Greening America's Capitals

LINCOLN, NEBRASKA | 2012

PHOTOGRAPH BY JEFF HUNTER

Greening America's Capitals is a project of the Partnership for Sustainable Communities between the U.S. Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department of Transportation (DOT) to help state capitals develop an implementable vision of distinctive, environmentally friendly neighborhoods that incorporate innovative green building and green infrastructure strategies.

EPA is providing this design assistance to help support sustainable communities that protect the environment, economy, and public health and to inspire state leaders to expand this work elsewhere. Greening America's Capitals will help communities consider ways to incorporate smart growth strategies into their planning and development to create and enhance interesting, distinctive neighborhoods that have multiple social, economic, and environmental benefits.

Lincoln, Nebraska was one of the five state capital cities chosen to receive this assistance in 2011, along with Montgomery, Alabama; Phoenix, Arizona; Washington, D.C.; and Jackson, Mississippi.

More information at http://www.epa.gov/smartgrowth/greencapitals.htm.

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LINCOLN, NEBRASKA | 2012

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Executive Summary

The South Capital area of Lincoln, Nebraska, has the key ingredients of a walkable neighborhood. It is a historic area close to downtown with mature trees, well-maintained homes, mixed land uses along major streets, a school, and small local businesses. The city, state, and local stakeholders hope to build on the rich identity of the area by increasing safety; promoting history, art, and education; reinvesting in housing and small businesses; and improving the streets and sidewalks with green infrastructure.

Green infrastructure includes a range of natural and built approaches to stormwater management—such as rain gardens, bioswales, and permeable paving—that mimic natural systems by filtering stormwater and letting it absorb back into the ground and using trees and other vegetation to hold rain water until it is converted to water vapor. These strategies allow much less stormwater to enter the storm drains or sewers and therefore reduce the strain on the city's water system.

The South Capital area provides an opportunity to create an example for other areas in Lincoln and across Nebraska of environmentally friendly streetscapes that improve transportation options, including walking and biking, and create better public spaces.

Lincoln applied to the U.S. Environmental Protection Agency's (EPA) Greening America's Capitals program to revitalize the South Capital area through improvements to the streets and alleys. EPA assembled a project team, including landscape architects, designers, and urban planners from contractor firms Vireo and BNIM, as well as staff from EPA. The team visited Lincoln in December 2011 to conduct workshops with a range of stakeholders, including the mayor, city department directors and staff, state agency staff, local business and property owners, students, teachers, and the public to develop an environmentally, socially, and economically sustainable vision for the South Capital area.

The vision proposes making pedestrians safer and more comfortable, improving streets and parking for bicycles and cars, creating outdoor gathering spaces, improving stormwater management, and increasing opportunities for small business. Together, these improvements can enhance the area's appearance, reduce the environmental impact of the built environment, and increase the area's development potential.

This report outlines the vision for the South Capital area, strategies to achieve the vision, and a phased implementation approach. The project team developed the design options in this report (beginning on page 23) based on the input received during the December workshops. The city of Lincoln, working with its partners and stakeholders, could use the designs and implementation options to guide a revitalization of the South Capital area and make it an even more attractive place to live, learn, work, and play.

01
Community Vision

Community Vision

As the capital of Nebraska, Lincoln has the potential to set an example in its programs, policies, and actions. The Greening America's Capitals project gave Lincoln the opportunity to bring together stakeholders and design experts to generate a new vision for how to make two neighborhoods in the South Capital area more walkable, vibrant, and connected. During the three-day workshop, the community first outlined its goals for the area, then discussed opportunities for improvement, and finally developed specific implementation strategies.

The three-day workshop included stakeholder meetings on key topics, open design sessions with the project team's landscape architects and designers, and public meetings. The project team also collected written feedback about participants' goals for the South Capital area and detailed information about the physical features, events, and city policies that work well or need improvement.

Through this process, the workshop participants, including city department directors and staff, local business and property owners, students, teachers, and members of the public established a vision for the future of this area.

THE VISION:

Build upon the rich identity of the South Capital area (Everett and Near South neighborhoods) by increasing safety; promoting history, art, and education; reinvesting in housing and small businesses; and improving the streets and sidewalks to have more environmental benefits.

The goals that emerged to support this vision are:

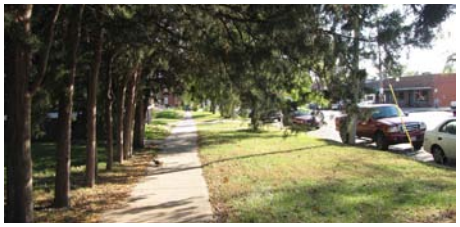
1. Ensure a safe and secure neighborhood.
2. Support neighborhood identity and diversity through improvements to the public realm.
3. Engage the South Capital community in the design process.
4. Design streets that support safe walking and biking.
5. Create new opportunities for reinvestment with area property owners.
6. Stimulate healthy choices through safer and more convenient walking environments, healthy food options, and environmentally friendly public projects.
7. Bolster community arts, culture, and education through partnerships and hands-on projects.













BEAUTY

HISTORY

OPPORTUNITY

Workshop participants examined four topic areas to focus in more depth on specific locations and issues:

SMALL BUSINESS OPPORTUNITIES, and commercial development priorities.

ENVIRONMENT AND SUSTAINABILITY, improved quality of life, greener streets, stormwater management, walkability, and urban agriculture.

HISTORY, ART, AND CULTURE and building on community interests.

SCHOOLS, environmental education opportunities, walkability, integrating education into the streetscape, sustainable practices (inside and outside of school), and the development of schoolyard ecosystems.

The workshop participants agreed that the South Capital area has some undeniable strengths, including ethnic diversity, public art, proximity to the University of Nebraska - Lincoln and downtown, established gardening programs, mature trees, a mix of land uses, a small but vibrant commercial hub, and wide streets that could be improved for walking and biking. Stakeholders also agreed on some specific challenges that need improvement, such as the general perception of safety, poor lighting, underrepresentation of the area's diverse population, undefined bike and pedestrian rights of way, alley stormwater management, streetscape maintenance programs, parking, and connectivity or consistency of streetscape along 11th Street, which is the central corridor for this area.

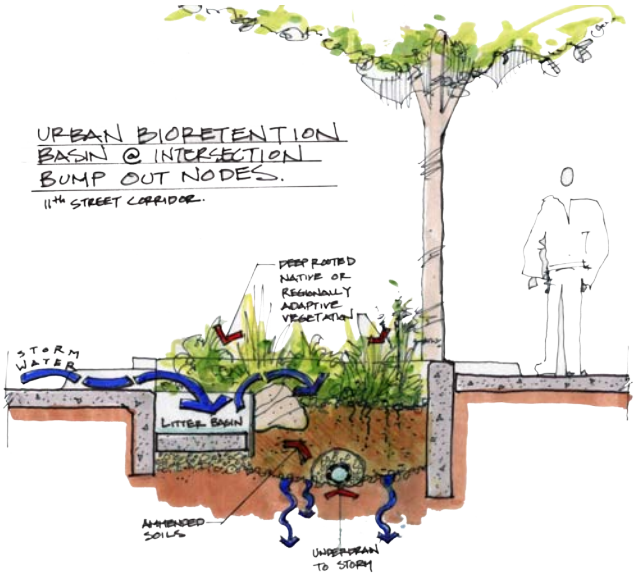


Figure 1 | This sketch of a green infrastructure solution was developed during the workshop to show how a bioswale planted with native plants can collect stormwater from the street and infiltrate it to the ground below.

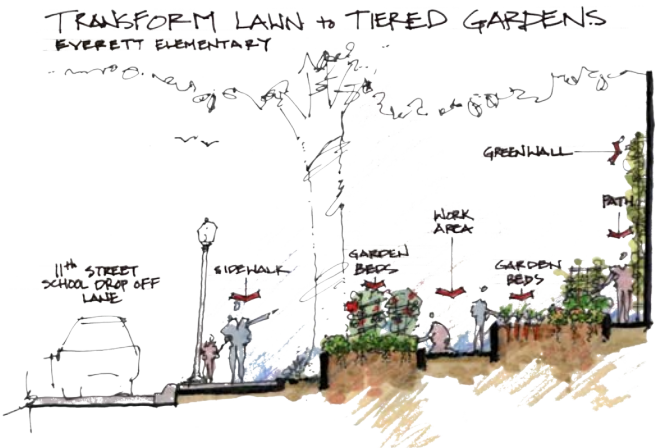


Figure 2 | This sketch of a tiered school garden was presented at the final stakeholder meeting to show how the lawn area at Everett Elementary could be transformed to improve gathering areas and create environmental education opportunities.

Figure 3 | This sketch of a commercial alley was presented at the final stakeholder meeting to highlight potential locations for voluntary backyard rain gardens and bioswales at corners to manage stormwater runoff from impervious surfaces.

