

**Midtown Oakville Transportation and Stormwater
Municipal Class EA Final Report June 2014**

**APPENDIX G
DESIGN CRITERIA**

DESIGN CRITERIA SHEET

HWY: Argus Road

HWY NO.:n/a

LOCATION: Oakville

LENGTH: 218m

LIMITS:

FROM STA 4+000.0

TO STA 4+218

Argus Road

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		ULU50	ULU50	ULU50
MINIMUM STOPPING SIGHT DISTANCE		65m	60-65m	65m
EQUIVALENT MINIMUM “K” FACTOR	CREST	NOT PROVIDED	6-7	NA
	SAG	NOT PROVIDED	5-6	13
GRADES MAXIMUM		0.06%	6%-8%	0.06% ^(a)
RADIUS MINIMUM		N/A	75m	185m
LANE WIDTH MINIMUM		4.5m	3.5-3.7	3.5m
SHOULDER WIDTH MINIMUM		C&G	C&G	C&G
SHOULDER ROUNDING		C&G	C&G	C&G
MEDIAN WIDTH		N/A	N/A	N/A
SIDEWALK WIDTH		1.5m	1.5m	1.5m/3.0m
BOULEVARD WIDTH		2.5m	1.75m	2.5m
BOULEVARD ROUNDING		0.5m	0.5m	0.5 m
R.O.W. WIDTH		20m	20m	22m
POSTED SPEED		50kph	50kph	50kph

Notes:

A) Match existing grade of Argus Road

TRAFFIC DATA:

Refer to Midtown Oakville ESR

Remarks:**1) Project Purpose and Scope**

The realignment of Argus Road to the west of Trafalgar Road is required to accommodate the proposed Ramp W-Cross at Trafalgar Road Interchange.

2) Design Year

The design horizon for the proposed road improvements is twenty years following the commencement of this study. This corresponds with a design year of 2031.

3) Adjacent Projects

None Identified

4) Environmental Assessment

Municipal Class Environmental Assessment is currently being undertaken.

5) Pavement

To be confirmed during detail design.

6) Drainage

It is proposed to accommodate all of the drainage on the proposed improvements by means of new curbs and catch basins. The storm water drainage design to be confirmed during detail design.

7) Roadside Safety

Additional guide rail will be provided in accordance with the MTO Roadside Safety Manual where warranted by the proposed improvement works.

8) Signing

To be confirmed during detail design.

9) Illumination

To be confirmed during detail design.

10) Traffic Signals

N/A.

11) Commercial Entrances

The proposed road improvements will impact the existing entrances to commercial entrances on Argus Road. These

entrances will be reconfigured to accommodate the proposed improvement works. The design of the entrances will use a minimum curb radius of 4.5m and each intersection will be checked with Autoturn Software for heavy vehicle movements.

12) Intersections

New Right in Right Out Stop Control Intersection will be provided at the following locations:

- Trafalgar Road

13) Structures

N/A.

14) Active Transportation Infrastructure

Sidewalks:

- A 1.5m sidewalk and a 2.5m boulevard will be provided on the south side of Argus Road.
- A 3.0m multiuse path and a 2.5m boulevard will be provided on the south side.

15) Property Acquisition

The following property owners will be impacted by the proposed improvements:

570 TRAFALGAR RD

16) Railway Crossings

N/A

17) Utilities and Pipelines

The following utilities conflicts have been identified

- Enbridge
- Bell
- Cogeco
- Hydro
- Rogers

18) Construction Staging

To be confirmed during detail design.

19) Legal Agreements and Approvals

To be confirmed during detail design.

20) Typical Sections

Refer to Preliminary Design Drawings for the proposed typical sections.

DESIGN CRITERIA SHEET

HWY: Cross Avenue East

HWY NO.:n/a

LOCATION: Oakville

LENGTH: 1+119m

LIMITS:

FROM STA 20+000.0

TO STA 21+119

Cross Avenue

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION			UCU60	UCU60
MINIMUM STOPPING SIGHT DISTANCE			75-85m	75m
EQUIVALENT MINIMUM “K” FACTOR	Crest		10-13	15
	Sag		8-9	10
GRADES MAXIMUM			6%-8%	6%
RADIUS MINIMUM			120m	300m
LANE WIDTH MINIMUM			3.5-3.7 (GP) 3.75 (Bus)	3.5m
SHOULDER WIDTH MINIMUM			C&G	C&G
SHOULDER ROUNDING			C&G	C&G
MEDIAN WIDTH			2m	2m
SIDEWALK WIDTH			1.5m	3.0m
BOULEVARD WIDTH			1.75m	2.5m
BOULEVARD ROUNDING			0.5m	0.5 m
R.O.W. WIDTH			32m	28m
POSTED SPEED			50kph	50kph

Notes:

TRAFFIC DATA:

Refer to Midtown Oakville ESR

Remarks:**1) Project Purpose and Scope**

The Midtown Oakville Class EA study aims to develop a practical, long-term strategy to guide the development of the transportation and municipal storm water network needed to accommodate the planned growth in Midtown Oakville to 2031, as identified in the Liveable Oakville Plan, the town's official plan.

Through the study process, the need for the widening, realignment and extension of Cross Avenue to Royal Windsor Drive has been identified. The realignment of Cross Avenue will facilitate a new bus station on the east side of Trafalgar Road and relieve traffic congestion on Trafalgar Road.

. The proposed improvements include:

- Realignment and extension of Cross Avenue to Royal Windsor Drive.
- Cul de sacing of South Service Road.
- Removal of Industry Road.

2) Design Year

The design horizon for the proposed road improvements extend for the length of the town's official plan, Liveable Oakville. This corresponds with a design year of 2031.

3) Adjacent Projects

None Identified

4) Environmental Assessment

A Class C Municipal Environmental Assessment is being undertaken by the Town to guide the future development of the Midtown Oakville.

5) Pavement

To be confirmed during detail design.

6) Drainage

It is proposed to accommodate all of the drainage on the proposed improvements by means of new curbs and catch basins. The storm water drainage design to be confirmed during detail design.

7) Roadside Safety

Additional guide rail will be provided in accordance with the MTO Roadside Safety Manual where warranted by the proposed improvement works.

8) Signing

To be confirmed during detail design.

9) Illumination

To be confirmed during detail design.

10) Traffic Signals

New signalised intersection will be required at the following intersections:

- Chartwell Road at Cross Avenue.
- Cross Avenue at Royal Windsor Drive

11) Commercial Entrances

The proposed road improvements will impact the existing entrances to commercial entrances on Industry Road. These entrances will be reconfigured to accommodate the proposed improvement works. The design of the entrances will use a minimum curb radius of 4.5m and each intersection will be checked with Autoturn Software for heavy vehicle movements.

12) Intersections

New Full Moves Intersection will be provided at the following locations:

- Chartwell Road
- Royal Windsor Drive

INTERSECTION NAME: Chartwell Road

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Trafalgar Road)			60kph	60kph
MINOR ROAD DESIGN SPEED (Chartwell Road)			60kph	60kph
LEFT TURN LANE WIDTH	WB		3.0m	3.0m
	EB		3.0m	3.0m
	SB		3.5m	3.5m
	NB		3.5m	3.5m
LEFT TURN LANE TAPER	WB		45m (15:1)	45m
	EB		45m (15:1)	45m
	SB		45m (15:1)	45m
	NB		45m (15:1)	45m
LEFT TURN LANE STORAGE	WB		80m	85m
	EB		15m	15m
	SB		105m	20m ^(a)
	NB		180m	90m ^(b)
LEFT TURN DECELERATION LANE	WB		75-85m	80m
	EB		75-85m	80m
	SB		75-85m	75m
	NB		75-85m	75m
RIGHT TURN LANE WIDTH			3.25m	3.25m
RIGHT TURN LANE TAPER	WB		45m(14:1)	50m
	EB		45m(14:1)	50m
	NB		45m(14:1)	50m
RIGHT TURN LANE PARALLEL	WB		40m	40m
	EB		40m	40m
	NB		40m	40m
RIGHT TURN LANE STORAGE	WB		25m	0m ^(c)
	EB		170m	80m ^(c)
	NB		30m	0m ^(c)
MINIMUM INTERSECTION RADIUS			15m	15m

Notes

- (A) Minimum storage length cannot be provided given the proximity of South Service Road Intersection
- (B) Minimum storage length cannot be provided given the proximity of the CN Rail Crossing
- (C) Given space restrictions it has been agreed with the Town that the total Right Turn Lane Length should meet the minimum TAC requirements where possible but as a minimum the taper and parallel lane length should be equivalent to the required storage length.

INTERSECTION NAME: Royal Windsor Drive

Please refer to Royal Windsor Drive Interchange DC.

13) Structures

A new culvert structure will be constructed across the Lower Morrison channel. Please refer to the storm water management report for further details on the culvert cross section. The culvert will be designed to limit any impacts on the existing channel flows.

A new retaining wall with a maximum height of 12m will be required to limit the grading impacts to the existing CNR rail yard facility located close to the Royal Windsor Drive Interchange. The details for this retaining wall will need to be confirmed during detail design.

A crossing structure will be required to pass over the proposed realigned W-NS ramp at Royal Windsor Drive Interchange. A minimum of 5.0m vertical clearance over the W-NS ramp will be provided in accordance with C 4.4.3.1 of the GDM. Please refer to Structural GA drawings provided in the Appendices for further details of the proposed structural overpass design.

14) Active Transportation Infrastructure

Sidewalks:

- 3.0m sidewalk and a 2.5m boulevard will be provided on both sides.

Cycling:

- 1.5m bike lane will be provided on both sides.

15) Property Acquisition

The following property owners will be impacted by the proposed improvements:

420	S SERVICE RD E
582	CHARTWELL RD
574	CHARTWELL RD
570	CHARTWELL RD
482	S SERVICE RD E
514	S SERVICE RD E
579	CHARTWELL RD
582	CHARTWELL RD
574	CHARTWELL RD
570	CHARTWELL RD
585	CHARTWELL RD
573	CHARTWELL RD
1090	S SERVICE RD E
1015	INDUSTRY ST
1021	INDUSTRY ST
1020	S SERVICE RD E
1045	INDUSTRY ST

16) Railway Crossings

The new Cross Avenue will require the realignment of existing rail tracks in the CNR rail Yard located near the Royal Windsor Drive Interchange. The proposed realignment of the rail tracks will be confirmed as part of the detail design.

