measures for water quality and quantity. Roadway-edge treatment/retention facilities may be required in some circumstances.	Stormwater can be managed within the system including quality and quantity controls. Roadway-edge treatment/retention facilities may be required in some circumstances.	Stormwater can be managed within the system including quality and quantity controls. Roadway-edge treatment/retention facilities may be required in some circumstances.
Natural Heritage	With a more compact design, impact on surrounding natural heritage features could be minimized or avoided.	Drainage features can be incorporated into surrounding natural heritage systems and could enhance adjacent features.	Drainage features can be incorporated into surrounding natural heritage systems and could enhance adjacent features.
Visual Environment	Can be designed to include landscape elements to soften the edge treatment however requires additional land.	A more natural design feature which can be complementary in an open space environment.	A more natural design feature which can be complementary in an open space environment, however barrier is not visually appealing and should be used only in very constrained locations
Life Cycle Cost	More expensive to construct and maintain due to piped/below-grade infrastructure and end of line facility/outlet.	Less expensive to construct and maintain due to open/surface ditch solutions.	Less expensive to construct and maintain due to open/surface ditch solutions, however barrier will require life-cycle maintenance.

On the basis of this evaluation, the following performance standards are recommended to be part of all alternative designs to be considered:

**Airport Parkway: Rural Cross Section**

- Rural cross-section throughout, except that road-edge barriers are to be used along approaches to grade-separation structures and along the approach to the Cahill Tributary crossing (for road safety).

**Lester Road: Rural Cross-Section**

- Rural cross-section to be used where both sides of Lester Road are adjacent to the Greenbelt;
- Rural cross-section, with road-edge barrier to be used along the south side of the roadway alongside existing residences, where the use of the barrier reduces the right-of-way width such that the functionality of adjacent Greenbelt residences can be maintained;
- Rural cross-section, with road-edge barrier to be used along the south side of the roadway alongside the OMCIAA stormwater management pond, to avoid displacement of the facility's naturalized banks and storage volume; and
- Rural cross-section, with road-edge barrier to be used along approaches to the Trillium Line Extension grade-separation structure.

**Lester Road: Urban Cross-Section**

- Urban cross-section, where the corridor is adjacent to the Urban Area as designated in the Official Plan, including the north side of Lester Road between Albion Road and Bank Street; and
- Urban cross-section for the portion of Lester Road generally between the Airport Parkway and Alert Road.

#### **5.1.4 Divided versus Undivided Roadway Options**

As per the MTO's Geometric Design Standard for Ontario Highways, a median is a safety device that provides separation from opposing lanes and, when sufficiently wide, will offer a recovery area for wayward vehicles, a storage area for emergencies and reduction in headlight glare. The MTO recommends that medians be as wide as possible with an ideal width of 10m to 15m with 10:1 slopes to operate without a barrier. Median barriers are a distinct element from the median itself. Median barriers may be required for median widths less than 10m, in which case the median width can be reduced down to 1m.

Medians can be flush, depressed or raised. Each alternative has different applications and considerations, with depressed medians typically common with rural cross-sections while raised medians are typical of urban cross-sections. Flush medians are typically used on roadways with low to medium volumes and operating speeds. As per TAC Geometric Design Guide for Canadian Roads, Section 2.2.5 Medians and Outer Separations, "*The major uses of a median separation are to eliminate the risk of head-on collisions [.] Collision frequencies generally decrease with increasing median widths[.]*"

It is also noted under paragraph 2.2.5.3 of the TAC Geometric Design Guide for Canadian Roads that, "*Medians [...] serve a variety of important purposes related to safety, traffic operations, access control and aesthetics [.]*"

For safety purposes, based on an AADT of 16,000 and a median width of zero, the warrant for median barriers falls in the "barrier optional" range of Figure 3.1.6.6 *Median Barrier Warrants for Freeways & Expressways* of the TAC design manual. As such, the width of the median could optionally be zero if desired in this example case.

However, a median may be warranted for reasons other than safety that include:

- Physical space for placement of lighting and/or traffic control devices;
- Aesthetics by providing space for landscaping and streetscaping and
- Pedestrian refuge where applicable.

A threshold AADT has been identified that would trigger the need to consider a median. This threshold occurs at 20,000 AADT based on TAC and MTO manual guidance regarding road geometric design. Below this threshold the use of median and median barriers is optional and will depend upon other factors than AADT. The AADTs for the Airport Parkway are listed in Table 5-2 below:

**Table 5-2: 2031 Projected Traffic Volumes – Peak Hour and AADT**

Road Segment	Projected Peak Directional Volume (veh/h)	Assumed Capacity TRANS (veh/h per lane)	Projected AADT (two-way)	Existing AADT (two-way)
<b>Airport Parkway</b>				
• North of Hunt Club Road	2,200	1,600	42,000	32,000
• Hunt Club Road to Lester Road	1,800	1,600	36,000	22,000
• South of Lester Road	1,450	1,200	27,000	17,000
<b>Lester Road</b>				
• Airport Pkwy to Albion Road	1,800	800-1,200	22,000	14,000
• Albion Road to Bank Street	900	800	13,000	8,000

Based on a threshold number of 20,000 AADT, it is acceptable to have either a divided or undivided roadway at the 90 km/h design speed and the 8,000 to 14,000 AADT currently under consideration for Lester Road. For the Airport Parkway with AADTs in the range of 17,000 to 32,000, the threshold is crossed for the segment between Hunt Club Road and Lester Road as well as the segment north of Hunt Club Road. It is recommended that these segments be divided. See attached annotated Figure 3.1.6.6 that illustrates where these various AADT numbers fall within the median barrier warrant graph.

In cases where a median is recommended, the median width would be influenced by the nature of the treatment done within the median as well as the obstacles placed therein that may themselves necessitate a greater width or barrier for safety reasons. The placement of a median barrier should consider the history of cross median collisions.

Historically, within the City of Ottawa, Hunt Club Road provides an example of an urban cross-section that is divided by median of variable width between Highway 416 and Highway 417. Beyond Highway 416 to the west, Hunt Club Road is undivided. As another example, Woodroffe Avenue south of Baseline is divided in both its urban and rural cross-sections

In the existing condition, a divided roadway with a median should be considered for the segment of the Airport Parkway between Hunt Club Road and Lester Road as well as the segment north of Hunt Club Road.

The remainder could be designed as undivided. For this road widening project, considering anticipated traffic volumes, the following median treatments are to be incorporated into all alternative designs:

- The Airport Parkway is to be divided; and
- Lester Road can be undivided, except at intersections where 1.5m wide medians may be required for the location of traffic signal plant, taken from 5m medians where left-turn lanes are required at intersections.

### 5.1.5 Wide versus Narrow Median Options

There are alternative means to provide the necessary roadway division. Options that have been evaluated include:

- Very wide (20 m plus) green medians with rural cross-sections and gradual slopes leading towards a natural treed environment;
- Wide (12m plus) green medians with rural cross-sections, no trees, and gradual slopes leading towards a central drainage swale;
- Narrow (6m) green medians with rural cross-sections, steep slopes, no trees, and road edge barriers;
- Wide (5 to 6m) raised curb medians, width sod (no trees); and
- Narrow (1.5m) raised curb medians, with hard surface.

The following considerations influenced the selection of median treatments:

1. Right-of-way width required, considering the design objective for compact transportation facilities;
2. The need for very narrow-median cross-sections to cross under existing road and rail structures;
3. The visual environment, as a designated Scenic Entry Route (Airport Parkway);
4. Requirements for road-edge or median-edge drainage and potential drainage outlets; and
5. Efficiency and cost of infrastructure.

On the basis of this evaluation, the following performance standards are recommended to be part of all alternative designs to be considered:

- Narrow (1.5m) raised curb medians, with hard surface, along the Airport Parkway between Brookfield Road and Hunt Club Road, to result in a compact cross-section and lane alignments that can best run under existing road and rail overpass structures;
- Very wide (20 m plus) green median with rural cross-section and gradual slopes leading towards a natural, treed environment, in the section just to the south of the Cahill Drain, within the Greenbelt, within City-owned land; and
- Narrow (1.5m) raised curb medians, with hard surface, where required at intersections along Lester Road.

### 5.1.6 Pedestrians and Cyclist Options

The renewal of the transportation infrastructure in the corridors provides an opportunity to accommodate pedestrians and cyclists and to pursue the City's Official Plan and TMP objectives. For pedestrians, options that have been evaluated include the provision of:

- No walking facility;



- 2m sidewalks along one or both sides of each corridor; and
- 3m multi-use pathways along one or both sides of each corridor.

For cyclists, options that have been evaluated include:

- No cycling facility;
- Wide paved shoulders along the outer edges of rural cross-sections, in each direction;
- On-road painted bike lanes along the outer edges of urban cross-sections, in each direction;
- Uni-directional cycle tracks along the edge of urban cross-sections;
- Bi-directional bike-only facilities along one or both sides of the corridor; and
- Multi-use pathways along one or both sides of the corridor.

The following considerations influenced the evaluation of alternative designs for pedestrians and cyclists:

1. Traffic speed and volume;
2. Anticipated pedestrian and cyclist demand;
3. Presence of existing facilities within the corridor that can fulfill the need;
4. Abutting land use and pedestrian and cycling demand;
5. Access for pedestrians and cyclists to the lands along the road edge;
6. Opportunities for route illumination;
7. Opportunities to provide safe crossings; and
8. Efficiency and cost of infrastructure.

On the basis of this evaluation, the following performance standards are recommended to be part of all alternative designs to be considered:

#### Airport Parkway

- Provision of a 3m multi-use pathway along the entire west side of the Airport Parkway between Brookfield Road and Uplands Drive, with appropriate road crossings at Walkley Road and Hunt Club Road;
- Avoiding, wherever possible, uncontrolled crossings of the multi-use pathway across free-flowing ramps;
- Utilizing the existing multi-use pathway along the east side of the Airport Parkway, north of Hunt Club Road;
- No provision for off-road walking or cycling along the east side of the Airport Parkway, south of Hunt Club and also Uplands Drive, given that there is no opportunity for pedestrians or cyclists to access the abutting lands, and given that a multi-use pathway will be constructed along the east side of the Trillium Line Extension project;
- Wide paved shoulders that enable road-edge cycling but that are not signed as an official cycling facility, complete with a protected asphalt surface for cyclists to cross under each overpass structure where required; and
- Identification of connections to existing and proposed pathways.

#### Lester Road

- Provision of a 3m multi-use pathway along the entire north side (including the side abutting the General Urban Area) of Lester Road between the Airport Parkway and Bank Street, with appropriate road crossings at Albion Road and Meandering Brook Drive;

- Wide paved shoulders that enable road-edge cycling but that are not signed as an official cycling facility, complete with a protected asphalt surface to cross under the Trillium Line Extension overpass structure; and
- Identification of connections to existing and proposed pathways.

### 5.1.7 Corridor Lighting Options

The Airport Parkway and Lester Road are Arterial Roads and lighting is to be provided in accordance with the City's Right-of-Way Lighting Policy. Both Corridors are currently illuminated (except the easternmost portion of Lester Road). The lighting system (poles, luminaires, electrical ducting and power supplies) which exists along the entire west side of the Airport Parkway is of relatively recent installation. Providing illumination on adjacent multi-use pathways is another consideration. Options to provide road and pathway lighting that have been evaluated include:

- Utilize existing lighting systems in-place for one side of the roadway (by widening to the opposite side as the case may be) and installing new lighting on the other side of the roadway;
- Re-use components of the lighting systems if displaced by widening;
- Install new median-mounted lighting that can illuminate both sides of the roadway; and
- Install independent pathway lighting system.

The following considerations influenced the selection of corridor treatments:

1. Locations and offsets of lighting poles, having regard for roadside safety;
2. Opportunities for corridor lighting to be dual-purpose, serving the needs of the roadway as well as illuminating adjacent sidewalks and/or multi-use pathways;
3. Symmetry of the lighting solution;
4. Providing adequate lighting during construction of the road widening project;
5. The visual environment, as a designated Scenic Entry Route (Airport Parkway); and
6. Efficiency and cost of infrastructure.

On the basis of this evaluation, the following performance standards are recommended to be part of all alternative designs to be considered:

#### Airport Parkway

- Utilize (or relocate laterally as required) the existing road-edge roadway lighting system along the west side of the Airport Parkway wherever possible, as an efficient use of existing infrastructure;
- Install a new road-edge roadway lighting system on the east that matches or works in harmony with the west-side lighting;
- During the detailed design phase, evaluate the "back lighting" effect of the existing roadway lighting and determine if an appropriate level of illumination is provided on the west-side multi-use pathway as required to meet City standards; and
- Install new pathway lighting along the proposed west-side multi-use pathway and adjacent east-side multi-use pathway as required to meet City standards, if sufficient illumination is not provided by the "back-lighting" of the road-edge lighting system.

#### Lester Road

- Install a new road-edge roadway lighting system on both sides of the roadway;

- Design the new road-edge roadway lighting system on the north side of the roadway to have sufficient “back-lighting” to illuminate the adjacent multi-use pathway, and if not possible, install a new pathway lighting system;
- Evaluate the opportunity to re-use any components of the existing lighting system at the detailed design phase; and
- Evaluate the opportunity to use the wood utility poles for dual purpose as a street lighting pole, at the detailed design phase.

### 5.1.8 Noise Attenuation Options

The Airport Parkway and Lester Road are both Arterial Roads, designated to accommodate the highest volumes of traffic travelling over the highest distances, and at relatively high speeds. Both corridors are a source of noise and it is important to consider the impacts on adjacent noise sensitive receivers. When evaluating impacts related to noise generated from infrastructure projects, noise sensitive receivers are identified as the rear yard amenity areas of residential dwelling, specifically, that area located 3.0m behind the rear wall of the dwelling and 1.5m in height from the ground (City of Ottawa Environmental Noise Control Guidelines, 2006). Where the forecasted noise levels at sensitive receptors are higher than 60 dBA from the resulting ultimate build out condition (i.e. the road widening), noise attenuation is required to be investigated where technically, administratively, and economically feasible. Options to mitigate noise that have been evaluated include:

- Locate the roadway far away from the receivers to as to result noise levels that do not require attenuation;
- Provide earth berms between the noise generating source (moving vehicles) and the receivers that is high enough to mitigate the noise;
- Locate noise attenuation fences along the nearest lot line of the noise-sensitive land use;
- Locate noise attenuation fences immediately along the edge of the roadway;
- Locate noise attenuation fences located mid-way between the roadway and the receiver; and
- Some combination of earth berm and noise attenuation fence.

The following considerations influenced the selection, location and design of corridor treatments:

1. Existing noise conditions, and future noise exposure forecasts;
2. Impacts on the residential occupants’ views toward vegetated city-owned Major Open Space lands along their rear or side lot lines;
3. Barriers to pedestrian movement and enjoyment of the Major Open Space lands located between the roadway and the adjacent private properties;
4. Personal security risks associated with barriers to flight on foot, or with concealed places;
5. Requirements to clear vegetation to prepare a clear corridor for the installation and maintenance of noise attenuation features (berms, fences, or both);
6. The visual environment, as a designated scenic route (Airport Parkway); and
7. Efficiency and cost of infrastructure.

On the basis of this evaluation, the following performance standards are recommended to be part of all alternative designs to be considered and presented:

#### Airport Parkway

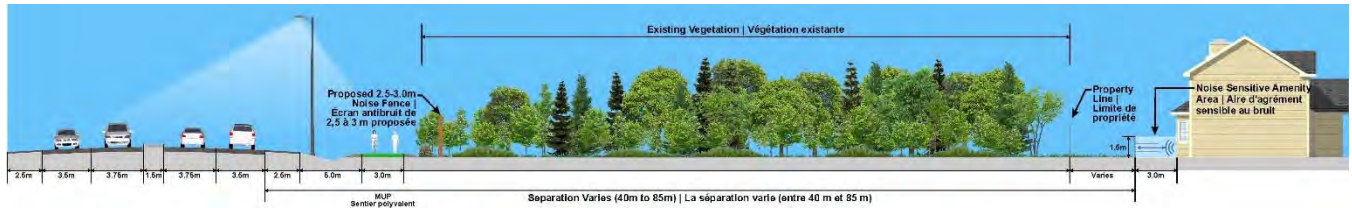
- Investigate/Install/maintain noise attenuation features along the Airport Parkway where warranted;
- Due to the available space, options include noise fences, earth berms, or a combination; and

- Review options with area residents as part of the preparation of the Preferred Design/Recommended Plan. Options presented for public input are illustrated below.

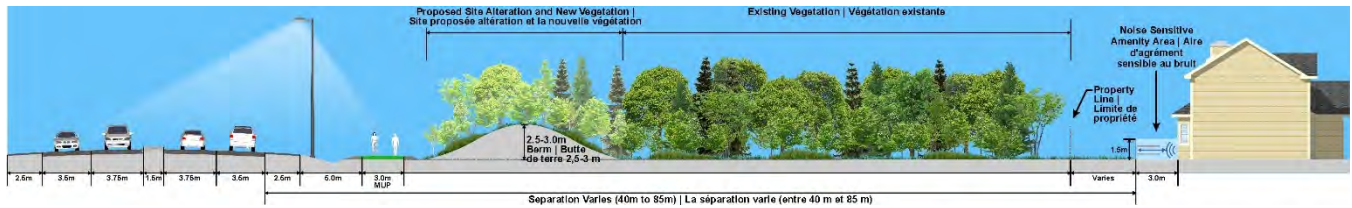
**Figure 5-1: Option 1, Mitigate with Noise Barrier at Property Line**



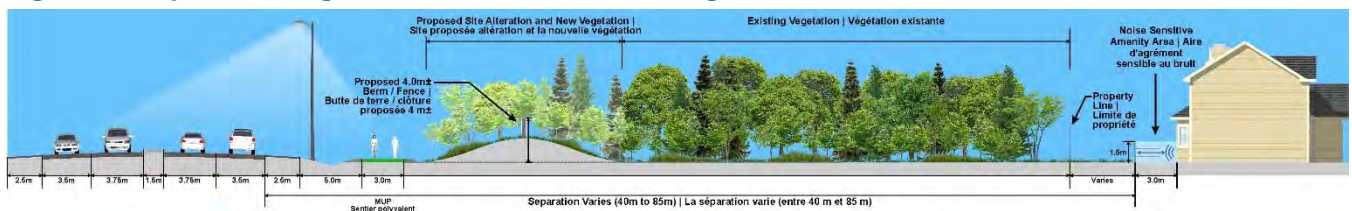
**Figure 5-2: Option 2, Mitigate with Noise Barrier behind Pathway**



**Figure 5-3: Option 3, Mitigate with Vegetated Earth Berm**



**Figure 5-4: Option 4, Mitigate with Noise Barrier and Vegetated Earth Berm**



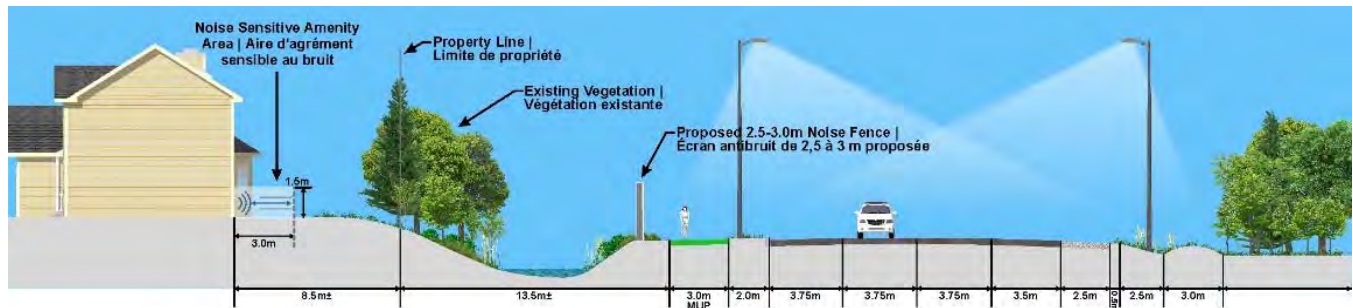
**Lester Road**

- Investigate/Install/maintain noise attenuation features along Lester Road where warranted;
- Due to space constraints, options are limited to noise fences;
- Noise fences would typically be located along the rear lot line residences, behind the multi-use pathway or along the edge of the widened right-of-way; and
- Review options with area residents as part of the preparation of the Preferred Design/Recommended Plan. Options presented are illustrated below.

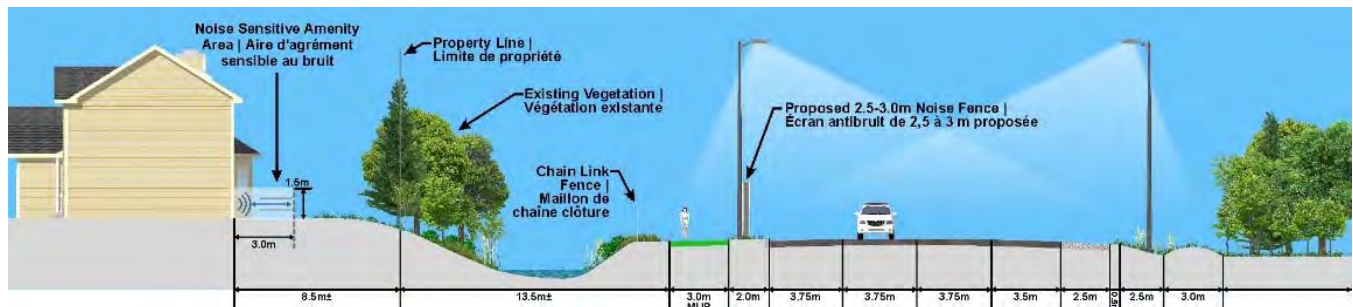
**Figure 5-5: Option 1, Mitigate with Noise Barrier at Property Line**



**Figure 5-6: Option 1, Mitigate with Noise Barrier behind Pathway**



**Figure 5-7: Option 1, Mitigate with Noise Barrier at Road Edge**



### 5.1.9 Design Parameters for Widened Airport Parkway

Considering the preceding analyses of functional options, the following geometric design parameters (Table 5-3) are recommended for the detailed design of the widening of the Airport Parkway and new road link to Uplands Drive.

**Table 5-3: Detailed Design Parameters for Airport Parkway Widening and New Road Link to Uplands Drive**

Design Parameter	Proposed Standard	Technical Reference
Classification	Arterial	City Transportation Master Plan (TMP)
No. Lanes	4	Traffic Study
Requirement for Median Division	Yes	See preceding analysis
Design Speed	90 km/h	TAC, based on posted speed
Posted Speed	80 km/h	Existing condition, driven by traffic study
Driving Lane Width - Urban	3.5, or 3.75m when adjacent to curb	TAC Table 2.2.2.3
Driving Lane Width - Rural	3.5m	TAC Table 2.2.2.3
Shoulder Width	2.5m	MTO
Clear Zone	Varies from 5-10m depending on slope	MTO Roadside Safety Manual Table 2.2.1 TAC 3.1.3.1
Rural Ditch Fore Slope	4:1 (respecting clear zone) 3:1 (no obstruction for entire 3:1 slope)	TAC Table 3.1.3.1
Rural Ditch Back Slope	2:1 to 3:1 (earth slope)	Design best practices
Multi-Use Pathway Width	3.0m min, asphalt	City of Ottawa Standard
Sidewalk width (if applicable)	2.0m (1.8m min.)	City of Ottawa SC2, SC3, & SC4
Minimum Horizontal Radius	380m	TAC Table 2.1.2.5
Maximum Superelevation	4%	TAC Table 2.1.2.6

Design Parameter	Proposed Standard	Technical Reference
Minimum Vertical Curve – Crest “K” (stopping sight distance)	32-53 (Stopping Sight Distance)	TAC Table 2.1.3.2
Minimum Vertical Curve – Sag “K” (stopping sight distance)	15-20 (Stopping Sight Distance)	TAC Table 2.1.3.4
Minimum Gradient	0.5 %	TAC, design best practices (drainage)
Maximum Gradient	6% (3% desirable)	TAC, design best practices (safety)
Surface Type	Hot Mix Asphalt	Design choice
AADT 2012	15000-16000	Traffic Study
AADT 2031	TBD	Traffic Study
% Commercial Vehicles	1%	Traffic Study
Roundabout Diameter	45m - 55m	U.S. D.O.T.

### 5.1.10 Design Parameters for a Widened Lester Road

Considering the preceding analyses, the following geometric design parameters (Table 5-4) are recommended for the detailed design of the widening of Lester Road.

**Table 5-4: Detailed Design Parameters for Lester Road Widening**

Design Parameter	Proposed Standard	Technical Reference
Classification	Arterial	City Transportation Master Plan (TMP)
No. Lanes	4	Traffic Study
Requirement for Median Division	No	See preceding analysis
Design Speed	90 km/h	TAC, based on posted speed
Posted Speed	80 km/h	Existing condition, driven by traffic study
Driving Lane Width - Urban	3.5, or 3.75m when adjacent to curb	TAC Table 2.2.2.2
Driving Lane Width - Rural	3.5m	TAC Table 2.2.2.2
Shoulder Width	2.5m	TAC 2.2.4.2 Shoulder Width Design Domain 1
Clear Zone	Varies from 5-10m depending on slope	MTO Roadside Safety Manual Table 2.2.1 TAC 3.1.3.1
Rural Ditch Fore Slope	4:1 (respecting clear zone) 3:1 (no obstruction for entire 3:1 slope)	TAC Table 3.1.3.1
Rural Ditch Back Slope	2:1 to 3:1 (earth slope)	Design best practices
Multi-Use Pathway Width	3.0m min, asphalt	City of Ottawa Standard
Sidewalk Width (if applicable)	2.0m (1.8m min.)	City of Ottawa SC2, SC3, & SC4
Minimum Horizontal Radius	380m	TAC Table 2.1.2.5
Maximum Superelevation	4%	TAC Table 2.1.2.6

Design Parameter	Proposed Standard	Technical Reference
Minimum Vertical Curve – Crest “K” (stopping sight distance)	32-53 (Stopping Sight Distance)	TAC Table 2.1.3.2
Minimum Vertical Curve – Sag “K” (stopping sight distance)	15-20 (Stopping Sight Distance)	TAC Table 2.1.3.4
Minimum Gradient	0.5 %	TAC, design best practices (drainage)
Maximum Gradient	6% (3% desirable)	TAC, design best practices (safety)
Surface Type	Hot Mix Asphalt	Design choice
AADT 2012	15000-16000	Traffic Study
AADT 2031	TBD	Traffic Study
% Commercial Vehicles	1%	Traffic Study
Roundabout Diameter	55m - 60m	U.S. D.O.T.

## 5.2 Evaluation Criteria and Methodology

The evaluation of alternative designs is a key component of the EA process. An evaluation method may be defined as a “formal procedure for establishing an order of preference among alternatives (MOE, 1990). It reveals the reasons for the decisions (i.e. the rationale), but is not to be used to make the decision (i.e. evaluation methods are designed as decision aids for decision makers). Using this formal evaluation method has two main advantages:

- It provides a better basis for decision-making that would otherwise exist; and
- It results in reasons for decisions that on examination can be traced.

A number of evaluation methods are available for undertaking environmental assessments. An evaluation Matrix has been selected as the methodology as it provides a method of objectivity evaluating a number of options against a number of criteria. For this EA study, the evaluation methodology included the following tasks:

Task 1 – Criteria Development

Task 2 – Identification of Alternative Designs, by Sector

Task 3 – Comparative Evaluation of Alternative Designs

Task 4 – Synthesis of Findings and Recommendation of Preliminary Preferred Design

The context-sensitive criteria developed for this evaluation are presented on Table 5-5.

**Table 5-5: Evaluation Criteria, Objectives, and Indicators**

		Criteria	Objectives	Indicators
<b>SOCIO-</b>	A	Land Implications	A road corridor that minimizes the effects on adjacent properties not under municipal ownership including Greenbelt Lands	i. minimization of amount of Right-of-Way acquisition required
	1			

		Criteria	Objectives	Indicators
	A 2	Building and Development Land	A road corridor that minimizes the effect on individual buildings and future planned growth and development	<ul style="list-style-type: none"> <li>i. minimization of the requirement to alter/demolish existing or proposed buildings</li> <li>ii. maximum flexibility to accommodate long-term Airport development scenarios</li> <li>iii. maximum flexibility to accommodate development in designated growth areas of the City</li> </ul>
	A 3	Visual Environment	A road corridor that improves/enhances the scenic qualities of transportation routes	<ul style="list-style-type: none"> <li>i. maximization of attractiveness of the corridor</li> <li>ii. maximization of capital arrival/departure experience</li> <li>iii. maximization of reinforcement of Greenbelt character</li> </ul>
<b>SOCIO-ECONOMIC</b>	A 4	Noise	A road corridor that minimize/reduces noise levels experienced by adjacent receivers	<ul style="list-style-type: none"> <li>i. maximization of separation between noise sources and receivers</li> <li>ii. maximization of opportunity and choice for mitigation</li> </ul>
	A 5	Vibration	A road corridor that minimizes/reduces levels experienced by adjacent structures	<ul style="list-style-type: none"> <li>i. maximization of separation between vibration source (vehicle movement) and receivers</li> </ul>
	A 6	Outdoor Air Quality	A road corridor with reduced contributions to ambient air quality	<ul style="list-style-type: none"> <li>i. maximization of fuel efficient driving behavior</li> <li>ii. minimization of travel distance</li> </ul>
	A 7	Life Cycle Costs	A road that is affordable to construct and maintain	<ul style="list-style-type: none"> <li>i. minimization of capital infrastructure cost including minimizing the need to alter existing grade-separated structures, stormwater management facilities, pathways, municipal services, utilities, and lighting systems</li> <li>ii. minimization of road and infrastructure maintenance and replacement cost</li> <li>iii. minimization of property acquisition cost</li> </ul>
<b>TRANSPORTATION</b>	B 1	In-Corridor Walking and Cycling	A road corridor that enables pedestrians and cyclists to move safely and efficiently along it	<ul style="list-style-type: none"> <li>i. maximization of ease and directness of walking and cycling between origins and destinations along the corridor</li> <li>ii. maximization of pleasantness of the walking and cycling experience along the corridor</li> <li>iii. maximization of separation of cyclists from high-speed moving vehicles</li> </ul>
	B 2	Pedestrian and Cyclist Network Connectivity and Safety	A road corridor that provides safe and efficient connectivity to adjacent pathways for cyclists and pedestrians	<ul style="list-style-type: none"> <li>i. maximization of ability to connect to existing adjacent pathways in a safe and efficient manner</li> <li>ii. minimization of the need to alter/reconstruct existing pathways</li> </ul>



		Criteria	Objectives	Indicators
	B 3	Road Network Connectivity	A road corridor that provides efficient connectivity to the area road network and adjacent land uses	i. minimization of the need to alter/reconstruct existing travel lanes and intersections ii. minimization of travel time delay to/from the airport iii. minimization of travel time delay to/from growth areas south of the airport iv. maximization of connectivity to adjacent Arterial Road Network
	B 4	Road Network Resiliency and Reliability	A road corridor that has the ability to accommodate blockages due to accidents, acts of nature, or infrastructure failure	i. maximization of opportunities for alternative routing to by-pass temporary obstructions during construction ii. maximization of opportunities for alternative routing to by-pass temporary obstructions operation
	B 5	Motor Vehicle Safety and Performance	a road corridor where passenger vehicles, emergency service vehicles, and trucks move safely and efficiently through the corridor	i. maximization of vehicle Level of Service at intersections ii. maximization of vehicle safety while travelling through the corridor
	B 6	Transit Network Connectivity	a road corridor where planned transit service can be efficiently integrated	i. maximization of flexibility to accommodate Airport LRT Spur ii. maximization of flexibility to accommodate other TMP Transit Priority measures
	B 7	Phasing and Implementation	a road corridor that can be easily phased and allows for incremental implementation	i. maximizes ability to phase and incrementally implement the project ii. minimizes disruption to Airport access and travel time during construction iii. minimization of propensity for traffic diversion during construction
<b>BIOPHYSICAL</b>	C 1	Terrestrial Habitat and Species	a road corridor that provides habitat for wildlife	i. minimization of loss of existing habitats for terrestrial species ii. maximization of net gain to habitats for terrestrial species iii. maximization of potential for safe wildlife passages/crossing
	C 2	Surface Water and Aquatic Habitat	a road corridor that minimizes risk to aquatic habitats and manages quality and quantity of surface water runoff	i. minimization of hard surfaces and stormwater runoff ii. maximization of use of natural stormwater management techniques iii. avoidance of harmful alterations or disruption to fish or fish habitat in receiving watercourses
	C 3	Watercourses	a road corridor that minimizes disruption to existing watercourses or enhances them	i. minimization of requirement to modify or relocate existing watercourses ii. minimization of alteration to associated riparian zones and slopes iii. maximization of opportunity to improve watercourse environmental value
	C 4	Wetland Areas	a road corridor that minimizes disruption to designated	i. minimization of loss to designated wetlands ii. maximization of potential to add/enhance wetland

	Criteria	Objectives	Indicators
		provincially significant wetlands/complexes	
C 5	Soils and Groundwater	a road corridor that manages potential risks associated with soil and/or groundwater contamination	i. minimization of interaction with potentially impacted soil and/or groundwater

### 5.3 Airport Parkway Sector

The Airport Parkway between the north project limit (south of Brookfield Road) and a point approximately 420m south of Hunt Club Road (at the Cahill Drain crossing) is established as the “Airport Parkway Sector”. This sector has the following characteristics which inform the alternative designs to be identified and evaluated:

- Primarily City-owned property;
- Within a Major Open Space designation in the Official Plan;
- Adjacent to designated Urban Natural Features areas, including Sawmill Creek and its valleylands, along the east side of the corridor;
- Residential areas located adjacent to the corridor, including residential properties;
  - Along Cromwell Drive, approximately 50m to 75m to the west of the existing roadway;
  - Along Plante Drive, approximately 60m to 350m to the west of the existing roadway;
  - Along Bankview Place, approximately 30m to 70m to the west of the existing roadway;
  - Along Bartlett Private, approximately 20m to 30m to the west of the existing roadway;
- A combination of vegetated earth berms and vegetated flat lands located between the roadway and the residential properties;
- A rural roadway cross-section;
- A Multi-use Pathway, and stormwater management facilities, located along portions of the east side of the corridor;
- No walking or cycling features along the west side of the corridor; and
- An Existing street lighting system along the west side of the corridor.

Within this sector, two sub-sectors are identified for evaluation purposes, as outlined below:

Brookfield Road to Walkley Road: In this sub-sector, the Airport Parkway already exists as a four-lane divided roadway to a limit approximately 600m south of Brookfield Road. South of that point, the currently roadway is located within approximately 4 to 5m from an existing multi-use pathway. Steep vegetated slopes lead down to the



Sawmill Creek Valleylands on the east side of the pathway. In this sector, road widening to the east of the current roadway would displace the pathway and have impacts on the designated Urban Natural Feature lands. Furthermore, the alignment of roadway in this area needs to come into alignment with the existing Walkley Road overpass structure.

Walkley Road to South of Hunt Club Road: In this sub-sector there is a generously wide (approximately 20m to 30m) swath of land that is flat, cleared land that is generally free of trees and valued natural features which exists along the east side of the corridor. Multi-use pathways exist to the east of this swath, in some locations. This swath of land is generally in alignment with overpass/underpass structures that have been pre-planned to accommodate a road widening to the east of the existing Airport Parkway. The design and construction of a second overpass structure at Hunt Club Road will need to address potential impacts to a tributary of Sawmill Creek which runs along the east side of the corridor in this location.



### 5.3.1 Airport Parkway Sector Alternative Design Descriptions and Evaluation

Having regard for the design guidance and the conclusions of the environmental impact-based evaluation of functional options documented in Section 5.1, designs have been identified for the widening of the Airport Parkway on the basis of two sub-sectors. From the analysis completed in Section 5.1, and considering the context established, above, the alternatives are recommended to have the following performance standards:

- Four travel lanes;
- Rural cross-section with road-edge drainage;
- Primarily narrow 1.5m solid-surface median;
- Paved 2.5m shoulder;
- 3m multi-use pathway along the west side;
- Roadway lighting along both sides; and
- Noise attenuation fences as warranted to be located between Lester Road and adjacent residences, as identified in Section 5.1.8.

The alternative designs are described below.

#### **Alternative Design 1: Widen To East**

This alternative has the following characteristics and implications:

- Re-purpose the two existing vehicle north-south travel lanes as the two southbound travel lanes;

- Construct the median and two new travel lanes by widening to the east;
- Utilize the existing west-side roadway drainage and road lighting systems to serve the southbound travel lanes;
- Construct new east-side roadway drainage and road lighting systems to serve the new northbound travel lanes; and
- Utilize the two existing north-south travel lanes for north-south travel during construction.

#### ***Alternative Design 2: Widen From Centreline***

This alternative has the following characteristics and implications:

- Re-purpose the two existing vehicle north-south travel lanes as the two inner north and south travel lanes;
- Construct the median and two new travel lanes by widening to each side;
- Construct a new roadway drainage system along both sides;
- Relocate the existing west-side roadway lighting system further to the west, and install a new east-side roadway lighting system; and
- Utilize the two existing north-south travel lanes for north-south travel during construction.

#### ***Alternative Design 3: Widen To West***

This alternative has the following characteristics and implications:

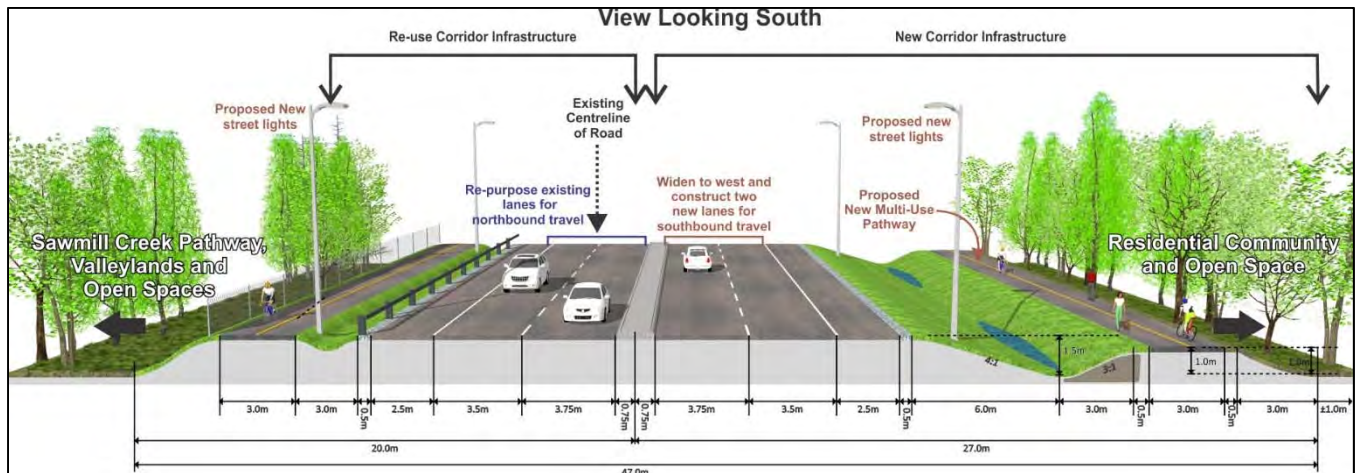
- Re-purpose the two existing vehicle north-south travel lanes as the two northbound travel lanes;
- Construct the median and two new travel lanes by widening to the west;
- Utilize the existing east-side roadway drainage system to serve the southbound travel lanes;
- Construct a new west-side roadway drainage system to serve the new southbound travel lanes;
- Relocate the existing west-side roadway lighting system further to the west, and install a new east-side roadway lighting system; and
- Utilize the two existing north-south travel lanes for north-south travel during construction.

### **5.3.2 Preliminary Preferred Design for the Airport Parkway Sector**

The criteria-based evaluation of the alternative designs is provided on Table 5-2. The conclusion of this analysis and the key influences are described and illustrated below.

Brookfield Road to Walkley Road: For this sub-sector, the Preliminary Preferred Design presented for stakeholder review was to widen to the west (Alternative Design 3). A typical cross-section is illustrated in Figure 5.8.

