

# Brick Streets Program



Public Services Department | 209 Coleman Dr. | Wilmington, NC 28412



## 1. Background Information

This brick streets program has been created for the purpose of maintaining and preserving Wilmington’s historic brick streets. It is not intended to be a binding decision on future funding or restoration. This policy replaces policy number AP 87-3, adopted August 25, 1987. The intent of this policy is to provide the City with a standard methodology for addressing issues with city-owned brick streets within public rights-of-way only. Of the nearly 385 miles of public streets in Wilmington today, there are 6.1 miles of brick streets. Of these 6.1 miles, there are 3.7 miles of historic brick streets (Figure 1), 1.96 miles of mixed brick and asphalt streets (Figure 2), 0.44 of a mile of contemporary brick/paver streets (Figure 3), and 0.22 of a mile of stone-paved alleys (Figure 4) in Wilmington. A map of the city’s brick streets is included in this document.

The inventory of Wilmington’s brick streets was assembled from several sources, including a study provided to the city by the Residents of Old Wilmington, a study provided to the city by Janet Seapker, and a full history of Wilmington’s historic streets, found in two documents, [A Study of the Brick-paved Streets of Wilmington, North Carolina](#) (2006), and [A Study of the Stone-paved Streets and Other Stone Pavements in the City of Wilmington, North Carolina](#) (2007), compiled by Mr. J.F. Newber, Jr. These resources served to supplement the work done by the staff.

This policy does not establish funding or priority of brick streets for maintenance; rather, it outlines the process for the treatment of brick streets in the event of utility, streetscape, or other work that requires the removal of a brick surface on city-maintained street. These projects may be initiated by the city, a developer, a utility provider, or another agency. The city may typically act as a partner in the repair, restoration, maintenance, and preservation of streets on such projects; however, this policy does not bind the city to fund or otherwise participate in such projects.

The brick streets policy was outlined by the city of Wilmington Public Service Department with a broad-based committee made up of staff from various city departments and utility partners. Several public input opportunities were included in the policy development process, including a work session with the Historic Preservation Commission. The policy was endorsed by the Historic Preservation Commission on June 23, 2016 and adopted by City Council on [\(insert date\)](#).

## 2. Methodology

The bricks street policy committee developed a methodology to study brick streets in Wilmington and to establish criteria for the treatment of such streets. The committee collected input from various stakeholders, including the Historic Wilmington Foundation, Historic Preservation Commission, Residents of Old Wilmington, and the general public. Research was conducted on how peer cities regulate the treatment of brick streets. The following is a summary of the committee’s initial process:

1. Brick streets were identified.
2. Brick streets were sorted into four primary categories: historic brick pavers, brick under asphalt, modern brick pavers, and other historic paving materials.
3. Information was entered into the city’s GIS databases.
4. The committee developed several assumptions regarding brick streets, which helped to formulate a set of survey questions.

“**B**rick pavers” refers to the type of bricks used for street surfaces. They are not the same as “facing bricks,” bricks used in building construction—the shape, size, and firing techniques for making brick pavers make them stronger and more suitable to carry the load of cars. These may be modern or historic.

Those assumptions were:

- a. Brick streets with few asphalt patches are stronger candidates for preservation and restoration.
- b. Compliance with the Americans with Disabilities Act, including ramps and curbs, curbing materials, must be considered when street work is undertaken.
- c. Removing asphalt from brick streets to restore them to an all-brick surface is difficult and costly and sometimes will expose other issues previously hidden by the asphalt.
- d. It is possible for intersections to be dealt with independently from the remainder of the street.
- e. Brick streets have a lower ride quality than streets paved with asphalt.
- f. Streets with speed limits greater than 25 miles per hour are not good candidates for preservation or restoration.
- g. Streets with high traffic volumes (greater than 4,000 vehicles per day) are not good candidates for preservation or restoration.
- h. The city's Streets Divisions maintains a limited inventory of historic brick pavers. It will be necessary to consider other sources of historic brick pavers as well as using modern pavers.



Fig. 1. South 4<sup>th</sup> Street is paved with historic brick pavers.

While the committee was actively working on policy development, the city undertook an experimental process of removing the asphalt from a known brick block of Red Cross Street. This enabled the Public Services department to collect data on several factors, including costs to delaminate the street, time, post-delamination ride quality, and post-delamination expectations (labor, additional materials, repairs, etc.).

Based on the background research and assumptions of the committee, an online survey was created to gauge public opinion on brick streets with more than 1,100 surveys submitted. The results showed strong support for preserving brick streets regardless of historic district designation and for the use of modern pavers when needed. The results also showed little support for using land use, costs, and ride quality as criteria in determining whether a street should be restored to brick or remain asphalt.



Fig. 2. North 4<sup>th</sup> Street is paved with brick under asphalt.

Following the online survey, two public input meetings were held, where participants were given background information on Wilmington’s brick streets and asked to prioritize needs in a brick street scenario. The results of this meeting further supported the findings of the initial online survey.

