

OREM CITY

STORM WATER MASTER PLAN

City Council
Work Session
Dec 8, 2015



STORM WATER INTRO

- 1987
 - Congress mandates EPA to control certain storm water discharges.
- 1990
 - Utah issues first permits to large municipalities
- 1996
 - Orem Storm Sewer Utility created in March
 - Numerous findings
 - Improve water quality
 - Protect health and safety of public
 - Enhance water availability
 - Reduce flooding potential

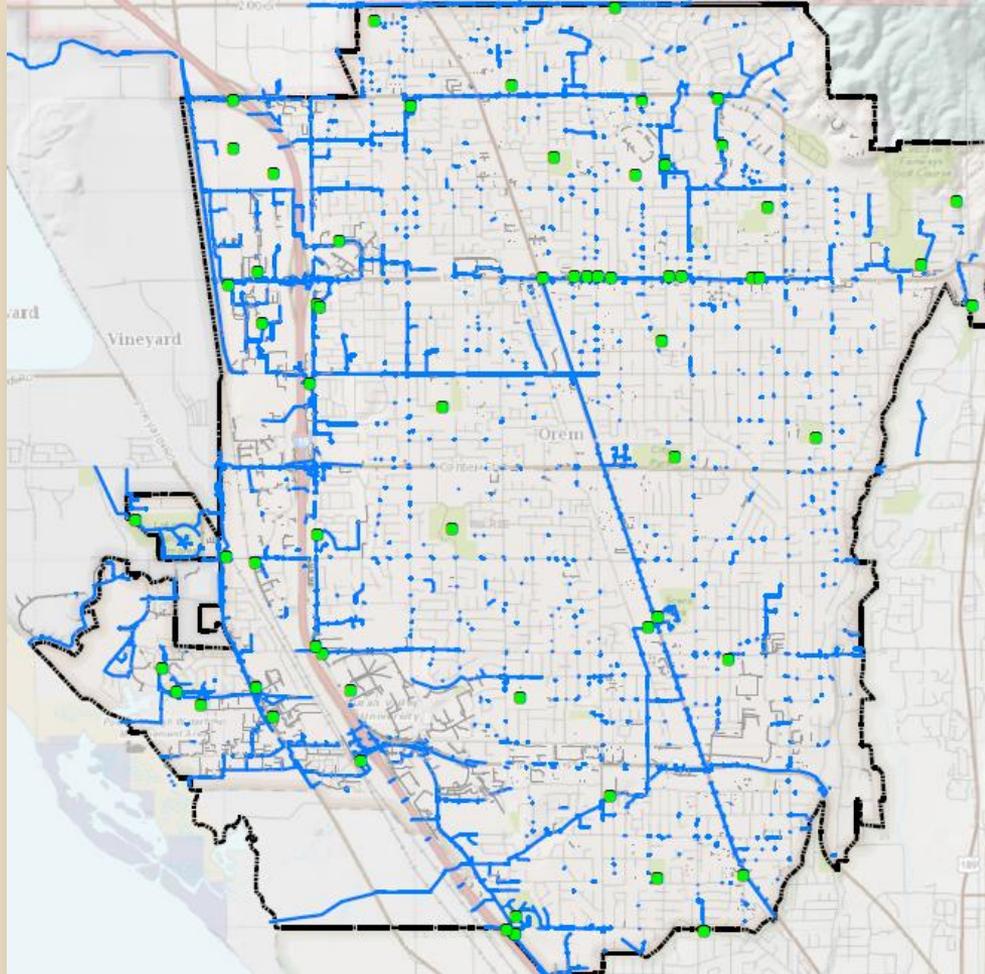


STORM WATER INTRO

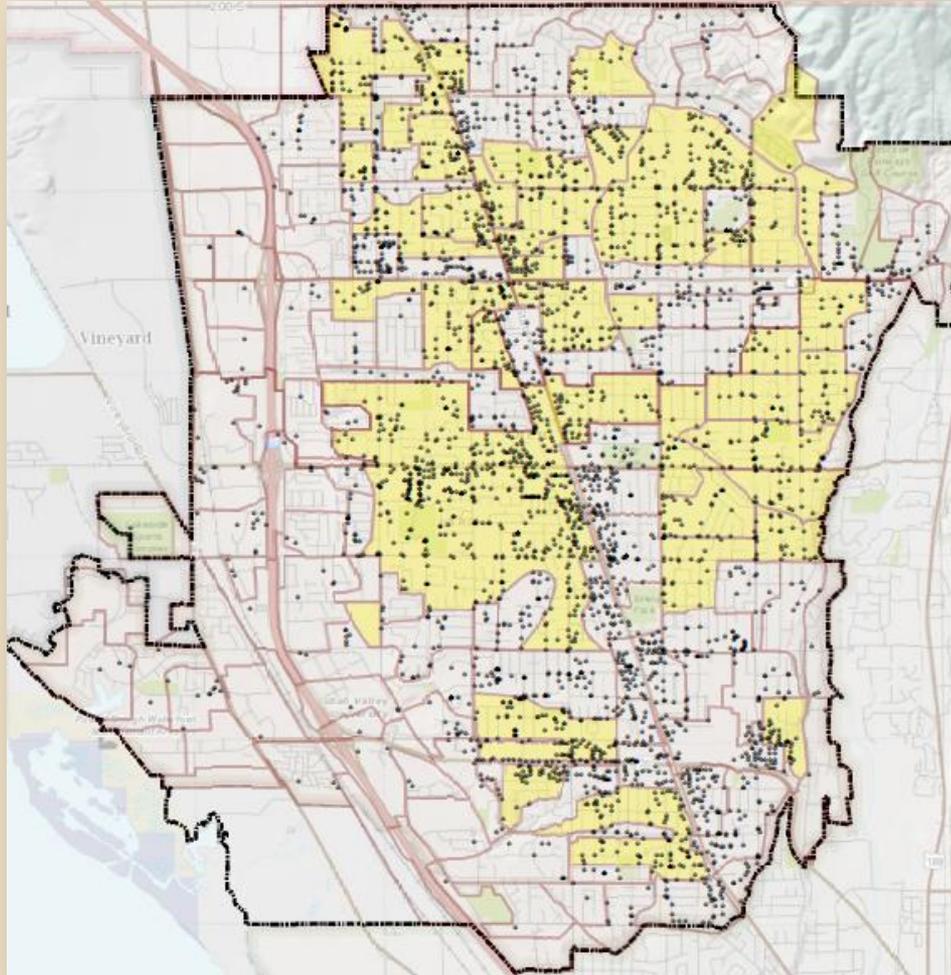
- One of numerous unseen utilities
 - Infrastructure used to convey storm water runoff
