Albany Pool Combined Sewer System Long Term Control Plan



Presentation of Recommended CSO LTCP

Public Meeting

June 1, 2011



Cohoes Green Island Rensselaer Troy Watervliet

Public Meeting Schedule

- Round 1 Project Introduction and Overview March 31, 2008
- Round 2 CSS Characterization Findings Overview November 10, 2009
- Round 3 Receiving Waters Sampling and Modeling January 13, 2011
- Round 4 LTCP CSO Controls Presentation June 1, 2011



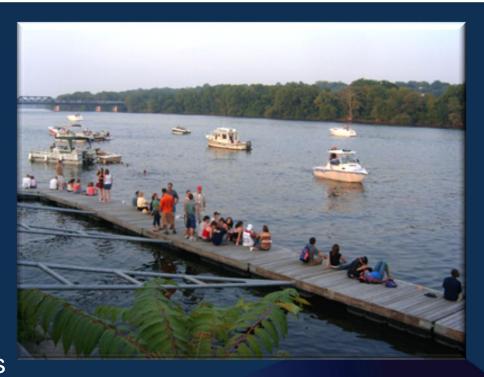
Public Meeting Agenda

- Recommended CSO LTCP Program Elements
- Proposed Implementation Schedule
- Financial Impact and Affordability Assessment
- Questions and Answers



CSO LTCP Goals

- Maintain current Class C river uses
 - Fishing and fish habitat
 - Recreational boating
 - Other primary and secondary contact activities



- Accommodate swimming and bathing at future beach sites during May 1 to October 30 recreational season
- Support riverfront economic development



Green Infrastructure Goals

- Reduce inflow to the combined sewer systems
 - Reduce flows to the WWTP's
 - Reduce treatment cost (saving energy)
 - Maximize CSO percent capture
- Specify and install energy efficient equipment
- Promote and expand Green Infrastructure Practices within Municipal Capital Improvement Programs
- Promote and enforce the new 2011 NYSDEC Stormwater Regulations for both public and private development projects



Green Infrastructure Goals (cont.)

- Improve coordination between Albany Pool CSO communities and (additional) MS4 communities, within both Albany and Rensselaer Counties, where opportunities to share services/work products exist
 - Stormwater Coalition of Albany County is presently performing Municipal Code Review in regards to the new NYSDEC stormwater regulations
 - Albany Pool CSO communities are proposing to develop Green Infrastructure Technical Design Guidance for Public and Private Projects



Albany Pool Baseline CSO Statistics

- All statistics are annual averages over the five year model simulation period
 - CSO Volume = 1236 Mgal
 - Wet weather flow treated at the WWTPs = 2827 Mgal
 - Pool-wide percent capture = 69.5%
 - Pool-wide treatment and floatables capture = 70.1%
 - Flow presently not disinfected at the WWTPs



Bacteria Modeling Results

Scenario	WWTP Disinfection	Headwaters	Tributaries	CSO	Exceedances (months/30 months)
Baseline	No	Baseline	Baseline	Baseline	30
1	Yes	Baseline	Baseline	Baseline	2
2	Yes	Improved	Improved	Baseline	0
			Baseline; Patroon Creek improved to		
2A	Yes	Improved	2009 levels	Baseline	0
				85%	
3	Yes	Baseline	Baseline	Capture	2
		=		85%	
4	No	Baseline	Baseline	Capture	30



Baseline refers to 2008 calibrated conditions

RWQ Modeling Conclusions

- CSOs do not preclude the Hudson River attaining water quality standards
- Bacteria standard is expected to be met upon implementation of WWTP seasonal disinfection and improvements to headwaters of the Hudson River and Patroon Creek
- Improvements to Hudson River continuous bacteria loads provide more effective bacteria-based water quality improvements than improvements to intermittent, wet weather-based CSO discharges



CSO Control Strategy

- Use Demonstrative Approach for CSO Control
- Achieve regulatory compliance as measured by the water quality standard for bacteria
- Optimize performance of existing infrastructure
- Incorporate WWTP and system rehabilitation projects to address current needs and reduce risk of emergency repairs
- Minimize additional infrastructure that will require additional O&M



