Remembering Georgetown's Streetcar Era:

The O and P Streets Rehabilitation Project

Washington, DC

District Department of Transportation

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Terry Bellamy
Director

District Department of Transportation

Introduction

The restored 3200 block of O Street, September 2012.
District Department of Transportation

On May 6, 2013, the District Department of Transportation (DDOT) received a preservation award from the District of Columbia Historic Preservation Office and DC Preservation League for its careful restoration of six blocks of O and P Streets, NW, in West Georgetown. With their 1890s-era granite paving stones and streetcar rails, the blocks served as a reminder of Georgetown's long history. Thanks to this project they remain as contributing elements to the Georgetown Historic District, a National Register Landmark.

"The O and P Streets Rehabilitation Project was a unique effort that vastly improved the safety and condition of these roadways while simultaneously preserving and restoring a rich aspect of our city's history," Mayor Vincent Gray said at the project's completion in September 2012.

DDOT Director Terry Bellamy added: "In making the trip down these streets smoother, we also made the trip down memory lane easier. We updated Civil War-era infrastructure with modern-day enhancements, making the area safer while preserving and enhancing the indelible history of the neighborhood."

The 18-month project, which was supported with $11.8 million in Federal Highway Administration funds, repaired the structural and historical integrity of the picturesque blocks of O and P Streets between Wisconsin Avenue and 35th Street, NW.

This keepsake booklet describes the rehabilitation work and provides context for the project: the history of streetcars in Georgetown and the technology that powered them.

The Streetcar Arrives in Georgetown

THE STREETCAR ERA opened in the District of Columbia in 1862 when the Washington and Georgetown Railroad Company received a charter from Congress to establish three horsecar lines. The longest connected Southeast's Navy Yard, a major employment center for the city, to Georgetown's main intersection (Wisconsin Avenue and M Street) via the Capitol and Pennsylvania Avenue. A second line ran along Seventh Street between the Southwest wharves and Boundary Street (Florida Avenue). The third line ran along 14th Street between Boundary Street and New York Avenue.

Washington was late to adopt a streetcar system. New York City had horsecars as early as 1832, but it took an 1852 improvement to the technology for the new form of mass transit to take off around the country. French inventor Alphonse Loubat's side-bearing rail, which could be laid flush with the street surface, was that improvement. Within seven years Baltimore, Philadelphia, and other older cities had established horsecar systems.

In Washington, the Civil War may have been the motivating factor. With the arrival of hundreds of thousands of soldiers and government workers, efficient mass transportation became a necessity. Streetcars were a great improvement over the horse-drawn "omnibuses" they replaced, whose wheels got stuck in the mud of the city's unpaved streets.

The Washington and Georgetown soon had competition. The Metropolitan Railroad Company incorporated in 1864 and nine years later began operating a line linking Dupont Circle to Georgetown. Cars traveled west on P Street, south on 35th, then east along O and Dumbarton Streets to 28th, north to P and back to Dupont Circle.

▲ A Vanderwerken Omnibus, ca. 1830. Vanderwerken's line ran from the Navy Yard to Georgetown.

▼ A Metropolitan Railroad Co. horsecar crossing the P Street Bridge over Rock Creek, 1880s.

Washingtoniana Division, DC Public Library

▲ A Metropolitan Railroad Co. horsecar traveling east on O Street, at Wisconsin Avenue, early 1890s.
Historical Society of Washington, D.C.

The Metropolitan Railroad electrified its first line in 1895. About the same time it extended the P Street route to 36th and Prospect, where passengers could transfer to a line operated by the Washington and Great Falls Railway that ran to Glen Echo. By century's end the two companies had merged and passengers traveled to Glen Echo without switching.

Soon, the Washington Railway and Electric Company (WRECo) absorbed the P Street line, while the Capital Traction Company took over the Pennsylvania Avenue line. In 1933 WRECo and Capital Traction merged into Capital Transit, which became D.C. Transit under new ownership in 1956.