17) Utilities and Pipelines

The following utilities conflicts have been identified:

- Bell
- Cogeco
- Rogers
- Oakville Hydro
- Union Gas

18) Construction Staging

To be confirmed during detail design.

19) Legal Agreements and Approvals

To be confirmed during detail design.

20) Typical Sections

Refer to the Preliminary Design Drawings for the proposed typical sections.

DESIGN CRITERIA SHEET

HWY: Cross Avenue West

HWY NO.:n/a

LOCATION: Oakville

LENGTH: 1+491m

LIMITS:

FROM STA 18+509

TO STA 20+000

Cross Avenue West

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		ULU50	ULU50	ULU50
MINIMUM STOPPING SIGHT DISTANCE		65m	60-65m	65m
EQUIVALENT MINIMUM “K” FACTOR	Crest	Not provided	6-7	13
	Sag	Not provided	5-6	13
GRADES MAXIMUM		8%	6%-8%	8% ^(a)
RADIUS MINIMUM		200m	75m	115m
LANE WIDTH MINIMUM		3.3m	3.5-3.7	3.5m
SHOULDER WIDTH MINIMUM		C&G	C&G	C&G
SHOULDER ROUNDING		C&G	C&G	C&G
MEDIAN WIDTH		N/A	N/A	2m
SIDEWALK WIDTH		1.5m	1.5m	3.0m
BOULEVARD WIDTH		N/A	1.75m	2.5m
BOULEVARD ROUNDING		N/A	0.5m	0.5 m
R.O.W. WIDTH		24m	28m	28m
POSTED SPEED		50kph	50kph	50kph

Notes:

(A) Match existing grade on Cross Avenue.

TRAFFIC DATA:

Refer to Midtown Oakville ESR

Remarks:**1) Project Purpose and Scope**

The Midtown Oakville Class EA study aims to develop a practical, long-term strategy to guide the development of the transportation and municipal storm water network needed to accommodate the planned growth in Midtown Oakville to 2031, as identified in the Livable Oakville Plan, the town's official plan.

Through the study process, the need for the widening, realignment and extension of Cross Avenue to Royal Windsor Drive has been identified. The realignment of Cross Avenue will facilitate a new bus station on the east side of Trafalgar Road and relieve traffic congestion on Trafalgar Road.

. The proposed improvements include:

- Widening of Cross Avenue from Lyons Lane to Argus Road.
- Realignment and extension of Cross Avenue towards Royal Windsor Drive.
- Cul de sacing of South Service Road.
- Removal of Davis Drive.

2) Design Year

The design horizon for the proposed road improvements extend for the length of the town's official plan, Liveable Oakville. This corresponds with a design year of 2031.

3) Adjacent Projects

None Identified

4) Environmental Assessment

A Class C Municipal Environmental Assessment is being undertaken by the Town to guide the future development of the Midtown Oakville.

5) Pavement

To be confirmed during detail design.

6) Drainage

It is proposed to accommodate all of the drainage on the proposed improvements by means of new curbs and catch basins. The storm water drainage design to be confirmed during detail design.

7) Roadside Safety

Additional guide rail will be provided in accordance with the MTO Roadside Safety Manual where warranted by the proposed improvement works.

8) Signing

To be confirmed during detail design.

9) Illumination

To be confirmed during detail design.

10) Traffic Signals

Signal modifications to the following intersections:

- Cross Avenue at Trafalgar Road.
- Argus Road at Cross Avenue

New signalised intersection will be required at the following intersections:

- Lyons Lane at Cross Avenue
- W-Cross Ramp at Cross Avenue
- North South Crossing at Cross Avenue

11) Commercial Entrances

The proposed road improvements will impact the existing entrances to commercial entrances on Cross Avenue and Davis Drive. For the purposes of this study however it has been assumed that the entire area will be redeveloped and that access to the redeveloped land parcels will be through a new local road network proposed by the Town.

12) Intersections

New Full Moves Intersection will be provided at the following locations:

- Lyons Lane
- W-Cross Ramp
- North South Crossing

INTERSECTION NAME: LYONS LANE

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Cross Avenue)			50kph	50kph
MINOR ROAD DESIGN SPEED (Lyons Lane)			50kph	50kph
LEFT TURN LANE WIDTH	WB		3.0m	3.0m
	EB		3.0m	3.0m
LEFT TURN LANE TAPER	WB		40m (8:1)	40m
	EB		40m (8:1)	50m
LEFT TURN LANE STORAGE	WB		0m	30m
	EB		0m	15m
LEFT TURN DECELERATION	WB		60-65m	60m
	EB		60-65m	60m
RIGHT TURN LANE WIDTH			3.25m	NA
RIGHT TURN LANE TAPER			35.75m	NA
RIGHT TURN LANE PARALLEL			35m	NA
RIGHT TURN LANE STORAGE			0m	NA
MINIMUM INTERSECTION RADIUS			10m	10m

Notes

INTERSECTION NAME: Local Street 1

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Cross Avenue)			50kph	50kph
MINOR ROAD DESIGN SPEED (Local Street A)			50kph	50kph
LEFT TURN LANE WIDTH	WB		3.0m	3.0m
	EB		3.0m	3.0m
LEFT TURN LANE TAPER	WB		40m (8:1)	40m
	EB		20m (8:1)	37.5m
LEFT TURN LANE STORAGE	WB		0m	0m
	EB		0m	30m
LEFT TURN DECELERATION	WB		60-65m	60m
	EB		60-65m	60m
RIGHT TURN LANE WIDTH			3.25m	NA
RIGHT TURN LANE TAPER			35.75m	NA
RIGHT TURN LANE PARALLEL			35m	NA
RIGHT TURN LANE STORAGE			0m	NA
MINIMUM INTERSECTION RADIUS			10m	10m

Notes

INTERSECTION NAME: Argus Road

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Cross Avenue)			50kph	50kph
MINOR ROAD DESIGN SPEED (Argus Road)			50kph	50kph
LEFT TURN LANE WIDTH	WB		3.0m	3.0m
	EB		3.0m	3.0m
LEFT TURN LANE TAPER	WB		20m (8:1)	37.5m
	EB		20m (8:1)	60m
LEFT TURN LANE STORAGE	WB		0m	0m
	EB		0m	30m
LEFT TURN DECELERATION	WB		60-65m	60m
	EB		60-65m	60m
RIGHT TURN LANE WIDTH			3.25m	NA
RIGHT TURN LANE TAPER			35.75m	NA
RIGHT TURN LANE PARALLEL			35m	NA
RIGHT TURN LANE STORAGE			0m	NA
MINIMUM INTERSECTION RADIUS			10m	10m

Notes

INTERSECTION NAME: Trafalgar Road

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Trafalgar Road)			80kph	80kph
MINOR ROAD DESIGN SPEED (Cross Avenue)			50kph	50kph
LEFT TURN LANE WIDTH	WB		3.25m	3.25m
	EB		3.25m	3.25m
	SB		3.0m	3.0m
	NB		3.0m	3.0m
LEFT TURN LANE TAPER	WB		54m (8:1)	82.5m
	EB		54m (8:1)	60m
	SB		39m (13:1)	40m
	NB		39m (13:1)	95m
LEFT TURN LANE STORAGE	WB		70m	70m
	EB		140m	110m ^(a)
	SB		40m	20m ^(b)
	NB		120m	45m ^(c)
LEFT TURN DECELERATION LANE	WB		60-65m	60m
	EB		60-65m	60m
	SB		115-140m	115m
	NB		115-140m	115m
RIGHT TURN LANE WIDTH			3.25m	3.25m
RIGHT TURN LANE TAPER	WB		35.75m(11:1)	35m
	EB		35.75m(11:1)	35m
	SB		55m(17:1)	55m
	NB		55m(17:1)	55m
RIGHT TURN LANE PARALLEL	WB		35m	35m
	EB		35m	35m
	SB		60m	65m
	NB		60m	30m ^(d)
RIGHT TURN LANE STORAGE	WB		130m	60m ^(d)
	EB		15m	5m ^(d)
	SB		210m	5m ^(d)
	NB		60m	0m
MINIMUM INTERSECTION RADIUS			15m	15m

Notes

- (A) Minimum storage length cannot be provided given the proximity of Argus Road Intersection
- (B) Minimum storage length cannot be provided given the proximity of Argus Road Intersection
- (C) Minimum storage length cannot be provided given the proximity of the CN Rail Crossing
- (D) Given space restrictions it has been agreed with the Town that the total Right Turn Lane Length should meet the minimum TAC requirements where possible but as a minimum the taper and parallel lane length should be equivalent to the required storage length.

INTERSECTION NAME: North South Crossing

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (North South)			60kph	60kph
MINOR ROAD DESIGN SPEED (Cross Avenue)			50kph(W) 60kph(E)	50kph(W) 60kph(E)
LEFT TURN LANE WIDTH			3.0m	3.0m
LEFT TURN LANE TAPER	WB		45m (15:1)	50m
	EB		20m (8:1)	40m
	SB		30m (10:1)	40m
	NB		20m (8:1)	35m
LEFT TURN LANE STORAGE	WB		25m	25m
	EB		115m	100m ^(a)
	SB		140m	140m
	NB		25m	0m ^(b)
LEFT TURN DECELERATION LANE	WB		60-65m	60m
	EB		60-65m	60m
	SB		75-85m	85m
	NB		60-65m	60m
MINIMUM INTERSECTION RADIUS			15m	15m

Notes

- (A) Minimum storage length cannot be provided given the proximity of proposed Local Road
 (B) Minimum storage length cannot be provided given the proximity of Station Road Intersection

13) Structures

No structures will be required

14) Active Transportation Infrastructure

Sidewalks:

- 3.0m sidewalk and a 2.5m boulevard will be provided on both sides.

Cycling:

- 1.5m bike lane will be provided on both sides.

15) Property Acquisition

The following property owners will be impacted by the proposed improvements:

530	LYONS LANE
531	LYONS LANE
539	LYONS LANE
142	CROSS AVE
105	CROSS AVE
157	CROSS AVE
165	CROSS AVE

176	CROSS AVE
177	CROSS AVE
118	CROSS AVE
122	CROSS AVE
126	CROSS AVE
128	CROSS AVE
132	CROSS AVE
136	CROSS AVE
217	CROSS AVE
227	CROSS AVE
233	CROSS AVE
207	CROSS AVE
547	TRAFALGAR RD
312	DAVIS RD
320	DAVIS RD
349	DAVIS RD
359	DAVIS RD
379	DAVIS RD
389	DAVIS RD
354	DAVIS RD
389	DAVIS RD
166	S SERVICE RD E
420	S SERVICE RD E

16) Railway Crossings

N/A

17) Utilities and Pipelines

The following utilities conflicts have been identified:

- Bell
- Cogeco
- Rogers
- Oakville Hydro
- Union Gas

18) Construction Staging

To be confirmed during detail design.

