



# ***Developing Quality Management Standards for Wastewater and Stormwater Infrastructure***

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Amna Tariq  
Senior Specialist, Water and Climate Change Science

# Presentation Outline

- Climate Change Impacts
- Quality Management Standards
  - Policy and Endorsement
  - Systems Description
    - Existing Conditions
    - Climate Change Conditions
  - Continual Improvements
- Next Steps









# Nutrients impacting recreation and drinking water costs







# LEGEND

-  Cooksville\_Roads
-  Flood inundation - Peterborough Trent U July 14-15, 2004
-  Flood inundation - Toronto Nashdene Yard, August 19, 2005
-  Flood inundation - Hamilton, Stoney Creek, July 25-26, 2009
-  Flood inundation - Mississauga, Valley Blvd August 4, 2009
-  Cooksville\_Floodlines
-  Conduits
-  Outfalls

## Riverine Flooding *Observed vs. Predicted*







# Quality Management Standards (QMS)

- Consistent approach to evaluate and manage risks to infrastructure.
- Proper documentation of management procedures to demonstrate due diligence
- Reduce liability associated with regulatory non-compliance
- Support continual improvement within municipal operations in light of climate change
- Support Lake Ontario/Lake Erie Management Plans
  - Provide source water protection
  - Nutrient management i.e.: algae blooms

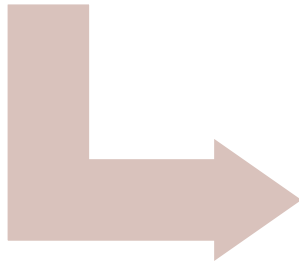


ACS Registrars, 2015

# Policy and Endorsement

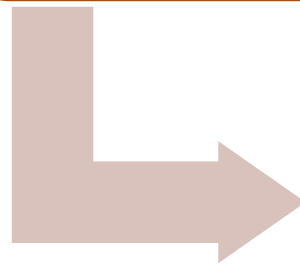
Step 2: QMS Policy

- QMS policy firms documented commitments, assurance and importance



Step 3: Commitment and Endorsement

- Endorse operational plan in writing and top management signs off on it.



Step 5: Organizational Structure, Roles and Responsibilities

- Identifies the operating authorities including their respective roles, responsibilities and authorities.



# System Description - Existing Conditions Scenario

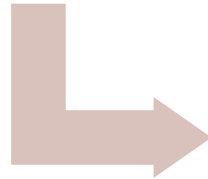
Step 7:  
Stormwater  
Wastewater  
System  
Description

- Provide an overview/basic understanding of the system, process description, flowchart, treatment processes, areas without SWM.



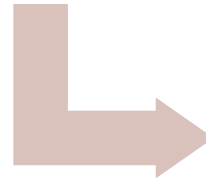
Step 8:  
Infrastructure  
Maintenance,  
Rehabilitation  
and Renewal

- Document a summary of maintenance, rehabilitation and renewal programs. Monitor effectiveness of the maintenance and retrofit programs to meet targets.



Step 9:  
Sampling,  
Testing  
and  
Monitoring

- Define current monitoring programs in place i.e.: what level of control, water quality etc.
- Establish and implement procedures for sampling, testing and monitoring.



Step 19:  
Calibration  
and  
Maintenance  
of  
Measurement  
and  
Recording  
Equipment

- Develop a procedure for the calibration and maintenance of sampling, testing and monitoring equipment.

