AGENDA

PUBLIC WORKS COMMITTEE SPECIAL MEETING

5:30 P.M., MONDAY, FEBRUARY 26, 2007

COUNCIL CHAMBER

ROOM 230, CITY HALL, 101 N MAIN STREET

COMMITTEE MEMBERS:  Council Member Joycelyn V. Johnson, Chair
                        Council Member Evelyn A. Terry, Vice Chair
                        Council Member Dan Besse
                        Council Member Robert C. Clark

1. BACKGROUND MEMO FROM CITY MANAGER.

2. REVIEW OF THE HISTORY, CURRENT CONDITIONS, AND POSSIBLE SOLUTIONS.

3. SUPPLEMENTAL MATERIALS
   A. HISTORY OF CITY’S 60/40 PROGRAM
   B. RESEARCH ON OTHER NORTH CAROLINA CITIES’ POLICIES
   C. REPORT ON ADEQUACY OF THE 10 YEAR DESIGN STANDARD
   D. REPORT ON THE FEMA “SEVERE REPETITIVE LOSS” AND “INCREASED COST OF COMPLIANCE” PROGRAMS
   E. REPORT ON INCORPORATING DISTRIBUTED STORMWATER MANAGEMENT PROGRAMS
   F. REPORT ON EFFORTS TO PRESERVE AND PROTECT WATER QUALITY
   G. PROPOSED REVISIONS TO THE STORMWATER ORDINANCE
   H. FLOOD PROTECTION INFORMATION

4. PUBLIC COMMENTS.

5. DISCUSSION OF NEXT STEPS.
To: Mayor Allen Joines and Members of the City Council  
From: Lee D. Garrity, City Manager  
Date: February 22, 2007  
Subject: Stormwater Information Package

Stormwater is a significant and growing concern in our community. Council members and citizens have expressed a desire for more and better protection from the negative effects of stormwater runoff. In addition, we are facing new and expanded state and federal water quality requirements.

Stormwater concerns generally fall into the areas of flooding, erosion, and pollutants. This agenda package attempts to begin the discussion about the magnitude of the problem and the available solutions.
TO: LEE GARRITY, CITY MANAGER  
FROM: GREGORY M. TURNER, ASSISTANT CITY MANAGER/PUBLIC WORKS  
SUBJECT: PROPOSED REVISIONS OF THE STORMWATER ORDINANCE  
DATE: FEBRUARY 2, 2007

In March 2007, we plan to bring for formal Council Consideration revisions to the Stormwater Ordinances to accomplish several mandates or directions. These include a mandate from the State to comply with Phase II Stormwater Water Quality Regulations, directions from the US Environmental Protection Agency that additional water quality protections should be implemented in the City, and direction from the City Council’s strategic plan that calls for increased regulations to protect sensitive lands (EN-2). Attached to this memo are:

- Attachment 1: A copy of the correspondence between the State Division of Water Quality and the City on the Phase II Stormwater Permit Requirements.
- Attachment 2: A copy of or excerpts from the correspondence between the US EPA and the City regarding EPA’s recent audit of the City’s Stormwater Program.
- Attachment 3: Excerpts from EN-2 of the City’s Strategic Plan.

The general purpose of this proposed ordinance is to protect the human and natural environment from the adverse effects of increased post-development stormwater runoff that is associated with either new development or redevelopment. To accomplish this the ordinance has eight specific objectives:

1. Establishing decision-making processes for development that protect the integrity of watersheds and preserve the health of water resources;
2. Requiring that new development and redevelopment maintain the pre-development hydrologic response in their post-development state as nearly as practicable for the applicable design storm in order to reduce flooding, streambank erosion, nonpoint and point source pollution and increases in stream temperature, and to maintain the integrity of stream channels and aquatic habitats;
3. Establishing minimum post-development stormwater management standards and design criteria for the regulation and control of stormwater runoff quantity and quality;
4. Establishing design and review criteria for the construction, function, and use of structural stormwater BMPs that may be used to meet the minimum post-development stormwater management standards;
5. Encouraging the use of better management and site design practices, such as the use of vegetated conveyances for stormwater and the preservation of greenspace and other conservation areas to the maximum extent practicable;
6. Establishing provisions for the long-term responsibility for and maintenance of structural and nonstructural stormwater BMPs to ensure that they continue to function as designed, are maintained appropriately, and pose no threat to public safety;
7. Establishing administrative procedures for the submission, review, approval and disapproval of stormwater management plans, for the inspection of approved projects, and to assure appropriate long-term maintenance.

8. Assigning responsibility and processes for approving the creation and maintenance of adequate drainage and flood damage prevention.

