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**To:** Chair and Members  
Lambton Area Water Supply System Joint Board of Management

**From:** Clinton Harper  
General Manager

**Subject:** LAWSS Master Water Plan Update- Growth Factors  
(Rev.2020/04/27)

## Recommendation

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It is recommended that the LAWSS Joint Board of Management;

1. **ENDORSE** a growth factor of 11.2% for the City of Sarnia, 24.7% for St. Clair Township, 25.0% for the Town of Plympton-Wyoming, 21.7% for the Township of Warwick, 10.0% for the Village of Point Edward and 17% for the Municipality Lambton Shores for the 2020 LAWSS Master Water Plan.
2. **RECOGNIZE** that the Township of Warwick has undertaken a water needs analysis and that this analysis will be considered in the annual review process and future updates of the LAWSS Master Water Plan
3. **EXTEND** the scope of the 2020 LAWSS Master Water Plan Update to include a sensitivity analysis with an upset limit of \$15,000.

## Background:

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On January 22, 2020, AECOM, OCWA and LAWSS attended a project kick off meeting to discuss the 2020 LAWSS Master Water Plan Update project. The foundation of the Master Water Plan Update is growth. AECOM provided growth projections and requested that each of the LAWSS Member Municipalities provide feedback to assist in establishing a combination of population and ICI growth that would allow for development for the system over the planning horizon.

The original Demand Projection report prepared by AECOM was focused primarily on population and relied heavily on the accuracy of the population growth projections described in the Lambton County Official Plan. Issues with their methodology were identified by the LAWSS Technical Team early on. The key issues the technical team had with the original report were as follows.

- 1) The population growth projections outlined in the County of Lambton Official Plan were considered too low and did not represent actual growth observed.

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- 2) The population growth in and of itself is not an indication of total growth and in some cases non-residential growth is the primary driving factor with respect to water demand.

AECOM was asked to update the Demand Projection report based on this feedback. The resulting report is based on actual flow data, actual census data, and available development studies. The report indicates an overall level of system growth at LAWSS that equally considers both residential and non-residential growth factors and is based on historic water demand.

At the February 27, 2020 regular meeting, the LAWSS Board tabled the growth factors presented in Table #1, as provided by AECOM, to allow the respective Municipalities time to review. Staff was asked to provide a report back to the LAWSS Board at the Regular meeting in April summarizing the responses.

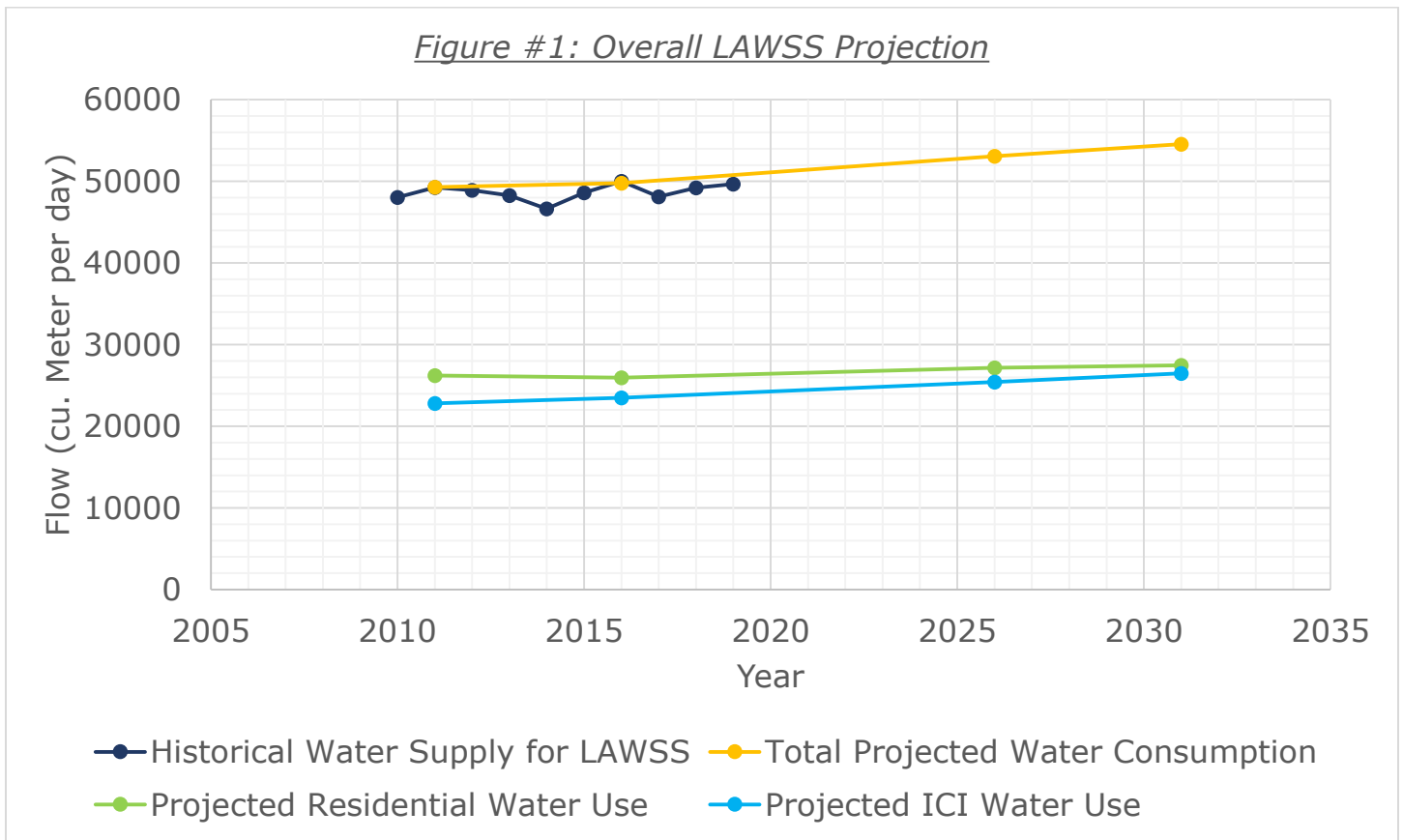
Table #1: Overall Growth Summary (2016 – 2031)