**Figure 5-8: Typical Cross Section for Airport Parkway, Brookfield Road to Walkley Road**



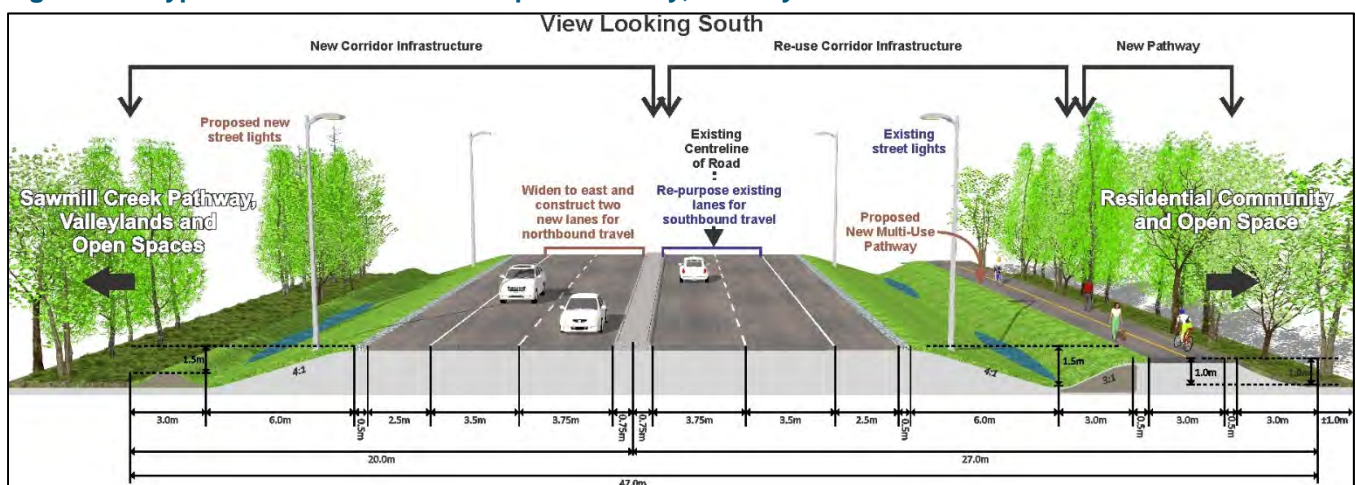
In this location, this option:

- Avoids the need to reconstruct and relocate existing east-side multi-use pathway in a location below the top of bank;
- Avoids impacts on Urban Natural Areas including the steep vegetated slopes lead down to the Sawmill Creek Valleylands on the east side of the pathway;
- Retains sufficient space and separation along the west side of the widened facility to enable the lands to play a Major Open Space function and to accommodate noise attenuation where required; and
- Can be aligned efficiently under overpass structures.

The design and location of noise attenuation features along the west side (noise fences, earth berms, or a combination), where required, as well as corridor landscaping, will be addressed as part of the Preferred Design/Recommended Plan with the benefit of community input.

Walkley Road to South of Hunt Club Road: For this sub-sector, the Preliminary Preferred Design is to widen to the east (Alternative Design 1). A typical cross-section is illustrated in Figure 5-9.

**Figure 5-9: Typical Cross Section for Airport Parkway, Walkley Road to Hunt Club Road**



In this location, this alternative:

- Enables use of the existing west-side roadway drainage and lighting systems;
- Avoids impacts on the existing east-side multi-use pathway;
- Avoids impacts on Urban Natural Areas including the steep vegetated slopes lead down to the Sawmill Creek Valleylands on the east side of the pathway;
- Brings the roadway no closure to the west-side adjacent residences;
- Retains sufficient space and separation along the west side of the widened facility to enable the lands to play a Major Open Space function and to accommodate noise attenuation where required; and
- Can be aligned efficiently under existing overpass structures, and across a new easterly Hunt Club Road structure where space has been reserved.

The design and location of noise attenuation features along the west side (noise fences, earth berms, or a combination), where required, as well as corridor landscaping, will be addressed as part of the Preferred Design/Recommended Plan with the benefit of community input. The options were presented for stakeholder review, and the option of installing noise barriers close to the noise source, behind the multi-use pathways, was indicated as the study team's preference.

Provision of a new southbound off-ramp at Walkley Road was included as a potential features of all alternatives evaluated and is included as part of the Preliminary Preferred Design. The off-ramp is deemed to be of great benefit to the City and broader community. Key considerations include:

- Will help to connect the community to the Airport Parkway, providing travel route options;
- Will improve the ability of Emergency Service Vehicles to access the community;
- Will help ameliorate an existing neighbourhood cut-through traffic issue along Springland Drive and Flannery Drive; and
- Can be constructed on available city-owned land.

The study team also evaluated the feasibility of providing a northbound on-ramp from Walkley Road to the Airport Parkway. The possibility of a new northbound on-ramp was screened out for the reasons as set out below.

One option would be to construct the northbound on-ramp as the fourth leg of the existing signalized intersection at the terminus of the existing northbound off-ramp. This location would enable access to the on-ramp from both the north and west direction. This location is severely constrained, being "sandwiched" between the proposed Trillium Line LRT facility and the Transitway, both which are depressed well below Walkley Road. A connection from this location would need to traverse over top of the Transitway and the Sawmill Creek and sensitive sloping Valleylands. It is important to note that the Valleylands are designated as an Urban Natural Feature in the Official Plan of the City of Ottawa. Given the combination of the grade change, the topography, the constrained area, the proximity to the LRT Line, the proximity to the Transitway, and the need to span both the transitway and impact the Sawmill Creek Valleylands, this option has high environmental implications, is cost prohibitive and was screened from further analysis.

A second option would be to construct a westbound off-ramp from Walkley Road to the northbound on-ramp at a location west of the Transitway. This option would provide for only westbound Walkley traffic to access the new northbound on-ramp, as there would be no opportunity to create an eastbound left turn lane for two-

directional access, given the constraint of the width of the existing bridge deck on the Walkley overpass structure. This location is also severely constrained due to the presence of the existing multi-use pathway system in this location, and more importantly the Sawmill Creek and its sensitive sloping Valleylands. An on-ramp in this location would require some combination of displacement or filling in or expensive structural spanning of the Valleylands and/or the pathway. For similar reasons to the first option, it was screened out from further analysis.

**Table 5-2: Airport Parkway Evaluation Summary Results**

CRITERIA	OBJECTIVE/INDICATORS	Brookfield to Walkley			Walkley to Hunt Club			
		Alternative 1: Widen To East	Alternative 2 Widen From Centerline	Alternative 3: Widen To West	Alternative 1: Widen To East	Alternative 2: Widen From Centerline	Alternative 3: Widen To West	
SOCIO-ECONOMIC	<b>Land Implications</b>	A road corridor that minimizes the effects on adjacent properties not under municipal ownership including Greenbelt Lands <ul style="list-style-type: none"> <li>minimization of amount of Right-of-Way acquisition required</li> </ul>	n/a	n/a	n/a	✓	✓	x
	<b>Building and Development Land</b>	A road corridor that minimizes the effect on individual buildings and future planned growth and development <ul style="list-style-type: none"> <li>minimization of the requirement to alter/demolish existing or proposed buildings</li> <li>maximum flexibility to accommodate long-term Airport development scenarios</li> <li>maximum flexibility to accommodate development in designated growth areas of the City</li> </ul>	n/a	n/a	n/a	✓	n/a	n/a
	<b>Visual Environment</b>	A road corridor that improves the visual quality of transportation routes <ul style="list-style-type: none"> <li>Maximization of opportunities for attractiveness of the corridor</li> <li>Maximization of opportunities to improve the capital arrival/departure experience</li> </ul>	x	x	✓	✓	x	x
		<ul style="list-style-type: none"> <li>Maximization of opportunities to reinforce the character of the Greenbelt</li> </ul>	x	x	✓	✓	x	x

Note: ✓ means that the environmental objective is met  
 x means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 N/A means the indicator was not applicable



CRITERIA	OBJECTIVE/INDICATORS	Brookfield to Walkley			Walkley to Hunt Club			
		Alternative 1: Widen To East	Alternative 2 Widen From Centerline	Alternative 3: Widen To West	Alternative 1: Widen To East	Alternative 2: Widen From Centerline	Alternative 3: Widen To West	
<b>SOCIO-ECONOMIC</b>	<b>Noise</b>	A road corridor that minimizes or reduces noise experienced by adjacent sensitive land uses <ul style="list-style-type: none"> <li>• maximization of separation between noise sources and receivers</li> <li>• maximization of opportunities and choice for mitigation</li> </ul>	✓	x	x	✓	x	x
	<b>Vibration</b>	A road corridor that minimizes/reduces levels experienced by adjacent structures <ul style="list-style-type: none"> <li>• maximization of separation between vibration source (vehicle movement) and receivers</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a
	<b>Outdoor Air Quality</b>	A road corridor with reduced contributions to ambient air quality <ul style="list-style-type: none"> <li>• maximization of fuel efficient driving behavior</li> <li>• minimization of travel distance</li> </ul>	✓	✓	✓	✓	✓	✓
	<b>Life Cycle Costs</b>	A road that is affordable to construct and maintain <ul style="list-style-type: none"> <li>• minimization of capital infrastructure cost including minimizing the need to alter existing grade-separated structures, stormwater management facilities, pathways, municipal services, utilities, and lighting systems</li> <li>• minimization of road and infrastructure maintenance and replacement cost</li> </ul>	x	x	✓	✓	x	x

Note: ✓ means that the environmental objective is met  
 x means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 N/A means the indicator was not applicable

CRITERIA	OBJECTIVE/INDICATORS	Brookfield to Walkley			Walkley to Hunt Club		
		Alternative 1: Widen To East	Alternative 2 Widen From Centerline	Alternative 3: Widen To West	Alternative 1: Widen To East	Alternative 2: Widen From Centerline	Alternative 3: Widen To West
TRANSPORTATION	<b>Road Network Connectivity</b> A road corridor that provides efficient connectivity to the area road network and adjacent land uses <ul style="list-style-type: none"> <li>minimization of the need to alter/reconstruct existing travel lanes and intersections</li> <li>minimization of travel time delay to/from the airport</li> <li>minimization of travel time delay to/from growth areas south of the airport</li> <li>maximization of connectivity to adjacent Arterial Road Network</li> </ul>	x	x	✓	✓	x	x
	<b>Road Network Resiliency</b> A road corridor that has the ability to operate during unforeseen occurrences including to accidents, acts of nature, or infrastructure failure <ul style="list-style-type: none"> <li>maximization of opportunities for alternative routing to by-pass temporary obstructions during construction</li> <li>maximization of opportunities for alternative routing to by-pass temporary obstructions operation</li> </ul>	✓	✓	✓	✓	✓	✓
TRANSPORTATION	<b>In-Corridor Walking and Cycling</b> A road corridor that enables pedestrians and cyclists to move safely and efficiently along it <ul style="list-style-type: none"> <li>maximization of ease and directness of walking and cycling between origins and destinations along the corridor</li> </ul>	✓	✓	✓	✓	✓	✓

Note: ✓ means that the environmental objective is met  
 x means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 N/A means the indicator was not applicable

CRITERIA	OBJECTIVE/INDICATORS	Brookfield to Walkley			Walkley to Hunt Club		
		Alternative 1: Widen To East	Alternative 2 Widen From Centerline	Alternative 3: Widen To West	Alternative 1: Widen To East	Alternative 2: Widen From Centerline	Alternative 3: Widen To West
	<ul style="list-style-type: none"> <li>maximization of pleasantness of the walking and cycling experience along the corridor</li> <li>maximization of separation of cyclists from high-speed moving vehicles</li> </ul>	✓	✓	✓	✓	✓	✓
	<ul style="list-style-type: none"> <li>maximization of separation of cyclists from high-speed moving vehicles</li> </ul>	✓	✓	✓	✓	✓	✓
	<b>Motor Vehicle Safety and Performance</b> A road corridor where passenger vehicles, emergency service vehicles, and trucks move safely and efficiently through the corridor	✓	✓	✓	✓	✓	✓
	<ul style="list-style-type: none"> <li>maximization of vehicle Level of Service at intersections</li> <li>maximization of vehicle safety while travelling through the corridor</li> </ul>	✓	✓	✓	✓	✓	✓
	<b>Transit Network Connectivity</b> A road corridor where planned transit service can be efficiently integrated	n/a	n/a	n/a	n/a	n/a	n/a
	<ul style="list-style-type: none"> <li>maximization of flexibility to accommodate Airport LRT Connection</li> <li>maximization of flexibility to accommodate other TMP Transit Priority measures</li> </ul>	✓	✓	✓	✓	✓	✓
TRANSPORTATION	<b>Phasing and Implementation</b> A road corridor that can be easily phased and allows for incremental implementation	✓	✓	✓	✓	✓	✓
	<ul style="list-style-type: none"> <li>maximizes ability to phase and incrementally implement the project</li> <li>minimizes disruption to Airport access and corridor travel time during construction</li> </ul>	✓	✓	✓	✓	✓	✓

Note: ✓ means that the environmental objective is met  
 ✗ means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 N/A means the indicator was not applicable

CRITERIA	OBJECTIVE/INDICATORS	Brookfield to Walkley			Walkley to Hunt Club		
		Alternative 1: Widen To East	Alternative 2 Widen From Centerline	Alternative 3: Widen To West	Alternative 1: Widen To East	Alternative 2: Widen From Centerline	Alternative 3: Widen To West
	<ul style="list-style-type: none"> <li>minimization of propensity for traffic diversion during construction</li> </ul>	✓	x	✓	✓	x	✓
BIOPHYSICAL	<b>Terrestrial Habitat and species</b> A road corridor that provides habitat for wildlife <ul style="list-style-type: none"> <li>minimization of loss of existing habitats for protected terrestrial species</li> <li>maximization of net gain to habitats for protected terrestrial species</li> <li>maximization of potential for safe wildlife passages/crossing</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a
	<b>Surface Water Habitat and Species</b> A road corridor that minimizes risk to aquatic habitats and manages quality and quantity of surface water runoff <ul style="list-style-type: none"> <li>minimization of hard surfaces and stormwater runoff</li> <li>maximization of use of natural stormwater management techniques</li> <li>avoidance of harmful alterations or disruption to fish or fish habitat in receiving watercourses</li> </ul>	✓	✓	✓	✓	✓	✓
BIOPHYSICAL	<b>Watercourses</b> A road corridor that minimizes disruption to existing watercourses or enhances them <ul style="list-style-type: none"> <li>minimization of requirement to modify or relocate existing watercourses</li> <li>minimization of alteration to associated riparian zones and slopes</li> </ul>	x	✓	✓	n/a	n/a	n/a
		x	x	✓	n/a	n/a	n/a

Note: ✓ means that the environmental objective is met  
 x means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 N/A means the indicator was not applicable

CRITERIA	OBJECTIVE/INDICATORS	Brookfield to Walkley			Walkley to Hunt Club		
		Alternative 1: Widen To East	Alternative 2 Widen From Centerline	Alternative 3: Widen To West	Alternative 1: Widen To East	Alternative 2: Widen From Centerline	Alternative 3: Widen To West
	<ul style="list-style-type: none"> <li>maximization of opportunity to improve watercourse environmental value</li> </ul>	x	✓	✓	n/a	n/a	n/a
<b>Wetland Areas</b>	A road corridor that minimizes disruption to designated provincially significant wetlands/complexes	n/a	n/a	n/a	n/a	n/a	n/a
	<ul style="list-style-type: none"> <li>minimization of loss to designated wetlands</li> <li>maximization of potential to add/enhance wetland</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a
<b>Soils and Groundwater</b>	A road corridor that manages potential risks associated with soil and/or groundwater contamination	n/a	n/a	n/a	n/a	n/a	n/a
	<ul style="list-style-type: none"> <li>minimization of interaction with potentially impacted soil and/or groundwater</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a
<b>PREFERRED DESIGN</b>				<b>PREFERRED</b>	<b>PREFERRED</b>		

Note: ✓ means that the environmental objective is met  
 x means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 N/A means the indicator was not applicable

## 5.4 Airport Connectivity Sector

The area accommodating the southern portion of the Airport Parkway (between a point approximately 420m south of Hunt Club Road, at the Cahill Drain crossing), and also accommodating Lester Road from the Airport Parkway to the planned Trillium Line project, is established as the Airport Sector. This sector has the following characteristics which inform the alternative designs to be identified and evaluated:



- Corridor consisting of City-owned measuring approximately 110 to 500m wide;
- Within the Macdonald-Cartier International Airport designation in the Official Plan;
- Flanked by the NCC Greenbelt for a distance of 1.5km south of Hunt Club Road;
- Adjacent to small pockets of Provincially Significant Wetlands along both sides of the Airport Parkway and along the north side of Lester Road;
- Adjacent to the airport's vacant development lands;
- Adjacent to the OMCIAA stormwater management facility at the southwest corner of Lester Road and the proposed Trillium Line Extension;
- An urban cross-section with bike lanes and roadway lighting along both sides of Lester Road for approximately 400m east of the Airport Parkway (at NRC driveway);
- No pedestrian facilities; and
- Lester Road connects with the Airport Parkway as an interchange at Uplands Drive.

Within this sector, it is important that the alternatives have regard for and enable the implementation of the OMCIAA's long-term plans. These plans include:

- Development of adjacent employment uses;
- Two potential long-term roadway network investments:
  - Option 1 (Tight Northerly Loop): A new northerly tight loop that runs westerly along the north of the EY Centre to an expanded Air Terminal Building and back to the Airport Parkway along the north side of the EY, and that would lead to the abandonment of the existing Airport Parkway south of Lester Road, or
  - Option 2 (Large Loop): A new large loop that would consist of a new westbound route from the Airport Parkway along EY Centre, running to the Air Terminal Building and continuing back northbound along the current Airport Parkway; and
- Accommodation of a planned LRT spur line to the airport, running on a diagonal line from the proposed north-south Trillium Line Extension to a planned LRT station along the north side of the EY Centre at Uplands Drive.

The time lines for these investments by the airport are not determined but it is important that the City's planned modifications to the existing Airport Parkway and Lester Road not preclude them.

### 5.4.1 Airport Connectivity Sector Alternative Design Descriptions and Evaluation

Having regard for the design guidance and the conclusions of the environmental impact-based evaluation of functional options documented in Section 5.1, designs have been identified for the widening of the Airport

Connectivity Sector. From the analysis completed in Section 5.1, and considering the context established, above, the alternatives are recommended to have the following performance standards:

### **Airport Parkway**

- Four travel lanes;
- Rural cross-section with road-edge drainage;
- Very wide (20 m plus) green median with rural cross-sections and gradual slopes leading towards a natural treed environment, through the Greenbelt;
- Paved 2.5m shoulder;
- 3m multi-use pathway along the west side;
- Appropriate landscaping, outside of the clear zone; and
- Roadway lighting along both sides.

### **Lester Road**

- Four travel lanes;
- Left-turn lanes at approaches to the intersections at Alert Road and the NRC driveway;
- Urban four lane divided cross-section for the portion of Lester Road generally between the Airport Parkway and the NRC driveway, and a rural cross-section with paved 2.5m shoulder to the east;
- 3m multi-use pathway along the north side, adjacent to future employment lands;
- Appropriate landscaping, outside of the clear zone; and
- Roadway lighting along both sides.

A range of hypothetical options to connect the Airport Parkway to Lester Road and Uplands Drive were initially identified. However, after more refined analysis of the transportation demand, it was determined that the existing interchange has the capacity to accommodate the long term demand. Those options were then screened out as being unnecessary and having notable impacts. Two alternative designs were then identified for evaluation, as below.

### **Alternative Design 1: Utilize Existing Interchange and Add New Westbound Connection to Uplands Drive**

This alternative has the following characteristics and implications:

- Provides one new southbound lane which terminates at the southbound off-ramp to Uplands Drive;
- Provides one new northbound lane which commences at the on-ramp from Lester Road;
- Provides a new connection from the existing Airport Parkway to Uplands Drive along the north side of the EY Centre, adding flexibility and capacity to the existing interchange to the south;
- Locates the connection in a manner to enable the future implementation of both the tight northerly loop and large southerly loop long term access options of the OMCIAA;
- Uses the existing arrangement of the recently modified interchange with the Airport Parkway and Lester Road/Uplands Drive; and
- Routes the 3m multi-use pathway out to Uplands Drive, thereby avoiding the need for the pathway to cross a high-speed roadway.

### **Alternative Design 2: Utilize Existing Interchange**

This alternative has the following characteristics and implications:

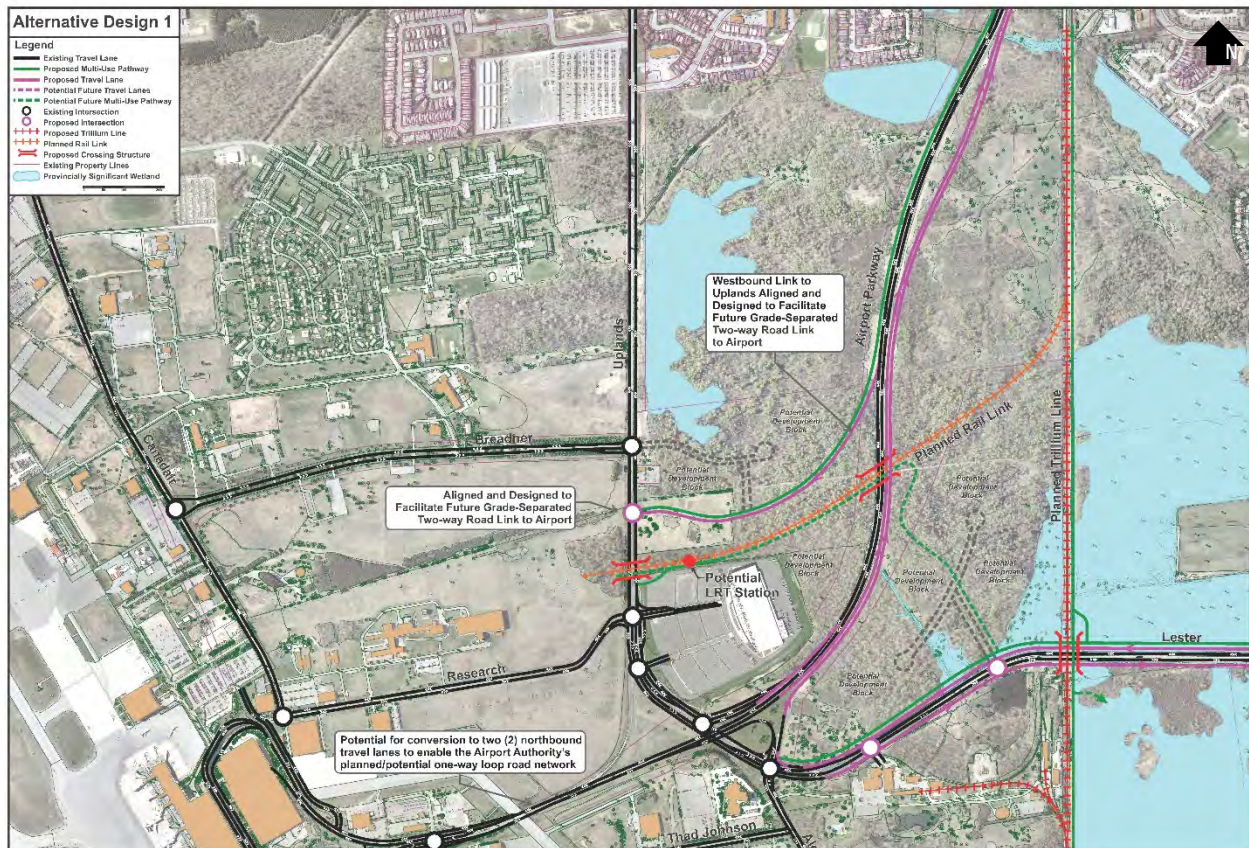
- Provides one new southbound lane which terminates at the southbound off-ramp to Uplands Drive;
- Provides one new northbound lane which commences at the on-ramp from Lester Road;
- Relies on the existing arrangement of the recently modified interchange with the Airport Parkway and Lester Road/Uplands Drive;
- Routes the 3m multi-use pathway completely along-side the west side of the Airport Parkway, terminating at Uplands Drive.

It is important to note that both options have been determined by transportation professionals to provide adequate capacity and intersection level of service to serve transportation needs to the year 2031. An option to provide a connection between Lester Road and the Airport Parkway as a two-way roadway was considered but was screened out on the basis that there is no need for an easterly to northerly connection based on capacity reasons or otherwise. Very long-term needs beyond the planning horizon year 2031 are discussed in Section 5.4.3.

### 5.4.2 Preliminary Preferred Design for the Airport Connectivity Sector

The criteria-based evaluation of the alternative designs is provided on Table 5-3. The conclusion of this analysis and the key influences are described below. Alternative Design 1, which includes a new connection from the Airport Parkway to Uplands Drive, is the Preliminary Preferred Design as illustrated in Figure 5-10.

**Figure 5-10: Preliminary Preferred Design for the Airport Connectivity Sector**



This alternative:



- Provides for a relatively cost-effective augmentation of the capacity, reliability, and resiliency of the transportation network serving airport area;
- Provides additional capacity as a contingency should the actual vehicle travel demand for the southbound to eastbound traffic movement (Airport Parkway to Lester Road) actually exceed forecasts;
- Provides additional capacity for “extreme event” traffic circumstances that could occur during EY Centre events;
- Contributes to the desirability of the development of the vacant airport area employment lands north of the EY Centre; and
- Enables a future LRT link to the airport to be aligned along its southern side, with a potential rapid transit station just east of Uplands Drive.

**Table 5-3: Airport Connectivity Sector Evaluation Summary Results**

CRITERIA		OBJECTIVE/INDICATORS	Alternative Designs	
			Alternative 1: Utilize Existing Interchange and Add New Westbound Connection to Uplands Drive	Alternative 2: Utilize Existing Interchange
SOCIO-ECONOMIC	<b>Land Implications</b>	A road corridor that minimizes the effects on adjacent properties not under municipal ownership including Greenbelt Lands <ul style="list-style-type: none"> <li>• minimization of amount of Right-of-Way</li> </ul>	x	✓
	<b>Building and Development</b>	A road corridor that minimizes the effect on individual buildings and future planned growth <ul style="list-style-type: none"> <li>• minimization of the requirement to</li> <li>• maximum flexibility to accommodate long-</li> <li>• maximum flexibility to accommodate</li> </ul>	n/a ✓ ✓	n/a ✓ x
	<b>Visual</b>	A road corridor that improves the Scenic Entry <ul style="list-style-type: none"> <li>• Maximization of opportunities for</li> <li>• Maximization of opportunities to improve the</li> <li>• Maximization of opportunities to reinforce the</li> </ul>	✓ ✓ n/a	✓ ✓ n/a
	<b>Noise</b>	A road corridor that minimizes or reduces noise experienced by adjacent sensitive land uses <ul style="list-style-type: none"> <li>• maximization of separation between noise</li> <li>• maximization of opportunities and choice for</li> </ul>	n/a n/a	n/a n/a
	<b>Vibration</b>	A road corridor that minimizes/reduces levels experienced by adjacent structures <ul style="list-style-type: none"> <li>• maximization of separation between vibration</li> </ul>	n/a	n/a
	<b>Outdoor Air Quality</b>	A road corridor with reduced contributions to ambient air quality <ul style="list-style-type: none"> <li>• maximization of fuel efficient driving behavior</li> <li>• minimization of travel distance</li> </ul>	✓ ✓	x x
	<b>Life Cycle Costs</b>	A road that is affordable to construct and maintain <ul style="list-style-type: none"> <li>• minimization of capital infrastructure cost</li> <li>• minimization of road and infrastructure maintenance and replacement cost</li> </ul>	x x	✓ ✓

CRITERIA		OBJECTIVE/INDICATORS	Alternative Designs	
			Alternative 1: Utilize Existing Interchange and Add New Westbound Connection to Uplands Drive	Alternative 2: Utilize Existing Interchange
TRANSPORTATION	<b>Road Network Connectivity</b>	<p>A road corridor that provides efficient connectivity to the area road network and adjacent land uses</p> <ul style="list-style-type: none"> <li>• minimization of the need to alter/reconstruct</li> <li>• minimization of travel time delay to/from the</li> <li>• minimization of travel time delay to/from</li> <li>• maximization of connectivity to adjacent</li> </ul>	<p>✘</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✘</p>
	<b>Motor Vehicle Safety and Performance</b>	<p>A road corridor where passenger vehicles, emergency service vehicles, and trucks move safely and efficiently through the corridor</p> <ul style="list-style-type: none"> <li>• maximization of vehicle Level of Service at</li> <li>• maximization of vehicle safety while travelling through the corridor</li> </ul>	<p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>
TRANSPORTATION	<b>Road Network Resiliency</b>	<p>A road corridor that has the ability to operate during unforeseen occurrences including to accidents, acts of nature, or infrastructure failure</p> <ul style="list-style-type: none"> <li>• maximization of opportunities for alternative</li> <li>• maximization of opportunities for alternative</li> </ul>	<p>✓</p> <p>✓</p>	<p>✘</p> <p>✘</p>
	<b>In-Corridor Walking and</b>	<p>A road corridor that enables pedestrians and cyclists to move safely and efficiently along it</p> <ul style="list-style-type: none"> <li>• maximization of ease and directness of</li> <li>• maximization of pleasantness of the walking</li> <li>• maximization of separation of cyclists from</li> </ul>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>
	<b>Transit Network Connectivity</b>	<p>a road corridor where planned transit service can be efficiently integrated</p> <ul style="list-style-type: none"> <li>• maximization of flexibility to accommodate</li> <li>• maximization of flexibility to accommodate</li> </ul>	<p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>
	<b>Phasing and Implementation</b>	<p>A road corridor that can be easily phased and allows for incremental implementation</p> <ul style="list-style-type: none"> <li>• maximizes ability to phase and incrementally</li> <li>• minimizes disruption to Airport access and</li> <li>• minimization of propensity for traffic diversion</li> </ul>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>
	<b>Terrestrial Habitat and i</b>	<p>A road corridor that provides habitat for wildlife</p> <ul style="list-style-type: none"> <li>• minimization of loss of existing habitats for</li> <li>• maximization of net gain to habitats for</li> <li>• maximization of potential for safe wildlife</li> </ul>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>
BIOPHYSICAL	<b>Surface Water Habitat and Species</b>	<p>A road corridor that minimizes risk to aquatic habitats and manages quality and quantity of</p> <ul style="list-style-type: none"> <li>• minimization of hard surfaces and stormwater</li> <li>• maximization of use of natural stormwater</li> </ul>	<p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>

CRITERIA	OBJECTIVE/INDICATORS	Alternative Designs	
		Alternative 1: Utilize Existing Interchange and Add New Westbound Connection to Uplands Drive	Alternative 2: Utilize Existing Interchange
	<ul style="list-style-type: none"> <li>avoidance of harmful alterations or disruption</li> </ul>	✓	✓
	<b>Watercourses</b> A road corridor that minimizes disruption to existing watercourses or enhances them <ul style="list-style-type: none"> <li>minimization of requirement to modify or</li> <li>minimization of alteration to associated</li> <li>maximization of opportunity to improve</li> </ul>	✓ ✓ ✓	✓ ✓ ✓
BIOPHYSICAL	<b>Wetland Areas</b> A road corridor that minimizes disruption to designated provincially significant wetlands/complexes <ul style="list-style-type: none"> <li>minimization of loss to designated wetlands</li> <li>maximization of potential to add/enhance</li> </ul>	✓ ✓	✓ ✓
	<b>Soils and Groundwater</b> A road corridor that manages potential risks associated with soil and/or groundwater contamination. <ul style="list-style-type: none"> <li>minimization of interaction with potentially</li> </ul>	n/a	n/a
<b>PRELIMINARY PREFERRED DESIGN</b>		<b>PREFERRED</b>	

### 5.5 Lester Road Sector

Lester Road between the planned Trillium Line crossing and Bank Street is established as the Lester Road Sector. This sector has the following characteristics which inform the alternative designs to be identified and evaluated:

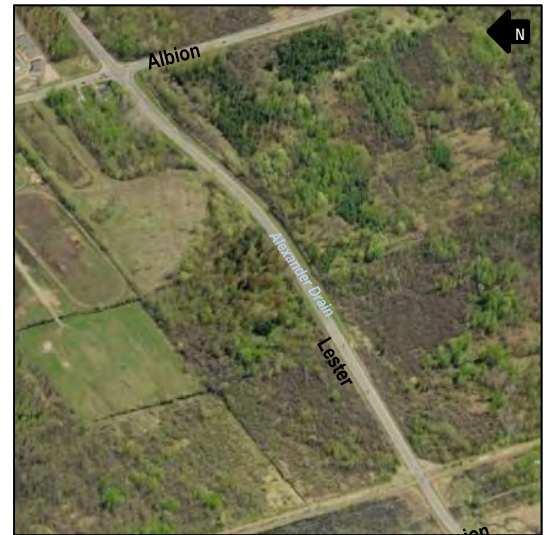
- A rural, two-lane roadway cross-section;
- A narrow City-owned right-of-way ranging in width;
- Flanked by a combination of Greenbelt and General Urban Area designations, with the Greenbelt forming the entire south boundary of the right-of-way, and the north boundary of the right-of-way in the sub-sector between the planned Trillium Line and Albion Road;
- Adjacent to the rear yard of urban residences and the front yard of rural residences which take access onto the roadway;
- No walking or cycling features; and
- Utility poles (with street lights affixed) aligned on the south side throughout

Within this sector, three sub-sectors are identified, as outlined below

**Trillium Line to Albion Road:** In this sub-sector, Lester road exists within a corridor ranging from approximately 30m wide (near the Trillium Line) to 46m wide (near Albion Road). The road is flanked by the NCC Greenbelt on both sides. See images, looking east.

A watercourse (Alexander Drain, an unofficial drain) runs along the road's south-side ditch. This forms the outlet for the airport's stormwater management facility (west of the proposed Trillium Line) and feeds into the Sawmill Creek watercourse. It has important natural values in providing fish habitat for fish and other aquatic and terrestrial animals, and has potential for environmental improvement.

One rural dwelling abuts the corridor, at the northwest corner of the intersection of Lester Road at Albion Road, and is approximately 20m offset from the existing Lester Road travelled roadway.



**Albion Road to Meandering Brook Drive:**

In this sub-sector, Lester Road exists within a corridor ranging from approximately 30m to 34m wide. Some right-of-way widenings have already been secured along the north side of the corridor which forms part of the Urban Area and General Urban Area designation in the City of Ottawa Official Plan. Developed residential areas located adjacent to the north side of Lester Road, including residential properties:



- Along Maple Key Private Place, approximately 65m to the north of the existing roadway
- Along Aladdin Lane, approximately 15m to the north of the existing roadway
- Along Stedman Street, approximately 30m to 35m to the north of the existing roadway at the nearest points

Two rural dwellings exist within the NCC Greenbelt on the south side of the road in this sub-sector, at 2836 and 2886 Lester Road. Both dwellings exist approximately 20m to 22m from the travelled roadway. Past dwellings on home sites abutting the west side of 2836 Lester Road, and abutting the west side of 2886 Lester Road, have been demolished. The NCC has no plan to reconstruct on those home sites.

Sawmill Creek provides a roadside ditch function along the north side of Lester Road in this sub-section. It flows eastbound from a point approximately 12m east of the Albion Road right-of-way for a distance of approximately 190m. The creek separates the roadway from a city parkland at the northeast corner of Lester Road and Albion Road. The creek then runs behind the residences located at 3500 Aladdin Lane, continues along the ditch for another approximately 125m, and then veers to the northeast along IHaands designated Urban Natural Features which flanks the Lester Road right-of-way. The creek occupies approximately 10m of the Lester Road right-of-way in this sub-sector.

Sawmill Creek is a highly valued natural feature, providing fish habitat for fish and other aquatic and terrestrial animals, and has potential for environmental improvement. It also has important social values to the adjacent community as a form of open space and a buffer between the roadway and the residences.

**Meandering Brook Drive to Bank Street:** In this sub-sector, Lester Road exists within a corridor ranging from approximately 27m (closer to Bank Street) to 32m wide. Some right-of-way widenings have already been secured along the north side of the corridor which forms part of the Urban Area and General Urban Area designation in the City of Ottawa Official Plan. The block east of Meandering Brook Drive is subject to current land development application for urban residential uses. The block at the northwest corner of Lester Road and Bank Street is vacant and has a zoning that indicates future urban development.



Two rural dwellings exist within the NCC Greenbelt on the south side of the road in this sub-sector, at 2952 and 2972 Lester Road. Both dwellings exist approximately 20m from the travelled roadway. Two past dwellings on home sites abutting either side 2952 Lester Road have been demolished. The NCC has no plan to reconstruct on those home sites.

### **5.5.1 Lester Road Sector Alternative Design Descriptions and Evaluation**

Having regard for the design guidance and the conclusions of the environmental impact-based evaluation of functional options documented in Section 5.1, designs have been identified for the widening of Lester Road on the basis of the three sub-sectors. From the analysis completed in Section 5.1, and considering the context established, above, the alternatives are recommended to have the following performance standards:

- Four travel lanes;
- Left-turn lanes at the approaches to Albion Road, Meandering Brook Drive, and Bank Street;
- Median division only where required to locate traffic signal plant;
- Rural cross-section with road-edge drainage and 2.5m wide paved shoulder, along the entire south side (facing the Greenbelt), and along the north side (facing the Greenbelt) between Albion Road and the planned Trillium Line;
- Urban Cross-section, along the north side, where adjacent to the designated Urban Area, between Albion Road and Bank Street;
- 3m multi-use pathway along the north side;
- Noise attenuation fences as warranted to be located between Lester Road and adjacent residences, as identified in Section 5.1.8;
- Roadway lighting along both sides;
- Appropriate landscaping, outside of the rural-edge clear zone; and
- Removing direct discharge of untreated roadway drainage into Sawmill Creek and the Alexander Drain, wherever possible.

The alternative designs are described below.

### **Alternative Design 1: Utilize Established Right-of-Way for Transportation Purposes**

This alternative has the following characteristics and implications:

- Align the transportation facility along the north side of the right-of-way, displacing Sawmill Creek from its current alignment, either by
  - undergrounding it within the city-owned right-of-way, or
  - re-routing it through the Greenbelt in a location behind the rural dwelling on the south side of Lester Road
- Acquire additional land for right-of-way widening from the north side (along the Urban Area side, east of Albion Road), using the established widening limit as the guide;
- Acquire additional land for right-of-way widening from the south side, as required to accommodate the determined cross-section;
- Displace the Alexander Drain from its current alignment along the south side of the right-of-way, by relocating it in a parallel location to the south, within the NCC Greenbelt; and
- Construct a new urban road edge, including a boulevard and multi-use pathway, in the 10m wide portion of the right-of-way currently occupied by Sawmill Creek and its bank

### **Alternative Design 2: Align the Transportation Facility to Avoid Watercourses**

This alternative has the following characteristics and implications:

- Align the transportation facility “around” Sawmill Creek and the Alexander Drain, and acquire additional right-of-way from the NCC Greenbelt on the opposite side of the corridor as required to accommodate the cross-section;
- Acquire additional land for right-of-way widening from the north side (along the Urban Area side, east of Albion Road), using the established widening limit as the guide;
- Acquire additional land for right-of-way widening from the south side, as required to accommodate the determined cross-section and the shift of alignment to avoid the watercourses; and
- Use the opportunity to improve the natural and social values of the watercourses.

### **Alternative Design 3: Shift Alignment North and Acquire Additional Land from Urban Area Lands**

This alternative applies only to the sub-sector east of Meandering Brook Drive, and has the following characteristics and implications:

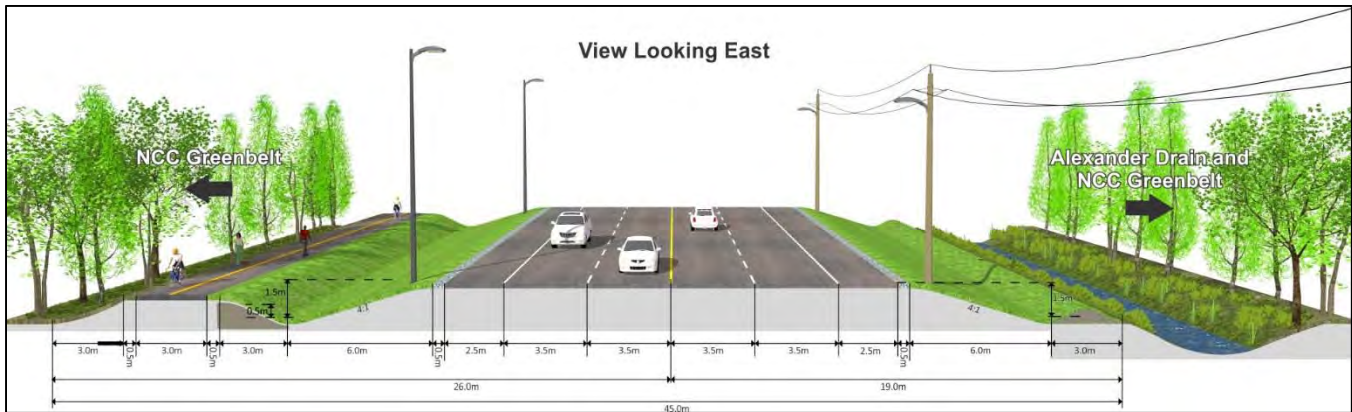
- Acquire additional land for right-of-way widening from the north side (along the Urban Area side, east of Meandering Brook Drive), in addition to the established widening limit;
- Acquire additional land for right-of-way widening from the south side, as required to accommodate the determined cross-section; and
- Avoid the need for guardrails along the front of 2952 and 2972 Lester Road, that would otherwise have minimized the required cross-section and avoid impacts on the residence’s front yard area and potential on-site water and wastewater system.

## **5.5.2 Preliminary Preferred Design for the Lester Road Sector**

The criteria-based evaluation of the alternative designs is provided on Table 5-4. The conclusion of this analysis and the key influences are described below.

Trillium Line to Albion Road: For this sub-sector, the Preliminary Preferred Design is Alternative Design 2, being to align the transportation facility “around” the Alexander Drain, and acquire additional right-of-way from the NCC Greenbelt on the north side of the corridor as required to accommodate the cross-section. A typical cross-section is illustrated in Figure 5-11.

