



**CAPITAL DISTRICT
REGIONAL PLANNING
COMMISSION**

Spring 2021 Webinar Series
WEDNESDAY, APRIL 29, 2021

**ACHIEVING SUSTAINABILITY
THROUGH INFRASTRUCTURE PLANNING**

DELAWARE ENGINEERING, D.P.C.

CIVIL AND ENVIRONMENTAL ENGINEERING
ALBANY • ONEONTA • RED HOOK • MONTICELLO • GOSHEN

ABOUT DELAWARE ENGINEERING:

- Originally founded in 1987, Delaware Engineering, D.P.C. is a multi-disciplinary engineering firm with offices in Albany, Oneonta, Red Hook, Monticello, and Goshen.
- Our clients are predominantly municipalities, and we specialize in the design, permitting, financing and construction of public infrastructure.
- We serve clients in the Capital District, the Adirondack and North County region, the upper and lower Hudson Valley, the Southern Tier and Catskill Mountains.



LACK OF PLANNING IS A COMMON ISSUE:

- Some communities take a “**fix it when there is a problem**” approach toward infrastructure improvements, which is **neither sustainable nor cost-effective**.
- Many engineers only focus on “**fixing what is broke**” and end up missing the **big picture** in terms of system-wide improvements that could be undertaken at the same time.
- Local officials sometimes have a “**build it and they will come**” approach toward infrastructure, and falsely assume that water/sewer capacity is the only factor **driving future growth**.

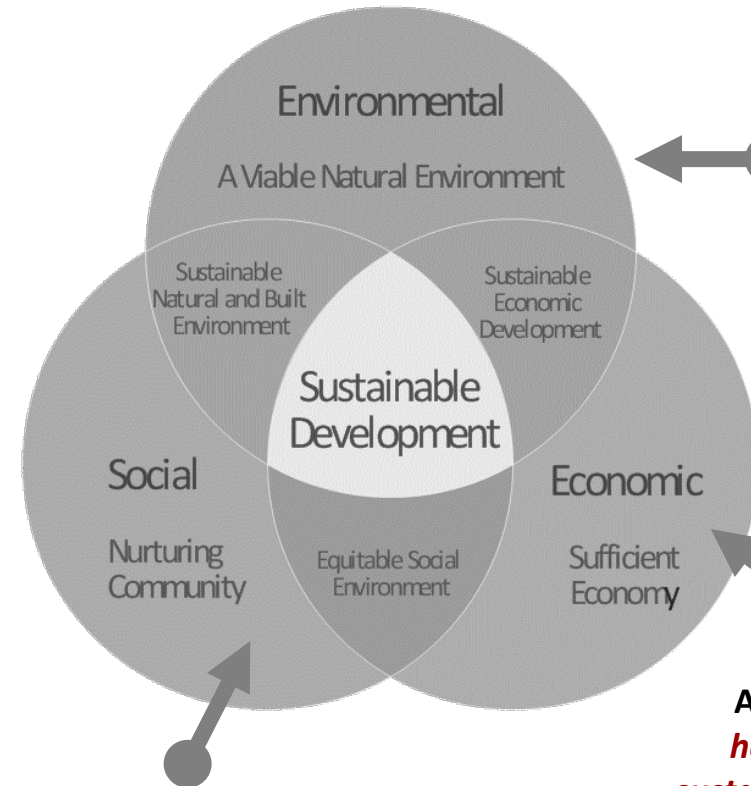
**LACK OF
PLANNING
ON YOUR PART
DOES NOT
CONSTITUTE
AN EMERGENCY
ON MY PART**



INFRASTRUCTURE & SUSTAINABILITY

Sustainability focuses on meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Planning for infrastructure improvements is a **PROACTIVE** approach to help communities achieve **Environmental, Economic** and **Social** Sustainability



INFRASTRUCTURE MASTER PLANNING
helps ensure that new development occurs in areas where there is existing infrastructure to support it and/or in targeted areas where growth is desired.

