REQUEST FOR BOARD ACTION

HENDERSON COUNTY
BOARD OF COMMISSIONERS

MEETING DATE: **October 5, 2009**

SUBJECT: **Stormwater Management Delegated Program**

ATTACHMENTS: **Yes**
1. Presentation: Stormwater Master Plan
2. Presentation: Delegated Program

SUMMARY OF REQUEST:

This agenda item is to facilitate Board discussions on the County's Stormwater efforts in accordance with the County's Strategic Plan and receive direction on proceeding with development of a Countywide Delegated Stormwater Program. These efforts focus primarily on the Stormwater Master Plan and the possibility of Henderson County developing a Stormwater Management Ordinance (Program).

McGill and Associates has completed the Henderson County Stormwater Master Plan which was provided to the Board under separate cover. The plan was funded by a mini-grant through the Clean Water Management Trust Fund. J. P. Johns, PE from McGill and Associates and staff will present the attached presentation and be available to address any questions on the Master Plan. No action is needed by the Board; staff will develop the highest priority project into a grant application with the Clean Water Management Trust Fund. This application will be brought to the Board for approval.

Regarding a potential Stormwater Management Ordinance, this would be similar to the County's Erosion and Sediment Control Ordinance in that the resulting program would be delegated from the State. The State is currently administering the program in Henderson County and collecting all the associated revenues. The Board tabled this item last fiscal year due to the uncertainties surrounding the economic downturn. Staff will present the attached, updated presentation.

BOARD ACTION REQUESTED:

Authorize staff to develop an ordinance for a Countywide Delegated Stormwater Program to bring back to the Board of Commissioners for approval.

Suggested Motion:

I move that the Board authorize staff to develop an ordinance for a Countywide Delegated Stormwater Program to bring back to the Board of Commissioners for approval.

Henderson County Stormwater Master Plan

25th anniversary McGill

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The Henderson County Stormwater Master Plan

- December 2008, Clean Water Management Trust Fund (CWMTF) approved Stormwater Mini-Grant for Henderson County
- $70,000 Project
  - $50,000 from CWMTF
  - $20,000 match from Henderson County
- Grant used to create Henderson County Stormwater Master
- Stormwater Advisory Team Created for Project

Marcus Jones, P.E. County Engineer	Anthony Starr County Planning Director	Shaun Moore Henderson County Soil and Water Conservation District
Natalie Berry, P.E. Assistant County Engineer	McGill Associates WGLA	**Diane Silver** NC Cooperative Extension Service Mud Creek Watershed Coordinator

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The Henderson County Stormwater Master Plan Addresses the Following Stormwater Items:

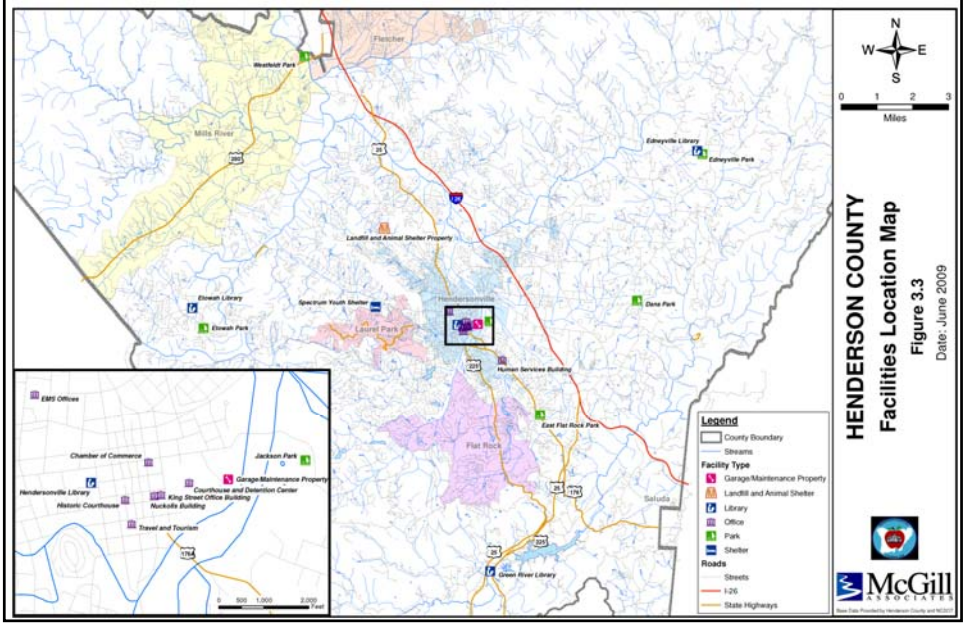
- Implementation of NPDES consistent stormwater outfall inventory and illicit discharge detection of existing stormwater conditions for Henderson County facilities.
- Collection and assessment of existing critical stream channel conditions for erosion potential, water quality degradation, and capacity for specific problem areas as identified by Henderson County.
- GIS compatible geodatabase and mapping of collected stormwater features.
- Development of solutions for stormwater quantity and quality issues.
- Creation of a Capital Improvements Plan (CIP) to manage current and future stormwater needs for Henderson County.

