The Regional Municipality of Halton

Report To: Chair and Members of the Planning and Public Works Committee
From: Jim Harnum, Commissioner, Public Works
Date: October 5, 2016
Report No. - Re: PW-33-16 - 2017 Development Charges Update - Water, Wastewater and Transportation Infrastructure Projects

RECOMMENDATION

1. THAT the Water, Wastewater and Transportation capital projects identified in Report No. PW-33-16, re: “2017 Development Charges Update – Water, Wastewater and Transportation Infrastructure Projects” be incorporated into the 2017 Development Charges Background Study.

2. THAT staff be directed to submit a Notice of Filing of Addendum to the Environmental Study Report for the Britannia Road (Regional Road 6) Transportation Corridor Improvements to remove the phasing of the road widening as noted in Report No. PW-33-16, re: “2017 Development Charges Update – Water, Wastewater and Transportation Infrastructure Projects” and proceed directly from two lanes to the final configuration of six lanes.

3. THAT staff be directed to proceed with the decommissioning of the Milton Wastewater Treatment Plant, as set out in Report No. PW-33-16, re: “2017 Development Charges Update – Water, Wastewater and Transportation Infrastructure Projects” in accordance with the requirements of the Environmental Assessment Act.

4. THAT the Regional Clerk forward a copy of Report No. PW-33-16 to the City of Burlington, the Town of Halton Hills, the Town of Milton and the Town of Oakville for their information.

REPORT

Executive Summary

- As outlined in Report No. LPS17-16/FN-03-16 re: “2017 Development Charges (DC) Update Work Plan, Terms of Reference and Council Appointments to the 2016-2018 Development Charges Advisory Committee (DCAC)”, Halton Region’s current Development Charges (DC) By-law expires in September 2017 and work is underway to update the By-law.
• The 2017 Development Charges Water, Wastewater and Transportation Technical Reports have been prepared to support the 2017 Development Charges update process.

• The Technical Reports are based on the 2011 Water, Wastewater and Transportation Master Plans incorporating updated infrastructure cost estimates, design criteria review and results of specific infrastructure planning studies.

• This report will also seek Council direction to take the steps necessary to proceed with the widening of Britannia Road (Regional Road 6) from two to six lanes and to proceed with the decommissioning of the Milton Wastewater Treatment Plant.

Background


Accordingly, in support of the Development Charge By-law update the 2017 Development Charges Water, Wastewater and Transportation Technical Reports have been completed with updated infrastructure cost estimates, design criteria review and results of specific infrastructure planning studies. It should be noted that the Development Charges Technical Reports identify capital infrastructure programs required to support growth to 2031 based on theoretical master plan modelling in support of the Development Charges By-law update. Once the Development Charges By-law is successfully in place, the timing, scope and phasing of the projects will be further refined through the infrastructure staging plan and Allocation Program as set out in Report No. LPS17-16/FN-03-16.

Discussion

Water and Wastewater Technical Report

The Water and Wastewater Technical Report incorporates results from specific infrastructure planning studies which have been completed since the last Master Plan. Specifically:
• A review of the wastewater servicing strategy for the core of the Town of Milton and opportunity to decommission the Milton Wastewater Treatment Plant was completed.
• Revisit the wastewater servicing scheme in west area of the City of Burlington to determine whether further infrastructure optimization was feasible.
• A review of the alignment of water pressure zone boundaries in the Town of Milton and the Town of Oakville (Zones 3, 4, 5) to assess opportunities to further optimize water service delivery.
• A comprehensive analysis of the water and wastewater design criteria incorporating the latest water consumption and wastewater generation rates.
• Updating water and wastewater hydraulic models with current system field data.

The findings from these planning studies have been incorporated into the 2017 Development Charges Water and Wastewater Technical Report. The notable changes since the 2011 Master Plan are outlined as follows:

**Decommissioning of the Milton Wastewater Treatment Plant**

The capital program contemplates the diversion of wastewater flow from the Milton Wastewater Treatment Plant to the Mid-Halton Wastewater Treatment Plant. A servicing review was undertaken to assess the benefits of decommissioning the Milton Wastewater Treatment Plant as the facility is in need of significant reinvestment as identified through a capital needs assessment and a feasible alternative is available.

The review evaluated several alternative servicing strategies which considered environmental, economic, social, legislative and technical impacts with the preferred option including decommissioning the Milton facility and diverting flow to the much larger lake-based Mid-Halton Wastewater Treatment plant.