The ordinance is based on the State model ordinance but has been customized for the special needs of the City. The ordinance is also still a draft. The Home Builders / Realtors have been briefed on it but obviously have not reviewed a final draft.
Mr. Keith Huff  
Stormwater Manager  
Stormwater Department  
City of Winston-Salem  
P. O. Box 2511  
Winston-Salem, NC  27102

SUBJ: NPDES Permit No. NCS000247  
City of Winston-Salem Municipal Separate Storm Sewer System

Dear Mr. Huff:

During the period covering June 27-29, 2006, the Environmental Protection Agency's (EPA) contractor, Science Applications International Corporation (SAIC), in conjunction with the North Carolina Department of Environment and Natural Resources (NCDENR) performed a Municipal Separate Storm Sewer System (MS4) Audit of the City of Winston-Salem. The Audit was conducted to evaluate the City's compliance with the requirements of Section 402(p) of the Clean Water Act (CWA), 33 U.S.C. § 1342(p), the regulations promulgated thereunder at 40 Code of Federal Regulations Part 122.26, and the North Carolina National Pollutant Discharge Elimination System (NPDES) Permit No. NCS000247 (the Permit), effective November 1, 2001.

The results of the Audit are contained on the enclosed Audit Report which outlines each area of the City's Stormwater Program. EPA has reviewed the Audit Report which contains required changes to the Program, which include Permit and regulatory requirements, as well as recommendations for program improvements. Required elements include but are not limited to those detailed below:

A. Part I.A.(4),(b) of the Permit:

Currently, the City's Geographic Information System (GIS) does not include storm sewers on private property that may be connected to the MS4, storm water management facilities, or municipal operations.

B. Parts I.A.(4),(f) and I.B.(4),(a) of the Permit:

The City has not implemented all education, training and outreach programs; i.e., BMP 11 and BMP 16, listed in its 2005 Stormwater Management Program Report.
C. Part I.B.(3) of the Permit:

The City’s dry weather screening and monitoring programs do not include outfalls on private property that receive MS4 flows. In addition, these outfalls have not been observed to determine if illicit discharges are occurring.

D. Part I.B.(4).(b) of the Permit:

The City has not provided education to all commercial pesticide, herbicide, and fertilizer applicators in accordance with BMP13 of the 2005 Stormwater Management Program Report.

E. Part I.B.(4).(d) of the Permit:

1. The City has not enacted an ordinance addressing post-construction controls for areas outside the Water Supply Watershed.

2. The City has not implemented BMP4 as described in the 2005 Stormwater Management Program Report.

3. The City’s industrial inventory does not include all industrial and commercial entities, only those that currently hold a State of North Carolina Industrial General Storm Water Permit (Industrial Permit).

4. The City’s industrial program inspections and inspection reports are incomplete. Compliance and enforcement are not being adequately assessed. The City should review current procedures and develop standard operating procedures for all industrial entities.

5. The City has not developed Storm Water Pollution Prevention Plans (SWPPPs) for all municipally operated entities that discharge into the MS4.

F. Part I.B.(4).(e) of the Permit:

The City’s construction program inspections and inspection reports are incomplete. Compliance and enforcement are not being adequately assessed. The City should review current procedures and develop standard operating procedures for inspection, compliance, and enforcement.
G. Part I.C.3 of the Permit

The City has not produced an Annual Report for each year as required. The City's last Annual Report was for July 2001-June 2002. The 2002 Annual Report did not contain all information required by the Permit.

H. SWPPPs have not been developed for all municipally operated entities that hold an Industrial Permit.

Please provide this office with a schedule of corrective actions to meet the requirements in accordance with Part I.C of the Permit. Please submit the requested information within fifteen (15) days of receipt of this letter.

Should you have any concerns, please contact Ms. Susan Pope at (404) 562-9770, or address written comments to the address on the letterhead.

Sincerely,

[Signature]

David Y. Parker, Chief
Eastern Enforcement Section
Water Programs Enforcement Branch
Water Management Division

Enclosure

cc: North Carolina Department of Environment and Natural Resources
United States Environmental Protection Agency
Region 4
Attn: David Y. Parker
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-8960

Re: NPDES Permit No. NCS 000247 MS4 Audit Report
(Corrective Actions Response)

Dear Mr. Parker:

The City of Winston-Salem has received the MS4 audit report and prepared the following corrective action response for your consideration to the program components that require attention. United States Environmental Protection Agency concerns are listed with corresponding responses below. Appendices will be included to reference supporting documentation. Many of the concerns raised in the audit have been addressed and others will be addressed. Due to the limited response time, City Council approval could not be obtained for funding needs to carry out items. Scenarios were generated to comply with EPA concerns but will be pending City Council approval.

A. Part I. A.(4).b) of the Permit:

Currently, the City’s Geographic Information System does not include storm sewers on private property that may be connected to the MS4, stormwater management facilities, or municipal operations.

Response: The City of Winston-Salem could not find where this requirement was specified in Part I. A.(4).b), however, considering the requirements of this activity are more prescriptively written in the draft NPDES permit to be issued,
the City of Winston-Salem intends to supplement it’s existing storm sewer inventory to comply with this concern.

