City of Bloomington Brick Streets Master Plan

Note: This is a draft version of the City of Bloomington Brick Streets Master Plan. All pages within this document are subject to change. This document has not been approved by any City of Bloomington board, council, staff, or commission. It has been made available in order to give a preview of the document to the public. Some portions of this document contain information that has not yet been sourced or cited, but these items will be completed when the final document is submitted for approval to the Historic Preservation Commission, Planning Commission, Transportation Commission, and City Council. All text is subject to change and may need further research.

City of Bloomington, Illinois
109 E. Olive Street
Bloomington, Illinois 61701

(DRAFT) RESOLUTION NO. 2017 –

A RESOLUTION APPROVING THE CITY OF BLOOMINGTON BRICK STREETS MASTER PLAN

WHEREAS, the City of Bloomington has more than 3.5 miles of public brick streets within the city and the City wished to preserve its historic brick streets; and

WHEREAS, a systematic approach is needed by the City to provide proper stewardship, including a budgeted plan of action, for preserving its brick streets; and

WHEREAS, the City also needs to look at future planning for brick streets beyond the 3.5 miles of public brick streets that exist in the community; and

WHEREAS, the Public Works Department worked with the Historic Preservation Commission, and the Planning Commission to create the City of Bloomington Brick Streets Master Plan; and

WHEREAS, the Brick Streets Master Plan was approved by the Historic Preservation Commission on Month XX, 2017, the Transportation Commission on Month XX, 2017, and the Planning Commission on Month XX, 2017; and

WHEREAS, the City Council finds it to be in the best interests of the City to adopt the City of Bloomington Brick Streets Master Plan.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BLOOMINGTON, ILLINOIS:

That the City of Bloomington Brick Streets Master Plan is hereby approved.

PASSED this XX day of Month 2017.

APPROVED this XX day of Month 2017

CITY OF BLOOMINGTON **ATTEST**

_____ _____

Tari Renner, Mayor Cherry L. Lawson, C.M.C., City Clerk

APPROVED AS TO FORM

_____

Jeffrey R. Jurgens, Corporation Counsel

CITY OF BLOOMINGTON BRICK STREETS MASTER PLAN
Prepared in Collaboration with:

Bloomington City Council

Tari Renner – Mayor
Jamie Mathy – Ward 1 Alderman
David Sage – Ward 2 Alderman
Mboka Mwilambwe – Ward 3 Alderman
Amelia Buragas – Ward 4 Alderman
Joni Painter – Ward 5 Alderman
Karen Schmidt – Ward 6 Alderman
Scott Black – Ward 7 Alderman
Diana Hauman – Ward 8 Alderman
Kim Bray – Ward 9 Alderman

Bloomington Historic Preservation Commission

Sherry Graehling – Vice Chair
Ann Bailen – Member
John Elterich – Member
Levi Sturgeon – Member
Lea Cline – Member
Dustin Cawley – Member
Gabriel Goldsmith – Member
Katie Simpson – City Staff

Bloomington Planning Commission

Alan Balmer – Vice Chair
Eric Penn – Member
John Protzman – Member
Kevin Suess – Member
James Pearson – Member
Megan Headean – Member
Justin Boyd – Member
Ryan Scritchlow – Member
David Stanczak – Member
Nicole Chlebek – Member
Katie Simpson – City Staff

Bloomington Transportation Commission

Vice Chair – Vice Chair
Member – Member
Member – Member
Member – Member
Member – Member
Member – Member
Member – Member
Traffic Engineer – City Staff

Bloomington Staff

David Hales – City Manager
Steve Rasmussen – Assistant City Manager
Jim Karch – Director of Public Works
Tom Dabareiner – Director of Community Development
Katie Simpson – City Planner
Kevin Kothe – City Engineer
Ryan Otto – Assistant City Engineer
Luke Thoele – Civil Engineer II
Steve Arney – Engineering Technician
Troy Olsen – Engineering Technician
Michael Hill – Public Works Administration

Special Thanks To
City of Rock Island, Illinois
City of Decatur, Illinois
City of Columbia, Missouri
Doug Grovesteen – Civil Engineer, Clark Deitz, Inc.
Mark Lee – Senior Engineer, Klingner & Associates, P.C.
John Gavin – Co-Owner, Gavin Historical Bricks

PROPOSED ADOPTION TIMELINE

April 2017
- City Council Directs Public Works to Move Forward with Brick Streets Master Plan

May 2017
- Public Works presents initial thoughts on Brick Streets Master Plan at Historic Preservation Commission

July 2017
- Historic Preservation Commission suggests final changes to Brick Streets Master Plan

Aug. 2017
- Submit to Historic Preservation Commission for approval

Aug. 2017
- Submit to Transportation Commission for approval

Sept. 2017
- Submit to Planning Commission for approval

Oct. 2017
- **Submit to City Council for approval**

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EXECUTIVE SUMMARY

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PURPOSE

The Brick Streets Master Plan has been created for the purpose of preserving Bloomington's brick streets. It is not intended to be binding on decisions of funding. However, it should be followed closely in order to achieve the goals of this plan and the goals of the City of Bloomington. Currently, the City has about 3.5 miles (1.1 percent) of brick streets along with 320 miles of concrete and asphalt streets. Brick streets have been a diminishing asset in the community. They provide a look and feel to a neighborhood that can generate a sense of nostalgia and help maintain a part of the City's rich history. In addition, although brick streets are costly to reconstruct and patch properly when compared to concrete and asphalt, brick streets have the potential to last for generations.

A strategic plan was initially developed in 2009 to address the City's brick street needs. However, the plan has not been approved, and the City's stance on how to deal with brick streets has significantly changed since that time. The previous policy has been to only preserve brick streets that are in good condition and meet certain other requirements on a case-by-case basis. However, this master plan establishes a policy wherein the City will preserve all 3.5 miles of brick streets in the community.

Figure 1: Highest-rated brick street in Bloomington (PASER 10) Davis Ave., Jefferson St. to Washington St.

Significant research has been done in order to come up with this master plan, which should be seen as comprehensive plan and implementation strategy to deal with all of the City's brick streets. Multiple cities in Illinois have developed policies to patch and reconstruct historic brick streets. Cities in Illinois that proactively patch and reconstruct streets include Peoria, Champaign-Urbana, Galesburg, Rock Island, and Decatur. Some of these communities have selected specific streets to preserve, while others have elected to preserve all remaining streets. However, some have set priorities for their best streets, with the intention of overlaying low priority streets with concrete or asphalt.

This master plan has been a collaborative effort between the Public Works Department, Planning and Code Enforcement (PACE) Department, Administration Department, City Council, Historic Preservation Commission, Transportation Commission, Planning Commission, the public, other municipalities, and contractors to find a long-term, sustainable plan to reconstruct or patch the City's 3.5 miles of brick streets and keep them in serviceable condition with zero non-brick patches.

STRATEGIC PLAN TIE-IN

The City's Strategic Plan emphasizes quality infrastructure and puts forward a vision for the future. With regards to brick streets, Vision 2025 supports a beautiful city with respect for the heritage of the community and neighborhoods. Creating a plan to preserve current brick streets, and potentially revive former brick streets, fits into this goal.

Vision 2025 also calls for a family-friendly city with a hometown feeling that is attractive for all family generations, including retirees and young families as well as single professionals. Brick streets help create a hometown feeling and make the city attractive for all family generations by having a unique look and feel that reflects the City's history.

In addition, Vision 2025 sets forth policies that create convenient connectivity throughout the city, with well-maintained city streets. With the creation of this plan, Public Works, with proper funding, will be able to patch or reconstruct deteriorating brick streets and maintain brick streets that are serviceable and have zero non-brick patches.

Finally, Vision 2025 seeks to create pride in Bloomington by maintaining the unique character and identity of Bloomington. Brick streets, and the City's brick street policy under this master plan, will help the City stand out among other Illinois communities and communities across the United States.

Mission Statement Tie-in

The Mission Statement for the City states that the City should be financially responsible while providing "quality, basic municipal services at the best value." By using a prioritizing philosophy for brick street patching, reconstruction, and maintenance, City staff can properly plan and deliver services in the most cost-effective and pragmatic manner. City staff has partnered with other cities and brick street contractors to ensure these priorities match the mission of the City.

The Brick Streets Master Plan further serves the City's goal to keep residents informed. It provides understandable and accessible material and calls for partnership with citizens in compatibility with the City mission statement.

2015 Strategic Plan Goals Tie-in

Strategic Plan Goals set the tone for City government functions in Bloomington and are goals aligned with Vision 2025. They are guiding principles that enter into every City action. Every staff memo asking for City Council action must link to at least one goal. The Brick Streets Master Plan directly fit into the following goals and objectives:

1. Financially Sound City Providing Quality Basic Services

a. Budget with adequate resources to support defined services and level of services
c. Engaged residents that are well-informed and involved in an open governance process
d. City services delivered in the most cost-effective, efficient manner

2. Upgrade City Infrastructure and Facilities

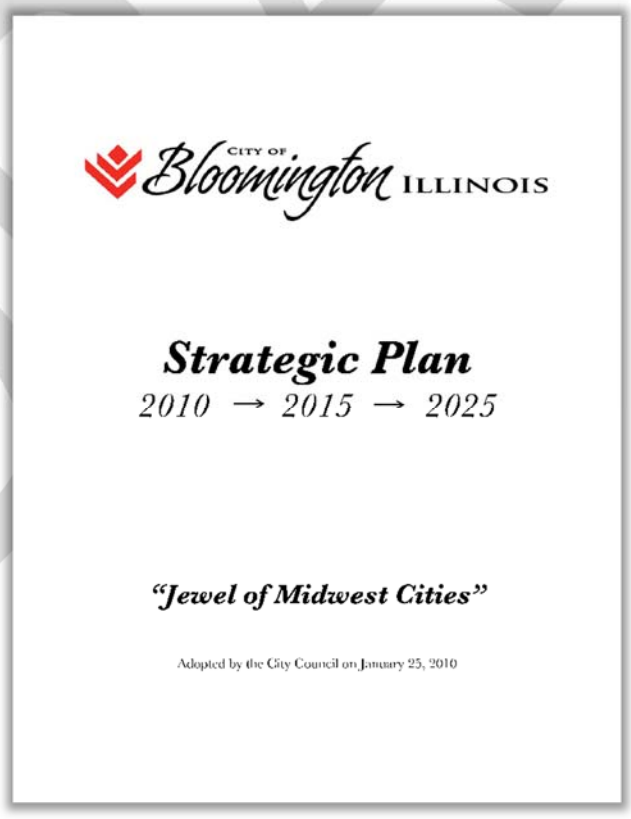
a. Better quality roads and sidewalks

4. Strong Neighborhoods

c. Preservation of property/home valuations
d. Improved neighborhood infrastructure
e. Strong partnership with residents and neighborhood associations

5. Great Place – Livable, Sustainable City

b. City decisions consistent with plans and policies
e. More attractive city: commercial areas and neighborhoods



COMPREHENSIVE PLAN TIE-IN

The comprehensive plan, adopted in August 2015, is the core statement of development policy and principle of the City of Bloomington. Comprehensive plans can be 18 to 36 month long processes that include a discussion of existing conditions, community outreach and a land use plan that identifies goals and objectives with respect to housing, infrastructure, education, recreation, transportation and other topics that influence land use. Comprehensive plans are advisory in nature, and are given implementation through adoption of zoning and other ordinances, codes and municipal regulatory tools conforming to the plan. 7,000 citizens participated in the formation of this plan, which won the Daniel Burnham award and is a National Silver Level plan recognized by the American Planning Association.

Comprehensive Plan 2035 Vision Tie-In

The Unified Community Vision set forth by the comprehensive plan supports preserving brick streets in the community. Brick streets enhance quality of life in Bloomington by providing a distinct look and feel to neighborhoods. Further, brick streets help to surround residents with the City's rich history.

Comprehensive Plan 2035 Goals and Objectives Tie-In

The comprehensive plan provides a context for decisions about growth and development in the City. It reflects the City's policy intent with respect to many issues that confront Bloomington, including built, fiscal, social, environment and economic conditions. The plan sets forth a series of goals to be achieved over the next twenty years, defines objectives to be reached in support of the goals, and recommends actions by the City, and its regional partners, to reach the objectives. The plan also addresses implementation, by establishing benchmarks and measures of performance to gauge to what degree the goals and objectives are attained, and whether the progress achieved is producing the intended results.

N-1 Ensure the compact development of the City through denser, mixed-use developments and reinvestment in the established older neighborhoods

- N-1.1 Enhance the livability of all Bloomington neighborhoods
- N-1.2 Prioritize, with urgency, the revitalization of the neighborhoods in the regeneration area
- N-1.3 Redevelop the neighborhoods in the Preservation area while carefully protecting their historic nature and character

N-2 Improve community identity and appearance by celebrating the unique nature and character of the City's individual neighborhoods

- N-2.2 Celebrate the uniqueness of Bloomington's neighborhoods

H-2 Ensure reinvestment in the established older neighborhoods and compact development of the City

- H-2.2 Preserve historic homes and structures in the designated Preservation Area

ACH-4 Identify, conserve and preserve the City's heritage resources as a basis for retaining and enhancing strong community character and a sense of place

- ACH-4.1 Fully integrate considerations of historic and cultural resources as a major aspect of the City's planning, permitting and development activities

UEW-1 Provide quality public infrastructure within the City to protect public health, safety

- UEW-1.1 Maintain the existing City operated infrastructure in good condition by prioritizing maintenance over building new and implementing fees to cover costs
- UEW-1.3 Work cooperatively with other public and private utility service providers operating in the City to address mutual concerns and needs

ORIGIN OF BRICK STREETS IN THE UNITED STATES

Although the idea of brick pavement has been around since ancient Rome, the United States didn't see it until at least the seventeenth century. Philadelphia brick pavement sometime in the early 1700's, although it is not clear if these were streets, sidewalks, or street crossings. In 1868, the first patent for brick pavement in the United States (No.77, 208) was issued to John T. Perkins of Washington D.C. In 1873 the first full block of brick paving in the country was laid on Summers Street between Virginia and Kanawha, in Charleston, West Virginia. It was put down by Mordecai Levi with financial backing from Dr. Nathan B. Hale. Both systems used double layers of common building brick. These men were later given a patent on their paving system, which was essentially the same as that later used in Bloomington.

HISTORY OF BRICK STREETS IN BLOOMINGTON

From 1875 to the Late 1930's

Macadam was the first non-dirt pavement in Bloomington. At the time, a macadam surface (Fig. 2) had layers of crushed rock that traffic eventually compacted into a smooth surface. This process was the predecessor for paving materials such as asphalt, tarmac, and bitmac. The City installed macadam on Grove Street in order to link downtown Bloomington with the Illinois Central Railroad.

Figure 2: Example of old macadam pavement[1]

Figure 3: Example of old Nicholson block pavement[2]

The City followed with several streets paved in Nicholson blocks (Fig. 3), which are creosote-soaked wood with a tar binder.

In the spring of 1875, a colorful local brick maker, Napoleon Bonaparte Heafer, persuaded the City Council to permit him to lay a ten by twelve test patch of brick pavement at the corner of Washington and Center. (Heafer had been born and had done his apprenticeship, in Charleston. This area would later become West Virginia, but it is not known if Heafer was aware of Levi's paving efforts.) Heafer's pavement consisted of a layer of sand topped by bricks laid flat; then more sand and an upper layer of bricks set on edge. The bricks were made of glacial clay from a few feet below surface, hand-molded, dried outdoors, and fired in clamps for 96 to 100 hours with a mixture of coal and wood. In short, they had been made exactly as they would have been three-hundred years before.

[1] Unknown ca. 1850's
[2] Chrucky 2008

At the end of September 1875, dirt was cleared away from the top of the pavement and the upper bricks were examined. The results seemed generally good. Many local officials did not think brick was a good option and two years of debate followed. A city council sub-committee initially recommended re-laying wooden Nicholson blocks over the site of the experiment and on the other streets on the square.

In 1877, Heafer and his partner John McGregor finally persuaded the council to let them pave a full block of Center Street west of the courthouse with their locally-manufactured bricks. The pavement gave good service. The upper paving layers were removed when the street was re-paved in 1892.

The "Bloomington System" of street paving was standard material in technical manuals and it was discussed nationally in Century Magazine in 1893. By 1895, Bloomington had nine miles of brick paved streets, about a mile of asphalt streets, and 800 feet of streets paved in "rubble stone."

Until 1896, almost all brick used in city streets was locally manufactured, laid by local people, and was identical to brick used in downtown buildings. Eventually technology caught up with local brick makers. For some time, other cities had been producing machine formed, re-pressed brick, mainly made from ground shale, which was greatly superior to Bloomington brick at the time. In 1896, the first contract was issued to outside contractor John Cherry of Jacksonville, Illinois. Cherry used special paving brick brought in from other parts of Illinois, and was able to lay improved streets for about the same cost as earlier pavements.

By 1900, the City was nationally famous for its brick streets. Twenty years later, local myth developed that Bloomington built the first block of brick pavement in the US. In 1966, a small monument, built with bricks from that block, was erected (Fig. 4). However, the inscription claiming that the pavement was the first in the US is incorrect. The monument currently sits at the southwest corner of the McLean County Museum of History at the intersection of Washington Street and Center Street. Brick streets are important in the history of the city, as is the misconception that Bloomington had built the first block of brick streets in the United States, which is why it's important that this monument remain in place and unaltered.

