

NORTH CAROLINA  
WAKE COUNTY

**MEMORANDUM OF AGREEMENT**

BETWEEN

NORTH CAROLINA  
DEPARTMENT OF  
TRANSPORTATION

and

NORTH CAROLINA  
FLOODPLAIN MAPPING  
PROGRAM

This MEMORANDUM OF AGREEMENT (hereinafter, "MOA" or "Agreement"), made and entered into this the 18th day of March, 2009, between the DEPARTMENT OF TRANSPORTATION, an agency of the State of North Carolina, hereinafter referred to as "the Department", or "NCDOT", and the NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM, an office within the Division of Emergency Management in the Department of Crime Control and Public Safety of the State of North Carolina, hereinafter referred to as the "NCFMP";

WITNESSETH:

WHEREAS, in 1977 the President issued Executive Order 11988 which directed Federal Agencies to take certain steps to avoid adverse impacts associated with the occupancy and modification of floodplains; and

WHEREAS, in 1979 the Governor issued State Executive Order 123 which required by agreement between the Department and the NC Department of Administration, that the Department shall work directly with the United States Department of Transportation and Federal Emergency Management Agency (FEMA) to apply appropriate standards and management to comply with the Floodplain Management Policy relevant to highway construction within floodplains; and

WHEREAS, the 1989 General Assembly created the North Carolina Highway Trust Fund for the construction and improvement of North Carolina roadways; and

WHEREAS, in 1992 the Federal Highway Administration issued Federal-Aid Policy Guide NS 23 CFR 650A Attachment 2, "PROCEDURES FOR COORDINATING HIGHWAY ENCROACHMENTS ON FLOODPLAINS WITH FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)", which requires consistency with National Flood Insurance Program (NFIP) standards for Federal-aid highway actions involving regulatory floodways; and

WHEREAS, 23 CFR Part 650A contains design standards for areas within identified and unidentified floodplains; and

WHEREAS, the Federal Highway Administration, the Federal Emergency Management Agency, the NCDOT and the NCFMP met on August 17, 2006 to discuss the requirements of the documents listed above; and

WHEREAS, the State of North Carolina has established the Floodplain Mapping Program in the North Carolina Department of Crime Control and Public Safety (CCPS) to update and maintain the Special Flood Hazard Areas (SFHAs) and the associated Flood Insurance Rate Maps (FIRMs) for North Carolina; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has delegated the responsibility for all Letter of Map Changes (LOMCs) in North Carolina to the NCFMP; and

WHEREAS, both the Department and the NCFMP recognize the need to function as a cooperative team in order to move the Department's Bridge and Maintenance Replacement Program expeditiously to completion and to reduce costs of operation; and

WHEREAS, the Department and the NCFMP mutually agree this Agreement allows for efficient use of both agencies' resources and has been developed in a manner to realize efficiencies with project schedule and cost; and

WHEREAS, the Department and the NCFMP have developed this Agreement to satisfy the requirements listed above and to keep the NCFMP's FIRMs current in regard to Department projects; and

WHEREAS, the Department and the NCFMP, in accordance with the provisions hereinafter set forth propose to enter into an agreement for services that are essential in project development.

NOW, THEREFORE, the parties hereto, each in consideration of the promises and undertakings of the other as herein provided, do hereby covenant and agree, each with the other, as follows:

1. The Department shall retain the services of the NCFMP, as specified in the attached Exhibits A, B and C, to:
  - 1) provide updates to the FIRMs to maintain NFIP compliance associated with projects with NO-RISE/NO-IMPACTS as defined in Exhibit A;
  - 2A) provide updates to the FIRMs to maintain NFIP compliance for projects with MINOR IMPACTS as defined in Exhibit A;
  - 2B) complete Letter of Map Revisions (LOMRs) for projects with MAJOR IMPACTS as defined in Exhibit A;
  - 3A) update the Flood Insurance Study and Draft Flood Insurance Rate Maps (DFIRM) for the Department's LOMR submittals that are submitted following an NCFMP DFIRM update that supersedes the then effective FIRM mapping used by the Department in its Conditional Letter of Map Revision (CLOMR) submittal;

