



Windsor

HMDRRI
Hurricane Matthew
Disaster Recovery and
Resilience Initiative

DOWNTOWN FLOOD RETROFIT **2017 REPORT**

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OVERVIEW

The downtowns of Fair Bluff, Seven Springs, and Windsor were devastated by Hurricane Matthew in October 2016. In an effort to assist the communities, the HMDRRI Team proposed a special flood retrofit initiative. It would involve assembling a team of experts experienced in the issue of flood retrofitting. These experts conducted site visits in each downtown. In organizing the team of retrofit experts, the HMDRRI reached out to organizations like the Association of State Floodplain Managers Association Flood Retrofit Committee, North Carolina Department of Public Safety National Flood Insurance Program, and the North Carolina State Historic Preservation Office. Once the team was assembled, over a three day period they conducted detailed assessments of buildings which involved “walkabout,” in-field assessments. Each pre-identified building was evaluated and specific flood retrofit recommendations were prepared. The experts included Dan Brubaker, the North Carolina NFIP Coordinator; Jack Malone, 406 Mitigation Specialist and John Cuneo, Public Assistance Coordinator, both from FEMA; Zach Faulkner with American Society of Floodplain Mangers (ASFPM); and Reid Moore and Jeff Adolphsen, restoration experts with North Carolina State Historic Preservation Office.

Goals

To identify flood retrofit techniques and assess their feasibility and associated costs in three towns devastated by Hurricane Matthew.

Downtown Windsor

The Town of Windsor is in Bertie County located on the Cashie River in eastern North Carolina. It has served as the County Seat of Bertie County since 1774. It was founded as a port on the Cashie River, in 1774 has been the social and governmental center of the county ever since. Much of the town's prosperity and gradual, but steady, growth was derived from its status as Bertie County's leading agricultural and mercantile trading center — a status that it enjoyed into the mid-twentieth century.

FLOOD IMPACT ON DOWNTOWN FAIR BLUFF

Windsor’s flood exposure is determined by the hydrology of the Cashie River and the location of community infrastructure, like housing, roads, and businesses. Figure 1 maps the current regulatory floodplain, as designated by FEMA’s National Flood Insurance Program, and building footprints within the town. Many structures near downtown lie within the 100-year (1.0 percent annual chance) and 500-year (0.2 percent annual chance) floodplains. A number of structures also lie within the floodplain just east of the river off of South King Street. An expanded discussion of the flood ramifications is found in *Windsor, NC Downtown Flood Retrofit and Revitalization - ASFPM On-boarding Report* (see Appendix E).

HISTORIC PERSPECTIVE

The Windsor Historic District was added to the National Register of Historic Places in 1982. It encompasses approximately 68 acres, the Windsor Historic District incorporates the entire area of the town as it was first laid out in 1768 and includes the traditional commercial district and oldest residential sections of the town (Bullock and Sandbeck, 1991). It contains 78 contributing buildings, one

contributing site, seven contributing structures, and one contributing object in the town of Windsor. The contributing resources in the nomination were all constructed between 1790 and 1941. This period of significance included resources that were 50 years old (in 1991) and older – back to 1790. Updating the 25+ year old nomination will increase the number of contributing resources. Thus the additional properties may be eligible for federal and state historic rehabilitation tax credits. It includes residential, commercial, and institutional buildings that primarily date after the turn of the 20th century. Notable buildings include the Bertie County Courthouse and Confederate Monument, Masonic Lodge (1848, 1917), Spruill Building, J. B. Gillam House, St. Thomas Episcopal Church, and Cashie Baptist Church (1910).

Of the 39 buildings assessed, 15 were determined to have contributing resources that reflect the period of significance, 1790 to 1941. Based on the assessment of Reid Thomas, Restoration Specialist for the North Carolina State Historic Preservation Office, he identified the following structures as having potential historic significance: **U** (Town Hall), **S** (Bertie County Arts Council), **P** (Masonic Lodge), **N** (China King), **M, J** (Hammerheads), **G** (Bunn's BBQ), **C** (Timberlands), **DD** (warehouse), **V, 1H** (Cooper Insurance Agency), **1G** (Joe Cherry Insurance Agency), **1F** (Bertie Ledger), and **1E**.

The State Historic Preservation Office (SHPO) is concerned with possible changes to potentially historic buildings resulting from flooding that can negatively affect the historic integrity of those buildings. The restoration specialists from SHPO who participated in the in-field flood retrofit assessment have outlined a series of suggested actions to minimize the threat of flood events in *General Comments for Flood Damaged Buildings* (see Appendix G).

METHODS

The team of flood risk experts made site visits to each community and conducted in-field assessments of a pre-identified set of buildings in the flood risk area. They evaluated the hazard threat of each structure and assessed the feasibility of varied flood hazard risk reduction techniques spanning technical parameters, historic preservation and culture-related issues. They also took structural integrity and cost-effectiveness into consideration. For each structure, a set of proposed flood retrofit techniques were developed. A data template was developed to record observations, impressions and data on each structure that would be used to recommend flood retrofit strategies information recorded for each structure. Based on the information and recommendations from the team of flood experts was compiled in a technical report for each community.

RECOMMENDATIONS

Downtown Windsor, unlike Seven Springs or Fair Bluff, has reopened and done repairs to the majority of structures in the downtown area. However, they still have not come up with a flood proofing solution, so they are all still at a very high risk for flood damage.

The majority of these buildings are well below the current BFE (not even including the five foot freeboard height). There were a couple buildings in which proper venting alone may solve the issue, a few where raising the first floor then removing the false ceiling and wet floodproofing may work, many

in which dry floodproofing seemed to be the best or only option and then some which were beyond repair and needed to be demolished.

To mitigate flooding in the downtown stores, the experts considered the following techniques:

- 1) **Dry flood proofing.** Dry flood proofing consists of using methods to protect the building flood waters from entering the facility.
- 2) **Wet flood proofing.** Flood water would be allowed to enter the building, but there would be minimal to no damage to the building itself. Post-flood this mitigation would call for the cleaning of surfaces the flood water came into contact with and removing any residual silt or debris deposited.
- 3) **Elevating the interior floor of the building.** This would preserve the external appearance of the building, while allowing the interior first floor elevation and any furnishings to reside above the flood water, thereby keeping them from being damaged. This option could also include the removal of second floors in applicable buildings to facilitate achieving the vertical height requirements to elevate the interior first floor.
- 4) **Demolishing the structure.** Selective demolition of buildings where it would not be cost beneficial to restore them could in some instance enhance the downtown area through the creation of parking, recreational areas. Further, the removal of fixed structures from the special flood hazard area will result in an incremental increase in the conveyance capability and general functionality of the floodplain itself.

The buildings that were in the best shape and seemed to have the most promising chance of retrofitting flood protection were the stretch of buildings across from the Town Hall (buildings "1C", "1D", "1E", "1F", "1G" (may also have chance of raising first floor by 2 feet and removing false ceiling), "1H", and "1I". These building had a higher rear elevation and didn't suffer any flooding that came in from the rear. I believe the easy solution is to either dry floodproof the front egress points using a flood barrier (Flex Cover for some and Flex Wall for others) or use the same sort of system (Vertical Flex Wall/Roll Out Flex Wall) and run it the full span of those shops. "K", the bank, was also a great candidate for dry floodproofing. It was a newer building and was already elevated on fill. They would need to protect the front and rear egress points and the window span at the front (Side Deploy or Vertical Flex Wall).

There were some buildings that we all felt needed to be demolished. The three buildings next to the BBQ place, "A", "B", "C" were all SRL or repetitive loss properties. The town administrator, Allen, said the plan was for the town to purchase the properties and tear them down to make room for a larger grazing area for the small town "zoo". They are all private storage facilities with a first floor below the BFE. Buildings "EE", "DD", "G", "H", "J" (Hammerheads Restaurant-divided in two halves. One half with brick structure and the other with wood. Potential to raise the first floor and remove false ceiling then wet floodproof.), "M", "Y" and "X" all were in rough shape, well below BFE and should be demolished.

REFERENCES

Bullock, M and Sandbeck, P. (May 1991) Windsor Historic District. National Register of Historic Places - Nomination and Inventory. North Carolina State Historic Preservation Office. Accessed online Dec 4, 2017, Available at <http://www.hpo.ncdcr.gov/nr/BR0253.pdf>

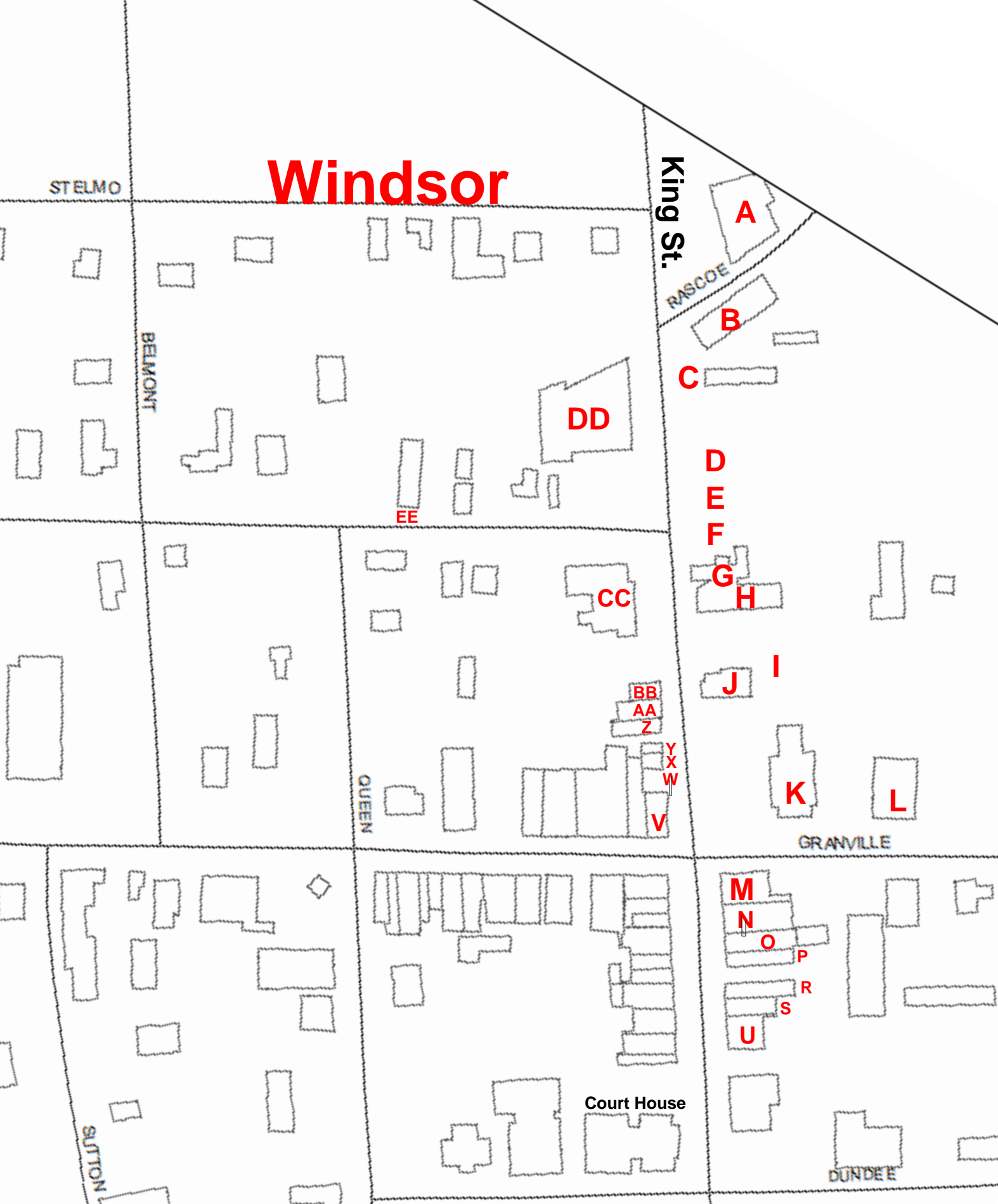
APPENDIX

- A. Key Map
- B. Detailed Field Notes of Experts
- C. Flood Wall Examples
- D. National Register Historic District Definitions
- E. References
- F. Survey Records
- G. General Comments for Flood Damaged Homes

Appendix A

Key Map

Windsor



King St.

STELMO

BELMONT

RASCOE

QUEEN

GRANVILLE

DUNDEE

Court House

SUTTON

A

B

C

DD

EE

CC

D

E

F

G

H

J

I

K

L

BB

AA

Z

Y

X

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V

M

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P

R

S

U

Appendix B

Field Notes

REID THOMAS – Windsor notes

Windsor Flood Retrofit Study

October 12, 2017

Notes by: Reid Thomas

Restoration Specialist

State Historic Preservation Office

NC Dept. of Natural and Cultural Resources

(252) 830-6580, Ext. 222

reid.thomas@ncdcr.gov

Windsor National Register Historic District / Listed July 1991

Scan of PDF Nomination from State Historic Preservation Office website:

<http://www.hpo.ncdcr.gov/nr/BR0253.pdf>

National Register Historic District Map

<http://gis.ncdcr.gov/hpweb/default.htm?center=-8565540,4300200&scale=4514>

*The Windsor Historic District was listed on the National Register of Historic Places in 1991. The contributing resources in the nomination were all constructed between 1790 to 1941. This period of significance included resources that were 50 years old (in 1991) and older – back to 1790. Updating this 25+ year old nomination will increase the number of contributing resources. Thus, the additional properties may be eligible for federal and state historic rehabilitation tax credits. For additional information and technical advice on updating the historic district please contact Scott Power, Historic Preservation Specialist and Regional Supervisor for the Eastern Office of the State Historic Preservation Office. Scott can be reached at: scott.power@ncdcr.gov or Tel: (252) 830-6580, ext. 226.

Street view (helpful reference): <http://data.dualmaps.com/dualmaps4/map.htm?x=-76.946202&y=35.998461&z=14&gm=0&ve=5&gc=0&bz=1&bd=0&mw=1&sv=1&sva=1&svb=0&svp=0&svz=0&svm=2&svf=0&sve=1>

The National Register of Historic Places in North Carolina

<http://www.hpo.ncdcr.gov/nrhome.htm>

Federal and State Historic Preservation Tax Credits

<http://www.hpo.ncdcr.gov/tchome.htm>

- A. The owners of “certified historic structures” (buildings listed individually in the National Register of Historic Places or those that are certified by the National Park Service as contributing to the historic character of a historic district) that are income producing buildings and depreciated may be eligible to receive federal and state historic rehabilitation tax credits. Owner expenditures must exceed the adjusted basis (purchase price – land value + capital improvements – depreciation) of the property and the work must meet the Secretary of the Interior’s Standards for Rehabilitation (<https://www.nps.gov/tps/standards/rehabilitation/rehab/stand.htm> and <https://www.nps.gov/tps/standards/rehabilitation.htm>).
- B. Owners of residential structures that are “certified historic structures” may be eligible for a state rehabilitation tax credit for their personal house and any certified historic outbuildings (garages, barns, corn cribs, sheds, etc.) where the work meets the Secretary of the Interior’s Standards for Rehabilitation.

Example of Income Producing Tax Credit Project

• Rehabilitation Cost*	\$300,000
• 20% Federal Credit	\$60,000
• 20% State Credit	\$60,000
• Total Credits	\$120,000

*Must exceed adjusted basis within a 24- or 60-month period.

Field Assessment Notes (properties visited)

NRHD: (Windsor) National Register Historic District

Contributing: Contributing resources are those constructed during the period of significance which substantially convey their appearance from that period.

*Contributing resources may be eligible for state and federal historic tax credits. Properties that are listed as “contributing” within a historic district are more than likely able to be “certified historic structures” unless work has been done to the building that lessens the historic integrity of the building after the district was surveyed.

Non-Contributing: Noncontributing resources are those that do not date from the period of significance (1790 to 1941) or have been substantially altered. Buildings that are listed as “non-contributing” are more than likely not eligible to be certified as historic as they were constructed outside of the period of significance of the district and/or do not retain historic integrity.

North Side King Street

Note: Below the addresses is the write-up on the buildings from the Windsor NRHD. The number after NRHD is the assigned number in the district nomination. Here is a PDF scan of the Windsor NRHD from our website: <http://www.hpo.ncdcr.gov/nr/BR0253.pdf>.

Case # U

128 South King / Windsor Municipal Building

NRHD: 21. Windsor Municipal Building, 128 s. King st., 1937

Contributing

Handsome two-story four-bay brick structure housing town offices and fire department. First floor features four openings within large blind arches with paired windows above on the second floor; a large curved parapet accents the building. The structure is built of dark red brick with

cornerblock and keystone accents at each window and arch.

Field Notes: The only significant alteration to the municipal building since the National Register nomination was the replacement of the wood flooring with concrete – in 2012. The building retains important character defining features such as the original interior staircase, vault with decorative cast-iron entryway, interior woodwork, historic windows and doors (Figs. 1, 2, & 3).

It would be difficult to raise the floor without impacting the integrity of historic features on the interior.



Figs 1, 2, &3. Vault and entry of Municipal Building



Case # S

124 South King / Commercial Building

(Bertie County Arts Council)

NRHD: 20. Commercial Building, 124 s. King st., ca. 1890 (1919 Me)

Contributing

Large two-story three-bay brick structure with ca. 1950 street-level facade of large display windows and metal awning.

Upper level is intact with three segmental-arch bays and elaborately corbeled brick cornice. The first floor retains portions of a pressed tin ceiling. In 1924 this building housed the Windsor post office and telephone exchange.

Field Notes: Crawlspace and original wood floor. Discussion on elevating 1st floor. The ceiling height appears to be tall enough to raise the floor level. The random-width original flooring should be preserved if the floor is raised. The existing historic storefront (fig. 4) is an important character-defining element and should also be retained if the interior floor level is raised.



Fig. 4. 124 S. King St.

Case # R

122 South King / Commercial Building

(Nationwide Insurance)

NRHD: 19. Commercial Building, 122 s. King st., ca. 1904, 1956, (1919 Mc)

Non-contributing

Small one-story structure remodeled and largely rebuilt ca. 1956 with a Roman brick facade featuring large glass display window and flat metal awning. A side wall visible from the alley displays one to five common bond brickwork from ca. 1904 building. A black and white tile floor remains at the front entrance.

Field Notes: There is a possibility that if the Windsor National Register Historic District is re-evaluated and period of significance is updated this building might be a contributing resource – eligible for historic tax credits.

Case # P

116 & 118 South King / Commercial Building and Masonic Lodge

(Ivey Lane / Masonic Lodge)

NRHD: 18. Commercial Building and Masonic Lodge, 118 s. King st., pre-1848 contributing

This brick structure was standing at the time it was purchased by Charity Lodge No. 5 in 1848 and is probably the oldest commercial building in Windsor; in 1917 a fire damaged the building and its appearance was modified. The first floor features a recessed entry with glass display windows protected by a modern wooden-shingled awning. The second floor features four bays with closed shutters and splayed arches with a two-part applied cornice above.

Field Notes: First floor commercial storefront intact. The first floor has a drop ceiling. We could see the historic decorative press tin ceiling about 4 feet above the drop ceiling. Potential for rehabilitation and use of the historic tax credits.

Case # O

112 South King / Commercial Building

(vacant)

NRHD: 17. Commercial Building, 114 s. King st., (address appear to be 112 but noted as 114 in nomination)

ca. 1910, 1950

Non-contributing

Early twentieth century two-bay, two-story, brick commercial building with ca. 1950 replacement facade with plate glass display windows, recessed entrance, and metal awning. The building retains portions of an original pressed tin ceiling on the first floor and narrow beaded tongue and groove ceiling on the second floor.

