MECKLENBURG COUNTY
RETROFIT PROGRAM POLICY DOCUMENT

Prepared by:
Charlotte-Mecklenburg Storm Water Services
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Executive Summary

Charlotte-Mecklenburg Storm Water Services (CMSWS) manages one of the most proactive flood mitigation programs in the nation. From 1999-2014, the County has invested more than $58 Million in the acquisition and demolition of 370 floodprone buildings. Funding for these endeavors comes from federal (FEMA), state, and local sources. Despite the programs’ many successes, some floodprone properties are not cost-effective to buyout or are not eligible for FEMA mitigation grants. These buildings continue to suffer short- and long-term flood damage when local creeks rise.

The purpose of the RetroFIT program is to reduce flood damage to existing buildings in the regulated floodplain by offering financial and technical floodproofing assistance to owners.

In June 2014, the North Carolina Legislature adopted NC GS153A 274.1, allowing Mecklenburg County to use storm water fees to implement flood damage reduction techniques that result in improvements to private property. The statute is provided in its entirety in Section 1.2 of this policy document. Mecklenburg County Storm Water Services - Engineering & Mitigation Program (MCEMP) subsequently has created a mitigation program for floodplain property owners, RetroFIT (Floodproofing • Improvements • Together), that will aid them in making their dwellings more resilient to flood damage. This policy document, as required by the legislation, establishes and elaborates on the key elements of the RetroFIT program.

MCEMP manages and maintains the regulated floodplains within 7 municipalities in Mecklenburg County via interlocal agreements; including the City of Charlotte, the towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill, and Pineville. MCEMP aims to serve residents by reducing the potential for loss of life and property due to flooding, while enhancing the natural and beneficial functions of the floodplain.

Under the RetroFIT program, eligible floodplain property owners will be able to implement a variety of flood damage reduction techniques. In most cases large flood control projects along County “major system” creeks is not practically feasible or cost effective. Our floodplains adjacent to streams are meant to flood. Since flooding will naturally occur around many of these homes and businesses, the best option for some owners is to make their buildings more “fit” to resist flood damage. Owners will be able to apply for assistance with;

1. structure demolition,
2. structure elevation,
3. structure relocation,
4. wet floodproofing,
5. dry floodproofing,
6. abandoning basement and filling, and
7. protecting mechanical/electrical/service equipment,

Funding for the RetroFIT Program will come from a portion of the County’s Storm Water Services Flood Mitigation Capital budget. The RetroFIT program will offer grants to owners to
cover 75%-90% of the mitigation project cost with additional assistance to residents enrolled in the County Tax Assessor Low Income Homestead Exclusion or the Disabled Veterans Homestead Exclusion programs. In all cases, the property owner must provide a minimum financial contribution of the project cost as detailed in Section 2.3. Owners will reimburse MCEMP if the property is sold at a higher market value within 5 years of project completion in cases where the grant amount exceeds $2,300.

The RetroFIT Program consists of three phases – the Application Phase, Review and Assistance Phase, and Approval and Implementation Phase. Both the MCEMP and property owner will have critical roles at various points of the program lifecycle.

As part of the Application Phase, and throughout the year, MCEMP will reach out to floodplain property owners to increase awareness about the program. This will likely be done through targeted mailings, storm water utility bill inserts, in response to service requests, and other means. Property owners will be able to choose the floodproofing improvement(s) they hope to make as part of an Owner Interest Application. MCEMP will offer assistance to owners if they need help determining which of the flood damage reduction techniques would be effective in reducing future damage. In many cases, MCEMP will be able to help estimate the potential cost of the proposed project. Upon receiving preliminary applications from all interested owners during the application period, MCEMP will have enough information to review and further assist owners.

The Review and Assistance Phase will allow MCEMP to provide owners technical assistance and determine if the proposed project is viable. Staff will also begin to prioritize applications and estimate if adequate funding is available in the current cycle. The legislation also requires that MCEMP determine that improving the storm water system is not practically feasible or cost effective, and the improvements to private property are the minimum necessary to accomplish the storm water benefit. Staff will use the Flood Risk Assessment and Risk Reduction (RARR) Plan, adopted by the Mecklenburg Board of County Commissioners (BOCC) in 2012, as a guide for decision-making under the RetroFIT program.

After MCEMP works with the owner and determines the project is viable, the owner will be required to submit formal Grant Application containing more detailed information. In the event
a project is not eligible, is in conflict with the RARR Plan, or adequate funding is clearly not available in the current cycle, applicants will be notified. These two phases can likely be completed in 3-5 months depending on the owner’s level of interest and complexity of the project.

The Approval and Implementation Phase will include the selection of projects for funding, execution of a contract between the owner and the County allowing the mitigation project to be successfully implemented by the property owner.

RetroFIT is a competitive grant program and MCEMP will select projects to fund based on risk reduction benefits. However, staff will also attempt to select projects with a variety of mitigation techniques and in various watersheds. The selection process will include both objective criteria such as the cost of the project versus the long term benefits and subjective criteria such as overall effectiveness of the proposed flood damage reduction technique. The merits of the selected projects will be presented to the Storm Water Advisory Committee (SWAC) for their review and approval. Owners will be notified and the Approval and Implementation Phase of the project will begin for the projects upon SWAC approval.

