

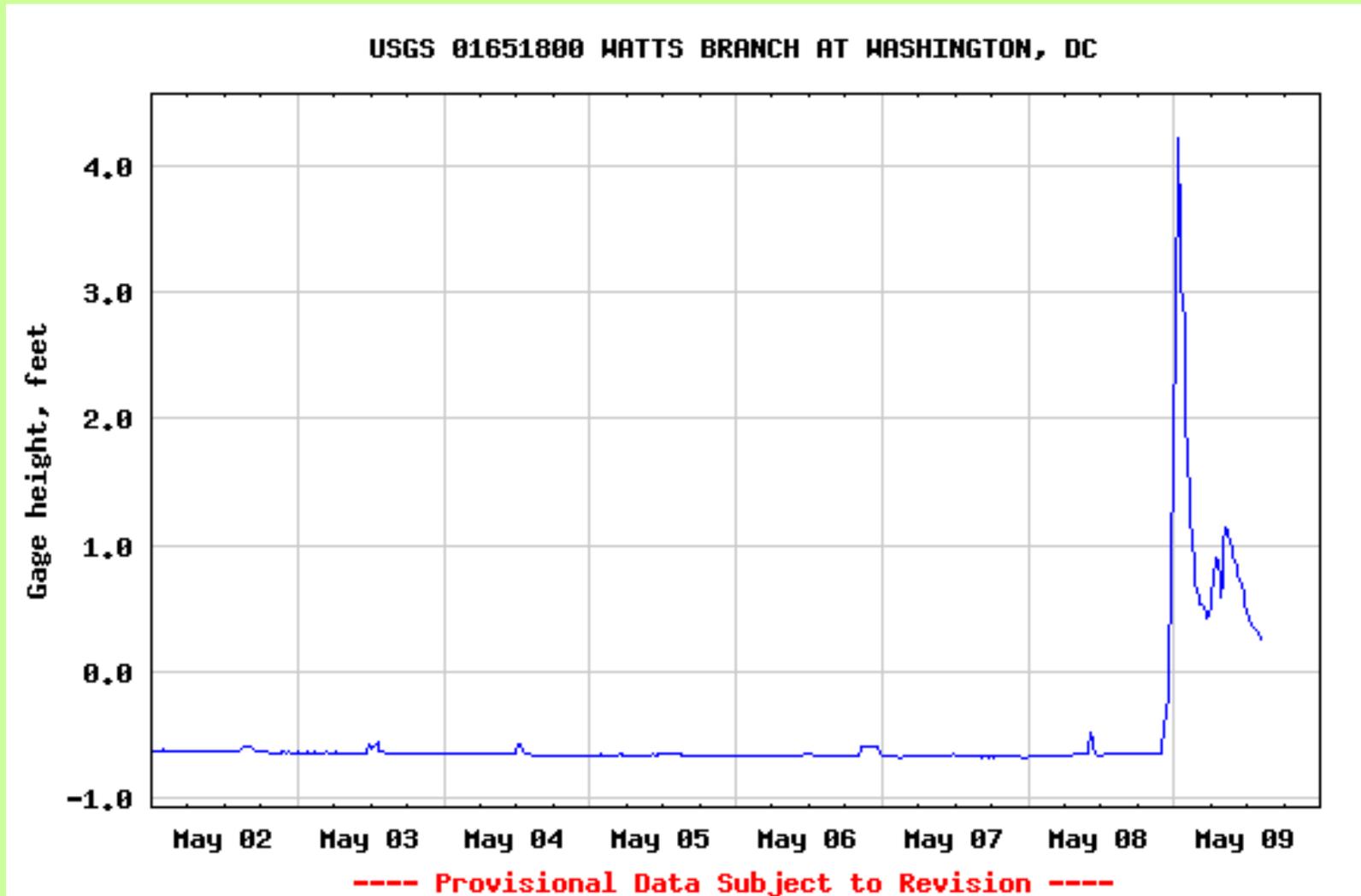
Watts Branch Stream Restoration



★ ★ ★ GOVERNMENT OF THE
DISTRICT OF COLUMBIA
Vincent C. Gray, Mayor



Watts Branch – one flashy stream



