



2014 ASLA Annual Meeting - Denver, Colorado

Kennedy|Greened: A DC Water Green Infrastructure Challenge Finalist

MON-B07 Monday, November 24, 2014 10:00 AM - 11:30 AM

DC Water • Nitsch Engineering • Urban Rain|Design • Stacy Levy, Artist



Urban Rain Design

Lead Landscape Architect
Kevin Robert Perry, ASLA, PLA
(Has ability to obtain registration in DC)

Michael Vergason Landscape Architects

Local Landscape Architect
(Registered in DC)

DDOT

DDOE

EBA Engineering

Survey and Constructability Coordinator
(Registered in DC)

Nitsch Engineering

Project Manager, QA/QC
Scott Turner, PE, AICP
LEED AP ND
(Registered in DC)

Lead Engineer
Nicole Holmes, PE
LEED AP BD+C
(Registered in DC)



Other Agencies/ Stakeholders

AMEC

Permit Coordinator
Megan Leboon, PE_{MD}

Kennedy Street Development Association

Brightwood Neighborhood Residents & Businesses

Tina Boyd & Associates

Community Engagement

Stacey Levy/ Sere LTD.

Environmental Artist

Design Team

Owner & Stakeholders

SPEAKER BIOGRAPHIES

Seth Charde

www.dcwater.com

seth.charde@dcwater.com

Seth Charde is a Green Infrastructure Planning Coordinator with DC Water on the DC Clean Rivers Project. Seth is closely involved in the program development and execution of the proposed Long Term Control Plan modification that would incorporate Green Infrastructure as a solution for reducing Combined Sewer Overflows in the District of Columbia. Prior to joining DC Water, Seth was the Environmental Planner for University of Maryland, where his work included master planning as well as site level projects for stormwater management and watershed restoration. Before joining the University of Maryland he worked in the private sector in landscape design and land use planning. Seth holds an MBA from University of Maryland and an MA in sustainable landscape planning and design from the Conway School.

Kevin Robert Perry, ASLA

www.urbanraindesign.com

kevin@urbanraindesign.com

Kevin Robert Perry is a recognized leader in successfully integrating stormwater management with high-quality urban design. Over the last decade, Kevin has designed over 40 green infrastructure demonstration projects throughout the nation. He has received multiple ASLA Professional Awards of Honor for his work in green infrastructure. His work experience has helped policy makers develop a “toolbox” of design strategies and guidelines for public agencies across the United States. In 2012, Kevin launched his landscape architecture office Urban Rain|Design which provides comprehensive green infrastructure visioning, planning, and design strategies to communities across the United States.

Nicole Holmes, P.E., LEED AP BD+C

www.nitscheng.com

nholmes@nitscheng.com

Nicole Holmes is a Project Manager at Boston-based Nitsch Engineering. Nicole is a registered professional engineer in five states and a LEED Accredited Professional (Building Design + Construction). Nicole’s primary focus is on green infrastructure and stormwater master planning projects. Nicole’s recent projects include stormwater planning for Princeton University, Harvard Business School, and Dartmouth College. Her experience also includes sustainable site consulting services for various projects including Pittsburgh’s Frick Park Environmental Center. Nicole is co-creator of Nitsch Engineering’s proprietary RainUSE® Software program and leads Nitsch’s internal Stormwater and Sustainability Group. Nicole received her B.S in Civil Engineering from Northeastern University.

Stacy Levy, Artist

www.stacylevy.com

stacy@stacylevy.com

Stacy Levy is a sculptor who works in sculptural media suggestive of ecological natural patterns and processes such as how water flows. Stacy’s projects show the presence of urban nature and clarify the patterns of natural processes at work on the site. She works with water of all sorts, from acid mine drainage to urban streams and rivers to rainwater. Stacy graduated from Yale University with a BA in Art and a minor in forestry. She earned her MFA from Tyler School of Art, Temple University PA. She is a recipient of the Pew Fellowship in the Arts.

