

CONDITION ASSESSMENT AND RECOMMENDATIONS

# 200 BLOCK OF SOUTH JESSUP STREET

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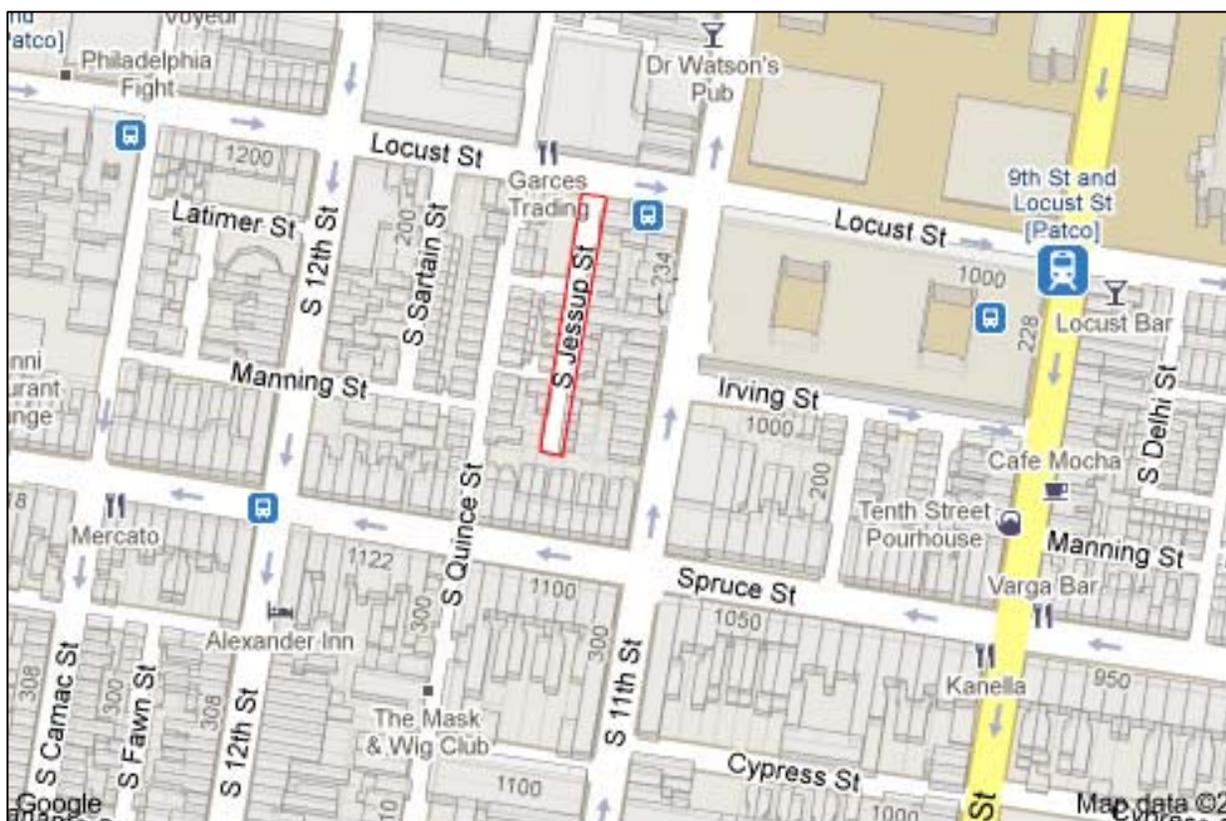
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## INTRODUCTION

In September of 2010, Milner + Carr Conservation, LLC performed a condition assessment of the 200 block of South Jessup Street (hereafter South Jessup Street), located between Locust Street and Spruce Street in Philadelphia, Pennsylvania (Image 1). This assessment was performed in response to efforts by residents of the block to repair certain areas of their street while maintaining its historic character. The following report outlines historical information related to the historic materials, written and photographic documentation of the historic materials, assessment of the condition of the historic materials and recommended treatment options for immediate and long-term preservation of the historic materials.