In addition to having a significantly lower 50 year life cycle cost, it is anticipated that this flow diversion strategy will return 16 Mile Creek in the vicinity of the Milton Wastewater Treatment Plant to a more natural state and eliminate the need for trucking sludge. Projects related to this strategy include:

• Modifications to the Fulton Street Wastewater Pumping Station;
• New forcemain including a crossing under 16 Mile Creek;
• Milton Wastewater Treatment Plant Decommissioning, and;
• Treatment capacity at the Mid-Halton Wastewater Treatment Plant.

This flow diversion has been included in the assessment of wastewater infrastructure required to 2031. The decommissioning of the Milton Wastewater Treatment Plant is a Schedule A+ undertaking under the Municipal Class Environmental Assessment, requiring the public to be advised. Twinning the existing forcemain under 16 Mile Creek is a Schedule B undertaking.
Wastewater Servicing in West Area of the City of Burlington

The diversion of wastewater flow from the Grandview Wastewater Pumping Station (west area of Burlington) will be achieved by extending the sewage force-main from the Bridgeview Wastewater Pumping Station to the Plains Road Trunk Sewer.

Through this revised wastewater strategy, the 2011 Master Plan need to upsize the Grandview Wastewater Pumping Station and its associated upstream inlet sewers have been eliminated. In addition, updated wastewater system flow information (i.e. reduced sewer infiltration and inflow) and model recalibration in this area have determined that the 2011 Master Plan need to upsize the existing Plains Road trunk sewer is no longer required.

Alignment of Water Pressure Zone Boundaries in the Town of Milton and Town of Oakville

The water pressure zone boundaries in the Town of Milton and the Town of Oakville (Zones 3, 4 and 5) will be realigned to accommodate growth by optimizing water pressure in these areas. Accordingly, some water capital projects from the 2011 Master Plan are no longer required and several new projects are required to undertake this system optimization which will result in a capital cost savings of approximately $9 M relative to the original 2011 Master Plan approach.

Design Criteria Review – Water and Wastewater

The development of updated water design criteria (average day demand reduction from 314 to 265 litres per capita per day) and wastewater design criteria (average day flow reduction from 365 to 360 litres per capita per day) reflects decreasing per capita residential water consumption and wastewater generation trending observed over the last several years.

The application of the updated design criteria to the 2031 growth projections and the recommended diversion of flow noted above has altered the previous timing requirements for some of the major water and wastewater capacity infrastructure projects as follows:

- Burloak Water Purification Plant Expansion – Phase II (start of construction shifted from 2016 to 2023);
- Burloak Water Purification Plant Expansion – Phase III (start of construction shifted from 2026 to post-2031);
- Oakville Water Purification Plant Rerating - Phase III (start of construction shifted from 2015 to 2018);
- Mid-Halton Wastewater Treatment Plant Expansion – Phase VI/VII (start of construction shifted from 2019 to 2021).

Infrastructure capital projects identified within the 2017 to 2022 timeframe have been updated to reflect best available estimated cost to construct as of January 1, 2017.
Projects previously identified (2012 Development Charges By-law) within the 2023 to 2031 timeframe have been cost indexed from 2012 to 2017 dollars. Where available, cost estimates from Municipal Class Environmental Assessment Studies or preliminary/detailed design have been applied. The magnitude of the overall water and wastewater program cost updates are summarized in the Financial/Program Implications section of this Report.

Water Infrastructure Projects

The overall water development capital program from 2017 to 2031 has been estimated to be approximately $565 M in 2017 dollars as referenced in Attachment #1. Below is a list of significant water projects which have been identified for implementation over the next 15 years.

**Significant Water Projects 2017-2031:**
- Oakville Water Purification Plant Rerating
- Washburn Second Feed Watermain
- Georgetown Lake-based Booster Pumping Station and Feedermain (Zone 6)
- Georgetown Groundwater to Lake-based Servicing Transfer (Stewarttown, Georgetown South and Georgetown Southwest)
- Oakville/Milton Water Pressure Zone Realignment (Zones 3,4,5) and alterations to Eighth Line, Fourth Line and Neyagawa Pumping Stations
- Boyne East Britannia Trunk Watermain
- 407 West Employment Area Trunk Watermain
- Burloak Water Purification Plant – Phase II Expansion
- Georgetown Lake Based Storage Reservoir and Feedermain (Zone 6)
- Zone 4 Reservoir Expansion
- Burloak Booster Pumping Station and Feedermain (Zone 2)
- Wyecroft Zone 2 Interconnecting Trunk Watermain
- Kitchen Booster Pumping Station Expansion
- Neyagawa Booster Pumping Station Expansion

Wastewater Infrastructure Projects

The overall wastewater development capital program from 2017 to 2031 has been estimated to be approximately $626 M in 2017 dollars as referenced in Attachment #2. Below is a list of significant wastewater projects which have been identified for implementation over the next 15 years.