EDUCATION SESSION DESCRIPTION

In April 2013, DC Water announced a national design competition, the Green Infrastructure Challenge, engaging firms to design innovative green infrastructure practices that absorb water. This design competition served as a model to support DC Water's proposal to conduct a large-scale, multi-million dollar demonstration project in the Potomac and Rock Creek sewersheds to evaluate the feasibility of using green practices, in place of or in conjunction with "gray" engineering solutions, to capture rain water and prevent combined sewer overflows (CSOs). DC Water's proposed "hybrid" approach will promote district-wide GI strategies to begin immediately and delay the Rock Creek and Potomac tunnel construction with the hope that the scale of the tunnels can be reduced dramatically in light of the added GI approach. More information on DC Water's Green Infrastructure initiatives can be found at www.dcwater.com/green.

As the winner of the DC Water Green Infrastructure Challenge design competition for the Kennedy Street project site (*Kennedy Green | A Neighborhood Green Street Project*), the Nitsch Engineering and Urban Rain | Design Team will introduce the audience to a variety of innovative strategies that retain and detain stormwater instead of allowing it to directly drain to the combined sewer system. By managing rainfall at multiple levels: the vertical plane with the re-establishment of tree canopy, ground surface capture through landscape-integrated stormwater strategies, and sub-surface infiltration, the design optimizes the potential for capturing and managing rainfall in ways that also improves that overall character and programming of the street.

In addition, the involvement of Stacy Levy in the artistic expression of water and landscape during the design and construction process will help to tell the story of the rain as it passes from the sky to the ground. Rather than hiding water from sight, the rain will be celebrated and explained. The art work can help forge an understanding of how nature works even in the most urban centers, while it is helping to solve the problems of the site. This dual action of showing and doing is an exciting new role for art to take in community design.

The final design phase for the Kennedy | Greened project is slated to begin in 2015 with construction complete by December 2016.

LEARNING OBJECTIVES

1. Learn about the different stormwater strategies employed at the Kennedy | Greened project site that can be replicated with other green street projects.
2. Discover how the landscape architect, civil engineer, and artist can work together to create both an innovative and high-performing streetscape retrofit.
3. Learn about how the Kennedy | Greened project is part of DC Water's Hybrid Green/Gray Infrastructure plan that will provide \$100 million in investment towards green infrastructure.

NOTES:

PRESENTATION OUTLINE

I. Introduction and Overview

- a. The Design Team - A Collaborative Approach
- b. Introduction to the DC Water Green Infrastructure Challenge
- c. Overall Project Goals

II. Kennedy Street Existing Conditions Opportunities and Constraints

- a. Vegetation consists largely of lawn and trees
- b. Paving conditions (street, sidewalk, driveways)
- c. Topography and stormwater flow
- d. Above and below ground utilities help dictate design approach
- e. Street Programming (parking, bus access, and pedestrian)
- f. Overall Street Character