10 inch rain event in May 2008 measured by USGS gauging station at MN ave

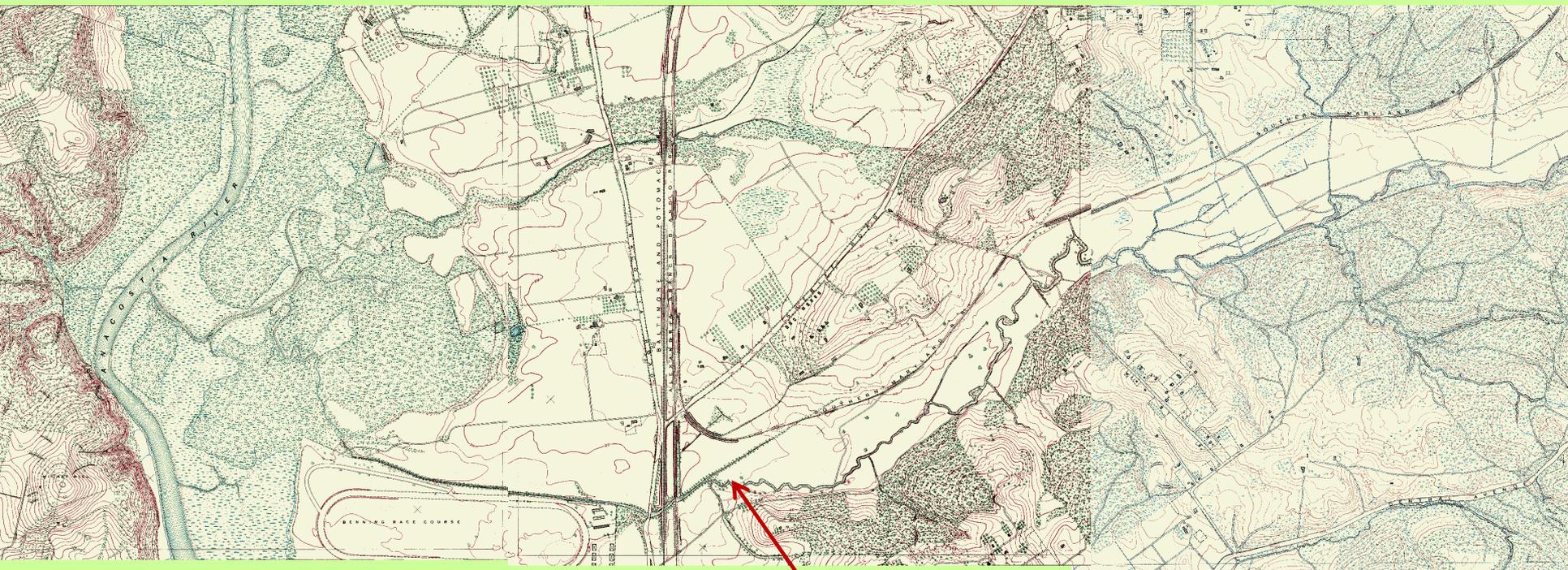
Funding agencies



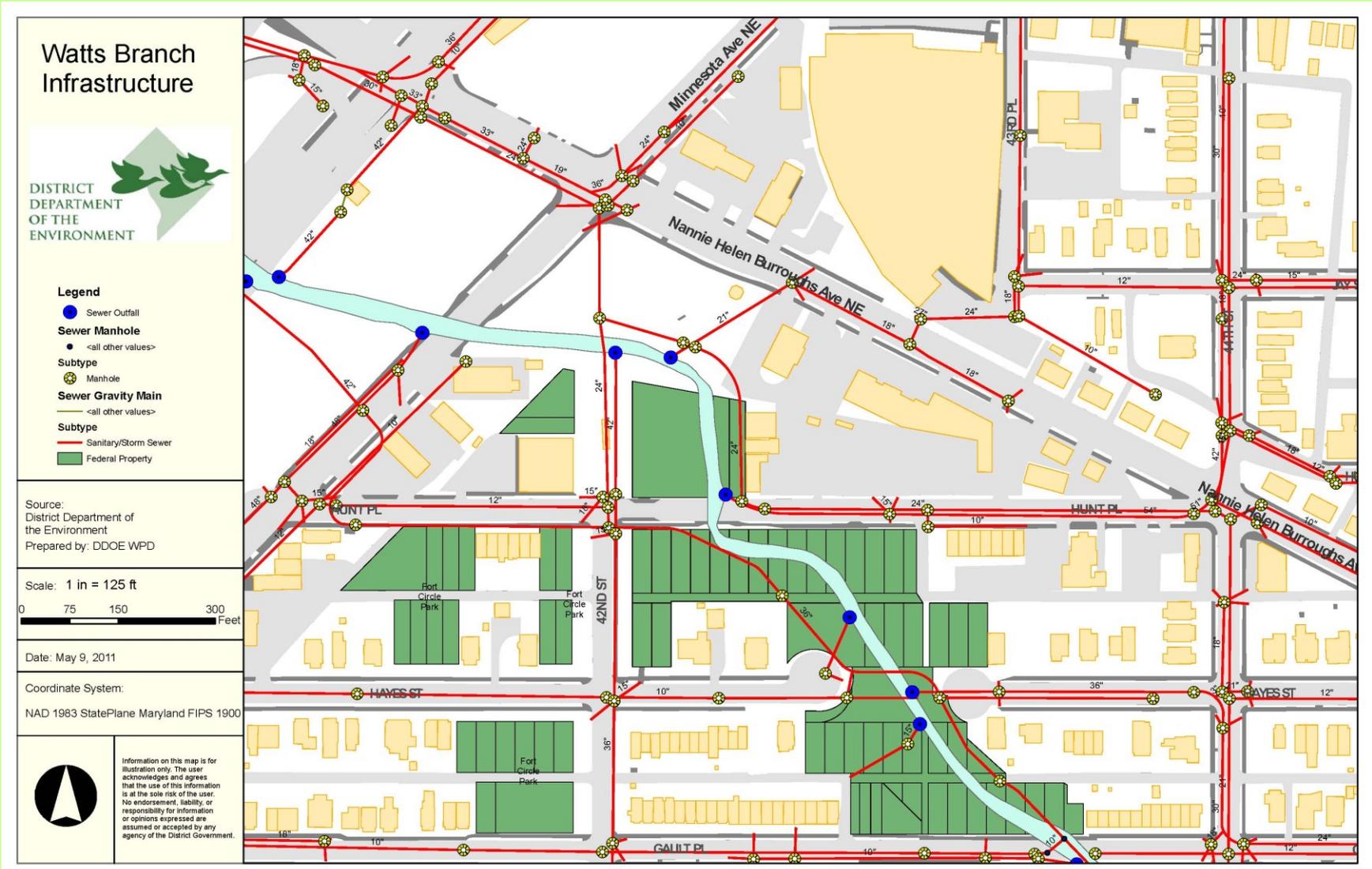
Partnering agencies



Watts in 1856?