Field Notes: Press tin ceiling can be seen above the dropped ceiling panels (fig. 5). There is a possibility that if the Windsor National Register Historic District is re-evaluated and period of significance is updated this building might be a contributing resource – eligible for historic tax credits.



Fig. 5. 112 S. King St.

Case # N

108 South King / Commercial Building

(China King)

NRHD: 16. Commercial Building, 108-110 s. King st., ca. 1936 (post-1924 S)

Contributing

Brick commercial building with large plate glass display windows on first floor sheltered by a flat metal awning; second floor features four 1/1 sash with pair of stuccoed panels and slightly corbeled cornice above.

Field Notes: First floor commercial has dropped ceiling. Potential for rehabilitation and use of the historic tax credits.

Case # M

102 and 104 South King / Commercial Building

(Vacant)

NRHD: 15. commercial Building, 102-104 s. King St., ca. 1890 (1919 Me)

Contributing

Two-story four-bay brick structure; first floor has received modern plate glass display windows but upper floor is intact with 4/4 sash with segmental arches and elaborately corbeled brick cornice; in the former alley south of building stands a single-bay brick in-fill structure attached ca. 1910.

Field Notes: Early twentieth-century corner building with elaborate brickwork – highly visible with corner location. Historic storefront largely intact. Potential for rehabilitation and use of the historic tax credits. Stabilize and mothball if possible for future use.

The National Park Service has published a helpful Preservation Brief on Mothballing Historic Buildings. A link to this brief can be found on their website at this link: www.nps.gov/tps/how-to-preserve/briefs/31-mothballing.htm

Case # K

101 North King / Southern Bank

(Southern Bank)

NRHD: 14. Southern Bank & Trust Building, 101 N. King st., ca. 1970

Non-contributing

One-story hip-roofed brick structure in the "Williamsburg" style with wide modillion block cornice, 12/12 sash with splayed arches, and paneled entrance.

Case # L

208 East Granville St. / EMS Building

(Vacant)

Non-Historic

Case # J

117 North King / Commercial Building

(Vacant - Hammerheads)

NRHD: 13. Commercial Building, 117-119 N. King st., 1929

Contributing

Small one-story brick structure with large recessed bay which has received ca. 1978 infill of paneling and a large multipaned window; 1929 dated concrete or stone diamond shaped plaque on 2nd story facade wall.

Field Notes: Press tin ceiling survives approximately 8 feet above dropped ceiling. Told it was used as a post office. Potential for rehabilitation and use of the historic tax credits. Stabilize and mothball if possible for future use. Non-historic lean-to addition added to west side (fig. 6)



Fig. 6. 117 North King St.

Case # G

127 North King / Commercial Building

(Bunn's BBQ)

NRHD: 11. Dr. Henry Vaughan Dunstan's Office, 127 N. King st., (address change or incorrect) ca. 1870, 1920's

Contributing

Originally built as a doctor's office, this small frame building was moved prior to 1938 to its present site from across the street. The hip roof has been extended to form a shelter over the gas pumps. The earlier shallow porch configuration is still visible underneath the later extended porch ceiling. The interior is finished with wide beaded sheathing.

Field Notes: Original portion (Doctor's Office) appears to pre-date circa 1870 date in the National Register nomination. The original portion appears to date from the mid-19th century based on the timber-frame construction, original trim, and wide-board wall and ceiling sheathing. According to the nomination it was moved to its current location before 1939. Potential for rehabilitation and use of the historic tax credits.

Case # C

205 North King / Commercial Building

(Timberlands)

NRHD: 7. Office and warehouse, 209 N. King st., ca. 1940 (S 1943)

Contributing

One-story three-bay brick office with attached large gable roof frame warehouse with sheet metal siding.

Field Notes: Potential for rehabilitation and use of the historic tax credits.

North Side King Street

Note: Some of the current street addresses do not correspond with all the addresses in the 1991 nomination. Presumably, there have been adjustments in these addresses since the nomination – or the address in the nomination was in error. A few buildings/houses have also been torn down since the nomination making it somewhat difficult to line-up each building with the National Register write-up. Therefore, I am not 100% on the accuracy in correctly lining up the National Register building write-ups with the case numbers.

Case # DD

202-206 North King / Commercial Building

(Warehouse)

NRHD: 45. Warehouse, 204-206 N. King St., ca. 1933 (1943 S)

Contributing

Large one-story warehouse with gable roof and engaged shedloading dock; covered with sheet metal siding.

Field Notes: Frame warehouse clad with corrugated metal panels – most original doors and windows survive. Potential for rehabilitation and use of the historic tax credits.

Case # CC

130 North King / Federal Building and US Post Office

NRHD: 46. *Federal Building and United States Post Office, SW corner N. King and Camden streets, 1965*

Non-contributing

One-story six-bay brick structure with flat roof housing the Post Office. Undistinguished contemporary-style building with large metal-framed windows.

Case # BB

116 North King / Commercial Building

NRHD: 47. *commercial building, 120 N. King st., ca. 1946*

Non-contributing

One-story brick building housing two separate businesses, each with a large plate glass window and flat roof.

Field Notes: There is a possibility that if the Windsor National Register Historic District is re-evaluated and period of significance is updated this building might be a contributing resource – eligible for historic tax credits.

Case # AA

114 North King / Commercial Building

NRHD: 48. *commercial building, 120 N. King st., 1964*

Non-contributing

One-story brick commercial building protected by metal awning and distinguished by central double door entrance flanked by large display windows.

Field Notes: There is a possibility that if the Windsor National Register Historic District is re-evaluated and period of significance is updated this building might be a contributing resource – eligible for historic tax credits.

Case # Z

112 North King / Commercial Building

(Edward Jones)

NRHD: 49. *commercial building, 112 N. King St., ca. 1955*

Non-contributing

One-story four-bay brick structure with large plate glass windows.

Field Notes: “A” frame roofs installed over flat roof mentioned in nomination. It is unlikely that this building would be a contributing resource if the Windsor National Register District is reevaluated – due to this roof alteration.

Case # Y

108 North King / Commercial Building

NRHD: 50. Commercial building, 108 N. King st., ca. 1956

Non-contributing

Small one-story two-bay brick structure with a new wooden shingled awning.

Field Notes: “A” frame roofs installed over flat roof mentioned in nomination. It is unlikely that this building would be a contributing resource if the Windsor National Register District is reevaluated – due to this roof alteration.

Case # X

106 North King / Commercial Building

(Ahoskie Eye care center)

NRHD: 50. Commercial building, 108 N. King st., ca. 1956

Non-contributing

Small one-story two-bay brick structure with a new wooden shingled awning.

Field Notes: “A” frame roofs installed over flat roof mentioned in nomination. It is unlikely that this building would be a contributing resource if the Windsor National Register District is reevaluated – due to this roof alteration.

Case # W

104 North King / Commercial Building

(Ahoskie Eye care center)

NRHD: NRHD: 50. Commercial building, 108 N. King st., ca. 1956

Non-contributing

Small one-story two-bay brick structure with a new wooden shingled awning.

Field Notes: "A" frame roofs installed over flat roof mentioned in nomination. It is unlikely that this building would be a contributing resource if the Windsor National Register District is reevaluated – due to this roof alteration.

Granville Street

Case # V

132 E. Granville / Commercial Building

NRHD: 112. commercial building, 116 Granville St., ca. 1888, ca. 1925

Contributing

One-story brick structure identical to #111. (111 write-up: One-story brick structure with ca. 1925 facade, identical to 116 Granville st., (#112) with recessed entries and recessed concrete panels surmounted by corbeled brick cornice; #111 and #112 were originally one structure which housed in 1924 a theater.)

Field Notes: Potential for rehabilitation and use of the historic tax credits

North Side King Street

Case # 1I

(street address not attached to form) ??? North King / Commercial Building

(King St. Grill)

NRHD: 52. Commercial building, 101 s. King St., ca. 1950 (post 1943 S)

Non-Contributing

One-story brick commercial building with modern shingle pent roof and new store entrance: modest pilasters topped by molded cast stone cap flank the building. Built as infill on site of a former filling station.

Field Notes: There is a possibility that if the Windsor National Register Historic District is re-evaluated and period of significance is updated this building might be a contributing resource – eligible for historic tax credits.

Case # 1H

(street address not attached to form) ??? North King / Commercial Building

(Cooper Insurance Agency)

NRHD: 53. commercial building, 103 s. King st., ca. 1925 (post-1924 S)

Contributing

One-story brick structure with large display windows and entrance surmounted formerly by a long multi-paned window now metal faced; a simulated pressed-tin tile pent roof shelters the facade.

Field Notes: Storefront altered since nomination

Case # 1G

(street address not attached to form) ??? North King / Commercial Building

(Joe Cherry Insurance Agency)

NRHD: 54. Commercial building, 105 s. King st., ca. 1910, 1930's (1919 Me)

Contributing

Narrow two-bay two-story brick building built originally as a bank, remodelled in 1930's by the addition of a Flemish-bond brick facade. Large plate-glass window and awning of the first floor not original; the second floor elevation features two 1/1 sash windows and a corbelled and recessed brick panel.

Field Notes: Original interior woodwork/ walls and safe. Potential for rehabilitation and use of the historic tax credits

Case # 1F

(street address not attached to form) ??? North King / Commercial Building

(Bertie Ledger)

NRHD: 55. commercial building, 109-111 s. King st., ca. 1910, 1930's (1919 Me)

Contributing

Large two-story brick building with 1930s facade alterations with recessed entrances and large display windows beneath the five bays of the second floor; second floor windows contain 6/6 sash; similar to its neighbor, 113-117 s. King st. (#56-57).

Field Notes: Intact storefront – doors altered. Drop ceiling – original press tin metal ceiling approximately 4” above drop ceiling. Potential for rehabilitation and use of the historic tax credits

Case # 1E

(street address not attached to form) ??? North King / Commercial Building

NRHD: 56. commercial building, 113-117 s. King st., ca. 1910 , 1930's (1919 Me)

Contributing

Large two-story brick building with 1930's facade of two recessed entrances with large display windows beneath four metal-frame casement windows tied together by four horizontal bands of recessed bricks. Comprises two stores separated by exterior entrance to staircase for second floor.

Field Notes: Intact storefront. Tall ceiling height with beaded-board. Potential for rehabilitation and use of the historic tax credits

Case # 1D

(street address not attached to form) ??? North King / Commercial Building

(Real Deal)

NRHD: 58. commercial building, 119 s. King st., ca. 1904 (1919 Me.)

Non-contributing

Two-story three-bay brick commercial structure with a ca. 1950 facade of modern brick, with glass display windows and metal awning beneath three casement windows. Attached to the rear is a one-story brick stable with three large arched openings.

Field Notes: There is a possibility that if the Windsor National Register Historic District is re-evaluated and period of significance is updated this building might be a contributing resource – eligible for historic tax credits.

Windsor

This community has reopened and done repairs to the majority of the structures in the downtown area. However, they still haven't come up with a flood proofing solution, so they are all still at a very high risk for flood damage.

The majority of these buildings are well below the current BFE (not even including the 5' freeboard height). In my opinion there were a couple buildings in which proper venting alone may solve the issue, a few where raising the first floor then removing the false ceiling and wet floodproofing may work, many in which dry floodproofing seemed to be the best/only option and then some which were beyond repair and needed to be demolished.

The buildings that were in the best shape and seemed to have the most promising chance of retrofitting flood protection were the stretch of buildings across from the Town Hall (buildings "1C", "1D", "1E", "1F", "1G" (may also have chance of raising first floor by 2 feet and removing false ceiling), "1H", and "1I". These buildings had a higher rear elevation and didn't suffer any flooding that came in from the rear. I believe the easy solution is to either dry floodproof the front egress points using a flood barrier (Flex Cover for some and Flex Wall for others) or use the same sort of system (Vertical Flex Wall/Roll Out Flex Wall) and run it the full span of those shops. "K", the bank, was also a great candidate for dry floodproofing. It was a newer building and was already elevated on fill. They would need to protect the front and rear egress points and the window span at the front (Side Deploy or Vertical Flex Wall).

There were some buildings that we all felt needed to be demolished. The three buildings next to the BBQ place, "A", "B", "C" were all SRL or repetitive loss properties. The town administrator, Allen, said the plan was for the town to purchase the properties and tear them down to make room for a larger grazing area for the small town "zoo". They are all private storage facilities with a first floor below the BFE. Buildings "EE", "DD", "G", "H", "J" (Hammerheads Restaurant-divided in two halves. One half with brick structure and the other with wood. Potential to raise the first floor and remove false ceiling then wet floodproof.), "M", "Y", and "X" all were in rough shape, well below BFE and should be demolished in my opinion.

There were a good amount of buildings that seemed decent candidates for dry floodproofing. These buildings were: "Z" (elevated but didn't seem high enough, would need to dry floodproof whole building, "V" (dry floodproof egress points and whole front window area), "AA" (dry floodproof full height of windows and doors to get above freeboard height), "CC" (dry floodproof egress points), "S" (2 story building. Flex Cover for door on right front side? Potential to elevate first floor then wet floodproof..high ceilings. Flex Cover rear door), "O" (dry floodproof egress points), "N" (Flex Cover for egress points, some low windows that also would need to be protected), and "BB" (dry floodproof egress points. Flex Cover for full height of windows and doors).

Lastly, there were a few candidates for wet floodproofing or a combination of both wet and dry. Buildings “L” (old EMS building. Currently used for storage. Unfinish office areas and then wet floodproof by properly venting the area), “P” (not enough vents on crawlspace, Flex Cover for side doors and front door. Also potential to remove false ceiling and elevate first floor then wet floodproof), “R” (needs more venting on crawlspace, dry floodproof egress points), and “U” (elevate all mechanicals. Above BFE but not freeboard height.)

Zach Faulkner, CFM

Flood Mitigation Specialist

North Carolina, South Carolina & Georgia

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www.smartvent.com

www.dryfloodproofing.com



JOHN CUNEO, FEMA PA

10/6/17

Flood Retrofit Study Field Report for Windsor, NC.

Field inspections were conducted on 10/2/17 and 10/4/17 regarding potential flood retrofitting for the downtown areas of Fair Bluff (field report is attached) and Windsor. This report is comprised of the opinions and suggestions from Jack Malone, who works for FEMA Hazard Mitigation, and John Cuneo, who works for FEMA Public Assistance. The information contained in this report is representative of the subjective input based on their years of field experience working flood events, and not an official stance or recommendation from FEMA.

The general approach in both towns consisted of looking broadly at the following methods:

- 1) Dry flood proofing consists of using methods to protect the building flood waters from entering the facility
- 2) Wet Flood Proofing, meaning flood water would be allowed to enter the building, but there would be minimal to no damage to the building itself. Post-flood this mitigation would call for the cleaning of surfaces the flood water came into contact with and removing any residual silt or debris deposited.
- 3) Elevating the interior floor of the building. This would preserve the external appearance of the building, while allowing the interior first floor elevation and any furnishings to reside above the flood water, thereby keeping them from being damaged. This option could also include the removal of second floors in applicable buildings to facilitate achieving the vertical height requirements to elevate the interior first floor.
- 4) Demolishing the structure. Selective demolition of buildings where it would not be cost beneficial to restore them could in some instance enhance the downtown area through the creation of parking, recreational areas. Further, the removal of fixed structures from the special flood hazard area will result in an incremental increase in the conveyance capability and general functionality of the floodplain itself.

Windsor

The various methods of dry and wet flood proofing were discussed as the group conducted the field survey (30 buildings) on 10/4/17. While there were a variety of structures in the survey area, the majority were brick or brick/CMU construction, poured concrete slab on grade foundation with crawl spaces, single story retail and business office facilities. In most cases the ceiling heights would allow for elevation of the floor to prevent the office or retail space from being flooded. For the buildings with crawl spaces foundation flood vents could be added and /or additional flood vents could be added to existing flood vents.

The other broad strategy discussed during the field work and then later at the post survey meeting was to utilize dry flood proofing measures to whole sections of the downtown area where possible. There were two concepts forwarded by the group:

Concept 1

Construction of a permanent concrete flood wall around the perimeter of the buildings to be protected. The thought was to build the back level up to the proper height above the windows and then step it down to a lower level. This could be used as seating areas and a place to beautify the downtown area by placing planters on the wall. The openings/ doorways would then be protected by flood gates.

Concept 2

Utilize flexible flood walls that are deployed in advance of the flood event. In speaking with town officials they indicated that there was approximately 16-24 hours advance warning to prepare for the flooding event. Based on that it would be possible to deploy portable dry flood proofing devices if the property owners were willing to invest in these products.

These new products are lightweight and strong and can be deployed by one person. The flex-wall is made of Kevlar and nylon. The system is stored in a closed container at the point of use so it is available when needed. The older metal flood walls are heavy and require storage between storms. They also require a crew to set them up.

Literature on these products was made available to the group and the company representative was available to answer questions about the benefits of these products.

Based on all the input and discussions with the civic leaders and local businessmen who were part of the task force, it was evident that for this flood protection program to work it will require a team effort. This would include business owners, town officials, outside funding sources like the Golden Leaf Institute and other economic development groups.

Appendix C

Flood Wall Examples

Dry Floodproofing Examples

Below are two examples of dry floodproofing methods.



Appendix D

National Register Historic District Definitions

National Register Historic District

Definitions

- A. **Contributing:** Contributing resources are those constructed during the period of significance which substantially convey their appearance from that period.
*Contributing resources may be eligible for state and federal historic tax credits. Properties that are listed as “contributing” within a historic district are more than likely able to be “certified historic structures” unless work has been done to the building that lessens the historic integrity of the building after the district was surveyed.
- B. **Non-Contributing:** Noncontributing resources are those that do not date from the period of significance (1790 to 1941) or have been substantially altered. Buildings that are listed as “non-contributing” are more than likely not eligible to be certified as historic as they were constructed outside of the period of significance of the district and/or do not retain historic integrity.

Appendix E

Flood Retrofit On-Boarding Report

Windsor, NC

Downtown Flood Retrofit and Revitalization

ASFPM On-boarding Report



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL



COASTAL RESILIENCE CENTER
A U.S. Department of Homeland Security Center of Excellence



I. Purpose

The purpose of this document is to provide the Association of State Floodplain Managers (ASFPM) with the necessary information regarding Hurricane Matthew's impact on the commercial downtown properties of Windsor, NC. It provides preliminary information to guide the feasibility and cost assessment of various flood hazard risk reduction techniques for Windsor's downtown. This information will be used by ASFPM prior to and during site visits to Windsor to inform their analysis.

