

Appendix E

Community Rating System

This section of the Plan provides a summary of mitigation measures that were considered by the participating jurisdictions in Wake County to reduce their risk to the flood hazard specifically, thereby achieving the requirements set forth in Section 510 of the Community Rating System (specifically Step 7). These flood mitigation measures are based on suggested activities that have been shown to significantly reduce flood risk and have been analyzed by each of the respective communities that participate in the Wake County Hazard Mitigation Plan. The measures are broken down into one of the following six categories of activities that fall within the sphere of prevention activities:

PREVENTION ACTIVITIES

- ◆ Floodplain Management
- ◆ Comprehensive or Land Use Planning
- ◆ Zoning
- ◆ Subdivision Regulations
- ◆ Stormwater Management
- ◆ Building Codes

E.1 INTRODUCTION

This appendix to the Hazard Mitigation Plan was developed in order to enhance each jurisdiction's overall resilience to the flood hazard by documenting the steps taken, and those that need to be taken to help improve each jurisdiction's regulatory environment through preventative actions. In order to maximize points that can be awarded to reduce flood insurance rates through the Community Rating System, communities must thoroughly evaluate preventative mitigation measures.

These measures are often considered the most exemplary type of mitigation actions that can be implemented because their purpose is to prevent issues related to flooding from occurring at all. For instance, if a community were to prohibit any construction within the floodplain, this would prevent any structures that might have been built in that area from being flooded because they won't be located in a high risk area.

Preventative measures are often associated with planning and regulatory activities such as zoning and building codes. The six main categories of prevention activities are outlined above and each of these types of activities are assessed in greater detail below. For each community that participated in this plan, an evaluation of several measures for each category was carried out to determine the community's willingness to implement preventative measures and outline a plan for reducing flood risk.

Within this evaluation, current standards and regulations are identified along with an explanation of local implementation of the specific standard or regulation. In addition, recommendations for future implementation have been discussed and any changes that were considered but discounted as not feasible have been identified along with an explanation concerning why that determination was made.

E.1.1 Floodplain Management

Floodplain Management is a broad category that generally overlaps many of the other prevention-related categories identified herein. However, while other categories of prevention activities such as zoning often exist for purposes beyond mitigation and risk reduction, floodplain management is the primary activity designed to reduce flood risk. Each of the jurisdictions that participated in the hazard mitigation planning process considered several activities that attempt to reduce flood risk through better management of identified floodplain areas.

As described in **Table E.1**, in some cases, it was determined that local governments were already implementing risk reducing activities and merely needed to formalize their commitment to continue to enact these measures. In general, communities were either already implementing floodplain management activities or were working towards implementing these activities in the near future. However, some activities that were considered for implementation could not be incorporated into the local government’s implementation structure. In cases where activities were considered, but could not be moved forward, the activity has been identified and an explanation of why it would not be feasible has been included.

TABLE E.1: FLOODPLAIN MANAGEMENT ACTIVITIES

Preventative Activities				
Floodplain Management Regulations — There are a number of regulations that a local government can put into place that can be considered under the category of floodplain management regulations. For example, a jurisdiction could adopt a flood damage prevention ordinance, develop a floodplain management plan, or participate in the National Flood Insurance Program. Each of these activities may help reduce the impact of flooding by providing regulatory guidance aimed at the specific areas within the jurisdiction that are most vulnerable to flooding. Floodplain management regulations are an appropriate activity that Wake County and its municipalities can use to reduce future flood losses since each community has some type of floodplain management regulation in place.				
Jurisdiction	Current Standards/Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wake County	UDO, Article 14: Flood Hazard Areas	The Wake County Flood Hazard Management Ordinance includes a number of requirements for submitting a permit prior to any construction in areas designated as a floodplain. For example, base flood elevation must be provided with the permit application and development within the floodway is heavily restricted.	<ul style="list-style-type: none"> • The county should continue to implement its higher freeboard requirements for properties located in the floodplain • The county should continue to prohibit any fill in floodplain areas. • The county should continue to implement its “no-rise” in base flood elevation clause. 	<ul style="list-style-type: none"> • The county has considered a number of options regarding floodplain management regulations as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Apex	UDO, Article 6.2: Flood Damage Prevention Overlay District	The Apex UDO includes an article that establishes a flood damage prevention overlay district in which new development is essentially not allowed.	<ul style="list-style-type: none"> • The town is willing to consider possibly implementing higher freeboard requirements for properties located in the floodplain • The town is willing to consider possibly establishing a provision that prohibits any fill in floodplain areas. 	<ul style="list-style-type: none"> • The town considered adopting a “no-rise” in base flood elevation clause, but it was determined to be not politically or economically feasible.
Cary	LDO, Chapter 7.5: Flood Damage Prevention	The Cary LDO includes provisions that state that, in general, no development is allowed in flood hazard areas or future condition flood hazard areas. The few exceptions to this restriction are related to special uses, greenways, and public utilities.	<ul style="list-style-type: none"> • The town should continue to implement its higher freeboard requirements for properties located in the floodplain • The town should continue to implement its “no-rise” in base flood elevation clause 	<ul style="list-style-type: none"> • The town has considered prohibiting any fill in floodplain areas but it was determined to be not legally feasible
Fuquay-Varina	Flood Response Plan; Flood Damage Prevention Ordinance	Fuquay-Varina’s Flood Damage Prevention Ordinance includes a number of requirements for submitting a permit prior to any construction in areas designated as a floodplain, such as the submission of a map with the floodplain clearly delineated. Fuquay-Varina also has a flood response plan for secondary roads and Town streets that are prone to flood in certain storm events. Involves installing barricades, detours, and monitoring each location to determine when it is safe to maneuver across a street.	<ul style="list-style-type: none"> • The town should continue to maintain its higher freeboard requirements for properties located in the floodplain • The town should continue to implement its “no rise” in base flood elevation clause • The town is willing to consider possibly establishing a provision that prohibits any fill in floodplain areas 	<ul style="list-style-type: none"> • The town has considered a number of options regarding floodplain management regulations as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Garner	UDO, Article 7.2.H: Floodplain Management	Garner’s UDO explains that town regulations specifically prohibit development in the 100 year floodplain and in conservation or protected buffers except in a very limited area specifically identified in the UDO.	<ul style="list-style-type: none"> • The town should continue to maintain its higher freeboard requirements for properties located in the floodplain • The town is willing to consider possibly prohibiting any fill in floodplain areas • The town should continue to implement its “no-rise” in base flood elevation clause 	<ul style="list-style-type: none"> • The town has considered a number of options regarding floodplain management regulations as is evident in previous columns. It is at least considering implementation of all options that were considered.
Holly Springs	Flood Damage Prevention Ordinance	In its code, Holly Springs includes a FDPO which defines standards related to development within the floodplain. These standards require that any new construction have the reference level elevated no lower than the regulatory flood protection elevation and further states that no fill shall be place in the floodplain for the purpose of providing a buildable area. The town also requires a two-foot freeboard for development located in the floodplain.	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning
Knightdale	UDO, Ch. 6.6: Flood Damage Prevention	Knightdale’s UDO includes a FDPO which outlines a number of requirements concerning development in the floodplain. For example, new residential construction or substantial improvement of such structure is required to have a reference level no lower than two feet above the base flood elevation.	<ul style="list-style-type: none"> • The town should continue to maintain its higher freeboard requirements for properties located in the floodplain • The town is willing to consider possibly prohibiting any fill in floodplain areas • The town should continue to implement its “no-rise” in base flood elevation clause 	<ul style="list-style-type: none"> • The town has considered a number of options regarding floodplain management regulations as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Morrisville	Flood Damage Prevention Ordinance	Morrisville’s Flood Damage Prevention Ordinance sets a requirement that any new residential construction shall have the reference level elevated no lower than the regulatory flood protection elevation. The town also requires a two-foot freeboard for development located in the floodplain.	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning
Raleigh	UDO, Article 9.3: Floodprone Areas Regulations	Raleigh’s UDO lays out restrictions on development in the floodway including that structures shall be located outside the floodway area and that any structure that overhangs the floodway is elevated about the depth of the 500 year flood.	<ul style="list-style-type: none"> • The city should continue to maintain implement higher freeboard requirements for properties located in the floodplain • The city should continue to prohibit fill in floodplain areas • The city is willing to consider possibly adopting a “no-rise” in base flood elevation clause 	<ul style="list-style-type: none"> • The city has considered a number of options regarding floodplain management regulations as is evident in previous columns. It is at least considering implementation of all options that were considered.
Rolesville	UDO, Chapter 7.2: Flood Damage Prevention Standards	Rolesville’s UDO includes standards for flood damage prevention such as requirements for documentation during the permitting process. For example, the permit application must include mapping of the floodplain or future conditions floodplain and reference level elevation.	<ul style="list-style-type: none"> • The town should continue to implement its higher freeboard requirements for properties located in the floodplain • The town should continue to prohibit any fill in the floodplain areas • The town should continue to implement its “no-rise” in base flood elevation clause 	<ul style="list-style-type: none"> • The town has considered a number of options regarding floodplain management regulations as is evident in previous columns. It is at least considering implementation of all options that were considered.

Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wake Forest	UDO, Article 12.4: Flood Damage Prevention	In Wake Forest’s UDO, there are standards for new construction or substantial improvements that require the reference level to be elevated no lower than the regulatory flood protection elevation.	<ul style="list-style-type: none"> • The town should continue to implement higher freeboard requirements for properties located in the floodplain • The town should continue to prohibit any fill in floodplain areas • The town should continue to implement its “no-rise” in base flood elevation clause 	<ul style="list-style-type: none"> • The town has considered a number of options regarding floodplain management regulations as is evident in previous columns. It is at least considering implementation of all options that were considered.
Wendell	UDO, Chapter 6.7: Flood Damage Protection Ordinance	Wendell’s Flood Damage Prevention Ordinance states that no development or redevelopment is permitted in the flood hazard or buffer zones with the exception of some uses like greenways, parks, or stabilization efforts. All these activities must minimize impervious coverage.	<ul style="list-style-type: none"> • The town should continue to implement higher freeboard requirements for properties located in the floodplain • The town should continue to prohibit any fill in floodplain areas • The town is willing to consider possibly adopting a “no-rise” in base flood elevation clause 	<ul style="list-style-type: none"> • The town has considered a number of options regarding floodplain management regulations as is evident in previous columns. It is at least considering implementation of all options that were considered.
Zebulon	Flood Damage Prevention Code (Code of Ordinances Ch. 151)	Within Zebulon’s stormwater management regulations, there are some provisions that are related to flood damage prevention.	<ul style="list-style-type: none"> • The town should continue to maintain its higher freeboard requirements for properties located in the floodplain • The town should continue to prohibit any fill in floodplain areas • The town should continue to implement its “no rise” in base flood elevation clause 	<ul style="list-style-type: none"> • The town has considered a number of options regarding floodplain management regulations as is evident in previous columns. It is at least considering implementation of all options that were considered.

E.1.2 Comprehensive or Land Use Planning

Comprehensive or Land Use Planning is one of the most impactful means of reducing flood risk because it can provide an overall plan for the community in terms of where development takes place. As a result,

comprehensive/land use planning can help direct people and property out of known flood prone areas and reduce the threat of future flood losses. Each of the jurisdictions that participated in the Hazard Mitigation Planning process considered several activities that attempt to reduce flood risk through better either a comprehensive or land use plan.

As described in **Table E.2**, in some cases, it was determined that local governments were already implementing risk reducing activities and merely needed to formalize their commitment to continue to enact these measures. In general, communities were either already implementing comprehensive or land use planning activities or were working towards implementing these activities in the near future. However, some activities that were considered for implementation could not be incorporated into the local government’s implementation structure. In cases where activities were considered, but could not be moved forward, the activity has been identified and an explanation of why it would not be feasible has been included.

TABLE E.2: COMPREHENSIVE/LAND USE PLANNING ACTIVITIES

Preventative Activities				
Comprehensive/Land Use Plan — A comprehensive land use plan establishes the overall vision for what a community wants to be and serves as a guide for future governmental decision making. Typically a comprehensive plan contains sections on demographic conditions, land use, transportation elements, and community facilities. Given the broad nature of the plan and its regulatory standing in many communities, the integration of hazard mitigation measures into the comprehensive plan can enhance the likelihood of achieving risk reduction goals, objectives, and actions. For example, the comprehensive plan can help reduce future flood risk by including a policy to prohibit new development within the 100-year floodplain or by including a goal to maximize open space in the floodplain. Comprehensive planning is an appropriate activity that Wake County and its municipalities can use to reduce future flood losses since each community already has a comprehensive plan in place.				
Jurisdiction	Current Standards/Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wake County	Wake County Land Use Plan	The Wake County Land Use Plan includes a section on water shed protection policies which includes policies to limit development in watershed areas. Specific policies include drainageway buffers and impervious surface coverage limits, both of which allow water to take its natural course into the ground, thereby reducing flood risk.	<ul style="list-style-type: none"> • The county is willing to consider possibly increasing the amount of its land area classified as open space. • The county is willing to consider possibly preventing infrastructure expansion in areas exposed to flood hazards. 	<ul style="list-style-type: none"> • The county considered classifying all areas delineated as floodplain as open space but it was determined to be not socially feasible.

