



water is life

District of Columbia Water and Sewer Authority
George S. Hawkins, General Manager

Presentation on

DC Water's Clean Rivers Project: Reopening the Consent Decree to include Green Infrastructure

Prepared for

National Clean Water Law Seminar- 2013

Session:

Key developments in Wet Weather Enforcement and Permitting

Presented by:

Carlton M. Ray, Director
DC Clean Rivers Project

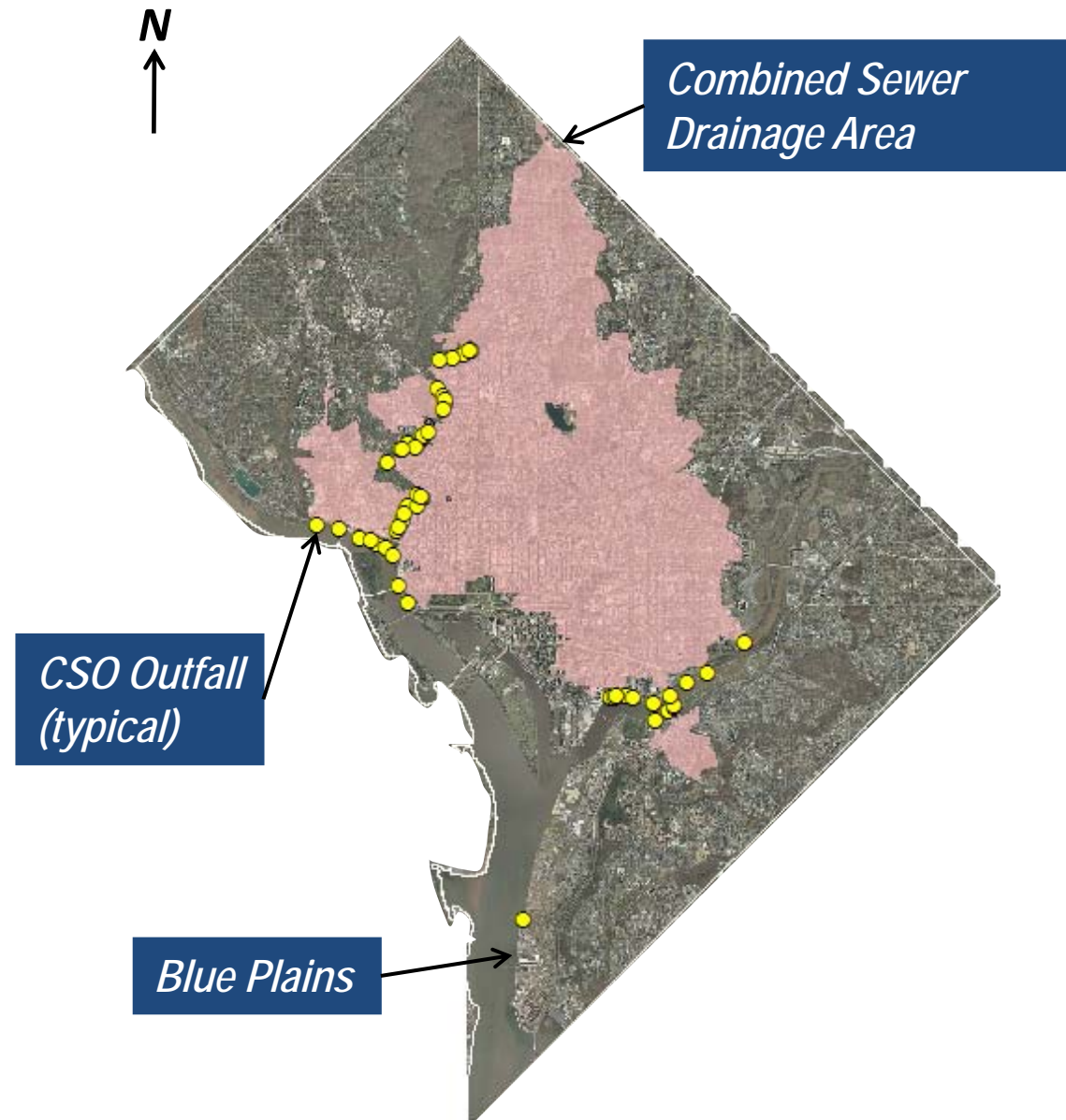
