Downtown Master Utility Plan

City Council Briefing

March 19, 2007

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Sustainable Infrastructure Lays the Groundwork for Portsmouth's Vision

Safe, reliable water, sanitary sewer and storm drainage systems are central to our:

- **Health and Safety**
- **Quality of Life**
- **Communities' Vision of Prosperity**

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How Does Portsmouth's Infrastructure Support the Achievement of Our Vision?

- **A Robust & Prospering Economy**

  Strong Infrastructure is crucial for attracting new businesses, supporting economic growth and protecting the City's bond rating

- **Thriving Neighborhoods & a Sense of Community**

  Replacement of utility systems honors the importance of Portsmouth's Neighborhoods through strong, sustained investment in infrastructure improvements.

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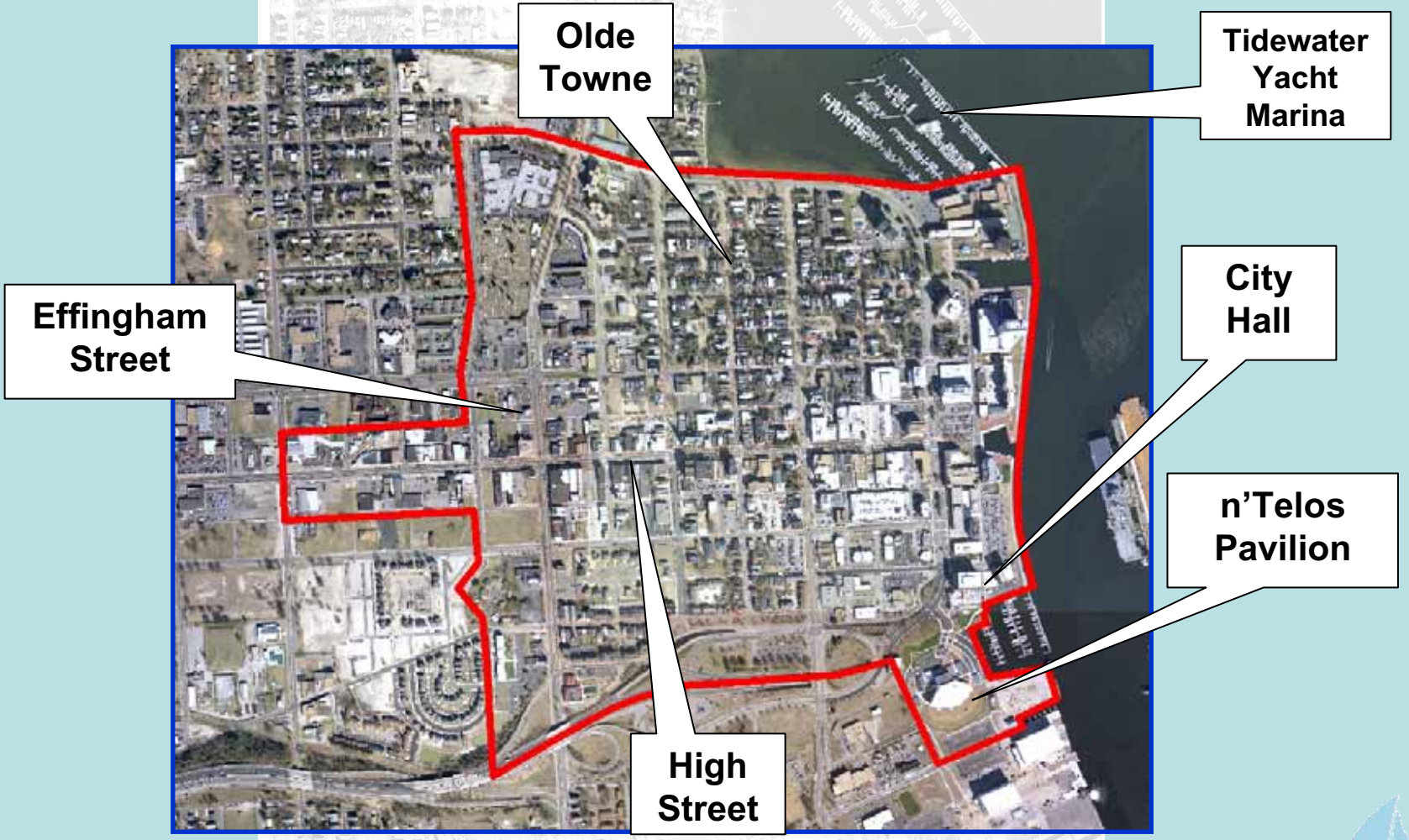
Purpose – Downtown Master Utility Plan