19) Legal Agreements and Approvals

To be confirmed during detail design.

20) Typical Sections

Refer to the TR11-767 Preliminary Design Drawings for the proposed typical sections.

DESIGN CRITERIA SHEET

HWY: Iroquois Shore Road

HWY NO.: n/a

LOCATION: Oakville

LENGTH: 1+833.88

LIMITS:

FROM STA 31+000.0

TO STA 31+833.88

Iroquois Shore Road

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		UAU60	UAU60	UAU60
MINIMUM STOPPING SIGHT DISTANCE		85m	75-85m	MATCH
EQUIVALENT MINIMUM “K” FACTOR	CREST	NOT PROVIDED	10-13	MATCH
	SAG	NOT PROVIDED	8-9	MATCH
GRADES MAXIMUM		1.79%	6%-8%	MATCH
RADIUS MINIMUM		145m	120m	220m
LANE WIDTH MINIMUM		3.5m	3.5-3.7m	3.5m
SHOULDER WIDTH MINIMUM		C&G	C&G	C&G
SHOULDER ROUNDING		C&G	C&G	C&G
MEDIAN WIDTH		N/A	N/A	N/A
SIDEWALK WIDTH		1.5m	1.5m	1.5-3.0m
BOULEVARD WIDTH		varies	1.5m	3.0m
BOULEVARD ROUNDING		N/A	0.5m	0.5m
R.O.W. WIDTH		26m	32m	32m
POSTED SPEED		50kph	50kph	50kph

TRAFFIC DATA:

Refer to Midtown Oakville ESR

Remarks:**1) Project Purpose and Scope**

The project includes the widening and realignment of Iroquois Shore Road from Leighland Avenue to Eighth Line.

The widening of Iroquois Shore will accommodate new bike lanes on Iroquois Shore Road. The realignment of Leighland Avenue to the west of Trafalgar Road is required to accommodate the proposed lane configuration on Iroquois Shore Road. A fourth leg will be developed on Iroquois Shore Road and Eighth Line intersection to provide access to QEW on Royal Windsor Interchange.

2) Design Year

The design horizon for the proposed road improvements is twenty years following the completion of this study. This corresponds with a design year of 2024.

3) Adjacent Projects

None Identified

4) Environmental Assessment

Municipal Class Environmental Assessment is currently being undertaken.

5) Pavement

To be confirmed during detail design.

6) Drainage

It is proposed to accommodate all of the drainage on the proposed improvements by means of new curbs and catch basins. The storm water drainage design to be confirmed during detail design.

7) Roadside Safety

Roadside safety barrier will be provided if in accordance with the MTO Roadside Safety Manual where warranted by the proposed improvement works.

8) Signing

To be confirmed during detail design.

9) Illumination

To be confirmed during detail design.

10) Traffic Signals

New traffic signals will be provided:

- Iroquois Shore Road at North South Connection,
- Iroquois Shore Road / Royal Windsor Drive (new) at Eighth Line

Traffic Signals will be updated:

- Iroquois Shore Road at Trafalgar Road

11) Commercial Entrances

The proposed road improvements will impact the existing entrances to commercial entrances. These entrances will be reconfigured to accommodate the proposed improvement works. The design of the entrances will use a minimum curb radius of 10m and each intersection will be checked with Autoturn Software for heavy vehicle movements.

12) Intersections

Following Intersections will be modified:

- Iroquois Shore Road at Eighth Line
- Iroquois Shore Road at North South Connection
- Iroquois Shore Road at Trafalgar Road

INTERSECTION NAME: Iroquois Shore Road at Eighth Line

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Iroquois Shore Road)		60kph	60kph	60kph
MAJOR ROAD DESIGN SPEED (Royal Windsor Drive)		70kph	70kph	70kph
MINOR ROAD DESIGN SPEED (Eighth Line)		60kph	60kph	60kph
MINOR ROAD DESIGN SPEED (North Service Road)		60kph	60kph	60kph
LEFT TURN LANE WIDTH	EB	-	3.0m	3.5m
	WB	-	3.0m	3.5m
	SB		3.0m	3.5m
	NB		3.0m	3.5m
LEFT TURN LANE TAPER	EB	-	35m (10:1)	30m ^(a)
	WB	-	45m (15:1)	60m
	SB		45m (15:1)	45m
	NB		45m (15:1)	45m
LEFT TURN LANE STORAGE	EB	-	230m	30m ^(b)
	WB	-	40m	65m
	SB		95m	95m
	NB		35m	35m
LEFT TURN DECELERATION LANE	EB	-	75-85m	30m ^(c)
	WB	-	95-110m	95m
	SB		75-85m	75m
	NB		75-85m	75m
MINIMUM INTERSECTION RADIUS		15m	15m	15m

Notes:

- a) The proposed taper length reduced to 30m to provide centre left turn lane along Iroquois Shore Road between North South Connection and Eighth Line
- b) Storage lane reduced to 30m to provide centre left turn lane along Iroquois Shore Road between North South Connection and Eighth Line
- c) The Deceleration lane reduced to 30m to provide two way left turn lane along Iroquois Shore Road between North South Connection and Eighth Line

INTERSECTION NAME: North South Connection at Iroquois Shore Road

Please refer to North South Crossing Design Criteria Sheet

INTERSECTION NAME: Iroquois Shore Road at Trafalgar Road

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Trafalgar Road)		80kph	80kph	80kph
MINOR ROAD DESIGN SPEED (Iroquois Shore Road)		60kph	60kph	60kph
LEFT TURN LANE WIDTH	EB	3.5m	3.0m	3.0m
	WB	2x3.25m	3.25m-3.5m	3.25m-3.5m
LEFT TURN LANE TAPER	EB	20m	35m	75m-
	WB	Not provided	35m	30m ^(a)
LEFT TURN LANE STORAGE	EB	0m	80m	80m
	WB	2x130m	2x80m	2x80m
LEFT TURN DECELERATION LANE	EB	75m	75m	75m
	WB	Not provided	75m	N/A ^(b)
RIGHT TURN LANE WIDTH		3.5m	3.25m	3.25m
RIGHT TURN LANE TAPER		20m	50m	50m
RIGHT TURN LANE STORAGE		20m	90m	90m ^(c)
MINIMUM INTERSECTION RADIUS		15m	15m	15m

Notes:

- a) The proposed length reduced to 30m to provide left turn lane to existing Royal Shore Centre (353-355 Iroquois Shore Road) at Oakville Place Drive.
- b) The Deceleration lane is not applicable because left turn lane is developed from a through lane without a taper starts from intersection North South Crossing at Iroquois Shore Road.
- c) Storage lane is included over the taper length.

13) Structures

N/A.

14) Active Transportation Infrastructure

Sidewalks:

- A 1.5m sidewalk and a 3.0m boulevard will be provided on the north.
- A 3.0m multiuse trail and a 3.0m boulevard will be provided on the south side.

Cycling:

- 1.5m bike lane will be provided on both sides.

15) Property Acquisition

The following property owners will be impacted by the proposed improvements:

321	IROQUOIS SHORE RD
353	IROQUOIS SHORE RD
375	IROQUOIS SHORE RD
407	IROQUOIS SHORE RD
407	IROQUOIS SHORE RD
475	IROQUOIS SHORE RD
475	IROQUOIS SHORE RD
505	IROQUOIS SHORE RD
348	IROQUOIS SHORE RD
372	IROQUOIS SHORE RD
400	IROQUOIS SHORE RD
475	N SERVICE RD E
474	IROQUOIS SHORE RD
501	N SERVICE RD E
504	IROQUOIS SHORE RD

16) Railway Crossings

N/A

17) Utilities and Pipelines

To be confirmed during detail design.

18) Construction Staging

To be confirmed during detail design.

19) Legal Agreements and Approvals

To be confirmed during detail design.

20) Typical Sections

Refer to Preliminary Design Drawings for the proposed typical sections.

DESIGN CRITERIA SHEET

HWY: North Service Road

HWY NO.:n/a

LOCATION: Oakville

LENGTH: 1455m

LIMITS:

FROM STA 3+845.00

TO STA 5+300.00

North Service Road

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		UCU60	UCU60	UCU60
MINIMUM STOPPING SIGHT DISTANCE		65m	75-85m	75m
EQUIVALENT MINIMUM “K” FACTOR	CREST	NOT PROVIDED	10-13	25
	SAG	NOT PROVIDED	8-9	25
GRADES MAXIMUM		NOT PROVIDED	6%-8%	2.25%
RADIUS MINIMUM		100m	120m	120m
LANE WIDTH MINIMUM		3.3m	3.5-3.7 (GP)	3.5m
SHOULDER WIDTH MINIMUM		1.0m	C&G	C&G
SHOULDER ROUNDING		0.5m	C&G	C&G
MEDIAN WIDTH		N/A	2m	N/A
SIDEWALK WIDTH		N/A	1.5m	1.5m
BOULEVARD WIDTH		N/A	1.75m	3.0m
BOULEVARD ROUNDING		N/A	0.5m	0.5 m
R.O.W. WIDTH		24m	24m	24m
POSTED SPEED		50kph	50kph	50kph

Notes:

TRAFFIC DATA:

Refer to Midtown Oakville ESR

Remarks:**1) Project Purpose and Scope**

The realignment of North Service Road is required to accommodate the proposed North South Crossing and new E-NS ramp at Royal Windsor Drive Interchange.

2) Design Year

The design horizon for the proposed road improvements is twenty years following the commencement of this study. This corresponds with a design year of 2031.

3) Adjacent Projects

None Identified

4) Environmental Assessment

Municipal Class Environmental Assessment is currently being undertaken.

5) Pavement

To be confirmed during detail design.

6) Drainage

It is proposed to accommodate all of the drainage on the proposed improvements by means of existing and new curbs and catch basins. The storm water drainage design to be confirmed during detail design.