ASSET MANAGEMENT
helps achieve financial sustainability by minimize the total cost of owning and operating costly infrastructure

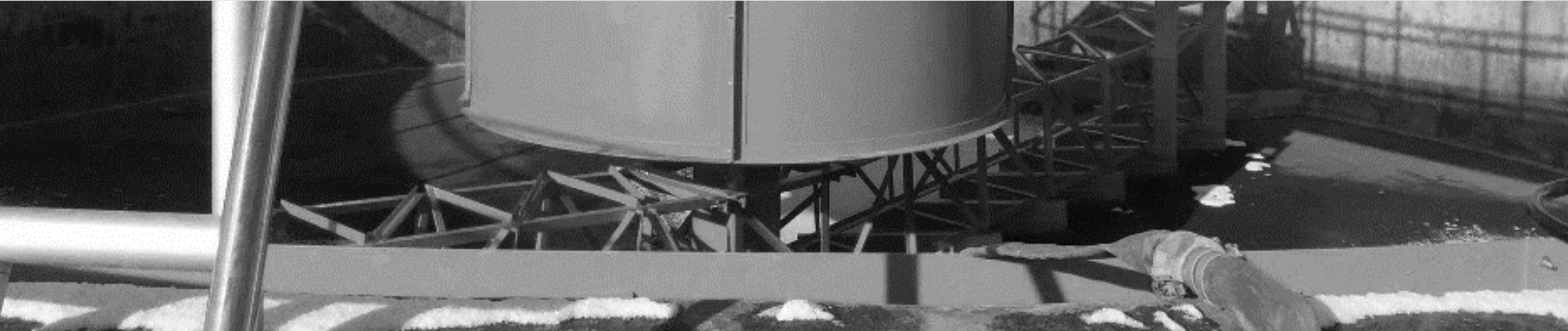
DISTRICT CONSOLIDATION & RATE RESTRUCTURING
helps ensure that all users are charged fairly and equitably





INFRASTRUCTURE MASTER PLANNING

Kevin Schwenzfeier, Planner & GIS Specialist



MASTER PLAN PURPOSE

- Proactive evaluation of the water and sewer needs of property owners
- Understand the status of existing systems in terms of condition, capacity, users, costs, longevity, and sustainability
- Ensure that investments funded by users are sound and bring value to the community today and into the future
- Consider current and future regulatory requirements
- Leverage existing infrastructure, planned development investments, and intermunicipal cooperation
- Address the timing of investments to coincide with the needs of users



PLANNING PROCESS

EXISTING CONDITIONS

Water Systems

- Sources of Supply
- Treatment Facilities
- Storage and Distribution
- Deficiencies
- Opportunities

Sewer Systems

- Collection Systems
- Treatment Systems
- Deficiencies
- Opportunities

NEEDS ASSESSMENT

Water Systems

- Supply and Treatment
- Storage and Distribution
- Fire Flows
- Existing Demands
- New/anticipated Demands

Sewer Systems

- Collection Systems
- Treatment Systems
- Industrial Users
- Existing Demands
- New/anticipated Demands

FUTURE DEMAND ASSESSMENT

Water System

- Extent of Service Area
- Additional Supply, Treatment & Storage Needs
- Opportunities and Limitations for Future Water Supply

Sewer System

- Extent of Service Area
- Additional Treatment
- Opportunities and Limitation for Future Sewer Services