- Area contains the City's oldest infrastructure …dating back over 100 years!
- Plan serves as a tool to support the City's Vision of a revitalized commercial and residential area

Study Area



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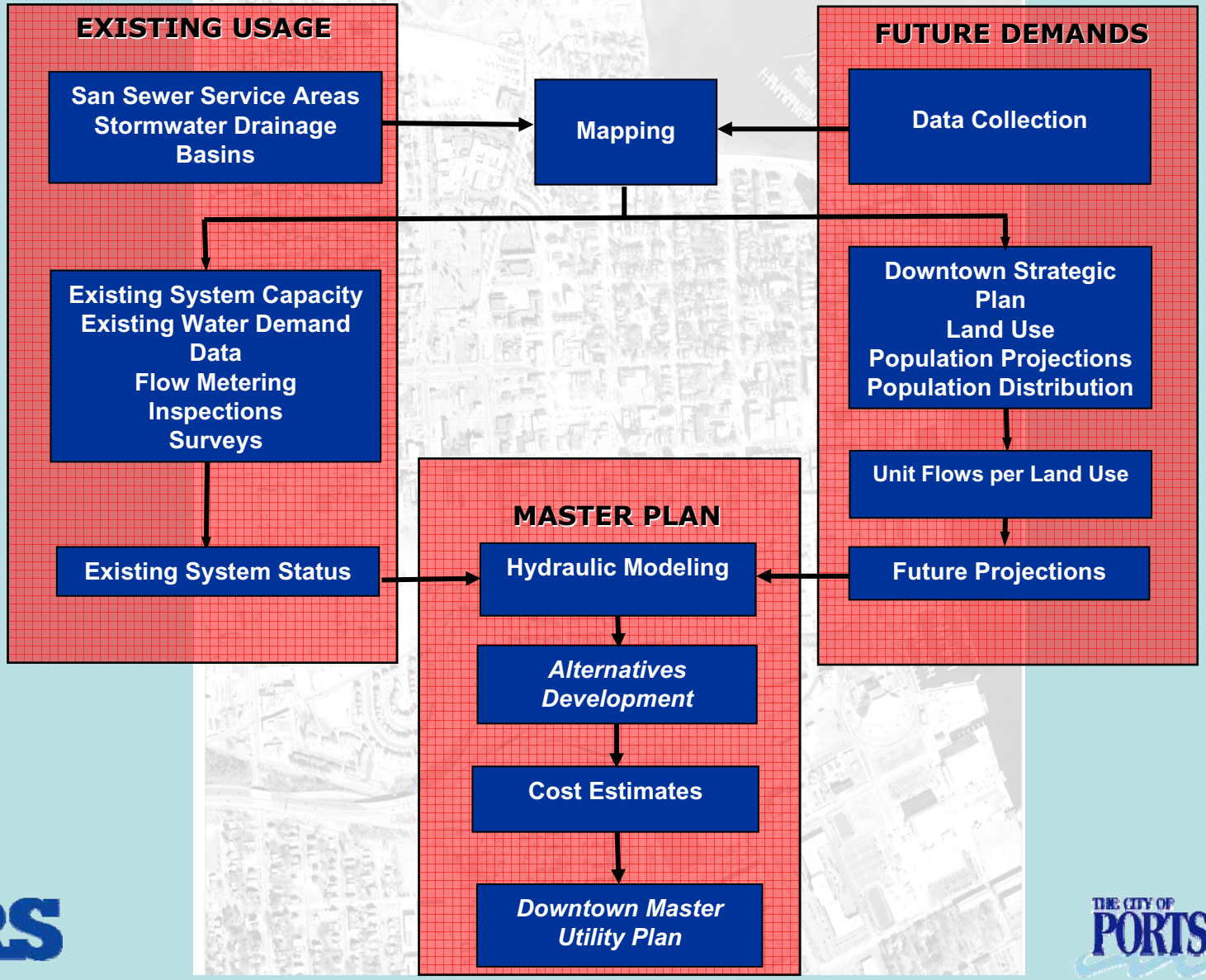
Project Approach



