IREDELL ROWAN
LINCOLN
CABARRUS
GASTON
MECKLENBURG
STANLY
UNION

DATUM INFORMATION

The **projection** used in the preparation of this map was the North Carolina State Plane (FIPSZONE 3200). The **horizontal datum** was the North American Datum of 1983, GRS80 ellipsoid. Differences in datum, ellipsoid, projection, or Universal Transverse Mercator zones used in the production of FIRMS for adjacent jurisdictions may result in slight positional differences in map features across jurisdictional boundaries. These differences do not affect the accuracy of this FIRM. All coordinates on this map are in U.S. Survey Feet, where 1 U.S. Survey Foot = 1200/3937 Meters.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. An average offset between NAVD 88 and the National Geodetic Vertical Datum of 1929 (NGVD 29) has been computed for each North Carolina county. This offset was then applied to the NGVD 29 flood elevations that were not revised during the creation of this statewide format FIRM. The offsets for each county shown on this FIRM panel are shown in the vertical datum offset table below. Where a county boundary and a flooding source with unrevised NGVD 29 flood elevations are coincident, an individual offset has been calculated and applied during the creation of this statewide format FIRM. See Section 6.1 of the accompanying Flood Insurance Study report to obtain further information on the conversion of elevations between NAVD 88 and NGVD 29. To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the North Carolina Geodetic Survey at the address shown below. You may also contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

North Carolina Geodetic Survey
121 West Jones Street
Raleigh, NC 27601
(919) 733-3836
http://www.ncgs.state.nc.us

County Average Vertical Datum Offset Table

County	Vertical Datum Offset (ft)
MECKLENBURG	-0.74

Example: NAVD 88 = NGVD 29 + (-0.74)

All streams listed in the **Flood Hazard Data Table** below were studied by detailed methods using field survey. Other flood hazard data shown on this map may have been derived using either a coastal analysis or limited detailed Riverine analysis. More information on the flooding sources studied by these analyses is contained in the Flood Insurance Study report.

FLOOD HAZARD DATA TABLE

Cross Section	Stream Station	Flood Discharge (cfs) Existing Land Use Conditions	Future Land Use Conditions	1% Annual Chance (100-year) Water-Surface Elevation (feet NAVD88) Existing Land Use Conditions	Future Land Use Conditions	Floodway Distance in Feet From Center of Stream to Encroachment Boundary (Looking Downstream) Left / Right	Left / Right
McMULLEN CREEK							
450	45,000	3,964	4,215	629.8	630.0	79 / 149	116 / 175
475	47,473	3,729	3,972	648.1	648.3	16 / 215	20 / 280
495	48,500	3,729	3,972	653.4	653.7	115 / 90	139 / 112
495	49,471	3,729	3,972	654.9	655.1	254 / 27	263 / 57
505	50,500	3,729	3,972	658.6	659.0	186 / 84	220 / 133
SWAN RUN							
072	7,170	1,121	1,215	593.7	594.0	10 / 25	19 / 27

Feet above confluence with McAlpine Creek.

STORM WATER Services
NORTH CAROLINA **Cooperating Technical State**
FEMA's COOPERATING TECHNICAL PARTNER

This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperative partnership between Charlotte-Mecklenburg, the State of North Carolina, the Federal Emergency Management Agency (FEMA), and the U.S. Army Corps of Engineers. Charlotte-Mecklenburg Storm Water Services (CMSWS) has developed a long-term approach of floodplain management to decrease the costs associated with flooding. This is demonstrated by CMSWS commitment to maintain floodplain areas at the local level. As a part of this effort, CMSWS has joined in a Cooperating Technical Community agreement with FEMA and a partnership with the NCFMP to produce and maintain this digital FIRM.