After execution of the grant contract, the property owner will oversee all the work done on their property, including obtaining all the necessary permits and hiring the general contractor to do the construction. MCEMP may provide owners with a list of qualified contractors if one is available. MCEMP will be responsible for ensuring the work is completed according to the agreement, reviewing reimbursement requests, and making appropriate reimbursements to the property owner and/or contractor. Project implementation will culminate with the successful installation of the flood mitigation measures and close out of the grant contract.

MCEMP will file a Deed of Trust in the amount of the grant with the Register of Deeds for all grants exceeding $2,300. If the property is sold within five years for more than the pre-mitigation appraised value, the owner must reimburse MCEMP any amount over the pre-mitigation fair market value to the total grant amount. Depending on the type of flood damage reduction technique there may be annual follow up inspections to assure that the flood mitigation measures are still in place.

Each year staff will assemble an annual report for the SWAC. Upon review and approval, the SWAC will submit the annual report to the BOCC.
Section 1 Introduction

1.1 Background

The purpose of the RetroFIT program is to reduce flood damage to existing buildings in the regulated floodplain by offering financial and technical floodproofing assistance to owners. “Floodproofing” involves any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce, but do not eliminate the risk of flood damage. Techniques under the RetroFIT program will only reduce damage to a certain portions of the building, depending on the level of floodproofing and the height of the floodwater.

Many floodprone properties do not qualify or have a low likelihood of funding through traditional federal mitigation grants. FEMA offers several grant programs such as the Flood Mitigation Assistance Program, Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Program. These programs fund mitigation actions such as acquisition, relocation and elevation, which will make buildings fully compliant with the floodplain standards. MCEMP has been awarded grants from these FEMA programs to fund property acquisition and demolition structures that meet their criteria. FEMA’s grant programs provide funding when the cost of the flood damage reduction technique is less than the estimated future flood insurance payments to the owner. This generally requires flooding to occur in the living space of a house or business to meet this cost-benefit criteria. FEMA grant programs do not take into account numerous life safety and quality of life risks that are important to local governments, such as emergency response, temporary shelters, high velocity flood areas, damage to fences, sheds, pools, cumulative mold, or building settling.

Mecklenburg County has been awarded multiple flood mitigation grants and many of the 370 flood-prone structures that were purchased prior to 2015 were acquired with FEMA grant funding. However, many of the estimated 2500 flood-prone structures located in the regulated floodplains do not qualify for a FEMA grant. The RetroFIT Program is intended to provide similar financial and technical assistance to flood-prone property owners whose properties are unlikely to gain FEMA grant funding.

MCEMP manages and maintains the regulated floodplains within the City of Charlotte, the towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill, and Pineville, and the unincorporated areas of Mecklenburg County. MCEMP aims to serve the residents of Mecklenburg County by reducing the potential for loss of life and property due to flooding, while enhancing the natural and beneficial functions of the floodplain along streams regulated by FEMA. The MCEMP reduces flood risk to people and property through a variety of programmatic strategies, including: enforcing floodplain regulations, maintaining floodplain maps, providing advanced flood notification to emergency responders, assessing flood risk, developing mitigation plans, and implementing flood hazard mitigation projects. MCEMP also disseminates information on flood risk and potential mitigation options to floodplain property owners and the general public as new data becomes available.
MCEMP has evaluated potential flood hazard mitigation sites through a series of studies since the early 2000’s. These studies primarily used two sets of criteria to evaluate the different improvement alternatives—location in relation to the Community Encroachment Area Boundary (0.1’ Floodway) and cost effectiveness (Benefit-Cost Ratio). As a secondary consideration, the studies also evaluated flood damage reduction techniques for flood reduction capability, constructability, social/environmental impacts, and hydraulic impacts in a broad sense. These studies considered five flood hazard mitigation strategies: acquisition/demolition (buyouts), structure elevation, floodproofing, infrastructure improvements, flood barriers such as a levee or floodwall, and also recommended “no action” where appropriate. Property acquisition and structure demolition was the most frequent flood damage reduction technique recommended in that plan.

Through 2014, these efforts have resulted in the successful implementation of structural and non-structural risk reduction measures, including the acquisition and demolition of 370 flood-prone structures within the County. However, this program has been limited to property acquisition and demolition where the County purchases the property and removes all the buildings and impervious surfaces. The successful implementation of the buyout strategy coupled with FEMA’s narrow view of the financial “benefits” of mitigation, has created a gap in the flood mitigation strategy. The goal of the RetroFIT Program is to provide assistance to private property owners to fill this gap.

The RetroFIT Program will provide assistance to private owners for structural measures that will reduce the likelihood of flood damage to their buildings without the County buying their property. This has many benefits for the private property owners and the County. The property owner will reduce the impact of flooding to a building on their property while continuing to live or work on the property. The County, City of Charlotte and towns benefit because the properties remain in the tax base and have the potential for economic development.