Watts in 2011

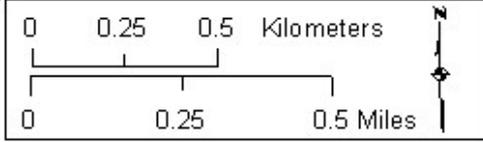


Watts Branch Watershed

Legend

- Stormsewer outfalls
- ▭ Sub-watersheds
- Streets
- Streams

Watts Branch



DDOE Projects Along Watts Branch



Bandalong Trash Trap (on-going)

1.7 mile stream restoration project from Southern Ave. to Minnesota Ave. NE (in progress)

Green roof and stormwater cisterns at new H.D. Woodson High School (in progress)

Bioretention Cell on Jay St. NE (Spring 2011)

Upland tree planting and job training project (600 trees total)

Green Street Design Grant for Dix St. NE (in progress)



Watts Branch Stream Restoration

(by the numbers)

Restoration Techniques

- Cross Vanes (28)
- J-Hooks (21)
- Rock Vanes (2)
- Root Wads
- Bank Grading
- Double Winged Deflector (1)
- Bankfull Benches
- Soil Lifts

Restoration Plantings

- Live Stakes: 6231
- Emergent Plants: 626
- Upland Trees: 1221
- Upland Shrubs: 3480
- Riparian Trees: 1689
- Riparian Shrubs: 3890

Cross Vanes (High Flow)



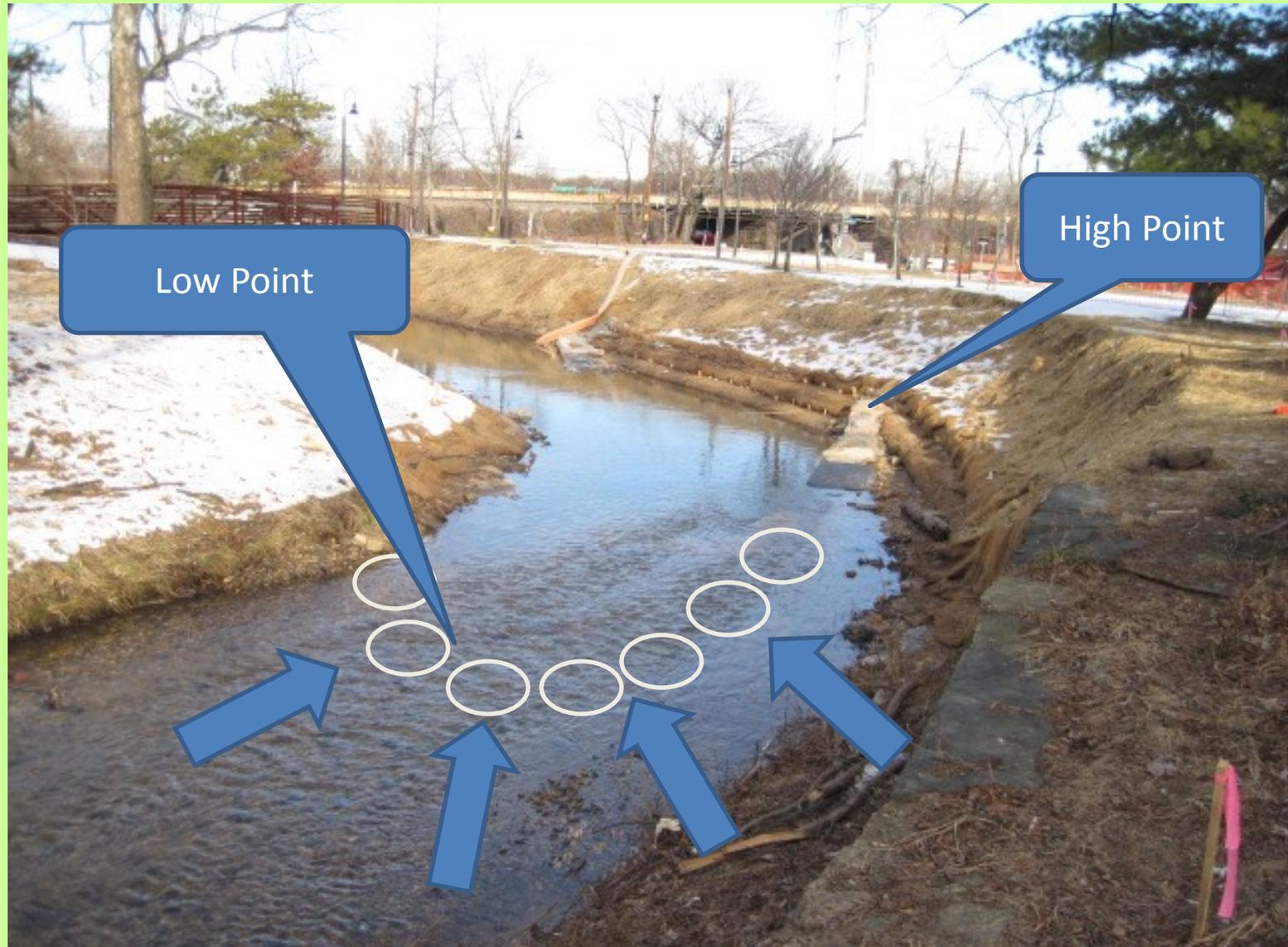
Cross Vanes (Low Flow)



