2014 WATER WASTEWATER STORM RATE BUDGET

December 6, 2013
OVERVIEW

• Rate Revenue
• Forecast Consumption
• Rates Increase
• Capital Plan
## RATE REVENUE TREND

### 4 Year Actual vs. Budget Revenue Variance

<table>
<thead>
<tr>
<th>REVENUES ($000's)</th>
<th>2011 Budget</th>
<th>2011 Actual</th>
<th>2012 Budget</th>
<th>2012 Actual</th>
<th>2013 FORECAST Budget</th>
<th>2013 FORECAST Actual</th>
<th>2014 PROPOSED Budget</th>
<th>2014 PROPOSED Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>68,660</td>
<td>70,837</td>
<td>72,418</td>
<td>72,546</td>
<td>77,367</td>
<td>72,752</td>
<td>79,430</td>
<td></td>
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<tr>
<td>ICI/Multi-Res</td>
<td>80,355</td>
<td>74,179</td>
<td>81,569</td>
<td>76,805</td>
<td>82,941</td>
<td>78,295</td>
<td>86,288</td>
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<tr>
<td>Haldimand/Halton</td>
<td>2,447</td>
<td>2,436</td>
<td>2,565</td>
<td>2,603</td>
<td>2,641</td>
<td>2,406</td>
<td>2,459</td>
<td></td>
</tr>
<tr>
<td>Non-metered</td>
<td>570</td>
<td>518</td>
<td>594</td>
<td>612</td>
<td>594</td>
<td>543</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>RATE REVENUES</td>
<td>152,032</td>
<td>147,970</td>
<td>157,145</td>
<td>152,567</td>
<td>163,546</td>
<td>153,996</td>
<td>168,777</td>
<td></td>
</tr>
<tr>
<td>Surplus/(Deficit)</td>
<td>(4,062)</td>
<td>(4,579)</td>
<td>(9,550)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Overall Rate Position</td>
<td>8,880</td>
<td>12,274</td>
<td></td>
<td></td>
<td>(3,924)</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>
RESIDENTIAL – ICI/MULTI-RES CONSUMPTION COMPARISON

![Graph showing consumption comparison between residential, ICI & Multi-Res, and total from 2004 to 2014 including forecast and budget information.](image-url)
RESIDENTIAL WATER CONSUMPTION ($m^3$)

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
<th>2013 Budget</th>
<th>Forecast</th>
<th>2014 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>262</td>
<td>220</td>
<td></td>
<td>210</td>
</tr>
<tr>
<td>2006</td>
<td>251</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>255</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2008</td>
<td>226</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>216</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>216</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2011</td>
<td>214</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>217</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RESIDENTIAL WATER CONSUMPTION

• This year, Hamilton’s residential average usage is forecast to be 202m$^3$ of water.

• For 2014, average residential water/wastewater/stormwater annual billing of $604 based on budgeted average usage of 210m$^3$ of water.
COMPARISON OF AVERAGE COST PER HOUSEHOLD

**Avg. Household Consumption (m³)**

- 2007: $513
- 2008: $501
- 2009: $503
- 2010: $523
- 2011: $541
- 2012: $571
- 2013 Forecast: $561
- 2014 Budget: $604

**Average Bill**

- 2007: $513
- 2008: $559
- 2009: $584
- 2010: $607
- 2011: $633
- 2012: $660
- 2013 Forecast: $691
- 2014 Budget: $721

- **Avg Cost/Household with Constant Consumption (2007 @ 255m³)**
- **Actual Avg Cost/Household**
# RATE INCREASE MITIGATION

<table>
<thead>
<tr>
<th>Year</th>
<th>RATE $/ m³</th>
<th>Avg Act Res Usage m³/yr</th>
<th>Avg. Actual Res Billing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>$0.913</td>
<td>255</td>
<td>$513</td>
</tr>
<tr>
<td>2013</td>
<td>$1.223</td>
<td>202 forecast</td>
<td>$561</td>
</tr>
</tbody>
</table>

**Change △**
- **RATE:** 34% increase
- **Usage:** 26% decrease
- **Billing:** 9% increase
HOW DOES HAMILTON COMPARE?

2013 Water Cost Residential (210 m³/y)

- Norfolk: $1,268
- Haldimand: $981
- London: $887
- Cambridge: $881
- Kitchener: $872
- St. Catharines: $837
- Guelph: $810
- Waterloo: $808
- Brantford: $793
- Ottawa: $718
- Durham: $717
- Halton: $691
- Hamilton: $581
- Toronto: $570
- Peel: $344

Survey Average: $784

Stormwater funded by property taxes
## MUNICIPAL COMPARISON
### COMBINED RATE INCREASES

#### MUNICIPALITY 2008-14

<table>
<thead>
<tr>
<th>MUNICIPALITY</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guelph</td>
<td>8.9%</td>
<td>15.5%</td>
<td>10.0%</td>
<td>10.0%</td>
<td>8.5%</td>
<td>8.0%</td>
<td>3.5%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Halton</td>
<td>6.5%</td>
<td>6.7%</td>
<td>0.0%</td>
<td>4.1%</td>
<td>3.5%</td>
<td>4.8%</td>
<td>4.3%</td>
<td>4.3%</td>
</tr>
<tr>
<td>London</td>
<td>8.5%</td>
<td>7.2%</td>
<td>8.5%</td>
<td>0.0%</td>
<td>7.5%</td>
<td>7.5%</td>
<td>7.5%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Norfolk</td>
<td>8.9%</td>
<td>6.6%</td>
<td>5.6%</td>
<td>6.2%</td>
<td>6.8%</td>
<td>7.2%</td>
<td>0.4%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Ottawa</td>
<td>9.0%</td>
<td>9.0%</td>
<td>9.0%</td>
<td>3.9%</td>
<td>6.0%</td>
<td>7.0%</td>
<td>7.0%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Toronto</td>
<td>9.4%</td>
<td>9.0%</td>
<td>9.0%</td>
<td>9.0%</td>
<td>9.0%</td>
<td>9.0%</td>
<td>9.0%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Hamilton</td>
<td>8.9%</td>
<td>4.5%</td>
<td>4.0%</td>
<td>4.25%</td>
<td>4.25%</td>
<td>4.25%</td>
<td>4.0%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Average</td>
<td>8.6%</td>
<td>8.4%</td>
<td>6.6%</td>
<td>5.4%</td>
<td>6.5%</td>
<td>6.8%</td>
<td>5.1%</td>
<td>6.8%</td>
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</table>

