

The Corporation of the Town of Ajax

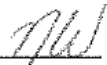
COMMUNITY AFFAIRS AND PLANNING COMMITTEE

Monday, May 6, 2013 at 7:00 p.m.

Council Chambers, Town Hall

65 Harwood Avenue South



Confirmed by: 

AGENDA

Anything in **blue** denotes an attachment/link. By clicking the links on the agenda page, you can jump directly to that section of the agenda. To manoeuvre back to the agenda page use the **Ctrl + Home** keys simultaneously. **OR** use the "Bookmark" icon to the left of your screen to navigate from one report to the

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S. Collier, Chair

1. Call To Order

2. Disclosure of Pecuniary Interest

3. Adoption of Minutes

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4. Public Meeting

4.1 **Town-initiated Zoning By-law Amendment Application Z1/12 Private Elementary and Secondary Schools & Places of Worship in the Prestige Employment Zone**, P. Allore, Director of Planning & Development Services / K. Heritage, Policy Planning Coordinator 7

4.2 **Church Street Improvements, Schedule C Class Environmental Assessment, Draft Environmental Study Report**, P. Allore, Director of Planning & Development Services / C. Coleman, Manager of Engineering/Capital Projects..... 19

5. Presentations

None

6. Reports

None

7. Adjournment

**Minutes of the
Community Affairs & Planning Committee
Meeting Held in the Council Chambers, Ajax Town Hall,
At 7:00 p.m. on April 2, 2013**

| | | | |
|----------|-----------------------------|---|-------------|
| Present: | Chair - Regional Councillor | - | C. Jordan |
| | Regional Councillor | - | S. Collier |
| | Councillors | - | M. Crawford |
| | | - | R. Ashby |
| | | - | J. Dies |
| | | - | P. Brown |
| | Mayor | - | S. Parish |

1. Call to Order (7:00 p.m.)

Chair Jordan called the meeting to order.

2. Disclosure of Pecuniary Interest

None

3. Adoption of Minutes

Moved by: S. Parish
Seconded by: R. Ashby

That the Minutes of the Community Affairs and Planning Committee Meeting held on March 18, 2013 be adopted.

CARRIED

4. Public Meetings

4.1 Lower Harwood Avenue Study and Street Treatment Design Recommendation Report

Christy Chrus, Senior Planner, introduced consultants Colin Berman and Michael Parker from Brook McIlroy, specializing in architecture, urban design, landscape architecture and planning. The purpose of the Lower Harwood Avenue Study was reviewed. Public consultation efforts to date were highlighted, including two public open houses, an online survey, and stakeholder phone interviews. It was noted that the majority of work being proposed through the Lower Harwood Study can be funded through the Federal Gas Tax Program.

Ms. Chrus reviewed the study area section by section, describing the proposed design and associated costs for each portion. The potential options of metered parking and bioswales were presented for consideration. Possible locations for public art and a designated special events area were identified. A multi-year phasing strategy, broken into four phases, was presented.

Members of the committee posed several questions related to turning lanes at both the Bayly & Harwood intersection, and the Harwood & Clover Ridge intersection. Discussion surrounded the desirability of “cycle tracks”, or off-road bicycle lanes that are physically separated from both motorized traffic, and how such lanes could be incorporated safely. With respect to the proposed special events area, members emphasized the need to design the area in a way that is attractive year-round, and not just in the warm months.

Discussion took place surrounding funding for the work proposed in the Study, and concerns that other projects may be delayed or eliminated to accommodate Lower Harwood enhancements. It was confirmed that there is sufficient capacity to fund the majority of the Lower Harwood Avenue Study works within a 5 year window, beginning in 2015. Certain competing priorities such as the expansion of Rossland Road would not be affected by this project, as such projects are not eligible for gas tax funding. Staff noted that Federal Gas Tax funding is expected to cover approximately \$3.5 million of the \$4.4 million project price.

Chair Jordan declared the meeting to be a public meeting and invited comments from members of the public.

Mr. Robertson, a resident in the Lower Harwood area, inquired about the possibility of left hand turn lanes at Clover Ridge for persons travelling north or south on Harwood. Staff noted that the study did not demonstrate sufficient demand to justify turning lanes at that location. However, the area would be considered again during the detailed design phase for that portion of Harwood.

Randy Horton, a resident of South Ajax, inquired as to whether the proposed reduction of Harwood south of Westney from 2 lanes to 1 lane in each direction would cause congestion issues. Staff noted that the reduction is not expected to cause congestion issues due to the very low volume of traffic using that portion of Harwood.

Florence Bell, a new resident to Ajax, inquired as to how the enhancements proposed in the Lower Harwood Study will fit in with potential future improvements to the Ajax Plaza and surrounding area. Ms. Chrus noted that all improvements to Harwood would be done with a mind to accommodating future development and improvement in the downtown area, taking future traffic and parking needs into consideration.

Gwen Pike, a resident of South Ajax, expressed concerns about the reduction of a portion of Harwood Avenue from two lanes each way, to one. Ms. Pike stated that she believes the study places too much emphasis on cyclists. Staff reiterated that a major piece of the overall goal and vision for the lower Harwood area is multi-modal transit.

Cathy Thompson, a resident in South Ajax, raised concerns regarding speeding vehicles on Lower Harwood, and inquired about plans to mitigate this problem. Staff and the consultants responded that the proposals for on-street parking with bump-outs, and the reduction to one lane each way will help to reduce speeding vehicles.

There being no further comments, Chair Jordan closed the public meeting.

Councillor Brown introduced an amendment to the recommendation proposing that the study area incorporate a Defence Industries Limited theme into its design. Several members offered comments in favor and in opposition to the amendment. It was clarified that the proposed amendment does not apply specifically to public art, but rather the streetscape and area as a whole. Staff clarified that a “DIL” theme would not likely be applied to street furniture such as benches, as it may compromise efforts to maintain consistency with street furniture throughout the Town.

Amendment

Moved by: P. Brown
Seconded by: S. Parish

That the recommendation be amended by adding the following clause:

“That the area incorporate design themes that honor the town’s history, specifically Defence Industries Limited, where possible.”

CARRIED

Recorded Vote:

YES: Councillor Brown, Regional Councillor Collier, Councillor Crawford, Mayor Parish,
Councillor Ashby, Regional Councillor Jordan
NO: Councillor Dies

Members of the Committee made summary comments prior to voting. The importance of ensuring that Ajax’s downtown is connected to its waterfront was emphasized. Members commented further on the proposed lane reduction on Harwood south of Westney, generally agreeing that traffic volumes in the area cannot justify four lanes, and that providing on-street parking in this area is preferable to building new parking over current green space along the waterfront.

Motion as Amended

Moved by: S. Parish
Seconded by: J. Dies

- 1) That the report to Community Affairs and Planning Committee entitled “Lower Harwood Avenue Study and Street Treatment Design Recommendation Report”, dated April 2, 2013 be endorsed;
- 2) That the Lower Harwood Avenue Study and Street Treatment Design be utilized to guide capital improvement projects along Harwood Avenue from Highway 401 to Lake Driveway;
- 3) That Council endorse the designated special events area on Harwood Avenue from Station Street to Bayly Street, linking Heritage Square to Pat Bayly Square; and
- 4) That Council endorse the designated public art locations for Lower Harwood Avenue as presented in this report dated April 2, 2013.
- 5) **That the area incorporate design themes that honor the town’s history, specifically Defence Industries Limited, where possible.**

CARRIED

4.2 **Town Initiated Zoning By-law Amendment Application Z5/12
81 Dowty Rd PT – 2 (81 Dowty Road)**

Kevin Heritage, Policy Planning Coordinator, delivered a presentation which overviewed Zoning By-law Amendment Application Z5/12, proposing that the subject lands be rezoned from General Employment (GE) to Prestige Employment (PE). Mr. Heritage responded to questions from the Committee regarding permitted uses within the GE zone versus the PE zone. The possibility and

desirability of a drive-through restaurant at the subject property was discussed, with members indicating concern that a drive-through could potentially impair the flow of traffic. Staff indicated that the use of the property would be determined as part of an offer of purchase and sale, which would come back to Council for approval.

Chair Jordan declared the meeting to be a public meeting and invited questions and comments from members of the public. Trevor Field, Ajax resident, inquired as to whether there are any height restrictions for proposed structures on the subject property. Staff noted that, while there is technically no height restriction, the allowable height of a building would be limited by the site's ability to provide sufficient parking. While a taller building with underground parking could technically be erected on the property, it is most likely that the property will be used for a one or two story structure. There being no further questions, Chair Jordan closed the public meeting.

Members of the committee made summary comments.

Moved by: P. Brown

Seconded by: J. Dies

- 1) That Town-initiated Zoning By-law Amendment Application Z5/12 to rezone the subject property from GE - General Employment to PE – Prestige Employment be endorsed; and
- 2) That staff be authorized to prepare and forward an implementing zoning by-law to Council for consideration at a future meeting.

CARRIED

**4.3 Site Plan Application SP12/12
Nino & Andy Scanga
60 Salem Road South**

Geoff Rowmanowski, Development Approvals Coordinator, delivered a presentation with respect to SP 12/12. The proposed site plan was overviewed, and a brief history on site and surrounding area was provided. Chair Jordan declared the meeting to be a public meeting and invited comments from members of the public. There being none, Chair Jordan closed the public meeting.

Members of the Committee made inquiries related to the “right-in, right-out” access on Salem Road, the amount of parking provided on the site, and noise restrictions during the construction phase.

Moved by: S. Collier

Seconded by: P. Brown

That the Ontario Municipal Board be advised that the Town of Ajax does not object to Site Plan Application SP12/12, submitted by Nino & Andy Scanga, to permit the development of two, one-storey commercial buildings located at the northwest corner of Salem Road South and Twilley Lane, subject to the owner finalizing all required drawings and entering into a site plan agreement with the Town of Ajax.

CARRIED

5. Presentations

None

6. Reports

None

7. Adjournment (9:10 p.m.)

Moved by: M. Crawford

Seconded by: S. Collier

That the April 2, 2013 meeting of the Community Affairs and Planning Committee be adjourned.
CARRIED

C. Jordan, Chair

N. Wellsbury, Deputy Clerk

**TOWN OF AJAX
REPORT**



REPORT TO: Community Affairs and Planning Committee

SUBMITTED BY: Paul Allore, M.C.I.P., R.P.P.
Director, Planning and Development Services

PREPARED BY: Kevin Heritage, M.C.I.P., R.P.P.
Policy Planning Coordinator

SUBJECT: **Town-initiated Zoning By-law Amendment Application Z1/12
Private Elementary and Secondary Schools & Places of
Worship in the Prestige Employment Zone**

WARD(S): 2, 3, 4

DATE OF MEETING: May 6, 2013

REFERENCE: Corporate Strategic Plan: Managing Growth – Preserve
Employment Lands

GGC Report, December 8, 2011 – “Background Report and
Town-initiated Draft Zoning By-law Amendment – Selected
Institutional Uses in the Prestige Employment Zone”

CAP Report, June 4, 2012 – “Town-initiated Zoning By-law
Amendment Application Z1/12 Private Elementary and
Secondary Schools & Places of Worship in the Prestige
Employment Zone”

RECOMMENDATION:

1. **That the Town-initiated Zoning By-law Amendment Application Z1/12 regarding Private Elementary and Secondary Schools & Places of Worship in the Prestige Employment Zone, to implement the Ontario Municipal Board’s Decision regarding ROPA 128 to the Durham Regional Official Plan dated January 9, 2013 (Case No: PL101409), be approved in order to:**
 - a) **remove places of worship from the list of permitted uses in the Prestige Employment Zone, save and except for the lands known as 360 Westney Road South, 877 Westney Road South, and 438 Monarch Avenue;**
 - b) **add a footnote to the permission of “commercial school” in the Prestige Employment Zone to indicate that it does not include elementary or secondary schools registered with the Ministry of Education;**

a zoning by-law amendment to implement the above noted Town-initiated Zoning By-law Amendment Application Z1/12, shall continue to be processed provided that a building permit is issued by the Town within 2 years from site plan submission, and if constructed, be considered as a legal non-conforming use; and

3. That a Zoning By-law to implement the above noted Town-initiated Zoning By-law Amendment Application Z1/12 be forwarded to a future Council meeting for review and approval.

Following public input and discussion, the Committee passed the above noted staff recommendation with the following exception:

- that places of worship be removed from the list of permitted uses in the PE – Prestige Employment Zone, **subject to continuing to permit all existing places of worship in the Prestige Employment Zone, as outlined in the alternative option presented in section 2.3.2 of the staff report.**

Although the amendment would prevent new places of worship from occupying sites within the Prestige Employment Zone where they do not currently exist, it also meant that the land use permission for a place of worship would continue on a site or a specific unit within a multiple tenanted building regardless of whether an existing place of worship moved from the site. Staff advised the Committee that such an amendment could only proceed if places of worship continued to be a permitted land use within the Employment Area designation in the Durham Regional Official Plan.

1.2 Regional Official Plan Amendment 128 (ROPA 128)

ROPA 128 was adopted by Regional Council on June 3, 2009, to implement the provisions of the Provincial Growth Plan for the Greater Golden Horseshoe (Growth Plan). Among other matters, it allocates population, household units, and employment and intensification figures that area municipalities are required to plan for and implement in their local official plans. ROPA 128 does not permit residential uses in Employment Areas, but other sensitive uses may be permitted as an exception, subject to applicable policies in area municipal official plans.

On October 27, 2010, the Ministry of Municipal Affairs and Housing issued its final decision on ROPA 128. The Ministry's decision and modifications included policies that prohibit certain "sensitive uses" including residential uses, senior citizen homes, elementary and secondary schools, and places of worship from employment areas. The policies however, would allow other sensitive uses (e.g.; day care facilities, provincial hospitals, and recreational uses) as an exception, by amendment to an area municipal official plan or zoning by-law, subject to land use compatibility. This approach provides lower-tier municipalities with some flexibility to determine what sensitive uses, other than residential uses, places of worship, senior citizen homes, and elementary and secondary schools, are appropriate in their designated employment areas. The sensitive uses, permitted by exception, are currently permitted in the Town's Official Plan and Zoning By-law.

Subsequent to the Ministry's final decision, ROPA 128 was appealed by several parties to the Ontario Municipal Board (OMB). Following several OMB prehearings and extensive discussions among the parties during the last half of 2012, the majority of the appellants signed and executed Minutes of Settlement to resolve various appeals to ROPA 128. On December 4,

2012 planning evidence was presented to the OMB in support of the Minutes of Settlement and the revisions to ROPA 128.

On January 9, 2013 the OMB released its decision to approve ROPA 128, save and except for six site-specific appeals. The OMB decision reflected the Ministry's decision, among other matters, to prohibit certain "sensitive uses" including residential uses, nursing and retirement homes, elementary and secondary schools, and places of worship from employment areas. The OMB decision also indicated that other sensitive uses may be permitted as an exception, by amendment to an area municipal official plan or zoning by-law, subject to compatibility.

2.0 DISCUSSION:

As required by the *Planning Act R.S.O. 1990, c.P.13, (Planning Act)*, Section 27 requires a lower tier municipality to amend its official plan and every by-law passed under section 34, to conform with a plan that comes into effect as the official plan of the upper-tier municipality. To implement this provision in the Planning Act, the local area municipalities in Durham Region must amend their official plans and zoning by-laws to implement the OMB ROPA 128 decision.

2.1 OPA No. 42 to the Ajax Official Plan

OPA No. 42 was adopted by Town Council on June 28, 2010. This adopted Amendment implements the employment policies of the Growth Plan and ROPA 128. OPA No. 42, among other matters, amends the Prestige Employment designation policies to exclude schools (registered with the Ministry of Education) and places of worship as permitted uses.

OPA No. 42 has been appealed to the OMB. Components of OPA No. 42 that now comply with the approved policies in ROPA 128 can now be considered by the OMB for approval, including the prohibition of private elementary and private secondary schools, and places of worship on lands designated Prestige Employment in the Ajax Official Plan. It is anticipated that this will be taken forward to the OMB by the end of 2013.

2.2 Zoning By-law 95-2003, as amended

To comply with the OMB ROPA 128 decision to, among other matters, prohibit certain "sensitive uses" including elementary and secondary schools, and places of worship from employment areas, Zoning By-law 95-2003, as amended, must be amended to:

- a) remove places of worship from the list of permitted uses in the PE – Prestige Employment Zone, except for three sites where site plan applications for places of worship are currently being processed as described in section 2.3 of this report;
- b) add a footnote to the permission of "commercial school" in the Prestige Employment Zone to indicate that it does not include elementary or secondary schools registered with the Ministry of Education;
- c) amend site-specific exceptions 61, 122, 136 to 140 inclusive, 152 and 156 to delete references to places of worship that include an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/seniors' programs are provided on lands in the vicinity of the Highway 401/Salem Road interchange; and

- d) amend site-specific exception 132 to delete the reference to a place of worship on lands located at the southwest corner of Westney Road and Clements Road.

2.3 Implementation Strategy

The *Planning Act* indicates that no new by-law that prohibits a land use shall prevent the same land use from being established where a building permit has been issued prior to the date of the passing of a new by-law. However, there are three sites where complete site plan applications have been submitted and are currently being processed, but no building permit has yet been issued (see Figure 1: Excerpt from Schedule A to the Ajax Official Plan - Proposed Places of Worship Pending Site Plan Approval). These sites include:

SP17/09 – Coptic Church – 360 Westney Road South

The applicant has received a copy of the final site plan agreement and is in the process of collecting the fees, securities and insurance. Further, final plans and legal documents are being prepared to convey or place an easement over the lands associated with the Duffins Trail.

SP15/11 – Jamatkhana – 438 Monarch Avenue

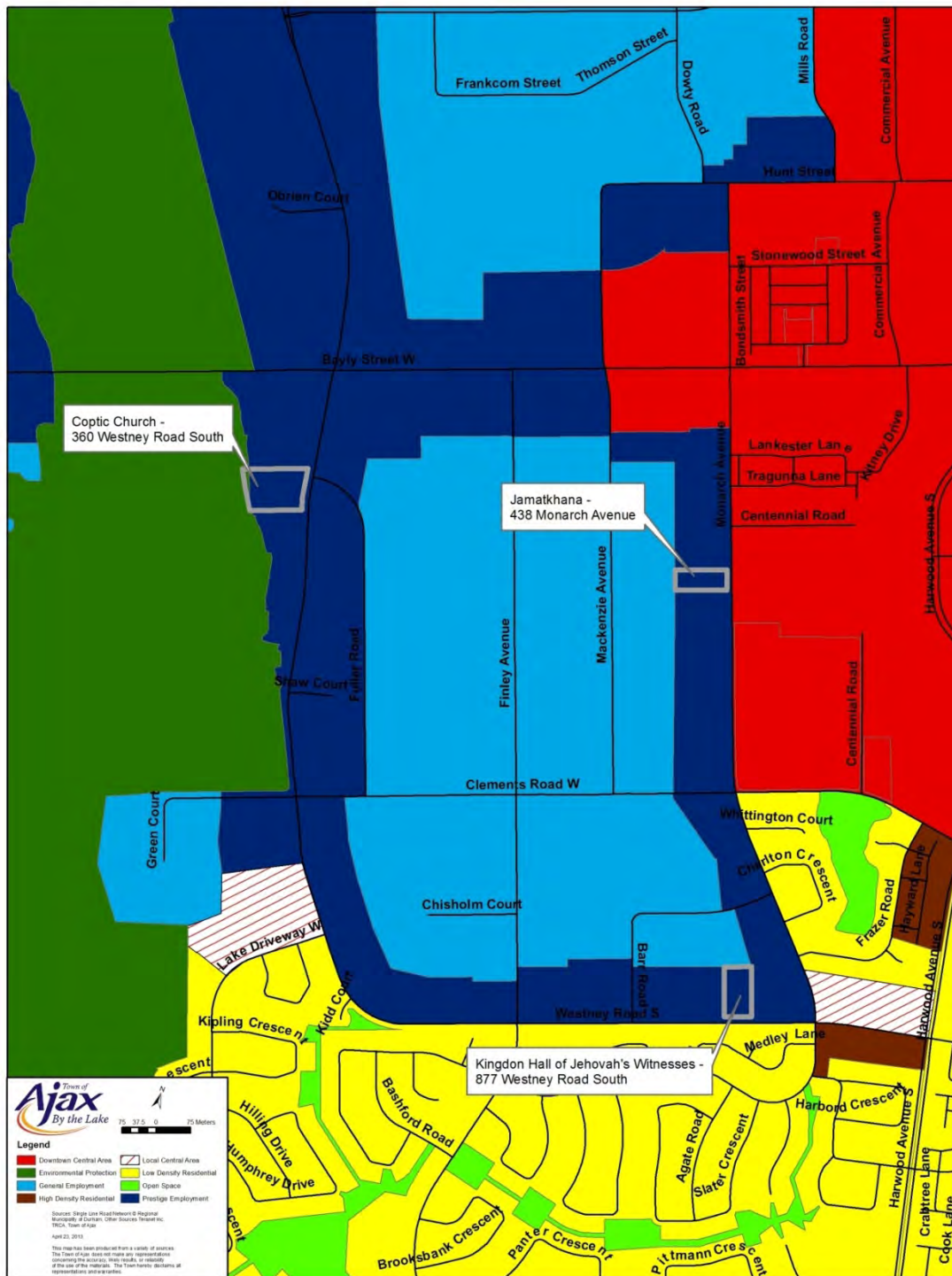
The applicant is addressing the Town's comments and should be submitting their final submission early in the Summer, 2013.


SP7/12 – Kingdom Hall of Jehovah's Witnesses – 877 Westney Road South

The applicant is addressing the Town's first submission comments. It is anticipated that the second submission comments will be submitted to the Town in the near future.

Based on the above, building permits for the subject sites will not be issued prior to the passing of a by-law to remove places of worship as a permitted use in the PE – Prestige Employment Zone. Consequently, if the subject by-law amendment were to include the three subject sites, the proposed places of worship would not be in conformity with the by-law, and the Town could not issue building permits. Staff acknowledge that applicants incurred a substantial expense to prepare drawings and background reports as part of their site plan application submissions. Staff therefore recommend that the three sites, continue to have a place of worship as a permitted use for a temporary period, to enable the issuance of building permits. Another by-law amendment could be brought forward within two years, which should provide the applicants with sufficient time to complete the site plan application process and obtain a building permit. This could be undertaken as a separate by-law, or as part of the Town's comprehensive zoning by-law update, which will commence in mid to late 2014. If the proposed places of worship are constructed and another amending by-law is passed, the places of worship on these sites would be legal non-conforming uses.

Should the proposed By-law be passed, all existing places of worship and private elementary and secondary schools in the Employment Zones, save and except for the three above noted sites, will become legal non-conforming uses. This permits them to legally continue operating in their existing locations as per their site plan or building permit approvals. Any building expansions will require the submission of a minor variance application and approval by the Town's Committee of Adjustment.



| | | |
|--|--|---|
| <p>Application File No.: Z1/12</p> <p>Applicant: Town of Ajax</p> <p>Date: May 6, 2013</p> | <p align="center">Figure 1</p> <p align="center">Excerpt from Schedule A to the Ajax Official Plan Proposed Places of Worship Pending Site Plan Approval</p> | <p>Town of Ajax Planning and Development Services</p>  |
|--|--|---|

3.0 FINANCIAL IMPLICATIONS:

There are no financial implications associated with the approval of this report.

4.0 COMMUNICATION ISSUES:

A notice advertising the Public Meeting was sent on April 2, 2013 to all people that have participated in the process to date, known places of worship and private elementary and secondary schools within the Town, those prescribed in Regulation, and to anyone that requested notice. Notice of the Public Meeting also appeared in the News Advertiser on April 10, 17, 24 and May 1, 2013.

5.0 CONCLUSION:

Based on the OMB's recent decision regarding ROPA 128, staff recommend that places of worship be removed as a permitted use in the Prestige Employment Zone, save and except for the lands known as 360 Westney Road South, 877 Westney Road South, and 438 Monarch Avenue. As outlined in staff's previous report, places of worship may be permitted to locate in residential and mixed use areas preferably along major transportation corridors such as Bayly Street, Kingston Road, Taunton Avenue, Church Street, and Harwood Avenue. Further, staff recommend that in compliance with the above noted OMB decision, that a footnote be added to the permission for "commercial school" in the Prestige Employment Zone to indicate that it does not include elementary or secondary schools registered with the Ministry of Education, thereby preventing such facilities to locate on new sites zoned Prestige Employment.

ATTACHMENTS:

ATT-1: Town-initiated Proposed Zoning By-law Amendment: Private Elementary and Secondary Schools & Places of Worship in the Prestige Employment Zone

Kevin Heritage, M.C.I.P., R.P.P.
Policy Planning Coordinator

Gary Muller, M.C.I.P., R.P.P.
Manager of Planning

Paul Allore, M.C.I.P., R.P.P.
Director, Planning & Development Services

ATT-1

Town-initiated Proposed Zoning By-law Amendment: Private Elementary and Secondary
Schools & Places of Worship in the Prestige Employment Zone

CORPORATION OF THE TOWN OF AJAX
BY-LAW NUMBER XX-2013

Being a By-law passed pursuant to the provisions of Section 34 of the Planning Act, R.S.O. 1990, c.P.13, as amended, to amend Zoning By-law No. 95-2003, as amended, of the Corporation of the Town of Ajax

WHEREAS authority is granted under Section 34 of the Planning Act, R.S.O. 1990, c.P.13, for Council to pass this By-Law;

AND WHEREAS a Public Open House was held on December 8, 2011 for the purpose of presenting a Background Report and Draft Zoning By-law Amendment for public consultation.

AND WHEREAS a Statutory Public Meeting was held in accordance with Section 34 of the Planning Act, R.S.O. 1990, c.P.13, as amended, on June 4, 2012 for the purposes of presenting a proposed Zoning By-Law Amendment.

AND WHEREAS the Ontario Municipal Board in its decision dated January 9, 2013 regarding Regional Official Plan Amendment 128 to the Durham Regional Official Plan, among other matters, to prohibit elementary and secondary schools and places of worship from locating within designated Employment Areas;

AND WHEREAS a Public Meeting was held in accordance with Section 34 of the Planning Act, R.S.O. 1990, c.P.13, as amended, on May 6, 2013 for the purposes of presenting this proposed Zoning By-law Amendment;

AND WHEREAS the matters hereinafter set forth in this By-law are in conformity with the Official Plan of the Regional Municipality of Durham and the Town of Ajax;

NOW THEREFORE the Council of the Corporation of the Town of Ajax **ENACTS** as follows:

1. **THAT** By-law Number 95-2003, as amended, is hereby further amended by adding the following footnote at the end of Section 6.4.1 'Employment Zones – Permitted Uses'

“(5) A place of worship shall continue to be permitted on lands known as 360 Westney Road South, 877 Westney Road South, and 438 Monarch Avenue.”

2. **THAT** By-law Number 95-2003, as amended, is hereby further amended by adding “(5)” after “Commercial School” in Section 6.4.1 'Employment Zones – Permitted Uses' to indicate that there is a footnote associated with the permission for a Commercial School

3. **THAT** By-law Number 95-2003, as amended, is hereby further amended by adding the following footnote at the end of Section 6.4.1 'Employment Zones – Permitted Uses'

“(6) A Commercial School shall mean a *premises* as a school conducted for gain, including a studio of a dancing teacher or a music teacher, an art school, a golf school or business school and any other similar specialized school, but shall exclude any elementary or secondary *school* registered with the Ministry of Education.”

4. **THAT** Exception 61, under Section 7.1.1, 'List of Exceptions', of By-law No 95-2003, as amended, is hereby further amended by deleting the second paragraph under Section iv) 'Prohibited Uses', shown in strikethrough for ease of reference:

~~"A Place of Worship that does not have an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/senior's programs are provided."~~

5. **THAT** Exception 122, under Section 7.1.1,'List of Exceptions', of By-law No 95-2003, as amended, is hereby further amended by deleting the second paragraph under Section iv) 'Prohibited Uses', shown in strikethrough for ease of reference:

~~"A Place of Worship that does not have an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/seniors' programs are provided."~~

6. **THAT** Exception 132, under Section 7.1.1, 'List of Exceptions', of By-law No 95-2003, as amended, is hereby further amended by deleting the phrase "Place of Worship" from the second paragraph under Section iii) 'Permitted Uses, shown in strikethrough for ease of reference':

~~Accessory Retail Sales Outlet, Commercial School, Light Manufacturing, Offices, Place of Worship, Personal Service Shop, and Warehouse/distribution centre~~

7. **THAT** Exception 136, under Section 7.1.1, 'List of Exceptions', of By-law No 95-2003, as amended, is hereby further amended by deleting the second paragraph under Section iv) 'Prohibited Uses', shown in strikethrough for ease of reference:

~~"A Place of Worship that does not have an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/seniors' programs are provided;"~~

8. **THAT** Exception 137, under Section 7.1.1, 'List of Exceptions', of By-law No 95-2003, as amended, is hereby further amended by deleting the second paragraph under Section iv) 'Prohibited Uses', shown in strikethrough for ease of reference:

~~"A Place of Worship that does not have an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/seniors' programs are provided;"~~

9. **THAT** Exception 138, under Section 7.1.1, 'List of Exceptions', of By-law No 95-2003, as amended, is hereby further amended by deleting the second paragraph under Section iv) 'Prohibited Uses', shown in strikethrough for ease of reference:

~~"A Place of Worship that does not have an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/seniors' programs are provided."~~

10. **THAT** Exception 139, under Section 7.1.1, 'List of Exceptions', of By-law No 95-2003, as amended, is hereby further amended by deleting the second paragraph under Section iv) 'Prohibited Uses', shown in strikethrough for ease of reference:

~~“A Place of Worship that does not have an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/seniors’ programs are provided;”~~

11. **THAT** Exception 140, under Section 7.1.1, ‘List of Exceptions’, of By-law No 95-2003, as amended, is hereby further amended by deleting the second paragraph under Section iv) ‘Prohibited Uses’, shown in strikethrough for ease of reference:

~~“A Place of Worship that does not have an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/seniors’ programs are provided;”~~

12. **THAT** Exception 152, under Section 7.1.1, ‘List of Exceptions’, of By-law No 95-2003, as amended, is hereby further amended by deleting the second paragraph under Section iv) ‘Prohibited Uses’, shown in strikethrough for ease of reference:

~~“A Place of Worship that does not have an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/seniors’ programs are provided;”~~

13. **THAT** Exception 156, under Section 7.1.1, ‘List of Exceptions’, of By-law No 95-2003, as amended, is hereby further amended by deleting the second paragraph under Section iii) ‘Prohibited Uses’.

~~“A Place of Worship that does not have an accessory day care facility and accessory offices from which counseling and/or children/youth/adult/seniors’ programs are provided;”~~

14. **THAT** By-law Number 95-2003, as amended, is hereby further amended only to the extent necessary to give effect to the provisions of this By-law

READ a first and second time this
XX day of XX, 2013.

READ a third time and passed this
XX day of XX, 2013.

Mayor

Clerk

EXPLANATORY NOTE TO BY-LAW XX-2013

The purpose of this Zoning By-law Amendment is to implement the OMB's decision regarding Regional Official Plan Amendment 128 to the Durham Regional Official Plan to, among other matters, prohibit certain sensitive land uses within employment areas. As such, the amendment:

- a) removes 'Place of Worship' and several site-specific exceptions that permit places of worship with accessory day care facilities and offices as permitted uses on lands zoned Prestige Employment, save and except for the lands known as 360 Westney Road South, 877 Westney Road South, and 438 Monarch Avenue; and
- b) adds a footnote to the permission of a 'Commercial School' in the Prestige Employment Zone to clarify that educational facilities required to register with the Ministry of Education (i.e.; public and private elementary and secondary schools) are not permitted on lands zoned Prestige Employment.

TOWN OF AJAX REPORT



REPORT TO: Community Affairs and Planning Committee

SUBMITTED BY: Paul Allore, MCIP, RPP
Director of Planning & Development Services

PREPARED BY: Carol Coleman, P.Eng.
Manager of Engineering, Capital Projects

SUBJECT: **Church Street Improvements, Schedule C Class Environmental Assessment, Draft Environmental Study Report**

WARD(S): 1

DATE OF MEETING: May 6, 2013

REFERENCE: GGC Report dated May 19, 2011, Contract Award – Church Street Improvements Class Environmental Assessment and Preliminary Design Capital Account No. 926711 – Church Street Environmental Assessment

RECOMMENDATION:

1. That the report entitled, "***Church Street Improvements, Schedule C Class Environmental Assessment, Draft Environmental Study Report***", by R.V. Anderson Associates Limited, dated April 3, 2013, be received for information; and
2. That Council endorse the preferred solution and preferred design as developed by R.V. Anderson Associates Limited in the April 2013 report entitled, "***Church Street Improvements, Schedule C Class Environmental Assessment, Draft Environmental Study Report***".

BACKGROUND:

In May 2011, the Town of Ajax retained R.V. Anderson Associates Limited to conduct a Municipal Class Environmental Assessment (EA) and preliminary design for improvements to Church Street from Rossland Road to Taunton Road (see Figure 1 below). The study was carried out in accordance with the requirements of Schedule 'C' of the Municipal Engineers Association, *Municipal Class Environmental Assessment*, as amended in 2007 and 2011.

The purpose of the study is to develop, assess and provide transportation improvements to support existing and planned developments. With new developments recently approved at the south end of the study area, the road system needs to accommodate the projected increase in vehicular, cycling and pedestrian activities.