Stormwater Infrastructure Inventory

Stormwater Infrastructure Inventory performed at following Facilities:

- Chamber of Commerce Building
- Courthouse and Detention Center Property
- Dana Park
- East Flat Rock Park
- Edneyville Library
- Edneyville Park
- EMS Offices
- Etowah Library
- Etowah Park
- Garage/Maintenance Property
- Green River Library
- Hendersonville Library
- Historic Courthouse Property
- Human Services Building Property
- Jackson Park
- King Street Office Building
- Landfill and Animal Shelter Property
- Nuckolls Building
- Spectrum Youth Shelter
- Travel and Tourism
- Westfelt Park

Stormwater Infrastructure Inventory



Stream Channel Assessment

As directed by the Advisory Team, an assessment of the existing stream channel conditions for the following stream reaches was conducted:

- Devils Fork
- Gash Creek
- Mill Pond Creek
- Reedypatch Creek
- Upper Mud Creek

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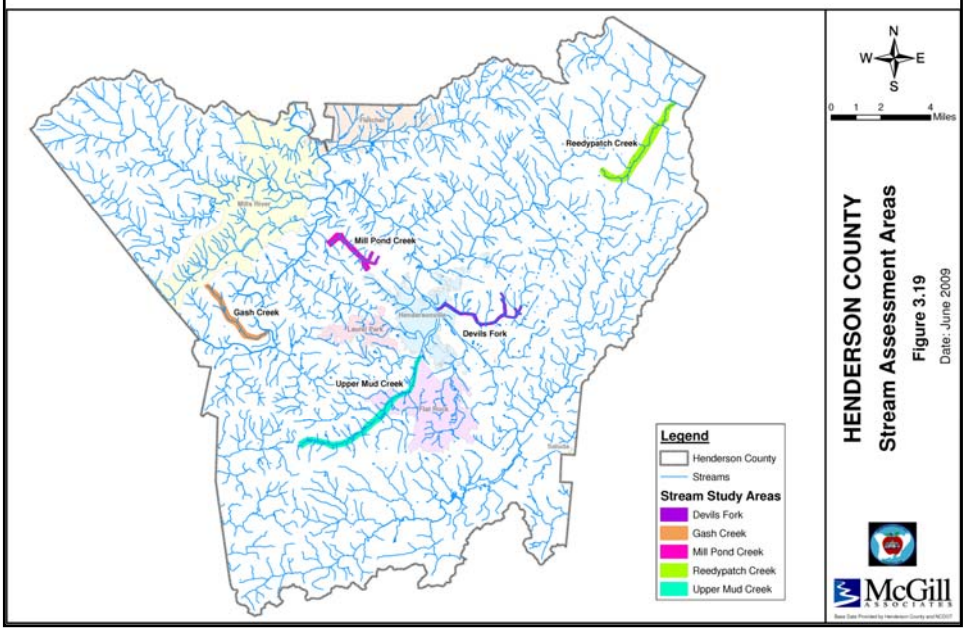
Stream Channel Assessment



Stream Channel Assessment

Each reach was evaluated for stream quality assessment variables:

- Physical Stream Features
- Stream Stability
- Habitat Features
- Presence of Biological Organisms

Each reach was evaluated for bank erosion hazard index (BEHI) variables:

- Bank Height
- Maximum Bankfull Height
- Rooting Depth of Bank Vegetation
- Root Density
- Slope Steepness
- Surface Protection

Each reach was evaluated for erosion potential and bank stability variables:

- Percent vegetated cover of the stream bank
- Level of bank material erodibility
- Bank Slope and Bank Height (feet)
- Rooting Depth of bank vegetation (feet)
- Root Density
- Presence of active erosion

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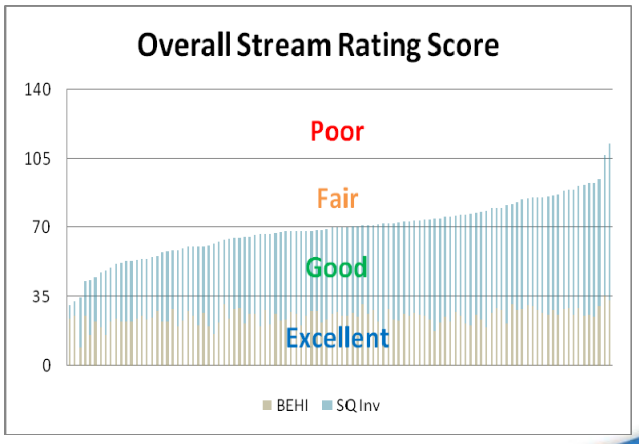
Stream Channel Assessment

Total 106 stream reaches surveyed for the five critical streams evaluated



Capital Improvement Projects

Capital Improvement Project	*Estimated Cost*
Mill Pond Creek Reach **MPO17** (Adjacent to Landfill)	*$444,500 to $594,600*
Devils Fork Reach **DVF2A**	*$989,600*
Reedypatch Creek Reach **RPT5**	*$701,400*
Devils Fork Reach **DVF10**	*$865,000*
Mill Pond Creek Reach **MPO8**	*$2,516,200*
Devils Fork Reach **DVF15**	*$300,300*
Gash Creek Reach **GSH9**	*$694,400*
Upper Mud Creek **MUC16, 17**	*$1,646,500*

Priority Stream Reach: MPO17

- Propose approximately 1,125 feet of stream restoration along **Mill Pond Creek** adjacent to County Landfill.
- Recommend a stormwater wetland and off-channel storage basin be implemented along the upper section of the reach (from the dirt road crossing to approximately 300 feet upstream).
- Spot stream bank stabilization and enhancement is recommended from the point downstream of the dirt road to Stoney Mountain Road.
- Additionally, the existing pipe culvert at the dirt road crossing should be removed and replaced with a single-span bottomless culvert structure.

Sediment in Mill Pond Creek

Long Pool in Mill Pond Creek

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Priority Stream Reach: MPO17

Priority Stream Reach: DVF2A

- This project proposes approximately 750 feet of stream restoration along **Devils Fork**.
- The upstream section is an ideal location for a full stream restoration including the removal of a 30-inch DIP located in the center of this reach.
- Restoration is recommended from Old Dana Road downstream to the point where the stream is surrounded by vegetation.
- From this point downstream to Dana Road, spot stabilization measures are recommended to secure the banks in locations where erosion is excessive.
- Replacement of the Dana Road and Old Dana Road culverts with open bottom single-span culverts is also recommended.