Friday, November 28, 2013



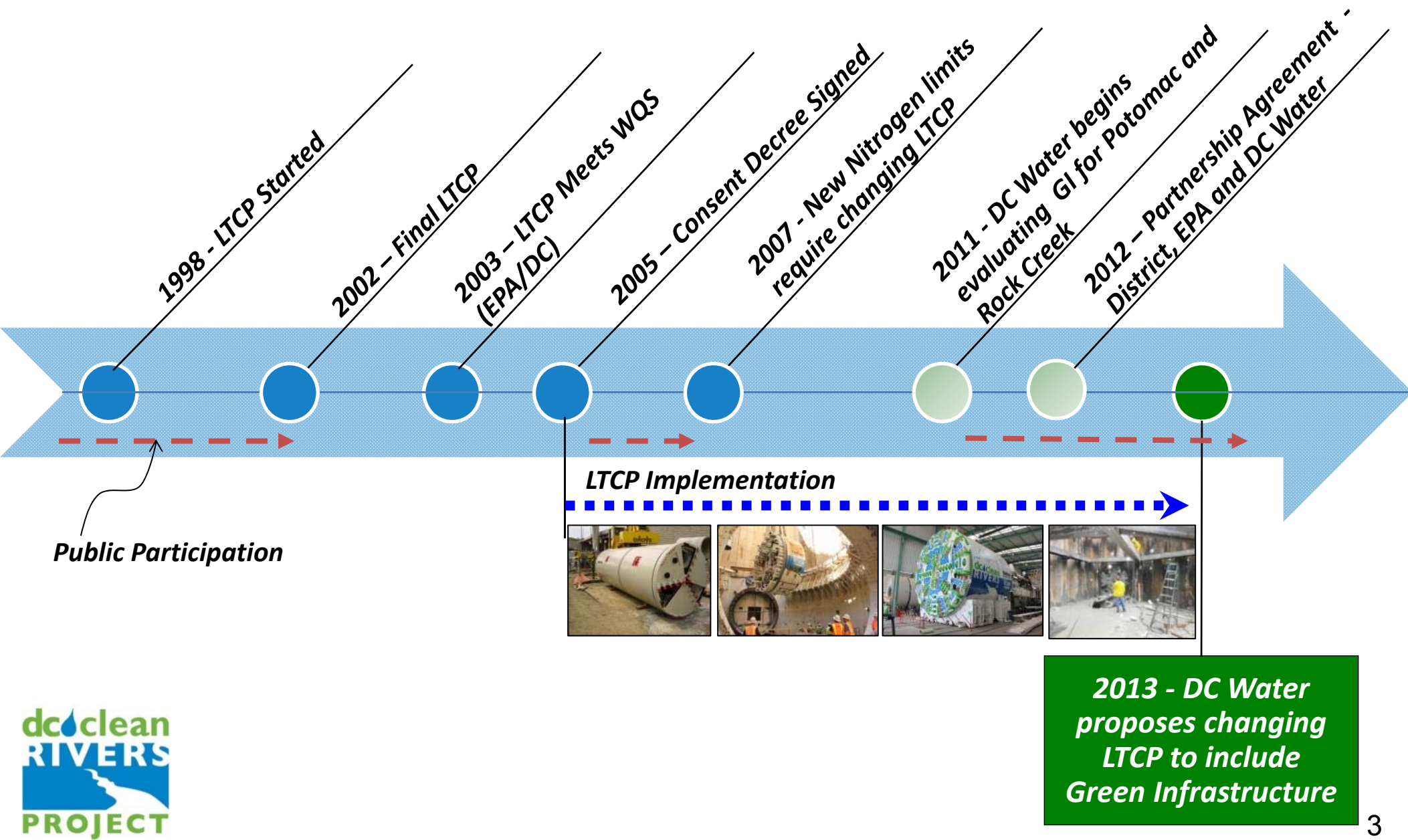
DCWATER.COM

DC Water's Combined Sewer System

- 1/3 area is combined (12,478 acres)
- 53 Combined Sewer Overflow (CSO) outfalls
 - 15 to Anacostia
 - 10 to Potomac
 - 28 to Rock Creek
- Three receiving waters
 - Anacostia River
 - Potomac River
 - Rock Creek



Background: How was the LTCP Developed?



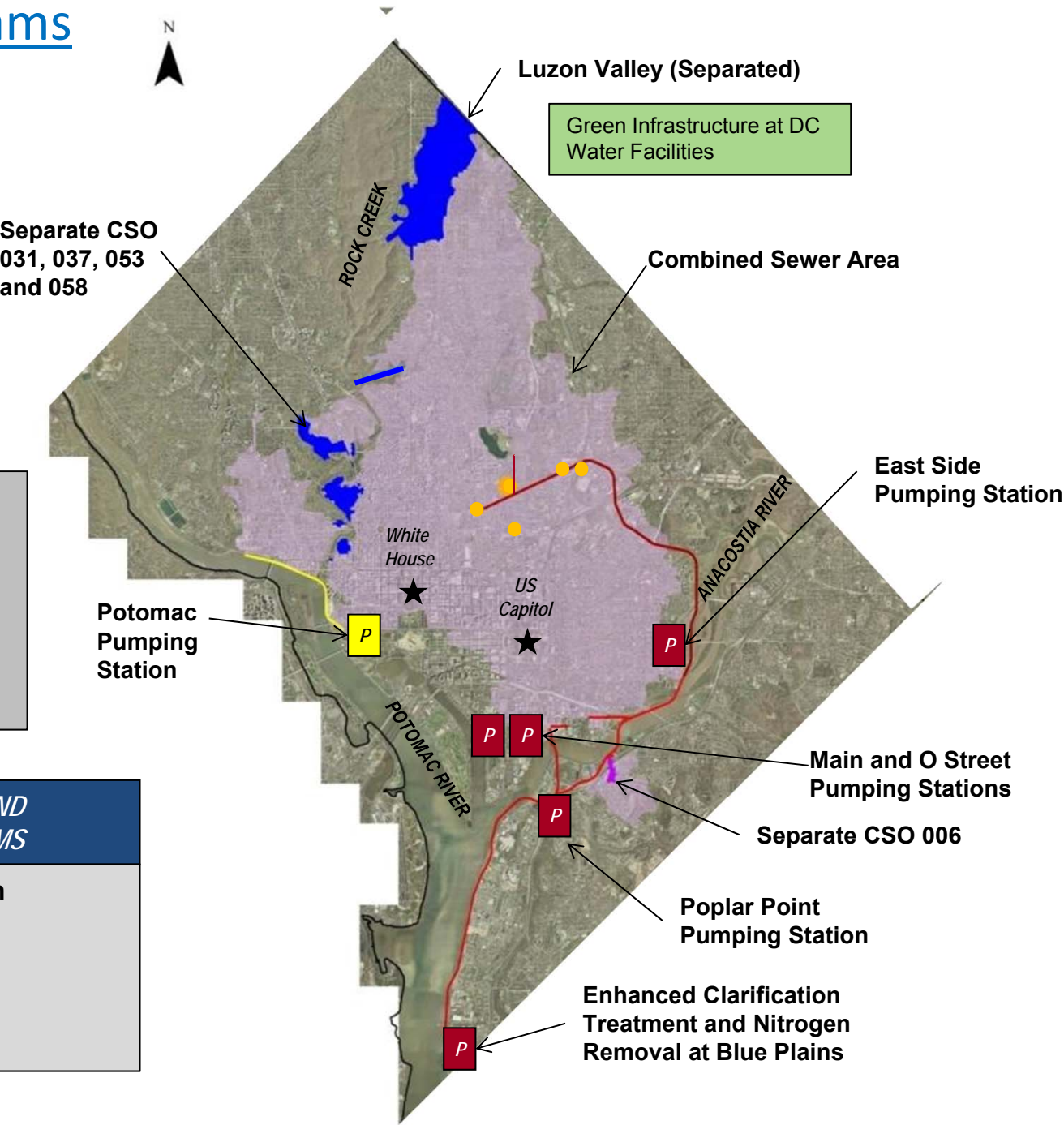
DC Clean Rivers Project and Nitrogen Removal Programs