The arrival of the automobile led to reduced streetcar ridership. In addition, bus companies began multiplying during World War I and, within a few years, represented real competition. However, the streetcar companies countered by opening their own bus routes. The Dupont Circle-Wisconsin Avenue portion of the P Street line was replaced by buses in 1935, and the rest of Route 20, between Union Station and Cabin John, in early 1960. DC's streetcar era ended completely on January 28, 1962.

Streetcar historian C. Richard Kotulak, who grew up on P Street, remembered that "during World War II, when gasoline was scarce and buses could not be chartered, streetcars were chartered instead. When the cadets from Western High School [now the Duke Ellington School for the Performing Arts] had to attend a dress function downtown, they would march in uniform down 35th Street to about three streetcars waiting for them in the 3600 block of P Street to take them to their destination and bring them back later."

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▲ An eastbound car turns onto O Street from 35th, 1959.
Photograph by C. Richard Kotulak

Collection of C. Richard Kotulak

STREETCAR FARES FOR A SINGLE RIDE*

Pre-1896	2-6 cents (not standardized)
1896	Increase to 5 cents
1919	Increase to 7 cents
1920	Increase to 8 cents
1930	Increase to 10 cents
1948	Increase to 13 cents
1949	Increase to 15 cents
1952	Increase to 17 cents
1953	Increase to 20 cents
1960	Increase to 25 cents

*Generally, multiple tokens (tickets before 1920) could be purchased at a discount, and weekly passes or permits were sold between 1933 and 1955.

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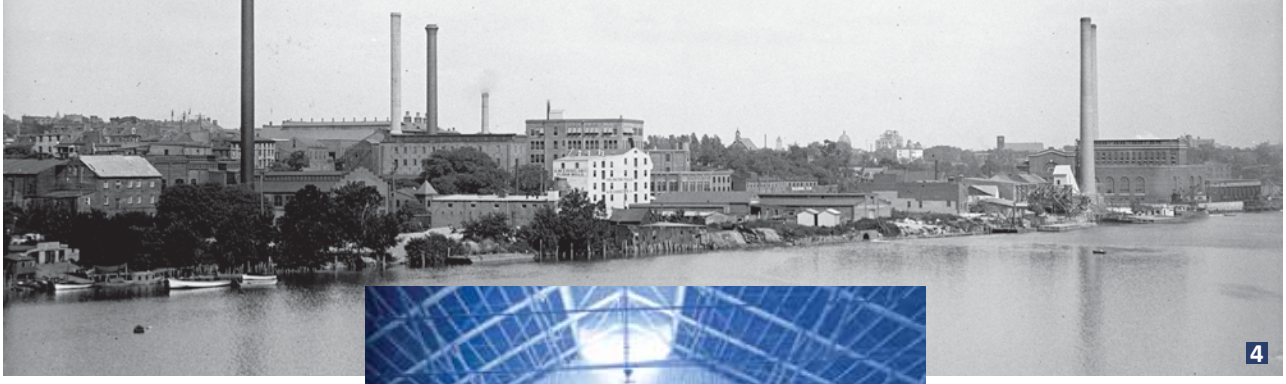


Georgetown Waterfront at top, *Library of Congress;* all others, *Historical Society of Washington, D.C.*