7) Roadside Safety

Concrete barrier will be provided between the QEW and North Service Road. Additional guide rail will be provided in accordance with the MTO Roadside Safety Manual where warranted by the proposed improvement works.

8) Signing

To be confirmed during detail design.

9) Illumination

To be confirmed during detail design.

10) Traffic Signals

N/A.

11) Commercial Entrances

The proposed road improvements will impact the existing entrances to commercial entrances on North Service Road.

These entrances will be reconfigured to accommodate the proposed improvement works. The design of the entrances will use a minimum curb radius of 4.5m and each intersection will be checked with Autoturn Software for heavy vehicle movements.

12) Intersections

New Signal Control Intersection will be provided at the following locations:

- Royal Windsor Drive

13) Structures

A new structure will be constructed across the North Service Road as part of the Royal Windsor Drive Extension.

It is proposed to provide a minimum 5.0m vertical clearance over the QEW in accordance with C 4.4.3.1 of the GDM. Please refer to Structural GA drawings provided in the Appendices for further details of the proposed structural underpass design.

14) Active Transportation Infrastructure

Sidewalks:

- A 1.5m sidewalk will be provided on the north side of the road.

Cycling:

- 1.5m bike lane will be provided on both sides.

15) Property Acquisition

The following property owners will be impacted by the proposed improvements:

1071	N SERVICE RD E
1097	N SERVICE RD E
1101	N SERVICE RD E
1135	N SERVICE RD E
1137	N SERVICE RD E
1209	N SERVICE RD E
1173	N SERVICE RD E
1185	N SERVICE RD E
1195	N SERVICE RD E
1221	N SERVICE RD E
1303	N SERVICE RD E
1099	EIGHTH LINE

16) Railway Crossings

N/A

17) Utilities and Pipelines

- Bell
- Oakville Hydro
- Rogers
- Cogeco
- Union Gas
- Watermain

18) Construction Staging

To be confirmed during detail design.

19) Legal Agreements and Approvals

To be confirmed during detail design.

20) Typical Sections

Refer to Preliminary Design Drawings for the proposed typical sections.

DESIGN CRITERIA SHEET

HWY: North South

HWY NO.:n/a

LOCATION: Oakville

LENGTH: 1+134m

LIMITS:

FROM STA 30+000.0

TO STA 31+134

North South

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION			UCU60	UCU60
MINIMUM STOPPING SIGHT DISTANCE			75-85m	85m
EQUIVALENT MINIMUM “K” FACTOR	CREST		10-13	15
	SAG		8-9	10
GRADES MAXIMUM			6%-8%	6%
RADIUS MINIMUM			120m	130m
LANE WIDTH MINIMUM			3.5-3.7 (GP) 3.75 (Bus)	3.5m(GP) 3.75m (Bus)
SHOULDER WIDTH MINIMUM			C&G	C&G
SHOULDER ROUNDING			C&G	C&G
MEDIAN WIDTH			2m	2m
SIDEWALK WIDTH			1.5m	1.5m/3.0m
BOULEVARD WIDTH			1.75m	2.5m
BOULEVARD ROUNDING			0.5m	0.5 m
R.O.W. WIDTH			32m	32m
POSTED SPEED			50kph	50kph

Notes:

TRAFFIC DATA:

Refer to Midtown Oakville ESR

Remarks:**1) Project Purpose and Scope**

The Midtown Oakville Class EA study aims to develop a practical, long-term strategy to guide the development of the transportation and municipal storm water network needed to accommodate the planned growth in Midtown Oakville to 2031, as identified in the Livable Oakville Plan, the town's official plan.

Through the study process, the need for a new south crossing of the QEW has been identified. This crossing is proposed to be located to the east of Trafalgar Road. In addition, a new dedicated transit and active transportation facility has been identified to connect the relocated Go Station to the planned Regional BRT facility on Trafalgar Road north of the QEW.

The Midtown Oakville EA study proposed to combine both facilities into a single transportation corridor that extends from Cross Avenue to the intersection of White Oaks and Trafalgar Road. The proposed improvements include:

- Provision of new combined transitway and general purpose transportation corridor across the QEW.
- Realignment of White Oaks Boulevard.
- Local access Street A
- Cul de sacing of North Service Road.

2) Design Year

The design horizon for the proposed road improvements extend for the length of the town's official plan, Liveable Oakville. This corresponds with a design year of 2031.

3) Adjacent Projects

None Identified

4) Environmental Assessment

A Class C Municipal Environmental Assessment is being undertaken by the Town to guide the future development of the Midtown Oakville.

5) Pavement

To be confirmed during detail design.

6) Drainage

It is proposed to accommodate all of the drainage on the proposed improvements by means of new curbs and catch basins. The storm water drainage design to be confirmed during detail design.

7) Roadside Safety

Additional guide rail will be provided in accordance with the MTO Roadside Safety Manual where warranted by the proposed improvement works.

8) Signing

To be confirmed during detail design.

9) Illumination

To be confirmed during detail design.

10) Traffic Signals

Signal modifications to the following intersections:

- North South at Trafalgar Road.
- North South at Iroquois Shore Road.

New signalised intersection will be required at the following intersections:

- North South at Cross Avenue.
- North South at White oaks Boulevard

11) Commercial Entrances

The proposed road improvements will impact the existing entrances on White Oaks Boulevard. Access to these properties will be maintained, some reconfiguration of the entrances will be required to accommodate the proposed improvement works. The design of the entrances will use a minimum curb radius of 4.5m and each intersection will be checked with Autoturn Software for heavy vehicle movements.

12) Intersections

New Full Moves Intersection will be provided at the following locations:

- Cross Avenue
- Iroquois Shore
- Trafalgar Road
- White Oaks Boulevard

INTERSECTION NAME: Cross Avenue

Please refer to the Cross Avenue Design Criteria Sheet for further details

INTERSECTION NAME: Iroquois Shore

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Iroquois Shore)			60kph	60kph
MINOR ROAD DESIGN SPEED (North South)			60kph	60kph
LEFT TURN LANE WIDTH	NB		3.0m	3.0m
	SB		3.0m	3.0m
	EB		3.0m	3.5m
	WB		3.0m	3.5m
LEFT TURN LANE TAPER	NB		30m (10:1)	45m
	SB		45m (15:1)	50m
	EB		30m (10:1)	30m
	WB		30m (10:1)	30m
LEFT TURN LANE STORAGE	NB		115m	115m
	SB		15m	15m
	EB		15m	15m
	WB		210m	60m ^(a)
LEFT TURN DECELERATION LANE	NB		75-85m	85m
	SB		75-85m	80m
	EB		75-85m	0m ^(b)
	WB		75-85m	0m ^(c)
MINIMUM INTERSECTION RADIUS			15m	15m

Notes

- (A) It has been agreed with the Town to provide a continuous centre left turn lane on Iroquois Shore Road to maintain access to the existing properties on Iroquois Shore Road. As such a full left turn lane with adequate storage cannot be provided
- (B) It has been agreed with the Town to provide a continuous centre left turn lane on Iroquois Shore Road to maintain access to the existing properties on Iroquois Shore Road.
- (C) It has been agreed with the Town to provide a continuous centre left turn lane on Iroquois Shore Road to maintain access to the existing properties on Iroquois Shore Road. The proximity of the Oakville Place Intersection also restricts the proposed central left turn lane layout.

INTERSECTION NAME: White Oaks Boulevard

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Iroquois Shore Road)			60kph	60kph
MINOR ROAD DESIGN SPEED (North South)			60kph	60kph
LEFT TURN LANE WIDTH	NB		3.0m	3.0m
	SB		3.0m	3.0m
LEFT TURN LANE TAPER	NB		45m (15:1)	50m
	SB		30m (10:1)	40m
LEFT TURN LANE STORAGE	NB		15m	15m ^(a)
	SB		15m	15m
LEFT TURN DECELERATION LANE	NB		75-85m	85m
	SB		75-85m	70m ^(b)
MINIMUM INTERSECTION RADIUS			10m	10m

Notes

- (A) Storage length to be confirmed following confirmation of land use.
 (B) Unable to provide 75m length due to proximity to Trafalgar Road Interchange

INTERSECTION NAME: Trafalgar Road

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Trafalgar Road)			80kph	80kph
MINOR ROAD DESIGN SPEED (North South)			60kph	60kph
LEFT TURN LANE WIDTH	WB		3.0m	3.0m
	SB		3.0m	3.5m
LEFT TURN LANE TAPER	WB		30m (10:1)	40m
	SB		45m (15:1)	125m
LEFT TURN LANE STORAGE	WB		50m	15m ^(a)
	SB		95m	95m
LEFT TURN DECELERATION LANE	WB		75-85m	75m
	SB		115-140m	185m
RIGHT TURN LANE WIDTH	WB		3.25m	3.75m
RIGHT TURN LANE TAPER	WB		52.5m	50m
RIGHT TURN LANE PARALLEL	WB		40m	40m
RIGHT TURN LANE STORAGE	WB		0m	0m
MINIMUM INTERSECTION RADIUS			15m	15m

Notes

- (A) Due to proximity of White Oaks Boulevard it is not possible to provide minimum storage length and deceleration length for the left turn lane. In the peak hour some of the queue will extend into the deceleration lane.

13) Structures

A new structure will be constructed across the QEW and the Morrison Wedgwood Diversion channel as part of the new North South connection.

The QEW crossing structure will require the cul de sacing of North Service Road to the west of its intersection with Eighth Line. It is proposed to provide a 5.0m vertical clearance over the QEW in accordance with C 4.4.3.1 of the GDM. Please refer to Structural GA drawings provided in the Appendices for further details of the proposed structural underpass design.

The north south connection will cross the diversion channel to the east of Trafalgar Road. The structure will be de designed to ensure no hydraulic impact to the existing channel. Please refer to Structural GA drawings provided in the Appendices for further details of the proposed channel culvert design.

14) Active Transportation Infrastructure

Sidewalks:

- A 1.5m sidewalk and a 2.5m boulevard will be provided on the south side of Argus Road.
- A 3.0m multiuse path and a 2.5m boulevard will be provided on the south side.

Cycling:

- 1.5m bike lane will be provided on both sides.

15) Property Acquisition

The following property owners will be impacted by the proposed improvements:

420	S SERVICE RD
407	IROQUOIS SHORE
N/A	DIV CHANNEL
375	IROQUOIS SHORE
360	OAKVILLE PLACE DR
388	N SERVICE RD E
406	N SERVICE RD E
400	IROQUOIS SHORE RD
1225	TRAFALGAR ROAD
1235	TRAFALGAR ROAD

16) Railway Crossings

N/A

17) Utilities and Pipelines

The following utilities conflicts have been identified:

- Bell
- Cogeco
- Rogers

18) Construction Staging

To be confirmed during detail design.

