Downtown Master Utility Plan

City of Portsmouth, Virginia

Presentation Handout

Prepared by:

URS Corporation
277 Bendix Road, Suite 500
Virginia Beach, Virginia

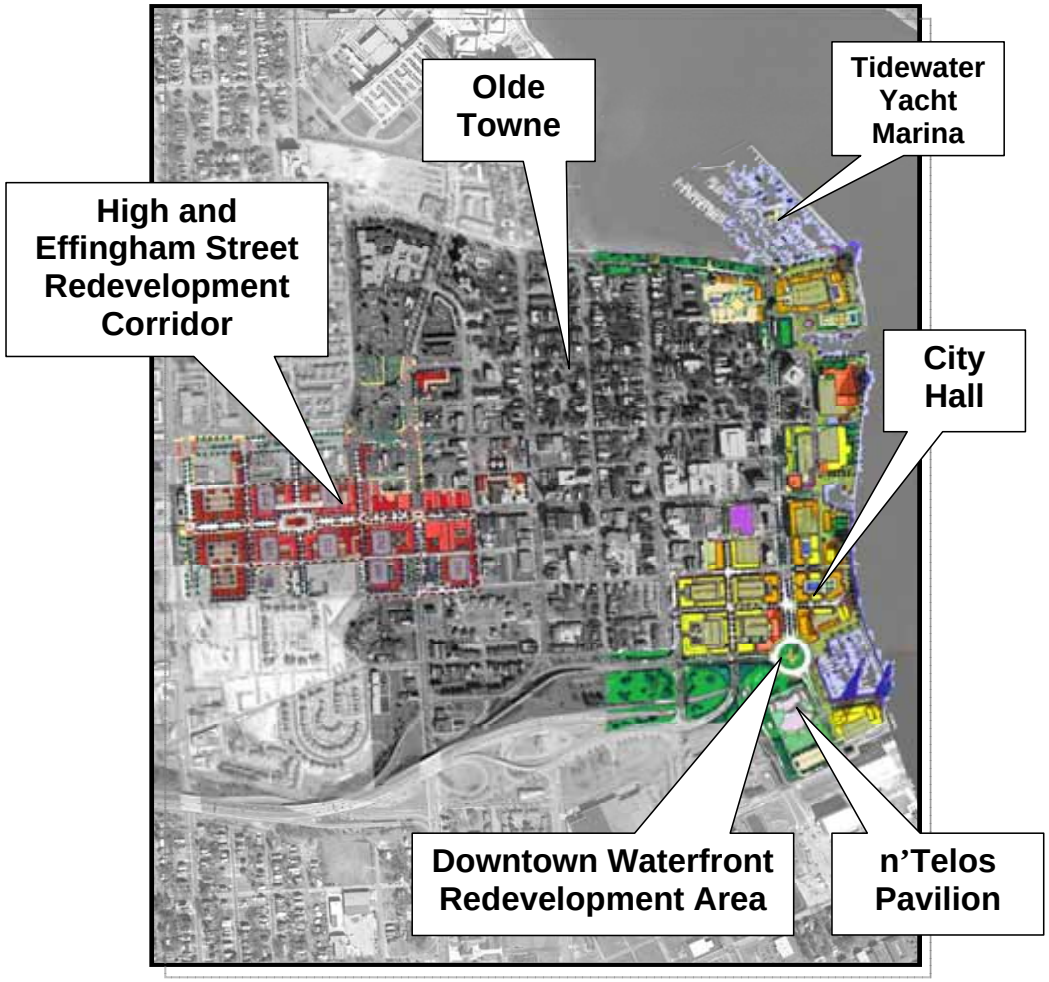
March, 2007

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**

1 – Crawford Circle

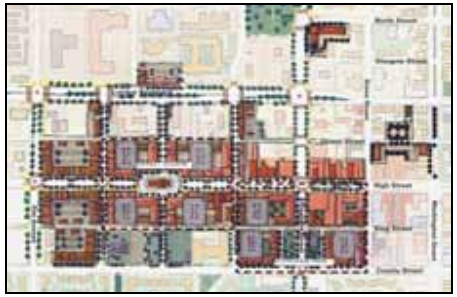

Olde Towne
Tidewater Yacht Marina
High and Effingham Street Redevelopment Corridor
City Hall
Downtown Waterfront Redevelopment Area
n'Telos Pavilion