**Image 1:** Location of South Jessup Street shown in red

## BRIEF HISTORY

The advantages of street paving – including facility of transportation and creating a cleaner urban environment – were acknowledged in Philadelphia in the early 1700s. Unfortunately, the municipal government at the time lacked adequate funding to pave the city’s streets and any paving was paid for privately. In 1762 North Second Street between Market Street and Vine Street became the first municipally funded street in the city.

With increased pedestrian and vehicular traffic, the need for paved streets became increasingly apparent and by 1830 the city of Philadelphia had paved a large number of its streets. The most prevalent paving material for the first three quarters of the 19<sup>th</sup> century was cobblestone with stone curbs. By the late 19<sup>th</sup>

century, the limitations of cobblestone became apparent as Mayor Daniel Fox noted, “the primitive mode of paving with cobble stones should be at once abandoned. It creates unnecessary wear and tear to vehicles and damages the horses, saying nothing about the intolerable rumble, rattle and noise occasioned in their passing over them.”<sup>1</sup> City officials and civil engineers recommended a series of alternative paving materials and by the early 20<sup>th</sup> century, the majority of cobblestone streets had been repaved. The most common replacement material was granite block pavers, valued for its extreme durability. Also known as Belgian block, these pavers were set in sand and grouted with Portland cement.

The second most common paving material was brick which had been heated to the point of vitrification and was therefore strong enough to bear the weight of vehicles. Vitrified brick was also set in sand and grouted with Portland cement and was largely used on lightly traveled roads in the suburbs and secondary downtown streets. While much less expensive than Belgian block, vitrified brick did not stand the test of time and was largely discontinued after 1910.

It is unknown exactly when South Jessup Street was originally paved or what materials were used. The adjacent Quince Street as well as Irving Street (which crosses through Jessup Street) are both paved with Belgian block. If Jessup Street was originally paved with the same material, there is no visible evidence of it. The existing brick paving likely dates from the late 19<sup>th</sup> – early 20<sup>th</sup> century. Several paving bricks were found stamped with the names “McAvoy Block” and “Patton Paver”. The McAvoy Vitrified Brick Company and the Patton Clay Works were local Pennsylvania brick manufacturers in operation during that period of time.

In 1998, South Jessup Street was designated as part of the Philadelphia Historic Street Paving Thematic District. This district includes noncontiguous streets throughout Philadelphia which retain historic paving materials and illustrate the city’s history of street paving. Represented paving materials include cobblestone, yellow and red brick, Belgian block and one street with wood block pavers.

#### MATERIAL DESCRIPTION & CONSTRUCTION

South Jessup Street is oriented north-south and is bounded by Locust Street to the north, 11<sup>th</sup> Street to the east, Spruce Street to the south, and Quince Street to the west. The southern end of South Jessup Street does not connect through to Spruce Street but rather terminates with a chain link fence. South Jessup Street is intersected by Irving Street at the south end and Latimer Street at the north end. The street is largely lined with brick row houses dating from the early 19<sup>th</sup> century except for the northwest end of the block which is a paved outdoor parking area. South Jessup Street has four storm drains – two near Locust Street and two at the intersection of Irving Street – as well as numerous utility maintenance holes.

The paving on South Jessup Street consists of granite curbs, granite gutter blocks and brick street paving (Image 2). Original granite curb units are present on about 65% of the street. The remaining areas have replacement curb units of either newer granite or concrete or else the curb units are submerged under replacement materials or completely absent. The length of the original granite curb units varies greatly ranging from approximately 60” – 112”. The range of lengths appears due to breakage and it is possible that the existing 112” unit is representative of the typical original unit length. The width of the curb units also varies greatly due to the weathered state of the stone. The stones are approximately 7” wide, though the exposed portion of most has eroded to a narrower dimension. According to block residents who have excavated curb units for repairs, the units are approximately 30” deep. Only a couple of units have mortar between the joints.