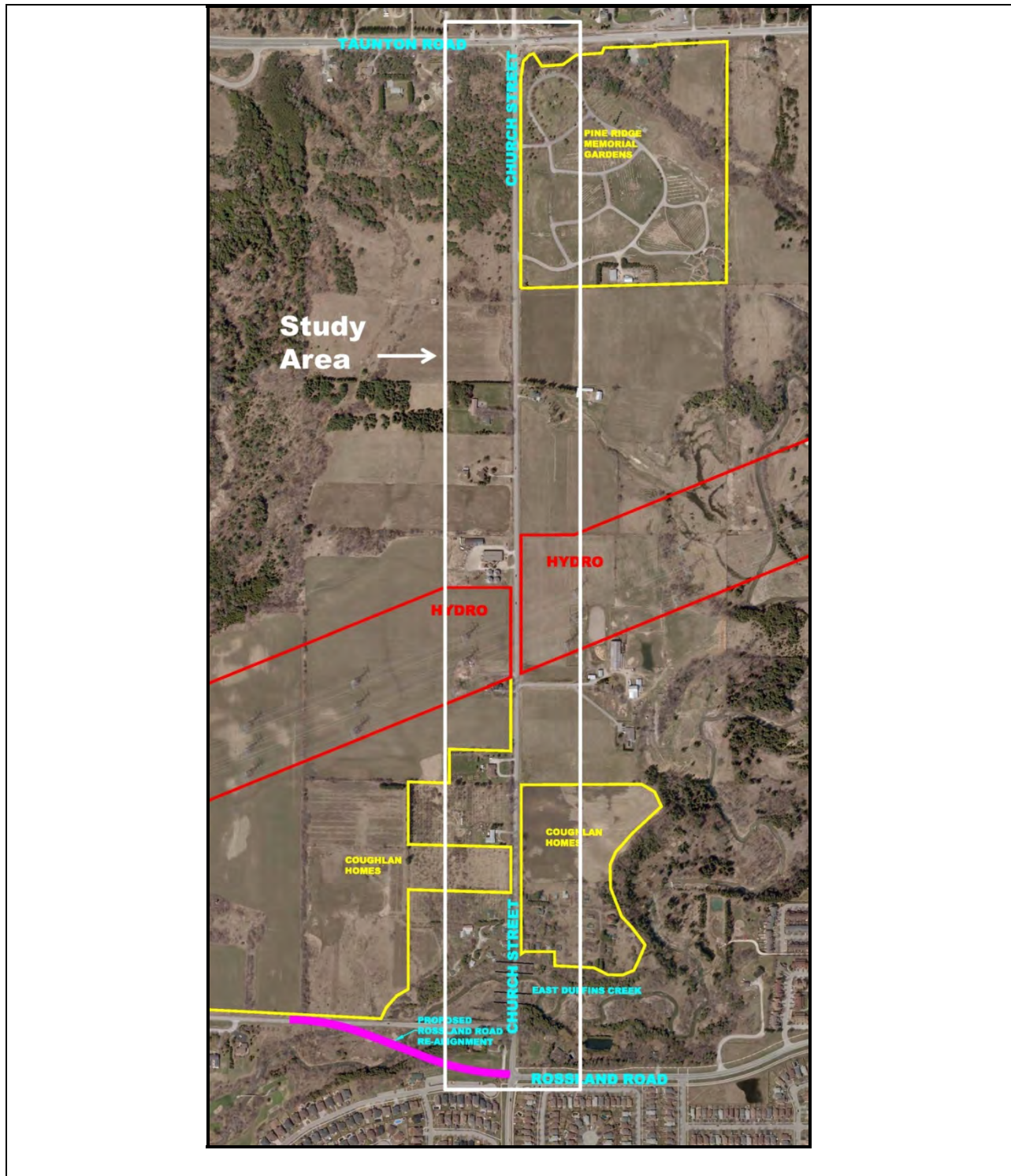


Figure 1
Study Area



In conjunction with the Town's growth projections associated with the A9 Secondary Plan and the Town's Transportation Master Plan, Church Street between Taunton Road and Rossland Road needs to be reconstructed. The total length of the study area is approximately 2.0 km. The road is classified in the Official Plan as a Type B Arterial Road and is a 2-lane, undivided, rural roadway. There is an existing 2 lane bridge structure over East Duffins Creek with a span of approximately 18 m.

The Ajax Pedestrian and Bicycle Master Plan has identified the need for active transportation infrastructure including sidewalks, multi-use trails and bike lanes in the vicinity of Church Street.

In 2009, the Region of Durham widened Taunton Road from 2 to 4 lanes and added traffic signals at the intersection of Taunton Road and Church Street. As part of the signal construction, Church Street was widened from Taunton Road to approximately 150 m south of Taunton Road to accommodate turn lanes.

Also in 2009, the Town of Ajax completed a Schedule 'C' Class Environmental Assessment for improvements to Rossland Road. The preferred design for Rossland Road includes:

- realignment of Rossland Road from the East Duffins Creek to Church Street;
- construction of a new structure over East Duffins Creek;
- construction of a new structure over Urfe Creek;
- reconstruction of Rossland Road from the west Town boundary to Church Street;
- installation of new traffic signals and intersection improvements at Rossland Road and Church Street;
- construction of a multi-use trail, sidewalk and on road bike lanes; and
- future widening of Rossland Road to a 5 lane urban standard.

The detailed design for Rossland Road is currently underway. The improvements, not including the widening, for Rossland Road are currently planned for 2014 and 2015. The future widening of Rossland Road to 5 lanes is outside of the current long range forecast.

DISCUSSION:

The following provides a summary of the "*Church Street Improvements, Schedule C Class Environmental Assessment, Draft Environmental Study Report*" (ESR). For a detailed account of the EA please see the attached report.

Problem/ Opportunity Statement

Transportation solutions are necessary to enhance safety and mobility of motorists, pedestrians and cyclists in the Church Street corridor. Specific problems/ opportunities to be addressed include:

- Increase in residential and commercial developments in the area will increase traffic volumes on Church Street for residents to access Taunton Road and Rossland Road.
- The roadway vertical curve at the Church Street bridge crossing Duffins Creek does not meet current standards.
- The existing roadway has traffic lanes and gravel shoulders which are less than current standard widths.
- The Town of Ajax Official Plan identifies Church Street reconstruction to include on-street bike lanes and a multi-use trail.

- Church Street is identified in the Transportation Master Plan (TMP) to maintain two lanes of traffic.
- Improvements to Church Street will provide an opportunity to:
 - Improve safety for all road users
 - Improve road conditions
 - Provide pedestrian and cycling facilities
 - Provide for future transit service

Alternative Solutions and Evaluation Process

The Class EA process requires that various reasonable and feasible solutions to the identified problem be examined, including the option of “Do Nothing”. The following components of possible solutions were considered for this project:

- Do Nothing;
- Physical improvements to existing bridge and road;
- Complete road and bridge reconstruction;
- Alternative modes of transportation (e.g., bike lanes, sidewalks, trails) by widening existing roadway; and
- Operational improvements – e.g. turning lanes, left turn advances at signals, etc.

Evaluation

The various solution components were then evaluated on the basis of how well the problems and opportunities could be addressed by each. To provide a basis for each component, the following criteria were used to evaluate strengths and weaknesses:

| | |
|---|---|
| <p>Technical Considerations</p> <ul style="list-style-type: none"> • Geometric design criteria • Traffic operations, corridor capacity and level of service • Pedestrian/ cycling operations • Transit operation | <p>Social & Economic Environment</p> <ul style="list-style-type: none"> • Impact on existing and future adjacent communities • Property requirements • Aesthetics • Noise impacts/ air quality |
| <p>Natural and Cultural Environment</p> <ul style="list-style-type: none"> • Aquatic, vegetation • Wildlife and wildlife habitat • Natural heritage • Archeological • Cultural heritage | <p>Economic Environment</p> <ul style="list-style-type: none"> • Construction cost • Maintenance and operating costs • Property acquisition costs • Utility relocation costs |

Preferred Solution

The preferred solution for Church Street is to completely reconstruct the road and bridge on Church Street from Rossland Road to Taunton Road to current design standards and widen to add on-street bike lanes, a sidewalk on one side and a multi-use trail on the other side of the roadway in accordance with the Official Plan and the Transportation Master Plan.

Alternatives Designs and Evaluation Process

Various alternative design concepts were generated and evaluated to implement the preferred solution including:

- Urban roadway with curb, gutter and storm sewer system or rural roadway with ditches;

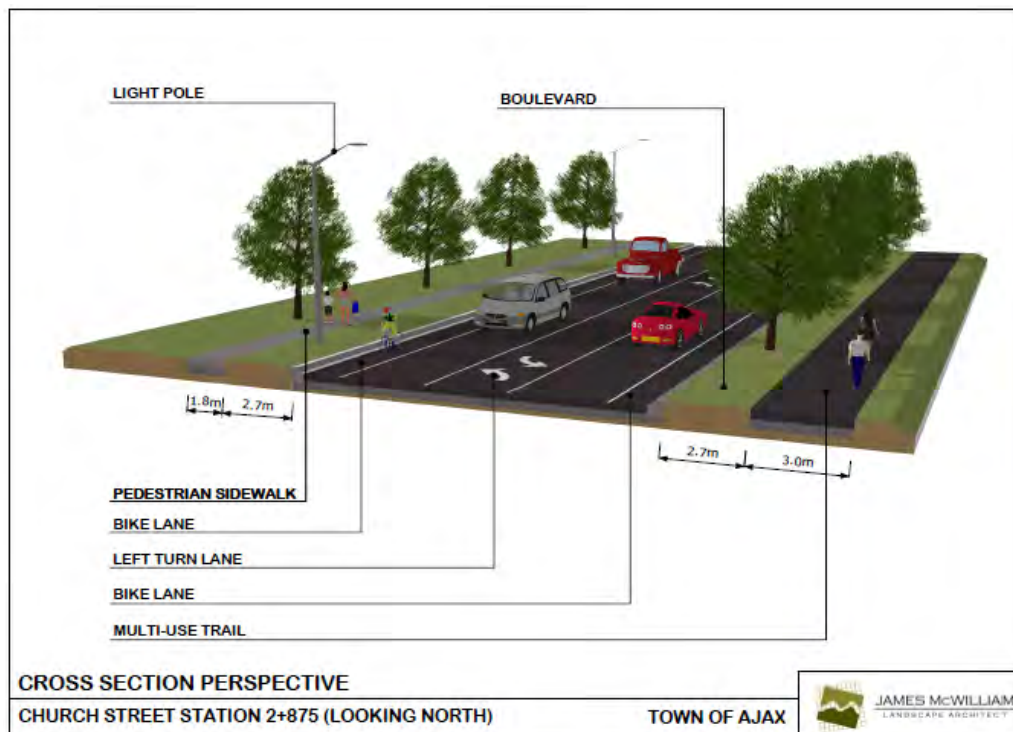
- Maintain existing centreline (which is west of the centre of the right-of-way), move centreline to centre of existing right-of-way or shift centreline to the east;
- Various road profiles with different elevations in the East Duffins Creek area;
- Intersection design alternatives – roundabout or standard four-way intersection; and
- Bridge alternatives – different bridge lengths and locations of piers and abutments.

The various design alternatives were evaluated based on similar criteria that was used to evaluate the alternate solutions (as listed above).

Preferred Design

Based on the detailed evaluation, the preferred design for Church Street includes the following:

- Urban cross section (curbs, gutters and storm sewer system);
- On-street bike lanes;
- Sidewalk on the west side;
- Multi-use trail on the east side;
- Continuous left turn lane from north of East Duffins Creek to Taunton Road;
- Shift roadway centreline to the east of the centre of the existing right-of-way;
- Provide roundabouts at two of future intersections with the proposed A9 development;
- Replace the existing bridge over East Duffins Creek with a three-span, pre-stressed concrete structure with a bottom opening of 60 m and a top span of 97 m



Consultation

In accordance with the Municipal Class EA process, two Public Information Centres (PICs) were held. The first was held in February 2012 and the second in October 2012. As well, the public was invited to submit comments throughout the study. Information was also made available on the Town's website.

A summary of the main feedback is provided below. For a complete list of comments and responses, please see the ESR.

| Theme/Issue | Comment / Concern | Response |
|--|--|---|
| Pedestrian / Cycling Facilities | <ul style="list-style-type: none"> Why build on-street bike lanes? Nobody uses them. Happy to see the bike lanes provided on Church Street | <ul style="list-style-type: none"> It is the Town's vision to provide a bike network for active transportation. Usage of bike lanes should increase once the network of active transportation is complete. |
| | <ul style="list-style-type: none"> No on-road bike lanes. Provide off-road bike lanes. On-road bike lanes are too dangerous. | <ul style="list-style-type: none"> On-road and off-road bike lanes will be provided to accommodate different level of cyclist. |
| | <ul style="list-style-type: none"> Will a sidewalk be built along Church Street when this road upgrade is made? | <ul style="list-style-type: none"> A sidewalk will be provided on the west side of Church Street with a multi-use trail on the east side |
| | <ul style="list-style-type: none"> Will the new bridge accommodate the multi-use trail? | <ul style="list-style-type: none"> The new bridge will accommodate a multi-use trail. |
| Transportation and Engineering | <ul style="list-style-type: none"> Questions about the appropriateness and function of roundabouts on Church Street for traffic calming and transit. Prefer the use of a roundabout than a traffic light in the A9 intersection. | <ul style="list-style-type: none"> The EA included a detailed evaluation of roundabouts and other intersection options and roundabouts are the preferred design. A properly designed roundabout will achieve traffic calming as the proposed driving speed in a roundabout shall be no higher than 25 km/h, therefore forcing drivers to slow down when they enter the roundabout. The roundabouts can accommodate transit vehicles. |
| | <ul style="list-style-type: none"> South of Rossland Road, Church Street needs to be widened to free up traffic. | <ul style="list-style-type: none"> A separate Class EA will need to be completed to assess the needs for Church Street south of Rossland Road. |
| Environmental | <ul style="list-style-type: none"> Concerns regarding the impact to the natural environment at the East Duffins Creek area. | <ul style="list-style-type: none"> We are working with the Toronto Region Conservation Authority and Ministry of the Environment to minimize negative natural environmental impacts. |
| | <ul style="list-style-type: none"> Will the Church Street work increase average flow to East Duffins Creek? | <ul style="list-style-type: none"> Stormwater management will be used to minimize negative environmental impact to Duffins Creek. |
| | <ul style="list-style-type: none"> Noise impact to the properties along Church Street. | <ul style="list-style-type: none"> Noise study has been completed to assess noise impact with recommended mitigation measures. |
| | <ul style="list-style-type: none"> Vegetation on the west side of Church south of Taunton Road. Will it remain? | <ul style="list-style-type: none"> Impacts to the vegetated area have been minimized with the preferred road alignment. Minor vegetation will be required to install the sidewalk. |
| | <ul style="list-style-type: none"> Dust control during and after construction. | <ul style="list-style-type: none"> Dust Control (use of water and calcium chloride) will be required during construction to minimize dust in the area. |
| Planning/Other | <ul style="list-style-type: none"> Can the Town provide a bailey bridge to avoid closing Church Street during construction? | <ul style="list-style-type: none"> Due to the tight right-of-way north and south of the Duffins Creek area, increased environmental impacts and increase costs, it is not feasible to provide a bailey bridge with a temporary |

| Theme/Issue | Comment / Concern | Response |
|-------------|--|--|
| | | road during construction. |
| | <ul style="list-style-type: none"> • Accessibility for local residents during construction. | <ul style="list-style-type: none"> • During construction local residents will have access to their residences. They will be notified about the construction and possible detour routes. |
| | <ul style="list-style-type: none"> • Agreed with the replacement of the bridge at East Duffins Creek but the proposed bridge seems excessive. | <ul style="list-style-type: none"> • The opening of the proposed bridge is to accommodate the meander rate of East Duffins Creek. A detailed Geomorphic Analysis was completed to determine the required opening. |

In addition to public consultation, during the EA process the following stakeholders were contacted for input:

| | |
|---------------------------------------|---|
| Ministry of Environment | Indian and Northern Affairs Canada |
| Region of Durham | Ministry of the Attorney General |
| Durham Transit | Ontario Secretariat of Aboriginal Affairs |
| Town of Ajax | Ministry of Culture |
| Durham District School Board | Ministry of Municipal Affairs and Housing |
| Durham Catholic District School Board | Ministry of Natural Resources |
| Transport Canada | Toronto and Region Conservation Authority |
| Local First Nation Groups | Hydro One Networks Inc. |
| Enbridge Pipelines | Enbridge Gas Distribution Inc. |
| Rogers Cable Systems Ontario Ltd. | Bell Canada |
| Cougs Development | |

All issues raised by these stakeholders have been included in the ESR report.

Proposed Implementation

The Church Street improvements are recommended to be completed in two phases. The first phase is targeted for construction in 2017 subject to Council and budget approval. Phase 1 construction limits will be from Rossland Road to approximately the Hydro Corridor and Phase 2 will be from Hydro Corridor to Taunton Road.

Summary of Preliminary Construction Cost Estimate

| Phase | Scope | Estimated Construction Cost |
|--------------|---|-----------------------------|
| 1 | Reconstruction from Rossland Road to south property line of Hydro Corridor including bridge replacement at East Duffins Creek | \$8,676,000 |
| 2 | Reconstruction from south property line of Hydro Corridor to Taunton Road | \$5,130,000 |
| Total | | \$13,806,000 |

Property Requirements

The current right-of-way on Church Street along most of the roadway area is 20 metres. The required right-of-way for the ultimate construction is 30 m. As a result the Town will ultimately need to acquire 5 m of land on each side of the road. This land will be acquired as much as possible through land development applications, to minimize the cost to the Town. In areas that

will not be further developed, such as the hydro corridor and the cemetery, the land may need to be purchased from the associated landowners.

Potential Environmental Impacts and Proposed Mitigation Measures

Anticipated impacts to the natural, social/ economic and cultural environments together with proposed mitigation measures were identified in the ESR and will be included with the detailed design of this project. The most significant of these impacts and the recommended mitigation are shown below. More details of these impacts and mitigation measures are provided in the attached ESR.

| Issue | Proposed Mitigation |
|-------------------------------|--|
| Noise Attenuation | Based on the noise study undertaken for this project, mitigating measures will be required at 1070 Church Street. |
| Landscaping and Streetscaping | Trees and vegetation will be removed as part of the project due to the road widening and construction. The proposed preliminary streetscaping plan included in this report outlines the proposed location and strategy for installing new trees along Church Street. At the East Duffins Creek valley area, tree compensation plan shall be submitted to the TRCA for review and approval. |
| Hydrogeology | <p>Temporary dewatering might be required during construction of the storm sewer due to high water level. Specific details regarding the nature of dewatering and potential affects will be addressed during detail design.</p> <hr/> <p>There are some wells in the study area located adjacent to the Church Street right-of-way. If dewatering is required, these wells will need to be monitored during construction and potable water may need to be supplied to residences.</p> |
| Terrestrial | <p>Impacts to the natural vegetation cover are anticipated. Tree compensation will be required. Tree planting in the study area will be part of the tree compensation with additional tree planting in the East Duffins Creek area to compensate for the vegetation removal due to the bridge work.</p> <hr/> <p>At the south west corner of Taunton Road and Church Street, impacts to the vegetated area have been minimized with the preferred road alignment. Minor vegetation will be required to install the sidewalk.</p> |
| Migratory Bird | No impacts to breeding bird species and their habitat are expected. However, clearing or disruption of vegetation where birds may be nesting should be completed outside of the window of April 1 to July 31 if possible. If not possible, a nesting survey should be conducted prior to the work as identified above and a mitigation plan developed and provided to Environment Canada – Ontario Region for review prior to implementation. |
| Aquatic | <p>Under their Level 3 Agreement with DFO, the TRCA has the ability to review and screen projects affecting fish and fish habitat. On review the TRCA can provide screening through the issuance of a letter of advice. If the works are determined to constitute a harmful alteration, disruption or destruction of fish habitat, authorization for all works is required from DFO.</p> <hr/> <p>Construction activities within the areas regulated by TRCA will require a TRCA permit. This includes bridge and culvert works and grading within the regulation limit.</p> |
| Stormwater | To deal with the loss of quality treatment due to removal of the ditch, a treatment train that consist of oil grit separators and infiltration trenches as part of the best management practices will be used to provide the quality treatment required by the TRCA on both sides of the East Duffins Creek. |

| Proposed Mitigation | |
|---|--|
| Issue | |
| | A Permit to Take Water may be required from MOE for temporary dewatering activities during construction of sewer system and the proposed bridge piers and abutments. |
| Cultural Heritage | Prior to removing the existing Church Street bridge, a cultural heritage evaluation report must be completed and approved by the Ministry of Tourism and Culture. |
| Archaeological | Any person discovering human remains must immediately notify the office of the Heritage Operations Unit, Ministry of Tourism and Culture, the police or coroner, and the Registrar of Cemeteries, Cemeteries Regulation Unit, Ministry of Government Services. A Stage 3 Archeological Assessment will be completed prior to construction. |
| Property Requirements | A 5 m property widening will need to be obtained on both sides of Church Street. Impacts to the owner will be low as existing houses are set far back from Church Street, except at the bridge area. Use of retaining walls is recommended to minimize property impacts. Properties obtained from property owners will require tree removals resulting in loss of privacy. New trees can be planted within the right-of-way in front of owner's houses as compensation. |
| Visually Impaired Accessibility of Roundabout | The Town is to monitor progress with the latest technologies and standards for providing crossing aid for the visual impaired at the proposed roundabouts. Further investigation is to be conducted during detail design. |
| Utility Relocation | Due to the long length of the proposed Church Street bridge, it is recommended discussion with Veridian take place early to determine the best approach further pole relocations. |
| Inconvenience During Construction | Impacts will be unavoidable. The Town will attempt to mitigate impacts and keep construction time frame as short as possible. |
| Access to Driveway | Residents along Church Street will have access to their driveways at all times except for short duration while construction occurs in front of the property. |

NEXT STEPS:

A copy of the draft ESR has been sent to the TRCA and Region of Durham for review and comment. The responses received from those stakeholders and received as a result of this Public Meeting will be reviewed and incorporated into the final Environmental Study Report.

It is expected that the final ESR report will be placed on public record for the mandatory 30 day review period beginning in June 2013 and a Notice of Study Completion for the EA will be sent at that time.

COMMUNICATION ISSUES:

The Class Environmental Assessment process included an extensive external consultation program that included:

- Issuance of a Notice of Study Commencement
- Maintenance of a contact list for interested parties
- Discussions and correspondence with all stakeholders
- Issuance of public notices for Public Information Centres

-
- Two Public Information Centres
 - Information posted on the Town's Website

All efforts were made to ensure that stakeholders were involved in the evaluation of the alternatives and selection of the preferred solution.

CONCLUSION:

The Church Street Improvements Schedule 'C' Class Environmental Assessment has achieved its overall objectives by successfully:

- Consulting and addressing concerns of affected parties throughout the planning process;
- Considering a reasonable range of alternatives for implementing the solution;
- Identifying and considering the effects of each alternative on all aspects of the environment;
- Systematically evaluating the alternatives to determine their net environmental affects; and
- Providing clear and complete documentation of the planning process.

It is therefore the recommendation of staff that the enclosed report be endorsed by Council.

ATTACHMENTS:

ATT-1: Church Street Improvements, Schedule C Class Environmental Assessment, Draft Environmental Study Report", by R.V. Anderson Associates Limited, dated April 3, 2013

Carol Coleman, P.Eng.
Manager of Engineering, Capital Projects

Paul Allore, MCIP, RPP
Director of Planning and Development

**CHURCH STREET IMPROVEMENTS
SCHEDULE C CLASS ENVIRONMENTAL ASSESSMENT**

ENVIRONMENTAL STUDY REPORT

DRAFT

April 3, 2013

Prepared for:

The Town of Ajax

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- Table 5-5 - Evaluation of Bridge Options
- Table 6-1 - Preliminary Road Design Criteria
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Appendices

- Appendix A - Correspondence and Minutes
- Appendix B – Notice of Study Commencement and PIC #1 and PIC #2
- Appendix C – Summary of PIC #1
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- Appendix E – Traffic Study
- Appendix F – Geomorphic Report
- Appendix G – LGL Natural Environment Report
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- Appendix I – Cultural Heritage
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- Appendix K – Geotechnical Report
- Appendix L – MEI Class EA
- Appendix M – Hydraulics
- Appendix N – Stormwater Management Design Brief
- Appendix O – Streetscaping Plan
- Appendix P – Preliminary Plan and Profile Option 1 and 2
- Appendix Q – Design Memos
- Appendix R – Cost Estimate

EXECUTIVE SUMMARY

Background

The Town of Ajax is planning to improve the existing condition of Church Street from Rossland Road to Taunton Road. With new developments recently approved in the study area, the road system needs to accommodate the projected increase in vehicular, cycling and pedestrian activities.

In the Town of Ajax's Official Plan, Church Street is identified as a Type B arterial road. Church Street is identified as one of the roads recommended to be investigated for the possible use of roundabouts. The Ajax Pedestrian and Bicycle Master Plan has also identified the need for "Active Transportation – Walking and Cycling" to be incorporated into proposed road projects.

Currently Church Street is a two-lane rural road in fair condition with one vertical curve at the Rossland Road and Church Street intersection which does not meet the current geometric standards. The Town has conducted a bridge inspection in 2012 and the report recommended a few minor repairs to the bridge but found the bridge to be in good structural condition.

There are two existing storm sewer outlets within the project area. One of the outlets is located in the north abutment of the existing Church Street bridge at East Duffins Creek and the second outlet is located in the south abutment of the bridge. The existing bridge location is the low point of the project area. Stormwater from south of Taunton Road drains south along the existing roadside ditch and flows into a short section of storm sewer just north of the bridge. The storm sewer directly discharges the storm water into the East Duffins Creek at the north abutment. South of East Duffins Creek, an existing storm sewer system conveys drainage of Rossland Road from west of Ravenscroft Road to Church Street and discharge directly into East Duffins Creek at the south abutment.

Municipal Class Environmental Assessment (EA)

This report summarizes the Class EA that was conducted to select the preferred design concept for improvements to Church Street based on an assessment of the following categories: technical considerations, potential impacts on social, economic, natural and cultural

environment, and cost. The Class EA also identifies the measures to mitigate any impacts from the road reconstruction.

Public and Agency Consultation

The Municipal Class EA followed the Schedule C process and notices were issued in a variety of methods to advise the public of the commencement of the Class EA, the public Information centre and the completion of the Class EA. Copies of these notices were sent to stakeholders, various government agencies, authorities and interest groups.

Natural Environment

A natural environmental study of the project area did not identify any species with special concern, threatened or endangered from the vegetation communities and wildlife habitat. Careful considerations will be required when working near the East Duffins Creek to minimize impact on existing wildlife and vegetations communities.

Alternative Solutions

The Class EA process requires that all reasonable and feasible solutions are examined to resolve the problems of the project. The following alternative solutions were investigated to address the identified problems:

- Do Nothing
- Physical improvements to existing facilities
- Complete road and bridge reconstruction
- Alternative modes of transportation by widening existing roadway
- Operational Improvements

Based on the assessment of the project requirements and study area sensitivities, the following criteria were adopted to assess the project alternatives solutions:

Technical Considerations:

- Geometric Design Criteria
- Traffic Operations and Corridor Capacity and Level of Service

- Pedestrian/Cycling Operations
- Transit Operation

Social & Economic Environment:

- Impacts on Existing and Future Adjacent Communities
- Property Requirements
- Aesthetics
- Noise impacts / Air quality

Natural and Cultural Environment:

- Aquatic, Vegetation
- Wildlife and Wildlife Habitat
- Natural Heritage
- Archaeological; and
- Cultural Heritage

Costs:

- Capital Cost
- Maintenance and Operating Costs
- Property Acquisition Costs
- Utility Relocation Costs

Based on the evaluation and incorporating feedback and comments from the public and agencies, it is confirmed that the preliminary preferred solution is to completely reconstruct Church Street from Rossland Road to Taunton Road to current design standards and widen to add on-street bike lanes, a sidewalk on one side and a multi-use trail on the other side of the roadway in accordance with the Official Plan and Transportation Master Plan.

Design Concepts

Various alternative design concepts were generated for the project as follows:

- Road cross section alternatives - urban roadway with curb, gutter and storm sewer system or rural road with ditches.
- Road centreline alternatives – maintain existing centerline, shift centreline to centre of right-of-way or shifting the centreline to the east.
- Road profile alternatives – different profiles with different elevations in the East Duffins Creek area.
- Intersection design alternatives – stop control on side streets, roundabout or standard traffic signal
- New bridge alternatives - different length of bridge and location of bridge piers and abutments.

Based on the evaluation and incorporating feedback and comments from the public and agencies, it is recommended that Church Street be improved to an urban road with on street bike lanes in each direction, as well as sidewalk on the west side and a multi-use path on the east side. The recommended centreline will shift to the east, minimizing property cost for the Town as property acquisition on the west side can be delayed until future site development occurs. The recommended profile at the East Duffins Creek area will be improved to meet the current geometric standard. The recommended design incorporates a continuous left-turn lane from north of East Duffins Creek to Taunton Road. Drainage will be provided by a new storm sewer system. The bridge over the East Duffins Creek is recommended to be replaced with a new bridge incorporating two traffic lanes, bike lanes, sidewalk and multi-use path. Two proposed roundabouts are proposed along Church Street. Utility relocations will be required throughout the project to avoid conflicts with the widened roadway. The existing Church Street right-of-way is recommended to be widened from the existing 20 m width to a minimum of 30 m to accommodate the recommended improvements.

Impact Assessment and Mitigation Measures

Below are the categories of the identified concerns for the preliminary design for Church Street. Details of the impacts and mitigation measures can be found in Section 7.0.

- Property Requirements & Access
- Septic Beds and Wells
- Traffic Noise Impacts
- Dust and Noise Control
- Disposal of Excess Material
- Natural Environment
- Storm Drainage
- Monitoring
- Archeological
- Heritage and Cultural Resources
- Mitigation Strategy
- Summary

The greatest impacts will occur while constructing the bridge at East Duffins Creek.

To minimize the impact to the existing environment, special measures will be specified in the construction contract. Works on the slope will be conducted during appropriate weather conditions and works are to be conducted during the appropriate window for migratory birds and fisheries. Proper restoration and enhancement seeding/plantings with native species will be required as soon as weather permits following construction.

Detailed erosion and sediment control plans as well as other environmental controls (e.g. limitations on equipment refueling, restoration) will be prepared during the detailed design stage and enforced during construction. An environmental inspector will monitor the site during construction to ensure that construction fence, tree protection barriers and erosion and sedimentation control measures are installed correctly.

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

The Town of Ajax retained R.V. Anderson Associates Limited (RVA) to conduct a Schedule 'C' Municipal Class Environmental Assessment (Class EA) and preliminary design for improvements to Church Street from Rossland Road to Taunton Road. The Class EA was completed in accordance with the requirements of Schedule 'C' of the Municipal Engineers Association, *Municipal Class Environmental Assessment* document, as amended in 2007 and 2011.

The purpose of the project is to develop, assess and provide transportation improvements to support existing and planned developments. With new developments recently approved at the south end of the study area (north-west corner of Church Street and Rossland Road, north of East Duffins Creek) the road system needs to accommodate the projected increase in vehicular, cycling and pedestrian activities.

1.2 Study Area

The study area, as shown in Figure 1.1, is bound by Rossland Road to the south and Taunton Road to the north and extends approximately 150 m each side of Church Street.

Current land uses in the area are mainly low density residential with some medium density residential and two neighbourhood parks with an existing hydro corridor that is owned by Infrastructure Ontario (IO) and the East Duffins Creek area owned by TRCA.

1.3 Background

Church Street is designated as a Type 'B' Arterial within the *Durham Regional Official Plan* and the *Town of Ajax Official Plan*. Church Street is under the jurisdiction of the Town of Ajax.

The Town of Ajax *Transportation Master Plan Update*, December 2007 recommends a multi modal transportation network and states that, "all new road widening or new road construction

should have provisions for on-street bike lanes or off street bike paths”. In addition, the TMP indicates that the current 2 lane road width is sufficient to meet future traffic demands.

The Ajax Pedestrian and Bicycle Master Plan (dated March 29, 2010) defines the long term vision with sidewalks, bike lanes and multi-use paths to promote the use of active transportation. Church Street has been identified in the Master Plan to provide sidewalks and bike lanes in the future.

In 2011, the Town of Ajax (Town) retained HDR | iTRANS to perform an in-service safety review on Church Street from the south leg of Rossland Road to approximately 600 meters north of Rossland Road. The study identified a number of improvements to improve safety along this section of roadway including:

- Install larger street name signs;
- Maintain roadside vegetation;
- Improve sightlines by reducing the embankment on the southwest corner of the northerly intersection;
- Provide a dedicated left turn lane on the southbound approach at the southerly intersection; and
- Reduce the grade immediately south of Duffins Creek Bridge.

1.4 The Municipal Class Environmental Assessment (Class EA)

As stated above, this study is being conducted in accordance with the requirements of the Municipal Class Environmental Assessment (Class EA) – Schedule ‘C’, as amended in 2007 and 2011, which is an approved process under the Environmental Assessment Act. Figure 1.2 illustrates the framework for the Class EA process which is a legislated planning process comprising of 5 phases with mandatory points of public contact. The focus of the framework is a comprehensive and transparent decision making process.