The City of Winston-Salem has developed Watershed Masterplans to provide a comprehensive evaluation of flood control and water quality issues within each watershed of the City of Winston-Salem. A detailed study of municipal storm sewer conveyances was initiated in 1997 and completed in 2002. Structures were located and a detailed list of attribute information was recorded (see appendix A). From this information, Geographical Information System (GIS) coverage was developed for the municipal storm sewer system. Using Arcview or ArcMap, City Staff can highlight any storm sewer structure and call up an attribute table that contains all of the pertinent information on that structure or system of structures. Additionally, the tables can be queried to run pollutant loading models or flooding models with XPSWIMM. However, the storm sewer inventory only includes structures within the City’s MS4 system. The City defines its MS4 as those structures within City rights-of-way. Specifically, this excludes systems wholly within private property such as large private storm sewer systems located at shopping malls and industrial facilities. Where a storm sewer structure originates on the public right-of-way but then leaves the public right-of-way and crosses private property the entire structure was located if possible.

When required in the new NPDES permit, the City expects to provide this additional service. Pending City Council approval and funding appropriation, the City of Winston-Salem will investigate and implement one of the two following scenarios to further our existing GIS inventory to include storm sewers on private property that receive flow from the MS4, stormwater Management facilities and municipal operations.

**Scenario 1:** Would include utilizing in-house field staff consisting of field workers and survey crews equipped with field grade GPS units to locate and develop a GIS data set to denote structures and pipes (represented as points and lines) without a detailed set of attributes to identify diameter, slope, invert elevation etc. This type of inventory would be utilized to illustrate complete connectivity of the MS4 and private systems that may be connected to the MS4, however, this inventory would not contain the necessary attribute data to perform pollutant and flood modeling. Crews would inventory storm sewer systems located in private property that are connected to the MS4 that are 12 inches and larger with Industrial Land uses within the watershed and 36 inches and larger for all other land use types. Stormwater Management facilities and municipal operations would be spatially referenced within a separate coverage; however, inspections reports and maintenance records would still reside in existing excel spreadsheets and paper files.

**Scenario 2:** Would require hiring a consultant to carry out a more comprehensive inventory which would include a location team to ID/GPS the piping systems and structures, followed up by an attributing team to gather all of the details of the system. This survey grade storm sewer inventory would be conducted to sub-meter accuracy and would include sufficient attribute information to utilize
XPSWIMM for pollutant loading and flood modeling studies. The consultant would inventory storm sewer systems that are connected to the MS4 that are 12 inches and larger with Industrial Land uses and 36 inches and larger for all other land use types. Stormwater Management facilities and municipal operations with attribute data would be included in this coverage. This scenario would be consistent with the level of detail that currently exists in the City of Winston-Salem Masterplanning inventory within the public right-of-way.

**Implementation:** Either scenario would require City Council approval for funding and appropriation of funds to carry out the intended work. In addition to funding, land rights to access private properties for the purpose of inventory of the storm sewer system must be obtained.

The City Storm sewer service area is approximately 133.23 square miles with a total watershed area draining the City of 168 square miles. It is estimated that scenario 1 will take approximately 4-5 years to complete, and scenario 2 will take approximately 6-7 years to complete. This estimate of implementation is referenced from the time taken to complete the existing inventory within the public right-of-way. Scenario 2 will require consultant selection, establishing contracts with the chosen consultant, a spend plan or lease purchase consideration in addition to Council approval in order to move forward into implementation.

**B. Parts I.A.(4).(f) and I.B.(4).(a) of the Permit:**

*The City has not implemented all education, training and outreach programs; i.e. BMP 11 and BMP 16 listed in its 2005 Stormwater Management Program Report.*

**Response:** BMP 16 (City of Winston-Salem University) involves City staff training citizens about different aspects of local Government including the Stormwater Management Program and the effects of polluted stormwater runoff in our community. A new group of citizens are trained each year on these concepts and this BMP was carried out to completion. However in the Stormwater Program Report there was a text error that said training was for “employees” instead of “citizens”. This text error will be corrected in the updated version of the City of Winston-Salem Stormwater Management Program Report.

(Information regarding City of Winston-Salem University can be found in Appendix B)

Training of City employees is geared toward field staff that is most likely to encounter an illicit discharge while working in the field. Field staff are shown examples of illicit discharges via video and encouraged to call the Stormwater Division if encountered during their daily routine.

BMP 11 (Green Business Program) involves recognizing business and industry within the jurisdictional area, when environmentally friendly business practices are implemented. This would include but is not limited to recognition of the business or industry on the City’s website or the local Cable access channel and signage to be located at the place of business. Stakeholder committee members
have been identified and the City is moving forward to full implementation of this program. A benchmarking study is currently underway to identify the successes of other communities who utilize this best management practice. Full implementation of this program is expected within the next year.

C. Part I.B.(3) of the Permit:

The City’s dry weather screening and monitoring programs do not include outfalls on private property that receive MS4 flows. In addition, these outfalls have not been observed to determine if illicit discharges are occurring.

Response: The City of Winston-Salem has conducted dry weather screening of major outfalls that discharge to the waters of the United States as part of the second phase of the original permit term. Dry weather screening of outfalls was conducted on public and private drainage systems with land uses including: residential (various densities), commercial, industrial and downtown business district. Field data sheets were generated for each major outfall which included the location, time, drainage basin, type of conveyance land use information, visual observations, and field analysis for temperature, pH, phenols, chlorine, copper and detergents (see Appendix C). All inspections were conducted in dry weather conditions with no measurable rainfall within the last 72 hours. Dry weather screening of outfalls took place on public and private drainage systems. All outfalls screened have a unique number and were photographed for later reference. All outfalls that tested positive for a pollutant parameter were investigated for an illicit discharge. Several illegal connections and discharges were eliminated from this effort.