www.ncfloodmaps.com
http://stormwater.charmeck.org

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles, Floodway Data, Limited Detailed Flood Hazard Data, and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of **regulatory floodways** shown on the FIRM for flooding sources studied by detailed methods were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data for flooding sources studied by detailed methods as well as **non-encroachment widths** for flooding sources studied by limited detailed methods are provided in the Flood Insurance Study (FIS) report for this jurisdiction. The FIS report also provides instructions for determining a floodway using non-encroachment widths for flooding sources studied by limited detailed methods.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 4.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

Base map information and geospatial data used to develop this FIRM were obtained from various organizations, including the participating local community(ies), state and federal agencies, and/or other sources. The primary base for this FIRM is planimetric base map information obtained from and maintained by Mecklenburg County GIS Department and is current as of 2011. Information and geospatial data supplied by the local community(ies) that met FEMA base map specifications were considered the preferred source for development of the base map. See geospatial metadata for the associated digital FIRM for additional information about base map preparation.

Base map features shown on this map, such as **corporate limits**, are based on the most up-to-date data available at the time of publication. **Changes in the corporate limits may have occurred since this map was published.** Map users should consult the appropriate community official or website to verify current conditions of jurisdictional boundaries and base map features. This map may contain roads that were not considered in the hydraulic analysis of streams where no new hydraulic model was created during the production of this statewide format FIRM.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

If you have **questions about this map**, or questions concerning the National Flood Insurance Program in general, please call **1 - 877 - FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.

An accompanying Flood Insurance Study report, Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) revising portions of this panel, and digital versions of this FIRM may be available. Visit the **North Carolina Floodplain Mapping Program** website at http://www.ncfloodmaps.com, or contact the **FEMA Map Information eXchange (FMIX)** at 1-877-FEMA MAP (1-877-336-2627) or its website at http://www.floodmaps.fema.gov/fhm/fmx_main.html for information on all related products associated with this FIRM.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A   No Base Flood Elevation determined.
ZONE AE   Base Flood Elevations determined.
ZONE AH   Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO   Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR   Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99 Areas to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE VE   Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

COMMUNITY ENCROACHMENT AREAS (Mecklenburg County)

OTHER FLOOD AREAS

ZONE X   Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER FLOOD AREAS (Mecklenburg County)

ZONE X   Areas of future conditions 1% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X   Areas determined to be outside the 0.2% annual chance floodplain; areas outside future conditions 1% annual chance floodplain.
ZONE D   Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary (Mecklenburg County)
1% annual chance floodplain boundary
1% annual chance future conditions floodplain boundary (Mecklenburg County)
0.2% annual chance floodplain boundary
Floodway boundary
Community encroachment boundary (Mecklenburg County)
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513 ~~~~ Base Flood Elevation line and value; elevation in feet*
(EL 987) Base Flood Elevation value where within within zone; elevation in feet*
* Referenced to the North American Vertical Datum of 1988

(512) Cross section line
(23) —— (23) Transect line
97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000 M 1000-meter Universal Transverse Mercator grid ticks, zone 17
1 477 500 FEET 2500-foot grid values: North Carolina State Plane coordinate system (FIPSZONE 3200, State Plane NAD 83 feet)
BM5510 North Carolina Geodetic Survey bench mark (for more information visit http://www.ncgs.state.nc.us)
BM5510 National Geodetic Survey bench mark (for more information visit http://www.ngs.noaa.gov)
BM5510 NGS-58 GPS 2-5 on Vertical Control Marks or Contractor-Established Bench Marks (for more information visit http://www.ncgs.state.nc.us)
RM_LSUG14 Mecklenburg County bench mark (for more information visit http://ftp1.co.mecklenburg.nc.us/luesa/stormwater/FIRM Reference Marks/)
● M1.5 River Mile

GRID NORTH
MAP SCALE 1" = 500' (1 : 6,000)
250 0 250 500 750 1000 FEET
150 0 150 300 METERS

Map labels

JOINS PANEL 4562
JOINS PANEL 4560
JOINS PANEL 4561
JOINS PANEL 4571

City of Charlotte 370159

ZONE X, ZONE AE, ZONE X (FUTURE)