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Apex	Peak Plan 2030 Comprehensive Plan, Growth Management Plan	Peak Plan 2030 identifies the use of green building techniques, such as rainwater capture systems in new developments, as an important component of future growth. It also encourages low impact site development and more sustainable landscapes. These techniques have been shown to reduce the risk of flooding and flood losses by managing excess water runoff.	<ul style="list-style-type: none"> • The town is willing to consider possibly increasing the amount of its land area that is classified as open space. • The town should continue to prevent infrastructure expansion in areas exposed to flood hazard 	<ul style="list-style-type: none"> • The town considered classifying all areas delineated as floodplain as open space but it was determined to be not politically or economically feasible.
Cary	Comprehensive Plan, Land Use Plan, Growth Management Plan	The Cary Comprehensive Plan recognizes the importance of floodplain management and explains how the town places severe restrictions on development within the 100 year floodplain which helps to reduce the number of people and property that would otherwise be directly exposed to flooding.	<ul style="list-style-type: none"> • The town is willing to consider possibly increasing the amount of its land area that is classified as open space. • The town should continue to classify all areas delineated as floodplain as open space 	<ul style="list-style-type: none"> • The town considered preventing infrastructure expansion in areas exposed to flood hazards but it was determined to be not administratively feasible
Fuquay-Varina	Comprehensive Growth Management Plan; Land Use Plan	Fuquay-Varina’s land use plan includes provisions for areas of parks and open space as well as for significant natural resources and greenways. These area types help reduce flood losses and flood risk by reducing impermeable surface areas and allowing water to naturally flow into the groundwater supply.	<ul style="list-style-type: none"> • The town has increased the amount of its land area classified as open space and should continue to work to increase this amount. • The town has classified many floodplain areas as open space and should continue to work to do so • The town is willing to consider possibly establishing a provision that prevents infrastructure expansion in areas expose to flood hazards. 	<ul style="list-style-type: none"> • The town considered classifying all floodplain areas as open space and although many floodplain areas are designated as such, it was not socially feasible to designate all floodplains as open space.

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Garner	Comprehensive Growth Plan	Garner’s Comprehensive Plan includes the identification of undeveloped lands to be used as parkland or open space preservation. This can reduce the risk of flood by reducing the amount of impermeable surface area in the town and allowing the natural flow of water.	<ul style="list-style-type: none"> • The town is willing to consider possibly increasing the amount of its land area classified as open space. • The town is willing to consider possibly classifying all areas delineated as floodplain as open space • The town is willing to consider possibly preventing infrastructure expansion in areas exposed to flood hazards. 	<ul style="list-style-type: none"> • The town has considered a number of options regarding comprehensive planning as is evident in previous columns. It is at least considering implementation of all options that were considered.
Holly Springs	Vision Holly Springs Comprehensive Plan	Holly Springs identifies a number of areas in the jurisdiction that will be preserved as conservation areas. These areas can dramatically reduce the amount of flood losses a community experiences by allowing the ground to absorb water and reintegrate it into natural storage areas.	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning
Knightdale	2027 Comprehensive Plan	The town’s comprehensive plan discusses a number of areas within the jurisdiction that have been preserved as parks or greenway systems. These areas help to increase the permeable surface area within the town and allow flood waters to take their natural course, thereby reducing flood losses.	<ul style="list-style-type: none"> • The town has increased the amount of its land area classified as open space and should continue to work to increase this amount. 	<ul style="list-style-type: none"> • The town considered delineating all areas delineated as floodplain as open space but it was determined to not be administratively or legally feasible • The town considered preventing infrastructure expansion in areas exposed to flood hazards but it was determined to not be socially, politically, or economically feasible

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Morrisville	Land Use Plan	The land use plan includes an analysis of current development conditions and identifies areas of future growth. This can help preserve areas of open space and promote recreation zones. In general, the plan promotes policies oriented towards reducing impermeable surface and increasing parks and green areas with residential development, all of which aid the natural flow and recharge of water, thereby reducing risk.	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning
Raleigh	2030 Comprehensive Plan	Raleigh’s Comprehensive plan outlines a number of policies that have the effect of reducing flood risk and losses including the preservation of natural watercourses, low impact development to mitigate the impact of stormwater runoff, as well as rain gardens, cisterns, and rain barrels. The plan also focuses on watershed level planning and protecting open space. These strategies can have a significant impact on water retention and management, which reduces risk.	<ul style="list-style-type: none"> • The city is willing to consider possibly increasing the amount of its land area classified as open space • The city is willing to consider possibly preventing infrastructure expansion in areas exposed to flood hazards 	<ul style="list-style-type: none"> • The city considered classifying all areas delineated as floodplain as open space, but it was determined to not be administratively, legally, or politically feasible

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Rolesville	Rolesville Community Plan (2007)	Rolesville’s Community plan addresses the link between open space preservation and citizen health/safety as it seeks to require the creation of greenways along designated stream corridors as a condition of development within the town. This would help reduce risk by limiting development in the highest flood prone areas.	<ul style="list-style-type: none"> • The town is willing to consider possibly increasing the amount of its land area classified as open space • The town is willing to consider classifying all areas delineated as floodplain as open space • The town is willing to consider possibly preventing infrastructure expansion in areas exposed to flood hazards 	<ul style="list-style-type: none"> • The town has considered a number of options regarding its comprehensive plan as is evident in previous columns. It is at least considering implementation of all options that were considered.
Wake Forest	Wake Forest Community Plan	The town’s Community Plan emphasizes the importance of planning for water quality and including low impact development in the town’s future. Among other strategies, the plan highlights on-site stormwater retention, natural runoff and drainage systems, and riparian buffers to reduce the impact of development and create a safer community.	<ul style="list-style-type: none"> • The town is willing to consider possibly increasing the amount of its land area classified as open space • The town should continue to classify all areas delineated as floodplain as open space • The town is willing to consider possibly preventing infrastructure expansion in areas exposed to flood hazards 	<ul style="list-style-type: none"> • The town has considered a number of options regarding its comprehensive plan as is evident in previous columns. It is at least considering implementation of all options that were considered.
Wendell	Comprehensive Plan (2007)	The town’s Comprehensive Plan includes a designation for preserved open space that is intended to protect wetlands and water bodies, including the Neuse River which is regulated by a minimum 50 feet of vegetative buffer on either side. This can help reduce people and property that are directly exposed to flooding.	<ul style="list-style-type: none"> • The town is willing to consider possibly increasing the amount of its land area classified as open space • The town is willing to consider possibly classifying all areas delineated as floodplain as open space 	<ul style="list-style-type: none"> • The town considered preventing infrastructure expansion in areas exposed to flood hazards but it was determined to be not economically feasible

Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Zebulon	2010 Comprehensive Development Plan	Zebulon includes goals in its Comprehensive Plan that emphasize the importance of protecting wetlands, stream corridors, and floodplains and goes on to explain that future development should be carried out in a sustainable manner. This can help by allowing the natural flow of water back into the system.	<ul style="list-style-type: none"> • The town is willing to consider possibly increasing the amount of its land area classified as open space • The town is willing to consider possibly classifying all areas delineated as floodplain as open space • The town should continue to prevent infrastructure expansion in areas exposed to flood hazards 	<ul style="list-style-type: none"> • The town has considered a number of options regarding its comprehensive plan as is evident in previous columns. It is at least considering implementation of all options that were considered.