Erosion along Devils Fork

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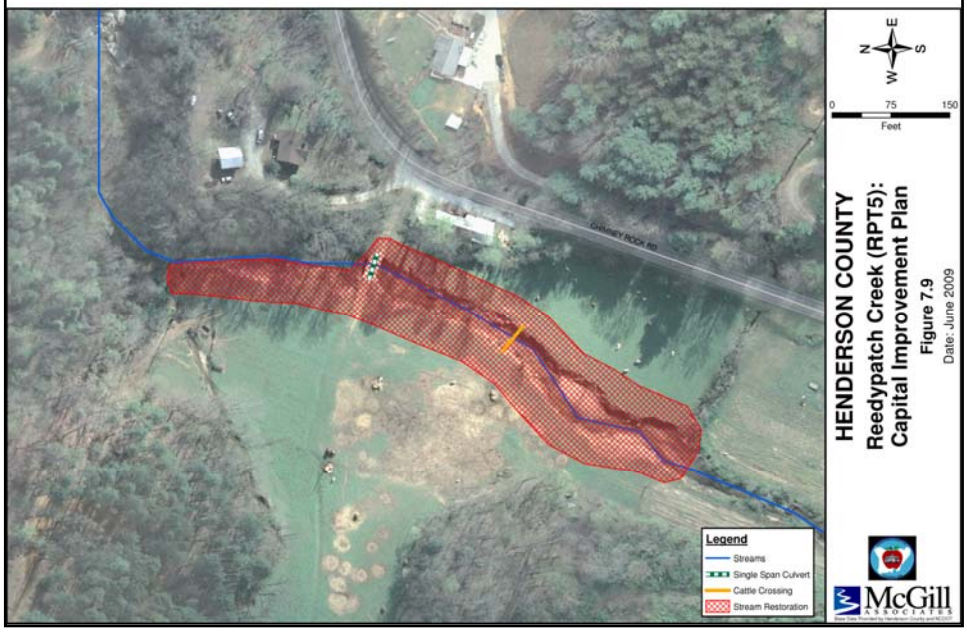
Priority Stream Reach: DVF2A

Priority Stream Reach: RPT5

- This project proposes approximately 750 feet of stream restoration along **Reedypatch Creek**.
- It is recommended that this reach undergo complete stream restoration.
- In addition, in order to significantly reduce the degradation of the stream caused by livestock, the installation of a single cattle crossing is recommended. This would isolate the cattle's contact with the stream to one location.
- It is recommended that the vehicle crossing be replaced as well.

Severe Bank Erosion along Reedypatch Creek

Priority Stream Reach: RPT5



Priority Stream Reach: DVF10

- Propose approximately 2,050 feet of stream restoration along **Devils Fork**.
- For the section adjacent to the residence, a full stream restoration is recommended.
- Upstream from the residence to the end of the reach, sediment removal, stream stabilization, and buffer enhancement are recommended.

Severe Erosion on Devils Fork Bank

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Priority Stream Reach: DVF10

Priority Stream Reach: MPO8

- Proposes approximately 2,920 feet of stream restoration along **Mill Pond Creek**.
- Recommend that the entire length of the reach undergo a full stream restoration.
- Additionally, the three culverts on the reach are recommended to be replaced with single-span bottomless culverts, which facilitate the establishment of biological activity and diversity in the stream.

Erosion on Mill Pond Creek Bank

Rugby Middle School Culvert

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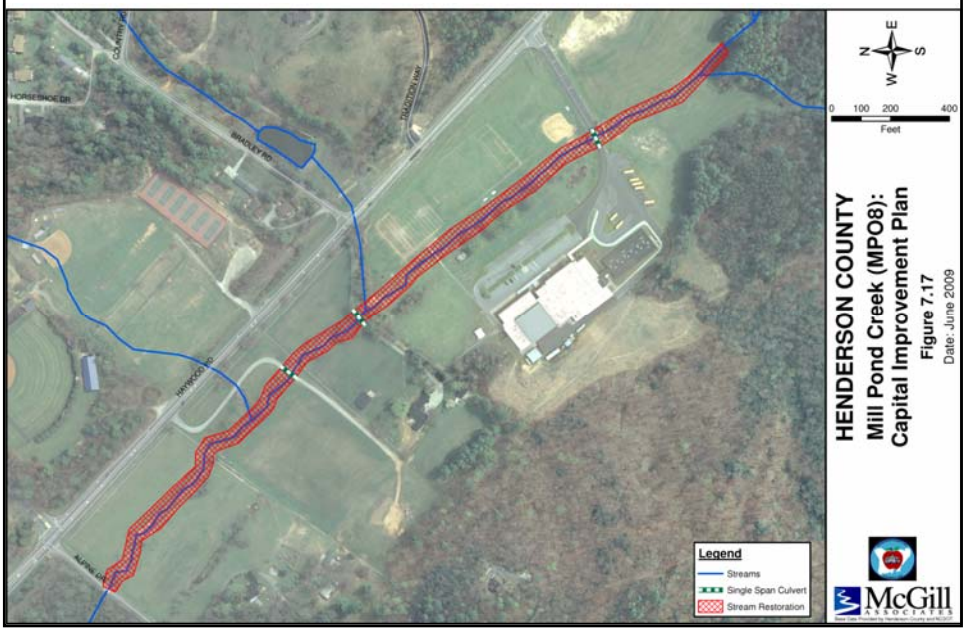
Priority Stream Reach: MPO8