(P) = proposed
## 2014 RATE INCREASE COMPARISONS

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Increase % *</th>
<th>Avg Res $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toronto</td>
<td>9.00%</td>
<td>$67</td>
</tr>
<tr>
<td>London</td>
<td>7.50%</td>
<td>$55</td>
</tr>
<tr>
<td>Halton</td>
<td>4.30%</td>
<td>$35</td>
</tr>
<tr>
<td>Guelph</td>
<td>3.50%</td>
<td>$27</td>
</tr>
<tr>
<td>Hamilton</td>
<td>4.00%</td>
<td>$23</td>
</tr>
<tr>
<td>Norfolk</td>
<td>0.40%</td>
<td>$6</td>
</tr>
</tbody>
</table>

* Blended water & wastewater increase
FINANCING STRATEGY
AFFORDABILITY

2012 Water/WW as a % of Household Income

Source: BMA Management Consulting Inc. – Municipal Study 2012
ICI/MULTI-RES COMPOSITION

Other ICI 53%
Top Users 47%

- STEEL 35%
- MULTI-RES 16%
- FOOD PROCESSING 14%
- EDUCATION 7%
- CITYHOUSING HAMILTON 8%
- HEALTH 11%
- OTHER LARGE INDUSTRIAL 3%
- COMMERCIAL 1%
- CITY OF HAMILTON 5%

Institutional = 31%
ICI COST COMPARISON (2013 $)

<table>
<thead>
<tr>
<th>MUNICIPALITY</th>
<th>SMALL COMM/IND 325 M³</th>
<th>MID-SIZE COMM/IND 2,272 M³</th>
<th>LARGE COMM/IND 22,727 M³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual Charge</td>
<td>Ranking</td>
<td>Annual Charge</td>
</tr>
<tr>
<td>Norfolk</td>
<td>$1,716</td>
<td>1</td>
<td>$7,643</td>
</tr>
<tr>
<td>London**</td>
<td>$1,444</td>
<td>2</td>
<td>$5,460</td>
</tr>
<tr>
<td>Cambridge</td>
<td>$1,276</td>
<td>3</td>
<td>$8,201</td>
</tr>
<tr>
<td>Haldimand</td>
<td>$1,240</td>
<td>4</td>
<td>$5,172</td>
</tr>
<tr>
<td>Brantford</td>
<td>$1,170</td>
<td>5</td>
<td>$7,541</td>
</tr>
<tr>
<td>St. Catharines</td>
<td>$1,169</td>
<td>6</td>
<td>$6,883</td>
</tr>
<tr>
<td>Kitchener**</td>
<td>$1,166</td>
<td>7</td>
<td>$8,151</td>
</tr>
<tr>
<td>Waterloo**</td>
<td>$1,158</td>
<td>8</td>
<td>$7,928</td>
</tr>
<tr>
<td>Guelph</td>
<td>$1,143</td>
<td>9</td>
<td>$6,892</td>
</tr>
<tr>
<td>Ottawa*</td>
<td>$1,119</td>
<td>10</td>
<td>$7,483</td>
</tr>
<tr>
<td>Durham</td>
<td>$981</td>
<td>11</td>
<td>$5,099</td>
</tr>
<tr>
<td>Halton</td>
<td>$918</td>
<td>12</td>
<td>$5,736</td>
</tr>
<tr>
<td>Toronto*</td>
<td>$882</td>
<td>13</td>
<td>$6,166</td>
</tr>
<tr>
<td><strong>Hamilton</strong></td>
<td>$862</td>
<td>14</td>
<td>$6,247</td>
</tr>
<tr>
<td>Peel</td>
<td>$533</td>
<td>15</td>
<td>$3,724</td>
</tr>
<tr>
<td>Average</td>
<td>$1,119</td>
<td></td>
<td>$6,555</td>
</tr>
</tbody>
</table>

D – Declining Block structure for largest users

* Include stormwater management in their rates.
** Have dedicated stormwater management user fee that is excluded in above table.
Note: All other municipalities fund stormwater from property taxes.
## Summary of the 2014 Operating Budget

<table>
<thead>
<tr>
<th></th>
<th>2013 Restated Budget</th>
<th>2014 Requested Budget</th>
<th>2014 Requested vs 2013 Restated Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expenditures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Expenditures</td>
<td>$ 74.67</td>
<td>$ 74.88</td>
<td>$ 0.21</td>
</tr>
<tr>
<td>Capital/Debt Financing</td>
<td>$ 97.33</td>
<td>$ 103.52</td>
<td>$ 6.19</td>
</tr>
<tr>
<td><strong>Total Expenditures</strong></td>
<td>$ 172.00</td>
<td>$ 178.40</td>
<td>$ 6.40</td>
</tr>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate Revenue</td>
<td>$ 169.35</td>
<td>$ 175.88</td>
<td>$ 6.53</td>
</tr>
<tr>
<td>Non-Rate Revenue</td>
<td>$ 2.65</td>
<td>$ 2.52</td>
<td>-$ 0.13</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>$ 172.00</td>
<td>$ 178.40</td>
<td>$ 6.40</td>
</tr>
</tbody>
</table>
2014 CAPITAL PROGRAM