Workshop participants created a list of strategies, physical improvements, partners, and policies that they felt would improve the South Capital area. This list includes feedback from participants about which improvements or issues would be most important for the project team to address:

- Lighting
- 11th Street traffic calming for pedestrian and bike safety
- Dedicated bike lanes and bike parking
- Improvements at Klein's Corner and south commercial node
- Children's play area
- Roundabout at 11th and D
- Stormwater bump-outs (rain gardens that extend from the curb into the street to slow traffic)
- Diagonal parking
- Signage – including history, wayfinding, environmental education, bilingual
- Mural in public space
- Recycling bins
- Sidewalk improvements – Americans with Disabilities Act (ADA) accessibility and pervious pavement

02
Site Analysis

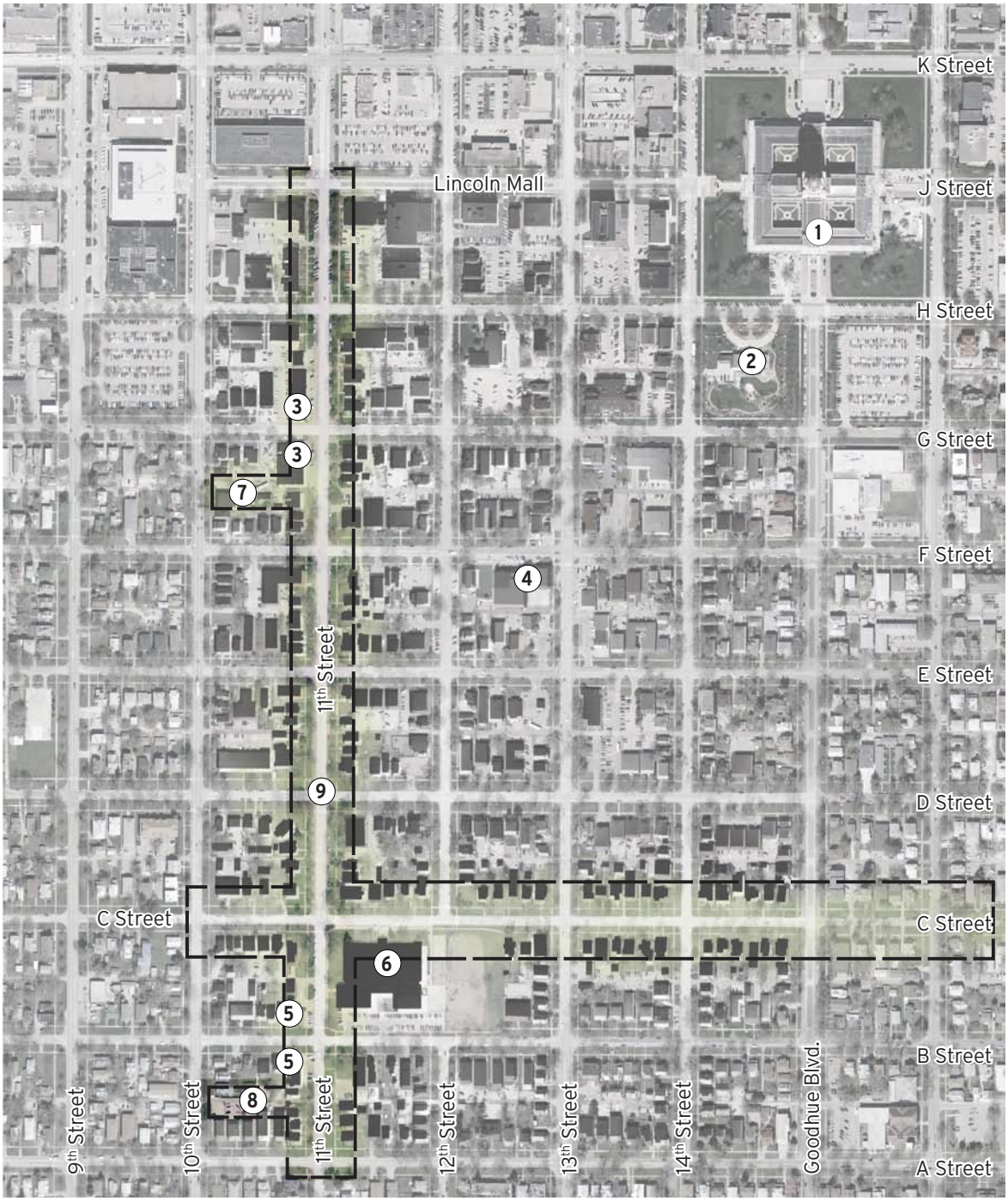


Figure 4 | PROJECT AREA

- Project Boundary
- (1) Nebraska State Capitol Building
- (2) Governor's Mansion
- (3) Klein's Corner commercial district
- (4) F Street Recreation Center
- (5) South commercial node
- (6) Everett Elementary School
- (7) Commercial alley
- (8) Residential alley
- (9) Location of historic roundabout

CONTEXT AND PROJECT AREA

The South Capital area encompasses two historic neighborhoods, Everett and Near South. The project team toured the neighborhoods with the manager and staff of the Community Development Division of Lincoln's Urban Development Department.

The housing stock and block structure of these turn-of-the-20th-century neighborhoods remain predominantly intact. Many residents are renters. The neighborhood includes a variety of cultures and ages, although the majority of residents are in their mid-20s and 30s, with many young families in the area.

The neighborhoods have a great deal of multifamily residences, most of which are small apartment buildings. The fairly high population density allows the neighborhoods to support small businesses, including a grocer and restaurants.

The project area includes two intersecting street corridors that run north-south from J Street to A Street and east-west from 10th Street to 16th Street. Many of the alleys in the neighborhood have poor drainage and are unwelcoming to pedestrians. Two alleys near 11th Street were selected for this project to improve aesthetics, walkability, and stormwater management in these otherwise unused areas of the South Capital area. The alley between G Street and F Street is a commercial alley near Klein's Corner, the busiest commercial district in the area. The alley between B Street and A Street is a residential alley. Enhancements to this alley could encourage residents to become involved in implementing green infrastructure solutions to improve stormwater management.

Top picture: single family residential in the South Capital area. Second from the top picture: Multi-family residential. Middle picture: commercial alley. Bottom two pictures: residential alley.

Top two pictures: Klein's Corner. Middle picture: south commercial district. Second to bottom picture: Everett Elementary main entrance off of C Street. Bottom picture: C Street adjacent to Everett Elementary.

The north commercial district, Klein's Corner, is the primary hub of economic activity in the area. The businesses are small and locally owned. The community is proud of Klein's Corner, an attractive and walkable two-block district with distinctive light fixtures and signs. It is a primary part of the area's identity and cultural diversity.

The south commercial node is not as vibrant as Klein's Corner. Workshop participants would like to see the physical character of this area on par with the Klein's Corner district to have an anchor at each end of 11th Street and create a walkable area.

The Everett School is an elementary school with on-site gardening programs for its young students. The workshop participants, which included teachers and students from the Everett School, suggested that new gardens or additional landscape elements would be welcome, but would require a maintenance plan so that the landscaping is more sustainable.