**Figure 5-11: Typical Cross Section for Lester Road, Trillium Line to Albion Road**

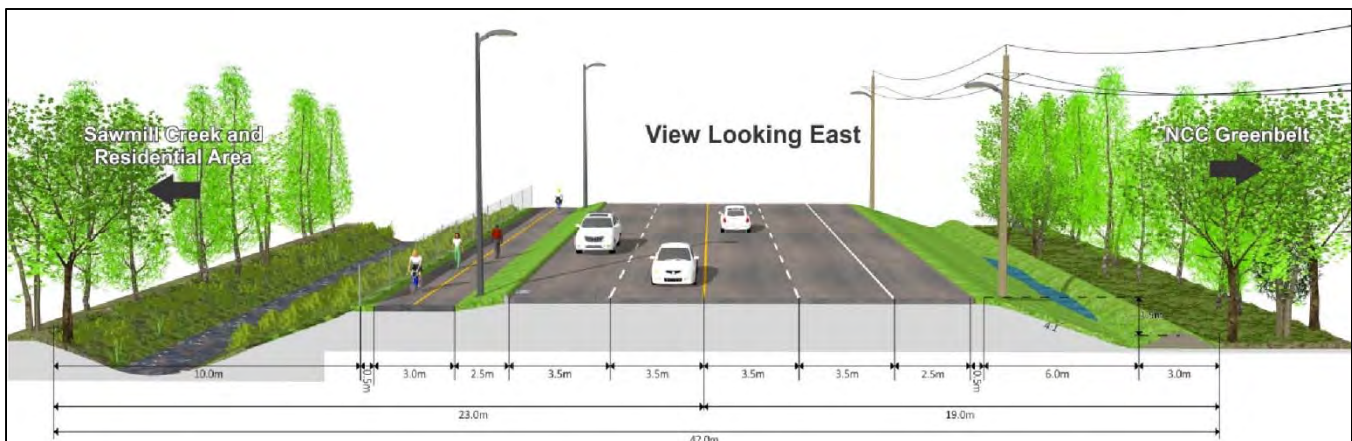


In this location, this alternative:

- Retains the Alexander Drain watercourse in-place;
- Provides the opportunity to improve the natural values of the watercourse;
- Reinforces the core natural functions of the NCC Greenbelt south of Lester Road;
- Creates an opportunity for a land exchange between the City and the NCC, where the City acquires land on the north side of the corridor for transportation purposes, and the NCC gains land and improved environmental conditions on the south side of the corridor.

Albion Road to Meandering Brook Drive: For this sub-sector, the Preliminary Preferred Design is Alternative Design 2, being to align the transportation facility “around” Sawmill Creek, and acquire additional right-of-way from the NCC Greenbelt on the south side of the corridor as required to accommodate the cross-section. A typical cross-section is illustrated in Figure 5-12.

**Figure 5-12: Typical Cross Section for Lester Road, Albion Road to Meandering Book Drive**



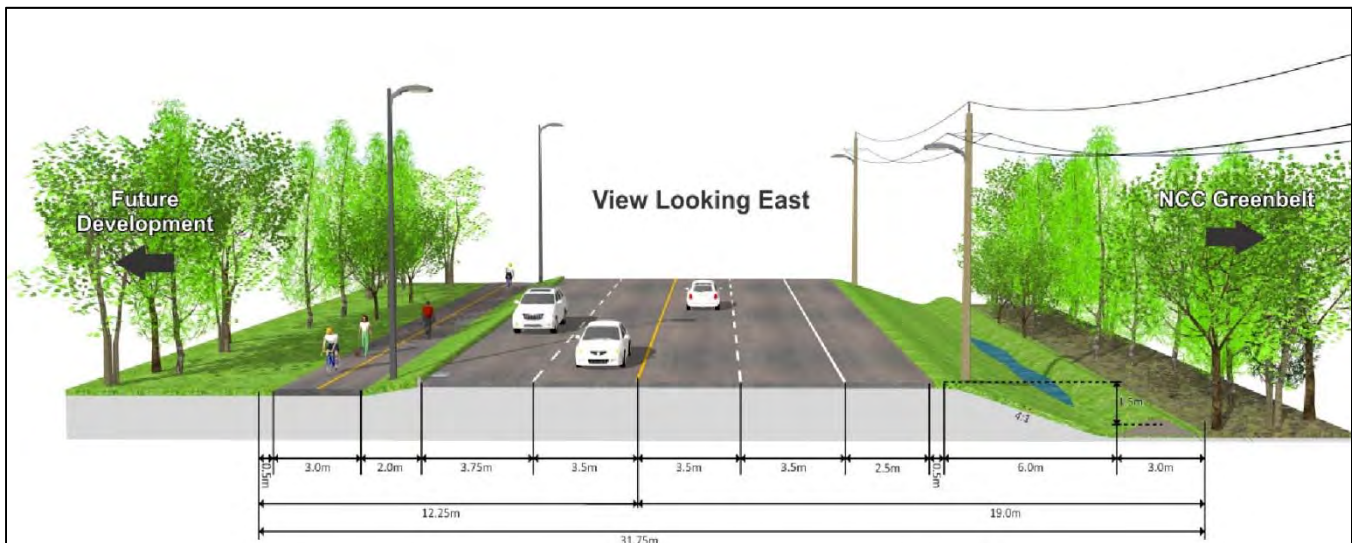
In this location, this option:

- Retains Sawmill Creek in-place;
- Locates the travelled portion of the roadway further away from residences (in locations where the Creek currently runs along the edge of roadway);
- Reduces (but does not eliminate) the need for noise attenuation fences;
- Provides the opportunity to improve the natural values of the watercourse;
- Reinforces the role that Sawmill Creek plays as a buffer between Lester Road and adjacent residences;

- Requires an additional right-of-way widening from the NCC Greenbelt along the south side of the corridor;
- Displaces the rural residence at 2836 Lester Road, located within the NCC Greenbelt; and
- Requires a guardrail along the frontage of 2886 Lester Road, to minimize the required cross-section and avoid impacts on the residence's front yard area and potential on-site water and wastewater systems.

Meandering Brook Drive to Bank Street: For this sub-sector, the Preliminary Preferred Design is utilize the established right-of-way for transportation purposes, and acquire widenings to accommodate the cross-section as required (Alternative Design 1). A typical cross-section is illustrated in Figure 5-13.

**Figure 5-13: Typical Cross Section for Lester Road, Meandering Brook Drive to Bank Street**



In this location, this alternative:

- Aligns the northern portion of the transportation facility in an alignment that is consistent with the right-of-way widenings that have been taken from developing properties;
- Requires an approximately 4m widening from vacant development block located at the northeast corner of the intersection of Lester Road and Bank Street, over a distance of approximately 225m, where the right-of-way widening has not yet been taken;
- Requires an additional right-of-way widening from the NCC Greenbelt along the south side of the corridor; and
- Requires a guardrail along the frontage of 2952 and 2972 Lester Road, to minimize the required cross-section and avoid impacts on the residence's front yard area and potential on-site water and wastewater systems.

Alternative Design 3, which would shift the alignment to the north over vacant development properties has the following shortcomings:

- Shifting the roadway alignment further to the north had the potential to cause a lane alignment issue with the lanes moving through the Bank Street intersection;
- Shifting the roadway alignment further to the north further augments the required curvature in the roadway to accomplish the southerly shift around Sawmill Creek to the west of Meandering Brook Drive; and



- The block of land at the northeast corner of the intersection of Lester Road and Meandering Brook Drive has progressed too far in the planning process to make it reasonable to amend the land use plans and acquire additional right-of-way widening.

The design and location of noise attenuation features along the north side of the corridor, as identified in Section 5.1.8, as well as landscaping and stormwater management features, will be addressed as part of the Recommended Plan, with stakeholder input. The options were presented for stakeholder review, and the option of installing noise barriers close to the noise source, behind the multi-use pathways, was indicated as the study team's preference.

Opportunities to mitigate the displacement of wetland areas, and compensate for the net land acquisition of Greenbelt lands, will also be addressed as part of the Recommended Plan, with NCC input and input of the Ministry of Natural Resources and Forestry.

**Table 5-4: Lester Road Sector Evaluation Summary Result**

CRITERIA	OBJECTIVES/INDICATORS	Trillium Line to Albion Road		Albion Road to Meandering Brook Drive		Meandering Brook Drive to Bank Street	
		Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 3: Shift Alignment North and Acquire Additional Land from Urban Area Lands
SOCIO-ECONOMIC	<b>Land Implications</b> A road corridor that minimizes the effects on adjacent properties not under municipal ownership including Greenbelt Lands <ul style="list-style-type: none"> <li>minimization of amount of Right-of-Way acquisition required</li> </ul>	✓	x	✓	x	✓	✓
	<b>Building and Development Land</b> A road corridor that minimizes the effect on individual buildings and future planned growth and development <ul style="list-style-type: none"> <li>minimization of the requirement to alter/demolish existing or proposed buildings</li> <li>maximum flexibility to accommodate vacant land development</li> <li>maximum flexibility to accommodate development in designated growth areas of the City</li> </ul>	✓	x	✓	x	✓	x
		✓	✓	✓	✓	✓	x
✓		✓	✓	✓	✓	x	
<b>Visual Environment</b> A road corridor that improves the scenic qualities of transportation corridors							

Note: ✓ means that the environmental objective is met  
 x means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 means the indicator was not applicable

CRITERIA	OBJECTIVES/INDICATORS	Trillium Line to Albion Road		Albion Road to Meandering Brook Drive		Meandering Brook Drive to Bank Street	
		Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportati on Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 3: Shift Alignment North and Acquire Additional Land from Urban Area Lands
SOCIO-ECONOMIC		✓	✓	✓	✓	x	✓
		n/a	n/a	n/a	n/a	n/a	n/a
		x	✓	x	✓	x	✓
	Noise						
		<ul style="list-style-type: none"> <li>maximization of separation between noise sources and receivers</li> <li>maximization of opportunities and choice for mitigation.</li> </ul>	x	✓	x	✓	✓
Vibration	<ul style="list-style-type: none"> <li>maximization of separation between vibration source (vehicle movements) and receivers</li> </ul>	x	✓	x	✓	✓	x

Note: ✓ means that the environmental objective is met  
 x means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 N/A means the indicator was not applicable

CRITERIA	OBJECTIVES/INDICATORS	Trillium Line to Albion Road		Albion Road to Meandering Brook Drive		Meandering Brook Drive to Bank Street		
		Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportati on Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 3: Shift Alignment North and Acquire Additional Land from Urban Area Lands	
SOCIO-ECONOMIC	<b>Outdoor Air Quality</b>	A road corridor with reduced contributions to ambient air quality						
		<ul style="list-style-type: none"> <li>maximization of fuel efficient driving behavior</li> </ul>	✓	✓	✓	✓	✓	✓
		<ul style="list-style-type: none"> <li>minimization of travel distance</li> </ul>	✓	✓	✓	✓	✓	✓
	<b>Life Cycle Costs</b>	A road that is affordable to construct and maintain						
		<ul style="list-style-type: none"> <li>minimization of capital infrastructure cost including minimizing the need to alter existing grade-separated structures, stormwater management facilities, pathways, municipal services, utilities, and lighting systems</li> </ul>	✓	✓	✓	✓	✓	✓
		<ul style="list-style-type: none"> <li>minimization of road and infrastructure maintenance and replacement cost</li> </ul>	✓	✓	✓	✓	✓	✓

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 ✗ means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 N/A means the indicator was not applicable

CRITERIA	OBJECTIVES/INDICATORS	Trillium Line to Albion Road		Albion Road to Meandering Brook Drive		Meandering Brook Drive to Bank Street	
		Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportati on Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 3: Shift Alignment North and Acquire Additional Land from Urban Area Lands
TRANSPORTATION	<b>Road Network Connectivity</b> A road corridor that provides efficient connectivity to the area road network and adjacent land uses <ul style="list-style-type: none"> <li>minimization of the need to alter/reconstruct existing travel lanes and intersections</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a
	<ul style="list-style-type: none"> <li>minimization of travel time delay to/from the airport</li> <li>minimization of travel time delay to/from growth areas south of the airport</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a
	<ul style="list-style-type: none"> <li>maximization of connectivity to adjacent Arterial Road Network</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a
	<b>Road Network Resiliency</b> A road corridor that has the ability to operate during unforeseen occurrences including to accidents, acts of nature, or infrastructure failure <ul style="list-style-type: none"> <li>maximization of opportunities for alternative routing to bypass temporary obstructions during construction</li> <li>maximization of opportunities for alternative routing to bypass temporary obstructions operation</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a

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 ✗ means that the environmental objective is either not met or is only partially met. Site specific mitigation may be required  
 means the indicator was not applicable

CRITERIA	OBJECTIVES/INDICATORS	Trillium Line to Albion Road		Albion Road to Meandering Brook Drive		Meandering Brook Drive to Bank Street		
		Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportati on Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 3: Shift Alignment North and Acquire Additional Land from Urban Area Lands	
TRANSPORTATION	<b>In-Corridor Walking and Cycling</b>	A road corridor that enables pedestrians and cyclists to move safely and efficiently along it <ul style="list-style-type: none"> <li>maximization of ease and directness of walking and cycling between origins and destinations along the corridor</li> </ul>	✓	✓	✓	✓	✓	✓
		<ul style="list-style-type: none"> <li>maximization of pleasantness of the walking and cycling experience along the corridor</li> </ul>	x	✓	x	✓	✓	✓
		<ul style="list-style-type: none"> <li>maximization of separation of cyclists from high-speed moving vehicles</li> </ul>	✓	✓	✓	✓	✓	✓
	<b>Motor Vehicle Safety and Performance</b>	A road corridor where passenger vehicles, emergency service vehicles, and trucks move safely and efficiently through the corridor <ul style="list-style-type: none"> <li>maximization of vehicle Level of Service at intersections</li> <li>maximization of vehicle safety while travelling through the corridor</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a
		n/a	n/a	n/a	n/a	n/a	n/a	n/a
	<b>Transit Network Connectivity</b>	A road corridor where planned transit service can be efficiently integrated						

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 means the indicator was not applicable

CRITERIA	OBJECTIVES/INDICATORS	Trillium Line to Albion Road		Albion Road to Meandering Brook Drive		Meandering Brook Drive to Bank Street		
		Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportati on Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 3: Shift Alignment North and Acquire Additional Land from Urban Area Lands	
TRANSPORTATION		• maximization of flexibility to accommodate Airport LRT Connection	n/a	n/a	n/a	n/a	n/a	n/a
		• maximization of flexibility to accommodate other TMP Transit Priority measures	n/a	n/a	n/a	n/a	n/a	n/a
	<b>Phasing and Implementation</b>	A road corridor that can be easily phased and allows for incremental implementation • maximizes ability to phase and incrementally implement the project	✓	✓	✓	✓	✓	✓
		• minimizes disruption to Airport access and travel time during construction • minimization of propensity for traffic diversion during construction	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓
BIOPHYSICAL	<b>Terrestrial Habitat and Species</b>	A road corridor that provides habitat for wildlife • minimization of loss of existing habitats for protected terrestrial species • maximization of net gain to habitats for protected terrestrial species	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓

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 means the indicator was not applicable

CRITERIA	OBJECTIVES/INDICATORS	Trillium Line to Albion Road		Albion Road to Meandering Brook Drive		Meandering Brook Drive to Bank Street	
		Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportati on Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 3: Shift Alignment North and Acquire Additional Land from Urban Area Lands
BIOPHYSICAL		✓	✓	✓	✓	✓	✓
	<b>Surface Water Habitat and Species</b>						
	<ul style="list-style-type: none"> <li>minimization of hard surfaces and stormwater runoff</li> </ul>	✓	✓	✓	✓	✓	✓
	<ul style="list-style-type: none"> <li>maximization of use of natural stormwater management techniques</li> </ul>	✓	✓	✓	✓	✓	✓
	<ul style="list-style-type: none"> <li>avoidance of harmful alterations or disruption to fish or fish habitat in receiving watercourses</li> </ul>	x	✓	x	✓	✓	✓
<b>Water-courses</b>	<ul style="list-style-type: none"> <li>minimization of requirement to modify or relocate existing watercourses</li> </ul>	x	✓	x	✓	✓	✓
	<ul style="list-style-type: none"> <li>minimization of alteration to associated riparian zones and slopes</li> </ul>	x	✓	x	✓	✓	✓
	<ul style="list-style-type: none"> <li>maximization of opportunity to improve watercourse environmental value</li> </ul>	x	✓	x	✓	✓	✓

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means the indicator was not applicable



CRITERIA	OBJECTIVES/INDICATORS	Trillium Line to Albion Road		Albion Road to Meandering Brook Drive		Meandering Brook Drive to Bank Street	
		Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportati on Purposes	Alternative 2: Align the Transportation Facility to Avoid Watercourses	Alternative 1: Utilize Established Right-of-Way for Transportation Purposes	Alternative 3: Shift Alignment North and Acquire Additional Land from Urban Area Lands
BIOPHYSICAL	<b>Wetland Areas</b>  A road corridor that minimizes disruption to designated provincially significant wetlands/complexes  <ul style="list-style-type: none"> <li>• minimization of loss to designated wetlands</li> <li>• maximization of potential to add/enhance wetland</li> </ul>	✓  ✓	✓  ✓	✓  ✓	✓  ✓	✓  ✓	x  x
	<b>Soils and Groundwater</b>  A road corridor that manages potential risks associated with soil and/or groundwater contamination  <ul style="list-style-type: none"> <li>• minimization of interaction with potentially impacted soil and/or groundwater</li> </ul>	n/a	n/a	n/a	n/a	n/a	n/a
<b>PREFERRED ALTERNATIVE DESIGN</b>			<b>PREFERRED</b>		<b>PREFERRED</b>	<b>PREFERRED</b>	

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 means the indicator was not applicable

## 5.6 Stakeholder Consultation of the Preliminary Preferred Design

### 5.6.1 Consultation Group Meetings

The second round of consultation group meetings (Agency, Business and Public) were held on June 2<sup>nd</sup> and 4<sup>th</sup>, 2015. The Study Team, including members from the City of Ottawa and the consultant team, were available to discuss the study and answer questions in a round table forum. At these meetings, participants were presented with information that was to be communicated at the second public open house including: project overview, evaluation of alternative designs, preliminary preferred design, future considerations for mitigation, and project schedule and stakeholder involvement. Input received at these meetings was also provided on the Preliminary Preferred Design and included discussion on the following topics:

- The southbound off-ramp at Walkley Road and implications on the street and community;
- Construction phasing coinciding with the Trillium Line LRT extension;
- Multi-use pathway design and layout;
- The importance of maintaining access to the airport during construction;
- Desire to use available City funding for widening to extend LRT as a priority; and,
- Noise, air quality, and vibration mitigation;

For a full account of discussion from these consultation groups, refer to Appendix A - Consultation Record.

### 5.6.2 Public Open House #2

Public Open House #2 was held on Wednesday, June 17, 2015 at Jim Durrell Recreation Centre from 6:00 to 9:00pm. The open house included a series of display boards to inform the public of the work completed to date, including the Preliminary Preferred Design for the widening of both the Airport Parkway and Lester Road including a new connection to Uplands Drive and a southbound off-ramp at Walkley Road. Study team members were present to answer questions in an informal setting. The information included on the display boards was also given as a presentation to the public at 7:00 pm followed by a question and answer period.

The material presented at the Public Open House included information on:

- Study Overview
- Study Objectives, Process and Schedule
- Consultation Activities
- Existing Conditions Overview
- Planned Function and Role of the Airport Parkway and Road Link
- Planned Function and Role of Lester Road
- Airport and Southern Communities Growth
- 2013 Transportation Master Plan
- What we have heard so far
- Confirming the Preferred Solution for the Airport Parkway and Lester Road
- Evaluation of Alternative Designs General Planning and Design Principles
- Accommodating Pedestrians and Cyclists in the Corridor
- Alternative Designs Evaluation Criteria and Methodology
- Airport Parkway
  - Alternative Designs
  - Existing Conditions
  - Preliminary Preferred Design
- Airport Connectivity
  - Alternative Designs
  - Existing Conditions
  - Preliminary Preferred Design
- Lester Road
  - Alternative Designs
  - Existing Conditions
  - Preliminary Preferred Design
- Alternative Designs for Noise Attenuation
- Considerations related to Impacts on Natural Heritage Features
- Mitigating Wetlands Impacts
- Next Steps
- Roll Plan of the Preliminary Preferred Design

Notification of the Open House occurred through advertisements in daily citywide newspapers on the following dates:

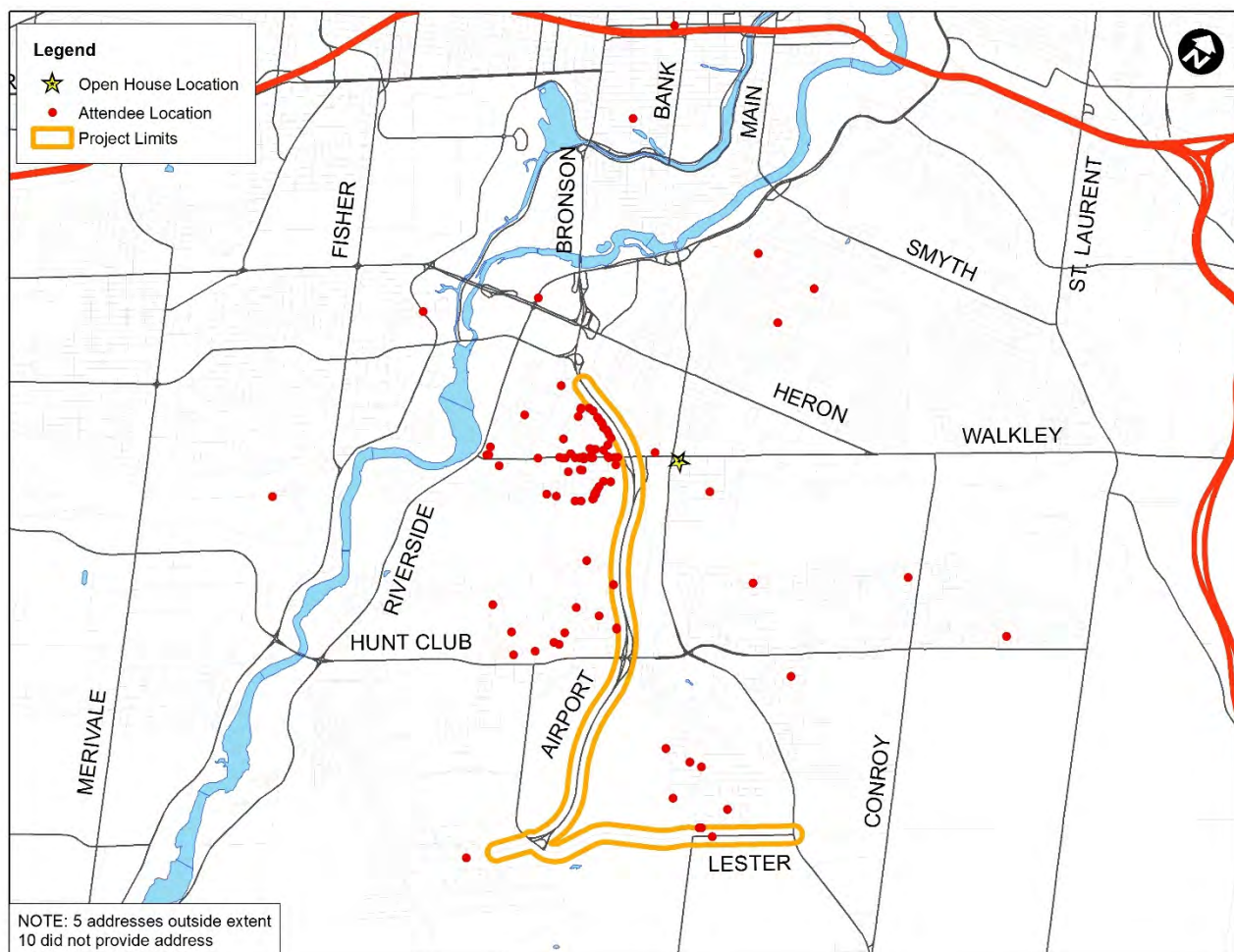
- EMC News, Thursday June 4<sup>th</sup>, 2015 and Thursday June 11<sup>th</sup>, 2015
- Le Droit, Friday June 5<sup>th</sup>, 2015 and Friday, June 12<sup>th</sup>, 2015

An email notification was sent on Friday, June 5<sup>th</sup> to all persons on the study's master mailing list and included members of the ACG, BCG and PCG. A reminder email was also sent on Friday, June 12<sup>th</sup>.

A resource table was also provided with background materials available for review by members of the public. This material included copies of the City of Ottawa Official Plan, Transportation Master Plan, the Ontario *Environmental Assessment Act*, the Pedestrian and Cycling Plan, the Municipal Class Environmental Assessment Process, and the PPS.

A total of 135 people signed-in over the course of the evening. Based on the addresses provided, individuals attending the Public Open House were largely located along the within the study area in proximity to the Airport Parkway and Lester Road corridors, but quite focused around Walkley Road west of the Airport Parkway (Figure 5-14).

**Figure 5-14: Distribution of Open House #2 Participants**



To further assist in obtaining feedback from attendees, a Comment-Questionnaire was distributed at the Public Open House. Members of the public were encouraged to provide written comments via the Comment-Questionnaire and submit them either before leaving the Open House or by fax, email or regular mail by 2 July, 2015. The following are the other most frequently discussed issues or concerns from the 40 comment-questionnaires that were received:

- Trillium Line extension should be given priority (17 responses);
- Does not support the Walkley Road connection (14 responses);
- Concern over increased noise/traffic/pollution to surrounding areas (11 responses);
- Does not support the widening of the Airport Parkway (7 responses);
- Concerned about the cut-through traffic on Southmore (7 Responses);
- Connection will make Walkley unsafe (6 Responses);
- Connection will cause increased cut through traffic on McCarthy (6 responses); and
- Supports the widening of the Airport Parkway (5 responses).

For a full account of all comments received during this open house, refer to Appendix A - Consultation Record.

## 5.7 Preferred Design

In accordance with the conclusion of the preceding sections, consideration of the comments received through consultation with affected stakeholders, the study team confirmed the Preferred Design for the widening of the Airport Parkway, a southbound connection at Walkley Road, a new road link to Uplands Drive, and widening of Lester Road as outlined above with the following refinements.

### **Airport Parkway between Brookfield Drive and Walkley Road**

The alignment for the widened Airport Parkway between Brookfield Drive and Walkley Road was shifted as far east as possible, away from private residences along Cromwell Drive and towards Sawmill Creek. The shift of all corridor elements (including the proposed west side multi use pathway) is between five (5) and eight (8) metres in the northerly area. It is not anticipated that there will be a need for modifications to the existing east side multi-use pathway, however, there will be a requirement for crash barriers between the road edge and the pathway where minimum separation cannot be achieved.

### **Walkley Road Off-Ramp and Walkley Road**

The Preliminary Preferred Design included a southbound off-ramp from the Airport Parkway to Walkley Road terminating in a signalized intersection. The study team received considerable feedback expressing concern with the proposed off-ramp as well as the impact this new community connection would have on the residents that live on Walkley Road, west of the proposed off-ramp, and the surrounding communities north and south of Walkley Road. The study team developed performance indicators as a means to assess the performance of any refinements to the Preliminary Preferred Design. The performance indicators included:

- Provide a gateway element to the communities adjacent to Walkley Road west of the Airport Parkway;
- Introduce traffic calming measures for travellers entering or exiting the Walkley Road corridor west of the Airport Parkway;
- Provide a cycling facility that would connect communities to/from the pathway network provided as part of the Airport Parkway widening project;
- Minimize impacts to the front yards and residents that front onto Walkley Road; and

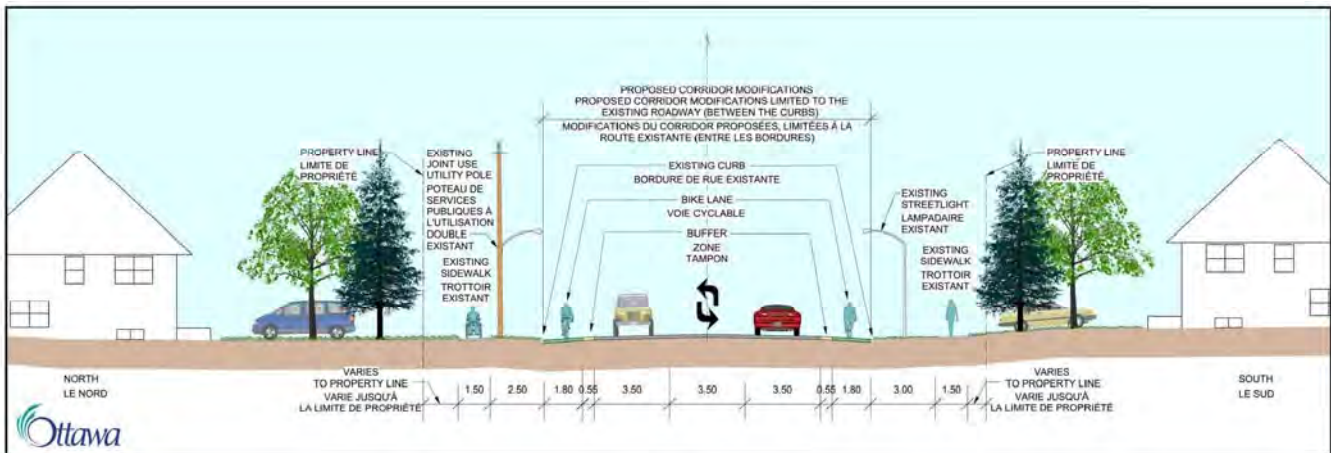
- Develop an affordable design that could be included as part of the Airport Parkway widening project.

From this, the Preliminary Preferred Design was modified to include the following refinements to the proposed southbound community connection/off-ramp to Walkley Road and the Walkley Road corridor between the Airport Parkway and McArthur Road.

- Connect the Airport Parkway southbound with an off-ramp to Walkley Road terminating in a new roundabout that would serve as a community gateway features and traffic calming measure;
- Provide a crossing of the north-south multi-use pathway across Walkley Road at the roundabout;
- Provide buffered bike lanes along Walkley Road from McCarthy Road to the Airport Parkway, while designing Walkley Road to one lane in each direction for vehicles but include a central two-way left turn-lane;
- Provide the potential for raised barrier medians across the entrance to Thorndale Drive and Southmore Drive, should a future need arise to prohibit westbound left-turns at either intersection;
- Extend a raised barrier median along the Wexford Way intersection, to provide additional westbound left-turn storage at the McCarthy Road intersection, with the potential for a median break at Wexford Way to be explored at detailed design.

A typical cross-section for the proposed modifications to Walkley Road is illustrated in Figure 5-15.

**Figure 5-15: Typical Cross-Section, Mid-Block, Walkley Road between Airport Parkway and McCarthy Road**



This Preferred Design for Walkley Road is anticipated to have the following effects:

- Implement the Ottawa Cycling Plan as a Spine Route;
- Improve walking and cycling connectivity to the Walkley Trillium Line LRT Station;
- Provide adequate vehicle capacity and level of service;
- Move vehicle travel lanes further away from residences that line Walkley Road;
- Improve all-direction driveway access for residents; and
- Improve general living conditions along Walkley.

A transportation assessment of this design is included in Appendix B – Supporting Reports.

### Lester Road between Trillium Line LRT and Albion Road

The proposed north-side multi-use pathway was relocated nearer to the road edge in order to narrow the proposed rural ditch drainage system which reduces the overall land requirement from the National Capital Commission in this sector. The relocation of the drainage ditch also provides an opportunity to implement better stormwater management quality and quantity control of road drainage as well as that of the multi-use pathway.

## 6.0 Recommended Plan and Assessment

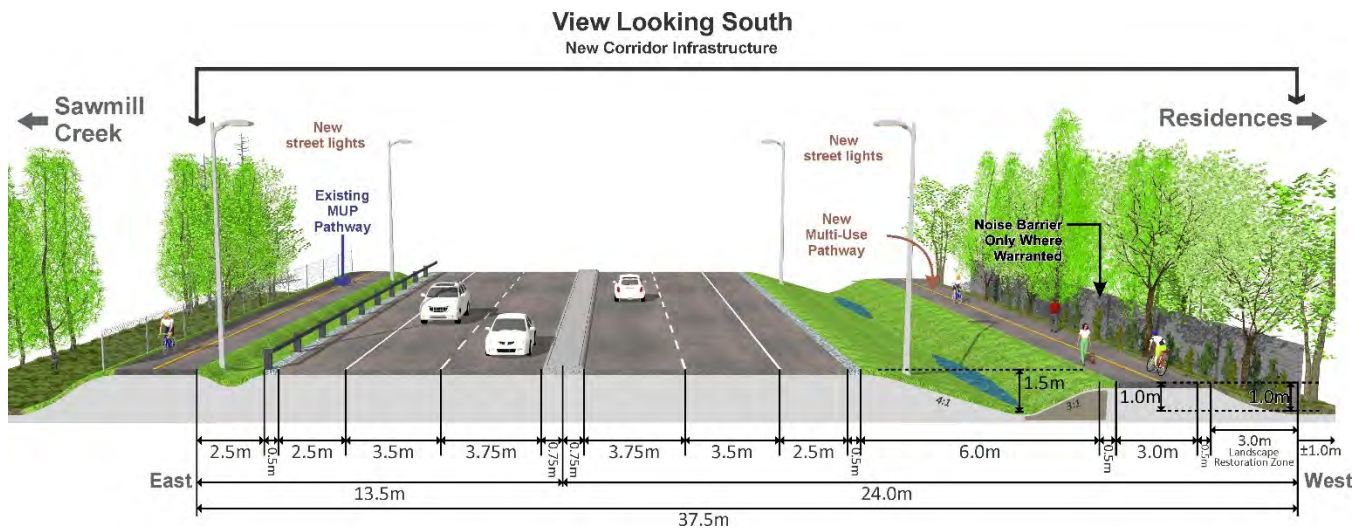
Based on the criteria-based evaluation of alternative designs, and comments received through consultation activities, the Recommended Plan for the widening of the Airport Parkway and Lester Road together with connections to Walkley Road and Uplands Drive are outlined in the following sections. The Recommended Plan Design Plates are included in Section 7.0.

### 6.1 Recommended Plan for the Airport Parkway

#### 6.1.1 Brookfield Road to Walkley Road

The Recommended Plan the Airport Parkway between Brookfield Road to Walkley Road is to widen the roadway towards the east as far as possible without affecting the existing Sawmill Creek Pathway and associated valleylands of Sawmill Creek. The plan maximizes the distance between the travelled roadway and the adjacent residences. The Recommended Plan is illustrated in a representative cross-section and the defining characteristics are outlined below.

**Figure 6-1: Recommended Plan, Airport Parkway - Brookfield Road to Walkley Road, Typical Cross-Section**



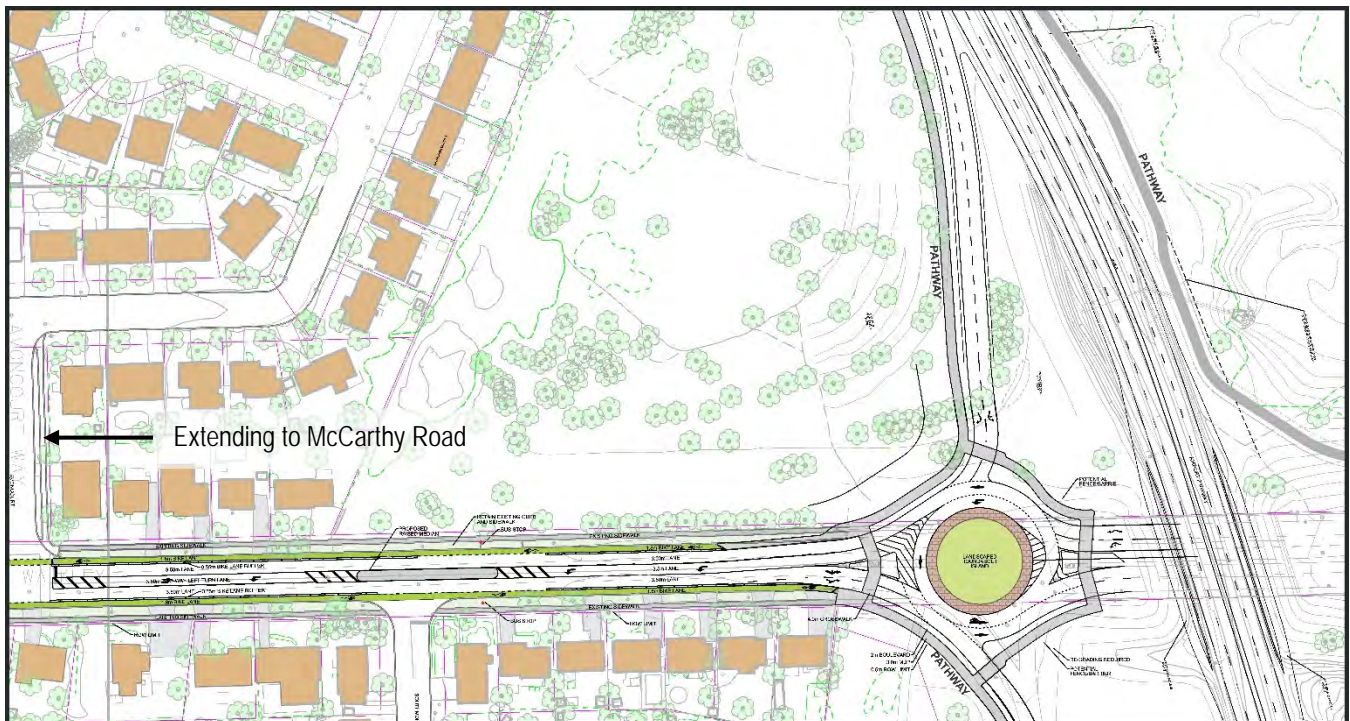
- Widen the Airport Parkway from two lanes to four lanes divided, widening generally towards the east. Alignment can be accommodated under the existing Walkley Road structure;
- Connect the Airport Parkway to Walkley Road by constructing a southbound off-ramp extending to a new roundabout intersection at Walkley Road;
- Construct a new west side multi-use pathway along the Airport Parkway commencing at the Brookfield Road roundabout to Walkley Road at the proposed roundabout and providing a crossing of Walkley Road;
- Accommodate on-road cycling alongside the Airport Parkway on both sides in the form of paved shoulders;

- Construct new roadside drainage ditches to accommodate stormwater;
- Install noise barriers where warranted;
- Install new corridor lighting on both sides of the Airport Parkway; and
- Install a crash barrier between the road edge and east side Sawmill Creek Pathway where warranted.

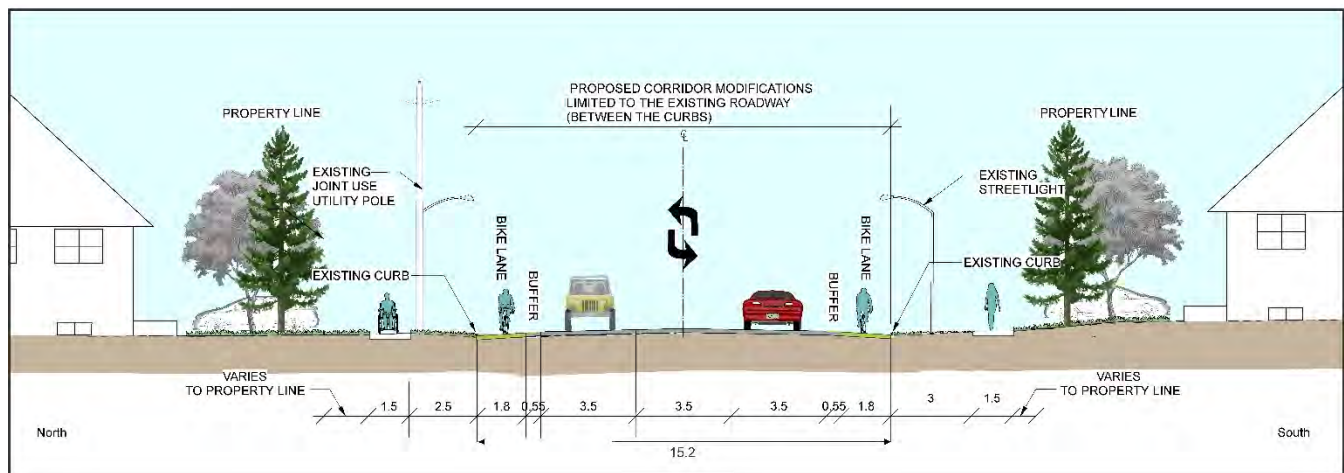
As listed, the Recommended Plan also includes a new connection from southbound Airport Parkway to Walkley Road terminating in a roundabout at Walkley Road which is illustrated in Figure 6-2. The provision of this southbound off-ramp includes recommendations for modifications to Walkley Road between the Airport Parkway and McCarthy Road. Features of the modifications to Walkley Road included as part of the Recommended Plan are listed below and is illustrated in a representative cross-section in Figure 6-3:

- Provide buffered bike lanes along Walkley Road from McCarthy Road to the Airport Parkway, while redesigning Walkley Road to one lane in each direction for vehicles;
- Provide a central two-way left-turn lane extending from the McCarthy Road intersection to the roundabout intersection with the Airport Parkway;
- Provide the potential for raised barrier medians across the entrance to Thorndale Drive and Southmore Drive, should the need arise to prohibit westbound left-turns at either intersection;
- Extend a raised barrier median along the Wexford Way intersection, to provide additional westbound left-turn storage at the McCarthy Road intersection; should there be a desire to provide left-turn movements to/from Wexford Way during off-peak times, then consideration could be given to providing a mountable median (or median break) at this location and prohibiting the left-turn movements through signage.