The Class EA is broken down into 5 major phases, namely:

- **Phase 1** – Identify problem or opportunity;
- **Phase 2** – Identify alternative solutions, evaluate and select the preferred solution;
- **Phase 3** – Identify alternative design concepts, evaluate and select the preferred design concepts.
- **Phase 4** – Complete the Environmental Study Report (ESR) and place it on the public record; and
- **Phase 5** – Project implementation, which is to undertake the contract drawings and tender documents for the project and proceed to construction and operation of the project.

This study will complete Phases 1 – 4 of the Class Environmental Process with the final deliverable being the ESR for Council consideration.

1.4.1 The Environmental Study Report (ESR)

The ESR represents the documentation of the Environmental Assessment (EA) process for road projects for which a Class EA has been accepted and approved under the Act. The ESR addresses and documents the planning and design phase of a process that terminates with the construction of the project. It includes a discussion of the purpose of the project, the project approach, the existing natural and social environmental conditions in the project area, the planning alternatives and design options considered, the impacts of each of the alternatives and the construction requirements associated with the implementation of the project. The process followed in the study is prescribed in the Municipal Class Environmental Assessment document published by the Municipal Engineers Association, October 2000 as amended in 2007 and 2011.

Following the issuance of a public notice of the completion of the ESR, the Report is placed on the public record for review with the Clerk of the Town of Ajax and the Town's website. Following a 30 calendar day review period, the requirements of the Environmental Assessment Act will be deemed to have been satisfied, subject to the appropriate resolution of any objections received from the public and/or review agencies.

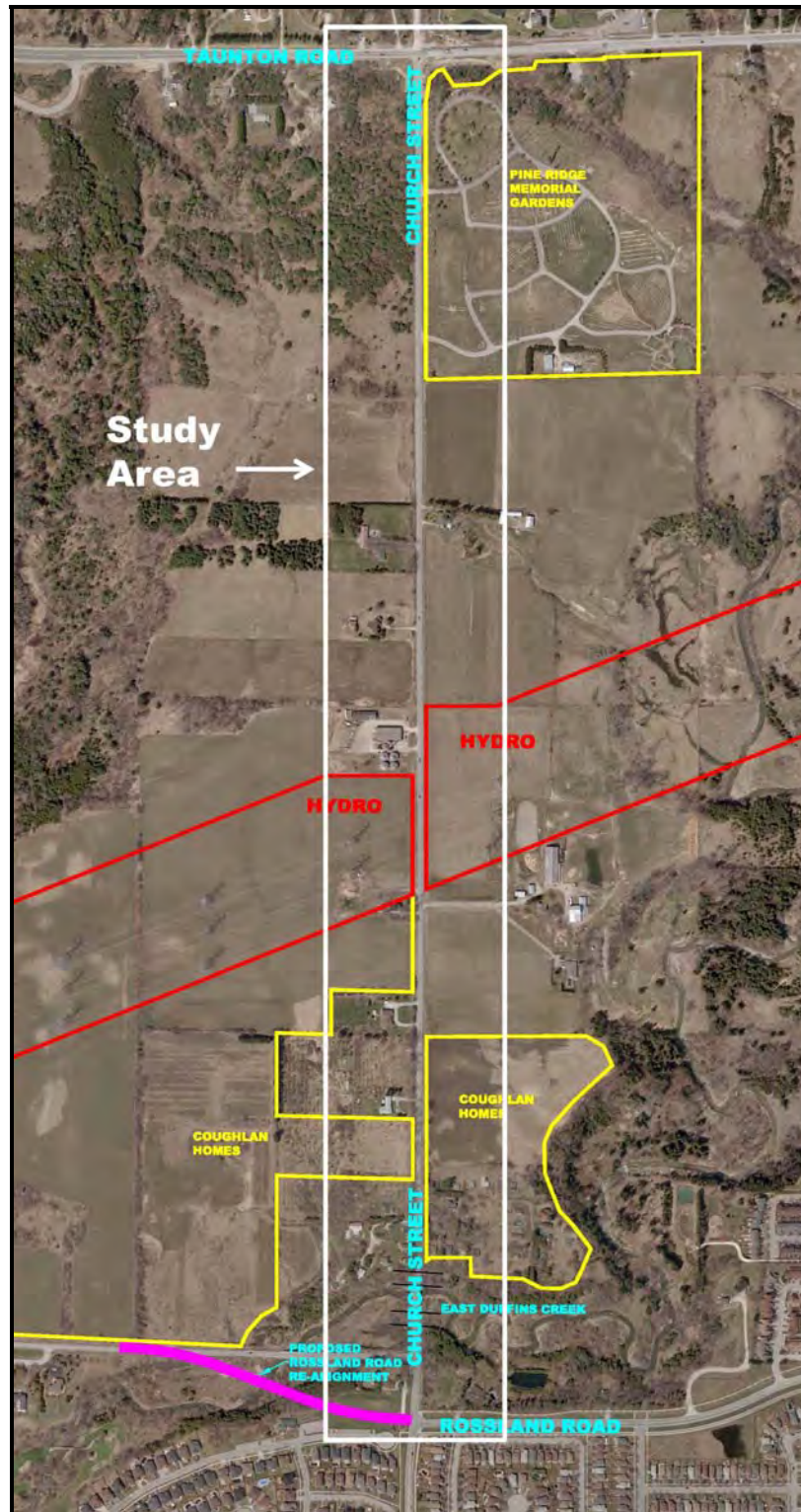
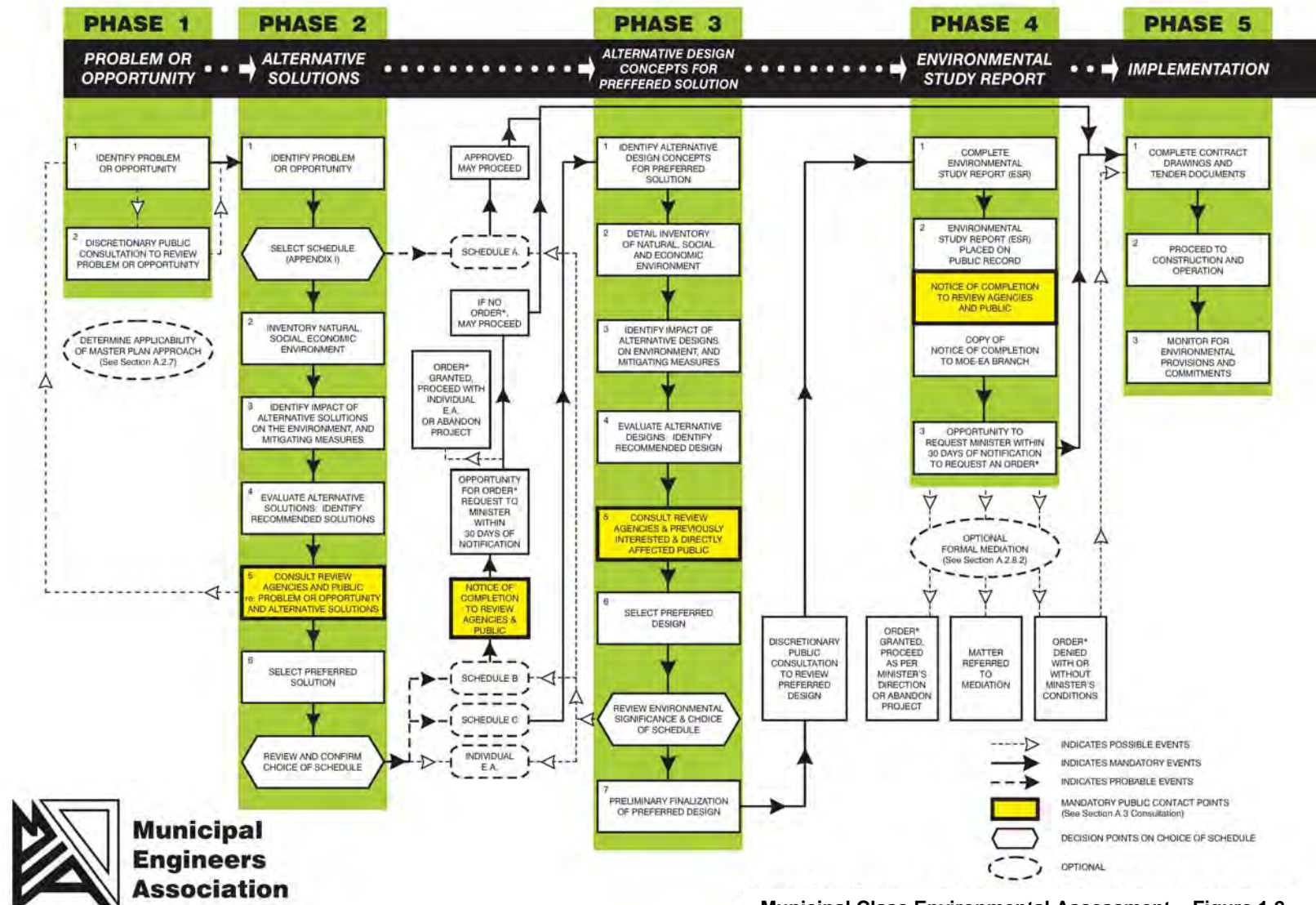


Figure 1.1 – Project Study Area



Municipal Class Environmental Assessment – Figure 1.2

1.4.2 Part II Orders Requests

Anyone with concerns related to any aspect of the Class EA may express such concerns in writing to the Clerk's Office at Town of Ajax within the 30 calendar day review period following the Notice of Study Completion. If concerns cannot be resolved through discussions with the Town of Ajax representatives, then a 'Part II Order' (a provision in the Class EA for elevating the status of the project in the Class EA process) may be requested. A written submission may be made to the Minister of the Environment within the 30 day calendar review period requesting an Individual Environmental Assessment in accordance with the Environmental Assessment Act.

The Ministry will consider such requests. A notice of the Minister's decision respecting requests for an Individual Environmental Assessment will be given within 66 days of the request. In all such 'bump-up' requests, the Minister's decision is final.

The proposed Church Street improvements have been classified as a Schedule 'C' type project as outlined in the Municipal Class Environmental Assessment document.

This ESR is prepared for the public record to give the public an opportunity to review and contribute to the Class EA process for this project and to provide details of the undertaking by identifying the impacts and describing the measures to mitigate any impacts. The supplementary studies and documents referred to throughout this report are assembled in the Appendices.

The Town of Ajax and their consultants remain available to meet interested parties and agencies to review details of the proposed undertaking. Anyone requiring further information regarding any aspect of this project or wishing to provide additional comments is encouraged to contact the Town of Ajax at the address noted below.

The Town of Ajax
65 Hardwood Avenue South
Ajax, Ontario
L1S 2H9

Contact: Carol Coleman
Telephone: 905-619-2529 ext 3202
Fax: 905-686-0360
E mail: carol.coleman@ajax.ca

1.5 Canadian Environmental Assessment Act (CEAA)

Municipal projects may be subject to the requirements of the Canadian Environmental Assessment Act (CEAA). A federal environmental assessment may be required when, in respect to a project, a federal authority:

- is the proponent;
- provides financial assistance to the proponent;
- makes federal lands available for the project; or
- issue a permit or license or other form of approval pursuant to a statutory or regulatory provision referred to in the “Law List Regulations”.

For the Church Street Class EA, CEAA may potentially be “triggered” by the following proposed activities:

- Harmful, disruption or destruction of fish habitat which would require authorization under the Federal *Fisheries Act*; and
- the Navigable Waterways trigger which would require a permit under the under the *Navigable Waters Protection Act*

During the Class EA, the various requirements of CEAA will be incorporated into the municipal Class EA process and approvals obtained as required.

1.6 Study Organization

The Church Street Class Environmental Assessment Study was carried out by a consulting team lead by R.V. Anderson Associates Limited (RVA) on behalf of the Town of Ajax. The RVA team consists of a number of multi-discipline specialists. The study team is outlined below:

The Town of Ajax:

- Carol Coleman – Manager of Engineering, Capital Projects
- Heather Doucette – Capital Projects Technologist

- Ranjit S. Gill – Senior Transportation Planner

Consulting Team

- John P. Does – Project Director – R.V. Anderson Associates Limited (RVA)
- Peter Cho – Project Manager – RVA
- Harold McColm – Senior Technical Advisor – RVA
- Richard Unterman – Heritage Consultant – Unterman-McPhail Associates
- Hazem Gidamy – Senior Noise Specialist– SS Wilson and Associates
- James McWilliam – Streetscaping – McWilliam & Associates
- Scott Peaker – Geotechnical Consultant – SPL Consultants Limited
- John Parish – Senior Fluvial Geomorphologist – Parish Geomorphic
- Judson Venier – Fisheries Biologist – LGL Limited
- Kim Slocki – Archeologist – Archeoworks Inc.

1.7 Study Schedule

The study was initiated in June 2011. Key dates were as follows:

- Notice of Study Commencement December 2011
- First Public Information Centre..... February 16, 2012
- Second Public Information Centre October 11, 2012
- Completion of Environmental Study Report..... March 2013

1.8 Public Consultation

Public Consultation is a key feature of environmental assessment planning projects. Input received from the public and various stakeholder groups, as well as from provincial ministries, agencies, and authorities can generate meaningful dialogue between the project planners and the public. This consultation allows for the exchange of ideas and the broadening of the information base, leading to better decision-making during the course of the study. The public participation program followed by The Town of Ajax for Municipal Class EA projects meets the requirements set out in the document entitled “Municipal Class Environmental Assessment” published by the Municipal Engineers Association in October 2000, amended in 2007 and 2011.

Various government agencies, authorities and interest groups were informed of the Class EA Study commencement, as well as the Public Information Centre, by local newspaper notices, direct mailings to stakeholders and agencies and flyers distributed in the study area. A complete list of the agencies contacted is tabulated in Appendix A of this report.

1.8.1 Notice of Study Commencement

Flyers outlining the details of the study's commencement were distributed to properties within the study area in December of 2011. Those who were interested in being kept informed of the study's progress and decisions were invited to contact the Town's project manager to ask questions, and to be placed on the mailing list to be kept apprised of project information. The flyer also advised them of the approximate timing of the upcoming Public Information Centre / Meeting.

The Notice of Commencement was also sent to the ministries, agencies, local and adjacent municipalities, school boards, railway companies, and local councilors.

The Notice of Commencement was also placed in the "Ajax News Advertiser".

1.8.2 Contact with Stakeholders

During the course of the EA, correspondence was received from various stakeholders as outlined below and shown in Appendix A:

- Toronto and Region Conservation Authority related to study requirements and approvals related to the natural environment.
- Hydro One related to the property acquisition process.
- Ministry of Culture related to cultural heritage resources in the study area.
- Ministry of the Environment related to study requirements and approvals.

Comments have been received from the Durham Region regarding the need and timing for sanitary sewer and watermain along Church Street.

2.0 EXISTING AND FUTURE CONDITIONS

2.1 Road Network

2.1.1 Background

Church Street is a two lane Arterial Road Type B bounded by Taunton Road to the north and Rossland to the south with a posted speed limit of 60 km/h within the study area. The paved road width ranges from 6.7 m to 7.3 m and the right-of-way width ranges from 20 m to 25 m. At present, there is an existing two lane bridge structure over East Duffins Creek with a span of approximately 18 m. This bridge currently is in good condition but it does not meet the roadway's minimum vertical design criteria.

Taunton Road is an Arterial Road Type A with a posted speed limit of 80 km/h that was upgraded to 5 lanes in 2009. Part of these roadway upgrades included widening approximately 150 m of Church Street to provide for turning lanes at the intersection. Future planned upgrades for Taunton Road include widening to 7 lanes by 2021. The seven lanes have been assumed in the traffic analysis for 2021.

Rossland Road is an Arterial Road Type B with a posted speed limit of 60 km/h currently in the design stages for upgrades including realignment of the Rossland Road / Church Street intersection. The condition as part of this analysis includes the proposed upgrades and realignment of Rossland Road at Church Street. Currently, there is an offset for Rossland Road at the intersection with limited visibility for motorist traveling eastbound on Rossland Road turning onto Church Street. The Town has completed the Rossland Class EA and plans to complete the realignment of Rossland Road at the Church Street and Rossland Road intersection by the end of 2015.

Figure 2.1 illustrates the general location of the project study area.



Figure 2.1 – Church Street Corridor

2.1.2 Existing Traffic Assessment

The existing (2012) traffic volumes were determined from traffic surveys conducted in 2010 as part of the Cougs Development Traffic Impact Study, and applying yearly growth factors of 2%, 3%, and 4% to Church Street, Rossland Road, and Taunton Road, respectively. .

The existing traffic signals at the Church Street / Taunton Road and the proposed traffic signals for the realigned Church Street / Rossland Road intersections were analyzed using the computer analysis program Syncro + Sim Traffic 7. The results of the analysis are summarized in Table 2-1 and the full analysis is included in Appendix E.

Table 2-1 outlines the existing signalized intersection traffic assessment including level of service (LOS), estimated delay per vehicles (seconds), and volume / capacity (v/c) ratio. A critical movement is defined as a movement with v/c greater than 0.85 or an average vehicle delay greater than 55 seconds.

During the a.m. and p.m. peak hours, the Church Street / Taunton Road and Church Street / Rossland Road intersections operate at overall Levels of Service between B and C which is acceptable. However, some turning movements operate at Level of Service E as shown in Table 2-1.

Table 2-1 – Year 2012 Existing Signalized Intersection Traffic Assessment

| Existing Intersections | Overall / Critical Movement ¹ | Operations (LOS, Delay (secs), v/c) | |
|---|--|--|---------------------|
| | | A.M. Peak Hour | P.M. Peak Hour |
| Church Street / Taunton Road | Intersection | C, 23.3, 0.95 | C, 21.9, 0.82 |
| | Critical Movement | NBL – E, 67.9, 0.91 | None |
| Church Street / Rossland Road (realigned) | Intersection | B, 15.3, 0.67 | B, 14.5, 0.68 |
| | Critical Movement | None | WBL – D, 44.9, 0.90 |

¹Critical movement defined as movement with v/c greater than 0.85 or an average vehicle delay greater than 55 sec.

2.2 Developments/Property Owners

The majority of the land located north of East Duffins Creek and south of the Hydro Corridor on Church Street is owned by Cougs Development. Infrastructure Ontario (IO) owns the hydro corridor which crosses Church Street and Pine Ridge Memorial Gardens owns a majority of land at the south east corner of Church Street / Taunton Road intersection. The Toronto and Region Conservation Authority own the land at the East Duffins Creek area. The remaining land is privately owned and primarily used for agricultural purposes.

A proposed subdivision by Cougs Development – A9 Community is planned on the east and west side of Church Street from Rossland Road to the south limit of the hydro corridor. A site application has been submitted for the Town to review.

2.3 Existing Land Use

The existing Town's Land Use schedule divides the study area into six categories. On the west side of Church Street, south of Taunton Road, is the "Environmental Protection" area and the "Mixed Commercial Corridor. Church Street has a large amount of "Low Density Residential" areas between Taunton Road West and Rossland Road West, with some "Medium Density Residential". The Hydro Corridor lands currently owned by IO and operated by Hydro One are labeled as "Open Space". South of the hydro corridor, the lands are designated as "Low Density Residential" and the "Medium Density Residential", along with a small pocket of "Local Central Area" (see Figure 2.2 for Town of Ajax's Official Land Use Map).

Under the Town of Ajax Zoning By-law, the project area lies within 6 zoning areas: "Private Open Space Zone (POS)", "Agricultural Zone (A)", "Residential One – 'D' Zone", "Cemetery Zone (DE)", "Country Residential Zone (CR)" and "Golf Facility Zone (GF)" (see Figure 2.3 and Figure 2.4 for map and related information).

A development that is planned on the east and west side of Church Street between the East Duffin Creek and the Hydro Corridor by Cougs Development. There are no proposed developments north of the hydro corridor when undertaking this Class EA report.

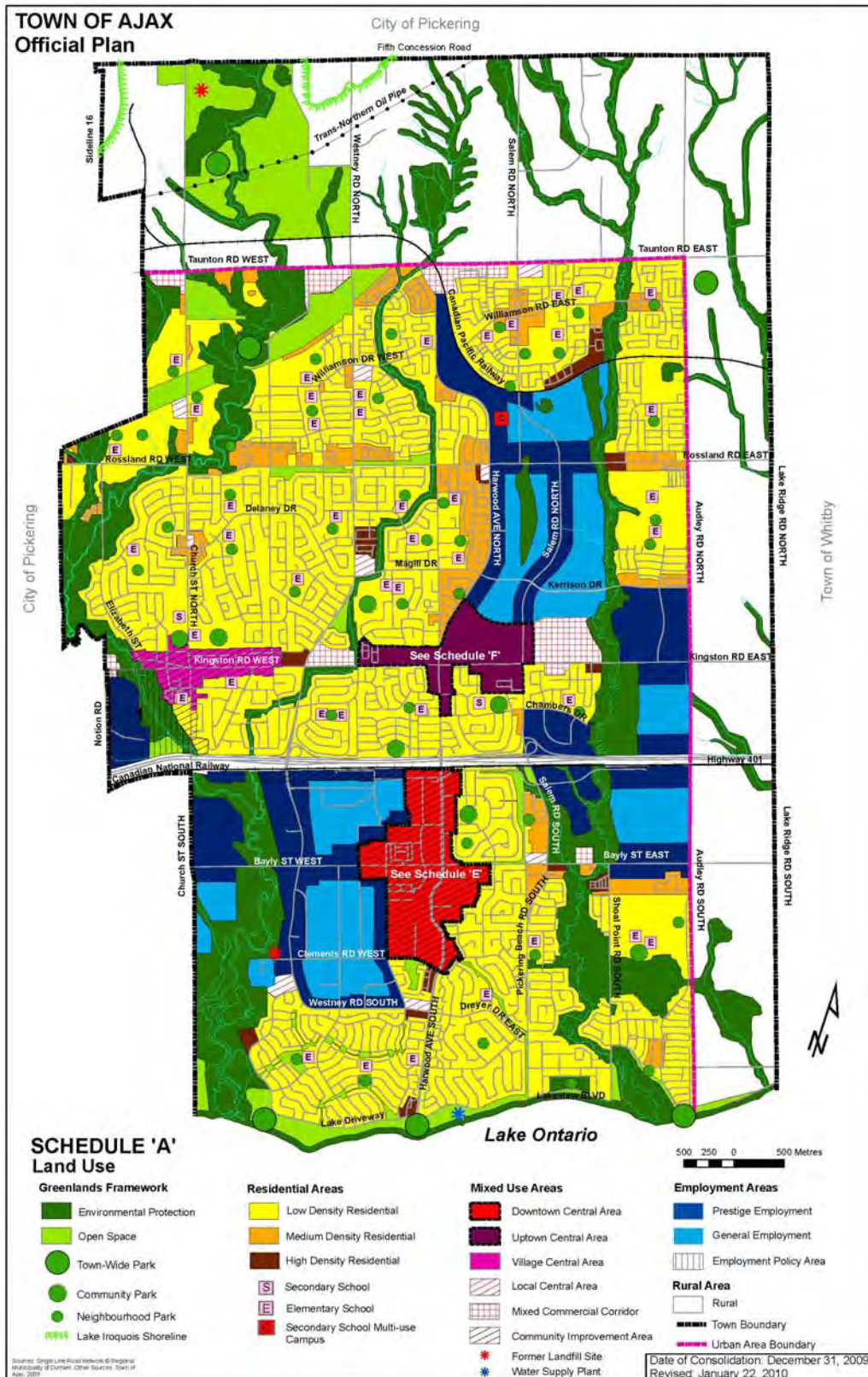


Figure 2.2 – Existing Land Use Map



Sources: Ownership Parcels © Terand Enterprises Inc., and its suppliers. All rights reserved. Not a Plan of Survey. Assessment Parcels © MPAC. Single Line Road Network © Regional Municipality of Durham. Other Sources: Town of Ajax, 2009.
January 1, 2011

MAP 7

Figure 2.3 – Zone Map 7

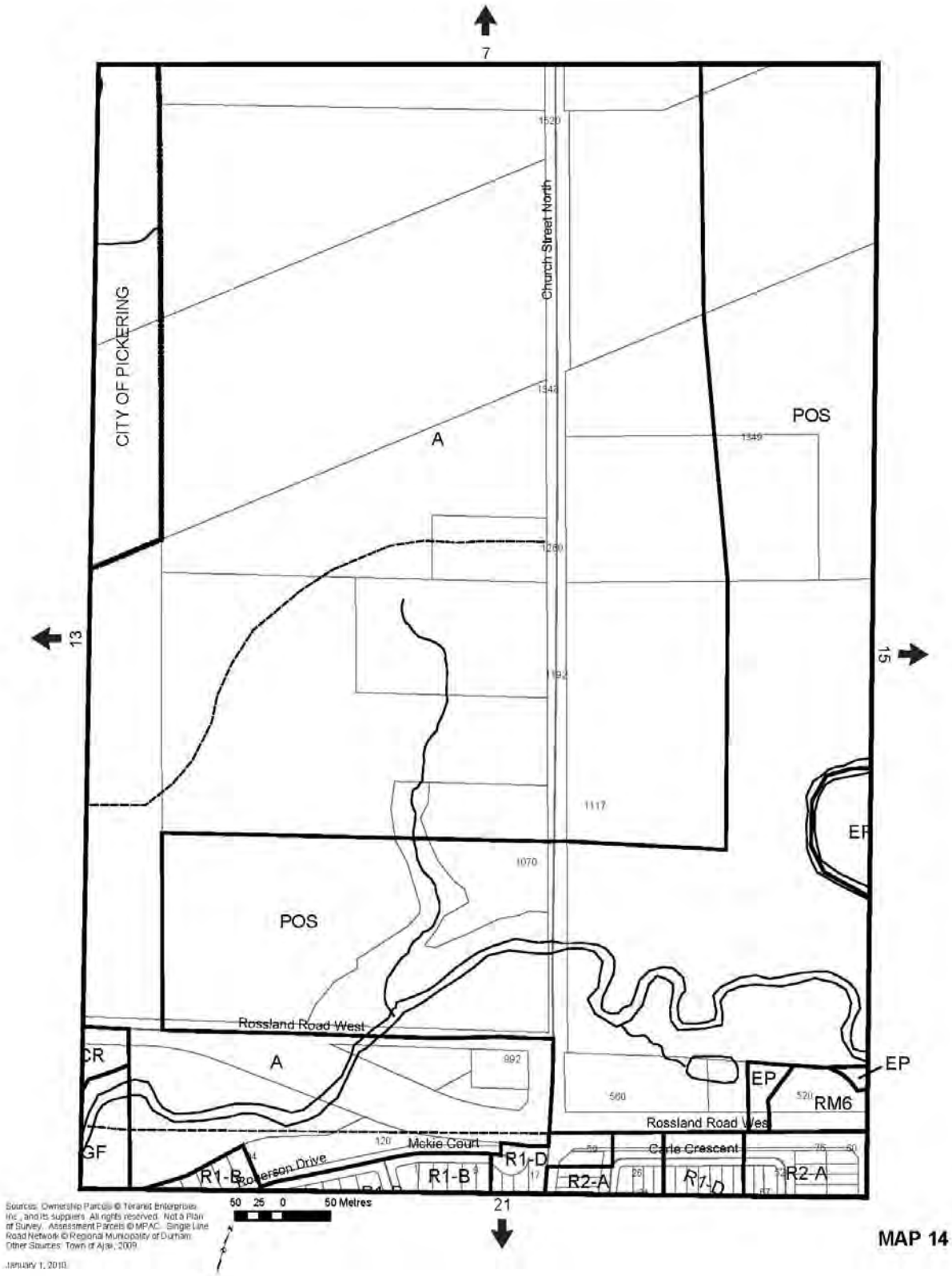


Figure 2.4 – Zone Map 14

2.4 Future Site Traffic

2.4.1 Proposed Cougs Investments Ltd. Development

The proposed Cougs Development is a 41 hectare parcel of land located on both sides of Church Street, north of East Duffins Creek and south of the Hydro corridor. The development includes 430 single detached homes, 125 townhomes, an elementary school with an expected population of 506 students, and a small commercial/retail plaza.

Outlined below are the estimated peak hour trips for the proposed Cougs Development as presented in the URS Canada Inc. Traffic Impact Study for the development.

Table 2-2 - Cougs Development Estimated Site Generated Traffic

| | AM Peak Hour | | | PM Peak Hour | | |
|--|--------------|-----|-------|--------------|-----|-------|
| | IN | OUT | TOTAL | IN | OUT | TOTAL |
| Cougs Development west of Church Street | 70 | 222 | 292 | 233 | 134 | 367 |
| Cougs Development east of Church Street | 17 | 62 | 80 | 63 | 35 | 98 |
| Commercial Development west of Church Street | 26 | 16 | 42 | 46 | 48 | 94 |
| Pass-By Trips | 0 | 0 | 0 | 26 | 27 | 52 |
| Elementary School west of Church Street | 37 | 1 | 38 | 0 | 0 | 0 |

2.4.2 Other Developments

The lands to the north of the proposed Cougs Development are designated in the Official Plan as low and medium density residential with potential sites for two elementary schools. The potential number of units for this area was estimated using the developable areas identified in the Official Plan and applying a housing density typical to that proposed for the Cougs Development. Full build out of this area has the potential to provide a total of 825 single detached homes, 93 townhomes, and two elementary schools with a total expected population of 1006 students, over a total area of approximately 40 hectares.

The south west quadrant of the intersection of Church Street and Taunton Road is zoned Mixed Commercial Corridor. It is assumed that this development will primarily service traffic on Taunton Road, and as such has not been included in the traffic analysis for Church Street.

2.4.3 Proposed Local Road Layout

Access to the developments on either side of Church Street is assumed to be as illustrated in Figure 2.5. Road layout for the Cougs development is as proposed in the Cougs Development Traffic Impact Study and road layout for the lands north of the Cougs Development used a worst case scenario assuming only one side street on each side connecting to Church Street.

2.4.4 Total 2021 Traffic Assessment

The total estimated 2021 traffic volumes on the road network in the Class EA study area is the sum of the estimated 2021 background traffic and the site generated traffic from the proposed Cougs Development and the future development north of the Cougs Development. Figure 2.6 illustrates the total future traffic for the year 2021 weekday a.m. and p.m. peak hours on the road network.

Additional details on the Traffic Study Report for Church Street from Rossland Road to Taunton Road by R.V. Anderson Associates Limited can be found in Appendix E.

2.5 Transit Network

Durham Region Transit is the transit authority for the Town of Ajax. There are currently no scheduled bus routes along the section of Church Street within the study area. Taunton Road and Rossland Road are identified as primary and secondary transit routes respectively. The Official Plan Transit Priority System (Schedule 'C-2') has also identified Church Street for an "Improved Conventional Transit Network, as shown in Figure 2.7 to service the proposed developments. Upgrades to Church Street are recommended to better accommodate transit.