	<b>City of Sarnia</b>	<b>St. Clair Township</b>	<b>Town of Plympton-Wyoming</b>	<b>Township of Warwick</b>	<b>Village of Point Edward</b>	<b>Municipality of Lambton Shores</b>	<b>LAWSS</b>
<i>Res. Growth</i>	3.8%	3.2%	5.3%	-1.3%	0.3%	6.9%	3.6%
<i>ICI Growth</i>	21.2%	3.1%	12.6%	10.3%	9.5%	29.6%	11.5%
<b>Total Growth</b>	<b>11.2%</b>	<b>4.7%</b>	<b>8.2%</b>	<b>3.2%</b>	<b>7.6%</b>	<b>17.0%</b>	<b>9.5%</b>

*Note: ICI Growth for Point Edward was adjusted to LAWSS Average; which is 9.5% as opposed to negative growth.*

Overall LAWSS Growth, based on the data presented in Table #1 is illustrated in Figure #1. The graph illustrates a total System growth of 9.5% by 2031.

*Figure #1: Overall LAWSS Projection*



## Comments:

Selecting an appropriate growth factor is very important from a planning perspective. Due to the many unknowns, selecting an appropriate growth factor can also be extremely difficult. A growth factor that is too low may result in not having the capital and/or infrastructure in place when needed to facilitate growth. A growth factor that is too high will put unnecessary strain on the taxpayer and may result on having capital and/or infrastructure in place prior to when it is needed. It is the responsibility of the General Manager to continuously monitor the planned growth against actual growth and provide the information back to the Broad. This is done so minor adjustments can be made on an annual basis to keep the Plan on track. It is typical for a Master Plan of this type to be reviewed annually and to be completely re-built every 5 years.

On February 16, 2020 Statistics Canada released population projections estimates;

*"based on the latest census counts adjusted for census net under coverage (including adjustment for incompletely enumerated Indian reserves) and on the estimated population growth that occurred since that census, as calculated using fiscal data. Intercensal estimates are based on postcensal estimates and census counts adjusted of the censuses preceding and following the considered year."*

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The Statistics Canada population estimates for LAWSS Members is listed in Table #2. This information was not available to AECOM when they completed the original "Water Demand Projection Analysis".

*Table #2: Statistics Canada- Population Projections*

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Sarnia (CY), Ontario	73,128	73,203	73,415	74,203	74,779
St. Clair (TP), Ontario	14,533	14,375	14,437	14,577	14,755
Lambton Shores (MU), Ontario	10,689	10,817	10,890	11,066	11,050
Plympton-Wyoming (T), Ontario	7,918	7,962	8,077	8,294	8,393
Warwick (TP), Ontario	3,851	3,764	3,844	3,829	3,924
Point Edward (VL), Ontario	2,077	2,075	2,080	2,036	2,038

