



GREENING AMERICA'S CAPITALS

LITTLE ROCK, ARKANSAS



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ACKNOWLEDGEMENTS

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George Whittenberg, Property Owner
Page Wilson, Paul Page Dwellings
Odies Wilson III, Intergovernmental Relations Manager, Brownfield Coordinator, and Pulaski County
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I. EXECUTIVE SUMMARY

The City of Little Rock was selected as one of five pilot projects for a new technical assistance program, called Greening America's Capitals, to help state capital cities design more sustainable communities.

Greening America's Capitals will help state capitals develop a vision of distinctive, environmentally friendly neighborhoods that incorporate innovative green building and green infrastructure and create sustainability models for other cities. The assistance is a new project of the Partnership for Sustainable Communities between EPA, the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department of Transportation (DOT).

The Little Rock study area encompasses the downtown Main Street corridor which runs north-south and forms an important connection with the River Market District. The primary area of focus is limited to Main Street and sites along the street. This important corridor has the potential to build off the redevelopment that has occurred through waterfront and neighborhood revitalization in the River Market District, which perpendicularly intersects the northern end of Main Street. A proposed trolley line would run along Main Street to 17th Street and effectively connect the vibrant River Market District to southern neighborhoods (the SOMA district).

Main Street has many redevelopment opportunities and underutilized or vacant buildings and parking lots. This study assessed which sites are most feasible for stormwater enhanced streetscapes and civic places to support the transition of Main Street back into a thriving mixed use neighborhood with sustainable infrastructure and a strong sense of place.

The Greening America's Capitals: Little Rock strategies include aesthetic and environmentally sound approaches to creating a strong sense of place, such as street and public space design using innovative stormwater practices (including raingardens, green roofs, porous parking and alley treatments). This visually focused report illustrates beautiful streetscapes and public spaces that also address the community's environmental concerns and help revitalize neighborhoods, spurring additional economic and social benefits.

Consultants Nelson Byrd Woltz Landscape Architects worked closely with the City of Little Rock staff and the EPA to assess the existing conditions along Main Street, ascertain important initiatives already imagined or underway, and propose a set of design strategies that address the linked environmental and economic objectives of the City. The design and consultation process included a 3-day on-site workshop with City staff members, the EPA, and a variety of interested stakeholders.

The resulting design proposals address the length of Main Street from the Convention Center to 17th Street, and focus on three vital nodes where stormwater infrastructure can be integrated with ongoing private and City initiatives to promote catalytic change along the entire streetscape. Little Rock: Greening America's Capital depicts a sustainable civic vision for the Main Street corridor, one that can be used to develop additional policy, funding and development activity in this vibrant capital city.



II. THE WORKSHOP

The three-day charrette conducted from April 13th-15th, 2011 began with an introduction to the City by Mayor Mark Stodola and to the Greening America's Capitals program by the EPA. NBWLA presented analytical and design work done prior to the workshop. Participants were then grounded in the City's ongoing initiatives through a trolley tour of Main Street and adjacent sites, including the Clinton Library and Bill Clark Wetlands project.

A collaborative, interactive dialogue was created in five focus sessions that addressed specific topics: stormwater, underutilized buildings and lots, human-scaled streets, local design initiatives, and funding and implementation resources. [See Schedule on following page for more details]. The City and stakeholder participation was exciting, visionary and informative.

The charrette concluded with NBWLA and the EPA presenting a summary of the design team's ideas and visions as shaped by the meetings and participation process. After the charrette NBWLA developed the final visually focused report for the EPA and City of Little Rock, based on the critical insights and ideas developed in the workshop.



FINAL CHARRETTE SCHEDULE

WEDNESDAY, APRIL 13

MEET and GREET (8:00-8:15)

INTRODUCTION (8:15-8:45) – Intro by Mayor Mark Stodola and Abby Hall/Clark Wilson of the EPA

- Greening America's Capitals
 - Program introduction and goals, Little Rock's selection as a pilot city, Clarify intent and expectations
- Welcome
 - Introduction of Team Members and Stakeholders
 - Greening America's Capitals goals, building on the Mayors' Institute on City Design completed in 2009
- Charrette Overview
 - Schedule and Process

OVERVIEW of PRELIMINARY DESIGN IDEAS AND DISCUSSION POINTS (8:45-9:15) – PPT by NBWLA

- Main Street Study Area
 - Site analysis-- Maps/photographs of existing conditions and site analysis
 - Review of preliminary ideas – G.R.E.E.N.ing Main Street

OPEN DISCUSSION AND Q&A (9:15-10:00)

TROLLEY TOUR (10:15-11:30)

- Trolley tour - led by Caran Curry and Mayor Mark Stodola; Main Street to review preliminary design ideas, brain storm and discuss issues.