Cross-vane depth



J-Hooks



Soil Lifts & Brush Layering



Root Wads Fish for Habitat



Project Area 02-03 Before



Project Area 02-03 After



Project Area 11 (Before)



Project Area 11 (During)



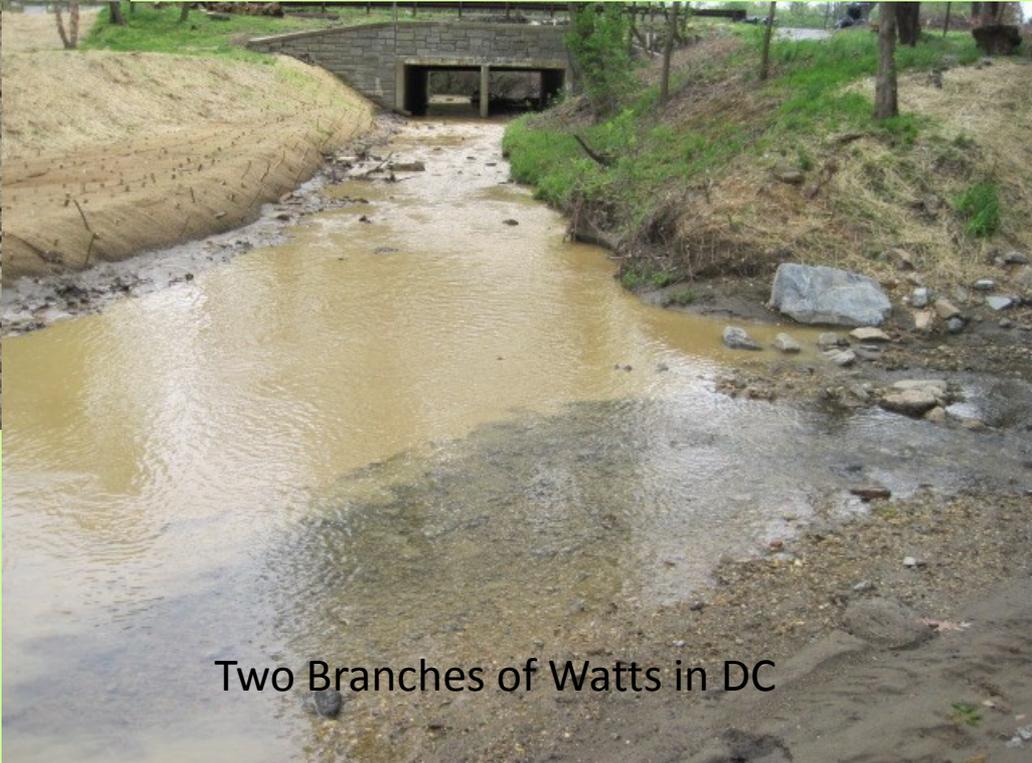
Challenges (Sewer Crossings)



Challenges: Upland Development



Rollins Ave. PG County, MD



Two Branches of Watts in DC

Challenges: Permitting

- FEMA no-rise certification in designated floodway
- 2007 100yr maps not adopted by dc until 2010
- New modeling assistance brought on

Signs of Progress



Watts Branch Reductions in relation to DC's TSS TMDL

	TN reduction (lbs/yr)	TP reduction (lb/yr)	TSS reduction (lb/yr) 2.55lb/lf	%age of <i>TSS TMDL</i> goal	TSS reduction 3.58lb/lf *	%age of TSS TMDL *
Stream restoration (20K In ft)	400	70	51,000	32.86%	71,600	46.13%
Reductions from comprehensive school retrofits (listed in WIP)	73.5	11.68	5,328	3.43%		
Reductions realized from additional SW retrofits in (roadways, parking lots listed in WIP)	134.4	18.64	10,063	6.48%		
Reductions realized from tree planting	134.1	21.8	5,532.1	3.56%		
Reductions realized from RS Homes (75 RB, 50 RG, 75 ST, 10 PP, 50 BS)	21.3	3.0	850.1	0.55%		
Total reductions from all programs/practices	763.3	111.4	72,773 lbs/yr (36.39 Tons/yr)	46.88%		60.15 %
Reduction needed to meet TMDL	No TMDL	No TMDL	155,200 lbs/yr 77.6 Tons/yr (61.2 SR + 16.4 SW)	100%		
Shortfall to meeting TMDL			82,427lbs/yr (41.21 Tons/yr)	53.12%		39.85 %