 - 87.1 miles of pipe
 - Range from 6" to 54" diameter
 - 1,759 sumps
 - 36 Detention basins
 - Many privately managed structures.



STORM WATER PIPES AND DETENTION BASINS



STORM WATER SUMPS



PURPOSE OF MASTER PLAN

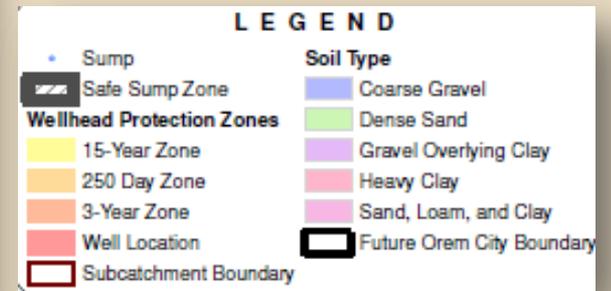
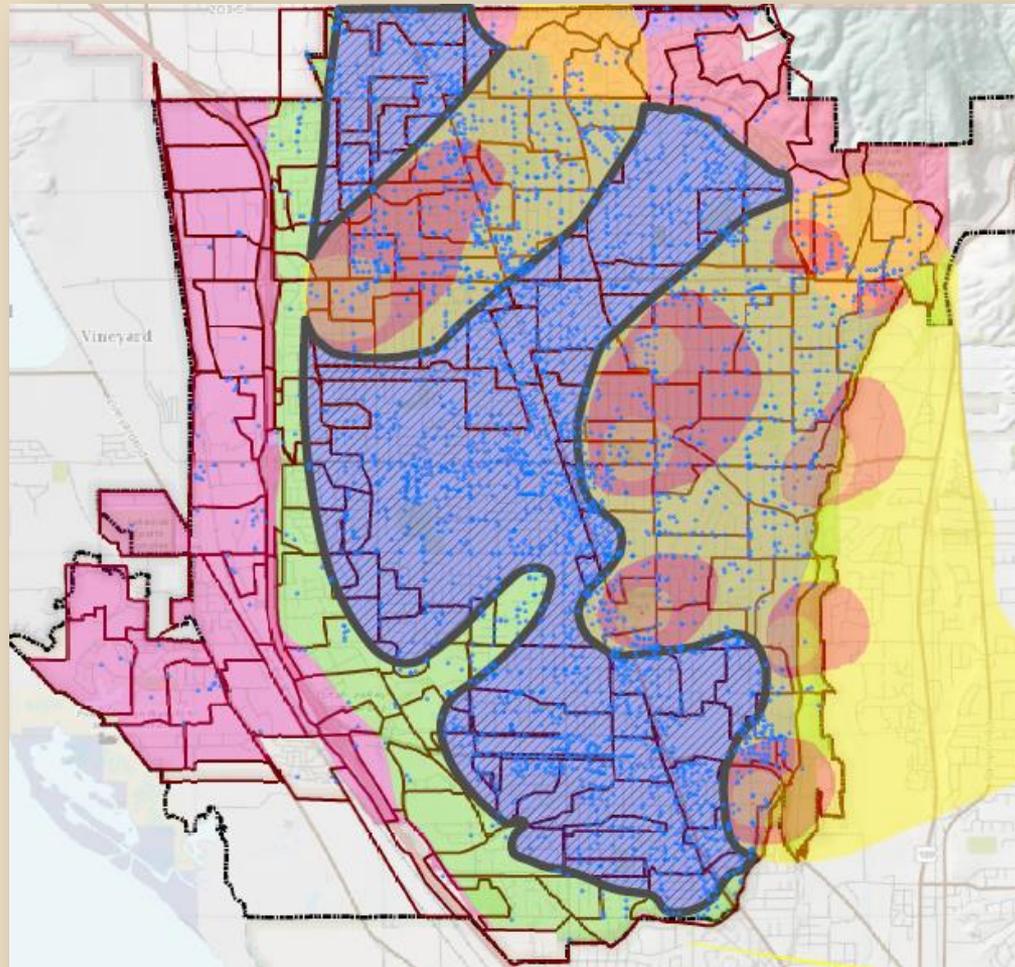
- Contracted with Bowen/Collins & Associates, Inc.
 - Provide recommended improvements to resolve existing and projected future deficiencies in the City's storm water system based on the adopted General Plan.
 - Conduct a Rate Study to recommend storm drain rates for the City
 - A working document