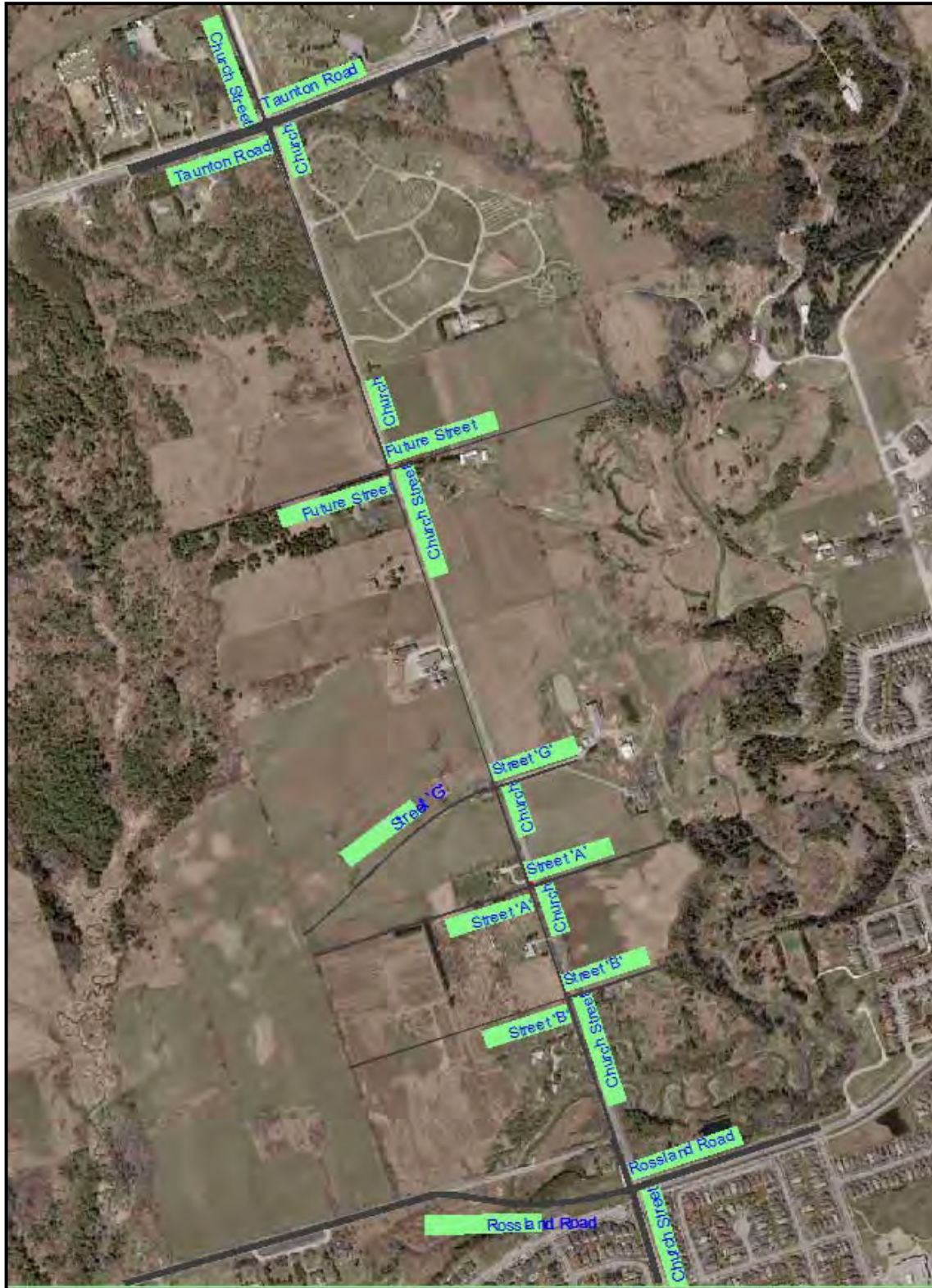


Figure 2.5 - Proposed Local Road Layout

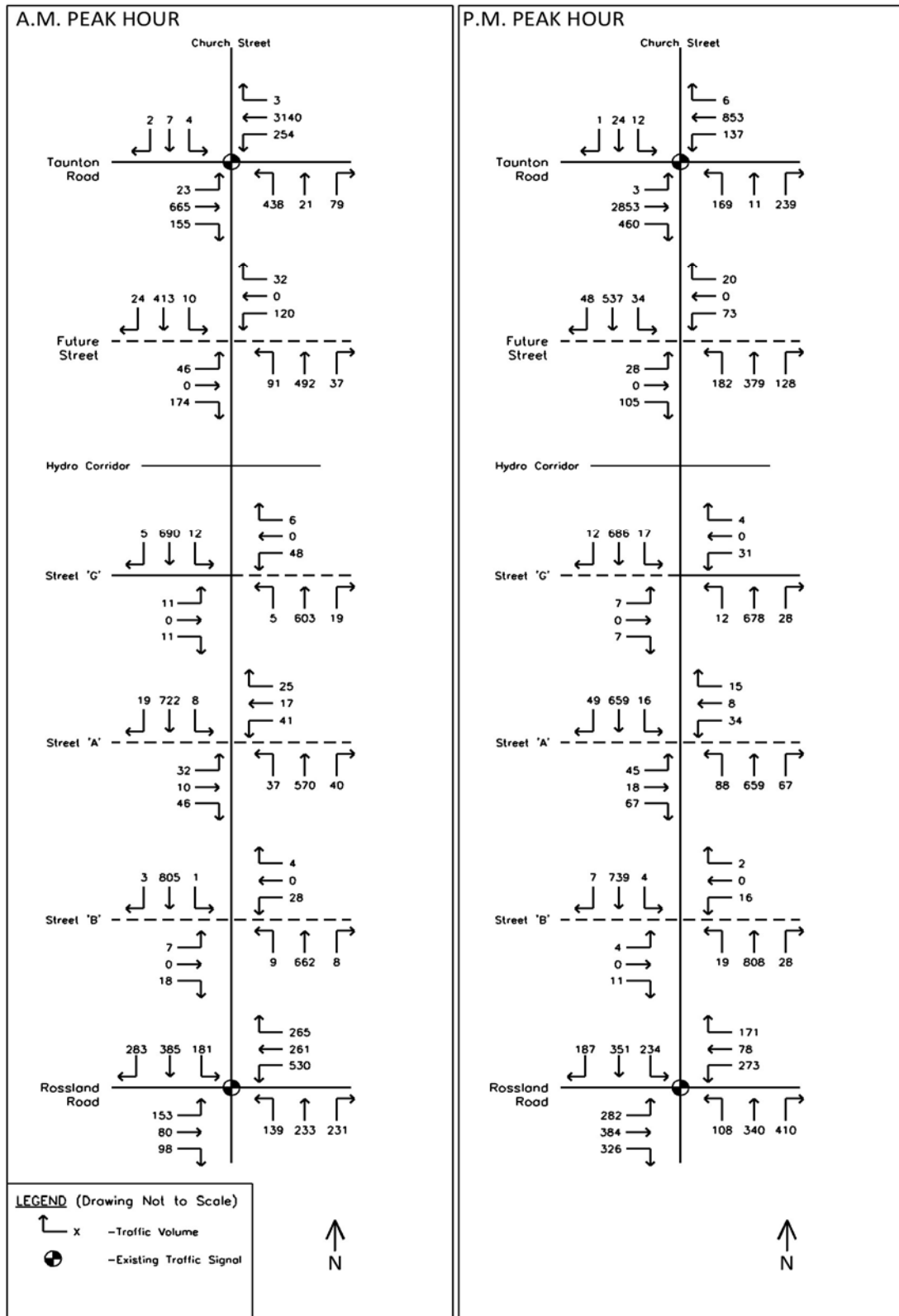


Figure 2.6 – 2021 Projected A.M. and P.M. Peak Hour Total Traffic Volumes

2.6 Pedestrian and Cycling Facilities

There are no existing pedestrian or cycling facilities on Church Street between Rossland Road and Taunton Road. There is an existing 3.0 m wide, asphalt multi-use trail along the south side of Taunton Road east of Church Street. On Rossland Road, there are existing concrete sidewalks and 3.0 m wide asphalt trail east of Church Street. On Church Street south of Rossland Road there are concrete sidewalks on both sides of the road.

As noted previously, the Ajax Pedestrian and Bicycle Master Plan (dated March 29, 2010) has identified sidewalks and bike lanes on Church Street between Rossland Road and Taunton Road. As well, the Town's Official Plan states that in accordance with Durham Region's Official Plan, a sidewalk shall be provided on both sides of arterial roads. Figure 2.8, 2.9, and 2.10 illustrates the Town's long term plan to provide active transportation facilities.

2.7 Fluvial Geomorphology

Parish Geomorphic completed a geomorphic assessment on East Duffins Creek in the vicinity of the study area. The geomorphic assessment included:

- Delineating a meander belt width following provincial/TRCA protocols.
- Undertaking a 100-year erosion analysis to evaluate site sensitivity and determine the factor of safety for the meander belt width.
- Determining the degree of channel stability, and identifying any areas of active channel erosion.
- Making recommendations with respect to crossing size, location of abutments and general crossing orientation.

To determine the recommended bottom opening width for the watercourse, various methods was used to evaluate East Duffins Creek in the study area, from using historical data, migration rate analysis, empirical equations and erosion setback. All of the information was combined to help determine the recommended bottom opening width. From the analysis, the 100 year

erosion rate for East Duffins Creek was determined at 40 m meters per 100 years with a recommended bottom opening width of 60 m.

Additional details on the Fluvial Geomorphology report can be found in Appendix F.

2.8 East Duffins Creek Bridge – Church Street

The existing bridge is located 150 m north of the Rossland Road / Church Street intersection. The bridge has a span of 17 m with full height abutments crossing over East Duffins Creek with deck drains outletting directly into East Duffins Creek. The existing structure is 10 m wide with two lanes and no sidewalk. The Town conducted a bridge inspection in 2012 and the report recommended a few minor repairs to the bridge but found the bridge to be in good structural condition. A copy of the bridge inspection report is provided in Appendix A.

2.9 Municipal Services, Drainage and Utilities

2.9.1 Drainage

The study area is part of the East Duffins Creek Watershed. Currently, north of East Duffins Creek there are ditches along both sides of Church Street. Storm water south of Taunton Road will flow along the ditch into a short section of storm sewer and outlet into the north side of East Duffins Creek at the existing Church Street bridge north abutment. South of the East Duffins Creek, a storm sewer conveys storm water on Rossland Road from Ravenscroft Road to Church Street and discharges into East Duffins Creek at the existing Church Street bridge south abutment.

The current ground contours suggest that the majority of the storm drainage in the Church Street area flows away from Church Street. A majority of the drainage from land east of Church Street discharges directly to East Duffins Creek. West of Church, a majority of the drainage flows south west and discharges directly to East Duffins Creek. Based on existing contour information, most of the existing drainage in the study area does not flow towards the existing Church Street ditches.

2.9.2 Municipal Services

Church Street north of East Duffins Creek currently has no municipal watermain or sanitary sewer from Rossland Road to Taunton Road. Between Rossland Road, and the East Duffins Creek there is a storm sewer on Church Street which connects to the Rossland Road storm sewer system. No storm sewers are present on Church Street from Duffins Creek to Taunton Road.

2.9.3 Utilities

Infrastructure Ontario (IO) owns a dedicated hydro corridor, managed by Hydro One, crossing Church Street south of Taunton Road West and north of Rossland Road. The corridor contains transmission lines and towers. Bell Canada have buried conduit and Rogers and Veridian have joint use poles with overhead wires along Church Street between Rossland Road West and Taunton Road West. Enbridge has no gas main on Church Street but a gas main runs parallel with Taunton Road West on the south side of the intersection of Taunton Road / Church Street intersection.

2.10 Needs and Justification

In the Town of Ajax's Official Plan, Church Street is identified as an Arterial Road Type B and in the Transportation Master Plan, Church Street is identified as one of the roads recommended to be reclassified, extended, or widened to improve traffic operations.

The Transportation Master Plan also identifies the need for "Active Transportation – Walking and Cycling". One of the Town's objectives is to provide on-street bike lanes or off street bike paths for any future road widening or road construction. Church Street has been identified in the Town's Official plan to provide active transportation facilities for boulevard trail and it also identifies Church Street as part of the long term cycling facilities for bike lanes.

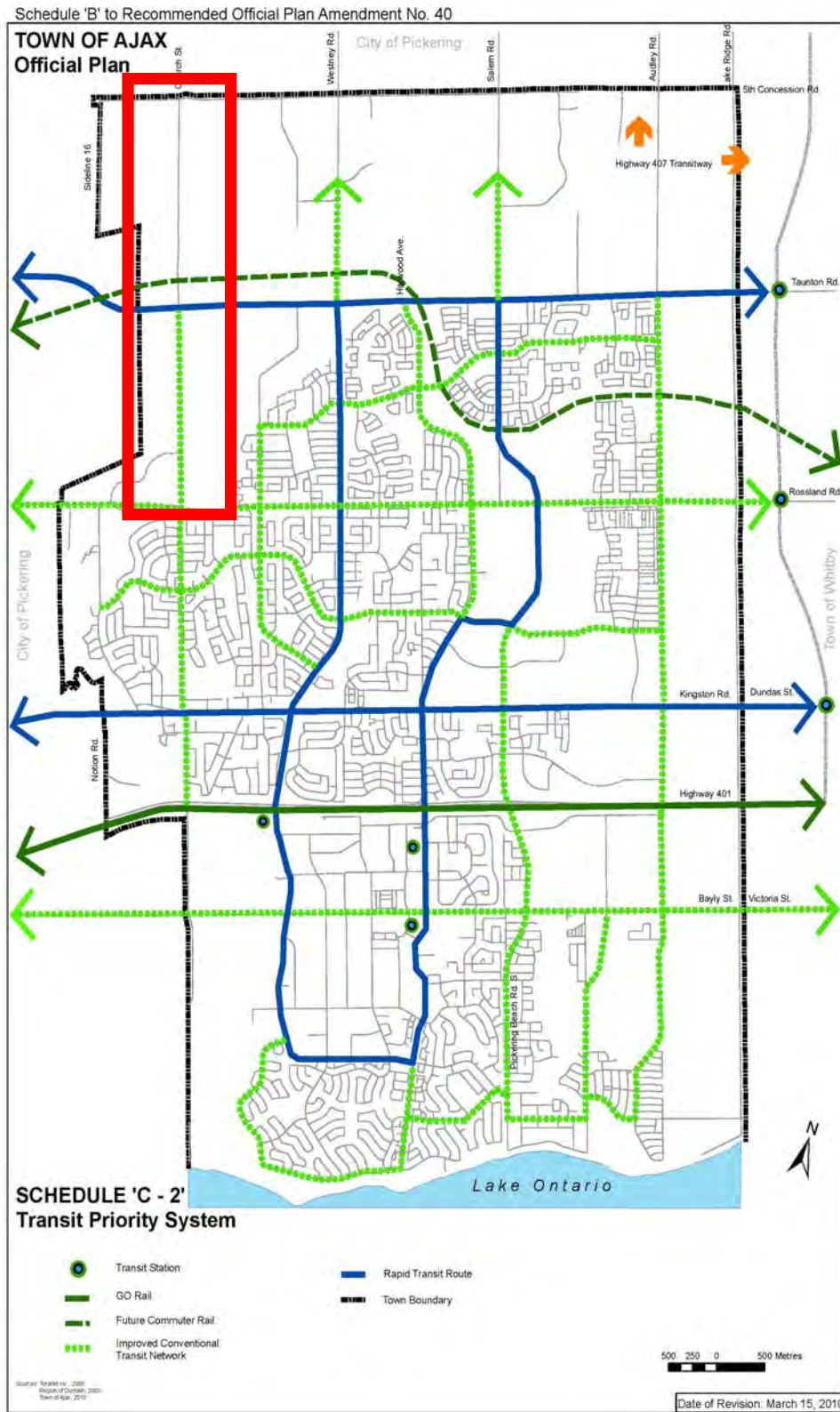


Figure 2.7 – Transit Priority System

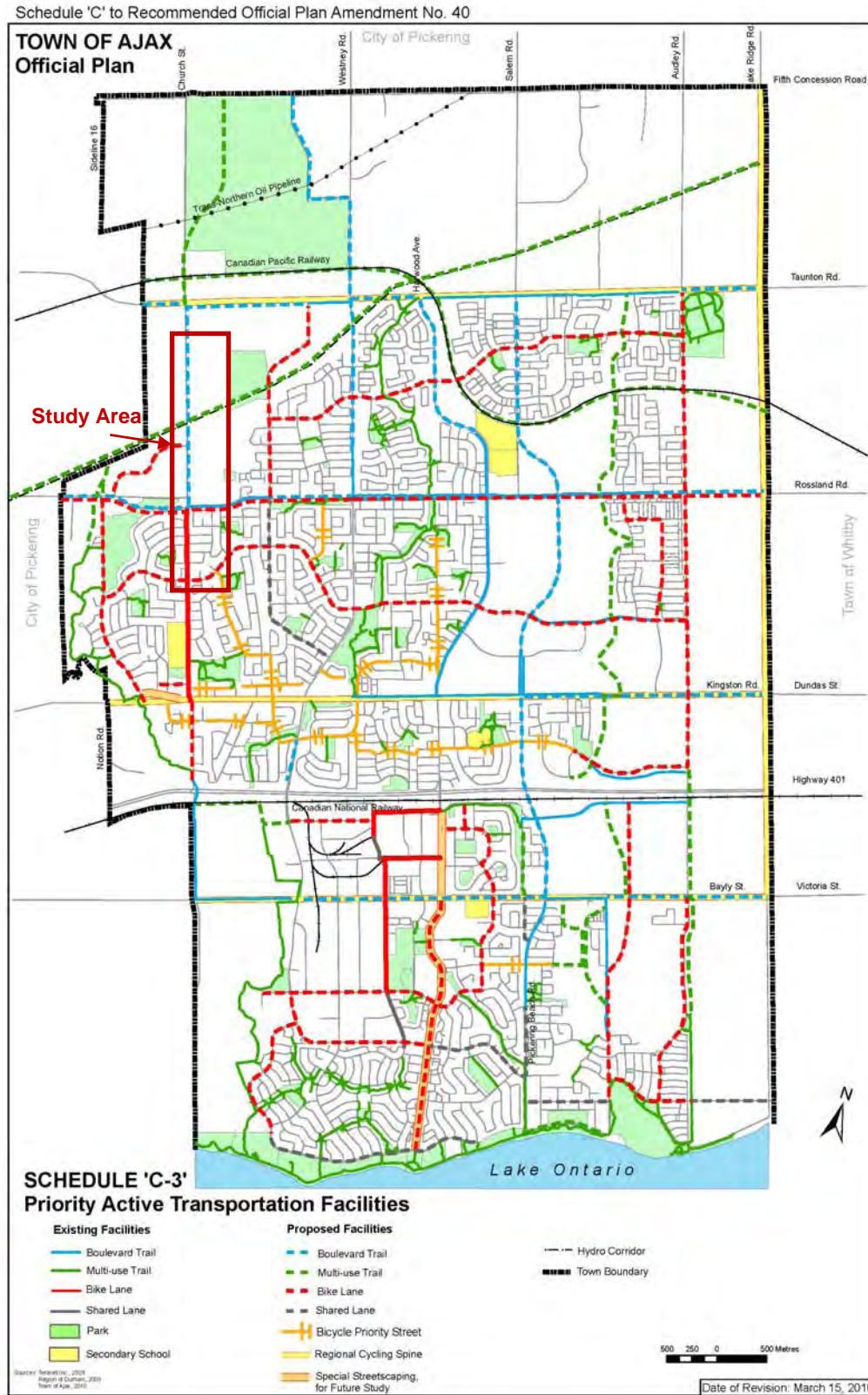


Figure 2.8 – Priority Active Transportation Facilities

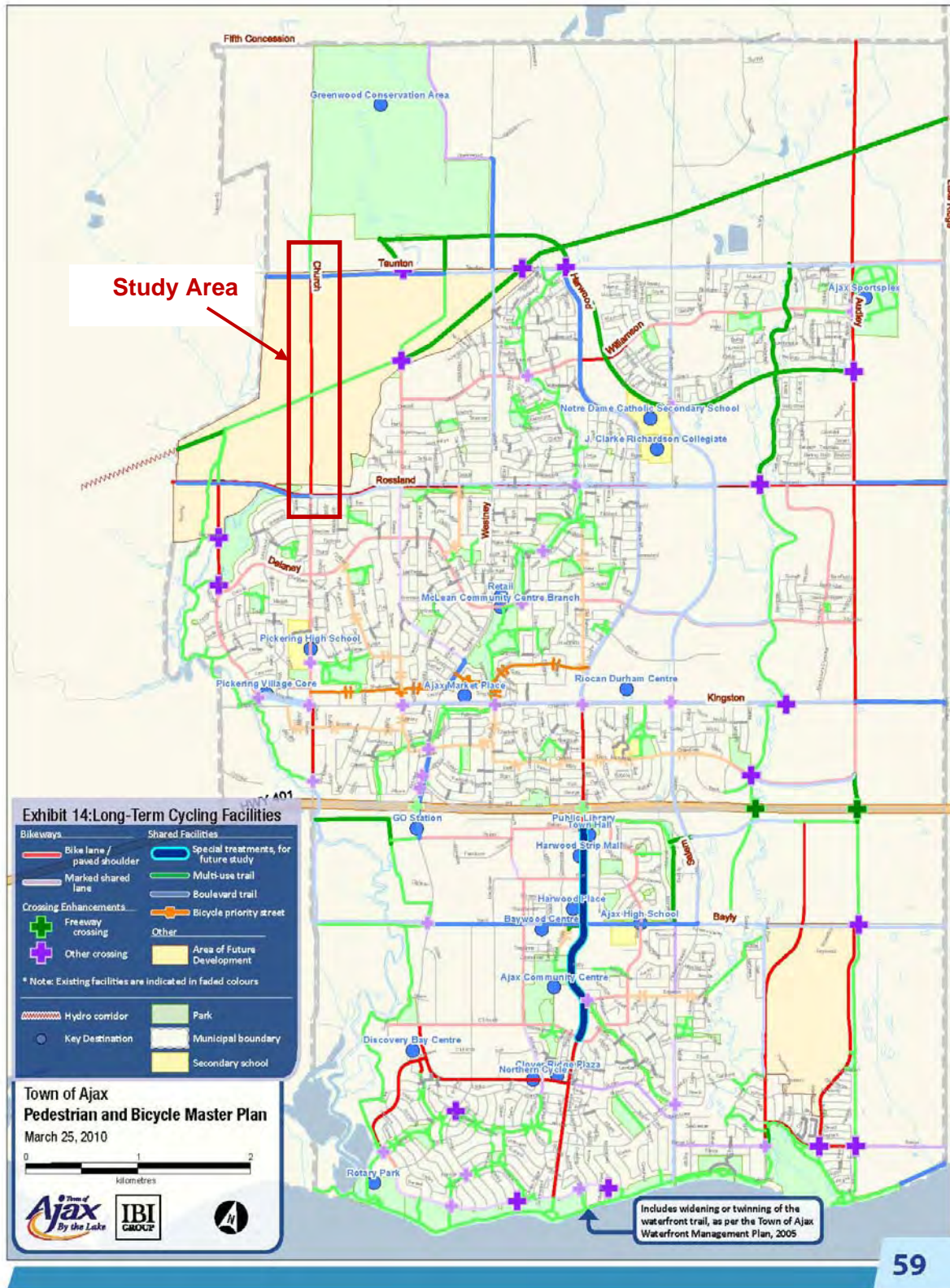


Figure 2.9 – Town of Ajax Long Term Pedestrian Facilities

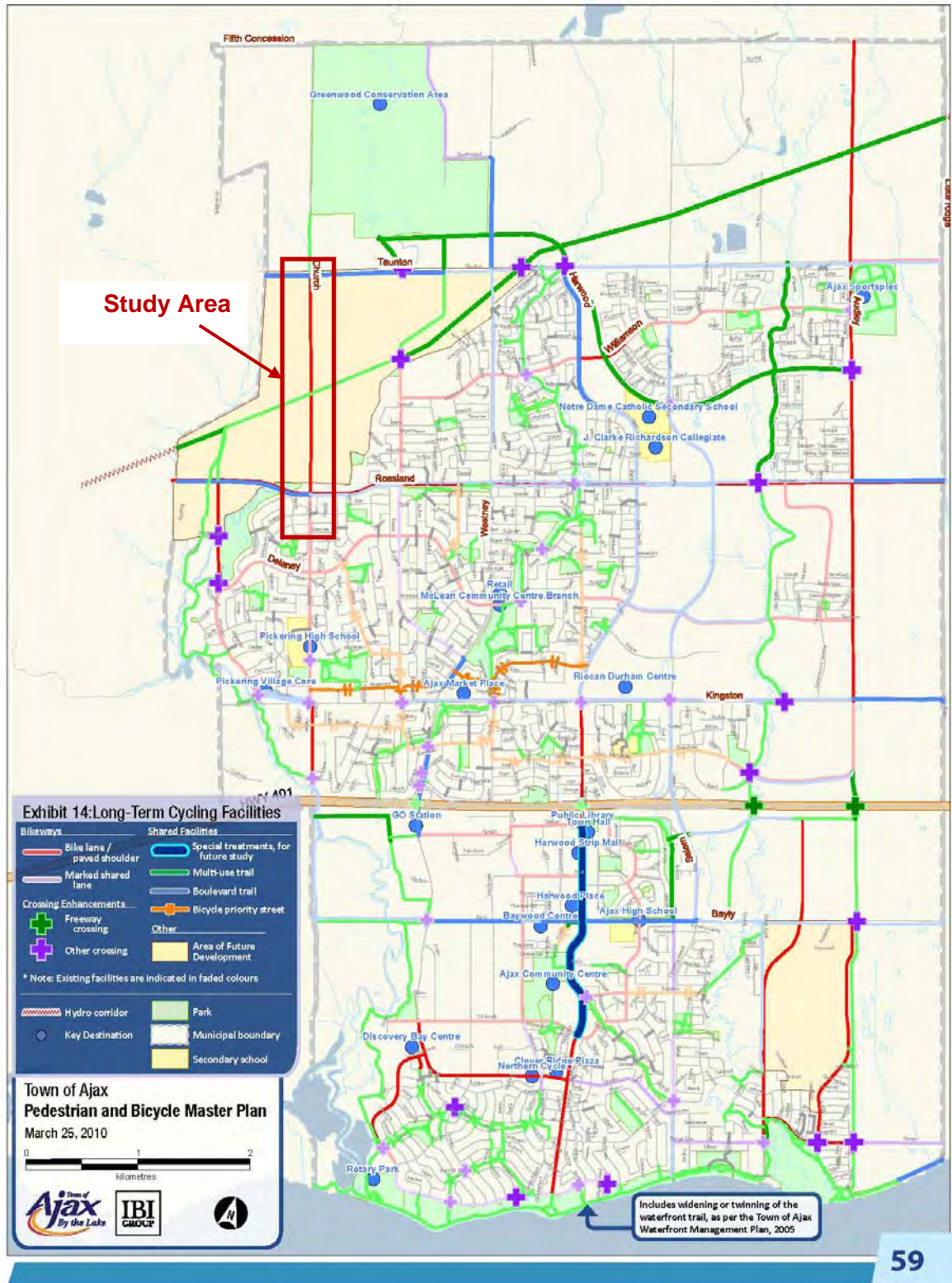


Figure 2.10 – Town of Ajax – Pedestrian and Bicycle Master Plan

Church Street today does not provide sidewalks, multi-use trail or bike lanes and therefore does not meet the objectives of the Official Plan, and Transportation Master Plan.

With the increase in residential and commercial developments in the area on Church Street from Rossland Road to Taunton Road, there will be an increase in traffic volumes for residents to access Church Street. Currently the existing roadway is a two-lane rural road with ditches on both sides of the road, it is in poor condition and will not be able to accommodate the projected increased traffic volumes. Traffic lanes and gravel shoulders are less than current standard widths.

The roadway between the Church Street / Rossland Road intersection to north of the East Duffins Creek bridge does not meet current geometric road profile design standards for providing safe sight distance and stopping distances. It does not have the width to accommodate a sidewalk, multi-use trail and bike lanes to meet the objective of the Official Plan and Transportation Master Plan.

Based on the review of existing conditions on various aspects throughout the study area, the current needs along Church Street include improvements to safety, traffic lane widths, pavement structure design, and additional of sidewalk, multi-use trail and bike lanes.

3.0 EXISTING CONDITIONS

3.1 Natural Environment

The natural environment sections of this report were prepared by LGL Limited whose full report can be found in Appendix G. Sections of their report have been included into the main body of this report.

3.1.1 Fisheries and Aquatic Habitat

Aquatic investigation was completed at both the East Duffins Creek crossings of Rossland Road and Church Street with secondary source information review to help identify the fisheries resources and associated aquatic habitat within the study area.

Habitat assessments were completed along East Duffins Creek 50 m upstream of its crossing of Church Street to 100 m downstream of the Rossland Road crossings. Fish habitat parameter recorded at the crossings included; estimated average wetted width, general water clarity, substrates, approximate depths, channel morphology observations and observation of fish and significant habitat features. In addition, photographs were taken to document the study area watercourse upstream and downstream of the crossings.

The East Duffins Creek is identified by TRCA as a 4th order stream, classified as Intermediate Riverine Coldwater habitat and is managed for Redside Dace and Rainbow Trout. Redside Dace, a coldwater species which has been historically reported in East Duffins Creek is listed by the Ministry of Natural Resources (MNR) as “Endangered”. The occurrence of these species in the section of East Duffins Creek within the study area is not documented currently and no Redside Dace were observed within any watercourse during LGL’s site visits.

3.1.2 Vegetation and Vegetation Communities

The geographical extent, composition, structure and function of the vegetation communities were identified through air photo interpretation and a field investigation. Air photos were interpreted to determine the limits and characteristics of the vegetation communities in the study area. A field investigation of the vegetation communities was conducted on October 28, 2011 within the Church Street right-of-way and adjacent habitat, to the extent possible. The field

investigation was carried out to ground truth the boundaries of the vegetation communities and to conduct a botanical survey.

Six Ecological Land Classification community types were identified within the study limits. The community types include: Dry-Moist Old Field Meadow, Mineral Cultural Woodland, Dry-Fresh Oak-Maple-Hickory Deciduous Forest, Dry-Fresh Deciduous Forest, Mixed Forest and Dry-Fresh White Cedar-Poplar Mixed Forest. All of the vegetation communities identified within the study area are considered widespread and common in Ontario, and are secure globally. Please refer to Figure 3.1 for map that delineated these communities.

3.1.3 Flora

A total of 98 plant species have been recorded within the study area. Two of these plants could only be identified to genus and are not included in the following calculations. Of the 96 plant species identified, 42 (44%) are native to Ontario and 54 (56%) are considered introduced and non-native to Ontario. A list of vascular plants is presented in the Appendix of LGL's report which includes a description of regional and local species of concern.

No plant species that are regulated under the Ontario Endangered Species Act or the Canada Species at Risk Act were encountered during the botanical investigation within the subject area

3.1.4 Tree Inventory

A total of 425 trees consisting of 29 species were examined and assessed within the Church Street right-of-way. The majorities of trees are located on private property and occur within residential properties, scattered along agricultural fields, fallow fields and within the woodlot at the north end of the study area. The woodlot in the southern portion of the study area contains the largest concentration of trees of which mostly all species are native to Ontario. A list of the species identified during the tree inventory is presented in Table 3-1.



Figure 3.1 – Vegetation Communities

Table 3-1 – Summary of Tree Species Inventories Along Church Street From Rossland Road to Taunton Road

| Scientific Name | Common Name | Number of trees | Scientific Name | Common Name | Number of trees |
|-------------------------------|-------------------|-----------------|---|---------------|-----------------|
| <i>Pinus nigra</i> | Austrian pine | 1 | <i>Quercus rubra</i> | red oak | 10 |
| <i>Malus pumila</i> | common apple | 3 | <i>Pinus sylvestris</i> | Scotch pine | 8 |
| <i>Syringa vulgaris</i> | common lilac | 1 | <i>Acer saccharinum</i> | silver maple | 21 |
| <i>Tilia americana</i> | basswood | 9 | <i>Acer saccharum</i> ssp. <i>saccharum</i> | sugar maple | 92 |
| <i>Ulmus pumila</i> | Siberian elm | 1 | <i>Betula papyrifera</i> | paper birch | 5 |
| <i>Prunus serotina</i> | black cherry | 5 | <i>Salix alba</i> | white willow | 4 |
| <i>Crataegus</i> sp. | hawthorn | 6 | <i>Fraxinus americana</i> | white ash | 16 |
| <i>Juglans nigra</i> | black walnut | 9 | <i>Ulmus americana</i> | white elm | 20 |
| <i>Populus grandidentata</i> | large-tooth aspen | 1 | <i>Picea glauca</i> | white spruce | 5 |
| <i>Picea abies</i> | Norway spruce | 4 | <i>Pinus strobus</i> | white pine | 12 |
| <i>Fraxinus</i> | red ash | 41 | <i>Salix X sepulcralis</i> | hybrid willow | 2 |
| <i>Thuja</i> | eastern white | 52 | <i>Populus tremuloides</i> | trembling | 15 |
| <i>Acer platanoides</i> | Norway maple | 11 | <i>Malus baccata</i> | crabapple | 4 |
| <i>Aesculus hippocastanum</i> | horsechestnut | 2 | <i>Ostrya virginiana</i> | ironwood | 1 |
| <i>Acer negundo</i> | Manitoba maple | 64 | | | |

No tree species that are regulated under the Ontario Endangered Species Act or the Canada Species at Risk Act were encountered when conducting the tree inventory within the study area (those tree species regulated as Endangered, Threatened or Special Concern).

3.1.5 Wildlife and Wildlife Habitat

Field investigations along Church Street from Rossland Road to Taunton Road were conducted within and directly adjacent to the right-of-way on October 6, 2011, to document wildlife and wildlife habitat and to characterize the nature, extent, and significance of animal usage within the study limits. Breeding bird surveys were conducted June 5, June 18 and July 4, 2012. Direct observations, calls, tracks and scats were used to record wildlife present within the study

area. All bridge and culvert structures were also investigated for any nesting migratory bird species.

Twenty-two recorded species of bird are protected under the *Migratory Birds Convention Act* (MBCA) and two are protected under the *Fish and Wildlife Conservation Act* (FWCA). Eight species found within the study area are recommended by Bird Studies Canada as priority species for conservation in Durham Region. Nine of 11 species of mammal are offered protection under the FWCA. Four species, Wild Turkey, Brown Thrasher, Bobolink and American mink (*Neovison vison*), are considered to be of regional concern (L2 or L3) by the TRCA. Refer to LGL's report in Appendix G for table of documented wildlife species within the study area.

Background information indicated that, of the 42 wildlife species recorded within the study area, three are regulated under Ontario *Endangered Species Act* (ESA) and the Canada *Species at Risk Act* (SARA). A single species at risk, the Ribbonsnake (*Thamnophis sauritus*), has been identified as having potential to be present within the Church Street study area based on a record from the NHIC Biodiversity Explorer database (MNR 2012). Each of the four species, Eastern Ribbonsnake, Barn Swallow, Bobolink and Eastern Meadowlark have their respective legal status, biological requirements, survey status and the likelihood of presence within the study area is discussed in LGL's report in Appendix G. A summary of LGL's findings is presented in Table 3-2.