Study Area

1. EXECUTIVE SUMMARY

The waterfront and downtown sections of Portsmouth are in the midst of a renaissance. The colonial charm of the cobblestone roads and Elizabethan Inns of Olde Towne are being married with a modernized waterfront of sophisticated shopping and residential locations. The "Downtown" and "High & Effingham Corridor" areas of Portsmouth were identified as FOCUS Areas in Destination 2025, *Setting a Bold New Course*, City of Portsmouth, Virginia Comprehensive Plan 2005. FOCUS Areas are specific geographic areas in need of intervention to promote revitalization, and build the area as the regional center of activity.
Two strategic redevelopment plans were developed for the City, which concentrate on the above-mentioned FOCUS Areas:

- *Downtown Waterfront Strategic Plan*, Portsmouth, Virginia, Urban Design Associates, February 2006;
- *High and Effingham Corridor Study*, Portsmouth, Virginia, Urban Design Associates, March 2006



1 - High and Effingham Corridor

URS Corporation has been contracted by the City of Portsmouth to prepare a Downtown Master Utility Plan (The Plan). This study will support the ultimate strategic plan development through targeted infrastructure planning that will mature along with the build-out of the downtown development plan. The Plan targeted the 330-acre area of Portsmouth defined by Interstate Highway 264 to the south, Effingham Street & Fort Lane to the west, Crawford Parkway to the north, and Water Street to the east. Within the study area, proposed redevelopment initiatives were utilized in projecting the future landscape. Existing and future infrastructure demands were established, and the required improvements in the current utility infrastructure (water, wastewater & stormwater) were identified.

The identified improvements were divided into 42 utility projects (4 water, 16 wastewater & 22 stormwater). Proposed utility projects will upgrade century-old systems, bring them up to current engineering design standards, and will provide needed system capacities for current and new customers. Projects were designed to be scalable in order for the City to support its most current needs.

2 - Downtown Waterfront

Recommended utility improvements will result in the replacement of over 150,000 linear feet, or nearly 30 miles, of pipe and associated system components. This constitutes 70% of the existing water, wastewater, and stormwater systems. Identified utility improvement costs are estimated in the following table.

Utility Infrastructure System	Project Year	
	2006 (Today)	2016 (Escalated)
Potable Water	$ 12,910,145	$ 20,049,060
Wastewater	$ 16,653,648	$ 25,862,606
Stormwater	$ 23,102,568	$ 35,877,582
Total	**$ 52,666,361**	**$ 81,789,247**

3 - Utility Improvement Cost Estimate

Downtown Master Utility Plan

City Council Briefing

March 19, 2007

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Notes

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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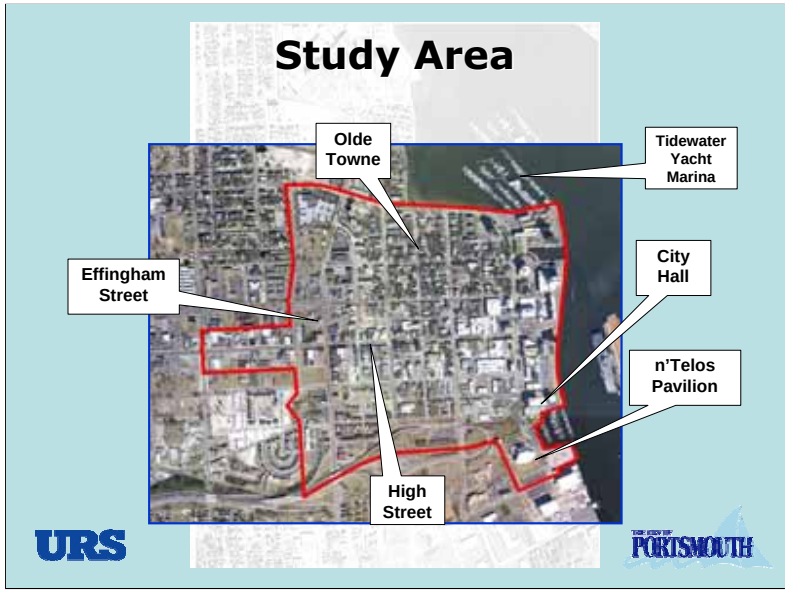
Study Area
Olde Towne
Tidewater Yacht Marina
Effingham Street
City Hall
n'Telos Pavilion
High Street
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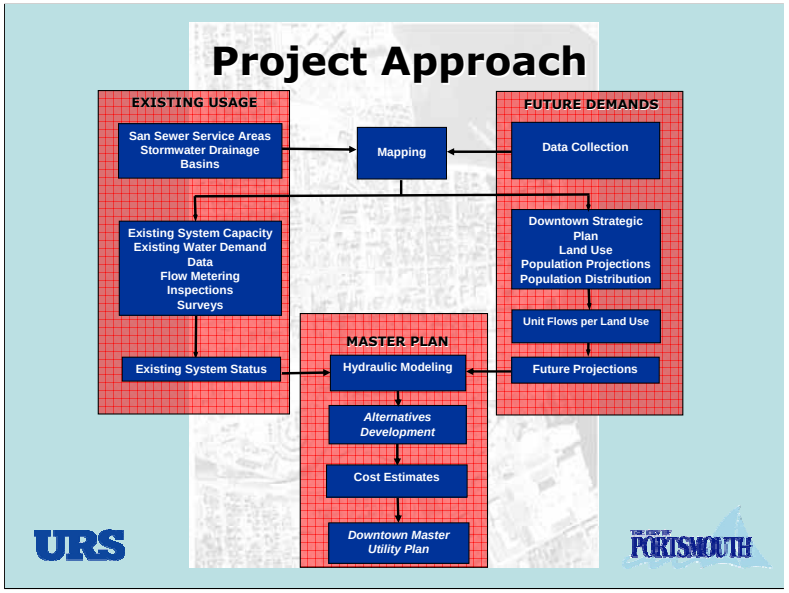
Notes