E.1.3 Zoning

Zoning is often considered an arm of land use planning and is generally designed to regulate certain functions or characteristics of development that are allowed in an area of the jurisdiction. Much like land use planning, zoning can help direct development outside of high risk areas and also regulate the density of development that is allowed in those areas. Each of the jurisdictions that participated in the Hazard Mitigation Planning process considered several activities that attempt to reduce flood risk through some form of zoning.

As described in **Table E.3**, in some cases, it was determined that local governments were already implementing risk reducing activities and merely needed to formalize their commitment to continue to enact these measures. In general, communities were either already implementing zoning activities or were working towards implementing these activities in the near future. However, some activities that were considered for implementation could not be incorporated into the local government’s implementation structure. In cases where activities were considered, but could not be moved forward, the activity has been identified and an explanation of why it would not be feasible has been included.

TABLE E.3: ZONING ACTIVITIES

Preventative Activities				
Zoning — Zoning represents the primary means by which land use is controlled by local governments. As part of a community’s police power, zoning is used to protect the public health, safety, and welfare of those in a given jurisdiction that maintains zoning authority. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable municipal governments to limit the type and density of development, a zoning ordinance can serve as a powerful tool when applied in identified hazard areas. For example, the comprehensive plan can help reduce future flood risk by prohibit or limit future construction in the 100-year floodplain or by limiting the density of development in the floodplain. Zoning is an appropriate activity that Wake County and its municipalities can use to reduce future flood losses since each community has some degree of zoning in place.				
Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wake County	UDO, Article 3: Zoning Districts. Zoning regulations are not applicable to the jurisdictions of the incorporated municipalities.	The Wake County Land Use Plan includes a section on water shed protection policies which includes policies to limit development in watershed areas. Specific policies include drainageway buffers and impervious surface coverage limits, both of which allow water to take its natural course into the ground, thereby reducing flood risk.	<ul style="list-style-type: none"> • The county should continue to prohibit or limit future construction in the floodplain • The county should continue to limit the density of development in the floodplain 	<ul style="list-style-type: none"> • The county considered requiring a higher ration than is currently in place of permeable to impermeable surface area in new commercial construction, but it was determined to not be politically feasible
Apex	UDO, Article 3: Zoning Districts.	Article 3 of the Apex UDO specifically identifies a flood damage prevention overlay district that is intended to minimize public and private losses due to flood conditions.	<ul style="list-style-type: none"> • The town is willing to consider possibly requiring a higher ratio of permeable to impermeable surface area in new commercial construction than is currently in place • The town should continue to prohibit future construction in the floodplain • The town should continue to limit the density of development in the floodplain 	<ul style="list-style-type: none"> • The town has considered a number of options regarding zoning as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Cary	Zoning Ordinance	The Cary Zoning Ordinance regulates the type of development that can take place in certain areas of the jurisdiction. Zoning for resources/recreation is in place and can be used for open space preservation which can reduce the amount of impermeable surface area in the jurisdiction.	<ul style="list-style-type: none"> • The town should continue to prohibit or limit construction in the floodplain • The town should continue to limit the density of development in the floodplain 	<ul style="list-style-type: none"> • The town has considered requiring a higher ration of permeable to impermeable surface area in new commercial construction than is currently in place, but it was determined to not be feasible
Fuquay-Varina	Zoning Ordinance	Fuquay-Varina’s zoning ordinance includes various zoning districts regulating different uses of property.	<ul style="list-style-type: none"> • The town is willing to consider possibly establishing a provision that requires a higher ratio of permeable to impermeable surface area in new commercial construction than is currently in place • The town should continue to limit future construction in the floodplain. • The town is willing to consider possibly establishing a provision that limits the density of development in the floodplain. 	<ul style="list-style-type: none"> • The town has considered a number of options regarding zoning as is evident in previous columns. It is at least considering implementation of all options that were considered.
Garner	UDO, Article 4: Zoning Districts	Garner’s UDO includes provisions for zoning which includes overlay districts such as a conservation buffer area and Lake Benson conservation area. These can reduce the risk of flood by reducing the amount of impermeable surface area in the town and allowing the natural flow of water.	<ul style="list-style-type: none"> • The town should continue to prohibit or limit future construction in the floodplain • The town is willing to consider possibly limiting the density of development in the floodplain 	<ul style="list-style-type: none"> • The town considered requiring a higher ratio of permeable to impermeable surface area in new commercial construction than is currently in place but it was determined to be not politically or economically feasible
Holly Springs	UDO	Holly Springs has a unified development ordinance that includes zoning and districts reserved for residential and commercial.	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning

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Knightdale	UDO	Knightdale’s UDO includes provisions for zoning which includes districts such as an open space preservation. This can reduce the risk of flood by reducing the amount of impermeable surface area in the town and allowing the natural flow of water.	<ul style="list-style-type: none"> The town should continue to prohibit or limit future construction in the floodplain 	<ul style="list-style-type: none"> The town considered requiring a higher ratio of permeable to impermeable surface area in new commercial construction than is currently in place but it was determined to be not politically or economically feasible The town considered limiting the density of development in the floodplain, but it was determined to not be politically feasible
Morrisville	Zoning Ordinance	Morrisville’s zoning ordinance includes conservation buffer districts that preserve open space and can reduce the risk of flood by reducing the amount of impermeable surface area in the town and allowing the natural flow of water.	<ul style="list-style-type: none"> The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning
Raleigh	UDO, Article 1.3: Zoning Districts	Raleigh’s zoning ordinance includes conservation management areas as well as a watershed protection overlay that preserves open space and can reduce the risk of flood by reducing the amount of impermeable surface area in the town and allowing the natural flow of water.	<ul style="list-style-type: none"> The city is willing to consider possibly requiring a higher ratio of permeable to impermeable surface area in new commercial construction than is currently in place The city is willing to consider possibly prohibiting or limiting future construction in the floodplain The city is willing to consider possibly limiting the density of development in the floodplain 	<ul style="list-style-type: none"> The city has considered a number of options regarding zoning as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Rolesville	UDO, Article 4: Zoning Districts	Rolesville’s zoning ordinance includes various zoning districts regulating different uses of property.	<ul style="list-style-type: none"> • The town should continue to require a higher ratio of permeable to impermeable surface area in new commercial construction • The town should continue to limit future construction in the floodplain • The town should continue to limit the density of development in the floodplain 	<ul style="list-style-type: none"> • The town has considered a number of options regarding zoning as is evident in previous columns. It is at least considering implementation of all options that were considered.
Wake Forest	UDO, Article 2: District Provisions	Wake Forest’s zoning ordinance includes several watershed protection overlays that preserve open space and can reduce the risk of flood by reducing the amount of impermeable surface area in the town and allowing the natural flow of water.	<ul style="list-style-type: none"> • The town is willing to consider possibly requiring a higher ratio than is currently in place of permeable to impermeable surface area in new commercial construction. • The town should continue to limit future construction in the floodplain • The town should continue to limit the density of development in the floodplain 	<ul style="list-style-type: none"> • The town has considered a number of options regarding zoning as is evident in previous columns. It is at least considering implementation of all options that were considered.
Wendell	UDO, Chapter 2: District Provisions	The town’s zoning includes a designation for open space conservation and neighborhood conservation districts. This can help reduce people and property that are directly exposed to flooding.	<ul style="list-style-type: none"> • The town is willing to consider possibly requiring a higher ratio than is currently in place of permeable to impermeable surface area in new commercial construction. • The town should continue to limit future construction in the floodplain • The town should continue to limit the density of development in the floodplain 	<ul style="list-style-type: none"> • The town has considered a number of options regarding zoning as is evident in previous columns. It is at least considering implementation of all options that were considered.

Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Zebulon	Zoning Code (Code of Ordinances Ch. 154)	Zebulon has a zoning code that includes districts dedicated to open space conservation. These can help by allowing the natural flow of water back into the system.	<ul style="list-style-type: none"> The town is willing to consider possibly requiring a higher ratio than is currently in place of permeable to impermeable surface area in new commercial construction. The town should continue to limit future construction in the floodplain The town should continue to limit the density of development in the floodplain 	<ul style="list-style-type: none"> The town has considered a number of options regarding zoning as is evident in previous columns. It is at least considering implementation of all options that were considered.

E.1.4 Subdivision Regulations

Subdivision ordinances are typically enacted on a much smaller scale than any of the previously discussed types of prevention activities. Often, subdivision regulations address specific neighborhoods and the types of activities that might be carried out there. Many subdivision ordinances govern standards that must be put in to place when a new development is being designed, but subdivision ordinances also often provide incentives for the inclusion of best practices in flood management into development. Each of the jurisdictions that participated in the Hazard Mitigation Planning process considered several activities that attempt to reduce flood risk through subdivision ordinances.

As described in **Table E.4**, in some cases, it was determined that local governments were already implementing risk reducing activities and merely needed to formalize their commitment to continue to enact these measures. In general, communities were either already implementing subdivision ordinance activities or were working towards implementing these activities in the near future. However, some activities that were considered for implementation could not be incorporated into the local government’s implementation structure. In cases where activities were considered, but could not be moved forward, the activity has been identified and an explanation of why it would not be feasible has been included.