Table 3-2 - Summary of Likelihood of Presence of Threatened Species in Study Area

| Name of Species | Listed As | Likelihood of Presence |
|---------------------|-----------------|--|
| Eastern Ribbonsnake | Special concern | Field investigations result identified no suitable habitat for Eastern Ribbonsnake within the lands examined. |
| Barn Swallow | Threatened | Barn Swallow nest colonies were found centrally within the study area, one associated with a garage structure west of Church Street and another in a barn structure east of Church Street. |
| Bobolink | Threatened | Adult Bobolinks were observed foraging and males were frequently seen/heard calling on territories. On July 4, 2012, it was noted that nearly all habitats where Bobolink had been previously identified were plowed and Bobolink were absent. |

| Name of Species | Listed As | Likelihood of Presence |
|--------------------|------------|---|
| Eastern Meadowlark | Threatened | Adult Eastern Meadowlark were observed foraging and males were frequently seen/heard calling on territories. On July 4, 2012, it was noted that nearly all habitats where Meadowlark had been previously identified were plowed and Eastern Meadowlark were absent. |

3.1.6 Designated Natural Areas

Designated natural areas include areas identified for protection by the MNR, conservation authorities and/or upper and lower tier municipalities. A review of the Natural Heritage Information Centre (NHIC 2011) indicates that there are no Provincially Significant Wetlands (PSWs), Areas of Natural and Scientific Interest (ANSIs) or Environmentally Significant/Sensitive Areas (ESAs) located within 120 m of the study area.

3.1.7 Physiography and Soils

The study area is located on the undulating till plains associated with the Iroquois Plain Physiographic Region of southern Ontario. The Iroquois plain extends around the western part of Lake Ontario, from the Niagara River to the Trent River, varying in width from a few hundred meters to approximately 10 km (Chapman and Putnam 1984). The predominant soil types in this section of the Iroquois Plain consist of Darlington loam and Newcastle loam, belonging to the dominant soil group, grey-brown podzolic. These soils vary from loam to very fine sandy loam and are associated with a rolling to moderately rolling topography. Both of these soil types are relatively stone free, exhibit a soil pH reaction of slightly acidic and provide good drainage.

3.2 Archeological Assessment

Archeoworks Inc. was retained to perform a Stage 1 archeological assessment of the study area. Their full report is included in Appendix H. Their investigation determined that there are 31 archaeological sites located within a one-kilometer radius of the study corridor with several sites located within 300 meters of the study corridor. These areas will require a Stage 2 archeological assessment. The full Stage 2 report is included in Appendix H. During the Stage 2 process, four (4) property owners did not give permission to complete the Stage 2 investigation work. It is recommended that the investigation work be completed before construction is commenced. Within the proposed development (outside of the right-of-way) in

the A9 community, a Stage 1 and 2 archeological assessment was previously completed by ASI and it was determined that no further work was necessary for these areas.

At the East Duffins Creek area west side of the existing bridge, TRCA owns the property. A Stage 2 archeological study has been complete by the TRCA and preliminary analysis indicates that an archaeological site dates back to 1840-1860 with possible remnant of a foundation located within the study area. There was probably a mill complex located within and immediately adjacent to study area consisting a mill foundation and associated mill race. A Stage 3 archeological assessment will be required and a possible Stage 4 assessment may be required pending on the results from Stage 3. Figure 3.2 is a map indicating the location of the site where Stage 3 archeological assessment is required.



Figure 3.2 – Stage 3 Archeological Assessment Site Location

3.3 Cultural Heritage

A survey was conducted by Unterman McPhail and Associates in November 2011 for the study corridor. Eight Cultural Heritage Landscapes (CHL) and three Built Heritage Resources (BHR) were identified in the study area.

There are no properties in the study area designated under Part IV or V of the Ontario Heritage Act. Prior to removing the existing Church Street bridge, a cultural heritage evaluation report must be completed and approved by the Ministry of Culture. Additional details on the Built Heritage and Cultural Heritage Landscape Assessment can be found in the Appendix I.

3.4 Noise Assessment

SS Wilson Ltd. undertook an investigation of the noise impact assessment on the increase in noise in study corridor due to increase in daily traffic. The noise impact assessment is based on the excess of the future levels with the existing ambient sound levels.

Analysis and recommendations related to noise impacts on existing residential development areas (outdoor living areas) adjacent to the new construction or expansion of a Regional road will follow the MOE methodology and current publications on Noise Assessment Criteria. Existing residential developments will be considered for noise mitigation based on the projected noise levels being based on a mature state of development when:

- The projected noise level exceeds 60 dBA, or;
- The projected noise level exceeds 55 dBA and the difference between the existing and the projected noise levels is 6 dBA or more.

In addition, proposed noise attenuation measures must achieve a 6 dBA or more reduction in noise levels in the outdoor living areas of the affected properties recommended in the Noise Assessment Report.

Additional details on the Noise Assessment can be found in the Appendix J.

3.5 Geotechnical Investigation

SPL Ltd. undertook an investigation of the existing soils condition. A total of 14 boreholes were drilled along Church Street from Rossland Road to Taunton Road with four boreholes drilled in the vicinity of the East Duffins Creek to bedrock at the approximate location of the future bridge abutment and piers. Monitoring wells or standpipe Piezometers were installed in six boreholes for stabilized groundwater level monitoring. Chemical analysis was completed on four soil samples to assess the environmental quality of the soil. The results of the investigation are outlined below.

3.5.1 Bridge Area

At the bridge location, the fill material consisted of clayey silt, silty sand, sand and silty sand with trace to some organics. The existing fill material is in a very loose state. At some areas, fill material extended to a depth of 7.6 m, overlying shale bedrock.

3.5.2 Pavement

Under the existing road, the granular material is existing fill material consisted of silty clay and silty sand to a depth of about 1.2 m. Underneath the fill material from north of East Duffins Creek to the south limit of Memorial Gardens, the native soil general consist of clayey silt to silty clay to a depth of about 4.9 m. North of Memorial Gardens, there are signs of cohesionless soils underneath the fill or clayey silt/silty clay material.

The existing pavement in the study area is generally in poor condition with moderate transverse cracks and rutting at various locations.

North of Bridge Construction area to Taunton Road, the average corrected infiltration rate for this area is about 20 mm/hr. The depth to the local water table ranges between 0.6 to 1.8 m below current ground surface. With the high existing water level measured in the area, it might limit the infiltration potential of the soil. On the south side of East Duffins Creek, existing soil can provide an estimate infiltration rate of 13 to 25 mm/hr. Due to the proximity to the East Duffins Creek, fluctuation in the water level can affect the infiltration potential of the soil.

Four of the sixteen soil samples were sent to assess the environmental quality of the soil. Elevated levels of electrical conductivity (EC) and/or sodium absorption ratio (SAR) above MOE Table 2 Residential / Parkland / Institutional (RPI) property use standards were identified in 3 of the 4 samples with one of these samples also exceeding MOE Table 3 Industrial / Commercial / Community (ICC) property use standards. Soil exceeding the MOE Table 3 ICC standards will require disposal as a waste material. Waste Classification testing in accordance with O.Reg. 558 will be required for the offsite disposal of soil defined as a waste. Elevated EC and SAR generally related to the use of road salt and are primarily plant growth concerns and not a human health issue. Since this site is part of the public roadway network, soil with elevated EC and SAR conditions are exempt, provided they are to remain on the site for roadway use. It is recommended that testing for asbestos in the asphalt be undertaken during detail design.

Additional details on the geotechnical and pavement investigation report for Church Street by SPL Ltd. can be found in the Appendix K.

3.5.3 Well Record Data

A well record search on the MOE Well Record Data was completed for the project area. A total of 42 water well records were on file for the area within 500 m of the subject site, with 17 wells reported to be large diameter and sixteen of these wells were reported for domestic use. The location of existing wells are identified in Appendix K and are recommended to be confirmed during detail design. The water quality and level is recommended to be monitored before and during construction.

3.5.4 Hydraulic Conductivity Testing

In-situ hydraulic conductivity testing was completed for the projected area. At the proposed bridge construction area, the soil conditions in the area of the proposed bridge construction do not meet the listed MOE Storm Water Management Planning and Design Manual. It is not recommended to infiltrate water in the area. For areas north of the bridge construction to Taunton Road, the soil provides an acceptable infiltration rate but might have limited infiltration potential as local water table ranges between 0.6 to 1.8 m below current ground surface.

Details on in-situ hydraulic conductivity test report for Church Street by SPL Ltd. can be found in Appendix K.

4.0 ALTERNATIVE SOLUTIONS

4.1 Problem/ Opportunity Statement

Transportation solutions are necessary to enhance safety and mobility of motorists, pedestrians and cyclists in the Church Street corridor. Specific problems/ opportunities to be addressed include:

- Increase in residential and commercial developments in the area will increase traffic volumes on Church Street for residents to access Taunton Road and Rossland Road.
- The roadway vertical curve at the Church Street bridge crossing Duffins Creek does not meet current standards.
- The existing roadway has traffic lanes and gravel shoulders which are less than current standard widths.
- The Town of Ajax Official Plan identifies Church Street reconstruction to include on-street bike lanes and a multi-use trail.
- Church Street is identified in the Transportation Master Plan (TMP) to maintain two lanes of traffic.
- Improvements to Church Street will provide an opportunity to:
 - Improve safety for all road users
 - Improve road conditions
 - Provide pedestrian and cycling facilities
 - Provide for future transit Service

4.2 Generation of Alternative Solutions

The Class EA process requires that all reasonable and feasible solutions are examined to resolve the problems of the project. The following alternative solutions were investigated to address the identified problems:

- **Do Nothing** – No improvements to address the project specific problems or opportunities on Church Street.
- **Physical improvements to existing facilities** – bridge and road rehabilitation.
- **Complete road and bridge reconstruction** – Improvements will be made to address the project specific problems and opportunities on Church Street.
- **Alternative modes of transportation by widening existing roadway** – Road rehabilitation of existing pavement and widen existing roadway to provide adequate space for bike lanes. Sidewalk and multi-use path will also be constructed along the study area.
- **Operational Improvements** – Improvements normally include addition of exclusive turning lanes at intersections and / or adding separate traffic signal phases for high left-turning traffic movements, etc.

4.3 Assessment Criteria and Evaluation Methodology

Based on the assessment of the project requirements and study area sensitivities, the following criteria were adopted to assess the project alternatives solutions:

Technical Considerations:

- Geometric Design Criteria
- Traffic Operations and Corridor Capacity and Level of Service
- Pedestrian/Cycling Operations
- Transit Operation

Social & Economic Environment:

- Impacts on Existing and Future Adjacent Communities
- Property Requirements
- Aesthetics
- Noise impacts / Air quality

Natural and Cultural Environment:

- Aquatic, Vegetation
- Wildlife and Wildlife Habitat
- Natural Heritage
- Archaeological
- Cultural Heritage

Economic Environment:

- Construction Cost
- Maintenance and Operating Costs
- Property Acquisition Costs
- Utility Relocation Costs

4.4 Evaluation of Alternative Solutions

The alternative solutions were evaluated based on the criteria outlined above as presented in Table 4-1. A general description of the alternative solutions is provided below, together with a summary of the evaluation.

4.4.1 The “Do Nothing” Alternative

This alternative is included to provide a baseline condition to which other alternative solutions can be compared. Under this alternative, there are no physical changes in the study area. This alternative does not address the poor conditions of the existing pavement or the improved pavement design to accommodate the projected traffic growth on Church Street pavement structure issue. No improvements are provided in the Church Street area and therefore this alternative does not support the objectives of the Official Plan and the Transportation Master Plan, does not support various modes of transportation such as walking and cycling and it does

not provide the safety improvements that will improve Church Street to meet current design standards. This alternative was not carried forward for further analysis.

4.4.2 Physical improvements to existing facilities

This alternative would address the pavement structure issue that will accommodate traffic growth. It does not support the objectives of the Official Plan and the Transportation Master Plan, does not support various modes of transportation such as walking and cycling and it does not provide the safety improvements that will improve Church Street to meet current design standards. This alternative was not carried forward for further analysis.

4.4.3 Complete road and bridge reconstruction

This alternative significantly improves Church Street as this would provides the safety improvements that improve Church Street to meet current design standards. It will also support the objectives of the Official Plan and the Transportation Master Plan and encourage walking and cycling as an alternative to vehicular use.

This alternative is carried forward as it effectively addresses the identified problems and opportunities by:

- Improving vehicular safety at the Rossland Road / Church Street intersection northerly to the bridge area;
- Supporting planned development and growth along study area;
- Supporting sustainable modes of transportation;
- Providing a sidewalk and multi-use trail to enhance pedestrian safety; and
- Providing on-street bike lanes to encourage cycling.

4.4.4 Alternative Modes of Transportation by Widening Existing Roadway

This alternative would address the need to provide alternative modes of transportation by widening the existing roadway to accommodate bike lanes, a sidewalk, and multi-use trail. It

does not address the safety improvements to improve Church Street to meet current design standards, nor does it provide the bike lanes and multi-use trail at the existing bridge.

This alternative was not carried forward but components of the road widening to support alternative modes of transportation will be incorporated into the selected alternative.

4.4.5 Operational Improvements

This alternative would address the traffic growth in the future due to all of the proposed developments in the study area. An exclusive left-turn lane on Church Street would be provided through the entire study corridor. This alternative does not support various modes of transportation and it does not provide the safety improvements that improve Church Street to meet current design standards.

This alternative was not carried forward but components of widening to support alternative modes of transportation will be incorporated into the selected alternative

Table 4-1 – Preliminary Evaluation Matrix

| | Option 1 – Do Nothing | Option 2 – Bridge and Road Rehabilitation | Option 3 – Complete Road and Bridge Reconstruction to Current Design Standards | Option 4 – Alternative Modes of Transportation by Widening Existing Roadway | Option 5 – Operational Improvements (Exclusive Turning Lanes) |
|--|---|--|--|--|---|
| Technical Considerations | | | | | |
| Geometric Design Criteria | ⇒ Does not meet current criteria. | ⇒ Does not meet current criteria. | ⇒ Meets current criteria. | ⇒ Does not meet current criteria. | ⇒ Meets current criteria. |
| Traffic Operations/ Corridor Capacity and Level of Service | ⇒ Provides adequate capacity and operational efficiency for existing traffic volumes. | ⇒ Provides adequate capacity and operational efficiency for existing traffic volumes. | ⇒ Provides adequate capacity and operational efficiency with future development options. | ⇒ Provides adequate capacity and operational efficiency for existing traffic volumes. | ⇒ Provides adequate capacity and higher operational efficiency with future development options |
| Pedestrian and cycling operations | ⇒ Pedestrian and cycling objectives are not met | ⇒ Pedestrian and cycling objectives are not met | ⇒ Can achieve pedestrian and cycling objectives. | ⇒ Can achieve pedestrian and cycling objectives | ⇒ Pedestrian and cycling objectives are not met |
| Transit Operation | ⇒ Can accommodate transit operation | ⇒ Can accommodate transit operation | ⇒ Can accommodate transit operation | ⇒ Can accommodate transit operation | ⇒ Can accommodate transit operation |
| Social and Economic Environment | | | | | |
| Impacts on Existing and Future Adjacent Communities | ⇒ No impact | ⇒ No impact | ⇒ Minimal impact ⇒ Provides alternative modes of transportation. | ⇒ Minimal impact ⇒ Provides alternative modes of transportation. | ⇒ Minimal impact |
| Noise impacts / Air Quality | ⇒ No impact | ⇒ No impact | ⇒ Slight increase in noise and minimal effect on air quality as improved road may result in increased traffic volumes. | ⇒ Slight increase in noise and minimal effect on air quality as improved road may result in increased traffic volumes. | ⇒ Slight increase in noise and minimal effect on air quality. as improved road may result in increased traffic volumes. |
| Natural and Cultural Environment | | | | | |
| Aquatic, Vegetation | ⇒ No impact. | ⇒ No impact. | ⇒ Need to manage aquatic impacts at bridge during construction. ⇒ Need to manage vegetation impacts ⇒ Opportunity for improved hydraulics at bridge ⇒ Need to manage impact to stormwater quantity/ quality. | ⇒ No Aquatic impact. ⇒ Need to manage vegetation impact at various areas along the project area. ⇒ Need to manage impact to stormwater quantity/ quality. | ⇒ No Aquatic impact. ⇒ Need to manage vegetation impact at various areas along the project area. |
| Wildlife and Wildlife Habitat | ⇒ No impact | ⇒ No impact | ⇒ Need to manage wildlife impacts at bridge. ⇒ Provides opportunity for improved wildlife passage at bridge. | ⇒ No impact | ⇒ No impact |
| Natural heritage | ⇒ No impact | ⇒ No impact | ⇒ No endangered, threatened or special concern species were found in ROW. | ⇒ No endangered, threatened or special concern species were found in ROW. | ⇒ No endangered, threatened or special concern species were found in ROW. |
| Archaeological | ⇒ No impact | ⇒ No impact | ⇒ Phase 2 archeological assessment is required. | ⇒ Phase 2 archeological assessment is required. | ⇒ Phase 2 archeological assessment is required. |
| Cultural Heritage | ⇒ No impact | ⇒ No impact | ⇒ Need to manage impact to heritage features. | ⇒ Need to manage impact to heritage features. | ⇒ Need to manage impact to heritage features. |
| Costs | | | | | |
| Construction | ⇒ Minimal | ⇒ Medium. Requires existing road to be repaved and provide bridge rehabilitation. | ⇒ Highest. Total reconstruction of the road and bridge | ⇒ High. Requires widening to existing road and bridge but lower than option 3. | ⇒ Low. Only requires construction at future intersection locations. |
| Property Acquisition | ⇒ No property is required. | ⇒ Lowest property acquisition area and cost of the improvement option. | ⇒ Highest property acquisition area and cost of the improvement option. | ⇒ Second Highest property acquisition area and cost of the improvement option. | ⇒ Second Lowest property acquisition area and cost of the improvement option. |
| Utilities Relocation | ⇒ No impacts to existing utilities | ⇒ No impacts to existing utilities | ⇒ May require relocation of hydro poles | ⇒ May require relocation of hydro poles | ⇒ May require relocation of hydro poles at some locations |
| Summary | | | | | |
| Summary | ⇒ Does not meet geometric criteria. ⇒ Does not provide traffic lanes and gravel shoulders that meet current standard widths. ⇒ Does not provide opportunity for on street bike lanes and multi-use trail. ⇒ Lowest cost ⇒ Rejected from further analysis. | ⇒ Does not meet geometric criteria. Does not provide traffic lanes and gravel shoulders that meet current standard widths ⇒ Does not provide opportunity for on street bike lanes and multi-use trail. ⇒ Rejected from further analysis. ⇒ Medium cost | ⇒ Meets geometric criteria. ⇒ Provides traffic lanes that meet current standard widths ⇒ Provides opportunity for on street bike lanes and multi-use trail. ⇒ Provides improved site lines at bridge. ⇒ Highest cost | ⇒ Does not meet geometric criteria. ⇒ Does not provide traffic lanes that meet current standard width ⇒ Does provide gravel shoulders that meet current standard widths ⇒ Provides opportunity for on street bike lanes and multi-use trail. ⇒ Second highest cost | ⇒ Meet geometric criteria. ⇒ Does not provide traffic lanes and gravel shoulders that meet current standard widths ⇒ Does not provide opportunity for on street bike lanes and multi-use trail. ⇒ Provides higher operational efficiency than other options. ⇒ Second lowest cost |
| | Carried Forward for Comparison Only | Not Carried Forward | Carried Forward as the preferred alternative solution | Components will be incorporated into the selected alternative | Components will be incorporated into the selected alternative |

4.5 Public Information Centre No. 1

The first Public Information Centre (PIC) was held on February 12, 2012. Prior to the meeting, all ministries, agencies and authorities listed in Appendix A were mailed notices of the PIC. Advertisements were placed in the local newspaper on February 8, 2012 and February 15, 2012. There were also notices distributed by Canada Post to residences and businesses in the study area from approximately 200 m south of Rossland Road, to approximately 200 m east and west of Church Street, and to Taunton Road. In addition, the property owners located along Church Street within the study area were also informed of the first Public Information Centre by hand deliver notices. Two mobile sign boards were also installed on Church Street approximately two weeks before the PIC outlining the date, time and location of the meeting and information was posted on the Town's website informing the public about the PIC.

The first PIC was held at the Village Community Centre Hall 1, 22 Sherwood Road West. The purpose of the meeting was to provide the public with information about the study's background and purpose, the identification of problems/opportunities, the alternative solutions developed to address the problems/opportunities, and the assessment of the alternative solutions leading up to the identification of a preliminary preferred solution. The PIC was conducted in an open house format. Residents and stakeholders were invited to ask questions and discuss their concerns with the Town or consultant's representatives. Attendees were also encouraged to submit written comments on forms provided. The meeting was open from 6:30 p.m. to 8:30 pm. Over twenty-five people attended the PIC and seven written comment sheets were received. The presentation materials were posted on the Town's website. PIC comments received are included in Appendix C.

A summary of the feedback is provided below:

| Theme/Issue | Comment / Concern | Response |
|------------------------------------|---|---|
| Pedestrian / Cycling Facilities | <ul style="list-style-type: none"> Why build on-street bike lanes? Nobody uses them. | <ul style="list-style-type: none"> It is the Town's vision to provide a bike network for active transportation. Usage of bike lanes should increase once the network of active transportation is complete. |
| | <ul style="list-style-type: none"> No on-road bike lanes. Provide off-road bike lanes. On-road bike lanes are too dangerous. | <ul style="list-style-type: none"> On-road and off-road bike lanes will be provided to accommodate different level of cyclist. |

| Theme/Issue | Comment / Concern | Response |
|--------------------------------|--|---|
| | <ul style="list-style-type: none"> Remove bike lanes on Church Street south of Rossland Road and go back to three lanes to relieve traffic. There is an off-road bike lane already, why have both? | |
| Transportation and Engineering | <ul style="list-style-type: none"> The location of the roundabout is not appropriate. Is a roundabout a feasible solution to traffic calming? How will a roundabout work with public transportation? The sizes of the roundabouts are out of proportion. Will Riverside Drive improvements be included as part of this study due to increase in traffic to the area? Traffic on Church Street south of Rossland Road needs to be improved. Need traffic calming features. | <ul style="list-style-type: none"> Town is currently conducting the EA to determine if the roundabout location is appropriate. A properly designed roundabout will achieve traffic calming as the proposed driving speed in a roundabout shall be no higher than 25 km/h, therefore forcing drivers to slow down when they enter the roundabout. Riverside drive improvements are not included in this study, but are included in the Town's 5-year plan. |
| Environmental | <ul style="list-style-type: none"> Concerns regarding the impact to the natural environment at the East Duffins Creek area. Will the Church Street work increase average flow to East Duffins Creek? Noise impact to the properties along Church Street. Project will increase urban heat. Vegetation on the west side of Church south of Taunton Road. Will it remain? | <ul style="list-style-type: none"> We are working with the Toronto Region Conservation Authority and Ministry of the Environment to minimize negative natural environmental impacts. Stormwater management will be used to minimize negative environmental impact to Duffins Creek. Noise study has been completed to assess noise impact with recommended mitigation measures. |
| Planning/Other | <ul style="list-style-type: none"> Request proposed timing of construction. Can the Town provide a Bailey bridge to avoid closing of Church Street during construction? Dust control during and after construction. | <ul style="list-style-type: none"> Proposed phase 1 construction is tentatively 2017 (subject to council and budget approval). Due to the tight right-of-way north and south of the Duffins Creek area, increased environmental impacts and increase costs, it is not feasible to provide a Bailey bridge with a temporary road during construction. Dust Control (use of water and calcium chloride) will be required during construction to minimize dust in the area. |

4.6 Selection of a Preferred Alternative Solutions

The comments received from the public and agencies were incorporated in the evaluation process. The alternative solutions were re-evaluated after receiving the comments based on the assessment criteria. It is confirmed that the preliminary preferred solution is to completely reconstruct Church Street from Rossland Road to Taunton Road to current design standards and widen to add on-street bike lanes, a sidewalk on one side and a multi-use trail on the other side of the roadway in accordance with the Official Plan and Transportation Master Plan.

5.0 ALTERNATIVE DESIGNS

5.1 Generation of Alternative Design Concepts

Various alternative design concepts were generated for the project as follows:

- Proposed urban roadway with curb, gutter and storm sewer system or rural road with ditches.
- Road centreline alternatives – maintain existing centreline or shifting the centreline to the east.
- Road profile Alternatives – different profiles with different elevations in the East Duffins Creek area.
- Intersection design alternative – roundabout or standard four-way intersection.
- New bridge alternatives - different length of bridge and location of bridge piers and abutments.

5.1.1 Constraints

Several constraints were taken into account when developing the alternatives that were evaluated as follows:

- Minimize property impacts and acquisition to local residents along the Church Street corridor.
- Minimize impacts to the natural and social environment.
- Meet the Town's Official Plan and the Master Plan's objectives by providing bike lanes, sidewalk and multi-use path for Church Street.
- Minimize throw away cost by avoiding construction at the recently reconstructed Taunton Road / Church Street intersection and future re-aligned Rossland Road / Church Street intersection.

5.2 Assessment and Evaluation of Rural and Urban Road Cross Section Alternatives

Two typical sections were developed to assist with the evaluation of the preferred road type for Church Street. (Refer to Figure 5.1 and 5.2 for typical sections)

- Figure 5.1 is an urban design section with 3.5 m wide driving lanes and 1.5 m wide bike lanes in each direction. A proposed 3 m multi use path is located on the east side and a 1.8 m sidewalk is located on the west side of Church Street. The right-of-way required for this option is 30 m.
- Figure 5.2 is a rural design section with 3.5 m wide driving lane in each direction with a 1.5 m bike lanes and 1.00 m shoulders. A 3 m buffer, located on both sides of the road, will separate the 3 m multi-use trail and 1.8 m sidewalk from the roadway. The right-of-way required for this option is 35 m.

The “Do Nothing” alternative was also evaluated and rejected as it does not meet the objectives of the Official Plan and the Transportation Master Plan and it does not provide lane widths that meets current standards.

Table 5-1 represents the evaluation of the two typical sections.

5.2.1 Urban Design

This alternative requires the least amount of land acquisition of the three options. It also matches with the urban cross section at Taunton Road / Church Street intersection and also south of Rossland Road.

This alternative has the least impact on the valley lands adjacent to Church Street and has the smallest right of way (R.O.W) width. The impact to the forest area on the west side of Church Street south of Taunton Road can be minimized by shifting the centerline of the road to the east, avoiding extensive vegetation removal. This alternative will require storm sewers with new outlets on both sides of the proposed bridge.

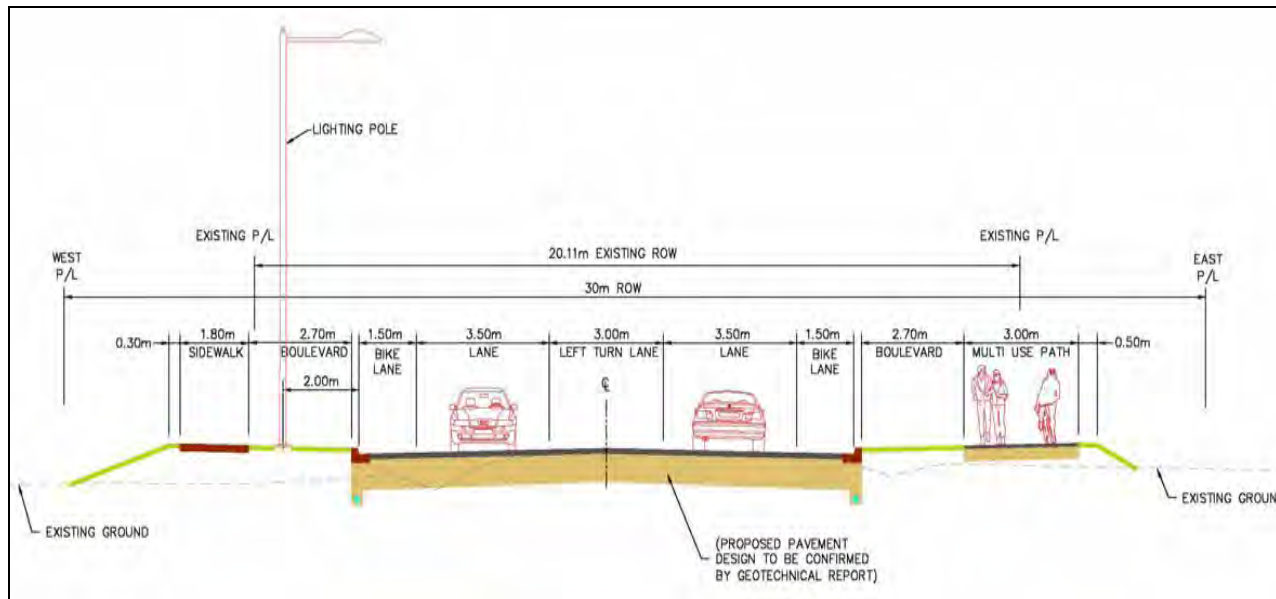


Figure 5.1 – Urban Design Section

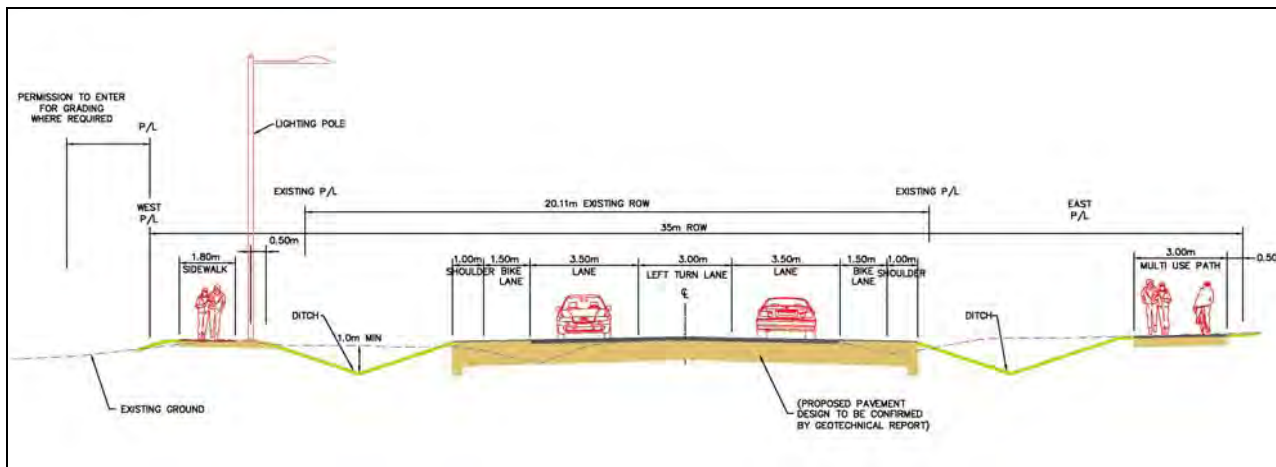


Figure 5.2 – Rural Design Section

TABLE 5-1 – EVALUATION OF TWO LANE URBAN VS RURAL CROSS SECTION

| EVALUATION CRITERIA | | OPTION 1 | OPTION 2 | OPTION 3 |
|-------------------------|--|--|--|---|
| | | DO NOTHING | RURAL CROSS SECTION | URBAN CROSS SECTION |
| Technical Consideration | Geometric Design Criteria | <ul style="list-style-type: none"> Does not meet current lane width criteria. | <ul style="list-style-type: none"> Meets current lane width criteria. | <ul style="list-style-type: none"> Meets current lane width criteria. |
| | Traffic Operations | <ul style="list-style-type: none"> Provides adequate capacity and operational efficiency for existing traffic volumes. | <ul style="list-style-type: none"> Provides adequate capacity and operational efficiency with future development options. | <ul style="list-style-type: none"> Provides adequate capacity and operational efficiency with future development options. |
| Social Environment | Property Requirements | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> A minimum 35m right of way width will be required through the entire project corridor. More property will be required from adjacent properties than Option 3. | <ul style="list-style-type: none"> A 30m right of way width as per the Official Plan can accommodate the proposed project requirements. Less property will be required from adjacent properties than Option 2. |
| | Aesthetics | <ul style="list-style-type: none"> Will not match proposed urban road at Taunton Road, Rossland Road and existing Church Street south of Rossland Road. | <ul style="list-style-type: none"> Will not match proposed urban road at Taunton Road, Rossland Road and existing Church Street south of Rossland Road. | <ul style="list-style-type: none"> Will match proposed urban road at Taunton Road, Rossland Road and existing Church Street south of Rossland Road. |
| | Impact on Existing and Future Adjacent Communities | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> Major Impact to property immediately north of East Duffins Creek on west side of roadway. Need to acquire additional property from subdivision south of Hydro Corridor. | <ul style="list-style-type: none"> Minimal impact to property immediately north of East Duffins Creek on west side of roadway. No impact to proposed subdivision south of Hydro Corridor. |
| | Noise Impacts / Air Quality | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> Slight increase in noise level and minimal effect on air quality, as improved road may result in increased traffic volumes. | <ul style="list-style-type: none"> Slight increase in noise level and minimal effect on air quality, as improved road may result in increased traffic volumes. |
| Natural Environment | Aquatic, Vegetation | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> Extensive vegetation removal will be required due to wider right-of-way required (35 m). | <ul style="list-style-type: none"> Less vegetation removal than Option 2 due to narrower right-of-way required (30 m). |
| | Wildlife and Wildlife Habitat | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> More habitat removal due to wider right-of-way required (35 m). | <ul style="list-style-type: none"> Less habitat removal due to narrower right-of-way required (30 m). |
| | Storm Water Management | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> Ditches along the road can provide low cost quality and quantity treatment and permits groundwater recharge. | <ul style="list-style-type: none"> Higher cost for stormwater management system required for quality and quantity treatment. Groundwater recharge may be difficult to achieve. |
| Economic Environment | Capital Cost | <ul style="list-style-type: none"> No construction cost | <ul style="list-style-type: none"> Lower Construction cost | <ul style="list-style-type: none"> Higher Construction cost |
| | Maintenance and Operating Costs | <ul style="list-style-type: none"> Higher maintenance cost due to age of pavement. | <ul style="list-style-type: none"> Requires ongoing maintenance for gravel shoulders and cleanout of ditches. | <ul style="list-style-type: none"> Lower maintenance cost than Options 1 and 2. |
| | Property Acquisition Costs | <ul style="list-style-type: none"> No property acquisition required. | <ul style="list-style-type: none"> Higher additional cost to acquire property for right of way than Option 2. | <ul style="list-style-type: none"> Lower cost for Property acquisition than Option 2. |
| | Utility Relocation Costs | <ul style="list-style-type: none"> No utility relocation required. | <ul style="list-style-type: none"> No significant differences | <ul style="list-style-type: none"> No significant differences |
| Cultural Environment | Archeological | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> Stage 2 Archeological required | <ul style="list-style-type: none"> Stage 2 Archeological required |
| | Cultural Heritage | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> No impact |
| Transportation Services | Transit Operation | <ul style="list-style-type: none"> Does not provide transit stops, platform or pedestrian facilities to access transit stops. | <ul style="list-style-type: none"> Accessibility to transit stops or platforms is more difficult as pedestrian facilities are setback further away. | <ul style="list-style-type: none"> Improved accessibility for transit stops and platforms. |
| | Pedestrian and Cycling Operations | <ul style="list-style-type: none"> Does not include sidewalk, multi-use-trail-and-on-road-bike lanes. | <ul style="list-style-type: none"> Permits sidewalk, multi-use-trail and on-road bike lanes. | <ul style="list-style-type: none"> Permits sidewalk, multi-use-trail and on-road bike lanes. |
| | | NOT PREFERRED | NOT PREFERRED | TECHNICALLY PREFERRED |

5.2.2 Rural Design with Pathway behind the Ditch

This alternative requires the highest amount of land acquisition of the three options. It does not require any storm sewer system but the proposed ditch will require more maintenance than an urban cross section. This option requires more extensive vegetation removal along the west side of Church Street south of Taunton Road to accommodate the wider R.O.W. Some of the vegetation removals can be minimized by shifting the centerline of the road to the east which would require a larger amount of land acquisition from the adjacent owner than the previous option. This alternative will not match with the urban cross section at Taunton Road / Church Street intersection and south of Rossland Road. The rural design will require more maintenance for gravel shoulders and maintenance of the ditch areas than the urban cross-section.