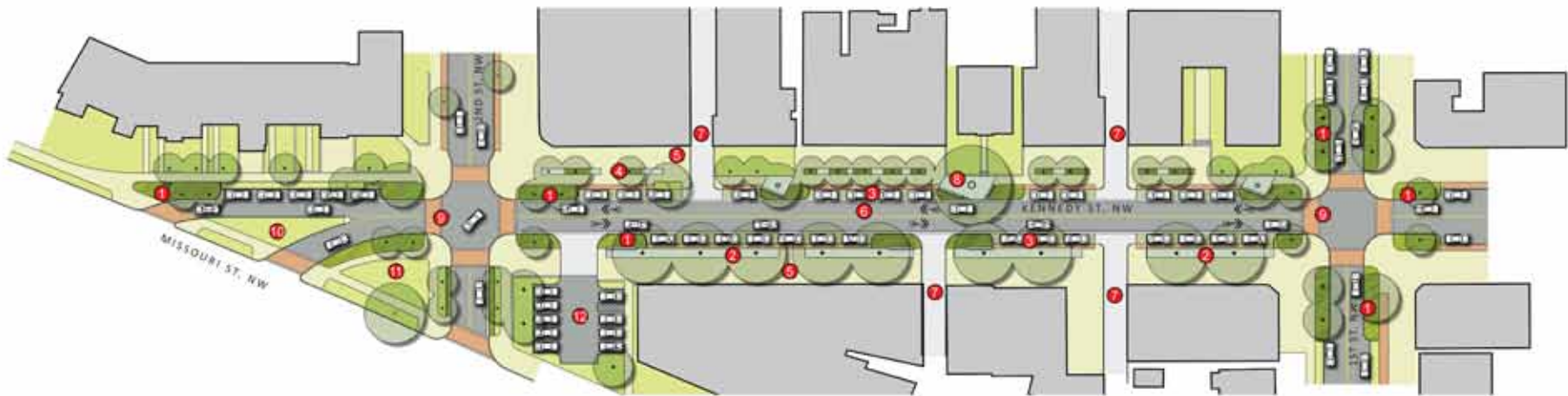
III. Greening of Kennedy Street: Innovation, Art & Outreach, Performance, and Practicality

- a. Innovation & Design Toolbox
 - 1. Vertical Water Capture: Starting from the Top
 - 2. Ground Surface Absorption: Significant Ground Plane Perviousness
 - 3. Stormwater Flow/Volume Reduction and Time Extension Landscape
 - 4. Stormwater Volume Reduction and Sub-surface Storage
 - 5. Alternative Design Options
 - 6. Revised Street Programming
- b. Art & Outreach
 - 1. Art works hand in hand with the site design and construction sequence
 - 2. Tell the story of the rain as it passes from the sky to the ground and beyond
- c. Performance
 - 1. Volume Capture
 - 2. Cost Effectiveness
- d. Practicality
 - 1. Constructability
 - 2. Operations and Maintenance

IV. Next Steps/Conclusion

- a. Kennedy Street used as a model DC green street approach
- b. Project Summary
- c. Questions and Answers

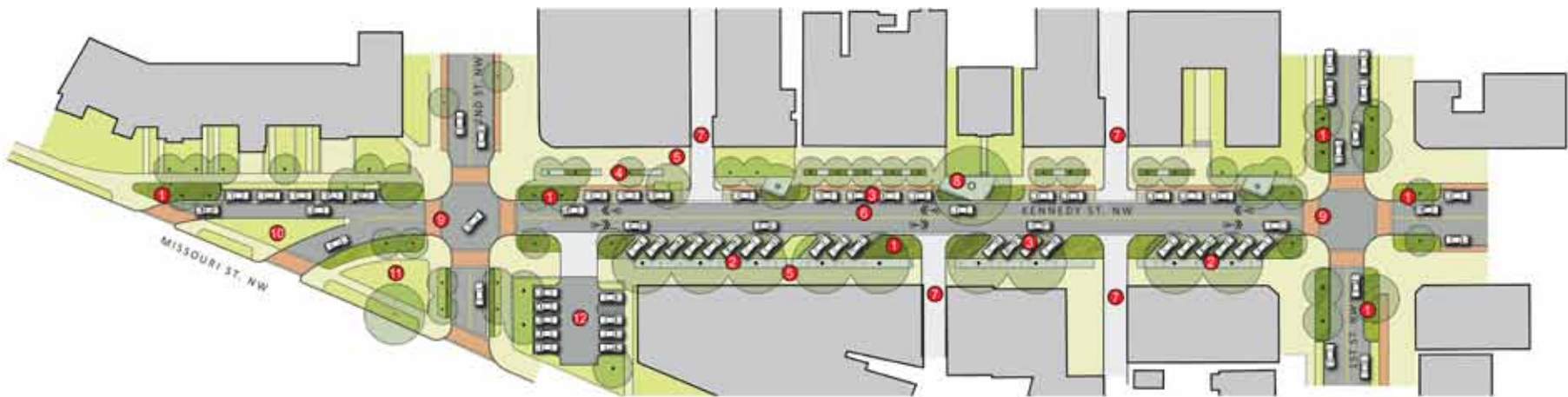
NOTES:



- 1 Bioretention curb extensions with new trees, shrubs, and groundcovers capture and infiltrate stormwater runoff.
- 2 6' wide steel grate paving over recessed landscape infiltration strip and large canopy street trees
- 3 Parking lane with landscape infiltration gaps (UG's)
- 4 4' wide intermittent steel grate paving over recessed landscape infiltration strip (This is in the private realm)
- 5 Existing concrete walk to remain
- 6 Existing asphalt travel lanes to remain, though painted bike sharrows to be added
- 7 Infiltrative dry wells placed in alleyways
- 8 Large mature existing trees to be saved, enhanced, and showcased with boardwalk paving and seatwalls
- 9 Pedestrian crossings are enhanced with shortened crossing distance and colored paving material
- 10 Sub-surface infiltration storage under landscaped island
- 11 National Park Service landscape to remain
- 12 Possible reconfigured parking layout (This is in the private realm)

Base Site Plan: Parallel Parking

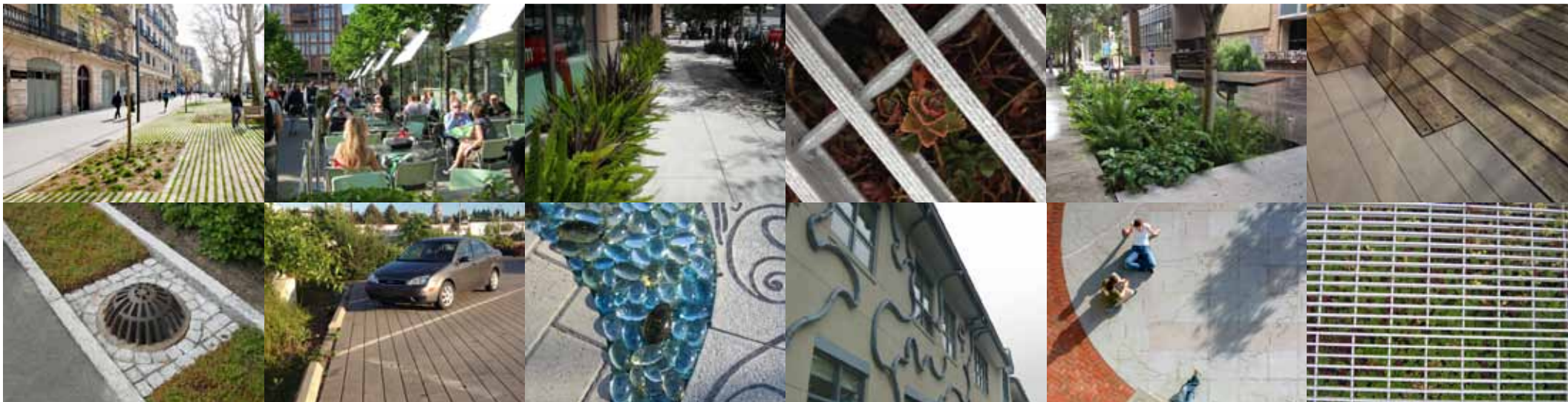
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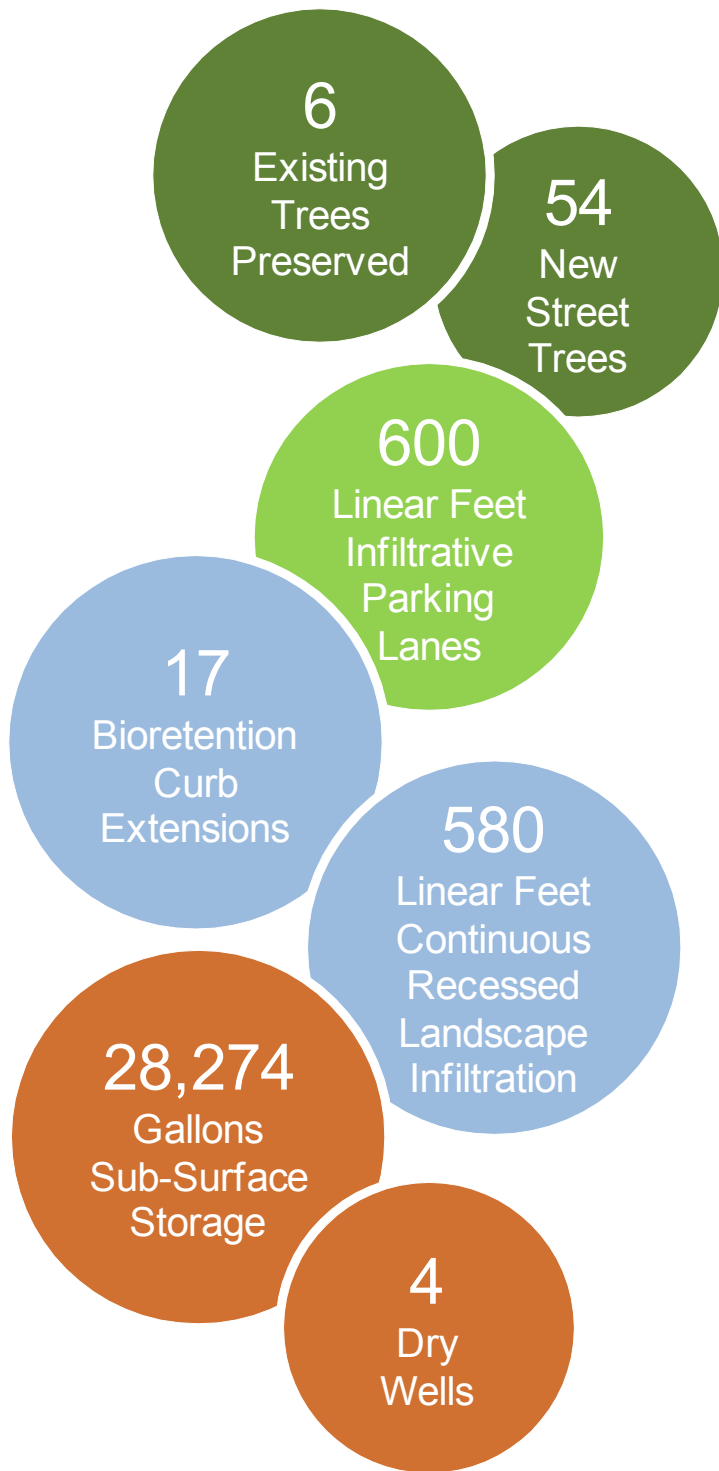


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Alternative Site Plan: Back-in Diagonal Parking on South Side

SCALE: 1"=40'