Monitoring Efforts

Biological

PRE-implementation (2yr)

- 20 jab best habitat survey
- Macro colonization survey
- Modified RSAT III

POST-implementation (3yr)

- 20 jab best habitat survey
- Macro colonization survey
- Modified RSAT III
- Annual 2pass electrofish survey (2 sites)

Chemical (WQ)

PRE-implementation

- ongoing ambient WQ monitoring (15+years)
- 16 Stormevents with 24 intervals (ISCO unit) with control at Oxon (1 year)

POST-implementation

- Ongoing ambient WQ monitoring
- 14-20 stormevents with 24 intervals (ISCO unit) with control at Oxon Run

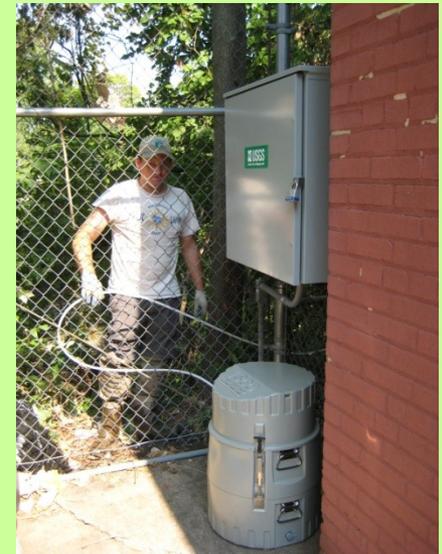
Geomorphological

PRE-implementation

- As built survey
- Erosion assessment by USFWS

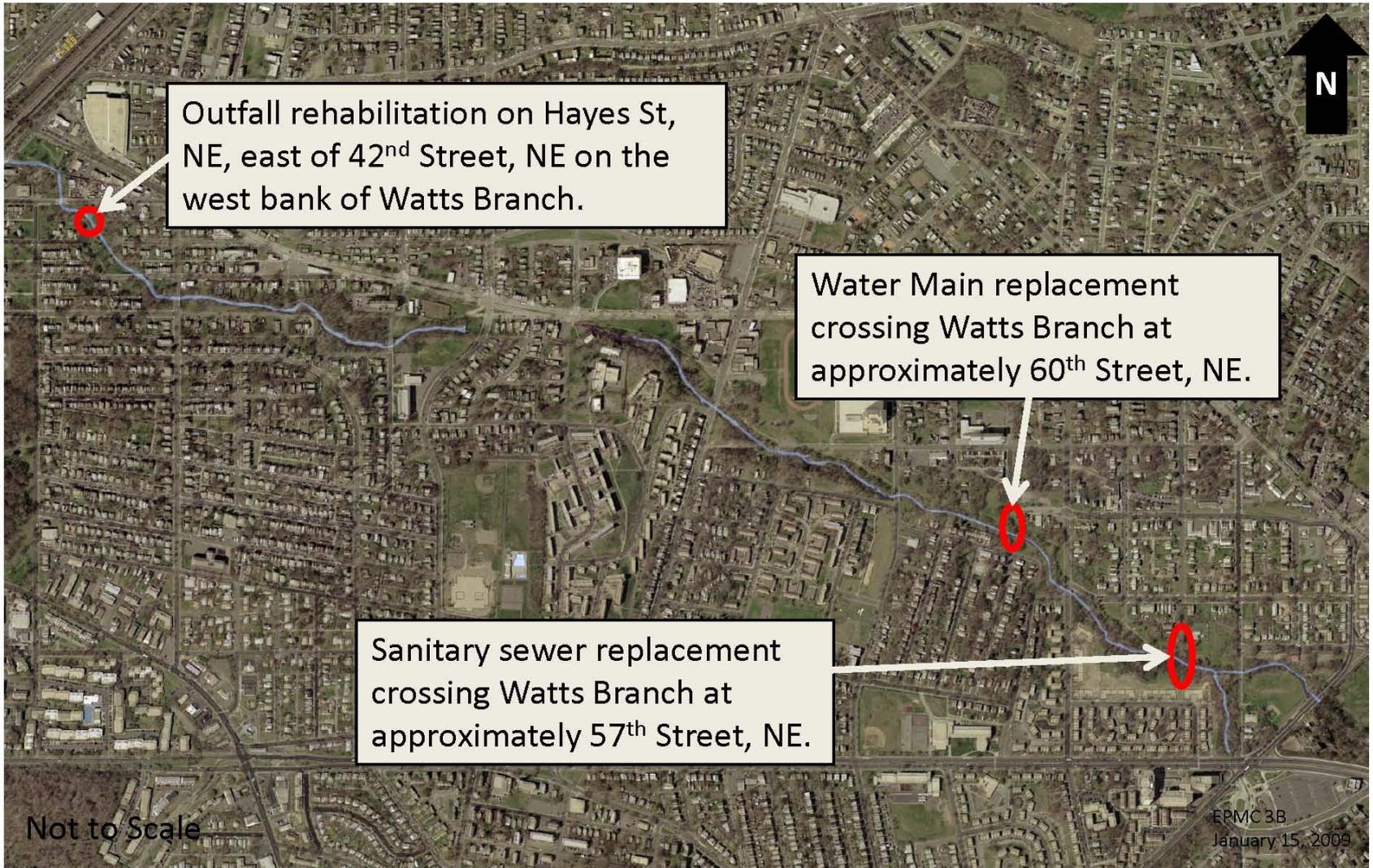
POST-implementation

- Photo-documentation
- Limited surveying

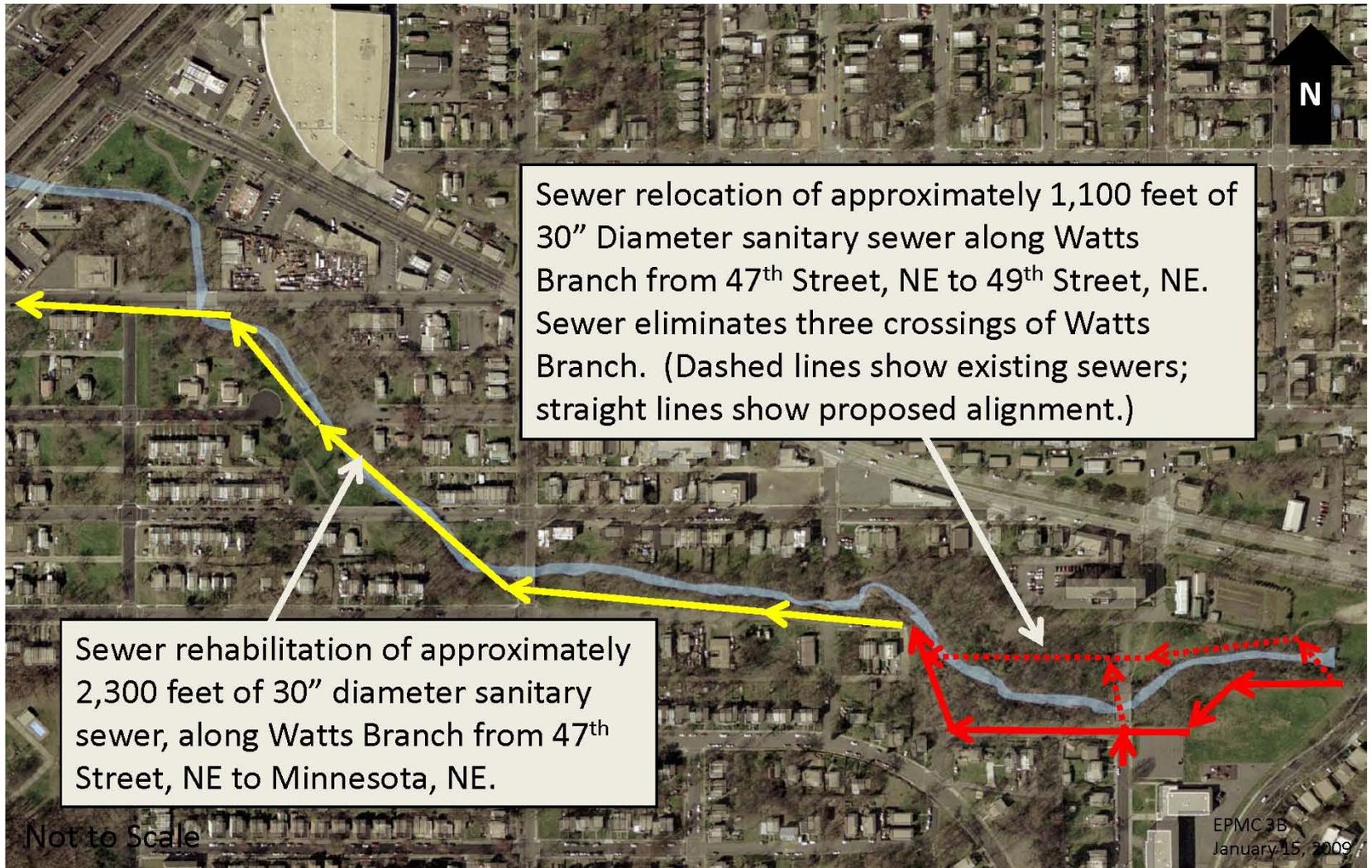


DCWASA Watts Branch Sewer Rehabilitation Project Phase 1