ACTION PLAN

Water System

- Well Sources
- Water Storage
- Fire Suppression
- Governance

Sewer System

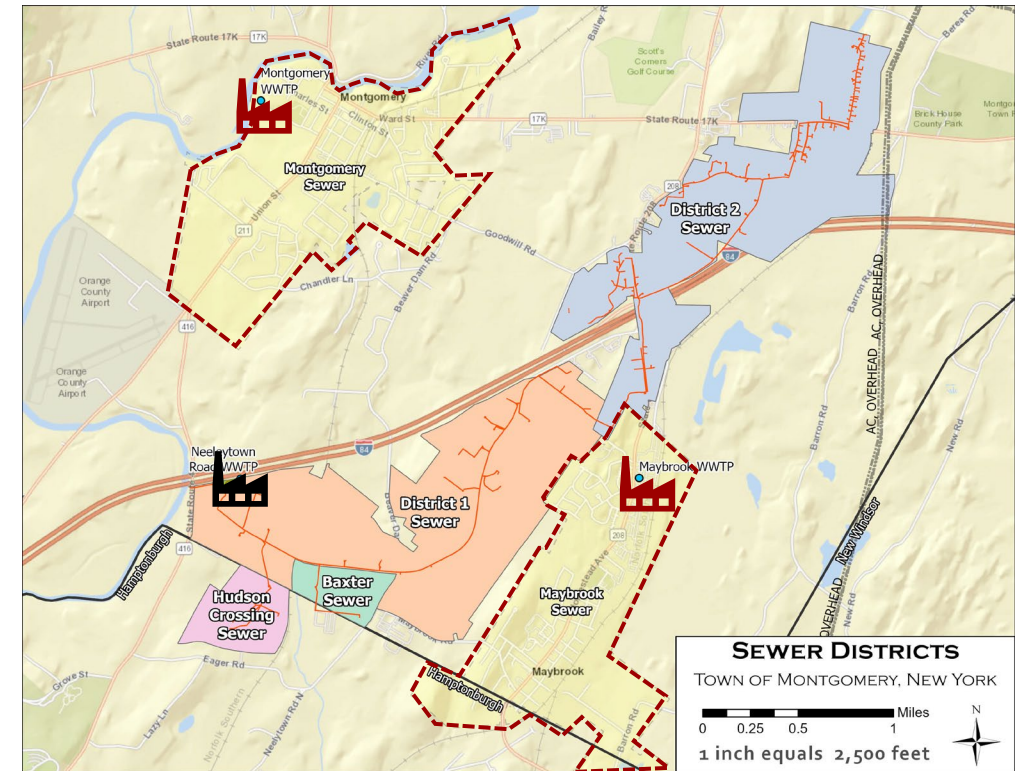
- Regulatory Influences
- Collection & Conveyance
- Treatment Capacity & Location
- Industrial Users
- Governance



CASE STUDY: TOWN OF MONTGOMERY

SEWER SYSTEM:

- Aging infrastructure (45 years old) with limited conveyance capacity
- Deterioration of infrastructure due to H₂S; Phosphorus loading must be addressed
- Existing WWTP can be expanded on current site, but current collection system cannot convey more sewage than current permitted discharge
- Technology and materials of construction limit expansion of conveyance system without major investment
- Expansion of existing WWTP only makes sense with commensurate expansion of collection system
- Intermunicipal cooperation offers substantial benefits in efficiency and cost savings to all parties



CASE STUDY: TOWN OF MONTGOMERY

**Expand Collection
System &
Upgrade WWTP
Capacity?**



**Maximize Existing
Systems & Pursue
Intermunicipal
Cooperation?**



Redirecting Sewer District #2 to Maybrook would create ~60,000 gallons of capacity at Town WWTP

Maintain existing plant & take measures to reduce phosphorus, address effect of H₂S and reduce I&I

