Asset Management in the Granite State

January 27, 2020
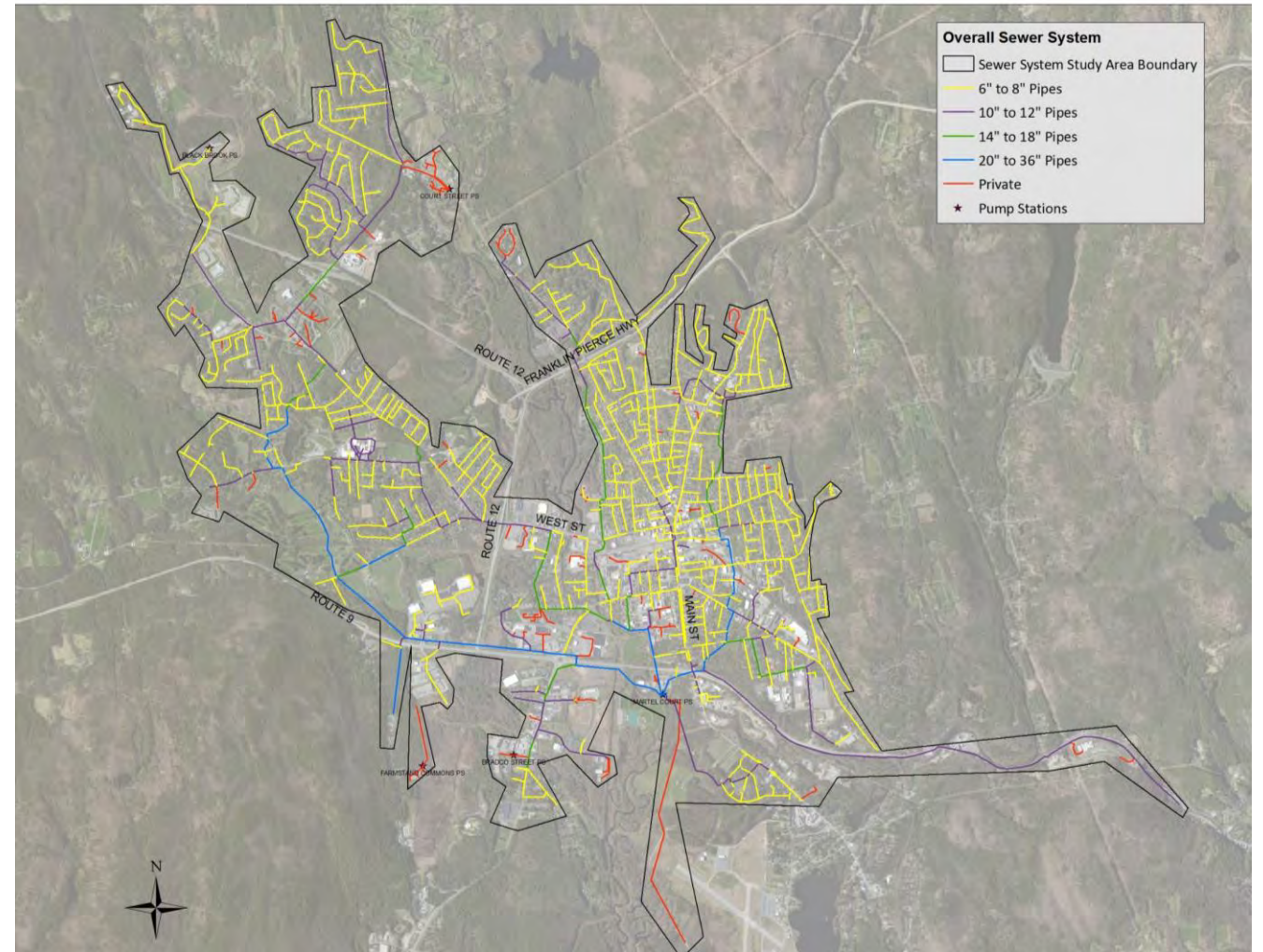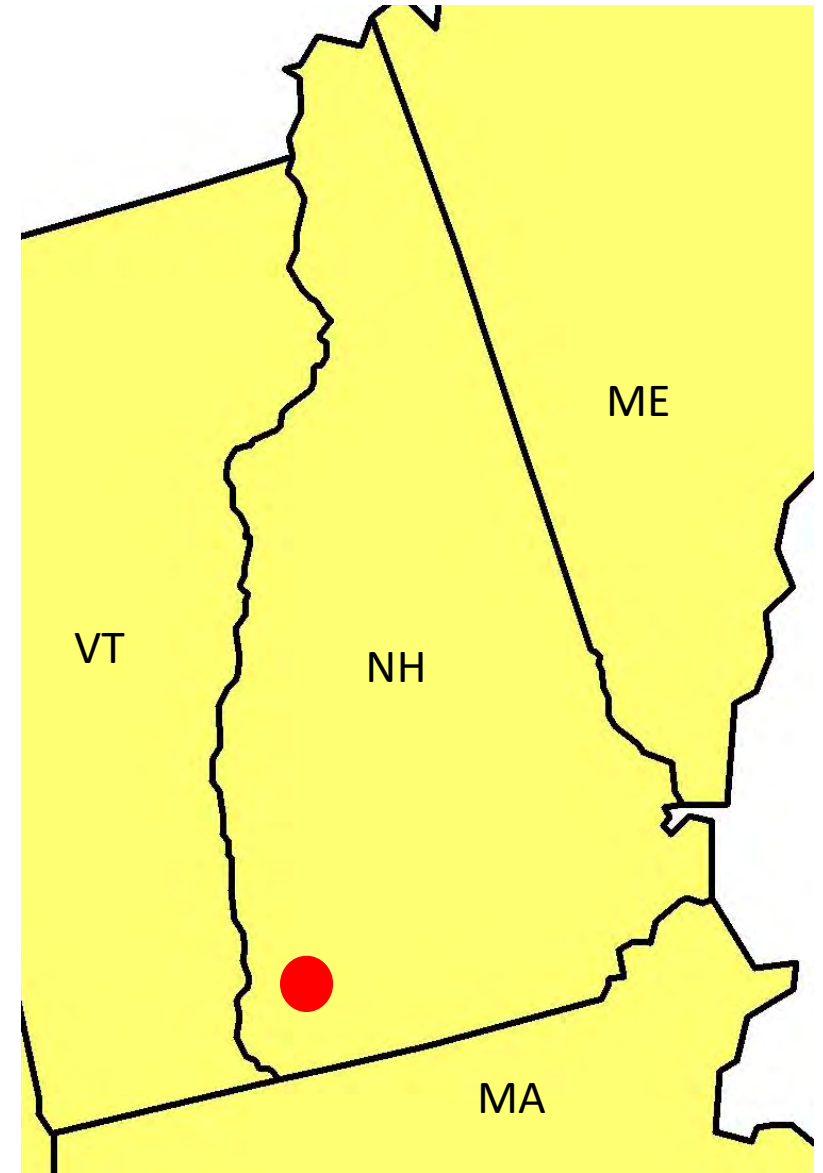
Agenda