**Figure 6-2: Recommended Plan, southbound off-ramp from Airport Parkway to Walkley Road**



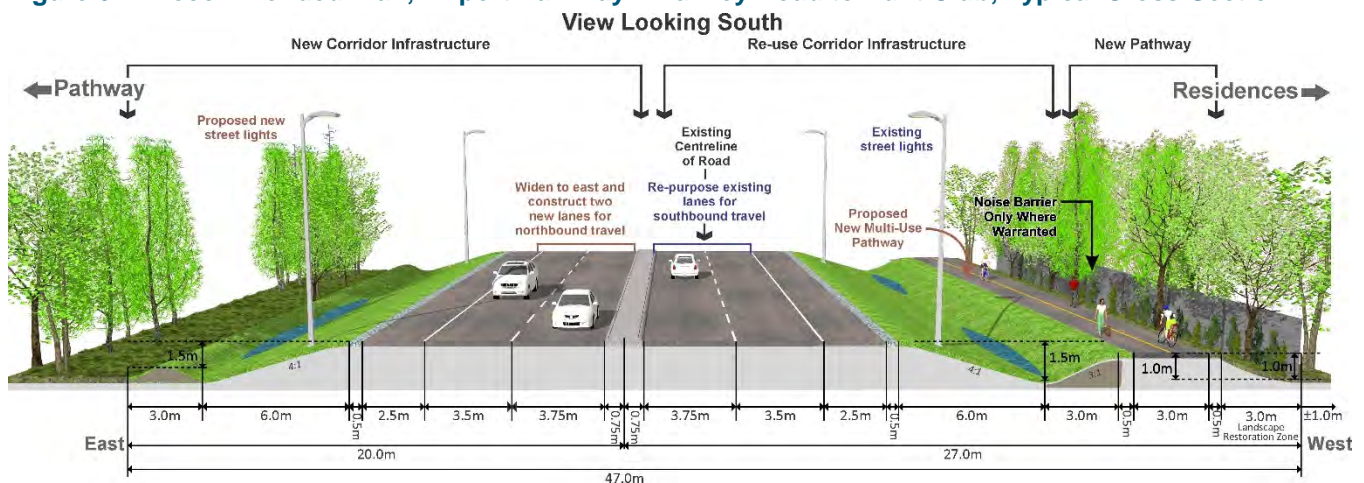
**Figure 6-3: Recommended Plan, Walkley Road between Airport Parkway and McCarthy Road, Typical Cross-Section**



### 6.1.2 Walkley Road to Hunt Club Road

The Recommended Plan for the Airport Parkway between Walkley Road and Hunt Club Road is to widen to the east of the existing roadway. This plan also maximizes the distance between the travelled roadway and the adjacent residences. The Recommended Plan is illustrated in a representative cross-section and the defining characteristics are listed below.

**Figure 6-4: Recommended Plan, Airport Parkway - Walkley Road to Hunt Club, Typical Cross-Section**



- Widen the Airport Parkway from two lanes to four lanes divided, widening generally to the east;
- Construct a new west side multi-use pathway commencing at the new roundabout and extending to Hunt Club Road and providing a crossing of Hunt Club Road;
- Accommodate on-road cycling alongside the Airport Parkway on both sides in the form of paved shoulders;
- Construct new roadside drainage on the east side of the widened parkway to accommodate corridor drainage. West side drainage would remain as existing;
- Install noise barriers where warranted;
- Install new corridor lighting on the east side of the Airport Parkway and reuse corridor lighting that exists on the west side of the Airport Parkway; and
- Twinning of the existing Hunt Club overpass structure to accommodate the two new additional lanes.

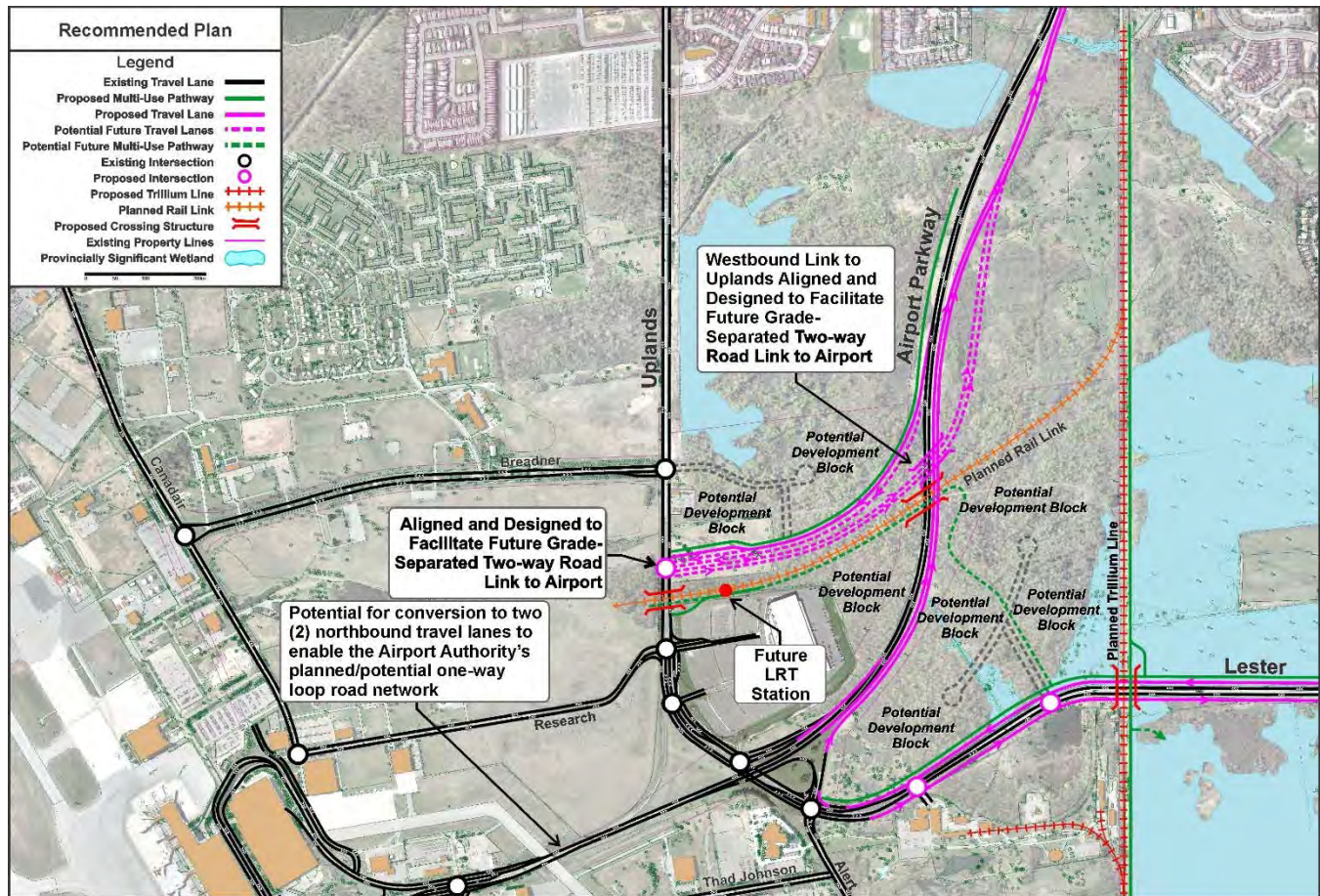


## 6.2 Recommended Plan for Hunt Club Road to the Airport Area

The Recommended Plan for the Airport Area includes modifications to the Airport Parkway south of Hunt Club Road to the parkway interchange with Uplands Drive/Lester Road, and Lester Road from the interchange to the Trillium LRT Line extension. This area also includes the new arterial road link from the Airport Parkway to Uplands Drive. The Plan is conceptually illustrated in Figure 6-5 with the key features of the plan outlined below.

- Twinning of the Airport Parkway, generally to the east, with separation provided either as a concrete barrier median or generous naturalized median between the two opposing lanes;
- Construction of a new parallel structure to enable the northbound lanes of the Airport Parkway to cross over Hunt Club Road;
- New westbound link to Uplands Drive to facilitate a future grade-separated two-way road link to the Airport;
- Protection for a new northbound road link from Uplands Drive to the Airport Parkway to facilitate a future grade-separated two-way road link to the Airport;
- Construct a new west side multi-use pathway extending from Hunt Club Road and terminating at Uplands Drive;
- Accommodate on-road cycling alongside the Airport Parkway on both sides as well as alongside the new road link to Uplands Drive in the form of paved shoulders;
- Construct new roadside drainage to accommodate new requirements for corridor drainage. Some existing roadside drainage can be retained along the west side of the existing roadway;
- Install new corridor lighting most on the east side of the Airport Parkway, making use of existing east side corridor lighting where possible;
- Reuse of the existing Airport Parkway/Uplands Drive/Lester Road interchange; and
- Widen Lester Road within the Airport Sector from two lanes to four lanes undivided including a new north side multi-use pathway, new corridor roadside drainage, and relocation of the combined south side hydro poles and corridor lighting with new corridor lighting on the north side.

**Figure 6-5: Recommended Plan, Airport Area including new Road Link to Uplands Drive**



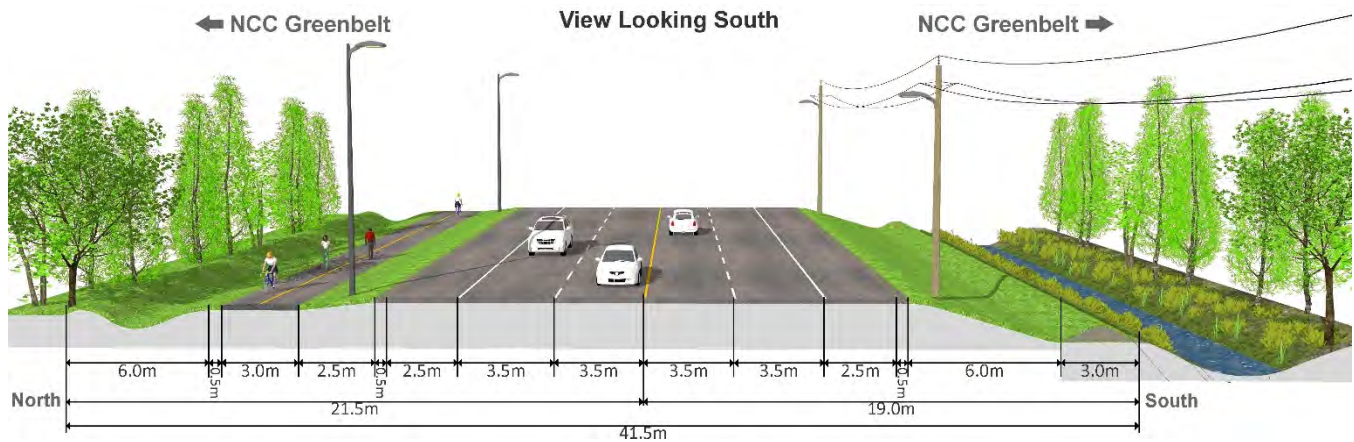
### 6.3 Recommended Plan for Lester Road

#### 6.3.1 Trillium LRT Line to Albion Road

The Recommended Plan for Lester Road between the Trillium LRT Line to Albion Road is to align the roadway with a slight shift to the north from its existing alignment bringing the roadway further away from the Alexander Drain. The Recommended Plan is illustrated in a representative cross-section (Figure 6-6) and the defining characteristics are listed below.

- Widening Lester Road from two lanes to four lanes, undivided, generally to the north;
- Construct a new north side multi-use pathway extending to Albion Road with a crossing at Albion Road;
- Accommodate on-road cycling alongside Lester Road on both sides in the form of paved shoulders;
- Construct new roadside drainage on either side of the widened roadway to accommodate new requirements for corridor drainage;
- Install noise barriers where warranted; and
- Relocation of the combined south side hydro poles and corridor lighting with new corridor lighting.

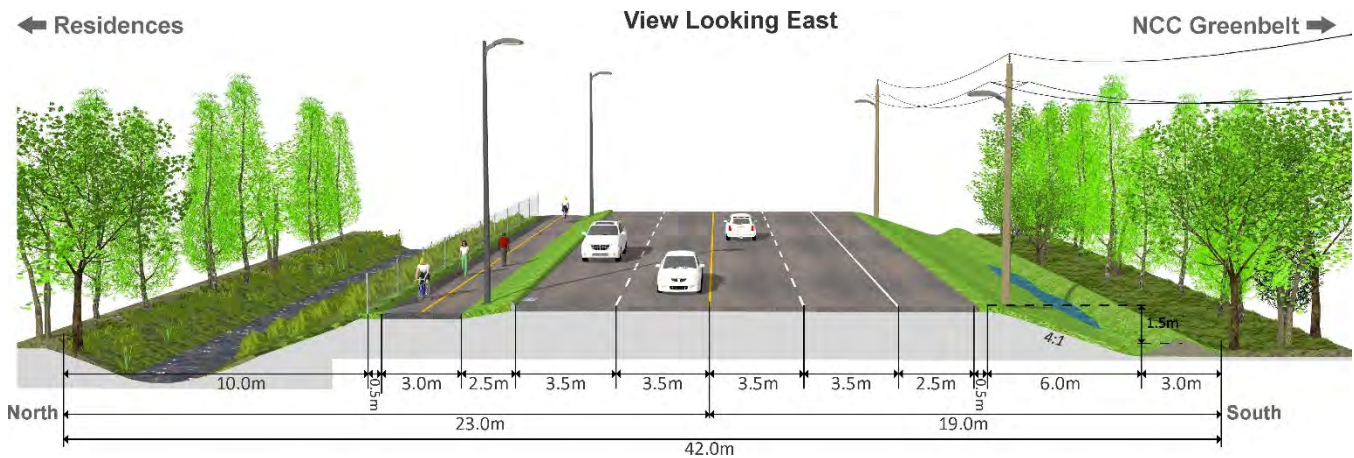
**Figure 6-6: Recommended Plan, Lester Road - Trillium LRT Line to Albion Road, Typical Cross-Section**



### 6.3.2 Albion Road to Meandering Brook Drive

The Recommended Plan for Lester Road between Albion Road and Meandering Brook Drive is to align the roadway generally to the south bringing the travelled roadway away from Sawmill Creek and the existing residences on the north side of Lester Road. The Recommended Plan is illustrated in Figure 6-7 in a representative cross-section and the defining characteristics are listed below.

**Figure 6-7: Recommended Plan, Lester Road - Albion Road to Meandering Brook Drive, Typical Cross-Section**

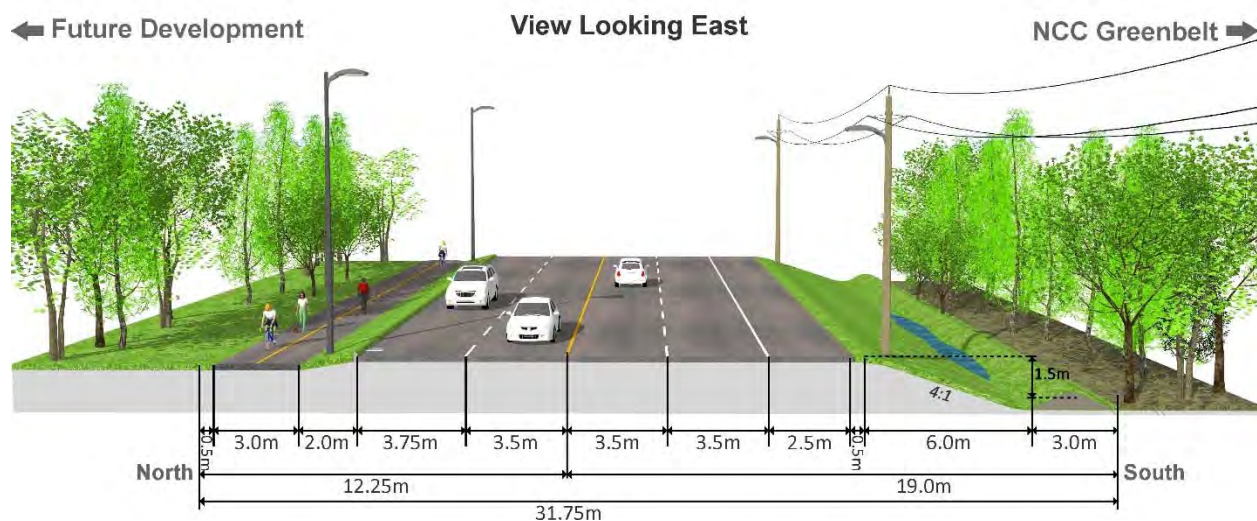


- Widening Lester Road from two lanes to four lanes, undivided, generally to the south with an urban cross-section on the north side, adjacent to lands within the designated Urban Area and rural cross-section on the south side adjacent to lands designated NCC Greenbelt;
- Construct a new north side multi-use pathway extending from Albion Road with a crossing of Aladdin Lane and Meandering Brook Drive. Westbound cyclists would have the opportunity to use the wide paved shoulder within the rural cross-section on the south side of Lester Road in addition to the multi-use pathway on the north side;
- Construct new roadside drainage on either side of the widened roadway to accommodate new requirements for corridor drainage;
- Install noise barriers where warranted; and
- Relocation of the combined south side hydro poles and corridor lighting with new corridor lighting on the north side including some relocations of existing corridor lighting.

### 6.3.3 Meandering Brook Drive to Bank Street

The Recommended Plan for Lester Road between Meandering Brook Drive and Bank Street is to utilize the existing right-of-way and general widening from the centreline of the existing roadway. The Recommended Plan is illustrated in Figure 6-8 in a representative cross-section which the defining characteristics listed below.

**Figure 6-8: Recommended Plan, Lester Road - Meandering Brook Drive to Bank Street, Typical Cross-Section**



- Widening Lester Road from two lanes to four lanes, undivided, following the existing centreline with an urban cross-section on the north side adjacent to lands designated Urban Area and a rural cross-section on the south side adjacent to lands designated NCC Greenbelt;
- Construct a new north side multi-use pathway extending from Meandering Brook Drive and terminating at Bank Street. Westbound cyclists would have the opportunity to use the wide paved shoulder within the rural cross-section on the south side of Lester Road in addition to the multi-use pathway on the north side;
- Construct new roadside drainage on either side of the widened roadway to accommodate new requirements for corridor drainage;
- Relocation of the combined south side hydro poles and corridor lighting and new corridor lighting on the north side including some relocations of existing corridor lighting; and
- Installation of crash-barriers adjacent to existing residences to minimize corridor footprint.

### 6.4 Corridor Drainage and Stormwater Management Approach

During the subsequent detailed design phase, a detailed Drainage and Stormwater Management Study is required to confirm the proposed drainage infrastructure and stormwater management facilities and provide design specifics. The following is an overview of the drainage and stormwater management strategy recommended through this study:

- Maintain existing stormwater flow patterns where possible;
- Maximize the use of natural stormwater management techniques and low impact development;
- Design road side ditch as bioswales with berm to increase stormwater quality;
- Rockcheck dams to be considered to attenuate stormwater and promote infiltration;

- Drainage along the south side of Lester Road between the Trillium LRT Line and Albion Road to be captured and treated within the roadside bioswale prior to connecting to Alexander Drain;
- Minor system drainage to be provided by storm sewers and catchbasins where urban cross-section is provided;
- Where road cross-section is super-elevated and catchbasins are used for drainage against the center island, catchbasin leads to outlet directly into the roadside bioswale when grading permits;
- Major system drainage to be provided by overland flow along the roadway; and
- Hydro-dynamic type separators are required at storm sewer outlets to provide water quality control.

## 6.5 Corridor Landscaping Approach

### 6.5.1 Airport Parkway

One of the key design elements for the Airport Parkway is that is designated as a Scenic Entry Route and located with a Major Open Space, Urban Natural Features, and National Capital Greenbelt setting. A representative landscape concept is included in Section 7 – Recommended Plan and Landscape Concept. The parkway is also adjacent to residential areas in the north end and on the west side between Brookfield Drive to South of Hunt Club Road. Key characteristics of the plan pertaining to landscaping include:

- Planting adjacent to natural areas that is non-invasive and that will emulate natural characteristics;
- Mitigation of visual effects of noise attenuation fences, where utilized, by including plantings adjacent to them. This will also have the effect of mitigating visual effects of the facility on the adjacent residents;
- Dual use of wide median areas, south of Hunt Club Road, for a combination of planting and stormwater management where required; and
- Locating plantings and groupings and intersections of the Parkway as gateway features.

### 6.5.2 Lester Road

Lester Road, while not a designated Scenic Entry Route, is located within the National Capital Greenbelt and also adjacent to the Urban Area on the north side between Albion Road and Bank Street. The Alexander Drain and Sawmill Creek are currently functioning as part of the road edge drainage system. The road is also within the limits of the Lester Road Provincially Significant Wetland Complex in many areas. Maintaining and enhancing the natural heritage of the Lester Road corridor is a primary design objective for the corridor. Similar to the Airport Parkway, residential uses are located adjacent to the corridor. A representative landscape concept is included in Section 7 – Recommended Plan and Landscape Concept. Key characteristics of the plan pertaining to landscaping include:

- Planting adjacent to natural areas that is non-invasive and that will emulate natural characteristics;
- Mitigation of visual effects of noise attenuation fences, where utilized, by including plantings adjacent to them. This will also have the effect of mitigating visual effects of the facility on the adjacent residents; and
- Naturalization of the former road bed between Albion Road and the Trillium LRT line extension.

## 6.6 Description of Project Activities

### 6.6.1 Pre-Construction Phase

A key requirement of the pre-construction phase will be the acquisition by the City of the required ROW widenings within the Airport Connectivity Sector and Lester Road Sector of the project limits. The specific widening requirements are illustrated on the Recommended Plan (Section 7) with the major property owners being Transport Canada (Airport Connectivity Sector) and the National Capital Commission (Lester Road).

The City will employ its usual process of contacting landowners and working with them towards acquisition, using the standard methods that are available to the City.

This phase also includes the completion of preliminary and detailed engineering and landscape designs and preparation of contract drawings and specifications. This phase also involves obtaining all necessary permits as well as approvals from regulatory agencies as required. Issues to be confirmed during the design phase include:

- Confirming existing conditions through detailed survey;
- Confirmation of roadway geometry;
- Stormwater Management Design;
- Landscape materials and tree planting details;
- Location/width of multi-use pathways;
- Street lighting design, frequency and location;
- Traffic plant design;
- Bus stop amenities;
- Obtaining approvals for construction access and working areas;
- Identification of all existing utilities in the area and preparing utility reconstruction/relocations;
- Detailed construction staging and phasing plans; and
- Coordination with other projects in the vicinity of the corridor.

### **6.6.2 Construction Phase**

This phase involves all activities related to construction. Physical construction activities for the road, pathway, and intersections will include:

- Clearing and grubbing of trees or any vegetation with the grading limits for construction of the project;
- Stripping of topsoil with the grading limits;
- Excavation of road surface;
- Removal of existing asphalt and disposing at approved facility;
- Preparing road bed including cutting and filling (potentially salvaging existing granular for re-use);
- Installation of storm catch basins and storm sewers as well as ditch drainage and other stormwater management features;
- Pouring concrete curbs;
- Laying granular and application of hot mix asphalt;
- Installing lighting and traffic Signals; and
- Installing landscaping features.

### **6.6.3 Operational Phase**

This phase begins with the first day of corridor operation, and covers the general operational activities such as maintenance and monitoring, on an as-required basis. Once construction is complete, monitoring of the widened Airport Parkway, new road connection to Uplands or widened Lester Road, as it will be competed in phases, will be initiated as part of the normal city practice of operating a street. In addition, warranty reviews (such as landscape health) will be completed.

Corridor maintenance activities in accordance with current city standards will include:

- Spring sweeping of the roads and pathways;
- Ditch cleanouts;
- Snow and ice removal in winter;
- Landscaping maintenance including grass cutting, tree pruning in the summer; and
- Replacement of any landscape materials.

## 6.7 Project Phasing

As outlined in the City's Transportation Master Plan, the widening of the two corridors and new arterial connection to Uplands Drive is to be completed in phases and corresponded to transportation priority as follows:

**Phase 1:** Airport Parkway from Brookfield Road to Hunt Club Road. This phase also includes a new southbound off-ramp to Walkley Road and modifications to Walkley Road from the Airport Parkway to McCarthy Road. Phase 1 is scheduled for implementation between 2020 and 2025.

**Phase 2:** Lester Road from the Airport Parkway to Bank Street. Phase 2 is scheduled for implementation between 2026 and 2031.

**Phase 3:** Airport Parkway from south of Hunt Club Road to Lester Road and includes the new structure over Hunt Club Road and a new Arterial Link to Uplands Drive. Phase 3 is scheduled for implementation beyond 2031.

## 6.8 Project Staging

There will be an opportunity to stage the project during each phase of construction. Staging to the project will be beneficial in maintaining the best possible level of service during construction, including traffic flow to the Ottawa Macdonald-Cartier International Airport which is a priority as well as for emergency vehicles. This will include staging activities across the corridor (cross-section staging), or sections/portions along the corridor (component staging).

Although specific plans to stage the project will not be determined until the end of detailed design and beginning of construction, it is useful to present staging opportunities in general terms in this environmental assessment study so that potential effects can be assessed. Key aspects of the staging plan are expected to include:

- Where proposed lanes are added next to existing lanes, construction staging in multiple phases will be required to allow continuous traffic flow during construction.
- Areas where there is a large median between proposed and existing lanes can be constructed in a single phase without causing traffic impacts up to the connection points at either end.
- Haul roads may be required in certain areas to bring construction materials to the site without interfering with active traffic lanes. Wherever possible, these haul roads would ideally become the proposed travel lanes at the completion of the work, however this may not be possible in all locations.
- Selective, short duration closures of segments of the Airport Parkway may be required to implement changes at intersections and off-ramps.

- Detour or diversion routes may be required for short durations to redirect traffic during key construction activities such as bridge construction and connection points between proposed and existing lanes.
- Temporary construction signage will have to be put in place to properly manage traffic flows during all construction activities including signage for any detours, temporary diversions and temporary closures. In particular, haul roads and temporary diversion routes may have short-term environmental impacts in areas outside of the design plans but are taken into consideration in the assessment of effects of the Recommended Plan.

## **6.9 Built-in Mitigation Measures**

For this project, “built-in mitigation” is defined as actions and design features incorporated in the pre-construction, construction, and operational phases, which have the specific objective of lessening the significance or severity of environmental effects which may be caused by the project. They include standard construction practices and Best Management Practices (BMPs).

The widening of the Airport Parkway and Lester Road will be designed and implemented with the benefit of contemporary planning, engineering, and environmental management practices. Regard shall be had for the legislation, policies, regulations, guidelines, and best practices of the day. Where possible, mitigation measures will be prescribed in the construction contracts and specifications. Examples of practices that should be employed, based on current standards, are described below. These measures can be considered “built into” the preferred design for the roadway. They will be updated and refined during the pre-construction, construction, and operation phases of the project.

### **6.9.1 Erosion and Sediment Control Plan**

A detailed plan will be prepared by the Contractor to manage the flow of sediment into storm sewers and watercourses. The plan will be based on best management practices.

### **6.9.2 Environmental Protection Plan**

It will be the responsibility of the contractor to ensure that no contamination, waste or other substances, which may be detrimental to aquatic life or water quality, will enter a watercourse as either a direct or indirect result of construction. In this regard, any floating debris resulting from construction which accumulates on watercourse beds and watercourse banks is to be immediately cleaned up and disposed of. Any spills or contamination, waste or other substances which may be detrimental to aquatic life or water quality will also be immediately cleaned up.

Any work which will cause or be the cause of discharge to watercourses is to be prohibited. At all times, construction activities are to be controlled in a manner that will prevent entry of deleterious materials to watercourses. In particular, construction material, excess material, construction debris and empty containers are to be stored away from watercourses and the banks of watercourses.

### **6.9.3 Air Quality, Noise and Vibration**

Varied construction activities along the Airport Parkway and Lester Road corridors are expected to create isolated and short term noise, air quality and vibration impacts on the environment. The construction manager will be required to develop a strategy for mitigating the effects according to good practices intended to satisfy, as feasible, the fugitive dust limits specified in O.Reg. 419, the noise limits specified in MOE NPC-115 and NPC-118 and City of Ottawa By-laws for Noise; and MOE NPC -119 and NPC-207 for



ground vibrations or the regulating standards of the time. A list of common mitigation strategies adapted to the current project includes, but is not limited to, the following:

**Air emissions BMPs:**

- Monitor wind conditions, and plan operations to take advantage of calm wind periods;
- Minimize site storage of granular material in height and extent;
- Locate storage piles in sheltered areas that can be covered;
- Provide movable wind breaks;
- Use water spray and suppression techniques to control fugitive dust; and
- Cover haul trucks and keep access routes to the construction site clean of debris.

**Noise and vibration BMPs:**

- Limit speeds of heavy vehicles within and approaching the site;
- Provide compacted smooth surfaces, avoiding abrupt steps and ditches;
- Install movable noise barriers or temporary enclosures, around blast sites for instance;
- Keep equipment properly maintained and functioning as intended by the manufacturer; and
- If required, implement a blast design program prepared by a blast design engineer.

#### **6.9.4 Unexpected Discovery of Archaeological Resources**

If during the course of construction archaeological resources are discovered, the site should be protected from further disturbance until a licensed archaeologist has completed the assessment and any necessary mitigation has been completed.

#### **6.9.5 Emergency Response Plan**

The preparation of an *Emergency Response Plan* to be used by the contractor is included to allow full emergency service access during the construction period, such that anytime there is a method to access all residential, commercial and other land uses in the event of an emergency. Additionally, the *Emergency Response Plan* should include provisions for providing temporary services to end users in the event of a construction related service outage or other service disruption.

#### **6.9.6 Spills Response and Reporting Plan**

A *Spills Response and Reporting Plan* will be prepared and adhered to by the contractor. Spills or discharge of pollutants or contaminants will be reported immediately. Clean up shall be initiated quickly to ensure protection of the environment.

#### **6.9.7 Management of Contaminated Materials**

Studies will be completed to confirm the potential for the project to interact with contaminated soil or groundwater, where existing conditions are not known. Where the potential has been confirmed, a plan to remediate the environment to the applicable standards will be prepared. The Ontario Ministry of the Environment and Climate Change and Construction Project Manager would be notified immediately upon discovery of any contaminated material encountered within the construction area. If contaminated material or contaminated groundwater is encountered within the construction limits, these are to be removed and disposed of in accordance with all applicable Acts and Regulations. Treatment and discharge of contaminated groundwater are to also be in accordance with applicable legislation and regulations.

### **6.9.8 Lighting Treatment Plan**

A *Lighting Plan* in accordance with City of Ottawa standards will be prepared as part of the detailed design. The Lighting Plan will include lighting fixtures and illumination along the various sections of the corridor.

### **6.9.9 Construction Waste Management Plan**

During construction there will be some excess materials that will require disposal off the project site. These could include concrete rubble, asphalt, waste steel/metal structural components, earth, and road right-of-way appurtenances such as signs, lighting and utility poles. During the detailed design stage, a *Construction Waste Management Plan* will be developed to ensure that surplus material is recycled wherever practical and to describe the methods to be used by the Contractor for disposal of all other surplus material in accordance with provincial or local municipal practices and guidelines.

### **6.10 Site Specific Mitigation Measures**

Once potential effects were predicted, mitigation measures were identified. Often these mitigation measures were sufficient to reduce potential negative effects to an insignificant or negligible status. Mitigation included environment rehabilitation and replacement. Localized site specific mitigation measures are summarized below for the transportation, natural, and social environments.

#### **6.10.1 General**

##### **6.10.1.1 Protection of Scenic Entry Route Character and Setting**

As noted, the Airport Parkway is designated as a Scenic Entry Route in the City of Ottawa Official Plan and also in the NCC's Plan for Canada's Capital. An overall objective of Scenic Entry Routes is to provide a scenic setting for travellers by all modes, and to create a favourable first impression of Ottawa for visitors to Ottawa. The Recommended Plan for the Airport Parkway implements this objective through various design measures. Foremost, the Airport Parkway will operate within a green corridor that continues to reflect the open spaces and natural areas along it. A new multi-use pathway will be featured along the western side of the Parkway, showcasing the City's investment in active transportation. Views to the Sawmill Creek valleylands and stormwater management ponds will be retained as the facility curves through the corridor. The design features green, natural drainage system primarily of shallow, grassy swales, maintaining the corridor's semi-rural and open space character. As a connection to and from the airport, opportunities to include directional signage for visitors to the region arriving by air will also be provided.

##### **6.10.1.2 Property Impact Assessment**

Costs associated with acquiring property and property rights on which to build or provide construction easements for the construction of widening the Airport Parkway and Lester Road will need to be estimated. These will include, in addition to actual property value, the cost of right-of-way preparation, legal and appraisal services and land survey.

##### **6.10.1.3 Public Communications Plan**

The requirement for a Public Communications Plan stems from the need to keep the public informed about the work in progress and the end result of the construction activities. Businesses, institutions, residents and other stakeholders including emergency service vehicle providers must be aware of scheduled road closings and other disruptions to normal service ahead of time in order that their activities can be planned with minimum disruption. The Public Communications Plan will follow the standard set by the City including detail on how to communicate the information to the public, what information should be disseminated, and at what project stage the communication should take place.

## **6.10.2 Archaeological**

### **6.10.2.1 Stage II Archaeological Assessment**

Areas adjacent to the corridor and identified as having archaeological potential will be subject to a Stage II Archaeological Assessment prior to construction should these lands be required to be disturbed through implementation of the Recommended Plan.

## **6.10.3 Transportation**

### **6.10.3.1 Construction and Traffic Management Plan**

A *Construction and Traffic Management Plan* will be developed to manage the transportation function for all travel modes including equipment and material deliveries at various times during the construction period. The objective will be to maintain clear walking routes and to maintain as much functionality for traffic as possible. The plan will also outline the road signage program.

## **6.10.4 Physical**

### **6.10.4.1 Stormwater Management Plan**

The purpose of developing and implementing stormwater management (SWM) strategies is to provide adequate systems for the development in place and planned for the area. The purpose of the stormwater management plan is twofold; it identifies the rate and volume of anticipated stormwater runoff and the means to accommodate it, and also identifies the means of achieving Ministry guidelines for water quality of stormwater runoff.

This includes the identification, in the detail design phase, of the overall stormwater management system requirements, methods of detention and filtration, and any control mechanisms necessary to achieve runoff quantity and quality targets. Drainage systems and their components are sized and designed in conjunction with the overall project, and retention or detention systems are then incorporated into the design to achieve Ministry guidelines for runoff quantity, quality, and total suspended solids. This plan, when prepared during the detailed design phase, will take into account the opportunity that exists to use existing locations within the identified right-of-way as retention areas to assist in the objective to improve stormwater runoff quality prior to further off-site (i.e., outside the right-of-way) treatment following those measures outlined in the Corridor Drainage and Stormwater Management Approach outlined in this ESR (Section 6.4)

### **6.10.4.2 Geotechnical Investigations**

Geotechnical investigations have been completed to advise on groundwater and subsurface conditions and potential impacts that will need to be considered in the detailed design of the project. Additional investigations will be completed as required during the detailed design phase. Special attention will be paid to the twinning of the Hunt Club overpass structure.

### **6.10.4.3 Phase I/II Environmental Site Assessment**

A scoped Phase I ESA was completed to assist with the evaluation of alternatives and potential impacts that will need to be further considered in the detailed design of this project. The scoped Phase I ESA identified four (4) areas that have some level of risk for contamination. These areas will require further Phase I work and depending on the results Phase II work prior to project implementation.

## 6.10.5 Biological

### 6.10.6 Strategy for the Protection of the National Capital Greenbelt and other Natural Heritage Features

The Airport Parkway and Lester Road are within the Lester Road Complex Provincially Significant Wetland and is adjacent to and/or crosses a number of watercourses including Sawmill Creek and its tributaries, Cahill Drain, and the Alexander Drain. The Wetland Complex itself provides habitat for Species at Risk and other species and Sawmill Creek has associated sensitive valleylands in the vicinity of the Airport Parkway corridor between Brookfield Road and Walkley Road. Built into the Recommended Plan are measures to minimize the environmental impacts on these sensitive natural heritage features including:

- Minimizing the footprint of the widened facilities;
- Avoiding the displacement of Sawmill Creek and the Alexander Drain;
- Rehabilitation/naturalization of adjacent lands/features; and
- Incorporating recommendations for wildlife crossings including exclusionary fencing through future study (see section 6.10.6.2 – Ecological Site Assessment).

The project does result in the displacement of and land requirement from the National Capital Greenbelt. The study recommendations provide a strategy that considers the policy directions of the National Capital Commission for “Not Net Loss” of Greenbelt lands and the requirement for a net environmental gain in ecological function. While detailed mitigation measures will be required at detailed design, this study has identified lands to be returned to the NCC Greenbelt in the vicinity of the Alexander Drain along with recommendation for restoration and enhancement of these lands in the form of:

- Improvements to the aquatic and terrestrial habitats,
- Naturalization of the drainage channel,
- Improvements to riparian/vegetation stabilization; and
- Providing opportunities for wildlife crossings throughout the NCC Greenbelt in appropriate locations.

To further mitigate the potential impacts to terrestrial and aquatic habitats, it is recommended that construction-based best management practices be implemented to reduce dust, sedimentation control, compensation/restoration, avoidance and construction timing restrictions be implemented.

#### 6.10.6.1 Landscape Plan

A detailed *Landscape Plan* will be prepared to guide the species selection, location and planting details for all proposed plantings and other streetscape elements within the corridor. The plan will be prepared by a professional landscape architect with experience in plantings along Scenic Entry Routes, with attention paid to creation of gateway features into Ottawa, the Greenbelt, and the Airport Sector. The Landscape Plan will generally be in-keeping with the Corridor Landscape Approach outlined in section 6.5 of this ESR.

#### 6.10.6.2 Ecological Site Assessment

An Ecological Site Assessment should be carried out to more thoroughly determine the presence and extent of natural heritage features, Significant Wildlife Habitat, SAR, and SAR habitat located along the preferred alignment. Protection afforded to any identified species shall be in accordance with appropriate provincial and federal jurisdiction. Various potential Natural Heritage Features and potential Species at Risk habitat were identified in the general study area.

The Ontario *Endangered Species Act (ESA, 2007)* is updated twice yearly. Prior to construction, the *ESA, 2007* should be reviewed and an update of the potential species present and their associated habitat should be completed. A SAR determination should be included in an Ecological Site Assessment for any affected areas. If a SAR is observed during the works within the construction zone, the MNRF is to be immediately contacted and operations modified to avoid any negative impacts to the species or their habitat until further direction is provided by the MNRF. If necessary, permits will be obtained under the *ESA*.

The *Species at Risk Act (SARA)* is a federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. The Act establishes Schedule 1, as the official list of wildlife SAR. If the works include an activity involving species listed under the federal *SARA* on federal NCC lands, a permit may be required.

The Ecological Site Assessment will also inform or provide guidance on the location, type and size of engineered wildlife crossings as well as the location of associated exclusionary fencing.

#### **6.10.6.3 Tree Conservation Report**

The purpose of the Tree Conservation Report is to retain as much natural vegetation as possible, including mature trees, stands of trees, and hedgerows. The Tree Conservation Report will identify and describe the vegetative cover on the site prior to construction, and will provide a professional opinion as to the priority that should be given to the conservation of the treed areas that are beyond the grading limit. This report will also provide an assessment of trees identified for removal.

Together with the Landscape Plan, the Tree Conservation Report will help ensure that trees will be retained where feasible, and that new trees will be planted to contribute to the City's forest cover target and to address net tree loss of a project site. The Tree Conservation Report will be prepared in accordance with the City of Ottawa Guidelines.

#### **6.10.6.4 Construction Timing Considerations**

All activities related to the construction should avoid certain timing windows dependent on the wildlife that is present. Following SAR review and more in-depth surveys conducted prior to detailed design, there may be additional timing restrictions in addition to those listed below to protect sensitive species and/or habitats. Below presents an outline of timing windows that will be avoided.

#### **Breeding Birds (*Migratory Birds Convention Act*)**

In order to remain in compliance with the *Migratory Bird Convention Act, 1994* and *Fish and Wildlife Conservation Act, 1997* it is recommended that any vegetation removal that may be required take place outside of the breeding bird season for this region (April 1<sup>st</sup> to August 31<sup>st</sup>).

In most cases nest searches during the nesting season (April 1<sup>st</sup> to August 31<sup>st</sup>) are not recommended within complex habitats, as the ability to detect nests is largely low while the risk of disturbance to active nests is high. Disturbance increases the risk of nest predation and abandonment by adults. Therefore, nest searches are not recommended unless nests are known to be easy to locate without disturbing them. Nest searches may be completed during the nesting period (April 1<sup>st</sup> to August 31<sup>st</sup>) by a qualified biologist within 'simple habitats' (CWS 2014). Simple habitats refer to habitats that contain few likely nesting spots or a small community of migratory birds.

Examples of simple habitats include the following:

- “an urban park consisting mostly of lawns with a few isolated trees;
- a vacant lot with few possible nest sites;
- a previously cleared area where there is a lag between clearing and construction activities (and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil, for instance); or
- a structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawks, gulls and others)” (CWS 2014).