**Significant Wastewater Projects 2017-2031:**
- Mid-Halton Wastewater Treatment Plant – Phase VI / VII Expansion
- Georgetown Eighth Line and Trafalgar Road Trunk Sewer
- Britannia Road Wastewater Pumping Station, Twinned Forcemain, East Trunk Sewer
- Boyne West Internal Trunk Sewer
• Maple Avenue Trunk Sewer
• Skyway Wastewater Treatment Plant Inlet Sewer Upsizing
• West River Wastewater Pumping Station Upgrades
• Junction Street Wastewater Pumping Station Upgrades
• Agnes Street Wastewater Pumping Station Upgrades
• Tremaine Road Wastewater Pumping Station and Forcemain
• South Milton Fourth and Fifth Line Trunk Sewers
• Lower Baseline Wastewater Pumping Station and Twinned Forcemain
• Mid-Halton Wastewater Treatment Plant – Phase VIII / IX Expansion (Design only) and Wastewater Pumping Station Expansion at Mid-Halton Wastewater Treatment Plant

**Transportation Technical Report**

The Transportation Technical Report is based on the 2011 Transportation Master Plan incorporating updated infrastructure cost estimates and validating the long range Transportation Capital Plan to 2031 (i.e. project scope, timing, need and cost) as identified in the 2011 Master Plan, including potential timing shifts of previously identified infrastructure projects.

The notable changes since the 2011 Master Plan are outlined as follows:

• Delays in Municipal Class Environmental Assessment process review and approval timelines (approximately 1.5 years) by the Ministry of the Environment and Climate Change has shifted the start of construction timing for Britannia Road widening (Tremaine Road to 407 ETR) from 2013-2015 to 2017-2018.

• Property acquisition, development activity coordination, additional natural environment investigation and review agency approval requirements, has altered the start of construction timing for Tremaine Road widening (north of Steeles Avenue) and the new associated interchange at Highway 401 from 2012-2013 to 2017.

• Overall co-ordination of Municipal Class Environmental Assessment Studies with Local Municipal planning studies / initiatives (i.e. Midtown Oakville) has shifted the start of construction for Trafalgar Road widening (Leighland Avenue to 407 ETR) from 2014-2016 to 2017-2018.

• Harmonization of road capital works with other Regional infrastructure works (i.e. water, wastewater, road and intersection improvements) within common road corridors has altered the start of construction for Ninth Line (Steeles Avenue to 10 Side Road) from 2016 to 2020, and William Halton Parkway (Third Line to Sixteen Mile Creek area and Neyagawa Boulevard to Sixth Line) from to 2014-2015 to 2018, in order to minimize community disruption and impacts.

• Inclusion of active transportation construction projects for new off-road capital infrastructure (~ $36.5 M) on Regional roadways consistent with Report No. PW-17-15. This new off-road infrastructure will complement the on-road active transportation infrastructure (~ $40.6 M) planned from 2017 to 2031.
• Infrastructure capital project costs updated to reflect best available estimated cost to construct as of January 1, 2017.

The magnitude of the overall transportation program cost updates are summarized in the Financial/Program Implications section of this Report.

Transportation Projects

The overall transportation development and non-development capital program from 2017 to 2031 has been estimated to be approximately $2.2 B in 2017 dollars as referenced in Attachment #3. Below is a list of significant transportation projects which have been identified for implementation over the next 15 years.

Significant Transportation Projects 2017-2031:
• Trafalgar Road widening to six lanes (Leighland Avenue to 407 ETR)
• Trafalgar Road widening to four lanes (Steeles Avenue to Highway 7)
• Brant Street widening to six lanes (North Service Road to Dundas Street)
• Dundas Street widening to six lanes (Bronte Road to Kerns Road)
• Britannia Road widening to six lanes (Tremaine Road to 407 ETR)
• Ninth Line widening to four lanes (Steeles Avenue to 10 Side Road)
• Tremaine Road widening to four lanes (including Highway 401 Interchange)
• William Halton Parkway new four lane road (Third Line to Sixth Line)
• Trafalgar Road widening to six lanes (407 ETR to Steeles Avenue)
• Upper Middle Road widening to six lanes (Bronte Road to Winston Churchill Boulevard)
• James Snow Parkway widening to six lanes (407 ETR to Tremaine Road)
• Tremaine Road widening to six lanes (Derry Road to Highway 401)
• Derry Road widening to six lanes (Tremaine Road to 407 ETR)
• Steeles Avenue widening to six lanes (Regional Road 25 to Winston Churchill Boulevard)
• 10 Side Road widening to four lanes (Trafalgar Road to Winston Churchill Boulevard)
• Appleby Line widening to six lanes (Fairview Street to Taywood Drive)
• Regional Road 25 widening to six lanes (Speers Road to Derry Road)
• Additional North/South roadway capacity in the vicinity of Derry Green “5 ½ line” (Britannia Road to Steeles Avenue)