### 3. Streets Inventory

The “brick streets” classification includes brick-paved streets that have asphalt patches from previous utility work, whether historic or modern, asphalt block, Belgian block, and cobblestone. The “brick under asphalt” category includes streets that are known to have a brick (or other historic paving material) core that is unseen beneath the asphalt and streets that have been paved with asphalt that is delaminating to reveal bricks below the asphalt. This inventory of paving materials will be updated periodically to ensure accuracy and compliance with the policy. The city will continue to collect information by sampling, core work, and other methods and this document will be updated as new information becomes available. It is important to note that streets that are of unverified paving types should be verified before any work begins. Staff has used the best information available to create this inventory; however, conditions found in the field may differ.



“**D**elamination” refers to the failure of asphalt materials laid over brick, whereby the layer of asphalt wears away from the road surface, exposing the brick pavers beneath it.



Fig. 3. Brunswick Street is paved with modern brick pavers (source: Googlemaps.com, 6.7.16)



Fig. 4. Henderson Alley is paved with Belgian block that is mostly covered by asphalt.

“**B**elgian block” and “granite paving stones,” also known as “setts,” are quarried stones, usually rectangular, used for paving streets. “Cobblestone” refers to a small, rounded, natural stone used as pavers.

Table 1. Brick Streets

Pavement Classification	Street	To - From	Paver Type	Functional Class	Comprehensive Plan Designation
Historic Brick	2nd St	Market St-Betten Court Alley	Mixed	Local	Special Character
Historic Brick	2nd St	Betten Court Alley-Dock St	Mixed	Local	Special Character
Historic Brick	4th St	Church St-Castle St	Mixed	Local	
Historic Brick	4th St	Nun St-Church St	Mixed	Local	
Historic Brick	4th St	Orange St-Ann St	Mixed	Local	
Historic Brick	4th St	Ann St-Nun St	Mixed	Local	
Historic Brick	4th St	Dock St-Cottage Ln	Mixed	Local	
Historic Brick	4th St	Cottage Ln-Orange St	Mixed	Local	
Historic Brick	4th St	Farrows Alley-Queen St	Mixed	Local	
Historic Brick	4th St	Castle St-Farrows Alley	Mixed	Local	
Historic Brick	6th St	Castle St-Queen St	Mixed	Local	
Historic Brick	7th St	Wooster St-Dawson St	Mixed	Local	Special Character
Historic Brick	7th St	Queen St-Wooster St	Mixed	Local	Special Character
Historic Brick	7th St	Wright St-Meaures St	Mixed	Local	Special Character
Historic Brick	7th St	Dawson St-Wright St	Mixed	Local	Special Character
Historic Brick	7th St	Chestnut St-Princess St	Mixed	Local	Special Character
Historic Brick	7th St	Princess St-Market St	Mixed	Local	Special Character
Historic Brick	7th St	Grace St-Chestnut St	Peebles	Local	Special Character
Historic Brick	7th St	Walnut St-Grace St	Mixed	Local	Special Character
Historic Brick	7th St	100 ft south of Red Cross St-Walnut St	Mixed	Local	Special Character
Modern Brick	7th St	Red Cross St—100 ft south of Red Cross	Paver	Local	Special Character

Table 1. Brick Streets , Continued

Pavement Classification	Street	To - From	Paver Type	Functional Class	Comprehensive Plan Designation
Historic Brick	9th St	Dock St-Orange St	Mixed	Local	
Historic Brick	9th St	Market St-Meadow	Mixed	Local	
Historic Brick	9th St	Meadow St-Dock St	Mixed	Local	
Historic Brick	Ann St	5th St-4th St	Mixed	Local	
Historic Brick	Ann St	3rd St-2nd St	Mixed	Local	
Historic Brick	Ann St	6th St-5th Ave	Mixed	Local	
Historic Brick	Ann St	2nd St-Front St	Mixed	Local	
Historic Brick	Bladen St	7th St-6th St	Augusta	Local	
Historic Brick	Bladen St	6th St-5th Ave	Augusta	Local	
Historic Brick	Bladen St	Murphy Alley-7th St	Mixed	Local	
Historic Brick	Bladen St	Murphy Alley-8th St	Mixed	Local	
Modern Brick	Brunswick St	5th St-4th St	Asphalt Brick	Local	
Modern Brick	Brunswick St	4th St-3rd St	Asphalt Brick	Local	
Modern Brick	Brunswick St	8th St-7th St	Unnamed	Local	
Modern Brick	Brunswick St	7th St-6th St	Unnamed	Local	
Historic Brick	Campbell St	4th St-3rd St	Mixed	Local	
Historic Brick	Castle St	3rd St-2nd St	Mixed	Local	
Historic Brick	Castle St	Front St-Surry St	Mixed	Local	
Historic Brick	Castle St	2nd St-Front St	Mixed	Local	
Historic Brick	Church St	5th St-4th St	Mixed	Local	
Historic Brick	Church St	4th St-3rd St	Mixed	Local	
Historic Brick	Church St	2nd St-Front St	Mixed	Local	
Historic Brick	Church St	3rd St-2nd St	Mixed	Local	
Historic Brick	Church St	Front St-Surry St	Mixed	Local	
Historic Brick	Craig Alley	2nd St - 3rd St	Cobblestone	Local	
Historic Brick	Dock St	2nd St-Front St	Mixed	Local	Special Character
Historic Brick	Dock St	Front St-Water St	Mixed	Local	Special Character
Historic Brick	Hanover St	4th St-3rd St	Mixed	Local	