Recommended CSO Control Strategies



WWTP Disinfection



WWTP WWTP Process Improvements





BMPs/System Optimization



Sewer Separation or Storage



Floatables Control Facilities



Tributaries Enhancement

Additional Pool-Wide Projects





Projects Completed to Date

- Disinfection Projects No projects
- WWTP Process Improvement Projects \$10.28 million
- BMPs & System Optimization Projects \$1.64 million
- Sewer Separation and Storage Projects \$20.96 million
- Floatables Control Facilities \$1.0 million
- Tributary Enhancements Patroon Creek Improvements
- Additional Pool-Wide Projects No projects
- Total Spent to Date by the Albany Pool Communities
 - \$33.88 million



Green Infrastructure Demonstration Projects

- Member Communities of the Stormwater Coalition of Albany County participate in a Rain Barrel Program to educate the public and promote the reuse and conservation of stormwater
- Rain Garden and Tree Planter Demonstration Projects have been completed to educate the public and promote infiltration practices
- Porous Pavement Demonstration Project was completed in the City of Cohoes
- Green Street Demonstration Projects are proposed within the City of Albany and the City of Rensselaer



Recommended CSO LTCP Elements

- Disinfection Projects
 - ACSD North \$5.7 million
 - ACSD South \$3.1 million
 - RCSD \$7.2 million
- WWTP Process Improvement Projects
 - RCSD Screens, Grit Removal Enhancements,
 Final Settling Tanks \$15.8 million



- BMPs & System Optimization Projects
 - Albany PS & Sewer Rehabilitation \$2.75 million
 - Cohoes PS & Regulator Upgrades \$0.30 million
 - Green Island CSS Improvements \$0.02 million
 - Rensselaer Sewer Cleaning/Inspection \$0.05 million
 - RCSD PS & Regulator Upgrades \$10.38 million
 - RCSD/Troy Outside Community Metering \$2.07 million
 - Troy Monitoring and System Mapping \$0.06 million
 - Watervliet CSS Improvements \$0.05 million



- Partial Sewer Separation and Storm Water Storage Projects
 - Albany \$2.88 million
 - Sewer separation: Lawnridge/Grove/Glendale/Forrest Ave (016)
 - Storm Water Storage: Multiple locations for storm water storage structures and groundwater recharge basins (016)
 - Cohoes \$7.71 million
 - Columbia St. (008/015), George St. (008/015), Middle Vliet (007)
 - Rensselaer \$ 7.59 million
 - Partition St. and Broadway (006), Washington Ave. and Farley Dr (012)
 - Troy \$13.93 million
 - 123rd St (002), 113th St (013/013A), Hoosick St. (024), Van Buren St (041), Polk St (044)



- Floatables Control Facilities
 - Albany \$22.52 million
 - 4a, Big C, 4, Arch, Ferry, Madison (016 and 019)
 - Maiden, Steuben, Orange (026)
 - Quackenbush, Jackson, Liberty (030)
 - Cohoes \$2.87 million
 - Little C (008/015)
 - Green Island \$0.36 million
 - Hamilton St (003)
 - Troy/Rensselaer maintain existing source controls



Tributary Enhancements

Tributary and Sewer Inspections

- Rensselaer/E. Greenbush (Mill Creek) \$0.03 million
- Troy (Wynants at Cross Street) \$0.05 million
- Troy/Brunswick (Poesten Kill) \$0.04 million
- Troy/N. Greenbush (Wynants Kill) \$0.03 million

Sewer Rehabilitation Projects

- Albany/ACSD (Patroon Creek) \$0.68 million
- Troy (Wynants at Cross Street) \$1.92 million budget



- Additional Pool-Wide Projects
 - Hudson River WQ Public Advisory Webpage \$0.50 million budget
 - Sewer System Operations, Maintenance and Inspection Plans - \$0.30 million budget
 - Asset Management Plans \$0.60 million budget
 - Post-Construction Monitoring Program Budget to be Determined
 - Green Infrastructure Technical Design Guidance –
 \$0.10 million budget



Cost Summary of Recommended CSO LTCP Elements

- Disinfection Projects \$16.0 million
- WWTP Process Improvement Projects \$15.8 million
- BMPs & System Optimization Projects \$16.0 million
- Sewer Separation and Storage Projects \$32.1 million
- Floatables Control Facilities \$25.7 million
- Tributary Enhancements \$2.8 million
- Additional Pool-Wide Projects \$1.5 million
- Total Cost of Albany Pool LTCP \$110 million



