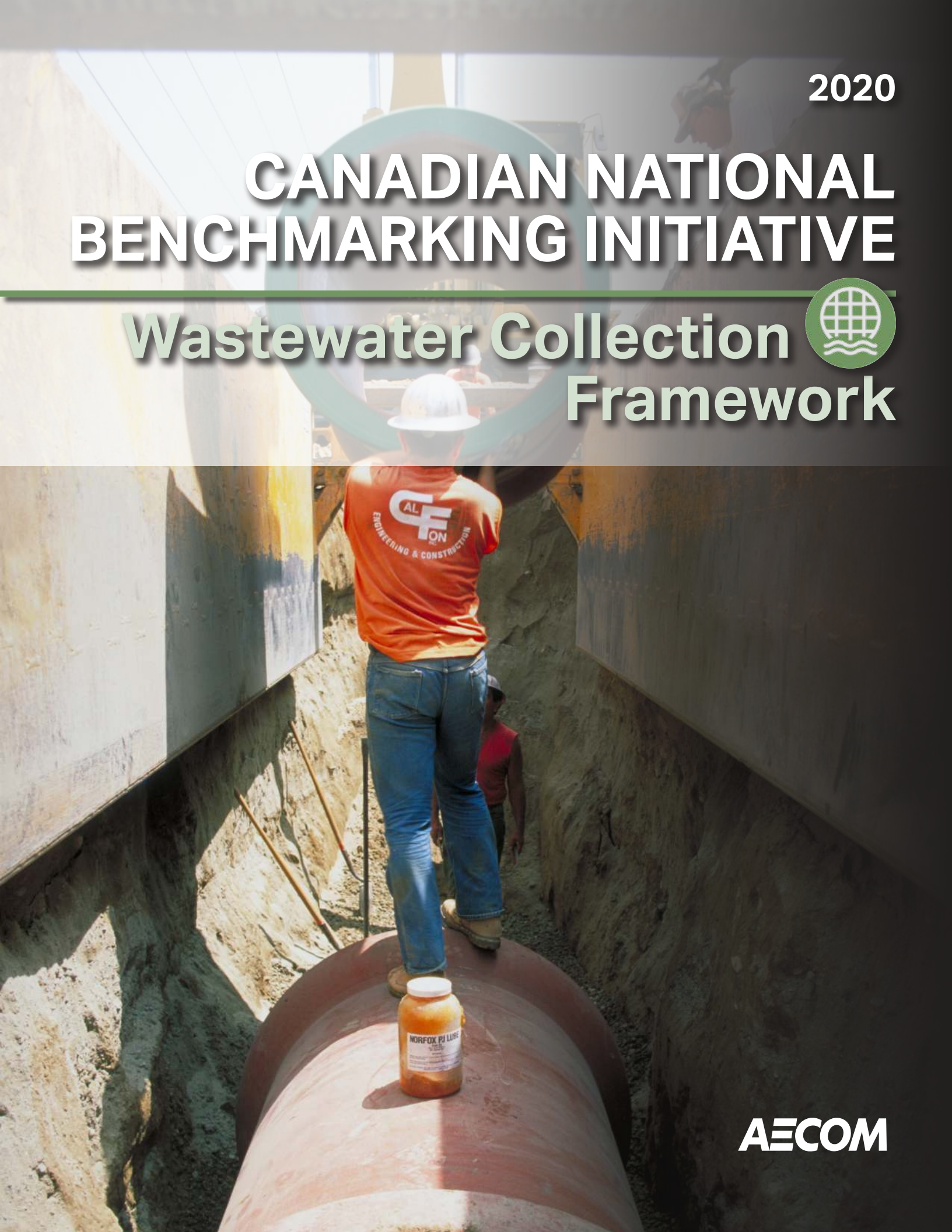


2020

CANADIAN NATIONAL BENCHMARKING INITIATIVE

Wastewater Collection Framework



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| Goal | KPI | Applicable System Type | Breakdown | Units |
|--|--|------------------------------------|--|-------------------------------|
| Ensure Adequate Capacity | Blocked Service Connections | Collection | Blocked Service Connections | # / 1,000 Service Connections |
| | Connections with Sanitary Flooding by Network Issue | Collection | Main Blockage | # / 1,000 Service Connections |
| | | | Other | # / 1,000 Service Connections |
| | | | PS Failure | # / 1,000 Service Connections |
| Reported Overflows due to Capacity | All Systems | Reported Overflows due to Capacity | # / 100 km | |
| Have Satisfied and Informed Customers | Wastewater Related Customer Complaints | All Systems | Wastewater Related Customer Complaints | # / 1,000 People Served |
| Meet Service Requirements with Economic Efficiency | Annual O&M Cost as a Percentage of Replacement Value | All Systems | Annual O&M Cost as a Percentage of Replacement Value | % |
| | Cost of Cleaning Hydraulically | Collection | Cost of Cleaning Hydraulically | \$ / km Length Cleaned |
| | FTEs | All Systems | Laboratory | # / 100 km Length |
| | | | O&M | # / 100 km Length |
| | | | Program Support | # / 100 km Length |
| | | | Supervisor/ Management | # / 100 km Length |
| | | | Tech / Eng | # / 100 km Length |
| | O&M Cost + Capital Reinvestment | All Systems | Capital Reinvestment | ('000 \$) / km Length |
| | | | O&M | ('000 \$) / km Length |
| | Pipe and Pump O&M Cost | All Systems | Pipe | ('000 \$) / km Length |
| | | | Pump | ('000 \$) / km Length |
| | Pump Station Energy Consumption | All Systems | Pump Station Energy Consumption | kWh / Pump Station Horsepower |
| | Pump Station O&M Cost | All Systems | Pump Station O&M Cost | \$ / Pump Station Horsepower |
| | Sewer Charge for a Typical Size Residential Connection using Canadian Average Consumption Rate (210m ³ of Water / Year) | Collection | Sewer Charge for a Typical Size Residential Connection | \$ |
| | Total Cost to Provide Wastewater Services | All Systems | Capital Cost | \$ / Population Served |
| | | | Customer Billing | \$ / Population Served |
| | | | Debt Servicing | \$ / Population Served |
| | | | Indirect Cost | \$ / Population Served |
| | | | O&M Cost | \$ / Population Served |
| | | | Regional Treatment Cost | \$ / Population Served |
| Total O&M Cost | All Systems | Energy | \$ / km Length | |
| | | Equipment and Materials | \$ / km Length | |
| | | External Contracted Services | \$ / km Length | |
| | | Internal Contracted Services | \$ / km Length | |
| | | Other Costs | \$ / km Length | |
| | | Staff Training | \$ / km Length | |
| | | Wages | \$ / km Length | |
| Utility Indirect Costs / Total Utility Revenue | All Systems | Administrative Overheads | % | |
| | | Dividends Paid to City | % | |
| | | Property Taxes | % | |