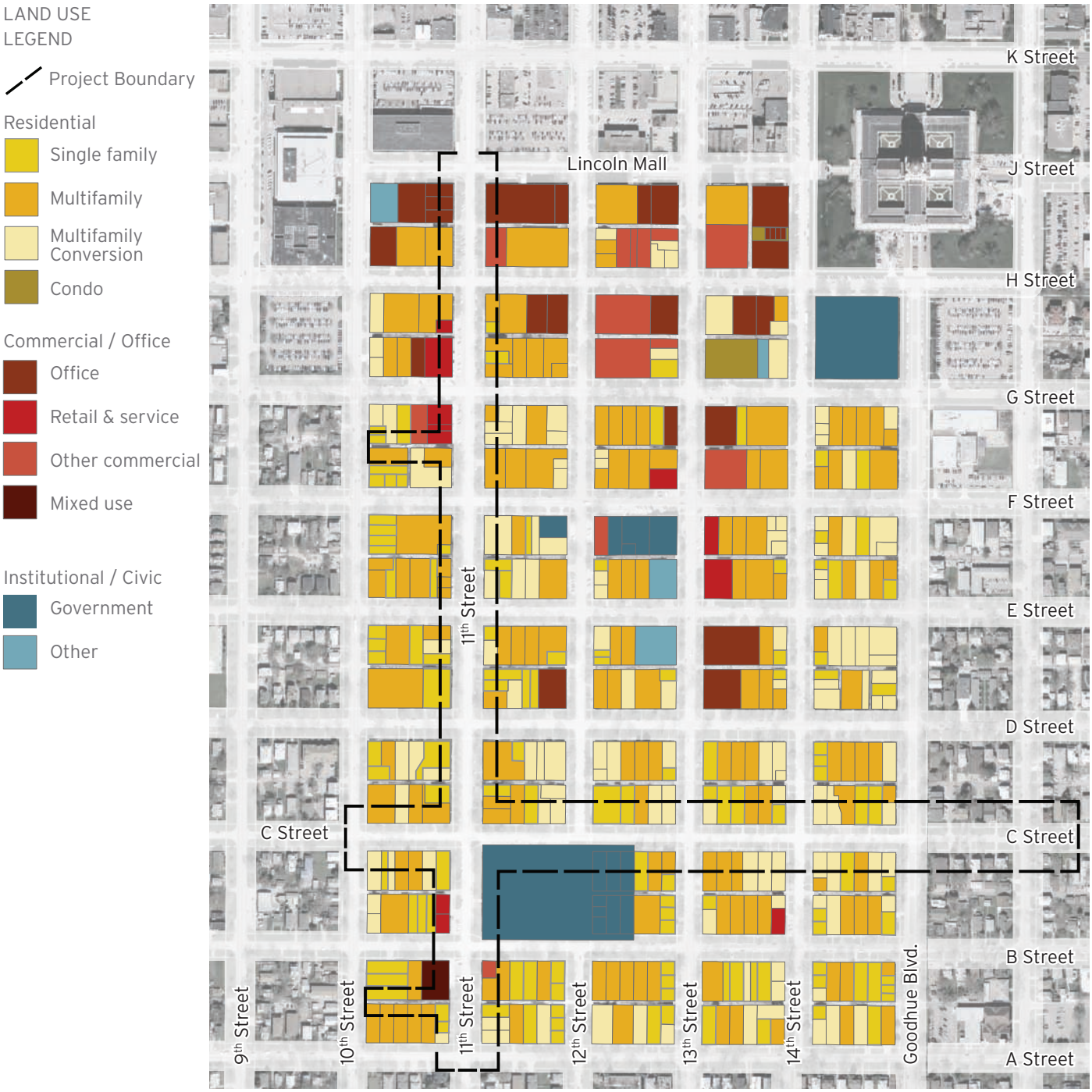


Figure 5 | LAND USE

The area has diverse building types and uses, which could indicate the variety of visitors, residents, and employees, including long-term property owners, short-term renters, shoppers, teachers, and students. Because the area includes people living near school or work, as well as experiencing visitors or commuters passing through the area, demand for various transportation options, including cars, public transit, bicycle, and walking, is likely.

Figure 6 | OCCUPANCY TYPE

This map shows that most residents in this area do not own their homes. Renters might be people who prefer not to or are not in a position to purchase a home. The area also has some university students. The non-owner-occupant majority also indicates that property owners might not be located in the area.

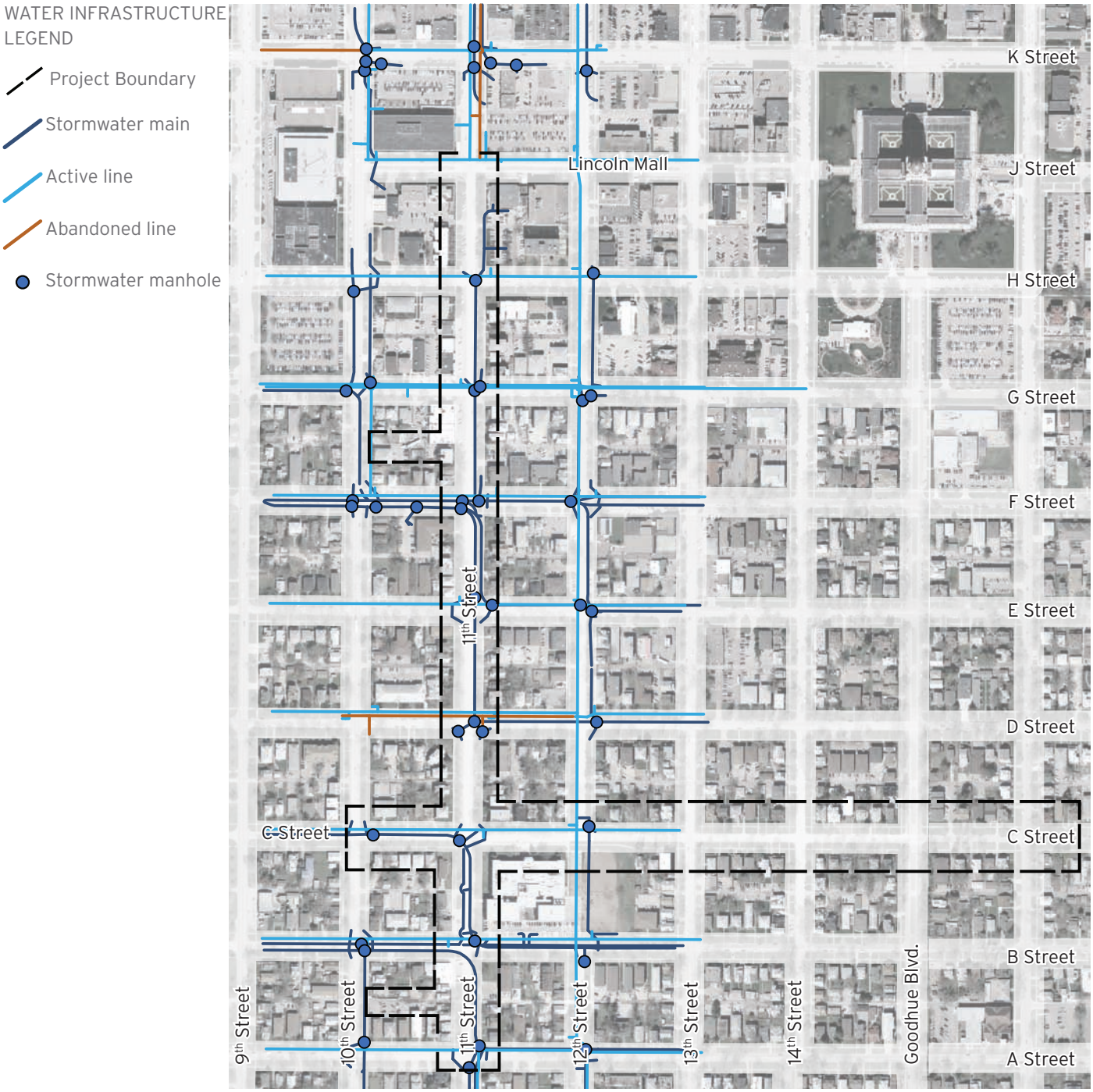


Figure 7 | WATER INFRASTRUCTURE

The infrastructure map does not indicate the quality and condition of existing infrastructure, but it could help the city estimate construction costs of potential design strategies.