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	ii.	Background information
	iii.	Flood ordinances, base flood elevation, and freeboard requirement
	iv.	North Carolina Main Street program and historic district designation
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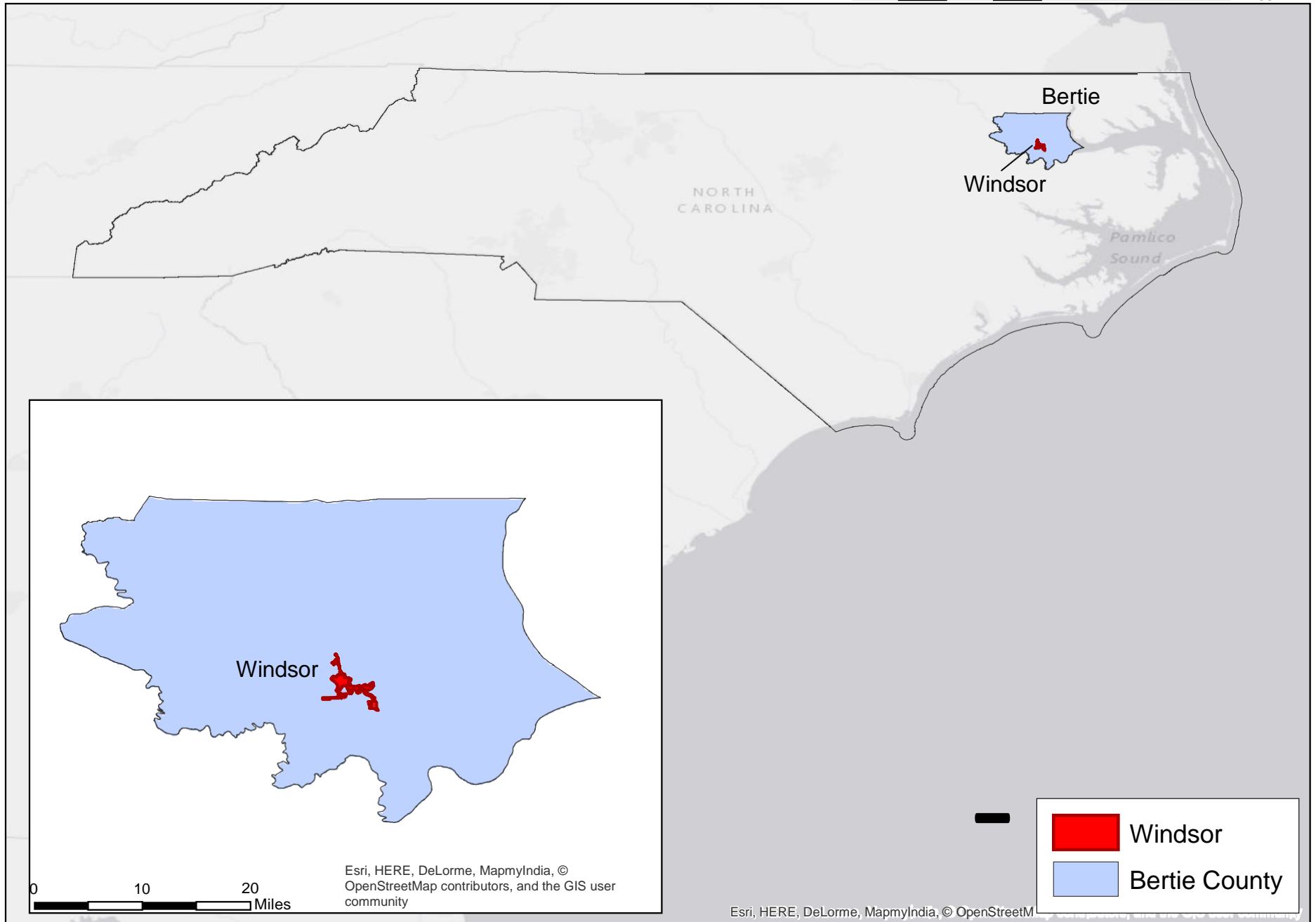


I. Introduction

Photo sourced from: <http://abc11.com/archive/7696731/>

Orientation Map of Windsor, NC

0 50 100 200 Miles



Background Information

Windsor, NC is located in Bertie County on the Cashie River in eastern North Carolina. It has served as the County Seat of Bertie County since 1774. Founded as a port on the Cashie River, Windsor historically enjoyed a thriving economy based primarily in the agricultural and timber industry. More recently, Windsor is becoming a destination for river-oriented tourism. Notable attractions in town of Windsor include Livermon Park and Zoo, Cashie Wetlands Walk and Canoe Trail, Craftsman and Farmers Museum, and Cashie River Campground and Treehouse Village.

Windsor's Historic District was entered in the register in 1991, and encompasses the same 100 acres of the original town. King Street is considered the "heart of the Historic District" and includes distinguished examples of 18th and 19th Century architecture.¹ Windsor is most interested in how they can retrofit their historic downtown while maintaining their integrity or at least the aesthetic of the historic downtown that draws much of their tourism.

In Windsor, many businesses were able to make immediate repairs and start up and running again within weeks after Matthew hit. This is good for the businesses but the degree to which they improved the building's resilience in their repairs is unknown. It will be necessary to discuss options that will improve long-term resilience to flooding for businesses that do not delay them getting back into operation for too long.

Public Interests

- Preserve and flood retrofit historic downtown
- Ensure downtown resiliency
- Promote and expand tourism and ecotourism
- Preserve use of Public Library and Post Office
- Minimize public investment – maximize private



Downtown Windsor, taken from <http://limousineregistry.com/nc/limo-service-windsor.html>



Bertie County Courthouse, taken from http://www.carolana.com/NC/Towns/Windsor_NC.html

¹"About Us," Windsor, North Carolina, Chartered 1768, 2017. Accessed on June 28, 2017 via <http://windsornc.com/about-windsor/>.

Table I: General Town Information

2015 ACS 5-Year Estimates	Town of Windsor
Total population	3,652
% White	31.2%
% Black	64.7%
% Hispanic	2%
% Under 18	15.1%
% 65 and older	15.5%
Average male age	34.5
Average female age	45.5
% with disability	24.6%
Average household size	2.52
Housing units	1115
Vacant housing units	11.4%
Rental vacancy rate	13.4%
Median year structure built	1965
Median house value	\$93,800
Less than high school education	29.8%
Labor force participation	35.2%
Unemployed	14%
MHI (2015 dollars)	\$29,063
% Below poverty line	28.5%
Average commute to work (minutes)	21
% Lived in same home a year ago	81.2%

Windsor is a majority black town although most of the political and economic elites of the town are white. The impetus to focus on downtown flood retrofitting and historic preservation came from the latter demographic. The majority of the population is working age between 18 and 65, however, there is only 35.2% labor force participation for populations over 16 years old. Unemployment is relatively high as well as the percent below the poverty line.

Freeboard Requirement²

Where BFE is identified – 1-foot freeboard

Where BFE is not identified but still in a special flood hazard area – 2-foot freeboard

Main Street Program Participation

Used to participate but are no longer active

Historic District / Properties

There are historic properties in the town but none in downtown area

NFIP

Windsor is a member of the NFIP but does not participate in the Community Rating System (CRS)

Flood Damage Prevention Ordinance

Windsor has its own Flood Damage Prevention Ordinance.

Video footage of Hurricane Matthew flooding

<https://www.youtube.com/watch?v=HiKNnHETp-U>

<https://www.youtube.com/watch?v=2O3oQ-XRb54>

<https://www.youtube.com/watch?v=anYyHsJlk3A>

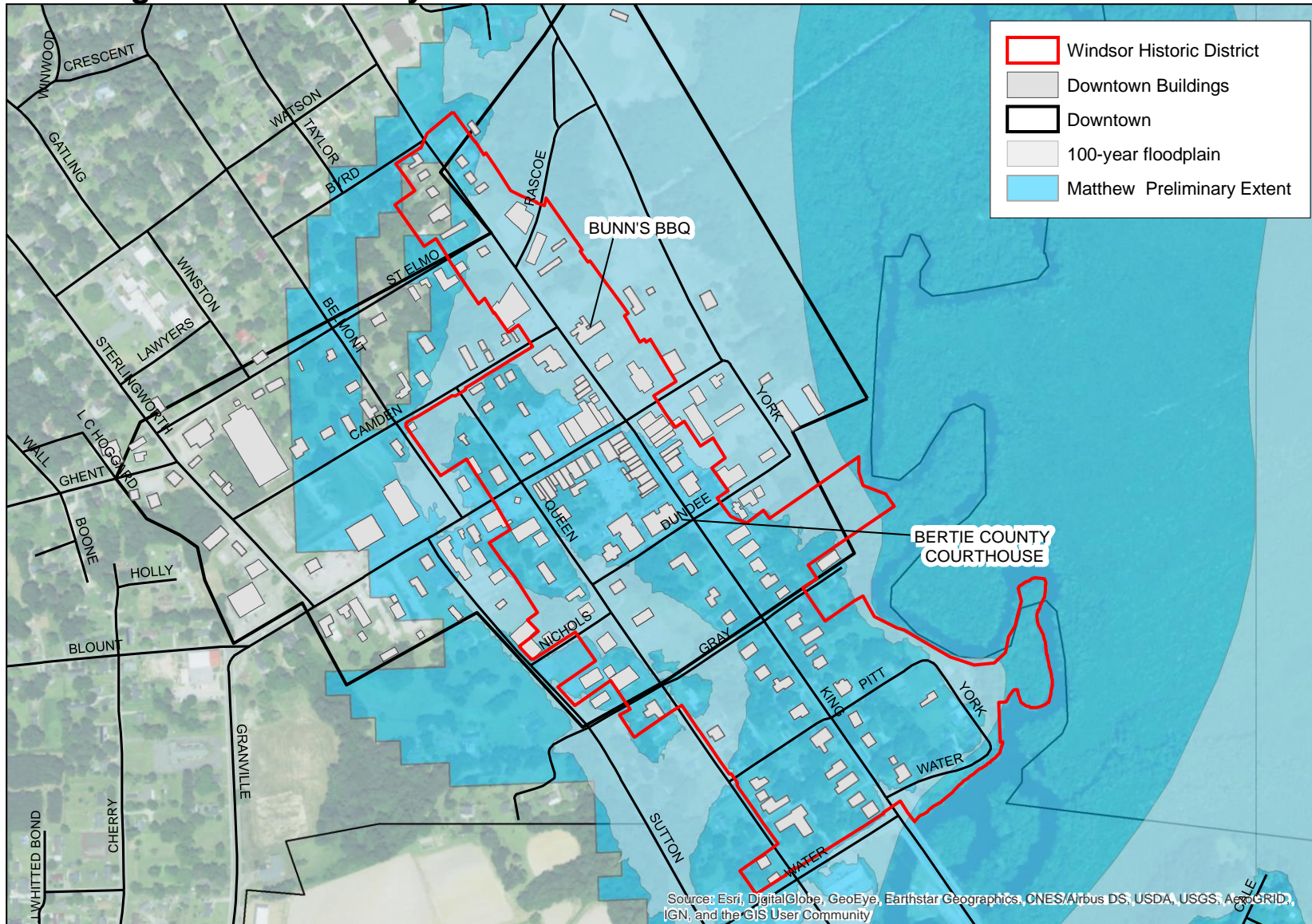
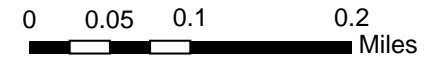
² Town of Windsor, NC Flood Damage Prevention Ordinance, page 5.

II. Downtown Reference Materials



Photo sourced from: <http://www.witn.com/content/news/Flooding-causing-issues-in-Bertie-County-394261471.html>

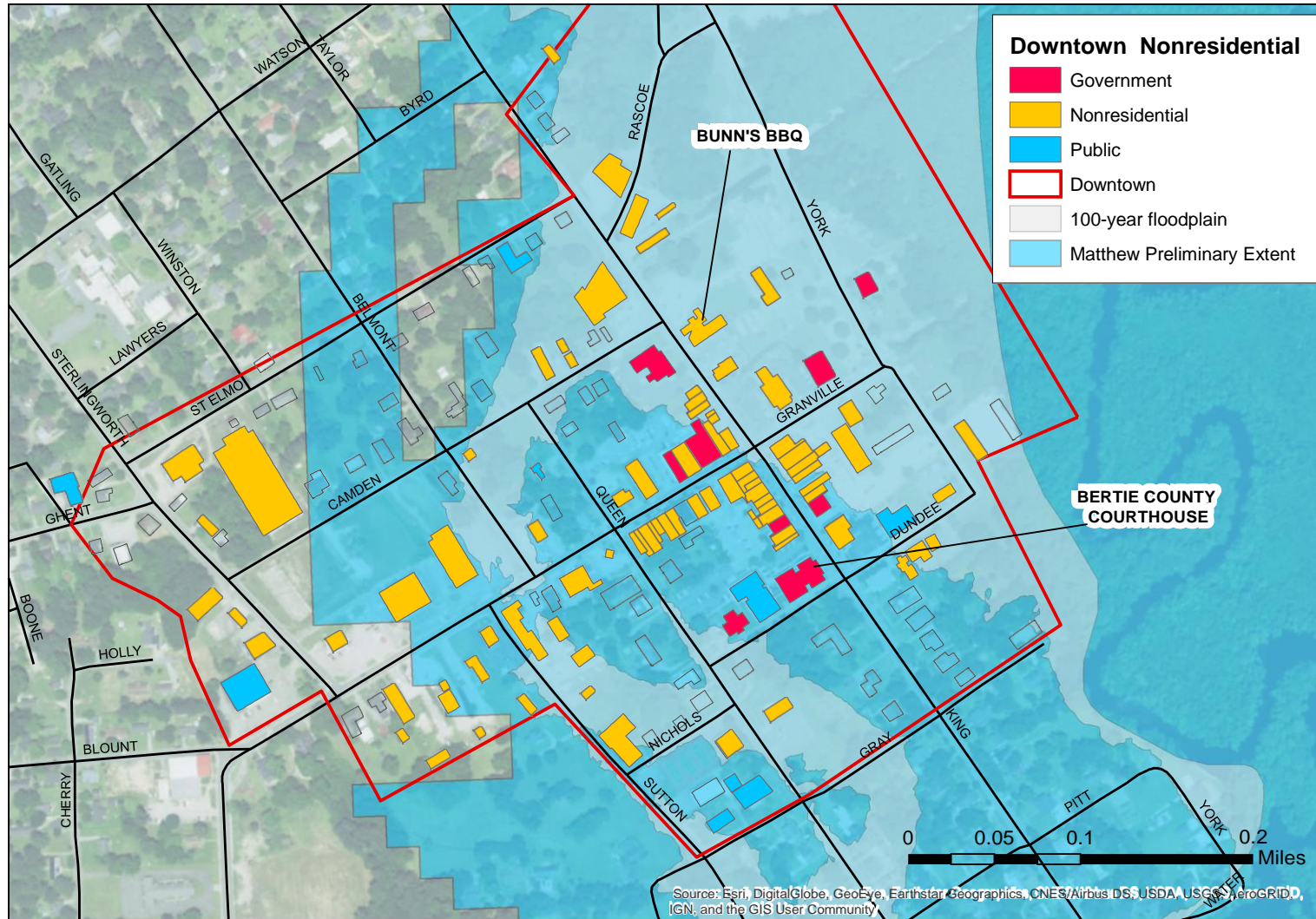
Downtown Windsor, NC Buildings and Preliminary Extent of Hurricane Matthew



The map above shows the layout of Windsor, NC, its historic district boundaries, the 100-year floodplain, and the estimated preliminary extent of Hurricane Matthew. The finalized extent of Matthew has not been confirmed as of yet. Bunn's BBQ and the Courthouse are identified to help orient you once on site.

Downtown Windsor, NC

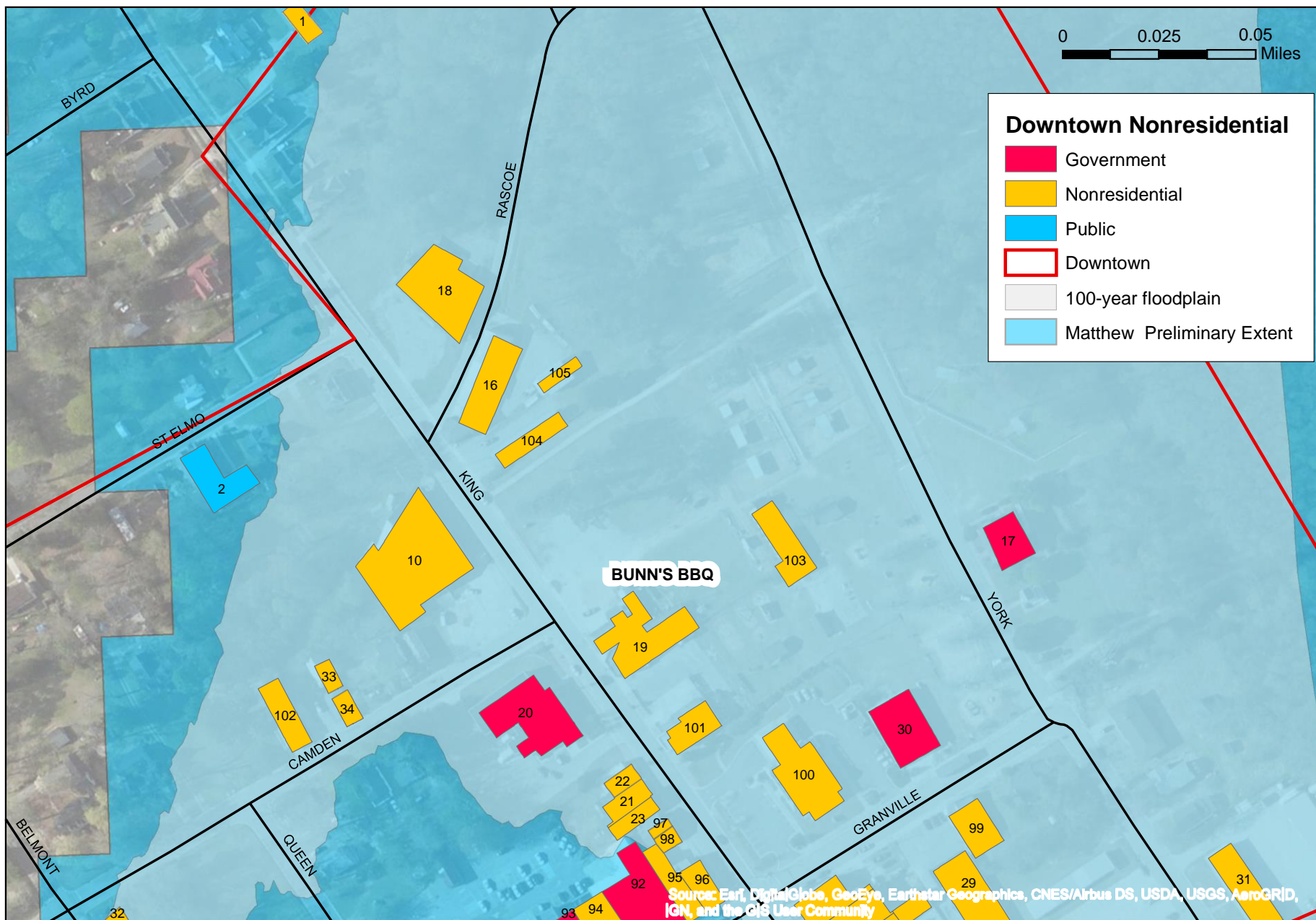
Non-residential buildings and Hurricane Matthew preliminary extent



Because the focus of our work in Windsor is on the historic downtown and developing methods to retrofit government and/or commercial structures, all non-residential buildings are identified in this map. The following maps number each structure to be used as a reference for field notes. A table follows the maps describing the business/use of the building.