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Findings

- Increased Redevelopment Water Demands / Existing Infrastructure System Deficiencies
- Water Distribution System
- Sanitary Sewer System
- Stormwater System
- Total Estimated Costs (2006)
- "Utility Replacement Approach"

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Redevelopment Initiatives

HIGH & EFFINGHAM CORRIDOR

- **Additional Office/ Commercial Space:**

  241,620 to 265,620 SF

- **Additional Housing Units:**

  1,116 to 1,478

DOWNTOWN WATERFRONT

- **Additional Office/ Commercial Space:**

  150,000 to 156,000 SF

- **Additional Housing Units:**

  1,633 to 2,026

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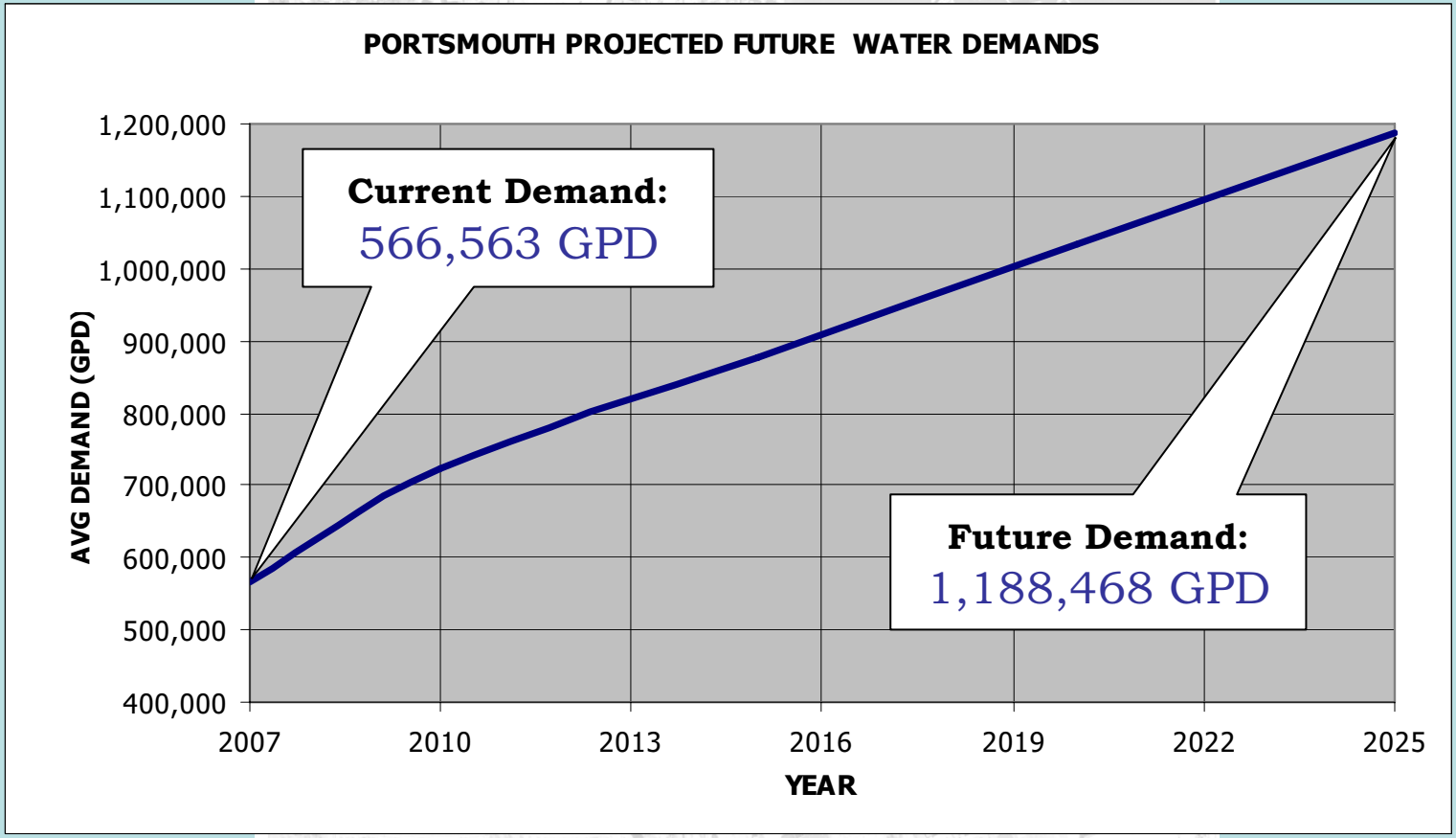
Projected Water Demands