$154.4 Million

Wastewater, $63.2 M, 41%

Water, $64.4 M, 42%

Storm, $26.8 M, 17%
2014 CAPITAL FUNDING

$154.4 Million

- Rate Contribution, $86.0 M, 56%
- Reserves & Other Internal Revenues (WIP's), $30.0 M, 19%
- External Debt - Rate Funded, $22.1 M, 14%
- Subsidy/Other Revenue, $16.3 M, 11%
2014–2023 CAPITAL BY PROGRAM

$1.5 Billion

Wastewater, $993.2 M, 66%
Storm, $128.8 M, 9%
Water, $382.9 M, 25%
2014–2023 CAPITAL FUNDING

$1.5 Billion

- Rate Contribution, $906.3 M, 60%
- Reserves & Other Internal Revenues (WIP's), $80.7 M, 5%
- Subsidy/Other Revenue, $199.4 M, 13%
- External Debt - Rate Funded, $85.8 M, 6%
- External Debt - DC Funded, $232.6 M, 16%
CAPITAL FINANCING
OPERATING IMPACT

CAPITAL FINANCING PLAN

YEAR

$ MILLIONS

$153 M

$103 M

DC EXEMPTION FUNDING

RATE CONTRIBUTION

DEBT CHARGES

CAPITAL BUDGET FORECAST

Water / Wastewater / Storm
Total 10 Year Capital - $1.5 Billion

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate Supported</th>
<th>DC Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>154.4</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>136.9</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>261.6</td>
<td>68.5</td>
</tr>
<tr>
<td>2017</td>
<td>175.4</td>
<td>35.4</td>
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<tr>
<td>2018</td>
<td>98.4</td>
<td>16.6</td>
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<tr>
<td>2019</td>
<td>102.6</td>
<td>17.6</td>
</tr>
<tr>
<td>2020</td>
<td>103.9</td>
<td>11.7</td>
</tr>
<tr>
<td>2021</td>
<td>115.5</td>
<td>15.3</td>
</tr>
<tr>
<td>2022</td>
<td>115.8</td>
<td>10.0</td>
</tr>
<tr>
<td>2023</td>
<td>125.9</td>
<td>12.8</td>
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</table>

$667 M
10 YEAR CAPITAL FORECAST
2013 vs 2014

Water / Wastewater / Storm Capital Forecast
DEBT FORECAST

Water / Wastewater / Storm Outstanding Debt

<table>
<thead>
<tr>
<th>Year</th>
<th>Funded from Rates</th>
<th>Funded from DC's</th>
</tr>
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<tbody>
<tr>
<td>2014</td>
<td>191</td>
<td>62</td>
</tr>
<tr>
<td>2015</td>
<td>151</td>
<td>200</td>
</tr>
<tr>
<td>2016</td>
<td>260</td>
<td>287</td>
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<tr>
<td>2017</td>
<td>286</td>
<td>308</td>
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<tr>
<td>2018</td>
<td>291</td>
<td>288</td>
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<tr>
<td>2019</td>
<td>297</td>
<td>267</td>
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<td>2020</td>
<td>296</td>
<td>246</td>
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<td>2021</td>
<td>297</td>
<td>224</td>
</tr>
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<td>2022</td>
<td>292</td>
<td>200</td>
</tr>
<tr>
<td>2023</td>
<td>289</td>
<td>176</td>
</tr>
</tbody>
</table>

$Millions
DEBT FORECAST 2013 vs 2014

Water / Wastewater / Storm Total Debt

- 2013 Peak: $714 M
- 2014 Peak: $594 M


- 2013 Budget
- 2014 Budget
PROJECTED DEBT CHARGES

Projected Debt Charges
Water / Wastewater / Storm

$Millions


5.7 0.1 5.6
12.0 2.6 9.4
26.0 17.2
43.1 23.2 25.3
55.7 25.3 26.7
59.6 27.9
60.8 28.9
61.9 30.0
62.8 33.7
63.7 33.8
64.4

Funded from Rates
Funded from DC's
DEBT CHARGES AS % OF TOTAL REVENUES

Rate Funded Debt Charges to Total Revenues

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate Funded Debt Charges</th>
<th>Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>$9.4, (5.3%)</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>$34.3, (16.3%)</td>
<td>$210.7</td>
</tr>
<tr>
<td>2023</td>
<td>$33.6, (13.0%)</td>
<td>$258.2</td>
</tr>
</tbody>
</table>
Water / Wastewater / Storm Reserves
(incl. $100 M Provincial Subsidy)

$ Millions


199 191 184 162 73 62 63 65 66 68 70 71

RESERVE FORECAST
CAPITAL & RESERVE FORECAST

Water / Wastewater / Storm
(Reserve Forecast includes $100 M Provincial Subsidy)
1. Consumption

2. Pace of Development
   – Continue to monitor relative to “Places to Grow”

3. Senior Government Grants
   – Substantial completion deadlines for WWTP upgrade
Public Works
Hamilton Water

2014 Operating and Capital Budget
December 6, 2013

Providing services that bring our City to life!
1. Program Overview
2. Sectional Update
3. Clean Harbour Program
4. SERG
5. Hamilton Water Priority Programs
6. Staff Complement
7. Operating Budget
Program Overview
**Program Overview**