DRAFT

Brick Streets Policy

7/21/2016

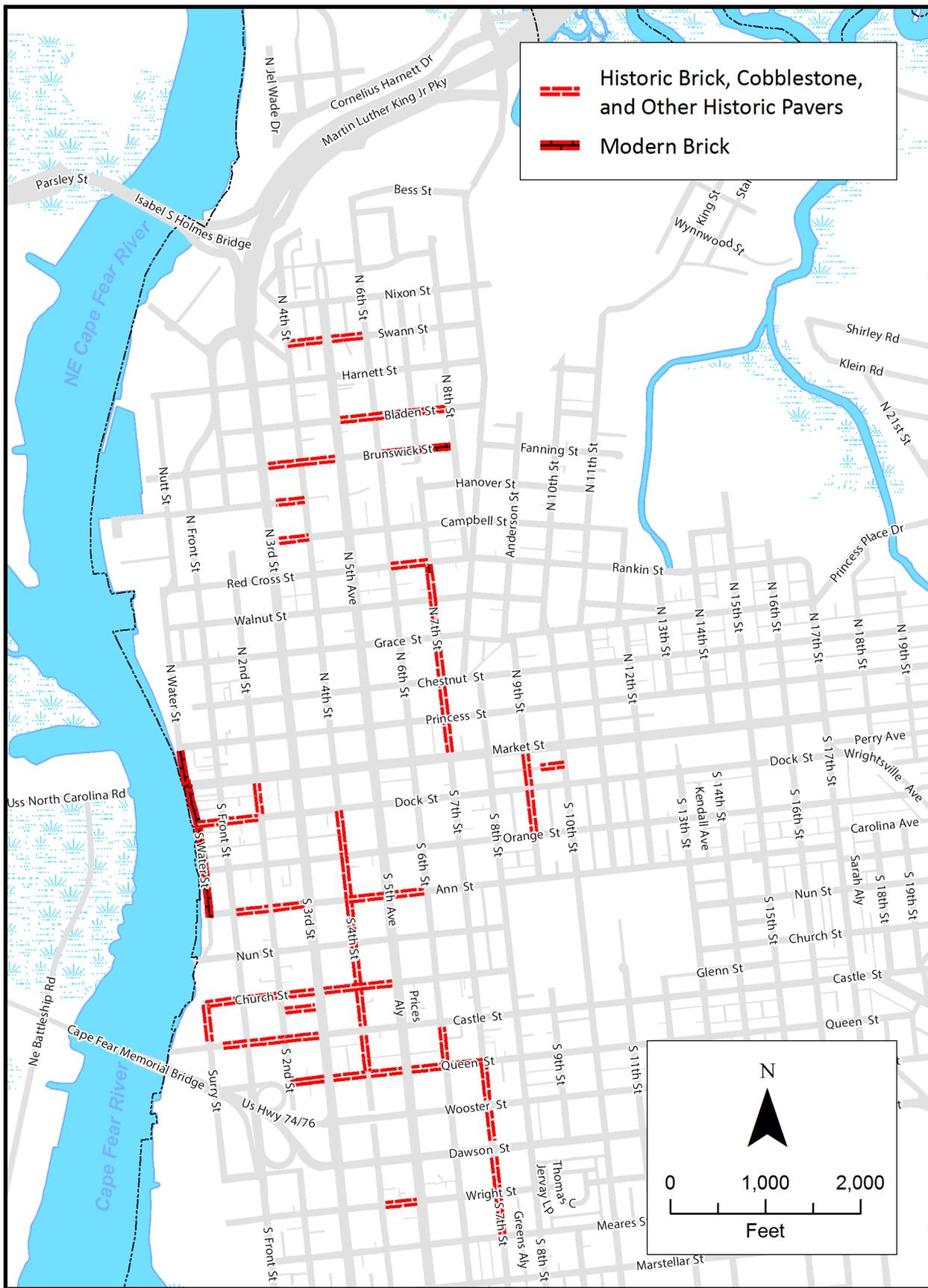
Table 1. Brick Streets , Continued

Pavement Classification	Street	To - From	Paver Type	Functional Class	Comprehensive Plan Designation
Modern Brick	Market St	Water St-East Mid Block		Local	Special Character
Modern Brick	Market St	Water St-East Mid Block		Local	Special Character
Modern Brick	Meadow St	9th-8th	Asphalt Brick	Local	
Historic Brick	Surry St	Church St-Castle St	Mixed	Local	
Modern Brick	Surry St	Church St-Castle St	Asphalt Brick	Local	
Historic Brick	Swann St	5th Ave-James Alley	Mixed	Local	
Historic Brick	Swann St	James Alley-4th St	Mixed	Local	
Historic Brick	Swann St	5th to Hutaff Alley	Mixed	Local	
Historic Brick	Swann St	6th St-5th Ave	Mixed	Local	
Historic Brick	Swann St	Brown to 6th st	Mixed	Local	
Modern Brick	Water St	Muters Alley-Orange St	Unnamed	Local	Special Character
Modern Brick	Water St	Dock St-Potts Alley	Unnamed	Local	Special Character
Modern Brick	Water St	Potts Alley-Muters St	Unnamed	Local	Special Character
Modern Brick	Water St	Orange St-Ann St	Unnamed	Local	Special Character
Modern Brick	Water St	Market St to Quince Alley	Unnamed	Local	Special Character
Modern Brick	Water St	Quince Alley-Henderson Alley	Paver	Local	Special Character
Modern Brick	Water St	Henderson Alley-Wilkinson Alley	Mixed	Local	Special Character
Modern Brick	Water St	Wilkinson Alley-Dock St	Mixed	Local	Special Character
Modern Brick	Water St	Market St-Princess St		Local	Special Character
Historic Brick	Wright St	5th Ave-4th St	Mixed	Local	
Historic Brick	Queen St	5th St-4th St	Mixed	Local	
Historic Brick	Queen St	4th St-3rd St	Mixed	Local	
Historic Brick	Queen St	6th St-5th St	Mixed	Local	
Historic Brick	Queen St	7th St-6th St	Mixed	Local	
Modern Brick	Queen St	3rd St-2nd St	Asphalt Brick	Local	

DRAFT

Brick Streets Policy

7/21/2016



DRAFT

Brick Streets Policy

7/21/2016

Table 2. Brick Under Asphalt Streets

Pavement Classification	Street	To - From	Brick Type	Functional Class	Comprehensive Plan Designation
Brick Under Asphalt	11th St	Chestnut St-Princess St		Local	