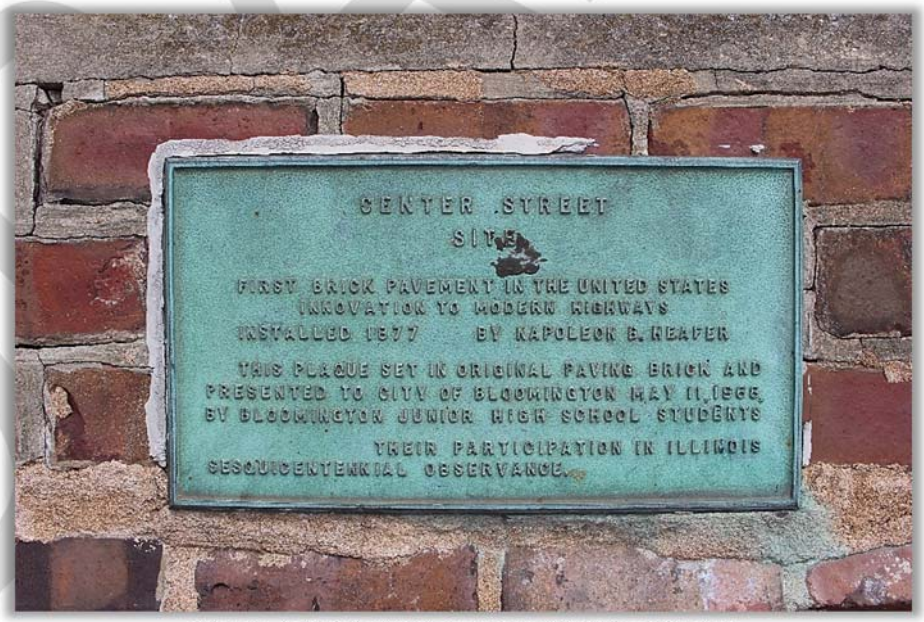


Figure 4: Brick street monument in Bloomington

In the first years of the 1900s a few streets continued to be entirely paved with local bricks, but they were soon replaced with imported bricks. Shortly after this, all local brickworks shut down. The remains of their clay pits, where material was taken for the manufacture of bricks and tile, still can be seen as ponds on the south side of Bloomington.

A great deal of brick paving was put down in the first two decades of the twentieth century. Street surfaces were covered with vitrified paving bricks. These were mainly formed from ground shale, re-pressed with great force and fired to the point where individual particles could not be distinguished. Such bricks were very resistant to crushing, absorbed very little water, were denser than earlier bricks and were extremely hard: a good paving brick will scratch quartz. None were manufactured in McLean County. These vitrified bricks were laid side to side and usually separated from each other by quarter inch spacing lugs formed into the corners of the bricks. When the bricks were put down asphalt was placed into the spaces between the bricks.

The foundation under the pavers evolved slowly. At first a lower course of bricks continued to be used for the foundation, as had been done in earlier streets. Gradually Portland cement came to be favored for the sub-surface of brick paved streets in Bloomington. Starting around 1900, concrete paving was first used for sidewalks, and by 1920 was fairly common as the primary paving material for streets. However, in this era, brick streets still dominated the city.

The pavement was dug up and replaced in 1922 (after it had been dug up and replaced in 1892). For the next two decades Bloomington paved many streets with brick using a system that was almost exactly the same as original experimental section. Many miles of brick followed. For a time three local brick makers all guaranteed they would deliver brick at the same price and were each awarded one third of local contracts.

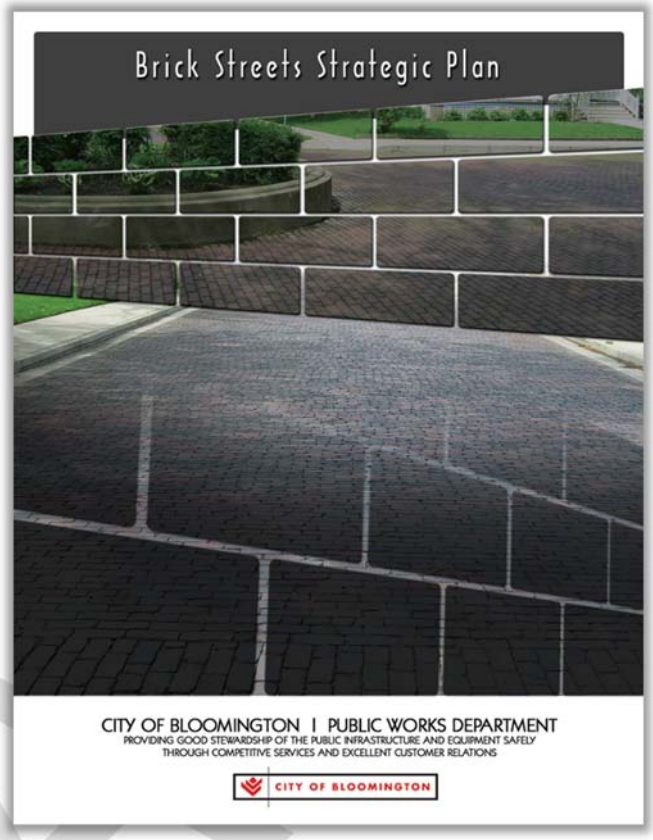
In 1926 Bloomington had over forty-five miles of brick streets, just under seven miles of asphalt streets, and about six miles of concrete streets. As late as 1935, three-quarters of all Bloomington streets were paved in brick. In the 1920s more concrete streets were built than brick, but brick streets were still being made. Brick paving received a great stimulus in the late 1930s when many miles of Bloomington streets were rebuilt by the Works Progress Administration. Often when local streets were overlaid, earlier paving bricks were left in place and many miles of local concrete and asphalt are simply surface layers resting on earlier brick pavement. From 1880 until the late 1930s most paved streets in Bloomington were surfaced with brick. The city spent a great deal of time and money on laying brick streets which became the object of great civic pride.

From the Late 1930's to 2009

Little is known about the history of brick streets in Bloomington from the late 1930s until the creation of the 2009 Brick Street Strategic Plan. However, based on what we know now about brick streets, it's easy to surmise why the City began to move from using brick streets to using the modern version of macadam or asphalt. From the late 1930's until the 1970's, citizens paid for the roads where their home was located. Following The Depression and World War II, citizens were less willing to pay for the difference in cost between brick pavement and asphalt or concrete pavement. This lead to overlaying brick pavement with asphalt in order to save money. It's most likely that the trend continued, as streets deteriorated, even as citizens no longer became responsible for the streets in front of their homes. Overall, this explains why the City went from having forty-five miles of brick streets in 1926 to 3.5 miles of brick streets in 2009. It should be noted that overlaying the brick streets did not necessarily destroy the brick. Many of the City's brick streets still exist underneath current pavement. More information on how brick streets that have been overlaid can be recovered can be found in the Future Considerations section of this document.

Draft 2009 Brick Streets Strategic Plan

A strategic plan for brick streets was completed by the Public Works Engineering Division in September 2009. It was approved by the Historic Preservation Commission, but it was never adopted by the City Council. Some of the reasons the plan was not brought to the council was that it contained insufficient empirical studies and brick cost data, and that contractor availability was low.



Portions of the draft 2009 Brick Street Strategic Plan are included in this Brick Streets Master Plan in order to describe the previous plans and the policies suggested by it. The draft 2009 Brick Streets Strategic Plan was outlined by the Public Works Engineering Division. The division held four public meetings to gather input from citizens. Two of the public meetings were held during the Historic Preservation Commission meetings on August 20, 2009 and September 17, 2009. The Brick Streets Strategic Plan was provided to create a policy and procedure on preserving Bloomington's brick streets by placing them into the categories of restoring, repairing or reconstructing. In addition, the plan also created a procedure for brick street reconstruction and discussed the cost-sharing procedure between the adjacent property owners and the city. Ten streets were recommended to be placed in category one (restore). Twenty one streets are in category two (repair), which merit preservation. Eight streets are in category three (reconstruct) with no preservation restriction.

Brick Street Restoration Policy under the Draft Strategic Plan

Restoration for category 1 and category 2 streets is clear: If the surface is disturbed, it is to be re-laid with brick meeting the standards laid out in this policy. Any restoration work completed on categories 1 or 2 streets shall be paid for using city funds.

Restoration for category 3 streets is different from categories 1 and 2 in that when the street needs to be restored either partially or completely, the city has the right to place whatever material best suits the needs of the city to maintain public safety. Category 3 streets also differ in that residents will have the ability to choose whether they would like to continue to have a brick street and share some of the cost to restore it to a category 1 brick street.

Being a category 3 street does not automatically place the street in the resurfacing pool. Placement in the resurfacing pool is either determined by the Public Works Department or by a petition of at least 80% of the property owners along the category 3 brick street. The Public Works Department

will only place the category 3 brick street in the resurfacing pool if the street is in such condition that it has become a safety hazard and is beyond minor repairs.

At the time adjoining residents or the city determine that a residential brick street is in need of total reconstruction, the residents will be informed by mail of the placement of the street in the pool of citywide streets for evaluation in the street resurfacing program. At the time of this notification, residents will have one year to implement one of the following options:

File a petition to have the street remain brick. If the Public Works Department receives a petition from 80% of the adjacent property owners that they wish to keep the street brick, then the Public Works Department will allow the street to remain brick assuming that there are not any major safety issues that exist which cannot be easily addressed. Filing this petition does not guarantee that the brick street will remain a brick street.

Coordinate with the City Council to determine if there should be a special service area implemented. Filing of this petition does not guarantee a specific council response. The City Council's response is dependent upon finances and the general direction of the council. This special service area procedure allows for a cost-sharing of the street reconstruction between the city and the adjacent property owners. It will allow adjacent property owners to have a special assessment be placed on their property tax bill so that the street can be upgraded from a resurface project to a brick street restoration project. The adjacent property owners will be responsible for the difference between the estimated resurfacing cost and the actual cost to reconstruct the street using bricks. Once completed, the street would become a category 1 brick street. In order to begin this process, a petition must be filed with the City of Bloomington Public Works Department.

After the year deadline has passed, the City can move forward with the resurfacing or reconstructing of the street as funding priorities and objective resurfacing criteria allow.

Prioritization Assumptions under the Draft Strategic Plan
In forming the plan methodology and recommendations, the following assumptions were made regarding the preservation of Bloomington's brick streets.

- Assumption 1
  - Streets with few patches are stronger candidates for preservation.

- Assumption 2
  - Streets with poor structural condition are poor candidates for preservation.

- Assumption 3
  - Many utilities beneath a street make it a poor preservation candidate.

- Assumption 4
  - Streets where the curb and gutter is in a poor condition will not be independently prioritized separate from the brick street.

- Assumption 5
  - Streets with a larger percentage of patches but of good riding quality shall be placed in a category 2.

- Assumption 6
  - It is not a feasible option to mill streets currently overlaid with asphalt and make them brick streets again.

- Assumption 7
  - Intersections will be dealt with independently from the remainder of the street because of drainage and possible connection issues to the rest of the street.

Overall Prioritization Categories under the Draft Strategic Plan

- Category 1 (Restore): These brick streets sections should be repaired, restored and reconstructed to their original appearance. These bricks should be replaced and the disturbed areas restored to their former appearance. Additional efforts should be made to actually restore these brick streets when funds are available.

- Category 2 (Repair): These streets are important enough to merit preservation, but not so important as to merit restoration. If any existing brick areas are disturbed, they shall be restored to their original appearance using the standard in this policy. All existing pavement patches on category two brick streets will not be restored unless disturbed areas are adjacent to existing pavement patches.

- Category 3 (Reconstruct): Resurfacing and patching with materials other than brick are allowed on these streets. These brick streets do not meet the standards required for repair or restoration. The Public Works Department can patch, resurface or reconstruct as budget and conditions dictate.

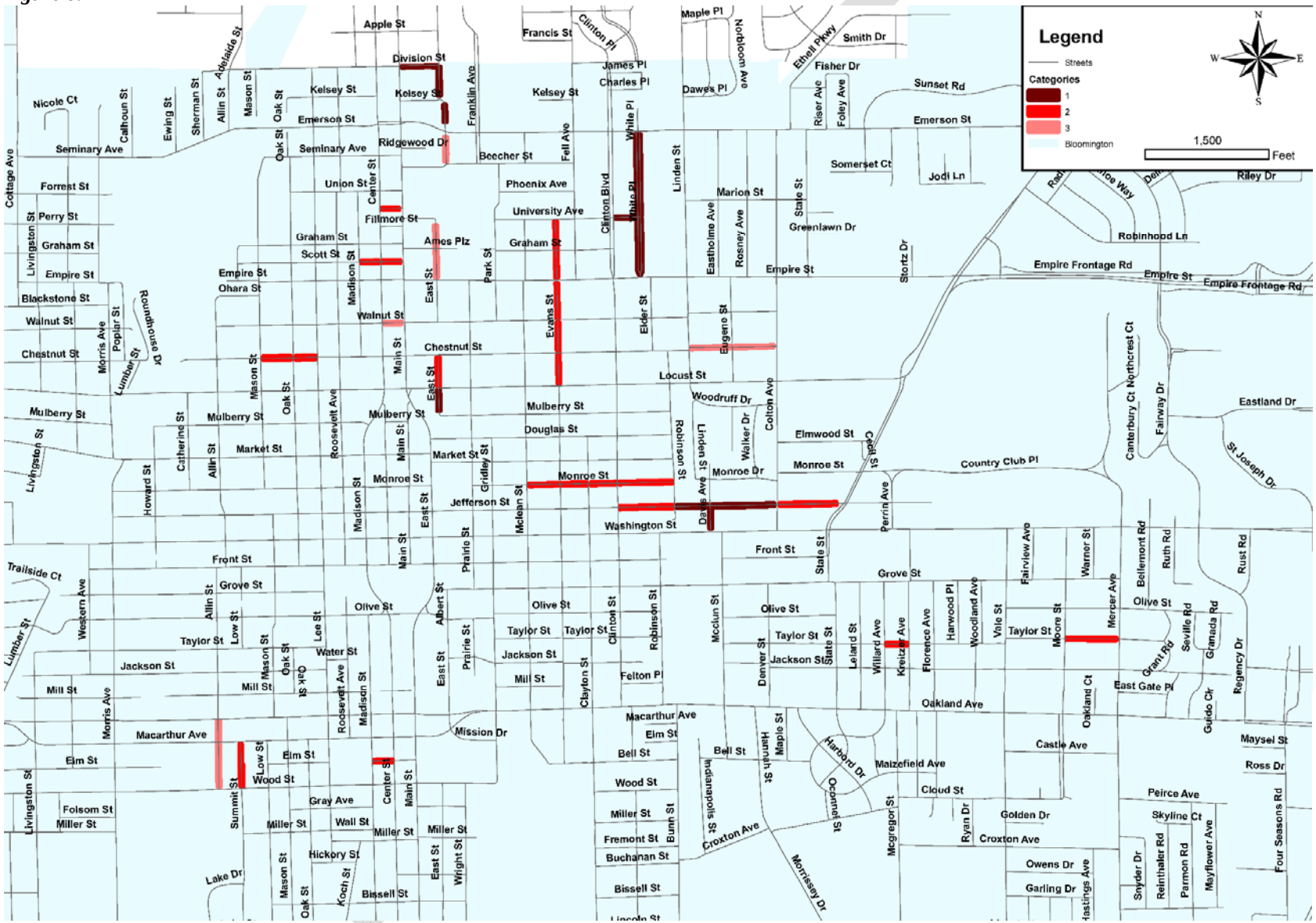
Brick Street Data and Prioritization (Draft 2009 Brick Streets Strategic Plan)

Figure 5:

Brick Street Section	Category	Structural Problems	Crown Condition	Drainage Problems	Base Condition	Ride-ability	PASER	Area of Patch (Sq. Ft.)	Percent of Street Patched (%)	Neighborhood / Historical District
Allin St., Macarthur Ave. to Wood St.	3	SOME	FAIR	FEW	AVERAGE / POOR	AVERAGE/ POOR	3	633.1	4.1	
Allin St., Oakland Ave. to Macarthur Ave.	3	MANY	FAIR	FEW	AVERAGE	AVERAGE	4	112.7	1.6	
Chestnut St., Eugene St. to Colton Ave.	3	MANY	FLAT	FEW	AVERAGE / POOR	POOR	2	587.7	5.4	
Chestnut St., Linden St. to Eugene St.	3	MANY	FAIR / FLAT	FEW	POOR	AVERAGE/ POOR	2	555.6	4.8	
Chestnut St., Mason St. to Oak St.	2	MANY	FLAT	MANY	AVERAGE / POOR	AVERAGE/ POOR	2	376.8	2.9	Northwest Union Neighborhood
Chestnut St., Oak St. to Lee St.	2	SOME	FAIR	FEW	AVERAGE	AVERAGE	5	558.4	6.3	Northwest Union Neighborhood
Davis Ave., Jefferson St. to Washington St.	1	FEW	GOOD	NONE	GOOD	GOOD	10	0	0	Davis-Jefferson Historical District
Division St., Main St. to East St.	1	FEW	GOOD	FEW	GOOD	GOOD	8	43.3	1.1	
East St., Chestnut St. to Locust St.	2	SOME	FAIR	FEW	AVERAGE	AVERAGE	4	375.9	3.7	
East St., Division St. to Kelsey St.	1	FEW	GOOD	NONE	GOOD / AVERAGE	AVERAGE	7	324.3	3.1	
East St., Emerson St. to Beecher St.	3	SOME	FAIR	FEW	AVERAGE	AVERAGE	4	612.6	7.1	
East St., Graham St. to Empire St.	3	MANY	FAIR	FEW	AVERAGE / POOR	POOR	2	1175	12.5	
East St., Kelsey St. to Emerson St.	1	FEW	GOOD	NONE	GOOD / AVERAGE	AVERAGE	7	85.2	1.4	
East St., Locust St. to Mulberry St.	1	FEW	GOOD	NONE	GOOD / AVERAGE	GOOD	7	506.8	6.9	Downtown Bloomington
East St., University Ave. to Graham St.	3	SOME	FAIR	FEW	AVERAGE	AVERAGE	5	541.8	6.9	
Elm St., Madison St. to Center St.	2	SOME	FAIR	FEW	AVERAGE	AVERAGE	5	0	0	South Hill Neighborhood
Evans St., Chestnut St. to Locust St.	2	MANY	FAIR	FEW	AVERAGE / POOR	POOR	3	188.8	2.2	Greenlee, Robert, House - NHD
Evans St., Empire St. to Walnut St.	2	MANY	FAIR	MANY	POOR	POOR	3	277.4	2.6	
Evans St., Graham St. to Empire St.	2	SOME	FAIR	FEW	AVERAGE	AVERAGE	5	111.8	1.5	
Evans St., University Ave. to Graham St.	2	SOME	FAIR	FEW	AVERAGE / POOR	POOR	3	261.3	3	
Evans St., Walnut St. to Chestnut St.	2	SOME	GOOD	FEW	GOOD / AVERAGE	AVERAGE	6	179.9	2.1	
Jefferson St., Clinton St. to Robinson St.	2	SOME	FAIR	FEW	AVERAGE	AVERAGE	5	474.3	2.5	Near East Side Neighborhood
Jefferson St., Colton Ave. to Towanda Ave.	2	SOME	GOOD	FEW	AVERAGE	AVERAGE/ POOR	5	1449	7.3	Davis-Jefferson Historical District
Jefferson St., Davis Ave. to Colton Ave.	1	SOME	FAIR	FEW	AVERAGE	AVERAGE	5	359	1.6	Davis-Jefferson Historical District
Jefferson St, Robinson St. to Davis Ave.	1		GOOD	NONE	GOOD / AVERAGE	GOOD	6	11.9	0.1	Davis-Jefferson Historical District
Monroe St., Clayton St. to Clinton St.	2	MANY	GOOD	FEW	AVERAGE / POOR	POOR	3	611.9	8	Near East Side Neighborhood
Monroe St., Clinton St. to Robinson St.	2	SOME	FAIR	MANY	AVERAGE	AVERAGE	4	653.2	4	Near East Side Neighborhood
Monroe St., Evans St. to Clayton St.	2	MANY	FAIR	MANY	AVERAGE / POOR	POOR	2	200.5	2.6	Near East Side Neighborhood
Monroe St., McLean St. to Evans St.	2	MANY	FAIR	MANY	POOR	POOR	2	433.9	4.8	Near East Side Neighborhood
Scott St., Center St. to Main St.	2	FEW	FAIR	NONE	AVERAGE	AVERAGE	7	0	0	Northwest Union Neighborhood
Scott St., Madison St. to Center St.	2	SOME	FAIR	FEW	AVERAGE	AVERAGE	6	0	0	Northwest Union Neighborhood
Summit St., Macarthur Ave. to Wood St.	2	SOME	FAIR	FEW	GOOD / AVERAGE	AVERAGE	6	223.8	1.8	
Taylor St., Moore St. to Mercer Ave.	2	MANY	FLAT	EXCESSIVE	POOR	POOR	1	26.3	0.2	Founders Grove
Taylor St., Willard Ave. to Kreitzer Ave.	2	SOME	FAIR	FEW	AVERAGE / POOR	AVERAGE	4	170.8	2.7	Founders Grove
Thompson Ave., Center St. to Main St.	2	SOME	FAIR	FEW	AVERAGE	AVERAGE	6	0	0	Northwest Union Neighborhood
University Ave., Clinton Blvd. to White Pl.	1	FEW	FLAT	NONE	GOOD / AVERAGE	GOOD	7	0	0	White Place – NHD
Walnut St., Center St. to Main St.	3	MANY	FAIR	MANY	POOR	POOR	2	59.7	1.2	Northwest Union Neighborhood
White Pl., Emerson St. to University Ave.	1	FEW	FAIR	FEW	AVERAGE	AVERAGE	7	0	0	White Place – NHD
White Pl., University Ave. to Empire St.	1	FEW	GOOD	FEW	AVERAGE	AVERAGE	7	0	0	White Place – NHD

Brick Street Prioritization Map (Draft 2009 Brick Streets Strategic Plan)

Figure 6:



From 2009 to 2017

Since that time, Public Works has allowed brick streets to be patched with concrete and has overlaid portions of two blocks of brick streets with concrete as no policy or ordinance existed for brick streets.

Elm Street

About one third of Elm St., from Center St. to Madison St., was overlaid with concrete.

Figure 7: Brick portion of Elm St., from Center St. to Madison St.

Figure 8: Concrete portion of Elm St., from Center St. to Madison St.

Chestnut Street

In spring 2016, about half of Chestnut St., from Oak St. to Mason St., was overlaid with concrete. Residents along the street wanted the street to be paved. Based on that information, Public Works decided to move forward.

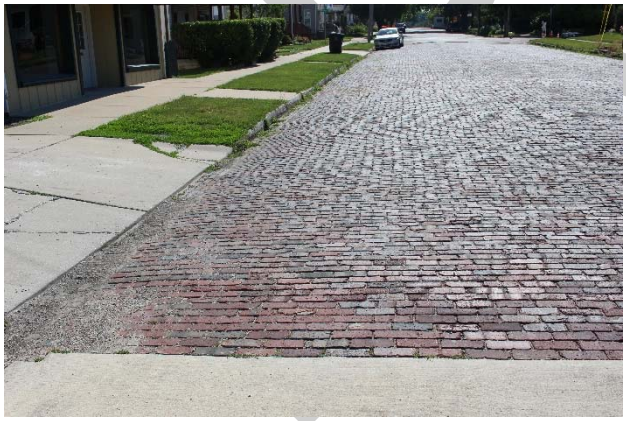


Figure 9: Brick portion of Chestnut St., from Oak St. to Mason St.

Figure 10: Concrete portion of Chestnut St., from Oak St. to Mason St.

East Street by IWU

Monroe Street

In August 2016, residents living on Monroe Street, from Clinton Street to Robinson Street, signed a petition to have their brick street overlaid with asphalt in order to repair it. Public Works again planned to move forward with overlaying a brick street with asphalt. In December 2016, Staff sent a letter to those affected by the resurfacing to inform them that, should the budget be approved, the street would be overlaid with asphalt. However, in early April 2017, Alderman Amelia Buragas informed Staff that, after talking with residents, a brick street is preferred over resurfacing with asphalt. On April 24, 2017 the City Council instructed staff to move forward with design, planning, and bidding for the repair of brick or replacement of brick for fiscal year 2019.

Figure 11: Condition of Monroe St., from Clinton St. to Robinson St. in Spring 2017

Moving Forward with the Brick Streets Master Plan

In addition, the City Council instructed City staff to work with the Historic Preservation Commission on this Brick Streets Master Plan. The Historic Preservation Commission was tasked with coming up with an implementation strategy and recommendation to further direct staff on the development of a Brick Streets Master Plan, utilizing information from the draft 2009 Brick Streets Strategic Plan. The goal state in the motion was to ensure that there is a comprehensive plan for dealing with brick streets in Bloomington rather than using a piecemeal approach. More information on the Historic Preservation Commission meetings that followed the April 24, 2017 City Council meeting can be found under the Prioritizing Brick Streets section of this document.

Historic Preservation Commission Meeting: May 2017
This section will contain a brief summary of the Historic Preservation Commission meeting in May 2017.

Historic Preservation Commission Meeting: July 2017
This section will contain a brief summary of the Historic Preservation Commission meeting in July 2017.

Historic Preservation Commission Meeting: August 2017
This section will contain a brief summary of the proposed Historic Preservation Commission meeting in August 2017.

Transportation Commission Meeting: August 2017
This section will contain a brief summary of the proposed Transportation Commission meeting in August 2017.

Planning Commission Meeting: September 2017
This section will contain a brief summary of the proposed Planning Commission meeting in August 2017.

City Council Meeting: October 2017
This section will contain a brief summary of the proposed City Council meeting in August 2017.

ANALYZING AND PRIORITIZING BRICK STREETS

Bloomington's Public Works Engineering Division staff created a methodology to study brick streets in Bloomington and establish priorities for their preservation. The Public Works Department gathered input from various stakeholders including the City Council, neighborhood groups and the general public. In addition, a survey was completed on how other communities dealt with their brick street infrastructure. All of this information and input was compiled to create the City of Bloomington Brick Streets Strategic Plan, and can be reused in the City of Bloomington Brick Streets Master Plan with a few minor changes. The following is a summary of the brick streets categorization process:

- Existing exposed brick streets were identified.
- These streets were analyzed in terms of the condition of the street and given a PASER rating (Pavement Surface Evaluation and Rating). These numbers were updated in 2017. Additional information about the PASER rating methodology can be found in the PASER section
- The numbers of concrete or asphalt patches were determined for each brick street section, along with the square footage and percentage of the patch and total square footage of the section. These numbers were updated in 2009.
- Each street was photographed and the historic status of the neighborhood was determined.
- All of this information for the brick streets was entered into the City of Bloomington's GIS (Geographic Information System) database.

A prioritized list of streets can be found within the Brick Streets Ten-Year Improvement Plan section.

Overall Prioritization Categories

All current blocks of brick streets, apart from those that are considered serviceable with zero non-brick patches, will be prioritized for either reconstruction or patching. Serviceable brick streets will be prioritized in the event that multiple serviceable brick streets need temporary patches replaced. The patching and reconstruction categories will each have their own budget, with 20 percent of the total brick street budget allocated for patching and 80 percent of the total brick street budget allocated for reconstruction. Serviceable brick streets with necessary temporary patch replacements will take priority and funding before all other streets in the Patch category.

All streets in either the reconstruct or patch categories will undergo further engineering prior to a final determination of reconstruction versus patching. Based on information gathered during that process, Public Works will decide which option would be more cost-effective.

Special Cases

- University Ave., Clinton Blvd. to White Pl.
- Chestnut St., Mason St. to Oak St.
- Elm St., Madison St. to Center St.

Reconstruct

Brick streets sections placed into this category will be reconstructed to a PASER system rating of at least 4 and contain zero non-brick patches. Typically, a street in this category is unable to be patched to bring it up to a serviceable level, and, therefore, must undergo brick street reconstruction. The worst streets will be the highest priorities in this category. These brick street sections are a core part of the Brick Street Master Plan and will be a large portion of the overall budget for brick streets.

Patch

Within the patching category, temporary patches that have been put in place due to underground infrastructure work will be the first to receive funding. Once temporary patches have been replaced, Public Works will begin working on the highest priority streets in the patching category until each street has zero non-brick patches. These brick street sections are near serviceable condition, and would only require brick patching in order to bring them up to serviceable condition. The best streets will be the highest priorities in this category. The worst ten blocks will be placed into this category with plans to reconstruct them over the course of the Ten-Year Improvement Plan.

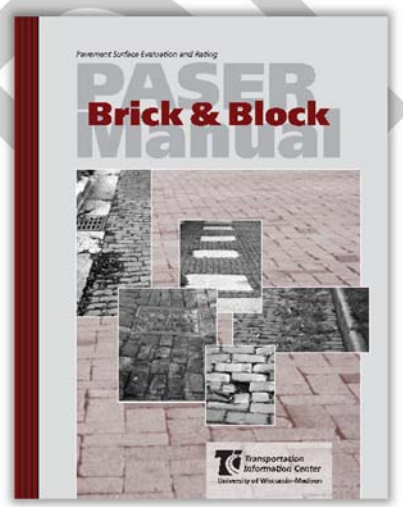
Serviceable No Patch

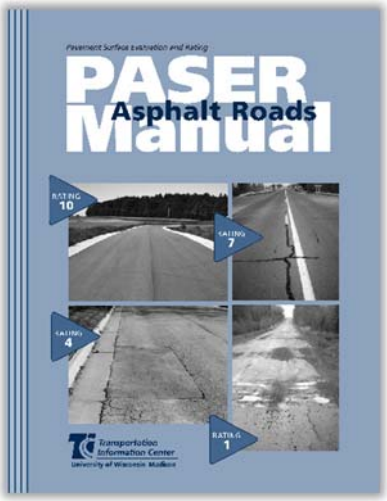
These brick street sections have a PASER System rating of 4 or above and have zero non-brick patches present. These streets do not require reconstruction or patching. Streets in this category will be given a priority for cases in which more than one street in this category needs a temporary patch replaced. In cases where underground infrastructure work creates a need for brick patching, serviceable brick streets will receive funding prior to streets in the Patch category to ensure that serviceable streets remain serviceable. These brick street sections should be monitored to ensure they continue to meet the requirements of a serviceable brick street. Streets in this category may be placed into another category and prioritized if they are no longer considered serviceable.

Brick Pavement Surface Evaluation and Rating (Brick PASER)

To remain consistent with the rating systems used for other infrastructure in the City, Public Works has created a 10-point rating system for brick streets, combining the four-point rating system from the PASER manual for brick and block[3] and the 10-point rating system from the PASER manual for asphalt streets,[4] and the PASER system developed by Public Works for the City of Bloomington Sidewalk Master Plan. The Brick PASER system developed by Public Works should not be confused with the four-point rating system used in the PASER manual for brick and block.

The PASER system of rating the condition of various pavement surfaces was developed by the Transportation Information Center at the University of Wisconsin, Madison, in the 1980's. This center is partnered with the Federal Highway Administration. PASER is currently used by the City to analyze asphalt and concrete streets and concrete sidewalks, but a new system had to be developed so that all three rating systems would align, preventing confusion between the various types of infrastructure and their ratings.





[3] Wisconsin Transportation Information Center 2015
[4] Wisconsin Transportation Information Center 2013

Figure 12: Brick Street Rating System (Based on PASER)

Surface Rating	General Condition & Defects	Functionality & Aesthetics	
10 New	None	Brand new or newly reconstructed. Zero non-brick patches.	
9 Excellent	Some weathering in the color.	Like new condition. Zero non-brick patches.	
8 Very Good	Less than 25% of bricks cracking or spalling.	Minor defects caused by weathering. Still looks acceptable. Very good ride. Very few defects. Zero non-brick patches.	
7 Good (+)	Over 25% of bricks have minimal spalling. 25% to 50% shows minimal cracking along the street.	Weathering and minor defects are becoming visible. Still functional. Good ride. Zero non-brick patches.	
6 Good (-)	Moderate spalling beginning to be visible. Minimal cracking is visible in over 50% of the street.	Minor defects. Functionality and aesthetics are slightly lowered. Still acceptable. Good ride. Zero non-brick patches.	
5 Fair (+)	Less than 25% of the panel has moderate cracking. Over 50% of the street has moderate spalling. Sunken or settled areas. Broken bricks or blocks. Open joints.	Ride may be uneven and rough. Might be a hindrance to some vehicles, but functionality acceptable to most. Areas of poor drainage. Zero non-brick patches.	
4 Fair (-)	One or more types of defects present extending over 5% to 10% of the surface area of the street. Less than 50% of the street has severe spalling. Less than 50% of the brick street has moderate cracking. Sunken or settled areas. Broken bricks or blocks. Open joints.	Ride may be uneven and rough. Still usable by most. Not easily navigated by cyclists or wheelchair users. Lacking aesthetic appeal. Areas of poor drainage. Zero non-brick patches.	
3 Poor	One or more types of defects present extending over 10% to 20% of the surface area of the street. Severe spalling and moderate cracking is evident in 50% of the brick street. Sunken or settled areas. Broken bricks or blocks. Open joints.	Ride uneven and rough. Functionality is almost gone. Negative aesthetics. Areas of poor drainage. Non-brick patches 5% to 10% of surface area. Street needs to be reconstructed.	
2 Very Poor	Defects cover 20% to 30% of the surface area. Up to 50% of the brick street has severe cracking.	Very rough ride. Not functional. Street needs to be reconstructed. Poor drainage. Non-brick patches 10% to 20% of surface area.	
1 Failed	Defects cover more than 30% of the surface area. Complete loss of brick. Over 50% of the brick street has severe cracking.	Brick street is impassable. Street needs to be reconstructed. Poor drainage. Non-brick patches 20% to 30% of surface area.	