LEGEND

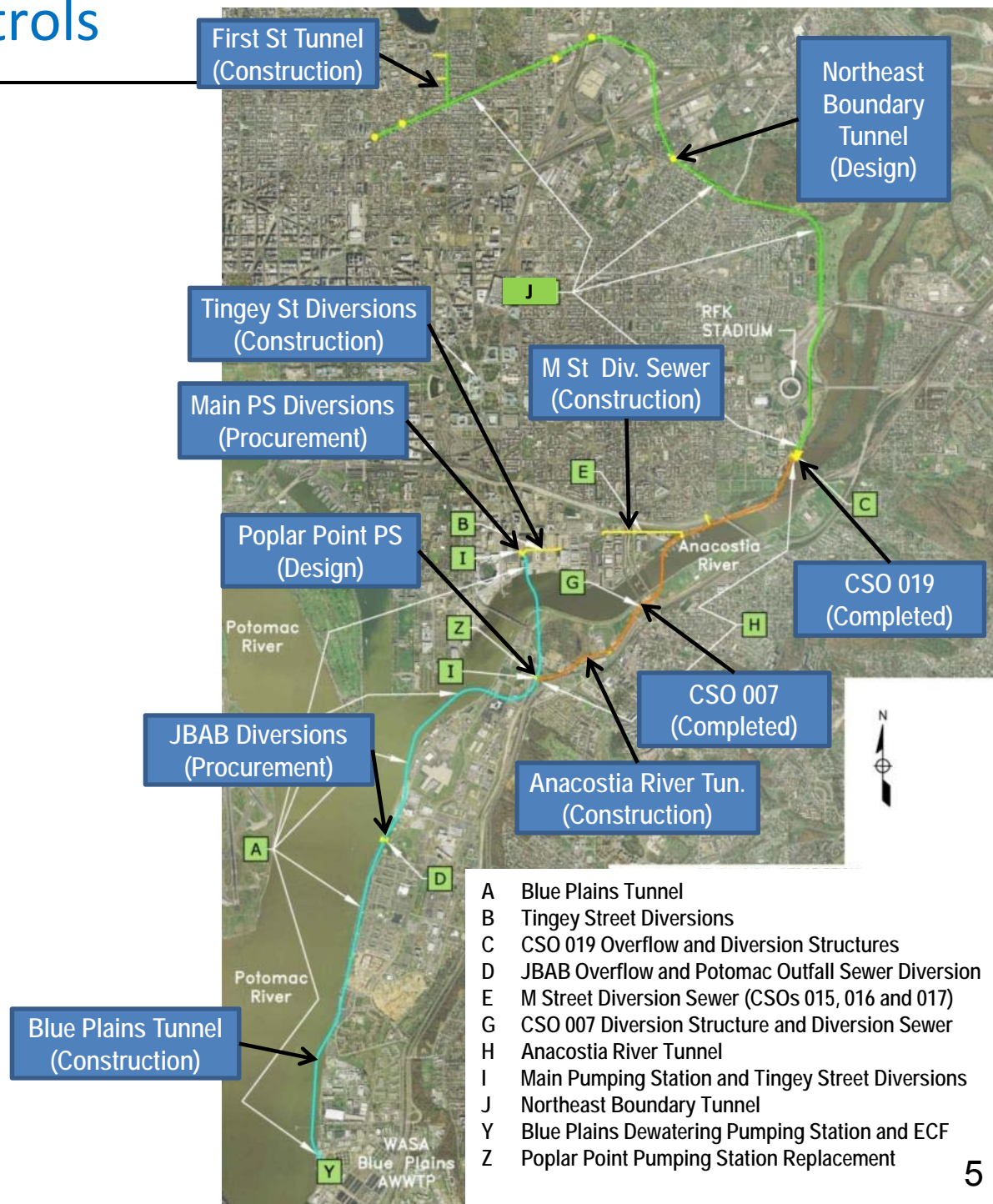
- Anacostia River Tunnel System
- Potomac River Tunnel
- Piney Branch Tunnel
- Pumping Station Rehabilitation
- Known Flood Area

DC CLEAN RIVERS PROJECT AND NITROGEN REMOVAL PROGRAMS

- DC Clean Rivers Project: \$2.6 Billion
- Nitrogen Removal: \$950 Million
- Total > \$ 3.5 Billion
- 20 YR Implementation (2005 – 2025)
- 96% Reduction in CSOs
- Flood Relief in Northeast Boundary



