

PRELIMINARY ENGINEERING TRAFFIC – STORMWATER – ESTIMATES

TRAFFIC IMPACT STUDY - OVERVIEW

- Impacts with Potential Closure of Dundas Road
- Overall Roadway Impacts with Future Development
- Traffic Volume Determination
 - Traffic Counts Collected (April 2021)
 - Predict Future Traffic Volumes (2040)
 - Based on Land Use
 - Trip Generation / Distribution Analysis



TRAFFIC IMPACT STUDY - DUNDAS RD

- Traffic Volumes
 - Existing 2021 = 1,425 vpd
 - Projected 2040 “No-Build” = 1,700 vpd
- Traffic Diversion (With Dundas Closure)
 - 30% to Chelsea Rd / 70% to School Blvd
 - 50 sec Using Chelsea Rd / 90 sec Using School Blvd



TRAFFIC IMPACT STUDY - ANALYSIS

- Utilize Existing / Projected Traffic Levels
- Determine Future Roadway / Intersection Improvement Needs
- Analyze Conditions With or Without Improvements
 - Level of Service (LOS)
 - Existing / Projected Conditions
 - Tables in Full Report



TRAFFIC IMPACT STUDY - IMPROVEMENTS

Table 6: 2040 Build Conditions Summary – Existing Geometrics

Control	Intersection	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Signal	TH 25 at Chelsea Rd	B (C)	17 (32)	C (E)	31 (59)
All-Way Stop	Cedar St at Chelsea Rd	C (D)	15 (25)	C (D)	17 (27)
Thru-Stop	Edmonson Ave at Chelsea Rd	B (C)	12 (20)	C (D)	15 (25)
Thru-Stop	TH 25 at Dundas Rd	B (C)	10 (17)	B (C)	12 (23)
Thru-Stop	Cedar St at Dundas Rd	B (C)	10 (16)	B (C)	12 (16)
All-Way Stop	Edmonson Ave at Dundas Rd	B (C)	12 (18)	B (C)	14 (20)
Signal	TH 25 at School Blvd	B (C)	14 (30)	C (D)	26 (39)
All-Way Stop	Cedar St at School Blvd	C (D)	17 (25)	D (E)	28 (39)
All-Way Stop	Edmonson Ave at School Blvd	C (D)	15 (26)	C (D)	20 (32)
Thru-Stop	Edmonson Ave at Farmstead Dr / Site Entrance	A (C)	9 (15)	B (C)	12 (21)

Table 7: 2040 Build Conditions Summary – with Signal / All-Way Stop Mitigation

Control	Intersection	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Signal	TH 25 at Chelsea Rd	B (C)	17 (32)	C (E)	31 (59)
Signal	Cedar St at Chelsea Rd	B (B)	12 (15)	B (C)	13 (21)
All-Way Stop	Edmonson Ave at Chelsea Rd	B (C)	10 (17)	B (C)	12 (19)
Thru-Stop	TH 25 at Dundas Rd	B (C)	10 (17)	B (C)	12 (23)
Thru-Stop	Cedar St at Dundas Rd	B (C)	10 (16)	B (C)	12 (16)
All-Way Stop	Edmonson Ave at Dundas Rd	B (C)	12 (18)	B (C)	14 (20)
Signal	TH 25 at School Blvd	B (C)	14 (30)	C (D)	26 (39)
Signal	Cedar St at School Blvd	B (C)	11 (20)	B (C)	17 (24)
Signal	Edmonson Ave at School Blvd	B (C)	12 (21)	C (C)	20 (26)
Thru-Stop	Edmonson Ave at Farmstead Dr / Site Entrance	A (C)	9 (15)	B (C)	12 (21)

Table 8: 2040 Build Conditions Summary – with Roundabout Mitigation

Control	Intersection	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Signal	TH 25 at Chelsea Rd	B (C)	17 (32)	C (E)	31 (59)
Roundabout	Cedar St at Chelsea Rd	B (B)	10 (14)	B (C)	11 (17)
Roundabout	Edmonson Ave at Chelsea Rd	A (C)	9 (15)	B (C)	10 (18)
Thru-Stop	TH 25 at Dundas Rd	B (C)	10 (17)	B (C)	12 (23)
Thru-Stop	Cedar St at Dundas Rd	B (C)	10 (16)	B (C)	12 (16)
All-Way Stop	Edmonson Ave at Dundas Rd	B (C)	12 (18)	B (C)	14 (20)
Signal	TH 25 at School Blvd	B (C)	14 (30)	C (D)	26 (39)
Roundabout	Cedar St at School Blvd	A (C)	9 (16)	B (C)	15 (22)
Roundabout	Edmonson Ave at School Blvd	B (C)	10 (15)	C (C)	17 (23)
Thru-Stop	Edmonson Ave at Farmstead Dr / Site Entrance	A (C)	9 (15)	B (C)	12 (21)