<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710014201>

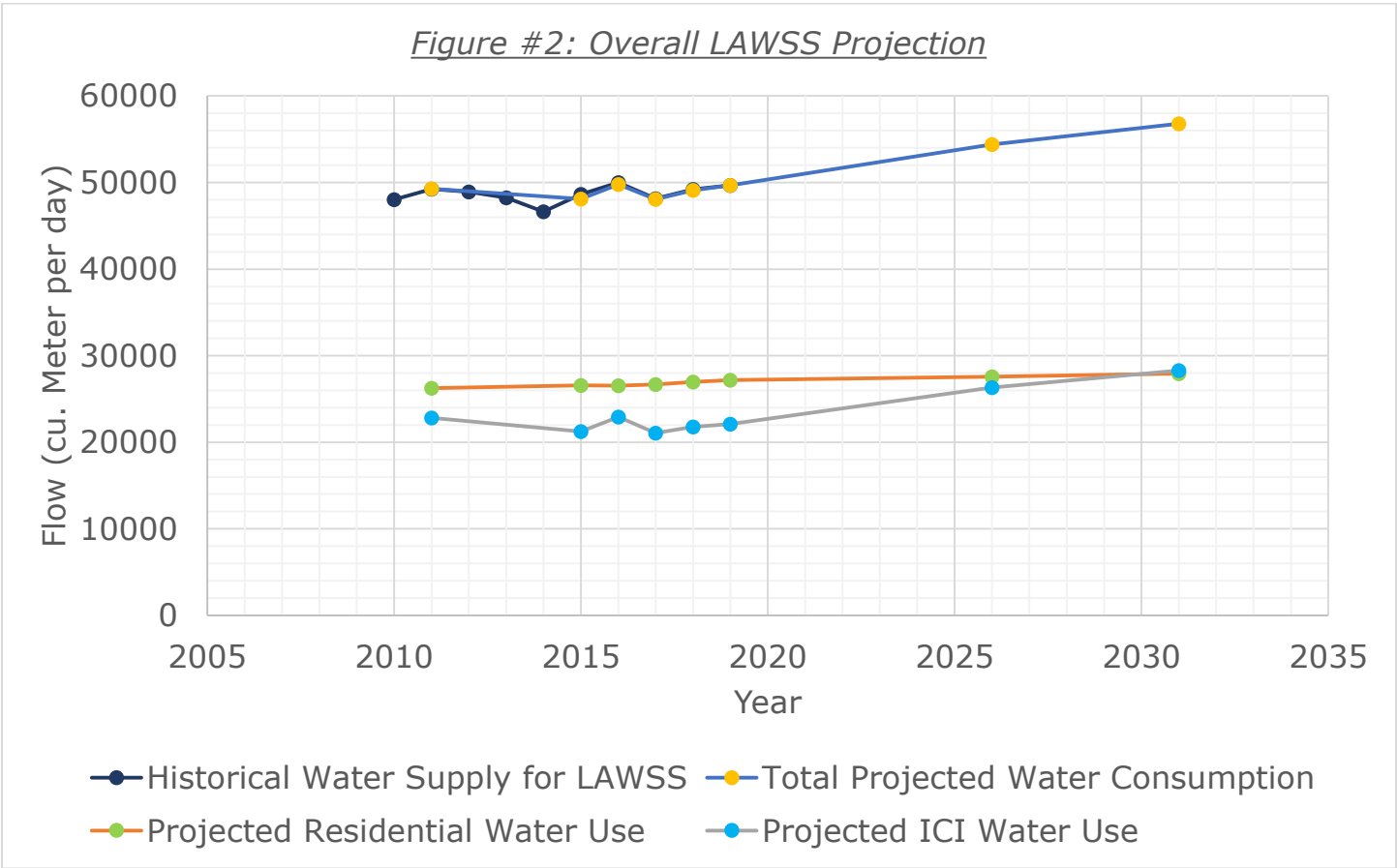
AECOM was asked to consider the Statistics Canada information and prepare an update to Table 1. This update is presented in Table #3.

*Table #3: Alternative Overall Growth Summary (2016-2031)*

	<b>City of Sarnia</b>	<b>St. Clair Township</b>	<b>Town of Plympton- Wyoming</b>	<b>Township of Warwick</b>	<b>Village of Point Edward</b>	<b>Municipality of Lambton Shores</b>	<b>LAWSS</b>
<i>Res. Growth</i>	2.8%	7.3%	20.0%	8.4%	4.1%	8.5%	5.2%
<i>ICI Growth</i>	18.7%	31.0%	0.1%	9.2%	5.7%	15.9%	15.4%
<i>Total Growth</i>	<b>8.7%</b>	<b>24.7%</b>	<b>16.7%</b>	<b>11.7%</b>	<b>5.0%</b>	<b>11.0%</b>	<b>14.0%</b>

Overall LAWSS Growth, based on the data presented in Table #3 is illustrated in Figure #2. The Figure illustrates a total System growth of 14% by 2031.