- Background
  - About Keene
  - About NHDES AM Program
- Why Asset Management?
- Approach
- Next Steps

Keene, NH

- Population ~23,000
- 94.2 miles of sewer
  - 4"-36" diameter
- 82.4 miles of storm drain
- 5 sewer pump stations
- 1 WWTP
  - 3 MGD ADF
  - 6 MGD Design flow

Hazen

Keene, NH Public Works

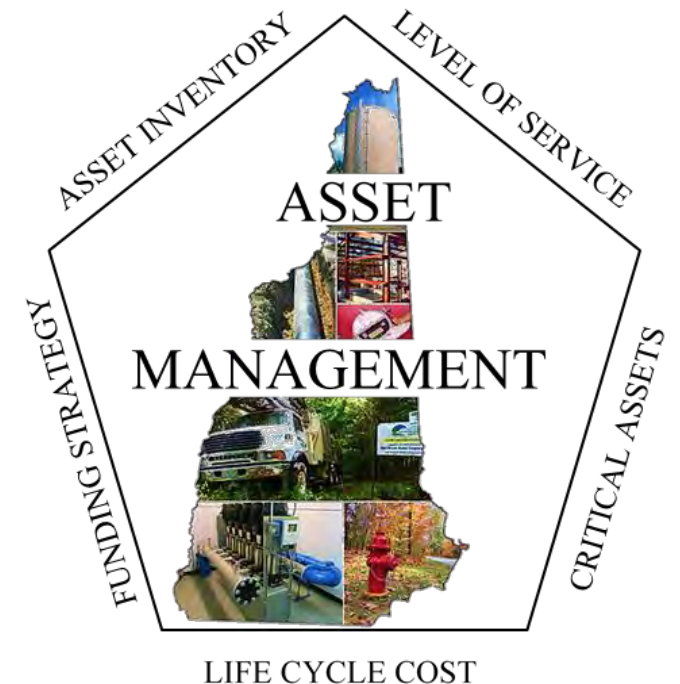Management of Transportation, Water, Wastewater, Stormwater, and Solid Waste Infrastructure

July 2017 - City Council adopted fiscal policies that encouraged AMPs

Clean Water SRF loan to develop plans for stormwater and wastewater collection systems

Hazen

NHDES Asset Management

- CWSRF Asset Management Loan Forgiveness Program
  - Development of asset management programs for wastewater and stormwater assets
  - Up to $30,000 per phase for wastewater
  - Up to $30,000 maximum for stormwater
- Public Water System Asset Management Grant Program
  - Development of asset management programs for water assets
  - 100% match grant up to $20,000

Current Industry Trends

External Forces
- Regulatory compliance
- Growth & demand
- Public/Political pressures

Asset Age & Condition
- Aging/deteriorating infrastructure
- Capital/O&M justification

Service Levels
- Demand for higher levels of service
- Improve reliability and minimize failures

Cost & Efficiency
- Doing "more with less"
- Move toward a "businesslike" culture

CHALLENGES

What is the current state of our infrastructure?