Anacostia River CSO Controls



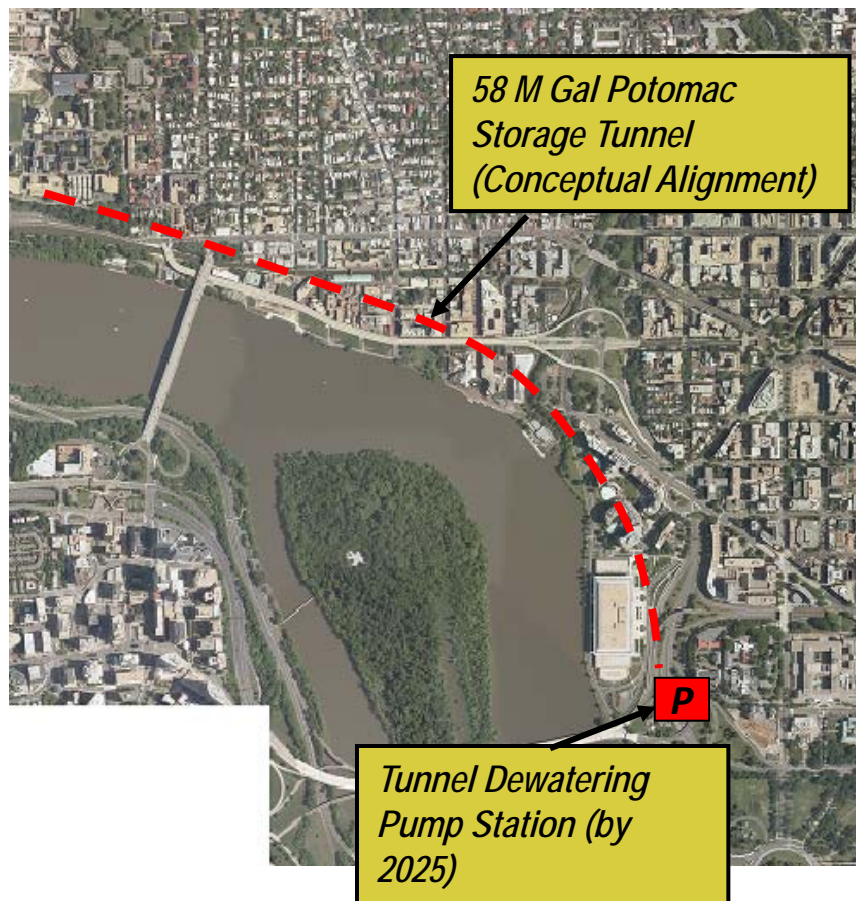
Predicted CSOs in an Average Year of Rain

Date	Anacostia River	Potomac River	Rock Creek	Total System
CSO Volume (mg / Average Year)				
1996 – DC Water formed	2,142	1,063	49	3,254
2013 – After rehabilitation of inflatable dams and pump stations	1,258	654	48	1,960
2025 – Long Term Control Plan in place	54	79	5	138
Percent Reduction	98%	93%	90%	96%
No. of Overflows / Average Year				
1996 – DC Water formed	82	74	30	–
2013 – After rehabilitation of inflatable dams and pump stations	75	74	30	–
2025 – Long Term Control Plan in place	2	4	¼*	–

* One overflow/avg. year at Piney Branch (major CSO); four overflows/avg. year at other small Rock Creek CSOs.

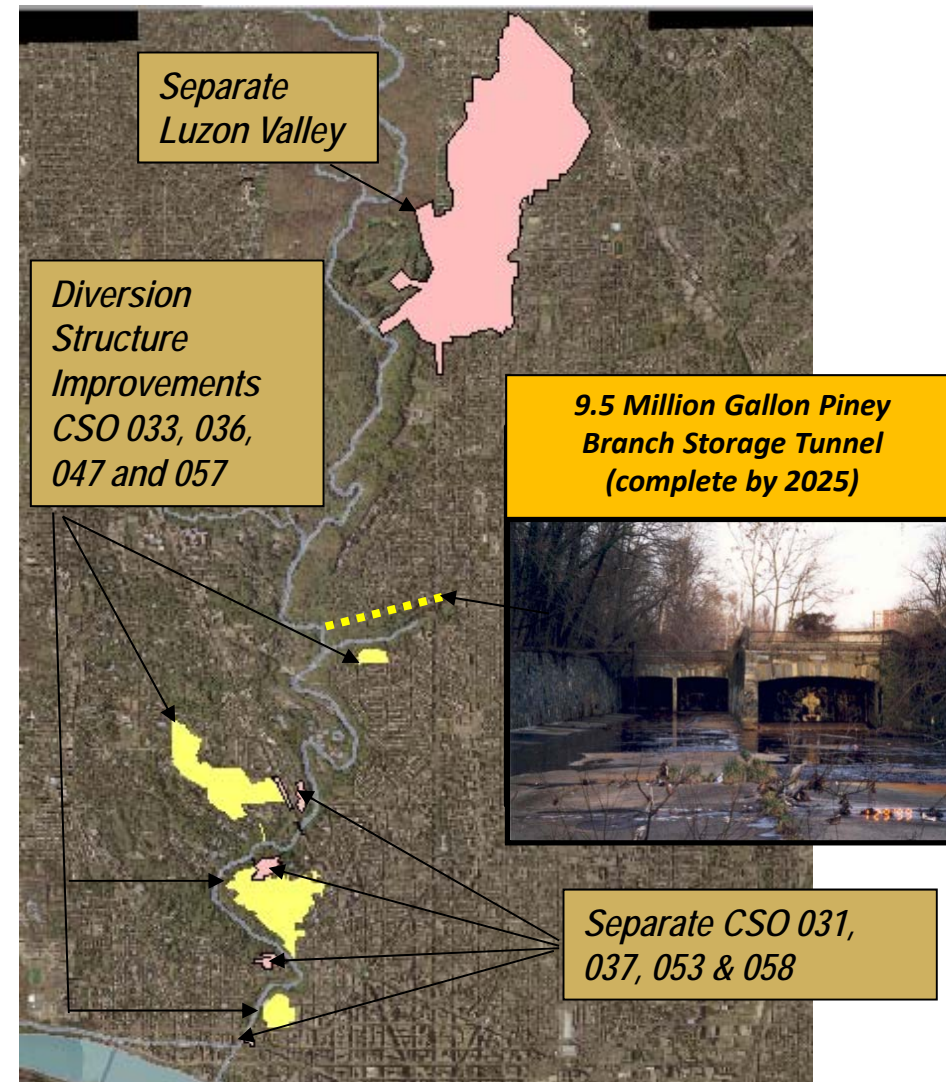
Potomac and Rock Creek Consent Decree Requirements