1.2 Statutory Authority

The state legislature enacted the storm water utility law in 1991 that allows municipalities to fund stormwater management programs using stormwater fees. In 1994, Mecklenburg County began operating the storm water utility to manage storm water systems in the county. The enabling statute was silent as to whether storm water utility fees could be used to fund flood mitigation projects that benefit a single property owner without modifying the actual stormwater system. In 2014, at the request of the Mecklenburg County BOCC, the North Carolina General Assembly enacted the following statutory provisions enabling Counties of a certain size to use storm water utility fees for flood mitigation measures on private property.

§ 153A-274.1. Flood control activities under stormwater management programs.

(a) Findings. – The General Assembly finds that it is in the best interest of the residents of North Carolina to promote and fund the implementation of
stormwater management programs to control and manage water quantity and flow in order to reduce the chances of loss of life and damage to property due to flooding. The General Assembly also finds that a county has an integral role in furthering this public purpose by promoting and funding implementation of stormwater management programs within the county's territorial jurisdiction to reduce reliance on emergency response services, to reduce negative financial impacts on the community and the public from flooding, including the cost of public infrastructure repairs, to decrease the number of flood-prone homes and businesses, to increase infiltration of stormwater into the ground, and to reduce pollutants from entering the streams.

(b) Scope. – For purposes of operating a public enterprise under this Article, a county is authorized to do any of the following activities within its stormwater management program:

1. Purchase property for the purpose of demolishing flood-prone buildings.
2. Implement flood damage reduction techniques that result in improvements to private property in accordance with subsection (c) of this section, to include:
   a. Elevating structures or their associated components.
   b. Demolishing flood-prone structures.
   c. Retrofitting flood-prone structures.

(c) Policy Document. – The county may engage in the activities listed in subdivision (2) of subsection (b) of this section only under the circumstances contained in a policy document approved by the board of county commissioners. The policy document shall, at a minimum, establish, and may elaborate on, the following:

1. Private property owner's written consent must be obtained prior to implementation of flood reduction improvements on the owner's property.
2. The county has determined that improving the stormwater system is not practically feasible or cost-effective, and the activities in subdivision (2) of subsection (b) provide savings to the stormwater fund.
3. The improvements to private property are the minimum necessary to accomplish the stormwater benefit.
4. Funding provided by the county, above a certain amount, to the property owner or expended upon improvements to the property shall be reimbursed to the county if the property is sold within five years of the completion of the flood reduction improvement project. The amount of reimbursement due to the county may be calculated as the difference between the established premitigation fair market value
and the sale price of the property, not to exceed the total funding provided by the county.

(5) **The minimum financial contribution the private property owner must make to the project.**

(d) **Advisory Committee.** – An existing stormwater advisory committee established by the board of commissioners and having specific charges, duties, and representation as set forth by the board of county commissioners must review and approve projects that implement flood damage reduction techniques under subdivision (2) of subsection (b) of this section. The committee shall submit an annual report to the board of county commissioners for its review.

(e) **Application.** – This section applies only to counties with a population of 910,000 or greater according to the most recent annual population estimates certified by the State Budget Officer.

1.3 **Goals and Objectives**

The purpose of the RetroFIT program is to reduce flood damage to existing buildings located in the Community Floodplain as shown on the Flood Insurance Rate Maps by offering financial and technical floodproofing assistance to owners.

The RetroFIT Program Policy Document (Policy Document) is required to be adopted by the Mecklenburg County BOCC to provide a policy framework for the proposed program. In addition, MCEMP will produce and maintain an implementation manual with details of the program.

It is the intent of the MCEMP to use the first year as a pilot program and adjust as necessary to assure future success. Any proposed changes to the Policy Document will be submitted to the SWAC and the BOCC for approval. MCEMP will have the authority to update the implementation manual as necessary to ensure the program operates effectively. MCEMP strives to have an effective and successful program during the first year but understands that with any new program there are opportunities to improve the program based on experience.

1.4 **Concept**

The overall concept for the RetroFIT program is providing assistance to individual property owners interested in elevating, demolishing or retrofitting their flood-prone structures. The program will be offered one or more times per year depending on available funding and interest. The three main phases of the RetroFIT process are an Application Phase, a Review and Assistance phase, and an Approval and Implementation phase. Details pertaining to the lifecycle phases are explained in Section 3 of this Policy Document.
1.5 Annual Reporting

§ 153A-274.1. (d) Advisory Committee. – An existing stormwater advisory committee established by the board of commissioners and having specific charges, duties, and representation as set forth by the board of county commissioners must review and approve projects that implement flood damage reduction techniques under subdivision (2) of subsection (b) of this section. The committee shall submit an annual report to the board of county commissioners for its review.

Each year staff will assemble an annual report for the SWAC. Upon review, comment and approval, by the SWAC, staff will send the annual report to the BOCC. At a minimum, the report will include the following general information on the RetroFIT program:

- Level of interest vs. funding
- Projects approved
- Implementation status
- Financial summaries
Section 2  Program Eligibility

2.1  Introduction

Projects proposed by owners must meet certain minimum criteria to qualify for the RetroFIT Program. Satisfying the minimum criteria does not mean that the owner will receive a grant; however, not meeting the criteria will lead to exclusion of the proposed project from the program. The RetroFIT program will have dedicated annual funding from the County Storm Water Services Flood Mitigation Capital budget. The owner is required to provide a financial contribution, which could be a limiting factor in the type and size of the proposed mitigation project.