Are our customers happy with our service?

Do we have optimized CIP and O&M programs?

What are our business risks?

TRENDS
- Embracing AM as an organizational model
- Focusing on capital planning and project justification
- Leveraging data in a more effective way
- Focusing on machine-learning/predictive analytics
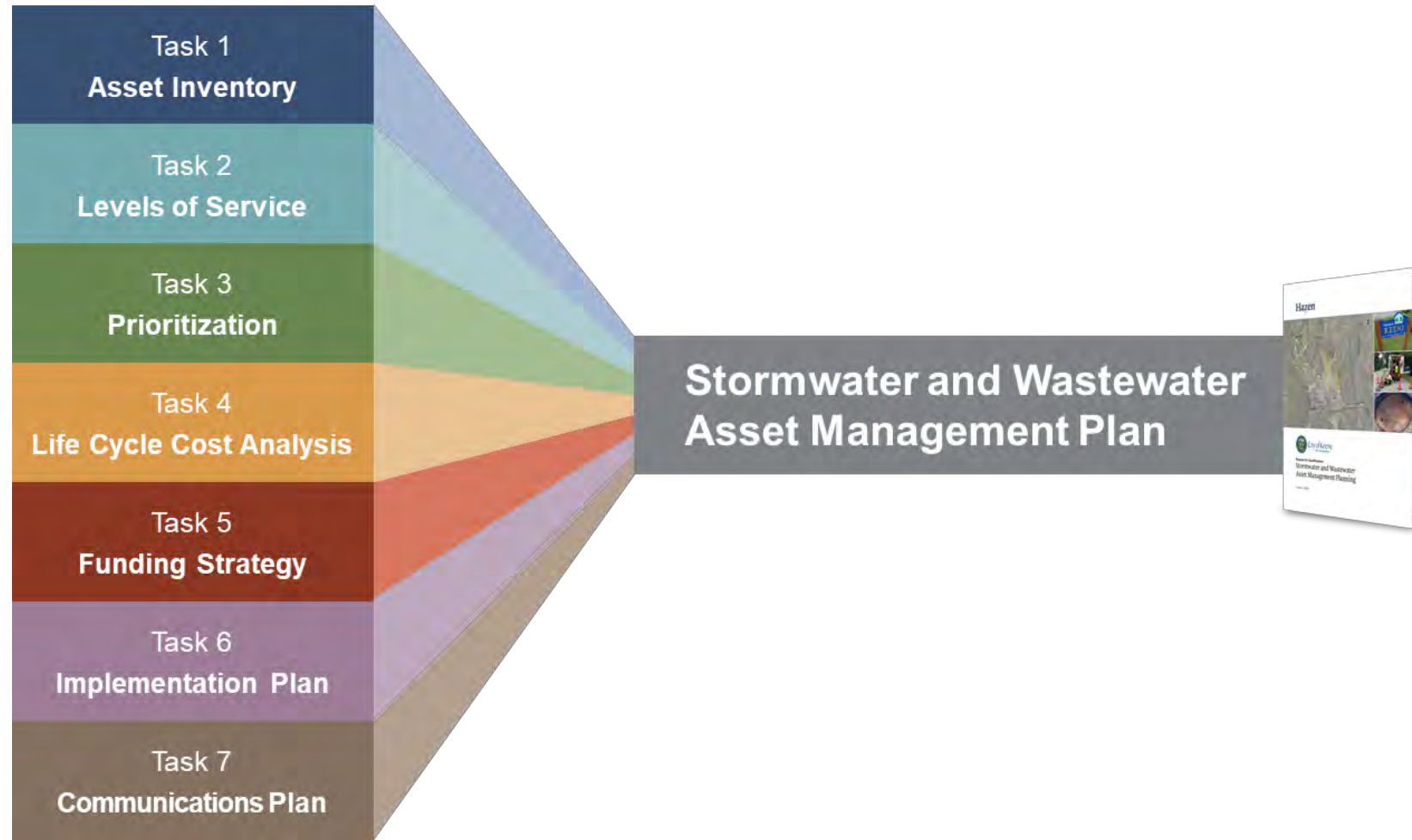
Hazen

Why Asset Management?