Potomac River



- Start facility plan - 2015
- Place in service - 2025

Rock Creek



- Start facility plan - 2016
- Place in service - 2025

Current Consent Decree Requirements for Green Infrastructure

- Invest \$3M on Low Impact Development at DC Water facilities
- Re-evaluate size of Potomac and Piney Branch Tunnels during facility planning based on LID installed in the sewershed



Bioretention under construction at DC Water's Anacostia Water Pumping Station



Green Roof under construction at DC Water's Fort Reno Reservoir

DC Water's Approach to CSO Control



Anacostia River Projects

- DC Water is implementing tunnels
- Most severely impacted by CSOs
- GI will provide additional control

Potomac & Rock Creek Projects

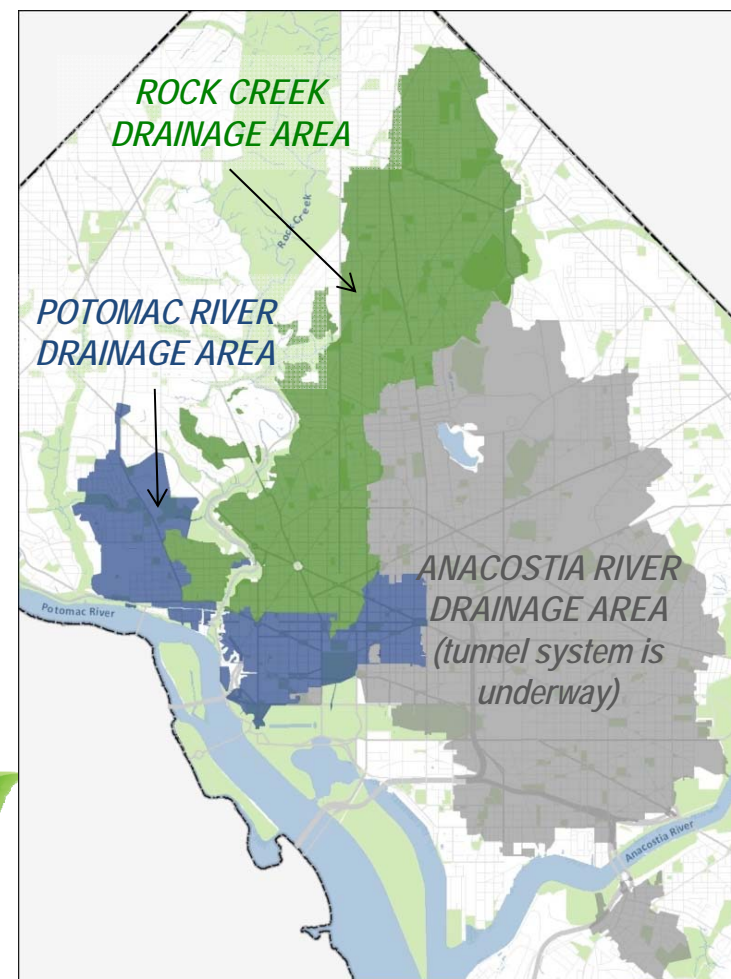
- There is time to consider new approaches



Gray



Hybrid



GI Partnership Agreement: Signed December 2012

■ What it IS

- Established frame work for EPA, the District and DC Water to advance GI
- Joint support for sustainable storm water management yielding multiple benefits for community livability
- An agreement that demonstrates the parties' commitment to GI



■ What it is NOT

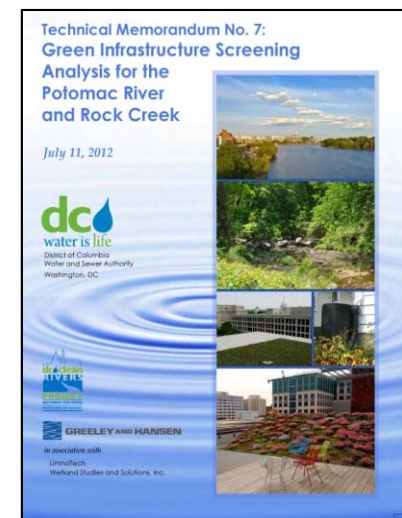
- A commitment of funds
- A detailed plan or project agreement
- A commitment to modify the consent decree
- A public outreach plan

Initial Approach: Demonstration Project

- Reason:
 - Develop sound data on performance that can be relied upon
 - Address local planning and institutional issues
- Scope:
 - Up to \$40M in Potomac and Rock Creek sewer sheds
 - Approx 60 acres
- Schedule
 - 5 to 10 year extension required (negotiations not concluded)
- Unique Features:
 - Off ramps to go back to tunnels if not successful



The magnitude of investment by DC ratepayers requires a sound technical and institutional basis for making decisions



Technical Memo #7: Screening Analysis 11

Demonstration Project Approach

Use Demo projects to assess GI:

- Performance
- How much can be installed
- Cost effectiveness
- Other parameters

Evaluate CSO control alternatives based on demo projects

All Green

Hybrid

Compare to

Tunnels
(backstop)

Success = selecting best overall environmental solution (subject to EPA approval)