Similarly, nest searches can also be considered when investigating the following:

- “conspicuous nest structures (such as nests of Great Blue Herons, Bank Swallows, Chimney Swifts);
- cavity nesters in snags (such as woodpeckers, goldeneyes, nuthatches); or
- colonial-breeding species that can often be located from a distance (such as a colony of terns or gulls)” (CWS 2014).
- 

#### **In-Water Works and Fish Relocation (*Fisheries Act*)**

Should there be in-water works such as that associated with culvert extensions for watercourses, confirmation of in-water construction timing windows with Ministry of Natural Resources and Forestry is necessary prior to any construction works. For potential fish relocation work, a License to Collect Fish for Scientific Purposes is required from the Ministry of Natural Resources and Forestry as well. To protect fish spawning activity, in-water works are not permitted between March 15<sup>th</sup> and June 30<sup>th</sup>.

#### **6.10.6.5 Fisheries Self-Assessments**

Changes to the Department of Fisheries and Oceans Canada (DFO) “*Fisheries Act*” in 2013, the “*Fisheries Act*” is now proponent based and any in-water works will require self-assessment. From the self-assessment process, the proposed in-water works are weighed against criteria set out by the DFO

(<http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>), and using this criteria it is determined if works cannot avoid serious

harm to fish and/or are not included in the criteria listed on the DFO’s website. If necessary, a “Request for Review” will be submitted to DFO and, if required, permits will be obtained from the DFO. Any opportunity for improvement to watercourses should be considered.

### **6.11 Assessment of the Recommended Plan**

#### **6.11.1 Assessment Methodology**

The preliminary impact analysis of alternatives went only so far as to be able to determine which alternative was preferred for the study area if the resulting effects for a particular criterion were the same for each alternative, or no residual effects were predicted; the results were not used to compare alternatives. This section describes the comprehensive analysis/assessment of all the identified impacts of implementing the preferred widening solution.

The values and conditions identified in the documentation of existing conditions were used as the basis for assessing the effects of the preferred alternative on the transportation, social, physical and biological environments. The impact analysis involved applying the following steps, as presented in Table 6-1.

**Table 6-1: Impact Assessment Approach**

<b>Step 1</b>	Identify and analyze activities where the project, as detailed in section 6.0, may interact with existing environmental conditions as detailed in section 3.0.
<b>Step 2</b>	Acknowledge predetermined project activities that act as <i>built-in mitigation</i> measures as outlined in section 6.9 and <i>site specific mitigation measures</i> outlined in Section 6.
<b>Step 3</b>	Identify the <i>residual</i> environmental effects, if any.
<b>Step 4</b>	Identify opportunities for further <i>mitigation of residual</i> effects, if possible/practical including monitoring
<b>Step 5</b>	Determine the <i>significance of the residual</i> environmental effects, after further mitigation

As described in the methodology, an environmental effect requires consideration of the interaction of the project (i.e. project activities) with the environment. Pre-construction, construction and operational activities, as described above were all assessed.

Professional judgement and experience formed the basis for identifying environmental effects and mitigation measures. The analysis was based primarily on comparing the existing environment with the anticipated future environment, during and after construction. Consideration was given to:

- the magnitude, spatial extent, and duration of effects;
- the proportion of a species population or the number of people affected;
- direct or indirect effects; and
- the degree to which the effect responds to mitigation.

In this assessment, “residual” environmental effects are defined as changes to the environment caused by the project, and vice versa, when compared to existing conditions and taking into account all mitigation measures. Potential residual environmental effects are assessed as to their significance, including spatial and temporal considerations, and are categorized according to the following definitions:

**“Positive”** means an effect that exhibits a beneficial outcome.

**“Negligible”** means an effect that may exhibit one or more of the following characteristics:

- nearly-zero or hardly discernible effect; or
- affecting a population or a specific group of individuals at a localized area and/or over a short period.

**“Insignificant”** means an effect that may exhibit one or more of the following characteristics:

- not widespread;
- temporary or short-term duration (i.e., only during construction phase);
- recurring effect lasting for short periods of time during or after project implementation;
- affecting a specific group of individuals in a population or community at a localized area or over a short period; or
- not permanent, so that after the stimulus (i.e., project activity) is removed, the integrity of the environmental component would be resumed.

**“Significant”** means an effect that may exhibit one or more of the following characteristics:

- widespread;

- permanent transgression or contravention of legislation, standards, or environmental guidelines or objectives;
- permanent reduction in species diversity or population of a species;
- permanent alteration to groundwater flow direction or available groundwater quantity and quality;
- permanent loss of critical/productive habitat;
- permanent loss of important community archaeological/heritage resources; or
- permanent alteration to community characteristics or services, established land use patterns, which is severe and undesirable to the community as a whole.

Study boundaries serve to focus the scope of the assessment such that a meaningful analysis of potential impacts arising from the proposed project can be made. Project boundaries are defined by the spatial and temporal limits of the proposed project activities, and their zones of influence.

Once the potential effects were predicted, additional mitigation measures were identified. Often these mitigation measures were sufficient to reduce negative effects to an insignificant or negligible status.

Monitoring is important to verify the accuracy of effects predictions. Monitoring measures were recommended to determine what effects actually occurred with project implementation, and may result in the modification of mitigation measures to improve their effectiveness.

### 6.11.2 Assessment Results

Table 6-2 describes the potential effects, mitigation, residual effects and their significance, and monitoring recommendations for the Recommended Plan.

**Project phases are identified as follows: P - Pre-construction/Design; C - Construction; O - Operation**



**Table 6-2: Impact Assessment Results**

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
<b>Impact Assessment: General</b>										
<b>Social Environment</b>										
Land Ownership	<i>Widening of Airport Parkway and Lester Road: Acquire temporary access to property for construction staging.</i>				Throughout corridor	Access to private property required for field investigations and/or construction staging areas will be determined. If needed, an agreement between property owners and the City will be established with adequate compensation.	<i>Public Communications Plan.</i>  Coordinate investigation schedule with affected property owners to minimize disturbance.	Temporary inconvenience and irritant to property owners during construction activities.	Insignificant	As per <i>Public Communications Plan</i> and investigation scheduling.
Landscape and Visual Environment	<i>Widening of Airport Parkway and Lester Road: Construction of roadway, grading and excavation for all associated infrastructure.</i>		•		Throughout corridor	Construction activities and equipment will temporarily change the views along the scenic entry route identified within the <i>Official Plan</i> and <i>Greenbelt Master Plan</i> .	Design landscaping with consideration for the scenic-entry designation contained in both the OP and <i>Greenbelt Master Plan</i> .  As per requirements of NCC Federal Land Use, Design and Transaction Approval (FLUDTA)	Temporary disruptions to the existing views in some locations.	Negligible	As per FLUDTA Approvals and Greenbelt Master Plan.
Landscape and Visual Environment	<i>Operation of a widened Airport Parkway and Lester Road including Multi-use pathways.</i>			•	Throughout corridor	New views available from new multi-use pathways.  New landscaping features and buffers along the widened parkway.	Design landscaping with consideration for character, ecosystem function, and objectives of OP and <i>Greenbelt Master Plan</i> .	<i>Landscape Plan</i> and new multi-use pathway will result in visual improvements within the corridor.	Positive	None required
Archaeological Resources	<i>Widening of Airport Parkway and Lester Road:</i>		•		Areas within the study area identified	Construction in undisturbed areas identified as having archaeological potential	Conduct <i>Stage 2 Archaeological Assessment</i> in undisturbed areas	Unexpected Archaeological resources may be disturbed	Insignificant	Additional work, if needed, as per Stage 2 Assessment

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
	Construction of roadway, grading and excavation for all associated infrastructure.				as having archaeological potential	may disturb intact archaeological resources.	identified with archaeological potential in conformance with MTCS Standards and Guidelines for Consultant Archaeologists (2011).  If archaeological resources are accidentally uncovered during construction activities, the site should be protected from further disturbances until a licensed archaeologist has completed an assessment. If uncovered on NCC lands, NCC Archaeologist should be contacted.	as a result of construction activities.		recommendations.  As per the recommendations of a licensed archaeologist, if required.
Heritage Resources	<i>Widening of Airport Parkway and Lester Rd:</i> Construction of roadway, grading and excavation for all associated infrastructure.	•			Locations where heritage resources are, if identified	Consultation with City Heritage staff resulted in not identified heritage resources in the study area.	Consult City Heritage Planners once design details are known to determine if new resources have been identified.	None anticipated.	Insignificant	None required.
Air quality	<i>Widening of Airport Parkway and Lester Road:</i>		•		Throughout corridor	Dust and equipment exhausts will diminish air quality during the construction period.	<i>Air Quality, Noise and Vibration best management practices</i>	Dust may be an irritant to adjacent residents and pedestrians	Insignificant	None required

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
	Construction of roadway, grading and excavation for all associated infrastructure.						<i>Dust limits specified in O.Reg. 419</i>			
Air quality	<i>Operation of a widened Airport Parkway and Lester Road.</i>			•	Throughout corridor	Almost all products of combustion fall below the MOECC's Ambient Air Quality Criteria (AAQC). Over time, pollutant concentrations are expected to improve with vehicle environmental controls and newer engine technologies.	None Required	Increased amounts of pollutants	Negligible	None Required
Noise	<i>Widening of Airport Parkway and Lester Road: Construction of roadway, grading and excavation for all associated infrastructure.</i>			•	Throughout corridor	Noise level produced by stationary and moving construction equipment will occasionally be disruptive to adjacent land owners.	<p><i>Air Quality, Noise and Vibration best management practices</i></p> <p>Contractor to adhere to the City by-laws (2004-253).</p> <p>Equipment is to be well maintained, moving parts lubricated, unnecessary idling restricted.</p> <p><i>Compliance with MOECC NPC-115 and NPC-118</i></p> <p>Contractor to have construction noise complaint process detailed, and action plan to address noise</p>	Effects from construction activities can be noticeable	Insignificant	<p>Conduct pre-construction baseline noise measurements for investigative purposes during complaint investigation.</p> <p>Monitor complaints during construction</p>

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
							related complaints where warranted.			
Vibration	<i>Widening of Airport Parkway and Lester Road:</i> Construction of roadway, grading and excavation for all associated infrastructure.		•		Throughout corridor	Construction activities in close proximity to inhabited areas may cause noticeable vibrations.  Possible damage to buildings.	<i>Air Quality, Noise and Vibration best management practices. Compliance with MOECC NPC-119 and NPC-207.</i> Construction vibration complaint process is detailed with an action plan to address vibration-related complaints where warranted.	Temporary vibrations from construction activities may be noticeable.	Insignificant	Monitor complaints during construction  Conduct pre-construction baseline vibration measurements for investigative purposes during complaint investigation.
Stormwater/ Drainage	<i>Widening of Airport Pkwy &amp; Lester Rd:</i> excavation and installation of new SWM facilities & structures, construction of new connections to existing outlets.		•		Throughout corridor	Construction activities will require temporary measures to maintain SWM function.  Potential temporary local disruption to services.	A <i>Stormwater Management Report</i> to be prepared as part of detailed design.  Environmental Compliance Approval (ECA)  <i>Stormwater Management Plan</i>	Disruption to existing SWM  Insufficient SWM infrastructure to accommodate changes from road widening.	Insignificant	As per <i>Stormwater Management Plan</i>

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Stormwater/ Drainage	<i>Operation of stormwater management (SWM) infrastructure.</i>			•	Throughout corridor	Road widening will increase non-permeable surface area.  Road widening will require stormwater management to accommodate differences in flow volumes.	A <i>Stormwater Management Report</i> to be prepared as part of detailed design.  Environmental Compliance Approval (ECA)  <i>Stormwater Management Plan</i>	Improved/new SWM infrastructure	Positive	None Required
Business Establishments	<i>Widening of Airport Parkway and Lester Road: clearing and grubbing vegetation, site excavation and grading.</i>			•	Walkley Road business community  OMCIA  Employment areas near the airport	Disruption to travel during construction  Access to OMCIA may be impeded by construction equipment/staging.	<i>Public Communications Plan</i> (to inform businesses of construction schedule and changes).  <i>Traffic Management Plan including Transit Operations</i>	Temporary changes to traffic patterns, potential closures	Negligible	As per <i>Public Communications Plan</i> and <i>Construction and Traffic Management Plans including Transit Operations</i>
Business Establishments	<i>Operation of widened Airport Parkway and Lester Road.</i>			•	Walkley Road business community  OMCIA  Employment areas near the airport	Change to accessibility to Walkley Road business community and the OMCIA	<i>Public Communications Plan</i>	Improved community access to businesses along Walkley Road and the local community  Improved movement to the OMCIA	Positive	As per <i>Public Communications Plan</i>
<b>Biological Environment</b>										

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Terrestrial Environment	<i>Widening of Airport Parkway and Lester Road: clearing and grubbing vegetation, site excavation and grading.</i>		•		Throughout corridor	Loss of terrestrial environment due to construction activities.	<i>Landscape Plan</i> <i>Tree Conservation Report</i>	Localized loss of terrestrial vegetation.	Insignificant	As per <i>Ecological Site Assessment</i>
Wildlife	<i>Widening of Airport Parkway and Lester Road: Construction of roadway, grading and excavation for all associated infrastructure.</i>		•		Throughout corridor	Impact to wildlife movement due to construction activities.	As per the City's <i>Protocol for Wildlife Protection during Construction Guide.</i>	Localized loss of wildlife.	Insignificant	Daily sweeps of the construction areas.
Wildlife	<i>Operation of Wildlife Crossings.</i>			•	Locations watercourse crossings including culverts associated with: Cahill Drain Alexander Drain, Sawmill Creek as identified on Functional Design	Crossings will allow for increase wildlife mobility through existing road corridor, and fewer collisions with vehicles.	Detailed design of wildlife crossings, or "eco passages" to be determined through Ecological Site Assessment work.  Wildlife exclusion fencing to be integrated with the eco passages as well.	Fewer wildlife collisions with vehicles using the widened corridor.	Positive	As per detailed design recommendations.

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Species at Risk	<i>Widening of Airport Parkway and Lester Road: clearing and grubbing vegetation, site excavation and grading.</i>		•		Throughout corridor	Several Species at Risk have been identified as having a moderate to high likelihood of occurrence within the study area. Their habitat may be affected during construction.	<p><i>Landscape Plan</i></p> <p><i>Tree Conservation Report</i></p> <p><i>Construction Timing Considerations</i></p> <p><i>Prior to construction detailed targeted surveys should be conducted to identify species at risk habitat</i></p> <p>Conduct an <i>Ecological Site Assessment</i> to confirm presence of SAR and significant habitat.</p>	Loss of species at risk or their habitat if identified during next phases of the project.	Insignificant	As per the <i>Ecological Site Assessment</i> and recommendations from detailed targeted surveys for species at risk and in consultation with agencies.
Significant Wildlife Habitat	<i>Widening of Airport Parkway and Lester Road: clearing and grubbing vegetation, site excavation and grading.</i>		•		Site Specific location.	Potential loss of identified SWH.	During detailed design phase of the project. <i>Ecological Site Assessment</i> should be done to determine potential impacts to SWH, if any.	Loss of SWH if determined to be present.	Insignificant	None required

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
<b>Site Specific Assessment: Airport Parkway</b>										
<b>Social Environment</b>										
Pathway Connections	Operation of a new multi-use pathway along the west side of the Airport Parkway.				<ul style="list-style-type: none"> <li>West side of Airport Parkway.</li> </ul>	New pathways will offer more opportunities for active travel and enjoyment of the NCC's Greenbelt.	A <i>Landscape Plan</i> will be implemented to include pedestrian and cycling amenities.	Pedestrians and cyclists will be provided a safer, more accessible transportation environment. Increased non-motorized travel through the Greenbelt.	Positive	None required
Noise	Operation of widened Airport Parkway.				<ul style="list-style-type: none"> <li>Identified sensitive receivers along the west side of the Airport Parkway</li> </ul>	<p>Widened parkway will be in closer proximity to some sensitive land uses.</p> <p>Noise level produced from vehicles closer to residential areas may increase noise level above the City's Environmental Noise Control Guideline of 60 dBA.</p>	<p>Noise barriers (as per drawings located in Appendix B). Barriers must meet specifications noted in CSA standard Z107.9.</p> <p>Locations: North of Flannery Drive, From Brookfield to Railway bridge</p> <p>North side of Cromwell Drive</p> <p>East side of Plante Drive extending south to Hunt Club</p>	Imperceptible noise level increase.	Insignificant	None required
Vibrations	Operation of widened Airport Parkway.				<ul style="list-style-type: none"> <li>Throughout corridor.</li> </ul>	<p>Widened parkway will be in closer proximity to some sensitive land uses.</p> <p>Perceptible vibration may increase to</p>	During the detailed design phase, maximize distance from receivers and widened roadway wherever possible.	Vibration levels below recommended annoyance criteria.	Insignificant	None required



Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
						moderate in some cases where widened roadway is closer to homes.				
Road Network	<i>Construction of Walkley Road Southbound off-ramp.</i>		•		Walkley Southbound On-ramp	The construction of a southbound off-ramp onto Walkley Road will increase traffic on Walkley, as well as through traffic on some surrounding streets.	<i>Construction and Traffic Management Plan</i>  Consideration of traffic restrictions in surrounding areas to discourage cut-through traffic.	Increased vehicular traffic on Walkley Road and surrounding streets.	Insignificant	Monitor traffic patterns following construction.
Road Network	<i>Operation of Widening of Airport Parkway: At the Walkley Road underpass.</i>			•	Walkley Road underpass	Existing structure has been deemed acceptable by City staff. However widening moves the trajectory of vehicles closer to supports	<i>Construction and Traffic Management Plan</i>  Crash barriers will be installed to ensure structure remains intact	None anticipated	Negligible	None required
Road Network	<i>Operation of Walkley Road Southbound off-ramp.</i>			•	Walkley Southbound On-ramp	The resiliency of the Airport Parkway to emergencies and shut downs is increased.  Increased connectivity between neighbourhoods.	Best management practices during detailed design phase.	Improved local traffic movements	Positive	None required
<b>Physical Environment</b>										
Geotechnical Conditions	<i>Widening of Airport Parkway: between Brookfield Road and Hunt Club Road.</i>		•		Brookfield Road to Hunt Club Road	Soft to firm silty clay has limited capacity to support additional loading without consolidation settlement.	<i>Detailed Geotechnical Investigations to be completed during detailed design which will identify subgrade specifications for road bed.</i>	None anticipated	Negligible	As per detailed <i>Geotechnical Investigations</i>

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Geotechnical Conditions	<i>Widening of Airport Parkway: under Hunt Club Road.</i>		•		Hunt Club underpass	Thick deposit of silty clay over water bearing sands may experience increased groundwater flow. Excavations could experience basal heaving.	<i>Detailed Geotechnical Investigations to be completed during detailed design which will identify subgrade specifications for road bed, retaining walls, and foundations for overpass.</i>	None anticipated	Negligible	As per detailed <i>Geotechnical Investigations</i>
Geotechnical Conditions	<i>Widening of Airport Parkway: eastwards to Sawmill Creek.</i>		•		Sawmill Creek Slopes	Project has been designed to avoid site alteration in vicinity of the slopes.	<i>Detailed Geotechnical Investigations to be completed during detailed design which will identify subgrade specifications for road bed</i>	None anticipated	Negligible	As per detailed <i>Geotechnical Investigations</i>
<b>Natural Environment</b>										
Surface Water Resources	<i>Widening of Airport Parkway: Construction of roadway, grading and excavation for all associated infrastructure.</i>		•		Sawmill Creek	Increased sedimentation may reach the eventual drainage outlet at Sawmill Creek.  Stormwater runoff during construction may have increased sedimentation	Contractor to implement an <i>Erosion and Sediment Control Plan</i> .  <i>Environmental Protection Plan</i>	Potential localized increase in sedimentation.	Negligible	As per Erosion and Sediment Control Plan and <i>Environmental Protection Plan</i> .
Aquatic Habitat	<i>Widening of Airport Parkway: Construction of roadway, grading and excavation for all associated infrastructure.</i>		•		Sawmill Creek	Increased sedimentation during construction could impact fish habitat.	Contractor to implement an <i>Erosion and Sediment Control Plan</i> .  <i>Environmental Protection Plan</i>	Potential localized increase in sedimentation.	Negligible	As per Erosion and Sediment Control Plan and <i>Environmental Protection Plan</i> .

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Natural Heritage Features: (Provincially Significant Wetlands)	<i>Widening of Airport Parkway:</i> Construction of roadway, grading and excavation for all associated infrastructure.		•		PSW east of Wyman Crescent.	Widening of road may result in degradation or loss of some provincially significant wetlands.	Compensation strategy to be developed during next phases of the project and in consultation with the NCC.	No net loss of provincially significant wetlands.	Insignificant	As per compensation strategy.
Natural Heritage Features: (Significant Valleylands)	<i>Widening of Airport Parkway:</i> Construction of roadway, grading and excavation for all associated infrastructure.		•		Significant Valleylands between Brookfield Road and Walkley Road.	Current roadway alignment includes significant valleylands. Widening the roadway may cause disturbance to significant valleylands.	<i>Ecological Site Assessment</i>  Minimize temporary disturbance to significant valleylands: <i>Erosion and Sediment Control Plan.</i>	Widening the roadway may cause disturbance to significant valleylands.	Insignificant	As per <i>Ecological Site Assessment</i> and <i>Erosion and Sediment Control Plan.</i>
<b>Site Specific Assessment: Airport Connectivity Sector</b>										
<b>Social Environment</b>										
Road Network	Construction of Uplands Drive connection.		•		Uplands Drive and Airport Parkway	Increased connectivity to Ernst and Young Centre.  Increase resiliency of the Airport Parkway.	Best management practices during detailed design phase.	Increased mobility choices.	Positive	None required
<b>Physical Environment</b>										
Potentially Contaminated Land	<i>Widening of Airport Parkway:</i> Construction of roadway, grading and excavation for all associated infrastructure.		•		located: <ul style="list-style-type: none"> <li>• East of Uplands Drive</li> <li>• Aviation Pkwy &amp; Lester Rd intersection</li> <li>• North of Uplands Tank</li> </ul>	Construction activities may disturb contaminants in the soil nearby known PCAs.	Conduct a <i>Phase I Environmental Site Assessment</i> during the next phase of the project.	Management and removal of contaminated materials, if required.	Insignificant	As per <i>Phase I Environmental Site Assessment</i>

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
					Farm					
<b>Natural Environment</b>										
Natural Heritage Features: (Provincially Significant Wetlands)	<i>Widening of Airport Parkway:</i> Construction of roadway, grading and excavation for all associated infrastructure.		•		PSW south of Wyman Crescent.	Widening of road may result in degradation or loss of some provincially significant wetlands.	Compensation strategy to be developed during next phases of the project and in consultation with the NCC.	No net loss of provincially significant wetlands.	Insignificant	As per compensation strategy.
<b>Site Specific Assessment: Lester Road</b>										
<b>Social Environment</b>										
Land Ownership	<i>Widening of Airport Parkway and Lester Road:</i> Permanent property acquisition for widening.	•			One private property on Lester Road	Lands required for the widening will be assessed at a fair market price, and acquired according to the process and policies set out by the City of Ottawa.	Adherence to fair market value and acquisition process set out by the City.	Inconvenience and irritant to property owners who are displaced or lose property.	Insignificant	As per <i>Public Communications Plan</i> and investigation scheduling
Noise	<i>Operation of Widened Lester Road</i> will be in closer proximity to some sensitive land uses.		•		Identified sensitive receivers along Lester Road.	Widened parkway will be in closer proximity to some sensitive land uses.  Noise level produced from vehicles closer to residential areas may increase noise level above the City's Environmental Noise Control Guideline of 60 dBA.	Noise barriers (as per drawings located in Appendix B). Barriers must meet specifications noted in CSA standard Z107.9.  Locations: North side, at northwest corner of Albion and Lester  North side, east of Aladdin Lane	Imperceptible noise level increase.	Insignificant	None required

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Vibration	Widened road will be in closer proximity to some sensitive land uses.			•	Throughout corridor.	Perceptible vibration may increase to moderate in some cases where widened roadway is closer to homes.	Detailed design.  Maximize distance from receivers and widened roadway wherever possible.	Vibration levels below recommended annoyance criteria	Insignificant	None required
<b>Natural Environment</b>										
Surface Water Resources	<i>Widening of Lester Road:</i> Construction of roadway, grading and excavation for all associated infrastructure.			•	Alexander Drain  Cahill Tributary	Increased sedimentation may reach the eventual drainage outlet at Sawmill Creek.  Stormwater runoff during construction may have increased sedimentation.	Contractor to implement an <i>Erosion and Sediment Control Plan</i> .  <i>Environmental Protection Plan</i>	Potential localized increase in sedimentation.	Negligible	As per <i>Erosion and Sediment Control Plan</i> and <i>Environmental Protection Plan</i> .
Aquatic Habitat	<i>Widening of Lester Road:</i> Construction of roadway, grading and excavation for all associated infrastructure.			•	Alexander Drain  Cahill Tributary	Increased sedimentation during construction could impact fish habitat.	Contractor to implement an <i>Erosion and Sediment Control Plan</i> .  <i>Environmental Protection Plan</i>	Potential localized increase in sedimentation.	Negligible	As per <i>Erosion and Sediment Control Plan</i> and <i>Environmental Protection Plan</i> .
Natural Heritage Features: (Provincially Significant Wetlands)	<i>Widening of Lester Road:</i> Construction of roadway, grading and excavation for all associated infrastructure.			•	Lester Road Provincially Significant Wetland Complex	Widening of road may result in degradation or loss of some provincially significant wetlands.	Compensation strategy to be developed during next phases of the project and in consultation with the NCC.	No net loss of provincially significant wetlands.	Insignificant	As per compensation strategy.

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Natural Heritage Features: (Significant Woodlands)	<i>Widening of Lester Road:</i> Construction of roadway, grading and excavation for all associated infrastructure.		•		Significant Woodlands between Albion and Bank.	Construction activities may result in degradation or loss of significant woodlands.	<i>Ecological Site Assessment</i>  <i>Tree Conservation Report</i>  <i>Erosion and Sediment Control Plan</i>  Minimize footprint of disturbance to significant woodlands during construction.  Consultation with NCC regarding 'no net loss' approach.	Widening the roadway will increase footprint of disturbance to significant woodlands.  No net loss of trees.	Insignificant	As per the <i>Tree Conservation Report, Ecological Site Assessment and Erosion and Sediment Control Plan.</i>
<b>Physical Environment</b>										
Potentially Contaminated Land	<i>Widening of Lester Road:</i> Grading and excavation for all associated infrastructure, any disturbance to roadbed, general ground disturbance.		•		Lester Road (PCA #2)	Construction activities may disturb contaminants in the soil nearby known PCAs.	Conduct a <i>Phase I Environmental Site Assessment</i> during detailed Investigations and designs.	Management and removal of contaminated materials, if required.	Insignificant	As per <i>Phase I Environmental Site Assessment</i>
Geotechnical Conditions	<i>Widening of Lester Road:</i> Construction of roadway, grading and excavation for all associated infrastructure.		•		Poorly drained areas along Lester Road.	The high groundwater level and permeable nature of these soils will require pumping if "cuts" are considered for the grade separations.  Soils may be susceptible to seismic liquefaction.	Detailed <i>Geotechnical Investigations</i> to inform the detailed design of road sub-grade including "swamp treatment detail".	None anticipated	Negligible	As per detailed <i>Geotechnical Investigations</i>

## 6.12 Stakeholder Consultation

### 6.12.1 Consultation Group Meetings

The third round of consultation group meetings were held on March 1<sup>st</sup> and 2<sup>nd</sup>, 2016. At these meetings, participants were presented with the information that was to be communicated at the upcoming third Public Open House. An update of the work completed to-date since the second consultation group meeting in June 2015 was presented to the groups including design details of the Recommended Plan illustrating refinements to the Preliminary Preferred Design: Eastern shift of the alignment for the Airport Parkway between Brookfield Road and Walkley Road, southbound off-ramp at Walkley Road with roundabout treatment, a design for Walkley Road between the Airport Parkway and McCarty Road. Input was received at these meetings on the Recommended Plan and included discussion on the following topics:

- Project Overview
- Recommended Plan
- Walkley Road Modifications
- Future Considerations for Mitigation
- Project Schedule and Stakeholder Involvement

For a full account of discussion from these consultation groups, refer to Appendix A - Consultation Record.

### 6.12.2 Public Open House #3

Public Open House #3 was held on Thursday, March 10, 2016 at the Jim Durrell Recreation Centre from 6:00 to 9:00pm. The open house included a series of display boards to inform the public of the work completed to date, highlighting refinements made to the Recommended Plan in response to concerns raised at Public Open House #2. Study team members were present to answer questions in an informal setting. The information included on the display boards was also given as a presentation to the public at 7:00 pm followed by a question and answer period which continued to 8:30pm. There were some follow-up questions after the presentation until approximately 8:45 pm.

The material presented at the Public Open House included information on:

- Welcome
- Study Overview
- Study Objectives and Process
- Study Schedule
- Consultation Activities
- What we have heard so far
- General Planning and Design Principles
- Recommended Plan for Pedestrians and Cyclists in the Corridors
- Redesigned Plan for the Brookfield to Walkley Sector
- Proposed Walkley Road Community Connection
- Proposed Walkley Road Connection and Road Corridor Modifications
- Recommended Plan for the Walkley to Hunt Club Sector
- Recommended Plan for the Airport Connectivity Sector
- Recommended Plan for the Trillium Line LRT to Albion Sector
- Recommended Plan for the Albion to Meandering Brook Sector
- Recommended Plan for the Meandering Brook to Bank Sector
- Managing Noise Impacts

- Considerations related to impacts on Natural Heritage Features
- Mitigating Wetland Impacts
- Next Steps
- Roll Plans of the Recommended Plan

Notification of the Open House occurred through advertisements in daily citywide newspapers on the following dates:

- EMC News, Thursday February 25th, 2016 and Thursday March 3rd , 2016
- Le Droit, Friday, February 26th, 2016 and Friday, March 4th, 2016

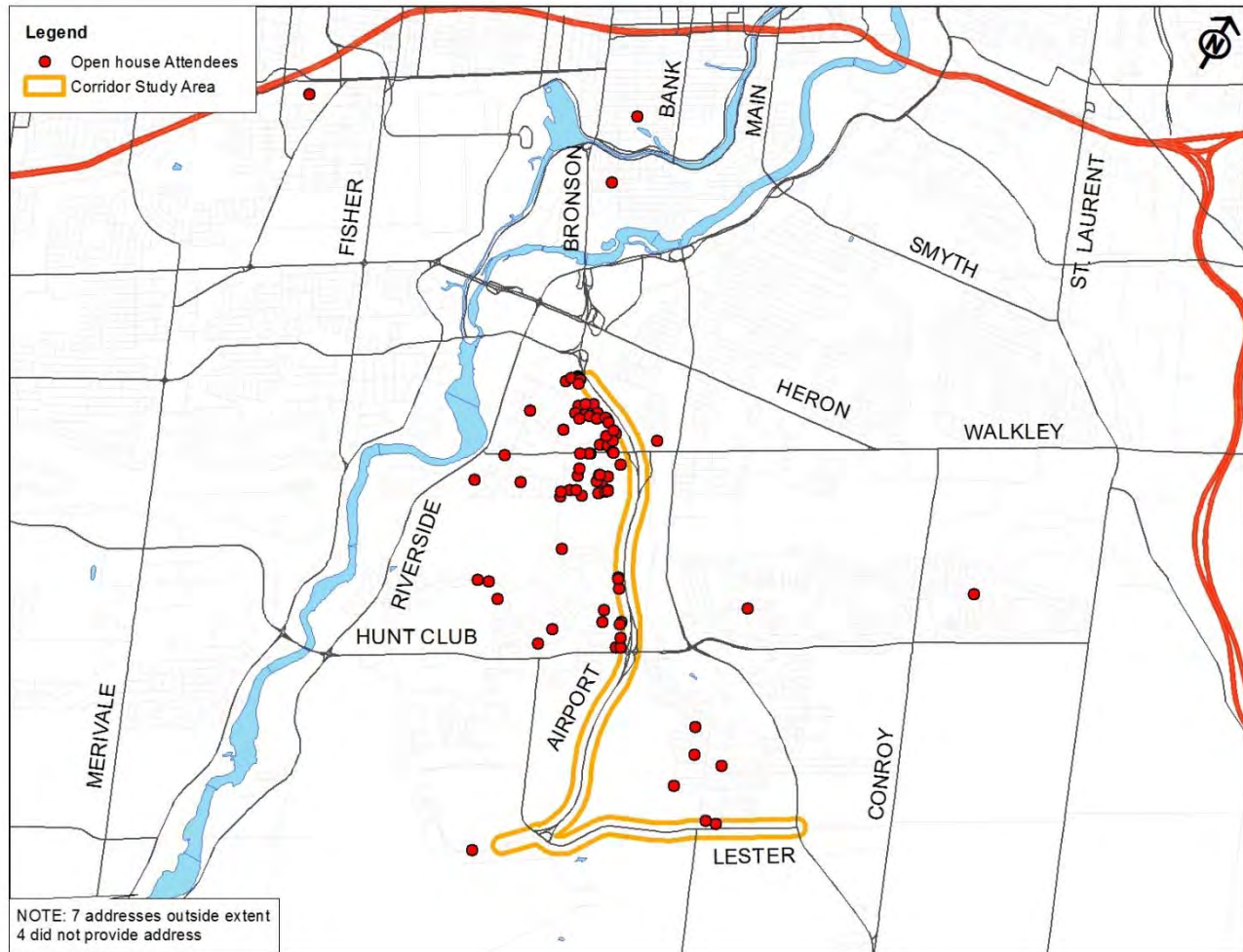
An email notification was sent on Thursday, February 25<sup>th</sup> to all persons on the study's master mailing list and included members of the ACG, BCG, PCG, Aboriginal communities, and stakeholders that had previously expressed an interest in the study or signed in at previous consultation events for the study.

A resource table was provided with background materials available for review by members of the public. This material included copies of the City of Ottawa Official Plan, Transportation Master Plan, the Ontario *Environmental Assessment Act*, the Pedestrian and Cycling Plan, the Municipal Class Environmental Assessment Process, and the Provincial Policy Statement.

A total of 121 people signed-in over the course of the evening. Based on the addresses provided, individuals attending the Public Open House were largely located within the study area in proximity to the Airport Parkway and Lester Road corridors, and particularly focused around Walkley Road west of the Airport Parkway (Figure 6-9).



**Figure 6-9: Distribution of Open House #3 Participants**



To further assist in obtaining feedback from attendees, a Comment-Questionnaire was distributed at the Public Open House. Members of the public were encouraged to provide written comments via the Comment-Questionnaire and submit them either before leaving the Open House or by fax, email or regular mail by March 24<sup>th</sup> with the deadline extended to April 7<sup>th</sup>, 2016. A total of 34 Comment-Questionnaires were returned during or following the Open House, in addition to 74 emails containing feedback.

All comment-questionnaires and emails were examined and tabulated to record feedback received and to best understand the opinion of those who had reviewed the Recommended Plan. The following are the most frequently discussed issues or concerns from the comment-questionnaires and emails, in order:

- Supports the widening of the Airport Parkway (33 responses);
- Supports the Walkley Road connection (32 responses);
- Does not support median barriers along Walkley Road (24 responses);
- Does not support the Walkley Road connection (19 responses);
- Does not support the redesign of Walkley Road to two lanes (19 responses);
- Trillium Line extension should be given priority (17 responses);
- Supports the redesign of Walkley Road (12 responses);

- Concern over increased noise/traffic/pollution to surrounding areas (10 responses);
- Does not support roundabout design (12 responses);
- Supports the roundabout design (10 responses);
- Enjoyed the style of the consultation and presentation (7 responses);
- Concerned over the delay in project implementation (7 responses);
- Desires a northbound ramp from Walkley (6 responses); and
- Does not support the Recommended Plan for the widening of Airport Parkway and Lester Road (6 responses).

For a full account of all comments received during this open house, refer to Appendix A - Consultation Record.

### **6.12.3 Transportation Committee and Council**

The Recommended Plan and study findings were presented to the City of Ottawa Transportation Committee on June 1<sup>st</sup>, 2016. The plan and study recommendations were posted on the City's website on the Friday prior to the meeting. At the meeting, members of the public and project stakeholders were invited to present comments and concerns to committee. A total of 7 residents and one (1) Agency, the Ottawa Macdonald Cartier International Airport, made presentations to committee.

Transportation Committee approved staff's recommendation to:

1. Approve the results of the Airport Parkway and Lester Road Widening Environmental Assessment Study, as described in the staff report and supporting documents (included in Appendix A – Consultation Record); and
2. Direct staff to finalize the Environmental Study Report and proceed with its posting for the 30-day public review period in accordance with the Ontario Municipal Class Environmental Assessment Process.

Staff was also directed by Transportation Committee to prepare a memo for circulation prior to the Council meeting of 8 June, explaining the change in direction of the latest TMP regarding peak hour and peak period demand analysis and how they were applied to transportation planning which was subsequently provided and is included in Appendix A – Consultation Record.

Transportation Committee's recommendation was subsequently approved by City Council on June 8<sup>th</sup>, 2016.