19) Legal Agreements and Approvals

To be confirmed during detail design.

20) Typical Sections

Refer to Preliminary Design Drawings for the proposed typical sections.

DESIGN CRITERIA

HWY NO: QEW

LOCATION: Royal Windsor Drive Interchange

LENGTH: 1393m

LIMITS: FROM STA 10+000.0 TO STA 11+393

MUNICIPAL JURISDICTIONS:

Geographic Township(s) Oakville

Region of Halton

QUEEN ELIZABETH WAY

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		UFD120	UFD120	UFD120
MINIMUM STOPPING SIGHT DISTANCE		245m	245m	245m
EQUIVALENT MINIMUM "K" FACTOR	CREST	Not provided	K120	No Change
	SAG	Not provided	K60	No Change
GRADES MAXIMUM		1%	6%-7%	1%
RADIUS MINIMUM		1746m	650m	1746m
PAVEMENT WIDTH		3.75m	3.75m	3.75m
SHOULDER WIDTH		2.5m	3m	2.5m
SHOULDER ROUNDING		1.0m	1.0m	1.0m
MEDIAN WIDTH		8.0m	9.0m	8.0m
R.O.W. WIDTH		Varies		Varies
POSTED SPEED		100km/h	100km/h	100km/h
MISCELLANEOUS				

DESIGN CRITERIA

HWY NO: QEW

ROYAL WINDSOR DRIVE

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		UAD70	UAD70	UAD70
MINIMUM STOPPING SIGHT DISTANCE		Not provided	110m	135m
EQUIVALENT MINIMUM "K" FACTOR	CREST	Not provided	K25	K35
	SAG	Not provided	K12	K15
GRADES MAXIMUM		Not provided	6%-12%	3.77%
RADIUS MINIMUM		Not provided	190m	250m
PAVEMENT WIDTH		4.75m	2x3.50m ^(a) 3.50m ^(b) 3.25m ^(c)	2x3.50m ^(a) 3.50m ^(b) 3.25m ^(c)
SHOULDER WIDTH		2.5m	N/A	N/A
SHOULDER ROUNDING		1.0m	1.0m	1.0m
MEDIAN WIDTH		N/A	2.0m	2.0m-5.5m
R.O.W. WIDTH				varies 32m-36m
POSTED SPEED			60km/h	60km/h

3

NOTES:

- a) Through lanes widths
- b) Left turn lane width
- c) Right turn lane width

DESIGN CRITERIA

HWY NO: QEW

LOCATION: Royal Windsor Drive Interchange

LENGTH: 1131m

LIMITS: FROM STA 20+000.0 TO STA 21+131

MUNICIPAL JURISDICTIONS:

Geographic Township(s) Oakville

Region of Halton

CROSS AVENUE

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION			UCU60	UCU60
MINIMUM STOPPING SIGHT DISTANCE			85m	85m
EQUIVALENT MINIMUM "K" FACTOR	CREST		K15	K15
	SAG		K8	K10
GRADES MAXIMUM			6%-12%	6%
RADIUS MINIMUM			130m	300m
PAVEMENT WIDTH			3.50m ^(a) 3.00m ^(b)	3.50m ^(a) 3.00m ^(b)
SHOULDER WIDTH			N/A	N/A
SHOULDER ROUNDING			1.0m	1.0m
MEDIAN WIDTH				
R.O.W. WIDTH				28m
POSTED SPEED			50km/h	50km/h
MISCELLANEOUS				

NOTES:

- a) Through lanes
- b) Left turn lane

DESIGN CRITERIA

HWY NO: QEW

REMARKS:

Subject	Applicable to the Project	
	Yes	No *
1. Project Purpose and Scope	✓	
2. Design Year	✓	
3. Related Studies and Adjacent Projects	✓	
4. Environmental Assessment	✓	
5. Pavement		✓
6. Cross-Fall		✓
7. Superelevation		✓
8. Drainage	✓	
9. Roadside Safety		✓
10. Signing		✓
11. Illumination		✓
12. Traffic Signals		✓
13. Commercial Entrances		✓
14. Intersections	✓	
15. Structures	✓	
16. Pavement Widening on Curves		✓
17. Passing Lanes / Truck Climbing Lanes		✓
18. Fencing		✓
19. Active Transportation Infrastructure	✓	
20. Property Requirements	✓	
21. Railway Crossings		✓
22. Utilities and Pipelines	✓	
23. Construction Staging		✓
24. Legal Agreements and Approvals		✓
25. Miscellaneous		✓
* No indicates "Not applicable to this project as there are no changes from existing conditions." or "Not applicable to this project."		

DESIGN CRITERIA

HWY NO: QEW

Interchange Standards Table

INTERCHANGE NAME: ROYAL WINDSOR INTERCHANGE

		RAMP NAME	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
CROSSING ROAD DESIGN SPEED		E-NS		70km/h	70km/h
RAMP DESIGN SPEED		E-NS		80km/h	80km/h
SIGHT DISTANCE REQUIREMENT FOR STOPPING, CROSSING AND TURNING MOVEMENTS AT THE CROSSING ROAD		E-NS		225m	175m ^(a)
EQUIVALENT MINIMUM "K" FACTOR	CREST	E-NS		K35	K15 ^(a)
	SAG	E-NS		K15	K29
GRADES MAXIMUM		E-NS		6%-8%	4.14%
RADIUS MINIMUM		E-NS		250m	130m ^(b)
PAVEMENT WIDTH		E-NS		4.75m	4.75m
SHOULDER WIDTH (Right / Left)		E-NS		2.5m/1.0m	2.5m/1.0m
SHOULDER ROUNDING		E-NS		0.5m-1.0m	0.5m-1.0m
SUPERELEVATION MAXIMUM RATE		E-NS		0.06m/m	0.06m/m
SIGHT DISTANCE AT EXIT TERMINAL		E-NS		370m	370m ^(c)
EXIT TERMINAL SPEED-CHANGE LANE LENGTH		E-NS		345m	345m

NOTES:

- a) Sight Distance for Right Turn movement of 175m for 60km/h crossing road design speed provided. To provide 225m sight distance for right movement widening existing bridge to the north is required (existing bridge parapet is obstruction). Channelised right turn lane provided.
- b) Approach to Intersection with Royal Windsor Drive
- c) North Service Road to be shifted north to provide 370m Sight Distance at Exit Terminal

DESIGN CRITERIA

HWY NO: QEW

Interchange Standards Table

INTERCHANGE NAME: ROYAL WINDSOR INTERCHANGE

		RAMP NAME	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
CROSSING ROAD DESIGN SPEED		W-NS		70km/h	70km/h
RAMP DESIGN SPEED		W-NS		80km/h	80km/h
SIGHT DISTANCE REQUIREMENT FOR STOPPING, CROSSING AND TURNING MOVEMENTS AT THE CROSSING ROAD		W-NS		N/A ^(a)	N/A ^(a)
EQUIVALENT MINIMUM "K" FACTOR	CREST	W-NS		K35	splined
	SAG	W-NS		K15	splined
GRADES MAXIMUM		W-NS		6%-8%	0.59%
RADIUS MINIMUM		W-NS		250m	55m ^(b)
PAVEMENT WIDTH		W-NS		2x3.75m	2x3.75m
SHOULDER WIDTH (Right / Left)		W-NS		2.5m/1.0m	2.5m/1.0m
SHOULDER ROUNDING		W-NS		0.5m	0.5m
SUPERELEVATION MAXIMUM RATE		W-NS		0.06m/m	0.058m/m
SIGHT DISTANCE AT EXIT TERMINAL		W-NS		370m	370m
EXIT TERMINAL SPEED-CHANGE LANE LENGTH		W-NS		535m	535m

NOTES:

- a) Existing Right Turn Ramp to Royal Windsor Drive Eastbound is maintained
- b) Approach to Intersection with Royal Windsor Drive – Existing horizontal radius on South Service is maintained.

DESIGN CRITERIA

HWY NO: QEW

		RAMP NAME	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
CROSSING ROAD DESIGN SPEED		W-Cross		80km/h	80km/h
RAMP DESIGN SPEED		W-Cross		50km/h	50km/h
SIGHT DISTANCE REQUIREMENT FOR STOPPING, CROSSING AND TURNING MOVEMENTS AT THE CROSSING ROAD		W-Cross		N/A	N/A
EQUIVALENT MINIMUM "K" FACTOR	CREST	W-Cross		K8	K8
	SAG	W-Cross		K5	K8
GRADES MAXIMUM		W-Cross		6%-12%	6.00%
RADIUS MINIMUM		W-Cross		55m	55m
PAVEMENT WIDTH		W-Cross		4.75m	4.75m
SHOULDER WIDTH (Right / Left)		W-Cross		2.5m/1.0m	2.5m/1.0m
SHOULDER ROUNDING		W-Cross		0.5m-1.0m	0.5m-1.0m
SUPERELEVATION MAXIMUM RATE		W-Cross		0.06m/m	0.06m/m
SIGHT DISTANCE AT EXIT TERMINAL		W-Cross		240m	240m
EXIT TERMINAL SPEED-CHANGE LANE LENGTH		W-Cross		110m	200m

Interchange Standards Table

INTERCHANGE NAME: ROYAL WINDSOR INTERCHANGE

		RAMP NAME	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
CROSSING ROAD DESIGN SPEED		NS-E		120km/h	120km/h
RAMP DESIGN SPEED		NS-E		80km/h	80km/h
SIGHT DISTANCE REQUIREMENT FOR STOPPING, CROSSING AND TURNING MOVEMENTS AT THE CROSSING ROAD		NS-E		N/A	N/A
EQUIVALENT MINIMUM "K" FACTOR	CREST	NS-E		K35	N/A
	SAG	NS-E		K15	K15
GRADES MAXIMUM		NS-E		6%-12%	4.80%
RADIUS MINIMUM		NS-E		130m	130m
PAVEMENT WIDTH		NS-E		4.75m	4.75m
SHOULDER WIDTH (Right / Left)		NS-E		2.5m/1.0m	2.5m/1.0m
SHOULDER ROUNDING		NS-E		0.5m-1.0m	0.5m-1.0m
SUPERELEVATION MAXIMUM RATE		NS-E		0.06m/m	0.06m/m
SIGHT DISTANCE AT ENTRANCE TERMINAL		NS-E		370m	370m
ENTRANCE TERMINAL SPEED-CHANGE LANE LENGTH		NS-E		500m	500m

DESIGN CRITERIA

Page 8 of 12
Date Jun -14

HWY NO: QEW

NOTES:

DESIGN CRITERIA

Page 9 of 12
Date Jun -14

HWY NO: QEW

Project Purpose and Scope

The Midtown Oakville Class EA study aims to develop a practical, long-term strategy to guide the development of the transportation and municipal storm water network needed to accommodate the planned growth in Midtown Oakville to 2031, as identified in the Liveable Oakville Plan, the town's official plan.