# Risk Assessment – Climate Change Scenario

## Step 10: Risk Assessment

- Complete a Risk Assessment for Stormwater/wastewater infrastructure

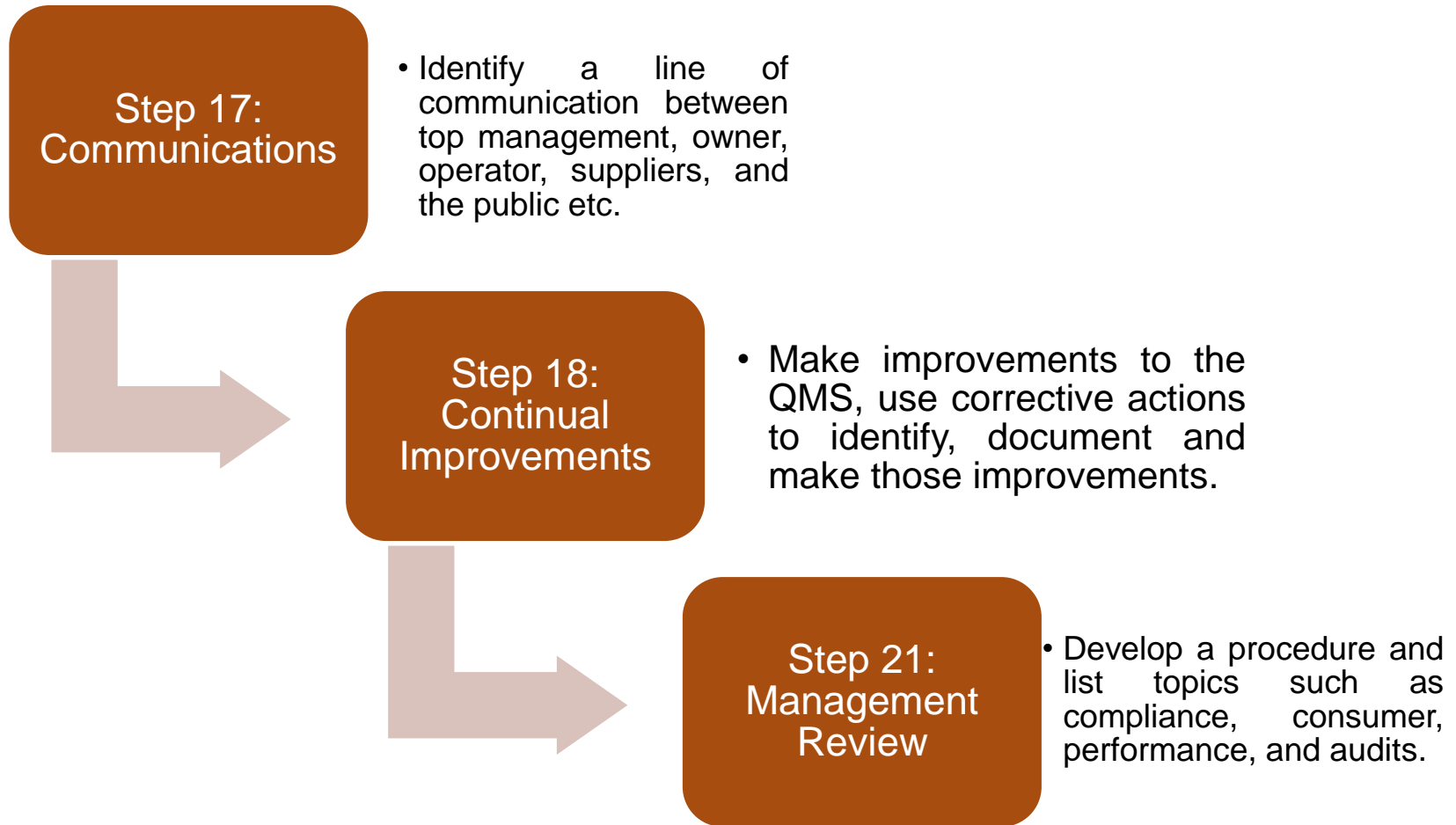
## Step 11: Risk Assessment Outcomes

- Part of Step 10. *In Phase 1, infrastructure is assessed under existing conditions and in Phase 2 under climate change conditions.*

## Step 13: Emergency Management

- Identify unforeseen risks and have processes, procedures and contacts in place to respond.
- Develop SOPs

# Continual Improvements





# Next Steps

## Stormwater QMS – Pilot Town of Caledon (2017 – 2019)

1. Complete literature review and case study: July – Aug 2017
2. Recruit advisory committee members: Jun 2017
3. Finalize QMS Steps – Aug 2017
4. Pilot QMS for Town of Caledon: Aug 2017 – Feb. 2018

**Be part of our advisory committee....**

**Contact us:**

**Amna Tariq**

**[atariq@creditvalleyca.ca](mailto:atariq@creditvalleyca.ca)**

**905-670-1615, ext.: 302**

# Questions