- Serves 490,000 residents and businesses in Hamilton

- Over $9.2 billion in infrastructure (replacement value)

- Operates 170 different facilities, many of them 24 hours per day, 365 days per year

- Infrastructure renewal and level of service supported by multi-year business plan

- Program is 100% rate-supported and no reliance on the property tax base to support Hamilton Water operating and capital budgets
Inventory of Assets (2013 Values)

**Wastewater**
$4,419 Million
- 2 wastewater treatment plants
- 9 CSO tanks
- 72 pumping stations
- 20 wastewater control gates
- 22,177 maintenance holes
- 1,270 km of sewer lines
- 488 km of interceptors + trunk
- 139,588 sewer laterals

**Water**
$2,771 Million
- 1 water treatment plant
- 21 storage facilities
- 2,013 km of mains
- 25 water pumping stations
- 4 communal systems
- 2 surge tanks
- 12,118 hydrants
- 19,885 valves and chambers
- 143,826 water meters

**Stormwater**
$1,996 Million
- 185 storm ponds
- 16,665 manholes

- 1,113 km of storm sewers
- 910 inlet / outfall structures
Organizational Chart & Complement - 2013

Dan McKinnon
Director, Hamilton Water

Rosa Gonzalez
QMR - Manager

Michele Braun
AA

Dan Chauvin,
Director, Water and Wastewater Engineering

Udo Ehrenberg
Manager

Shane McCauley
Manager

Bert Posedowski
Manager

Ian Routledge
Manager

Stuart Leitch
Manager

Mark Bainbridge
Manager

<table>
<thead>
<tr>
<th>Complement (F.T.E.)</th>
<th>Management</th>
<th>Other</th>
<th>Total</th>
<th># of Staff / Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>10</td>
<td>278.6</td>
<td>288.6</td>
<td>27.9</td>
</tr>
</tbody>
</table>

Hamilton Water - 2014 Operating and Capital Budget
Compliance and Regulations

2013 Accomplishments

- Successful completion of the 2013 DWQMS Surveillance Audit for the Operating Authority’s five Drinking Water Systems
- Increases in monitoring and enforcement within EME has seen significant reductions of contaminants entering the WWTPs.
- A new streamlined Sewer Use By-law has been prepared for public consultation.

Rosa Gonzalez
Manager, Compliance and Regulations (QMR)

45.33 FTE
$5.23M Annual Operating Budget

- Compliance Support
- Environmental Laboratory
- Environmental Monitoring & Enforcement

2014 Goals

- Communicate and implement the changes to the new Sewer Use By-law
- Roll out of the learning management system (staff training, general awareness)
Customer Service & Community Outreach

2013 Accomplishments

• Awarded a new 6 year meter supply and install contract and meter maintenance contract

• Completed phase 1 of the Hansen 8 implementation – Phase 2 completed January 2014

• Processed 8,000 work orders and 30,000 calls

2014 Goals

• Phase 3 Hansen 8 implementation (work orders)

• Business case development for Automated Meter Reading

• Web Redevelopment Project

Shane McCauley
Manager, Customer Service & Community Outreach

38.94 FTE
$4.3M Annual Operating Budget

• Conservation & Education
• Hansen / GIS
• Service Coordination
• Service & Dispatch
• Meter Operations & Cross Connection Control
Plant Operations

2013 Accomplishments

• 2013 Drinking Water production estimated to be 75,103.3 ML

• Wastewater influent volume increased from 103,600 ML in 2012 to 111,950 ML for last 12 months. 95 consecutive months of compliance. Forecast to be at 73% capacity

• Installation of Woodward Wastewater Treatment Plant Primary Clarifier upgrades and new Chlorine Contact tank.

• Completed phase 3 of SCADA

2014 Goals

• Drinking water production predicted to remain stable and at an annual amount of 75,000 to 78,000 ML.

• Implementation of the SCADA master plan project - Phases 4 and 5

Ian Routledge, P. Eng.
Manager, Plant Operations

76.65 FTE

$33.8M Annual Operating Budget

• Process Improvements
• SCADA
• Plant Maintenance
• Electrical
• Instrumentation
• Quality Assurance
Water Distribution & Wastewater Collection

2013 Accomplishments

• Repaired 279 watermain break (Break volumes are stable over the last 2 years)

• 538 sewer lateral repairs or replacements (lateral repairs and replacement are stable over the last 2 years.)

• 780 water service replacements (Volume has increased 7% since 2012 (16% decline over 2011)

• 284 sewer manhole adjustments ($300,966)

• 97 valve chamber adjustments ($161,469)

2013 Special Projects

• Sewer Cross Connection Pilot - Identified 100 sewer cross connections and repaired 94.