Better inform decision-making on sewer and drain system assets

Better decision making = more efficient service

Approach

Task 1 — Asset Inventory
Task 2 — Levels of Service
Task 3 — Prioritization
Task 4 — Life Cycle Cost Analysis
Task 5 — Funding Strategy
Task 6 — Implementation Plan
Task 7 — Communications Plan

**Stormwater and Wastewater Asset Management Plan**

Task 1 – Inventory

- Data review / discovery
- Data Gap Analysis
  - What are you collecting?
  - How complete is the data?
  - Are you collecting the right data?

PIPE ID	STREET NAME	PIPE DIA (IN.)	PIPE MATERIAL	TOTAL LENGTH (FT)	Year Installed	Time Pe
1	WILCOX TER	8	SDR35	51	1994	1990-2
3	ISLAND ST	6	VC	185	1909	1900-1
4	HART PL	6	VC	152	1913	1910-1
5	HART PL	6	VC	131	1913	1910-1
6	HART PL	6	VC	20	1913	1910-1
9	WETMORE ST	12	ac	295	1956	1950-1
10	WINCHESTER ST	14	ac	65	1957	1950-1
11	GREENWOOD AVE	12	CIPP	247	1913	1910-1
13	MAIN ST	10	ac	124	1931	1930-1
14	CHAPMAN RD	8	SDR35	300	1986	1980-1
16	EASTERN AVE	6	VC	109	1928	1920-1
18	BROWN ST	6	VC	79	1955	1950-1
	BOSTON PL	24	ac	315	1966	1960-1
	BOSTON PL	24	ac	328	1966	1960-1
	MARTELL CT	24	ac	250	1966	1960-1
	UDER ST	6	VC	54	1924	1920-1
	ARDSON CT	6	VC	2	1936	1930-1
	N WAY	10	SDR35	153	2002	2000-2
		8	SDR35	78	1980	1970-1
		10	VC	272	1921	1920-1
		6	ac	278	1958	1950-1
		12	ac	307	1957	1950-1
		6	VC	170	1952	1950-1
		12	SDR35	126	1985	1980-1
		6	VC	62	1923	1920-1
		12	VC	478	1931	1930-1
			VC	277	1929	1920-1
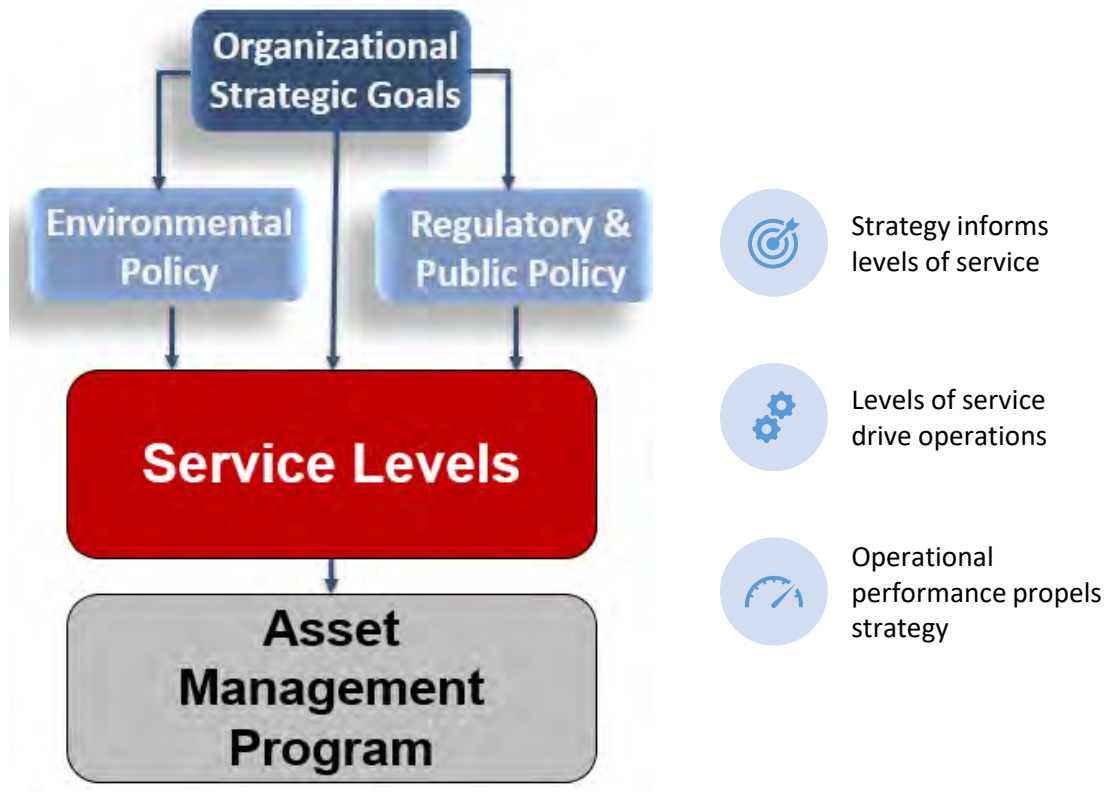
Levels of Service

