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COMMUNICATION
FAA - MAY 4/15
ITEM - 2

Stormwater Infrastructure Funding Study

Finance, Administration and Audit Committee

May 4, 2015

Presentation Objectives

- Present to Committee a status update of the Stormwater Infrastructure Funding Study
- Receive feedback from Committee on the suggested stormwater program and funding model

Background

- Staff received direction from Council on April 8, 2014 to explore funding models for a stormwater program through a Stormwater Infrastructure Funding Study

Why do we need to find a funding source for stormwater?

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Funding Model Preliminary Rate Impacts

Property Type	2015 Modified Flat Rate Model	
	2015	2025
Residential (low density)	$30.87	$63.71
Commercial	$623.24	$1,313.02
Institutional	$1,949.12	$4,100.43
Industrial	$522.21	$1,100.13

Vaughan's Current Stormwater Management Assets

- The public portions of the City's stormwater system include:
  - Over 1,000 km of pipes
  - Approx. 12,000 manholes
  - Over 18,000 catch basins
  - 555 storm sewer outfalls
  - Over 2,500 culverts
  - 143 stormwater ponds
  - 28 km of drainage ditches

- Value of existing stormwater system is approximately $1.3B

Stormwater Infrastructure Funding Study Components

- Engagement and Communication Plan
  - Stormwater Advisory Committee
    - Springfarm Ratepayer's Association,Glen Sheilds Ratepayer's Association, Mackenzie Ridge Ratepayer's Association, Village of Woodbridge Ratepayer's Association, Beverly Glen Ratepayer's Association
    - Vaughan Mills, BILD, Canada's Wonderland
    - Region of York, York Housing Authority, York Region District School Board
    - Sustainable Vaughan, Earth Rangers, TRCA
  - Public Information Centre
- Development of a Stormwater Program
- Funding Model Analysis

Program Goal

The goal of the Stormwater Management Program is to:

- protect public health and safety
- protect the City's valuable natural and man-made resources by minimizing the impacts of stormwater runoff through on-going system assessments
- proactive maintenance and operation of the City's assets
- well-considered investment in system upgrades and expansion

Development of Stormwater Program

- Assess gaps in current program
- Risks to maintaining current program
- Stormwater level of service program analysis

Current Program Areas

Four key areas work together in the stormwater program:

i. **Stormwater Operation and Maintenance:** Move from reactive to a proactive, priority-based asset management program.

ii. **Capital Improvements:** Program funding should be tied to level of service and sustainable financial program goals, be coordinated with on-going planning and growth initiatives and include public participation as a fundamental component.

iii. **Asset Management:** Services based on an assessment of actual need and provided as efficiently as possible.

iv. **Stormwater Planning and Engineering:** Program plan should be coordinated with on-going planning and growth initiatives and should include public participation as a fundamental component.