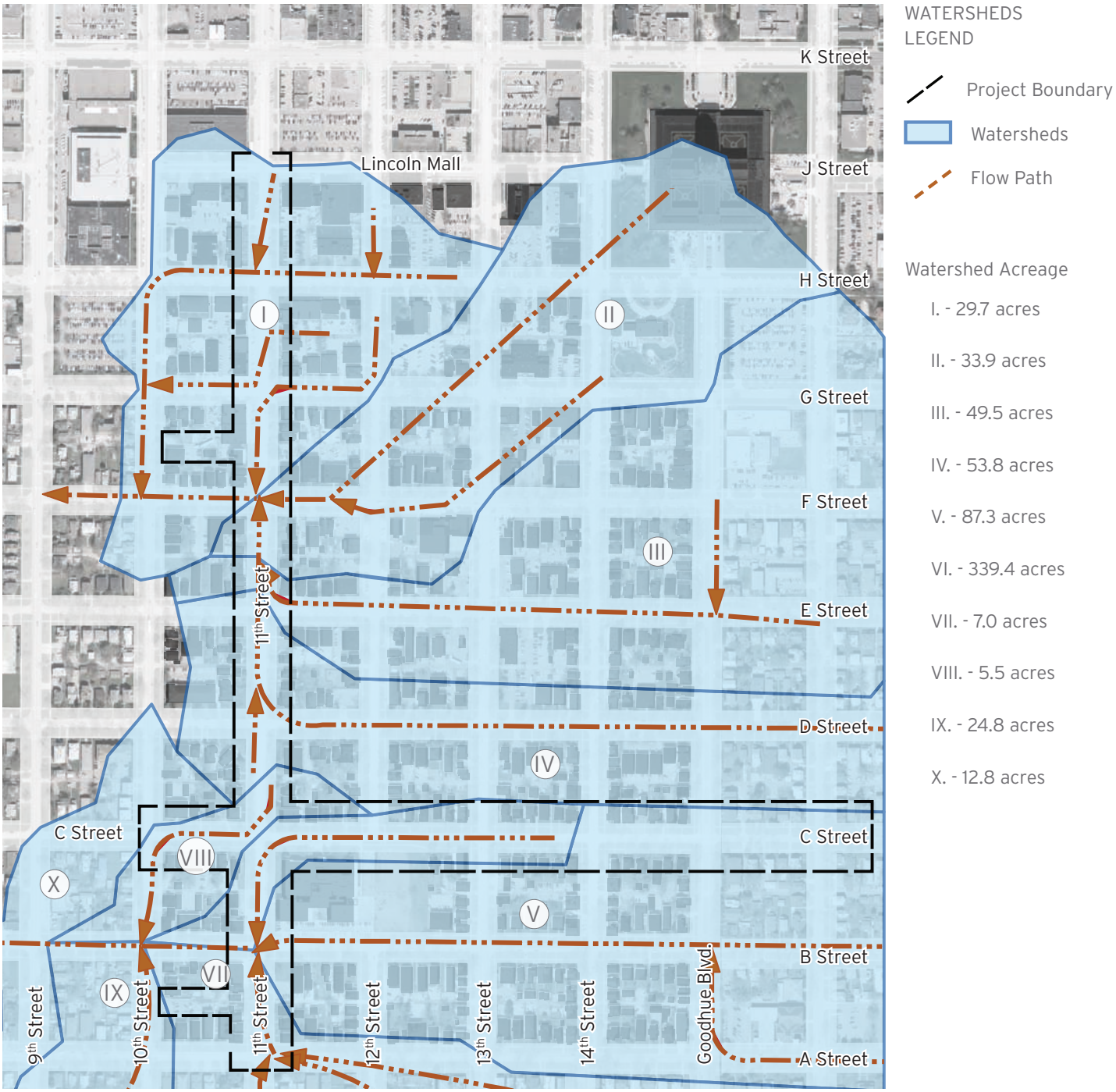


Figure 8 | WATERSHEDS

The South Capital area, particularly 11th Street, is at the bottom of several watersheds. A new community vision could provide an opportunity to better manage large amounts of stormwater with green infrastructure. This map also demonstrates the drainage paths and potential flooding areas during large storms.

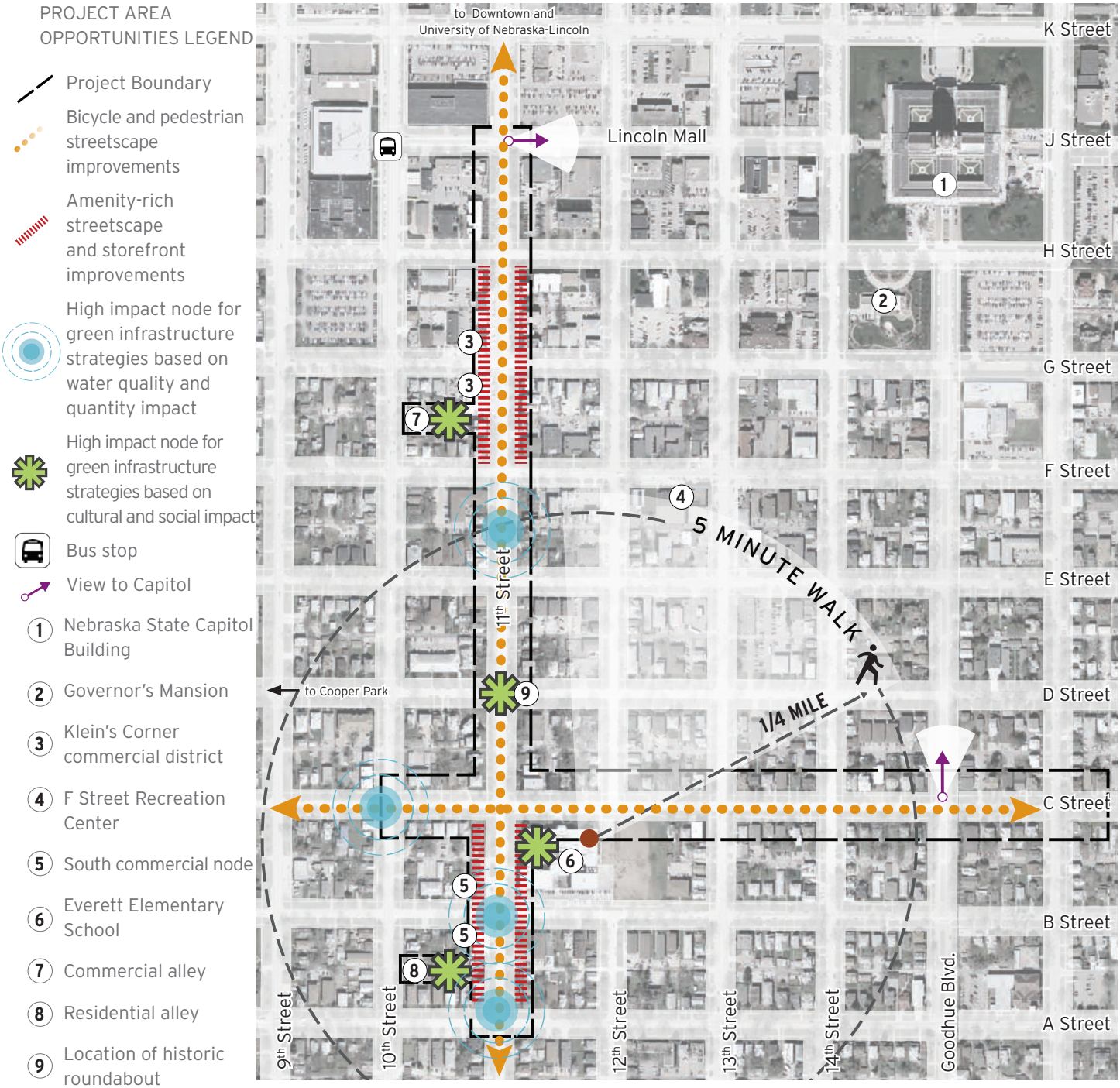


Figure 9 | PROJECT AREA OPPORTUNITIES

This map illustrates the opportunities that exist within the South Capital area to improve small businesses, environmental performance of public right-of-way, and school grounds, all while building on the area's strong history and culture. This overview analysis provides a context for the design strategies developed during the Greening America's Capitals workshop.

03 Design Options

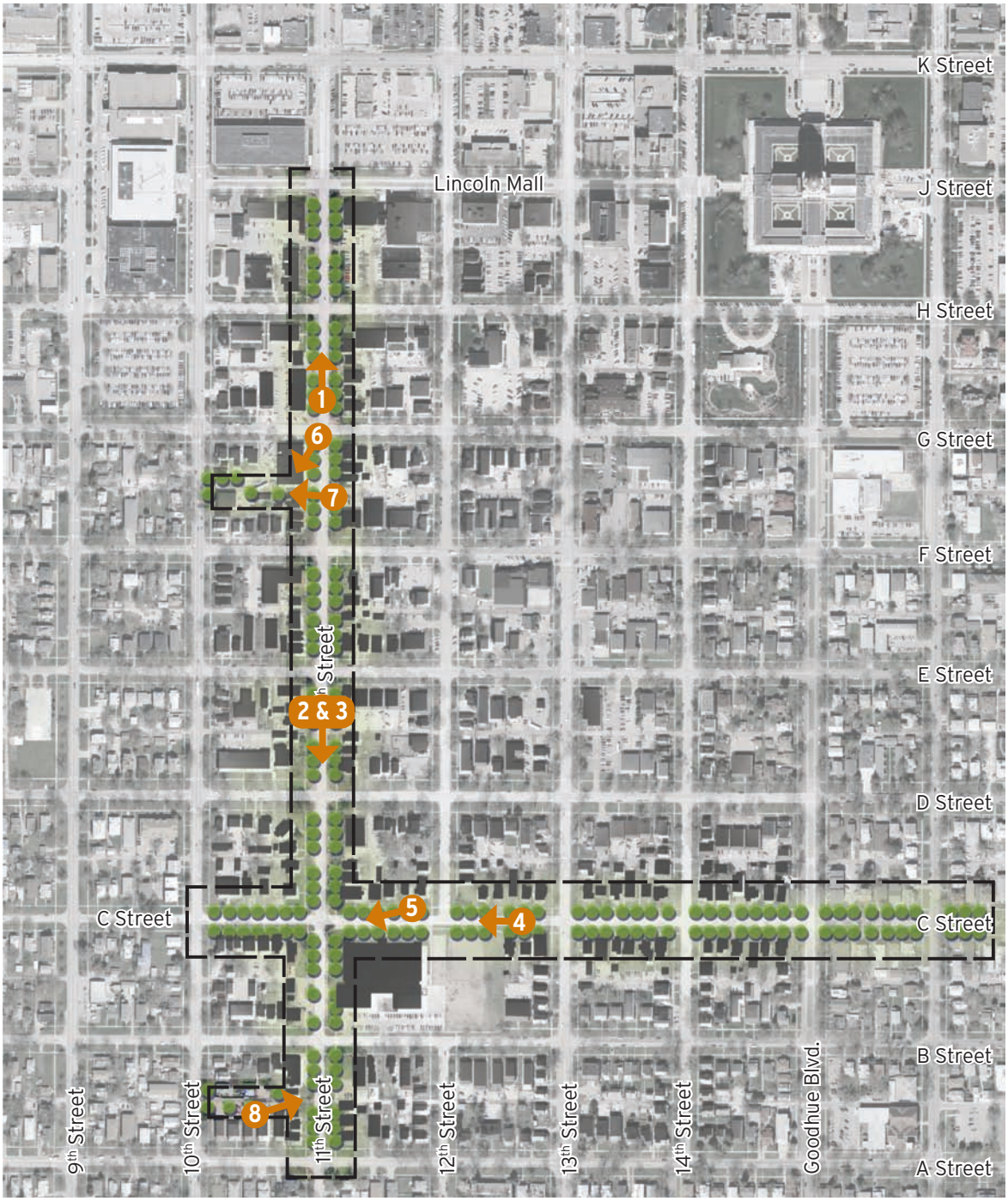


Figure 10 | Design Options for the South Capital Area

Numbers on this map identify the design options discussed in this section and their location in the project area.