5.2.3 Preliminary Preferred Road Cross-Section

The urban road cross section is selected as the preliminary preferred alternative due to the following factors:

- Minimizes property acquisition and associated costs and impacts especially on the vegetation at the west side of Church Street south of Taunton Road and hydro corridor.
- Matches urban road design north and south of the study area.
- Less maintenance than a rural road cross section.
- Improves accessibility for transit stops and platforms.

5.3 **Assessment and Evaluation of Alternative Alignments**

Two new alignments were developed to assist with the evaluation of the preliminary preferred road alignment for Church Street and were compared to Option 1 of maintaining the existing road centreline.

- Plans provided in Appendix P show Church Street with two new alignment options along Church Street and a future right-of-way of 30 m.

- Option 2 shows an alignment maintaining the existing road centre line and widening the road equally on both sides.
- Option 3 shows a road center line that has been shifted east by approximately 2 m.

Several criteria were established to assist with the evaluation of the alternatives as outlined below:

- Minimize impacts to the natural environment at the vegetated area on the west side of Church Street south of Taunton Road.
- Minimize property impacts north and south of East Duffins Creek.
- Minimize property acquisition.
- Avoid super elevation of the roadway at the bridge area.
- Meet geometric design standards.

Table 5-2 represents the preliminary evaluation of the two alignment options.

5.3.1 Preferred Alignment

Based on the evaluation, both of the new alignments will meet the latest geometric design standards and both will require the same amount of property acquisition. Both options will match in to the intersection of Taunton Road / Church Street and the proposed realigned Rossland Road / Church Street intersection without encroaching into the intersections. Option 3 is the preliminary preferred alignment because:

- It has the least impact on the vegetated area on the west side of Church Street south of Taunton Road.
- It will have the least impact on the property immediately north of East Duffins Creek on the west side.
- It allows the Town to delay acquiring most of the properties on the west side of Church Street until future development occurs.

TABLE 5-2 – EVALUATION OF ROADWAY ALIGNMENT OPTIONS

| EVALUATION CRITERIA | | OPTION 1 | OPTION 2 | OPTION 3 |
|--------------------------------|---|--|--|--|
| | | MAINTAIN EXISTING ROAD CENTRELINE | PROPOSED ROAD CENTRELINE IN THE CENTRE OF THE EXISTING R.O.W | SHIFT PROPOSED ROAD CENTRELINE EAST OF CENTRE OF THE EXISTING R.O.W |
| Technical Consideration | Geometric Design Criteria | <ul style="list-style-type: none"> Meets current criteria. | <ul style="list-style-type: none"> Meets current criteria. | <ul style="list-style-type: none"> Meets current criteria. |
| | Traffic Operations | <ul style="list-style-type: none"> Provides adequate capacity and operational efficiency with future development options. | <ul style="list-style-type: none"> Provides adequate capacity and operational efficiency with future development options. | <ul style="list-style-type: none"> Provides adequate capacity and operational efficiency with future development options. |
| Social Environment | Property Requirements | <ul style="list-style-type: none"> A 30 m right-of-way width as per the Official Plan. Requires more property from the west side due to existing centreline being west of the centre of the right-of-way. | <ul style="list-style-type: none"> A 30 m right-of-way width as per the Official Plan can accommodate the proposed project requirements with a 5 m widening on each side of existing right-of way. | <ul style="list-style-type: none"> A 30 m right-of-way width as per the Official Plan can accommodate the proposed project requirements with a 5 m widening on each side of existing right-of-way. |
| | Noise Impacts / Air Quality | <ul style="list-style-type: none"> No significant differences | <ul style="list-style-type: none"> New road alignment slightly closer to nearest building to road (1070 Church Street). Slight increase in noise level at this location. | <ul style="list-style-type: none"> New road alignment slightly further away from nearest building to road (1070 Church Street). Slight decrease in noise level at this location. |
| | Impact on Existing and Future Adjacent Communities | <ul style="list-style-type: none"> Major Impact to the property immediately north of East Duffins Creek on the west side. | <ul style="list-style-type: none"> Less Impact to the property immediately north of East Duffins Creek on the west side than Option 1. | <ul style="list-style-type: none"> Least impact of the three options to the property immediately north of East Duffins Creek on the west side. |
| Natural Environment | Aquatic, Vegetation | <ul style="list-style-type: none"> Same impact for all options since same new ROW width and location. No endangered, threatened or special concern species found within right-of-way. | <ul style="list-style-type: none"> Same impact for all options at most of the project area. More vegetated removal on the west side of Church Street south of Taunton Road. No endangered, threatened or special concern species found within right-of-way. | <ul style="list-style-type: none"> Same impact for all options at most of the project area. Less vegetated removal on the west side of Church Street south of Taunton Road than Option 2. No endangered, threatened or special concern species found within right-of-way. |
| | Wildlife and Wildlife Habitat | <ul style="list-style-type: none"> No endangered, threatened or special concern species found within right-of-way. | <ul style="list-style-type: none"> No endangered, threatened or special concern species found within right-of-way. | <ul style="list-style-type: none"> No endangered, threatened or special concern species found within right-of-way. |
| Economic Environment | Capital Cost | <ul style="list-style-type: none"> Same Construction costs. | <ul style="list-style-type: none"> Same Construction costs. | <ul style="list-style-type: none"> Same Construction costs. |
| | Maintenance and Operating Costs | <ul style="list-style-type: none"> Same Operating cost. | <ul style="list-style-type: none"> Same Operating cost. | <ul style="list-style-type: none"> Same Operating cost. |
| | Property Acquisition Costs | <ul style="list-style-type: none"> Property acquisition areas are the same for all options. This option requires property to be acquired in advance of road reconstruction. | <ul style="list-style-type: none"> Property acquisition areas are the same for all options. This option requires property to be acquired in advance of road reconstruction. | <ul style="list-style-type: none"> Property acquisition areas are the same for all options. This option generally can delay acquiring properties on west side until future development occurs. |
| | Utility Relocation Costs | <ul style="list-style-type: none"> No significant differences. | <ul style="list-style-type: none"> No significant differences. | <ul style="list-style-type: none"> No significant differences. |
| Cultural Environment | Archeological | <ul style="list-style-type: none"> Stage 2 Archeological required. | <ul style="list-style-type: none"> Stage 2 Archeological required. | <ul style="list-style-type: none"> Stage 2 Archeological required. |
| | Cultural Heritage | <ul style="list-style-type: none"> No impact. | <ul style="list-style-type: none"> No impact. | <ul style="list-style-type: none"> No impact. |
| Transportation Services | Transit Operation | <ul style="list-style-type: none"> Can accommodate transit operation. | <ul style="list-style-type: none"> Can accommodate transit operation. | <ul style="list-style-type: none"> Can accommodate transit operation. |
| | Pedestrian and Cycling Operations | <ul style="list-style-type: none"> Can achieve pedestrian and cycling objectives. | <ul style="list-style-type: none"> Can achieve pedestrian and cycling objectives. | <ul style="list-style-type: none"> Can achieve pedestrian and cycling objectives. |
| | | NOT PREFERRED | NOT PREFERRED | TECHNICALLY PREFERRED |

5.4 Assessment and Evaluation of Alternative Road Profiles

One of the main safety concerns in the study area are the two roadway vertical curves from the Church Street / Rossland Road intersection to immediately north of the bridge that do not meet current standards. Three profile options were developed to assist with the evaluation of the preliminary preferred road profile for this area of the proposed project.

Several criteria were established to assist with the evaluation of the alternatives as outlined below:

- Minimize disruption to the natural environment in the bridge area
- Minimize property impacts north and south of East Duffins Creek.
- Minimize property acquisition.
- Avoid low point of the proposed road profile on the bridge deck.

The “Do Nothing” alternative was also evaluated and rejected as it does not meet the objective of meeting the latest geometric design standard.

Figure 5.3 shows the three profile options at the East Duffins Creek area and Table 5-3 outlines the evaluation of the three profile options.

5.4.1 Option 1

This option will require a moderate amount of property to be acquired from the adjacent owners compared to the other two options. Compared to Option 3, Option 1 will require high retaining walls or a larger amount of fill, a toe of slope that will be closer to the meander to East Duffins Creek and higher amount of vegetation removal. This option will provide the proper vertical curves that will meet the latest geometric design standard.

With the proposed road profile, Option 1 will require a four-span structure to accommodate a bottom opening width of 60 m (as determined from the geomorphic report).

5.4.2 Option 2

This option will require the least amount of property to be acquired from adjacent owners out of the three options. Compared to Option 3, Option 2 will require high retaining walls or a larger amount of fill, a toe of slope that will be closer to the meander to East Duffins Creek and higher amount of vegetation removal. This option will provide the proper road vertical curves that will meet the latest geometric design standard, but a low point for one of the vertical curves will be on the bridge deck which can lead to ponding during major storms and create an unsafe condition during winter.

With the proposed profile, Option 2 will require a four-span structure to accommodate a bottom opening width of 60 m (as determined from the geomorphic report).

5.4.3 Option 3

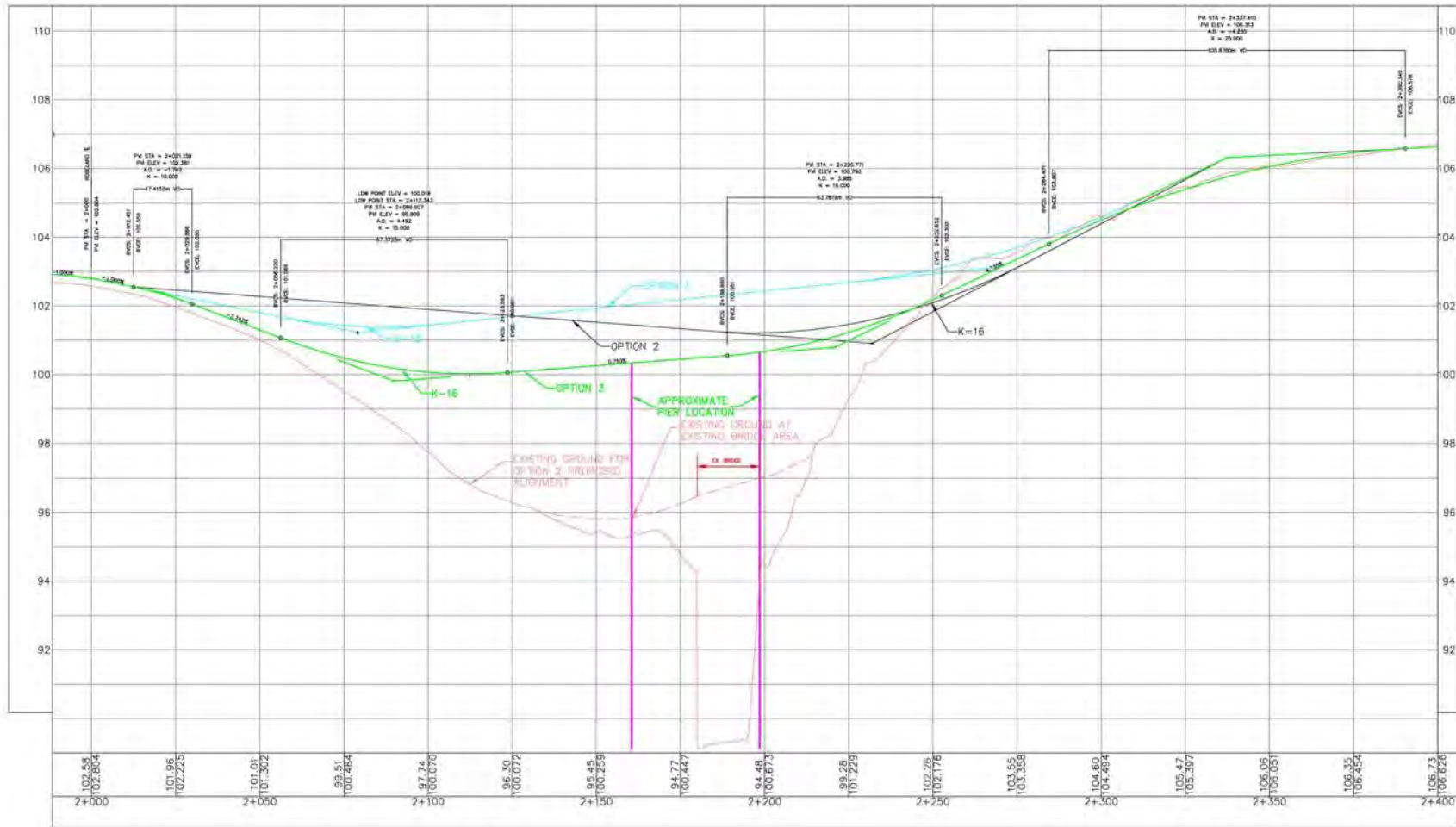
This option will required the most amount of property to be acquired from adjacent owners out of the three options. It has the lowest road profile of the three options and will require the smallest retaining wall or least amount of fill to match existing ground elevation and the east toe of slope is the furthest away from East Duffins Creek of the three options. This option will provide the proper vertical curves that will meet the latest geometric design standard with the low point located south of the bridge.

With the proposed profile, Option 3 will require a three-span structure to accommodate a bottom opening width of 60 m (as determined from the geomorphic report).

5.4.4 Preferred Profile

Based on the evaluation, option 3 was selected as the preliminary preferred alternative due to the following factors:

- Meets the current geometric design standards;
- Has the least impact to the environment of the three options;
- Low point of the roadway is away from the bridge deck; and
- Lowest construction cost of the three options because of a three span bridge (other options require a four span bridge).



**PRELIMINARY DESIGN - CHURCH STREET
PROFILE OPTIONS -DUFFINS CREEK AREA**



SCALE : H:1.500 V: 1:50 OCT 11, 2012

Figure 5.3 – Profile Options

TABLE 5-3 – EVALUATION OF ROADWAY PROFILE OPTIONS

| EVALUATION CRITERIA | | OPTION 0 DO NOTHING | OPTION 1 | OPTION 2 | OPTION 3 |
|-------------------------|--|--|---|--|---|
| Technical Consideration | Geometric Design | <ul style="list-style-type: none"> Does not meet current criteria | <ul style="list-style-type: none"> Meets current criteria | <ul style="list-style-type: none"> Meets current criteria Low point of the road profile will be on the bridge which can lead to ponding during major storms and unsafe condition during winter time due to freezing. | <ul style="list-style-type: none"> Meets current criteria |
| | Social Environment | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> Moderate property required from properties immediately South of East Duffins Creek. | <ul style="list-style-type: none"> Least property required from properties immediately south of East Duffins Creek. | <ul style="list-style-type: none"> Most property required from properties immediately south of East Duffins Creek. |
| | Impact on Existing Properties near Bridge Area | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> Immediately north of the East Duffins creek bridge, a section of road will require sidewalk immediately adjacent to curb to minimize impact to adjacent properties. | <ul style="list-style-type: none"> Immediately north of the East Duffins creek bridge, a section of road will require sidewalk immediately adjacent to curb to minimize impact to adjacent properties. | <ul style="list-style-type: none"> Immediately north of the East Duffins creek bridge, a section of road will require sidewalk immediately adjacent to curb to minimize impact to adjacent properties. |
| Natural Environment | Aquatic | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> East bottom of roadway embankment will be closer to meander of East Duffins Creek than Option3. Slope protection required on east side of Church Street at bridge area. Three piers will be within the 100 year-erosion limit with no in creek work required for piers. | <ul style="list-style-type: none"> East bottom of roadway embankment will be closer to meander of East Duffins Creek than Option 3. Slope protection required on east side of Church Street at bridge area. Three piers will be within the 100 year-erosion limit with no in creek work required for piers. | <ul style="list-style-type: none"> East bottom of roadway embankment will be furthest away from the meander of East Duffins Creek of the three bridge replacement options. Slope protection required on east side of Church Street at bridge area. Two piers will be within the 100 year-erosion limit with no in creek work required for piers. |
| | Vegetation | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> Vegetation removal will be required. Elevation of the bridge will require high retaining wall or high amount of fill to match existing ground. | <ul style="list-style-type: none"> Vegetation removal will be required. Elevation of the bridge will require high retaining wall or high amount of fill to match existing ground. | <ul style="list-style-type: none"> The least Vegetation removal will be required of the three replacement options. Elevation of the bridge will require high retaining wall or high amount of fill to match existing ground. |
| | Wildlife and Wildlife Habitat | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> No significant difference between bridge replacement options | <ul style="list-style-type: none"> No significant difference between bridge replacement options | <ul style="list-style-type: none"> No significant difference between bridge replacement options |
| | Fish Habitat | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> No significant difference between bridge replacement options | <ul style="list-style-type: none"> No significant difference between bridge replacement options | <ul style="list-style-type: none"> No significant difference between bridge replacement options |
| Economic Environment | Capital Cost | <ul style="list-style-type: none"> No construction cost. | <ul style="list-style-type: none"> High construction cost due to four-span bridge structure. | <ul style="list-style-type: none"> High construction cost due to four-span bridge structure. | <ul style="list-style-type: none"> Lowest construction cost of bridge replacement options |
| | Maintenance and Operating Cost | <ul style="list-style-type: none"> Highest maintenance cost due to age of bridge structure. | <ul style="list-style-type: none"> Higher maintenance cost due to four-span structure. | <ul style="list-style-type: none"> Higher maintenance cost due to four-span structure. | <ul style="list-style-type: none"> Lowest maintenance cost due to three-span structure. |
| | Property Acquisition Costs | <ul style="list-style-type: none"> No property acquisition. | <ul style="list-style-type: none"> Medium amount of property required of the three replacement options. | <ul style="list-style-type: none"> Require least amount of property of the three replacement options. | <ul style="list-style-type: none"> Highest amount of property required of the three replacement options. |
| | Utility Relocation Costs | <ul style="list-style-type: none"> No utility relocation cost. | <ul style="list-style-type: none"> No Significant difference between replacement options. | <ul style="list-style-type: none"> No Significant difference between replacement options. | <ul style="list-style-type: none"> No Significant difference between replacement options. |
| | | NOT PREFERRED | NOT PREFERRED | NOT PREFERRED | PREFERRED |

Even though Option 3 will require the most amount of property from adjacent owners, a combination of a two to one slope with retaining walls can be utilized to minimize property acquisition. Further investigation will be required during detail design to determine the best approach to minimize impact to the adjacent property.

5.5 Assessment and Evaluation of Intersection Designs

As per the Official Plan, two intersections in the study area have been identified for traffic controls. The OP indicates roundabouts to be located in these intersections. One of the intersections is in the A9 community which currently is being developed. The second intersection is located between the hydro corridor and Taunton Road. The location of the second controlled intersection has not been determined as there are no proposed developments in that area and therefore, a proposed draft road layout has not been developed. A traffic analysis has been completed by Cougs Developments during the draft plan stage and determined that no signalized intersections are required up to the year 2016. Future traffic has been discussed in Section 2.4 of this report and the detailed traffic analysis report can be found in Appendix E.

Three types of intersections were developed to assist with the evaluation of the preliminary preferred intersection at the two proposed controlled intersections in the study area.

Several criteria were established to assist with the evaluation of the alternatives as outlined below:

- Provide adequate level of service for all directions of travel.
- Meet Town of Ajax's community objectives.
- Provide traffic calming features.
- Accommodates pedestrian, cycling and transit operations.

The "Do Nothing" alternative was not included in this evaluation as a minimum two-way stop control will be required at the new intersection of the proposed side street and Church Street.

Figure 5.4 shows a concept of a potential roundabout and a four-way intersection. Table 5-4 presents the evaluation of the three types of intersections.

5.5.1 Two-way Stop Control (Stop Signs on Side Street)

This option will be the interim intersection configuration until all the property is obtained through development site plans. This option can accommodate pedestrians, cycling and transit operations on Church Street but it does not accommodate east-west crossings for pedestrians and cyclists as vehicles on Church Street are not required to yield to pedestrians and cyclists. Vehicles are not required to stop on Church Street; and therefore it does not provide the traffic calming features that meets the Town's community objective. When the study area is fully developed by 2021, during peak hours, the level of service on the side streets will have a level of service F.

5.5.2 Roundabout

The roundabout option can accommodate pedestrian, cycling and transit operations on Church Street in all directions. Vehicles are not required to stop at the roundabout but vehicles will be forced to slow down when entering a roundabout due to the road geometry. The roundabouts will provide the traffic calming features that meets the Town's community objective and also provides an opportunity to construct gateway features, and high quality streetscape and landscape treatments as per the Urban Design Guidelines for A9 Development. When the study area is fully developed by 2021, during peak hours, the roundabouts will provide an adequate level of service in all directions. The roundabouts will required more property than a stop control or a signaled intersection option, but the Town can obtain the property through site plan developments which can minimize the cost for property acquisition.

5.5.3 Traffic Signals

The signalized intersection option can accommodate pedestrian, cycling and transit operations on Church Street in all directions. Vehicles are required to stop at the intersection during a red light allowing pedestrians to cross the intersection. A traffic signal is not considered a traffic calming feature and therefore it does not meet the Town's community objective and it does not provide an opportunity to install gateway features, high quality streetscape or landscape

treatments. When the study area is fully developed by 2021, during peak hours, a traffic signal will provide the best level of service of the three options.

During peak hours, Church Street will have a higher traffic volume than the side streets. Therefore, a traffic actuated signal would be the most appropriate to reduce delays. The traffic signal warranty calculations were completed based on the project traffic volumes and signals are not warranted at the two potential roundabout intersection locations.

5.5.4 Preferred Intersection Control Treatment

Based on the evaluation, Option 2 (Roundabouts) is selected as the preliminary preferred alternative due to the following factors:

- Meets the current geometric design standards.
- Provides adequate level of service with projected traffic volumes.
- Provides traffic calming measures in the study area.
- Meets Urban Design guidelines for A9 development and provides opportunity for high quality streetscape and landscape treatment with a gateway feature.
- Accommodates pedestrian and cyclist crossings in all directions.

Even though the roundabouts will required more property than a stop control or a signalized intersection, the Town can obtain the property through site plan developments which can minimize the cost for property acquisition.

A roundabout is still a relatively new feature as an intersection option in Ajax, therefore it is recommended that the Town undertake an educational program to outline the benefits and operation of a roundabout for drivers, pedestrian and cyclists.

We also recommend that the Town monitor progress with the latest technologies and standards in providing crossing aids for the visual impaired crossing a roundabout. Currently there are no set standards and there are various solutions to address this issue such as: Automated Yield Detection System, pedestrian hybrid beacons, sound strips, etc. All the aforementioned solutions have their pros and cons while some systems are still in their testing and monitoring stage, it is pre-mature during the EA stage to conclude which solution should be implemented for the proposed roundabouts. Further investigation is recommended during detail design.

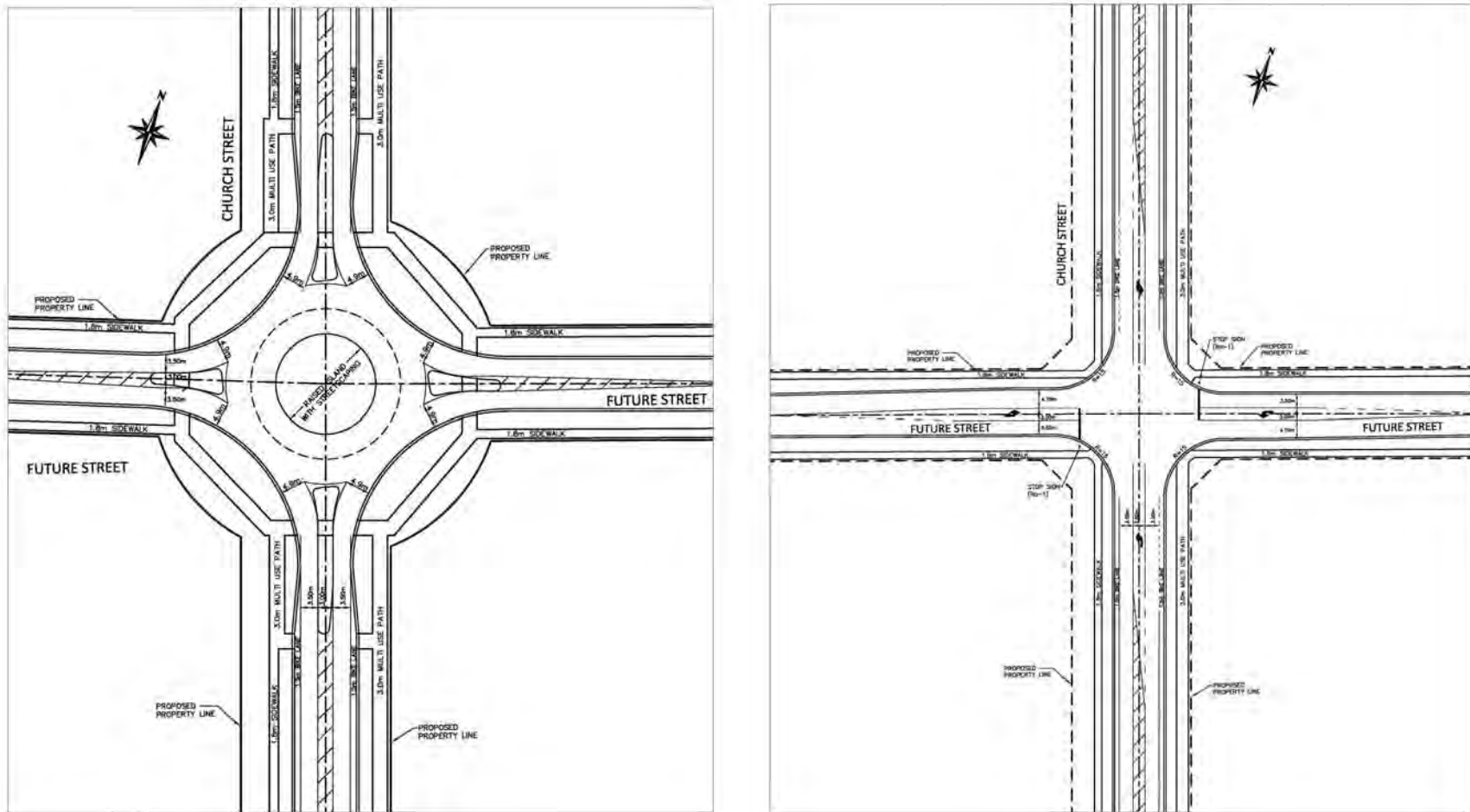


Figure 5.4 - Intersections

TABLE 5-4 – EVALUATION OF INTERSECTIONS

| EVALUATION CRITERIA | | OPTION 1 | OPTION 2 | OPTION 3 |
|----------------------------------|---|---|---|--|
| | | STOP CONTROL ON SIDESTREET | ROUNDABOUT | TRAFFIC SIGNALS |
| Technical Consideration | Geometric Design Criteria | <ul style="list-style-type: none"> Can meet standard intersection design criteria for Memo 2. | <ul style="list-style-type: none"> Can meet standard roundabout design criteria for Memo 2. | <ul style="list-style-type: none"> Can meet standard roundabout design criteria for Memo 2. |
| | Traffic Operations | <ul style="list-style-type: none"> Poorer level of service on side street traffic during peak hours. Not normally considered a traffic calming feature. | <ul style="list-style-type: none"> Better level of service than Option 1 for side street traffic during peak hours. Provides traffic calming as motorists must slow down to enter roundabout. | <ul style="list-style-type: none"> Traffic signals are not warranted from a traffic volume point of view. Would provide better level of service than Option 1 for side street traffic during peak hours. Not normally considered a traffic calming feature. |
| | Pedestrian and Cycling Operations | <ul style="list-style-type: none"> Accommodates north-south pedestrian and cyclist crossings but does not accommodate east-west crossings. Less difficult for visually impaired users. | <ul style="list-style-type: none"> Accommodates pedestrian and cyclist crossings in all directions. More difficult for visually impaired users as traffic does not stop. | <ul style="list-style-type: none"> Accommodates pedestrian and cyclist crossings in all directions. Can include an Accessible Pedestrian Signal for visually impaired. |
| | Transit Operation | <ul style="list-style-type: none"> Accommodates transit operation. Bus stops can be located close to intersection. | <ul style="list-style-type: none"> Accommodates transit operation. Bus stops need to be located further from intersection. | <ul style="list-style-type: none"> Accommodates transit operation. Bus stops can be located close to intersection. |
| Social Environment | Impacts on Existing and Future Adjacent Communities | <ul style="list-style-type: none"> Less property required from adjacent lands than Option 2. Same requirements as Option 3. | <ul style="list-style-type: none"> More property required from adjacent lands than both Option 1 and 3. | <ul style="list-style-type: none"> Less property required from adjacent lands than Option 2. Same requirements as Option 1. |
| | Noise Impacts / Air Quality | <ul style="list-style-type: none"> Slight increase in noise level and effect on air quality, as side street traffic required to stop at stop signs. | <ul style="list-style-type: none"> Lower noise level and less impact on air quality, as there is minimal stoppage at roundabout. | <ul style="list-style-type: none"> Slight increase in noise level and effect on air quality, as traffic required to stop when traffic lights are red. |
| Natural and Cultural Environment | Aquatic, Vegetation, Wildlife and Wildlife Habitat | <ul style="list-style-type: none"> Minimal impact. | <ul style="list-style-type: none"> Minimal impact. | <ul style="list-style-type: none"> Minimal impact. |
| | Natural Heritage | <ul style="list-style-type: none"> No impact. | <ul style="list-style-type: none"> No impact. | <ul style="list-style-type: none"> No impact. |
| | Archaeological | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> No impact | <ul style="list-style-type: none"> No impact. |
| | Cultural Heritage | <ul style="list-style-type: none"> No impact. | <ul style="list-style-type: none"> No impact. | <ul style="list-style-type: none"> No impact. |
| Economic Environment | Capital Cost | <ul style="list-style-type: none"> Lowest construction cost. | <ul style="list-style-type: none"> Higher construction cost, similar to Option 3. | <ul style="list-style-type: none"> Higher construction cost, similar to Option 2. |
| | Maintenance and Operating Costs | <ul style="list-style-type: none"> Lowers operating cost. | <ul style="list-style-type: none"> Operating cost higher than Option 1. | <ul style="list-style-type: none"> Highest operating cost. |
| | Property Acquisition Costs | <ul style="list-style-type: none"> Least property required (same as Option 3) | <ul style="list-style-type: none"> More property required than both Options 1 and 3 (approximately 600 m²) | <ul style="list-style-type: none"> Least property required (Same as Option 1). |
| | Utility Relocation Costs | <ul style="list-style-type: none"> May require minimal utility relocation. | <ul style="list-style-type: none"> May require more utility relocation than Option 1 and Option 3. | <ul style="list-style-type: none"> May require minimal utility relocation. |
| Other | A9 Community Design Objectives and Official Plan | <ul style="list-style-type: none"> Does not meet Urban Design Guidelines for A9 Development and Official Plan which shows a roundabout in the community. | <ul style="list-style-type: none"> Meets Urban Design Guidelines for A9 Development and Official Plan. Provides opportunity for gateway feature along Church Street and High quality streetscape and landscape treatments as per the guidelines. | <ul style="list-style-type: none"> Does not meet Urban Design Guidelines for A9 Development and Official Plan which shows a roundabout in the community. |
| | | NOT PREFERRED | TECHNICALLY PREFERRED | NOT PREFERRED |

5.6 Assessment and Evaluation of Bridge Structures

It was determined from the geomorphic report that a 60 m bottom opening width of the watercourse will be required in order to accommodate the 100-year erosion rate (refer to Section 2.5 or Appendix F). From Section 5.4.4, the recommended road profile is Option 3. Utilizing the recommended bottom opening width at East Duffins Creek and preferred road profile, two bridge options were developed to assist with the evaluation of the preferred bridge structure crossing East Duffins Creek.