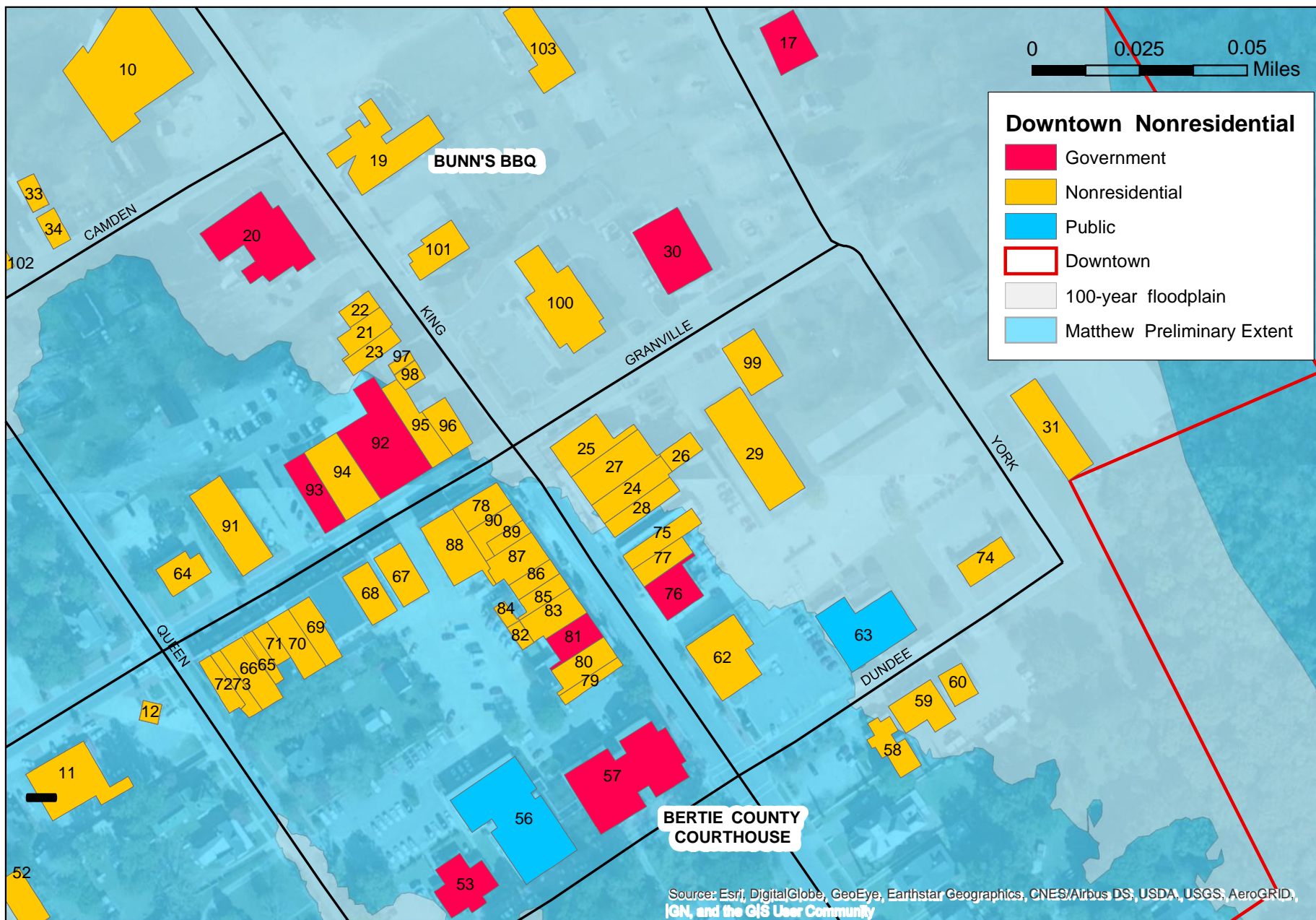
Downtown Windsor, NC - Northeast

Non-residential buildings and Hurricane Matthew preliminary extent

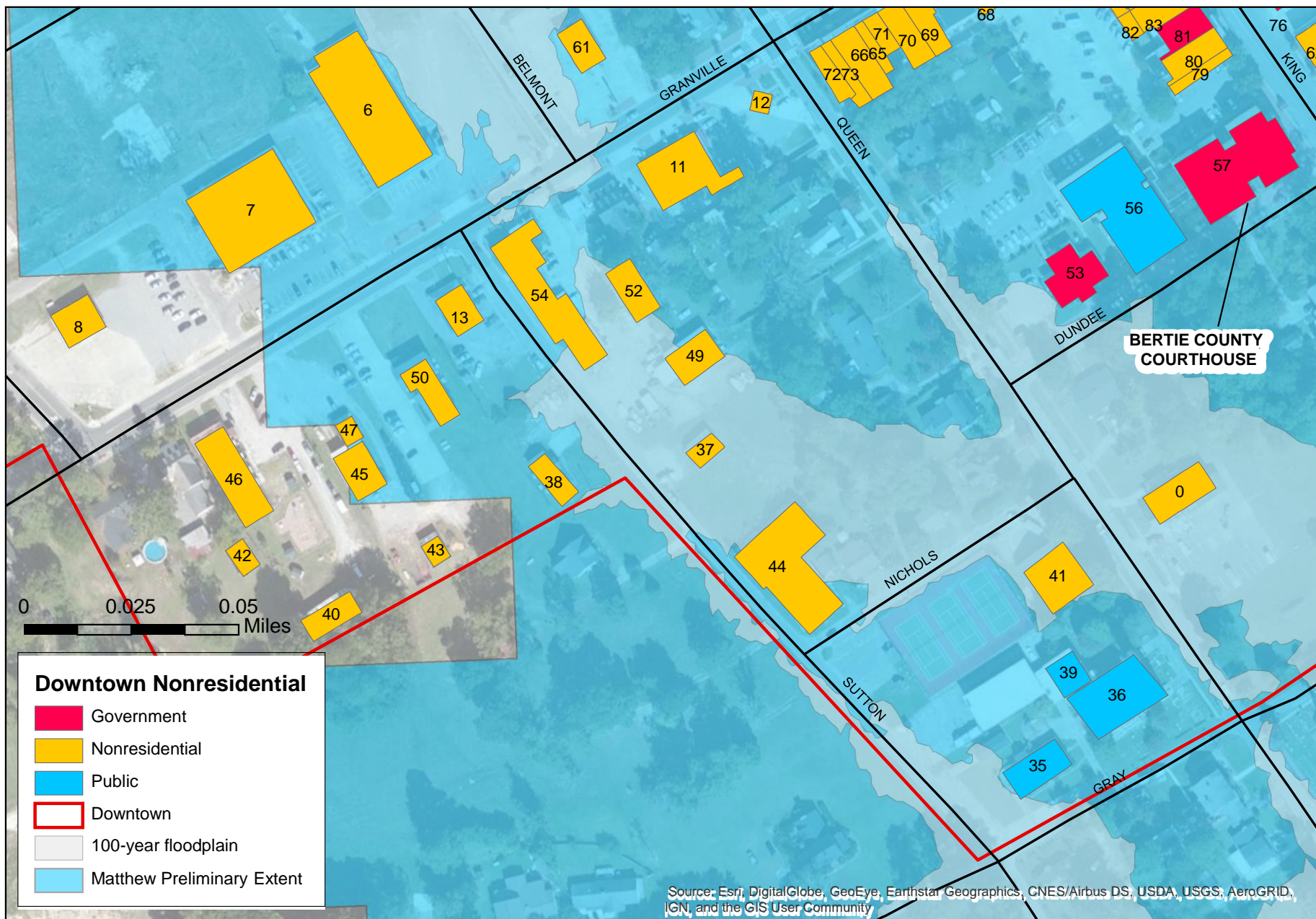


Downtown Windsor, NC - Southeast

Non-residential buildings and Hurricane Matthew preliminary extent



Downtown Windsor, NC - Southwest Non-residential buildings and Hurricane Matthew preliminary extent



Downtown Windsor, NC - Northwest

Non-residential buildings and Hurricane Matthew preliminary extent

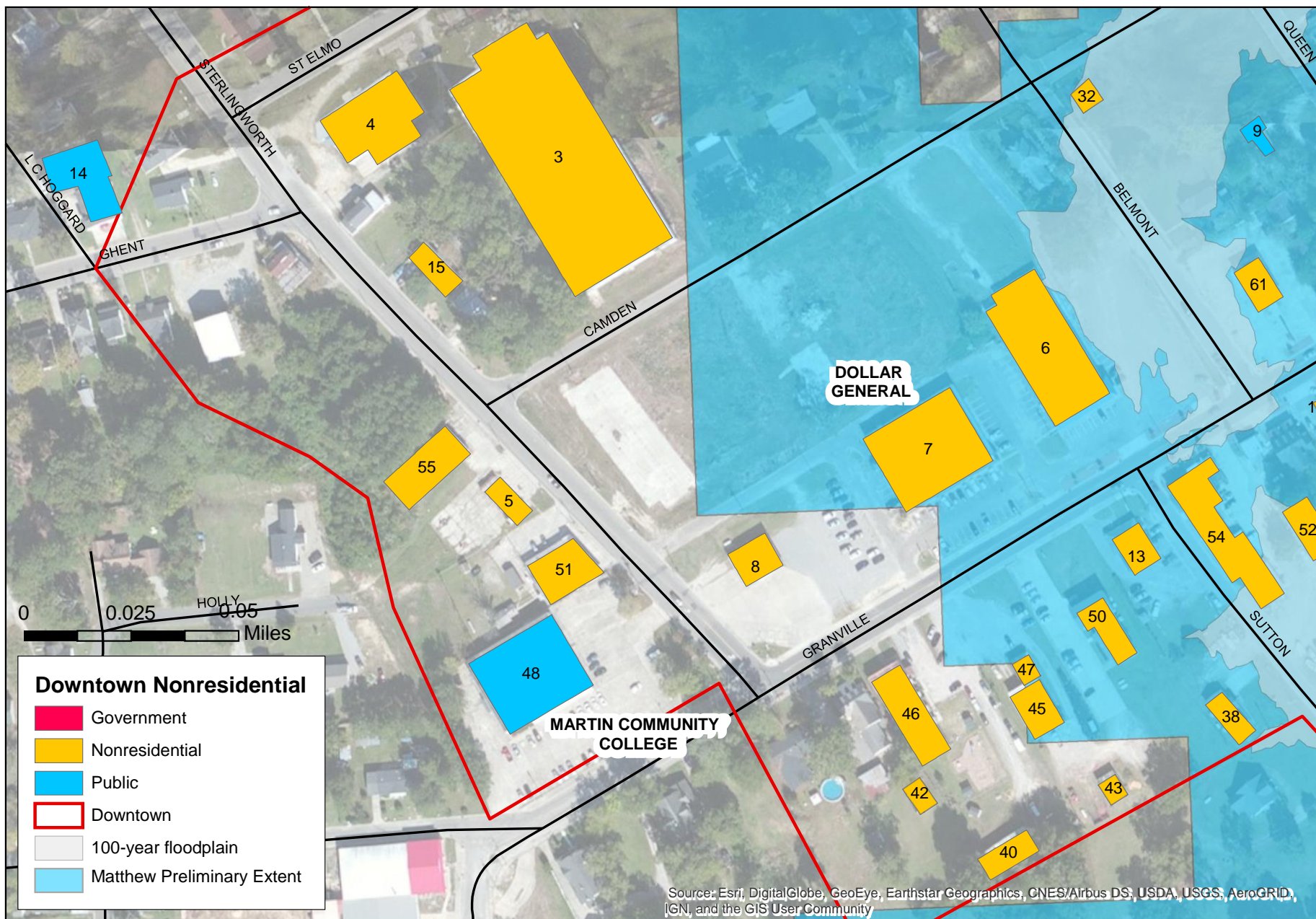


Table II: Building Ownership

Number	Business / owner
7	Dollar General
8	Lasca's - Restaurant
13	Self-Help Credit Union
14	Zion Bethlehem Baptist Church
19	Bunn's BBQ
20	USPS
25	China King
28	Ivy Lane Florist
35	Cashie Baptist Church
36	Cashie Baptist Church
39	Cashie Baptist Church
45	Copeland's Tire and Wheel
47	Copeland's Tire and Wheel
48	Martin Community College
53	Government- Superior Court Judge
54	Bertie Sentry Hardware

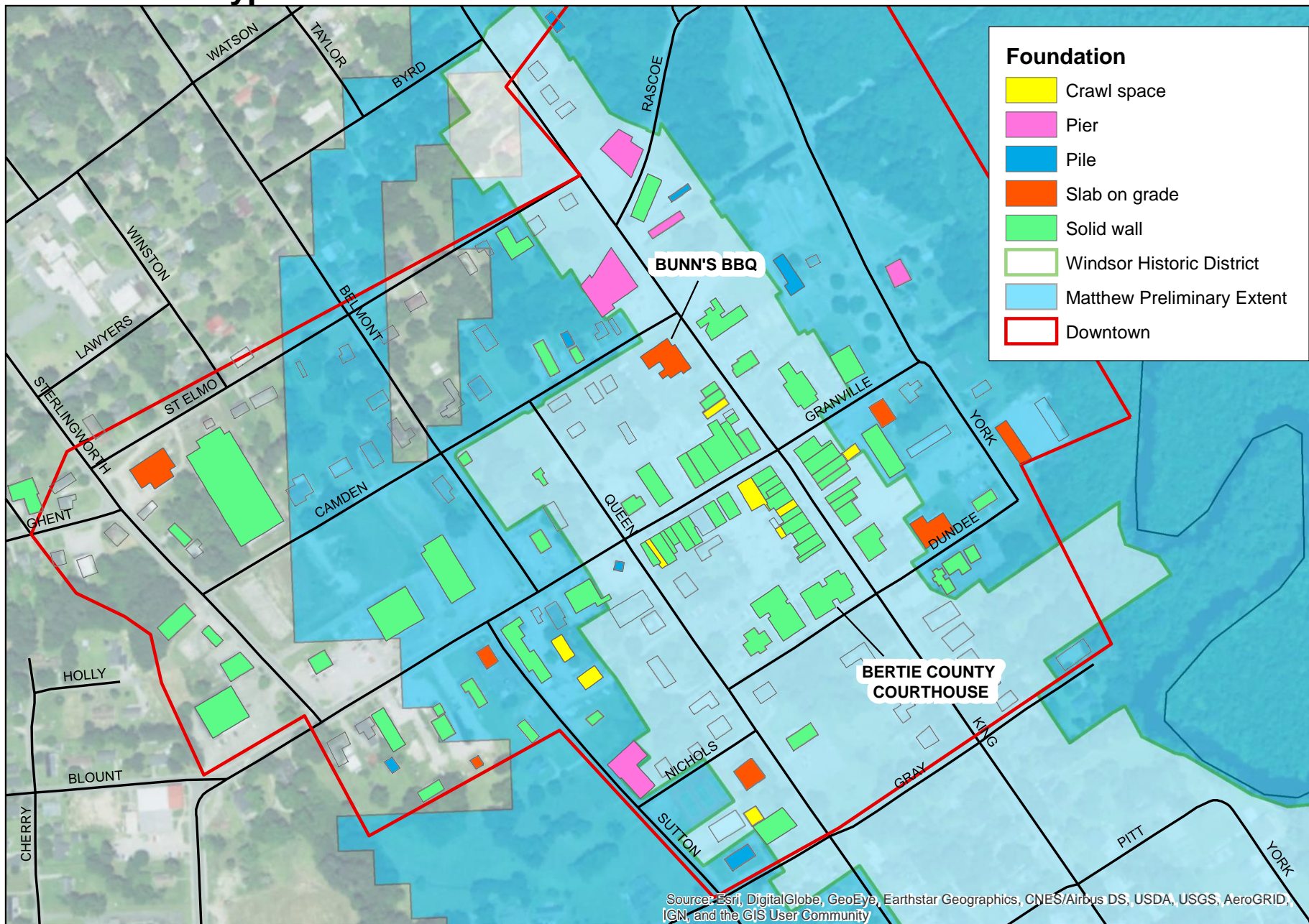
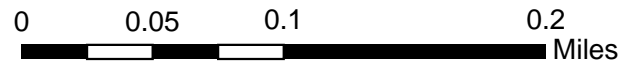
Number	Business / owner
56	Public - Bertie County Magistrate
57	Government - Bertie County Courthouse
61	Golden Skillet - Restaurant
62	Wells Fargo Bank
63	Municipal Library
75	Nationwide Insurance
76	Windsor Police Department
77	Bertie County Arts Council
78	King Street Grill
83	Kaley Jase Boutique
87	Bertie Ledger-Advance
87	Trendy Loops Clothing
93	North Carolina License Plate Agency
94	Opportunity Shoppe
96	Lighthouse Café with Cakes
100	Southern Bank & Trust

III. Hurricane Matthew Impact

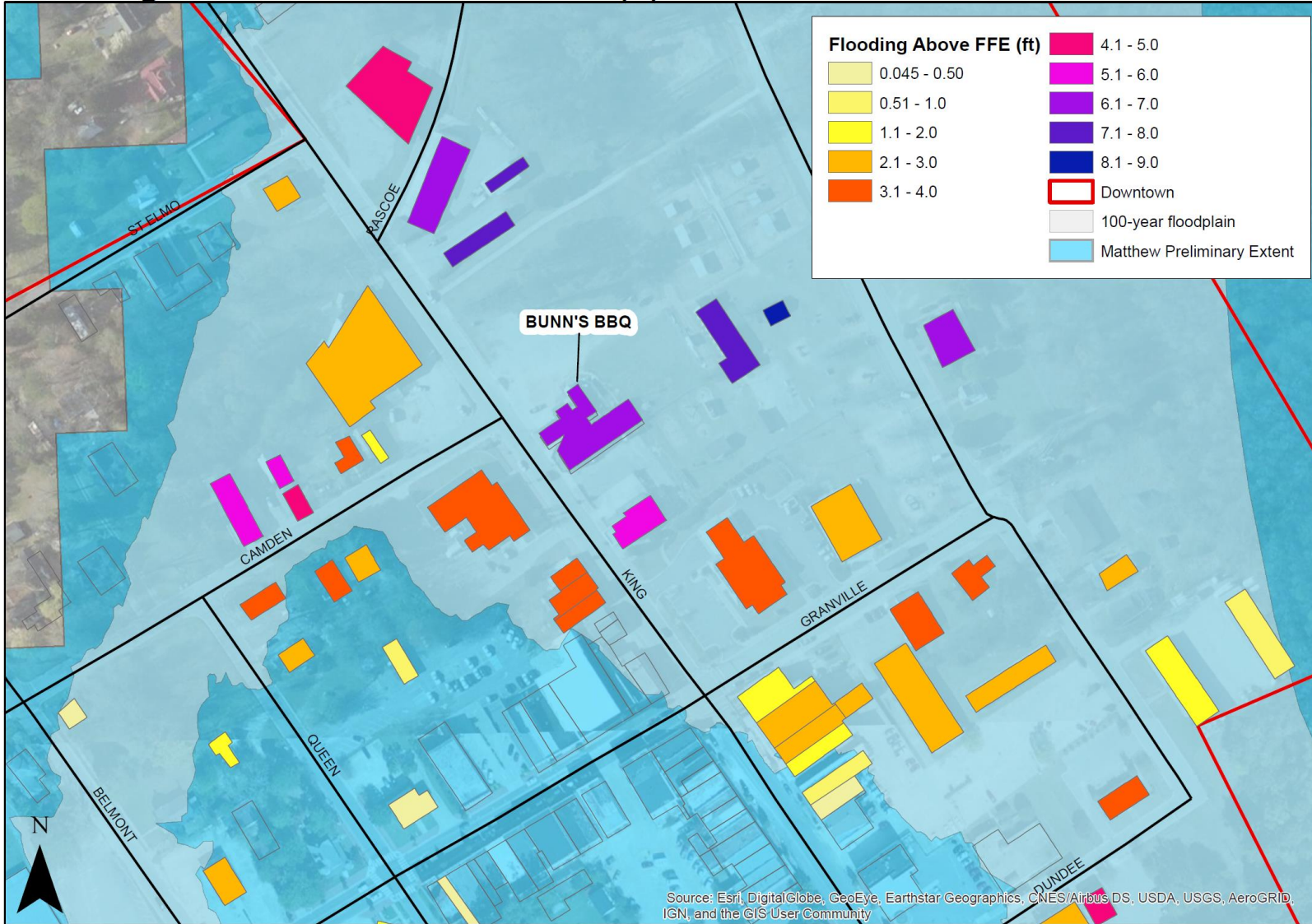
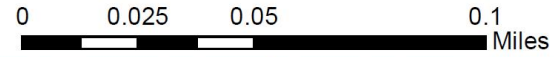