Historic District Location

Brick streets were also prioritized based on whether they were located within one of the City's historic districts. These districts include Downtown Bloomington, Franklin Square, East Grove, Davis-Jefferson, North Roosevelt Avenue, and White Place (as seen in Figure X above).

Figure 13: Historic Districts and the Preservation Area (yellow-dotted line)

COST ESTIMATES

In 2017, the Public Works Department estimated the following for costs for a brick street reconstruction on Monroe Street, from Clinton Street to Robinson Street. These estimates will be updated once the project goes through the design, planning, and bidding processes.

The street area on the block of Monroe Street, from Clinton Street to Robinson Street, is 1,878 square yards. Based on the Department's estimates, brick streets could cost anywhere from $160 to $250 per square yard, bringing the total to between $300,445 and $469,445.

Figure 14: Initial Reconstruction Estimates for 2017 Monroe Street Project

	Brick (Minimum)	Brick (Maximum)
Estimated Cost	$300,445	$469,445
Estimated Longevity	100-150 years	100-150 years
Estimated Cost/Year	$3,004 (100 years)	$4,694 (100 years)
	$2,003 (150 years)	$3,130 (150 years)

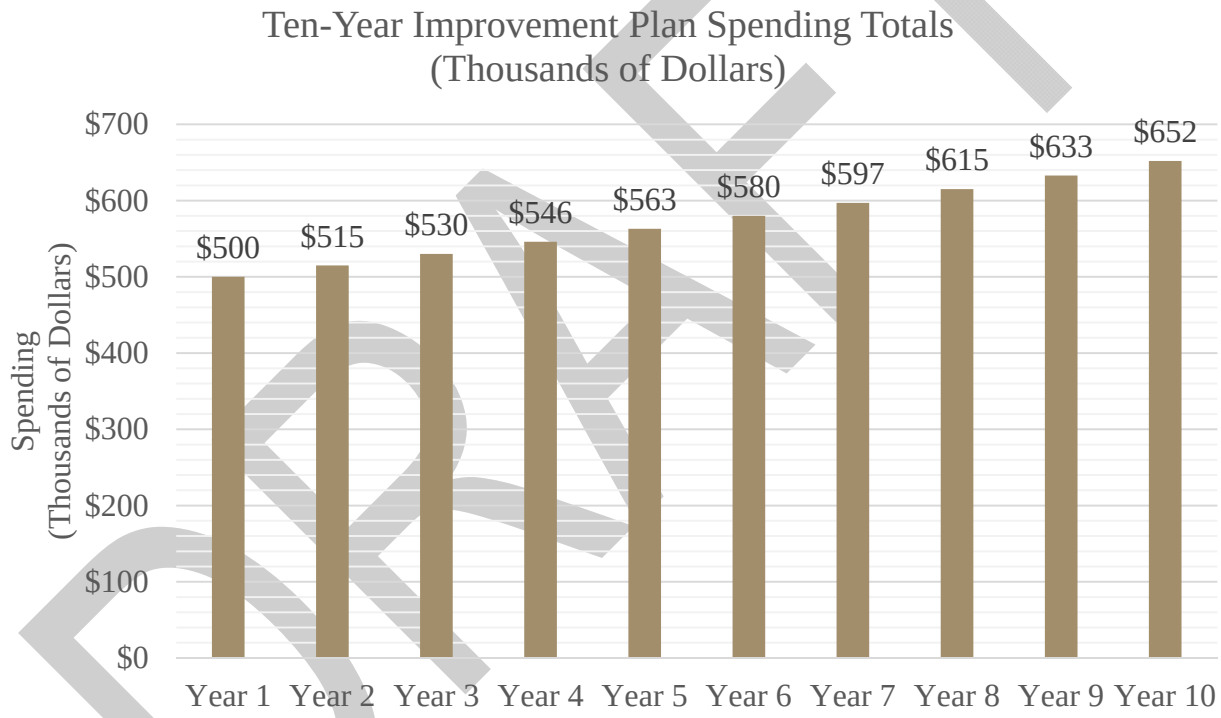
BRICK STREETS TEN-YEAR IMPROVEMENT PLAN

The Brick Streets Master Plan proposes a realistic approach to fund prioritized brick streets within 10 years while also making minor patches and repairs to streets that are not prioritized.

The plan requires an increased funding priority from the City Council and it needs consistent funding. In recent years, the City has not dedicated funding to brick streets, which means that the Ten-Year Improvement Plan will require a significant amount of funding.

The accompanying charts show estimated amounts of spending under the Brick Streets Master Plan. In 2017 dollars, the improvement plan shows a total of $5.7 million in brick street repair and maintenance spread over ten years, assuming a 3 percent increase in the cost of labor, materials, and inflation. This accounts for one major road project per year and a contract for brick patching.

Figure 15: Ten-Year Improvement Plan Spending



Objective I: Consistently Fund Ten-Year Improvement Plan

In order to comply with the master plan, it is essential that brick streets receive consistent funding. As mentioned in the Funding Mechanisms section, the City has multiple ways that it can choose to fund brick streets. The method isn't as important as the goal of providing funding each year until all brick streets are considered serviceable and have zero non-brick patches.

Objective II: Remove and Prevent Non-Brick Patches

Once all non-brick patches are removed from streets as a part of this plan, the City must continue disallowing non-brick patches in the future. Temporary gravel patches will be allowed until such time as the City can repair a temporary gravel patch with brick. However, materials such as concrete and asphalt should not be allowed to patch brick streets.

Objective III: Preserve All Current Brick Streets

All 3.5 miles of current brick streets must be preserved, according to directives provided by the City Council and the Historic Preservation Commission. Previous policies have allowed non-brick patches or overlaying brick with asphalt or concrete. However, to comply with the goals outlined in this plan, brick streets should no longer be allowed to be overlaid or reconstructed with anything other than approved brick.

Objective IV: Find the Most Cost-Effective Solution for Each Street

As the City goes through each prioritized street, it should be noted that a street may need to be reconstructed while in the patch category or patched while in the reconstruct category. Public Works will further analyze each street to determine the most cost-effective solution to upgrade the street to serviceable condition with zero non-brick patches. Priorities are subject to change based on further analysis.

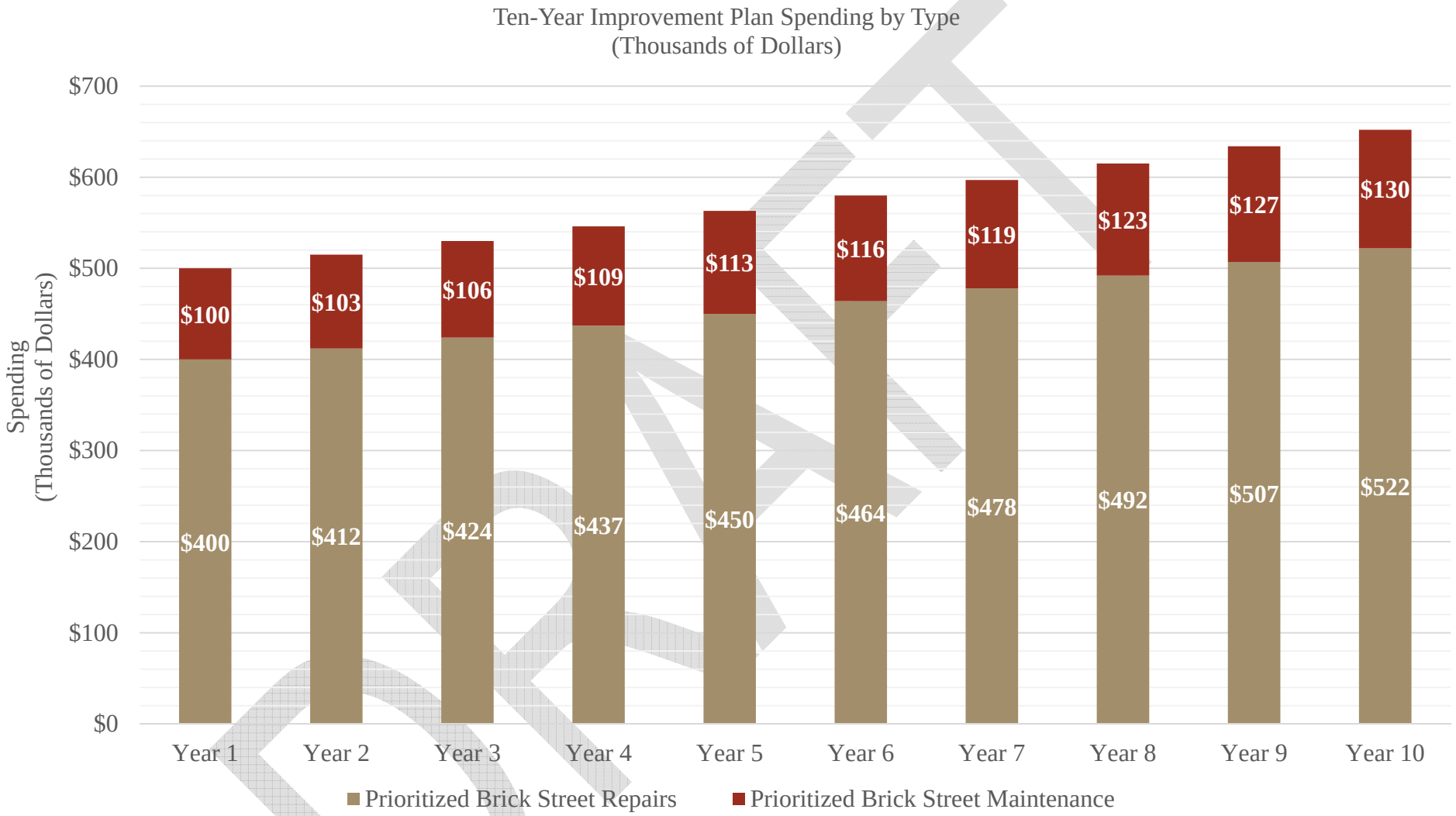
Ten-Year Improvement Plan Summary

Figure 16: Ten-Year Improvement Plan Summary

Expenditures*										
	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10
Prioritized Brick Street Repairs	$400,000	$412,000	$424,000	$437,000	$450,000	$464,000	$478,000	$492,000	$507,000	$522,000
Prioritized Brick Street Maintenance	$100,000	$103,000	$106,000	$109,000	$113,000	$116,000	$119,000	$123,000	$127,000	$130,000
Total:	**$500,000**	**$515,000**	**$530,000**	**$546,000**	**$563,000**	**$580,000**	**$597,000**	**$615,000**	**$633,000**	**$652,000**
Grand Total:	**$5,732,000**									

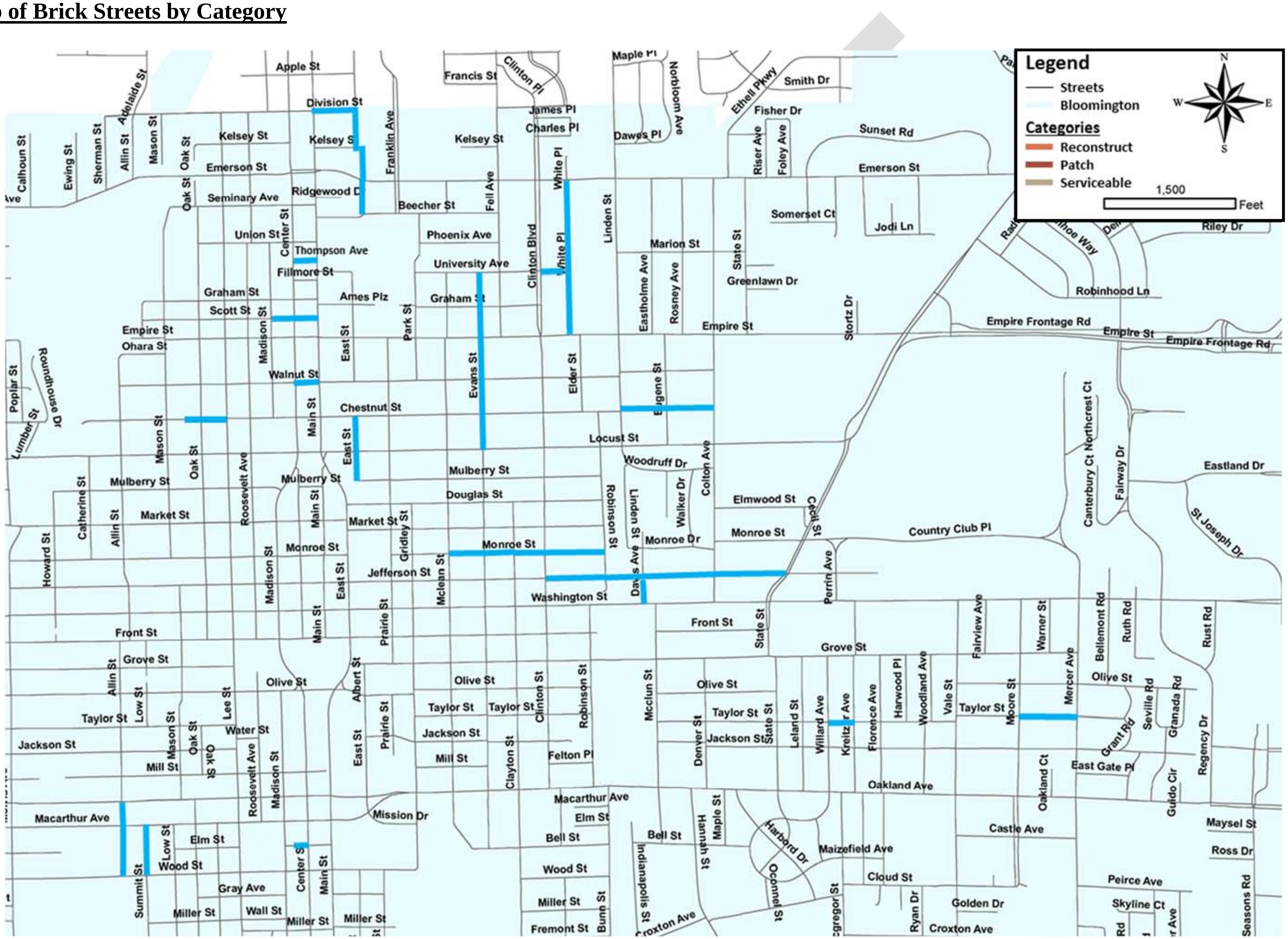
* Figures may not add as they are based on a 3% inflation rate and rounded to the nearest $1,000.

Figure 17: Ten-Year Improvement Plan Spending by Type



Brick Street Data and Prioritization

Map of Brick Streets by Category



Consequences of Underfunding

The consequences of underfunding the Brick Streets Master Plan include delays in brick street repair and maintenance, continued deterioration of brick streets, increased risk of safety issues arising from the deterioration of brick streets, and a delay in the prioritization of additional brick street projects. While this document is considered advisory, it should be followed closely to avoid these issues.

If More Funds Become Available

With the large expense of brick streets, it's not expected that more funds will become available. However, brick street repairs planned for future years may be accomplished if more funds become available. Funding should focus on upgrading all 3.5 miles of streets to an acceptable rating first. Once that is accomplished, the City should look to the Future Considerations outlined in this Brick Streets Master Plan to continue examining brick streets.

Following Up

The City should then take steps to ensure its existing brick streets remain in good shape. The best methods to do so are to continue responding to complaints and observations of specific brick street problems – report-driven repairs -- and inspect all brick streets periodically. The Master Plan recommends the following actions:

- Inspect and re-rate every brick street within a 10-year cycle. Technicians, interns and engineers conducting the inspections should take particular care in viewing sidewalks with a low rating.
- Perform patching, as necessary, to ensure brick streets stay at their current rating..
- Continue funding the 50/50 Special Assessment Program.
- Continue budgeting for report-based issues to enable Public Works to respond promptly to reported problems and complaints.

BRICK STREET DESIGN STANDARDS

Types of Brick Pavement

Four types of brick or brick-like pavement have been considered by the City:

1. Granite clay brick street pavers (recommended)
2. Concrete brick street pavers (recommended)
3. Stamped brick concrete pavement (not recommended)
4. Patio pavers (not recommended)

Unfortunately, a definitive way to measure durability of each type of pavement does not exist. However, many other factors must be considered when determining which material to use for brick streets in the future. Those factors are described below.

Granite Clay Brick Street Pavers (Recommended)

Clay brick pavers are the most historic brick pavement type that are considered acceptable by the City. All current brick streets are paved with clay brick street pavers, with the exception of University St., Clinton Blvd. to White Pl. While this type of pavement is the most historic, it would have the highest short-term expense to repair, restore, or replace. Due to the nature of clay brick street pavers, workers would have to lay each brick by hand, which brings the labor cost up. Long-term costs or cost-per-year estimates are unknown at this time.

Figure 18: Historical clay bricks

Concrete Brick Street Pavers (Recommended)

Concrete Brick Street Pavers (Fig. 19)[5] are not considered historic brick. However, they are a high-quality analog to clay brick streets that have a similar look and feel of brick streets without the expense of installing historic brick. One of the advantages of concrete brick street pavers is that workers are able to use machines to lay the bricks without having to lay them by hand. Concrete brick street pavers are uniform in shape and size, which allows the process to go quicker and at a lower expense. In addition to those factors, concrete brick street pavers are more widely available and less expensive than clay brick street pavers.