*Figure #2: Overall LAWSS Projection*



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## Consultation:

The Municipal Responses are provided in Table #4.

*Table #4: Alternative Overall Growth Summary (2016-2031)*

	<b>City of Sarnia</b>	<b>St. Clair Township</b>	<b>Town of Plympton-Wyoming</b>	<b>Township of Warwick</b>	<b>Village of Point Edward</b>	<b>Municipality of Lambton Shores</b>
<i>Total Growth</i>	<b>11.2%</b>	<b>20.0%</b>	<b>25.0%</b>	<b>21.7%</b>	<b>10.0%</b>	<b>14.0%</b>

The City of Sarnia Council has endorsed a projected water demand growth rate of 11.2%, by 2031. This growth rate is based on the information provided in the original AECOM report. It is recommended that a growth rate of 11.2% is used. City of Sarnia Council also requested that the LAWSS Master Water Plan Update include a sensitivity analysis to compare the impact of various projected water demand growth rates on capital infrastructure needs. A sensitivity analysis will compare the overall growth rate that is accepted for the project versus what was proposed in the original AECOM report. The analysis involves additional model runs and is expected to be completed for \$15,000.

The Township of St. Clair Council resolved that the St. Clair Township Water Demand Forecast be set at 20%, by 2031 for the LAWSS Water Master Plan. In light of the additional information mentioned in the comments section of this report, it is recommended that a growth rate of 24.7% is used instead. The 24.7% is based on the best information available.

The Town of Plympton-Wyoming Council endorsed a projected 25% water demand increase by 2031 for the LAWSS Master Plan Update. This is 8.3% greater than the 16.7% presented in Table #3 and based on the Statistics Canada data. A local Municipality is always best equipped to predict growth and information used to predict growth is inherently incomplete. For these reasons, along with the slightly more conservative approach, the 25% increase is recommended.

The Township of Warwick projects a growth rate of 21.7%, by 2031 for the LAWSS Master Plan Update. This is 10% greater than the 11.7% presented in Table 3 and based on the Statistics Canada data. A local Municipality is always best equipped to predict growth and information used to predict growth is inherently incomplete. For these reasons, along with the slightly more conservative approach, the 21.7% increase is recommended.

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The Village of Point Edward submitted a growth rate of 10%, by 2031 for the LAWSS Master Plan Update. This is 5% greater than the 5% presented in Table #3 and based on Statistics Canada data. Again, a local Municipality is always best equipped to predict growth and information used to predict growth is inherently incomplete. For these reasons, along with the slightly more conservative approach, the 10% increase is also recommended.

The Municipality of Lambton Shores submitted a growth rate of 17.0%, by 2031 for use in the LAWSS Master Water Plan Update. This growth rate is based on the original information provided in the AECOM report. It is recommended that a growth rate of 17.0%, by 2031 is used.

## Financial Implications:

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For the project itself, there are no financial implications with respect to selecting a rate of growth for the project. With the growth factors provided back to the Consultant, work can proceed on the project. Work on the project is currently 2 months behind schedule but still expected to remain within budget at this time.

As mentioned previously in the comments section, selecting an appropriate growth factor is very important from a planning perspective. Due to the many unknowns, selecting an appropriate growth factor can also be extremely difficult. A growth factor that is too low may result in not having the capital and/or infrastructure in place when needed to facilitate growth. A growth factor that is too high will put unnecessary strain on the taxpayer and may result on having capital and/or infrastructure in place prior to when it is needed.

Again, it's the responsibility of the LAWSS General Manager to continuously monitor the planned growth against actual growth and provide the information back to the Broad. A report on how the growth is tracking will be included in the Annual Budget proposal and will be used to implement minor adjustments in an effort to keep the Plan on track.

*Table #5: Recommend Overall Growth Summary (2016-2031)*

	<b>City of Sarnia</b>	<b>St. Clair Township</b>	<b>Town of Plympton-Wyoming</b>	<b>Township of Warwick</b>	<b>Village of Point Edward</b>	<b>Municipality of Lambton Shores</b>
Table #1	11.2%	4.7%	8.2%	3.2%	7.6%	17.0%
Table #3	8.7%	<b>24.7%</b>	16.7%	11.7%	5.0%	11.0%
Table #4	<b>11.2%</b>	20.0%	<b>25.0%</b>	<b>21.7%</b>	<b>10.0%</b>	<b>17.0%</b>

This report was prepared by: Clinton Harper, LAWSS General Manager

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Attachment(s): none