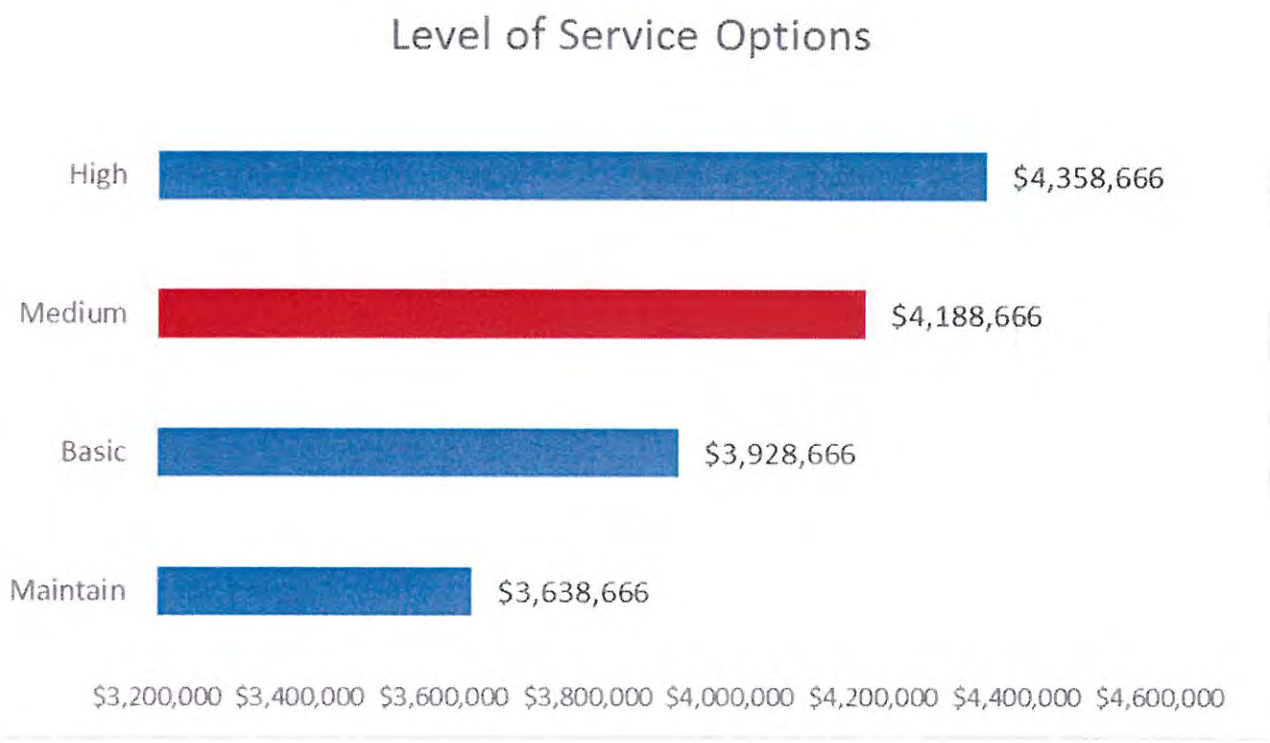
Current Program Gap Assessment

Program Area	Current Program	Potential Risks
Stormwater Operations and Maintenance	Routine maintenance plus a reactive plan (complaint driven). Not always able to stay ahead of the storms, keep all systems clear of debris.	Without increasing capabilities the priority work will not get done in time – continued risk of flooding, erosion, water quality impairment
Capital Improvements	Limited staff to manage the numerous (> 50) projects identified, or manage external assistance; only able to initiate 2 or 3 per year	Potentially significant property damage, increase in risk to public health, safety, and loss of system performance
Asset Management	Limited information on pond and sewer conditions. CCTV underway for underground system; limited pond monitoring	Aging infrastructure left unrepaired may deteriorate to point that costly replacement required; inefficient use of resources, inability to focus resources on areas where maintenance needed the most
Stormwater Planning and Engineering	Primarily subdivision review, limited site plan review; beginning to embrace new technology e.g. green infrastructure	Increased growth will further exacerbate the standard review; assumption of deficient infrastructure

Address Gaps in Current Program

- A strategy for change was evaluated for each gap:
  - **Maintain:** continue with the current program
  - **Basic:** refocus of existing resources or add funds as a first step in enhancement to respond to service needs
  - **Medium:** addition of staff/contractor/materials to increase capability to address service needs in a moderate approach
  - **High:** addition of staff/contractor/materials to address service needs as the highest priority in an aggressive approach