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Existing Infrastructure

- Water System
  - Average Age = 61 Years
  - 86,507 LF (16.4 miles)
- Sewer System
  - Average Age = 67 Years
  - 76,120 LF (14.4 miles)
- Storm System
  - Average Age = 56 Years
  - 60,959 LF (11.5 miles)

Useful Life of Infrastructure Systems – 50 to 75 Years

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Water Distribution System

- Redevelopment Will Increase Both Domestic & Fire Flow Demands
- Replace 54,773 LF (63%) of Existing System
  - 93% Age & Condition Driven
  - 7% Redevelopment

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38% of the study area's water distribution system is over 95 years old!

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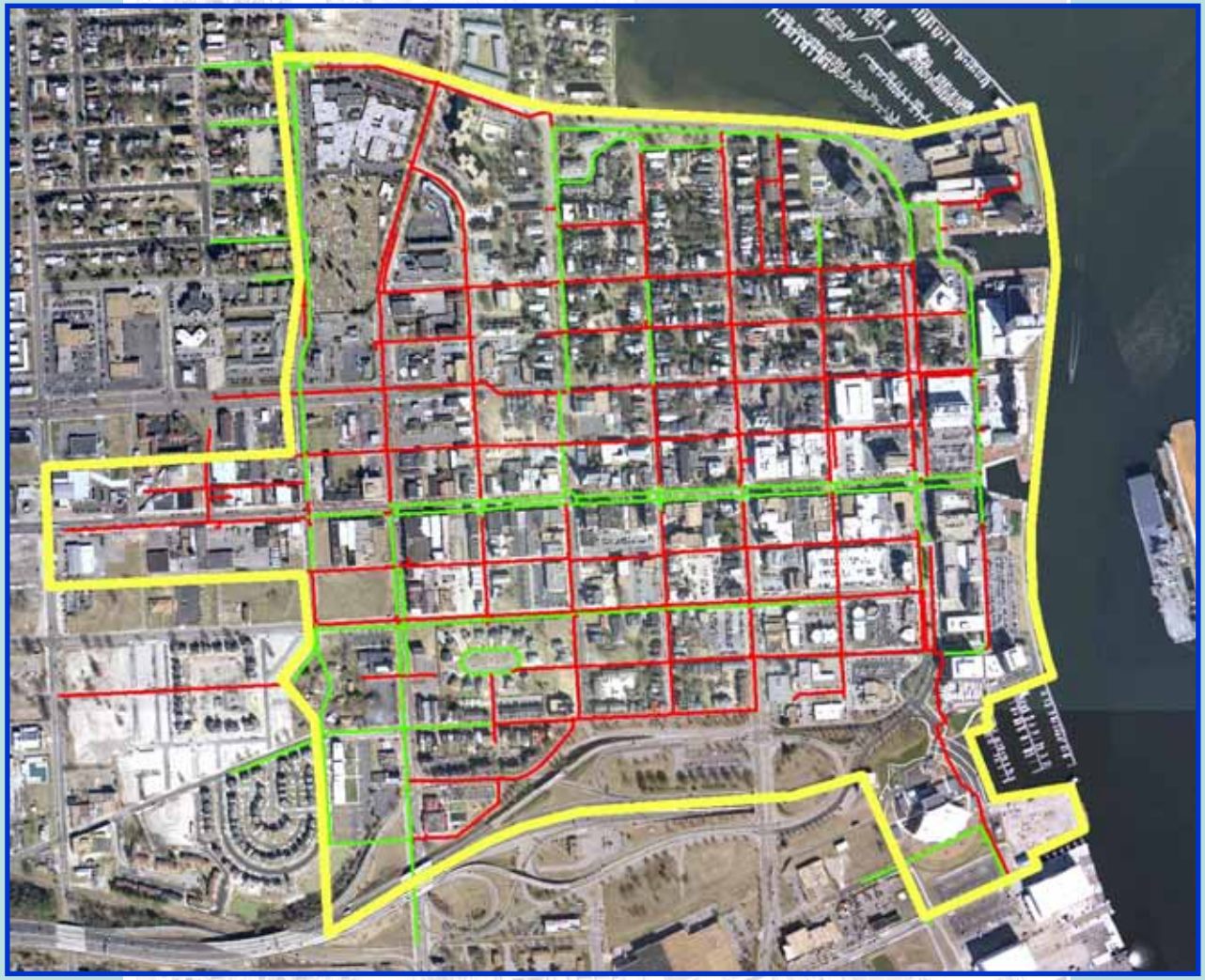
Water Distribution System