Georgetown's Streetcar Facilities

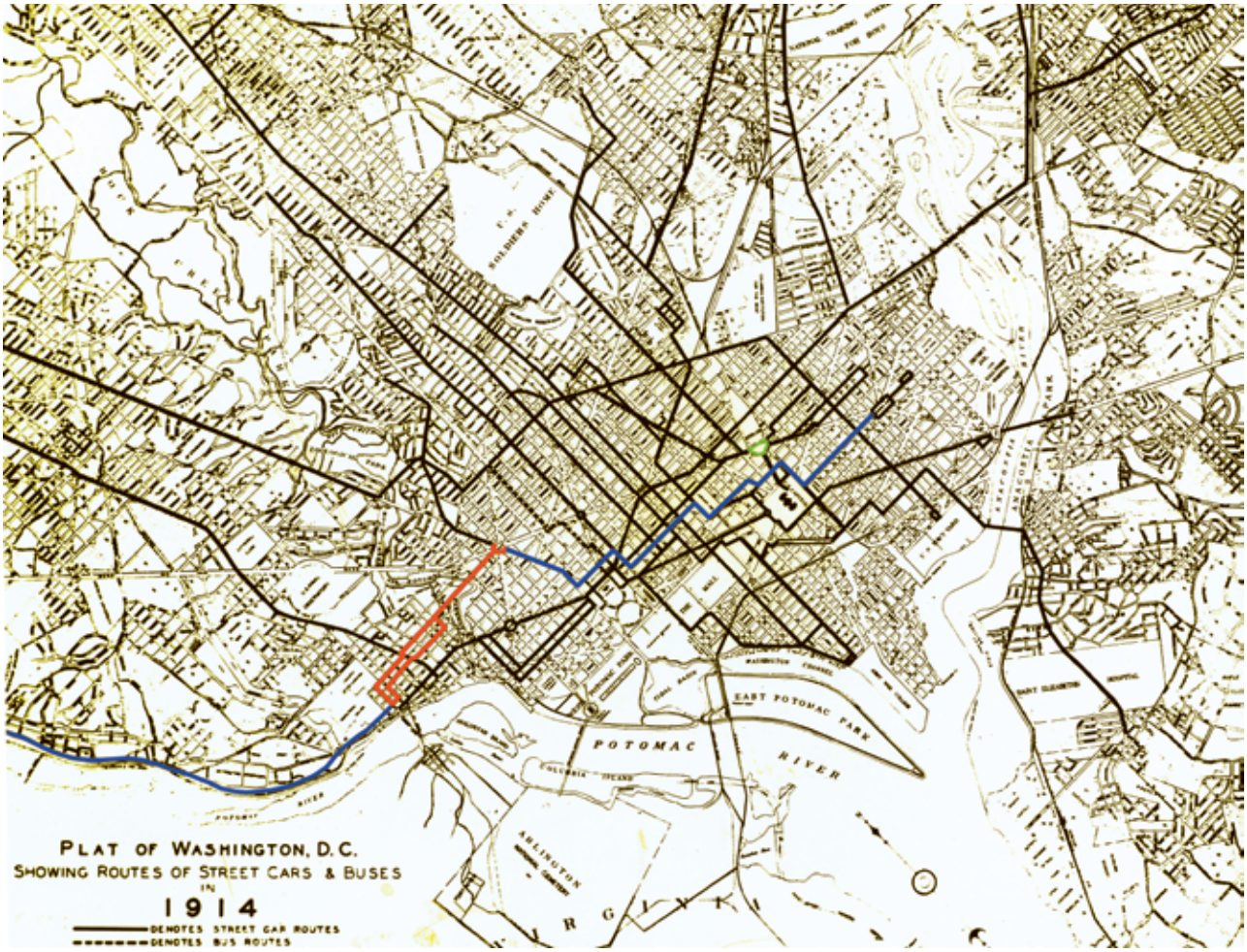
Georgetown, founded in 1751 as a Maryland tobacco port, evolved into an important residential and industrial center in the District of Columbia. Also the terminus for several streetcar routes, Georgetown came to host four large operations facilities.

1 The Washington and Georgetown Railroad bought Gilbert Vanderwerken's omnibus stables at 3222 M Street to use as a car barn and maintenance shop. (See page 12 for an exterior view; a 1914 interior view is at center above.) Long after the streetcar era, the building became Georgetown Park Mall.

2 The Metropolitan Railway Company built its main car barn at 2411 P Street in 1874. (Exterior and interior views from 1914 are at bottom left and center.) The 2500 Q Street apartments now occupy the site.