- 3B) update the Flood Insurance Study and DFIRM Mapping for the Department's LOMR submittals that are submitted following an NCFMP DFIRM update that supersedes the then effective hydrology and hydraulic (H&H) analyses used by the Department in its CLOMR submittal.
2. Exhibit A contains a list of the review fees for various activities listed above and an estimated annual number of projects and cost. The Department may ask NCFMP to process more or fewer requests than the estimated number in each category. Compensation will be based on the actual number of requests generated by the Department.
  3. Exhibits B and C contain a list of documentation, engineering data and computer models that need to be submitted for each of Department's projects to NCFMP for review and approval.
  4. To facilitate the workflow and mission of the Department and the NCFMP, the Department and the NCFMP will share data, including hydraulic models and topographic information. The Department will provide to the NCFMP, at no cost, hydrologic and hydraulic reports for all bridges and culverts across the state, prior to the commencement of construction. The NCFMP will continue, at no cost, to provide effective hydraulic models, GIS data and hydraulic study background data to the Department.
  5. The NCFMP, on a monthly basis, shall meet with the State Hydraulics Engineer to review candidate projects for this MOA and provide to the Department the design information, such as engineering models, and services as specified in the attached Exhibits A, B and C.
  6. For bridges and culverts that are administered in the Department's Transportation Improvement Program (TIP), the Department shall review with the NCFMP the candidate projects' eligibility for this MOA and the associated reimbursement in accordance with the "Fee Schedule" and "Data Submittal Schedule and Deliverables for TIP Projects", outlined in Exhibits A and B, respectively. The review shall occur at least 10 months prior to the commencement of project construction. The NCFMP shall submit, within two (2) months after project review, to the Department its review comments and decision for each candidate project. The NCFMP shall submit each invoice to the Department with appropriate documentation for payment within 30 days. The NCFMP shall be responsible for maintaining appropriate records in accordance with state accounting procedures and regulations.


7. For bridges and culverts that are administered in the Department's Secondary Road Program, Force Accounts, Emergency Repairs, etc., the Department shall review with the NCFMP the candidate projects' eligibility for this MOA and associated reimbursement in accordance with the "Fee Schedule" and "Data Submittal Schedule and Deliverables for Non TIP Projects", outlined in Exhibits A and C. Normally these structures are small in size, limited in funding, or prompt action mandate. The review shall occur as early as possible or at least one month prior to the commencement of project construction. The NCFMP shall submit, within two (2) weeks after project review, to the Department its review comments and decision for each candidate project. For emergency repairs the Department may request an ad hoc meeting with the NCFMP to review and develop an action plan in a timely manner. If a review fee is assessed, the NCFMP shall submit each invoice to the Department with appropriate documentation. The Department will pay within 30 days [same issue as previous paragraph] after receipt of invoice. The NCFMP shall be responsible for maintaining appropriate records in accordance with state accounting procedures and regulations.
8. The Department and the NCFMP understand and agree that proper administration of this MOA ensures that the Department is consistent with FEMA's NFIP Regulations for its replacement of bridges and culverts located over or in regulated SFHA streams, as long as the replacement structures do not cause an increase in the flood elevation during a 100 year flood event. A CLOMR will not be required for projects subject to this MOA. Projects that result in an increase in the 100 year flood elevation will continue to require an individual CLOMR.
9. All work will be performed in accordance with federal and state guidelines, regulations, policies and procedures.
10. This Agreement shall remain in effect from the date of execution of this agreement unless cancelled in writing by mutual agreement or as provided below. It is anticipated that this Agreement may be revisited annually, or at a time mutually agreed upon by both parties, to determine if changes are needed to the "Annual Estimated Number of Projects" and "Fee Schedule" contained in Exhibit A. In the event either party to this Agreement should choose to withdraw from this Agreement, written notification must be given to the Director and/or Section Chief of the NCFMP and to the State Highway Administrator of NCDOT at least ninety (90) days prior to withdrawal.

IN WITNESS WHEREOF, this Agreement has been executed, in duplicate, the day and year heretofore set out, on the part of the Department and the NCFMP by authority duly given.

NORTH CAROLINA DEPARTMENT  
OF TRANSPORTATION

BY:   
Terry R. Gibson  
STATE HIGHWAY ADMINISTRATOR

NORTH CAROLINA FLOODPLAIN  
MAPPING PROGRAM

BY:   
John Kay Dorman  
DIRECTOR

## EXHIBIT A: Fee Schedule and Estimated Annual Cost

FEMA has provided guidance beyond the items shown in this Agreement, specifically that all Department projects resulting in Base Flood Elevation (BFE) decreases of more than 0.5 feet (defined herein as Major Impacts) will require a LOMR submittal. Additionally, FEMA has agreed, at the NCFMP's request, to allow NFIP compliance of Department projects resulting in BFE decreases between 0.1 and 0.5 feet (defined herein as Minor Impacts), to be met by including these projects in NCFMP map maintenance updates.