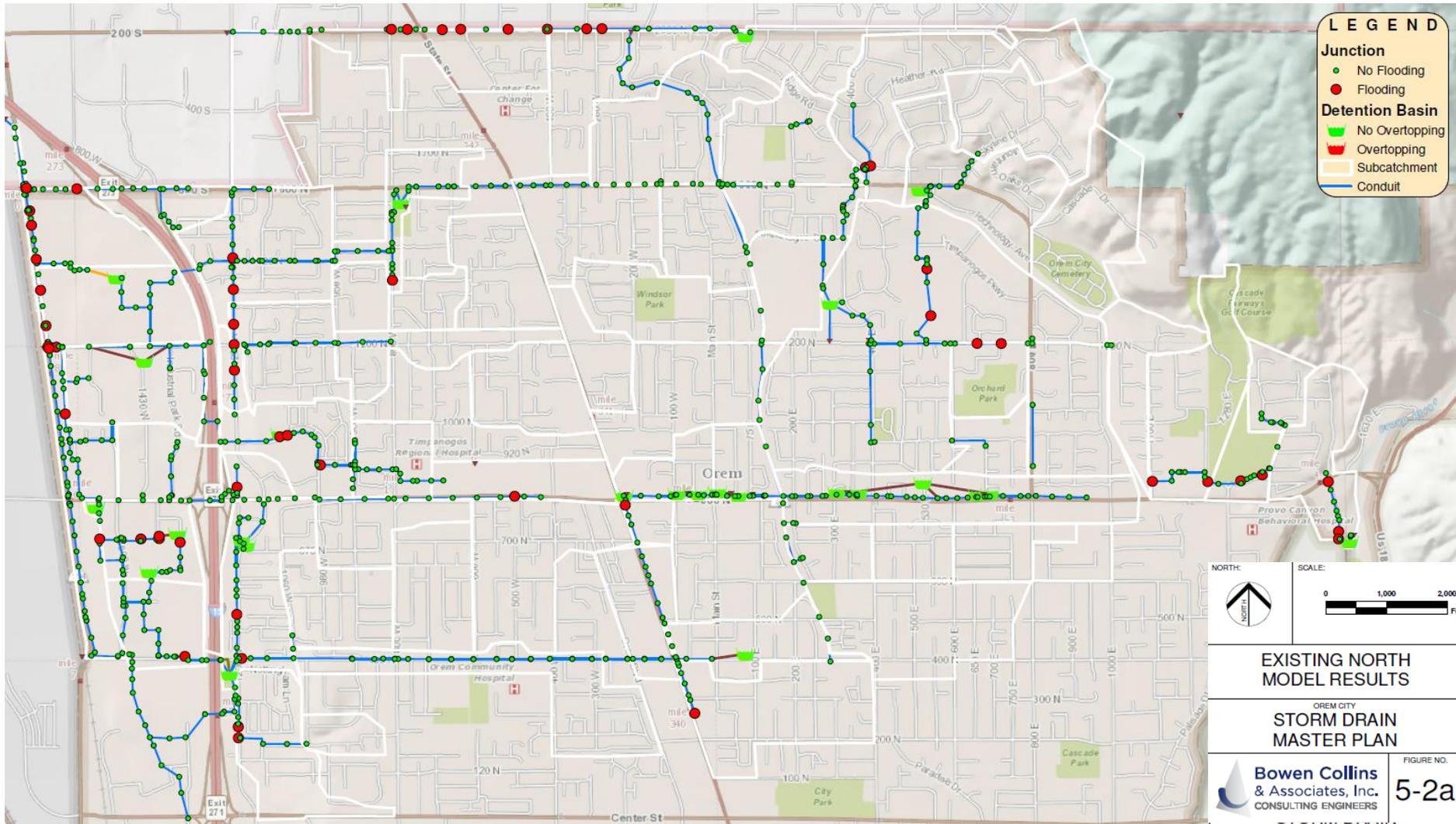
SCOPE OF PROJECT

- Conduct a thorough analysis of City's storm water utility system and its ability to meet the present and future storm water system needs.
 - Review
 - Existing InfoSWMM model
 - Known deficiencies with city staff
 - Collect
 - Supplemental data to update model
 - Modify
 - Existing InfoSWMM model for future conditions
 - Develop
 - Hydrologic model based on a 10-year storm
 - Solutions to existing and future deficiencies and prioritize with staff
 - Solutions to protect wellhead protection zones and prioritize with staff
 - Utility rate options for the city.
 - Outreach
 - Public Works Advisory Commission
 - Public open houses to communicate needs to the public
 - Mailers to city residents
 - Website with planning information