Level of Service - Operations and Maintenance

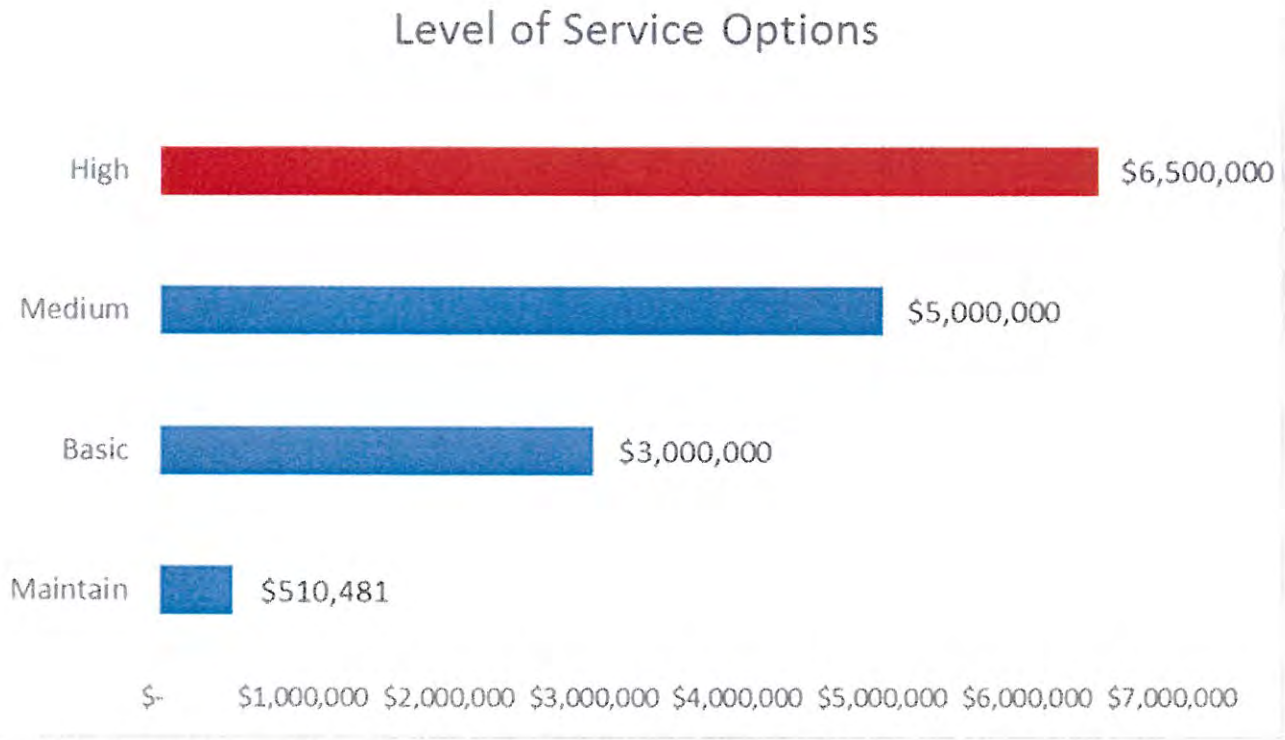


Outcomes

- High
  - Add 1 field crew, plus equipment and larger increase maintenance budget
  - 0.34% of asset value
- Medium
  - Add 1 field crew, plus equipment and larger increase maintenance budget
  - 0.32% of asset value
- Basic
  - Add 1 field crew and increase maintenance budget
  - 0.30% of asset value
- Maintain
  - Reactive/routine maintenance
  - 0.28% of asset value

Risk: Deterioration of infrastructure increases performance failures resulting in flooding, poor water quality, and increased costs over time