Figure 19: Concrete bricks

[5] Concrete Paver Systems n.d.

Stamped Brick Concrete Pavement (Not Recommended)
This type of pavement utilizes brick-colored concrete that is placed on a street and then stamped in order to give the appearance of brick. However, the appearance is not authentic and would not add to the historic nature of current brick streets.

Figure 20: Brick-stamped concrete

Patio Pavers (Not Recommended)
Patio pavers are designed for patios and not for streets. They should never be used for brick streets. Only one street in the community, University Ave., Clinton Blvd. to White Pl., has this type of brick. As seen in Fig. 21, these pavers wear out and can create hazards on a street.

Figure 21: Patio paver bricks after years of use

Preventing Rutting at the Ends of Brick Streets

Rutting is displacement of material, creating channels in wheelpaths. It is caused by traffic compaction or displacement of unstable material. Rutting of any severity can cause safety concerns because water can collect in ruts increasing vehicle stopping distances and increasing the chances of hydroplaning. In freezing temperatures ice can form in ruts. Severe rutting (2 inches or more in depth) may be caused by base or sub - grade consolidation. Repair minor rutting with microsurfacing or overlays. Severe rutting requires milling the old surface or reconstructing the roadbed before resurfacing. One suggestion that has been made with regards to preventing rutting at the ends of brick streets is installing 20 feet of concrete pavement at the end of a street that has a stop sign. While it is not brick, concrete at the end of a street that has a stop sign would help to preserve the remaining brick on the street while preventing safety issues caused by brick street rutting.

Figure 22: Rutting near stop sign on Monroe St. at Clinton St.

Patching Standards and Details

This standard pertains to all brick streets, which will be repaired to their original brick surface appearance. Prior to removal of any of the brick street surface a representative of the Public Works Department will mark the limits for the brick street replacement. During removal of the existing brick street surface, due care shall be exercised to prevent damage to adjacent bricks. No additional measurements will be made for increases in area due to additional removal required for machine curb and gutter, carelessness during removal, or leaving edges of brick pavement or patches exposed to traffic. No additional measurement for pavement will be made after the work is completed.

Temporary Patching

A temporary gravel patch will be used in instances where bricks are removed, until a patching contract can address the repair. A gravel patch temporarily fixes a problem area without using permanent patch materials such as concrete or asphalt, at a much lower cost than brick patching. Temporary gravel patches will last about a year, but additional maintenance can stretch the life of the patch until maintenance contracts can address the issue appropriately. Gravel patches should be closely monitored to ensure maintenance isn't needed sooner than expected.

Figure 23: Temporary gravel patch

Permanent Patching

Upon excavation to the depth required for placement of the concrete base course, the existing sub-base shall be re-compacted. If the sub-base is still unstable as determined by a representative of the Public Works Department it shall be over excavated to a depth of 6" and Sub-base Granular Material Type B shall be placed and compacted below the concrete base course. Little over excavation and placement of sub-base granular material is anticipated. However, if required the cost for this work shall be included in the contract unit price per square yard.

All repair areas will require placement of a 6" Plain Cement Concrete (PCC) base course. The cost of the 6" PCC base course shall be included in the bid price. An uncompacted leveling base of FA-2, Class A, non-plastic, clean sand shall be screeded over the concrete base course to a thickness of 1" to 1½". The leveling base shall not exceed 1½". The bricks are expected to settle ¼" to ½" after compaction. Bricks shall be laid to follow the adjacent brick pattern with generally the same spacing between bricks as the adjacent bricks. As the bricks are laid they shall be moved back and forth to solidly bed them into the sand leveling base. When necessary to cut bricks, cutting shall be performed to leave a clean edge to the traffic surface. Bricks shall be cut with either a block splitter or a masonry saw.

Once the bricks are in place, sand shall be placed over the area and worked into the joints between the bricks with a broom, leaving a thin sand layer 1/8" to 1/4" thick over the patch area. A pass shall be made with a vibratory plate compactor over the brick surface. The compactor shall be a plate type soil compactor capable of 3500 to 5000 lb centrifugal compaction force. This equipment shall be similar to Model P-22 as manufactured by Koehring, Master Division, Dayton, Ohio.

Additional passes shall be made over the area with the vibratory plate compactor while simultaneously brushing additional FA-2 sand into the joints. The patch shall then be watered while adding additional FA-2 sand to the area and sweeping the sand into the joints. A thin layer (1/4" maximum) of sand shall be left over the patch. All other excess sand shall be removed from the site. 30 days after sand is swept and watered into the joints, the Contractor shall again broom and water FA-2 sand into the brick joints as directed by the Engineer. Excess sand shall be removed from the site.

This work will be paid for at the bid price per square yard for Brick Patching, which price shall include furnishing all work required to complete the excavation, sub grade improvement if needed, 6" PCC base course, and reconstruction of the brick pavement.

Utility Company Infrastructure Work

The Brick Streets Master Plan ensures the preservation of the surface of all brick streets. This plan requires that all surfaces disturbed by utility cuts for all current brick streets be replaced with brick at the expense of the City. If existing utility patches are re-excavated on any brick street, they must be replaced with brick at the expense of the City. In order to ensure that the City can keep up with brick patching, temporary gravel patches (Fig. 2) will be used, at the expense of the utility company. Funding to replace temporary gravel patches will come from the patching contract budget for brick streets. Temporary gravel patches will take priority over prioritized streets in the Patch Category.

The City will continually work with each utility company in order to plan around utility company infrastructure work in order to ensure brick patches are installed as soon as possible and to ensure that temporary gravel patches are used minimally. Though streets with utilities running beneath them are less than optimal candidates for preservation, there are no brick streets in the city that are free of utilities. Nearly all of the brick streets have at least one water main and one sewer line running beneath them.

Utility Cuts

Utility cuts are the most common surface disturbance in local streets. The following are the different possibilities for the existing brick streets to be disturbed and the process for patching them:

- Utility Companies: patches that are made by utility cuts are covered under each utility's franchise agreement. Utility companies would be required to use temporary gravel patches until the City can replace them with brick. Within the majority of brick streets, the only utility company outside of sanitary sewer, storm sewer and water would be Nicor Gas (natural gas) and MetroNet (fiber optic). Most other utilities are placed upon utility poles in these areas.
- Private Contractor: Street cuts made by private contractors require at a minimum a permit from the Public Works Department and are normally done as a paid service for residents who live along a brick street. Patching the utility cut is accomplished by City contracted crews, with the person who caused the utility cut reimbursing the city for the cost of a temporary gravel patch, if necessary. The cost is determined by the Public Works Department through standards referenced in the Brick Streets Master Plan.
- City Maintenance: Street cuts made by the City of Bloomington during the course of maintaining the public utilities shall be replaced with either a temporary gravel patch or brick, depending on City fund availability.

Restoration of brick pavement costs three to four times as much as patching utility cuts with concrete or asphalt. This is due to the fact that brick replacement, which is labor intensive with relatively fixed per unit costs, cannot compete with the advantage of mechanization and efficiencies of scale allowed through asphalt or concrete patching for streets that are not brick. However, the City is dedicated to restoring brick pavement rather than patching it with asphalt or concrete, and the City will use temporary gravel patches when funds are unavailable for brick patching.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) was signed into federal law on July 26, 1990. The City's Sidewalk Master Plan describes how the City is moving towards 100 percent compliance with the ADA with regards to crosswalks and curbs. However, that is outside of the scope of this document.

Sidewalk and Curb Requirements and Recommendations

The City's sidewalk system falls under Title II of ADA, which prohibits state and local governments from discriminating against persons with disabilities or from excluding participation in or denying benefits of programs, services or activities to persons with disabilities. Passage of the Americans with Disabilities Act triggered significant changes to the design and construction of pedestrian facilities. Further, pedestrian curb ramps were installed at most intersections in Bloomington. However, the City's sidewalk system is not yet fully accessible and barriers remain. The ADA has numerous requirements on how a city's sidewalks and curb ramps should be constructed in an effort to eliminate barriers for people with disabilities.

While brick streets are not prohibited by ADA, these curb requirements are such that they prohibit building historic curb heights when patching or reconstructing brick streets. It's important to note that historic and/or sandstone curbs may have to be replaced with modern curb measurements and materials in order to comply with the ADA.

Crosswalk Requirements and Recommendations[6]

It is also important that all crosswalks over brick streets, curb ramps, and adjacent sidewalks are ADA accessible. While modern bricks have often been used in recent times to visually distinguish downtown crosswalks while providing ADA accessibility, crosswalks over brick streets do not have to be brick. It is recommended that asphalt or concrete be used for crosswalks.

The Americans with Disabilities Act of 1990 does not require any street material (asphalt, brick or concrete) to meet the same ADA standards as sidewalks, ramps and crosswalks; however, with proper restoration techniques, brick streets can follow sidewalk, ramp and crosswalk design standards for slopes, cross slopes, and surface impediments such as vertical surface discontinuities. Two important design factors are recommended: repaired brick streets need to be uniformly placed over a level concrete base to prevent vertical obstructions and tight, sand swept joints are needed to create a smooth surface to limit traveling vibrations.

ADA Transition Plan

ADA also required municipalities with more than 50 employees to implement a plan for enactment. The Sidewalk Master Plan served as an official update to the right-of-way portion of the City's ADA plan. This Brick Streets Master Plan does not seek to specifically address or alter the ADA plan.

[6] City of Columbia, Missouri 2015

ADA Coordinator
The ADA Coordinator must be the single contact person to handle issues and investigate complaints for ADA compliance. The official responsible for implementation of the City of Bloomington's ADA Transition Plan in Public Rights-of-Way is:

Kevin Kothe, P.E.
City Engineer
115 East Washington Street
P.O. Box 3157
Bloomington, IL 61702-3157
Telephone: (309) 434-2225
Email: kkothe@cityblm.org

Complaint Process
The City has a formal complaint process, as required under Title II of ADA. Under the procedure, Public Works evaluates all requests and complaints, documents them and documents responses. Persons with disabilities who require curb ramps -- and any other concerned persons -- are encouraged to contact the Public Works office directly at (309) 434-2225 to ensure that the specific needs of each individual are accurately understood and recorded. Written and e-mailed requests/complaints also are welcomed. The issue and specific locations are then entered into a log and the matter gets referred to the appropriate Engineering administrator for inspection and possible action. The Department of Public Works then coordinates any work and keeps a record of all formal responses to the complainant or requester.

Complaints may be received through a variety of communication methods:
Phone: Department of Public Works (309) 434-2225
Email: kkothe@cityblm.org
Mail: Department of Public Works
115 East Washington Street
P.O. Box 3157
Bloomington, IL 61702-3157

Additional Information
For more information about sidewalk and curb requirements as part of Bloomington's commitment to complying with the Americans with Disabilities Act, see pages 14 through 19 in "A Master Plan for Sidewalks" located at:
http://www.cityblm.org/government/departments/public-works/streets-sidewalks/sidewalks-master-plan

Complete Streets

A "Complete Streets" ordinance took effect on September 1, 2016. Chapter 38, Article XII, Sections 180-185.1 describe the City's commitment to Complete Streets. It's important to consider this ordinance when developing future plans for brick streets. The ordinance currently refers to all streets in the community, including all brick streets. It should be noted that a brick street would 4not be considered a Complete Street, as shown in Fig. 24.

Advantages and Disadvantages of Brick for Complete Streets Planning

Figure 24: Advantages and Disadvantages of Brick for Complete Streets Planning[7]

ADVANTAGES	DISADVANTAGES
Longer lifespan than asphalt.	Cannot withstand heavy traffic
Can be used as a traffic calming element in low-speed environments	Individual bricks become loose and uneven over time and need to be replaced
Provides a nice design element in neighborhoods and historic areas	Tree roots can uplift bricks, which create an obstacle for pedestrians and wheelchair users
	Brick streets and sidewalks are less comfortable for bicyclists and wheelchair users

Bearing this information in mind, and conforming to all current plans adopted by the City, this plan recommends an additional exemption for historic streets as follows:

Section 181.2: Exemption.

The implementation of Complete Streets practices may not be required if the City of Bloomington determines that one or more of the following conditions exists: 1) the project occurs on a roadway where specified users are prohibited by law; 2) the project involves ordinary maintenance activities such as cleaning, sealing, spot repairs, patching, and surface treatments; 3) the cost of accommodations for a particular mode is excessively disproportionate to the need for accommodation and potential benefit of accommodation; ~~and/or~~ 4) there is clear and quantifiable evidence of a lack of need or lack of increased safety benefits; and/or 5) the street surface is considered a historic street surface such as clay brick. The City of Bloomington may consult local, regional, state, and federal plans and leaders, as appropriate, in assessing exemptions. Exemptions to the Completes Streets policy must be documented in writing, submitted to the Director of Public Works and approved by the City Manager. In the event that consensus cannot be reached between the City Manager and the Director of Public Works, the City Council may make the final determination for an exemption.

[7] Mid-Ohio Regional Planning Commission 2012

POLICIES AND ORDINANCES

Vegetation Policy

One of the disadvantages of brick streets is that they are designed such that vegetation can spring up between bricks. Unfortunately, there is nothing the City can do to remedy this situation. Vegetation growth between bricks generally occurs on streets that are used infrequently (Fig. 25).

Figure 25: Vegetation between bricks (White Pl.)

Due to environmental concerns, the City will not use plant killing chemicals on these streets in order to eliminate vegetation. This method creates a risk of damage to the street or a risk of chemical infiltration into water or sewer infrastructure.

In addition, while it's possible for street sweepers to make vegetation slightly shorter, street sweepers are ineffective at removing vegetation between bricks.

Figure 26: Effects of driving on vegetation between bricks (White Pl.)

As seen in Fig. 26, vegetation is killed off over time as vehicles drive over it. This means that vegetation would not be as prevalent in driving lanes, but it could grow along the side of a street.

Streets that are used more frequently have a lower chance of vegetation growth, but it can still occur.

Truck Route Ordinance

One ordinance to consider with brick streets is to establish truck route restrictions on all brick streets in the City. This would help protect brick streets and make them easier to maintain long-term.

Figure 27: Truck route restriction sign on White Place

Utility and Underground Infrastructure Ordinance

USING VOLUNTEERS FOR BRICK RECOVERY OR BRICKLAYING

One suggestion to help reduce the overall cost of repairing or maintaining brick streets is to use volunteers for labor that does not require expertise. Examples include cleaning and stacking salvaged brick and assisting with relaying bricks and brushing in grout.[8] These tasks typically require a large amount of labor, which is the majority of the cost in repairing or maintaining brick streets. However, factors such as the cost of training volunteers, the cost to provide personal protective equipment, and the risk of injury should be considered when using volunteers for this work.

Training

Personal Protective Equipment

Risk of Injury

[8] West Central Neighborhood Association n.d.

RECOVERING BRICK FROM BRICK STREETS OVERLAID WITH ASPHALT

At one time, the City of Bloomington had more than forty-five miles of brick streets. Many of those streets were overlaid with asphalt without removing the brick. The Engineering Division found some research on heating asphalt to melt asphalt off of brick, but the process required special equipment.

However, on April 24, 2017 the Engineering Division spoke with John Gavin, co-owner of Gavin Historical Bricks in Iowa City, Iowa. Mr. Gavin's company is a supplier of Purington-brand historic bricks, and it has several million bricks in stock. According to Mr. Gavin, restoration of asphalt-on-brick to brick is a simple process, but it is expensive and labor intensive. It requires a skilled heavy equipment operator and laborers. He was able to provide basic instructions on this process, and the Engineering Division proceeded to test that process at a sewer dig on Grove Street.

It should be noted that the photos show a single strip of road, but a similar process would be used for the entire width of a road section. The final process doesn't match the photos in that, when performing this process on the entire width of a road section, the backhoe bucket and teeth would have to face away from the backhoe to allow the backhoe to sit on the sand and concrete underneath the brick rather than on the brick that is to be removed. Otherwise, another piece of equipment may be used. Once this process is performed on the entire width of a road section, the photos should be updated.

It should be noted that Grove Street was in good condition underneath the asphalt during this test, which could be atypical. Issues with underground infrastructure may make this process difficult, inefficient, or not cost-effective. Each street slated to undergo this process will need to be evaluated to ensure brick recovery is possible. Also, if the bricks were milled, or scraped during an asphalt overlay, then they cannot be reused.

This section only shows the process for recovering the brick from brick streets overlaid with asphalt, but it does not outline the process for reusing the brick on the same street. For more information on restoring former brick streets to brick streets, please see Future Considerations: Restoring Former Brick Streets in this document.