## 7.0 Recommended Plan and Landscape Concept

The Recommended Plan and Landscape Concept are depicted as noted below:

Road Segment	Figure No.
<b>Functional Design</b>	
Airport Parkway	7-1 to 7-9
New Road Link to Uplands Drive	7-8 & 7-10
Lester Road	7-11 to 7-16
Walkley Road	7-17 & 7-18
General Arrangement – Hunt Club Structure	7-19
<b>Landscape Concept</b>	
Airport Parkway	7-21 to 7-28
New Road Link to Uplands Drive	7-29
Lester Road	7-30 – 7-33
Roundabout at Walkley Road	7-22

Figure 7-1: Recommended Plan, Airport Parkway – Limit of Contract to Station 10+100 (Brookfield)

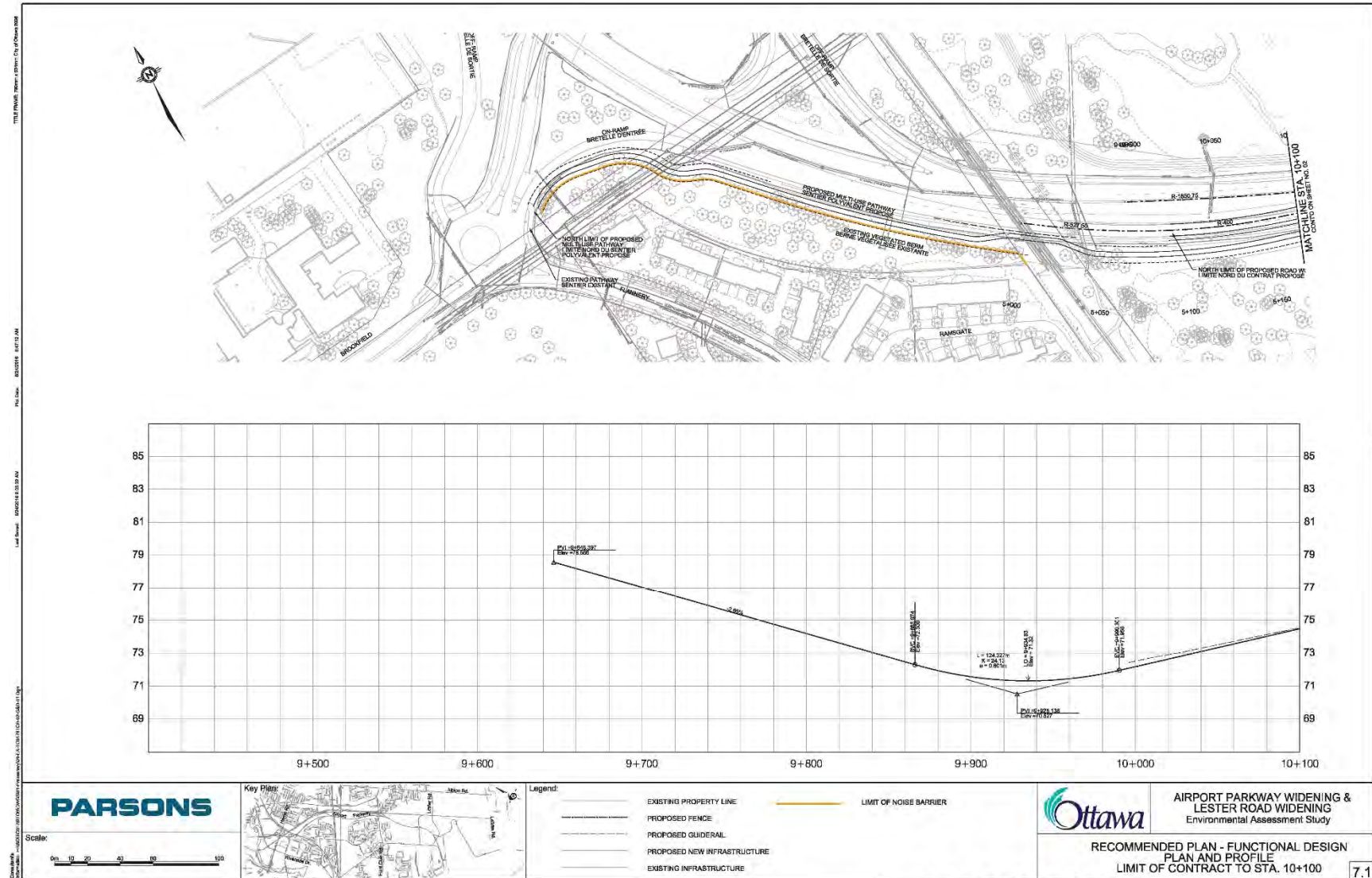


Figure 7-2: Recommended Plan, Airport Parkway – Station 10+100 to 10+750 (Cromwell)

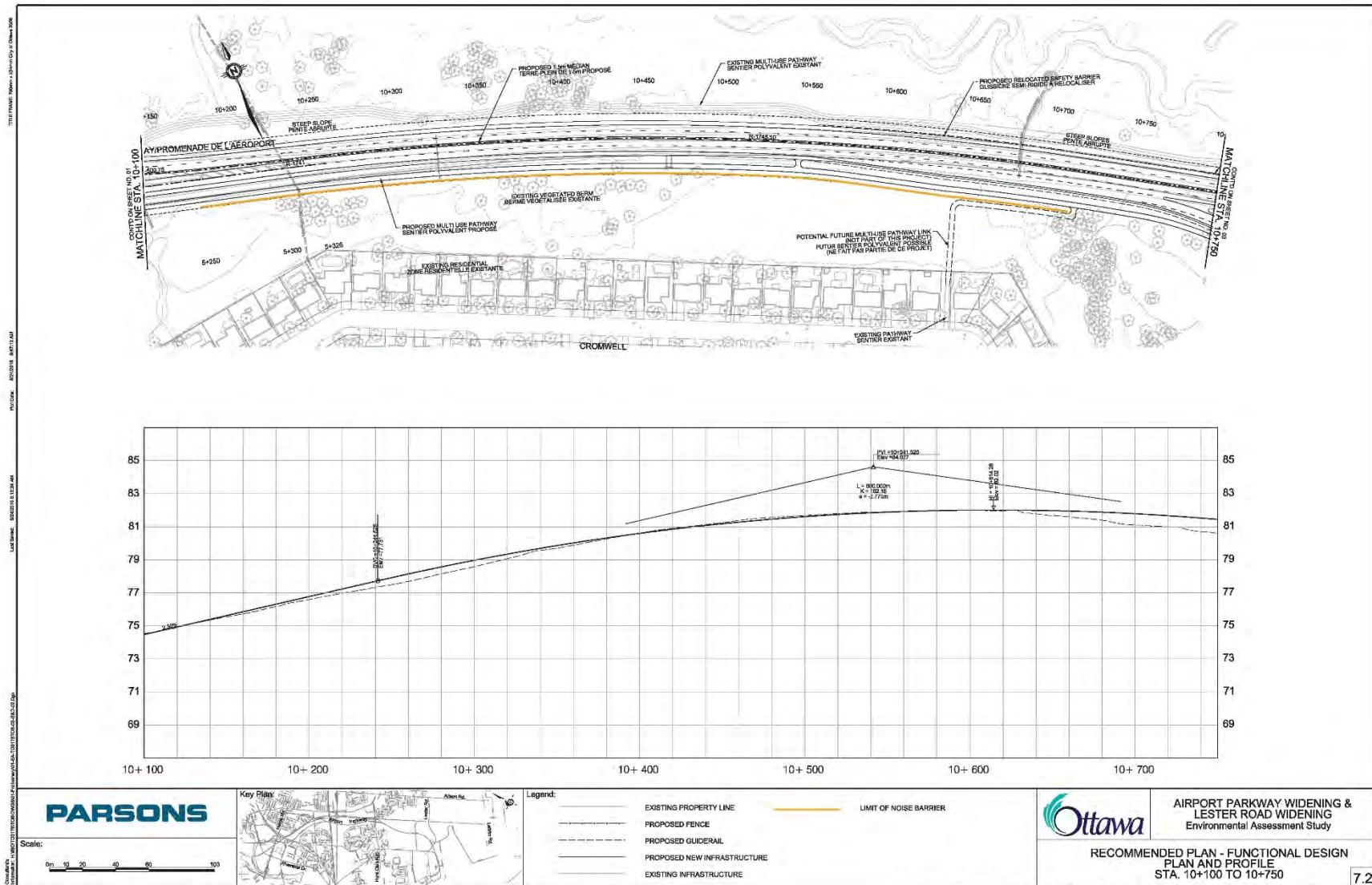


Figure 7-3: Recommended Plan, Airport Parkway – Station 10+750 to 11+400 (Walkley Off-Ramp)

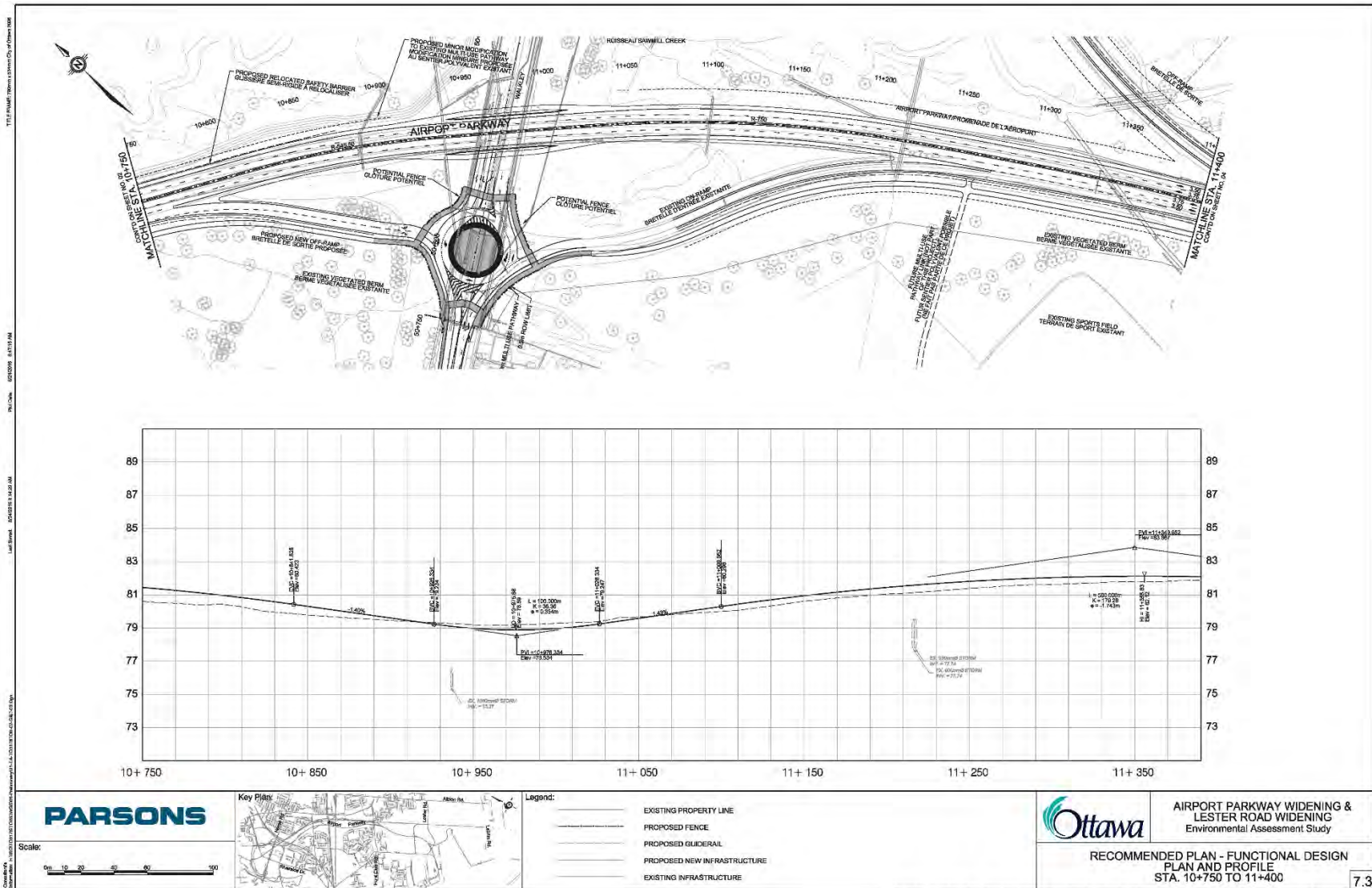


Figure 7-4: Recommended Plan, Airport Parkway – Station 11+400 to 12+100 (Hydro One Corridor)

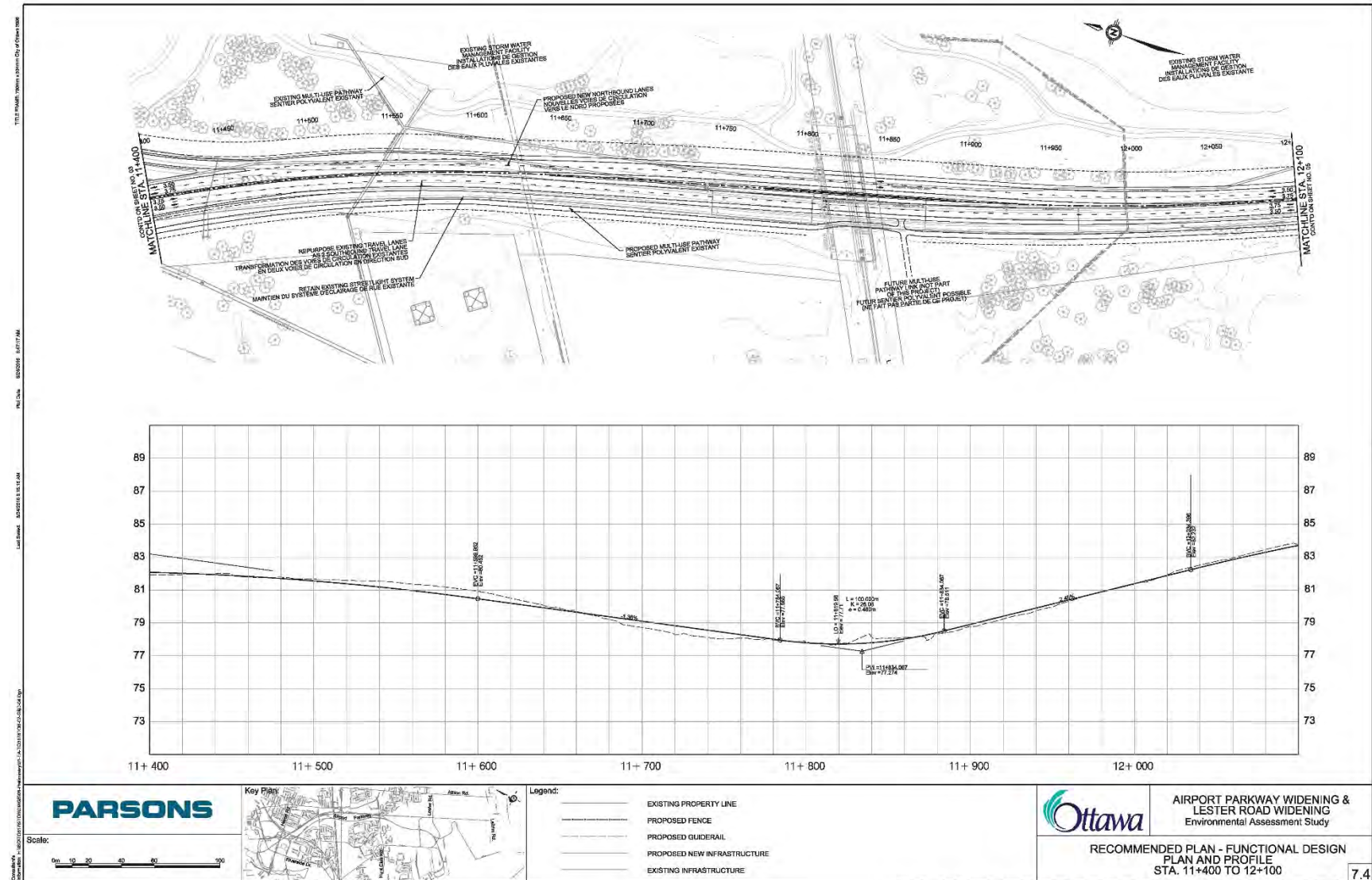


Figure 7-5: Recommended Plan, Airport Parkway – Station 12+100 to 12+750 (Plante)

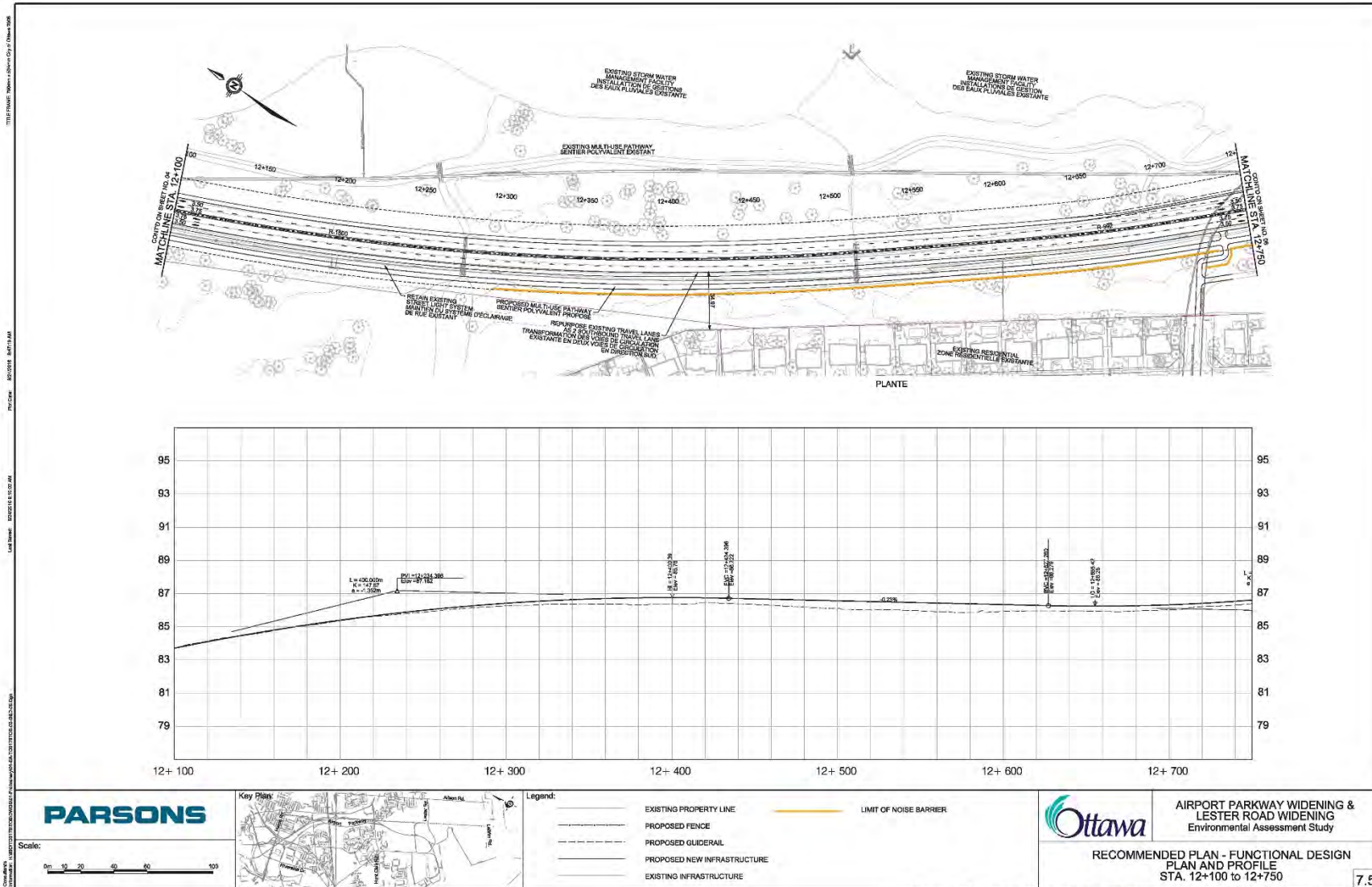




Figure 7-6: Recommended Plan, Airport Parkway - Station 12+750 to 13+450 (Hunt Club Road)

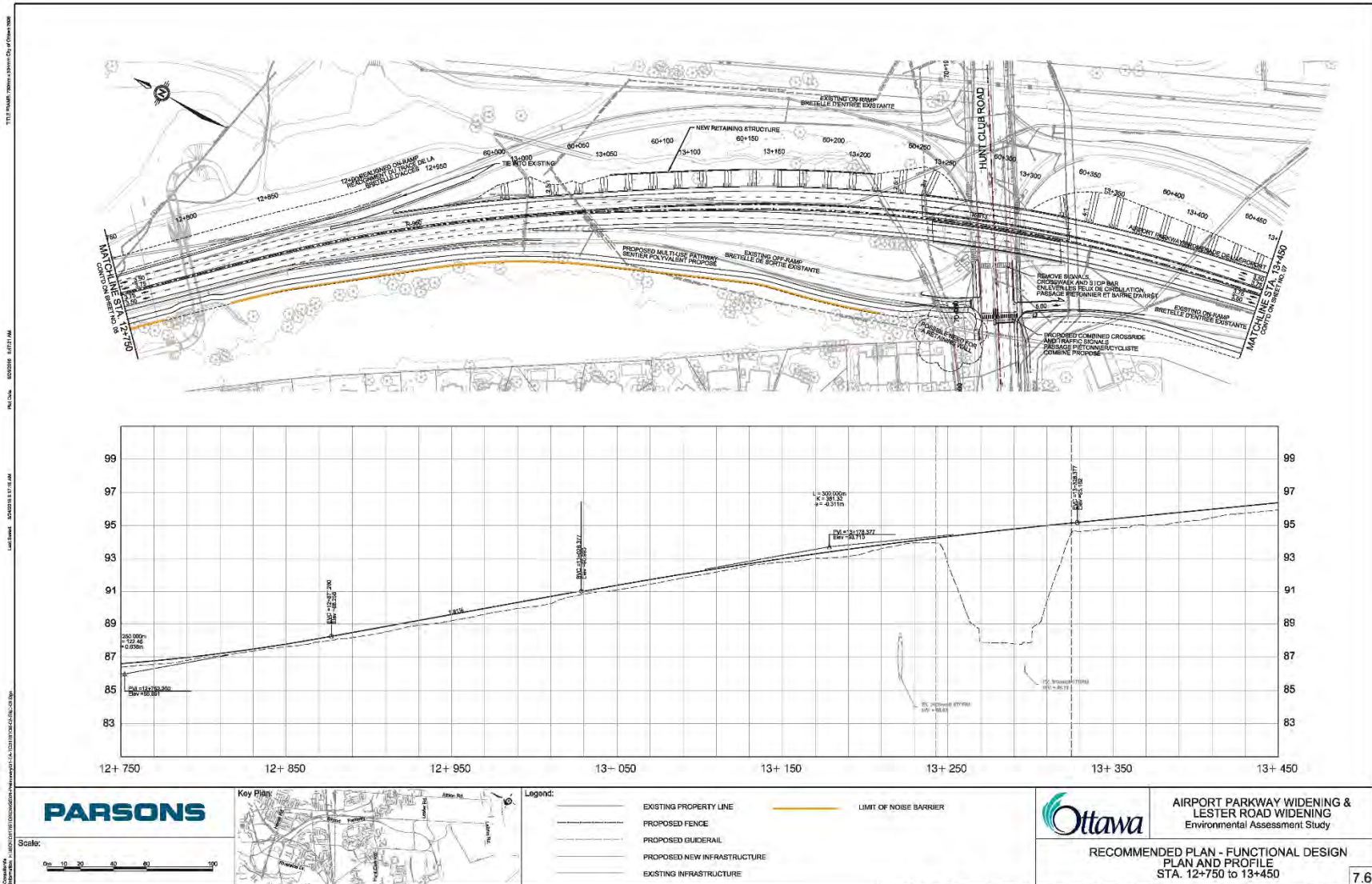


Figure 7-7: Recommended Plan, Airport Parkway - Station 13+450 to 14+150 (Cahill Drain)

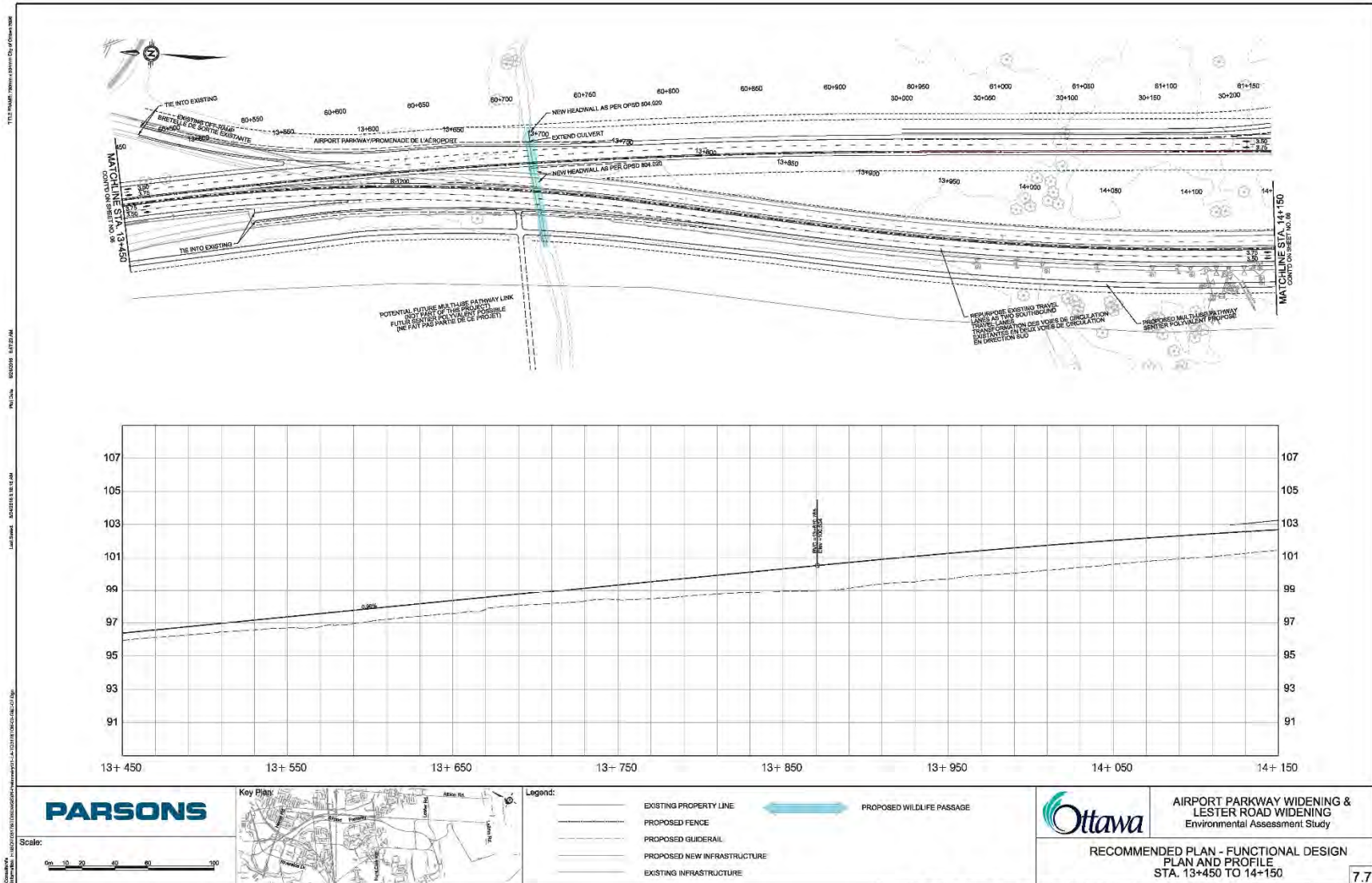


Figure 7-8: Recommended Plan, Airport Parkway - Station 13+450 to 14+150 (Off-Ramp to Uplands)

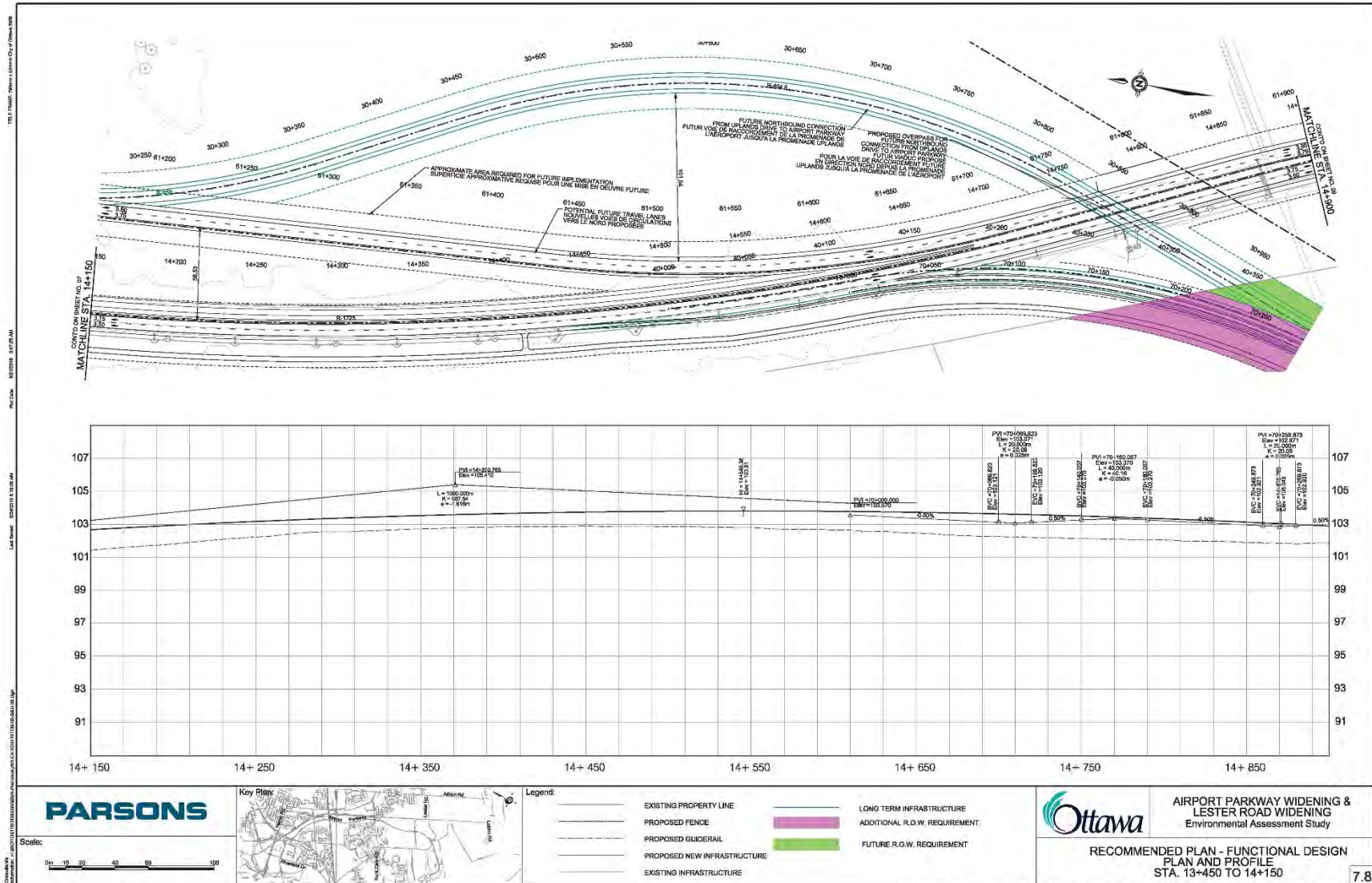


Figure 7-9: Recommended Plan, Airport Parkway - Station 14+900 to Limit of Contract (Uplands/Lester)

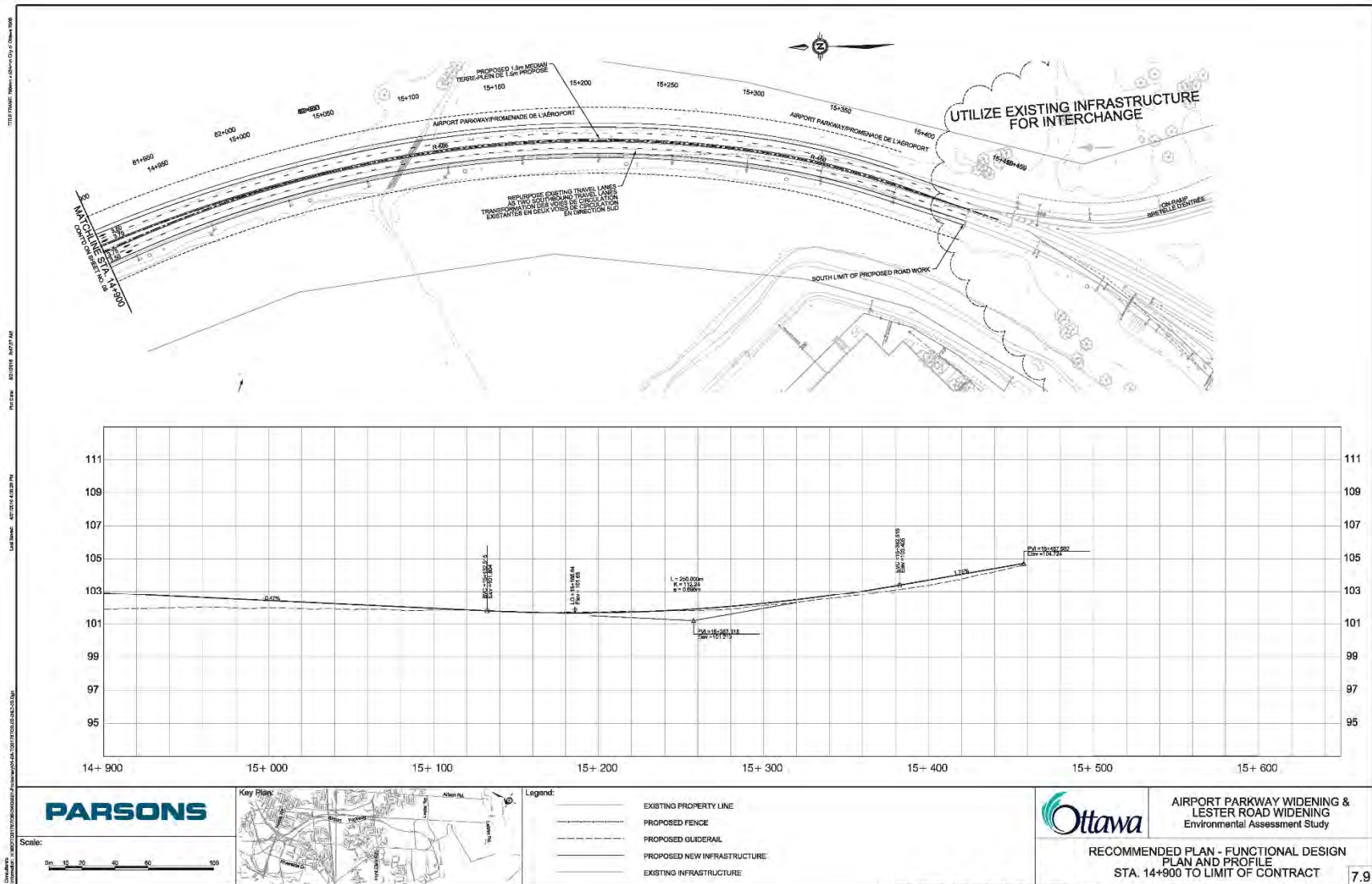


Figure 7-10: Recommended Plan, Airport Parkway – Station 70+280 to Limit of Contract (Uplands)



Figure 7-11: Recommended Plan, Lester Road - Limit of Contract to Station 20+000 (Lester/Uplands)

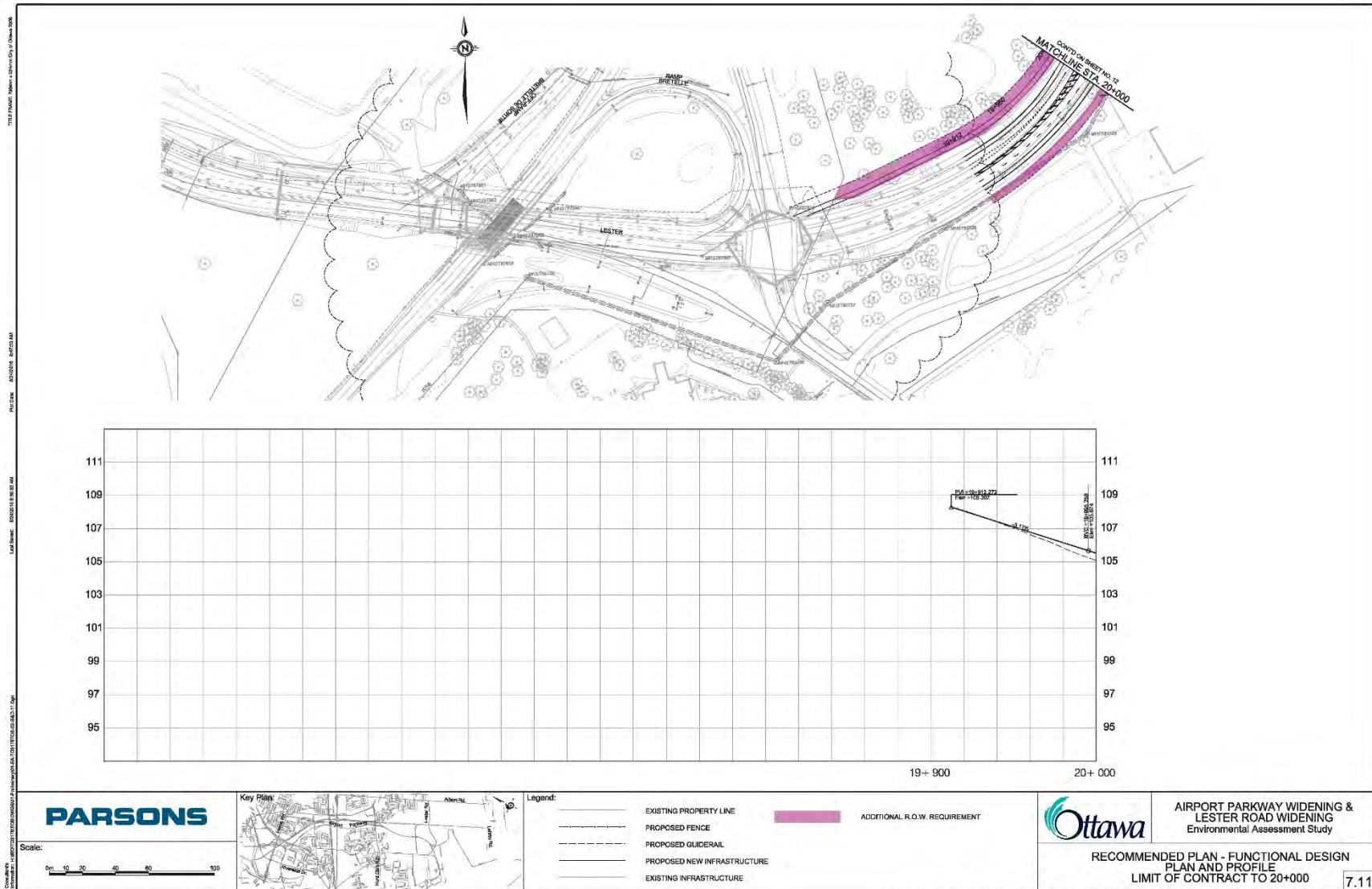


Figure 7-12: Recommended Plan, Lester Road - Station 20+000 to Station 20+500 (Transport Canada)

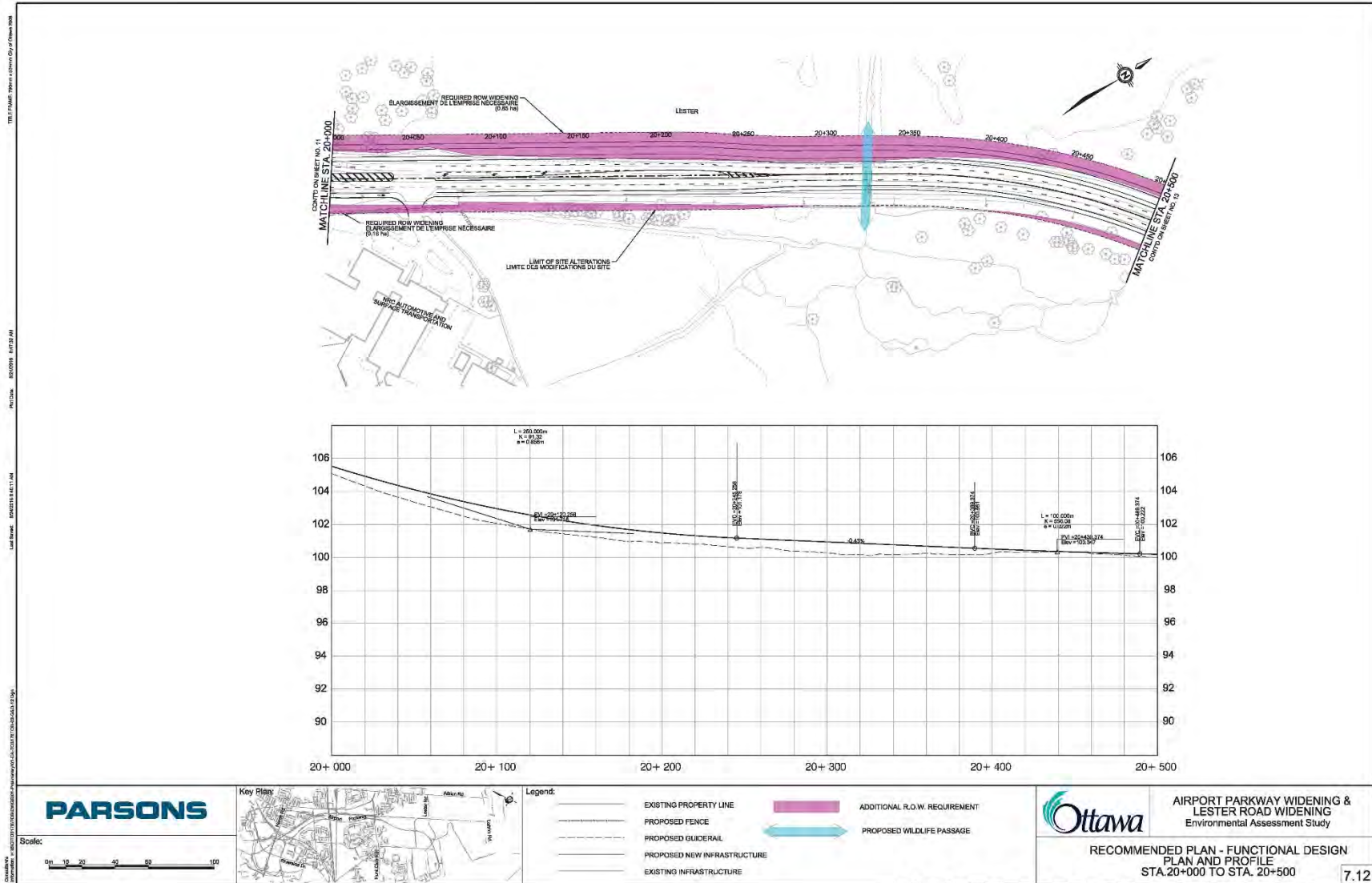


Figure 7-13: Recommended Plan, Lester Road - Station 20+500 to 21+200 (Trillium Line/Alexander Drain)