Brick Under Asphalt	4th St	Market St-Dock St		Local	
Brick Under Asphalt	4th St	Swann St-Davis St		Local	Main Street
Brick Under Asphalt	4th St	Davis St-Harnett St		Local	Main Street
Brick Under Asphalt	4th St	ABC Alley-Bladen St		Local	Main Street
Brick Under Asphalt	4th St	Collier Alley-Brunswick St		Local	Main Street
Brick Under Asphalt	4th St	Bladen St-Collier Alley		Local	Main Street
Brick Under Asphalt	4th St	Brunswick St-Hanover St		Local	Main Street
Brick Under Asphalt	4th St	Brunswick St-Hanover St		Local	Main Street
Brick Under Asphalt	4th St	Hanover St-Campbell St		Local	Main Street
Brick Under Asphalt	4th St	Campbell St-Red Cross St		Local	Main Street
Brick Under Asphalt	4th St	Red Cross St-Burch Alley		Local	
Brick Under Asphalt	4th St	Burch Alley-Walnut St		Local	
Brick Under	4th St	Walnut St-Grace St		Local	
Brick Under	4th St	Grace St-Chestnut St		Local	
Brick Under	4th St	Chestnut St-Princess St		Local	
Brick Under	4th St	Princess St-Market St		Local	

DRAFT

Brick Streets Policy

7/21/2016

Table 2. Brick Under Asphalt Streets , Continued

Pavement Classification	Street	To - From	Paver Type	Functional Class	Comprehensive Plan Designation
Brick Under Asphalt	4th St	Dock St-Cottage Ln		Local	
Brick Under Asphalt	4th St	Harnett St-ABC Alley		Local	Main Street
Brick Under Asphalt	6th St	Campbell St-Red Cross St		Local	
Brick Under Asphalt	Castle St	2nd St-Front St	Mixed Brick	Local	
Brick Under Asphalt	Henderson Alley	Water St - Front St	Cobblestone	Local	
Brick Under Asphalt	JEL Wade Dr	Compton St-North	Yellow Bricks	Local	
Brick Under Asphalt	Orange St	Magnolia St-9th St		Local	
Brick Under Asphalt	Orange St	Front St - 2nd St	Cobblestone	Local	
Brick Under Asphalt	Princess St	Blounts Alley-6th St		Local	
Brick Under Asphalt	Princess St	6th St-5th Ave		Local	
Brick Under Asphalt	Princess St	10th St-9th St		Local	Main Street
Brick Under Asphalt	Princess St	9th St-8th St		Local	Main Street
Brick Under Asphalt	Princess St	8th St-7th St		Local	Main Street
Brick Under Asphalt	Princess St	7th St-Blounts Alley		Local	
Brick Under Asphalt	Red Cross St	6th St-5th Ave		Local	Main Street