Consider construction of new infrastructure nearer development only if necessary





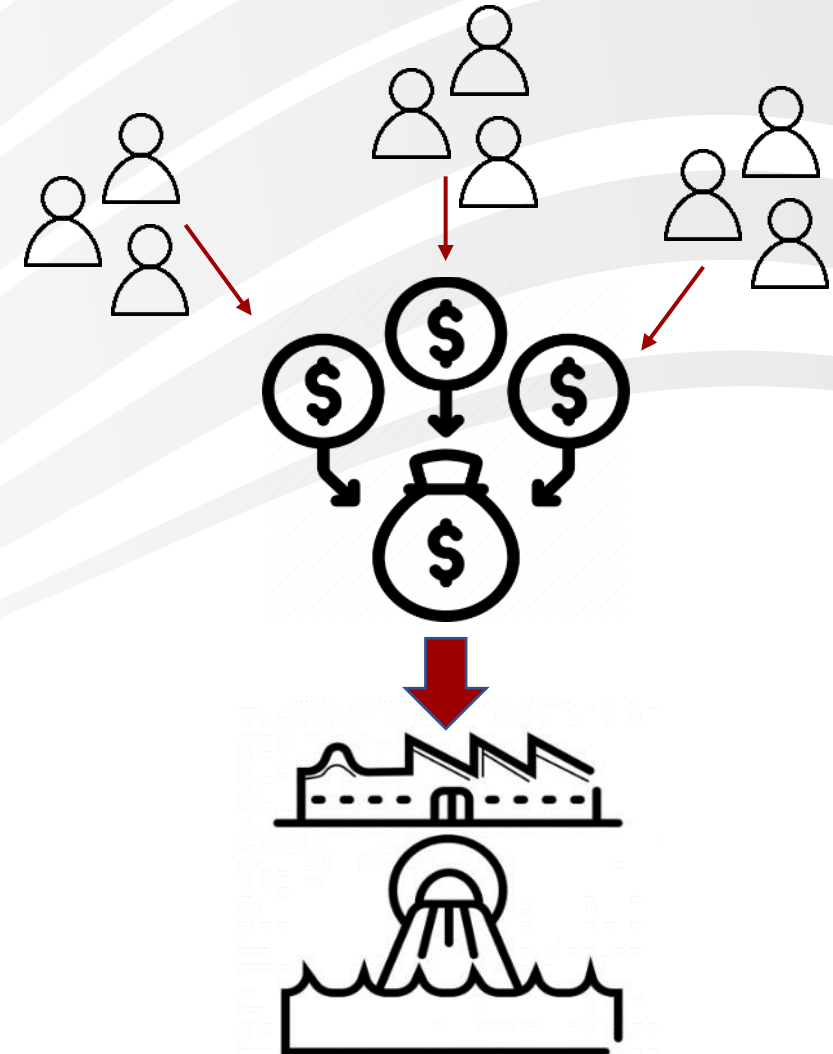
DISTRICT CONSOLIDATION & RATE RESTRUCTURING

Mary Beth Bianconi, Partner



TOWN DISTRICT CONSOLIDATION

- Consolidation of special districts that have a common “asset base” allows for more equitable distribution of costs and eases the administrative complexity.
- Consolidation will result in the sharing of annual operation and maintenance costs as well as capital costs across a larger number of users.
- Annual costs will be more fair/equitable, and reflective of the actual benefit to the customer.



CONSOLIDATION PROCESS

- GML Article 17-A - Consolidation and Dissolution of Local Government
- Resolution to commence proceedings and prepare a Joint Consolidation agreement;
- Preparation of Map, Plan & Report
- Publish joint Consolidation Agreement & Schedule Public Hearing
- No permissive referendum required -- the consolidation is effective on the date set by the board.



RATE RESTRUCTURING

- The formula dictating how users are charged for a service vary from community to community.
- Communities use a wide variety of methods to assess charges including linear foot of pipe traversing properties, points/units based on land use and/or acreage, assessed values, or water consumption.
- Note: Assessed value and linear foot of pipe are not correlated to water/sewer use and should not be used as a basis for user charges.