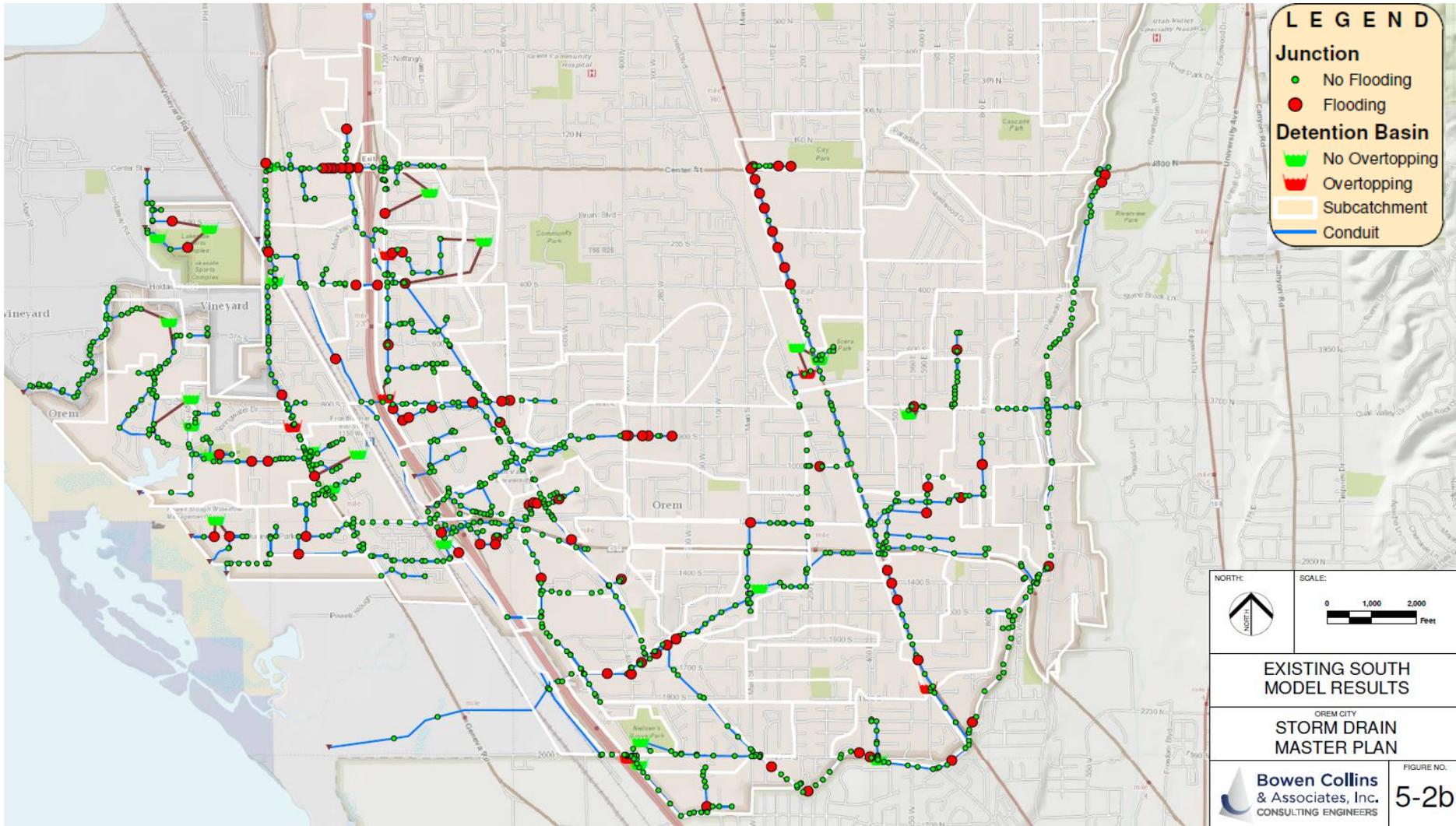
WELLHEAD PROTECTION AREAS



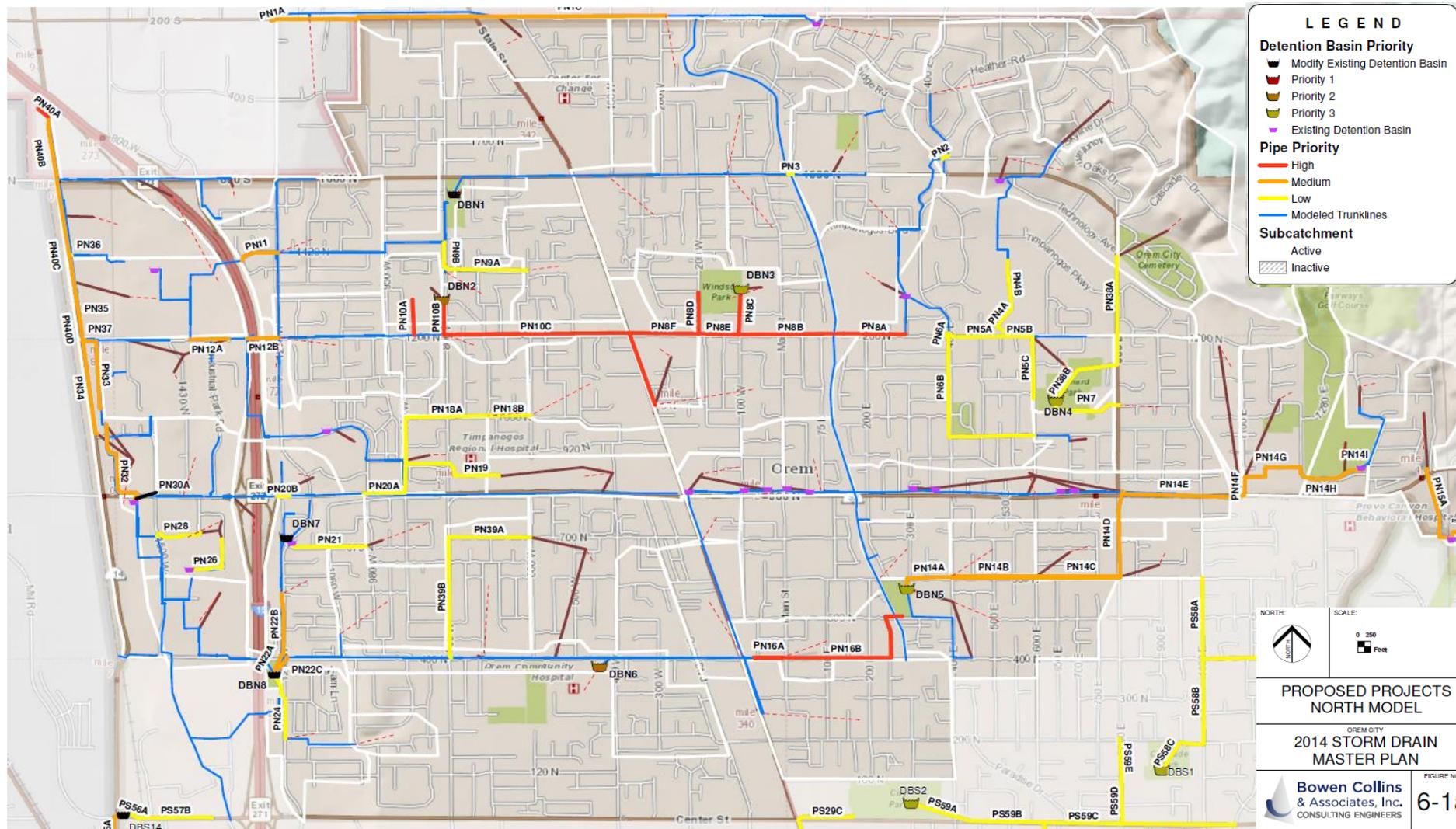
MODEL RESULTS (NORTH)