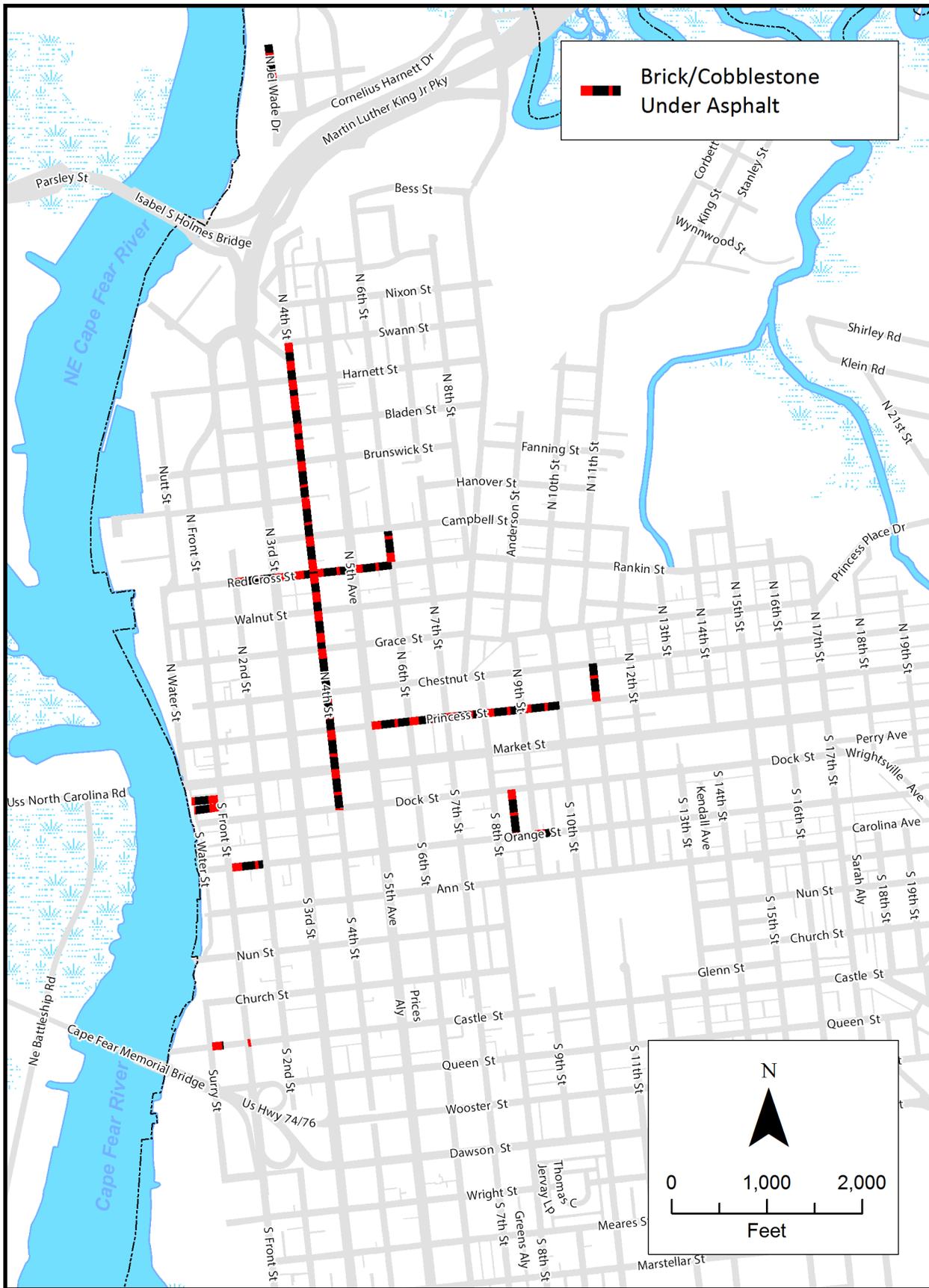
**DRAFT**

Brick Streets Policy

**7/21/2016**

Table 2. Brick Under Asphalt Streets , Continued

Pavement Classification	Street	To - From	Brick Type	Functional Class	Comprehensive Plan Designation
Brick Under Asphalt	Princess St	9th St-8th St		Local	Main Street
Brick Under Asphalt	Princess St	8th St-7th St		Local	Main Street
Brick Under Asphalt	Princess St	7th St-Blounts Alley		Local	
Brick Under Asphalt	Red Cross St	6th St-5th Ave		Local	Main Street
Brick Under Asphalt	Red Cross St	5th Ave-4th St		Local	Main Street
Brick Under Asphalt	Red Cross St	3rd St-2nd St		Local	Special Character
Brick Under Asphalt	Red Cross St	4th St-Wallace Alley		Local	Main Street
Brick Under Asphalt	Red Cross St	Wallace Alley-3rd St		Local	Main Street
Brick Under Asphalt	Red Cross St	5th Ave-4th St		Local	Main Street
Brick Under Asphalt	Saint James St	8th St-9th St	Belgian Block	Local	
Brick Under Asphalt	Wilkinson Alley	Water St - Front St	Cobblestone	Local	