Item	Sections	Rent Points	Debt Points
A	Single-family dwellings	10	10
AA	Single-family dwellings, Kiamasha Sewer District	7.50	7.50
B	Two-family dwellings	20	20
C	Apartment		
	One-bedroom	7	7
	Two-bedroom	8	8
	Three-bedroom	10	10
CC	Single-room occupancy	4	4
D	Mobile homes, first unit or trailer	10	10
E	Motels		
	First unit and office	10	10
	Additional units		
	Sleeping units, each	6	
	Efficiency units	5	7
F	Hotels		
	First unit, office, kitchen, dining room	10	10
	Additional units		

Town of Montgomery Sewer District No. II Schedule of Units			
Type of Use	Operation and Management Units of Use	Unit Assessment Debt Service	
A. Single-family	10	1 for each 10 operation and management units (\$25** per unit)	10
B. Two-family	20	1 for each 10 operation and management units (\$25** per unit)	
C. Apartment units	10	1 for each 10 operation and management units (\$25** per unit)	20
D. School*	60	0	10
E. Commercial/industrial establishments connected with fewer than 5 employees	10	\$150** per acre for the entire acreage of the parcel on which a commercial or industrial establishment is built on	
F. Commercial/industrial establishments connected with 5 or more employees	20+ plus 10 for each increment of 5 employees over 10	\$150** per acre for the entire acreage of the parcel on which a commercial or industrial establishment is built on	
G. Commercial/industrial establishments not connected	0	\$150** per acre for the entire acreage of the parcel on which a commercial or industrial establishment is built	
H. Vacant land	0	1 for each buildable acre (\$25** per unit) or vacant residential lot	

CASE STUDY: TOWN OF THOMPSON

- Thompson has eleven separate sewer districts
- Nine districts send wastewater to five Town-owned wastewater treatment plants (WWTP), and two districts send wastewater to the Village of Monticello
- An “Infrastructure Master Plan” commissioned by the Town in 2019 revealed inconsistencies in the method of assessing sewer rates across districts and recommended:
 - Consolidating those districts with a common user base
 - Standardizing the method of billing to be based on land use or water usage, rather than assessed value.

District	WWTP Served By / Owner	Permitted Capacity of WWTP
Adelaar Resort Sewer District	Kiamesha WWTP / Town of Thompson	2,000,000 gpd
Anawana Sewer District	Kiamesha WWTP / Town of Thompson	2,000,000 gpd
Cold Spring Sewer District	Village of Monticello	NA
Dillon Farms Sewer District	Dillon Farms WWTP / Town of Thompson	1,600 gpd
Emerald Green / Lake Louise Marie Sewer District	Emerald Green WWTP / Town of Thompson	410,000 gpd
Harris Sewer District	Village of Monticello via Benmosche Pump Station	NA
Harris Woods Sewer District	Kiamesha WWTP / Town of Thompson	2,000,000 gpd
Kiamesha Lake Sewer District	Kiamesha WWTP / Town of Thompson	2,000,000 gpd
Melody Lake Sewer District	Melody Lake WWTP / Town of Thompson	38,000 gpd
Rock Hill Business Sewer District	Emerald Green WWTP / Town of Thompson	410,000 gpd
Sackett Lake Sewer District	Sackett Lake WWTP / Town of Thompson	500,000 gpd

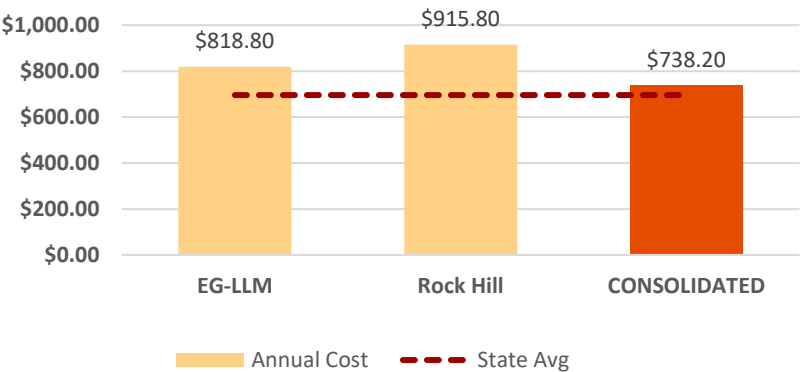


OUTCOMES:

- Nine districts consolidated into three.
- Most residential users will see a reduction in their annual sewer bill after consolidation.
- Some commercial users – particularly offices, medical facilities and retail stores – will see an increase.
- All users will be charged for sewer service based on a formula that is **fair**, **equitable** and **transparent**, as well as more reflective of the actual benefit to the customer.