2.2  General Eligibility Criteria

The RetroFIT program is available to property owners that have habitable structures at risk to flooding in the Floodplain in Mecklenburg County. The purpose of the program is to provide financial and technical assistance to private property owners to reduce the risk of structure flooding for projects that do not qualify for traditional FEMA flood mitigation grants.

The statute explicitly allows storm water funds to be spent on mitigation actions described below. The RetroFIT Program is limited to the specific activities described in part (b)(2) of this legislation.

§ 153A-274.1 (b)
(1) Purchase property for the purpose of demolishing flood-prone buildings.
(2) Implement flood damage reduction techniques that result in improvements to private property in accordance with subsection (c) of this section, to include:
   a. Elevating structures or their associated components.
   b. Demolishing flood-prone structures.
   c. Retrofitting flood-prone structures.

MCEMP already has a robust property acquisition and demolition program that relies heavily on FEMA grant funding to leverage the storm water fee contribution to these types of projects. MCEMP does not intend to use the RetroFIT program to purchase property. Generally, it is the intention to exclude FEMA grant eligible projects from the RetroFIT grant program. However, MCEMP may provide some grant funding to FEMA grant eligible property owners but only to limit short term flood damage pending a potential FEMA grant award to permanently remove the structure from the floodplain with a purchase and demolition or elevate the structure. MCEMP has determined that the following flood damage reduction techniques meet the requirements of paragraph (b) 2:
1. structure demolition,
2. structure elevation,
3. structure relocation,
4. wet floodproofing,
5. dry floodproofing,
6. abandoning basement and filling, and
7. protecting mechanical/electrical/service equipment,

All of these criteria are more fully develop in this Policy Document. There are references to the specific legislative provisions where appropriate in this document.

The enabling legislation requires creation of a Policy Document to establish and elaborate on five specific criteria. The five (5) criteria are discussed within this section and are further elaborated on in Section 3 - Program Implementation.

§ 153A-274.1(c)
(1) Private property owner's written consent must be obtained prior to implementation of flood reduction improvements on the owner's property.

This is a voluntary grant program for property owners interested in implementing floodproofing measures to their buildings. The private property owner must sign a written contract with Mecklenburg County whereby the private owner provides consent, and the responsibilities of both MCEMP and the property owner are specified.

§ 153A-274.1(c)
(2) The county has determined that improving the stormwater system is not practically feasible or cost-effective, and the activities in subdivision (2) of subsection (b) provide savings to the stormwater fund.

For each project, MCEMP will review any existing feasibility studies on the major streams to determine if an improvement to the storm water system is practically feasible or cost-effective. If the proposed project is located on a stream without an existing feasibility study, MCEMP will review existing floodplain maps and associated models to determine if cost-effective modifications to the creek will alleviate flood issues. For consistency and simplicity, MCEMP will create a standardized form to evaluate the feasibility of proposed projects. Staff will also determine if each project will result in a savings to the storm water fund by comparing the cost of the proposed flood damage reduction method against the cost of acquiring the property and demolishing the building.

§ 153A-274.1(c)
(3) The improvements to private property are the minimum necessary to accomplish the stormwater benefit.
MCEMP will assist the property owner in selecting a flood damage reduction technique that meets their goals and also provides an appropriate level of damage reduction potential for the cost of the project. The goal of this program is to reduce the potential damage to the structure due to flooding. Any financial assistance provided under the RetroFIT program will be limited to the minimum necessary to accomplish flood resilience. Any additional aesthetic or desired work will be funded 100% by the property owner.

§ 153A-274.1(c)

(4) Funding provided by the county, above a certain amount, to the property owner or expended upon improvements to the property shall be reimbursed to the county if the property is sold within five years of the completion of the flood reduction improvement project. The amount of reimbursement due to the county may be calculated as the difference between the established premitigation fair market value and the sale price of the property, not to exceed the total funding provided by the county.

(5) The minimum financial contribution the private property owner must make to the project.

The RetroFIT program will require the property owner to pay a portion of the cost of the project and MCEMP will contribute the remainder of the cost. The legislation also requires the property owner to reimburse the County’s portion of the cost of the project if the property sells within 5 years for more than the value of the property prior to the flood mitigation project. MCEMP will use premitigation tax values or the MCEMP will pay for an independent fair market appraisal of the property before executing the grant contract. Additional details pertaining to these funding criteria are expanded upon in Section 2.3 – Grant Contributions and Section 3 - Program Implementation.

2.3 Grant Contributions

An important requirement of the RetroFIT Program is the financial contribution of the private property owner toward the cost of implementing improvements to their floodprone building. The basic owner contribution rate will range between 10-25% of the overall cost of implementing the improvements and MCEMP will reimburse the property owner 75-90% of the overall cost.