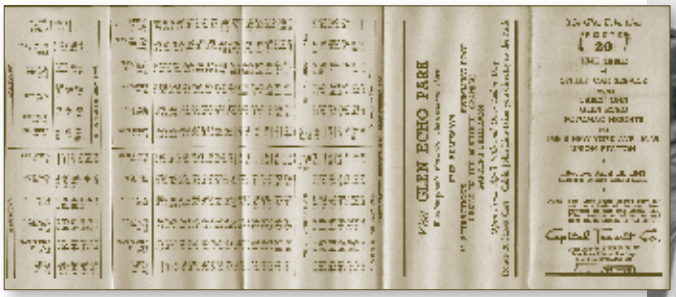
3 In 1895 the Washington and Georgetown Railroad began constructing a "Union Station" at 36th and M Streets, as a terminal for four different lines. The imposing red-brick structure, designed by prominent Washington architect Waddy Wood, opened two years later as a car barn for the Capital Traction Company, which had absorbed the Washington and Georgetown. (See page 13 for an exterior view; a 1914 view of the rear, Prospect Street side is at left center.)

4 Capital Traction also built a power plant at the foot of Wisconsin Avenue, where from 1910 to 1934 it generated the electricity for its streetcars. (It is seen at far right in the top photo of the Georgetown waterfront and in the right center and bottom images, all from about 1914.)



▲ On this 1914 map, the P Street section of the Lincoln Park-Cabin John line is red; the rest of the route is blue. The route changed in 1935 when the Dupont Circle-Wisconsin Avenue stretch was replaced by buses. Later, the eastern terminus was Union Station (green).

Washingtoniana Division, DC Public Library



Collection of C. Richard Kotulak

▶ The 1945 timetable for Route 20 (above) included an advertisement for Glen Echo amusement park. On January 3, 1960, the last day for Route 20, passengers boarded a westbound streetcar at Union Station.

Star Collection, DC Public Library; © The Washington Post

A Washington Railway and Electric streetcar on First Street at East Capitol Street, 1918.
Washingtoniana Division, DC Public Library

Streetcar Power

Horses pulled the first streetcars, but animals were not an ideal power source. They required feed, water, and shelter; produced waste; moved slowly; and had trouble pulling loads uphill.

The solution? Electricity. In 1888 Frank Sprague, a former naval officer working for Thomas Edison, invented a system involving overhead conductor wires. Current traveled to the streetcar's electric motor via a long pole ("trolley") attached to the car's roof. Many cities adopted this system.

But aesthetics ruled in the nation's capital, and Washington's main newspaper, the *Evening Star,* strongly advocated keeping the city free of utility poles and overhead wires. In 1888, while traveling in Europe, *Star* Editor Theodore W. Noyes sent home glowing reports of the new underground conduit system installed in Budapest, Hungary, to power streetcars. This was a practical alternative to overhead wires, Noyes asserted.

Prodded by Noyes and others, the U.S. Congress in 1889 adopted a law requiring any street railway company chartered in Washington or Georgetown to convert from horse power to some form of mechanical propulsion that did not rely on overhead wires. Some companies experimented unsuccessfully with battery-powered motors and other types of technology, and others converted to underground cables.

◀ The Washington and Georgetown Railway's car barn at 3222 M Street, NW, 1880s.

▶ Capital Traction's car barn at 36th and M Streets, NW, 1949.
Historical Society of Washington, D.C.

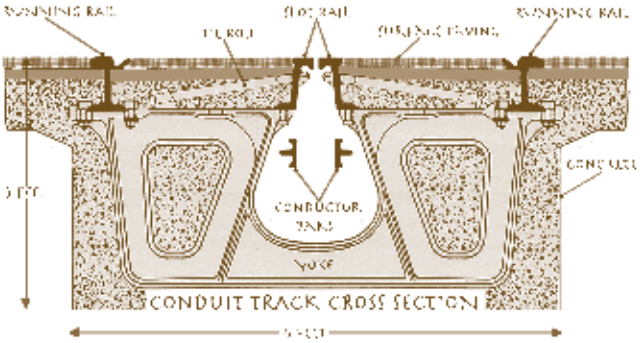
The system eventually adopted in Washington was an underground conduit system based on the one used in Budapest. By 1899 all major DC lines had switched to the conduit system. It was similar to the cable-car track already in use on some lines but, instead of a moving wire, the center "slot" contained two parallel conductor bars carrying 600 volts of direct current. The rails were supported by a series of 350-pound cast-iron yokes set at five-foot intervals in a three-foot-deep and six-foot-wide concrete-filled chan-