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Wastewater Collection System

- Existing System
  - 9 Current Service Areas
  - Average Age of Collection System 67 Years Old
  - 40% of Flows Due to Old & Leaking Pipes
  - Impact of Regional Sanitary Sewer Overflow Consent Order

Over 1/3 of system was installed prior to 1910!

Wastewater Collection System

- Proposed System
  - 8 Service Areas
  - Replace 56,992 LF (75%) of Collection System
    - 75% Age & Condition Driven
    - 25% Redevelopment
  - 2 New/Upgraded Pump Stations

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Wastewater Collection System

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Stormwater System

- 30 Watershed Drainage Areas
- No Significant Change in Impervious Area or Expected Runoff Due to Redevelopment
- Replace 45,279 LF (74%) of Storm Sewer System
  - 70% Age & Condition Driven
  - 30% Hydraulic Considerations

Current system does not meet today's design standards

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Stormwater System

- Due to Regular Periodic Flooding, Consider:
  - Raising Crawford Pkwy/Bulkhead & Adding of Tide Gates
  - Constructing a Stormwater Pumping Station (Basin 1100)

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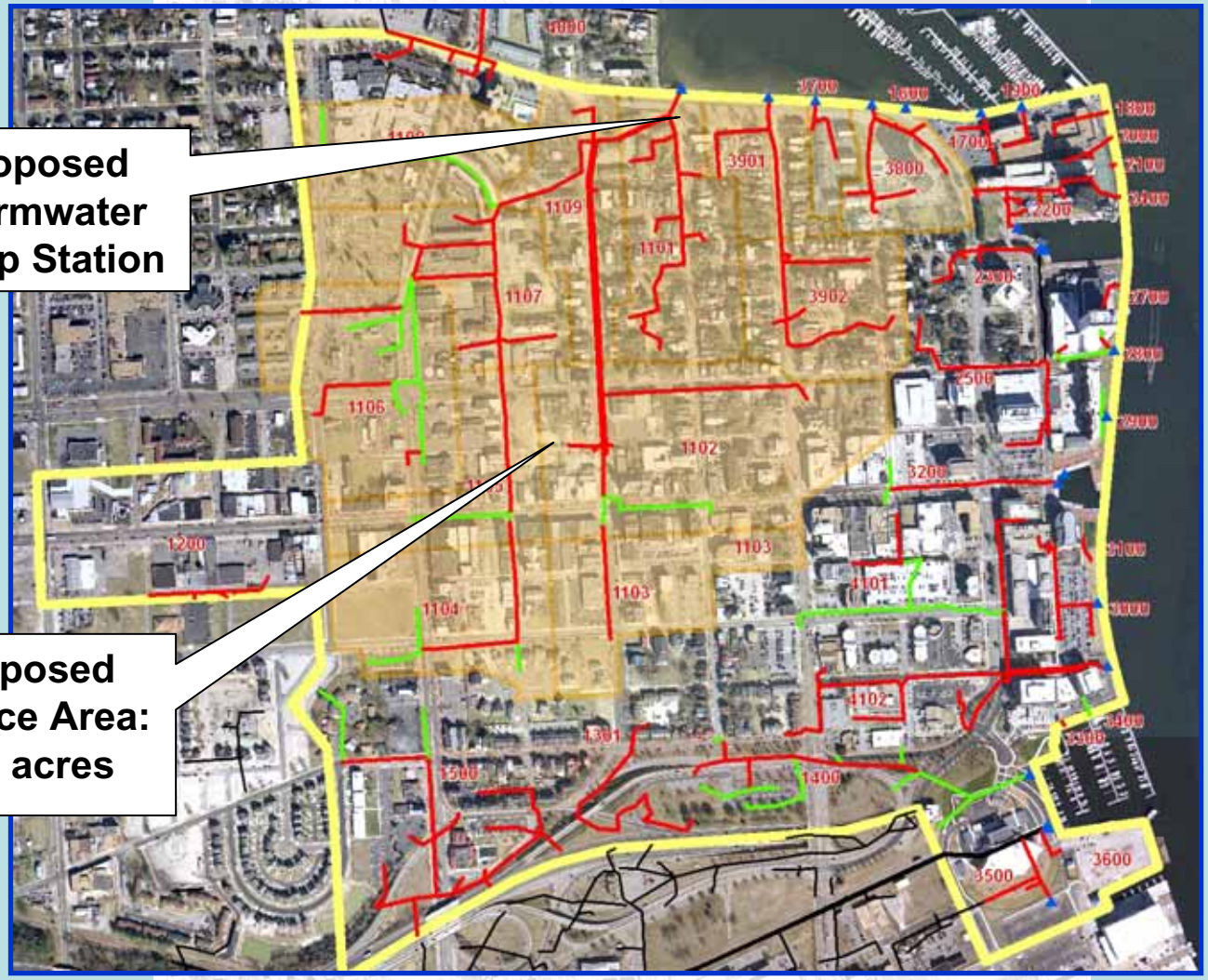
Stormwater System