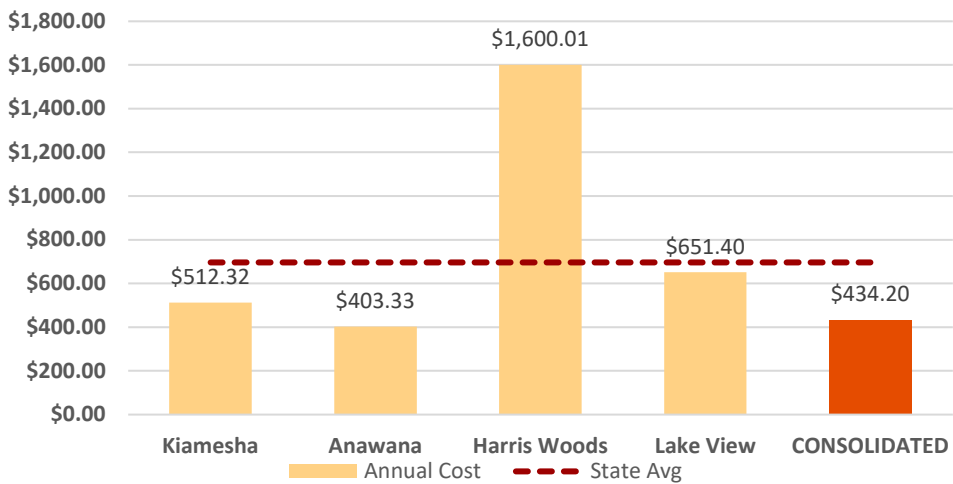
ROCK HILL/EMERALD GREEN

Annual Cost Comparison (2020)