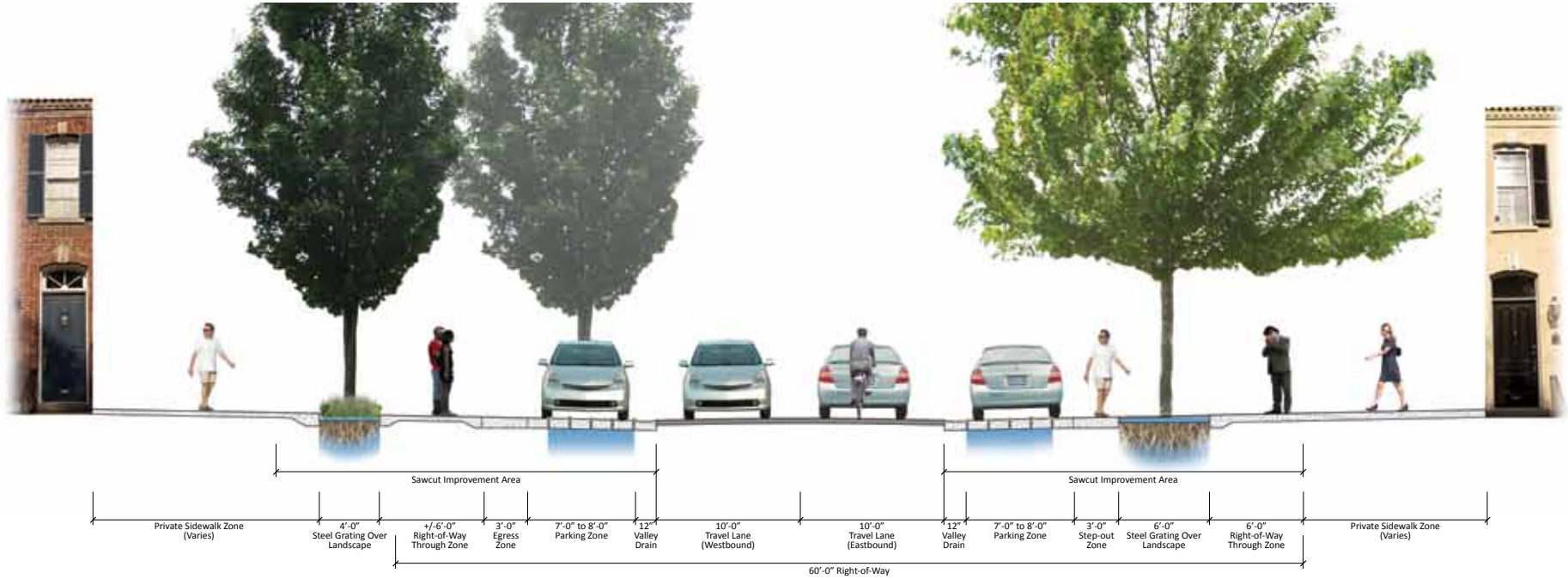


1.2” Rainfall Event
2.78 Impervious Acres

15,000 Square Feet Impervious Surface Reduction

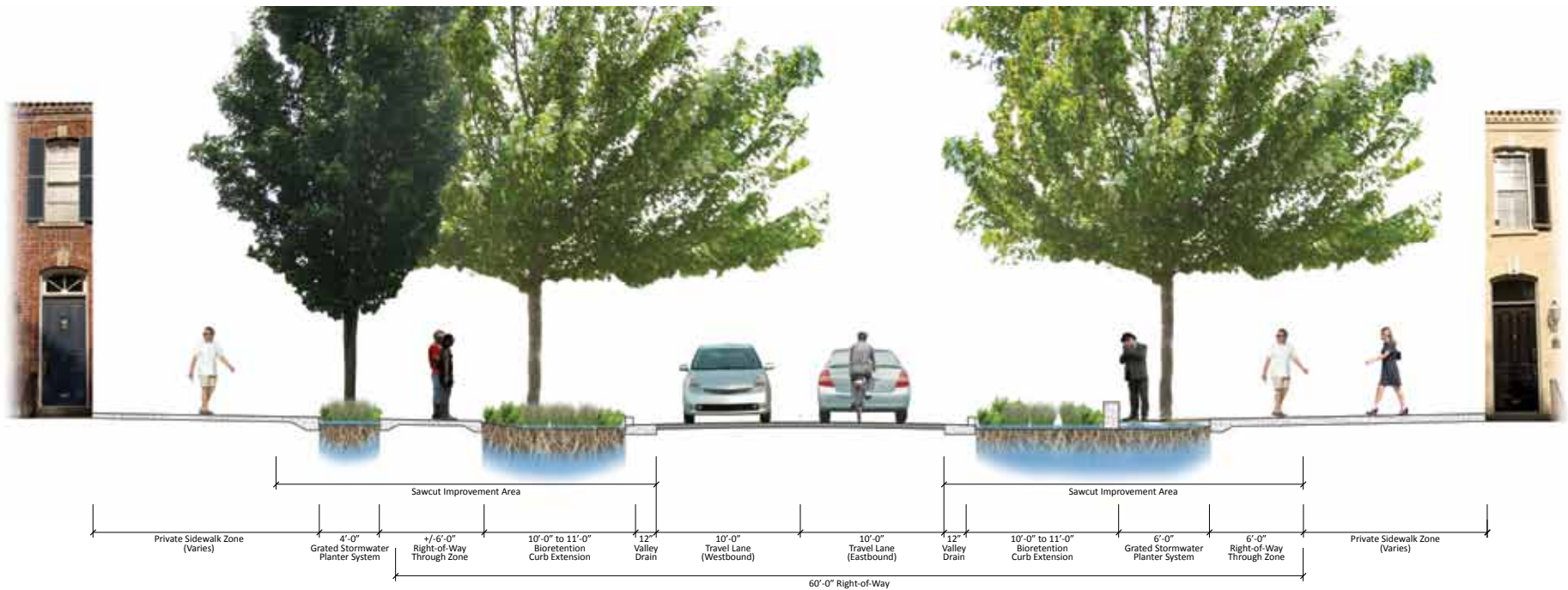
81,661 Gallons Stormwater Retained