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<sup>1</sup> City of Philadelphia - Philadelphia Historic Commission. *Philadelphia Register of Historic Places: Historic Street Paving Thematic District*. December 9, 1998. Philadelphia, PA.

The granite gutter blocks are set into either side of the street flush with the brick paving and abutting the curb units. Original granite units are present on approximately 95% of the street; there are only a few replacement units and two areas where the units are completely absent. The width of the gutter blocks is uniformly 15 ½” while the length of the gutter blocks ranges from approximately 64” – 129”. As with the curb units, the range in lengths appears largely due to breakage and it is possible that the existing 129” unit is representative of the typical original unit length. Excavated units reveal the depth of the gutter stones to be approximately 5 – 8”. Only a couple of units have mortar between the joints.

Although approximately 95% of the street is currently paved with brick, the existing brick paving is an amalgam of many different types of bricks which represent many years of repairs and replacement campaigns. There are several locations where a row of granite block is set across the width of the street. Some bricks are set in mortar, though the majority of them are dry set which appears to reflect original construction. As mentioned, those bricks which are stamped “McAvoy Block” or “Patton Paver” (Image 3) are presumed to be the oldest. These vitrified bricks are distinguished not only by their stamp, but by their height (3 ¾” – 4” compared to 2 ½” for standard building brick), and by grooves and molded protrusions.



**Image 2:** Section of paving on South Jessup Street showing granite curbs, granite gutter stones, and brick pavers.



**Image 3:** Left: McAvoy Block vitrified brick paver Right: Patton Paver vitrified brick paver.

CONDITION ASSESSMENT

When South Jessup Street was surveyed in 1998 as part of the Philadelphia Historic Street Paving Thematic District survey, its integrity was designated as “high.” Twelve years later, the integrity of the historic paving materials might be downgraded to “good.” While a significant percentage of historic materials are present, the condition of these materials has degraded over the years. There are a few issues that should be addressed in order to ensure the long-term preservation of this historic street. The methods used for the following conditions survey included visual inspection and probing below selective masonry units. This survey identified general conditions and evaluates the extent and severity of their occurrences at a specific point in time. From this information, conclusions have been drawn regarding the general deterioration mechanisms affecting the paving materials. The survey conducted by MCC does not include a structural assessment of the street or address issues regarding subterranean utilities.

*Curb Stones*

As mentioned, original granite curb units are present on only approximately 65% of the street. Aside from areas where the units are missing completely, there is a large stretch at the northeast end of the street where the original granite has been replaced with a concrete curb (Image 4). Spot replacements have also been made using newer granite units, notably at the Latimer and Irving Street intersections as well as at the southern end of the block (Image 5). The overall condition of the extant granite curb units can be categorized as fair, as many units are extremely eroded. The worst examples are the curb units along the parking area which receive the most amount of wear and tear from vehicles (Image 6). These units exhibit not only heavy erosion, but also extensive cracking. In some areas where the curb units have eroded or sunk below the level of the brick sidewalk paving, efforts have been made to fill the resulting voids with mortar (Image 7). Some areas of “erosion” appear to be manmade, an effort to create a path for water to drain off the sidewalk. Other conditions noted include units which are sunken/out of plane, exhibit cracks and areas of loss, and which are partially covered over with concrete (Image 8). Additionally there are visible abrasions on the stone surface which are the result of municipal snow removal equipment (Image 9). The curb stones are in the worst condition of the three paving materials largely because they are subjected to the most deterioration mechanisms including foot traffic and water runoff from the sidewalks. It should also be noted that during the survey, MCC observed a garbage truck backing down the street to pick up residents’ trash. Because the street is too narrow to properly accommodate the vehicle, one side of the truck was riding along atop the curb (Image 10). At 6 ½ ft. wide, the street is too narrow to accommodate most modern pickup trucks and utility vans which are forced to drive on one curb or the other. This activity is likely contributing to the ongoing degradation of the granite curb units.



