

Acknowledgments

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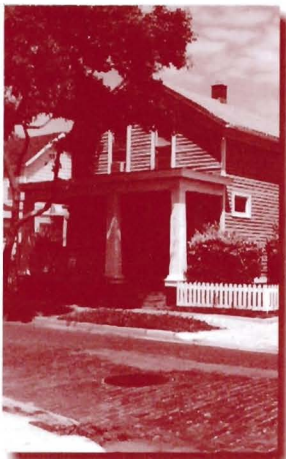


(photo courtesy of Martin Blakley)

Restoring Historic Brick Streets

The Benefits of Restoring Brick Streets

Many cities and towns across the United States are recognizing the valuable resources they have in their historic brick streets. The streets help to define the historic character of older neighborhoods, and their durability speaks for themselves. In some communities, ordinances have been enacted to protect the integrity of their streets and others have developed comprehensive brick street restoration plans. An added benefit of restored brick streets is that they often spur increased redevelopment activity and historic home rehabilitation in the immediate area.



(photo by Jill Downs)

Street Assessment

Brick streets require restoration due to a few factors. Over time, the base that the bricks lay on may deteriorate to the point that it can no longer support the weight of the bricks. This results in a collapse and appears as a sunken section of street. Frequently, this area then gets filled in with asphalt. Other times, utility cuts in brick streets get repaired with asphalt or concrete. While this generally results in a level surface, it also compromises the historic appearance of the street.



*Collapsed area of brick street
(photo by Jill Downs)*

The first step toward restoring a brick street to its proper integrity is to conduct a survey of the overall conditions of the street, curbs and guttering. It may be that more than just the street needs to be repaired and a



*Area filled in with asphalt
(photo by Jill Downs)*

comprehensive repair of all elements needs to be done. If a street has only a few patches to be leveled or concrete or asphalt to be removed, it is easy enough to do spot repairs. However, it may be the case that a street has so many areas to be repaired that it is better to remove and re-lay the entire section of street.

It is also possible that a brick street may have lost much of its original material due to ill-conceived patching or its historic surroundings have disappeared that it may not be worthwhile to repair the street at all. This street potentially may become a source of salvaged brick pavers for use in other streets.

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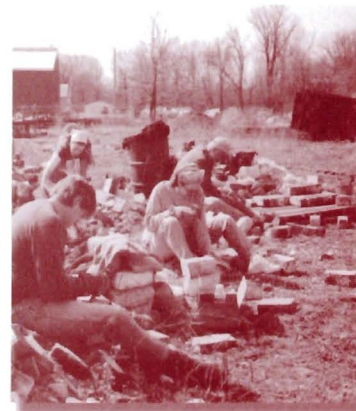
*Utility cut repaired with concrete
(photo by Jill Downs)*

Based upon the results of the assessment, develop a plan for phased restoration, beginning with the worst or most important street(s) first. The remaining streets should be prioritized after these.

Financial Considerations

The initial cost to repair a brick street is high, but when it is compared over time to that of several pavings of the same street in asphalt, the cost is comparable. The most expensive component of brick street repair is labor. Many communities have saved on this expense by organizing a volunteer work force to help with the repair effort. Costs may also be saved by salvaging brick pavers rather than purchasing them from a supplier. One way to do this is to sacrifice a brick street or alley to provide pavers for another.

Another way to get salvaged bricks at little or no cost is to be aware of utility work being done on concrete or asphalt streets. Sometimes excavation work is required, and if below the paved surface is an old brick street, the pavers will be dug out along with the rest of the street. Don't forget, too, that when repairing a street, most of the existing pavers can be saved to be put back into the street.



*Volunteers help to clean
salvaged bricks
(photo by Jill Downs)*

Possible funding sources include:

1. Municipal government street repair funds
2. Federal Transportation Enhancement program funds
3. Community Development Block Grant (CDBG) funds
4. County Economic Development Income Tax funds
5. Other municipal funding sources
6. Grants
7. Other donations
8. Raffles and other like fund-raisers
9. Special tax assessment for those affected by the project

Coordinating Efforts

Brick street restoration takes the coordination of many entities including several departments, such as street, engineering, and right-of-way, within a municipal government.

It is also best to consult with utilities providers to determine whether any underground utilities may need replacing or upgrading prior to restoring a brick street. It would be detrimental to fix the street only to have it be torn up in a few years to lay a new sewer line.