As the input from the stakeholder meetings was combined with the site analysis, four primary categories emerged for design strategies:

1) Streetscapes

2) Schools

3) Commercial Areas

4) Alleys

The project team synthesized all the stakeholder feedback and site analysis information about the South Capital area and identified key locations to implement new design options. The following pages show options for overall strategies for the area and how key locations would look if these design options were applied. Each location has the potential to layer multiple strategies and meet all of the established community goals.

Some of the design strategies use terminology that requires some explanation for clarity of purpose. Following are a few definitions for terms that will be commonly used in describing the design strategies:

Complete street: a street and sidewalk design that includes all modes of transportation and gives priority to the most vulnerable modes, pedestrians and bicyclists through traffic calming and lane widths conducive to crossing and multimodal safety

Green infrastructure solutions: strategies which include capturing stormwater through native landscaping and beds that channel stormwater flow through a series of stages that slow and filter the water of impurities before it filters into the ground. These strategies allow much less stormwater to enter the storm drains or sewers and therefore reduce the strain on the city's water system

Permeable pavement: pavements including bricks and special permeable concretes that allow water to flow or soak through the material and into the ground or a retaining area rather than sheet flow over the top and into the stormdrains

Figure 11 | As a complete street example, this street in Madison, Wisconsin is designed for safe and enjoyable bicycle and pedestrian transportation.

Raingarden: an area of native plantings designed in such a way that stormwater flow is directed into the beds. The plants selected for these beds serve the function of cleaning the stormwater of pollutants as they slow the water and allow it to infiltrate into the ground.

Right-of-way: city owned roadway, curb and gutters

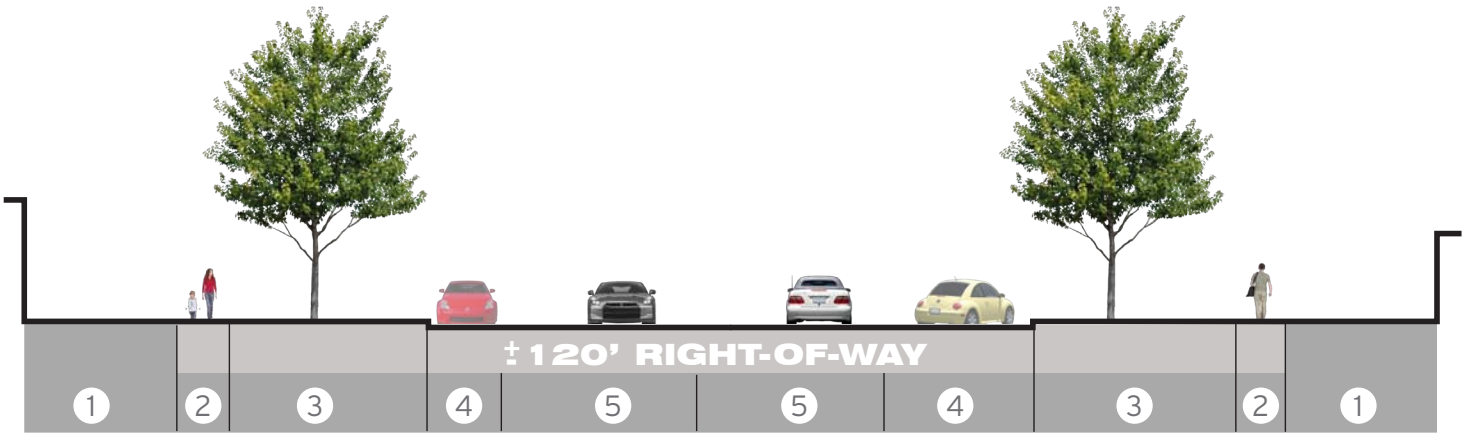
Sharrows: Painted designations on streets that require drivers to share the road with bicyclists but do not provide bike lanes

Figure 12 | These photos from Kansas City, MO (top) and Greensburg, KS (bottom) show how green infrastructure solutions can be incorporated into the amenity zone of the street right-of-way.

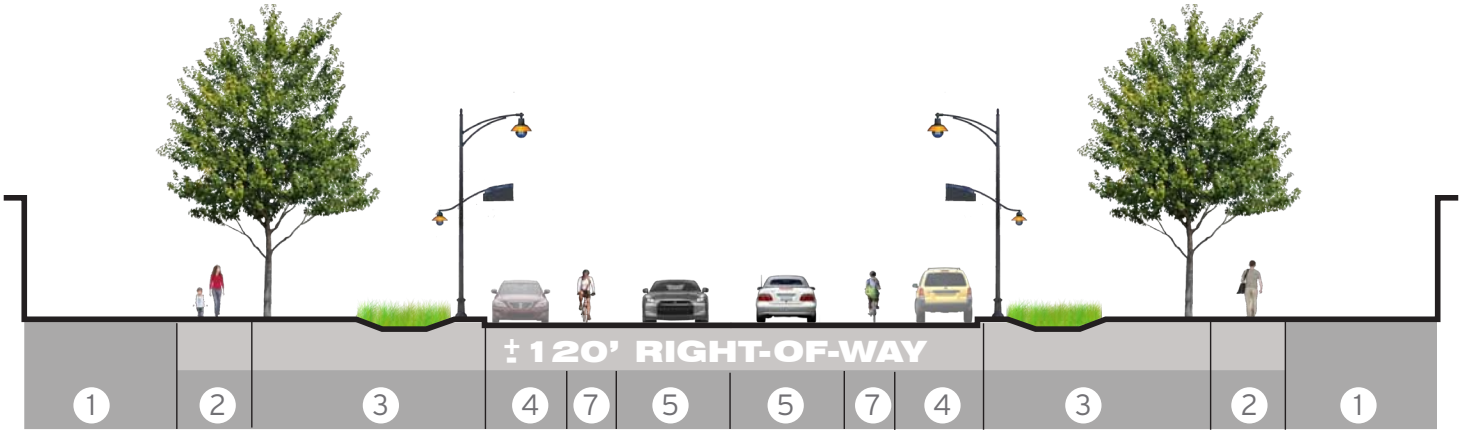
The sections (Figure 13) show overall design strategies for improving streetscapes. The examples show how the 120-foot right-of-way on 11th Street could integrate bicycle lanes, wide sidewalks, and amenity zones that include green infrastructure solutions for stormwater infiltration and improved water quality.

The typical existing section illustrates the scale and relationships of building height to street width on 11th Street. 11th Street is typically very wide and development along 11th street is relatively low density. The street usually includes parking on both sides of the street and although it only has two designated driving lanes, the lanes are wide enough for four lanes of traffic to fit within the existing two lanes. The existing street has sidewalks on both sides but no designated bicycle lanes.

