

# Storm Water & Drainage Projects 2011 Program Update



Calf Run



Montgomery Woods



Owls Nest

New Castle County Department of Special Services

# County Storm Water & Drainage Programs

- Waterway maintenance
- NPDES MS4 permit
- Storm water basin renovations
- Storm water mitigation projects
- Little Mill Creek

# Waterway Maintenance

- *County Code* makes NCC responsible for keeping non-tidal waterways open and free flowing
- 1,542 work orders/yr



# NPDES MS4 Permit

- 2001 federal consent decree w/ NCC and DeIDOT incorporates 2001 permit; subject to regular compliance audits
- NCC co-permittee w/ DeIDOT, municipalities
- Land Use responsible for pre and during construction activities, including State Sediment and Storm water program
- Special Services responsible for watershed studies, permit compliance and post-construction inspection and rehabilitation

# NPDES MS4 Permit Major Accomplishments

- Inventory & inspection of all storm water facilities (over 1,500)
- Notification & enforcement program
- Dry and wet weather screening of outfalls
- Hazardous spill prevention/response plan
- Illicit discharge program
- Improved Fats, Oils & Grease program (FOG)
- Public outreach/education

# NPDES MS4 Permit New Permit Requirements

- Expect to obtain new permit in 2011
- New responsibilities and additional costs expected with new permit
- Will have to prioritize watersheds and complete water quality improvement plans for 2 watersheds
- Must perform improvements per the plans, including BMP retrofits, structural repairs, additional BMPs and stream segment improvement

# Storm Water Basin Renovations

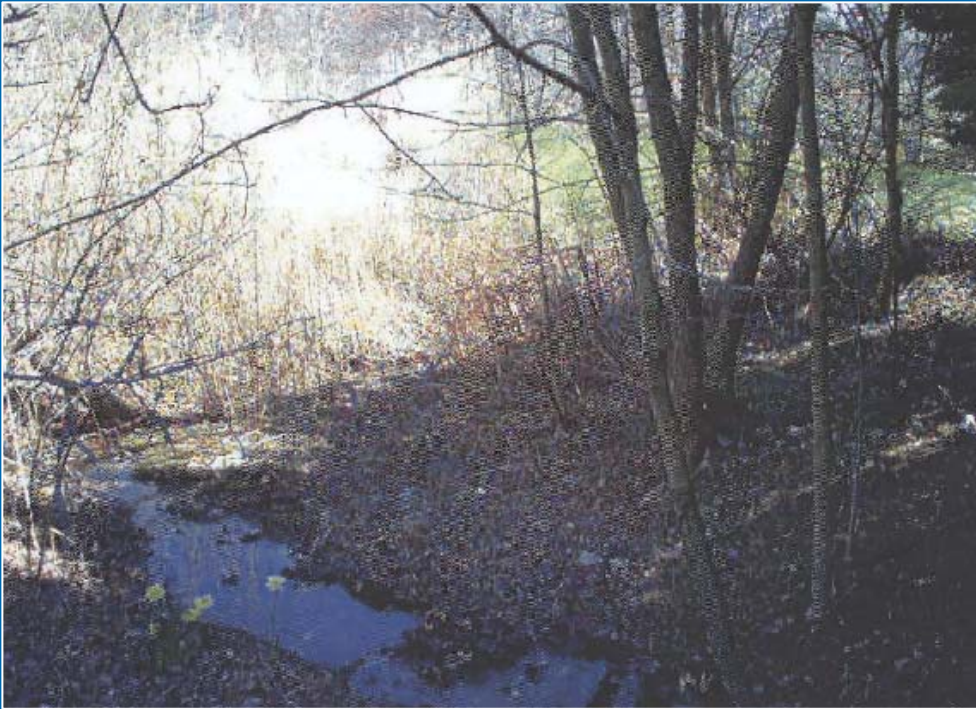
- Repaired 116 of 170 facilities in need of repair
  - 43 of remaining 54 in pipeline
  - 11 of 54 on hold due to title or permit issues
- \$8.9M in State funds
- \$600,000/year NCC funds
- Amnesty Program implemented
  - 235 communities participating
  - Community maintenance
  - County major repairs
- Results: less flooding in subdivision streets & yards

## Mansion Park SWM Pond Rehabilitation





## Rockwood Woods SWM Pond Rehabilitation



## Terraces on Iron Hill SWM Pond Rehabilitation



## York Farms SWM Pond Rehabilitation



# Storm Water Mitigation Project

- Authorized by Ordinance No. 04-176 on January 11, 2005
- Re-appropriated \$17M in authorized capital funds for “drainage and flood abatement capital improvement projects”
- 29 designated projects/locations
- \$1.9M in federal funds later added to project for Glenville, resulting in project total of \$18.99M

# Storm Water Mitigation Project Project Types

- Large-scale emergency debris removal from streams
- Engineering studies
- Buyouts of chronically-flooded homes
- Storm water management facilities
- Streambank stabilization
- Drainage improvement projects
- Glenville

# Storm Water Mitigation Project Large-Scale Debris Removal

- Involved the participation of 10 local contractors
- 225 loads of debris/trash hauled
- 4,377 field labor hours
- 16,075 linear feet of stream cleaned
  - 11,600 ft Red Clay (out of approx. 21,000 ft)
  - 3,225 ft Mill Creek
  - 1,250 ft Hyde Run