TABLE E.4: SUBDIVISION ORDINANCE ACTIVITIES

Preventative Activities				
<p>Subdivision Ordinance— A subdivision ordinance is intended to regulate the development of residential, commercial, industrial, or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Subdivision design that accounts for natural hazards can dramatically reduce the exposure of future development. For example, a subdivision ordinance can help reduce future flood risk by including risk reducing actions on a lot level such as tree planting requirements or encouraging the use of rain barrels. These ordinances are an appropriate activity that Wake County and its municipalities can use to reduce future flood losses since each community already has a form of subdivision ordinance in place.</p>				
Jurisdiction	Current Standards/Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wake County	UDO, Article 8: Subdivision Design and Improvements	The Wake County Subdivision Ordinance includes requirements that new subdivisions provide adequate drainage systems and stormwater management devices, as well as erosion and sedimentation control devices. These devices recognize the importance of controlling the flow of water and reducing the impacts of flooding.	<ul style="list-style-type: none"> • The county is willing to consider possibly incentivizing the use of rain barrels or rain gardens • The county is willing to consider possibly requiring more trees be preserved and planted in landscape designs to reduce stormwater runoff • The county is willing to consider possibly requiring a drainage study with new development 	<ul style="list-style-type: none"> • The county has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.
Apex	UDO, Article 7: Subdivision	The Apex Subdivision Ordinance includes a requirement that any time land is sub-divided for residential purposes, there must also be a dedication of a portion of that land to providing a park or recreation space or a fee in lieu of such space. This can help reduce the amount of impermeable surface area in the jurisdiction and thus reduce flood risk.	<ul style="list-style-type: none"> • The town should continue to implement its incentive program for the use of rain barrels and/or rain gardens • The town should continue to require more trees be preserved and planted in landscape designs to reduce stormwater runoff • The town should continue to require a drainage study with new development. 	<ul style="list-style-type: none"> • The town has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Cary	LDO, Chapter 8: Standards for Subdivisions and Uses	The Cary Subdivision Ordinance includes a requirement that any time land is sub-divided for residential purposes, there must also be a dedication of a portion of that land to providing a park or recreation space or a fee in lieu of such space. This can help reduce the amount of impermeable surface area in the jurisdiction and thus reduce flood risk.	<ul style="list-style-type: none"> • The town is willing to consider possibly incentivizing the use of rain barrels or rain gardens • The town is willing to consider possibly requiring more trees be preserved and planted in landscape designs to reduce sotrmwater runoff • The town should continue to require a drainage study with new development 	<ul style="list-style-type: none"> • The town has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.
Fuquay-Varina	Subdivision Regulations	The Fuquay-Varina Subdivision Ordinance includes a requirement that any time land is sub-divided for residential purposes, there must also be a dedication of a portion of that land to providing a park or recreation space or a fee in lieu of such space. This can help reduce the amount of impermeable surface area in the jurisdiction and thus reduce flood risk.	<ul style="list-style-type: none"> • The town is willing to consider possibly establishing a provision that incentivizes the use of rain barrels and/or rain gardens • The town is willing to require more trees be preserved and planted in landscape designs to reduce stormwater runoff • The town is willing to consider possibly establishing a provision that requires a drainage study with new development 	<ul style="list-style-type: none"> • The town has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.
Garner	UDO, Article 8: Subdivision Design/Improvements	The Garner Subdivision Ordinance includes a requirement that any time land is sub-divided for residential purposes, there must also be a dedication of a portion of that land to providing a park or recreation space or a fee in lieu of such space. This can help reduce the amount of impermeable surface area in the jurisdiction and thus reduce flood risk.	<ul style="list-style-type: none"> • The town is willing to consider possibly incentivizing the use of rain barrels or rain gardens • The town is willing to consider requiring more trees be preserved and planted in landscape designs to reduce stormwater runoff • The town is willing to consider possibly requiring a drainage study with new development 	<ul style="list-style-type: none"> • The town has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Holly Springs	UDO	The Holly Springs Unified Development Ordinance contains requirements related to subdivision development such as landscape regulations and open space preservation provisions for new development. These can help to reduce flood risk by preserving permeable surface area in the jurisdiction and controlling water flow.	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning
Knightdale	UDO	The Knightdale Unified Development Ordinance contains requirements related to subdivision development such as landscape regulations and open space preservation provisions for new development. These can help to reduce flood risk by preserving permeable surface area in the jurisdiction and controlling water flow.	<ul style="list-style-type: none"> • The town should continue to incentivize the use of rain barrels and rain gardens • The town should continue to require more trees be preserved and planted in landscape designs to reduce stormwater runoff • The town is willing to consider possibly requiring a drainage study with new development 	<ul style="list-style-type: none"> • The town has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.
Morrisville	Subdivision Ordinance	The Morrisville Subdivision Ordinance includes a requirement that any time land is sub-divided for residential purposes, there must also be a dedication of a portion of that land to providing a park or recreation space or a fee in lieu of such space. This can help reduce the amount of impermeable surface area in the jurisdiction and thus reduce flood risk.	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Raleigh	UDO, Article 8: Subdivision and Site Plan Standards	The Raleigh Subdivision Ordinance includes a number of requirements related to stormwater management and generally works to prevent impeding the flow of natural waterways. This can help reduce the amount of impermeable surface area in the jurisdiction and thus reduce flood risk.	<ul style="list-style-type: none"> • The city is willing to consider possibly incentivizing the use of rain barrels or rain gardens • The city is willing to consider possibly requiring more trees be preserved and planted in landscape designs to reduce stormwater runoff • The city should continue to require a drainage study with new development 	<ul style="list-style-type: none"> • The city has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.
Rolesville	UDO, Chapter 15: Subdivision Standards	The Rolesville Subdivision Ordinance includes a requirement that any time land is sub-divided for residential purposes, there must also be a dedication of a portion of that land to providing a park or recreation space or a fee in lieu of such space. This can help reduce the amount of impermeable surface area in the jurisdiction and thus reduce flood risk.	<ul style="list-style-type: none"> • The town is willing to consider possibly incentivizing the use of rain barrels or rain gardens • The town is willing to require more trees be preserved and planted in landscape designs to reduce stormwater runoff • The town should continue to require a drainage study with new development 	<ul style="list-style-type: none"> • The town has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.
Wake Forest	UDO, Article 6: Subdivision and Infrastructure Standards	The Wake Forest Subdivision Ordinance includes a number of provisions related to stormwater management and flood prevention. For example, it is required that the 100 year floodplain be shown on all plats. This can help demonstrate areas of flood risk thus potentially reduce the number of structures in the floodplain.	<ul style="list-style-type: none"> • The town is willing to consider possibly incentivizing the use of rain barrels or rain gardens • The town should continue to require more trees be preserved and planted in landscape designs to reduce stormwater runoff • The town is willing to require a drainage study with new development 	<ul style="list-style-type: none"> • The town has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.

Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wendell	UDO, Chapter 16: Development Plan Requirements	The Wendell Subdivision Ordinance includes a number of provisions related to flood prevention including flood and stormwater permit requirements . These can help demonstrate areas of flood risk thus potentially reduce the number of structures in the floodplain.	<ul style="list-style-type: none"> • The town is willing to consider possibly incentivizing the use of rain barrels or rain gardens • The town is willing to consider possibly requiring more trees be preserved and planted in landscape designs to reduce stormwater runoff 	<ul style="list-style-type: none"> • The town considered requiring a drainage study with new development but it was determined to be not politically feasible
Zebulon	Subdivision Regulations (Code of Ordinances Ch. 155)	The Zebulon Code of Ordinances contains requirements related to subdivision development and stormwater management. These can help to reduce flood risk by controlling water flow.	<ul style="list-style-type: none"> • The town is willing to consider possibly incentivizing the use of rain barrels or rain gardens • The town is willing to consider possibly requiring more trees be preserved and planted in landscape designs to reduce stormwater runoff • The town is willing to consider possibly requiring a drainage study with new development 	<ul style="list-style-type: none"> • The town has considered a number of options regarding subdivision ordinances as is evident in previous columns. It is at least considering implementation of all options that were considered.

E.1.5 Stormwater Management

Somewhat distinct from many of the other categories of prevention activities, stormwater management encompasses activities that deal with water runoff during storm events that is managed and directed by the local government entity. Stormwater management issues have become an especially prominent discussion point in the arena of flood risk reduction for local governments because of this responsibility. Each of the jurisdictions that participated in the Hazard Mitigation Planning process considered several activities that attempt to reduce flood risk through stormwater management.

As described in **Table E.5**, in some cases, it was determined that local governments were already implementing risk reducing activities and merely needed to formalize their commitment to continue to enact these measures. In general, communities were either already implementing stormwater management activities or were working towards implementing these activities in the near future. However, some activities that were considered for implementation could not be incorporated into the local government’s implementation structure. In cases where activities were considered, but could not be moved forward, the activity has been identified and an explanation of why it would not be feasible has been included.