Evaluate Triple Bottom Line Benefits:

- Economic
- Social
- Environmental

Predict Water Quality:

- Compare to WQS
- Compare to LTCP
- WQS review

Evaluate Degree of CSO Control:

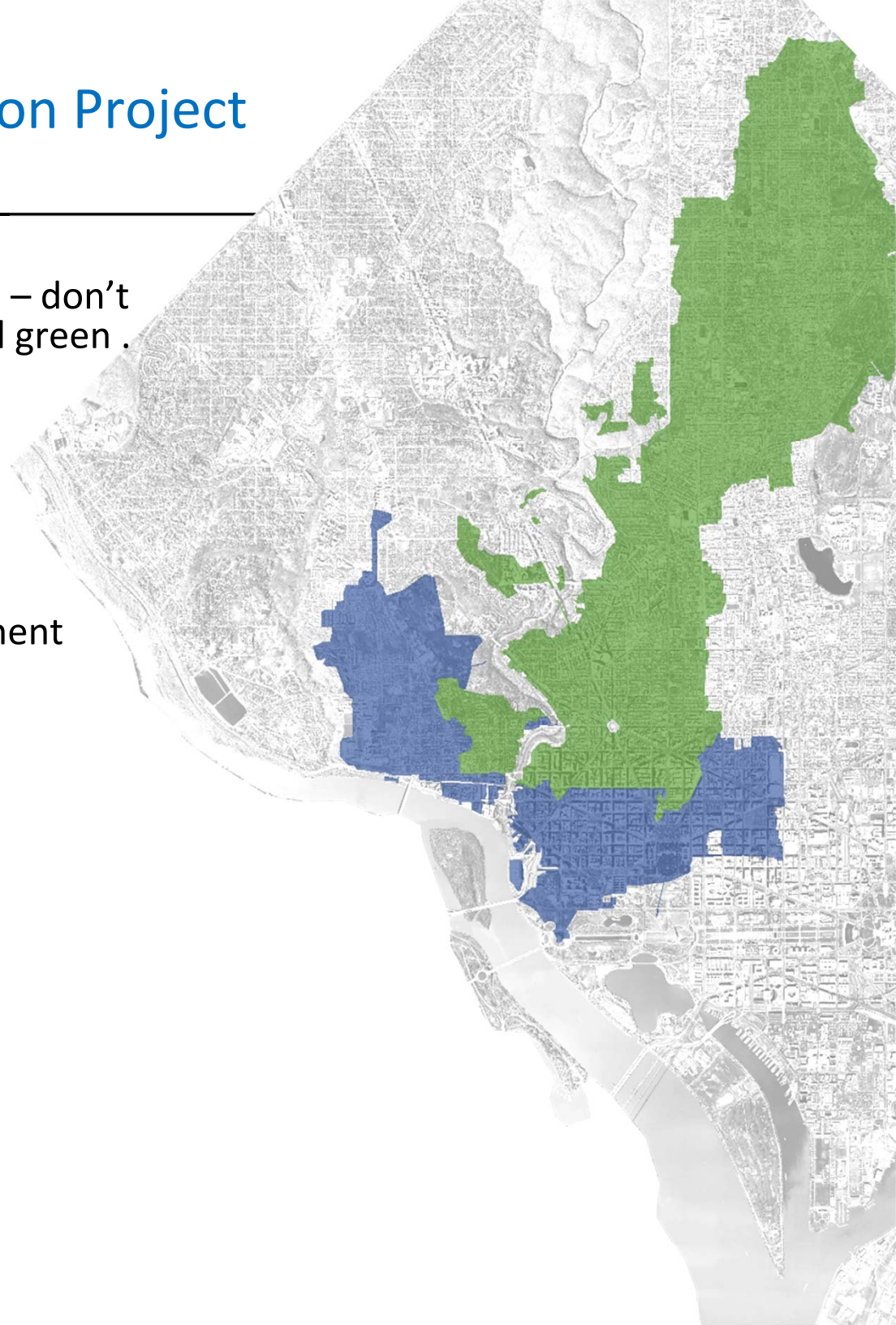
- More than LTCP
- Same as LTCP
- Less than LTCP

Consent Decree revisions (if needed)

Implement

Challenges with Demonstration Project Approach: NGO Comments

- Tunnels will provide certain performance – don't want to lose that. Build both tunnels and green .
- Want same degree of control as LTCP
- Schedule too long
- Additional CSO volume impacts environment while demonstration project underway
- Unclear end date for completion of LTCP
- Need 2nd consent decree modification to incorporate GI or go back to tunnels
- Who decides if demonstration project is successful?



Updated Approach (Under Discussion with District and EPA/DOJ)