Through this Agreement, the Department and the NCFMP mutually agree that the data sharing agreements and services provided herein are conducive to efficient cooperation and project timelines for the two agencies. Three (3) distinct tasks are identified as services to be provided by the NCFMP as part of this agreement:

1. The NCFMP will review the hydrologic and hydraulic (H&H) designs for the Department's No Rise/No-Impact submittals and certifications. This applies to any project with a decrease in BFE less than 0.1 foot. The review fee for No Rise/No-Impact project is \$1,000.00.
2. The NCFMP will review the H&H designs for the Department's projects with BFE decreases of 0.1 foot or more.
  - A. For a project with a decrease in BFE between 0.1 and 0.5 foot (Minor Impact), the NCFMP will utilize the data to supplement map maintenance studies and DFIRM updates. The review fee for a Minor Impact project is \$2,000.00.
  - B. For a project with a decrease in BFE more than 0.5 foot (Major Impact), the NCFMP will prepare and process a LOMR submittal following construction per the agreements contained herein. The review fee for a Major Impact project is ~~\$11,000.00~~, which includes the development of the LOMR package and the corresponding FEMA fee. **\$11,500 \***
3. The NCFMP will update the Flood Insurance Study (FIS) components and DFIRM mapping for the Department's LOMR submittals that are submitted following:
  - A. An NCFMP DFIRM update, without update of hydrologic and hydraulic (H&H) analyses, that supersedes the then effective FIRM mapping used for the Department's CLOMR. The review and process fee is ~~\$6,000.00~~, which includes the update of the DFIRM mapping and FIS components and the corresponding FEMA fee. **\$6200\***

B. An NCFMP DFIRM update, with update of H&H analyses, that supersedes the then effective FIRM mapping used for the Department's CLOMR. The review and process fee is ~~\$11,000.00~~, which includes the update of the H&H modeling, DFIRM mapping and FIS components and the corresponding FEMA fee. \$11,200\*

[\\* Click here to see revised fee schedule - April 2010](#)

Estimated Annual Number of Projects:

The Department replaces annually approximately 100 bridge / culvert projects on streams that are regulated by the NFIP. Projects may be categorized as: No-Rise/No-Impact, Decrease, or Increase in BFE. The Department estimates approximately 20% of projects are No-Rise/No-Impact. About 50% are Minor Impact and 20% are Major Impact, having BFE decreases between 0 and 0.5 feet and greater than 0.5 feet, respectively. Approximately 10% of these projects will result in BFE increases.

1. Estimated Annual Number of No-Rise/No-Impact Reviews:  
100 \* 20% = 20 projects
  
- 2A. Estimated Annual Number of Bridge Maintenance Projects with BFE decreases of 0.1 to 0.5 feet (Minor Impacts):  
100 \* 50% = 50 projects
  
- 2B. Estimated Annual Number of Bridge Maintenance Projects with BFE decreases greater than 0.5 feet (Major Impacts):  
100 \* 20% = 20 projects
  
- 3A. Estimated Annual Number of LOMR submittals resulting from previously approved CLOMRs requiring updated DFIRM mapping and FIS component: 3 projects
  
- 3B. Estimated Annual Number of LOMR submittals resulting from previously approved CLOMRs requiring updated H&H modeling, DFIRM, and FIS components: 7 projects

Estimated Annual Cost:

1. No-Rise/No-Impact Projects Review:  
  
Total Cost: 20 projects x \$1,000.00/project = \$20,000.00
  
- 2A. Minor Impact Projects Review:

Total Cost: 50 projects x \$2,000.00/project = \$100,000.00

2B Major Impact Projects Review:

Total Cost: 20 projects x ~~\$11,000.00~~/project = ~~\$220,000.00~~  
\$11,500\* \$230,000

3A LOMR Projects submittal without H&H updates:

Total Cost: 3 projects x ~~\$6,000.00~~/project = ~~\$18,000.00~~  
\$6,200\* \$18,600

3B LOMR Projects submittal with H&H updates:

Total Cost: 7 projects x ~~\$11,000.00~~/project = ~~\$77,000.00~~  
\$11,200\* \$78,400

Estimated Total Annual Cost: ~~\$435,000.00~~  
\$447,000

\* [Click here to see revised fee schedule - April 2010](#)

## **EXHIBIT B: Data Submittal Schedule and Deliverables for TIP Projects**

Data Submittal Schedule for projects with No-Rise/No Impacts (1), Minor Impacts (2A), Major Impacts (2B) and LOMR (3A or 3B) (outlined in Exhibit A hereto, entitled “Fee Schedule and Estimated Annual Cost”) is as follow:

Projects with No-Rise/No Impacts (1), or Minor (2A), or Major (2B) Impacts:

Initial Submittal:	at least 180 days prior to construction
Final Submittal:	within 180 days following completion of construction

Projects with LOMR submittals (3A or 3B) requiring updated DFIRM mapping and FIS component updates:

Final Submittal:	within 180 days following completion of construction
------------------	--

Deliverables:

1. Projects with No-Rise/No-Impacts:

The Initial Submittal is to submit engineering data as follows:

- NCDOT Bridge / Culvert Survey Reports
- Project Location
- Topographic Data
- No-Rise/No Impact Certification
- Executive Summary of Hydrologic and Hydraulic Analyses
- And Computer Model Edits

The Final Submittal is to submit NCDOT As-Built Plans.