TABLE E.5: STORMWATER MANAGEMENT ACTIVITIES

Preventative Activities				
Stormwater Management — A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding. For example, stormwater management regulations or plans can help reduce future flood risk by requiring restrictions on development in upland areas to reduce stormwater run-off or adopting Phase II stormwater regulations. Stormwater management plans are an appropriate activity that Wake County and its municipalities can use to reduce future flood losses since each community is working to develop or already has a form of stormwater management in place.				
Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wake County	UDO, Article 9: Stormwater Management	The Wake County Stormwater Management ordinance includes an incentive system that allows developers to earn credits by implementing better site designs and locating development in a manner that reduces the impact on aquatic resources. One of the main tenets of the ordinance is to reduce impervious surfaces in the jurisdiction.	<ul style="list-style-type: none"> The county should continue to update and maintain its current stormwater regulations since it has the technical and financial capability to do so 	<ul style="list-style-type: none"> The county considered setting compensatory water storage requirements for new construction but it was determined to be not politically feasible The county considered regulating development in upland areas in order to reduce stormwater runoff but it was determined to be no politically feasible The county considered linking flood hazard mitigation objectives with EPA Stormwater Phase II initiatives but it was determined to be not politically feasible
Apex	EPA Phase II Stormwater Regulations are overseen by the Public Works and Utilities Department; UDO, Article 6.1: Watershed Protection Overlay Districts (furthers the goals NPDES)	Under the Apex Stormwater Management Ordinance, the Town is required to obtain a Phase II National Pollutant Discharge Elimination System (NPDES) permit for stormwater management for its municipal separate storm sewer system and to adopt, among other things, requirements and procedures to control the adverse effects of increased post development stormwater runoff and nonpoint and point source pollution associated with new development and redevelopment	<ul style="list-style-type: none"> The town is willing to consider possibly setting compensatory storage requirements for new construction The town should continue to regulate development in upland areas in order to reduce stormwater runoff The town should continue to link flood hazard mitigation objectives with EPA Stormwater Phase II initiatives 	<ul style="list-style-type: none"> The town considered a number of options regarding stormwater management as is evident in previous columns. It is at least considering implementation of all options that were considered.

Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Cary	Stormwater Master Plan; LDO, Chapter 4.4.6: Watershed Protection Overlay, Chapter 7.3: Stormwater Management	The Town of Cary has developed a stormwater management plan that will look at opportunities to improve stormwater management in the water quality and water quantity areas as well as funding opportunities to assist with stormwater and flooding improvements.	<ul style="list-style-type: none"> • The town should continue to implement its compensatory water storage requirements for new construction • The town should continue to regulate development in upland areas in order to reduce stormwater runoff • The town should continue to link flood hazard mitigation objectives with EPA Stormwater Phase II initiatives 	<ul style="list-style-type: none"> • The town has considered a number of options regarding stormwater management as is evident in previous columns. It is at least considering implementation of all options that were considered.
Fuquay-Varina	Stormwater Management Ordinance	The Fuquay-Varina Stormwater Management Ordinance encourages the use of better management and site design practices, such as the use of vegetated conveyances for stormwater and the preservation of greenspace. It also requires that new development maintain the pre-development hydrologic response in its post development state.	<ul style="list-style-type: none"> • The town should continue to update and maintain its current stormwater regulations since it has the technical and financial capability to do so 	<ul style="list-style-type: none"> • The town considered setting compensatory water storage requirements for new construction, but it was considered not politically feasible or economically feasible. • The town considered regulating development in upland areas in order to reduce stormwater runoff and although many situations that has happened, it was not economically feasible in all cases. • The town considered linking flood hazard mitigation objectives with EPA Stormwater Phase II initiatives, but it was determined to be not politically feasible.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Garner	UDO, Article 7.2: Stormwater Management	Among other elements, the Garner Subdivision Ordinance includes requirements that all developments shall have a drainage system adequate to prevent the undue retention of surface water on the development site and no development may be constructed or maintained so that surface waters from such development are unreasonably collected or diverted onto lower properties	<ul style="list-style-type: none"> • The town is willing to consider possibly linking flood hazard mitigation objectives with EPA Stormwater Phase II initiatives 	<ul style="list-style-type: none"> • The town considered setting compensatory water storage requirements for new construction but it was determined to not be politically or economically feasible • The town considered regulating development in upland areas in order to reduce stormwater runoff but it was determined to not be politically or economically feasible
Holly Springs	NPDES Phase II Post-Construction Stormwater Ordinance	The Holly Springs Stormwater Ordinance explains that the town may choose to implement one or more comprehensive watershed plans with the intent to meet the minimum NPDES Phase II requirements for post-construction discharges and other local, state or federal regulations	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning
Knightdale	UDO, Ch. 6.4: Post Construction Stormwater Management	The Knightdale Unified Development Ordinance requires that new development and redevelopment maintain pre-development hydrologic response in their post-development state as nearly as practicable for the applicable design storm in order to reduce flooding, stream bank erosion, and non-point source pollution.	<ul style="list-style-type: none"> • The town should continue to implement its compensatory water storage requirements for new construction • The town should continue to regulate development in upland areas in order to reduce stormwater runoff • The town should continue to link flood hazard mitigation objectives with EPA Stormwater Phase II initiatives 	<ul style="list-style-type: none"> • The town has considered a number of options regarding stormwater management as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Morrisville	Stormwater Management Ordinance	The Morrisville Stormwater Ordinance requires that Stormwater systems shall be designed to control and treat the runoff volume generated from all surfaces by one-inch of rainfall and stormwater systems shall be designed to control and treat the runoff volume generated from all surfaces by an additional one half inch of rainfall.	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> • The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning
Raleigh	UDO, Article 9.2: Stormwater Management	The City of Raleigh's Stormwater Ordinance contains a number of provisions aimed at controlling stormwater including that no development, expansion of existing development or the placement of more than 12,000 square feet of any impervious surface may occur on a site without a stormwater control permit from the Office of Development Services.	<ul style="list-style-type: none"> • The city should continue to set compensatory water storage requirements for new construction • The city should continue to regulate development in upland areas in order to reduce stormwater runoff • The city is willing to consider possibly linking flood hazard mitigation objectives with EPA Stormwater Phase II initiatives 	<ul style="list-style-type: none"> • The city has considered a number of options regarding stormwater management as is evident in previous columns. It is at least considering implementation of all options that were considered.
Rolesville	UDO, Article 7.5: Stormwater Management Standards	The Rolesville Stormwater Ordinance requires that all Development and Redevelopment shall be located outside the Riparian Buffer Zone and the Flood Protection Zone in accordance with a number of provisions.	<ul style="list-style-type: none"> • The town should continue to set compensatory storage requirements for new construction • The town should continue to regulate development in upland areas in order to reduce stormwater runoff • The town should continue to link flood hazard mitigation objectives with EPA Stormwater Phase II initiatives 	<ul style="list-style-type: none"> • The town has considered a number of options regarding stormwater management as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wake Forest	UDO, Article 12.5: Stormwater Management	The Wake Forest Stormwater Ordinance states that new development shall not exceed 70% impervious surface on a project-by project basis and that stormwater control measures shall be installed that control and treat the difference in stormwater runoff volume leaving the project site between the pre- and post-development conditions.	<ul style="list-style-type: none"> • The town should continue to set compensatory storage requirements for new construction • The town should continue to regulate development in upland areas in order to reduce stormwater runoff • The town should continue to link flood hazard mitigation objectives with EPA Stormwater Phase II initiatives 	<ul style="list-style-type: none"> • The town has considered a number of options regarding stormwater management as is evident in previous columns. It is at least considering implementation of all options that were considered.
Wendell	UDO, Chapter 6.5: Post-Construction Stormwater Ordinance	The Wendell Stormwater Ordinance explains that a stormwater permit is required for all development and redevelopment unless exempt pursuant to this ordinance. This permit shall govern the design, installation, and construction of stormwater management and control practices on the site.	<ul style="list-style-type: none"> • The town is willing to consider possibly setting compensatory water storage requirements for new construction • The town is willing to consider regulating development in upland areas in order to reduce stormwater runoff • The town is willing to consider linking flood hazard mitigation objectives with EPA Stormwater Phase II initiatives 	<ul style="list-style-type: none"> • The town has considered a number of options regarding stormwater management as is evident in previous columns. It is at least considering implementation of all options that were considered.
Zebulon	Stormwater Ordinance (Code of Ordinances Ch. 151)	The Zebulon Stormwater Ordinance explains that a stormwater permit is required for all development and redevelopment unless exempt pursuant to this ordinance. This permit shall govern the design, installation, and construction of stormwater management and control practices on the site.	<ul style="list-style-type: none"> • The town is willing to consider possibly setting compensatory water storage requirements for new construction • The town is willing to consider regulating development in upland areas in order to reduce stormwater runoff • The town is willing to consider linking flood hazard mitigation objectives with EPA Stormwater Phase II initiatives 	<ul style="list-style-type: none"> • The town has considered a number of options regarding stormwater management as is evident in previous columns. It is at least considering implementation of all options that were considered.