CANADIAN NATIONAL BENCHMARKING INITIATIVE

| Goal | KPI | Applicable System Type | Breakdown | Units |
|---|--|--|--|-------------------------------|
| Protect the Environment | Reported Overflows by Cause | All Systems | Capacity | # / 100 km Length |
| | | | Internal Blockage | # / 100 km Length |
| | | | Other | # / 100 km Length |
| | | | PS Failure | # / 100 km Length |
| Provide a Safe and Productive Workplace | Distribution of Workforce by Age | All Systems | 20-30 yrs | % |
| | | | 31-40 yrs | % |
| | | | 41-50 yrs | % |
| | | | 51-60 yrs | % |
| | | | 61-70 yrs | % |
| | Field Accidents with Lost Time | All Systems | Field Accidents with Lost Time | # / 1,000 O&M Labour Hours |
| | Lost Hours Due to Field Accidents | All Systems | Lost Hours Due to Field Accidents | # / 1,000 O&M Labour Hours |
| | Sick Days Taken | All Systems | Sick Days Taken | # / O&M Employee |
| | Total Overtime Hours / Total Paid O&M Hours | All Systems | Total Overtime Hours / Total Paid O&M Hours | % |
| | Unavailable O&M Hours / Total Paid O&M Hours | All Systems | Expended Banked Time | % |
| | | | Long Term Leave | % |
| | | | Other | % |
| | | | Other Training | % |
| Safety Training | | | % | |
| Sick Time | | | % | |
| Union Time | | | % | |
| Vacation | % | | | |
| Provide Reliable Service and Infrastructure | Capital Reinvestment / Replacement Value | All Systems | Capital Reinvestment / Replacement Value | % |
| | Corrective Maintenance Hours / Total Maintenance Hours | All Systems | Corrective Maintenance Hours / Total Maintenance Hours | % |
| | Forcemain Sewer Repairs | All Systems | Emergency | # / 100 km |
| | | | Scheduled | # / 100 km |
| | Gravity Sewer Repairs | All Systems | Emergency | # / 100 km |
| | | | Scheduled | # / 100 km |
| | Number of Blocked Sewers by Cause | Collection | Debris | # / 100 km |
| | | | Grease | # / 100 km |
| | | | Roots | # / 100 km |
| | | | Structures | # / 100 km |
| | | | Unknown | # / 100 km |
| | Percent of Length CCTV Inspected | All Systems | Percent of Length CCTV Inspected | % |
| | Percent of Manholes Inspected | All Systems | Percent of Manholes Inspected | % |
| | Percent of Manholes Repaired and Replaced for I&I | All Systems | Percent of Manholes Repaired and Replaced for I&I | % |
| | Percent of Sewer Length Renewed | All Systems | Relined | % |
| | | | Replaced | % |
| | Pump Station Failures | All Systems | Pump Station Failures | # / Pump Station |
| | Service Connection Repairs | Collection | Emergency | # / 1,000 Service Connections |
| | | | Scheduled | # / 1,000 Service Connections |
| | Total Length of Sewer Cleaned / Total Sewer Length | All Systems | Total Length of Sewer Cleaned / Total Sewer Length | % |
| Total Maintenance Hours | All Systems | Corrective | Hours / km Length | |
| | | Preventative | Hours / km Length | |
| Volume of CSOs as a Percentage of Total Wastewater Volume | All Systems | Volume of CSOs as a Percent of Total Wastewater Volume | % | |

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