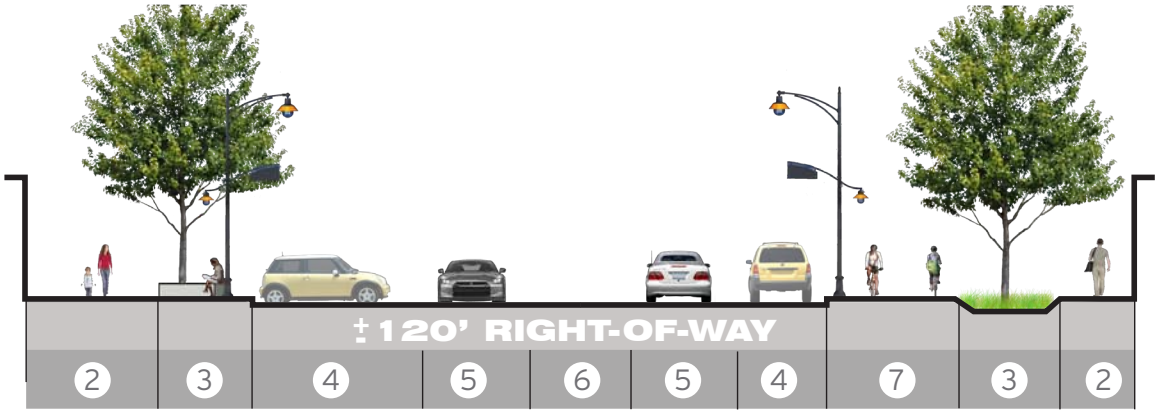
The design options relate to two primary street typologies on 11th street. Option A illustrates the more residential typology with a building setback that defines the wider street corridor. This option shows how a wide amenity zone, parking, on-street bicycle lanes, and two driving lanes could look. Option B illustrates the more urban typology where there is no building setback between the sidewalk and the building edge. This option shows how an amenity zone, parking, three driving lanes, and a protected bi-directional bicycle lane could look on 11th Street.



Typical Existing Section | 1. Building Setback 2. Sidewalk 3. Amenity zone 4. Parking 5. Driving lane



Design Option A | 1. Building Setback 2. Sidewalk 3. Amenity zone 4. Parking 5. Driving lane 7. Bicycle lane



Design Option B | 2. Sidewalk 3. Amenity zone 4. Parking 5. Driving lane 6. Turn lane 7. Bicycle lane

Figure 13 | Design Option Sections

1 | 11TH STREET

ASSETS

This view is looking north on 11th Street from a viewpoint halfway between G Street and F Street, and illustrates the wide right of way along 11th Street, which allows ample on-street parking. The businesses at Klein's Corner, along with historic lighting and mature trees, make the area inviting for people to shop and walk along this portion of 11th Street.

CHALLENGES

11th Street is a destination in the South Capital neighborhood, yet it lacks pedestrian, bicycle, and green infrastructure that could help maximize usability, comfort, and environmental benefits. The right of way is designed for cars only. A wide road encourages faster traffic, making it less safe for pedestrians and bicyclists. The large amount of impervious surface means that a high volume of stormwater runoff enters the storm sewers unfiltered. A lack of street lights at Klein's Corner makes the environment feel less safe at night.

OPPORTUNITIES

Narrower driving lanes will naturally calm traffic. The reorganized on-street parking includes back-in parking that makes it easier for drivers to see bicyclists when pulling out. Designated bike lanes alert drivers that bicyclists use the road. Neighborhood street banners add inviting visual cues and help define the history and culture of the area. Street lighting under the tree canopies could help illuminate the sidewalk and make the area safer for walking at night. Wider sidewalks, especially at corners, decrease the distance for pedestrians crossing the road. This new streetscape is also enhanced by rain gardens that slow and filter stormwater runoff.

2 | 11TH & D STREETS BUMP OUT

ASSETS

This view south on 11th Street shows the intersection at D Street. This wide right of way provides the space for several options to make this intersection and 11th Street more pedestrian-, bicycle-, and environmentally friendly without impinging on private property. Workshop participants were interested in opportunities to improve the existing intersection as well to see the potential for a roundabout option; two design options for this intersection are provided in the following pages.

CHALLENGES

As in the 11th Street example, the wide right-of-way is designed for cars and encourages faster traffic, making it unappealing to pedestrians and bicyclists. Because this is a residential area, traffic should be moving more slowly. The large amount of impervious surface sends a high volume of stormwater runoff into the storm sewer system unfiltered.

OPPORTUNITIES

Narrowing driving lanes by adding green infrastructure solutions at intersections and widening sidewalks naturally calms traffic while also reducing crossing distances for pedestrians. Two-way designated bike lanes, especially those that are painted a color, provide a distinct area for bike travel that is separate from driving lanes, which can improve the safety of bicyclists.

Similarly, bike boxes at intersections can help prevent bicycle/car collisions by making cyclists more visible to motorists by being in front of them. In addition to reducing the amount of impervious surface, this option could further reduce polluted runoff into the storm sewer by adding pervious pavement (shown in the foreground) to capture stormwater and filter out pollutants.

3 | 11TH & D STREETS ROUNDABOUT

ASSETS

Large canopy trees and short setbacks of beautiful historic buildings reflect the best aesthetic qualities of the South Capital area. This intersection is the location where 11th Street transitions from the activity at C Street to the more residential character of blocks to the north.

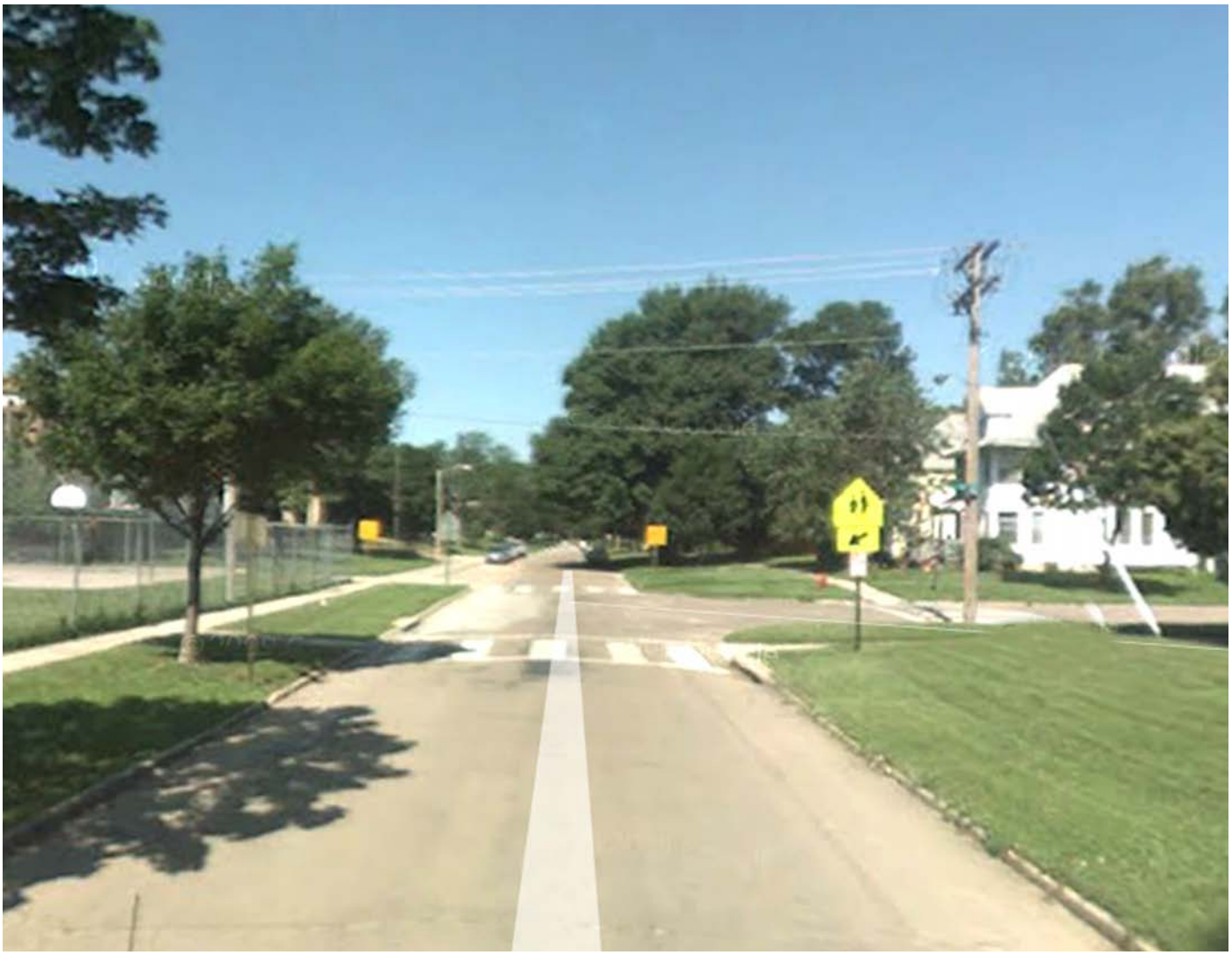
CHALLENGES

The wide streets, high speed of car travel, and residential nature of this portion of 11th Street often result in cars not fully stopping at the stop sign at this intersection.

OPPORTUNITIES

The redesigned roundabout hearkens back to the historic state of the 11th and J Street intersection that once included a roundabout with a fountain in the middle. The historic fountain is still in the city's possession and could be included in a future roundabout. The driving lanes are narrower and could include marked lanes, called sharrows, which would alert drivers that they must share the road with bicyclists. Deeper lawns are planted with rain gardens, as shown in the foreground. The crosswalks are pulled back from the roundabout to provide a safer crossing for pedestrians that will not interfere with cars merging in and out of the roundabout.