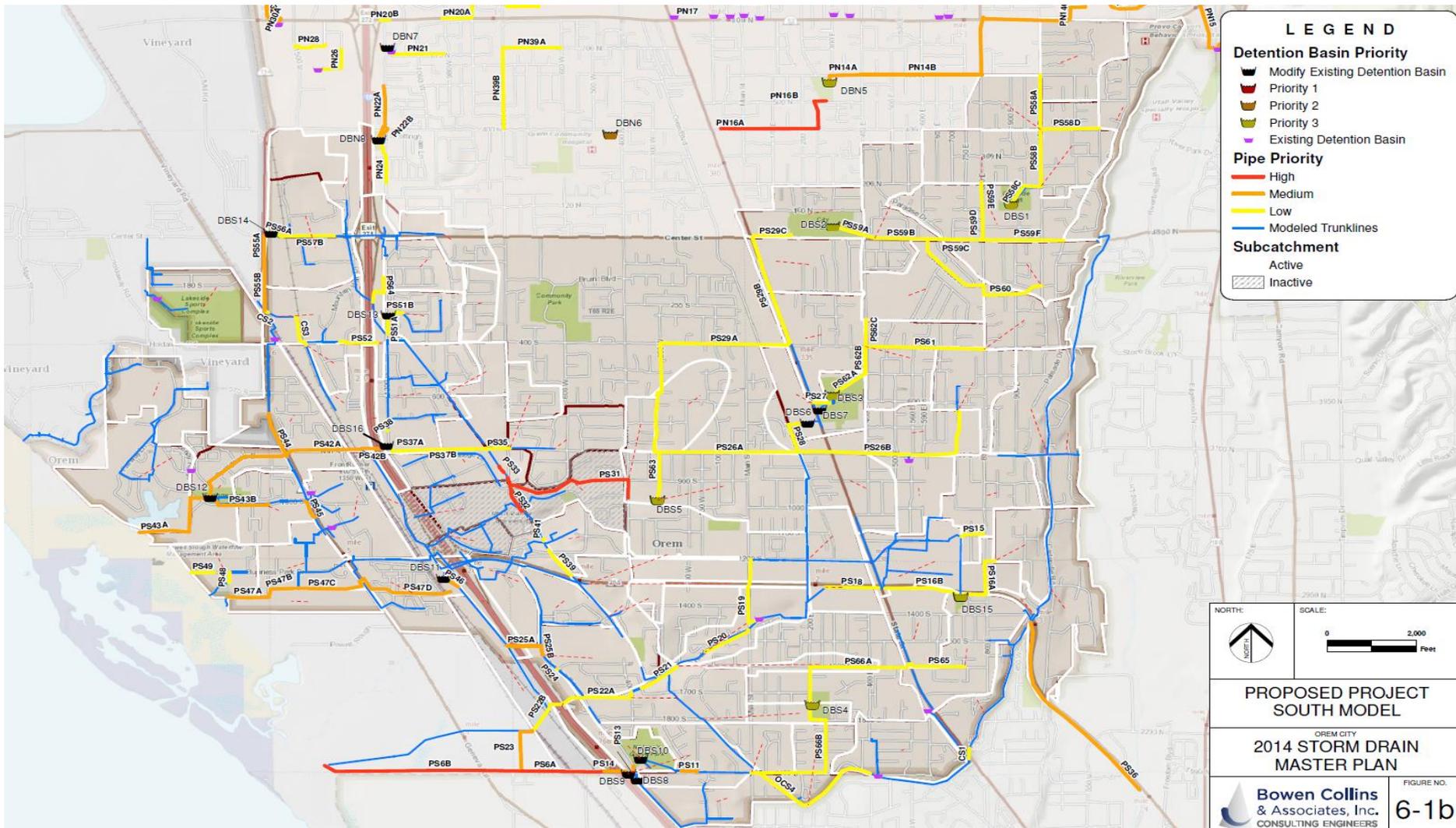
MODEL RESULTS (SOUTH)



PROPOSED PROJECTS (NORTH)



PROPOSED PROJECTS (SOUTH)



TEN-YEAR CIP PLAN

		Project Identifier	Project Name	Estimated FY 2015 Total Cost	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	
		Rank	PN16A	400 N (A)	DONE										
5-Year Plan (FY2017-2021)	1	PN16B	250 E	\$ 573,200	\$ 151,000	\$ 457,108									
	2	PS31	900 S	\$ 629,100		\$ 667,412									
	3	PS32	Heat Plant Rd (A)	\$ 307,400			\$ 335,904								
	4	PS33	Heat Plant Rd (B)	\$ 51,500			\$ 56,275								
	5	PN10C	1200 N (A)	\$ 1,376,600			\$ 1,022,889	\$ 495,800							
	6	DBN2	Bonneville School DB	\$ 419,600				\$ 472,263							
	7	PN10A	Bonneville School	\$ 111,700				\$ 125,719							
	8	PN10B	800 W	\$ 256,400				\$ 288,580							
	9	PN8F	1200 N (E)	\$ 231,000				\$ 194,994	\$ 66,948						
	10	PN8E	1200 N (D)	\$ 133,600					\$ 154,879						
	11	PN8B	1200 N (C)	\$ 408,900					\$ 474,027						
	12	PN8A	1200 N (B)	\$ 208,900					\$ 242,172						
	10-year plan (thru 2025)	13	DBS5	Lakeridge Jr. High DB	\$ 894,300				\$ 756,819	\$ 288,317					
		14	PS63	Lakeridge Jr. High	\$ 673,200					\$ 803,836					
15		PS26A	2000 S (B)*	\$ 1,016,300					\$ 388,810						
16		DBN3	Taylor Drain Outlet**	\$ 473,800					\$ -						
17		PN8D	800 S (C)	\$ 135,300					\$ 291,244	\$ 949,940					
18		PN8C	Windsor Park DB	\$ 159,600						\$ 582,714					