Construction Stage

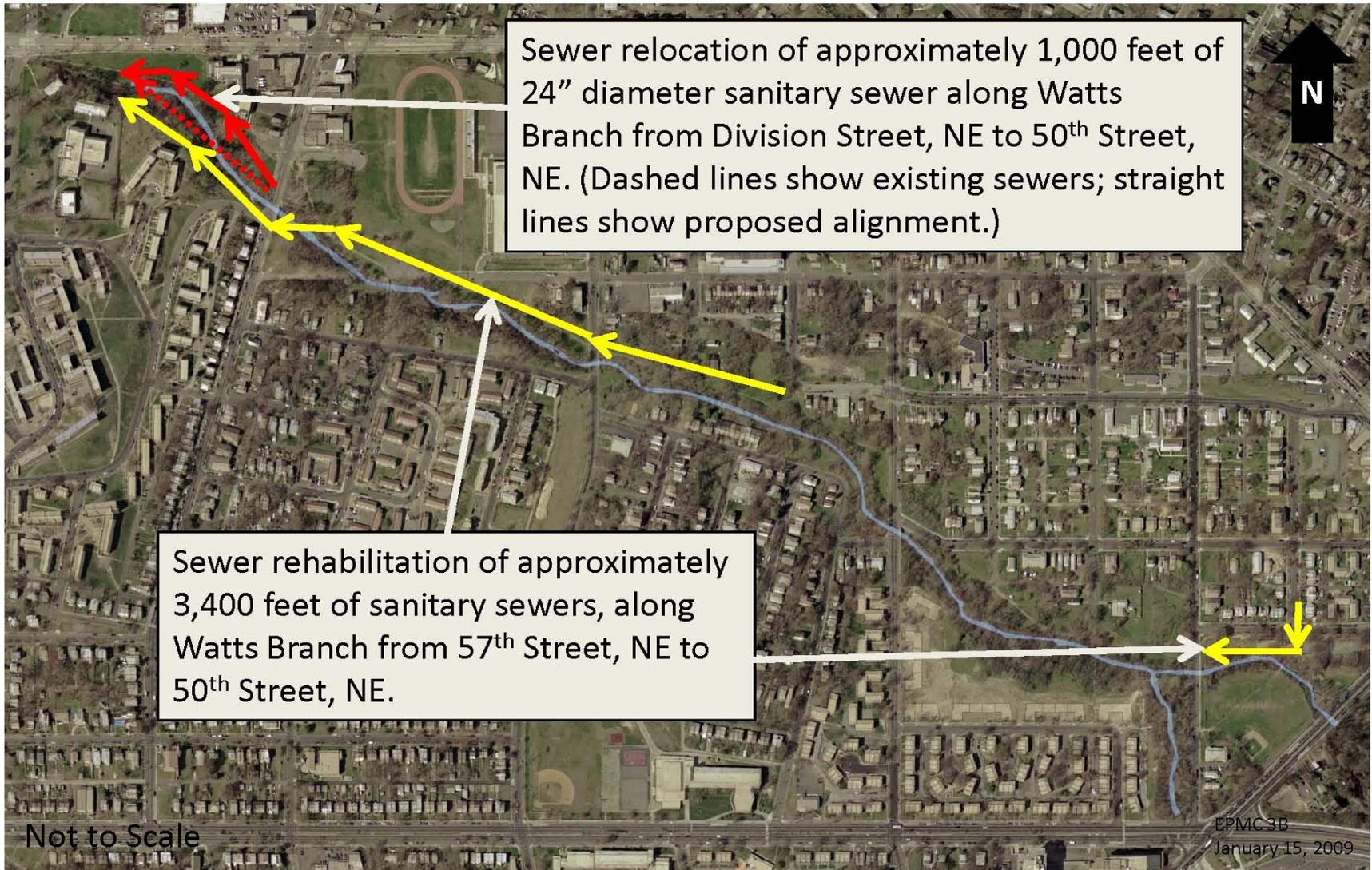


DCWASA Watts Branch Sewer Rehabilitation Project Phase 2 Design Stage



DCWASA Watts Branch Sewer Rehabilitation Project Phase 3

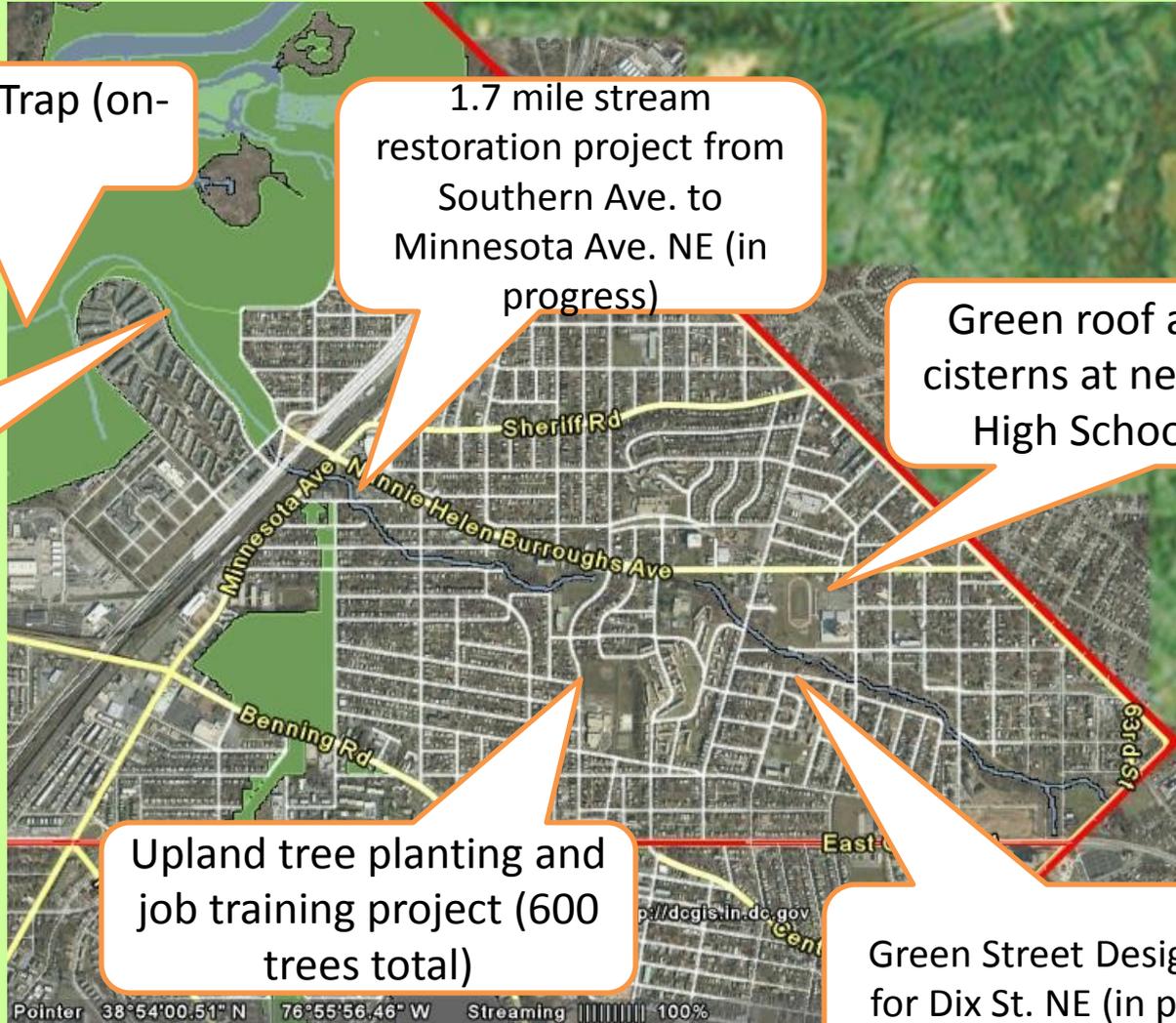
Planning Stage



Reconnected channel



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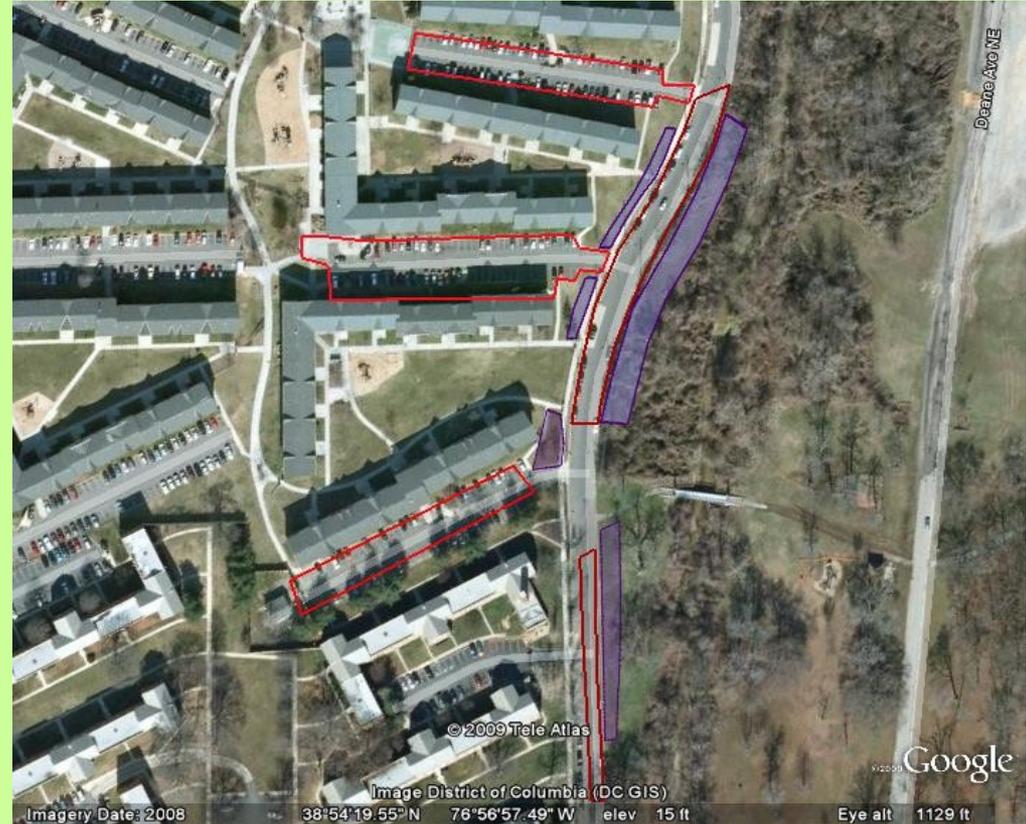


Coordinated Stormwater projects: **HD Woodson High School**

- 40,000 gal cisterns for flushing
- 45,000 sq ft green roof
- ARRA funded
- Construction in 2011



Coordinated SW projects: Jay St. NE bioretention



- 1.9 acres of imp. Surf. Treated
- Area of frequent flooding
- ARRA funded
- Construction in Spring of 2012

Coordinated SW projects: Dix St. green street design



Coordinated SW projects: **Bandalong trash trap**



Installed April of 2009 with Earth Conservation Corps and Anacostia Riverkeeper