Priority Stream Reach: DVF15

- This project proposes approximately 750 feet of stream restoration along **Devils Fork**.
- It is recommended that the upstream portion of this reach undergo complete stream restoration.
- Downstream to the confluence with the branches on either side of the reach, stream stabilization and buffer establishment and enhancement are recommended.
- In addition, in order to significantly reduce the degradation of the stream caused by livestock, the installation of a single cattle crossing is recommended. This would isolate the cattle's contact with the stream to one location.

Trampled Bank along Devils Fork

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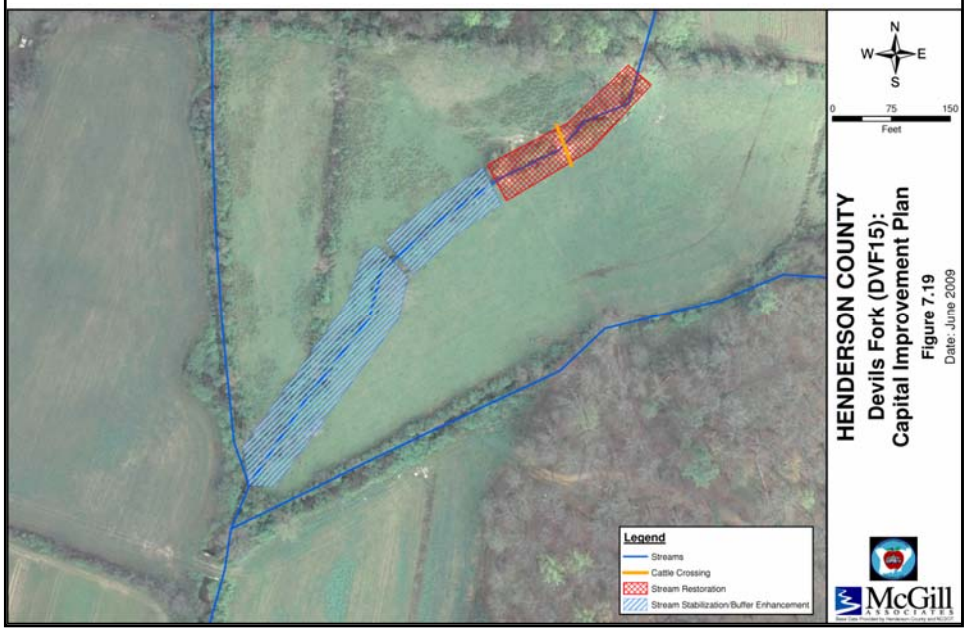
Priority Stream Reach: DVF15