Costs of Other NY CSO LTCP Programs

	Buffalo Sewer Authority	Onondaga County	Albany Pool Communities
Population (thousands)	Approx. 300	139	167
Service Area (sq. mi.)	110	100	80
CSO Area (sq. mi.)	43	11	22
Number of CSOs	59	63	92
Overflow Volume (Bgal/yr)	3.0	1.0	1.3
Compliance Costs (millions)	\$168 recommended \$524 preferred	\$640	\$110



Benefits of Recommended CSO LTCP

- Compliance with WQ Standards for fecal coliform
- Recurring DWOs to be addressed
- SPDES Permit compliance
- Improved conveyance of wet weather flow to WWTPs
- Maximizes WWTP wet weather capacity
- Seasonal disinfection of WWTP effluent
- Improvements to water quality of tributaries
- Reduced CSO discharge volume by 311 Mgal
- Provides floatables control for 454 Mgal



Statistics Upon Implementation of CSO LTCP

	Baseline	Post Construction of Recommended Projects
CSO Volume (Mgal)	1236	925
Number of Events	65	65
Wet Weather Flow Treated at WWTPs (Mgal)	2827	3031
Pool-Wide Percent Capture	69.5%	77.2%
CSO Flow Receiving Floatables Control (Mgal)	27	454
Pool-Wide Treatment & Floatables Capture	70.1%	88.8%
Disinfection at WWTPs	No	Seasonal
Fecal Coliform WQ Standard Violations	30	0



Proposed Implementation Schedule



- Immediate Water Quality Benefits
- Maintains SPDES/Consent Order Dates
- Preserves Capital for Repair & Replacement
- Maintains Affordability



Water Quality Based Goals

- Implement Disinfection Projects early for greatest benefit
- Perform Tributary Improvements for 24/7 benefit
- Implement Optimization projects to reduce overflows and maximize WWTP flows
- Construct Big C Floatables Control Facility (FCF) for greatest early impact
- Perform WWTP and Pump Station Improvements
- Implement Satellite FCFs



Implementation Schedule Constraints

- Consent Order Compliance Dates
 - Cohoes Pump Station Upgrades
 - RCSD/Troy Dry Weather Overflows (Pending)
- SPDES compliance dates need to be met
 - RSCD Disinfection by September 2012
 - ACSD Disinfection by LTCP Approval plus 30 months
- Secured project financing (favorable low interest loans)
- Stage projects to minimize project interferences
- Year by year affordability based on projected rate increases



Proposed 15 Year Implementation Schedule



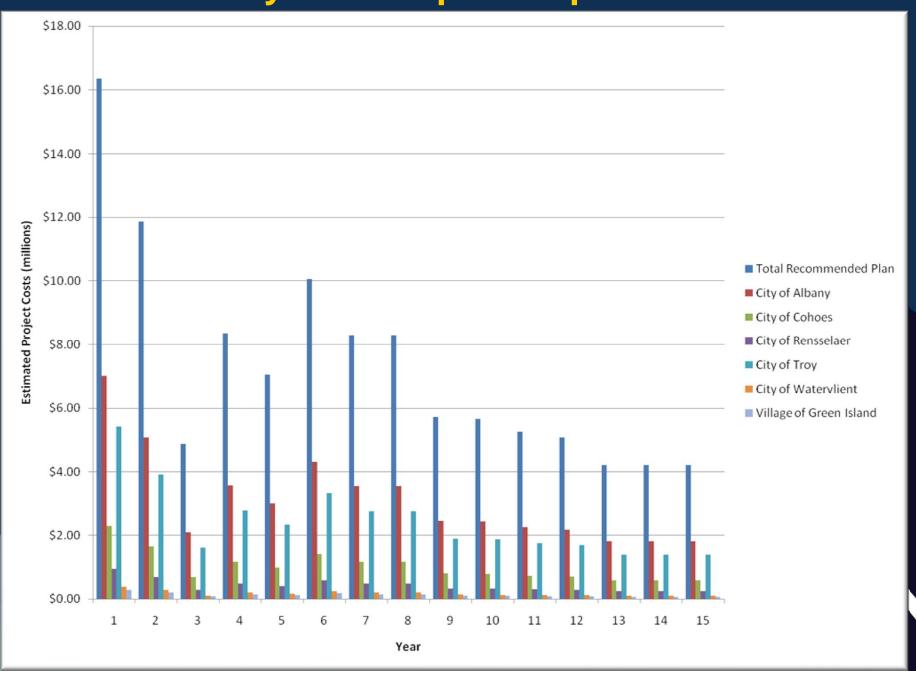
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Cohoes Vilet St and Manor Ave. Sewer Rehab, Replacement and	Albany	Quackenbush, Jackson and Uvingston)	\$4.00			L												
	Cohoes	Vilet St and Manor Ave. Sewer Rehab, Replacement and Separation. Phase III (CSO 007)	\$1.43															