Sewer Collection System
- Overflows per 100 miles
- Repair/Replacement Rate

Stormwater Collection System
- % of basins cleaned annually
- Complaints per 100 miles

Strategy informs levels of service

Levels of service drive operations

Operational performance propels strategy

Alignment of organization strategy and AMP

Hazen

Task 3 – Prioritization / Risk Assessment

- Established Probability of Failure (PoF) based on inspection data
- Established Consequence of Failure (CoF) based on social and cost factors
- Total Risk Score is product for PoF and CoF

Task 4 – Asset Rehabilitation Cost Analysis

- *Recommended actions developed using PoF score*
- *Risk score establishes prioritization*

PIPE ID	STREET NAME	PoF Score	CoF Score	Risk Score	Rehab / Replace Cost
1	WILCOX TER	2	3	6	$ 98
3	ISLAND ST	4	3	12	$ 19,425
4	HART PL	5	3	15	$ 14,282
5	HART PL	5	3	15	$ 12,410
6	HART PL	5	3	15	$ 2,517
9	WETMORE ST	5	4	20	$ 49,082
10	WINCHESTER ST	4	4	16	$ 7,567
11	GREENWOOD AVE	1	3	3	$ 477
13	MAIN ST	5	4	20	$ 20,015
14	CHAPMAN RD	3	1	3	$ 579
16	EASTERN AVE	5	3	15	$ 10,450
18	BROWN ST	4	3	12	$ 3,318
19	BOSTON PL	3	4	12	$ 608
20	BOSTON PL	3	4	12	$ 633
21	MARTELL CT	1	3	3	$ 483
22	BRUDER ST	5	3	15	$ 5,547
23	RICHARDSON CT	5	3	15	$ 913
27	APPIAN WAY	2	2	4	$ 295
29	IVY DR	3	2	6	$ 151
30	LAUREL ST	5	2	10	$ 42,442
32	LEAHY RD	4	4	16	$ 11,676
33	MAPLE AVE	1	4	4	$ 593
34	WESTVIEW AVE	1	3	3	$ 328
35	MARLBORO RD	3	4	12	$ 243
36	WAGNER ST	5	3	15	$ 6,260
37	DAVIS ST	1	3	3	$ 923
38	RALSTON ST	2	4	8	$ 535

Hazen

Task 5 – Funding Strategy

Current Investments

Sewer and stormwater capital budgets

Sewer and stormwater operating budgets

Potential Programs
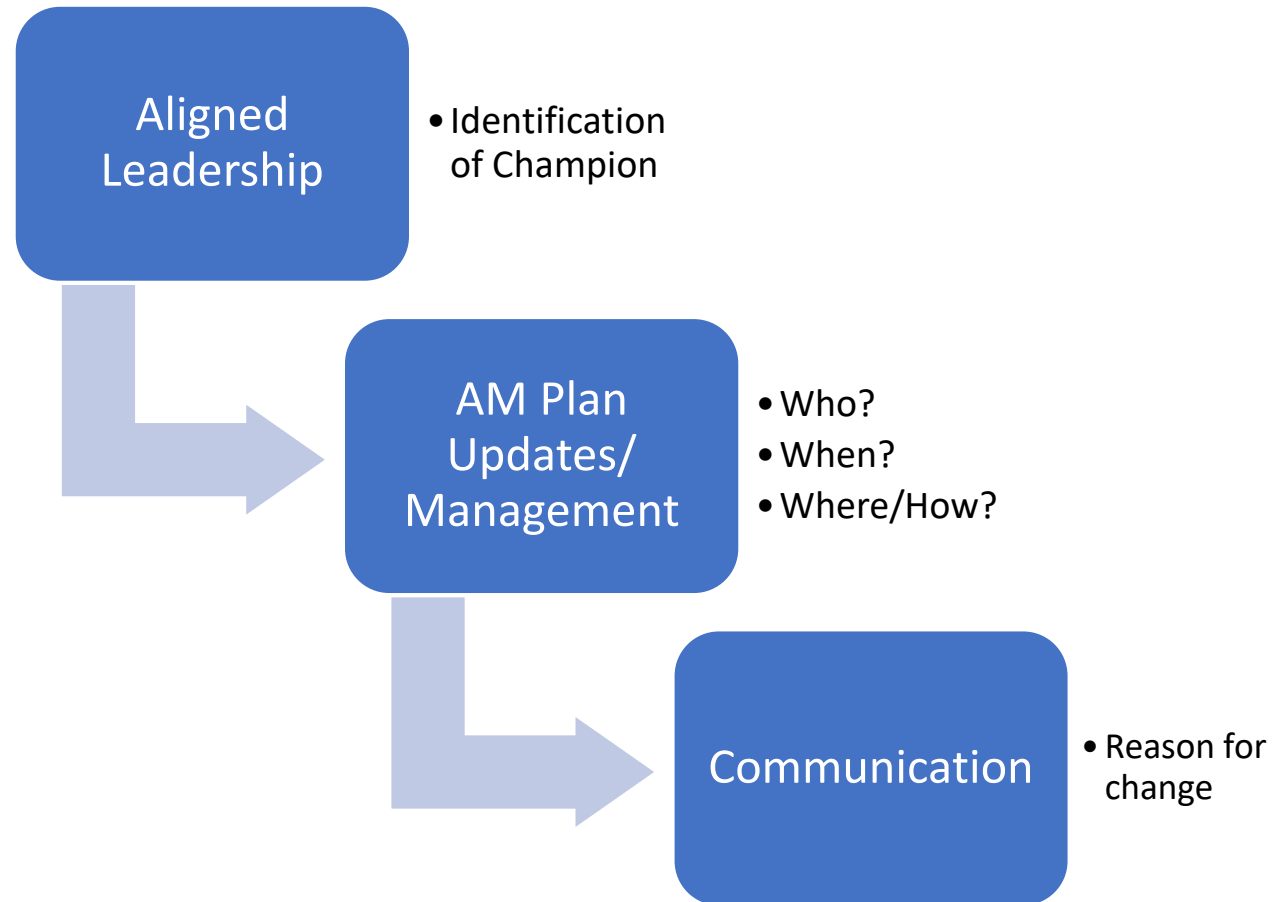
State and Federal Loans and Grants