5 Acres Impervious Surface Treated and Detained through at least 1 GI Strategy



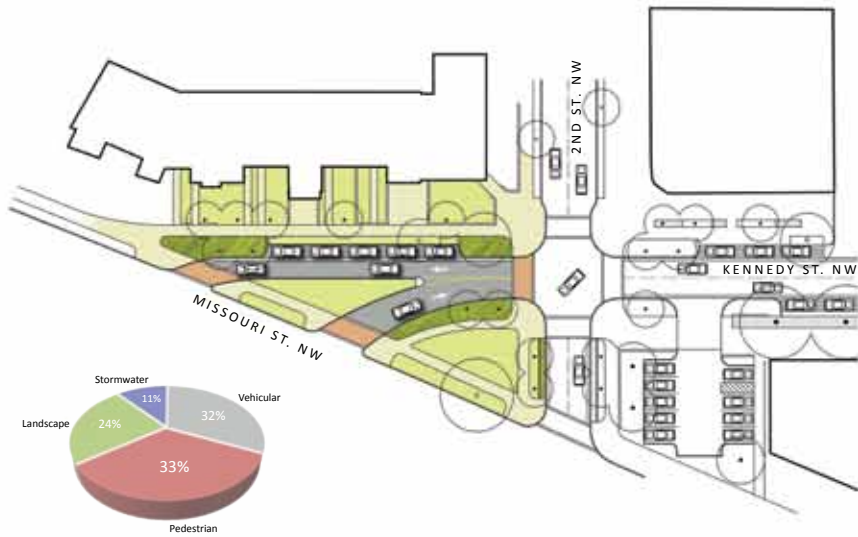
Kennedy Street NW Typical Section Through Parking Zones