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Total Estimated Costs

• Water Distribution System	
– Pipelines/Hydrants/Valves	$ 9.9 Million
• Wastewater Collection System	
– Pipelines/Manholes	$10.2 Million
– Pump Stations/Force Mains	$ 2.6 Million
• Stormwater System	
– Pipelines/Structures	$13.5 Million
– Pump Station	$ 2.3 Million
– Raise Crawford Pkwy	$ 1.9 Million
• Engineering & Inspection (15%)	$ 6.1 Million
• Contingency (15%)	$ 6.1 Million
TOTAL	$ 52.7 Million

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Utility Replacement Approach

- To Enhance Affordability, the Downtown Utility Rehabilitation Effort is Divided into a Number of Projects:
  - 4 Water Distribution
  - 17 Wastewater Collection
  - 22 Stormwater
- The Timing and Order of Redevelopment Drives Utility Project Phasing

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Redevelopment Initiatives

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Utility Replacement Approach

Cost and project(s) for water improvements necessary to support redevelopment initiative

Cost and project(s) for wastewater improvements necessary to support redevelopment initiative

Total cost for improvement projects associated with each redevelopment initiative

Impact Zone	Redevelopment Initiative	Water	Wastewater	Storm	Total
2	W2.1	$2,185,343 (W-002)	$2,735,060 (SS-013)	$ 1,663,452 (ST-1700, 1800, 1900, 2000, 2200, 2300, 2400, 2500, 2800, 3700)	$6,583,855
	W1.2		$1,074,232 (SS-014)		$4,923,027
	W4.1				$4,923,027
	W2.3				$4,923,027
	W2.2				$4,923,027
	W1.6		$1,625,497 (SS-015)		$6,548,524

Location within the study area

Redevelopment Initiative

Cost and project(s) for stormwater improvements necessary to support redevelopment initiative

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Utility Project Approach

Impact Zone	Redevelopment Initiative	Water	Wastewater	Storm	Total
1	W1.5	$3,751,005 (W-001)	$2,293,036 (SS-001)	$ 3,813,848 (ST-1400, 3000, 3200, 3300 & 4100)	$7,564,853
	W4.3		$875,569 (SS-003)		$10,733,458
	W2.4				$10,733,458
	W3.3				$10,733,458
	W1.3				$11,658,682
	W3.1		$925,224 (SS-005)		$11,658,682
	W3.2				$11,658,682
	W4.2				$11,658,682
	W1.1				$11,658,682

- For Example, Redevelopment Initiative W1.3 (Desk Incorporated) Project Phasing can be Followed Across Chart

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Pride of Past, Promise of Future

Our Infrastructure is…

…one of the City's most historic and most valuable assets.

…essential to our day-to-day lives.

…a cornerstone to our future success.

Infrastructure replacement requires prudent planning and a substantial investment.

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Downtown Master Utility Plan

Discussion

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