◀ A "trolleyman" raises the trolley on an outbound streetcar at the plow pit at 16th Street and Benning Road, NE, 1940s. This operation was automated after World War II.

Star Collection, DC Public Library; © The Washington Post

▼ A crew installs track and conduit at 15th Street to connect lines on New York and Pennsylvania Avenues, 1919.

Library of Congress



▲ The conduit system comprised thousands of 350-pound cast-iron "yokes," such as this one unearthed in Georgetown. The yokes supported the running rails and slot rail and had a center cavity for the T-shaped conductor bars, as seen in this cross-section drawing (top).

Drawing by Mark Roderick
PHOTO: District Department of Transportation

▶ A welder repairs a track brake in Capital Traction's maintenance shop at 3222 M Street, NW, 1948.
Star Collection, DC Public Library; © The Washington Post

▼ The Prospect Street plow pit, 1947.
Historical Society of Washington, D.C.

nel. The entire assembly needed to be strong enough to carry three-ton streetcars.

A streetcar's motor received power through a "plow" suspended from the bottom of the car through the slot, where it made contact with the conductor bars in the conduit. On the P Street line, a streetcar arriving from Glen Echo would stop at the Prospect Street "plow pit," the point at which the overhead wires stopped (at 36th Street until 1944 when it was moved to 37th Street). There, a worker on the street would lower the trolley and then enter the pit and attach the plow. When the pitman reconnected the plow he would turn the power on, and a blue light on a pole in front of the streetcar would let the operator know he could proceed.

Washington streetcar historian C. Richard Kotulak described life in a plow pit: "Generally, you could barely stand up straight. The width equaled the distance between the tracks' outer edges. The pitman had a chair down there to sit on when he was not busy. Since the Prospect Street pit was the newest on the system, it even had a commode." Most plow pits had two workers, one on the surface and one in the pit. However, the Cabin John line did not have frequent service, so one man handled both jobs.

Albert N. Connett, the Metropolitan Railway's chief engineer, is credited with experimenting and finally coming up with a conduit system that would fit Washington's needs, convincing the powers-that-be that this much more costly technology was the best option, and then overseeing the system's installation. He also designed the hybrid streetcar that used both overhead wires and underground conduit. Later, he lent his expertise to London and Paris transit authorities.

At its height in the 1920s, Washington's streetcar system had 115 miles of conduit track. Although highly efficient, the conduit system cost three times more to build than regular track. In addition, the expense of cleaning the drainage system twice annually, constantly rebuilding plows, and maintaining conduit, rails, and rolling stock contributed to the demise of the streetcar system by 1962.

▲ A westbound Capital Transit streetcar approaches the Prospect Street plow pit as the pitman poses for the camera, 1951.

Leonard Rice Collection, National Capital Trolley Museum

▼ A Capital Transit worker cleans slot rail at 16th and Harvard Streets, NW, after a 1955 strike sidelined streetcars for seven weeks.

Star Collection, DC Public Library; © The Washington Post

The Restoration of O and P Streets

In 2011, the District Department of Transportation broke ground on a unique restoration project. Everybody had agreed—for years—that West Georgetown's O and P Streets needed repair. While charming, their historic granite paving stones presented drivers with axle-breaking bumps and potholes. Running down the middle of O and P were old streetcar tracks, never removed after the city converted this line to buses in 1959. In some places, the pavement had sunk as much as a foot below the level of the tracks.