Project Approach
EXISTING USAGE
San Sewer Service Areas
Stormwater Drainage Basins
Mapping
Data Collection
FUTURE DEMANDS
Existing System Capacity
Existing Water Demand Data
Flow Metering
Inspections
Surveys
Downtown Strategic Plan
Land Use
Population Projections
Population Distribution
Unit Flows per Land Use
MASTER PLAN
Existing System Status
Hydraulic Modeling
Future Projections
Alternatives Development
Cost Estimates
Downtown Master Utility Plan
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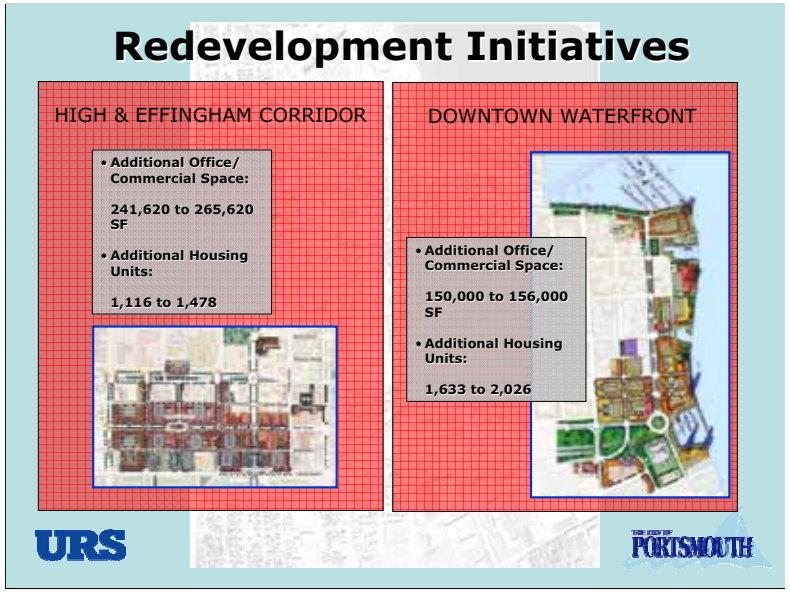
Findings

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

Notes


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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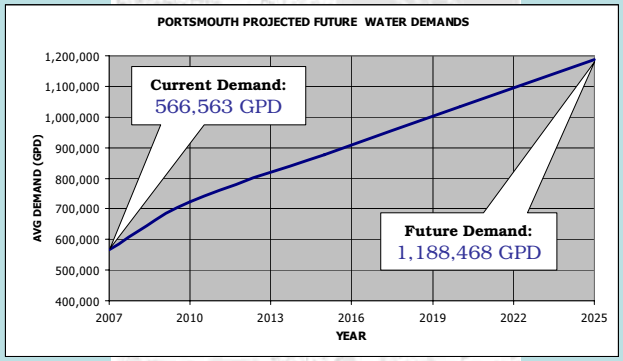
Projected Water Demands



Notes

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

Notes

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

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

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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

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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)