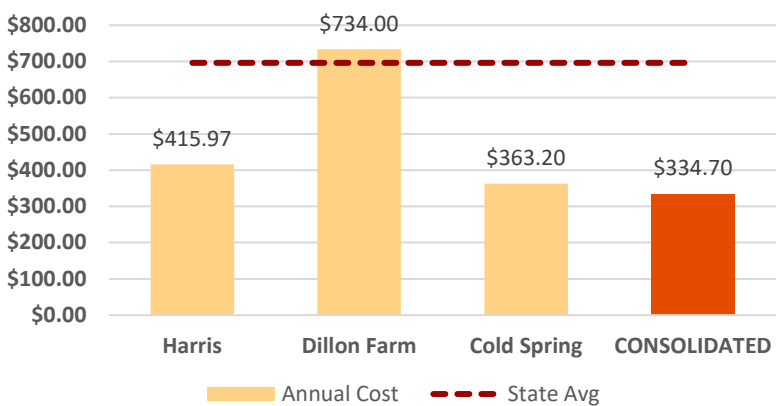
KIAMESHA

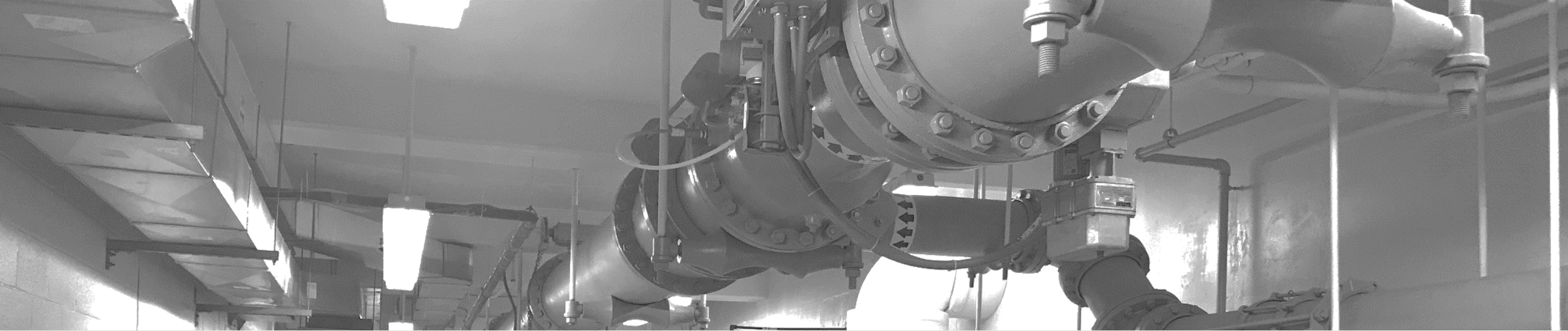
Annual Cost Comparison (2020)



HARRIS

Annual Cost Comparison (2020)





ASSET MANAGEMENT

Tracey Ledder, Senior Project Manager



WHY IS ASSET MANAGEMENT USEFUL?

- Public assets – pavement, water and sewer pipes, buildings, facilities, vehicles, etc. – are enormously valuable investments, many of which are inherited from previous generations of taxpayers.
- Maintenance and investment decisions today will affect the lives of city residents, businesses and visitors for decades to come.
- Every municipal investment decision involves trade-offs and prioritization among competing needs.
- Unplanned, unbudgeted emergency spending, and the costs of emergency repairs are typically much higher than planned and coordinated reconstruction.



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WHAT IS ASSET MANAGEMENT?

- Asset management is the practice of managing infrastructure and capital assets to minimize the total cost of owning and operating these assets while delivering the desired service levels.
- Asset management ensures that maintenance, repairs, upgrades and replacements are conducted when needed (not only during a crisis) and that funds are available to make these vital investments.
- Accurate, comprehensive and accessible information on assets is critical to this process. Gathering the information and data required takes time and effort, but it is worth it in the long run.



TWO PLANNING APPROACHES ASSISTED BY ASSET MANAGEMENT

TOP DOWN PLANNING:

1. Initial overall budget for each relevant asset class
2. Determining which specific priorities will be addressed with the initial budget and which will be deferred
3. Reviewing the implications in terms of cost and level of service resulting from deferring priority work for which budget does not exist in the initial overall budget
4. Review and adjustment of overall budget figure to ensure alignment with priorities and to clearly define risks of deferring priority work

BOTTOM UP PLANNING:

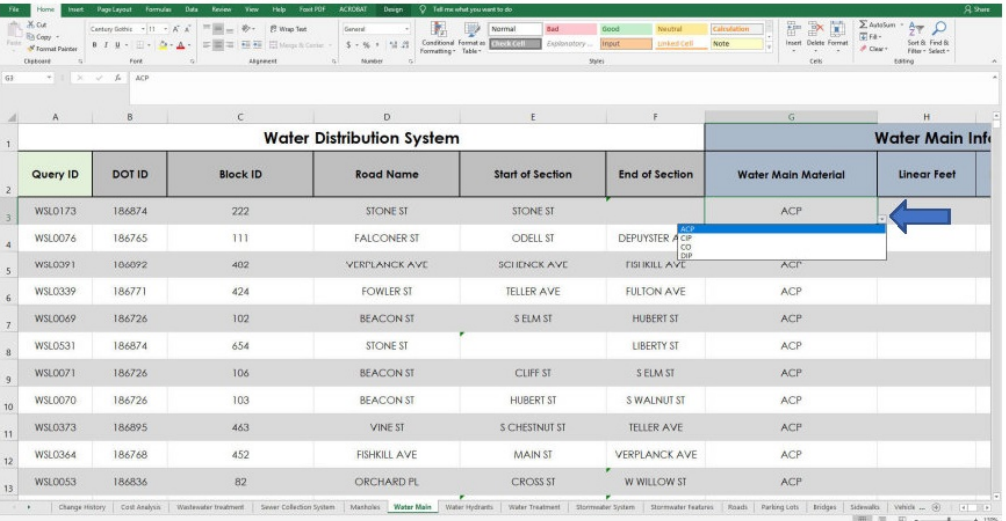
1. Evaluate and list high priority work including costs for each relevant asset class
2. Determining user cost impact to meet high priority needs
3. Reviewing the implications in terms of cost and level of service resulting from meeting needs versus deferring priority work
4. Determine the appropriate budget figure to ensure alignment with priorities and to clearly define risks of deferring priority work