How to repair the streets was the question. City officials, neighborhood residents, and preservationists all had competing priorities. Some called the tracks a hazard and wanted them ripped out. Others insisted that they stay for historical reasons or because streetcars might return.

Then, in 1976, a Georgetown University law student on a bicycle injured himself on the old tracks. He sued the city, with the result that the court ordered all remaining tracks removed or paved over.

The next year saw the end of the tracks on M Street and Pennsylvania Avenue in Georgetown, but, pursuant to a petition by DDOT, a federal court exempted the tracks on O and P Streets from any order to remove tracks. Nevertheless, in 2008 the DC Preservation League placed them on its annual list of the city's ten most endangered places. It said the tracks "recall when Georgetown was the nexus of an extensive … streetcar system beloved by Washingtonians…. The remaining track is nationally and internationally significant as representing a technologically innovative mode of public transportation that preserved open streetscapes from visual and aural intrusion."

▲ 34th and P Streets, NW, 1959.
Photograph by C. Richard Kotulak

▶ A view of the 3400 block of P Street in September 2011, as work started in that section. Note the gap between the rail and pavement at lower left.
District Department of Transportation

▲ At top, workers cut through fastening bolts to remove the old tracks on P Street.

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At center, a crew carefully removes old rail on O Street.

Photograph by Gerald Weiss

Bottom, some of the old slot rail was irreparably degraded, so DDOT had 2,000 linear feet of rail re-manufactured for the project.

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▶ At right, a view of the old conduit system's yokes, after the center cavity has been filled with light-weight, flowable backfill for stability.

Photograph by Gerald Weiss

After multiple federal and local reviews, the parties finally arrived at a compromise: DDOT would remove the old tracks and pavers, restore them, and replace them on the 3200–3400 blocks of O and P Streets.

A 2009 Memorandum of Agreement signed by the Federal Highway Administration, DDOT, the Advisory Council on Historic Preservation, and the District of Columbia Historic Preservation Office outlined the work:

- Remove the granite pavers and bluestone curbs.
- Remove the wheel rails and center slot rails from the subsurface iron yokes by cutting through the fastening bolts.
- Remove the access hatch covers.
- Straighten, clean, and refinish the rails and access hatch covers as necessary or appropriate.
- Refasten the wheel rails and slot rails to the yokes.
- Fill the yoke cavities with light-weight, flowable backfill for stability.
- Place the aggregate/concrete/sand roadway base for the granite pavers.
- Once water mains are replaced and roadbeds stabilized, reset the granite pavers and bluestone curbing.

The agreement also stipulated that care be taken to avoid damaging the artifacts. In the course of the project workers removed and refurbished 2,422 feet of warped and corroded rails. They excavated more than 300,000 granite pavers, powerwashed them, and reused about 90 percent of them.

Like an archaeological dig, the project revealed the complex technology that once fed power to the streetcars. As workers proceeded they found, poking up through the rubble, the tops of the cast-iron yokes that had supported the running tracks and plow slot beams.

In addition to completely reconstructing the streets, DDOT upgraded streetlights and drainage and replaced 19th century water mains and water connections to residences and businesses. It rebuilt curbs, gutters, and brick sidewalks; installed crosswalks and curb ramps; built tree boxes; and planted new trees. While the streets were under construction, Washington Gas upgraded gas lines.

On August 16, 2012, a few weeks before the project's completion, Mayor Gray, Councilmember Jack Evans, and the community celebrated "Tim Downs Day" in recognition of the long-time P Street resident's involvement. Tim Downs died shortly thereafter.

The unprecedented O and P Streets Rehabilitation Project, which was dedicated in

▲ At top, a crew on O Street spreads and smooths the roadway base upon which the granite pavers will be laid.

At center, workers on P Street sort paving stones by size. At this stage, the running tracks have been reinstalled, but the slot rail is still missing.

At bottom, workers carefully reset the refurbished stones.