TRAFFIC IMPACT STUDY - IMPROVEMENTS

- Roadway Improvements
 - Maintain Existing Center Left Turn Lanes on Cedar Street
 - Improve Edmonson Road With Center Left Turn Lane
 - Evaluate Right Turn Needs Based on Development
- Intersection Improvements
 - Signed / Signalized Versus Roundabout Intersections
 - LOS Comparison – Roundabouts Have Less Delay
 - Intersection Improvements at Full Build-Out



Questions?



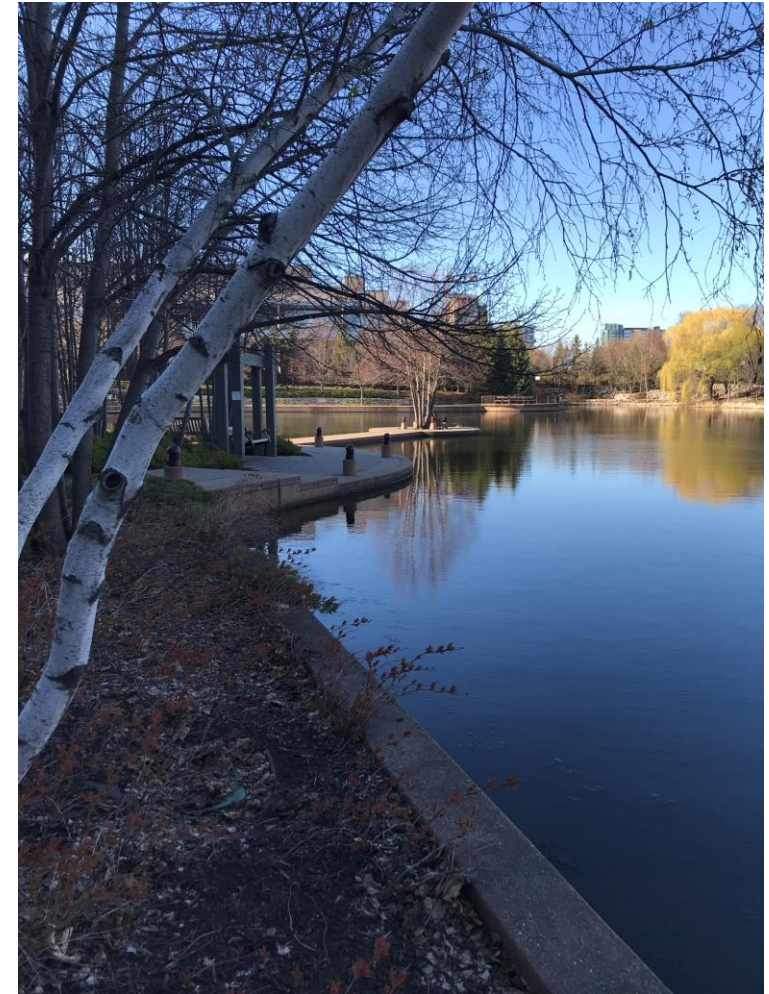
STORMWATER RESOURCE MANAGEMENT

- Analyze Hydrologic and Hydraulic Aspects
- Pond Design Elements & Iterations
 - Pond Surface Elevation Considerations (Vision & Functionality)
 - Determine Primary / Secondary / EOF Outlet Locations
 - Integrating Existing Infrastructure (Ponds & Pipes)
 - Proposed NWL 952.5, Surrounding FFE's 961.5 – 966.0
 - HWL (4' Bounce) & Existing / Future FFE's
 - Depth Considerations to Maintain Fish Population – 12' Min & 50%
 - Soil Borings & Geotechnical Evaluation – Need for Liner