Level of Service – Capital Improvements

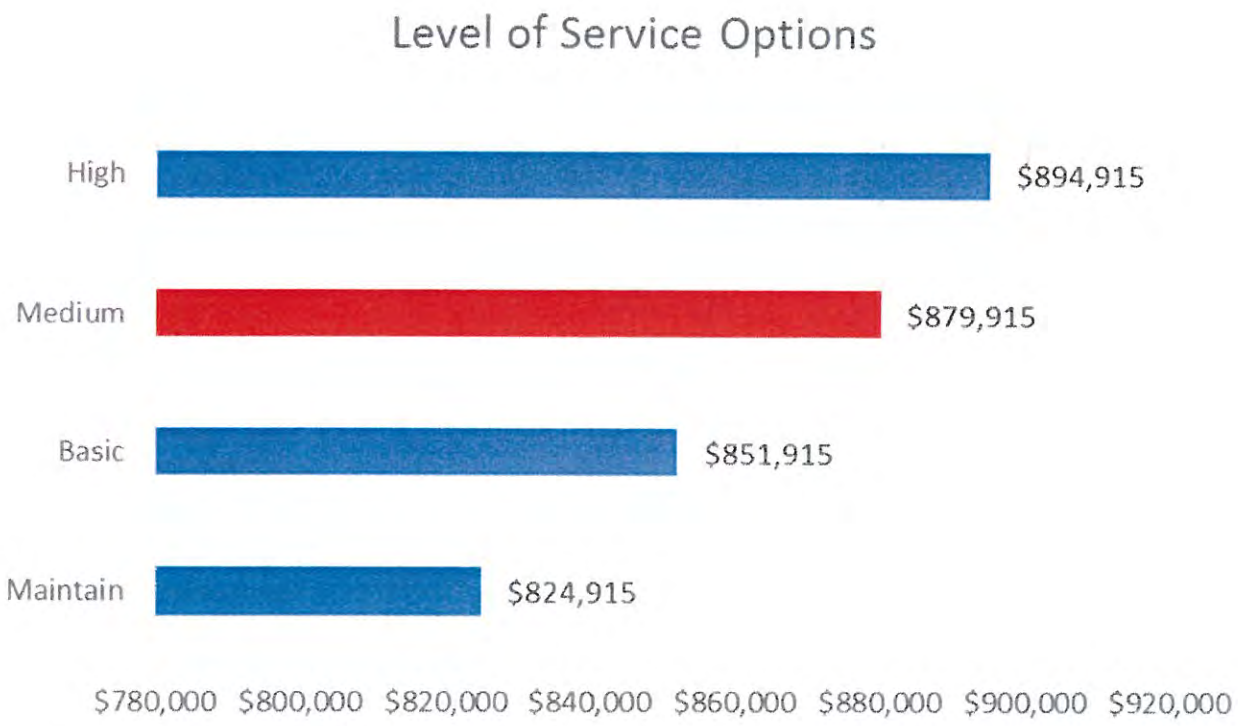


Outcomes

- High
  - Increase spending to reduce backlog in 10 years
  - Additional staff resources
  - 0.50% of asset value
- Medium
  - Increase spending to reduce backlog in 13 years
  - Additional staff resources
  - 0.38% of asset value
- Basic
  - Increase spending to reduce backlog in 22 years
  - 0.23% of asset value
- Maintain
  - 1-2 projects annually
  - 0.04% of asset value

Risk: Not able to address high priority flooding, erosion, and water quality retrofits in a timely manner and capital backlog grows. Cause potential property damage, increase in risk to public health and loss of system performance