The study considered a diverse range of options to satisfy future growth demands. Through the study process improvements to Royal Windsor Drive Interchange have been identified. These improvements include:

- Provision of new Ramp E-NS.
- Widening and extension of Royal Windsor Drive to Eighth Line.
- Provision of new Ramp NS-E
- Realignment of Ramp W-NS.
- Provision of new Ramp W-Cross
- Extension of Cross Avenue to Royal Windsor Drive

Design Year

The design horizon for the proposed road improvements extend for the length of the town's official plan, Liveable Oakville. This corresponds with a design year of 2031.

Environmental Assessment

A Class C Municipal Environmental Assessment is being undertaken by the Town to guide the future development of the Midtown Oakville.

Drainage

The existing drainage at the Interchange is accommodated via combination curbs and catch basin's and drainage ditches.

It is proposed to accommodate all of the drainage on the proposed improvements by means of new curbs and catch basins and ditches. New storm sewers will be required on Royal Windsor Drive and Cross Avenue to accommodate drainage of the proposed improvements.

Culver extensions will also be required at the following locations to accommodate the proposed improvements:

- Royal Windsor Drive Ch 10+900
- Royal Windsor Drive Ch 10+650
- Ramp W-NS CH 2+500
- Ramp NS-E CH 5+080
- Ramp E-NS CH 7+500
- Ramp E-NS CH 7+700

This will be finalised as part of the detail drainage design for the improvements

Intersections

It is proposed to modify the following intersection:

DESIGN CRITERIA

HWY NO: QEW

Royal Windsor Drive at Canadian Road/W-NS Ramp,

The modifications will be required to accommodate reconstruction of Royal Windsor Interchange and Royal Windsor Drive

	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Royal Windsor Dr.)	80kph ^(a)	70kph	70kph
MINOR ROAD DESIGN SPEED (Canadian Rd)	40kph	40kph	40kph
LEFT TURN LANE WIDTH	3.25m and 3.50m	3.25m	3.50m
LEFT TURN LANE TAPER	50m	60m	60m
LEFT TURN LANE STORAGE	105m	70m	70m ^(b)
MINIMUM INTERSECTION RADIUS	15m	15m	15m ^(c)

Notes:

- a) Existing QEW Off Ramp
- b) Including 60m parallel lane (GDM Table E10-1)
- c) On the north side of intersection corner radius is unchanged, on the south side no movement into W-NS Ramp will be allowed

New intersections will be introduced:

Royal Windsor Drive at Cross Ave/NS-E Ramp,

	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Royal Windsor Dr.)		70kph	70kph
MINOR ROAD DESIGN SPEED (Cross Avenue)		60kph	60kph
SIGHT DISTANCE REQUIREMENT FOR STOPPING, CROSSING AND TURNING MOVEMENTS AT THE CROSSING ROAD		225m	225m
LEFT TURN LANE WIDTH (West Bound)		3.25m	2x3.50m
LEFT TURN LANE TAPER (West Bound)		60m	60m
LEFT TURN LANE STORAGE (West Bound)		100m	100m
LEFT TURN LANE WIDTH (East Bound)		3.25m	3.50m
LEFT TURN LANE TAPER (East Bound)		60m	60m
LEFT TURN LANE STORAGE (East Bound)		95m	95m
RIGHT TURN LANE WIDTH (East Bound)		3.25m	3.25m
RIGHT TURN LANE TAPER (East Bound)		60m	70m
RIGHT TURN LANE PARALLEL (East Bound)		45m	60m
MINIMUM INTERSECTION RADIUS		15m	15m

Notes:

DESIGN CRITERIA

HWY NO: QEW

Structures

The proposed improvements at Royal Windsor Drive will require the following structural improvements:

- Royal Windsor Drive extension will require the widening of the existing Royal Windsor Drive structure.
- Royal Windsor Drive extension will require a new over bridge at North Service Road
- Royal Windsor Drive extension will require a new over bridge at Ramp W-NS

The proposed structural improvements will be designed in accordance with the GDM and the OBDM. Structural GA design drawings will be provided to the Ministry following approval of the geometric design for Royal Windsor Drive Interchange.

Active Transportation Infrastructure

Dedicated active transportation facilities will be provided on Royal Windsor Drive and Cross Avenue.

A combined bike trail and sidewalk will be provided on the west side of Royal Windsor Drive. The two way bike trail will be 3.0m wide and be adjacent to a 2.0m wide pedestrian sidewalk. No facilities will be provided on the east side of Royal Windsor Drive.

On road bike lanes (1.5m) will be provided on both side of Cross Avenue. A 3.0m wide sidewalk will be provided on the south side and a 1.5m wide sidewalk will be provided on the north side of Cross Avenue.

Property Requirements

The proposed improvements at the Interchange will require additional property to be purchased. The following property owners will be impacted by the proposed improvements:

Street Nr	Street Name
1090	S SERVICE RD E
1500	ROYAL WINDSOR DR
1099	EIGHTH LINE
1071	N SERVICE RD E
1099	EIGHTH LINE
1097	N SERVICE RD E
1101	N SERVICE RD E
1135	N SERVICE RD E
1137	N SERVICE RD E
1173	N SERVICE RD E
1185	N SERVICE RD E
1195	N SERVICE RD E
1209	N SERVICE RD E
1221	N SERVICE RD E
1303	N SERVICE RD E

DESIGN CRITERIA

HWY NO: QEW

Utilities and Pipelines

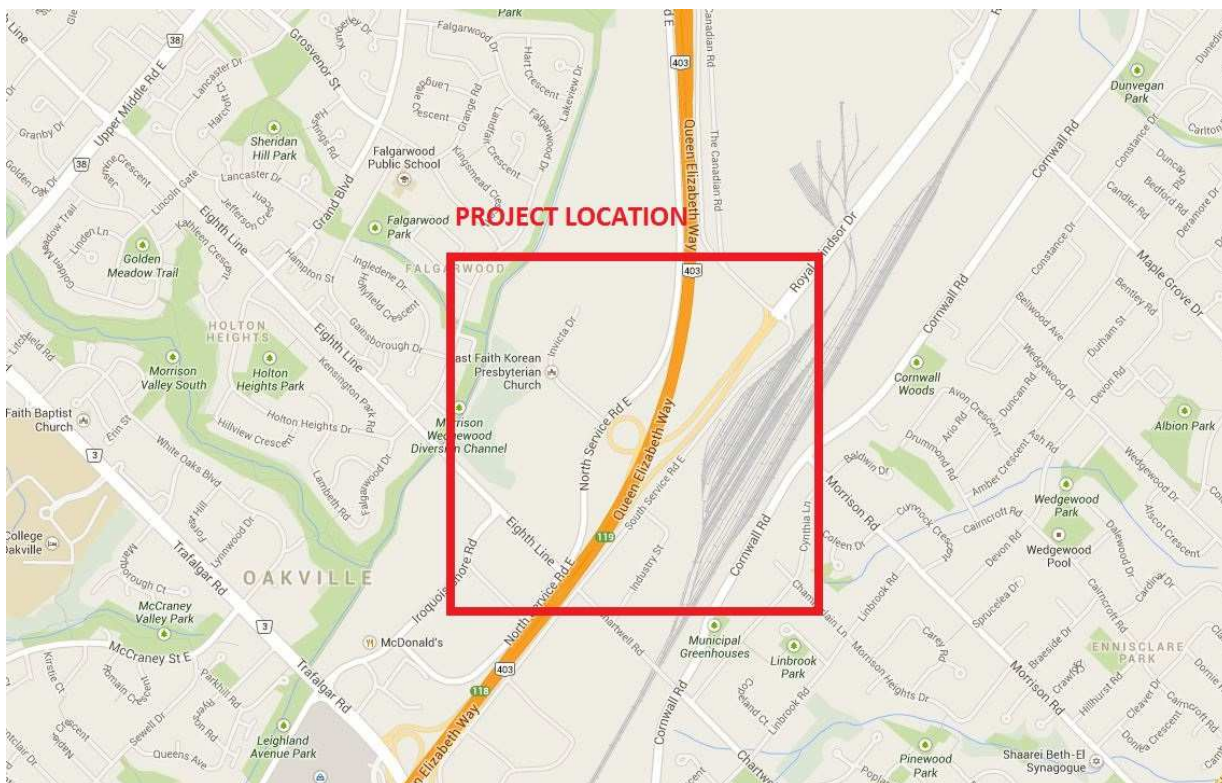
The following utility providers were contacted as part of the study process:

- Enbridge
- Union Gas
- Bell Canada Planning
- Oakville Hydro EDI
- Allstream
- Rogers Cable
- Cogeco Cable
- Trans-Northern Pipeline
- Town of Oakville
- Region of Halton

Following receipt of utility record information, the following possible utility conflicts were identified within the limits of the proposed improvements:

- Union Gas – Royal Windsor Drive
- Rogers – Royal Windsor Drive
- Bell – Royal Windsor Drive, South Service Road
- Oakville Hydro – Royal Windsor Drive
- Water – Royal Windsor Drive
- Sanitary – Royal Windsor Drive

Location Map:



DESIGN CRITERIA SHEET

HWY: South Service Road (West)

HWY NO.:n/a

LOCATION: Oakville

LENGTH: 625.47m

LIMITS:

FROM STA 3+000.0

TO STA 3+625.47

South Service Road (West)

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		ULU50	ULU50	ULU50
MINIMUM STOPPING SIGHT DISTANCE		60m	60-65m	60m
EQUIVALENT MINIMUM “K” FACTOR	CREST	NOT PROVIDED	6-7	Spline Profile
	SAG	NOT PROVIDED	5-6	Spline Profile
GRADES MAXIMUM		0.3%	6%-8%	0.3% ^(a)
RADIUS MINIMUM		62.5m	75m	75m
LANE WIDTH MINIMUM		3.45m	3.5-3.7	3.5m
SHOULDER WIDTH MINIMUM		C&G	C&G	C&G
SHOULDER ROUNDING		C&G	C&G	C&G
MEDIAN WIDTH		N/A	N/A	N/A
SIDEWALK WIDTH		1.5m	1.5m	1.5m/3.0m
BOULEVARD WIDTH		N/A	1.75m	2.5m
BOULEVARD ROUNDING		N/A	0.5m	0.5 m
R.O.W. WIDTH		14m	18m	18m
POSTED SPEED		50kph	50kph	50kph

Notes:

Match existing grade of South Service Road

TRAFFIC DATA:

Refer to Midtown Oakville ESR

Remarks:**1) Project Purpose and Scope**

The realignment of South Service Road to the west of Trafalgar Road is required to accommodate the proposed Ramp W-Cross at Trafalgar Road Interchange and the proposed pedestrian crossing of the QEW.