# Storm Water Mitigation Project Engineering Studies

- White Clay Creek
- Hyde Run
  - Including sub-watershed study for Westminster community
- Calf Run
- Back Creek
- Caravel Farms
- Duross Heights
- Red Clay Creek
- Millcreek (Hickory Hills, Southwood, Piersons Ridge)

# Storm Water Mitigation Project Buyouts

## CRITERIA

- Vacant
- Severe structural damage
- Historic flooding & future flood potential
- Health and/or safety threat
- Consistent with regional improvement

## RESULTS

- Bought out 22 of 29 requested
- Obtained FEMA grants for 9



# Storm Water Mitigation Project Buyouts



905 Kiamensi Road

6093



# Storm Water Mitigation Project Buyouts



905 Kiamensi Road



Water line 80" above finished floor

6093.PS NCC Design-Build

# Storm Water Mitigation Project Buyouts

157 West Rutherford Dr.  
Water-damaged wall



# Storm Water Mitigation Project Buyouts

3418 Faulkland Road  
Floor and wall framing damage



09.22.2005

# Storm Water Mitigation Project Storm Water Management Facilities



Glendale II  
Flooding in September 2004



Glendale II  
New detention basin

# Storm Water Mitigation Project Storm Water Management Facilities



Old Hobson Farm

Fall 2004



Old Hobson Farm

New embankment & spillway

# Storm Water Mitigation Project

## Storm Water Management Facilities

### ➤ Emily Bissell Hospital

- Regional basin: built on 6 acres and has 5.8 million gallon capacity
- Reduced peak during 100-yr event by 50%
- No downstream flooding complaints since construction in 2007



# Storm Water Mitigation Project Storm Water Management Facilities

## Delcastle

- Expansion of existing basin by 1.1 MG
- 100-year peak reduced by 50% in Hyde Run tributary
- No downstream flooding complaints since completion



Original Delcastle basin

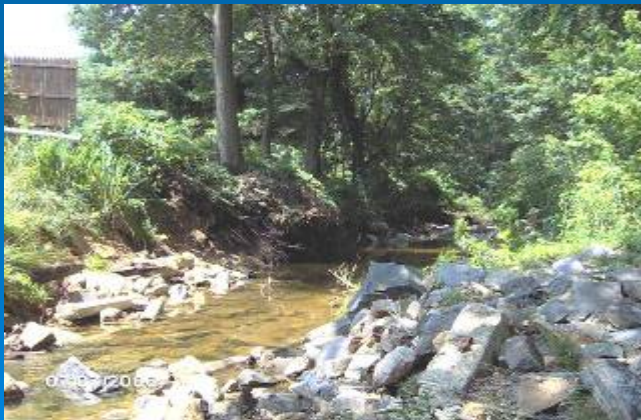


Expanded Delcastle basin



# Storm Water Mitigation Project Streambank Stabilizations

Calf Run, 2300 block of Sherman Avenue, Bank  
Stabilization



Before

6093.PS NCC Design-Build

After

# Storm Water Mitigation Project Streambank Stabilization Projects

Calf Run, 1000 Block of Woodland Ave., Channel Stabilization



Before



After

# Storm Water Mitigation Project Streambank Stabilization Projects

Penn Drew Manor



Before



After

# Storm Water Mitigation Project Drainage Improvement

(off Montgomery Woods Drive)



Before



After

# Storm Water Mitigation Project Drainage Improvement



East Cardiff Court



# Storm Water Mitigation Project Drainage Improvement

- Still to be completed
  - Laurel Glen
  - Duncan Woods
  - Coventry/Talbot Drive
  - Marshallton/Rosemont Drive

# Storm Water Mitigation Project Glenville

- NCC and DeIDOT contributed \$15M each to buyout & demolish 174 homes
- DeIDOT performed work
- NCC and DeIDOT received \$1.9M in FEMA grants, which was added to Storm Water Mitigation project, making project total \$18.9M

# Storm Water Mitigation Project Financial Summary

Allocated Funds	\$18,999,161.00
Expenditures	\$14,770,865.08
Remaining Funds	\$4,228,295.92
Minimum funds necessary to complete projects	\$3,251,579.11



# Little Mill Creek Phase I

- Completed in 2008
- Funded by NCC (\$911,000), District and Corps
- Corps managed construction
- Kirkwood Hwy aqueduct south to Wilsmere rail yard

# Little Mill Creek Phase II

- Managed by Corps
- Construction to begin 2012
- Cost share
  - NCC: \$483,000
  - District: \$550,000
  - Corps: \$2.7M
- Maryland Ave. aqueduct south to Amtrak railroad culvert
- NCC responsible for easements

# Path Forward

- Major projects
  - Requirements per NPDES MS4 permit/ consent decree
  - Channel clearing required per *County Code*
  
- Supplemental projects
  - Department will provide Council with list of possible projects for funding remaining upon completion of Storm Water Mitigation Project
  - Partner with NCCD or Corps when possible to take advantage of cost shares
  - Comply with Article 7, Chapter 12 of the *County Code*

# Path Forward

- Qualification Criteria: *County Code*
  - Protect persons and buildings from serious harm from up to 100-yr storms
  - Protect dwellings from structural damage due to flowing water
  - Eliminate public health hazard certified by State Public Health Officer, if other methods not available to address
  - Inundation of yards, periodic basement flooding, & lot ponding not NCC responsibility

## Path Forward

- Approval Procedure: *County Code*
  - Study to map floodplain and delineate wetlands
  - Develop typical cross section of improvements
  - Public Hearing with relevant property owners
  - Informal meeting with County Council to reach consensus on whether to undertake project