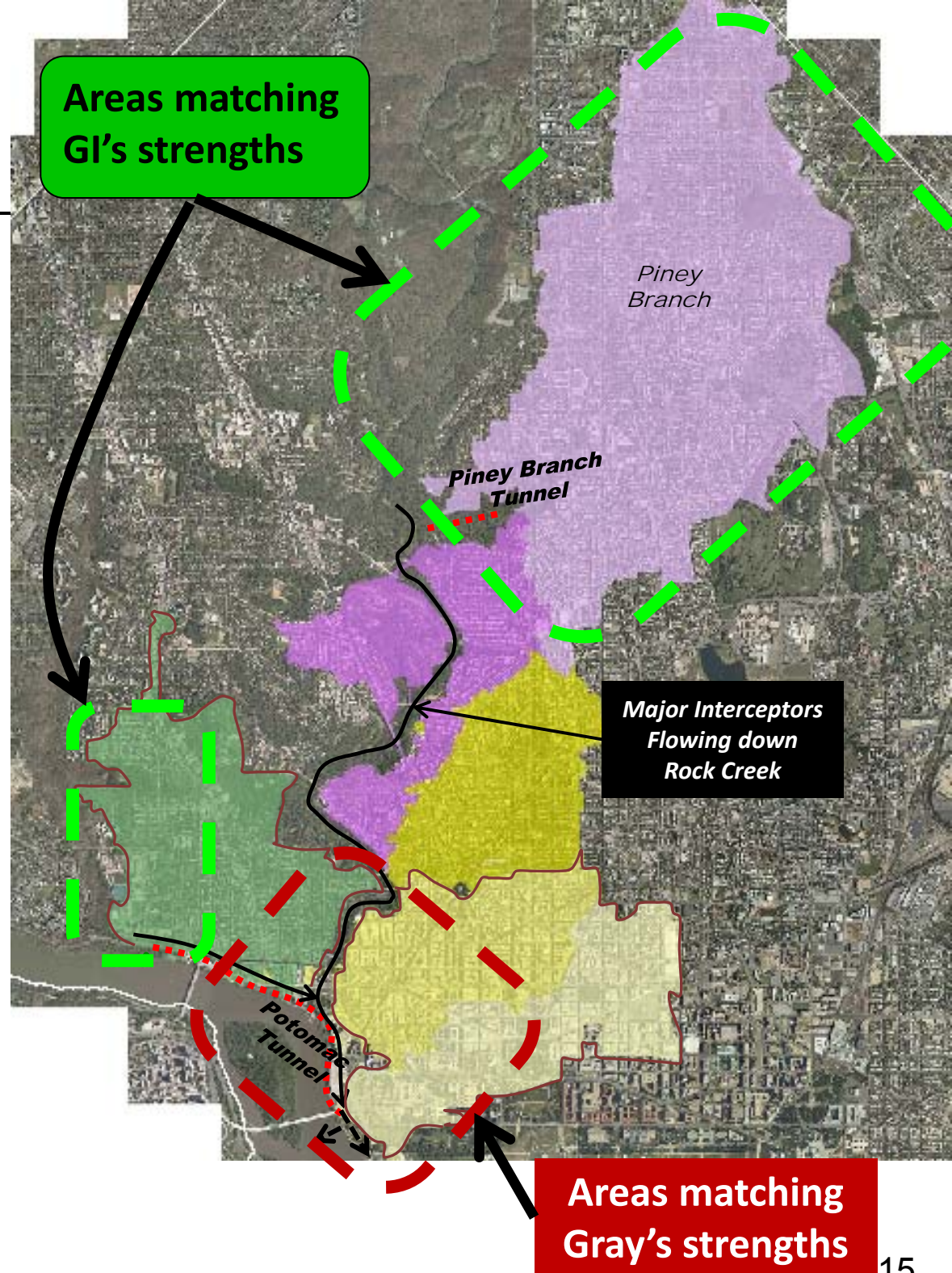
- Focus GI on areas it is likely to be successful
- Focus gray infrastructure on largest CSOs/dense areas
- Try to eliminate decisions that need to be made under Consent Decree
 - Too long of a time frame
 - Consent Decree clock doesn't stop
 - Too much opportunity for disagreement
- Consider firm end dates:
 - Build project under Decree
 - Perform post construction monitoring and assess under NPDES Permit



**Green Roof During Construction at DC
Water's East Side Pumping Station**

Updated Approach (Under Discussion with District and EPA/DOJ)

- GI
 - Low density areas
 - Low to moderate CSOs
 - Space for focus projects
 - Partial separation has already occurred
- Gray
 - High density areas
 - Large CSO Impact
 - Limited space
 - Nexus of large interceptors



Financial Affordability Update

- Financial capability assessment performed as part of 2002 LTCP
 - Sewer rates predicted to reach 1.8% of MHI at peak of program, 3% of incomes for upper limit of 2nd quintile (40% of households)
- What has changed?

DC Water's CIP

- \$950 M nitrogen removal for Chesapeake Bay
- \$500 M biosolids program for sustainability
- Triple infrastructure renewal rate from 1/3% to 1% per year