Year-by-Year Cost/Rate Assumptions

- Capital projects implemented per the 15-year schedule
- Community rate analyses requires distribution of costs
 - Cost distribution among the communities has not been agreed upon
 - Therefore, costs were distributed based on allocation formula used for the development of the LTCP
- Considered limited non-CSO repair and replacement costs



Year-by-Year Capital Expenditures



EPA Financial Capability Assessment Results

- Phase I Residential Indicator in the "Mid-Range"
- Phase II Average Community Financial Indicator in the "Mid-Range"
- Combined Financial Capability Matrix Score "Medium Burden"



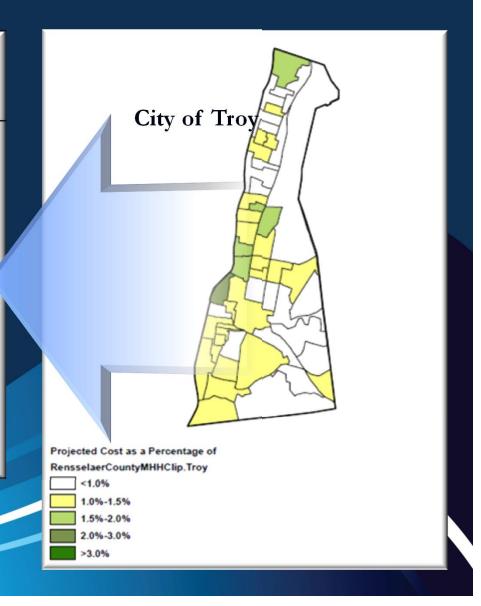
Significant Annual Rate Impacts Needed to Pay for the LTCP

Projected Annual Rate Increase

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ı	Year	Albany	Cohoes	Watervliet	Green Island	Rensselaer	Trov
-	Teal	Albany	Colloes	waterviiet	Green Island	Relisselael	Troy
(2012	2%	9%	0%	5%	9%	6%
1	2013	6%	10%	0%	6%	14%	11%
2	2014	5%	14%	9%	6%	11%	8%
3	3 2015	4%	5%	4%	0%	7%	4%
4	2016	4%	5%	4%	5%	5%	4%
5	2017	2%	5%	4%	5%	6%	4%
6	2018	4%	10%	6%	6%	9%	7%
7	2019	9%	12%	7%	7%	12%	9%
8	3 2020	4%	9%	6%	6%	9%	7%
9	2021	5%	6%	5%	5%	6%	5%
1	0 2022	14%	6%	4%	5%	5%	5%
1	1 2023	0%	6%	4%	4%	5%	5%
1:	2 2024	0%	6%	4%	5%	5%	4%
1:	3 2025	0%	3%	3%	4%	3%	3%
1	4 2026	0%	3%	3%	3%	3%	3%
1:	5 2027	0%	2%	3%	2%	3%	3%