4 | C STREET



ASSETS

This view of C Street is looking west towards 11th Street. This residential street includes Everett Elementary, which is a major neighborhood asset. It also has several mature street trees and space between the curb and sidewalk for green infrastructure solutions. Crosswalks help school children safely walk to school. Driving lanes are sized to encourage appropriate speeds.

CHALLENGES

C Street has no bike lanes and no opportunities to filter stormwater runoff before it flows into Lincoln's storm sewers.

OPPORTUNITIES

Marked lanes, called sharrows, would alert drivers that they must share the road with bicyclists. The city could offer a voluntary rain garden program to encourage private property owners to install rain gardens in the space between the sidewalk and the street to reduce stormwater runoff and beautify the neighborhood. Art and signage programs conceived by the neighborhood associations and the school could stimulate creativity, neighborhood pride, and education in new ways.

5 | EVERETT ELEMENTARY SCHOOL

ASSETS

Everett Elementary is an important anchor and feature of the neighborhood. Schools attract and keep families in the neighborhood. These families buy goods and services, which helps the local economy, as well as a hum of daytime pedestrian activity around these grounds most seasons. Everett Elementary School has the environmental and aesthetic benefit of being surrounded by mature trees and having a wide sidewalk in front.

CHALLENGES

The school does not have a well-defined area for children to be dropped off in the morning. Polluted stormwater runoff puddles in the street and flows directly into the city's stormwater infrastructure, overtaxing the system and polluting streams.

OPPORTUNITIES

Creating an open area for students to congregate and sit alleviates the congestion at drop-off. Native plantings, with curb cuts that draw the stormwater to the plantings off of the road, not only beautify the area and alleviate strain on the city's stormwater infrastructure but can also educate students and neighborhood residents about the benefits natural stormwater treatment. Pedestrian improvements to the surrounding streets could increase the number of students who walk to school, which could further alleviate the congestion of cars at the beginning and end of the school day.

EVERETT ELEMENTARY SCHOOL PLAN

This plan view shows a combination of design options that could improve the grounds and streetscape in front of Everett Elementary. These design options could create a more functional gathering space in front of the school during pick up and drop off in the morning and afternoon, as well as improve stormwater management and provide opportunities for on-site environmental education.

1. Nature walk with learning stations and signs

2. Outdoor classroom with log benches and herb garden

3. Classroom garden that can change with school curriculum

4. Flow-through curb-cuts

5. Prairie restoration laboratory

6. Water quality testing post

7. Grape trellis gateway

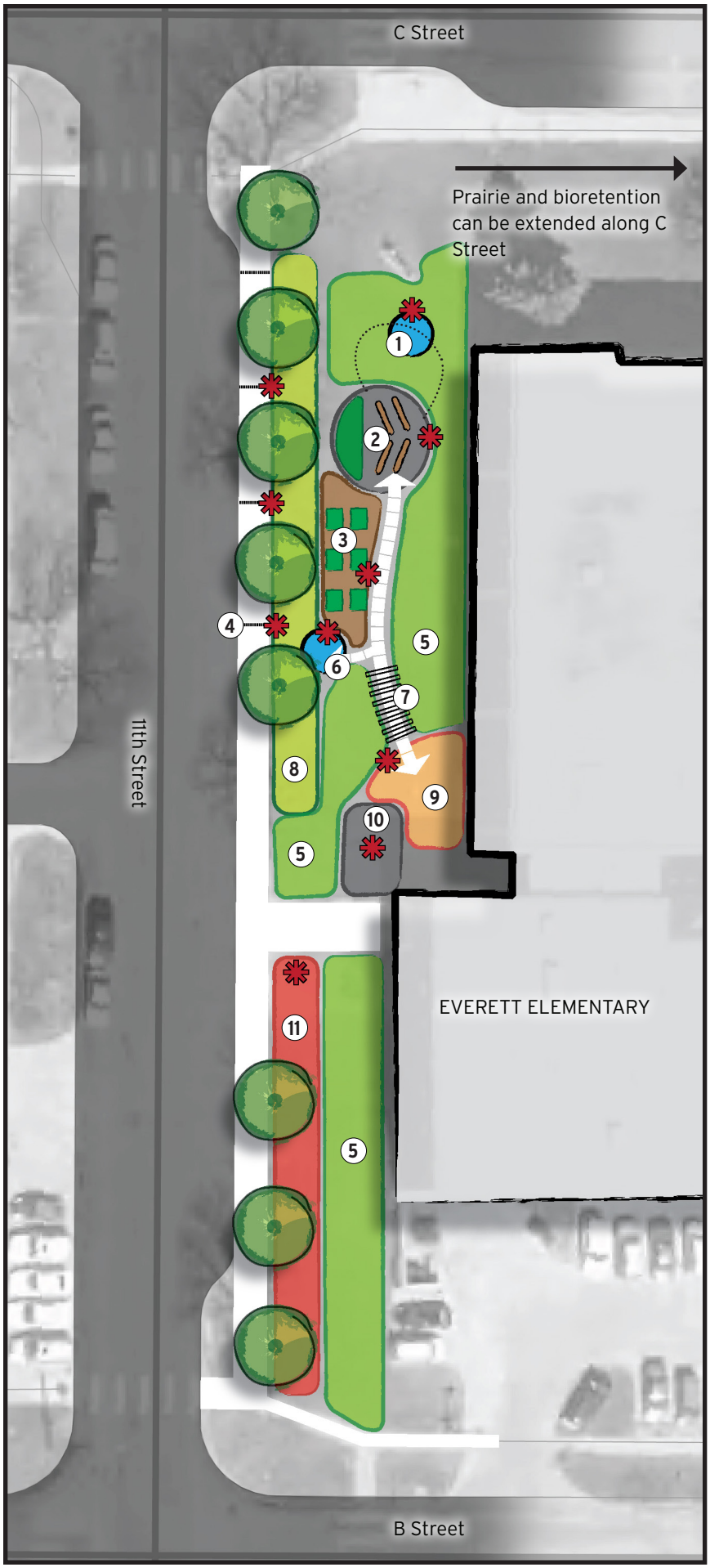
8. Curbside rain garden

9. Nature play area with logs and rocks to create activity zone next to patio

10. Patio space with benches and tables for students to use during pick up and drop off

11. Terrace agriculture garden

Potential art/interpretive learning piece



6 | NORTH COMMERCIAL DISTRICT

ASSETS

The thriving local businesses, on-street parking, and street lighting make the blocks at Klein's Corner lively and appealing. This view is looking south on 11th Street near the corner of G Street.

CHALLENGES

There are no bike racks along 11th Street. The area also lacks outdoor seating and trash or recycling receptacles. Stormwater runoff tends to collect quickly and puddle because there is very little landscaping to capture the water and filter the pollutants that flow off of the roads and sidewalk.

OPPORTUNITIES

Narrower driving lanes can help slow the speed of cars in front of Klein's Corner and will provide a safer environment for walking and bicycling. More efficient parking would allow wider sidewalks and would provide additional parking spots and increase access to businesses. The sidewalks could include outdoor seating that would encourage people to gather in front of these small businesses, local artists could design bicycle racks that would support community arts and highlight neighborhood identity, trash cans would hlep maintain a clean street and sidewalk, and bioswales (long, linear rain gardens) with educational signage would better manage stormwater. The city could use the design ideas for Klein's Corner to improve the streetscape in the south commercial node as well.

7 | COMMERCIAL ALLEY

ASSETS

This commercial alley is near the north end of the study area and part of the Klein's Corner pair of blocks. It offers off-street access for trucks delivering goods to the stores in the adjacent commercial building and is paved to accommodate heavy vehicles.

CHALLENGES

This alley, like all alleys in the area, suffers from poor drainage after storms. The alley has no lighting and does not get regular foot traffic, so pedestrians do not feel safe here, especially after dark.

OPPORTUNITIES

Small twinkle lights give a festival atmosphere and could make the alley an attractive place for temporary music and film events. Walking paths, bike racks, and benches would likely increase the number of people using the space, thereby making it safer for all. Permeable pavement along with rain gardens would capture and filter stormwater and use it where it falls to beautify the street.

8 | RESIDENTIAL ALLEY

ASSETS

This residential alley in the southern part of the South Capital area allows back-of-house access for trash collection and off-street parking, as well as a mid-block cut-through for pedestrians and bicyclists.

CHALLENGES

The alleys tend to have drainage problems in heavy storms. The compacted gravel paths are not well-lit and are not generally considered safe for pedestrians at night, even for residents who live off of the alleys.

OPPORTUNITIES

Downspouts could direct runoff from the roofs of nearby buildings to rain gardens along the alley, which will both beautify the space and help with stormwater drainage in alleys. Creating local art and gardening programs would display local talent, attract more people, and put these interstitial neighborhood spaces to good use. Using pavers to create pervious surfaces and differentiating walkways from parking areas would help keep the alleys safer and better inhabited day and night. These design options could be applied to residential alleys throughout the neighborhood.