Photo by Scott Sauer
Retrieved from <http://www.roanoke-chowannewsherald.com/2016/10/11/major-flooding-in-bertie-windsor-hit-hard-again/>

Downtown Windsor, NC Foundation Type



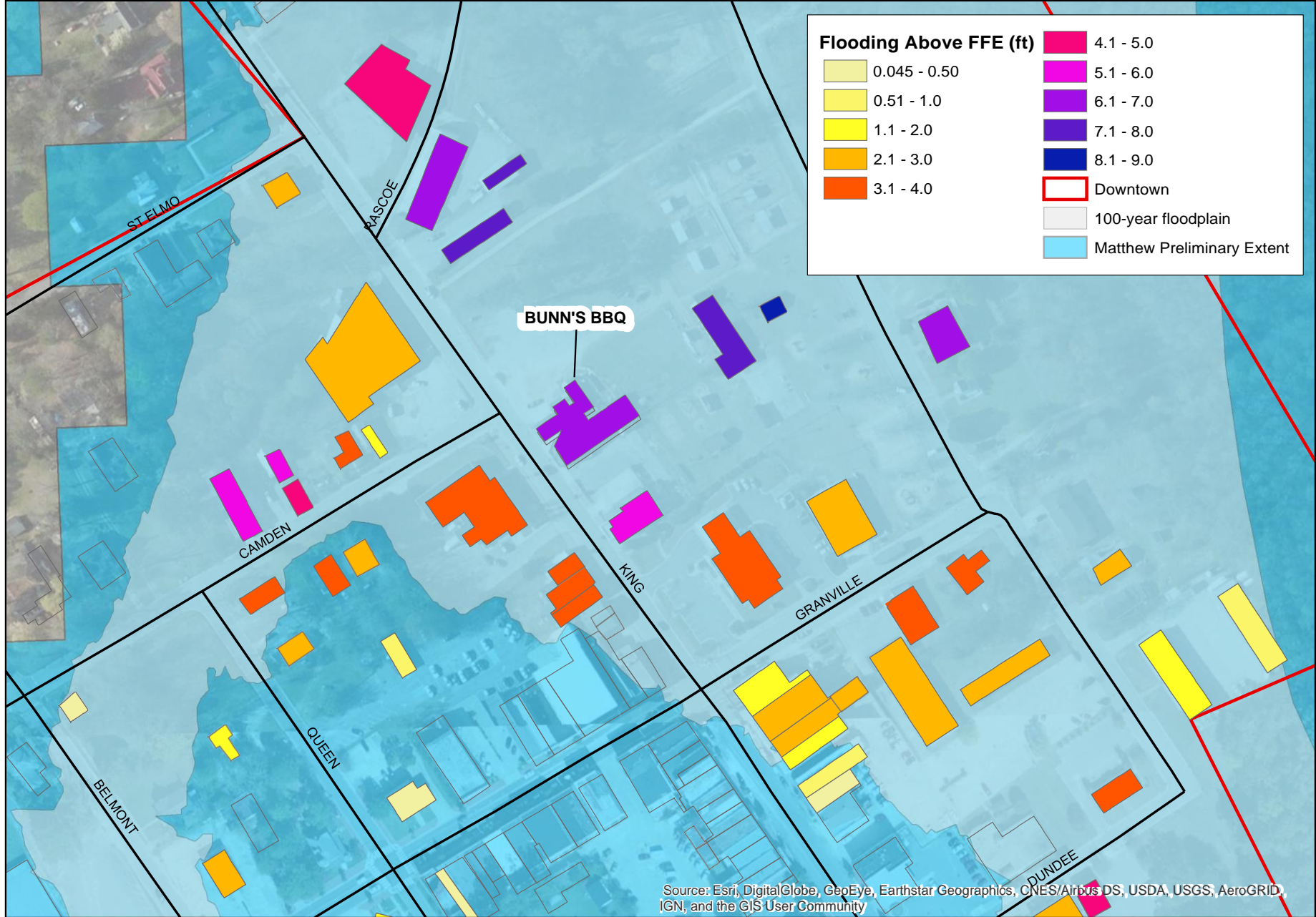
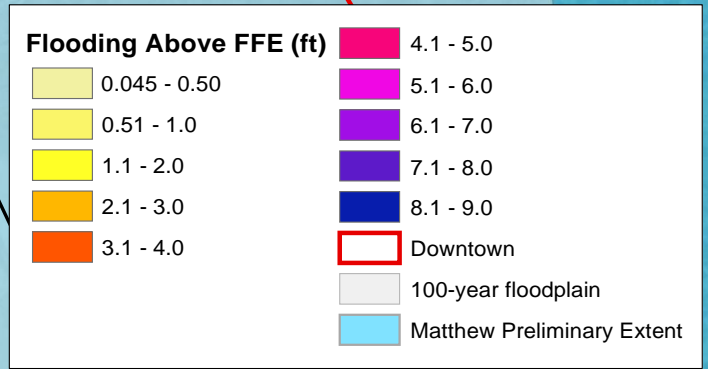
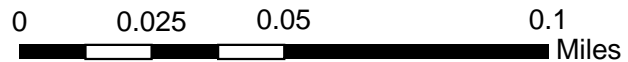
Downtown Windsor, NC - North Flooding Above First Floor Elevation (ft)



It is likely the data is inconsistent or incomplete because in the map above, many buildings in the downtown area show there was little or no flooding above the first-floor elevation. The data regarding the preliminary damage assessment for those same structures with apparently no flooding is incomplete as most hold the value N/A in the dataset instead of "Major", "Minor", or "Affected". The buildings with data available are likely accurate.

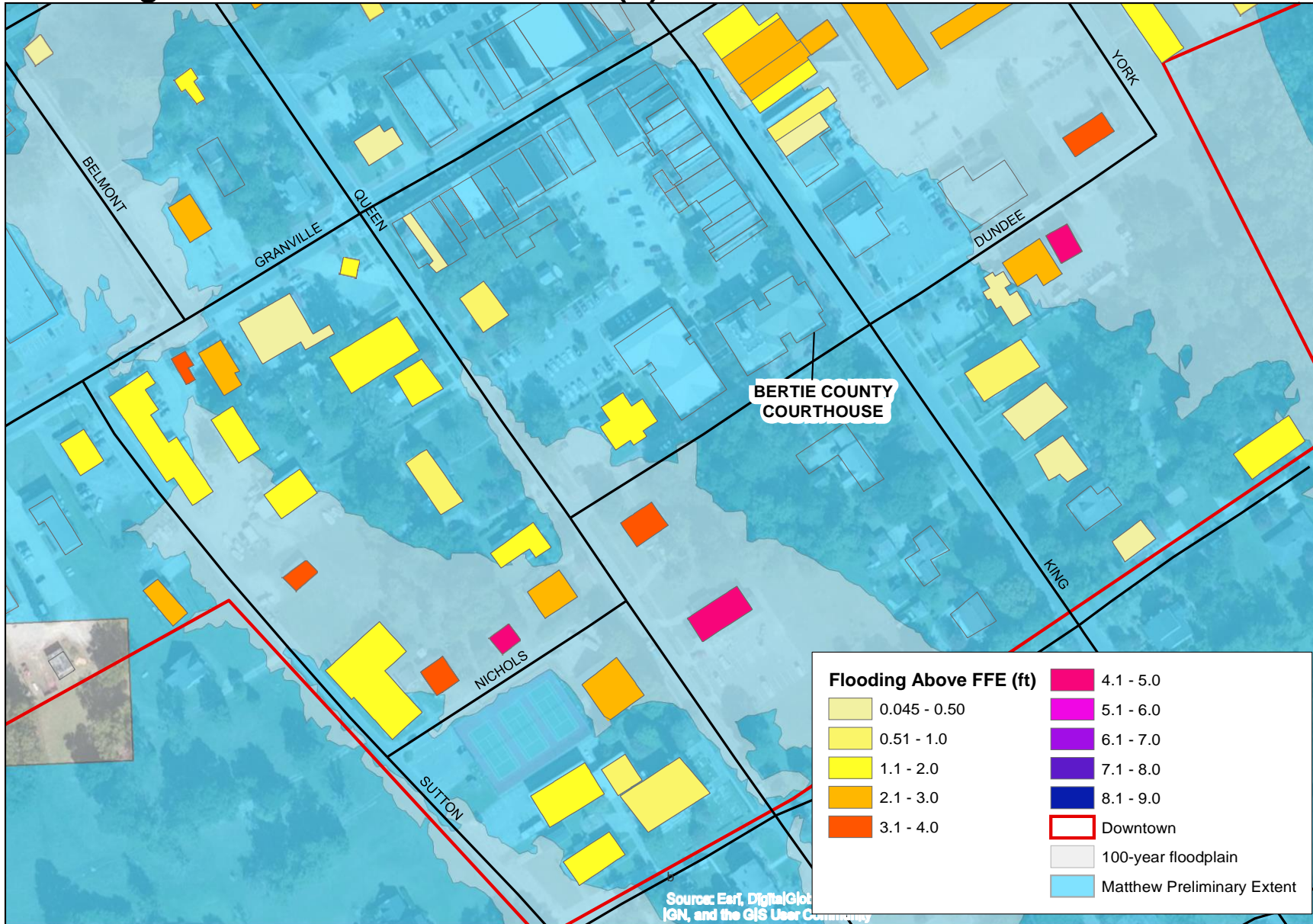
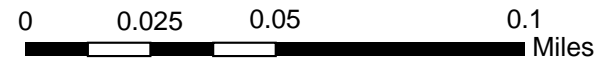
Downtown Windsor, NC - North

Flooding Above First Floor Elevation (ft)



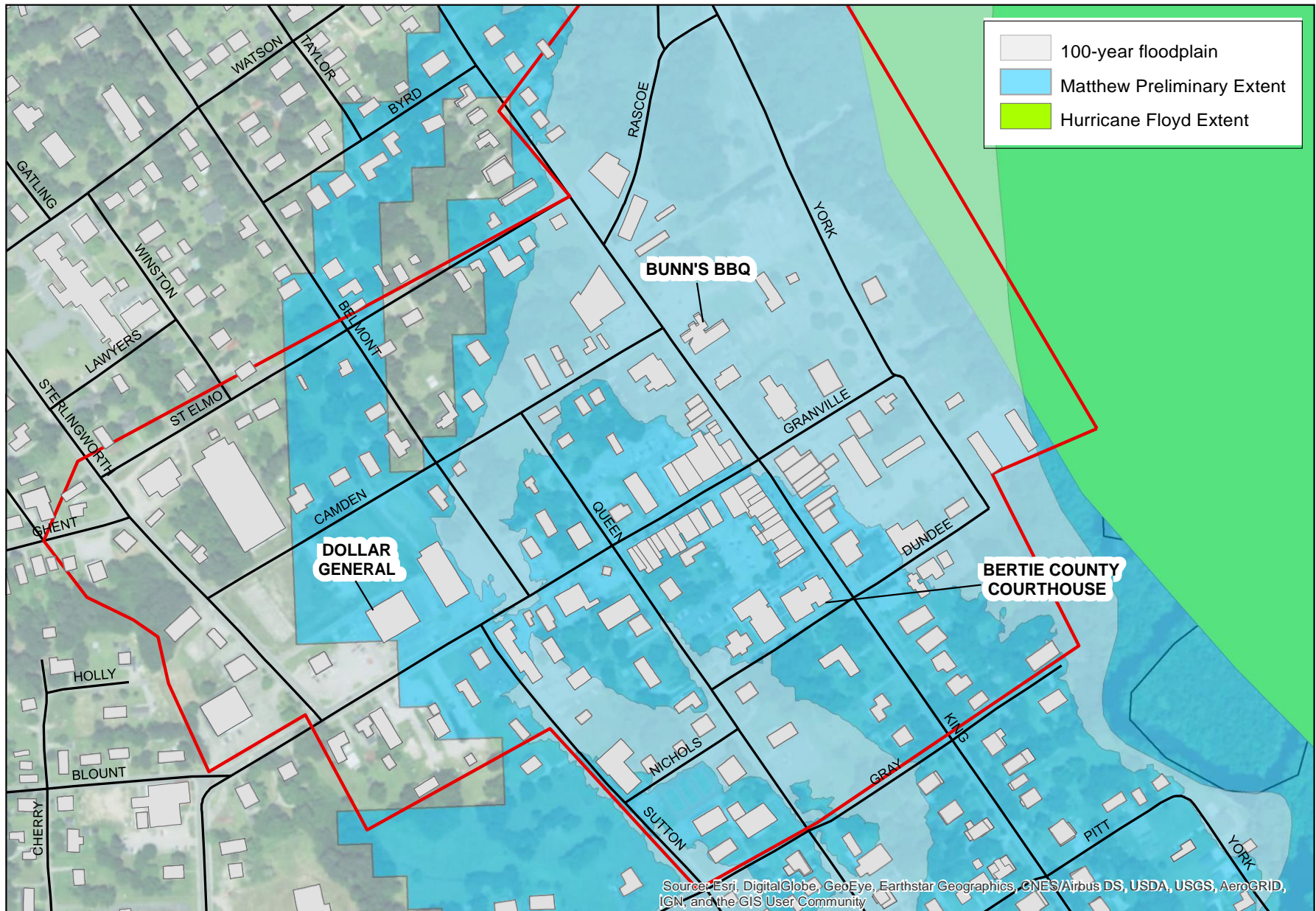
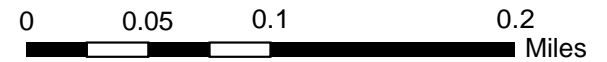
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Downtown Windsor, NC - South Flooding Above First Floor Elevation (ft)



Many structures in the downtown area did not have data available for the height of flooding above the FFE.

Downtown Windsor, NC Hurricane Floyd Inundation



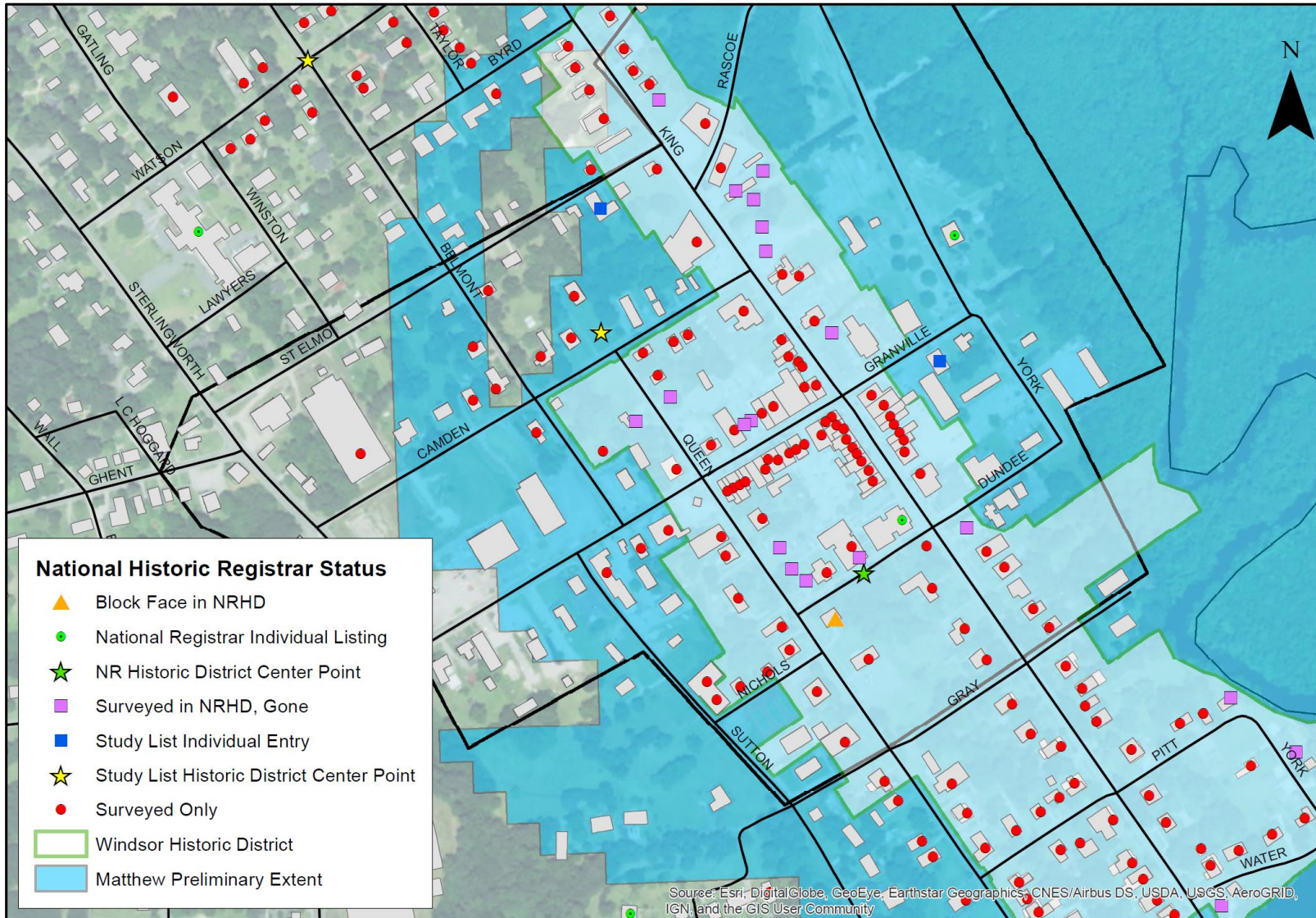
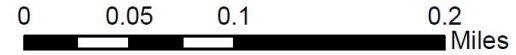
Given the data available on the extent of hurricane Floyd, it seems as though Windsor's downtown was unaffected.