**Image 4:** Concrete replacement curb, northeast end of street



**Image 5:** New granite replacement curb, intersection of South Jessup and Irving Streets



**Image 6:** Severely eroded curb stones along parking area, northwest end of street



**Image 7:** Example of a void created by eroded curb stone which has been filled with mortar



**Image 8:** Clockwise from left: sunken curb stone, cracked curb stone and curb stone partially covered by cement



**Image 9:** Abrasions on surface of curb stone due to municipal snow removal equipment



**Image 10:** Wheels of a garbage truck ride along top of curb stones

#### *Gutter Stones*

The granite gutter stones are in significantly better condition than the curb stones. A 30' section of the street just south of Locust Street is the only significant area of original material loss. This section has been completely paved over and is largely devoid of any historic paving materials (Image 11). Additionally, there are a few gutter stones near the parking area which appear to be replacement units. Of the existing original units, observed conditions include those which are sunken/out of plane, have been partially covered by other paving materials, and those which cracking. Cracks range from hairline to through cracks which have resulted in a complete break in the unit. Almost all units exhibit some level of surface pitting and/or minor losses on the surface or corners.



**Image 11:** Section of South Jessup Street just south of Locust Street which largely devoid of any historic paving materials

#### *Brick*

As mentioned, almost all of South Jessup Street is currently paved with brick. The only three areas where brick has been replaced with another material or covered-over are a 30' section of the street just south of Locust Street (Image 11), at the intersection of South Jessup Street and Latimer Street (Image 12), and at the south end of the street (Image 13). Additionally there is a section of brick paving missing in the middle of the block between Latimer and Irving Streets however this was recently removed by a resident who will

soon be relaying the brick. Of the existing brick, it is unknown how much of it is original. A large percentage of the brick pavers are clearly replacement units of contemporary brick, mismatched brick and even brick fragments (Image 14). Other areas, including the intersection of South Jessup and Irving Streets, are known to have been recently repaved with brick which dates from the late 19<sup>th</sup> – early 20<sup>th</sup> centuries but is not necessarily original to the street.



**Image 12:** Intersection of South Jessup and Latimer Streets where original paving materials have been removed/paved over



**Image 13:** Left: section at south end of South Jessup Street which has been repaved with concrete. Right: section at south end of South Jessup Street which has been repaved with contemporary brick.

The most significant condition observed is the unevenness of the paving which includes sections which are either heaving or sunken. The most noteworthy of these are near the intersection with Latimer Street (Image 12), at the intersection with Irving Street (Image 15) and between houses 227 and 229 (Image 16). In most cases, this condition appears to be the result of disruptions from previous repairs and/or poor drainage including open joints. It is also possible that sunken areas are due to erosion which has occurred below the street. The paving at the intersection with Latimer Street has been completely covered or replaced with asphalt paving. There are two utility access holes at this intersection and the original paving was clearly removed during some previous maintenance work. This maintenance dates from at least 1993 as evidenced by a photograph from that period. The sunken area between houses 227 and 229 appears to result from run-off from the buildings' downspouts and the sloping of the brick sidewalk towards the street. These conditions have also caused erosion and misalignment of the curb and gutter stones at this location. Other observed conditions include protruding individual bricks, spalls, cracks and small losses.



**Image 14:** Section of replacement brick which includes mismatched brick and brick fragments



**Image 15:** Section of uneven paving at the intersection of South Jessup and Irving Streets



**Image 16:** Section of sunken paving between houses 227 and 229

## RECOMMENDATIONS

In general, South Jessup Street is in fair – good condition. Some repairs at select locations are recommended for safety purposes and to promote the long-term preservation of the historic paving materials. The following recommendations are not intended to provide a specific scope of work or repair procedures. Rather, they are intended to serve as guidelines during the decision making process and a basis for the preparation of more detailed construction specifications.