Several criteria were established to assist with the evaluation of the alternatives as outlined below:

- Minimize or avoid in-water work in the existing watercourse for construction of the new structure (i.e. no piers in the existing watercourse).
- Meet TRCA requirements for hydrology and meander belt opening width.
- Improve wildlife passage under the proposed bridge of the structure.
- Minimize construction cost of the structure.
- Minimize future maintenance and maintenance cost

The “Do Nothing” alternative was not included and evaluated because from PIC 1, it was determined that the bridge structure requires replacement.

Figure 5.5 presents the preliminary general arrangement drawing for a two and three-span bridge structure. Table 5-5 presents the evaluation of the two bridge structure options.

5.6.1 Preferred Bridge Structure

Both options will meet the structural design criteria, the hydrology and meander belt opening width will meet TRCA’s requirements. From the natural environment view, both options will meet the criteria established above. No piers are proposed in the existing watercourse and the proposed bridge span will provide improved wildlife passage.

Option 1 was selected as the preliminary preferred alternative due to lower construction and lower future maintenance cost. Even though a three span bridge structure will be longer than a two-span structure, the two-span structure, will require full height abutment walls on each side of the watercourse with large retaining walls and footings which will cost more than a three-span structure with perched abutments significantly smaller than the two-span option. A two-span structure will require expansion joints at each end of the bridge. Expansion joints are prone to have issues with de-icing salts, typically an expansion joint will require replacement every 10 years and major repairs will be required every 25 years to replace the bearings and the surrounding concrete. An integral abutment system can be utilized with the three-span structure and will not require any expansion joints minimizing future maintenance cost.

5.7 Public Information Centre No. 2

The second Public Information Centre (PIC) was held on October 11, 2012. Prior to the meeting, all Ministries, Authorities and interest groups expressing interested in the study were mailed notices of the PIC. Advertisements were placed in the local paper on October 3, 2012 and October 11, 2012. Notices were also distributed by Canada Post to residences and businesses in the study area for approximately 200 m south of Rossland Road to Taunton Road and approximately 200 m east and west of Church Street. In addition, the property owners along Church Street were also informed of the second Public Information Centre by hand delivered notices. Two mobile sign boards were also installed on Church Street before the Public Information Centre outlining the date, time and location of the meeting and information was posted on the Town's website informing the public about the PIC.

The Second Public Information Centre was held at Town Hall Council Chambers, 65 Harwood Avenue South. The purpose of the meeting was to provide the public with information about the recommended alternative solution, alternative design options and evaluation leading up to the identification of a preliminary preferred design options. The PIC was conducted in an open house format. Residents and stakeholders were invited to ask questions and discuss their concerns with the Town's or consultant representatives. Attendees were also encouraged to submit written comments on the forms provided. The meeting was open from 6:30 to 8:30 pm. Over twenty people attended the PIC and total of six comments were received from comment sheets or e-mails. The presentation materials were posted on the Town's website. PIC comments received are included in Appendix D.

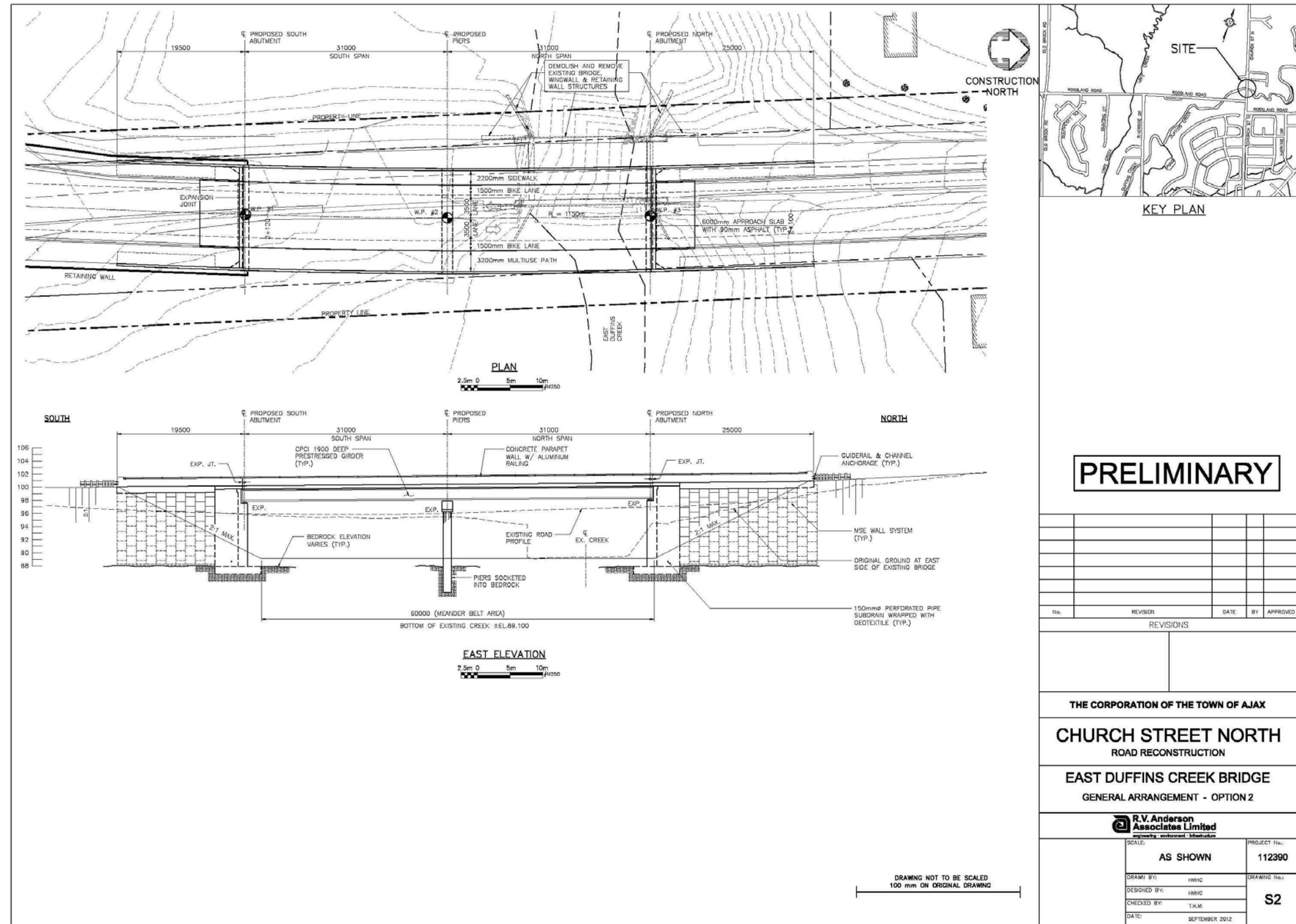


Figure 5.5 – Preliminary General Arrangement – Two Span Bridge

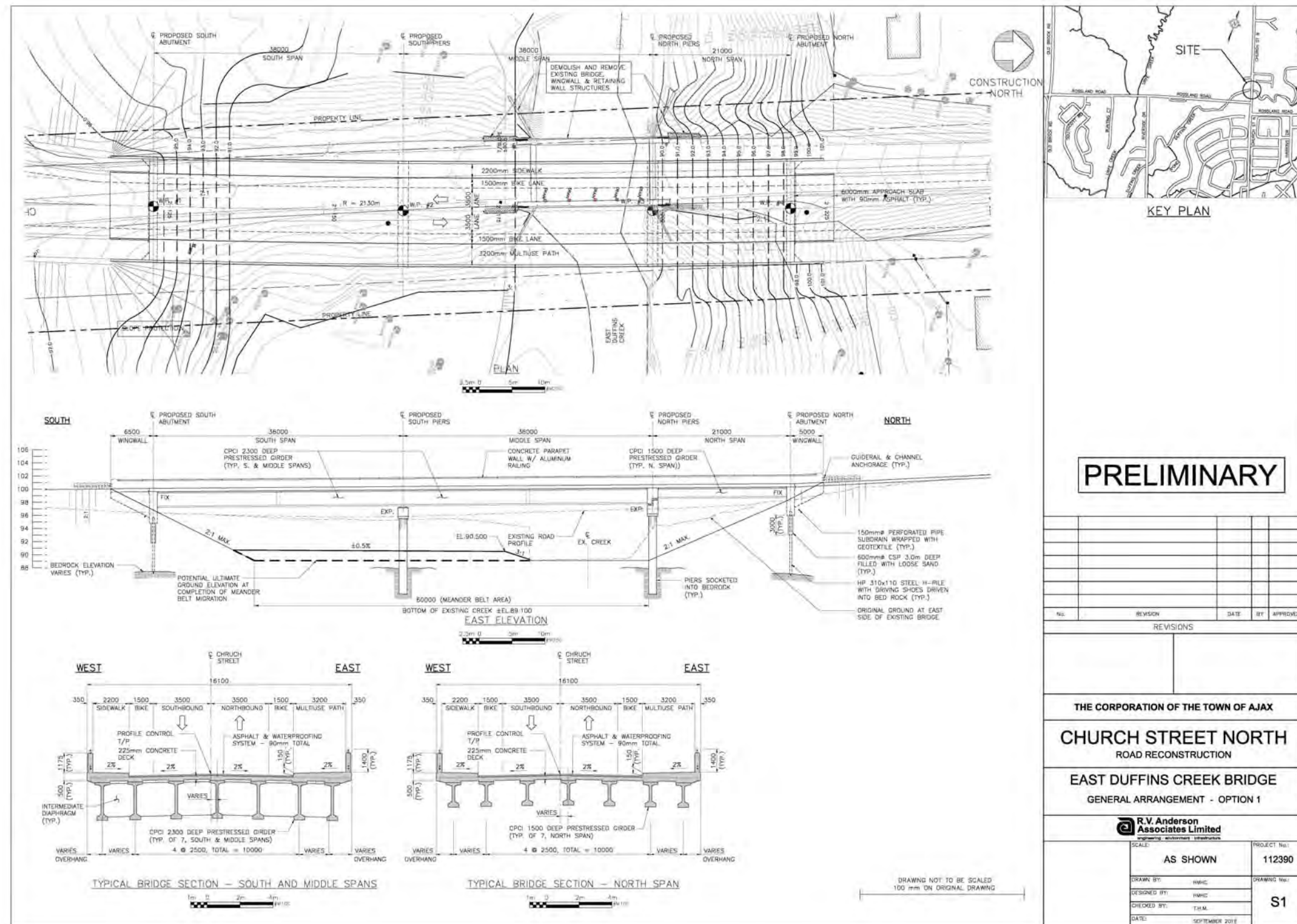


Figure 5.6 – Preliminary General Arrangement – Three Span Bridge

TABLE 5-5 – EVALUATION OF BRIDGE OPTIONS

| EVALUATION CRITERIA | | OPTION 1 | OPTION 2 |
|-------------------------|----------------------------------|---|---|
| | | THREE-SPAN BRIDGE STRUCTURE | TWO-SPAN BRIDGE STRUCTURE |
| Technical Consideration | Geometric Design Criteria | <ul style="list-style-type: none"> Can meet standard intersection design. | <ul style="list-style-type: none"> Can meet standard roundabout design. |
| | Hydrology | <ul style="list-style-type: none"> Meets Conservation Authority requirements. | <ul style="list-style-type: none"> Meets Conservation Authority requirements. |
| | Meander Belt Opening Width | <ul style="list-style-type: none"> 60 m bottom opening as per recommendation from the fluvial geomorphology report. | <ul style="list-style-type: none"> 60 m bottom opening as per recommendation from the fluvial geomorphology report. |
| Social Environment | Aquatic | <ul style="list-style-type: none"> No pier proposed in the existing watercourse. | <ul style="list-style-type: none"> No pier proposed in the existing water course. |
| | Wildlife | <ul style="list-style-type: none"> Larger bottom opening provides opportunity for wildlife passage at bridge. | <ul style="list-style-type: none"> Larger bottom opening provides opportunity for wildlife passage at bridge. |
| | Archaeological | <ul style="list-style-type: none"> On the south west corner of existing bridge, an area has been identified of archaeological significance. Future construction work will be within 20 m of the site. A Stage 3 archaeological investigation will be required and possibly a Stage 4 archaeological investigation. All reports must be accepted and approved by the Ministry of Culture prior to construction. | <ul style="list-style-type: none"> On the south west corner of existing bridge, an area has been identified of archaeological significance. Future construction work will be within 20 m of the site. A Stage 3 archaeological investigation will be required and possibly a Stage 4 archaeological investigation. All reports must be accepted and approved by the Ministry of Culture prior to construction. |
| | Cultural Heritage | <ul style="list-style-type: none"> Existing bridge to be removed is not a designated heritage structure but a heritage resource. Prior to removal, a cultural heritage evaluation report must be completed and approved by the Ministry of Culture. | <ul style="list-style-type: none"> Existing bridge to be removed is not a designated heritage structure but a heritage resource. Prior to removal, a cultural heritage evaluation report must be completed and approved by the Ministry of Culture. |
| | Natural Heritage | <ul style="list-style-type: none"> No endangered, threatened or special concern species were found. Tree compensation will be required. Less impact to existing area as wing wall does not require a large footing. Does not require retaining wall for bridge structure. | <ul style="list-style-type: none"> No endangered, threatened or special concern species were found. Tree compensation will be required. Larger impact than Option 1 as wing wall requires large footing and large retaining wall to support bridge structure. |
| | Wildlife passage Under Structure | <ul style="list-style-type: none"> Height = 6m Width = 60m Length = 16.1m Index = 22.4 | <ul style="list-style-type: none"> Height = 7m Width = 60m Length = 16.1m Index = 26 |
| Cost | Construction | <ul style="list-style-type: none"> Lower construction cost than Option 2 due to smaller abutment and wing wall. Wing walls do not require large footing as per Option 2. Bridge Construction cost = 3.6 million | <ul style="list-style-type: none"> Higher construction cost than Option 1 due to high retaining wall and high abutments. A large retaining wall will also be required. Bridge Construction cost = 4.4 million |
| | Property Acquisition | <ul style="list-style-type: none"> Similar property acquisition for both options. | <ul style="list-style-type: none"> Similar property acquisition for both options. |
| | Utility Relocations | <ul style="list-style-type: none"> Same relocations required for both options. | <ul style="list-style-type: none"> Same relocations required for both options. |
| | Maintenance | <ul style="list-style-type: none"> Less maintenance and lower maintenance cost than Option 2. Integral abutments have no expansion joints with few or no bearings and have greater resistance to de-icing salts. | <ul style="list-style-type: none"> Requires more maintenance and higher maintenance cost due to future replacement of expansions joints and bearings with less resistance to de-icing salts than Option 1. |
| | | TECHNICALLY PREFERRED | NOT PREFERRED |

A summary of the feedback is provided below:

| Theme / Issue | Comment / Concern | Response |
|--------------------------------|--|---|
| Transportation and Engineering | <ul style="list-style-type: none"> South of Rossland Road, Church Street needs to be widened to free up traffic. | <ul style="list-style-type: none"> A separate Class EA will need to be completed to assess the needs for Church Street south of Rossland Road. |
| | <ul style="list-style-type: none"> Happy to see the bike lanes provided on Church Street. Prefer the use of a roundabout than a traffic light in the A9 intersection. | |
| | <ul style="list-style-type: none"> Will the future Rossland Road and Church Street intersection be signalized? | <ul style="list-style-type: none"> The future Rossland Road and Church Street intersection will be signalized which might relief some of the congestion at the intersection. |
| | <ul style="list-style-type: none"> Will there be a roundabout at the future Rossland Road and Church Street intersection? | <ul style="list-style-type: none"> No roundabout is proposed at the Rossland Road and Church Street intersection, as per the Rossland Road Class EA. |
| | <ul style="list-style-type: none"> Will a sidewalk be built along Church Street when this road upgrade is made? | <ul style="list-style-type: none"> A sidewalk will be provided on the west side of Church Street with a multi-use trail on the east side. |
| | <ul style="list-style-type: none"> Will the new bridge accommodate the multi-use trail? | <ul style="list-style-type: none"> The new bridge will accommodate a multi-use trail. |
| Planning/Other | <ul style="list-style-type: none"> Request proposed timing of construction. | <ul style="list-style-type: none"> The proposed Phase 1 construction is tentatively set for 2017 (subject to Council and budget approval). |
| | <ul style="list-style-type: none"> Construction timing of Rossland Road re-alignment? | <ul style="list-style-type: none"> Construction for Rossland Road is planned to commence in 2014. |
| | <ul style="list-style-type: none"> Accessibility for local residents during construction. | <ul style="list-style-type: none"> During construction local residents will have access to their residences. They will be notified about the construction and possible detour routes. |
| | <ul style="list-style-type: none"> How will my garbage be picked up during construction? | <ul style="list-style-type: none"> Garbage pick-up will be provided during construction as per normal schedule. |
| | <ul style="list-style-type: none"> Sanitary sewers should be included at the same time of Church Street reconstruction to save cost. | <ul style="list-style-type: none"> Sanitary sewer work might not be constructed with the Church Street work. To minimize throw away costs, a larger boulevard space has been provided west of the proposed road. |
| | <ul style="list-style-type: none"> Agreed with the replacement of the bridge at East Duffins Creek but the proposed bridge seems excessive. | <ul style="list-style-type: none"> The opening of the proposed bridge is to accommodate the meander rate of East Duffins Creek. A detailed Geomorphic Analysis was completed to determine the required opening. |
| | <ul style="list-style-type: none"> Will Church Street be widened to four lanes some day? If so, when? | <ul style="list-style-type: none"> Based on the traffic study completed with the ESA. Church Street does not need to be widened to four lanes. |

6.0 PROJECT DESCRIPTION

Church Street from Rossland Road to Taunton road is proposed to be improved to accommodate future growth in traffic from the proposed developments occurring within the study area. This section outlines the recommended preliminary design for the project. The preliminary design plan and profile drawings showing the recommended improvements are provided in Appendix P.

6.1 Description of the Recommended Design

It is recommended that Church Street be improved to an urban road with on street bike lanes in each direction, as well as sidewalk on the west side and a multi-use path on the east side. The recommended design incorporates a continuous left-turn lane from north of East Duffins Creek to Taunton Road. Landscaping will be provided in the boulevard areas and in the valley area to compensate for removal of existing vegetation. Illumination will be provided along the entire project area. Drainage will be provided by a new storm sewer system. The bridge over the East Duffins Creek is recommended to be replaced with a new bridge incorporating 2 traffic lanes, bike lanes, sidewalk and multi-use path. Two proposed roundabouts are proposed along Church Street. Utility relocations will be acquired throughout the project to avoid conflicts with the widened roadway. The existing Church Street right-of-way is recommended to be widened from the existing 20 m width to a minimum of 30 m to accommodate the recommended improvements. With the preferred road alignment, the Town can delay acquiring properties on the west side until the future development occurs.

6.2 Implementation

The Church Street improvements are recommended to be completed in two phases. The first phase is targeted for construction in 2017 subject to Council and budget approval. Phase 1 construction limits will be from Rossland Road to approximately the Hydro Corridor and Phase 2 will be from Hydro Corridor to Taunton Road.

6.3 Preliminary Road Design Criteria

The roadway will be designed in accordance with geometric design standards established by the Town of Ajax design standards and the Transportation Association of Canada (TAC) – Geometric Design Guide for Canadian Roads. Preliminary road design criteria for Church Street is summarized in Table 6-1.

Table 6-1 – Preliminary Road Design Criteria

| Design Element | Criteria |
|---------------------------------|--|
| Design Classification | UAU80 (Urban Arterial Undivided) |
| Design Speed | 80 km/h |
| Posted Speed | 60 km/h |
| Number of Through Lanes | 2 |
| Through Lane Widths | 2 @ 3.50 m plus 1.5 m bike lane |
| Auxiliary Lane Widths | 3.0 m |
| Maximum Grades | 5% max; 0.5% min. |
| Minimum Stopping Sight Distance | 115 m to 140 m |
| K value on Crest Vertical Curve | 24-36 |
| K value on Sag Vertical Curve | 12-16 Comfort Control |
| Minimum Radius for Normal Crown | 2,130 m; 400 m Remove Crown |
| Median Width | No median |
| Basic Right of Way | 30 m increased at various locations to accommodate the proposed project. (i.e. Roundabout locations) |

6.4 Road Geometry

In general it is recommended that the road alignment for Church Street be shifted to the east as per Section 4.3.

Horizontal curves have been designed with large radii to maintain a standard normal crown north of Rossland Road and south of Taunton Road. The large radii will allow Church Street to match into the south limit of Rossland Road and north limit of Taunton Road without encroaching into the intersections.

The vertical curve alignment will be raised at the East Duffins Creek area to meet the design criteria establish in Table 6-1. North of East Duffins Creek, the road profile up to the south limit of Taunton Road will be lowered in order to maintain existing drainage patterns. Lowering the profile can avoid the use of catch basins ditch inlets to be installed along the edge of the road right-of-way along most of the study area to accommodate drainage from outside the right-of-way corridor.

6.5 Typical Road Cross Sections

The typical road cross-section proposed for the project is illustrated in Figure 6.1. The roadway section consists of two (2) 3.5 metre traffic lanes, one (1) 3.0 metre left turn lane and two (2) 1.50 metre bike lanes. The exact lane configuration will be confirmed during detail design. Curb and gutter is proposed throughout with a 2.70 metre boulevard space behind the proposed curb and gutter. A 1.8 m wide sidewalk is proposed on the west side of the roadway and a 3 m wide multi-use trail on the east side. Hydro poles and light standards will generally be located in the area between the curb and the front of the sidewalk / multi-use trail. To minimize the number of poles along study corridor, it is recommended that illumination be installed joint use on hydro poles wherever possible.

Streetscaping is planned in the boulevard space on the east side and behind the sidewalk on the west side of Church Street. Along the A9 Community corridor, co-ordination will be required with the land developers.

Tree compensation will be required by TRCA at the East Duffins Creek area as the bridge construction will require vegetation removal. A three to one compensation rate is proposed with details to be discussed with the TRCA during detail design.

6.6 Transit Provisions

Currently, there is no bus service on Church Street north of Rossland Road. In the future, should bus services be required north of Rossland Road, the proposed boulevard width will provide adequate space to install bus stop facilities.

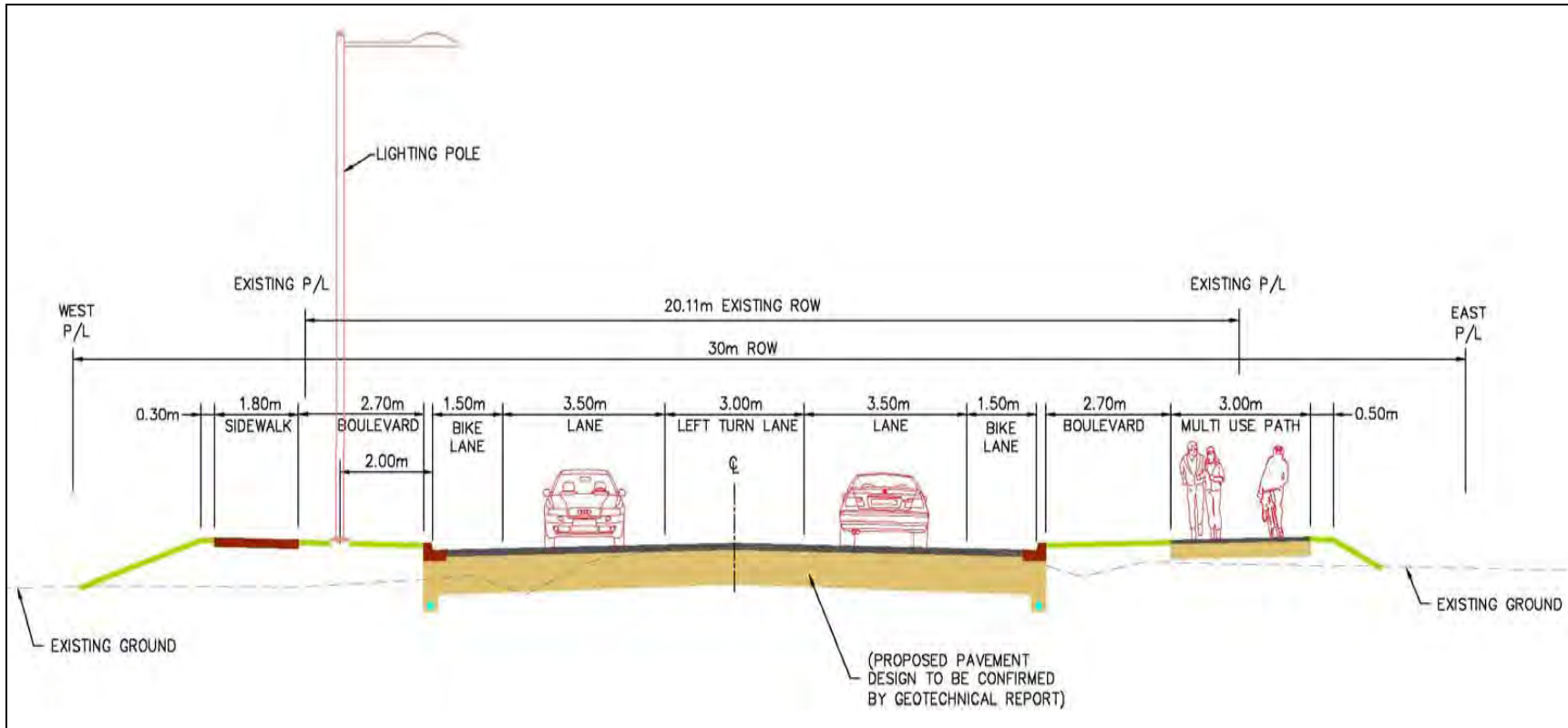


Figure 6.1 – Typical Road Cross Section

6.7 Preliminary Pavement Design

Based on the geotechnical investigation completed to date, the preliminary recommended pavement design to accommodate the projected traffic volumes on Church Street is 40 mm HL3, 100 mm of HL8, 150 mm of Granular A and 600 mm of Granular B, with a minimum Granular Base Equivalency of 830. This recommendation will comply with the Town of Ajax standards for an arterial road.

From the boreholes completed along Church Street, a majority of the borehole logs indicated that a layer of fill ranging from 0.3 m to 0.6 m lies beneath the existing granular fill. It is recommended that this fill be removed during the reconstruction of the Church Street and replaced with Granular B. Since the recommended road profile is lower than the existing road and with the proposed pavement being thicker than existing pavement, the amount of extra excavation required to remove all unsuitable existing fill material offsite should not be significant. This proposal shall be confirmed during detail design with more boreholes with a refined road profile for Church Street.

6.8 Proposed Bridge over East Duffins Creek

The bridge over East Duffins Creek is recommended for replacement due to noncompliance of the road profile with the latest geometric standards. In addition, the existing bridge alignment does not fit into the proposed alignment. The existing single-span structure will be replaced with a new three-span structure with a larger opening. The preliminary General Arrangement Drawing of the proposed structure is shown in Figure 6.2. The proposed bridge structure will have a bottom opening width of 60 m to accommodate the geomorphology recommendations. The bridge will be three-spans with a total length of 97 m, with a concrete deck slab on concrete pre-cast girders. The proposed bridge will accommodate two 3.5 m lanes, 1.5 m bike lanes, with a 1.8 m sidewalk on the west side and a 3.0 m multi-use trail on the east side.

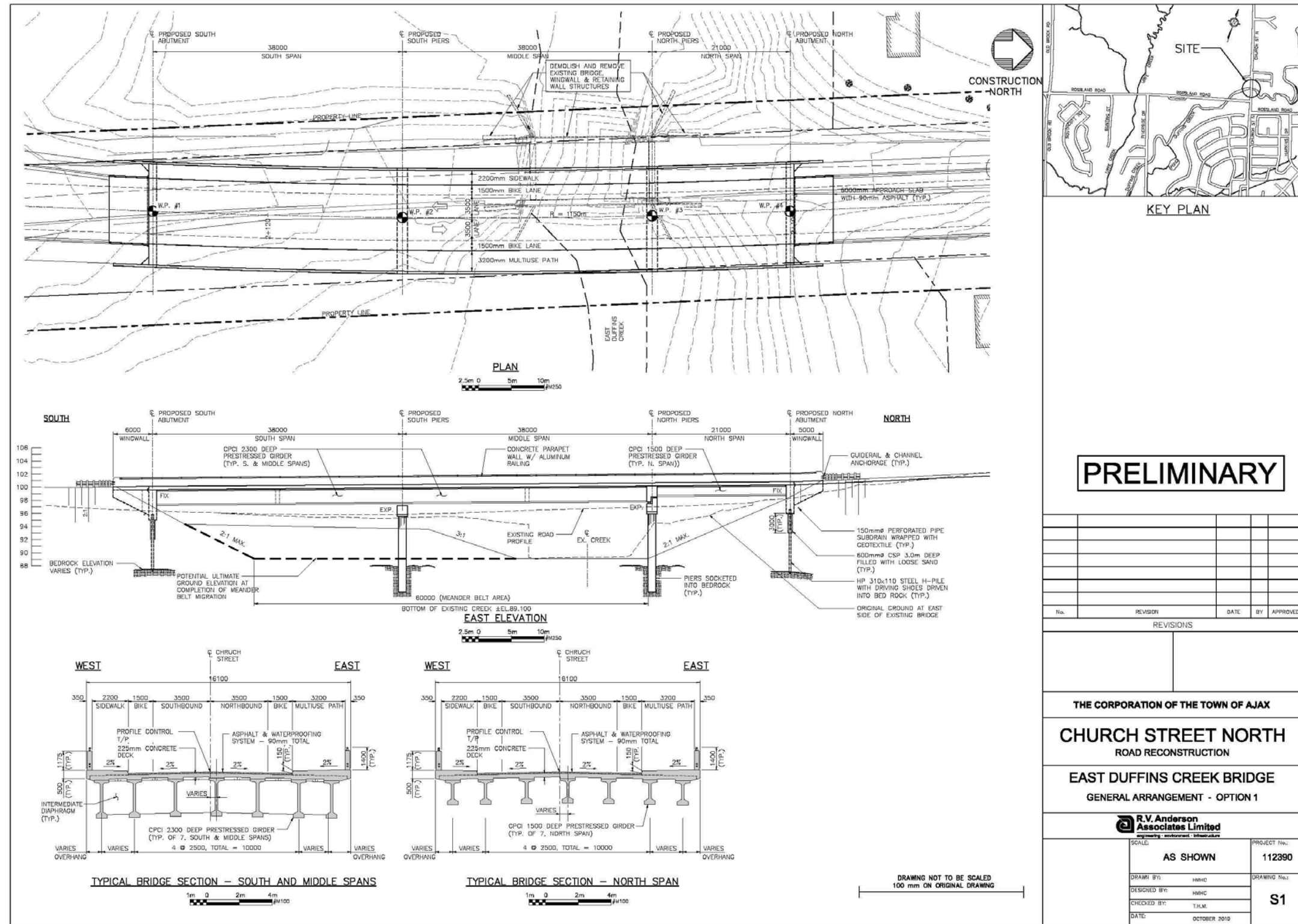


Figure 6.2 – Preliminary General Arrangement Drawings – Three Span Bridge

6.9 Hydraulics

Hydraulic analyses were completed for the proposed Church Street bridge to evaluate the effects in the East Duffins Creek upstream and downstream of the bridge. With the wider 60 m bottom width opening, even though there are minor increase in velocities and elevations at the proposed bridge area due to drawdown, the proposed bridge will meet or exceed the requirements of the TRCA.

Additional details on the hydraulics report for Church Street by R.V. Anderson Associates Limited can be found in Appendix M.

6.10 Drainage – SWM Plan

This section summarizes the preliminary drainage and stormwater management associated with the proposed improvements for Church Street. Details are provided in the Stormwater Management Design Brief in Appendix N. The preliminary proposed storm sewer system for Church Street is sized for handling storm run offs from the existing drainage areas. Assumptions were made for the future development north of the hydro corridor east and west of the Church Street right-of-way. The storm drainage for areas outside of what has been shown in the drainage plan to be accommodated by the Church Street storm sewer (refer to design brief in appendix N) will be discharged directly either to Urfe Creek or East Duffin Creek.

The TRCA has reviewed the design brief and has agreed with its findings and recommendations. Correspondence with agencies are located in Appendix A.

6.10.1 Background

The study area is located in the Duffins Creek Watershed. From Taunton Road south to the East Duffins Creek the existing road drainage is facilitated via roadside ditches and a short length of culvert system outlets uncontrolled to the East Duffins Creek. From the bridge and south to the Rossland Road/ Church Street intersection, runoff is conveyed to a storm sewer via catchbasins located sporadically along the road and on the bridge deck. This storm sewer originates a kilometer east at the intersection of Rossland Road / Ravenscroft Road. Currently, there are no quality control measures being used to treat runoff.