After the outfall characterization and screening was accomplished the City of Winston-Salem created and implemented the following screening and monitoring programs to further identify, detect and eliminate additional sources of illicit discharge to the municipal separate storm sewer system (examples of how each program has succeed in detecting illicit activity is contained in Appendix C):

1. Water Quality Index / Non-Point Pollution Source Detection: grab samples are obtained for pollutant parameters at 46 sites. Good water quality is crucial for aquatic life abundance as well as human health. One source of pollution that degrades water quality is sanitary sewer overflows. Sanitary sewer overflows are a frequent occurrence in any urbanized area. Often, raw sewage enters our waterways during these overflows. Furthermore, sewer overflows happen in remote locations and are not discovered. The water quality parameters are taken with instantaneous, multi-parameter meters that indicate the possible presence of sewage as well as sediment transport, industrial wastewater, or nonpoint source discharges in our waterways.

2. Ambient Dry Weather (conducted quarterly): 24 hour composite samples are taken every 15 minutes by automated samplers, which are deployed at 15 sites. All pollutant parameters are composite (except fecal coliforms - grab)
and sent to an outside, state-certified laboratory for analyses. A current meter is utilized in order to determine flow discharge of the stream. Pollutant concentrations and flow discharges are used to calculate the pollutant loading of the waterway. Prior to any dry weather sampling event, there must be 72 hours of no rainfall.

3. **Stream-Walking/Outfall Observation (conducted annually):** The Stormwater Division walks every stream (no length requirement) within the city limits and checked for various items, such as: wet pipes, illicit dischargers/connections, erosion, blockages, and water monitoring of unknown flows. Prior to any stream-walking event, there must be 72 hours of no rainfall.

4. **Infrared Photography (conducted in the winter):** <Salem and Brushy Forks> Watersheds were photographed at night in order to detect thermal gradient changes in the environment. Several sources of illicit discharges were detected and eliminated from the waterways.

5. **Industrial General Stormwater Permit Inspections:** During the inspection process, every stormwater discharge outfall, which has the potential of conveying pollutants on the property, is observed for contamination indicators (for example: sheen, odor, solids, staining, biological, and thermal). If illicit activity is detected, the Stormwater Division ensures that the source is permanently removed from the MS4.

**D. Part I.B.(4). (b) of the Permit:**

The City has not provided education to all commercial pesticide, herbicide, and fertilizer applicators in accordance with BMP 13 of the 2005 Stormwater Management Program Report.

**Response:** BMP 13 in the 2005 Stormwater Management Program Report is directed toward best management practices with commercial facilities. Commercial facilities are assessed for actual or potential sources of pollutants and shown alternative practices. This BMP is accomplished through inspection of NPDES permitted and non-permitted facilities including but not limited to: automotive shops, dry cleaners, fertilizer plants, battery facilities, tobacco plants, etc. The City of Winston-Salem has specifically provided education and training to commercial and municipal pesticide, herbicide and fertilizer applicators as a part of this program. A targeted mailing was done to all companies the lawn care profession which included educational information on the use of pesticides, herbicides and fertilizers and how these products may affect surface waters. Presentations were also given to the association of turf grass professionals on the status of waters in the Piedmont and how fertilizers, pesticides and herbicides may negatively affect water quality.

The City of Winston-Salem Vegetation Management Division applies pesticides, herbicides and fertilizer on all City owned or maintained properties such as parks,
buildings, and right-of-ways. This facility was inspected and best management practices were evaluated on the use of pesticides, herbicides and fertilizers. (Inspection report and targeted mailing information attached in appendix D)

E. Part I.B.(4).(d) of the Permit:

1. The City has not enacted an ordinance addressing post-construction controls for areas outside the Water Supply Watershed.

**Response:** Requirements for development within the Cities Water Supply Watershed are currently housed in the Unified Development Ordinances Technical code which involves the City of Winston-Salem, the Town of Kernersville, the Village of Clemmons and the Town of Lewisville. This code sets forth the post construction standards for development within WS III and WS IV watersheds for the above mentioned communities. Post construction controls outside of the water supply watershed but within the municipal limits of the City of Winston-Salem are carried out through the City of Winston-Salem Infrastructure Development Standards. Stormwater control standards, plan review submittal requirements and engineering criteria are housed in this document. The City of Winston-Salem is developing a Phase II post construction ordinance (see draft ordinance in appendix E) which addresses the Phase II requirements.

2. The City has not implemented BMP 4 as described in the 2005 Stormwater Management Program report.

**Response:** Best Management Practice 4 states that the City of Winston-Salem will develop a procedure with the County Health Department to ensure proper septic tank operations. The City of Winston-Salem has implemented a departmental policy that outlines that if Stormwater Staff encounters a failing septic tank they will notify the Forsyth County Department of Public Health immediately.