MCEMP has established a sliding cost share intended to provide a lower cost share for property owners with lower property values. Cost shares vary based upon the tax value of the property, which is typically an indication of the financial capability of the owner. To establish the contribution rates, MCEMP analyzed the tax values of approximately 2500 properties located in the current floodplain that may qualify for the RetroFIT program. The median tax value for residential properties is $180,000. Low to Moderate Income (LMI) individuals are defined by HUD as those earning less than 80% of an area median income. MCEMP used a parallel to this LMI standard in order to set a tax value to begin the reduced property owner contribution rates. A reduced cost share begins for owners of property valued at $145,000 (80% of the median tax
value). The lowest cost share (10%) was set to capture approximately 20% of the floodplain properties. The next tier (15%) captures approximately 30% of the floodplain properties. The table below shows the staggered owner contribution rates based on 2015 property tax values. These rates may be adjusted upon county wide tax revaluation.

<table>
<thead>
<tr>
<th>Total Property Tax Value</th>
<th>Contribution Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0 to $90,000</td>
<td>10%</td>
</tr>
<tr>
<td>$90,001 to $115,000</td>
<td>15%</td>
</tr>
<tr>
<td>$115,001 to $145,000</td>
<td>20%</td>
</tr>
<tr>
<td>$145,001 or greater</td>
<td>25%</td>
</tr>
</tbody>
</table>

Additional grant funding could be available to elderly fixed income or disabled veteran property owners. MCEMP will reduce the property owner contribution rate by 50% for owners who have qualified for the Mecklenburg County Tax Assessor Low Income Homestead Exclusion or the Disabled Veterans Homestead Exclusion Programs. MCEMP will also set maximum grant amounts for each of the flood damage reduction techniques. Details related to maximum grant amounts and eligible expenses will be detailed and updated as necessary in the program’s implementation manual.

On an annual basis, MCEMP intends to contribute a fixed amount to fund the RetroFIT Program from the Storm Water Services Flood Mitigation Capital budget. There may be additional funding during any given year if the BOCC approves a Quick Buy or Buy-Out program as a result of a flood event. This would allow property owners to leverage flood insurance reimbursement to accomplish flood damage reduction activities while repairing or replacing the flood damaged items.

In some cases a property owner may make a flood insurance claim under their Increased Cost of Compliance (ICC) Coverage to bring their building into compliance with the Floodplain Regulations. Typically this occurs after the building has incurred substantial damages from flooding, but could be triggered under other circumstances. ICC monies from claims being paid are the owner(s) for mitigating future losses and therefore can be used as the property owner’s contribution to the project. However, the full amount of the ICC payment must be applied before any grant funding under the RetroFIT program. Therefore, the overall project cost-share for the property owner may be higher than 10%-25% when ICC funds are used.

2.4 Description of Eligible Flood Damage Reduction Techniques

The program will only fund projects that include one or more of the seven flood damage reduction techniques as described in this Policy Document. Projects may include only one of the techniques such as protecting service equipment or it may include two or more techniques such as protecting service equipment and elevating the structure. The grant funding will be provided on a project basis and not on a per technique basis. For instance a project that includes both
structure elevation and protecting service equipment would be funded with a single grant. The 7 techniques described in Sections 2.4.1 through 2.4.7 are the only techniques that the RetroFIT Program is funding at this time. Examples of flood damage reduction techniques that are excluded from the program are levee construction, property purchase and demolition, buyout resale, detention, and storm water system structural flood control projects. These projects are being excluded mainly because these techniques are eligible for funding from different local, State and federal sources.

Below is the legislative reference and a summary of each flood damage reduction technique that is available in the RetroFIT program.
2.4.1 Structure Demolition

§ 153A-274.1 (b) (2) (b): Demolishing flood-prone structures.

Structure demolition involves the demolition of a flood-prone structure located in the regulated floodplain. The RetroFIT program will fund the demolition of the building and the removal and proper disposal of the debris from the property.

2.4.2 Structure Elevation

§ 153A-274.1 (b) (2) (a). Elevating structures or their associated components.

Structure elevation consists of physically raising the lowest finished floor of an existing structure to an elevation above the Flood Protection Elevation (FPE). Elevation may be achieved by a variety of methods including piles, posts, and columns, or elevating on fill. The new structure must be fully compliant with floodplain regulations and building codes: foundations must be designed to properly withstand all loads; the elevated structure must be properly anchored to the foundation; and utilities must be elevated above the FPE.
2.4.3 Structure Relocation

§ 153A-274.1 (b) (2) (a) Elevating structures or their associated components.

Structure relocation involves relocating the structure to a location outside the floodplain. The property remains in private ownership. The private owner bears the cost of acquiring a new parcel for the structure. The grant would fund the structure relocation costs.

2.4.4 Wet Floodproofing of Structures

§ 153A-274.1 (b) (2) (c) Retrofitting flood-prone structures.

Wet floodproofing of a structure is accomplished by modifying the areas of an existing structure to allow water to enter the space, but not cause significant damage. Water is allowed to enter the impacted area such as a crawl space to equalize the hydrostatic pressure. The area that is inundated during the flood event must be graded and made to properly drain when the flood water recedes. All construction and finish materials in the inundated areas must be flood resistant materials. Another element of wet floodproofing is the relocation of mechanical and electrical equipment or the construction of a floodwall around the equipment for protection during flooding.
2.4.5 Dry Floodproofing of Structures

§ 153A-274.1 (b) (2) (c) Retrofitting flood-prone structures.