Notes

Stormwater System
Proposed Stormwater Pump Station
Proposed Service Area: 157 acres
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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, 2600, 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
	W1.5				$7,564,653
		$3,751,005	$2,293,036 (SS-001)	$ 3,813,848	
	W4.3		$875,569 (SS-003)		$10,733,458
	W2.4				$10,733,458
1	W3.3				$10,733,458
	W1.3				$11,658,682
	W3.1		$925,224 (SS-005)	(ST-1400, 3000, 3200, 3300 & 4100)	$11,658,682
	W3.2	(W-001)			$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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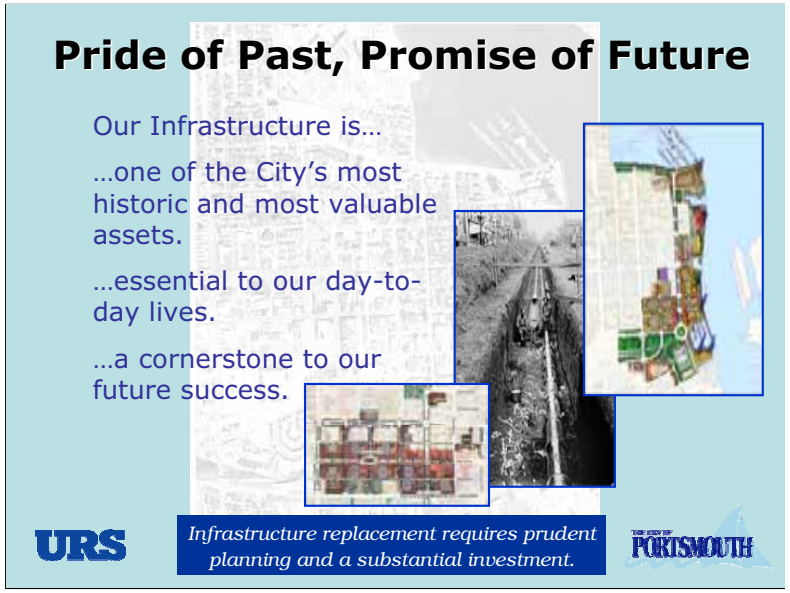
Pride of Past, Promise of Future
Our Infrastructure is…
…one of the City's most historic and most valuable assets.
…essential to our day-to-day lives.
…a cornerstone to our future success.
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Infrastructure replacement requires prudent planning and a substantial investment.
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Notes

Notes

2006 PROJECT COST TABLE

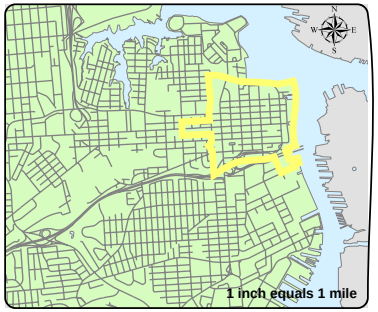
Study Area	Water	Wastewater	Storm	Total
	$12,910,145	$16,653,648	$23,102,568	$52,666,361

Impact Zone	Water	Wastewater	Storm	Total
1	$3,751,005	$6,155,783	$3,813,848	$13,720,636
2	$2,185,343	$2,699,729	$1,663,452	$6,548,524
3	$4,052,555	$5,482,525	$15,081,295	$24,616,375
4	$2,921,242	$2,315,611	$2,543,973	$7,780,826

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
1	W1.5	$3,751,005 (W-001)		$ 3,813,848 (ST-1400, 3000, 3200, 3300 & 4100)	$7,564,853
			$2,293,036 (SS-001)		
	W4.3		$875,569 (SS-003)		$10,733,458
	W2.4				$10,733,458
	W3.3				$10,733,458
	W1.3		$925,224 (SS-005)		$11,658,682
	W3.1				$11,658,682
	W3.2				$11,658,682
	W4.2				$11,658,682
	W1.1				$11,658,682
4	EP1.1	$2,921,242 (W-004)	$927,747 (SS-002, SS-004)	$ 2,543,973 (ST-1200, 1301 & 1500)	$8,685,997
	EP1.2				$9,671,666
	EP2				$9,671,666
	MS4		$985,668 (SS-016, SS-017)		$9,671,666
	MS5				$9,671,666
	MS6				$9,671,666
	MS1				$9,671,666
	MS2				$9,671,666
	MS3				$9,671,666
	MS7				$9,671,666
3	Neighborhood Improvements	$4,052,555 (W-003)	$5,211,614 (SS-006, SS-007, SS-008, SS-010, SS-011, SS-012)	$15,081,295 (ST-1100, 3800, 3900 & 4000)	$24,345,465

Project Cost Table

REDEVELOPMENT INITIATIVES



Legend

- Project Area
- Proposed Building
- Proposed Park
- Proposed Parking
- Proposed Pavement
- Proposed Project

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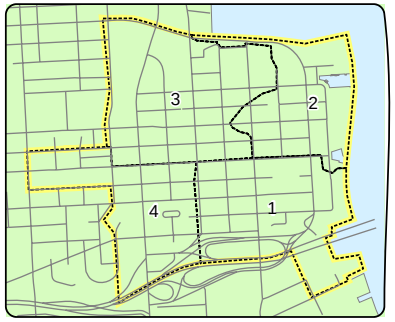
DOWNTOWN MASTER UTILITY PLAN

STUDY AREA & IMPACT ZONES



LEGEND

Impact Zones

Project Area

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