19		PN40A	1200 N (E)	\$ 66,900						\$ 166,402					
20		PN40B	1200 N (D)	\$ 550,400						\$ 157,030	\$ 40,435				
21		PN40C	1200 N (C)	\$ 1,071,500							\$ 84,747				
22		PN40D	Geneva Rd (E)	\$ 168,500							\$ 697,230				
23		PN34	2000 S (C)	\$ 673,200							\$ 1,126,596	\$ 237,671			
24		PN33	Nielson Grove Park	\$ 444,700								\$ 219,854			
25		PN32	Geneva Rd (D)	\$ 656,200								\$ 878,373			
26		PN12A	Geneva Rd (C)	\$ 174,300								\$ 580,233			
27		PN12B	Geneva Rd (B)	\$ 108,300								\$ 102,743	\$ 776,053		
28		PN11	600 N (A)	\$ 179,300										\$ 234,245	
29		DBN5	600 N (B)	\$ 935,000										\$ 145,546	
30		PN14A	1200 N (G)	\$ 278,400										\$ 240,964	
31		PN14B	Sharon Park DB	\$ 441,700										\$ 691,109	
*Portion not paid by developer		M1	Misc. maintenance	\$ 970,874	\$ 100,000	\$ 103,000	\$ 106,090	\$ 109,273	\$ 112,551	\$ 115,927	\$ 119,405	\$ 122,987	\$ 126,677	\$ 130,477	
**Will be paid by developer		Repairs	Emergency repairs	\$ 970,874	\$ 100,000	\$ 103,000	\$ 106,090	\$ 109,273	\$ 112,551	\$ 115,927	\$ 119,405	\$ 122,987	\$ 126,677	\$ 130,477	
		Fleet	Fleet Costs	\$ 3,189,342	\$ 537,268	\$ 538,554	\$ 414,311	\$ 334,063	\$ 296,522	\$ 305,276	\$ 314,293	\$ 302,873	\$ 311,894	\$ 321,186	
			TOTAL	\$ 18,939,890	\$ 888,268	\$ 1,869,074	\$ 2,041,559	\$ 2,129,965	\$ 2,216,469	\$ 2,309,337	\$ 2,409,189	\$ 2,497,855	\$ 2,584,122	\$ 2,670,057	