Additional Considerations

Dynamic Rate Model (currently in planning)

Feasibility of stormwater enterprise fund
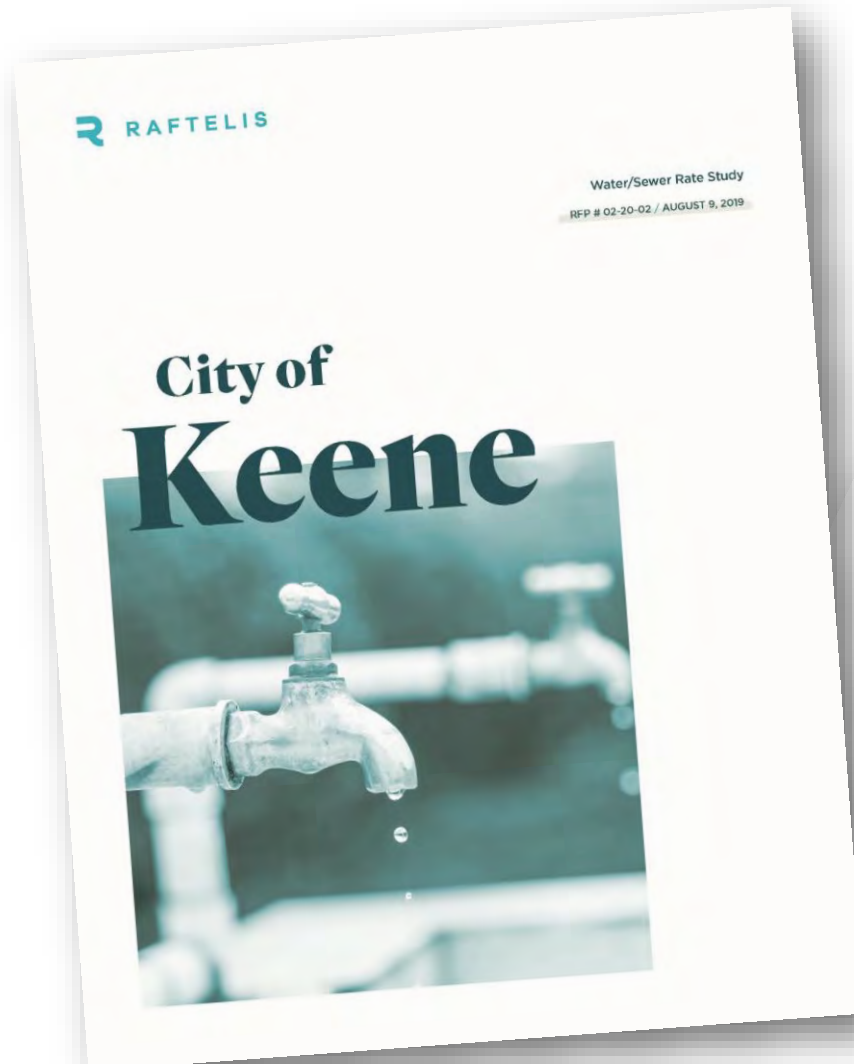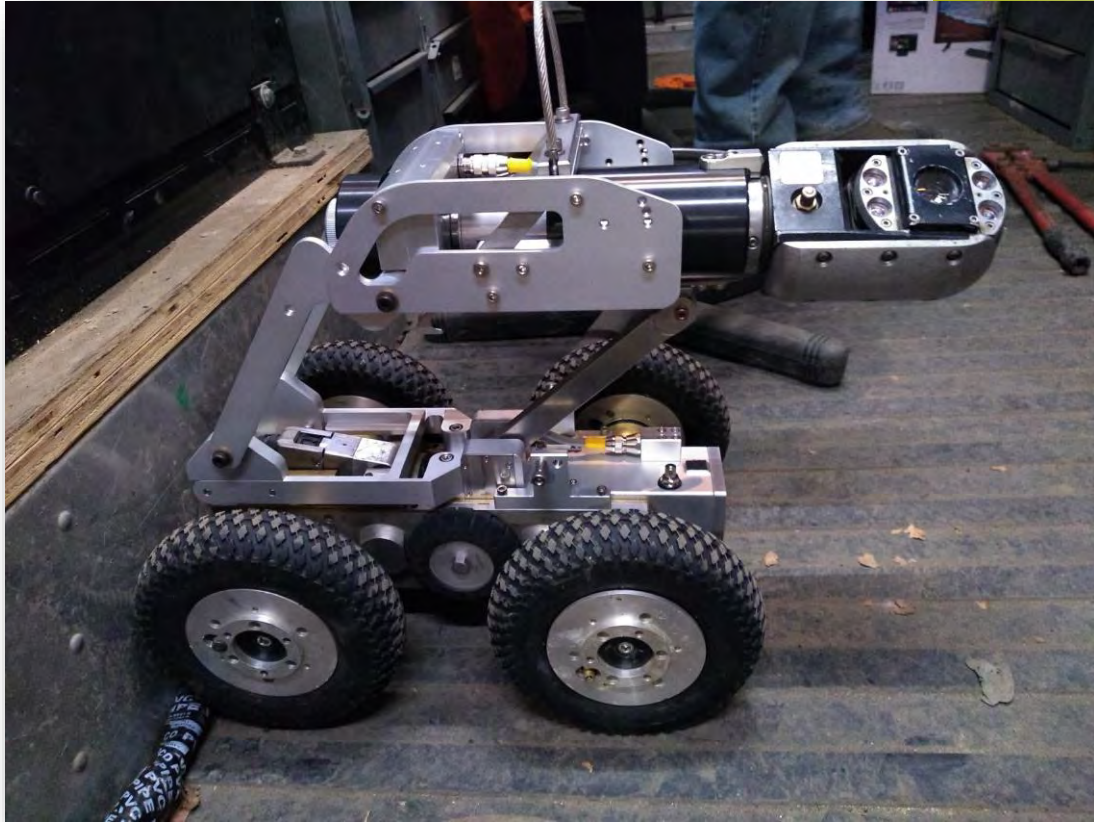
Hazen