A sewer system will be required when Church Street is reconstructed to a two lane urban road. The proposed widening of the road and introduction of sidewalk, multi-use trail and curbs to Church Street will affect the existing water balance and runoff water quality due to the increase in impervious surfaces within the road right of way.

As per TRCA's requirement, the primary water quality parameter to be considered is the removal of 80 percent total suspended solids (TSS) on a concentration basis from all runoff based on the post-development imperviousness. In addition, due to increased imperviousness of the proposed urbanization, the TRCA will require the infiltration of 5 mm of rainfall over the hard surface areas to mitigate changes to water balance and potential erosion

Currently, peak flow control is not required at East Duffins Creek and its tributary area.

A proposed stormwater management (SWM) pond, which is a part of the Cougs Development Plan, is located north of East Duffins Creek, east of Church Street. The Town has been coordinating with Cougs Development and they have informed the Town that flows from Church Street can be directed into their pond. Based on the current Cougs plans, approximately 1.7 km of Church Street will have its drainage directed toward this SWM pond.

6.10.2 Water Quality and Water Balance

Excluding areas that will be diverted into the proposed pond in the Cougs Development, a storm sewer system that can provide adequate treatment for water quality and water balance will be required to treat the stormwater for the rest of the study area.

A proposed treatment train consists of best management practices will be required to meet TRCA's requirements as follows:

Oil Grit Separator (OGS) – Two OGS units are proposed on either side (north and south outlets) at the downstream junctions of the two proposed storm sewers prior to discharging to the East Duffins Creek. The Cougs Development SWM pond will provide TSS removal via settling forbays etc., therefore an OGS has not been proposed at the outlet to the pond.

Infiltration Gallery – In the proposed treatment train, an infiltration gallery will be located offline from the main sewer either adjacent to or underneath the road south of the East Duffins Creek. The infiltration gallery will help maintain the TRCA's requirement for infiltrating 5 mm of treated runoff.

Based on the borehole information provided in the geotechnical report, the existing soils north of the East Duffins Creek mainly consists of clayey silt to silty clay and the depth to the local water table ranges between 0.6 to 1.8 m below current ground surface. These soils will provide a medium to low permeability environment for infiltration; but with the high local water table, the infiltration trench in the area north of East Duffins Creek may not function adequately and therefore is not recommended. On the south side of East Duffins Creek, soils mainly consist of sandy silt to silt material, which will provide a high to moderate permeability environment for water balancing and therefore infiltration trench is feasible and recommended. Refer to Appendix K for preliminary In-Situ Hydraulic Conductivity testing results.

During detail design, it is recommended that additional boreholes with in-situ testing be completed behind the proposed north and south bridge abutments to reconfirm the feasibility of infiltration trenches for the sewer systems.

6.11 Geomorphology

The TRCA has reviewed the geomorphic report prepared by Parish Geomorphic and agreed that a 60 m bottom opening width is adequate. A site meeting with TRCA was also held on May 14, 2012. Based on the site meeting, there are signs of erosion on the north bank east of the existing north bridge abutment. During detail design, it is recommended that a meeting be arranged with the TRCA to discuss possible treatments to prevent further erosion.

6.12 Intersections

Assuming the Rossland Road / Church Street intersection realignment work will be completed before the reconstruction of Church Street, all of the existing intersections within the study limits will be maintained. The pavement markings will need to be revised north of Rossland Road and south of Taunton Road. The timing for building the roundabout in the A9 Cougs development will be subjected to site development. The property required for the proposed roundabout is

currently own by four different private landowners as shown on Figure 6.3. It is recommended that the Town obtain the property through site plan development to minimize cost while monitoring the proposed two-way stop control intersections (controlled by stop signs located on the side street with free flow traffic movement on Church Street). If the delays to side street traffic become unacceptable in the future, then the Town should re-evaluate the possibility of expropriating property from adjacent owners and constructing the roundabout. A second alternative is to build a semi actuated traffic signal for this intersection when traffic volumes increase.

For the second roundabout location north of the hydro corridor, the Town has not received any proposed development applications. The proposed location of the roundabout can be established as part of the draft plans of subdivision.

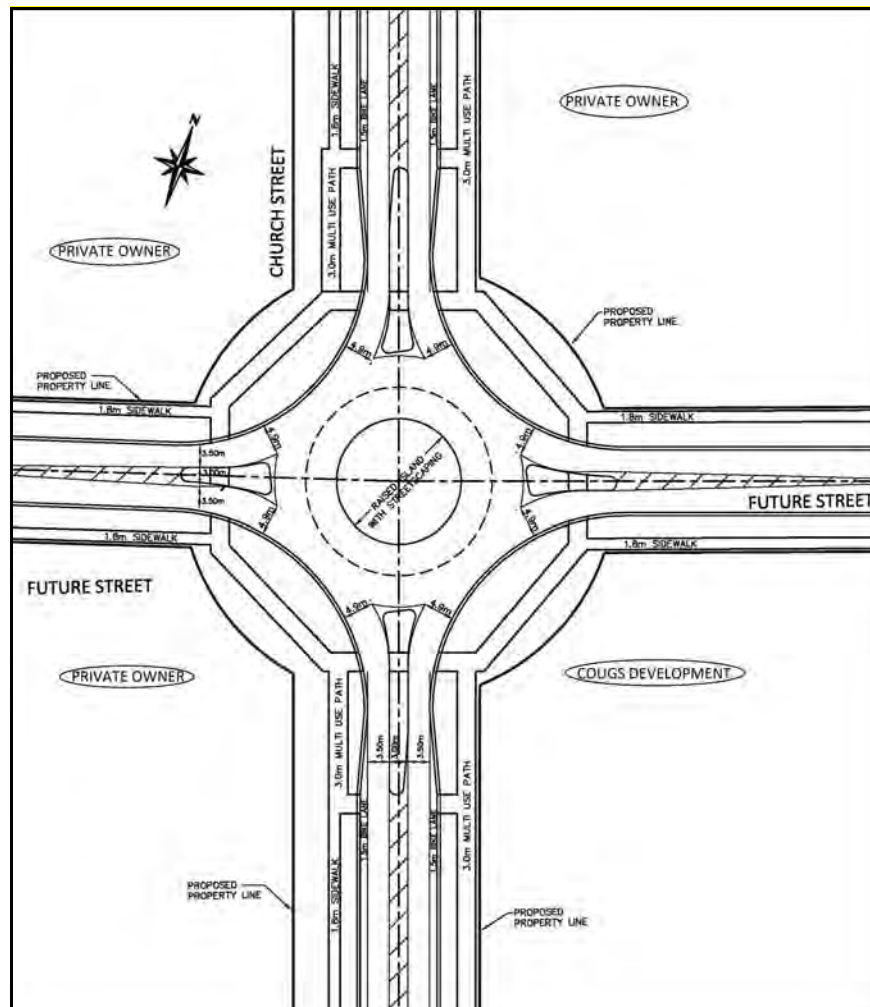


Figure 6.3 - Roundabouts

6.13 Streetscaping and Landscaping Requirements

The landscaping general requirements are identified in the Town of Ajax design standards and are incorporated into this project by the Streetscaping Plan in Appendix O. The types and heights of vegetation proposed to be planted in the boulevard area will be decided during detail design. The type and height of vegetation in the East Duffins Creek valley area will need to be coordinated with and approved by TRCA. A cross section conceptual image for Church Street is provided in Figure 6.4.

6.14 Utilities

A preliminary review of potential conflicts of the proposed road widening with existing utilities and underground services was undertaken. Outlined below are the conflicts which will need to be investigated further during detail design.

Gas:

Enbridge has no gas main on Church Street but do have a supply main that runs along the south side of Taunton Road West. During detail design, locates and hydrovac are recommended to check for if there are expected to be any conflicts with the proposed Church Street construction.

Bell Canada:

Bell has underground plant located on Church Street within the study area except at the bridge area. Due to the proposed lowering of the road profile, the existing Bell line may require relocation and will require discussion and coordination with Bell.

Hydro:

The Existing poles will be in the future pavement of the reconstructed Church Street and therefore require relocation.

The proposed bridge is much longer than existing bridge, and therefore relocation of poles at the East Duffins Creek area will also be required.

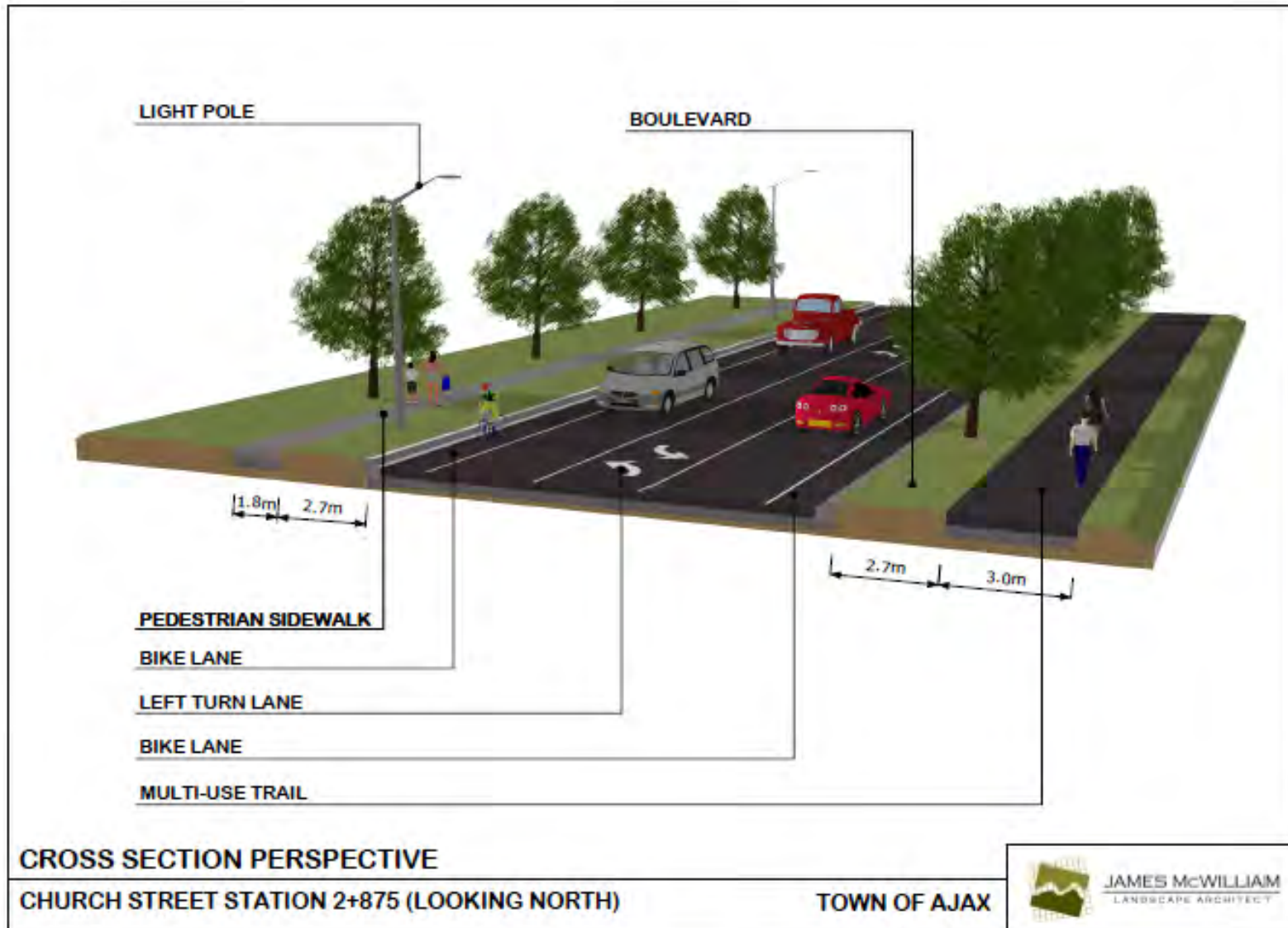


Figure 6.4 – Church Street – Cross Section Perspective

In order to span across the East Duffins Creek area without any poles in the 100 year erosion limit of East Duffins Creek, hydro will need to span over 60 m to cross East Duffins Creek. Further discussion with Hydro will be required during detail design.

Rogers:

The existing Rogers line is currently joint use with Hydro above ground on hydro poles. Since hydro will have to relocate due to conflict with the reconstructed Church Street. Rogers will be relocated with hydro during pole relocation. Co-ordination with Rogers will be required during detail design.

Future Watermain and Sanitary Sewer:

The Region of Durham has confirmed the need for a future 400 mm watermain and a future 375 mm sanitary sewer that will need to be located within the Church Street right-of-way from Rossland Road to Taunton Road. The need of these services will depend on the timing of proposed developments in the area. Further co-ordination with the Region will be required during detail design to confirm locations for the proposed watermain and sanitary sewer.

6.15 Traffic Signals and Illumination

Traffic Signals

Currently there is one intersection with existing traffic signals located within the study limits (Taunton Road and Church Street) and one future intersection with proposed traffic signals that will be completed before reconstruction of Church Street (Rossland Road and Church Street). All of these traffic signals are planned to be maintained and no new traffic signal locations are proposed.

Illumination

Illumination is proposed along the east sides of the roadway for the full length of Church Street within the project limits. The illumination is proposed to be designed to current Town of Ajax standards. In order to minimize the number of poles along Church Street, it is recommended that during detail design, illumination design consider the joint use with Hydro poles where

possible. The proposed location of illumination along Church will need to be finalized during detail design.

6.16 Property Requirements

The current right-of-way on Church Street along most of the roadway area is 20 metres. The existing right-of-way and the proposed right-of-way limits are shown on the preliminary design plan. One of the objectives of the preliminary design was to minimize the need for the Town to obtain the recommended minimum 30 m right-of-way before any construction commenced. A preliminary assessment of the property requirements to construct the proposed road widening is shown on the preliminary plans and will be reviewed and finalized during detail design.

Property on the east side of Church Street will need to be acquired before reconstruction of Church Street. Property on the west side and at the proposed roundabout locations can be delayed until future development occurs. As site plans are submitted for development along Church Street, it is recommended that the Town acquire the right-of-way width on the west side to minimize property acquisition cost.

6.17 Preliminary Construction Cost Estimate

A preliminary construction cost estimate for the Church Street reconstruction work was completed as per the Town's implementation plan. Table 6-2 below provides an outline of the preliminary construction cost estimate.

Table 6-2: Summary of Preliminary Construction Cost Estimate

| | | |
|--|--|--|
| Phase 1: From Rossland Road to south Property Line of Hydro Corridor | Road and Bridge Construction - \$5,822,000 Storm Sewer System - \$588,000 Bridge Removal - \$150,000 Miscellaneous Items - \$984,000 Contingency - \$1,132,000 | Total Estimated Construction Cost: \$8,676,000 |
| Phase 2: From South Property Line of Hydro Corridor to Taunton Road | Road Construction - \$3,364,000 Storm Sewer System - \$515,000 Miscellaneous Items - \$582,000 Contingency - \$669,000 | Total Estimated Construction Cost: \$5,130,000 |
| | Estimated Total for Phase 1 and 2: | \$13,806,000 |

Details of the cost estimate can be found in Appendix R. The cost estimate shown in Table 6-2 does not include property acquisition, utility relocation, engineering fees and HST.

6.18 Constructability, Staging and Detouring Considerations

The proposed work on Church Street will shift the horizontal alignment to the east and include road widening for bike lanes, sidewalk and multi-use trail. The recommended design is for complete reconstruction. Since the existing lane widths are too narrow to maintain traffic during construction, it is recommended that Church Street be closed during reconstruction with access provided to local residents only. Detour signs are recommended on Taunton Road and Rossland Road to notify residents of the road closure and the proposed detour route.

The removal of the existing bridge and construction of the proposed three-span bridge will require complete road closure in this area. During the replacement of the bridge, the installation of temporary New Jersey barriers across the right-of-way is recommended at the north end of the Church Street / Rossland Road intersection and 50 m north of the existing north bridge abutment wall to prevent non-construction vehicles from accessing the areas.

6.19 Construction Monitoring and Maintenance Considerations

Full-time on-site construction monitoring is recommended during construction activities. Monitoring of the environmental mitigation measures is required before, during and after the construction activities.

An Erosion Sediment Control Plan (ESC) and Environmental Management Plan (EPM), including monitoring maintenance requirements will be prepared during detail design. As a minimum, the following activities are recommended to be included in this plan:

- Regular monitoring of the installation of sediment and erosion control measures.
- Monitoring of the installation and maintenance of measures to save existing trees such as hoarding installed beyond drip lines of retained trees.
- Pruning of any limbs or roots of trees to be retained that may be disrupted during construction.

- Fueling and maintenance of machines to be done at designated locations away from any watercourses.
- Storage of machinery and materials, fill, etc. to be done in designated areas.
- Equipment movement through natural areas and setbacks are to be controlled. The East Duffins Creek at Church Street is a sensitive area and it is recommended that an environmental specialist inspect key activities undertaken to protect the watercourse areas including:
 - Placement and maintenance of environmental protection features such as silt fences.
 - Regular inspection of the erosion sediment control (ESC) features as contained in the contract documents, especially prior to and after significant rain storm events.
 - In the event of a spill or event that has the potential to cause significant damage to the natural environment.
 - Upon completion of the construction project, confirm that all clean-up and restoration activities have been completed.
 - During the planting of any vegetation required as mitigation for fish habitat impacts or tree loss to ensure that the planting gets carried out correctly.
 - Once the project is completed, operational monitoring should occur to ensure that the mitigation or compensation measures are functioning effectively.
 - The environmental inspector should visit the site during the first growing season after construction to ensure that:
 - Planted vegetation has been established and identifies any vegetation that needs to be replaced.
 - Erosion sedimentation is being controlled so that suspended sediment run-off to the local watercourses is limited.
 - The mitigation or compensation measures implemented with respect to aquatic habitat are functioning as planned.

6.20 Detail Design Commitments

The following items will be addressed during detail design:

- Prepare an Erosion and Sedimentation Control Plan (ESCP).
- Complete a Stage 2 Archaeological Assessment for the four (4) remaining properties and a Stage 2 Archaeological Assessment for the TRCA land at the East Duffins Creek bridge.
- Prepare a Cultural Heritage Evaluation for the existing East Duffins Creek bridge.
- Prepare a complete Stormwater Management Report
- Contact TRCA and MNR early in the detail design process to confirm approvals / permit requirements for road construction and associated works.
- Coordinate with the Region of Durham with regards to the future 400 mm watermain and 375 mm sanitary sewer.
- Undertake a hydrogeological investigation to determine if there are any requirements for dewatering during construction.
- Test for asbestos containing material in existing asphalt.
- Undertake additional testing of soil to be removed from site for the road construction to further define the chemical properties and disposal requirements for the soil.
- Confirm location of any wells and septic beds close to the proposed right-of-way.
- Monitor well water quality and level before, during and after construction.
- Finalize the various streetscaping elements along Church Street including tree compensation at the East Duffins Creek area.
- Coordinate the proposed location of the second roundabout north of the hydro corridor when a draft plan of subdivision is submitted.

- Transport Canada has stopped providing pre-assessment service to determine if a creek is a navigable or non-navigable waterway. A self-assessment process has to be completed and submitted to Transport Canada for approval.

7.0 IMPACT ASSESSMENT AND MITIGATION MEASURES

The potential environmental effects, mitigation and future commitments are identified in this section of the report.

7.1 Property Requirements and Access

The preliminary plan outlines the proposed property requirements for the project. These property requirements will be finalized during detail design to accommodate the required construction of the project. The Town will be discussing the property requirements with individual property owners and also will be discussing access to the properties.

During construction, access to properties is proposed to be maintained except for short duration while construction occurs in front of the property.

7.2 Septic Beds and Wells

There are septic beds located along this section of Church Street adjacent to the homes. During detail design, the locations of septic beds need to be confirmed to ensure there are no conflicts with the proposed Church Street reconstruction.

An investigation was undertaken with regards to existing water wells along Church Street and adjacent to the Church Street right-of-way. The locations of existing wells are identified in the Appendix K and are recommended to be confirmed during detail design. The water quality and level is recommended to be monitored before and, during construction.

7.3 Traffic Noise Impacts

A noise impact assessment for the proposed preliminary plan was completed by S.S. Wilson and is included in Appendix J. Based on the results of this assessment, sound exposure increases are projected to be less than 5 dBA at all receptors along the corridor except at one property located north of East Duffins Creek on the west side of Church Street (1070 Church Street). The future sound level at 1070 Church Street will be above The Regional Municipality of Durham's noise guideline. Therefore, noise mitigation will be required. A 2.8 m high sound

barrier is recommended to be constructed at this area within the right-of-way of the roadway alignment. The location of the sound barrier should be confirmed during detail design.

7.4 Dust and Noise Control

The Contractor will be required to minimize dust by various measures outlined in the contract documents.

Applicable local municipal noise control by-laws will be identified in the contract documents. The Town enforce the hours of work as outlined in the noise by-law.

7.5 Disposal of Excess Material

All excess material removed during construction will be tested for contaminants and will be disposed off site by the contractor at an approved receiving site.

7.6 Natural Environment

7.6.1 Aquatic Habitat and Fisheries

Level 3 Agreement

Under their Level 3 Agreement with DFO, the TRCA has the ability to review and screen projects affecting fish and fish habitat. On review the TRCA can provide screening through the issuance of a letter of advice. If the works are determined to constitute a harmful alteration, disruption or destruction of fish habitat, authorization for all works is required from DFO.

East Duffins Creek is identified as a Redside Dace management area, and is subject to the MNR Redside Dace timing window. During detail design, consultation and coordination with the MNR is required for the proposed bridge replacement construction works.

Construction will be scheduled outside of sensitive time periods for cold water fish communities located within the study area. (i.e. July 1st to September 15th)

7.6.2 Vegetation and Vegetation Communities

The proposed road widening will create disturbances to the vegetation along the edge of the existing right-of-way and in the East Duffins Creek valley area. Tree compensation will be required along the study area and the East Duffins Creek valley area.

No plant species that are regulated under the Ontario Endangered Species Act or the Canada Species at Risk Act were encountered during LGL's botanical investigation within the subject area.

7.6.3 Potential Impacts to Migratory Birds

As identified in LGL's report, numerous bird species listed under the *Migratory Birds Convention Act* (MBCA) are located within the study area. No nests of migratory bird species were found under the bridge deck or in culvert structures.

The Barn Swallow - The proposed road improvements and widening is not expected to have significant impacts on Barn Swallow utilizing lands within the study area. The two nesting colonies identified within the study area are set-back approximately 60 m and 150 m, respectively. No impacts to either nesting colony will occur as a result of road improvements and widening.

Bobolink - Several areas of cultural meadow and agricultural fields within the vicinity of the Church Street study area were found to contain Bobolink individuals. However, habitats within and immediately adjacent to the existing right-of-way were considered unsuitable due to proximity to road and/or they contained low quality vegetation. Again, these areas identified as confirmed habitat use are setback some distance (greater than 20 m) from the right-of-way. No impact to Bobolink habitat is anticipated as a result of Church Street widening.

Eastern Meadowlark - Several areas of cultural meadow and agricultural fields within the vicinity of the Church Street study area were found to contain Eastern Meadowlark individuals. However, habitats within and immediately adjacent to the existing right-of-way were considered unsuitable due to proximity to road and/or they contained low quality vegetation. Again, these areas identified as confirmed habitat use are setback some distance (greater than 20 m) from

the right-of-way. No impact to Eastern Meadowlark habitat is anticipated as a result of Church Street widening.

7.7 Storm Drainage

The proposed increase in pavement width on Church Street will increase the impervious areas resulting in increased runoffs. A stormwater management plan, including the size and location of storm sewer pipes, will be developed during detail design. To improve the quality of the stormwater discharging into East Duffins Creek, a treatment train that consist of oil grit separators and infiltration trenches as part of the best management practices will be used to provide the quality treatment required by the TRCA on the both sides of the East Duffins Creek.

The areas from Taunton Road to north of the hydro corridor will outlet into the storm water pond in the future Cougs development. The Cougs development SWM pond will provide TSS removal via settling forbays.

North of Bridge Construction area to Taunton Road, the depth to the local water table ranges between 0.6 to 1.8 m below current ground surface. With the high existing water level measured in the area, local dewatering might be required during the installation of the storm sewer and the proposed bridge piers and abutments.

7.8 Monitoring

An environmental inspector will be on site to monitor the site during construction to ensure that construction fencing, tree protection barrier and erosion and sedimentation control measures are installed correctly and are functional.

7.9 Archeological

Stage 1 and stage 2 archeological studies in the study area have been completed with the exception of four (4) properties where permission to enter were not granted. One location has been recommended for a Stage 3 and possibly a Stage 4 archeological investigation which needs to be completed before construction commences. To avoid any delays to construction, it

is recommended that the additional archeological investigations be completed as early as possible and approval be obtained from the Ministry of Tourism and Culture.

Should previously unknown or unassessed deeply buried archaeological resources be uncovered during development, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. The office of the Heritage Operations Unit, Ministry of Tourism and Culture should be contacted immediately.

Any person discovering human remains must immediately notify the office of the Heritage Operations Unit, Ministry of Tourism and Culture, the police or coroner, and the Registrar of Cemeteries, Cemeteries Regulation Unit, Ministry of Government Services.

7.10 Heritage and Cultural Resources

There are no properties in the study area designated under Part IV or V of the Ontario Heritage Act. Prior to removing the existing Church Street bridge, a cultural heritage evaluation report must be completed and approved by the Ministry of Tourism and Culture.

7.11 Proposed Mitigation Strategy

7.11.1 Aquatic Habitat and Fisheries

- No in-water work will be permitted between September 16 and June 30 to protect spawning cool and coldwater fish, incubating eggs and fry emergence;
- Work areas will be delineated with construction fencing to minimize the area of disturbance;
- Best management practices and special provisions will be employed to reduce impacts during construction;

- Appropriate sediment control structures will be installed prior to and maintained during construction to prevent entry of sediments into the watercourse. These controls will be dynamic and may evolve with the project if site conditions warrant;
- All debris/materials associated with construction will be contained and prevented from entering the watercourse;
- Where cofferdams to be employed, dewatering effluent will be treated prior to discharge to receiving watercourse;
- Cofferdams will be constructed using pea gravel bags, sheet piling or other appropriate material to isolate the work area. Flow will be maintained at all times;
- Only clean material free of particulate matter will be placed in the watercourse;
- Fish isolated by construction activities (if present) will be captured and safely released to the watercourse;
- Good housekeeping practices related to materials storage/stockpiling, equipment fuelling/maintenance, etc. will be implemented during construction; and
- Disturbed riparian areas will be vegetated and/or covered with an erosion control blanket as quickly as possible to stabilize the banks and minimize the potential for erosion and sedimentation.

7.11.2 Vegetation and Vegetation Communities

- The use of the Best Management Practices should be employed to protect naturalized areas from construction zones.
- Construction post planting of all disturbed areas can restabilize exposed substrates and restore ecological edge functions.
- Post construction planting plan should include complimentary native species suited to site conditions.
- Any permanent loss of naturalized vegetation cover should be compensated with the restoration of an equivalent area elsewhere in the East Duffins Creek, preferably in close proximity to the study area.

- A tree inventory should be undertaken during detail design to prepare protection plans and appropriate compensation for any removals.
- This project includes a proposed streetscaping plan to replace trees removed as well as increase tree cover in the project area.

7.11.3 Migratory Birds

The MBCA prohibits the killing, capturing, injuring, taking or disturbing of migratory birds (including eggs) or the damaging, destroying, removing or disturbing of nests. While migratory insectivorous and non-game birds are protected year-round, migratory game birds are only protected from March 10 to September 1. To comply with the requirements of the MBCA, disturbance, clearing or disruption of vegetation where birds may be nesting should be completed outside the window of April 1 to August 31. In the event that these activities must be undertaken from April 1 to August 31, a nest survey will be conducted by a qualified avian biologist to identify and locate active nests of species covered by the MBCA. If an active nest is located, a mitigation plan shall be developed and provided to Environment Canada – Ontario Region for review prior to implementation.

7.12 Summary of Identified Concerns and Mitigating Measures

| | |
|--------------------------------------|---|
| Noise Attenuation | Based on the noise study undertaken for this project, mitigating measures will be required at 1070 Church Street. |
| Landscaping and Streetscaping | Trees and vegetation will be removed as part of the project due to the road widening and construction. The proposed preliminary streetscaping plan included in this report outlines the proposed location and strategy for installing new trees along Church Street. At the East Duffins Creek valley area, tree compensation plan shall be submitted to the TRCA for review and approval. |
| Hydrogeology | Temporary dewatering might be required during construction of the storm sewer due to high water level. Specific details regarding the nature of dewatering and potential affects will be addressed during detail design. There are some wells in the study area located adjacent to the Church Street right-of-way. |
| Terrestrial | Impacts to the natural vegetation cover are anticipated. Tree compensation will be required. Tree planting in the study area will be part of the tree compensation with additional tree planting in the East Duffins Creek area to compensate for the vegetation removal due to the bridge work. At the south west corner of Taunton Road and Church Street, impacts to the vegetated area have been minimized with the preferred road alignment. Minor vegetation will be required to install the sidewalk. |

| | |
|--|---|
| Migratory Bird | No impacts to breeding bird species and their habitat are expected. However, clearing or disruption of vegetation where birds may be nesting should be completed outside of the window of April 1 to July 31 if possible. If not possible, a nesting survey should be conducted prior to the work as identified above and a mitigation plan developed and provided to Environment Canada – Ontario Region for review prior to implementation. |
| Aquatic | Under their Level 3 Agreement with DFO, the TRCA has the ability to review and screen projects affecting fish and fish habitat. On review the TRCA can provide screening through the issuance of a letter of advice. If the works are determined to constitute a harmful alteration, disruption or destruction of fish habitat, authorization for all works is required from DFO. Construction activities within the areas regulated by TRCA will require a TRCA permit. This includes bridge and culvert works and grading within the regulation limit. |
| Stormwater | To deal with the loss of quality treatment due to removal of the ditch, a treatment train that consist of oil grit separators and infiltration trenches as part of the best management practices will be used to provide the quality treatment required by the TRCA on both sides of the East Duffins Creek. A Permit to Take Water may be required from MOE for temporary dewatering activities during construction of sewer system and the proposed bridge piers and abutments. |
| Cultural Heritage | Prior to removing the existing Church Street bridge, a cultural heritage evaluation report must be completed and approved by the Ministry of Tourism and Culture. |
| Archaeological | Any person discovering human remains must immediately notify the office of the Heritage Operations Unit, Ministry of Tourism and Culture, the police or coroner, and the Registrar of Cemeteries, Cemeteries Regulation Unit, Ministry of Government Services. |
| Property Requirements | A 5 m property widening will need to be obtained on both sides of Church Street. Impacts to the owner will be low as existing houses are set far back from Church Street, except at the bridge area. Use of retaining walls is recommended to minimize property impacts. Properties obtained from property owners will require tree removals resulting in loss of privacy. New trees can be planted within the right-of-way in front of owner's houses as compensation. |
| Visually Impaired Accessibility of Roundabout | The Town is to monitor progress with the latest technologies and standards for providing crossing aid for the visual impaired at the proposed roundabouts. Further investigation is to be conducted during detail design. |
| Utility Relocation | Due to the long length of the proposed Church Street bridge, it is recommended discussion with Veridian take place early to determine the best approach further pole relocations. |
| Inconvenience During Construction | Impacts will be unavoidable. The Town will attempt to mitigate impacts and keep construction time frame as short as possible. |
| Access to Driveway | Residents along Church Street will have access to their driveways at all times except for short duration while construction occurs in front of the property. |

7.13 Public Review

Following the issuance of a Public Notice of Completion of the Environmental Study Report, the Report is replaced for review in the public record for review with the Clerk of the Town of Ajax and local libraries. The Environmental Study Report may be reviewed by the Public. Following

a thirty (30) day calendar review, the requirements of the Environmental Assessment Act will be deemed to be satisfied subject to appropriate resolution of any directions received from the public and / or review agencies. Interested stakeholders and the public will also receive a Notice of Filing of the Environmental Study Report.

If concerns cannot be resolved through discussions with the Town of Ajax, a person may request the Minister of the Environment to issue a Part II Order for this project. A Part II Order request must be received by the Minister of the Environment within the 30 day calendar review period.

The Ministry will consider such requests. A notice of the Minister's decision respecting requests for an Individual Environmental Assessment will be given within sixty six (66) days of the request. In all such 'bump-up' requests, the Minister's decision is final.

8.0 MEI - PROPERTY

One of the major land owners for this project is the Province of Ontario which is managed by Hydro One on behalf of Infrastructure Ontario (IO). In order to reconstruct Church Street to the preferred alternative, land and land rights from IO will be required. To obtain land from IO, the MEI Class Environmental Assessment process must be followed. This here declares that this EA complies with the MEI Class Environmental Assessment process, meet the seven point analysis identified in the MEI/ORC's Class EA and it also cover's MEI class EA for Realty undertakings. IO stakeholders have been contacted and acknowledged that land will need to be obtained from IO before the Road Reconstruction. The IO has the ability to defer this EA since it is completed in accordance to the MEI Class Environmental Assessment process and it met the seven point analysis (refer to Appendix L for correspondence on the seven point analysis).