IV. Building Characteristics



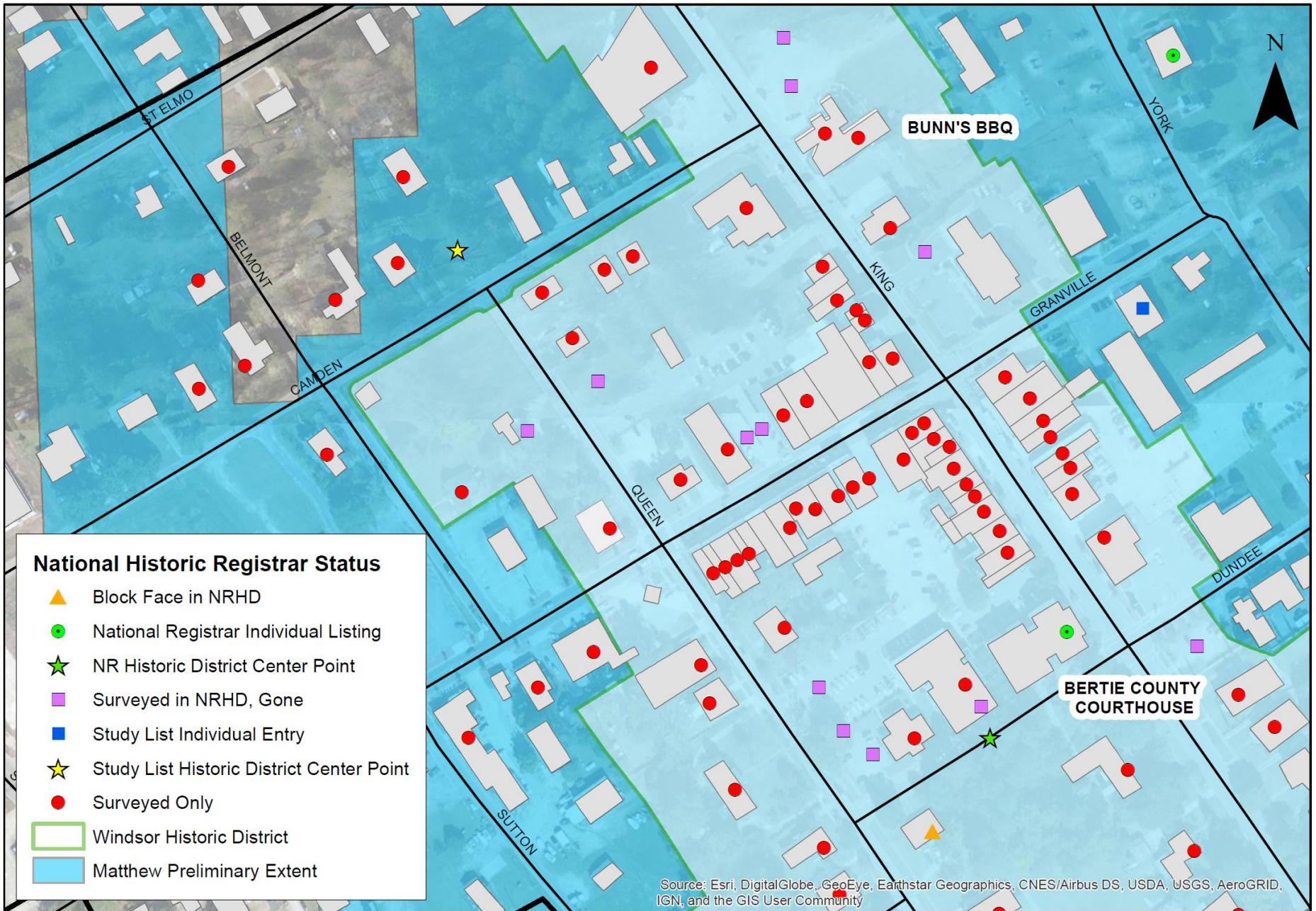
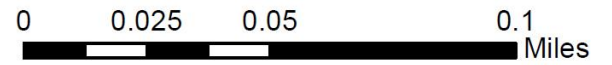
Photo sourced from: <http://wavy.com/2016/12/23/hurricane-matthew-flooding-hasnt-deterred-windsor-businesses-from-reopening/>

Downtown Windsor, NC National Historic Registrar Status



The National Historic Registrar recognizes Windsor's historic district and nine other buildings with individual listings. The majority of the structures in the downtown area are not listed as historic structures but were surveyed when completing the application for the historic district. The Bertie county Courthouse is the only individual structure listing in the defined downtown area.

Downtown Windsor, NC National Historic Registrar Status

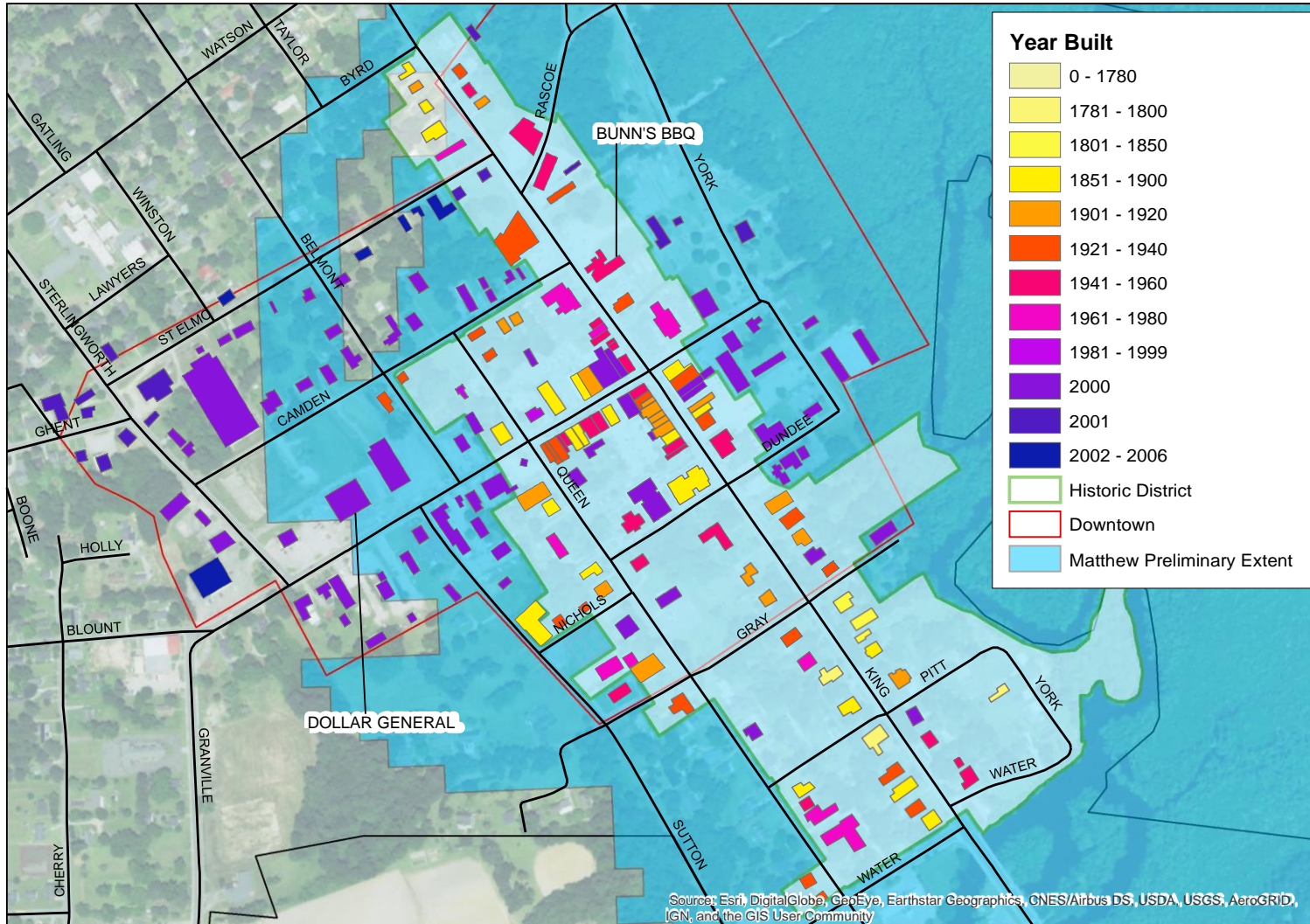
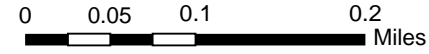


National Historic Registrar Status

- ▲ Block Face in NRHD
- National Registrar Individual Listing
- ★ NR Historic District Center Point
- Surveyed in NRHD, Gone
- Study List Individual Entry
- ★ Study List Historic District Center Point
- Surveyed Only
- Windsor Historic District
- Matthew Preliminary Extent

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Downtown Windsor, NC Year Structure First Built

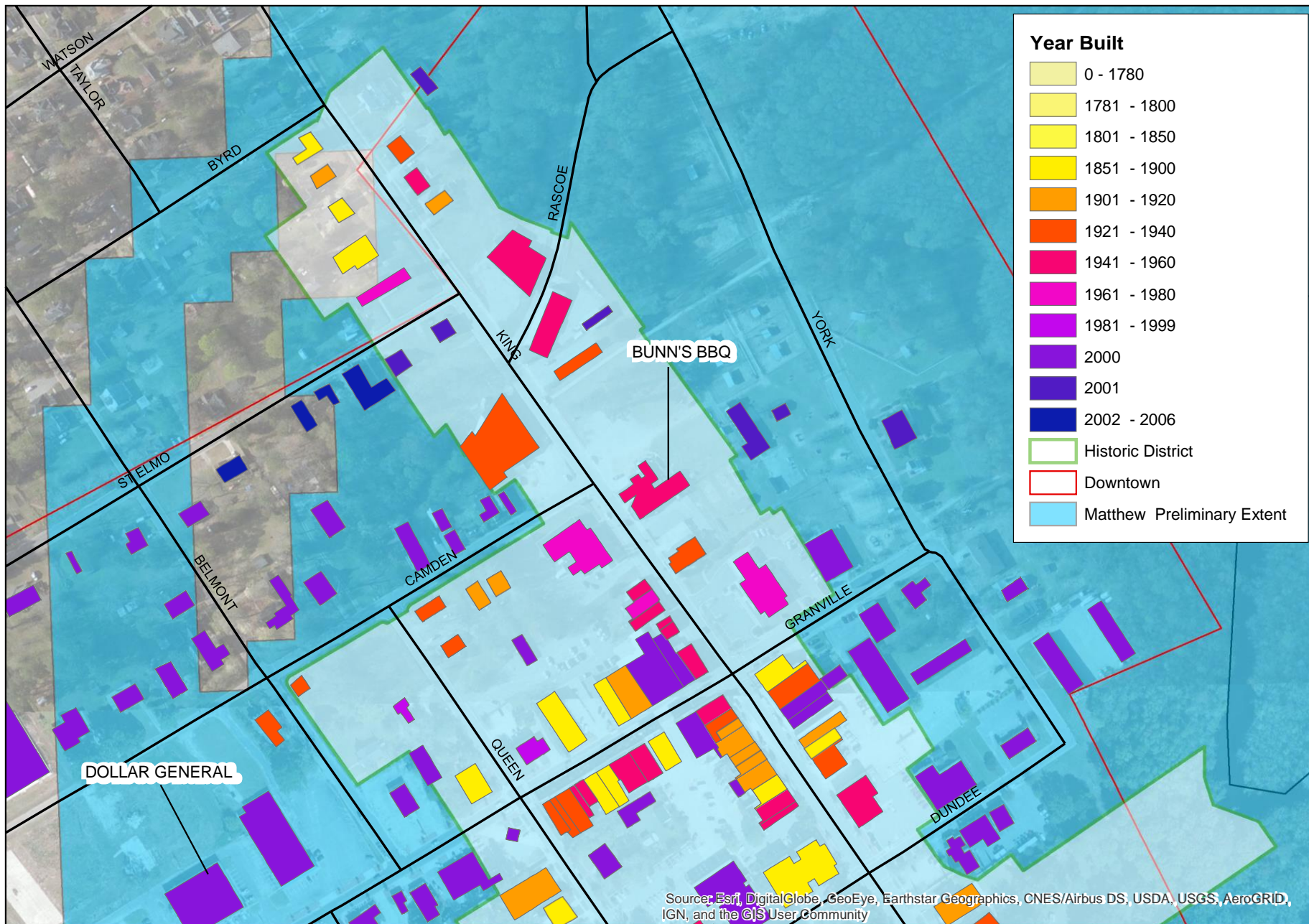


The year built in the data set used for the building footprints is incorrect and therefore, the original application for the historic district which identifies each structure and the year it was built was used to manually change the year built in the dataset. The default year for unknown dates is 2000 so it is likely that most of the structures supposedly built in 2000, were not actually. Additionally, there is likely significant human error in the year structure built because there were inconsistencies when matching the structures mentioned in the application to current structures.

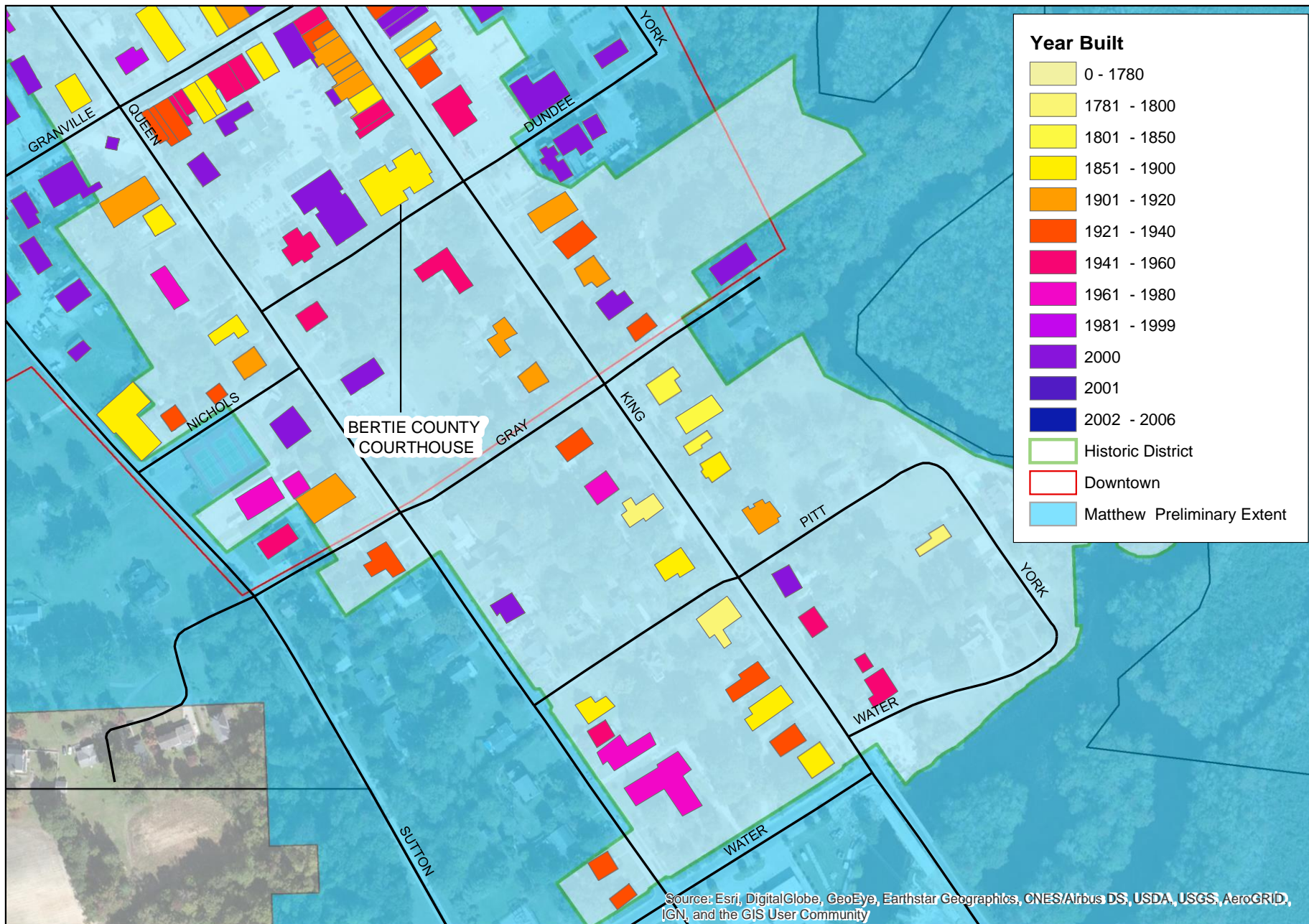
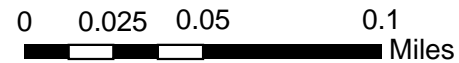
Downtown Windsor, NC - North

Year Structure First Built

0 0.025 0.05 0.1 Miles



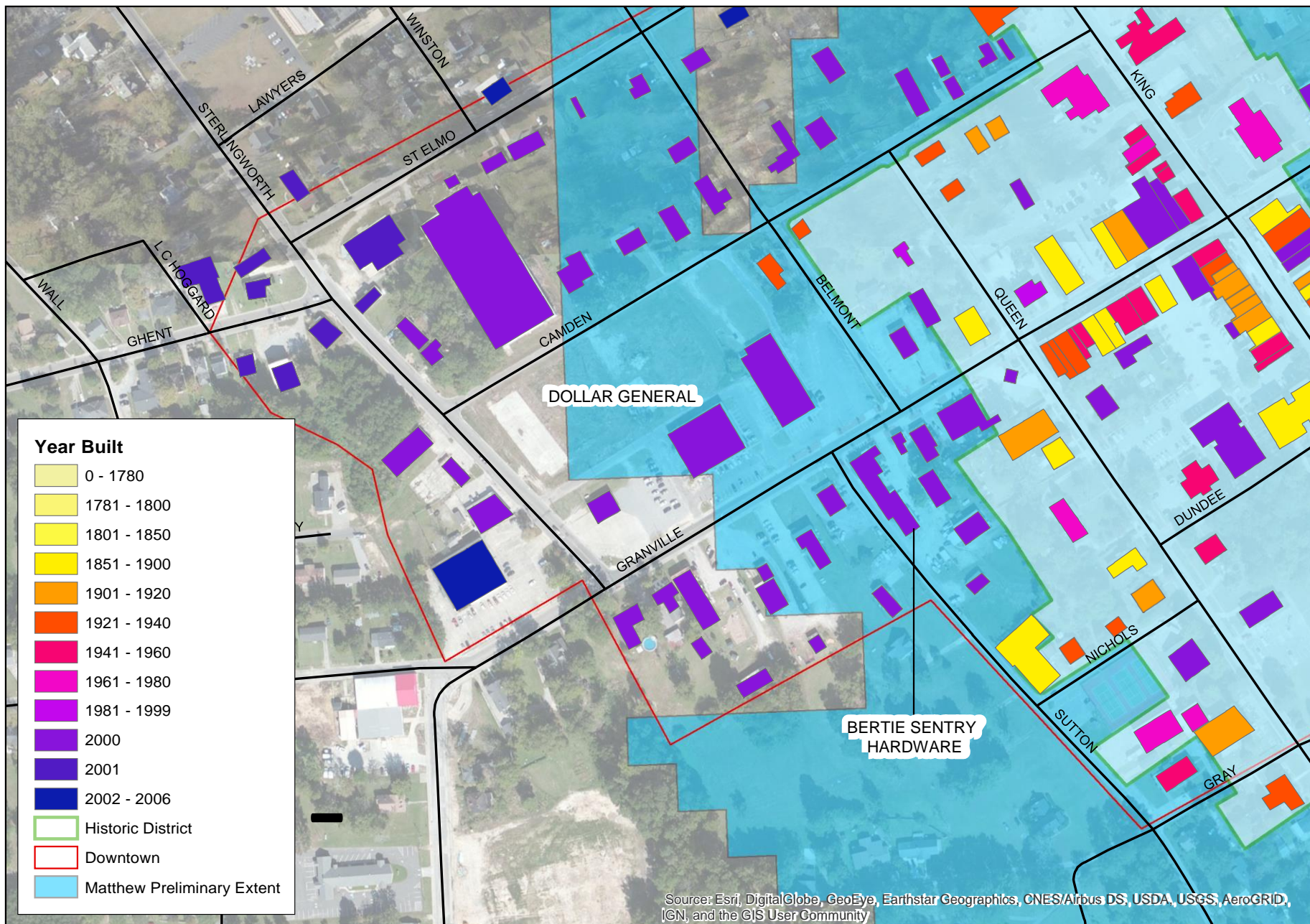
Downtown Windsor, NC - South Year Structure First Built