Task 6 – Implementation Plan

Aligned Leadership

- Identification of Champion

AM Plan Updates/ Management

- Who?
- When?
- Where/How?

Communication

- Reason for change

Goals

| Effective internal communication | Build trust, credibility, and education with external stakeholders | Management of communications and outreach efforts |

Next Steps – Funding Strategy

Hazen

Next Steps – Data Capture

Next Steps – Data Analysis
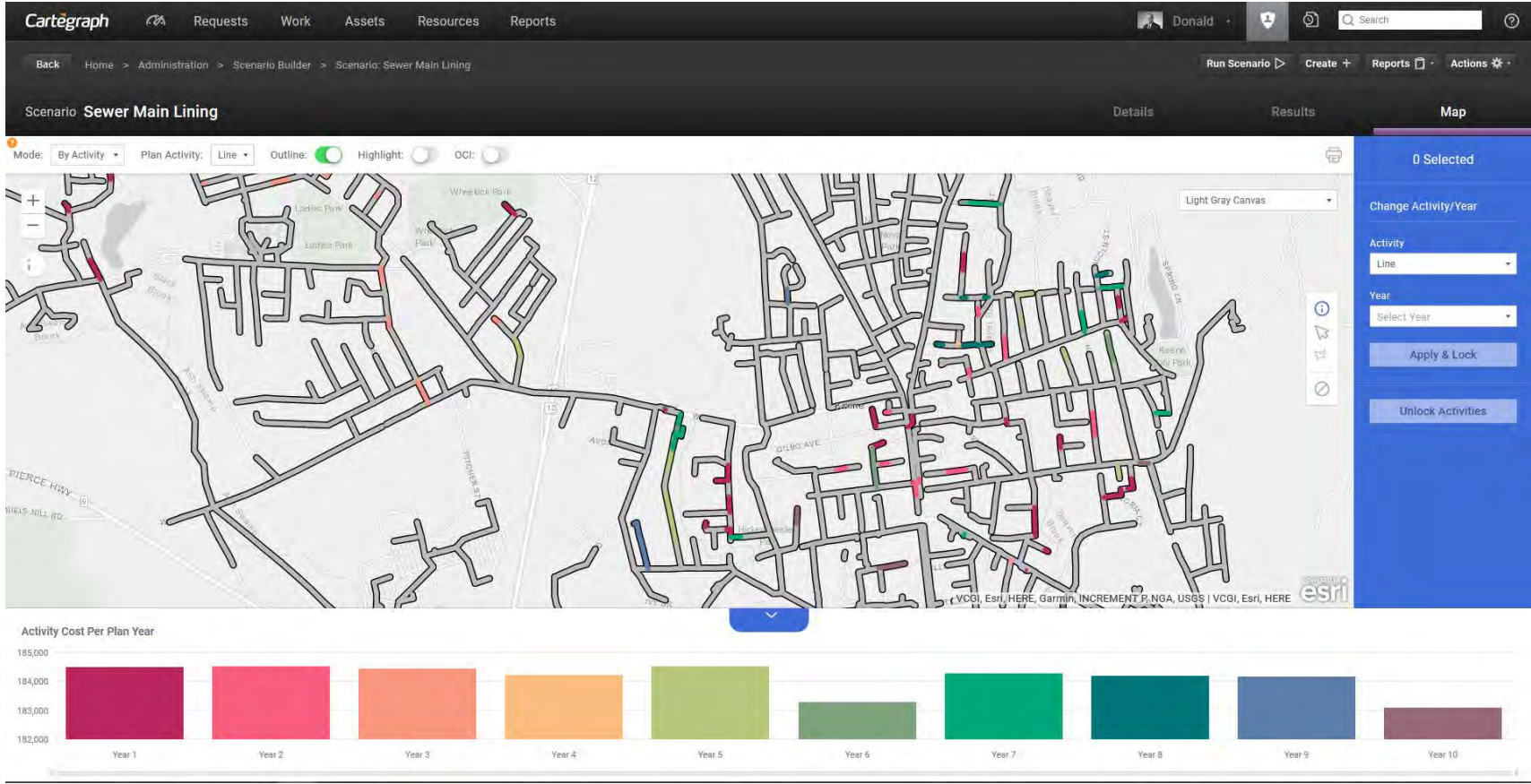
Next Steps – Performance Measurement
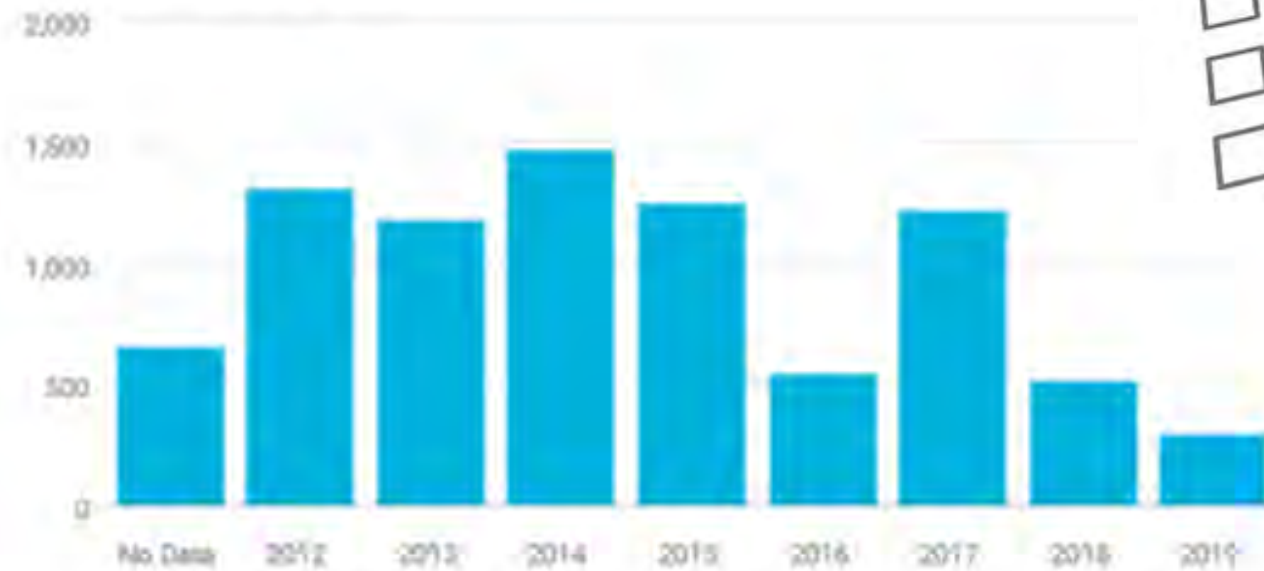
Hazen

- Questions?

- City contact:
  - Don Lussier: (603) 352-6550

- Hazen contact:
  - Chuck Wilson: (774) 535-3148
  - Matt Manchisi: (215) 592-4524