PROPOSED PROJECT COSTS

- Major Conveyance Facilities (Pipelines)
 - 144 projects (New, Parallel, Reroute, Upsize)
 - \$54.6 million*
- Open Channel Improvements (Irrigation Ditches)
 - 1 project, Modify
 - \$41,000*
- Detention Basin Improvements
 - 24 projects (New, Modify)
 - \$6.5 million*
- Culvert Improvements
 - 3 projects
 - \$216,000*

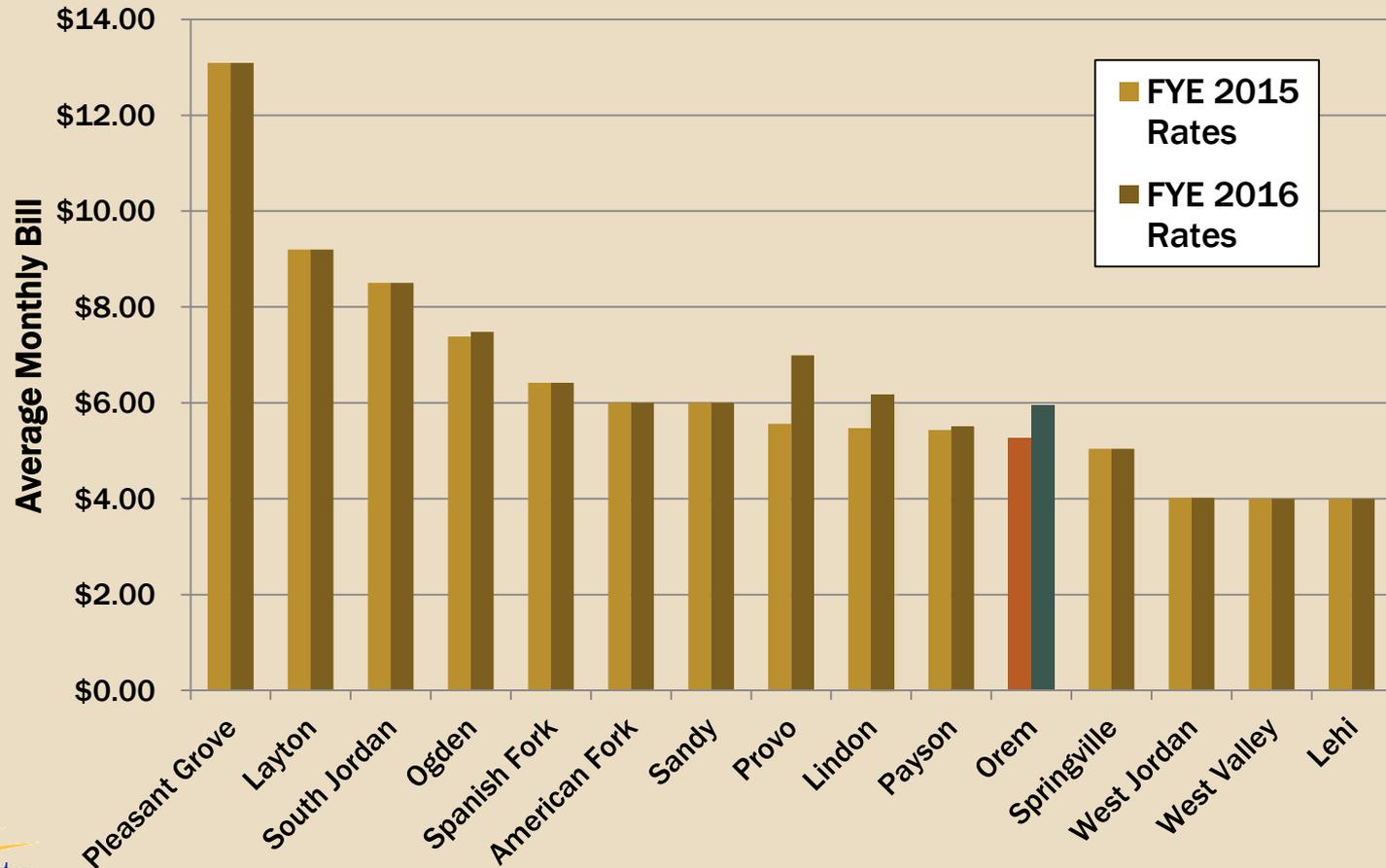
**Present Value*

STORM WATER UTILITY FUNDING

- Storm Water Fee
 - Based on amount of impervious surface.
 - Equivalent Service Unit (ESU)
 - Equal to the average impervious surface of a residential property.
 - 1 ESU = 2,700 sq. ft.
 - \$5.25 per ESU (Current rate)
- All single-family units are charged 1 ESU per month.
- Businesses are charged according to their impervious surface area
 - Example: A business with 27,000 sq. ft. of impervious surface (e.g., roof, parking lot, walk ways) would be charged for 10 ESUs, or \$52.50/month.

OTHER CITIES

Comparison of Annual Storm Water Rates, Average Residential Customer



REVISED STORM WATER RATES

Scenario 1: Increase over 5 years				
Year	Cost per ESU	Monthly Increase per ESU	Cumulative Increase	Total CIP
2016	\$5.25	\$0.00	\$0.00	\$1,211,076
2017	\$6.65	\$1.40	\$1.40	\$1,861,688
2018	\$6.95	\$0.30	\$1.70	\$2,035,907
2019	\$7.20	\$0.25	\$1.95	\$2,121,867
2020	\$7.40	\$0.20	\$2.15	\$2,211,443
2021	\$7.60	\$0.20	\$2.35	\$2,304,787
2022	\$7.80	\$0.20	\$2.55	\$2,402,058
2023	\$8.00	\$0.20	\$2.75	\$2,484,264
