

## Webinar 1: Proposed Levels of Service

### Questions & Answers

*Note: Responses below have been colour-coded as follows:*

*General response from AMO / AMONTario*

*Kareem Mostafa*

*Troy Mander*

1) *What would be considered an applicable OPERATING budget cost that would be considered in LoS?*

**Troy Mander:** The legislation specifies “An estimate of the annual costs for each of the 10 years of undertaking the lifecycle activities identified in subparagraph i, separated into capital expenditures and significant operating costs.” The lifecycle activities are those activities and costs required to maintain, repair, rehabilitate or replace assets to ensure desired service levels are maintained.

The municipality has discretion for deciding what the “significant” operating costs are, but the more the better for the municipality. The municipality could also opt to phase additional operating costs into successive AMP updates.

The operating costs municipalities select should be the costs tied to ongoing activities needed to maintain asset function, safety and reliability and/or activities that maximize the assets’ useful service life. AMONTario refers to this class of operating costs as “operating maintenance (OM)” costs to distinguish them from other operating costs associated with using the assets or providing services (e.g. overhead costs such as electricity, natural gas, internet, phone, wages and other overhead costs not associated with the “operating maintenance” activities).

Examples of Operating Maintenance Costs include:

- Snow removal
- Road patrols
- Street sweeping,
- Line painting
- Crack sealing (if not in the capital budget)
- Re-graveling (if not in the capital budget)
- Shoulder and ditch maintenance
- Bridge washing
- Condition assessments/regular inspections of all asset types
- Equipment/system testing
- Sewer flushing/cleaning
- Watermain flushing
- Painting
- Cleaning
- Grounds maintenance

Avoid using proposed OMLOS targets that have financial measures. The objective is to derive the lifecycle costs based on the technical LOS associated with the lifecycle activities. Potential measures include:

- length/year
- units/per year
- % of system per year
- units/length
- hours/year
- # times per year
- every # of years
- asset condition rating
- meeting a regulatory requirement (describe regulation)

2) *Does AMO has a sample reporting format or guide for the Phase 4 Filing on July 1st, 2025? We want to do it inhouse and need some guidance. Thank you.*

AMO does not have a sample reporting format or guide, specifically, but AMO and AMONTario have worked together on a series of excel-based toolkits, and corresponding instructions (including our new simplified LOS Toolkits available [here](#)). These excel-based tools address asset information & hierarchy, levels of service, risk assessment, and financial strategy (including lifecycle costs), and were developed to support municipalities in complying with the requirements of O.Reg. 588/17.

The most recent version of these toolkits were shared as part of our 2024 webinar series, and are available [here](#). Reach out to [info@amontario.ca](mailto:info@amontario.ca) if you need more detailed instructions.

Additionally, we can provide the following guidance on the typical sections that should be included in a detailed Asset Management Plan. You can rearrange sections as suits your needs, but this format will satisfy the requirements of O. Reg. 588/17.

1. Introduction
  - Overview and why we need a plan.
2. State of the Assets
  - Inventory and condition information.
3. Levels of Service
  - Objectives and performance targets.
4. Life Cycle Management
  - How we provide the service and plan for the future.
5. Risk Management
  - The likelihood and consequence of future events.
6. Financial and Resource Plan
  - What it will cost and how we will pay for it
7. Improvement and Monitoring
  - How will we continuously improve the plan.

- 3) *How do you bring a proposed LOS for:*
- a. *Percentage of properties in municipality resilient to a 100-year storm.*
  - b. *Percentage of the municipal stormwater management system resilient to a 5-year storm*

**Kareem Mostafa:** These are among the LOS where it is best to approach them qualitatively as they depend on multiple factors that cannot be quantitatively modelled.

**Troy Mander:** Agree with Kareem

These are examples of KPIs. Some municipalities report them to meet the regulation reporting but do not use them as LOS.

To give an idea of how to approach developing proposed LOS related to the above reporting requirements by the Province, AMONTario's utilizes two types of Performance Asset Levels of Service (ALOS).

- 1- **Environmental Resiliency** – Includes criteria to assess the resiliency of roads and bridges to 5, 10, 50 and 100-year storms and the resiliency of water and wastewater treatment plants, pumping stations, treated water storage and municipal buildings to 100-year storms
- 2- **Capacity to Meet Demands** – In the context of storm water management, it includes criteria to assess storm sewer and overland system capacity (e.g. ditches, swales, stormwater retention ponds) to address 5, 10, and 100-years storms.

The criteria underpinning the above Performance ALOS are selected from MTO and MOE design guideline documents. Municipalities can choose from the criteria the ones they feel are applicable to their needs and/or modify the criteria to suit local considerations and design codes. The assessment of the criteria can be done as a desk top exercise and improves with users' knowledge of the systems and assets and the amount and the accuracy of data that is available.

The updated Performance ALOS assessment tools will be provided by AMONTario and made available around April 6<sup>th</sup>.

- 4) *A good proposed Asset Level of Service (ALOS) for water pipelines could be "70% of water pipelines in good or better condition".*

**Troy Mander:** This is a KPI, not a very good LOS and therefore creates the dilemma articulated in the next sentence

*However, even if the current status indicates that 85% of water pipes meet this condition, it may not provide the full picture. For instance, if just 1% of the total pipe length represents a highly critical section of a main feeder pipe in poor condition, the system could still be at significant risk.*

*What about incorporating criticality (at the asset system level) into the ALOS.* **Troy Mander:** The unique criticality of the different pipe types should be one of the defining factors of the asset class (See below).