DRAFT

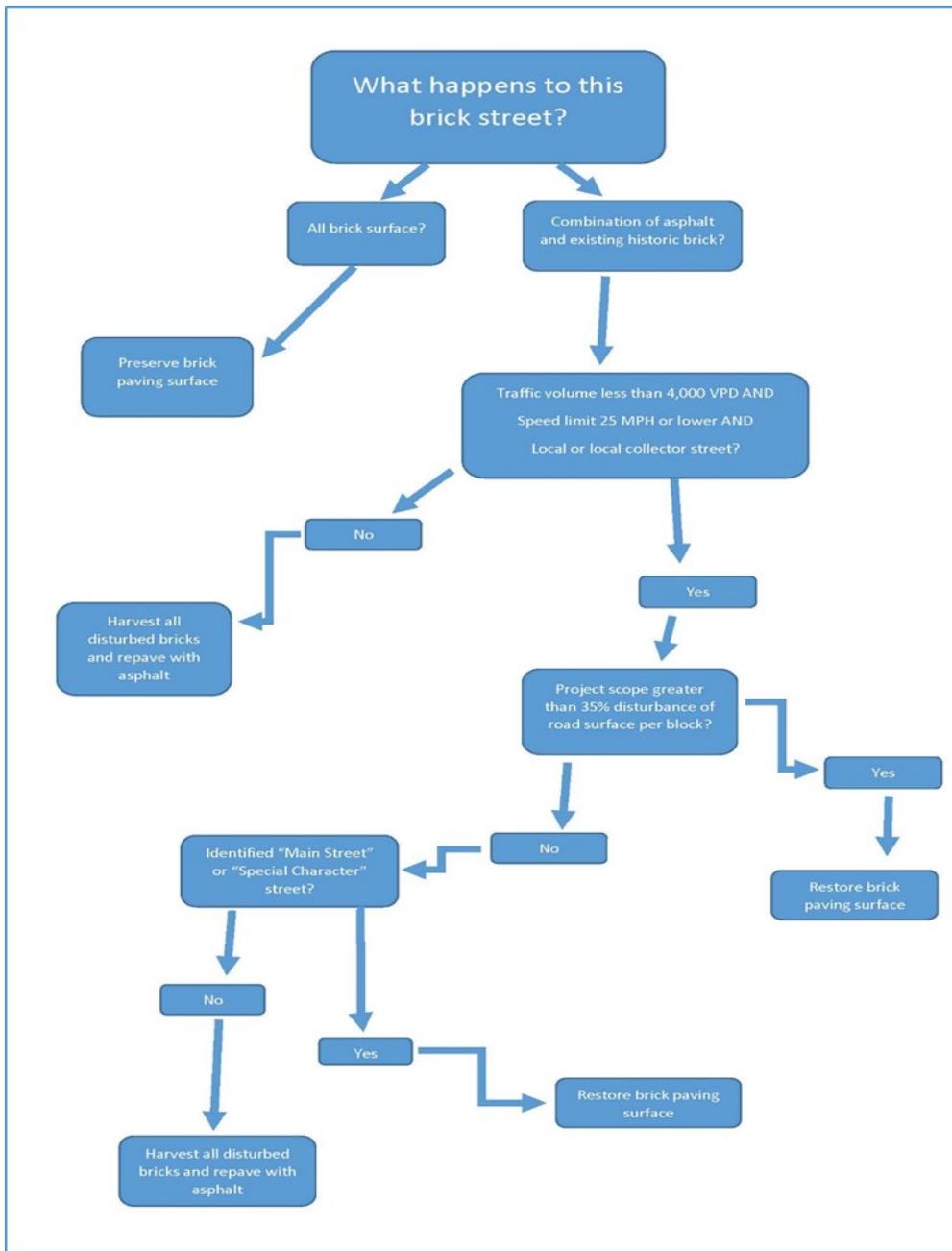
Brick Streets Policy

7/21/2016

## 4. Brick Streets Policy

This policy is intended to preserve historic brick streets to the extent possible; increase the city's supply of historic brick pavers; protect public health, safety, and welfare; partner with utility providers and other agencies to improve the condition of brick and asphalt streets on an opportunistic basis; and to establish clear criteria for those working within the city's rights-of-way. This policy does not establish or define how the city will pay for streetscape projects, utility work, brick street restoration, or other projects; rather, it defines how work within the rights-of-way of brick streets should be completed.

The following flow chart is an "at a glance" look at the decision-making process. Policy details follow the flow chart.



**DRAFT**

Brick Streets Policy

7/21/2016

#### **4.1 Brick, Modern Brick, and Historic Paving Materials Streets**

For public streets categorized as “historic brick,” “modern brick,” and “other historic paving material” in the inventory, the brick paving surface shall be preserved. Granite and slate curbs, where they exist, should be preserved and returned to streets upon completion of the project/disturbance.