E.1.6 Building Codes

Building Codes are can help in the reduction of risk to flooding events in a number of ways. For instance, stronger building codes can help to ensure that structures are built to a standard which will allow them to resist the hydrostatic and hydrodynamic forces of flood waters. Building codes are often implemented at the local level, but in many cases, states set the actual provisions of the building code through minimum standards that communities must adopt. Each of the jurisdictions that participated in the Hazard Mitigation Planning process considered several activities that attempt to reduce flood risk through better management of identified floodplain areas.

As described in **Table E.6**, in some cases, it was determined that local governments were already implementing risk reducing activities and merely needed to formalize their commitment to continue to enact these measures. In general, communities were either already implementing building code activities or were working towards implementing these activities in the near future. However, some activities that were considered for implementation could not be incorporated into the local government's implementation structure. In cases where activities were considered, but could not be moved forward, the activity has been identified and an explanation of why it would not be feasible has been included.

TABLE E.6: BUILDING CODE ACTIVITIES

Preventative Activities				
Building Code —Building codes regulate construction standards. In many communities, permits and inspections are required for new construction. Decisions regarding the adoption of building codes (that account for hazard risk), the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community. An example of how building codes can reduce flood risk is by implementing a code that requires that new buildings constructed in the floodplain are built with materials that are resistant to the anticipated velocity of floodwaters.				
Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wake County	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. • The county should continue to enforce higher building codes such as the International Building Code or International Residential Code • The county should continue to implement ASCE 24-05 which specifies minimum requirement and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage 	<ul style="list-style-type: none"> • The county considered a number of options regarding building codes as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Apex	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. • The town is willing to consider possibly adopting ASCE 24-05 which specifies minimum requirement and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage. 	<ul style="list-style-type: none"> • The town considered adopting higher building code standards such as the International Building Code or International Residential Code, but it was determined to be not politically feasible.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Cary	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction • The town is willing to consider possibly adopting higher building code standards such as the International Building Code or International Residential Code • The town is willing to consider possibly adopting ASCE 24-05 which specifies minimum requirement and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage. 	<ul style="list-style-type: none"> • The town considered a number of options regarding building codes as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Fuquay-Varina	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. • The town is willing to consider possibly adopting higher building code standards such as the International Building Code or International Residential Code • The town is willing to adopt ASCE 24-05 which specifies minimum requirement and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage. 	<ul style="list-style-type: none"> •
Garner	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. • The town should continue to enforce higher building codes such as the International Building Code or International Residential Code 	<ul style="list-style-type: none"> • The town considered implementing ASCE 24-05 which specifies minimum requirements and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage but it was determined to not be administratively feasible

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Holly Springs	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning
Knightdale	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. The town should continue to enforce higher building codes such as the International Building Code or International Residential Code 	<ul style="list-style-type: none"> The town considered implementing ASCE 24-05 which specifies minimum requirements and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage but it was determined to not be administratively feasible
Morrisville	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning 	<ul style="list-style-type: none"> The town determined that it will not be pursuing points for CRS credit from Activity 510: Floodplain Management Planning

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Raleigh	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. • The city should continue to enforce higher building codes such as the International Building Code or International Residential Code • The city is willing to consider possibly implementing ASCE 24-05 which specifies minimum requirement and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage 	<ul style="list-style-type: none"> • The city considered a number of options regarding building codes as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Rolesville	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. • The town should continue to implement building codes standards such as the International Building Code and/or International Residential Code • The town should continue to implement ASCE 24-05 which specifies minimum requirement and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage. 	<ul style="list-style-type: none"> • The town has considered a number of options regarding building codes as is evident in previous columns. It is at least considering implementation of all options that were considered.

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Wake Forest	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. • The town should continue to implement building codes standards such as the International Building Code and/or International Residential Code • The town should continue to implement ASCE 24-05 which specifies minimum requirement and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage. 	<ul style="list-style-type: none"> • The town has considered a number of options regarding building codes as is evident in previous columns. It is at least considering implementation of all options that were considered.
Wendell	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. • The town is willing to consider possibly adopting ASCE 24-05 which specifies minimum requirement and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage. 	<ul style="list-style-type: none"> • The town considered adopting higher building code standards such as the International Building Code and/or International Residential Code but it was determined to be not politically feasible

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Jurisdiction	Current Standards/ Regulations	Local Implementation	Recommendations for Future Implementation	Changes Considered but Discounted as Not Feasible
Zebulon	Adopted 2012 North Carolina State Building Code	Appendix G of the NC State Building Code outlines regulations for flood resistant construction. Among other regulations, the code states that all permit applications for construction or substantial improvement to structures in the floodplain must be designed and constructed with methods, practices, and materials that minimize flood damage.	<ul style="list-style-type: none"> • Continue adopting future updates to the North Carolina State Building Code and enforcing it throughout the jurisdiction. • The town is willing to consider possibly adopting higher building code standards such as the International Building Code or International Residential Code • The town is willing to consider possibly adopting ASCE 24-05 which specifies minimum requirement and expected performance for the design and construction of buildings and structures in flood hazard areas to make them more resistant to flood loads and flood damage. 	<ul style="list-style-type: none"> • The town has considered a number of options regarding building codes as is evident in previous columns. It is at least considering implementation of all options that were considered.