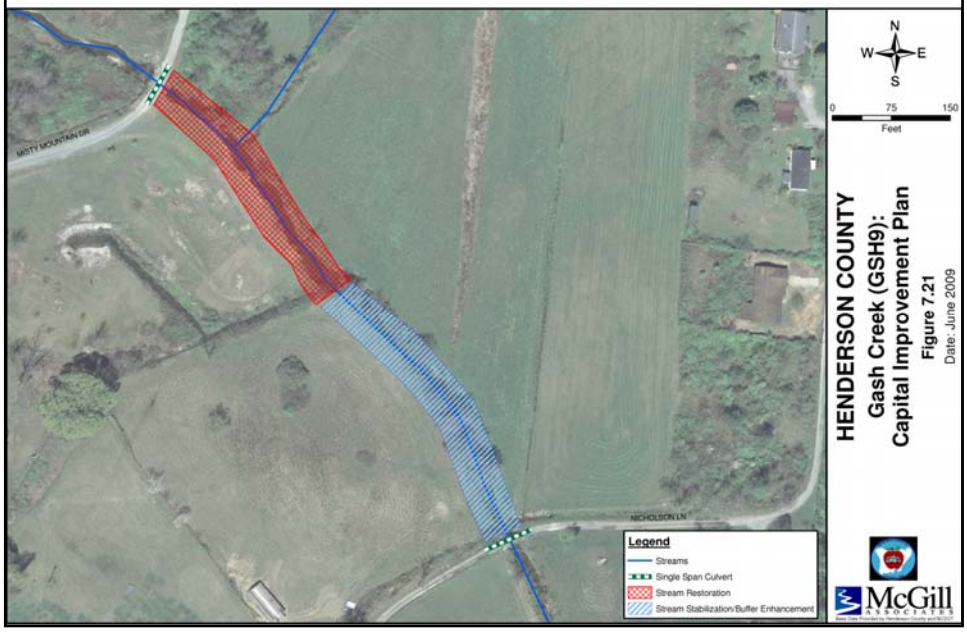


Priority Stream Reach: GSH9

- Propose approximately 720 feet of stream restoration along **Gash Creek**.
- Recommend the upstream half of the reach undergo complete stream restoration.
- The downstream half of the reach has a more established intermittent vegetative buffer; stream stabilization and buffer enhancement are recommended for this section.
- Additionally, both culverts on the reach (Misty Mountain Drive and Nicholson Lane) are recommended to be replaced with single-span bottomless culverts.

Bank Erosion along Gash Creek

Priority Stream Reach: GSH9

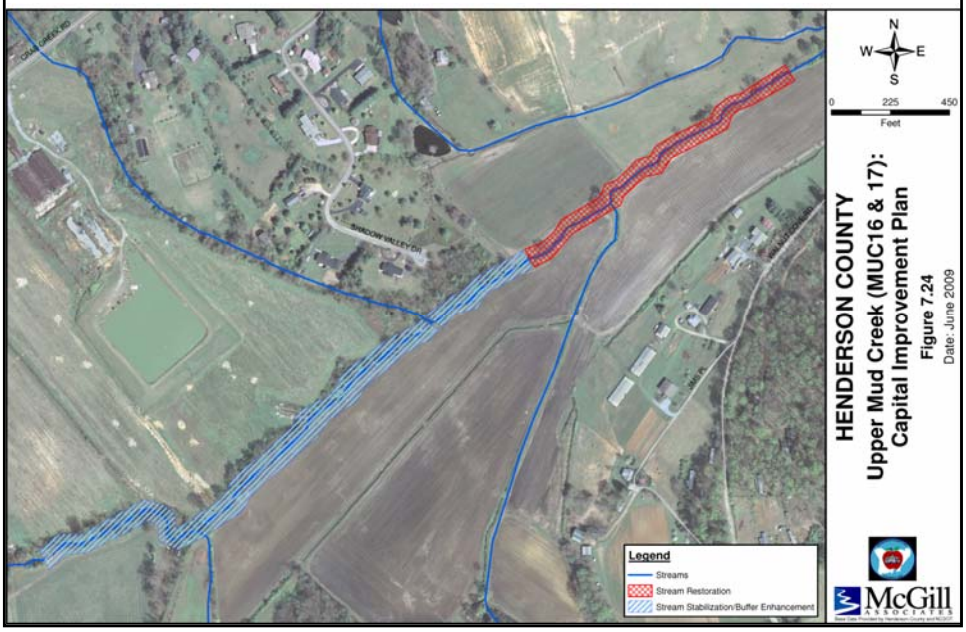


Priority Stream Reach: MUC16, 17

- Propose approximately 3,655 feet of stream restoration along **Upper Mud Creek**.
- Recommend downstream portion of the reach undergo complete stream restoration.
- For the upstream portion of the reach, stream stabilization and riparian buffer establishment and enhancement is recommended.

Severe Bank Erosion on Mud Creek

Priority Stream Reach: MUC16, 17



Conclusions

- Successfully Complete CWMTF requirements for project
- Obtained Inventory of County Facilities
- Identified Critical Stream Reaches in Henderson County
- Identified Capital Improvement Projects for Stream Reaches
- Recommend Implementing Restoration of Mill Pond Creek as the First Capital Improvement Project

Henderson County Stormwater

Update Presentation

October 5, 2009

Henderson County Stormwater

Presentation Overview

- Review
- Henderson County Delegated Program
- Recommendations

Henderson County Stormwater

REVIEW

Henderson County Engineering

Henderson County

Review

Why do we need to manage stormwater and polluted runoff?