• Iona Trunk Odour Reduction
Water & Wastewater Engineering

2013 Accomplishments

• Led the team that successfully secured the Federal $100M Green Infrastructure Fund (GIF) commitment for the Woodward Upgrade Project
• Led the team that successfully completed the P3 Canada funding agreement that will secure up to $23 Million towards the Biosolids Management Project
• Further developed formal contract management procedures, protocols and reporting under the Project Management Office (PMO)
• Overseen the Divisions delivery of approximately 40 Complex, multidiscipline capital projects at various stages valued at $300 million

2014 Outlook

• Seconded to Director, Woodward Upgrade where Dan will lead the team responsible for the delivery of this key project under the Clean Harbour Program.
Infrastructure Planning & Systems Design

2013 Accomplishments

- In-house Mike Urban Sewer and WaterCAD Modeling (~100 / ~20 Locations)
- Sanitary & Combined Pipes model, separated storm pipe computer Model for Stoney Creek
- Class EA for 9 locations

Udo Ehrenberg, P. Eng
Manager, Infrastructure Planning & Systems Design

2014 Goals

- Citywide Flooding & Drainage Study
- Incorporation/processing of Staging of Development Data for use in reserve capacity assessment and refinement of growth related Infrastructure Implementation Plans

14 FTE

- Water Planning
- Wastewater Planning
- Stormwater Planning
- Geomatic
Water & Wastewater Engineering

2013 Accomplishments

• Completion of Randle Reef Legal Agreements
• Completed 4 Facility Condition Assessments
• Completion of regional Source Protection Plan
• $12M claimed against the Canadian Strategic Infrastructure Fund

2014 Outlook

• Award RFP and commence Facility Asset Management Program
• Develop required policy and approach for source water issues
• Develop an RMO/RMI office to meet source water requirements
• Completion of 4 facility assessments

Mark Bainbridge
Manager, Sustainable Initiatives

6 FTE

• Government Grant Funding
• Sourcewater Protection
• Harbour Remediation
• Facility Asset Management
Water & Wastewater Engineering

2013 Accomplishments

• Managed 40 Complex, multidiscipline capital projects valued at $300 million
  o Waterdown Wastewater Pump Station
  o Wastewater Outstation Odour Control
  o Twenty Rd Wastewater Pump Station
  o Highland Road Water Pumping Station
  o Hillcrest Water Reservoir – Phase 3
  o Kelly Street Water Stand Pipe
  o Old Ancaster Rd Water Pumping Station
  o Woodward WWTP Primary Clarifier

2014 Outlook

• Projected to manage 36 Complex, Multidiscipline Capital Projects
  o Decommissioning of Waterdown WWTP
  o Dundas Wastewater Pumping Stations
  o Kenilworth Pumping Station Upgrades
  o Greenhill Reservoir & Valvehouse
  o Water Treatment Plant GAC
  o Greenhill Ave Drop Shaft Odour Control

Stuart Leitch, P. Eng.
Manager, Water & Wastewater Engineering

12 FTE
Water & Wastewater Engineering – Ferguson Pumping Station

Ferguson Pumping Station 1912

- Original pumping station opened in 1912 to serve roughly 80,000 people
- “The Heart" of the water distribution system in the lower city
- $24M ISF Funded Project
- 159 MLD firm capacity

Queen Victoria School Celebrates Cork Town Park Archway

Ferguson Pumping Station 2013
Water & Wastewater Engineering – Windemere Basin

- $21M CSIF Funded Project
- 13 hectare wetland in East Hamilton
- The basin is used to collect sediments that flows into Hamilton Harbour from the Red Hill Creek.
- In the next three to five years, Windermere Basin will become a lush wetland populated by native trees, migratory birds, and cold water fish species.
## 2013 Key Accomplishments and Successes

<table>
<thead>
<tr>
<th>Phase</th>
<th>Number of Projects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFP Preparation</td>
<td>13</td>
<td>$ 9.5M Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$ 71.2M Construction</td>
</tr>
<tr>
<td>Roster</td>
<td>5</td>
<td>$ 280K Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$ 1.3M Construction</td>
</tr>
<tr>
<td>Design</td>
<td>12</td>
<td>$ 5M Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$ 51M Construction</td>
</tr>
<tr>
<td>Construction</td>
<td>3</td>
<td>$ 16M Capital</td>
</tr>
<tr>
<td>Substantially Completed</td>
<td>7</td>
<td>$ 148M Capital</td>
</tr>
</tbody>
</table>

At any given time there is $300M worth of WIPs managed within the system.

**Note:** Does not include $330 Million Clean Harbour – Woodward WWTP Upgrades or Biosolids PPP Canada Project
## 2014 Outlook

<table>
<thead>
<tr>
<th>Phase</th>
<th>Number of Projects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFP Preparation</td>
<td>5</td>
<td>$ 950K Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$ 6.4M Construction</td>
</tr>
<tr>
<td>Design</td>
<td>9</td>
<td>$ 8.7M Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$ 61M Construction</td>
</tr>
<tr>
<td>Construction</td>
<td>14</td>
<td>$ 67M Capital</td>
</tr>
<tr>
<td>Reaching Substantial Completion</td>
<td>8</td>
<td>$ 22.7M Capital</td>
</tr>
</tbody>
</table>

**Note:** Does not include $330 Million Clean Harbour – Woodward WWTP Upgrades or Biosolids PPP Canada Project.
Clean Harbour Program
Clean Harbour Program - Branding

In response to the significant investment the City is making across many projects that contribute to de-listing Hamilton Harbour as an Area of Concern with the International Joint Commission, the Clean Harbour Program was branded to bring recognition to the projects that meet this larger program mandate:
Clean Harbour Program

The Woodward Upgrade Project is composed of 5 sub-projects with a construction budget of $340 million providing the following benefits:

<table>
<thead>
<tr>
<th>Sub-Project</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tertiary Upgrades</td>
<td>• Improved Effluent: Addition of a tertiary treatment process to allow the WWTP to meet stringent HHRAP targets</td>
</tr>
<tr>
<td>• Raw Sewage Pumping Station</td>
<td>• Increased Capacity: Meet future wet weather capacity needs of 1700 MLD</td>
</tr>
<tr>
<td></td>
<td>• Improved Conveyance: Larger and deeper wet well will assist with mitigating system flooding, provide increased system storage, reduces solids buildup during dry weather flows</td>
</tr>
<tr>
<td>• Electrical Upgrades and Stand-by Power</td>
<td>• Replace aging assets: Reduces risk by replacing critical assets that have reached the end of its useful life</td>
</tr>
<tr>
<td></td>
<td>• Increased Standby Power: Provide for sufficient standby power to all essential loads</td>
</tr>
<tr>
<td></td>
<td>• Energy Efficiencies: Maximize energy efficiencies wherever possible</td>
</tr>
<tr>
<td>• New Chlorine Contact Tank, Outfall and Upgrades to Red Hill Creek</td>
<td>• Maximizes Plant Hydraulics: Dedicated discharge location into Red Hill Creek required for tertiary effluent, and dedicates existing outfall for increased treatment of wet weather flows</td>
</tr>
<tr>
<td>• Collection System Upgrades</td>
<td>• Improved Monitoring and Controls: A series of flow monitoring and control devices will be installed at strategic location allowing for better hydraulic management of wet weather flows within the system as to optimize capacity during each wet weather event</td>
</tr>
</tbody>
</table>

• GIF Funded Project
  o $100 M from the Province of Ontario
  o $100 M from the Government of Canada
Real Time Control

Successes After 10 Months of Operations

Captured an estimated 500,000 m³ of CSO

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimated Loadings Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Suspended Solids</td>
<td>44,500 kg</td>
</tr>
<tr>
<td>Total Phosphorous</td>
<td>120 kg</td>
</tr>
<tr>
<td>Ammonium Nitrogen</td>
<td>130 kg</td>
</tr>
</tbody>
</table>

$11M CSIF Funded Project

RTC at Wellington / Burlington
Primary Clarifiers / Chlorine Contact Tank

- Management of wet weather flows and eliminate all dry weather overflows
- Increased wet weather treatment capacity
- Allows for minimum treatment standards for all overflows or plant by-passes
- Addition of two new primary clarifiers and a new chlorine contact tank (for chlorination/de-chlorination)
- $48M CSIF funded project
- 145.95 hours of plant by-pass in 2013 (Jan – Nov)
Randle Reef

2013 Key Accomplishments and Successes

- All partners committed to a complete funding formula
- Environmental Assessment finalized with Federal approval
- Completion of a City of Hamilton Randle Reef legal agreement
- Finalization of an agreed City of Hamilton cash flow
- Completion of in water sheet pile driving tests

2014 Outlook

- City participation on implementation committees
- Advise project partnership on construction and city issues
- Begin in-water phase of construction (project to be completed in 2022/2023)
- Execute on all terms of the signed Randle Reef agreement

Randle Reef Project Funders

<table>
<thead>
<tr>
<th>Funders</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment Canada</td>
<td>$46.3M</td>
</tr>
<tr>
<td>Ministry of Environment</td>
<td>$46.3M</td>
</tr>
<tr>
<td>City of Hamilton</td>
<td>$14M</td>
</tr>
<tr>
<td>City of Burlington/Halton</td>
<td>$4.3M</td>
</tr>
<tr>
<td>Hamilton Port Authority</td>
<td>$14M</td>
</tr>
<tr>
<td>US Steel Canada</td>
<td>$14M</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$138.9M</td>
</tr>
</tbody>
</table>
Infrastructure Enhancements

- Flood drainage assessments (Binbrook, Old Dundas Road)
- Ongoing Infrastructure Capital Work Enhancements (Fessenden Neighbourhood)
- Stormwater Investigation, Tracking and Coordination (57 Active Individual Flooding and Drainage Incidents)

Future Initiatives

- Flooding & Drainage Study
- Initiate City-wide Climate Change Adaptation Framework
- Infrastructure Capital Work Enhancements
- MRAT
Stormwater

• Insurance

  o “Insured losses from natural disasters in 2013 – including the recent Alberta and Toronto floods – were close to $3 billion, the highest in Canadian history.” - IBC November 21, 2013 Media Release

• Citywide Flooding & Drainage Study

Tindale Court- 2009
Rosedale Area - 2009
Hamilton Water Priority Programs
3P Program - Program Flow Chart

1. Property owner contacts CSR to obtain service request
2. CSR send customer 3P application package
3. Property owner obtains 3 quotes and submits them to the City
4. Staff reviews each submission and issues confirmation letter indicating approval along with a phone call
5. Property owner chooses contractor from 3 estimates
6. Property owner decides on most appropriate work to be done by contractor from assessment form
7. Contractor or property owner to obtain building permit
8. Contractor to complete work (e.g. disconnecting of downspots, installing backwater valve, etc)
9. Property owners pay contractor for completed work
10. City inspects backwater valve installation
11. Submission of completed documentation for reimbursement
12. Staff review and approve payment and forward application to finance
13. Payment to property owner
3P Program

2013 Highlights

Provided $2.7M in 3P grants
(1096 homes - $2.4M Jan – Nov)

2014 Outlook

$2.8 M 2014 Budget

3P Program Highlights (2009 – 2013)

Provided $11.4M in 3P grants
(5929 basements protected and 1918 new homes)
3P Program

3P Program Expenditures

Program opens up for all owner occupied properties
Program runs out of funds and is refunded
Program runs out of funds and is refunded
Program change requiring 3 quotes

Hamilton Water - 2014 Operating and Capital Budget
Biosolids

Biosolids - Land Application Program – 2013 Summary

- Concluding year 3 of optional 5 year contract.
- Zero non-compliance incidents to-date.
- Contractor is currently dealing with storage issues.