Dry floodproofing of a structure involves making an area watertight to prevent floodwater from entering the structure. The walls must be made watertight with waterproof coatings, impermeable membranes, and/or supplemental layers of concrete or masonry. Any windows, doors, or other openings must be equipped with permanent or removable shields. Water and sewer lines must be equipped with backflow preventer valves. All mechanical and electrical equipment must be flood protected either by a floodproofing enclosure or by elevating.

Example of Dry Floodproofing (Source: FEMA P-312)

2.4.6 Abandoning Basement and Filling

§ 153A-274.1 (b) (2) (c) Retrofitting flood-prone structures.

Abandoning finished living space in a walkout basement and filling involves raising the lowest finished floor of an existing structure by converting the finished basement to crawlspace. This may be achieved by abandoning the basement and filling to create a crawlspace. Fill would be needed around the exterior perimeter of the foundation. The structure must be modified to allow filling in the basement.
2.4.7 Protecting Service Equipment (HVAC, electrical, utilities, fuel)

§ 153A-274.1 (b) (2) (a) Retrofitting flood-prone structures.

Protecting service equipment involves elevating, relocating, or protecting them in place. Service equipment installed outside the structure or in a full height basement can be raised on pedestals or platforms. Service equipment located in a basement, crawlspace, or other area below the flood level can be relocated to an upper floor, attic, or higher ground. If elevating and relocation are not possible, protecting service equipment in place may be done with low floodwalls and shields, and anchors and tie downs for aboveground and underground storage tanks.
3.1 Introduction

The RetroFIT program will be available to property owners once each year. In some cases when funding is still available within the year, additional application periods may be offered. The diagram below represents the lifecycle of the RetroFIT program regardless of how many times per year it’s offered. This section describes the three main phases of the cycle along with each step of the process.
There will be a three phased approach to the grant process. The grant process will have an Application Phase, a Review and Assistance Phase and an Approval and Implementation Phase. During the Application Phase, MCEMP intends to reach out to private property owners that are potentially eligible for the program and educate interested individuals on the flood damage reduction techniques that are available and the requirements of the program. During the Review and Assistance Phase, MCEMP staff will provide technical expertise to the property owners to educate them on the flood damage reduction techniques that would be likely to reduce their structural damage during a flood event, the potential cost of the project and other requirements. This phase may culminate in a formal application for a grant. The Approval & Implementation Phase will include the award of grants to property owners, owner implementation of the flood damage reduction project and final review and closeout of the project.

### 3.2 Application Phase

MCEMP will promote the RetroFIT program in hopes of receiving preliminary applications from interested property owners to review. MCEMP may use direct and indirect media to make floodplain property owners aware of the onsite mitigation opportunities available through the RetroFIT program. Individual staff may reach out to residents that may be eligible for the RetroFIT Program and will assist interested property owners in determining if the program would work for them. This phase will begin with outreach to all property owners with a building located within the Community Floodplain boundary on the effective Flood Insurance Rate Maps. All owners that respond to the community outreach will receive technical assistance from MCEMP to help them determine if the grant program will meet their goals.

During this period, MCEMP will accept paper or web based applications of interest from property owners. MCEMP will set the grant cycle schedule prior to engaging in the community outreach effort. The intention is to have one deadline per year for acceptance of grant applications. However, if there is a lack of sufficient applications to expend the dedicated funds, MCEMP may have more than a single application deadline. Also, if there are too many grant applications to fund in a single year, MCEMP may give priority to the unfunded applicants during the next fiscal year.

The Owner Interest Application Period will be open for approximately two months to allow owners enough time to consider the opportunity and work with staff as needed. Compressed schedules can be developed under special situation like flood damage. MCEMP will create simple forms for property owners to communicate their interest in mitigation and provide basic information related to proposed actions. MCEMP anticipates that there will be several avenues for the property owners to express an interest in the program and request assistance, including but not limited to, web based digital forms and hardcopy paper forms.
3.3 Review and Assistance Phase

After the property owner submits an Owner Interest Application, staff will meet with the property owner at the property to assess the potential for implementing one or more of the acceptable flood damage reduction techniques to reduce their flood damage. MCEMP will use information from the Flood Risk Assessment and Risk Reduction (RARR) Plan to assess the owner’s options for flood mitigation. The Flood RA/RR Plan includes a comprehensive, holistic, and multi-disciplinary risk-based approach to risk assessment and risk reduction. The Flood RA/RR Plan helps to identify flood risk, propose mitigation strategies and identify opportunities for funding to private property owners to implement flood damage reduction techniques on the property.

MCEMP staff will provide general cost estimates to the property owners for the flood damage reduction techniques that may work to reduce flood damage to their buildings. The general cost estimates will allow the property owner to understand the financial contribution that may be required if a grant is awarded to them.

MCEMP staff will assess the information developed during the Evaluation and Assistance Period to determine if the potential project meets the minimum eligibility requirements for the program. This evaluation will include a general assessment of the feasibility of improving the stormwater system and whether the cost of the propose flood damage reduction techniques are the minimum necessary to accomplish the stormwater benefit. MCEMP will determine whether improving the storm water system is not practically feasible or cost-effective, and whether the proposed flood damage reduction technique will provide savings to the storm water fund. If the proposed project meets the minimum eligibility criteria and funds are available, MCEMP will informally “pre-approve” the project. This will allow the owner to proceed with preparing a formal grant application. In the event the proposed activities are not eligible for financial assistance under the program or if funding is clearly not available in the current cycle, MCEMP will notify the owner in writing and clearly explain why the project has been denied.