CASE STUDY: CITY OF BEACON

Asset Management and Capital Planning Tool:

- Database with an inventory of the City's major assets identifying current asset conditions and levels of service using Excel software.
- City uses the tool to prioritize investments in major repairs or replacements, estimate costs and lifecycles, and align similar or related projects for efficient implementation.
- Different assets are listed on separate worksheets which allows the use to search for, sort and filter different aspects of those assets.
- Lists generated can also be mapped using GIS



Water Distribution System							Water Main Info
Query ID	DOT ID	Block ID	Road Name	Start of Section	End of Section	Water Main Material	Linear Feet
WSL0173	186874	222	STONE ST	STONE ST	DEPUYSTER AVE	ACP	
WSL0076	186745	111	FALCONER ST	ODELL ST		ACP	
WSL0091	106092	402	VERPLANCK AVE	SCHENCK AVE	FISH KILL AVE	ACP	
WSL0339	186771	424	FOWLER ST	TELLER AVE	FULTON AVE	ACP	
WSL0069	186726	102	BEACON ST	S ELM ST	HUBERT ST	ACP	
WSL0531	186874	654	STONE ST		LIBERTY ST	ACP	
WSL0071	186726	106	BEACON ST	CLIFF ST	S ELM ST	ACP	
WSL0070	186726	103	BEACON ST	HUBERT ST	S WALNUT ST	ACP	
WSL0373	186895	463	VINE ST	S CHESTNUT ST	TELLER AVE	ACP	
WSL0364	186768	452	FISHKILL AVE	MAIN ST	VERPLANCK AVE	ACP	
WSL0053	186836	82	ORCHARD PL	CROSS ST	W WILLOW ST	ACP	



CASE STUDY: CITY OF BEACON

Maintenance of Data is Critical!

The City assigned an Asset Management Tool “keeper” to maintain the integrity of the database. This person also coordinates with the different City departments to maintain updated asset data. Communication between departments is important to keeping asset data up-to-date.

Asset Type	Update Schedule
Water lines, stormwater, sewer lines, treatment facilities	Data update after replacement projects are completed
Roads	Data updated after pavement or reconstruction projects, especially important to update water, sewer and stormwater system work done at the same time in those worksheets
Vehicles	Update when a vehicle is added to or removed from the fleet
Streetlights, traffic lights, way-finding signs	Update when replaced
Buildings, City Land, University Settlement	Update when projects are completed or property ownership changes



GETTING STARTED IN YOUR COMMUNITY

- Commercial Software is available but all need the data to populate
- **Objective** – know what you have and where it is and what condition it is in for ability to maintain and repair and plan for capital improvements when needed, i.e. the budget must be ready.
- **Data Needed** – Who will be using the data and what for? Asset Management, and Capital Improvement Planning are different than staff work documentation but not completely separate.
- **Start with available lists** – manhole inspections, sewer and water maps, insured buildings and vehicles, parcels owned by the municipality (parks, easements, parking lots, etc).



QUESTIONS?



Contact us anytime!

 (518) 452-1290



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