<table>
<thead>
<tr>
<th>Year</th>
<th>Wet Tonnes (WT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>41,128</td>
</tr>
<tr>
<td>2012</td>
<td>37,684</td>
</tr>
<tr>
<td>2013 (forecast)</td>
<td>35,500</td>
</tr>
</tbody>
</table>

Estimated 5.8% reduction

Methane Gas Production

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Methane Gas Production (m3)</th>
<th>Cogen Gas (m3)</th>
<th>Waste Gas (m3)</th>
<th>BPU</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>5.9 M</td>
<td>4.9 M</td>
<td>962K</td>
<td>NA</td>
</tr>
<tr>
<td>2012</td>
<td>5.2 M</td>
<td>4.1 M</td>
<td>1.1 M</td>
<td>885K</td>
</tr>
<tr>
<td>2013</td>
<td>*6.5 M</td>
<td>4.9 M</td>
<td>677K</td>
<td>840K</td>
</tr>
</tbody>
</table>

*Total Methane Gas production forecast
Biosolids PPP Canada Funding Application

• In 2011 Council directed staff to pursue P3 Funding while at the same time requesting that Enhanced Treatment alternatives be considered.

• The City applied for and were subsequently screened-in for P3 Canada funding, structured as a 30 year Design, Build, Finance, Operate and Maintain (DBFOM) project delivery model.

• To satisfy the P3 Canada funding requirements, a formal Business Case was developed and structured to accommodate a wide range of technology

• Business Case completed and approved by Council and City has re-applied for Round 4 (procedural) as directed.

• Project team has been working with PPP Canada to help understand the structure and approach of the City’s Business Case.

• Recommendation sent to PPP Canada Board for final approval in June 2013.

• Final outcome expected to be announced by the end of 2013.
Water & Wastewater Planning and Capital

Phase 1: Business Case Phase

   - RFEOI ("Information")
   - Set of Alternatives
   - City directed Alternatives

Business Case:
- Thermal Reduction as PSC
- City DBB vs. P3 Canada DBFOM
- Concludes DBFOM has value
- DBFOM is capital + 30 year O&M
- Project cost built on NPV
- Enhances Treatment technology identified as viable option

   - December, 2013: Council Approval
   - November, 2013: P3 Canada Review and Board Approval

3. May 2012 to June, 2013
   - May 2012: P3 Canada Funding App. Go Ahead
   - Council Approval - Business Case (Go/No Go)

4. January 2014 to December 2014
   - January 2015 to July 2017: Design and Construction

Phase 2: Transaction Phase

5. RFQ Stage ("Screening")
   - RFP Stage
   - Council Approval
   - Transaction Award
   - Design and Construction
# Unaccounted for Water

## 40% Reduction of Unaccounted for Water between 2005 - 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Water Produced (m³)</th>
<th>Water Consumed (m³)</th>
<th>Reduction of Unaccounted for Water between 2005 - 2012</th>
</tr>
</thead>
</table>

### Table: Water Produced vs Water Consumed

<table>
<thead>
<tr>
<th>Year</th>
<th>Water Produced (m³)</th>
<th>Water Consumed (m³)</th>
<th>Value of Unaccounted for Water (@ $0.06 /m³)</th>
<th>% Unaccounted for Water</th>
<th>Value of Unaccounted for Water at Target (15%) (@ $0.06 /m³)</th>
<th>Difference between actual and target ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>25,739,045</td>
<td>25,606,540</td>
<td>$1,544,343</td>
<td>26.2%</td>
<td>$884,023</td>
<td>$660,319.80</td>
</tr>
<tr>
<td>2006</td>
<td>25,606,540</td>
<td>23,640,022</td>
<td>$1,536,392</td>
<td>27.2%</td>
<td>$846,227</td>
<td>$690,165.20</td>
</tr>
<tr>
<td>2007</td>
<td>23,640,022</td>
<td>21,481,476</td>
<td>$1,418,401</td>
<td>25.1%</td>
<td>$848,333</td>
<td>$570,068.20</td>
</tr>
<tr>
<td>2008</td>
<td>21,481,476</td>
<td>11,288,889</td>
<td>$1,288,889</td>
<td>24.9%</td>
<td>$775,600</td>
<td>$513,288.80</td>
</tr>
<tr>
<td>2009</td>
<td>23,538,985</td>
<td>1,412,339</td>
<td>$1,412,339</td>
<td>27.7%</td>
<td>$765,535</td>
<td>$646,804.40</td>
</tr>
<tr>
<td>2010</td>
<td>23,987,156</td>
<td>1,439,229</td>
<td>$1,439,229</td>
<td>28.1%</td>
<td>$768,137</td>
<td>$671,091.60</td>
</tr>
<tr>
<td>2011</td>
<td>21,959,326</td>
<td>$1,317,560</td>
<td>$1,317,560</td>
<td>26.3%</td>
<td>$752,009</td>
<td>$565,551.50</td>
</tr>
<tr>
<td>2012</td>
<td>15,480,363</td>
<td>$928,822</td>
<td>$928,822</td>
<td>20.1%</td>
<td>$693,711</td>
<td>$235,111.00</td>
</tr>
</tbody>
</table>
### Organizational Chart & Complement - 2013

![Organizational Chart]

<table>
<thead>
<tr>
<th>Complement (F.T.E.)</th>
<th>Management</th>
<th>Other</th>
<th>Total</th>
<th># of Staff / Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>10</td>
<td>278.6</td>
<td>288.6</td>
<td>27.9</td>
</tr>
</tbody>
</table>