- A. All surfaces disturbed by utility cuts, streetscaping, and other work shall be replaced with the brick pavers.
- B. When bricks are removed, they shall be palletized and stored in accordance with section 4.3 of this policy until such time as they are returned to the subject street as paving materials.
- C. Every effort should be made to restore the disturbed area with existing materials. Where gaps exist or materials are missing, like materials shall be used, including, but not limited to, brick, Belgian block, granite paving stones, and curbing materials.
- D. Cobblestones, where they exist, shall be harvested and provided to the Public Services Department in accordance with section 4.3 of this policy to be reused as accents in other projects. The area of disturbance shall be repaved with brick pavers.
- E. Temporary asphalt patches may be used, for a period not to exceed 24 months, under the following conditions:
  1. There are not enough historic bricks to fill the cut, but a planned project is expected to increase the supply within the allowed period of the temporary patch.
  2. Additional cuts are expected within the temporary period, upon completion of which, all interruptions in the brick surface will be restored to brick.
- F. All work shall be completed in compliance with the city’s Technical Standards and Specifications Manual, including any necessary repairs/upgrades for ADA compliance to ramps, curbs, etc.

#### **4.2 Brick Under Asphalt Streets**

Streets that are known to have brick under asphalt are classified as “brick under asphalt,” and brick paving surface should be preserved, under certain conditions. The three primary criteria for determining the treatment of a “brick under asphalt” street are traffic volume, speed limit, and functional classification. The traffic volume threshold has been established at 4,000 vehicles per day; beyond this threshold, the level of traffic, particularly truck traffic, is too great to maintain a sound brick-paved street.

“Functional classification” is the process of grouping streets and highways into classes according to the character of service they are intended to provide. The North Carolina Department of Transportation is responsible for classifying streets in Wilmington. The threshold established for preservation of brick pavers is local and local (minor) collector streets. Streets classified as higher classes are designed to carry a greater volume of traffic at greater speeds than are safe for brick streets.

- A. On streets where the traffic volume is greater than 4,000 vehicles per day (count taken within 12 months of project start) or the speed limit is greater than 25 miles per hour or the street is designation as a