Level of Service – Asset Management

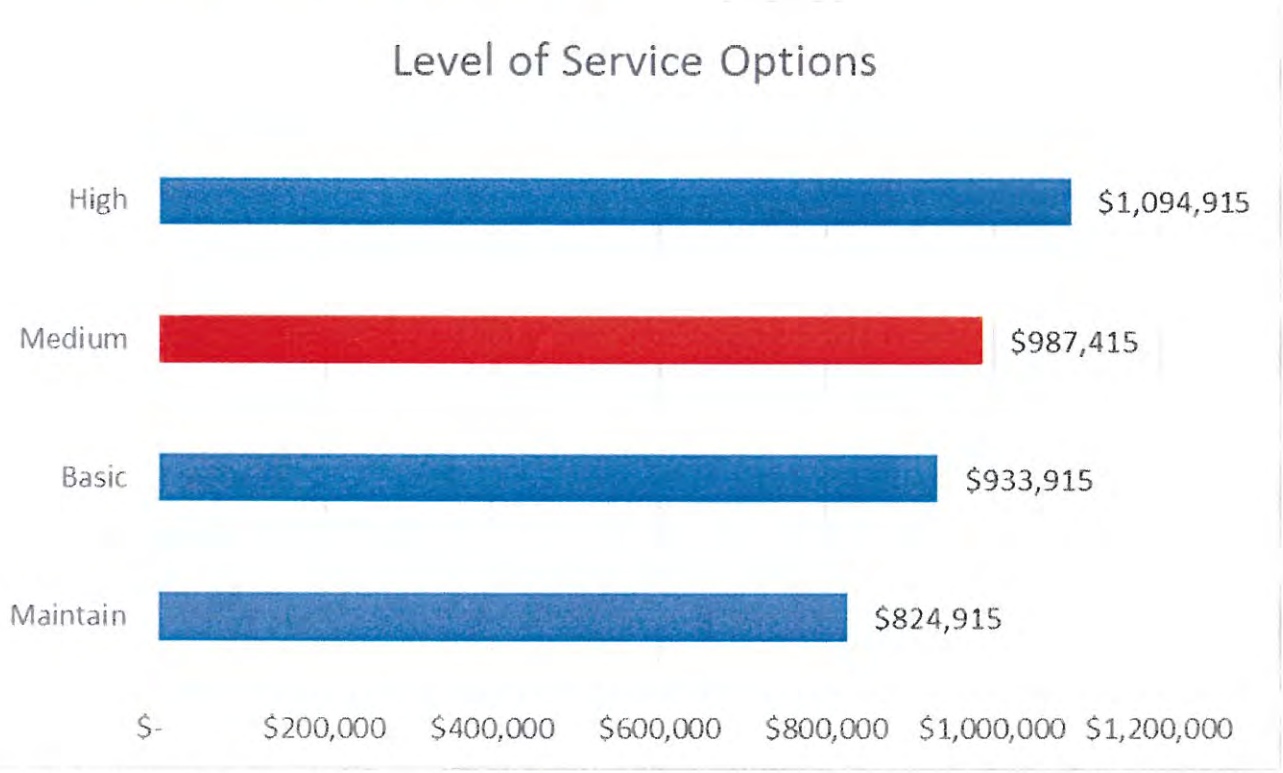


Risk: Backlog grows without capabilities to address in a timely fashion, continuing localized flooding and reduced water quality

Outcomes

- High
  - Builds on Medium LOS, adding 1km of storm sewer replacement annually
- Medium
  - Increase annual spending to address up to 1% of inspected pipes
  - Significant repairs addressed
- Basic
  - Continue CCTV inspections
  - Modest increase in annual spending
- Maintain
  - Continue CCTV inspections
  - Emergency based response

Level of Service – Planning and Engineering



Outcomes

- High
  - Add 1 part-time and 1 full time engineer and inspector to review and approve installed infrastructure
- Medium
  - Add 1 full-time engineer and inspector to review and approve installed infrastructure
- Basic
  - Add 1 part-time engineer and inspector to review and approve installed infrastructure
- Maintain
  - Reactive increased pressure for inspections due to growth

Risk: Potential exists for new infrastructure and new technologies not meeting City standards and to reallocate staff efforts will reduce tie on other duties

EXAMPLE OF FUTURE BENEFIT OF INCREASED FUNDING AND MAINTENANCE

Increased funding and maintenance will mean that blocked inlets (e.g. top left) will no longer cause temporary flooding (centre) and frequent storms will be managed without flooding (right)

EXAMPLE OF FUTURE BENEFIT OF INCREASED FUNDING AND MAINTENANCE

Increased funding and maintenance will mean that sediment-clogged stormwater management ponds (e.g. top left) will be cleaned and returned to their full function for flood, erosion and water quality control (right)

Summary of Program Resource Demand

- 2015-2025 Operating and Capital Forecast based on level of service investments

	2015 Budget	2016 Estimate	Annual Increase 2017-2025
Operating	$ 5,288,500	$ 6,031,100	2.8%
Capital	$ 510,500	$ 6,810,500	constant
Total	$ 5,799,000	$ 12,841,600	1.1%