◀ At left, an access hatch cover that has been refurbished and replaced against the slot rail.

Hatch cover: Photograph by Jet Lowe and Renee Bieretz, HAER. Library of Congress
All others: Photographs by Gerald Weiss

▲ The ribbon-cutting, 3200 block of O Street, September 2012. From left: Advisory Neighborhood Commission 2E Chairman Ron Lewis, Christopher Lawson of the Federal Highway Administration, DC Councilmember Jack Evans, Mayor Vincent Gray, ANC Commissioners Jeff Jones and Ed Solomon, DDOT Director Terry Bellamy, and DDOT Project Manager Ramesh Mirchandani.

▼ In another shot of the ribbon-cutting, DDOT's Bellamy poses with Solomon and Lewis of ANC 2E and the Citizens Association of Georgetown's Barbara Downs (left) and Hazel Denton. The ANC and CAG nominated DDOT for the preservation award.

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September 2012, has allowed DC to hold onto a piece of its past: the last visible evidence of its original streetcar system. The restored tracks represent one of two known, surviving examples in the world (the other is in London) of the innovative conduit system—used here from 1895 to 1962.

"The project was disruptive. It was noisy, it was dirty, it was messy, it was a huge inconvenience, but what made it tolerable—and the result successful—was the cooperative attitude and numerous contributions of the team working on the project and their attention to the details of preserving the historic neighborhood."

— Jennifer Altemus, president, Citizens Association of Georgetown

On May 6, 2013, DDOT received a preservation award for the O and P Streets Rehabilitation Project.

FROM LEFT: Mayor Gray; Luis Neto, Capital Paving of DC; Josh Bullock, Bullock Construction; Afis Idowu, The Temple Group; Dawit Muluneh, Ali Agahi, and Ramesh Mirchandani, DDOT; Christopher Lawson, Federal Highway Administration; DDOT Director Terry Bellamy; and DC Historic Preservation Officer David Maloney.

DC Historic Preservation Office

Learn More

District Department of Transportation, *Fixing O and P Streets*, at www.youtube.com/watch?v=nYLiSRcarII&feature=youtube_gdata_player

O and P Streets between Wisconsin Avenue and 36th Street, NW, Historic Streetcar Tracks, National Park Service, U.S. Department of Interior (HAER No. DC-67), at lcweb2.loc.gov/pnp/habshaer/dc/dc1000/dc1072/data/dc1072data.pdf

LeRoy O. King, Jr., *100 Years of Capital Traction, The Story of Streetcars in the Nation's Capital* (Dallas, TX: LeRoy O. King, Jr., 1972).

Peter C. Kohler, *Capital Transit, Washington's Streetcars, The Final Era: 1933-1962* (Colesville, MD: National Capital Trolley Museum, 2001).

Gerald Weiss, *3D Animation of Streetcar Tracks on P Street in Georgetown*, at youtu.be/gvzyM9L_1x0.

Thanks go to the DDOT team responsible for the timely completion of the O and P Streets Rehabilitation Project: Ronaldo "Nick" Nicholson, Muhammed Khalid, Dawit Muluneh, Ali Agahi, Ramesh Mirchandani, Olaore Olesegun, and Wendy Peckham.

This booklet was produced by RCR Associates, LLC, and The Temple Group, and published by the District Department of Transportation. It was written by Mara Cherkasky and Bill Rice, and designed by Janice Olson.

CREDITS:

COVER PHOTO: O and Potomac Streets, 1969. *Photograph by Jet Lowe and Renee Bieretz, HAER. Library of Congress*

INSET COVER PHOTO: 34th and O, 1959. *Photograph by C. Richard Kotulak*

INSIDE FRONT COVER: *Photograph by Jet Lowe and Renee Bieretz, HAER. Library of Congress*

TITLE PAGE: O Street, 1972. *Star Collection, DC Public Library; © The Washington Post*

INSIDE BACK COVER: New track. *Photograph by Gerald Weiss*

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