2024	\$8.20	\$0.20	\$2.95	\$2,569,282
2025	\$8.40	\$0.20	\$3.15	\$2,657,208
Effect on CIP	\$0		TOTAL	\$21,859,580

REVISED STORM WATER RATES

Scenario 2: Increase over 7 years				
Year	Cost per ESU	Monthly Increase per ESU	Cumulative Increase	Total CIP
2016	\$5.25	\$0.00	\$0.00	\$1,211,076
2017	\$6.20	\$0.95	\$0.95	\$1,614,589
2018	\$6.65	\$0.45	\$1.40	\$1,852,392
2019	\$6.95	\$0.30	\$1.70	\$1,976,600
2020	\$7.25	\$0.30	\$2.00	\$2,128,051
2021	\$7.50	\$0.25	\$2.25	\$2,247,095
2022	\$7.75	\$0.25	\$2.50	\$2,387,986
2023	\$8.00	\$0.25	\$2.75	\$2,495,941
2024	\$8.20	\$0.20	\$2.95	\$2,573,859
2025	\$8.40	\$0.20	\$3.15	\$2,657,333
Effect on CIP	-\$699,754		TOTAL	\$21,144,921

REVISED STORM WATER RATES

Scenario 3: Increase over 10 years				
Year	Cost per ESU	Monthly Increase per ESU	Cumulative Increase	Total CIP
2016	\$5.25	\$0.00	\$0.00	\$1,211,076
2017	\$6.00	\$0.75	\$0.75	\$1,480,000
2018	\$6.35	\$0.35	\$1.10	\$1,682,561
2019	\$6.70	\$0.35	\$1.45	\$1,834,190
2020	\$6.97	\$0.27	\$1.72	\$1,969,427
2021	\$7.27	\$0.30	\$2.02	\$2,126,137
2022	\$7.55	\$0.28	\$2.30	\$2,256,476
2023	\$7.85	\$0.30	\$2.60	\$2,411,403
2024	\$8.15	\$0.30	\$2.90	\$2,542,394
2025	\$8.40	\$0.25	\$3.15	\$2,658,918
Effect on CIP	-\$1,665,583		TOTAL	\$20,172,582

THE PATH FORWARD

- Final review by the community and City Council
- Finalize Master Plan and appendices
- Formal presentation to City Council
 - Adopt Storm Water Master Plan
 - Adopt new storm water rates



QUESTIONS?