*Then, A more comprehensive ALOS might be:*

*"70% of water pipelines in good or better condition and 90% of highly critical pipe sections in good or better condition."*

**Troy Mander:** Again, this is a KPI, not an effective LOS

*This approach would require assessing the criticality of the entire pipe network, using a Consequence of Failure analysis at the System/Network Level.*

**Troy Mander:** This level of detail probably not necessary for understanding the broader implications of planning, prioritizing and managing the risk of more critical watermains.

Does this revised ALOS make sense? See an alternative approach below.

**Example**

Two key points:

- A. The municipality should be using consistent LOS measures applied consistently to each asset class (See Slide 7 of the presentation: Current TLOS vs Proposed TLOS).
- B. Asset Class are groups of like assets providing a distinct role in providing services and governed/measured by common Technical Levels of Service targets

The following approach is recommended.

Create separate asset classes according to pipe function and criticality. (criticality/consequences of failure can become quite evident without detailed modelling). For example (each municipality will choose their own definitions):

<b>Watermain Asset Class</b>	<b>Proposed LOS (max lifetime breaks/km of pipe)</b>	<b>Criticality Rating</b>
Transmission Mains	No breaks	Very High
Feeder mains 600mm and larger	No Breaks	High
Feeder mains < 600mm to >300mm	1 break	High-Medium
Local water mains 300mm and smaller	3 breaks	Low
Critical Local Water mains 300mm and smaller (as defined by the municipality such as single feeds supplying a neighbourhood or a feed to water dependant industry/industries, supply to hospital, LTC facility or school etc.)	1-2 breaks  (may have a higher tolerance for breaks than feeder mains because there is less environmental damage and/or alternate feeds)	Medium

The above method set clear targets for each watermain asset class based on asset function and criticality and provides transparency identify which assets are deficient and creating undue risk to service reliability and safety.

Note that the consequences of failure for these asset classes are better assessed in the context of all the organization's asset classes using an enterprise risk management approach (Webinar #2 on March 20).

5) *Any tips and tricks from the City of Ottawa as they went through the level of service exercise with the public/Council? Any lessons learned?*

**Kareem Mostafa:** Don't reinvent the wheel. Make use of what is already out there rather than creating new LOS measures. For instance, many of the LOS metrics defined in the Library AMP were already defined by the Library board while creating their master plans. The City already consults with public and Council all the time, and that feeds into master plans, policies, etc. so we rely on those consultations for the AMPs work.

6) *Apologies, this isn't related to Proposed LOS, but we do know what/if consequences municipalities will face if they do not meet the July 1, 2025 requirement to have a 588/17 compliant AMP completed?*

A: We can't speak to consequences, since that is determined by the Ontario Ministry of Infrastructure (MOI), but best practice is to reach out to MOI if you expect to be late meeting the deadline to avoid any potential consequences.

7) *What is Ottawa's target level of service in the AMP? Are you using the constrained or unconstrained?*

**Kareem Mostafa:** While we provide both LOS in the AMP, we rely on the unconstrained modelling results to fulfill the official "target LOS" requirements.

8) *Is it same thing either we make track of the O&M cost or OMLOS?*

**Troy Mander:** See the answer to Question 1. OMLOS refers to LOS targets that relate to "operating maintenance" as opposed to other non-maintenance-related operating costs such as overhead.

9) *Similar to criticality, what about condition monitoring? AS an example Troy used the example of X amount of failures of a water distribution pipeline before replacement. However, if the pipe was flawed in two sections (as example) then the remaining of pipeline is in relatively very good condition, but will be replaced based on a non-condition assessment*

**Kareem Mostafa:** It depends on the lowest denomination which the municipality tracks, and the rehabilitation strategies the municipality follows. For the pipe example, if the condition is tracked by the pipe, then this pipe would appear to be in a bad condition and eligible for replacement. However, if the city can track the pipes in sections, and replace sections of pipe as opposed to the whole thing, then it might be more cost effective than a full replacement.

**Troy Mander:** I agree with Kareem.

The number of breaks along a section of main is a relative predictor of pipe condition but by no means a guarantee that the entire main is deficient. Unless the breaks are isolated to a very tight location and happening in quick succession (which might indicate a material or installation deficiency), it is probably best to plan for a node-to-node replacement (e.g. valve to valve) to maintain the integrity of the watermain (a partial section repair could introduce a weak point).

There are no perfect answers when assesses/predicting the best option for replacing or repairing a watermain. Factors to consider when considering how to address a breaking watermain(s):

1. How long do the watermains of this material typically last and how old is the subject watermain?
2. How long is the entire section of main and are the breaks localized to a very short portion of that section? If the section is very long, would be worthwhile investigate the section/and or make a maintenance repair?
3. What is the municipality's risk tolerance for future breaks along the rest of the watermain after doing a partial section repair?
4. Is the age and condition (number of breaks) of nearby mains comparable to the main that is breaking or is the affected watermain an anomaly?
5. Are there plans for road reconstruction or resurfacing and if so, what is the risk tolerance for future breaks with new pavement?