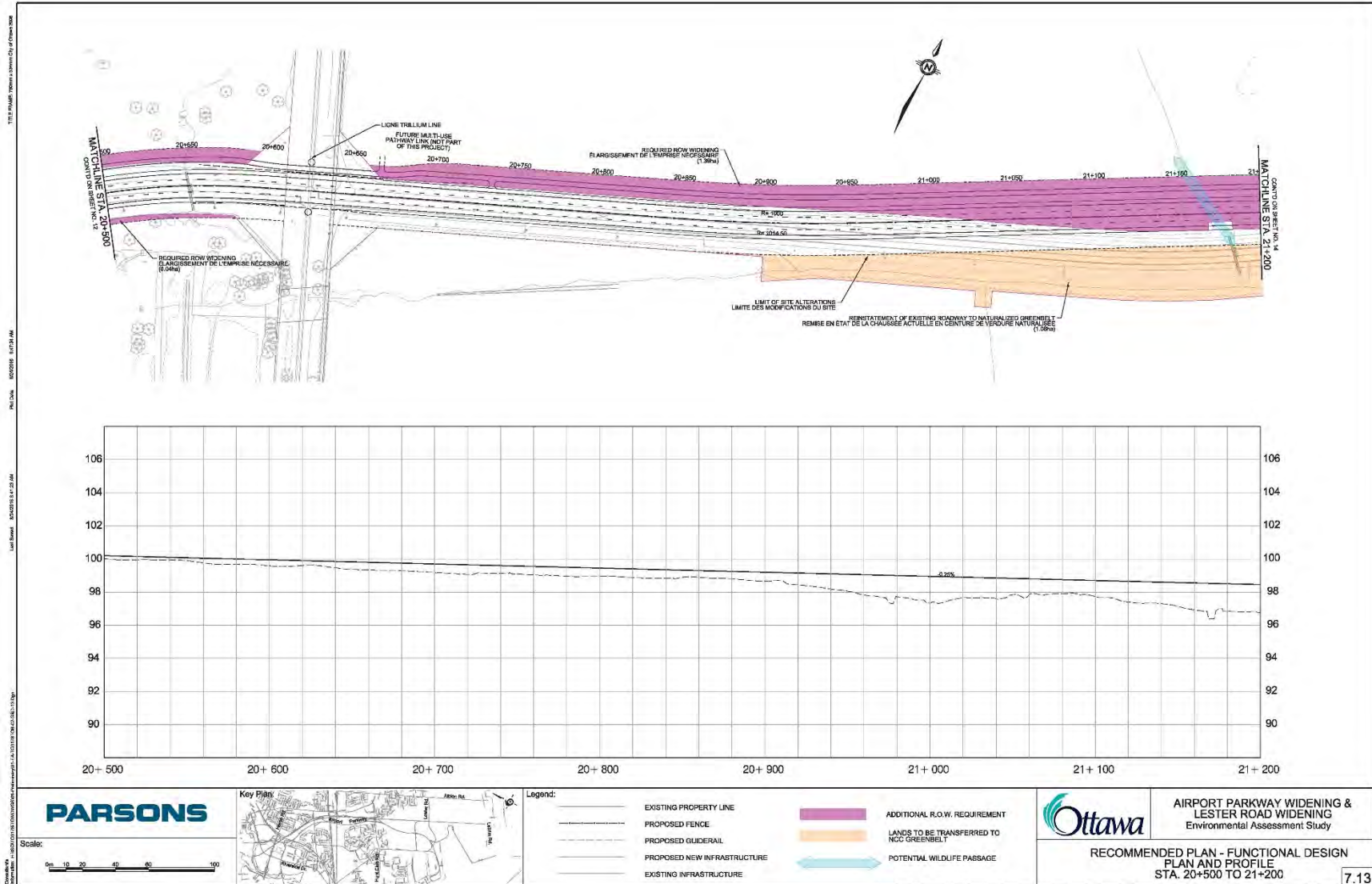




Figure 7-14: Recommended Plan, Lester Road - Station 21+200 to 21+800 (Albion)

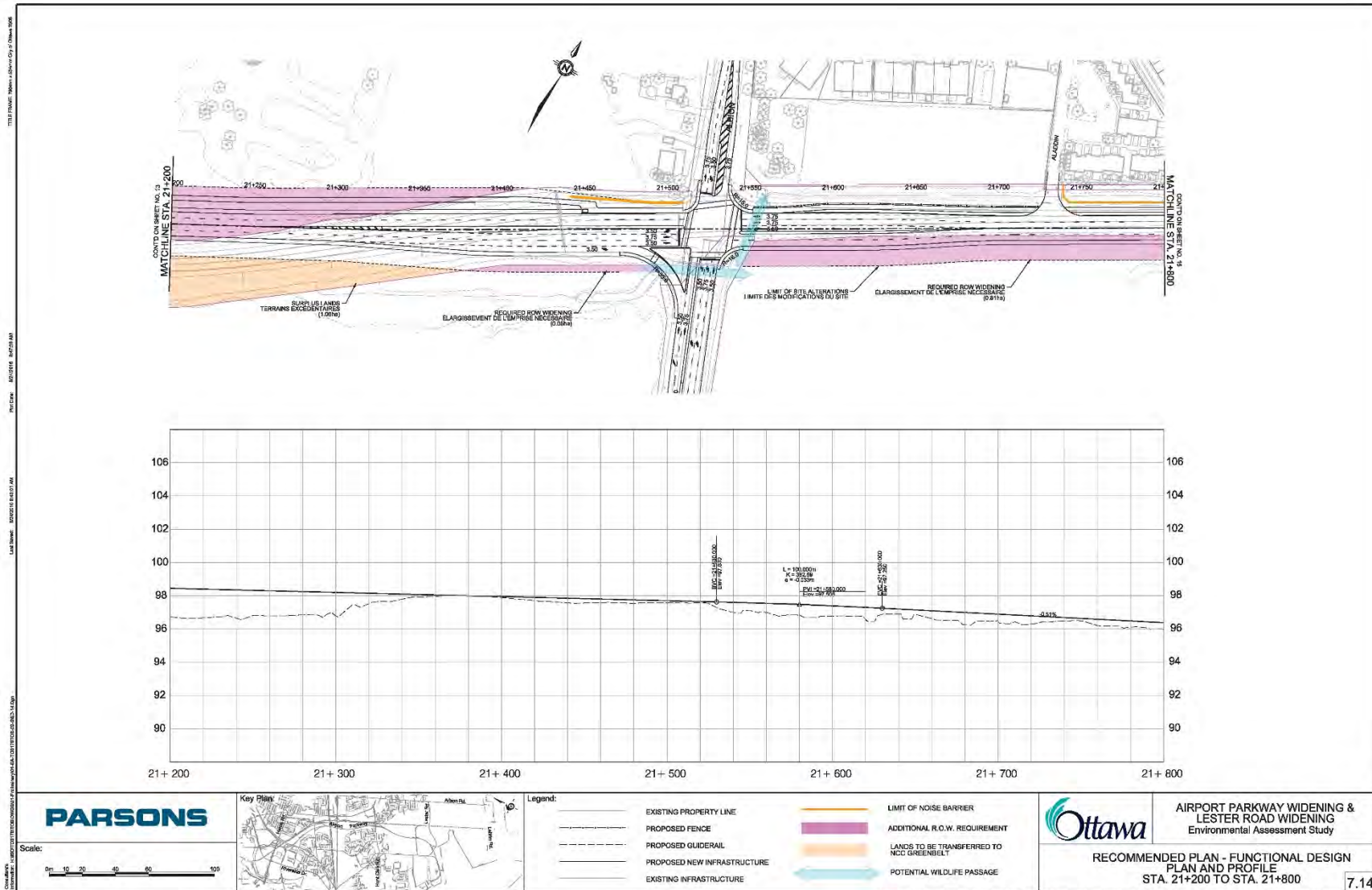


Figure 7-15: Recommended Plan, Lester Road - Station 21+800 to Station 22+500 (Meandering Brook)

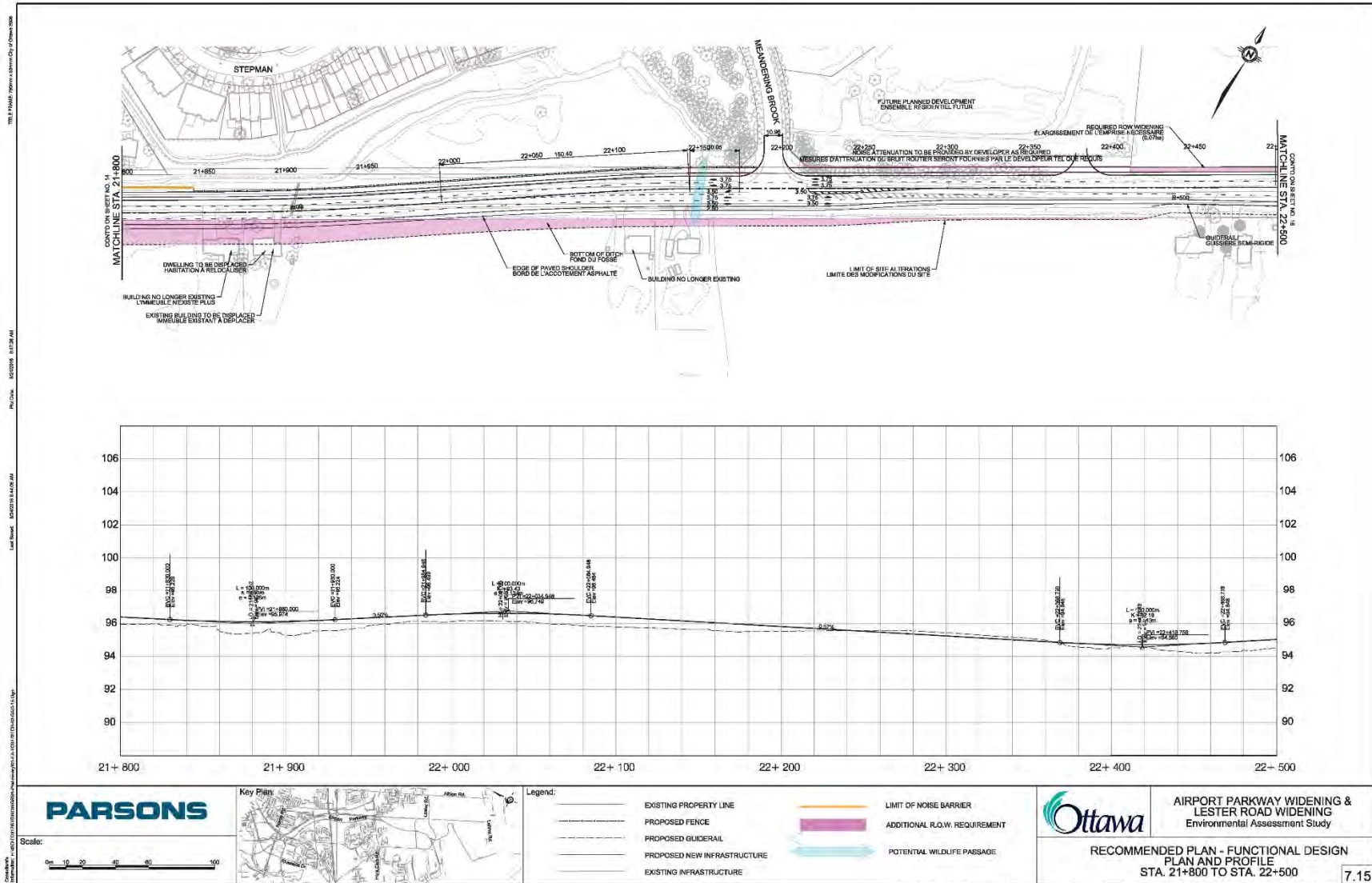


Figure 7-16: Recommended Plan, Lester Road - Station 22+500 to Station 22+900 (Bank)

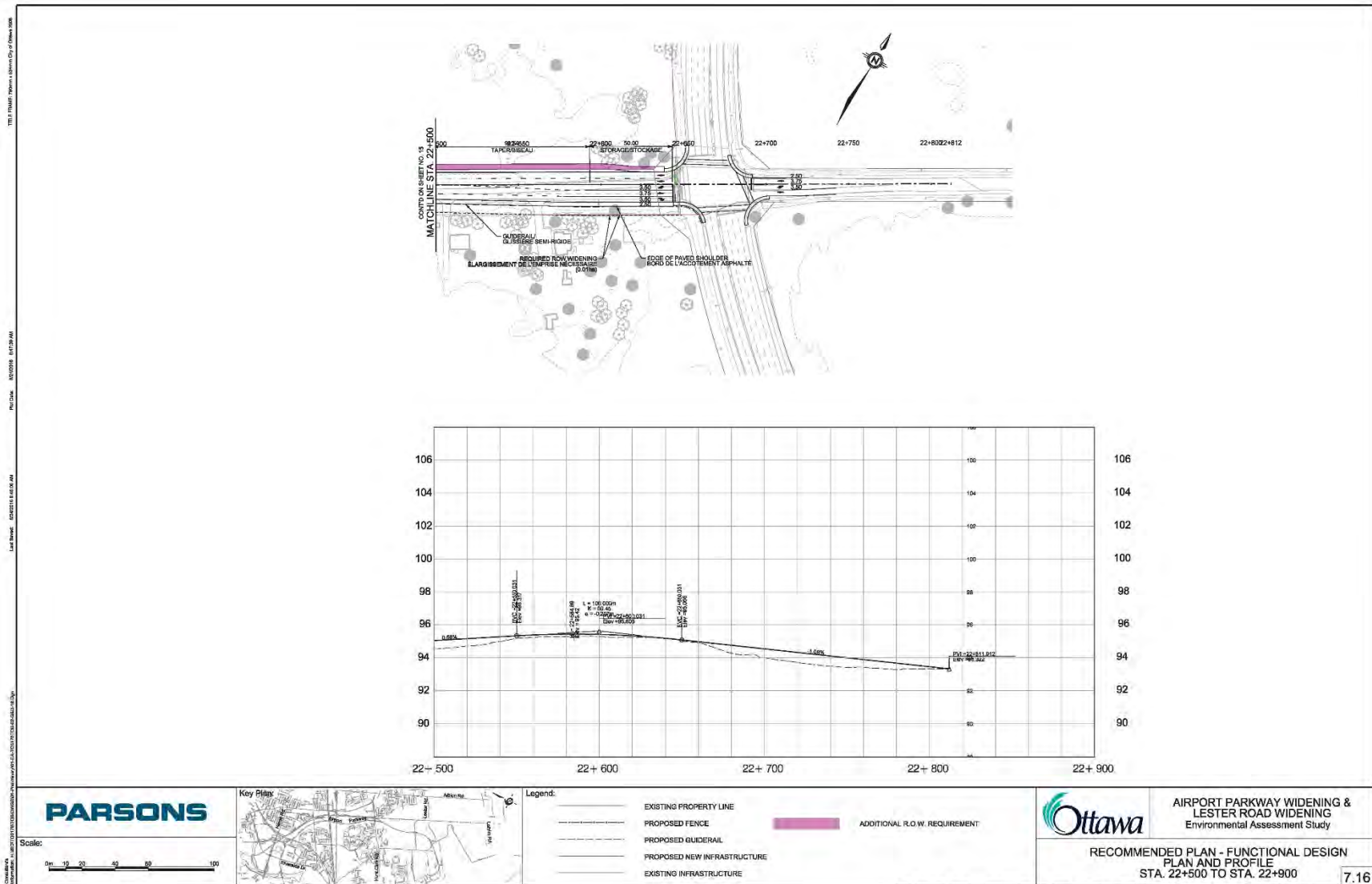


Figure 7-17: Recommended Plan, Walkley Road - Station 50+000 to 50+460 (McCarthy)



**Figure 7-18: Recommended Plan, Walkley Road - Station 50+460 to Limit of Contract (Airport Parkway)**

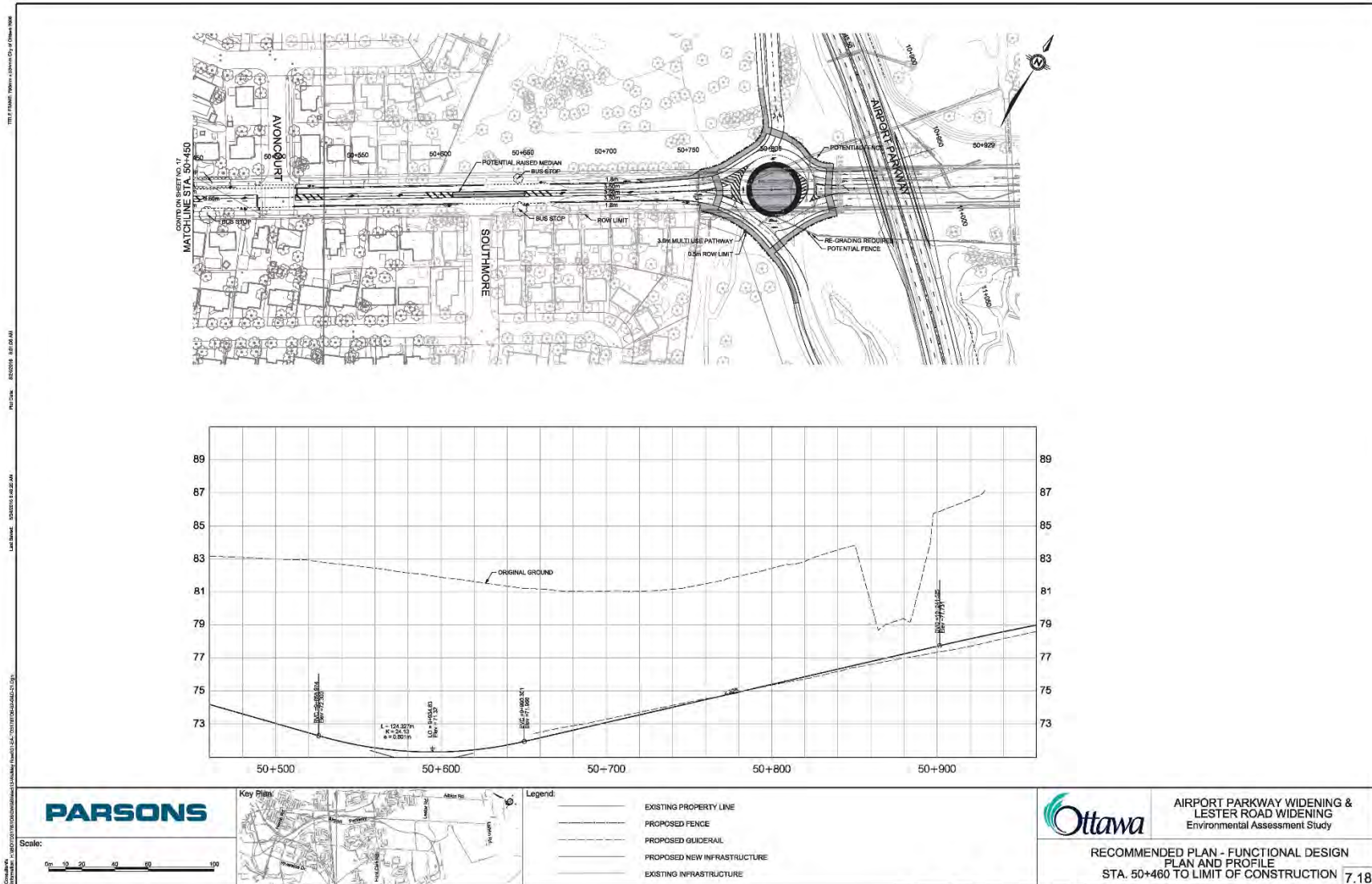
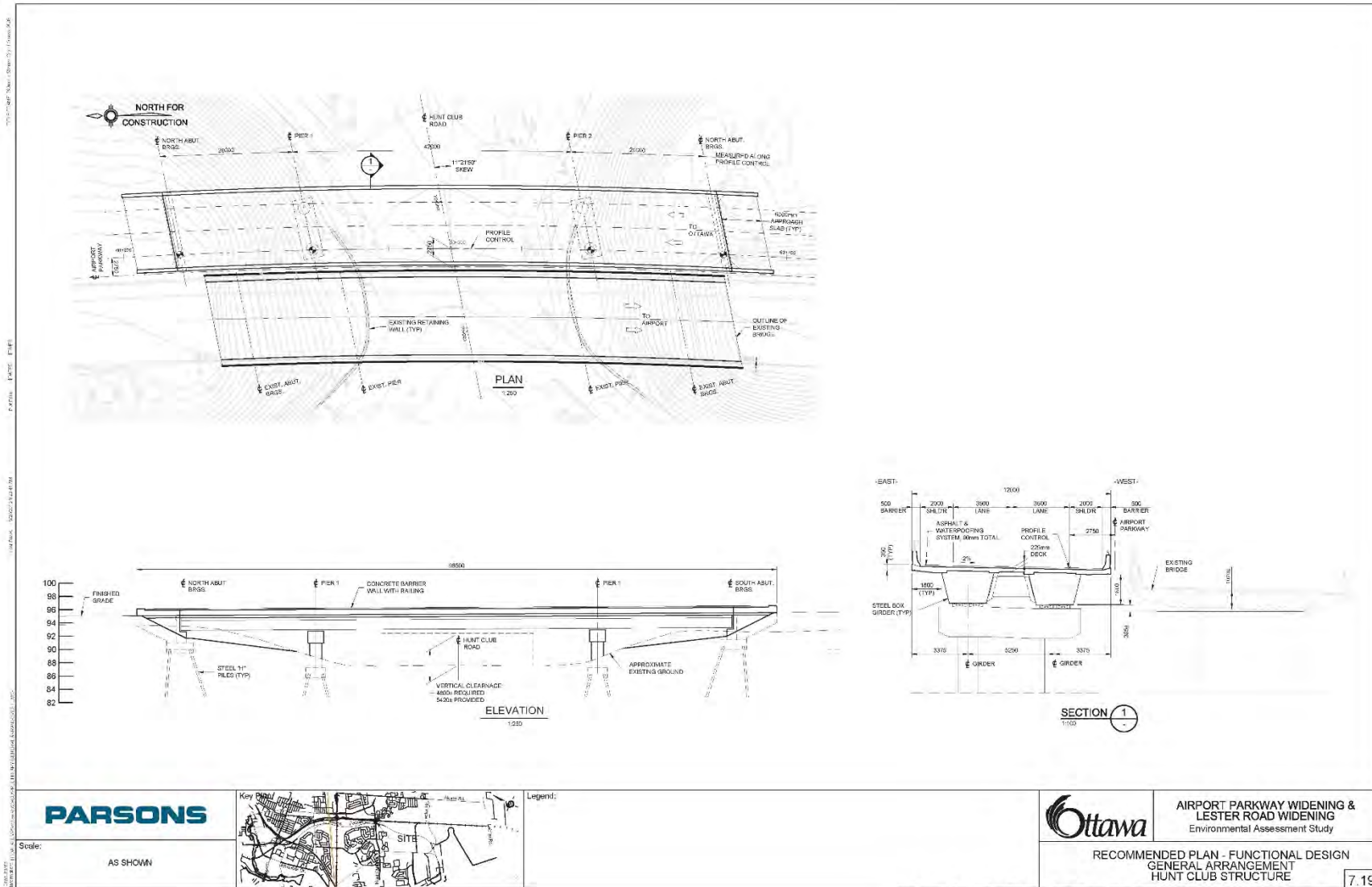


Figure 7-19: Recommended Plan, Airport Parkway - General Arrangement Hunt Club Structure



**Figure 7-20: Landscape Concept, Airport Parkway - Brookfield**

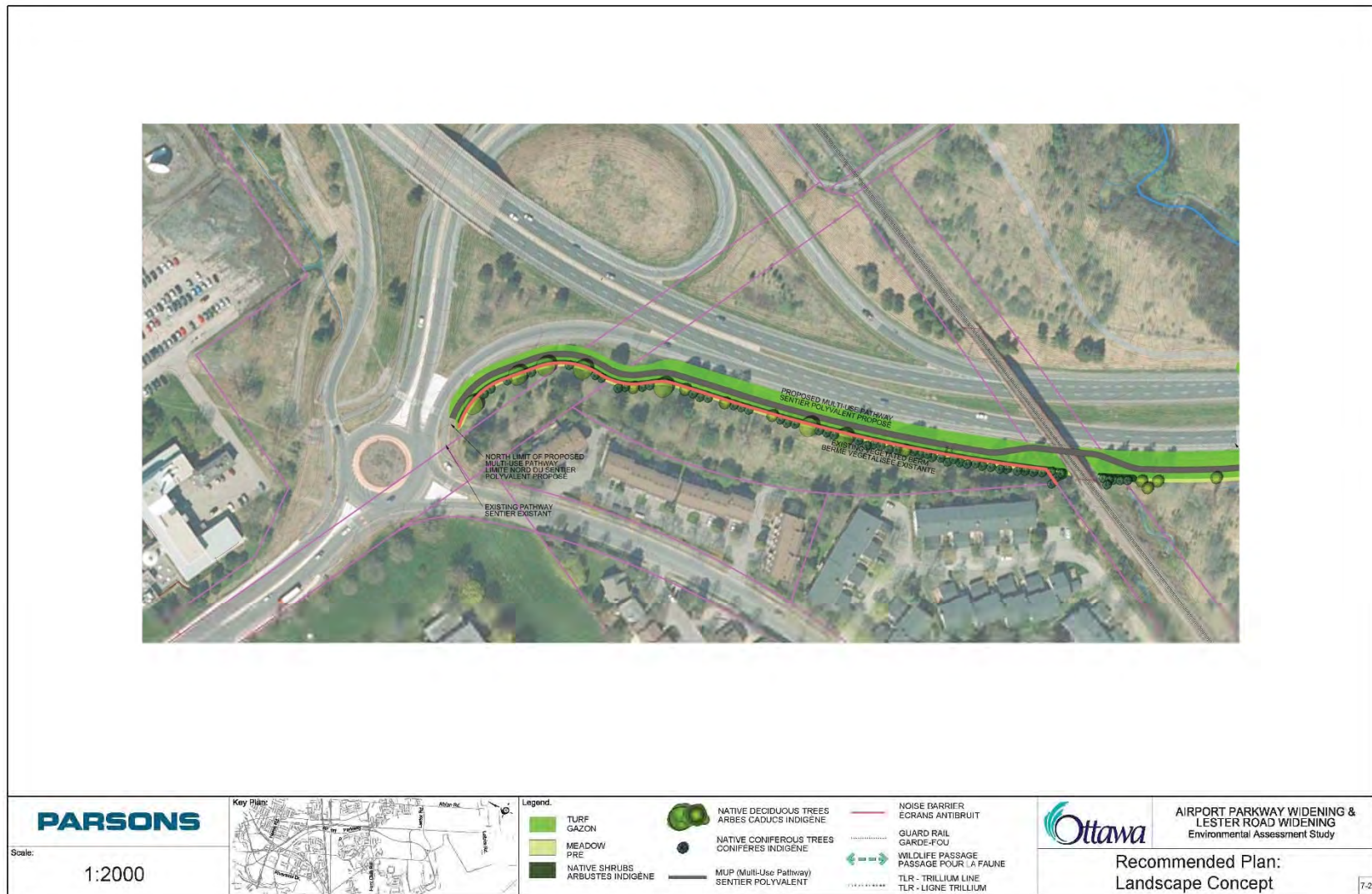


Figure 7-21: Landscape Concept, Airport Parkway – Cromwell





**Figure 7-22: Landscape Concept, Airport Parkway – Walkey Off-Ramp**

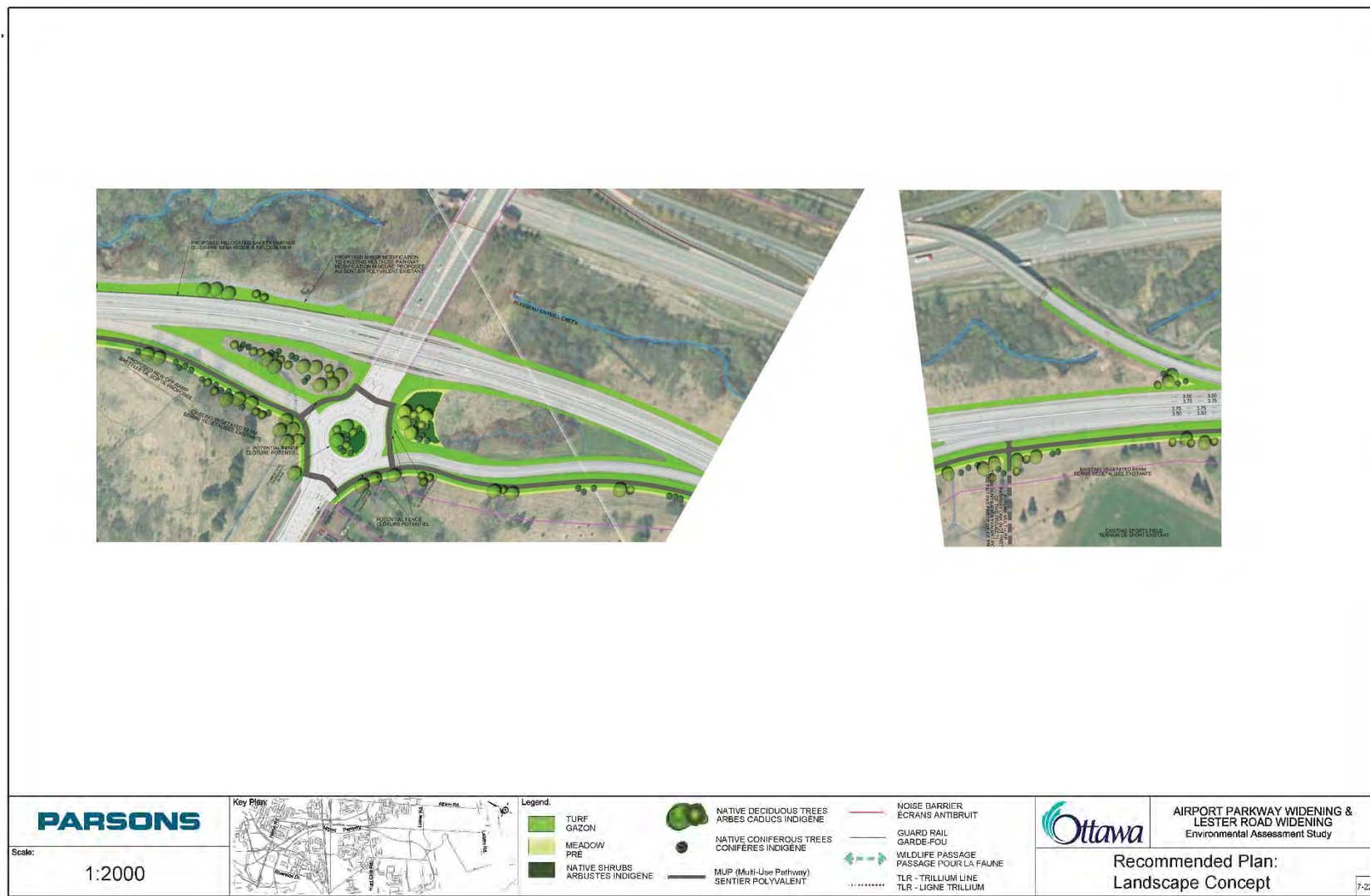


Figure 7-23: Landscape Concept, Airport Parkway – Hydro One Corridor

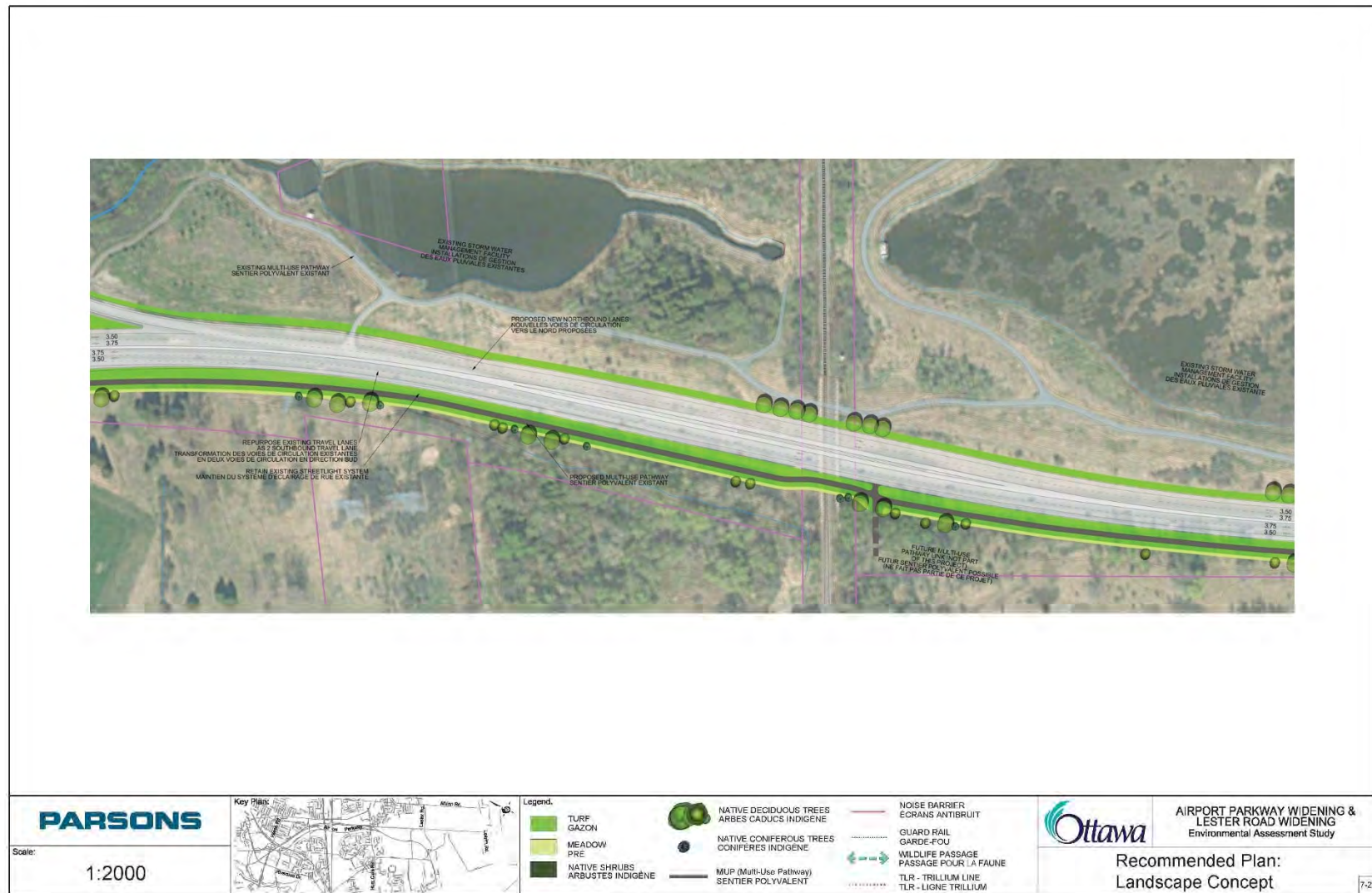


Figure 7-24: Landscape Concept, Airport Parkway - Plante

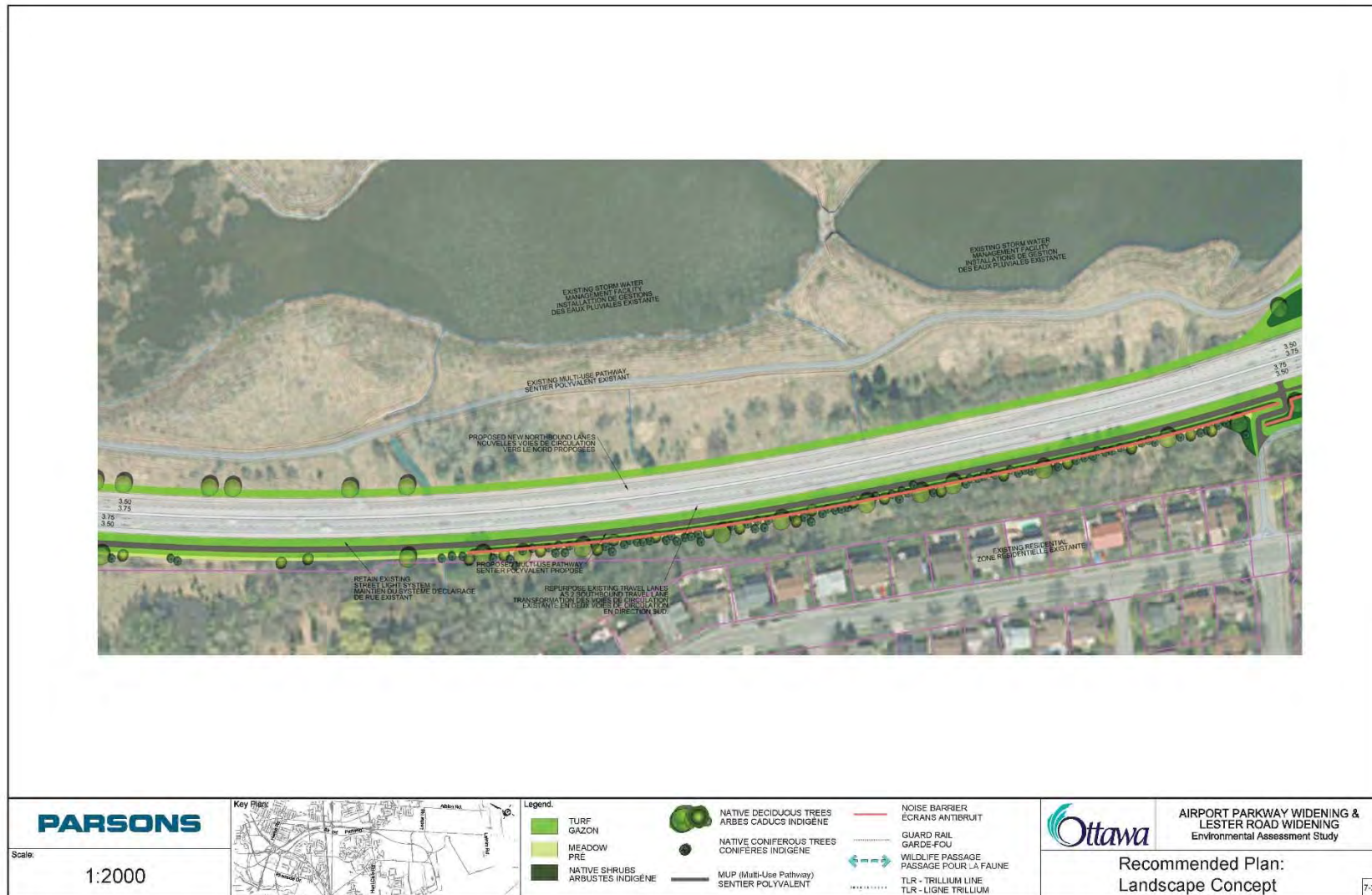
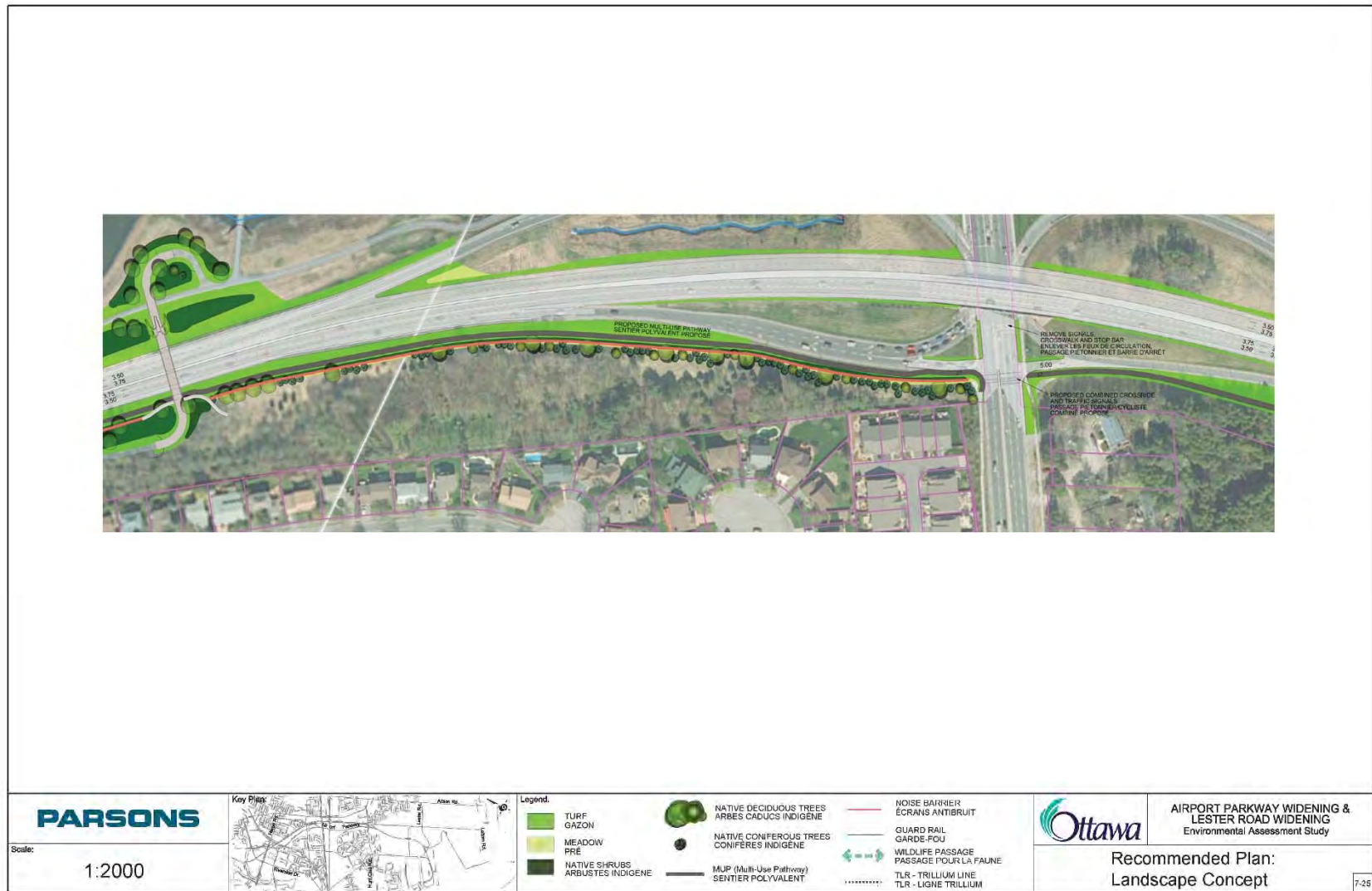