After MCEMP works with the owner and determines the project is viable, the owner will be required to develop detailed information regarding the proposed project. Items may include a detailed project scope and cost estimates or multiple quotes from licensed contractors depending on the type of flood damage reduction technique. To assist owners, MCEMP may develop a list of qualified contractors for each of the flood damage reduction techniques. The list will be generated from a Request for Qualifications. Contractors will have the opportunity to be added to the list on a continuous basis if they can show the necessary qualifications. However, owners will not be required to use a contractor from the list. This period of the grant lifecycle will culminate in a formal grant application. MCEMP
anticipates that this phase could be completed between 1 week to 2 months depending on the owner’s level of interest and complexity of the project.

The formal grant application will request general information applicable to all projects as well as more detailed information applicable to the specific flood damage reduction technique(s) proposed for their building. All applications will include a detailed scope of the proposed project and a requested grant amount based on either bids or cost estimates depending on the specific flood damage reduction technique. The owner will be required to state whether the proposed project will bring the structure into compliance with the current Floodplain Ordinance. There will be an acknowledgement of certain requirements of the grant program including, but not limited to, a statement of voluntary participation, the estimated amount of the private property owner financial contribution, the fact that this is a reimbursement program, the need to repay the reimbursement amount under specific circumstances and that a grant application does not necessarily mean that a grant will be awarded. The information in the application should provide enough information to MCEMP staff to fully review the projects and prepare documentation necessary for review and possible approval by the SWAC.

3.4 Approval and Implementation Phase

The Approval and Implementation Phase will begin with a selection of projects and awarding of grants. In the event that there are more grant applications with estimated costs greater than the annual funding amount allocated for that fiscal year, it will be necessary to select projects that are the best candidates for reducing the likelihood of damage due to flooding. The completed grant applications will be ranked by MCEMP staff using a protocol that will assess the likelihood of success and need for each project. The ranking system will include both objective criteria such as cost-benefit analysis and more subjective criteria such as overall effectiveness of the proposed project. There will be an attempt to select projects from a wide variety of costs, flood damage reduction techniques and watersheds to reach a wider spectrum of property owners. MCEMP will rank the projects and determine the maximum number of projects that can be funded given the annual funding amount. MCEMP staff will create a description of each of the projects for the SWAC to review. The project descriptions will contain the information necessary for SWAC to approve individual grants. MCEMP will create a standard format for the project descriptions. Once SWAC has approved the slate of candidates for grant funding, MCEMP will notify the property owners.

The funding Agreements & Appraisal period will begin with the development of the grant contract. The grant contract between the property owner and MCEMP will formally document the responsibilities of both parties over the course of the grant and acknowledge the private property owners voluntary consent to implement the mitigation measures. The grant contract will include the scope of the project, grant amount available, time limit for completion of the flood mitigation measures, and responsibilities related to construction and inspection. The grant contract will clearly state the mitigation measures that are included in the grant. Grants will
only fund items related to the flood mitigation measure and will exclude any other construction. By way of example, if the property owner wants to elevate their house, MCEMP will pay to elevate the structure but not pay for improvements to the structure for aesthetic purposes or pay to upgrade the electrical or mechanical system unless required by the building code. Specifically, property owners cannot use grant funding to remedy building code or floodplain violations. The contract will include the total amount of the grant based on a minimum of three bids. The grant amount will be the amount of the lowest bid. The owner must use one of the three bidders for the construction but this will not change the grant amount. The grant contract will clearly state the pre-mitigation fair market value of the property. The enabling legislation, quoted below, requires the establishment of the premitigation value of the property.

§ 153A-274.1.(c)(4) Funding provided by the county, above a certain amount, to the property owner or expended upon improvements to the property shall be reimbursed to the county if the property is sold within five years of the completion of the flood reduction improvement project. The amount of reimbursement due to the county may be calculated as the difference between the established premitigation fair market value and the sale price of the property, not to exceed the total funding provided by the county.

MCEMP has determined that legal and administrative expenses related to the reimbursement process contained in Section 153A-274.1 (c)(4) are approximately $2,300. Therefore, all grants greater than $2,300 must reimburse the county consistent with section 153A-274.1 (c)(4). During the development of the grant contract, owners will have the option to use the County’s current tax value or elect for the County to pay for an independent FMV appraisal to establish the premitigation fair market value. The contract will clearly state that if the property is sold within five (5) years of completion for more than the agreed upon pre mitigation fair market value of the property, the owner must reimburse MCEMP any amount over the pre-mitigation fair market value to the total grant amount.

For all grants exceeding the minimum project cost of $2,300, MCEMP will file a deed of trust with the Register of Deeds in Mecklenburg County for the total amount of the grant. This deed of trust will terminate in five (5) years automatically. If the property sells in the five year time period, the property owner must satisfy the deed of trust if the sale price of the house is greater than the premitigation value at the time the grant contract was executed.