***1.** This process requires a backhoe with teeth in good condition.*

***2.** Lightly scrape over the asphalt surface. The asphalt will peel away without damaging the bricks, if done correctly. There should be little residual.*

***3.** Clean residual asphalt from the bricks. Power-washing is a common method.*

***4.** The street probably has issues. (There was a reason for the asphalt overlay). Most likely, all of the bricks will have to be removed.*

***5.** Once the bricks are removed, place them in a pile on the nearby road so that they can be palletized. Alternatively, haul them away to another location to be palletized later.*

***6.** Carefully stack undamaged bricks on a pallet on location or at another location, depending on the method used. Count on having to discard 30 percent of the bricks because of various types of damage.*

Figure 28: Brick Recovery Process

STORING EXCESS BRICK

The Public Works Department Streets and Sewers Division actively salvages bricks just for repair purposes. In an effort to have spare bricks for repair work done by city crews, the City of Bloomington asks that utility companies and excavation companies provide the city with any bricks from category three streets or any streets with bricks under the existing surface and deliver them to our city yards located at the southeast corner of East Street and Jackson Street. If contractors are not able to deliver the brick to the above city location, contractors can contact the Public Works Department at (309)434-2225 and provide notice when a stockpile of clean viable bricks can be picked up. Upon approval of this Brick Streets Master Plan, the Public Works Department will send out a letter to the local contractors informing them of this option. In addition, future city contracts will be modified so that the salvation of bricks is included in the contract.

According to the West Central Neighborhood Association, bricks should be stacked on pallets with no more than five layers (or 350 bricks), with each layer facing a different direction than the last.[9] In addition, pallets should be wrapped in shrink wrap to prevent bricks from falling during transport.[8] Wooden pallets would need to be stored indoors.[8]

Brick pavers should be stacked no more than five layers high (or no more than 350 bricks) onto pallets. Reverse the course of each layer. Wrap the pallets in shrink wrap to keep the bricks from falling off the pallet when being transported. If using wooden pallets, it is best to s tore the stacked brick pavers in an indoor facility.

Figure 29: Bloomington's current storage area for brick

[9] West Central Neighborhood Association n.d.

FUTURE CONSIDERATIONS

Additional Analysis and Prioritization Metrics

Historic Infrastructure and Historic Street Furniture

The presence of any of the following pieces of historic infrastructure and historic street furniture could be considered as a factor to consider when prioritizing brick streets.

Sandstone Curbs

Curbs made of sandstone are located along many of the streets in the City. However, many of them are in disrepair or are located along non-brick streets. Sandstone curbs along brick streets that are considered to be in good condition or easily repaired to good condition would be a valuable asset to a historic brick street

Figure 30: Sandstone curb

Carriage Walks and Carriage Steps

Carriage walks are the pathways in the public right of way connecting curbs to sidewalks. Carriage walks were constructed during a time when homes did not typically have a garage or fully utilize off-street parking.

Figure 31: Carriage walk

Light Posts

Historic light posts are another feature along some of the brick streets in the City that could be a consideration. The City uses light posts with a historic look in some areas, but truly historic lamp posts enhance an area that has brick streets.

Figure 32: Light post

Gateways and Pillars

Some brick street areas have various gateways and pillars that are another piece of historic infrastructure.

Figure 33: Historic pillars

Alley Driveway Access

Roads that have alley driveway access, like White Place or parts of Monroe Street, may be prioritized over roads that do not. These roads would be easier to maintain long-term, as those who live along the street would not use it as frequently as those who must access their driveway from the street.

Figure 34: Alley driveway access near White Pl.

Regeneration Area or Preservation Area Location

In addition to Historic District location, brick streets were also evaluated based on location within the Regeneration Area or Preservation Area, determined by the City's Comprehensive Plan.

Regeneration Area

As identified in the existing conditions analysis and fortified by the community outreach, Bloomington's West Side (or the Regeneration Area) is different in many ways from rest of the community. There is a higher concentration of crime, a concentration of lower income households and a food desert. The assessed values in this neighborhood are declining which makes private reinvestment challenging. The concentration of these and many other social issues not only negatively impact the lives of people living there today but will continue to do so in the future if left untouched. The family and the neighborhood context both have a significant impact on the academic achievement of children. Education has been identified as a major factor that helps break the cycle of poverty. The poor performance of children in the schools serving the Regeneration Area can be attributed to the neighborhood context in that area. This complex multi-directional relationship is explained at a greater length in Chapter 5. This plan calls for a comprehensive and collaborative approach to revitalizing this area.

Figure 35: Multi-family apartment in Regeneration Area

Preservation Area

The Preservation Area has the highest concentration of historic homes, landmarks and other assets, including the Whites Place, Franklin Square, and East Grove Street National Historic Districts, and the Davis-Jefferson local historic district (see Fig. X on the next page). It also includes many sites scattered throughout the area. A walk down one of the tree-lined streets in these neighborhoods is a panorama of varied architecture, from lavish Queen Anne to humble Spanish Revival, with carefully manicured lawns and landscapes interspersed with homes awaiting their chance for restoration. While this area is experiencing some private investment, there are concentrated blocks that need attention. The competing interests between historic preservation and the market pressures for conversion or demolition need to be addressed as well. The City's last historic preservation plan was not updated comprehensively over more than two decades. It is critical for the historic preservation plan to be kept up to date. It not only identifies the historic assets but also identified strategies and resources necessary to protect those assets.

Figure 36: Historic Districts and the Preservation Area (yellow-dotted line)

Equalized Assessed Value

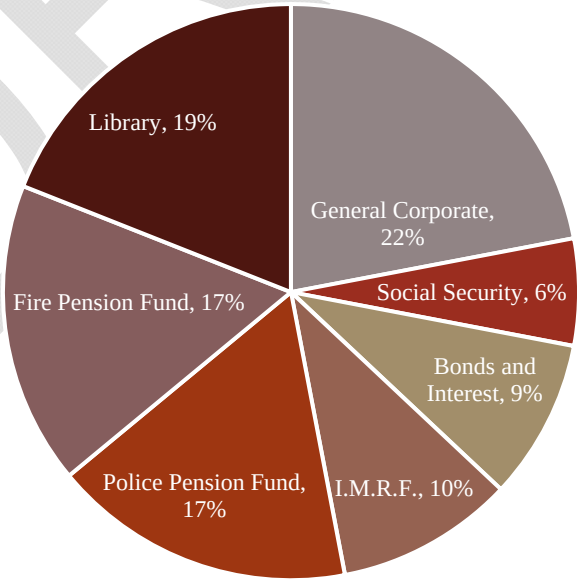
The property tax value of a home, or Equalized Assessed Value (EAV), is another factor considered when prioritizing brick streets. Current EAV values on a block can help determine the prioritization based on the current EAV, before repairs begin, or the expected EAV once repairs have been completed. As EAV is a determining factor in how much property tax revenue the City receives, it's important to see how the investment in a brick street could be returned in the form of property tax revenue. The City does not directly use funds from property taxes for streets. However, the property tax revenue gained has the potential to make more funds for streets.

The City of Bloomington's Property Tax Levy is generally allocated across seven activities which include:

1. General Corporate:
    a. Fire Protection, Police Protection, and Public Parks
2. Bloomington Public Library
3. Police Pension
4. Fire Pension
5. Illinois Municipal Retirement Fund (IMRF)
6. Social Security
7. Bond & Interest Fund

The funds that derive from each tax levy may only be designated for the specific purpose intended by the tax levy. So a pension levy cannot support the general operations of the City but must be utilized for pension payment.

Figure 37: City of Bloomington 2017 Property Tax Levy Funding Percentages



Owner-Occupancy
Owner-occupancy, which measures how many homes are occupied by owners rather than a third party, can be important to the long-term preservation of brick streets. Owner-occupants are more likely to care about the aesthetics of living along a brick street. They will also be the people responsible for cost-sharing in the reconstruction of a brick street.

City staff collected numbers and percentages of owner-occupied properties abutting brick streets. Vacant parcels were left off of the comparison list. Streets were ranked based on the sum of their ranks of the percentage and the number of owner-occupied properties.

Architectural Integrity
The ambience of a brick street often relates to the architectural integrity, or architectural purity, of the buildings that make up the neighborhood around the street. Much of the purpose of preserving a brick street is lost if there is nothing the street can relate to in its immediate surrounding. The City currently has a way to measure the architectural integrity of a block. However, should this metric be used, a significant amount of information would need to be gathered in order to rate each street's architectural integrity.

Brick Streets Ordinance

Restoring Former Brick Streets

As this process uses some of the same steps as the Recovering Brick from Brick Streets Overlaid with Asphalt process, outlined earlier in this document, some of the same information will be provided to make it easier to follow the steps without having to refer back to the previous section.

At one time, the City of Bloomington had more than forty-five miles of brick streets. Many of those streets were overlaid with asphalt without removing the brick. The Engineering Division found some research on heating asphalt to melt it off of brick, but the process required special equipment.

However, on April 24, 2017 the Engineering Division spoke with John Gavin, co-owner of Gavin Historical Bricks in Iowa City, Iowa. Mr. Gavin's company is a supplier of Purington-brand historic bricks, and it has several million bricks in stock. According to Mr. Gavin, restoration of asphalt-on-brick to brick is a simple process, but it is expensive and labor intensive. It requires a skilled heavy equipment operator and laborers. He was able to provide basic instructions on this process, and the Engineering Division proceeded to test that process at a sewer dig on Grove Street.

It should be noted that the photos show a single strip of road, but a similar process would be used for the entire width of a road section. The final process doesn't match the photos in that, when performing this process on the entire width of a road section, the backhoe bucket and teeth would have to face away from the backhoe to allow the backhoe to sit on the sand and concrete underneath the brick rather than on the brick that is to be removed. Once this process is performed on the entire width of a road section, the photos should be updated.

It should be noted that Grove Street was in good condition underneath the asphalt during this test, which could be atypical. Issues with underground infrastructure may make this process difficult, inefficient, or not cost-effective. Each street slated to undergo this process will need to be evaluated to ensure brick recovery is possible. Also, if the bricks were milled, or scraped during an asphalt overlay, then they cannot be reused.

1. *This process requires a backhoe with teeth in good condition.*

2. *Lightly scrape over the asphalt surface. The asphalt will peel away without damaging the bricks, if done correctly. There should be little residual.*

3. *Clean residual asphalt from the bricks. Power washing is a common method.*

4. *The street probably has issues. (There was a reason for the asphalt overlay). Most likely, all of the bricks will have to be removed.*

5. *Once the bricks are removed, place them in a pile on the nearby road so that they can be palletized.*

6. *Carefully stack undamaged bricks on a pallet. Count on having to discard 30 percent of the bricks because of various types of damage.*

7. *Create a new base. Generally, this is a layer of concrete first, then some type of select granular backfill (sand).*

8. *Re-lay the bricks by hand. It really helps if additional bricks are on hand, since about 30% of the stock has been elimintated.*

Figure 38: Brick Street Restoration Process

Establishing Brick Street Districts

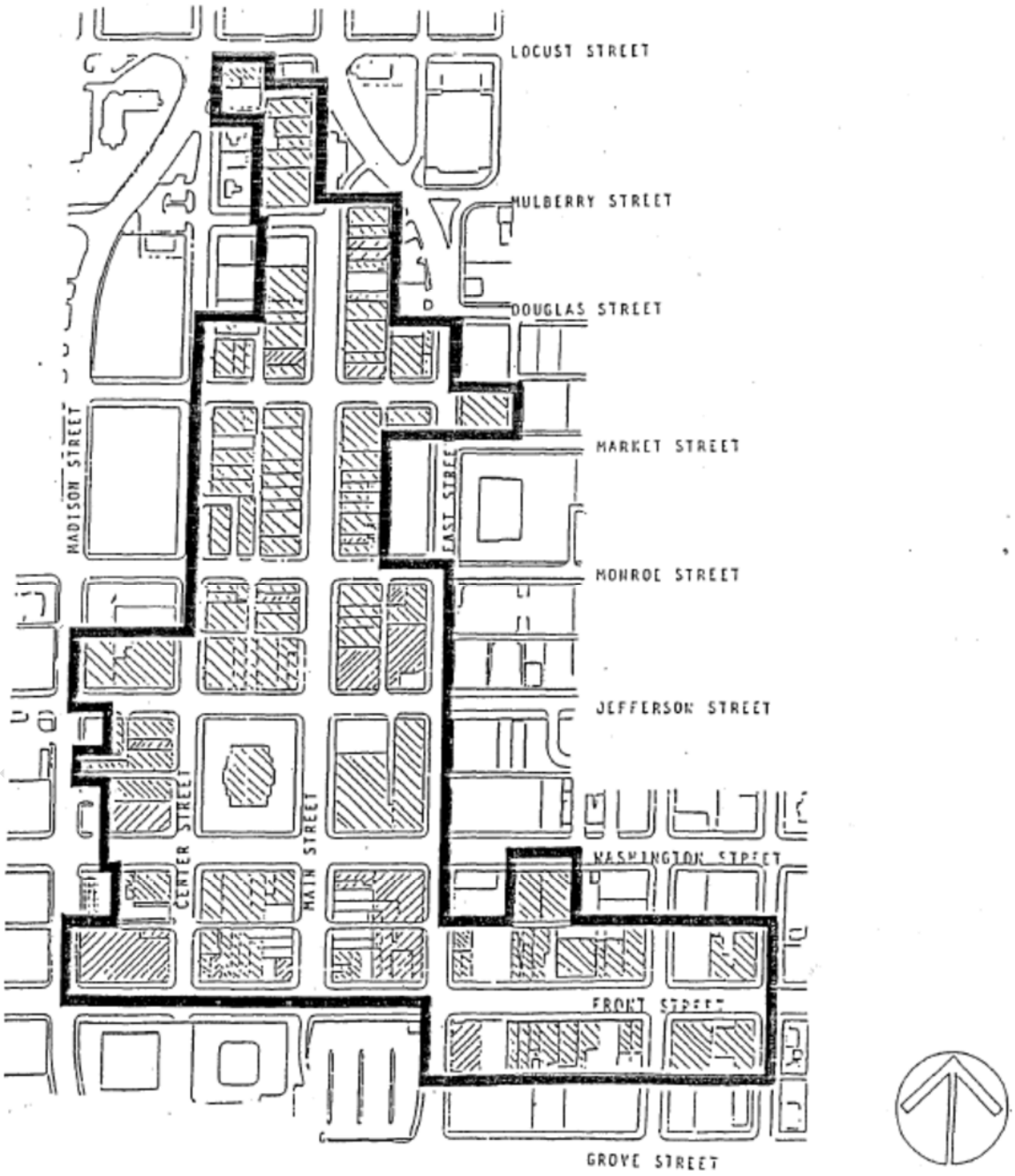
Another idea to consider is designating areas that will have all brick streets. This could be especially important for historic districts in the community, including downtown. Entire blocks or entire districts could be reestablished as brick streets to add further historic aesthetics. Each historic district in Bloomington is described in the next few pages. This will be helpful when exploring this idea further.

One thing to consider with this idea is that some of these districts currently have or will have bicycle infrastructure as part of the City's Bicycle Master Plan. As mentioned in the Complete Streets section, brick streets are not ideal for bicycles or wheelchair traffic. Any street that is included in the Bicycle Master Plan and also part of one of these districts would not be a candidate to be a part of a brick street district, unless an amendment is made to the Bicycle Master Plan.

Downtown Bloomington Historic District

Roughly a 12 block area bounded by East, Center, Front and Locust Streets, this district was listed on the National Register of Historic Places in February 1985. Within the Downtown Bloomington Historic District are two properties individually listed on the National Register, The McLean County Courthouse Square (February 1973) and the restored Miller-Davis Law Buildings at l0l-103 N. Main and 102-104 E. Front (April 1979).

Figure 39: Map of Downtown Bloomington Historic District



Franklin Square Historic District

This district consists of the 300 to 400 Blocks of East Chestnut and East Walnut Streets and the 900 block of North Prairie and North McLean Streets. Franklin Park and the bordering houses were added to the National Register of Historic Places in January 1976. The same area was designated a local S-4 Historic and Cultural District zone by the Bloomington City Council in 1979. This district includes private residences.