2) Design Year

The design horizon for the proposed road improvements is twenty years following the commencement of this study. This corresponds with a design year of 2031.

3) Adjacent Projects

None Identified

4) Environmental Assessment

Municipal Class Environmental Assessment is currently being undertaken.

5) Pavement

To be confirmed during detail design.

6) Drainage

It is proposed to accommodate all of the drainage on the proposed improvements by means of new curbs and catch basins. The storm water drainage design to be confirmed during detail design.

7) Roadside Safety

Concrete barrier will be provided between the QEW and South Service Road. Additional guide rail will be provided in accordance with the MTO Roadside Safety Manual where warranted by the proposed improvement works.

8) Signing

To be confirmed during detail design.

9) Illumination

To be confirmed during detail design.

10) Traffic Signals

N/A.

11) Commercial Entrances

The proposed road improvements will impact the existing entrances to commercial entrances on South Service Road.

These entrances will be reconfigured to accommodate the proposed improvement works. The design of the entrances will use a minimum curb radius of 4.5m and each intersection will be checked with Autoturn Software for heavy vehicle movements.

12) Intersections

New Stop Control Intersection will be provided at the following locations:

- Argus Road

13) Structures

N/A.

14) Active Transportation Infrastructure

Sidewalks:

- A 1.5m sidewalk will be provided on the north side to accommodate any future bus stop locations.
- A 3.0m multiuse path and a 2.5m boulevard will be provided on the south side.

15) Property Acquisition

The following property owners will be impacted by the proposed improvements:

590 ARGUS RD
226 S SERVICE RD E
232 S SERVICE RD E
166 S SERVICE RD E
586 ARGUS RD
99 S SERVICE RD E

16) Railway Crossings

N/A

17) Utilities and Pipelines

- Watermain
- Oakville Hydro
- Rogers
- Cogeco

18) Construction Staging

To be confirmed during detail design.

19) Legal Agreements and Approvals

To be confirmed during detail design.

20) Typical Sections

Refer to Preliminary Design Drawings for the proposed typical sections.

DESIGN CRITERIA

HWY NO. QEW

LOCATION: Trafalgar Road Interchange

LENGTH: 625.47m

LIMITS: FROM STA 3+000.0 TO STA 3+625.47

MUNICIPAL JURISDICTIONS:

Geographic Township(s) Oakville
Region of Halton

QUEEN ELIZABETH WAY

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		UFD120	UFD120	UFD120
MINIMUM STOPPING SIGHT DISTANCE		245m	245m	245m
EQUIVALENT MINIMUM "K" FACTOR	CREST	Not provided	K120	No Change
	SAG	Not provided	K60	No Change
GRADES MAXIMUM		1%	6%-7%	1%
RADIUS MINIMUM		1746m	650m	1746m
PAVEMENT WIDTH		3.75m	3.75m	3.75m
SHOULDER WIDTH		2.5m	3m	2.5m
SHOULDER ROUNDING		1.0m	1.0m	1.0m
MEDIAN WIDTH		8.0m	9.0m	8.0m
R.O.W. WIDTH		Varies		Varies
POSTED SPEED		100km/h	100km/h	100km/h
MISCELLANEOUS				

DESIGN CRITERIA

HWY NO. QEW

SOUTH SERVICE ROAD

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		ULU50	ULU50	ULU50
MINIMUM STOPPING SIGHT DISTANCE		60m	60-65m	60m ¹
EQUIVALENT MINIMUM "K" FACTOR	CREST	NOT PROVIDED	6-7	Splined Profile
	SAG	NOT PROVIDED	5-6	Splined Profile
GRADES MAXIMUM		0.3%	6%-8%	0.3%
RADIUS MINIMUM		62.5m	75m	75m
PAVEMENT WIDTH		3.45m	3.5-3.7	3.5m
SHOULDER WIDTH		C&G	C&G	C&G
SHOULDER ROUNDING		C&G	C&G	C&G
MEDIAN WIDTH		N/A	N/A	N/A
R.O.W. WIDTH		14m	18m	18m
POSTED SPEED		50kph	50kph	50kph
MISCELLANEOUS				

Notes:

DESIGN CRITERIA

HWY NO. QEW

LOCATION: Trafalgar Road Interchange

LENGTH: 236.65m

LIMITS: FROM STA 4+000.0 TO STA 4+236.65

MUNICIPAL JURISDICTIONS:

Geographic Township(s) Oakville
Region of Halton

ARGUS ROAD

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		ULU50	ULU50	ULU50
MINIMUM STOPPING SIGHT DISTANCE		65m	60-65m	65m
EQUIVALENT MINIMUM "K" FACTOR	CREST	NOT PROVIDED	6-7	NA
	SAG	NOT PROVIDED	5-6	13
GRADES MAXIMUM		0.06%	6%-8%	0.06%(a)
RADIUS MINIMUM		N/A	75m	185m
PAVEMENT WIDTH		4.5m	3.5-3.7	3.5m
SHOULDER WIDTH		C&G	C&G	C&G
SHOULDER ROUNDING		C&G	C&G	C&G
MEDIAN WIDTH		N/A	N/A	N/A
R.O.W. WIDTH		20m	20m	20m
POSTED SPEED		50kph	50kph	50kph
MISCELLANEOUS				

Notes:

A) Match existing grade of Argus Road

DESIGN CRITERIA

HWY NO. QEW

REMARKS:

Subject	Applicable to the Project	
	Yes	No *
1. Project Purpose and Scope	✓	
2. Design Year	✓	
3. Related Studies and Adjacent Projects	✓	
4. Environmental Assessment	✓	
5. Pavement		✓
6. Cross-Fall		✓
7. Superelevation		✓
8. Drainage	✓	
9. Roadside Safety		✓
10. Signing		✓
11. Illumination		✓
12. Traffic Signals		✓
13. Commercial Entrances		✓
14. Intersections	✓	
15. Structures	✓	
16. Pavement Widening on Curves		✓
17. Passing Lanes / Truck Climbing Lanes		✓
18. Fencing		✓
19. Active Transportation Infrastructure	✓	
20. Property Requirements	✓	
21. Railway Crossings		✓
22. Utilities and Pipelines	✓	
23. Construction Staging		✓
24. Legal Agreements and Approvals		✓
25. Miscellaneous		✓
* No indicates "Not applicable to this project as there are no changes from existing conditions." or "Not applicable to this project."		

DESIGN CRITERIA

HWY NO. QEW

Interchange Standards Table

INTERCHANGE NAME: Trafalgar Road Interchange

		RAMP NAME	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
CROSSING ROAD DESIGN SPEED		W-NS	80kph	80kph	80kph
RAMP DESIGN SPEED		W-NS	80kph	80kph	80kph
SIGHT DISTANCE REQUIREMENT FOR STOPPING, CROSSING AND TURNING MOVEMENTS AT THE CROSSING ROAD		W-NS	200m	200m	No change
EQUIVALENT MINIMUM "K" FACTOR	CREST	W-NS	K35	K35	No change
	SAG	W-NS	K30	K15	K30
GRADES MAXIMUM		W-NS	2.2%	6%-8%	2.2%
RADIUS MINIMUM		W-NS	90m	250m(desirable) 130m(minimum)	130m
PAVEMENT WIDTH		W-NS	2@3.75m	2@3.75m	2@3.75m
SHOULDER WIDTH (Right / Left)		W-NS	2.5m/1.0m	2.5m/1.0m	2.5m/1.0m
SHOULDER ROUNDING		W-NS	0.5m	0.5m	0.5m
SUPERELEVATION MAXIMUM RATE		W-NS	6%	6%	6%
SIGHT DISTANCE AT EXIT TERMINAL		W-NS	370m	370m	370m
EXIT TERMINAL SPEED-CHANGE LANE LENGTH		W-NS	535m	535m	535m

Notes

DESIGN CRITERIA

HWY NO. QEW

		RAMP NAME	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
CROSSING ROAD DESIGN SPEED		W-Cross		60 kph	60 kph
RAMP DESIGN SPEED		W-Cross		80 kph	80 kph
SIGHT DISTANCE REQUIREMENT FOR STOPPING, CROSSING AND TURNING MOVEMENTS AT THE CROSSING ROAD		W-Cross		130m	130m
EQUIVALENT MINIMUM "K" FACTOR	CREST	W-Cross		K35	K35
	SAG	W-Cross		K15	K8 ^(a)
GRADES MAXIMUM		W-Cross		6%-12%	3.36%
RADIUS MINIMUM		W-Cross		130m	130m
PAVEMENT WIDTH		W-Cross		4.75m	4.75m
SHOULDER WIDTH (Right / Left)		W-Cross		2.5m/1.0m	2.5m/1.0m
SHOULDER ROUNDING		W-Cross		0.5m-1.0m	0.5m-1.0m
SUPERELEVATION MAXIMUM RATE		W-Cross		0.06m/m	0.06m/m
SIGHT DISTANCE AT EXIT TERMINAL		W-Cross		240m	310m
EXIT TERMINAL SPEED-CHANGE LANE LENGTH		W-Cross		110m	110m

Notes

A) K8 provided at end of ramp. For a ramp design speed of 80kph minimum K permitted of 4 (40kph design speed). See table F5-1 of the GDM.