STORMWATER RESOURCE MANAGEMENT

- Examples of What View / Elevation May Look Like (Centennial Lakes)



STORMWATER RESOURCE MANAGEMENT

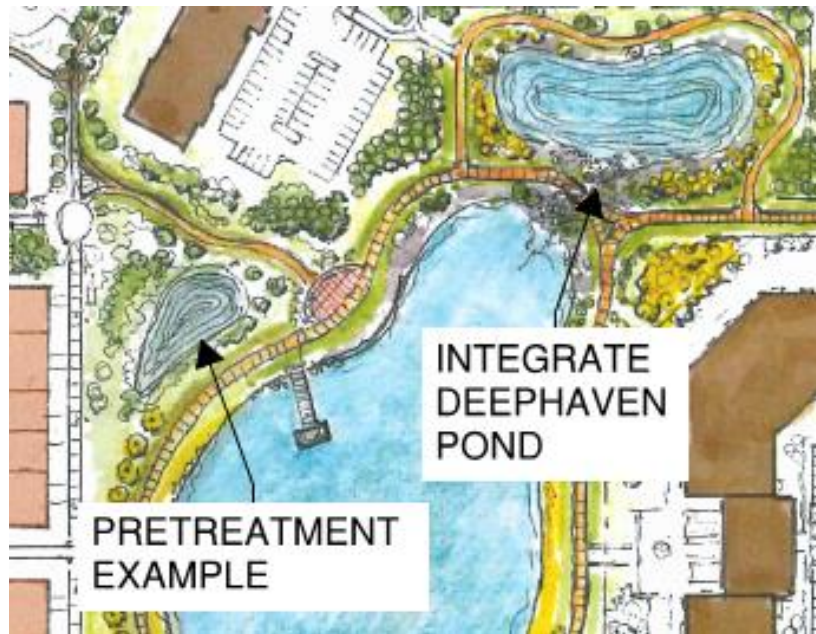
- Water Quality Evaluation
 - Recreational Use Will Require Treatment
 - In-Lake Treatments (Alum / Algaecides via Boat)
 - Stormwater Treatment Facility
 - Depth & Aeration to Maintain Fishery (All Three Pond Cells)
 - Adjacent Development
 - Pond Will Provide Water Quality, Volume, Rate Control
 - Will Need to Pre-Treat Runoff
 - Of 12 Acres Proposed, 8 Acres Needed for Treatment



STORMWATER RESOURCE MANAGEMENT

- Water Quantity Analysis
 - Connected Impervious Runoff Will Provide Critical Volume
 - Augmentation & Initial Fill Considerations
 - Construct or Utilize Existing Well
 - Connect to City Water System
 - Convey From Land-Locked Area to the West
 - Pond Liner (Clay)
 - Consider Stormwater Reuse System
 - Supplement With Well
 - Meet requirements for standard infiltration practices

STORMWATER RESOURCE MANAGEMENT



PROJECT COST ESTIMATES - BASELINE

- Baseline: \$11,872,000
 - Mass Grading, Earthwork, Path Subgrade
 - Primary Pond Pathway System (10' Wide Concrete)
 - Irrigation Reuse, Well, Aeration, Fountains
 - Removal of Dundas Road, Utility Relocations
 - (2) Major Gateways: Lighting, Coordinated Signage, Bridge Plazas
 - Erosion Control Landscaping: Pond Edges/Slopes
 - Landscaping (Trees/Shrubs/Biome), Stamped Conc, Benches, Etc.
 - Public Parking Lot, Park Area Landscaping, Irrigation
 - Detailed Civil/Landscaping Design Cost

PROJECT COST ESTIMATES - GOOD

- Good: \$4,569,500
 - Both Bridges
 - (2) Major Gateways: Lighting, Coordinated Signage, Bridge Plazas
 - Enhanced Stormwater Treatment (Facility), Additional Fountains
 - Northwest Plaza
 - Additional Pathway Width and Extensions/Spurs
 - Pavilion Building

PROJECT COST ESTIMATES - GREAT



- Great: \$7,534,000
 - Secondary Gateways
 - Edmonson Reconstruction & Parkway Improvements
 - Playground at Park, Splash/Bubbler Pad
 - Additional pathway Width / Multi-Level Upgrades
 - Sound System
- Roundabout Intersections: \$2,805,000

Questions?