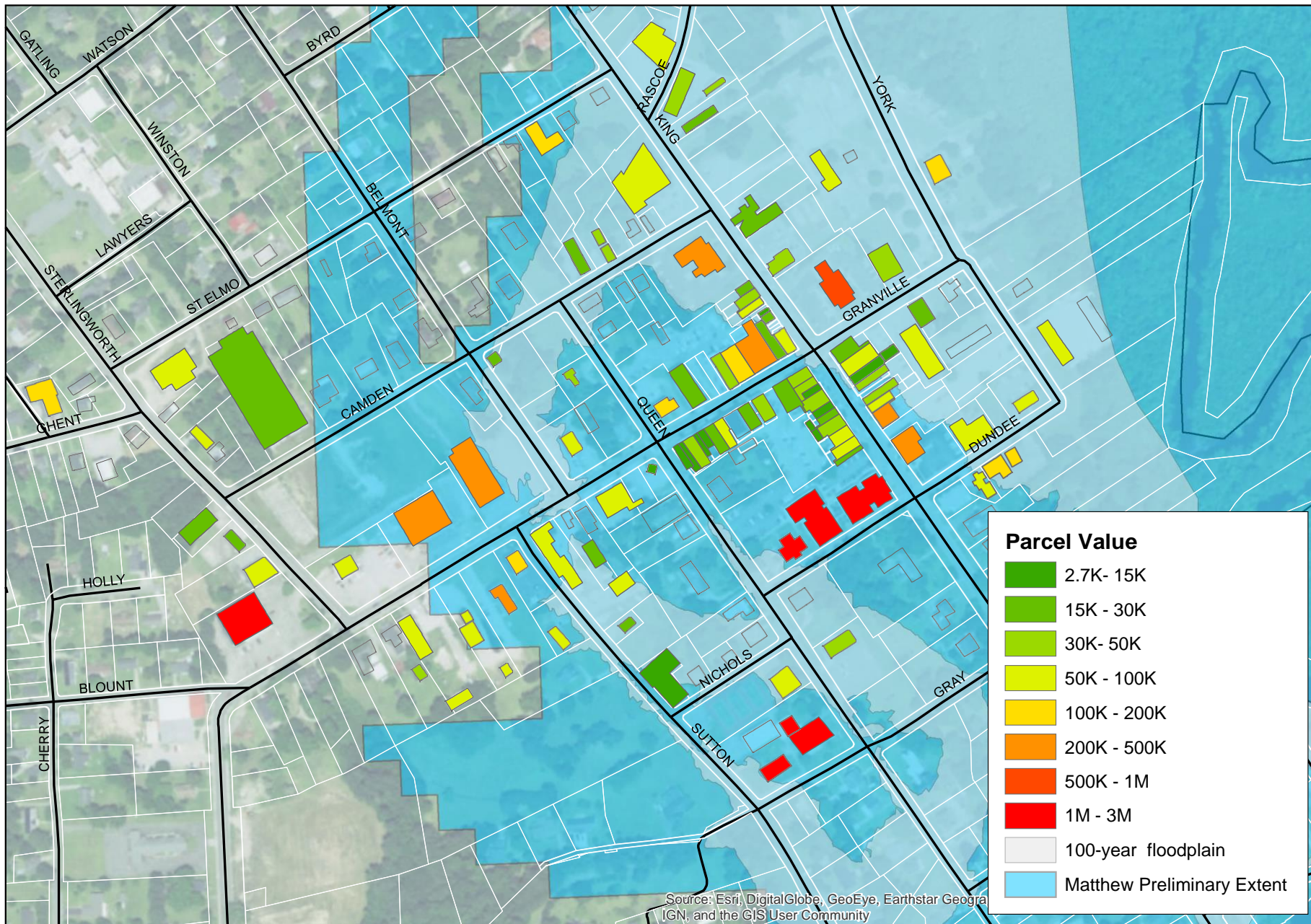
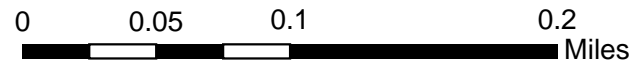
Downtown Windsor, NC - West

Year Structure First Built

0 0.025 0.05 0.1 Miles

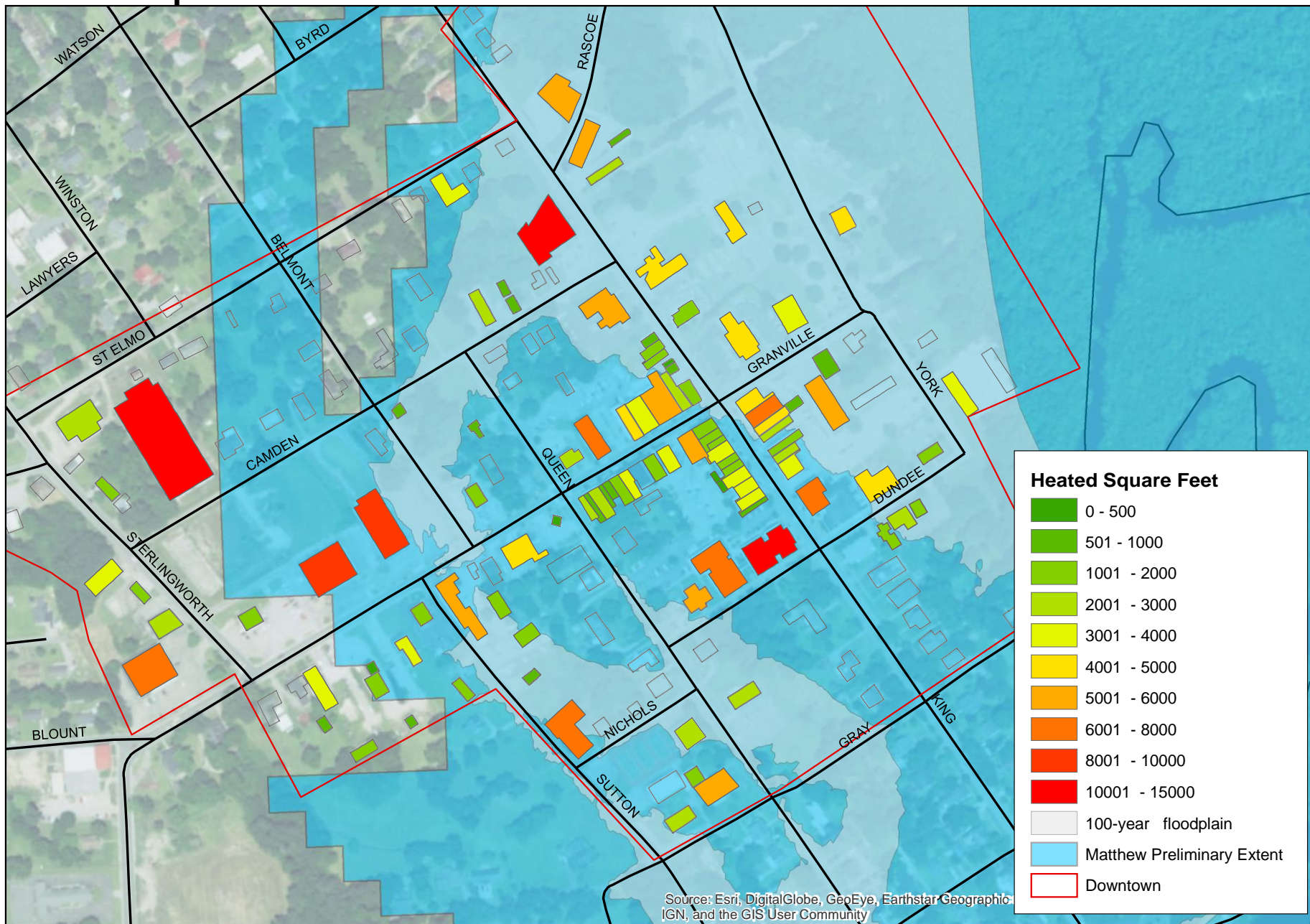
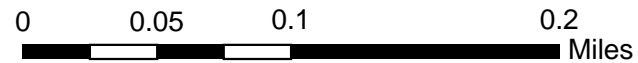


Downtown Windsor, NC Parcel Value



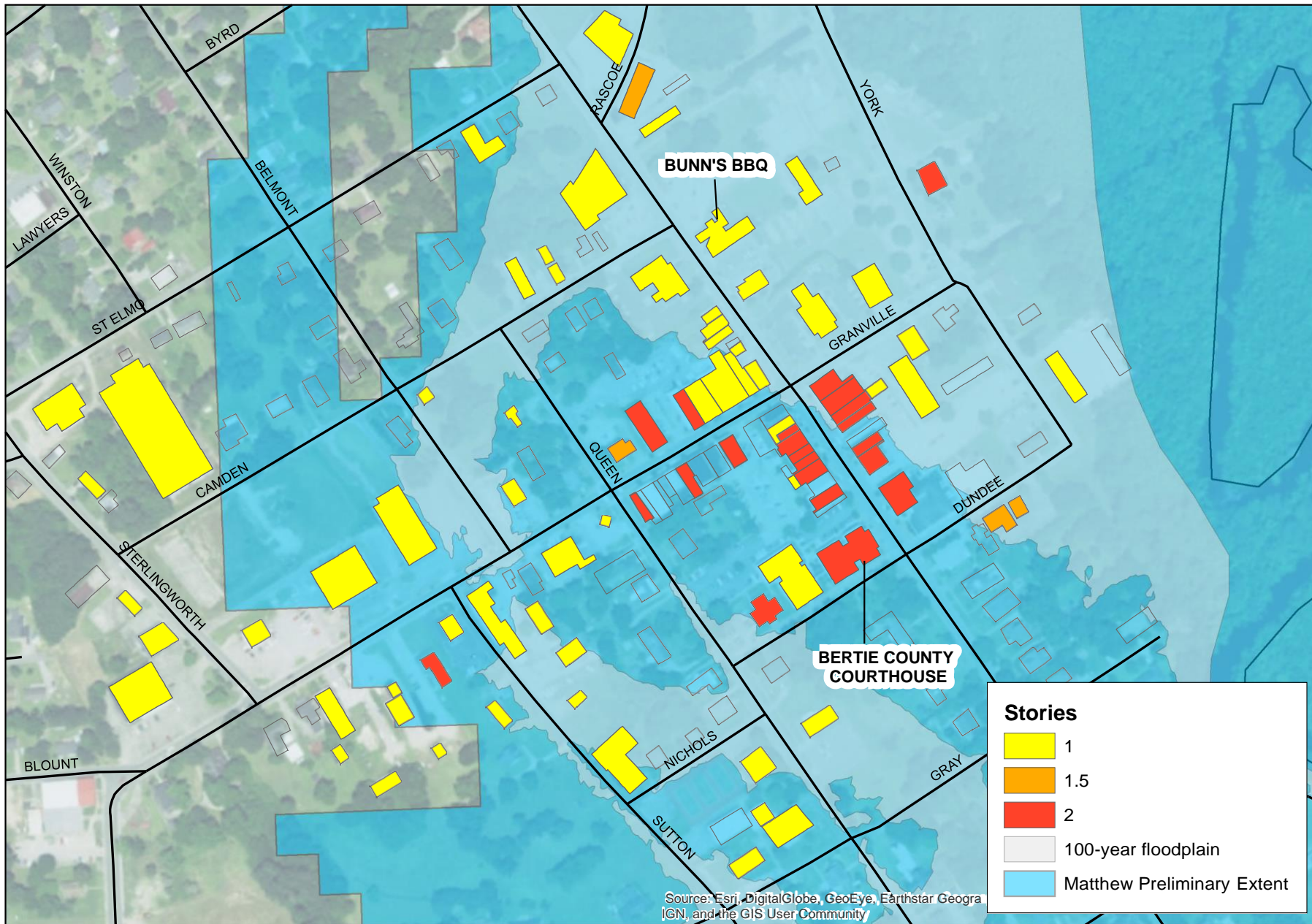
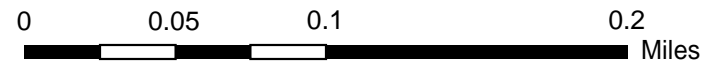
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geogra
IGN, and the GIS User Community

Downtown Windsor, NC Heated Square Feet



Downtown Windsor, NC

Number of Stories in Structure



V. Data

Fair Bluff Characteristics

ACS 5-year Estimates (2015)

ESRI Business Analyst (2016) via DFI Report

Building and parcel level data

NCEM and NC OneMap - Bertie County Tax Assessor <http://data.nconemap.gov/downloads/vector/parcels/>.

Data on number of stories and foundation type collected using North Carolina's Flood Risk Information System (FRIS) online.

100-year Floodplain

NC FRIS <<http://fris.nc.gov/fris/Home.aspx?ST=NC>>.

Hurricane Matthew inundation extent and depth

United States Geological Survey <<https://www.sciencebase.gov/catalog/item/58f796a7e4b0b7ea5451f222>>.

Appendix F

Survey Records



Flood Retrofit Study

Thursday, December 7, 2017

6:17:54 AM

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
1	17414	FB	A	Seems to have crawl space. If first floor is above BFE, then add flood XXX/wet floor proof. Not sure if building is salvagable.	ZF
2	17645	FB	B	2 entry points. Dry floodproofing seems best option. First floor below BFE. Seems salvagable. Flave cover. Water line is 3 ft high+	ZF
3	17413	FB	C	First floor below BFE. Dry floodproof. 1 entry in front, 1 in back in right half. Seems same on left side. Flex cover. Water line is 3 ft high+	ZF
4	17975	FB	C1	1 front entry thru hardware store. First floor below BFE. Dry floodproof. Vertical flat wall for front door or maybe flex cover. Mold too bad to go in. Not sure about rear entry. Appliance XX XX and entry door. Flex cover seems best for one small front door. Water line 3 ft high+	ZF
5	17969	FB	D	Industrial lumber yard. FF just above BFE. Multiple openings. Flex cover for openings	ZF
6	17968	FB	E		
7	17642	FB	F	Post office. Seems operable. Looks elevated higher than surrounding properties. Elevated with fill. Above BFE. Dry floodproof.	ZF
8	17925	FB	G	Below BFE. One front entry. Birch veneer on at least 3 feet. Door locked, so not sure about exit. Dry floodproof. Left building same scenario. Door XXXXX XXX XXXX XXX	ZF
9	17802	FB	H	Old steel building. Demolish	ZF
10	18237	FB	I	One entry door. Below BFE. Dry floodproof	ZF
11	81930	FB	J	Below BFE. One entry door.	ZF
12	18179	FB	K	Lots of windows below BFE presumably. 3 front door entry points. Newer building. Auto repair shop. 3 garage doors	ZF
13	62032	FB	L	Below BFE. Newer building. Front door, side door, rear door, AC unit, Elevated windows look high enough. Flex cover for doors.	ZF
14	18272	FB	M		
15	18174	FB	M1		
16	96687	FB	N	Slab area? Maybe park? Right next to trail.	ZF

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
17	18176	FB	O	Scott Motor Co. Large building. Far right side of building has crawlspace. High ceilings. Left half of building has low windows (Within XX of grade). Back half of building looks very rough. Bad shape in back half.	ZF
18	18260	FB	P	Left living in interior in bad shape. Windows approx. 18" above grade. 2 entry doors	ZF
19	18167	FB	P1	Warehouse. One entry door. One garage type door in rear.	ZF
20	18172	FB	R	Old theater. Low ceilings in front but looks like high ceilings in middle/rear. Looks really bad inside. Salvagable? Raise floor and repurpose?	ZF
21	18018	FB	S		
22	17574	FB	S1	Low ceilings. Venting for display area. Dry floodproof. AC unit lifted.	ZF
23	17576	FB	T	Two small doors at entry. Windows approx. 12" above grade. Raise flooring? Floor in bad shape	ZF
24	17573	FB	T1	Vents in front door under display case. Raise flooring? One entry door. One rear door.	ZF
25	17961	FB	U	2 rear doors. No windows below BFE on rear. Rear side XX XX. Maybe basement XX. Front door and windows below BFE on front. Raise flooring?	ZF
26	17963	FB	U1	One front entry door. Windows approx. 18" above grade. One rear door. No side or back windows. Raise flooring?	ZF
27	179872	FB	V	One entry door in front. Inside looks rough. Windows approx. 18" above grade.	ZF
28	17964	FB	W	XXX XXXX. One front entry door. Windows approx. 18" above grade. Large storage room in rear of building. One entry door on back side of building and one more direct to rear.	ZF
29	17965	FB	Y	One of the larger buildings on the street. One front entry door. Windows about 18" above grade. 2 entry doors on direct XX. Window AC unit elevated.	ZF
30	17749	FB	Z	One rear door. AC elevated (window unit). Front half of structure is brick, back half is wood. 2 front entry doors. Windows appear above BFE.	ZF
31	18043	FB	AA	Scott Property. FF below BFE. 2 entry doors. One rear door to small room/office. Flex cover. Back in business currently.	ZF
32	18038	FB	BB	Town Hall. No flood damage	ZF
33	17414	FB	A	Interior demolition, re-paint	JDB

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
34	17645	FB	B	First floor abandon (wet floodproof) Dry floodproof	JDB
35	17413	FB	C	First floor abandon (wet floodproof) Dry floodproof	JDB
36	17975	FB	C1	Demo and rebuild Dry floodproof	JDB
37	17969	FB	D	Dry floodproof Perimeter wall	JDB
38	17968	FB	E		
39	17942	FB	F	Dry floodproof (easy)	JDB
40	17925	FB	G	First floor abandon (wet floodproof) Elevate floor and get rid of drop ceiling	JDB
41	17802	FB	H		
42	18237	FB	I		
43	81930	FB	J		
44	18179	FB	K		
45	62032	FB	L		
46	18272	FB	M		
47	18174	FB	M1		
48	96687	FB	N	Raise floor and remove drop ceiling Dry floodproofing Remove pavement next door	JDB
49	18176	FB	O	Raise floor Demolition	JDB
50	18260	FB	P	Raise floor	JDB
51	18167	FB	P1	Raise floor	JDB
52	18172	FB	R	Demolition	JDB
53	18018	FB	S	Raise floor and remove drop ceiling. Dry floodproof. Replace Floor	JDB
54	17574	FB	S1	Raise floor Dry floodproof	JDB
55	17576	FB	T	Raise floor Dry floodproof	JDB
56	17573	FB	T1	Raise floor Dry floodproof with exterior floodwall	JDB
57	17961	FB	U	Raise floor Wet floodproof	JDB

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
58	17963	FB	U1	Raise floor Dry floodproof	JDB
59	17972	FB	V	Raise floor Dry floodproof	JDB
60	17964	FB	W	Raise floor	JDB
61	17965	FB	Y	Dry floodproofing is an option Wet floodproof and rehab 2nd floor	JDB
62	17749	FB	Z	Already repaired Not substantial damage Dry floodproofing is an option	JDB
63	18043	FB	AA	Minor flooding <substantial damage Repaired	JDB
64	18038	FB	BB	N/A - Elevated	JDB
66	3001A	SS	G	Good candidate for dry floodproofing Note: Southern bank 4'	JDB
67	4003	SS	A	Demo/rebuild or dry floodproof Ceiling not high enough to elevate	ZF
68	4001	SS	B	Warehouse. Multiple garage style openings. High ceilings. XXXX to XXX first floor. Area on left side seems to be used for storage; can be vented. Wet and dry combo	ZF
69	3004	SS	C	2 rear doors. 4 garage doors. 1 side door. Flex gate? Flex cover. Dry office space/kitchen and vent garage?	ZF
70	3006	SS	D	First floor abandoned and wet floodproof. Rough shape	ZF
71	3007	SS	E	Add fill to basement area. Potentially lift and vent if building next door is demolished	ZF
72	3003	SS	F	Dry floodproof. Flex wall system. Divided into 3 parts. 1 rear door. Flex wall for front of building. Flex cover for back door.	ZF
73	3001A	SS	G	Dry floodproof. Flex cover for rear door. Flex cover for front door. Front window is below. Flex cover on windows.	ZF
74	2003A	SS	H	Bad shape - Demo.	ZF
75	2002	SS	I	Bad shape. Could dry floodproof. Already had foundation issues. Wall repair inside. Demo.	ZF
76	4004	SS	J	Wet floodproof back areas. Remove front office space or dry floodproof it.	ZF