Volunteers can be recruited to do many jobs related to brick street restoration. They can help clean and stack salvaged bricks for future use, and they can remove, clean and stack bricks from a street to be repaired. They can also help re-lay the bricks and brush in the grout.

Brick Storage

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 store the stacked brick pavers in an indoor facility.



Cleaned, salvaged bricks stacked on a wooden pallet (photo by Jill Downs)

Basic Brick Street Construction

There are four components that constitute a brick street. They are:

1. **Grout** - The finished brick surface should be grouted with sand or with a dry mixture of sand and Portland cement in a 2:1 ratio. It is brushed into place with a stiff push broom.
2. **Brick paver layer (4 inches)** - A typical brick paver is about 8.5 in. X 3.5 in. X 4 in. About 4.5 to 5 bricks are needed to cover one square foot of area.



(photo by Jason Swisher)

3. **Sand layer (2 inches)**
4. **Concrete base (6 inches)** - Concrete is the most durable base for a brick street.

Repair Process

1. Determine size of area to be repaired.
2. Calculate number of bricks and volume of sand and concrete needed for area. Remember that not every brick



Example of "toothed" edge after removing bricks (photo by Jason Swisher)

taken out of the street will be salvageable for reuse, so a surplus supply will need to be on hand.

3. Remove bricks from area. Pry out the first row by hand using prybars then use a back hoe to carefully pop out the rest. Do not cut the bricks - leave a "toothed" edge.
4. Scrape bricks of any caked-on dirt or concrete and stack them (no more than 5 layers high or a total of 350 bricks) on pallets, alternating the course of each layer, for reuse.

Volunteers cleaning bricks after removal from street (photo by Jill Downs)



5. Using a backhoe, excavate the repair area to a depth of one foot from the top surface of the street. This will allow room for the 6-inch concrete base, the 2-inch layer of sand, and the 4-inch brick layer.
6. Pour the concrete base (6 inches). Using a stiff garden rake or 2x4s as screed boards, level the concrete to a consistent 6 inches below the top surface of the street. Let the concrete solidify before moving to the next step.



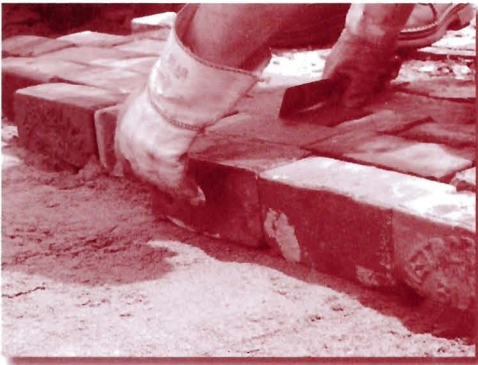
Application of the concrete layer. The wooden structure used here is helping to assure a uniform depth of concrete from the street surface (photo by Jill Downs)

7. Add the sand layer (2 inches). Using 2x4s as screed boards, level the sand with the crown of the street. Compact the sand with a tamper or plate compactor.



Screeding of the sand layer (photo by Jason Swisher)

8. Add the brick layer. The pavers should be laid closely together and with the raised name or lugs on the side—not the top or bottom. Cut bricks to fit odd-sized spaces with a water-cooled table saw.



Note that bricks are placed with raised name on the side (photo by Jason Swisher)

9. Once the brick surface is in place, brush in the grout, compact the surface, then brush in more grout. Continue this process until all gaps between the bricks are filled.



Preparing to brush in the grout (photo by Jason Swisher)

10. Mist the street surface with water to finish settling the grout.



Completed repaired brick surface (photo by Jason Swisher)

Equipment

Hammers	Prybars
Push brooms	Garden Rakes
Backhoe	Portable generator
Water-cooled table saw	Level
Brick hammer	Chisels
Putty knives	Shovels
Pallets	Wheelbarrow
Plate compactor	Tamper
Dump truck	String line
Sledgehammer	Hand saw
Cordless drill	

Materials

2 x 4s (screed boards)
Screws
Concrete
Extra brick pavers
Portland cement
Sand (masonry-grade fine)
Water (for cleaning tools and for watering street)

Salvaged Brick Pavers Suppliers

Gavin Historical Bricks

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