DESIGN CRITERIA

HWY NO. QEW

Project Purpose and Scope

The Midtown Oakville Class EA study aims to develop a practical, long-term strategy to guide the development of the transportation and municipal storm water network needed to accommodate the planned growth in Midtown Oakville to 2031, as identified in the Livable Oakville Plan, the town’s official plan.

The study considered a diverse range of options to satisfy future growth demands. Through the study process improvements to Trafalgar Road Interchange have been identified. These improvements include:

- Realignment of Ramp W-NS.
- Provision of new Ramp W-Cross from the QEW to the Midtown
- Realignment of South Service Road West
- Realignment of Argus Road.

Design Year

The design horizon for the proposed road improvements extend for the length of the town’s official plan, Liveable Oakville. This corresponds with a design year of 2031.

Environmental Assessment

A Class C Municipal Environmental Assessment is being undertaken by the Town to guide the future development of the Midtown Oakville.

Drainage

The existing drainage on the Ramp W-NS is accommodated via combination curbs and catch basin’s and drainage ditches.

It is proposed to accommodate all of the drainage on the proposed improvements on Ramp W-NS and the new Ramp W-Cross by means of new curbs and catch basins. A new storm sewer on Ramp W-Cross will be provided to accommodate drainage of the ramps. A low point will be created beneath Trafalgar Road that will be significantly lower than the surrounding topography. A separate storm pipe network will be required to connect this low point to the existing drainage network.

This will be finalised as part of the detail drainage design for the improvements.

Intersections

It is proposed to install the following signalized intersection:

Cross Avenue at Ramp/W-Cross

	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Cross Avenue)		60kph	60kph
MINOR ROAD DESIGN SPEED (W-Cross Ramp)		80kph	80kph
LEFT TURN LANE WIDTH		3.25m	None
LEFT TURN LANE TAPER		60m	None
LEFT TURN LANE STORAGE		70m	None
MINIMUM INTERSECTION RADIUS		1m	1m

It is proposed to relocate the following right in right out intersections:

DESIGN CRITERIA

HWY NO. QEW

Argus Road at Trafalgar Road

	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
MAJOR ROAD DESIGN SPEED (Trafalgar Road)		60kph	60kph
MINOR ROAD DESIGN SPEED (Argus Road)		80kph	80kph
LEFT TURN LANE WIDTH		3.25m	None
LEFT TURN LANE TAPER		60m	None
LEFT TURN LANE STORAGE		70m	None
MINIMUM INTERSECTION RADIUS		15m	15m

Structures

The proposed Ramp W-Cross at the Trafalgar Road Interchange will require the construction of a new underpass at Trafalgar Road. It is proposed to incorporate an active transpiration corridor into the structure to link the Midtown east and west of Trafalgar Road.

The underpass will be a solid cast in place structure. It is proposed to provide a 4.8m vertical clearance at the structure in accordance with C 4.4.3.1 of the GDM. GA drawings to be issued for Ministry approval following the approval of the geometric layout.

Active Transportation Infrastructure

To improve the east west connectivity of the Midtown it is proposed to include a multi use path at the Trafalgar Road underpass. The multiuse trail will accommodate both pedestrians and cyclists and will be 4.0m wide. The trail will connect to the proposed pedestrian crossing of the QEW on the west side of Trafalgar Road.

Further details of the multiuse path to be detailed on the Structural GA drawing.

Property Requirements

The proposed improvements at the Interchange will require additional property to be purchased. The following property owners will be impacted by the proposed improvements:

Street Nr	Street Name
590	ARGUS RD
226	S SERVICE RD E
232	S SERVICE RD E
570	TRAFALGAR RD
240	LEIGHLAND AVE
166	S SERVICE RD E
586	ARGUS RD
99	S SERVICE RD E

DESIGN CRITERIA

HWY NO. QEW

Utilities and Pipelines

The following utility providers were contacted as part of the study process:

- Enbridge
- Union Gas
- Bell Canada Planning
- Oakville Hydro EDI
- Allstream
- Rogers Cable
- Cogeco Cable
- Trans-Northern Pipeline
- Town of Oakville
- Region of Halton

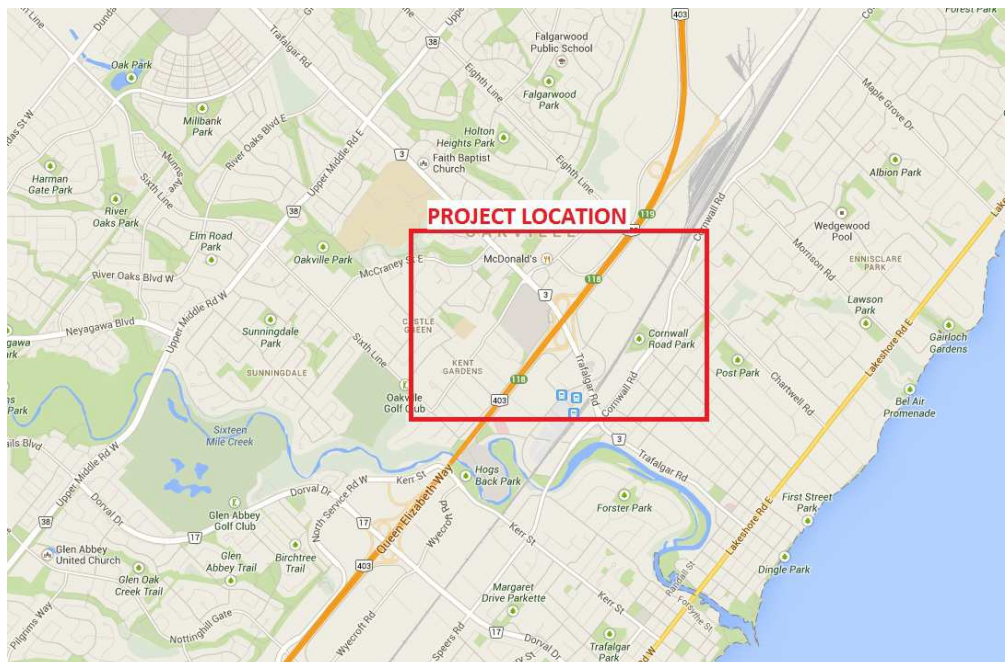
Following receipt of utility record information, the following possible utility conflicts were identified within the limits of the proposed improvements:

- Union Gas – Argus Road
- Rogers – Argus Road, Trafalgar Road, Ramp W-Cross
- Bell – Argus Road, Trafalgar Road, Ramp W-Cross, Ramp W-NS
- Oakville Hydro – Argus Road, Ramp W-Cross
- Water – South Service Road, Argus Road, Ramp W-Cross, Ramp W-NS
- Sanitary – South Service Road

The construction of the Ramp W-Cross may require the relocation of 30” and 36” watermain on the east side of Trafalgar Road. This requirement for this relocation will be confirmed at detail design stage.

No other significant relocation has been identified based on the utility information received.

Location Map



DESIGN CRITERIA SHEET

HWY: White Oaks Boulevard

HWY NO.: n/a

LOCATION: Oakville

LENGTH: 357m

LIMITS:

FROM STA 3+000

TO STA 3+357

White Oaks Boulevard

		PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
FUNCTIONAL HIGHWAY CLASSIFICATION		ULU50	ULU50	ULU50
MINIMUM STOPPING SIGHT DISTANCE		65m	60-65m	65m
EQUIVALENT MINIMUM “K” FACTOR	CREST	NOT PROVIDED	6-7	20
	SAG	NOT PROVIDED	5-6	25
GRADES MAXIMUM		NOT PROVIDED	6%-8%	4.0%
RADIUS MINIMUM		100m	75m	65m ^(a)
LANE WIDTH MINIMUM		3.0m	3.5-3.7 (GP) 3.75 (Bus)	3.5m
SHOULDER WIDTH MINIMUM		1.0m	C&G	C&G
SHOULDER ROUNDING		0.5m	C&G	C&G
MEDIAN WIDTH		N/A	2m	N/A
SIDEWALK WIDTH		N/A	1.5m	1.5m
BOULEVARD WIDTH		N/A	1.75m	3.0m
BOULEVARD ROUNDING		N/A	0.5m	0.5 m
R.O.W. WIDTH		24m	32m	20m
POSTED SPEED		50kph	50kph	50kph

Notes:

a) Due to land restriction unable to achieve minimum radius for 50kph design speed.

TRAFFIC DATA:

Refer to Midtown Oakville ESR

Remarks:**1) Project Purpose and Scope**

The realignment of White Oaks Boulevard is required to accommodate the proposed North South Crossing through the existing Town Hall site.

2) Design Year

The design horizon for the proposed road improvements is twenty years following the completion of this study. This corresponds with a design year of 2034.

3) Adjacent Projects

None Identified

4) Environmental Assessment

Municipal Class Environmental Assessment is currently being undertaken.

5) Pavement

To be confirmed during detail design.

6) Drainage

It is proposed to accommodate all of the drainage on the proposed improvements by means of existing and new curbs and catch basins. The storm water drainage design to be confirmed during detail design.

7) Roadside Safety

Road guide rail will be provided in accordance with the MTO Roadside Safety Manual where warranted by the proposed improvement works.

8) Signing

To be confirmed during detail design.

9) Illumination

To be confirmed during detail design.

10) Traffic Signals

N/A.

11) Commercial Entrances

The proposed road improvements will impact the existing entrances to commercial entrances on White Oaks

Boulevard. These entrances will be reconfigured to accommodate the proposed improvement works. The design of the entrances will use a minimum curb radius of 4.5m and each intersection will be checked with Autoturn Software for heavy vehicle movements.

12) Intersections

New Signal Control Intersection will be provided at the following locations:

- North South Crossing

13) Structures

N/A.

14) Active Transportation Infrastructure

Sidewalks:

- Two 1.5m sidewalk will be provided on both sides of the road.

Cycling:

- 1.5m bike lane will be provided on both sides.

15) Property Acquisition

The following property owners will be impacted by the proposed improvements:

1231	WHITE OAKS BOULEVARD
1235	TRAFALGAR ROAD
1225	TRAFALGAR ROAD
350	LYNNWOOD DRIVE

16) Railway Crossings

N/A

17) Utilities and Pipelines

- Bell
- Oakville Hydro
- Rogers
- Cogeco

18) Construction Staging

To be confirmed during detail design.

19) Legal Agreements and Approvals

To be confirmed during detail design.

20) Typical Sections

Refer to Preliminary Design Drawings for the proposed typical sections.