The Owner Implementation Period of the program will begin when a grant contract is executed between the owner and the County and continue until the grant is closed out five years after the flood mitigation work is completed on the property. After execution of the grant contract, the owner will be responsible for implementing the flood damage reduction measures and MCEMP will be responsible for inspecting the construction, reviewing
reimbursement requests, and making appropriate reimbursements to the property owner and/or the contractor.

The owner will be responsible for all of the construction related activities. The owner must hire a contractor licensed by the State of North Carolina to do the work. MCEMP may assist the owner to select contractors that are licensed and capable of doing the work. The property owner will be liable for all expenses associated with the construction. The property owner or their licensed contractor is responsible for obtaining all the necessary permits to complete the project. If the project requires the certification of a professional engineer or land surveyor to implement the flood damage reduction technique, the owner is responsible for hiring the professional engineer or surveyor. The owner will be responsible for obtaining all required post project certifications such as an Elevation Certificate if required.

MCEMP will take a secondary role regarding the construction and project management basically only inspecting the construction to verify that a reimbursement request is supported by the completed construction. When the owner has completed all of the construction or a portion of the construction of the flood mitigation measures, the property owner may request an inspection by MCEMP. MCEMP will inspect the construction to assess the progress of the project. If the inspection meets MCEMP requirements, MCEMP will reimburse the owner and/or the contractor based on the progress of the work. At the end of the construction, MCEMP will collect all the documentation verifying that the work was completed, the licensed contractor and suppliers have been paid, and any necessary professional certifications. These required documents may include a Certificate of Completion from Mecklenburg County Code Enforcement and/or an official Elevation Certificate.

There will be a five (5) year monitoring period following the end of the project implementation phase. MCEMP will make an annual inspection of the property every year for five years to assure that the flood mitigation measures are in compliance with the Floodplain Ordinance and/or operational. For example if a structure is elevated using grant funding, MCEMP would do an annual inspection to verify that the area under the finished floor is used only for parking, building access or storage and that this area is wet floodproofed.
Appendix A: Acronyms and Definitions

This policy document uses a number of terms, phrases, and acronyms that may have different meanings to different readers. The following is a list of terms and definitions that may be useful in understanding key concepts of this document.

**Basement**: Any area of the building, having its floor subgrade (below ground level on all sides).

**BOCC**: Mecklenburg Board of County Commissioners

**Building**: Any structure built for support, shelter, or enclosure for any occupancy or storage.

**CMSWS**: Charlotte-Mecklenburg Storm Water Services

**Community Base Flood Elevation**: The elevation shown on the Flood Insurance Rate Map Flood Hazard Data Table, having a 1% chance of being equaled or exceeded, determined using future land use conditions.

**Community Encroachment Area**: The channel of a stream or other watercourse and the adjacent land areas that must be reserved in order to discharge the FEMA Base Flood without cumulatively increasing the water surface elevation more than 0.1 foot.

**Community Floodplain**: This shows where flooding is likely to occur in the future, based on expected development upstream.

**FEMA**: Federal Emergency Management Agency

**FEMA Base Flood**: The flood determined using land use conditions at the time of the study having a 1% chance of being equaled or exceeded in any given year.

**FEMA Base Flood Elevation (BFE)**: The elevation shown on the Flood Insurance Rate Map and Flood Insurance Study Profile that indicates the water surface elevation resulting from a FEMA Base Flood that has a 1% chance of equaling or exceeding that level in any given year.

**Flood or Flooding**: A general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal waters; and/or
2. The unusual and rapid accumulation of run-off of surface waters from any source.

**Flood Insurance Rate Map (FIRM)**: An official map of a community, in both digital and printed format, on which the Federal Emergency Management Agency has delineated the Special
Flood Hazard Area and the risk premium zones applicable to the community. The date of Charlotte’s original FIRM is August 15, 1978 and this date should be used to determine whether a structure is pre-FIRM or post-FIRM.

Flood Mitigation: Action(s) taken to reduce or eliminate long-term risk to life and property from a flood event.

Flood Protection Elevation (FPE): The elevation to which all structures located within the Community Special Flood Hazard Area must be elevated (or floodproofed if non-residential). Within areas where Base Flood Elevations (BFEs) have been determined, this elevation shall be the Community Base Flood Elevation plus one (1) foot of freeboard (except along the Catawba River where it is the FEMA Base Flood Elevation plus two (2) feet of freeboard). In areas where no BFE has been established, all structures and other development must be elevated (or floodproofed if non-residential), to two (2) feet above the highest adjacent grade. For the purposes of this plan, this will be based on the Community Base Flood Elevation plus one (1) foot of freeboard.

Floodplain: Any land area susceptible to being inundated by flood waters from any source.

Floodproofing: Any combination of structural and nonstructural additions, changes, or adjustments to structures, which reduce the risk of flood damage to real estate or improved real property, water and sanitation facilities, or structures with their contents.

Increased Cost of Compliance (ICC): The National Flood Insurance Program (NFIP) includes this coverage for all new and renewed Standard Flood Insurance Policies. Policyholders can get financial assistance from the NFIP to help pay the costs to bring their home or business into compliance with their community’s floodplain ordinance.

MCEMP: Mecklenburg County Engineering & Mitigation Program.

NFIP: National Flood Insurance Program