Population

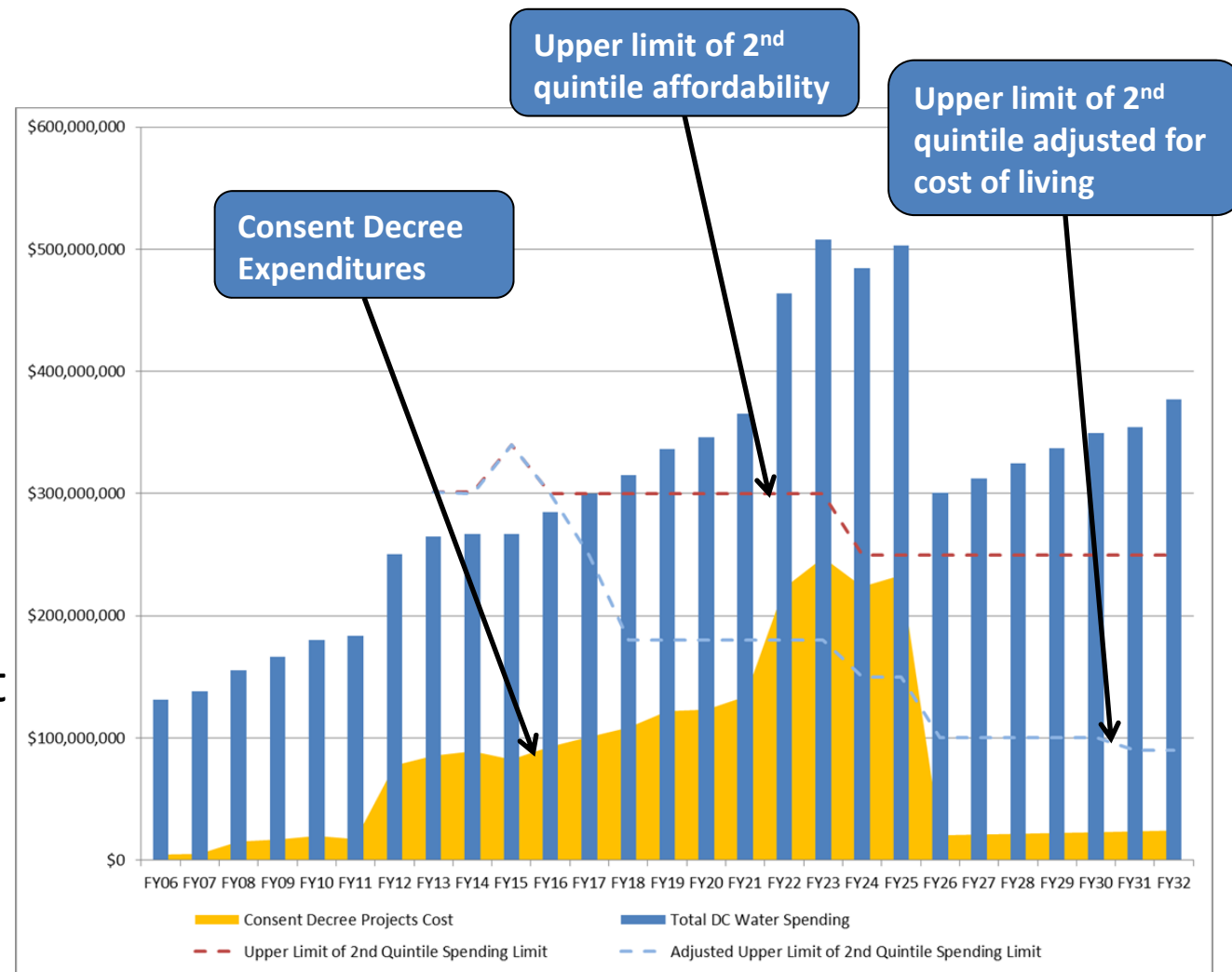
- Income distribution has changed – it's more of a "U"
- Many poor and affluent households

EPA Policy

- Integrated Planning Framework
- EPA's Jan 18, 2013 memo: 2% MHI was never a minimum → can consider other factors

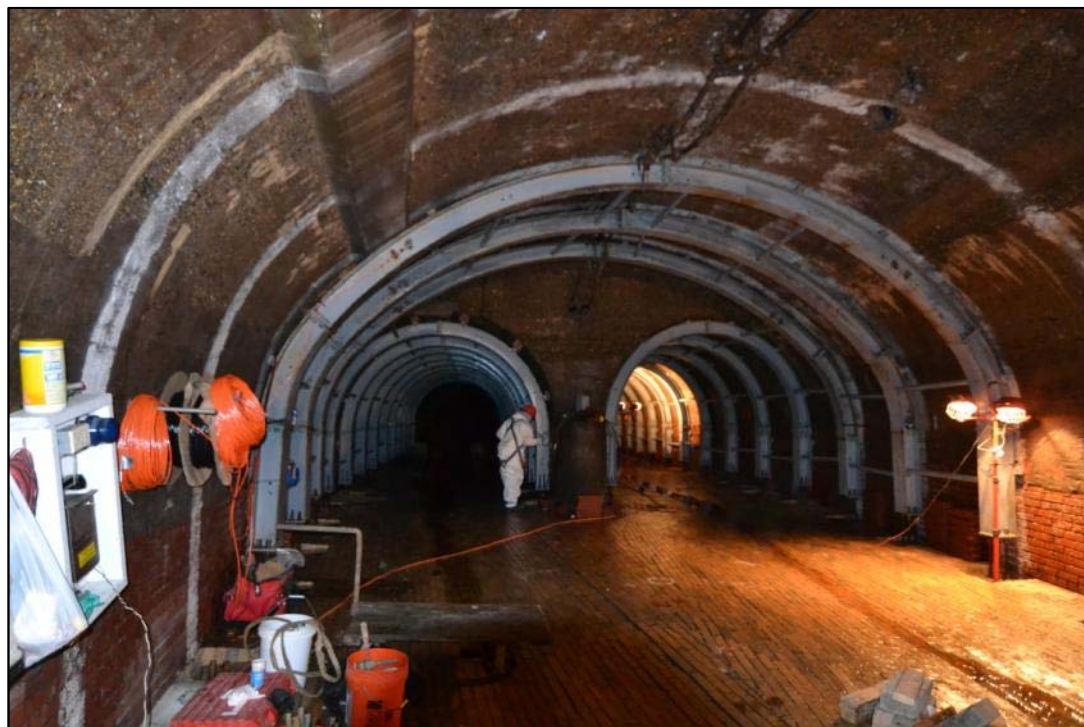
Financial Affordability Update

- DC Water's evaluated affordability as:
 - 2% of upper limit of 2nd quintile of household income
 - 2% of upper limit of 2nd quintile of household income adjusted for DC cost of living



Financial Affordability Conclusions

- Consent decree projects coupled with other regulatory mandates and infrastructural renewal are not affordable
- What's needed:
 - Extension of consent decree schedules
 - Deferment of other infrastructure projects
 - Need to balance risks and benefits of competing needs



Bracing Tiber Creek Sewer Prior to Tunneling

Next Steps

- Issue draft Consent Decree modification for public comment
- Review and incorporate public comments as needed
- Finalize Negotiations with USEPA to change Consent Decree
- Advance coordination with District Agencies
- Plan GI early action projects

Blue Plains Tunnel Under Construction

Video courtesy of Philippe Cousteau and EarthEcho International