Contacts:
Mr. Brock Turner, DEH Septic Tank Supervisor: 703-3167
Mr. Larry Bunn, DEH Septic Tank Inspector:
Stormwater staff will also follow up with the issue to ensure that it is resolved in order to protect surface water quality.
This standard operating procedure is in the City of Winston-Salem Stormwater Division spill response manual (see Appendix E).

3. The City's Industrial inventory does not include all industrial and commercial entities, only those that currently hold a State of North Carolina Industrial General Storm Water Permit (Industrial Permit).

**Response:** City of Winston-Salem carries out an industrial inspection program which audits facilities with a general or individual NPDES stormwater permit issued by the State of North Carolina. These facilities are considered a high
priority because they have processes or products which may cause significant pollution to surface waters. The City also inspects commercial and industrial facilities that do not have a NPDES permit when there is sufficient evidence to believe that the facility or business in question is contributing pollution to surface waters.

The City of Winston-Salem has two main legal ‘tools’ that grant staff to right-of-entry into industrial and commercial facilities: the State of North Carolina Industrial General Stormwater Permit Program (see Appendix E) and the City of Winston-Salem Stormwater Illicit Discharge Ordinance.

The City of Winston-Salem does not have the regulatory authority to enter and inspect a non-permitted business or facility where there is no evidence of pollutant discharge to surface waters.

The City of Winston-Salem will maintain an inventory of municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the City of Winston-Salem determines are contributing or have potential to contribute a substantial pollutant loading to the municipal storm sewer system.

This inventory will be completed within the next calendar year.

4. The City’s industrial program inspections and inspection reports are incomplete. Compliance and enforcement are not adequately assessed. The City should review current procedures and develop standard operating procedures for all industrial entities.

Response: The City of Winston-Salem has developed standard operating procedures for industrial program inspections which involve: to thoroughly review all paperwork (i.e. SWPPP, self inspection reports economic feasibility etc), conduct a site walkthrough, document requirements/recommendations, send follow-up reports and conduct re-inspections as needed to resolve issues.

The MS4 Audit report references several un-resolved items from prior inspections. The City of Winston-Salem has implemented the following action items to further define existing SOP’s and will allow Stormwater Staff to more effectively resolve compliance and enforcement issues for all industrial inspections:

1. The City of Winston-Salem has recently put into service Motorola’s Customer Service Request computer software program. This computer application specializes in tracking external and internal activities and posts reminders to staff if the action item is not finished by the due date. All industrial compliance measures will be tracked electronically and provide updates, as
needed. All pertinent Stormwater Staff have been trained and are proficient in utilizing this software package. Traditional methods of relying on ‘desktop calendars’ for tracking compliance schedules have been abandoned.

2. The Stormwater Division will commence with the issuance of compliance schedules to all Industrial General Stormwater Permittees that possess deficiencies. Compliance schedules shall comprise of specific due dates, action items to be completed, notification of a time extension (applied for if unforeseeable circumstances arise, a Notice of Violation (if warranted), updates of major milestones that are finished, a reinspection when all action items have been addressed, and all relevant information of Stormwater Staff if guidance is needed.

3. The Stormwater Division shall revisit unresolved issues from prior industrial inspections in order to achieve compliance with all action items.

4. The Stormwater Division has evaluated the industrial inspection process for permitted and non-permitted facilities and the compliance inspection forms in order to create a more effective and efficient program. Carol Winston of SAIC, gave the City of Winston-Salem several inspection form templates (both State and Federal) that were utilized to create a more streamlined inspection form to guide the inspection process (see Appendix E).

5. The City of Winston-Salem has developed specific inspection techniques that are derived from the November 1998 North Carolina Division of Water Quality’s (NCDWQ) document, Stormwater Pollution Prevention Plans for Stormwater Runoff at Industrial Activities (see Appendix E).

The City of Winston-Salem believes that the aforementioned activities will allow the City to inspect more facilities on an annual basis and provide better follow-up on unresolved compliance measures and recommendations. The inspection process will be more uniform for permitted and non-permitted facilities.

5. **The City has not developed Stormwater Pollution Prevention Plans (SWPPPs) for all municipally operated entities that discharge into the MS4.**

**Response:** The City of Winston-Salem will evaluate municipal operations that do not currently have a Stormwater Pollution Prevention Plan. Facilities that are contributing or that have potential to contribute substantial pollutant loading to the municipal storm sewer system will be investigated and a site specific SWPPP will be developed.

For municipal operations that are not contributing or do not have the potential to contribute substantial pollutant loading to the municipal storm sewer system (i.e. recreation centers, open park land), standard operating procedures will be included. The city will introduce a spill response protocols for spills of those chemicals outlined through Material Data
Safety Sheets or other appropriate information. The City will assess these municipal operations within the next calendar year. Stormwater Pollution Prevention Plans or SOP's will be drafted the following year.

F. Part I.B.(4).e) of the Permit:

The City's construction program inspections and inspection reports are incomplete. Compliance and enforcement are not being adequately assessed. The City should review current procedures and develop standard operating procedures for inspection compliance, and enforcement.