Figure 40: Map of Franklin Square Historic District

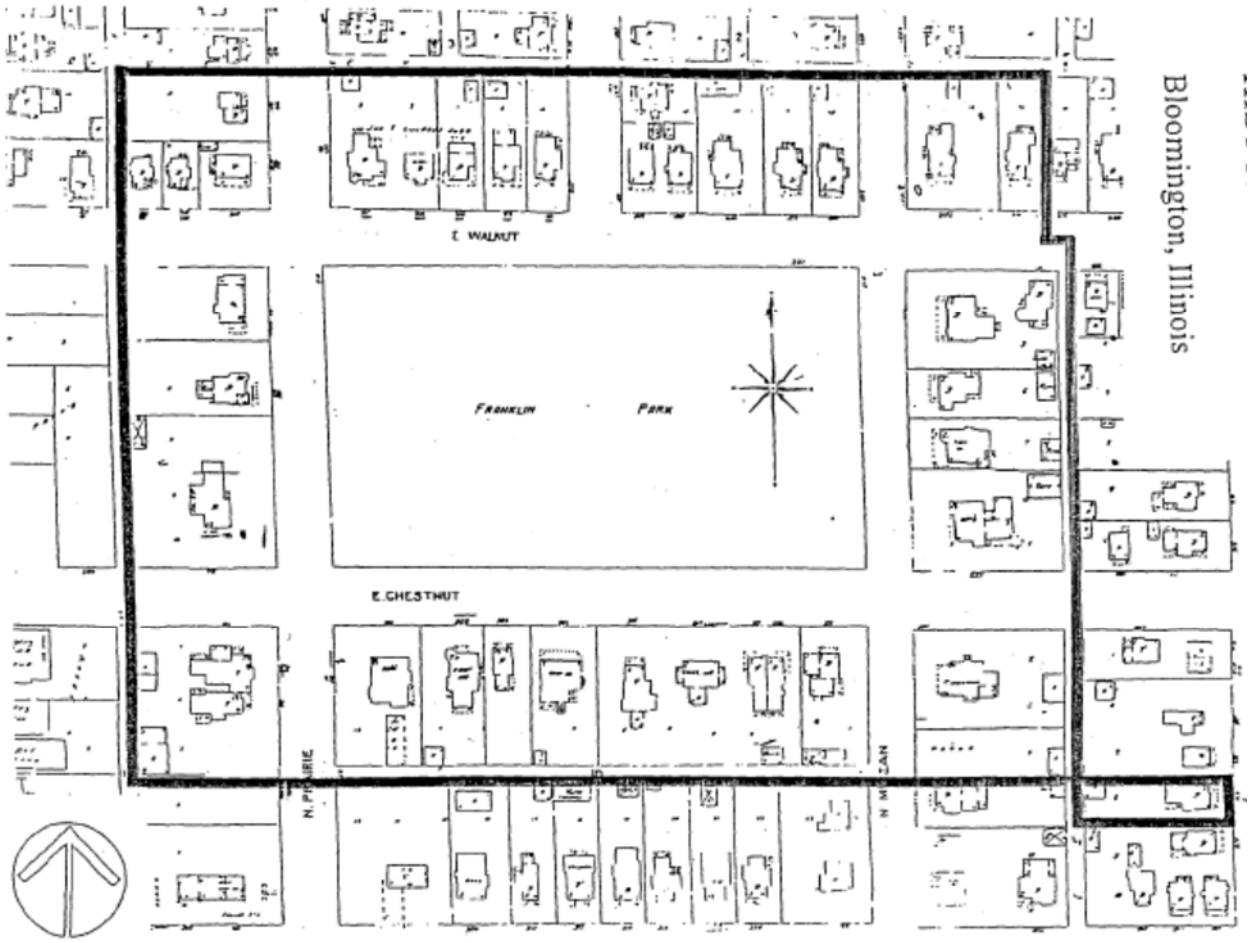


Figure 41: Adlai Stevenson house

Figure 42: Historic home near Franklin Park

East Grove Street Historic District

This district includes 400-700 East Grove Street and is bounded on the west by Gridley Street and on the east by Clinton Street. Nomination to the National Register for Historic Places was approved in 1987. The District includes two properties already listed on the National Register - the Reuben M. Benjamin House at 510 East Grove Street (1978), and the George Cox House at 701 East Grove Street (1985.) Private residences dominate this district.

Figure 43: Map of East Grove Street Historic District

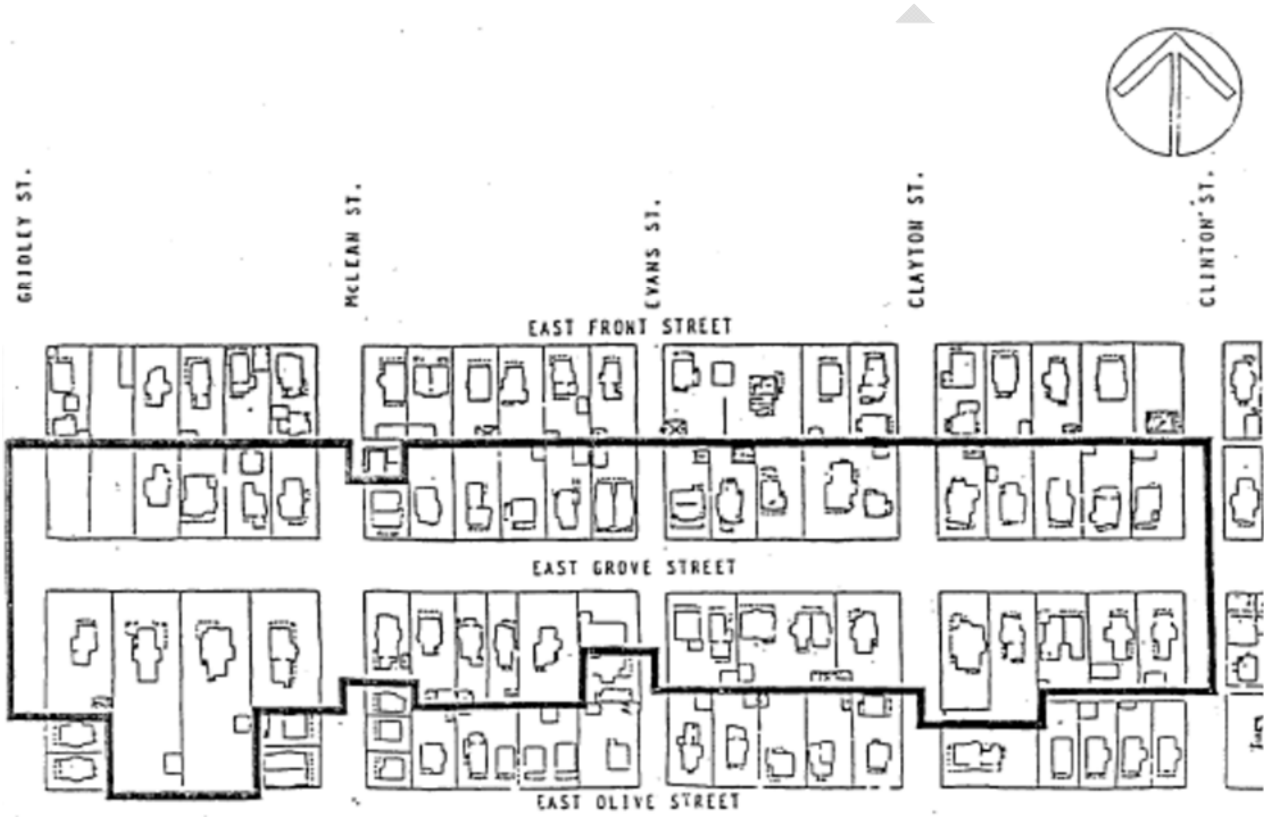
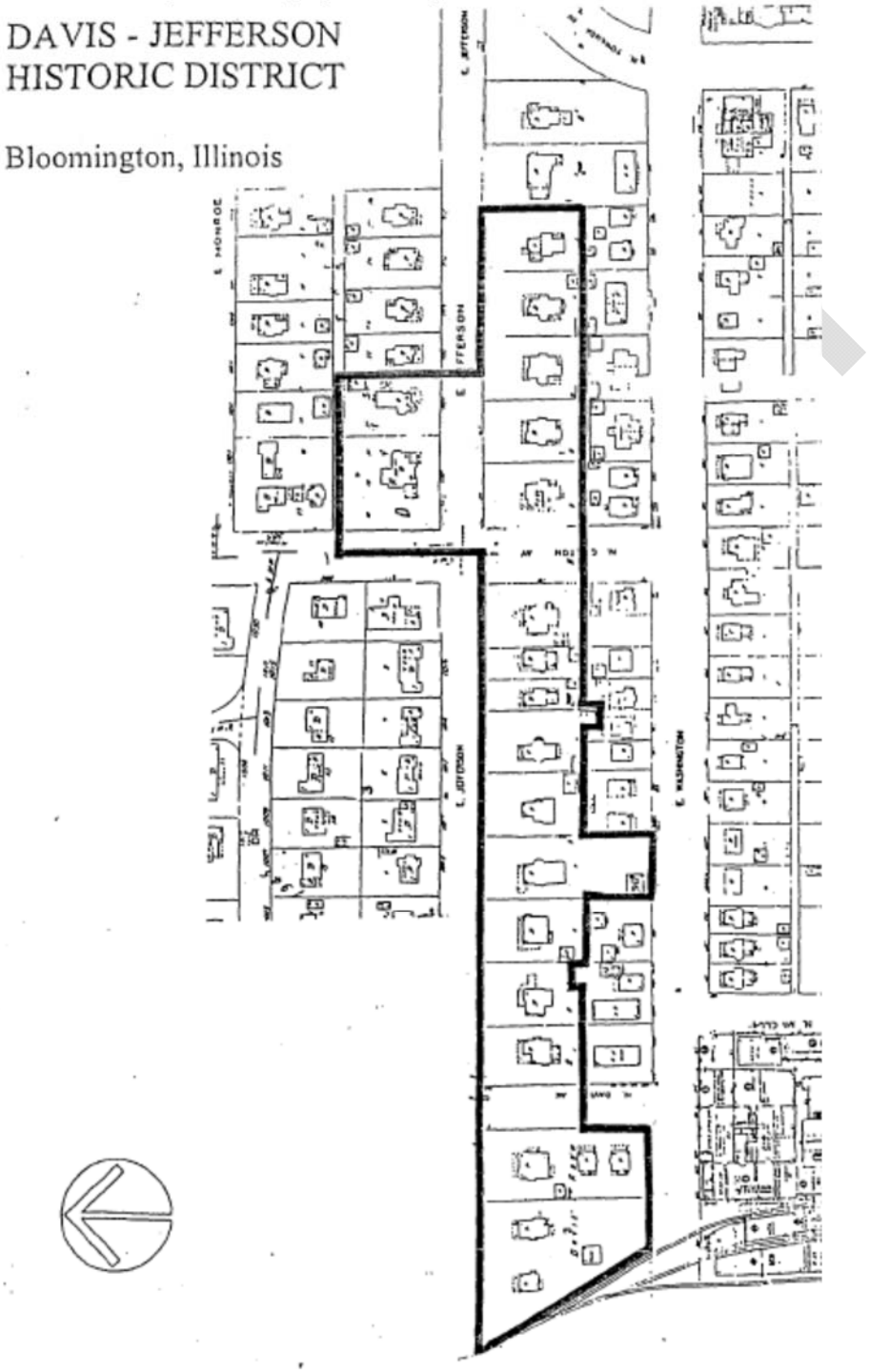


Figure 44: Historic homes in the East Grove Street Historic District

Davis-Jefferson Historic District

This district includes portions of 900-1100 East Jefferson Street and 202 and 204 Davis Street and was designated a local S-4 Historic and Cultural zone by the Bloomington City Council in November, 1984. There is one National Register property in this district at 1005 East Jefferson- The David Davis III and IV House. Private residences dominate this district.

Figure 45: Map of Davis-Jefferson Historic District



David Davis Mansion

Just north of Washington Street in east Bloomington is the elegant David Davis Mansion. The mansion, Clover Lawn, was built in 1872 on what had been 1,000 acres of land owned by Supreme Court Justice David Davis. The mansion replaced the family farmhouse which had stood virtually alone on the eastern edge of town. Later subdividing surrounded extended driveway leading to the mansion with a quiet tree-lined neighborhood of limestone-curbed brick streets. East Jefferson Street is a part of the residential buffer between Clover Lawn to the north and the regular street traffic of Washington Street to the south. It has managed to maintain a "cared for" neighborhood appearance throughout the years and has proved to be an attractive corridor leading to the Davis Mansion which is now maintained as a National Historic Landmark.

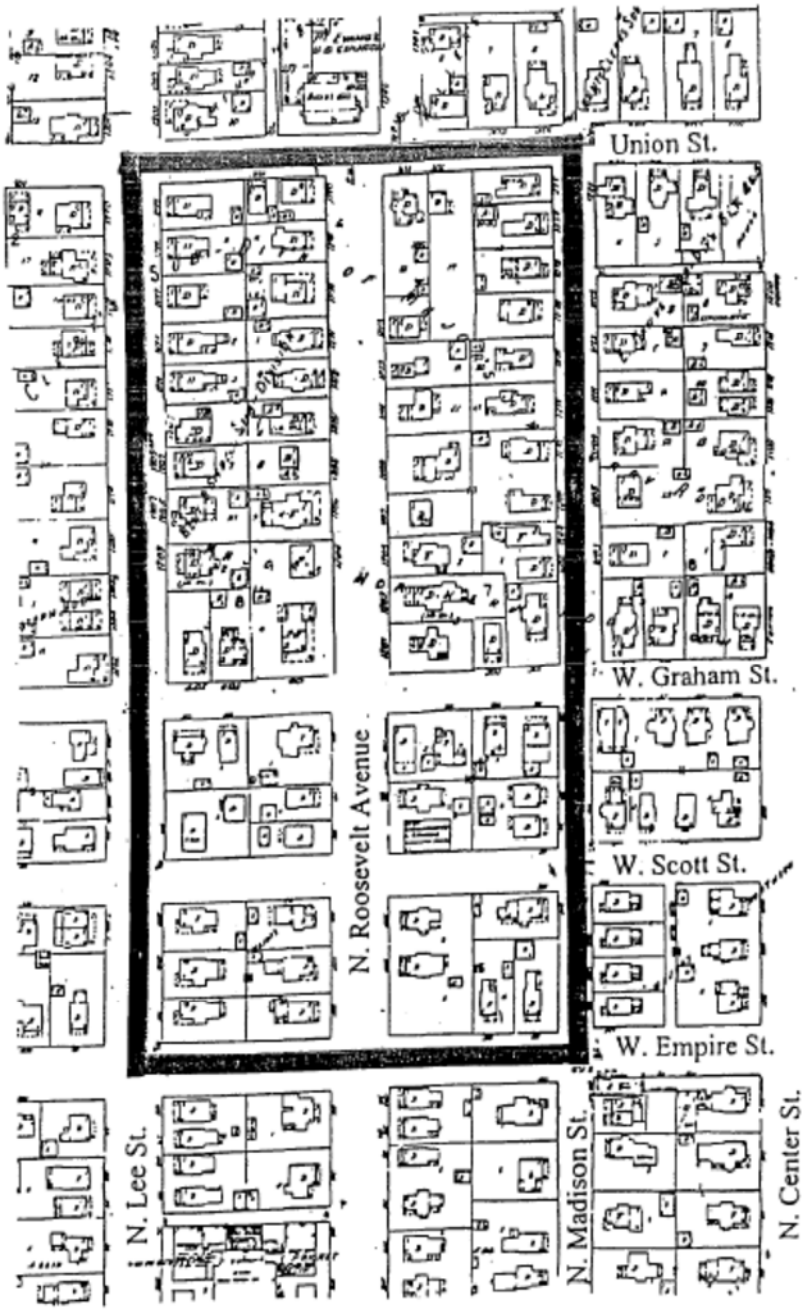
Figure 46: David Davis Mansion[10]

[10] David Davis Mansion Website n.d.

North Roosevelt Avenue Historic District

This district includes an area bounded by Union Street, West Empire Street, North Lee Street, and North Madison Street. North Roosevelt Avenue is the central street. This is a neighborhood that was built up in the 1870's, a largely working class neighborhood, with Irish and Hungarian immigrants, with historic connections to the Chicago and Alton Railroad shops. There were herringbone brick sidewalks and carriage houses of which some remnants are still to be seen today.

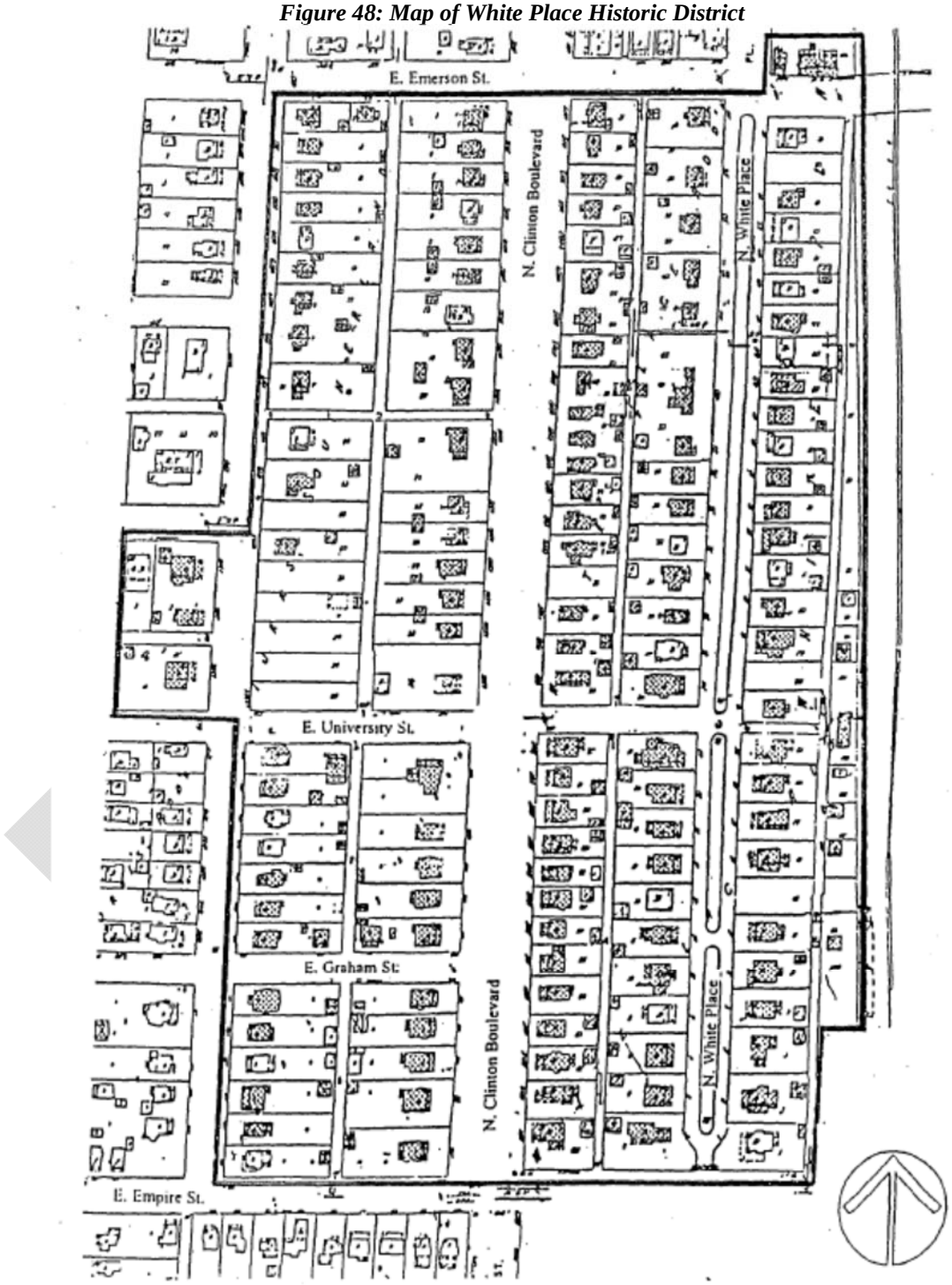
Figure 47: Map of North Roosevelt Avenue Historic District



White Place Historic District

This district includes \White Place, Clinton Boulevard, the east side of Fell A venue between Empire and Emerson Streets and the west side of Fell A venue between University and Phoenix. Nomination to the National Register of Historic Places was approved in 1988. Private residences dominate the district.