As noted, there have been delays in fulfilling the Environmental Assessment Act requirements for Britannia Road (Regional Road 25 to Highway 407 ETR). In addition, there has been a shift in the development patterns in the Boyne Secondary Plan Area to the east side of Regional Road 25. Currently, the Environmental Study Report for Britannia Road (Regional Road 25 to Highway 407 ETR) reflects the phasing that was endorsed in the Transportation Master Plan in 2011 with widening from two to four lanes to proceed now (~$71 Million, construction only) and the start of construction to widen from four to six lanes (~$57 Million, design and construction) proceeding in 2028. Staff
are recommending that the phasing from two to four lanes, and then from four to six lanes be eliminated and that Britannia Road be constructed to the ultimate six lane configuration. To eliminate the phasing of construction requires filing an addendum to the Environmental Study Report to amend this aspect of the document.

Filing of an Addendum to remove the phasing requires notification to be provided to all parties that are potentially impacted by the change and were notified through the preparation of the Environmental Study Report. This includes notification to the public, property owners, review agencies, First Nations and Aboriginal Peoples and any individuals who requested a Part II Order during the filing of the Environmental Study Report addendum. Parties have 30 days to request a Part II Order related to the materials within the addendum. If a Part II Order request is received, the resolution may take 12 to 18 months. Given the addendum only deals with the phasing, the design to six lanes can proceed in parallel with the addendum minimizing the risk of project delays.

**Growth Management Program**

As outlined in Report No. LPS106-15, 2017 Development Charges Water and Wastewater, and Transportation Technical Reports, are a critical step in the Development Charges Update process.

The next steps and anticipated timelines are outlined below:

- Development Charges Advisory Committee (Fall, 2016);
- Release of 2017 Development Charges Background Study (December, 2016);
- Approval of 2017 Development Charges By-Law (Spring, 2017);
- Approval of Financial and Implementation Plan and 2018 Allocation Program Expression of Interest (Fall, 2017);
- 2018 Infrastructure Staging Plan (Winter, 2018);
- Approval of 2018 Allocation Program Agreements (Spring, 2018).

**FINANCIAL/PROGRAM IMPLICATIONS**

As summarized below, the overall development capital program from 2017 to 2031 for water, wastewater and transportation infrastructure is approximately $3.4 billion (2017$) which consists of water and wastewater infrastructure of $1.2 billion and transportation infrastructure of $2.2 billion. This represents $445.1 million increase in the water and wastewater program and $488.5 million increase in transportation program when compared to the program projected in the 2012 Development Charges Study.

It should be noted, several projects have been reprogrammed due to varying issues such as delays in approvals, property acquisition challenges and changes in actual greenfield development uptake. In addition, project cost estimation was refined through additional analysis (i.e. Municipal Class Environmental Assessment, Preliminary/Detailed Design, Water/Wastewater System Technical Studies); current indexing of unit cost benchmarking (2017 dollars), project scope changes, and new project requirements. The
resulting Development Charges impacts will be presented to Council as part of the Development Charges By-law Update Process.

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<th>WWWW Cost (2017-2031) ($Million's)</th>
<th>Per 2017 DC Study</th>
<th>Per 2012 DC Study</th>
<th>Increase/Decrease</th>
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<td>to reflect the results of EA and detailed designs</td>
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<td>Revised Cost Estimates</td>
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<td>based on updated benchmarks and indexing from 2012 to 2017 cost</td>
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<td>Projects Removed</td>
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<td>Total</td>
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Respectfully submitted,

Lisa De Angelis P. Eng.  
Director, Infrastructure Planning and Policy

Jim Harnum  
Commissioner, Public Works

Approved by

Jane MacCaskill  
Chief Administrative Officer

If you have any questions on the content of this report, please contact:  
Lisa De Angelis  
Tel. # 7574  
David Simpson  
Tel. # 7601

Attachments:  
Attachment #1 – 2017-2031 Water Development Capital Implementation Plan  
Attachment #2 – 2017-2031 Wastewater Development Capital Implementation Plan  
Attachment #3 – 2017-2031 Transportation Development and Non-Development Capital Implementation Plan