04

Next Steps

Next Steps

A clearly defined plan and set of actions are crucial to maintain momentum and community ownership of the revitalization of the South Capital area. This phased approach to implementing the design options for the South Capital area consists of near-, mid-, and long-term actions. Each phase includes programs, outreach, and implementation projects. This three-phase approach helps to progressively increase capacity and commitment while also showing the physical indicators of development that inspire confidence and satisfaction in the community. The ultimate goal is to achieve the vision of the community—a walkable, economically vibrant, and environmentally healthy corridor supported by community values and a sense of ownership.

The workshop participants discussed a number of possible partnerships with public and private organizations who are already involved in the neighborhoods to help implement next steps. Physical improvements, such as new tree planting or school gardens, could be aided by local groups such as NeighborWorks®Lincoln, F Street Community Center, Community Crops, the School Neighborhood Advisory Committee, Urban Prairie, Young Growers, and Cleaner Greener Lincoln. The local Bike Kitchen and the Public Works Department's Safe Routes to Schools program could help support the creation of new bike lanes and bike parking to improve bicycling in the area. Public art and signs with historic information or environmental education could be designed with help from University of Nebraska-Lincoln students, local Community Learning Centers, the Arts Council, and Lincoln High School Arts and Humanities. Ongoing support from city departments, the state government, and potential federal funding, will also be integral to ensuring implementation of the vision for the South Capital area.

Near Term

Workshop participants noted that the community needs to see physical changes in the area to know that a long-term investment is underway. The city would need to coordinate how pilot projects at key intersections or on specific blocks could eventually link into larger investments along the entire corridor. In addition, the workshop provided a clear example of the community engagement and commitment to the South Capital area, which provides a great opportunity to establish volunteer programs with local residents, business owners, community groups, and the school to help implement and manage improvements. Some near-term projects could include:

(1) Painted sharrows along the 11th Street corridor from A to G Streets and along C Street from 10th Street to Goodhue Boulevard to identify existing and future bicycle lanes.

(2) Tall canopy tree planting within the right of way along the 11th Street corridor to establish successive generation of tree canopy.

(3) Policy to reduce the maximum parking spaces required, with continued reductions in maximums as each block along 11th Street transforms.

(4) Transformation of Klein's Corner with green infrastructure solutions for managing stormwater and complete street solutions that give priority to the most vulnerable transportation modes, pedestrians and bicyclists, through traffic calming and lane widths conducive to crossing and multimodal safety. (includes intersection of 11th and G, along 11th Street to F Street, and the east half of the west alley).

(5) Addition of street lights along the 11th Street corridor from A to G Streets that provide light to sidewalks, not just the street.

(6) Branding campaign and signs to highlight the corridor's history and identity.

(7) City zoning ordinance revisions to allow native vegetation and ensure proper maintenance.

(8) Development of community events and activities:

(a) Walking tours.

(b) Neighborhood volunteer events.

(c) Block party or annual public celebration at Klein's Corner.

(d) Art in Alleys Program.

(e) Recycling program.

(f) The creation of neighborhood "Green Teams" to lead ongoing initiatives and work towards neighborhood-supported operations and maintenance of improvements.

(g) Incentives for rain gardens on private properties could be coordinated with the city's existing rain garden program and commitment to right-of-way green infrastructure solutions to encourage private investments.

(h) Community-organized neighborhood gardens and school gardens.

(i) Expand the city's existing educational workshops on rain gardens, native vegetation, and community gardening to focus on the South Capital area.

This first phase allows the city to get started on larger projects that will build towards the total vision for the South Capital area with relatively inexpensive projects like painting sharrows on roads and planting trees. A larger investment at Klein's Corner could demonstrate a complete green street.

These near-term actions could add amenities to the entire corridor, such as improved lighting to improve people's sense of safety when walking at night and a branding and signage campaign to reflect the identity of the area. Community events and programs could build momentum and support for mid-term projects.

VOLUNTEER ORGANIZATION CASE STUDY: 18BROADWAY

18Broadway is a large community garden in the heart of Kansas City, Missouri. Built in the summer of 2010, 18Broadway is a flagship of community stewardship featuring rain gardens, renewable energy, water reuse, and urban agriculture. Currently, the site is primarily an agricultural garden, which produces more than two tons of produce that is donated to a local food bank.

The site is owned and managed by a private company, DST Realty, and most of the volunteers who work the gardens are DST employees. In addition, DST has an employee who manages all the agricultural and volunteer aspects.

The garden is divided into many small 4 foot by 12 foot raised planters. Each of these planters is managed by a small group of three to four volunteers, who are responsible for planting, weeding, watering, and harvesting the produce. These volunteers are managed by the DST garden manager, who tells the volunteers when to plant, what to plant, and when to harvest. The garden manager is also in charge of quality control, making sure the volunteers adequately maintain and water the planters, and managing any uses of fertilizers, herbicides, or pesticides.

This community garden is successful largely because of the leadership provided by the garden manager. Without this position, the volunteer efforts would not be successful in creating the community benefits that 18Broadway provides.

Figure 14 | 18Broadway showcases best practices for water, food, shelter, and energy. These images highlight the gardens that are maintained and harvested by volunteers. Much of the produce is delivered to Harvesters Community Food Network of Kansas City.

Mid-Term

This phase of programs, outreach, and projects would build upon any complete streets and green infrastructure solutions the city chooses to implement, as well as community engagement programs initiated in the near-term phase.

(1) Improve the intersection of 11th and B Streets with green infrastructure and complete street solutions, and extend north to 11th and C Streets.

(2) Enhance the public right of way at the south end commercial area and provide a bookend to complement Klein's Corner improvements.

(3) Construct bump-outs and intersection improvements at 11th and D Streets.

(4) Construct initial curbside green infrastructure solutions along blocks immediately north and south of the intersection at 11th and D Street.

(5) Add protected bike lanes along 11th Street.

(6) Build on near-term community activities and events, such as expanded walking tours and recycling program or additional community and school gardens.

(7) Assess success and lessons learned in near-term programs. Revise or discontinue any unsuccessful programs.

The goals of the mid-term phase are to replicate the initial complete street profile throughout the 11th Street and C Street corridors and set the stage for long-term actions that could fully transform the area. The mid-term projects could further improve stormwater management in the area by introducing additional green infrastructure solutions. These projects could further engage community members and property owners through education programs and incentives to encourage using green infrastructure practices, including rain barrels, rain gardens, and green roofs, on private property.

NOT-FOR-PROFIT JOB TRAINING CASE STUDY: DISCOVERY CENTER/ GREENWORKS

The Discovery Center is an Urban Learning Center run by the Missouri Department of Conservation. The Discovery Center includes classrooms and event spaces, along with 6 acres of revitalized native landscapes that represent several native Missouri habitats. The 6 acres of landscape is managed by only one full-time employee. However, the Discovery Center connected with a Kansas City nonprofit called Green Works to engage young people in maintaining the site and learning job skills. Through science-based experiential learning and paid internships, Green Works engages young adults to care for the environment, begin moving up meaningful career ladders, gain skills that help them become productive employees, and provide direct community benefits by improving the urban environment.

The benefits of this program are that students have an opportunity for gainful employment and exposure to local businesses, and The Discovery Center is able to maintain the gardens without having to increase their maintenance budgets.

Long-Term

The projects and policies in the long-term phase would complete the implementation of the design options defined by stakeholders during the Greening America's Capitals project. The steps in this phase could require greater investment and further planning between the city and neighborhood stakeholders, and build on projects from the earlier phases.

(1) Continued transformation of the complete street with improvements like bike lanes, bump-outs, and improved lighting added to the remaining blocks that have not yet had green infrastructure practices added.

(2) Stormwater management enhancements to alleys, including pervious paving, rain barrels, cisterns, and rain gardens.

(3) Green infrastructure practices added to achieve 100 percent retention or filtration of stormwater runoff along 11th and C Streets within the study area.

GREEN INFRASTRUCTURE MAINTENANCE: LENEXA'S GREENTEAM

Lenexa, Kansas, is one of the Kansas City region's leaders in the development and implementation of green infrastructure solutions for managing stormwater. The city's programs have significantly increased the amount of rain gardens and other stormwater features on city property. Because the majority of the green infrastructure solutions used native and adapted plants, the city found that its maintenance crews were understaffed and did not have the specific botanical and landscape maintenance skills to manage the facilities. As a result, the city created a maintenance crew devoted to installing and managing green infrastructure solutions. This crew has native landscape and horticultural expertise, which is distinct from any other maintenance crew the city operates. The crew's only responsibility is the management and maintenance of green infrastructure solutions and it has the necessary resources and priority to maintain these landscapes.

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