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
77	4003	SS	K	One side door. One front entry door. Dry floodproof. Flex cover.	ZF
78	3005	SS	L	Awful shape. Termite damage. Demo	ZF
79	3004	SS	M	Demo. Structural XXXX everywhere. Tree roots in foundation. Front XX broken.	ZF
80	3003A	SS	N	Rear door flex cover. One front door - flex cover. Two front windows below; need to be floodproofed.	ZF
81	9369	W	A	Demolition Note: 4'	JDB
82		W	B	Planned for demolition Note: 6'	JDB
167	3828	W	J	Bunn's Barbeque Owner states he was flooded 10 times in 18 years. Hurricanes Julia and Matthew advance notice 18 hours. Can't elevate, may be best to relocate to alternative location.	JC
168	4765	W	L	EMS Building - old bank Fits dry storage trailer to haul animals	JC
169	6814	W	K	Southern Bank NFIP repetitive damage Had been elevated above the BFE. All furniture and contents were removed prior to the storm. Retrofit: elevated. Safe deposit boxes 2-ft. May be candidate for new flex flood gates.	JC
170	5529	W	M	3 LP tanks on ground level, anchor them Empty building. Demolish.	JC
171	5545	W	N	Chinese Restaurant Storage on second floor 4' flooding New flex style floodgate out front.	JC
172	5563	W	O	Has second floor Demolish? Can't elevate possibly wet flood proof? Long-term possibly mitigate out of floodplain.	JC
173	6418	W	R	Davis Insurance Agency 2 inches of flood water entered building Note higher than Arts Council building. Additional flood vents on exterior of building	JC
174	6426	W	S	Bertie County Arts Center 4 in-flood water dehumidifier running, Elevate vestibule above BFE	JC

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
175	6485	W	U	Town Hall 5 feet above BFE no flooding in Hurricane Matthew which was 3.79 feet above BFE	JC
176	3606	W	W	Demo	JC
177	2697	W	X	Demo	JC
178	4392	W	1A		JC
179	4384	W	1B		JC
180	4368	W	1C	Exterior flood wall with flex cover	JC
181	4450	W	D	Flex cover for door	JC
182	4432	W	1E		JC
183	4414	W	1F	Elevated floor XXX at front 8"	JC
184	4407	W	1G	Cherry Insurance 15-foot ceilings - elevate floor 1-foot footing in Hurricane Matthew Elevate electric outlets Dry floodproof at front entrance with new flex floodgates	JC
185	3499	W	1H	1999 no XXX	JC
186	3571	W	1I	Utilize new flex floodgates to protect windows and front door	JC
187	3682	W	V	Side dock cut drywall up to 4' feet Front has plate glass door and plate glass windows.	JC
188	2679	W	Y	Demolish	JC
189	1782	W	BB	Address: 116 - 117 North King Street HVAC elevate, electrical elevate, install 10-foot flex flood gates to cover window and door.	JC
190	9065	W	DD	Retail Stores Potential, but may have to demo	JC
191	2617	W	Z	Historic building, 1930s Elevate 3 feet. Flood vents would help.	JC
192	2025	W	F		JC
193	5570	W	P	Gift shop and florist, Masonic Lodge second floor Could use flood vents 16 in drop ceiling over 4ft Elevate vestibule entry	JC
83	1223	W	C	Demolition Note: 8'	JDB

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
84	1159	W	D	N/A - Vacant Note: 6'	JDB
85	1192	W	E	N/A - Vacant Note: 7'	JDB
86	2025	W	F	N/A - Vacant Note: 7'	JDB
87	2071	W	G	None Note: Bunns BBQ Note: 7'	JDB
88	3938	W	H	Demolition Note: 6'	JDB
89	4904	W	I	N/A - Picnic shelter - OK Note: 8'	JDB
90	3828	W	J	Demolition Dry floodproof? Doubtful, due to BFE height Note: 4'	JDB
91	4765	W	L	Wet floodproof Venting Note: 3'	JDB
92	6814	W	K	Building is elevated to 0.2% on fill. Note: Bank Note: 2'	JDB
93	5529	W	M	Demolition Note: 1'	JDB
94	5545	W	N	Wet floodproofed Anchor propane tanks Note: 2'	JDB
95	5563	W	O	Wet floodproofing Demolition and open space First floor abandon Note: 2'	JDB
96	5570	W	P	Elevate outlets Raise floor and remove drop ceiling Note: 2'	JDB
97	6418	W	R	Add crawlspace vents Dry floodproof entrance Note: 1'	JDB
98	6426	W	S	Anchor propane tanks Elevate first floor and remove drop ceiling area Note: 1'	JDB

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
99	6485	W	U	Raise first floor Dry floodproof with perimeter barrier Elevate generator and switch gear Tile 1' or 2' on wall Note: 1'	JDB
100	3632	W	V	Dry floodproof (if structurally capable) Note: 3'-4'?	JDB
101	3606	W	W	N/A - Vacant Note: ?	JDB
102	2697	W	X	Demolition Note: ?	JDB
103	2679	W	Y	Demolition Note: ?	JDB
104	2617	W	Z	Anchor propane tanks Note: 4'	JDB
105	1699	W	AA	Demolition Dry floodproof if structurally capable Note: 4'	JDB
106	1782	W	BB	Demolition Dry floodproof if structurally capable Note: 4'	JDB
107	1802	W	CC	Dry floodproof egress points Note: 4'	JDB
108	9065	W	DD	Demolition Note: 2'	JDB
109	8900	W	EE	Demolition - SRL and Abandon Note: 5'	JDB
110	4392	W	1A	Dry floodproof (perimeter planter wall)	JDB
111	4384	W	1B	Dry floodproof along with neighbors	JDB
112	4368	W	1C	Dry floodproof	JDB
113	4450	W	1D	Dry floodproof	JDB
114	4432	W	1E	Dry floodproofing	JDB
115	4414	W	1F	8" water in Matthew Raise floor Dry floodproof (easy)	JDB
116	4407	W	1G	2' Floyd. 1' Matthew Dry floodproofing Elevate floor Note: JB Cherry Insurance	JDB
117	3499	W	1H	Dry floodproofing Note: Insurance	JDB

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
118	3571	W	1I	Dry floodproofing	JDB
119	4003	SS	A	Demolish/rebuild Dry floodproof Note: Outfitters Note: 4'	JDB
120	4001	SS	B	Raise floor to wet floodproof Storage area - vent and wet floodproof or raise floor Note: 2'	JDB
121	3004	SS	C	Anchor propane tank Elevate or remove diesel fuel tank Wet floodproof Note: Fire Station Note: 3'	JDB
122	3006	SS	D	Abandon first floor and wet floodproof Demolish and rebuild Note: 2'	JDB
123	3007	SS	E	Add fill to subterranean crawlspace. Dry floodproof. Elevate the entire structure. Note: 2'	JDB
124	3003	SS	F	Anchor propane tanks or remove if unused. Dry floodproof. Note: Mae's Restaurant Note: 4'	JDB
125	2003A	SS	H	Demolish Note: 5'+	JDB
126	2002	SS	I	Demolish Note: 3'	JDB
127	4004	SS	J	Wet floodproof and remove occupied space. Note: 0'-1'	JDB
128	4003	SS	K	Dry floodproofing Anchor propane tank Note: 2'	JDB
129	3005	SS	L	Demolish Note: 4'	JDB
130	3004	SS	M	Demolish Note: 3'	JDB
131	3003A	SS	N	Dry floodproof (limited number of openings) Note: 3'	JDB
132	17414	FB	A	Better flood vents in crawlspace Wet floodproofing - minimize first floor use Has second floor	JM

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
133	17645	FB	B	Two story Elevate HVAC To dry floodproof, have to retrofit windows (entry point) Barriers - deployment should be very easy ISSUE - Adjacent buildings - would need to treat like a complex Second floors used as storage	JM
134	17413	FB	C	Window retrofit - skirting with planters? Green appearance Skipped two buildings to get to C1 - both would have to be included in a XX mit. Same construction - DEMO? Furniture store, small fountain	JM
135	17975	FB	C1	Hardware Store - Ellis Mcares & Son Objects left in place Could elevate floor well here Could do skirting - again, go green - would have to be done to hold back weight of H2O Brickwork degrading Outside long wall could have a nice mural - currently a faded sign Furniture place, drop ceiling - pull out and raise the floor	JM
136	17969	FB	D	Storefront entryway no longer used, hasn't been for years Planter or mural	JM
137	17968	FB	E		JM
138	17642	FB	F	Post Office Dry floodproofing feasible with barrier at entrance	JM
139	17925	FB	G	Both buildings - historically the own hall Could elevate floor Acutally has three floors	JM
140	17802	FB	H	Old metal building, falling in - no action	JM
141	18237	FB	I	Address - 1089 Had voting sign Drop ceiling - take out and elevate floor	JM
142	81930	FB	J	Gun Smith High security - could have the modular flood barrier built into the welded metal front cage door	JM
143	18179	FB	K	Modern looking construction Could elevate interior - demo Popcorn ceiling	JM
144	62032	FB	L	Address: 1055 - Pizza place for rent Issue seepage at CMU intersection with slab	JM

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
145	18272	FB	M	Empty lot	JM
146	18174	FB	M1	Old metal warehouse next to empty lot No mit.	JM
163	18038	FB	BB	Town Hall Elevated, didn't get flooded	JM
164	4904	W	I	Trucking company Demolition and remove 5-6' of water	JC
165	2071	W	G	Depth of water 6 feet. Demolition and remove	JC
166	4904	W	I		JC
147	96687	FB	N	Nada	JM
148	18176	FB	O	N = Unknown O = Scott Motor and next to it Address 1162 Front abandoned for years Back = metal warehouse - DEMO Front = Retrofit? - Dictated by owner? Renter? Closest to river	JM
149	18260	FB	P	Old appliance maintenance/sale Been vacant for years Ceiling damage DEMO	JM
150	18167	FB	P1	Warehouse - recommend DEMO	JM
151	18172	FB	R	Old theater house Beautiful old building - it's trashed DEMO	JM
152	18018	FB	S	Go with S1	JM
153	17574	FB	S1	Drop ceiling - raise flooring?	JM
154	17576	FB	T	General building deterioration Elevate interior flooring	JM
155	17573	FB	T1	Florish High ceiling - hardwood floor - Elevate floor? Note: the conditions to the rear of the building do not immediately lend themselves toward dry floodproofing	JM
156	17961	FB	U	Pharmacy	JM
157	17963	FB	U1	Could put a barrier across the front or a wall with a panel for the door Could elevate floor	JM

ID	Property ID	Town	Case #	Potential Retrofits and General Notes	Initials
158	17972	FB	V	<p>Actually two buildings</p> <p>Fair Bluff Family Practice Clinic - should have gone with "w"</p> <p>HVAC to be elevated</p> <p>Different slabs - would require significant work to seal up</p>	JM
159	17964	FB	W	<p>Carolina Class Salon</p> <p>Pressed tin ceiling</p> <p>Raise flooring - Note: ceiling at 14'</p> <p>Some wet floodproofing - removable panels for ease of drying out</p> <p>Remember the constraint of interdependency of buildings</p>	JM
160	17965	FB	Y	<p>Senior Center</p> <p>Address: 1100 Main St (at one point was a Red Lion Food Center)</p> <p>Raising floor could be a hardship - skirting red flag due to interdependency with other buildings</p> <p>Consider wet floodproofing traditional with flooring et al.</p> <p>County has already cleaned it out</p> <p>Drop ceiling, raise floor?</p> <p>Use the building for another function</p>	JM
161	17749	FB	Z	<p>Fuel tank to anchor or elevate or both</p> <p>Yokos</p>	JM
162	18043	FB	AA	<p>Scott Properties</p> <p>CMU sides one back, brick front, and one side</p> <p>Back = storage?</p> <p>Elevate the HVAC</p> <p>Consider dry floodproofing</p> <p>Need sealant, a number of intrusion points</p>	JM

Appendix G

General Comments for Flood Damaged Buildings

General Comments for Flood Damaged Buildings

How to Minimize the Threat from Future Flood Events

The State Historic Preservation Office (HPO) is concerned with possible changes to potentially historic buildings that can negatively affect the historic integrity of those buildings. The HPO suggests property owners coordinate floodproofing work with the HPO prior to undertaking any work to ensure that the historic integrity of the property (whether listed in the National Register of Historic Places or not) is maintained. Please note, the loss of historic integrity may result in a property no longer being eligible for listing in the National Register of Historic Places, which would preclude the use of the rehabilitation tax credit. For additional information, see the National Register of Historic Places and Historic Rehabilitation Tax Credit write-ups below.

For purposes of floodproofing, historic buildings can generally be categorized into masonry or frame (wood) buildings. These building types can often be treated differently because of their construction.

- A. Masonry buildings are usually not candidates for elevating. Assuming these buildings remain in place, the HPO believes some degree of protection can be afforded by the installation of a Flex Wall system and/or wet-proofing systems.
 1. The Flex Wall system (<https://smartvent.com/media/view/new-dry-floodproofing-products>) is contained within a trench under cover plates adjacent to the building in front of masonry openings at doors, windows, and storefronts. Before a flood event, the cover plates are lifted, support posts are placed within the ground sleeves, and the Kevlar fabric is lifted and attached to the supports. This system does not include any permanent attachments to the building, and thus it preserves the historic integrity of the building.
 2. Wetproofing may be a viable alternative for historic masonry buildings as these historic materials (brick, lime mortars, and plaster walls) may be able to stand in water for extended periods of time with few of the deleterious effects suffered by wood framed buildings. Factors to consider when wetproofing a building include the following:
 - a. Allow ample time for the masonry and concrete slab to dry before applying any finishes as hidden moisture will affect the finish. Evidence that materials have not had sufficient time to dry include peeling paint from masonry or efflorescence popping off the paint from plaster walls.
 - b. Do not apply permanent coatings or coverings atop historic masonry as moisture in the ground can be driven further up masonry walls during non-flood events. This can result in the spalling of brick as moisture escapes from the wall and increased duration of moisture retention within the masonry wall and wood components adjacent to the wall which can accelerate deterioration of those wood components.
 - c. Concrete floors can hold in moisture under the slab and drive additional moisture vertically within masonry walls. If the slab is in poor repair or if plumbing lines under the

slab need replacement, the opportunity exists to replace the slab and install a drainage system under the slab and possibly around the exterior perimeter of the building to help drain excess water from the site during non-flood events.

d. While masonry buildings may be viable candidates for wet proofing, one of the concerns is the condition of historic (constructed within the period of significance of the historic district) storefronts and how to preserve those storefronts after a flood. Can the storefront be adequately cleaned after a flood? Wood storefronts should be dried and treated with Boracare prior to repainting. Rolled aluminum or hollow metal storefront should gently be disassembled and the individual components thoroughly cleaned, polished, and reassembled whether glazing is to be replaced or not.

e. If any part of the historic or later wood structure (sill, joists, corner post, post and beam, stud wall, etc.) or finishes (floor, siding, trim, etc.) that are scheduled to remain in place and that were exposed to flood waters or are potentially susceptible to future flooding are visible, those components should be sprayed with Boracare. Boracare is an oil based fungicide, mildewcide, termiticide, and insecticide. It is highly viscous liquid that must be mixed with an impeller rod into warm water and then sprayed onto the wood with a sprayer. The oil will carry the active ingredients into the wood to prevent further deterioration. This may be an option to save wood floors if they can be reset flush onto the joists. If there is space, joists and flooring can be sprayed from the crawlspace. Studs can be sprayed if the finish is removed. Wood wainscot may be sprayed from the backside if the chair rail and/or finish paint is removed. For further information about Boracare see: <http://nisuscorp.com/builders/products/BORA-CARE>. NOTE: Boracare is hygroscopic and if the wood is too close to the grade, it will attract moisture. Consult with manufacturer.

- B. Frame buildings, unlike most masonry buildings, may be good candidates for elevating because the structure can be lifted from the sill plate. It is possible for elevated buildings to retain their National Register eligibility. Consequently, the HPO should be consulted in advance to enhance retention of the requisite historic integrity.

The less a building is elevated, the better. Many buildings can be elevated approximately four feet and maintain their historic integrity through mitigating strategies such as: subtle grading around the foundation; the installation of shrubbery; the installation of raised planting beds; and the sympathetic design of new stairs.

In certain cases, buildings elevated more than four feet can retain their historic integrity. Buildings that are raised too high (eight feet or more) lose their relationship to the street. Mitigation is more difficult on small urban lots where buildings simply may not have space to move elsewhere within the property. Elevated buildings may need to be placed further from the right-of-way to account for taller and deeper sets of stairs. The number of risers, the configuration of the stairs, and an increased setback of the building can negatively affect historic integrity of a building and possibly result in the loss of historic designation. Larger urban and rural sites may be more accommodating of relocation farther from the right-of-way. New staircases should exhibit the character of the historic staircase. If the historic staircase was monumental, a redesigned monumental staircase may be appropriate. If the historic stairs were not monumental and the new stairs are prominent purely

by size and location, the historic integrity of the building would be negatively affected and possibly result in the loss of historic designation.

If any part of the historic or later wood structure (sill, joists, corner post, post and beam, stud wall, etc.) or finishes (floor, siding, trim, etc.) that are scheduled to remain in place and that were exposed to flood waters or are potentially susceptible to future flooding are visible, those components should be sprayed with Boracare. Boracare is an oil based fungicide, mildewcide, termiticide, and insecticide. It is highly viscous liquid that must be mixed with an impeller rod into warm water and then sprayed onto the wood with a sprayer. The oil will carry the active ingredients into the wood to prevent further deterioration. This may be an option to save wood floors if they can be reset flush onto the joists. If there is space, joists and flooring can be sprayed from the crawlspace. Studs can be sprayed if the finish is removed. Wood wainscot may be sprayed from the backside if the chair rail and/or finish paint is removed. For further information about Boracare see: <http://nisuscorp.com/builders/products/BORA-CARE>. NOTE: Boracare is hydroscopic and if the wood is too close to the grade, it will attract moisture. Consult with manufacturer.

Removal of Later Finishes

Whether a property owner undertakes a rehabilitation tax credit project, the flooding may be an opportunity to remove later non-historic finishes. There were several buildings that had plaster walls covered with furred out sheetrock walls. Removal of the furred walls will provide a little more square footage and reveal the historic plaster walls that can tolerate submersion in water; whereas, sheetrock cannot and wood studs will need to be treated prior to resurfacing. There were also later acoustical and Celotex ceilings that were concealing historic ceilings. Those ceilings may be plaster or wood and even an early Celotex ceiling. Some wood or concrete floors were covered with tile or carpet.

Handicap Accessibility

If the commercial district is not abandoned, a master plan for the streetscape should be developed to provide handicap accessibility to all buildings. The HPO can help the local government and property owners in reviewing plans to provide accessibility to each building while maintaining the building's historic integrity.

Possible Uses

There appears to be a clear demand for a variety of services in Fair Bluff as most buildings were occupied prior to Hurricane Matthew and the flooding it brought. If those services can return and a historic district can be created, property owners or long-term lessees can utilize the rehabilitation tax credits. Like many two-story buildings across the state, many second-floor spaces in Fair Bluff appear to be vacant. The opportunity to rehabilitate these underutilized spaces for residential use should be investigated. This is a historic development pattern that has recently been reimplemented across the state, including within rural areas. Second floor residential use may increase demand for services within the downtown.

Source: North Carolina State Historic Preservation Office, December 2017.