- Increases Localized Flooding
- #1 Cause of Water Pollution in NC
- Increases Cost for Water Treatment
- Harms Wildlife

from NCDENR's www.ncstormwater.org

Henderson County Engineering

Henderson County

Review

Henderson County Strategic Plan,

(Strategy 4.2: Protect Water Quality)

Objectives:

Identify and incorporate Storm Water Management standards and requirements into County land development ordinances. [CCP: N-02-E] (FY2008)

Begin development and enforcement of Storm Water Management standards within County land development ordinances. [CCP: N-02-E] (FY2008)

Review

On July 1, 2007 as per NCGA Session Law 2006-246, the Water Quality Section of NCDENR began managing stormwater in Henderson County.

- Managed out of Raleigh
- Permit Fee is $505.00
- Requires Stormwater Improvements on Development and some Re-Development

Review

NC Clean Water Management Trust Fund in June 2008 awarded an "Out of Cycle Grant" to Henderson County for a Stormwater Master Plan:

- Model Stormwater in County
- Identify Projects to Help Control Existing Flooding and Water Quality Problems (CIP)

Review

06/27/08:	Grant Awarded to Henderson County
07/16/08:	Grant Agreement Approved by Board
09/17/08:	Engineer Selection Approved by Board
11/03/08:	Agreement approved without Ordinance for Delegated Program
08/19/09:	Final Draft of Master Plan Delivered

Henderson County Engineering

Henderson County Stormwater

DELEGATED PROGRAM

Stormwater Management Delegated Program

- **"Do Nothing Option"** with NCDENR continuing to managing the State SWM Program
- Develop a **Delegated County Program** similar to the County's delegated Erosion Control Program.

Delegated Program Budget

- Combine SWM with Erosion Control
- Water Quality Enterprise Fund
  - Revenues from permit fees offset expenses with retained earnings (self supporting)
  - Retained earnings possible to fund Stormwater Capital Improvements to resolve existing flooding problems (Local match for CWMTF)
- Currently, State program is funded by permit fees (fees currently paid to NCDENR)

Program Budget, cont.

Estimated Annual Revenue from State Permits

(Updated to reflect downturn in development)

- From State program, permit rate is approximately 6 permit per year.
- State permit fee is $505.00
- Estimated annual revenue (6 permits x $505.00) = $3,030

Program Budget, cont.

Estimated Annual Revenue from Municipal Permits

- From Municipal programs, permit rate is approximately 1 permits per year.
- Annual permits estimated at 1 permit
- Permit fee are typically part of overall Development Fee (assume State fee)
- Estimated annual revenue (1 permits x $505.00) = $505.00

Program Budget, cont.

Estimated Annual Revenue

- State estimated annual revenue: $3,030
- Municipal estimated annual revenue: $505
- Total estimated revenue: $3,535

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Program Budget, cont.

Estimated annual expenses added to Erosion Control's current budget

- At the estimated rate of permits, the Stormwater Program can be managed with existing staff.
- The Stormwater Permits can be reviewed in conjunction with Erosion Control requiring less time than separate reviews.
- No Significant additional expenses

Program Budget, cont.

- Should the amount of permits increase, one additional staff will be needed. The corresponding increase in revenue will cover this expense.
- Should the Program become a financial burden, the County can discontinue the Delegated Program and State / Municipalities will assume jurisdiction again.

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Delegated Program: Additional Considerations

- **A County Program will not be a new regulation or expense**. The State is currently regulating Stormwater and the permit fees (and possible job) are sent to Raleigh.
- Develop program to fit specific needs of County (not part of Statewide program)

Delegated Program: Additional Considerations

- Efficient Regulation = Better Regulation for Applicants and Environment
  - One stop for Erosion Control & SWM
  - Quicker response: Local vs. Raleigh
  - Efficiency develops cooperation not confrontation
- Henderson County has a lot to gain by a Delegated Program and very little to lose.

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Stormwater Master Plan

RECOMMENDATION

Henderson County Engineering

Henderson County

Staff Recommendation

- Direct Planning and Engineering Departments to contact municipalities regarding a Countywide Stormwater program
- Develop a Stormwater Ordinance for a Delegated Program with participating Municipalities
- Bring to Board of Commissioners and Councils for approval
- Submit Ordinance for State approval

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Questions?

Thank you

Henderson County Engineering

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