Response: Sedimentation/Erosion Control staff has been conducting group site inspections; involving all staff, instituted on a one day per month basis to promote more consistent and complete site inspections and inspection reporting. Weekly staff meetings will continue with emphasis being placed upon current compliance and enforcement issues in order to ensure more uniform methods for resolving common site and documentation problems.

Additional personnel will be requested in the FY 07/08 budget. Increased staffing levels would allow for more frequent and thorough site inspections, documentation, and enforcement follow-up.

Procedures are continually being updated to accommodate new laws and regulations, new personnel, weather conditions, new erosion control methods, and work loads.

G. Part I.C.3 of the Permit:

The City has not produced an Annual Report for each year as required. The City’s last Annual Report was for July 2001-June 2002. The 2002 Annual Report did not contain all the information required by the Permit.

Response: City of Winston-Salem intends to submit annual reports for each permit year using the State’s Stormwater Management Assessment Forms (See appendix G). Currently, information is being transferred to this form template for submittal. A detailed annual report was submitted to the North Carolina Division of Water Quality in 2005 outlining all of the required elements. The City of Winston-Salem will submit annual reports to the Division as required by the NPDES permit.

H. SWPPP’s have not been developed for all municipally operated entities that hold an Industrial Permit.

Response: Three City of Winston-Salem-owned facilities have been issued a State of North Carolina Industrial General Stormwater Permit – Archie Elledge
Wastewater Treatment Facility, Old Salisbury Construction & Demolition Landfill, and the Hanes Mill Sanitary Landfill (please reference Appendix H). SWPPPs have been developed and implemented for Elledge WWTF and Hanes Mill Landfill. Old Salisbury Construction & Demolition Landfill has been issued an authorization to construct permit - NCG 010000 series. This permit requires that the owner/operator submit an erosion and sedimentation control plan to NCDENR, Land Quality Section for approval prior to any land disturbing activities. Once approved, the owner/operator must follow the plan without deviation except in the case of emergency or minor corrections. This permit does not require the creation and implementation of a SWPPP. All other municipally operated facilities with NPDES General Stormwater permits have a SWPPP.

If you have any questions or need any additional information, please contact me at (336)-747-6962. The City of Winston-Salem is committed to working with the EPA and DENR to continually improve water quality and protect the environment.

Sincerely,

[Signature]

Keith D. Huff
Stormwater Manager
City of Winston-Salem

CC: Mike Randall (North Carolina Division of Water Quality)
November 1, 2006

Dear Resident/Property Owner:

**Your residence or property is located in a flood prone area. Protection through the National Flood Insurance Program is available and highly recommended.**

Since 1968, the City of Winston-Salem and Forsyth County have participated in the National Flood Insurance Program (NFIP) administered by the Federal Insurance and Mitigation Administration (FIMA) and the Federal Emergency Management Agency (FEMA). The National Flood Insurance Program enables all residents and property owners to have access to flood insurance protection. Citizens of Winston-Salem/Forsyth County benefit from a five percent discount on flood insurance premiums due to significant floodplain management efforts that have been undertaken by the city and county.

The National Flood Insurance Program is a cost effective way to protect your investment. An average premium for $100,000 of structural coverage is $670.00 a year. A contents policy is also available through the NFIP. FEMA provides two informative websites for citizens seeking information about the program ([www.fema.gov/business/nfip](http://www.fema.gov/business/nfip) and [www.floodsmart.gov](http://www.floodsmart.gov)). Please be advised that standard homeowner’s insurance policies do not cover losses due to floods. In disastrous situations the government may provide financial assistance due to flood damages in the form of **loans**. This assistance is not a substitute for personal property insurance.

Specific information about flood zones and their relationship to individual properties can be acquired by reviewing FEMA’s Flood Insurance Rate Maps. These maps are available at the Central Branch of the Forsyth County Public Library, in the Winston-Salem/Forsyth County Building Inspections Department and at the Office of Emergency Management at Smith Reynolds Airport. Flood map information can also be viewed on the Internet by choosing the **Geo-Data Explorer** link on the Forsyth County website ([www.co.forsyth.nc.us](http://www.co.forsyth.nc.us)) or on the North Carolina flood mapping website ([www.ncfloodmaps.com](http://www.ncfloodmaps.com)).

The Office of Emergency Management is concerned for you and your family’s safety in the occurrence of any hazardous event. It is your responsibility to prepare yourself and your family for any hazard that may strike. The W-S/FC OEM has enclosed NFIP and flood preparedness information, as well as multi-hazard preparedness information for you to use to prepare and protect your family and property. I urge you to spend time reviewing the enclosed information. Please become familiar with hazardous situations that may affect you, your family, property and pets and make preparations accordingly. If you have any questions or need additional information, please call the Winston-Salem/Forsyth County Office of Emergency Management at (336) 767-6161.

Sincerely,

Melton J. Sadler, III
Emergency Management Director

Enclosures
Winston-Salem/Forsyth County Flood Protection Information

Mapped floodplains in Forsyth County comprise over 12,000 acres of land and represent more than 5% of the total land area. If you are in the floodplain, the odds are that someday your property will be damaged. Even if you are not in a floodplain you may experience flooding. Area drainage problems may cause flooding on local streets and in residential neighborhoods. Inundation flooding occurs when the amount of rainfall and runoff exceeds a storm water system’s (ditch or sewer) capability to remove it.