2A. Projects with Minor Impacts:

The Initial Submittal is to submit engineering data as follows:

- NCDOT Bridge / Culvert Survey Reports
- Project Location
- Topographic Data
- Executive Summary of Hydrologic and Hydraulic Analyses
- And Computer Model Edits

The Final Submittal is to submit NCDOT As-Built Plans.

2B. Projects with Major Impacts:

The Initial Submittal is to submit engineering data as follows:

NCDOT Bridge / Culvert Survey Reports  
Project Location  
Topographic Data  
Executive Summary of Hydrologic and Hydraulic Analyses  
And Computer Model Edits  
Also include the two additional items below. \*\*

The Final Submittal is to submit NCDOT As-Built Plans.

\*\* Parcel Boundaries and Property Owners

NCDOT signature on appropriate MT2 forms

3A & B. Projects with LOMR submittals requiring updated DFIRM mapping and FIS component updates:

The initial submittal is not required.

The Final Submittal is to submit NCDOT As-Built Plans.

**EXHIBIT C: Data Submittal Schedule and Deliverables for Non TIP Projects  
(Secondary Roads, Force Accounts, Emergency Repairs, etc.)**

Data Submittal Schedule for projects with No-Rise/No Impacts (1), Minor Impacts (2A), Major Impacts (2B) and LOMR (3A or 3B) (outlined in Exhibit A hereto, entitled “Fee Schedule and Estimated Annual Cost”) is as follow:

Projects with No-Rise/No Impacts (1), or Minor (2A), or Major (2B) Impacts:

Initial Submittal:	at least 30 days prior to construction
Final Submittal:	within 180 days following completion of construction

Projects with LOMR submittals (3A or 3B) requiring updated DFIRM mapping and FIS component updates:

Final Submittal:	within 180 days following completion of construction
------------------	--

Projects requiring an emergency response by the Department will be handled on a case-by-case basis. Given the emergency nature of the projects, rapid review will be required. The Department will coordinate with the NCFMP regarding the initiation of the project and for review of available data.

Initial Submittal:	as available
Final Submittal:	within 180 days following completion of construction

Deliverables:

1 Projects with No-Rise/No-Impacts:

The Initial Submittal is to submit engineering data as follows:

For Bridges or Box Culverts:

- NCDOT Bridge / Culvert Survey Reports
- Project Location
- Topographic Data, if Available
- No-Rise/No Impact Certification
- Executive Summary of Hydrologic and Hydraulic Analyses
- And Computer Model Edits

For Pipes:

Pipe Data Sheets with Hydrologic Analysis  
Project Location  
Topographic Data, if Available

The Final Submittal is to submit NCDOT As-Built Plans.

2A. Projects with Minor Impacts:

The Initial Submittal is to submit engineering data as follows:

For bridges or box culverts:

NCDOT Bridge / Culvert Survey Reports  
Project Location  
Topographic Data, if Available  
Executive Summary of Hydrologic and Hydraulic Analyses  
And Computer Model Edits

For Pipes:

Pipe Data Sheets with Hydrologic Analysis  
Project Location  
Topographic Data, if Available

The Final Submittal is to submit NCDOT As-Built Plans.

2B. Projects with Major Impacts:

The Initial Submittal is to submit engineering data as follows:

For Bridges or Box Culverts:

NCDOT Bridge / Culvert Survey Reports  
Project Location  
Topographic Data  
Executive Summary of Hydrologic and Hydraulic Analyses  
And Computer Model Edits

For Pipes:

Pipe Data Sheets with Hydrologic Analysis  
Project Location  
Topographic Data

The Final Submittal is to submit NCDOT As-Built Plans.

3A & B. Projects with LOMR submittals requiring updated DFIRM mapping and FIS component updates:

The initial submittal is not required.

The Final Submittal is to submit NCDOT As-Built Plans.

4. Emergency Projects:

The initial submittal will be on a case-by-case basis.

The Final Submittal is to submit NCDOT As-Built Plans.