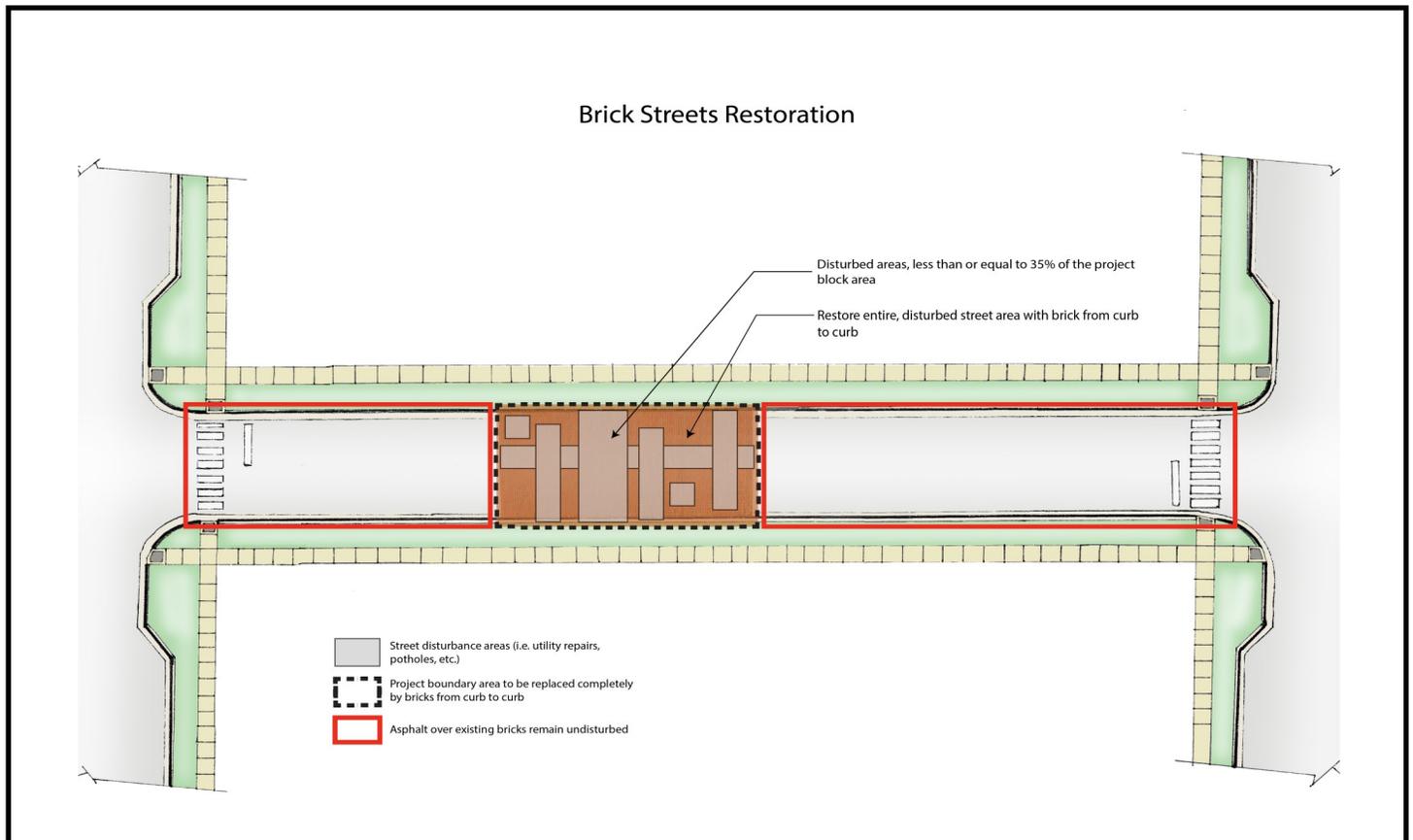
“F

unctional classification “ refers to the ordering of streets and highways into classes according to the character of service they are intended to provide to motorized vehicle traffic. In North Carolina, the Transportation Planning Branch of the NC Department of Transportation is responsible for processing updates to the Federal Functional Classification System. Minor/ local collectors and local streets are designed to carry the lightest vehicle volumes. [http://www.fhwa.dot.gov/planning/processes/statewide/related/highway\\_functional\\_classifications/section03.cfm#Toc336872980](http://www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/section03.cfm#Toc336872980)

classification greater than local or local collector street, brick pavers within the area of disturbance should have asphalt removed, be harvested, cleaned, palletized, and sent to the Public Services Department in accordance with section 4.3 of this policy. The area of disturbance should be repaved with asphalt in accordance with city standards.

- B. On streets where the traffic volume is less than 4,000 vehicles per day (count taken within 12 months of project start), the speed limit is 25 MPH or less, and it is classified as a local or local (minor) collector street, the follow shall apply:
1. If the project scope is greater than 35% disturbance of the road surface (per block), the block shall be restored with brick pavers.
  2. If the project scope is equal to or less than 35% disturbance of the road surface (per block), and the street is identified in the *Create Wilmington Comprehensive Plan* as a “Main Street” or a “Special Character Street,” (as listed in the chart; the map can be found online at [www.createwilmington.com](http://www.createwilmington.com) ), brick pavers shall be used to restore the street for the length of the disturbed area and the entire curb to curb width (see Figure 5).
  3. If the project scope is equal to or less than 35% disturbance of the road surface (per block), and the street is not identified as a “Main Street” or “Special Character Street,” all disturbed bricks shall have asphalt removed, be harvested, cleaned, palletized, and sent to the Public Services Department in accordance with section 4.3 of this policy. The area of disturbance should be repaved with asphalt in

Figure 5. Brick restoration diagram.



accordance with city standards.

- C. Temporary asphalt patches may be used, for a period not to exceed 24 months, under the following conditions:
  - 1. There are not enough historic bricks to fill the cut, but a planned project is expected to increase the supply within the allowed period of the temporary patch.
  - 2. Additional cuts are expected within the temporary period, upon completion of which, all interruptions in the brick surface will be restored to brick.
- D. When restoring brick surfaces, every effort shall be made to restore the disturbed area with existing materials. Where gaps exist or materials are missing, like materials shall be used, including brick, Belgian block, and granite paving stones.
- E. All work shall be completed in compliance with the city's Technical Standards and Specifications Manual.

#### **4.3 Handling and Storage of Bricks Removed from City Streets**

As previously stated, bricks may be removed for a variety of reasons. The intent of this section is to simply provide requirements for the proper handling and storage of these bricks in order to minimize damage, loss and theft. Should bricks be removed, the following is required:

- A. Bricks can be removed based on City approval of a capital project or an approved right-of-way permit.
- B. Prior to removal of any bricks or other historic paving material, contact shall be made to the City of Wilmington Streets Division (910-341-7879) with the following information:
  - 1. Company/Name removing bricks
  - 2. Location of brick removal (address, intersection, etc.)
  - 3. Purpose of brick removal
  - 4. Approximate number of bricks or area of bricks to be removed
  - 5. Number of pallets requested
- C. Bricks must have asphalt delaminated from them prior to storage.
- D. Contractor is responsible for removing bricks with care in order to minimize damage and loss of reusable bricks. The replacement cost due to careless removal resulting in loss of reusable bricks is the responsibility of the contractor.
- E. The city may provide pallets for stacking and storage on a limited basis available for pick up at City Operations Center on River Road. If the city does not have pallets available, the contractor shall be responsible for providing their own pallets. Once stacked with bricks, pallets shall be labelled with the location of the removal.
- F. Once removed and palletized, all bricks shall be delivered to the City Operations Center on River Road on the same day. Under no circumstances shall bricks that have been removed be allowed to stay on project site overnight.



ain Streets and Special

Character Streets are identified in the 2016 *Create Wilmington Comprehensive Plan*. These designations are intended to help prioritize the pedestrian, enhance these corridors, encourage active ground-floor conditions, foster placemaking, and promote development and redevelopment that favors the pedestrian over the automobile.