This flyer will give you some idea of what you can do to protect yourself.

Know your flood hazard.

- Flood maps (FIRMs – Flood Insurance Rate Maps) and flood protection references are available in the North Carolina Room at the Central Branch of the Forsyth County Public Library. Local flood map information can also be viewed on the Internet by choosing the Geo-Data Explorer link on the Forsyth County website at www.co.forsyth.nc.us or at www.ncfloodmaps.com

- Identify dams and levees in your area.

- You may visit the Building Inspections Department in Winston-Salem at City Hall South for map information concerning past flood problems in the area and view copies of elevation certificates of buildings built in the floodplain since 1993. You may also talk with a floodplain manager in the Building Inspections Department at 727-2628. A floodplain manager will be able to provide information regarding your flood problems, or potential flood problems, and explain ways to prevent flood damage to your property. These services are free of charge.

Know your flood warning system.

- Radio stations WZTK – FM (101.1) and WTQR – FM (104.1) receive and broadcast emergency messages and relay these messages to other local radio and TV stations.

- The best way to receive emergency notification and information is to have a NOAA (National Oceanic & Atmospheric Administration) Weather Radio in your home and workplace. The National Weather Service (NWS) or local officials will immediately activate the Emergency Alert System (EAS) when a weather-related or technological emergency is expected or occurring in or near your location. Forsyth County’s broadcast frequency is 162.400 MHz. A NOAA Weather Radio may be purchased at discount and department stores that sell electronics.

Weather Alert Terminology:

- Flood Watch – means life-threatening flooding is possible
- Flood Warning – means life-threatening flooding is imminent

Protect yourself, your family and your pets from flood waters.

- Listen to the TV, radio or NOAA Weather Radio for watches and warnings issued by the National Weather Service and be ready to evacuate with your family, pets and disaster supply kit and follow all emergency instructions.

- Do not walk through flood waters. Currents can be deceptive and six inches of moving water can knock you off your feet. Flood waters may be contaminated with sewage and flood-related chemical spills.
Do not drive through a flooded area. More people drown in their cars than anywhere else. Do not drive around barriers, the road or bridge may be washed out.

Stay away from power lines and electrical wires. During floods, the number two killer after drowning is electrocution. Have the power company turn your electricity off.

Look out for animals, especially snakes. Small animals that have been flooded out of their homes may seek shelter in yours. Use a pole or stick to turn things over and scare away small animals.

Be alert for gas leaks. Use a flashlight to inspect for damage. Don’t smoke or use candles, lanterns, or open flames unless you know the gas has been turned off and the area has been ventilated.

Water for drinking and food preparation should be boiled vigorously for ten minutes until the public water system, or your private well, has been declared safe.

Actions to take now for insurance purposes include making an itemized list of all your personal property (furnishings, clothing and valuables) and taking pictures or videos of your home (inside and out) and its contents. Keep your insurance policies, pictures or video tapes and lists of your personal property in a safe, dry place.

After a flood event and damage to your property, immediately call the agent or broker who services your flood insurance policy. All damaged items should be kept for inspection by your insurance adjuster. Take pictures of the damage done to your property, home and its contents.

Use property protection measures

To increase the safety of your property and reduce insurance premiums, you should consider building to higher standards. Of course, the most effective and permanent means of protecting your structure is to locate it out of the floodplain. If you are unable to relocate your structure, the next most effective means is to elevate your structure above the base flood elevation (BFE).

If a flood is imminent, some last minute emergency measures can help, including sandbagging areas where water might enter living spaces and moving valuables and furniture to upper floors or higher elevations. Whatever emergency protection measures you use, it is always best to have a written plan to ensure you don’t forget anything after the flood warning is issued.

Follow the flood protection regulations that are designed to protect you and your neighbors

Always check with the Building Inspections Department before you build on, fill, alter or regrade your property. A permit is needed to ensure that such projects do not cause problems on other properties. If you see building or filling without a permit sign posted, contact the Building Inspections Department at 727-2628.

Every piece of trash or debris can contribute to flooding. Even grass clippings and branches can accumulate and plug channels. If your property is next to a ditch or storage basin, please do your part and keep the banks clear of brush and debris.

Do not dump or throw anything into the ditches or basins. This is a violation of City Ordinance 4356, Chapter 75, Section 6. If you observe any intentional illegal dumping in ditches, streams, or drainage facilities in the City of Winston-Salem, report this to the Stormwater Pollution Hotline at 747-7480.

New buildings in the floodplain must be protected from flood damage and are required by building code to be elevated one foot above the base flood level.
If a building has undergone substantial improvements, it must be treated as a new building. A substantial improvement is when the value of an addition, alteration, repair or reconstruction project exceeds 50% of the value of the existing building. In the case of an addition, only the addition must be protected. In the case of an improvement to the original building, the entire building must be protected. Also, if a house in the floodplain is flooded, has a fire, is hit by a tornado, or is otherwise damaged so that the cost of repairs is more than 50% of the value of the building before the damage, then the house must be elevated one foot above the base flood level.