NOT TO SCALE



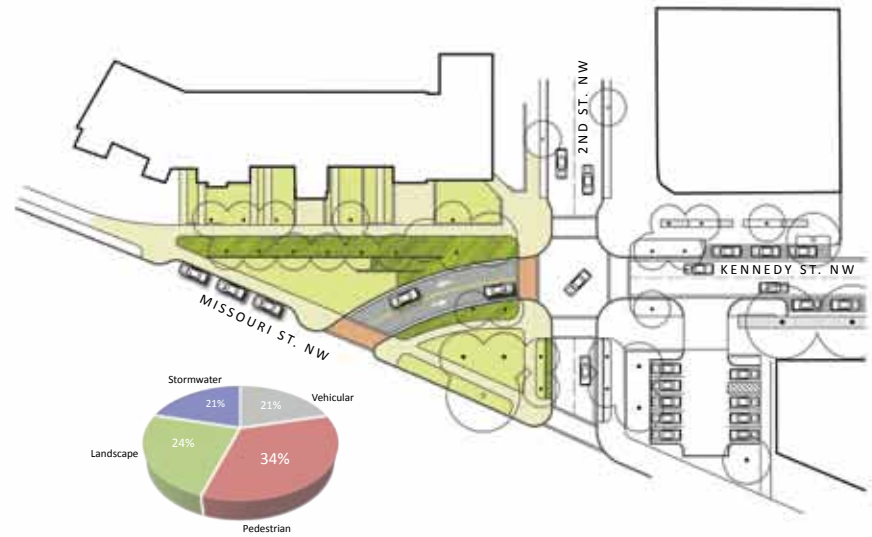
Kennedy Street NW Typical Section Through Bioretention Curb Extensions

NOT TO SCALE



Base Plan Condition: No Travel Changes

SCALE: 1"=40'



Design Option #1: Consolidated Two-Way

NOTE: This design option for the triangle intersection of Kennedy, Missouri, and 2nd Avenue is intended to provide an illustration of a potential future project that is outside the budget of the proposed streetscape improvements proposed as part of the base design presented in our design proposal/narrative and 15% design plans.

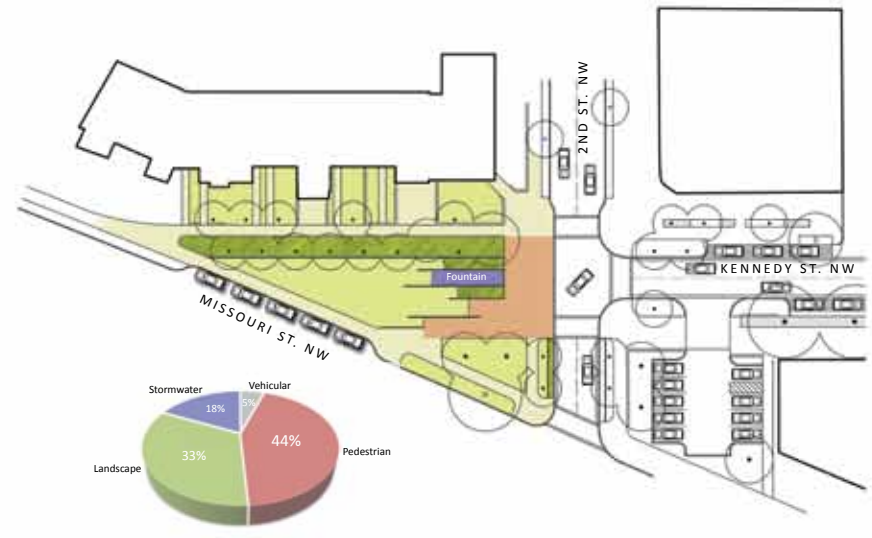
SCALE: 1"=40'



Design Option #2: East-Bound Only

NOTE: This design option for the triangle intersection of Kennedy, Missouri, and 2nd Avenue is intended to provide an illustration of a potential future project that is outside the budget of the proposed streetscape improvements proposed as part of the base design presented in our design proposal/narrative and 15% design plans.

SCALE: 1"=40'



Design Option #3: Neighborhood Park/Plaza

NOTE: This design option for the triangle intersection of Kennedy, Missouri, and 2nd Avenue is intended to provide an illustration of a potential future project that is outside the budget of the proposed streetscape improvements proposed as part of the base design presented in our design proposal/narrative and 15% design plans.

SCALE: 1"=40'