More Significant Affordability Concerns For Low Income Areas

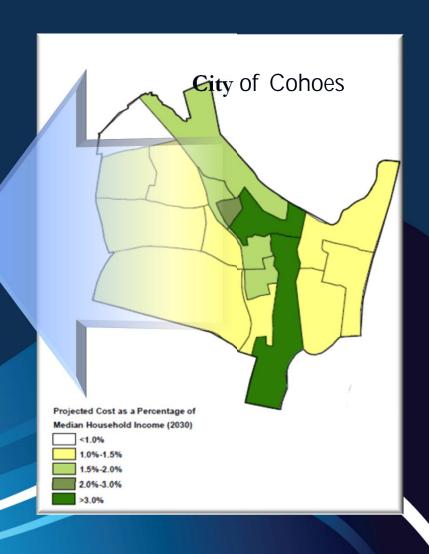
		Est. Annual		
		Residential	Avg Income	Residential
		Customer	(Low Income	Cost as a %
	Year	Cost	Area)	of Income
1	2013	\$350	\$17,967	2.0%
2	2014	\$379	\$18,398	2.1%
3	2015	\$396	\$18,840	2.1%
4	2016	\$412	\$19,292	2.1%
5	2017	\$430	\$19,755	2.2%
6	2018	\$461	\$20,229	2.3%
7	2019	\$503	\$20,714	2.4%
8	2020	\$537	\$21,212	2.5%
9	2021	\$564	\$21,721	2.6%
10	2022	\$590	\$22,242	2.7%
11	2023	\$616	\$22,776	2.7%
12	2024	\$643	\$23,322	2.8%
13	2025	\$662	\$23,882	2.8%
14	2026	\$680	\$24,455	2.8%
15	2027	\$698	\$25,042	2.8%





More Significant Affordability Concerns For Low Income Areas

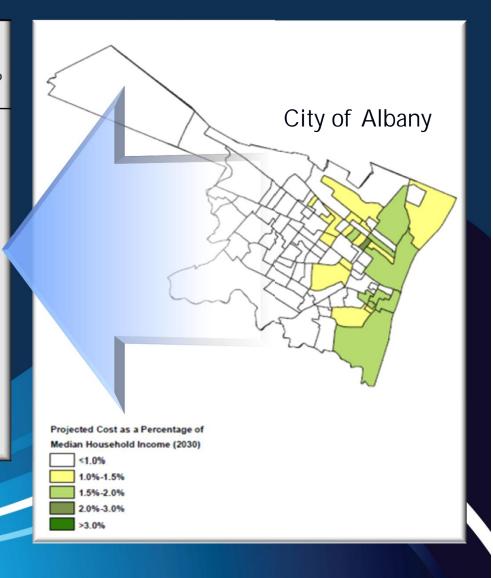
		Est. Annual		
		Residential	Avg Income	Residential
		Customer	(Low Income	Cost as a %
	Year	Cost	Area)	of Income
1	2013	\$448	\$22,260	2.0%
2	2014	\$513	\$22,772	2.3%
3	2015	\$538	\$23,296	2.3%
4	2016	\$565	\$23,831	2.4%
5	2017	\$595	\$24,379	2.4%
6	2018	\$652	\$24,940	2.6%
7	2019	\$731	\$25,514	2.9%
8	2020	\$795	\$26,101	3.0%
9	2021	\$845	\$26,701	3.2%
10	2022	\$892	\$27,315	3.3%
11	2023	\$942	\$27,943	3.4%
12	2024	\$994	\$28,586	3.5%
13	2025	\$1,027	\$29,244	3.5%
14	2026	\$1,055	\$29,916	3.5%
15	2027	\$1,081	\$30,604	3.5%





More Significant Affordability Concerns For Low Income Areas

г			Est. Annual		
			Residential	Avg Income	Residential
			Customer	(Low Income	Cost as a %
Ш		Year	Cost	Area)	of Income
	1	2013	\$334	\$13,697	2.4%
1	2	2014	\$351	\$14,039	2.5%
,	3	2015	\$365	\$14,390	2.5%
4	4	2016	\$380	\$14,750	2.6%
,	5	2017	\$388	\$15,119	2.6%
(6	2018	\$405	\$15,497	2.6%
	7	2019	\$440	\$15,884	2.8%
1	8	2020	\$459	\$16,281	2.8%
(9	2021	\$483	\$16,688	2.9%
1	0	2022	\$550	\$17,106	3.2%
1	1	2023	\$550	\$17,533	3.1%
1	2	2024	\$550	\$17,972	3.1%
1	3	2025	\$550	\$18,421	3.0%
1	4	2026	\$550	\$18,881	2.9%
1	5	2027	\$550	\$19,353	2.8%





Next Steps

- Compile and Address Public Comments and Concerns
- Submit Draft CSO LTCP
 - June 30, 2011 (Target)



Albany Pool Combined Sewer System Long Term Control Plan Development



Comments & Questions