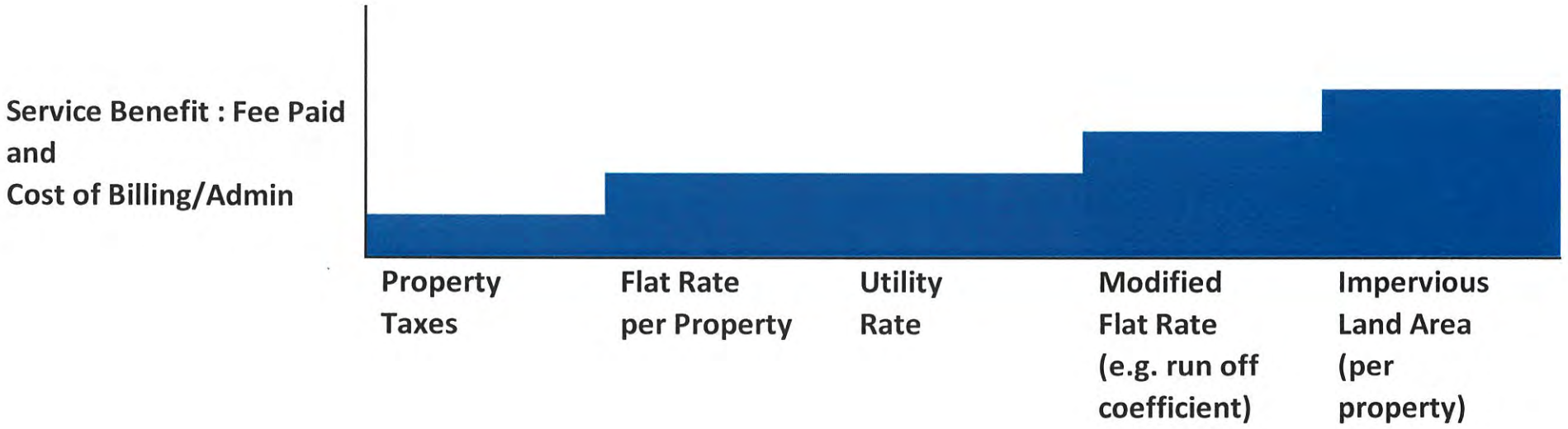
Funding Model Analysis

- Current program funding
- Funding Options
- Proposed funding model

Current Program Funding

- Stormwater program currently funded from multiple sources:
  - Wastewater Rate – portion of the wastewater rate has been dedicated to fund stormwater operating activities
  - Tax Levy - street sweeping, ditch maintenance, etc., which are being performed by the Roads Division of the Transportation Services and Parks & Forestry Operation Department are funded by the general tax levy
  - Gas Tax - storm pond maintenance/ cleaning is funded by a portion of gas tax revenues

Funding Model Options



Recommended Funding Model

- Modified flat/utility rate based on run-off coefficient funding model is recommended:
  - distinct funding source for stormwater program
  - better alignment of costs and benefits (i.e. applies run-off coefficient as defined in the City's design standards)
  - funding model is easy to understand and with low cost of implemention
  - favoured by the Stormwater Advisory Committee
  - used by other Region of York municipalities

Funding Model Preliminary Rate Impacts

Property Type	2015 Currrent Funding Model (i.e. taxes and wastewater rates)		2015 Modified Flat Rate Model	
	2015	2025	2015	2025
Residential (low density)	$69.95	$144.58	$30.87	$63.71
Commercial	$868.07	$1,929.08	$623.24	$1,313.02
Institutional	$661.58	$1,498.67	$1,949.12	$4,100.43
Industrial	$983.32	2,151.15	$522.21	$1,100.13

- Increase customer base (i.e. 20,000 benefitting landowners currently not included within wastewater rate base)

Next Steps

- The stormwater infrastructure funding study will be completed next month
  - Exemption/relief program
  - Stormwater Advisory Committee
  - Public Information Centre
- Final recommendations and a potential implementation strategy is proposed to be presented to Finance, Administration and Audit Committee later this year