**Purchase flood insurance for coverage of your structure and contents**

- Homeowner’s insurance does not include flood protection. Therefore, Winston-Salem/Forsyth County participates in the National Flood Insurance Program (NFIP), which is backed by the federal government and available to everyone, even for properties that have been flooded in the past. If you do not have flood insurance, talk to your insurance agent for more information, rates and coverage.

- Make sure you have a policy that provides coverage for both structure and contents. Most flood insurance policies only provide for structural coverage, but there is usually more damage to contents during a flood. Homeowners, as well as renters, may purchase contents coverage.

- Do not wait for the next flood to buy insurance protection. There is a 30 day waiting period before National Flood Insurance coverage takes effect.

**Understand the natural and beneficial functions of floodplains**

- Floodplains are more than just hazardous locations for human development; they should be seen in their natural context. Open and natural areas absorb much more rain and floodwater than urbanized areas, reducing flood flows on downstream properties. Wetland plants filter stormwater runoff, making it cleaner for those downstream. These flood prone areas are also used by a variety of wildlife and provide habitat for species that can not live or breed anywhere else.

- Help Winston-Salem and Forsyth County maintain high water quality. The storm drain system carries untreated stormwater runoff into our streams. Pouring wastes into storm drains directly impacts our environment. Oil, anti-freeze, paint, fertilizer, herbicides, pesticides and other contaminants pollute the water, destroy plants and endanger wildlife. One quart of oil can contaminate 250,000 gallons of water. Help keep our streams and storm drains free of pollutants and report violators within Winston-Salem city limits to the Stormwater Pollution Hotline at 747-7480 and violators within Forsyth County (outside Winston-Salem city limits) to Environmental Affairs at 703-2440.

**Local government, weather and preparedness websites of interest:**

- cityofws.org
- co.forsyth.nc.us
- floodsmart.gov
- nws.noaa.gov
- ReadyNC.org
- fema.gov
- citizencorps.gov

The State of North Carolina, through the Federal Emergency Management Agency’s Cooperating Technical Community partnership initiative, has been designated as a Cooperating Technical State (CTS). As a CTS, the state will assume primary ownership and responsibility for Flood Insurance Rate Maps (FIRMs) for all North Carolina communities. This project will include conducting flood hazard analysis and producing updated, digital FIRMs (DFIRMs). The updated flood hazard data will provide current, accurate information for communities and property owners to make sound design decisions when building new structures and infrastructure and when retrofitting existing structures. The projected completion date for these maps is 2008.
THREE DAY EMERGENCY PREPAREDNESS

During disasters, local emergency responders and organizations may be overwhelmed and citizens must accept the responsibility for their own safety and survival. It is highly recommended by Winston-Salem/Forsyth County Office of Emergency Management that all personal preparations and plans for emergency situations that may affect you and your family be designed so that they provide the necessities for surviving, without assistance from others, for a period of three days. These plans and preparations could mean the difference between life and death. Keep in mind that utilities may not be available during this period.

Get informed!
- Know the specific hazards that threaten the Winston-Salem/Forsyth County community.
- Know how local authorities will alert you to a pending disaster.
- Know the disaster plans of your community, schools, childcare centers and places of employment.

Make a Plan!
- Work with your family, as a team, to review and practice emergency plans and drills.
- Have an out-of-town and a local emergency contact that each family member can call in case of separation.
- Decide where you will meet.
- Ensure that every family member knows the best escape routes out of your home as well as the safe places in your home for each type of disaster.
- Plan for those with disabilities and other special needs.
- Remember to plan for your pets.
- Make sure you have adequate insurance coverage.
- Keep vital records and documents in a safe location.

Assemble Your Disaster Supply Kits!
- The following is a list of essential supplies for your home and workplace:
  - Three-day supply of nonperishable food and manual can opener
  - Three-day supply of water (one gallon of water per person, per day)
  - Portable, battery powered radio or television, NOAA Weather Radio and extra batteries
  - Flashlight and extra batteries
  - First aid kit and manual
  - Sanitation and hygiene items (hand sanitizer, soap, bleach, moist towelettes, and toilet paper)
  - Matches in waterproof container
  - Whistle
  - Extra clothing and blankets
  - Kitchen accessories and cooking utensils
  - Photocopies of identification, insurance policies and credit cards
  - Cash and coins
  - Special needs items such as prescription medications, eye glasses, hearing aid batteries, etc.
  - Items for infants such as formula, diapers, bottles and pacifiers
  - Seasonal supplies and clothing
  - Tools, pet supplies, maps and other items to meet your unique family needs
    - Supplies for your vehicle(s) include: flashlight, extra batteries, maps, first aid kits and manual, white distress flag, tire repair kit, booster/jumper cables, pump, flares, bottled water and non-perishable foods and seasonal supplies.

Maintain your plan!
- Review your plan every six months and quiz your family.
- Conduct fire and emergency evacuation drills on a regular basis.
- Restock food supplies by checking expiration dates every six months.

Knowing what to do is your best protection and your responsibility!