Figure 7-25: Landscape Concept, Airport Parkway - Hunt Club Road



**Figure 7-26: Landscape Concept, Airport Parkway - Cahill Drain**

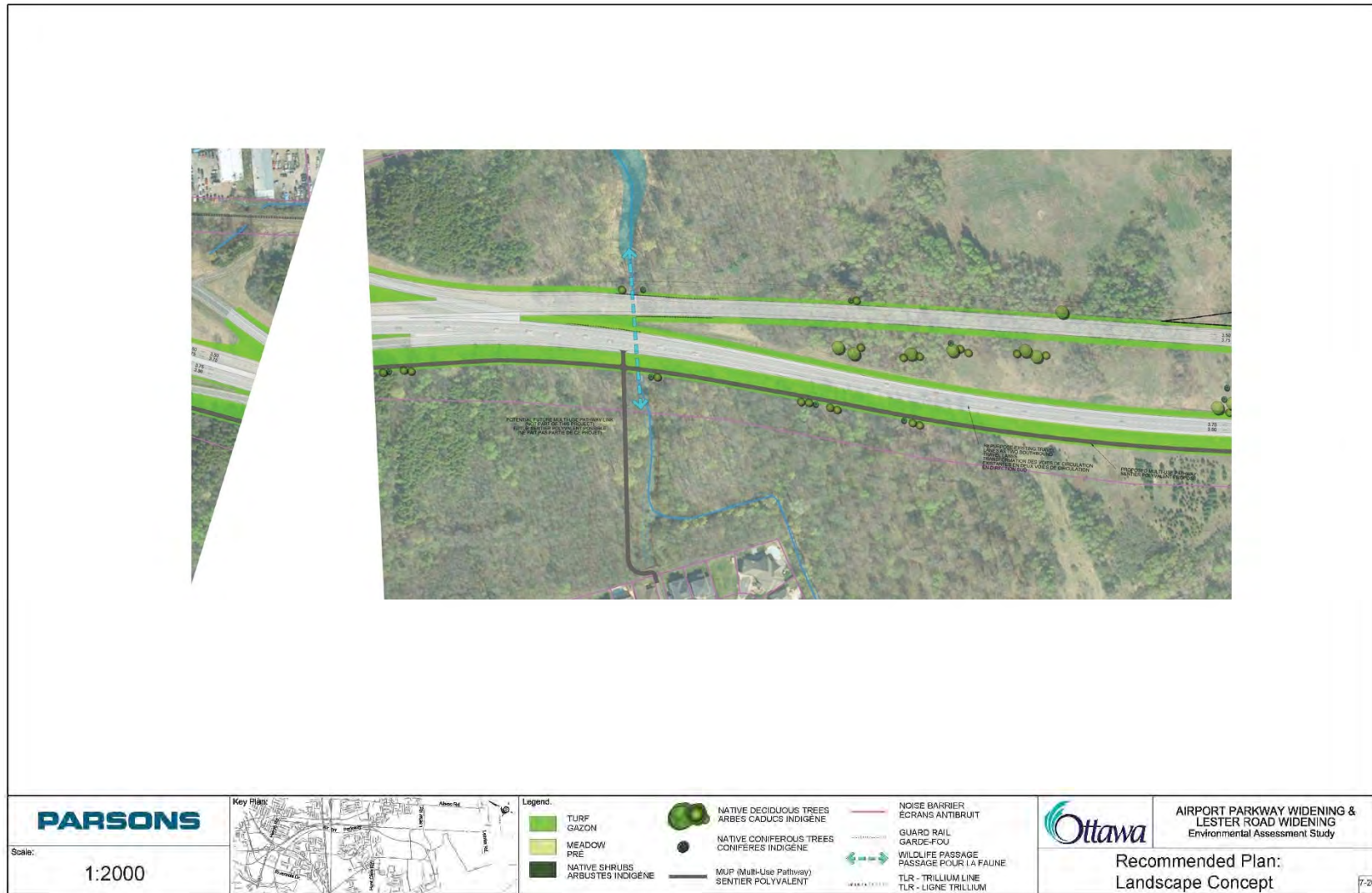
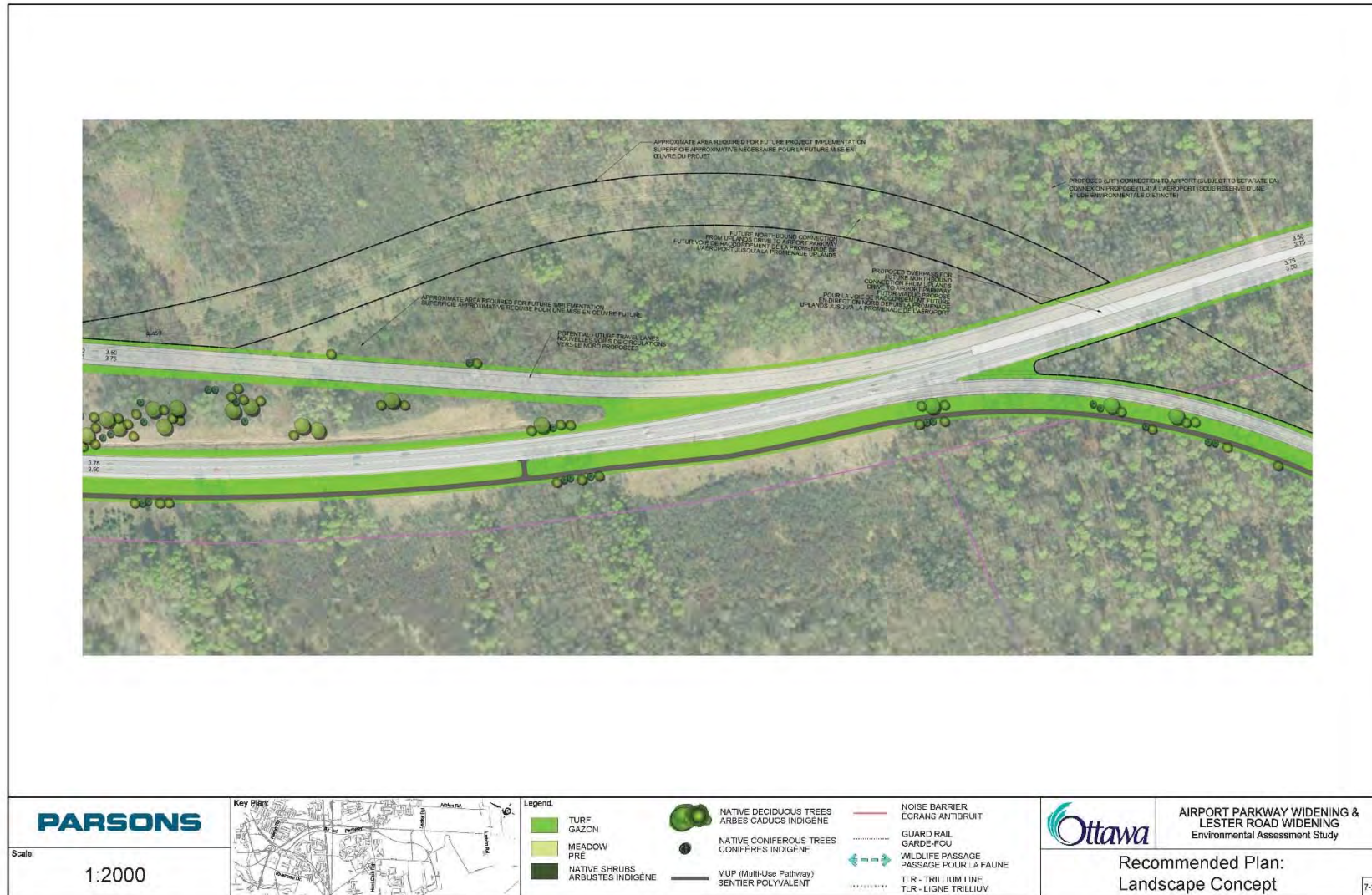


Figure 7-27: Landscape Concept, Airport Parkway - Off-Ramp to Uplands



**Figure 7-28: Landscape Concept, Airport Parkway - Uplands/Lester**



Figure 7-29: Landscape Concept, Airport Parkway - Uplands

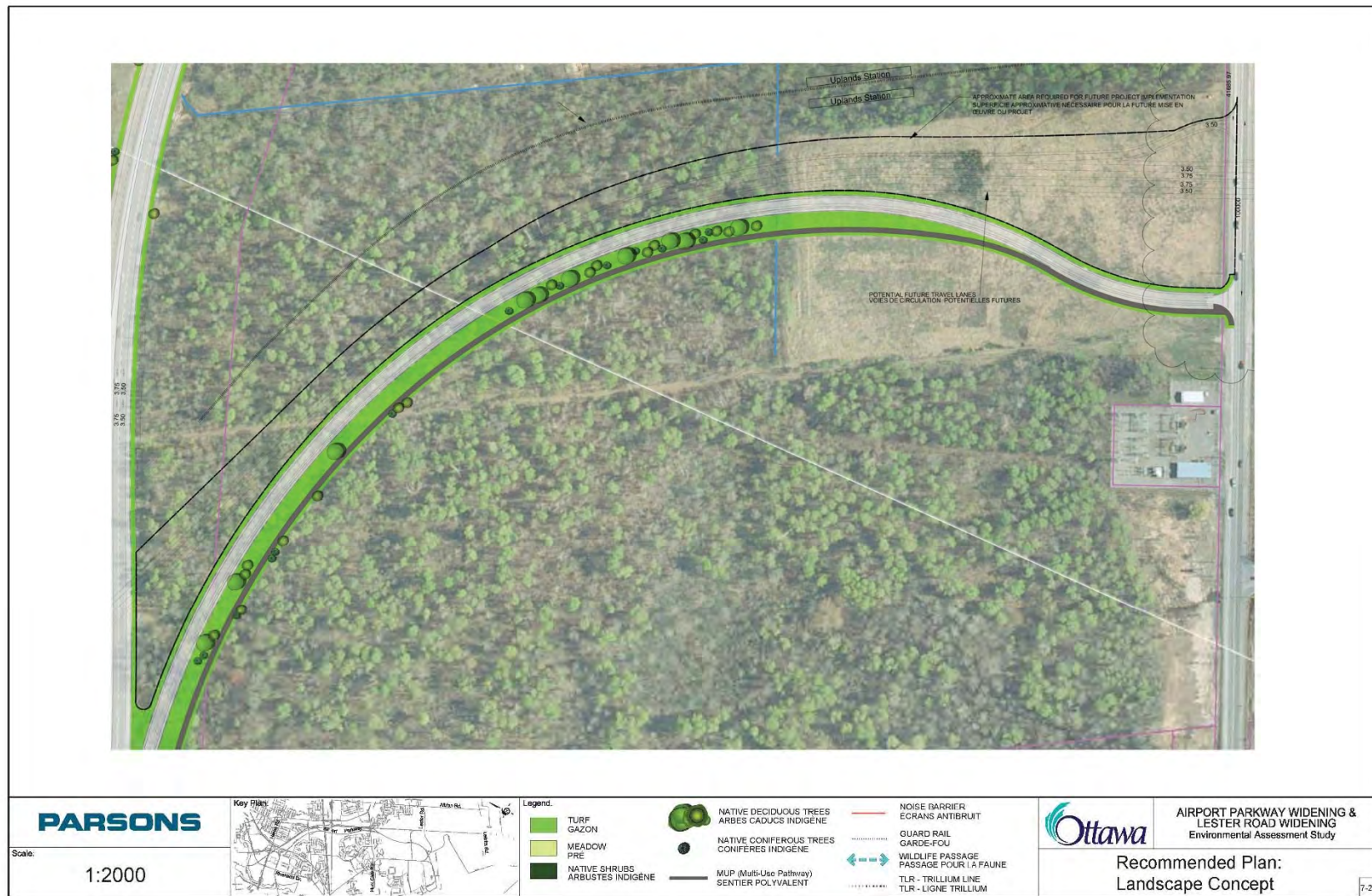




Figure 7-30: Landscape Concept, Lester Road - Lester/Uplands

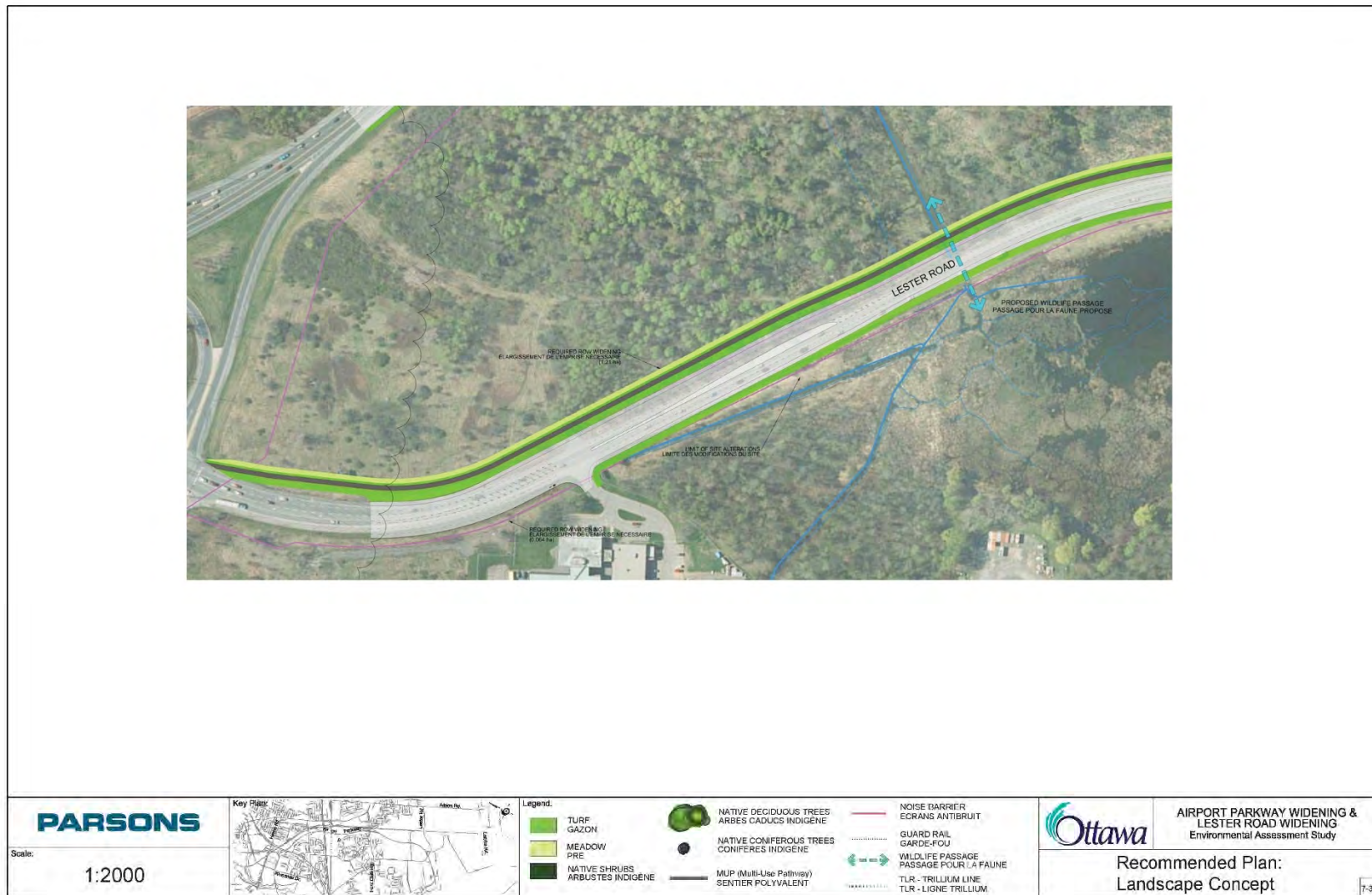


Figure 7-31: Landscape Concept, Lester Road - Trillium Line/Alexander Drain

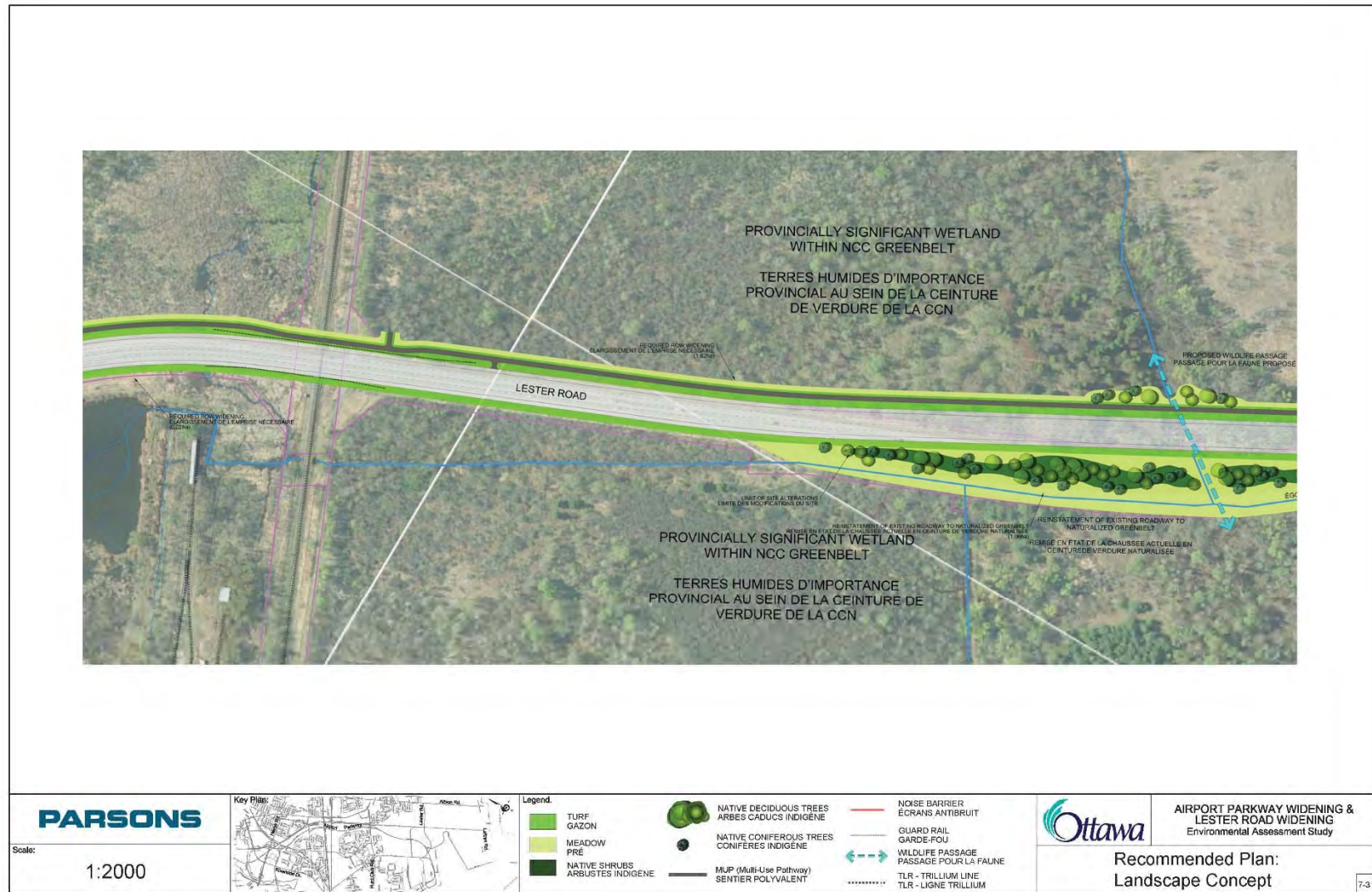
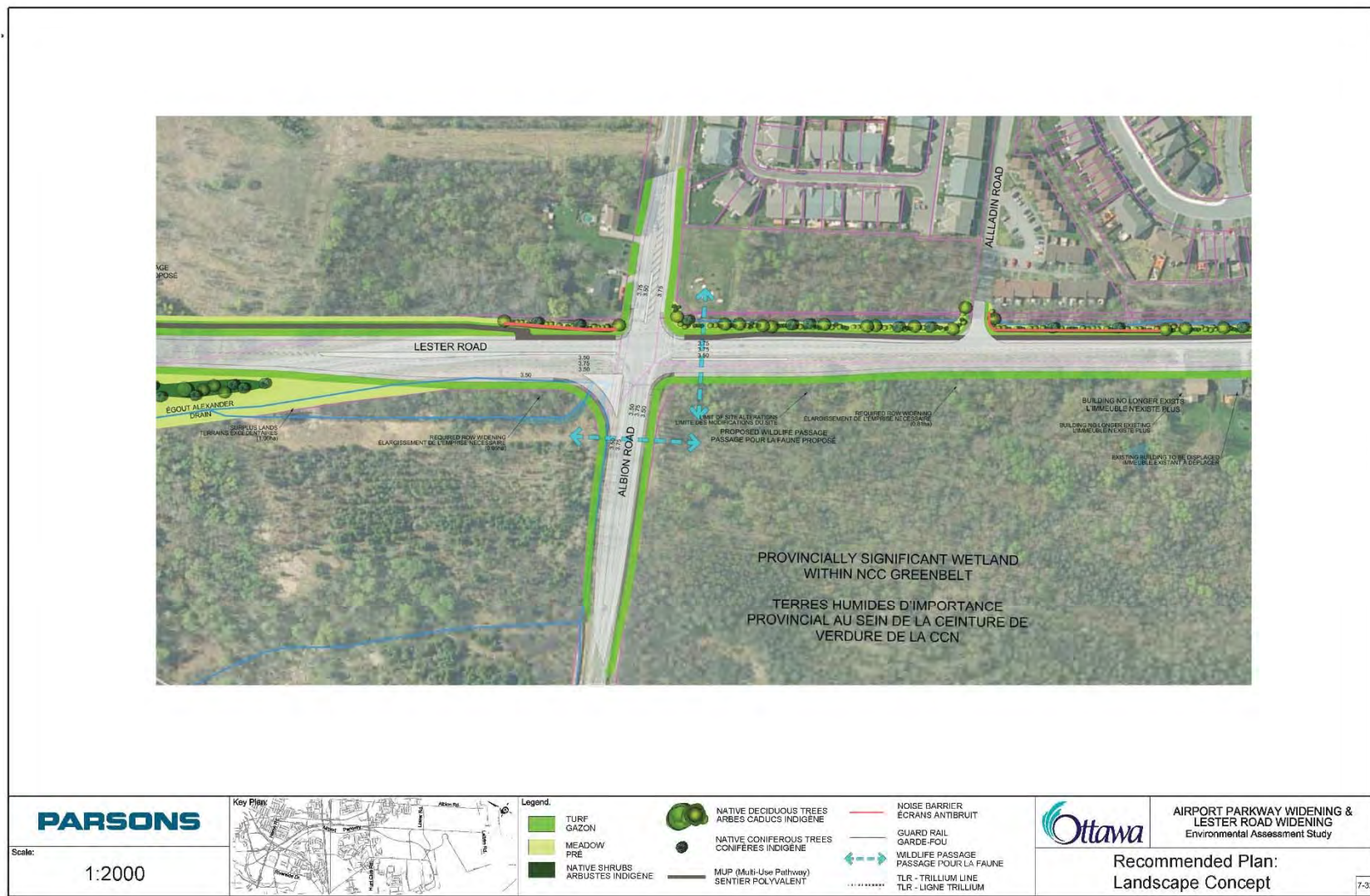


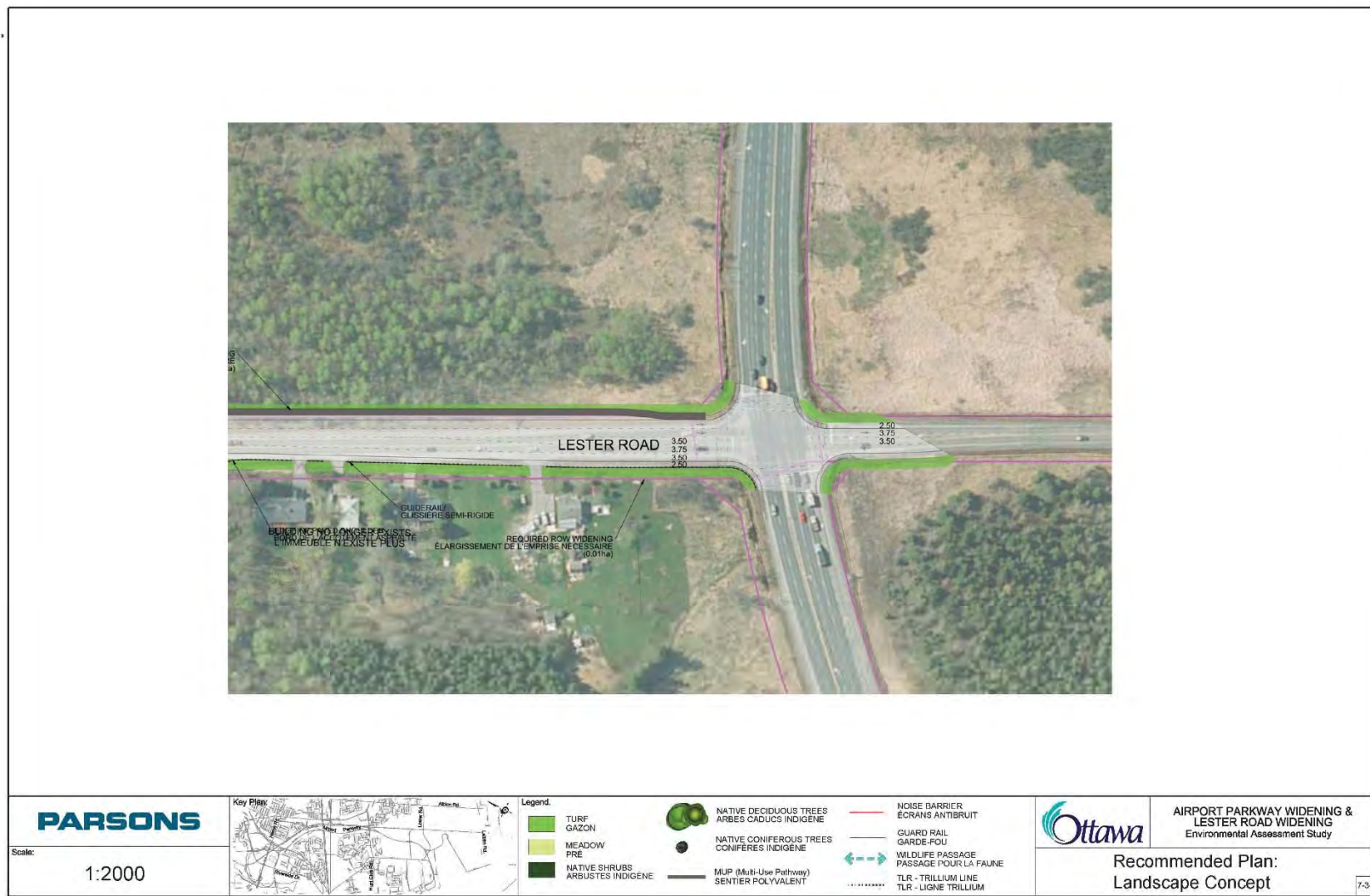
Figure 7-32: Landscape Concept, Lester Road - Albion



**Figure 7-33: Landscape Concept, Lester Road - Meandering Brook**



**Figure 7-34: Landscape Concept, Lester Road – Bank**



## 8.0 Implementation and Approvals

The potential impacts, mitigation measures and the associated net impacts have been identified, evaluated and assessed as documented in the previous sections. The ensuing design and construction will need to be implemented in accordance with the conditions as noted in this ESR. In addition, there is additional work that will need to be undertaken during both preliminary design and detailed design. This section outlines the future commitments for the design and construction of the project.

### 8.1 Property Acquisition

The land requirement as shown on the Recommended Plan (Section 7) represents the minimum footprint needed to widen the Airport Parkway and Lester Road as well as construct the new road link to Uplands Drive. Land is required where existing right-of-way is insufficient to accommodate the widening and pathway or no right-of way exists, in the case of the new road link. There may be opportunities during detail design to further minimize land acquisition and impact on property. The study confirmed that there are no land requirements from private landowners. All identified land requirements are for lands under public ownership. The property requirements, by sector of the project, are summarized in Table 8.1:

**Table 8-1: Property Requirements (By Sector of the Recommended Plan)**

<b>Airport Parkway</b>		
<i>Landowner</i>	<i>Land Area Required (Ha)</i>	<i>Total Land Required (Ha)</i>
Transport Canada	0	NA
National Capital Commission	0	
<b>Lester Road</b>		
<i>Landowner</i>	<i>Land Area Required (Ha)</i>	<i>Total Land Required (Ha)</i>
Transport Canada	1.05	3.38
National Capital Commission	2.31	
<b>New Road Link</b>		
<i>Landowner</i>	<i>Land Area Required (Ha)</i>	<i>Total Land Required (Ha)</i>
Transport Canada	3.79	3.79

In addition to the lands required, the project also includes the proposal for a land transfer to the NCC that would serve to offset the land required along Lester Road. These surplus lands that are now part of the existing right-of-way are summarized in table 8.2.

**Table 8-2: Surplus Right-of-Way Lands proposed to be transferred to the NCC**

<b>Lands Proposed to be Transferred to NCC</b>	
<i>Landowner</i>	<i>Surplus Land Area (Ha)</i>
City of Ottawa	1.06

The total property requirements as broken down by landowner and with consideration to the lands proposed to be transferred to the NCC from the City of Ottawa is listed in Table 8.3:

**Figure 8-3: Total Net Property Requirements (By Landowner)**

<b>Landowner</b>	<b>Land Required (Ha)</b>
Transport Canada	4.84
National Capital Commission	1.27
<b>Total Property Required</b>	<b>6.11</b>

The City of Ottawa will confirm property requirements and limits early during the design phase and negotiate with affected property owners where property acquisition is required for the project. Necessary property will be acquired prior to construction.

The City will proceed with the acquisition of temporary and permanent property needs, including temporary construction easements, as the design work proceeds and definitive property plans are developed.

## 8.2 Design Details

The detailed design will evaluate and assess construction methods and staging requirements necessary to undertake the project. The end result will be a tender package that includes:

### Drawings:

- Implementation / Staging and Detours;
- Alignment;
- Removals;
- Grading and Drainage;
- Geometry and General Layout;
- Pavement Elevations;
- Services/Utility Relocations;
- Pavement Markings;
- Typical Sections;
- Non-Standard Details;
- Landscaping Plan; and
- Electrical (Illumination / Street Lighting).

### Specifications:

- Tender;
- Form of Agreement;
- Modified OPS General Conditions;
- Quantity Sheets;
- Special Provisions; and
- Standard Drawings and Specification.

In support of the preparation of the detailed design several additional investigations have been recommended:

- Stage II Archaeological Assessment;
- Ecological Site Assessment to confirm the presence of SAR or significant habitat in the construction area based on latest information. Study also to advise on location and design of wildlife passages and associated exclusionary fencing; and
- Phase I and possible Phase II ESA.

### 8.3 Subsequent Approval Requirements

Completion of this ESR under the *Ontario Environmental Assessment Act* does not constitute approval under other legislation required to implement the project. Specific approvals will be required for many components of the project. The following is a list of customary approvals and permits that may be required during the design and construction of the project that will be the responsibility of the City of Ottawa as the proponent.

#### 8.3.1 Federal

##### 8.3.1.1 Federal Land Use, Design and Transaction Approval

Approval from the NCC under Section 12(1) of the *National Capital Act* will be required for this project due to property requirements from the NCC as well as work that is to occur within the Greenbelt. To start this process, the City must submit to the NCC a Federal Land Use, Design and Transaction Approval (FLUDTA) application. Projects are evaluated in terms of their impact on Canada's Capital Region. The NCC's mandate is to ensure that land and building projects are planned and designed to standards appropriate to their significance and location. The NCC also evaluates applications based on their alignment with relevant federal plans, policies and legislation.

##### 8.3.1.2 Fisheries Act

During the next phases of the project, any project related activities Work completed near a waterbody (e.g., Sawmill Creek, Alexander Drain, and Cahill Tributary) should undergo the "Self-Assessment" process outlined by the Department of Fisheries and Oceans (DFO) Canada under the Fisheries Act to determine whether the project activity will result in serious harm to fish. If serious harm to fish cannot be avoided, or is not included in the criteria excluding it from review provided by DFO, a Request for Review should be submitted to DFO. A request for review should be submitted to DFO as early as possible to avoid any potential delays.

##### 8.3.1.3 Species at Risk Act

Species listed on Schedule 1 of the *SARA* are protected on federally-owned lands. *SARA* also harmonizes with established legal protection for migratory birds covered by the *Migratory Bird Convention Act, 1994*, and aquatic species as defined in *SARA* not restricted to federally owned lands. Should it be determined that species at risk or their residences are located on federal NCC land during the next phases of this project, the more conservative of the two acts (*Ontario Endangered Species Act, 2007*, *SARA*) that protect species at risk may be followed with respect to permitting at the discretion of the federal land owner.



## 8.3.2 Provincial

### 7.3.1.1 Ontario Endangered Species Act

The Ontario *Endangered Species Act*, 2007 addresses the protection and recovery of SAR in Ontario. If a species is listed on the Species at Risk in Ontario list as an extirpated, endangered or threatened species, the Act protects the species and their habitat. The ESA 2007 includes flexibility tools that encourage good stewardship and benefit to species at risk. The Act also includes a permit process to authorize people to engage in an activity that may not otherwise be allowed under the ESA 2007. Permits may be granted under the following circumstances:

- The activity is necessary for human health and safety;
- The purpose of the activity is to help protect or recover the species at risk;
- The activity will result in an overall benefit to the species; and
- Permits may also be granted for activities that result in significant social or economic benefit to Ontario. Even in these cases, the activity must not jeopardize the survival or recovery of a species at risk.

A permit under the ESA will likely be required as endangered species may be located within the study area. The permit application will need to include justification for any required removals as well as a mitigation/recovery plan.

#### 8.3.2.1 Environmental Compliance Approval

Activities regulated under the *Environmental Protection Act* (EPA), R.S.O. 1990 and the *Ontario Water Resources Act*, R.S.O. 1990 must be carried out in accordance with those Acts. The Environmental Compliance Approval (ECA) process has streamlined the former Certificate of Approval process whereby separate approvals were required for air, noise, waste or sewage projects. An ECA is required for activities that fall under the EPA, Section 9 (activities that may discharge, or from which may be discharged, a contaminant into the natural environment other than water, which includes most industrial processes or modifications to industrial processes and equipment), EPA, Section 27 (Waste Management System or Waste Disposal Site), and or *Ontario Water Resources Act* (OWRA), Section 53 (sewage works). Due to the air quality impact and noise generated by construction activities, approvals may be necessary before construction begins.

#### 8.3.2.2 Permit-to-Take-Water (PTTW)

Water takings in Ontario are governed by the OWRA and the Water Taking Regulation (O. Reg. 387/04). Recent changes to the PTTW process now involves an online registry for an Environmental Activity & Sector Registry (EASR) that will replace the former Category 2 PTTW required for construction projects where combined ground water and storm water is more than 50,000 litres per day but less than 400,000 litres per day. Construction activities for the project may trigger the requirement for a PTTW, or the new EASR due to many factors including the proximity to provincially significant wetlands. The appropriate permit/process should be confirmed during the next phases of the project.

## 8.3.3 Municipal

### 7.3.2.1 Road Cut Permits

The Road Activity By-law 2003-445, often referred to as the Road Cut by-law, was established to ensure that any road cut within the road allowance is undertaken safely, with minimal disruption, and that the reinstatement of the road allowance meets City standards. A road cut is defined as: “a surface or sub-

surface cut in any part of the highway made by any means, including any excavation, reconstruction, cutting, saw-cutting, overlaying, crack sealing, breaking, boring, jacking or tunneling operations”.

The by-law imposes the requirement to obtain a permit prior to undertaking any cut into a City road allowance: road surface; sidewalks; and *boulevards*. In order to obtain a permit a contractor must be bonded and insured and, where the work may impact traffic or pedestrian movement, must submit for the approval of a Construction and Traffic Management Plan. The by-law further establishes peak hour restrictions, establishes reinstatement standards and imposes a duty on the contractor to protect City owned trees when work is undertaken in close proximity.

### **7.3.2.2 Temporary Encroachment Permits**

Temporary Encroachment Permits are required for activities, which temporarily encroach onto City of Ottawa rights-of-way. These permits ensure that all safety measures are taken, that the construction meets the City of Ottawa standards and, in turn, ensures that all area residents and passers-by are kept safe. Construction activities require temporary construction encroachment permits for construction related activities on City rights-of-way. Such encroachments include placement of containers, stockpiling materials, and vehicles used in the construction process including aerial, subsurface and surface types.

- Aerial encroachment is generally used to facilitate the use of tower cranes. When a crane permit (aerial encroachment) is issued, the securities must always be checked before releasing the permit.
- Sub-surface encroachment is usually used for a tie-back, rock anchor, or other type of support placed under a street or highway to support an excavation wall.
- Surface encroachment is generally used for vehicles, materials, equipment, covered sidewalks and hoarding.

### **8.3.3.1 Road Modification Approval**

Where geometric modifications, or a change in the function of the existing road are required, delegated authority will be required to approve the road work on City Council’s behalf in the form of a Roadway Modification Approval. An Approval Report requires: a Key Map; Context Plan; Functional Design Drawing; Turning Movement Counts; and Collision Information. Modifications covered in an environmental assessment study may not require an RMA.

### **8.3.3.2 Noise By-Law Exemption**

City of Ottawa By-law 2004-253 establishes the time restrictions for the operation of construction vehicles. The Contractor may apply for an exemption from the noise by-law where it is agreed that certain construction activities should take place overnight.

With respect to noise, the contract documents will also require compliance with MOECC NPC-115 and NPC-118.

## **8.4 Monitoring**

Compliance with the mitigation measures will be monitored by the proponent. There are two distinct monitoring provisions that have been developed as part of this EA:

- Proposed monitoring to verify the effectiveness of the prescribed mitigation measures; and
- Complaints monitoring which will be carried out during construction.

Phase 5 of the Municipal Class EA process includes the completion of contract drawings and documents; construction; and the monitoring of construction for adherence to environmental provisions and commitments.

During the operational phase of the project, it will be necessary to monitor the effectiveness and safety of the two-way left-turn to determine the need for and timing for installation of a barrier median.

## **8.5 Modifying the Recommended Plan**

In discussing the process to change the Recommended Plan, it is important to distinguish between minor and major changes. A major design change would require the completion of an amendment to this EA, while a minor change would not. For either kind of modification, it is the responsibility of the City of Ottawa, as the proponent, to ensure that all possible concerns of the public and affected agencies are addressed.

Minor design changes may be defined as those which do not appreciably change the anticipated net impacts associated with the project. This includes any modifications that are required to the design as a result of municipal design review (i.e. changes to minimum lane widths). Such changes would be dealt with during the detailed design phase and would remain the responsibility of the City of Ottawa to ensure that all relevant issues are addressed.

Due to unforeseen circumstances, it may not be feasible to implement the project as described in this ESR. Accordingly, any significant modifications to the project or change in the environmental setting for the project which occurs after the filing of this environmental assessment shall be reviewed by the City of Ottawa and an addendum to the EA shall be prepared as appropriate.

## 9.0 Summary and Conclusions

A project such as the Airport Parkway and Lester Road Widening has the potential to change the surrounding environments. The purpose of this environmental assessment is to guide and predict these changes and suggest measures which may be taken to minimize the negative effects and enhance or broaden the positive environmental effects.

In this study, the purpose and need for the project was presented, the existing conditions were documented, alternative solutions were considered, alternative designs were identified and evaluated, and a Recommended Plan of the Preferred Design was developed. Throughout the process, the project benefited from extensive public and agency consultation including three meetings each with the study Agency, Business, and Public Consultation Groups, three open houses, as well as individual stakeholder and community meetings. The project also was subject to a civic dialogue, including media reporting, which culminated in the City of Ottawa Transportation Committee recommendations and Council approval. Through these meetings, the Study Team was able to identify and mitigate, where possible, localized impacts for both users and residents/landowners immediately adjacent to the proposed project. This involvement also created public and agency confidence in selection of a preferred design, as well as the process that led to relevant decisions.

During the construction phase, the overall corridor will be an active construction site. Traffic disruptions, noise, dust, and visual interruptions will be inevitable. Ongoing communications by the City of Ottawa with the affected public will go a long way in alleviating potential concerns and ensuring that timely information about the project is disseminated. Following the construction phase, there will be many positive effects such as required roadway capacity to accommodate growth, construction of adjacent multi-use pathways, and enhancements to the natural heritage of the area. The project will also improve the visual environment, enhance the whole user experience, and make the corridor a better functioning and more aesthetic entry way into the nation's capital. While the project has the potential to have effects on the human and biophysical environments during construction in the vicinity of the project, these effects can be mitigated with prescribed design features, sound environmental management practices where practical and possible. Through incorporating mitigation measures, no significant adverse environmental effects are expected to prevail after mitigation.

In accordance with the provisions of the Class EA for Schedule "C" projects, the study results are documented in this Environmental Study Report (ESR) which is available for a 30-day public review period. During this period, there will be the opportunity for an individual to request a *Part II Order* which is a request for the project to be "Bumped-Up" to an Individual Environmental Assessment.

Once all approvals are in place, the project will proceed to the Detailed Design phase. This will result in detailed designs, specifications, and tender documents. The detailed project mitigation features and plans will be created during this phase. The project will then be tendered and constructed in accordance with the plans and designs.

## 10.0 References

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