Dan McKinnon  
Director, Hamilton Water  

Rosa Gonzalez  
QMR - Manager  

Michele Braun  
AA  

Dan Chauvin,  
Director, Water and Wastewater Engineering  

Udo Ehrenberg  
Manager  

Shane McCauley  
Manager  

Bert Posedowski  
Manager  

Ian Routledge  
Manager  

Stuart Leitch  
Manager  

Mark Bainbridge  
Manager  

Hamilton Water - 2014 Operating and Capital Budget  
39
Organizational Chart & Complement - 2014

Dan Chauvin
Director, Woodward Upgrade

Dan McKinnon
Director, Hamilton Water

Rosa Gonzalez
QMR - Manager

Michele Braun
AA

Mark Bainbridge
Director, Planning and Capital

Shane McCauley
Manager

Bert Posedowski
Manager

Ian Routledge
Manager

Stuart Leitch
Manager

Udo Ehrenberg
Manager

Vacant
Manager

<table>
<thead>
<tr>
<th>Complement (F.T.E.)</th>
<th>Management</th>
<th>Other</th>
<th>Total</th>
<th># of Staff / Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>10</td>
<td>278.6</td>
<td>288.6</td>
<td>27.9</td>
</tr>
<tr>
<td>2014</td>
<td>10</td>
<td>278.6</td>
<td>288.6</td>
<td>27.9</td>
</tr>
<tr>
<td>Change</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Hamilton Water – Staffing Trends

--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
# of FTE | 182 | 247 | 260 | 284 | 286 | 286 | 289.6 | 289.6 | 290.8 | 288.6 | 288.6

* 2014 – Requested FTE
Operating Budget
Proposed 2014 Operating Budget

Recommendation: That the 2014 Water, Wastewater and Stormwater Management Rate Supported Operating Budget in the amount of $178,403,366 be approved as per Appendix “A” to FCS13082/PW13085
Assets Useful Life

Linear Water

- More than 100 years: 7%
- 75 - 100 years: 13%
- 50 - 75 years: 14%
- 25 - 50 years: 29%
- Less than 25 years: 37%

Linear Wastewater

- More than 100 years: 12%
- 75 - 100 years: 11%
- 50 - 75 years: 20%
- 25 - 50 years: 32%
- Less than 25 years: 25%

Linear Stormwater

- More than 100 years: 6%
- 50 - 75 years: 10%
- 75 - 100 years: 4%
- 25 - 50 years: 40%
- Less than 25 years: 40%
## Total Expenditures

<table>
<thead>
<tr>
<th>COST CATEGORY</th>
<th>2013 Restated</th>
<th>2014 Base Budget</th>
<th>$ Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Related Costs</td>
<td>$30,748,760</td>
<td>$31,529,770</td>
<td>781,010</td>
<td>2.5%</td>
</tr>
<tr>
<td>Material and Supply</td>
<td>8,418,840</td>
<td>7,854,680</td>
<td>(564,160)</td>
<td>(6.7%)</td>
</tr>
<tr>
<td>Vehicle Expenses</td>
<td>1,231,390</td>
<td>1,280,080</td>
<td>48,690</td>
<td>4.0%</td>
</tr>
<tr>
<td>Building and Ground</td>
<td>13,602,950</td>
<td>13,838,560</td>
<td>235,610</td>
<td>1.7%</td>
</tr>
<tr>
<td>Contractual</td>
<td>14,642,610</td>
<td>14,677,700</td>
<td>35,090</td>
<td>0.2%</td>
</tr>
<tr>
<td>Agencies and Support Payments</td>
<td>2,716,500</td>
<td>2,716,500</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Reserves / Recoveries</td>
<td>1,451,080</td>
<td>1,410,750</td>
<td>(40,330)</td>
<td>(2.8%)</td>
</tr>
<tr>
<td>Cost Allocations</td>
<td>5,132,190</td>
<td>4,716,640</td>
<td>(415,550)</td>
<td>(8.1%)</td>
</tr>
<tr>
<td>Financial</td>
<td>2,183,190</td>
<td>2,333,190</td>
<td>150,000</td>
<td>6.9%</td>
</tr>
<tr>
<td>Capital Financing</td>
<td>91,869,260</td>
<td>98,045,500</td>
<td>6,176,240</td>
<td>6.7%</td>
</tr>
<tr>
<td><strong>TOTAL EXPENDITURES</strong></td>
<td><strong>$171,996,770</strong></td>
<td><strong>$178,403,370</strong></td>
<td><strong>$6,406,600</strong></td>
<td><strong>3.7%</strong></td>
</tr>
</tbody>
</table>
## Revenues and Reserves

<table>
<thead>
<tr>
<th>REVENUES &amp; RESERVES</th>
<th>2013 Restated</th>
<th>2014 Budget</th>
<th>$ Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rates - Metered Fees</td>
<td>(164,986,200)</td>
<td>(170,766,760)</td>
<td>(5,780,560)</td>
<td>3.1%</td>
</tr>
<tr>
<td>Wastewater Abatement Program</td>
<td>440,000</td>
<td>440,000</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Overstrength Agreement</td>
<td>(1,600,000)</td>
<td>(1,625,000)</td>
<td>(25,000)</td>
<td>1.6%</td>
</tr>
<tr>
<td>Sewer Surcharge Agreements</td>
<td>(3,200,000)</td>
<td>(3,927,000)</td>
<td>(727,000)</td>
<td>22.7%</td>
</tr>
<tr>
<td>General Fees and Permits</td>
<td>(2,650,570)</td>
<td>(2,524,610)</td>
<td>125,960</td>
<td>(4.8%)</td>
</tr>
<tr>
<td><strong>TOTAL REVENUES</strong></td>
<td>(171,996,770)</td>
<td>(178,403,370)</td>
<td>(6,406,600)</td>
<td>3.7%</td>
</tr>
</tbody>
</table>
Questions?