Figure 48: Map of White Place Historic District



Sanitary Sewer and Storm Sewer Infrastructure Conditions under Brick Streets

Water Infrastructure Conditions under Brick Streets

Sidewalk Conditions along Brick Streets

REFERENCES

Chrucky, Serhii. 2008. "Wood Block Alleys." *Forgotten Chicago.* December 13. Accessed July 3, 2017. http://forgottenchicago.com/articles/wood-block-alleys/.

City of Columbia, Missouri. 2015. *Brick Streets- Response to Council Questions/FAQs.* Columbia, Missouri, September 9. Accessed June 1, 2017.

City of Galesburg, Illinois. 2017. "Minutes Galesburg Landmark Commission." Galesburg, Illinois, April 4.

City of Mount Carroll. 2009. "Capital Improvements Program 2009 - 2013." Mount Carroll, Illinois.

Concrete Paver Systems. n.d. *Pavers for Highways, Roads, and Streets.* http://concretepaversystems.com/commercial/streets/.

David Davis Mansion Website. n.d. *David Davis Mansion.* https://www.daviddavismansion.org/.

Illinois Department of Transportation. n.d. *Illinois Transportation Enhancement Program (ITEP).* http://www.idot.illinois.gov/transportation-system/local-transportation-partners/county-engineers-and-local-public-agencies/funding-opportunities/ITEP.

Illinois Historic Preservation Agency. n.d. "Certified Local Government Program." Springfield, Illinois.

Mid-Ohio Regional Planning Commission. 2012. "Complete Streets Toolkit: A Guide for Central Ohio Communities."

U.S. Department of Housing and Urban Development. n.d. *Community Development Block Grant Program: Preserving America.* Washington, D.C. https://portal.hud.gov/hudportal/documents/huddoc?id=DOC_14211.pdf.

Unknown. ca. 1850's. *Photograph of Macadam Road, Nicolaus (Calif.).* Sutter County Library, Nicolaus, California.

West Central Neighborhood Association. n.d. *Durable Goods: Restoring Historic Brick Streets.* Fort Wayne, IN: West Central Neighborhood Association.

Wisconsin Transportation Information Center. 2013. "Pavement Surface Evaluation and Rating PASER Manual: Asphalt Roads." Madison, WI.

Wisconsin Transportation Information Center. 2015. "Pavement Surface Evaluation and Rating PASER Manual: Brick & Block." Madison, WI.

APPENDIX

Appendix 1: Index of Figures, Maps, and Tables

Appendix 2: Index of Acronyms

ADA	Americans with Disabilities Act
CDBG	Community Development Block Grant
FAST	Fixing American's Surface Transportation
IDOT	Illinois Department of Transportation
ITEP	Illinois Transportation Enhancement Program
PASER	Pavement Surface Evaluation and Rating
PCC	Plain Cement Concrete
STBG	Surface Transportation Block Grant
TAP	Transportation Alternatives Program

Appendix 3: Further Reading on the History of Brick Streets

A good introduction to traditional brick-making is found in Harley J. McKee, Introduction to Early American Masonry, 1973, and a more complete account is given in Heinrich Ries and Henry Leighton, History of Clay-Working in the United States, 1910.

Sidney Poitier's "The Last Brickmaker in America," which was first broadcast in 2001; is highly recommended and is currently available from several video outlets.

Brick Making machines are covered in Carroll Pursell, "Parallelograms of Perfect Order", Smithsonian Journal of History (3) (1968), 19-27.

Two illustrated articles by William D. Walters, Jr. deal with local brick and tile manufacturing: "Abandoned Nineteenth Century Brick and Tile Works in Central Illinois," Industrial Archaeology Review 4:1 (Winter 1979-80) 70-80 and "Nineteenth Century Midwestern Brick," Pioneer America, 14:3 (1982) 125-134; copies of both are available at the McLean County History Center.

The full text of many turn of the century Paving manuals are now online; a few of the many that mention Bloomington are Edward Gurley Love, Pavements and Roads, 1890, which includes an analysis of Heafer's bricks on pages 173 and 174; H. A. Wheeler, Vitrified Paving Brick, 1910; and George Wilson Tilson, A Textbook on Brick Paving, 1917.

Brick street Restoration is discussed in William D. Walters, Jr. and Royce Baier "Brick Streets in Illinois," Illinois Preservation Series 12 (1991).

Local research into brick pavement should begin with the Engineer's Report and the Paving ordinances contained in the many published volumes of the Bloomington City Council Minutes available in Withers Library and at the McLean County History Center.

Appendix 4: Strategic Plan Vision, Mission, and Core Beliefs

Vision 2025
Bloomington 2025 is a beautiful, family friendly city with a downtown - the heart of the community and great neighborhoods. The City has a diverse local economy and convenient connectivity. Residents enjoy quality education for a lifetime and choices for entertainment and recreation. Everyone takes pride in Bloomington. Jewel of Midwest Cities.

Mission
The Mission of the City of Bloomington is to be financially responsible providing quality, basic municipal services at the best value. The city engages residents and partners with others for community benefit.

Core Beliefs
Enjoy **S**erving Others
Produce Results
Act with **I**ntegrity
Take **R**esponsibility
Be **I**nnovative
Practice **T**eamwork
Show the **SPIRIT!!**

Appendix 5: Strategic Plan Goals

Goal	**1.**	**Financially Sound City Providing Quality Basic Services**
Objective	a.	Budget with adequate resources to support defined services and level of services
	b.	Reserves consistent with city policies
	c.	Engaged residents that are well informed and involved in an open governance process
	d.	City services delivered in the most cost-effective, efficient manner
	e.	Partnering with others for the most cost-effective service delivery
Goal	**2.**	**Upgrade City Infrastructure and Facilities**
Objective	a.	Better quality roads and sidewalks
	b.	Quality water for the long term
	c.	Functional, well maintained sewer collection system
	d.	Well-designed, well maintained City facilities emphasizing productivity and customer service
	e.	Investing in the City's future through a realistic, funded capital improvement program
Goal	**3.**	**Grow the Local Economy**
Objective	a.	Retention and growth of current local businesses
	b.	Attraction of new targeted businesses that are the "right" fit for Bloomington
	c.	Revitalization of older commercial homes
	d.	Expanded retail businesses
	e.	Strong working relationship among the City, businesses, economic development organizations
Goal	**4.**	**Strong Neighborhoods**
Objective	a.	Residents feeling safe in their homes and neighborhoods
	b.	Upgraded quality of older housing stock
	c.	Preservation of property/home valuations
	d.	Improved neighborhood infrastructure
	e.	Strong partnership with residents and neighborhood associations
	f.	Residents increasingly sharing/taking responsibility for their homes and neighborhoods
Goal	**5.**	**Great Place – Livable, Sustainable City**
Objective	a.	Well-planned City with necessary services and infrastructure
	b.	City decisions consistent with plans and policies
	c.	Incorporation of "Green Sustainable" concepts into City's development and plans
	d.	Appropriate leisure and recreational opportunities responding to the needs of residents
	e.	More attractive city: commercial areas and neighborhoods
Goal	**6.**	**Prosperous Downtown Bloomington**
Objective	a.	More beautiful, clean Downtown area
	b.	Downtown Vision and Plan used to guide development, redevelopment and investments
	c.	Downtown becoming a community and regional destination
	d.	Healthy adjacent neighborhoods linked to Downtown
	e.	Preservation of historic buildings

Appendix 6: Comprehensive Plan 2035 Vision, Goals, and Objectives

Vision

Bloomington, in 2035, unites the vibrant urban core to its diverse neighborhoods. Supported by our quality of life and enduring economic stability, it is the destination community for people and businesses that seek a culture of innovation and entrepreneurship. Residents thrive, surrounded by rich history, arts and culture, lifelong learning opportunities, a healthy environment and an active lifestyle.

Goals and Objectives

Neighborhoods

N-1 Ensure the compact development of the City through denser, mixed-use developments and reinvestment in the established older neighborhoods

N-2 Improve community identity and appearance by celebrating the unique nature and character of the City's individual neighborhoods

N-3 Improve communication between the City, the citizens and the neighborhood organizations to foster teamwork and community spirit

Housing

H-1 Ensure the availability of safe, attractive and high quality housing stock to meet the needs of all current and future residents of Bloomington

H-2 Ensure reinvestment in the established older neighborhoods and compact development of the City

Education

EDU-1 Increased coordination between the City and the school districts to maintain high quality educational opportunities equitably for all students within the City

EDU-2 Provide life-long skills and learning opportunities for all by investing in excellent schools, colleges and continuous education

Economic Development

ED-1 Ensure a broad range of employment opportunities for all residents

ED-2 Foster a culture of entrepreneurship

ED-3 Build and maintain a skilled and employable workforce to meet the needs of the current businesses

ED-4 Enhance the image of Bloomington as a business friendly community

ED-5 Enhance tourism based-economic development

Downtown

D-1 Continue to build a healthy Downtown that offers a range of employment, retail, housing, cultural and entertainment opportunities for all

D-2 Market and promote the unique brand and image of Downtown Bloomington

D-3 Protect Downtown's historic character and encourage appropriate new development

D-4 A clean and safe Downtown

D-5 Continue to develop a multi-modal transportation network in Downtown

D-6 Reinforce the connections between Downtown and adjacent neighborhoods

Arts, Culture, and History

ACH-1 Create a unique identity for the Bloomington area arts and culture scene

ACH-2 Increase the visibility of the Bloomington arts and cultural scene

Health

HL-1 Create a park and green space system that provides for a variety of active and passive recreational and wellness activities for current and future residents

HL-2 Ensure maximum usage of the City's parks and recreational facilities and associated resources

HL-3 Ensure a healthy environment and accessibility of parks and open spaces

HL-4 Continue to develop quality parks and recreational programming for all

HL-5 Provide access to healthy foods and promote food security to build community

Natural Environment

NE-1 Protect and conserve the community's vital natural resources

NE-2 Create a park and green space system that protects the environment and provides for a variety of active and passive recreational activities for current and future residents of Bloomington

NE-3 Reduce environmental pollutants

NE-4 Increase cooperation and coordination among governments, nonprofits and businesses across the region to address shared environmental issues

NE-5 Provide more efficient and sustainable municipal solid waste management

Social Health/Community Wellbeing

CWB-1 End chronic homelessness and reduce the severity of situational homelessness

CWB-2 End chronic homelessness and reduce the severity of situational homelessness

CWB-3 Develop a coordinated and efficient system of services that addresses comprehensive needs of children, families and communities

Public Safety

PS-1 Reduce crime and the fear of crime

PS-2 Plan and provide for fire and emergency facilities adequate to protect health, life, safety, livelihood and property for current and future citizenry and businesses in the City

PS-3 A comprehensive emergency preparedness plan

PS-4 Intergovernmental Cooperation

Utilities

UEW-1 Provide quality public infrastructure within the City to protect public health, safety and the environment

UEW-2 Promote and facilitate energy conservation and alternate energy generation and resources

UEW-3 Education and increase public awareness regarding utility, energy and water issues

Transportation

TAQ-1 A safe and efficient network of streets, bicycle-pedestrian facilities and other infrastructure to serve users in any surface transportation mode

TAQ-2 Transit development provides an alternative of choice for the general population and support for the transit-dependent

TAQ-3 Air transportation serves the needs of local and regional residents and businesses to connect regionally, nationally and internationally

TAQ-4 Rail transportation serves passenger needs for local and regional residents and businesses to connect regionally, nationally and internationally

TAQ-5 Safe and efficient movement of freight by motor vehicle, rail and air, in the community and serving local, state, national and international markets

TAQ-6 Reduce air pollutants and other impacts produced by transportation

Community Facilities

CF-1 Continue to provide quality public facilities and services

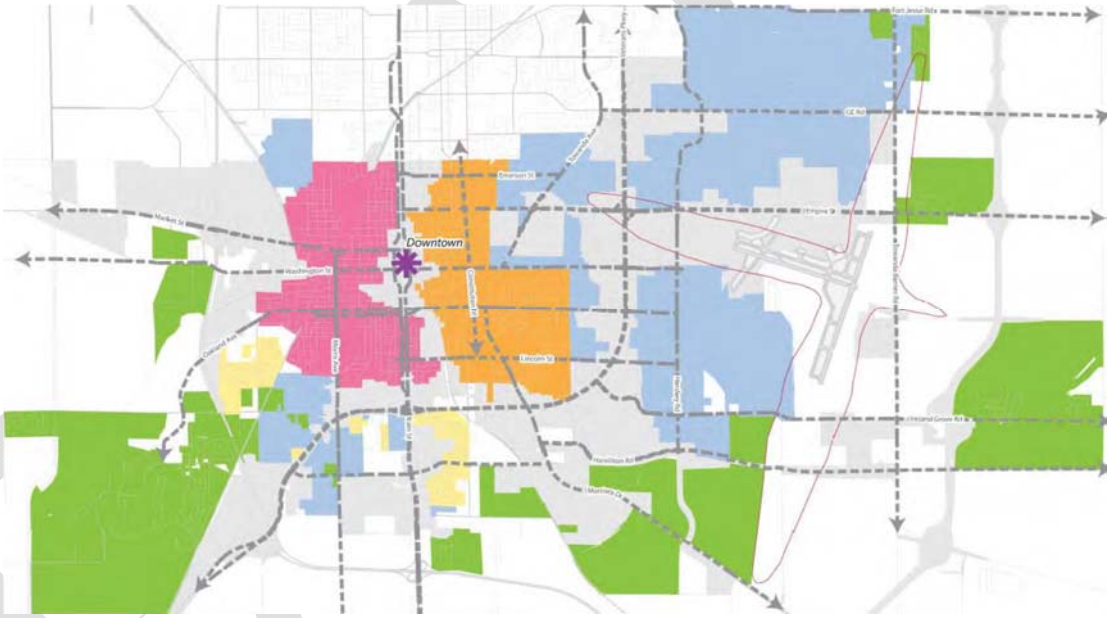
CF-2 Provide public services in a fiscally, socially and environmentally responsible manner

CF-3 Pursue solutions for unmet and emerging community needs

The City of Bloomington is located in the heart of Central Illinois, approximately 125 miles southwest of Chicago, 155 miles northeast of St. Louis, and 64 miles northeast of Springfield, the State Capital. Bloomington is the County Seat of McLean County, the largest county in Illinois (approximately 762,240 acres). Bloomington (pop. 76,610) is a twin City with the Town of Normal (pop. 52,497). Interstates 39, 55 and 74 converge on Bloomington-Normal, as well as US Route 51 and State Route 9.

The twin cities are also serviced by two major railroad lines and Amtrak, as well as air transportation at the Central Illinois Regional Airport, one of the fastest growing airports in the country, which services commuter, corporate, and private aircraft.

Bloomington is located in one of the most productive agricultural areas in the nation, but the economy is diverse and well-balanced. In addition to the major manufacturers and industries, there are two universities, two hospitals, a convention center, one indoor mall, one outdoor mall, and many banks and Savings & Loan Associations located in Bloomington-Normal. The City of Bloomington is one of the fastest growing metropolitan areas in Illinois with an estimated 20.25% increase in population between 1986 and 1995. New construction continues to enhance residential, industrial and commercial growth.



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