### *Replacement of Missing Historic Materials*

Replacement of missing historic materials on South Jessup Street would create a more visually unified historic street. The two primary sections which should be addressed are the 30' section of the block which

extends just south of Locust Street and the intersection of South Jessup Street and Latimer Street. Both of these locations have been paved over with asphalt. This asphalt should be removed and the curbs units, gutter blocks and brick paving should be replaced in kind. Residents of the block not only have a stockpile of historic McAvoy Blocks which could be used for repaving the street, but also know of another location where historic paving brick can be obtained. It is possible that some historic material is present below the asphalt. These materials are not necessarily salvageable, though an attempt should be made to uncover and reuse them. In kind replacements should also be made at select locations including any areas with missing paving materials as well as locations with the most strikingly incompatible replacement materials. These include the section of concrete curb and sections of brick which have been repaired with concrete, contemporary brick, or brick fragments.

#### *Repair of Existing Historic Materials*

Limited wear and deterioration of historic materials can enhance the age-value of a site. One key example on South Jessup Street are grooves which are worn into the paving materials at some locations, presumably from horse-drawn carts which once traveled the street. However, the condition of some paving materials on South Jessup Street is highly compromised and should be addressed in order to extend the life of the material.

Erosion – Curbs stones exhibit the highest levels of erosion. Extremely eroded units (those which have been worn down below the level of the sidewalk) could be excavated and reset higher up so they are flush with the sidewalk.

Cracks – Existing cracks in curb stones and gutter stones could be cleared of debris and filled with a compatible patching material to prevent infiltration of water and continued expansion of the cracks. Through-unit cracks could be excavated and pinned together with threaded stainless steel rod and epoxy. Neither of these repairs is considered essential.

Losses – Only a small number of losses were observed on gutter stones and curb stones and repair of these losses is not essential. However, consideration should be given to replacing crumbling/spalling bricks in kind.

Sunken/Heaved Areas – Curb stones which are out of plane should be excavated and reset so that they are properly aligned with the edge of the sidewalk paving material. This method is preferable to simply filling existing voids with mortar. Sections of the street where the gutter stones and/or brick pavers are heaved or sunken should be reset in order to promote proper drainage and prevent tripping hazards. In some locations, resetting may involve removal of existing original and/or replacement paving materials and either flattening out or else backfilling the foundation materials. Repaired areas would then be repaved either with the original materials or else in kind replacement materials. In other locations, individual masonry units may simply need resetting. Areas which should be considered for resetting include the intersection of South Jessup Street and Latimer Street, the intersection of South Jessup Street and Irving Street, and the section of the street between houses 227 and 229. For locations where brick pavers are being reset it is recommended that they are set in a bed of sand rather than a concrete slab and that the joints are filled in with soil rather than mortar. This will prevent the likelihood of recurring heaving due to trapped moisture and freeze thaw cycles and will also allow select areas of paving to be removed without being damaged during underground utility maintenance.

In all cases of street repairs, it is extremely important that any historic paving materials removed during the course of repairs are put back in the same location from which they were taken.

Repairs to Adjacent Buildings and Sidewalks – Conditions of adjacent buildings and sidewalks can have an impact on the condition of the street. All downspouts on these buildings should be properly installed

and maintained to prevent excess water from draining into the street and causing erosion or washing out foundation material.

Modification of Traffic Flow – Very few vehicles travel on South Jessup Street, especially since it does not connect through between Locust Street and Spruce Street. Among the exceptions are municipal snow-clearing vehicles, garbage collection vehicles and large contractor pickup trucks. These vehicles are contributing to the degradation of the historic paving materials. Consideration might be given to limiting heavy vehicles on the street and developing alternative snow removal methods and block-wide efforts to place trash at the corner of Locust Street for collection.