LUNCH @ THE HEIFER PROJECT (11:30-12:30)

CLINTON LIBRARY/WETLAND/RIVERFRONT PARK TOUR (12:30-2:30)

- Clinton Library – led by Debbie Shock, Director of Ops and facilities, Clinton Presidential Center
- Bill Clark Wetlands and Riverfront Park – led by Mark Webre

BREAK (2:30-2:45)

FOCUS SESSION I - STORMWATER (2:45-4:15)

Stormwater management as civic amenity, educational opportunity, and aesthetic asset

- **CONTEXT, ANALYSIS AND PROPOSALS**
 - Detailed review Hydrologic Site Analysis; Topographic analysis, Regional picture, History
 - Brief description of Little Rock's stormwater/wastewater network maps
 - Green Infrastructure Precedents
- **SKETCH SESSION AND DISCUSSION**
 - Little Rock infrastructure opportunities: Discussion of green roofs, rain gardens, drainage swales and stormwater daylighting; what can happen at the end of Main where the storm daylight to the river from main street?

CORE TEAM MEETING and SKETCH SESSION (4:30-6:30)

THURSDAY, APRIL 14

FOCUS SESSION II- RE-USE: VACANT AND UNDERUTILIZED BLDGS AND SURFACE PKG LOTS (8:15-10:00)

What are the most strategic design proposals that infill Little Rock's urban fabric and balance mixed-use urban infill development with parking needs?

- **CONTEXT, ANALYSIS AND PROPOSALS**
 - Review of site opportunities and constraints
 - Presentation of potential strategies; Boutique restaurant/retail, community gardens, arts district
- **SKETCH SESSION AND DISCUSSION** (POSSIBLE SITE WALK ON MAIN TO TEST IDEAS)

BREAK (10:00-10:15)

FOCUS SESSION III - HUMAN-SCALED STREETS; NEIGHBORHOOD CONNECTIONS (10:15-12:00)

How do we get people on the streets and create a lively pedestrian culture down the entire corridor? What is the feasibility of narrowing/eliminating parking lanes on Main Street to accommodate bicycles, green infrastructure, pedestrian amenities? Trolley route?

- **CONTEXT, ANALYSIS AND PROPOSALS**
 - Zoning and DOD design standards on project site (City of Little Rock)
 - Review of site opportunities and constraints
 - Presentation of potential strategies
- **SKETCH SESSION AND DISCUSSION**

LUNCH BREAK (12:00-1:00)

FOCUS SESSION IV - BRINGING DESIGN TO MAIN STREET (1:00-2:45)

Connecting with local design professionals in Little Rock bring their expertise and influence to Main Street

- **CONTEXT, ANALYSIS AND PROPOSALS**
 - Review of design ideas including stormwater, re-use, and streets (sessions I, II and III)
- **SKETCH SESSION AND DISCUSSION**

CORE TEAM MEETING and SKETCH SESSION (3:00-6:00)

FRIDAY, APRIL 15

FOCUS SESSION V - GOVERNMENT RESOURCES, PRIVATE/PUBLIC PARTNERSHIPS, IMPLEMENTATION AND FUNDING (8:15-10:00)

What are the possible means of implementing short-term or long-term design interventions? What design implementations can the City do to provide the most robust framework for successful development?

MODERATED BY THE EPA

- Funding mechanisms and legislative hurdles
- Environmental hurdles (subgrade condition, contamination, infiltration capacity)
- Incentives for private property proposals
- Private –public partnerships
- Street amenities and green infrastructure to spur private development

CORE TEAM MEETING AND DEBRIEF; PREP FOR WRAP-UP (10:00-12:30)

DESIGN PRESENTATION AND WRAP-UP SESSION (12:30-2:00) – 30 minute PPT by NBWLA followed by Open Discussion

- Presentation of main ideas
- Discussion of prioritizing and implementation
- Discussion of public involvement, next steps
- Design team given feedback to further specific design proposals for phase 3

3



Design team on Clinton Library tour led by Debbie Shock.



Warren T. Byrd of NBWLA on Clinton Library Roof Garden.



Design team on Clinton Library Roof Garden.



Plan diagrams generated by NBWLA at 3 day workshop.

Workshop Proceedings
Greening America's Capitals: Little Rock

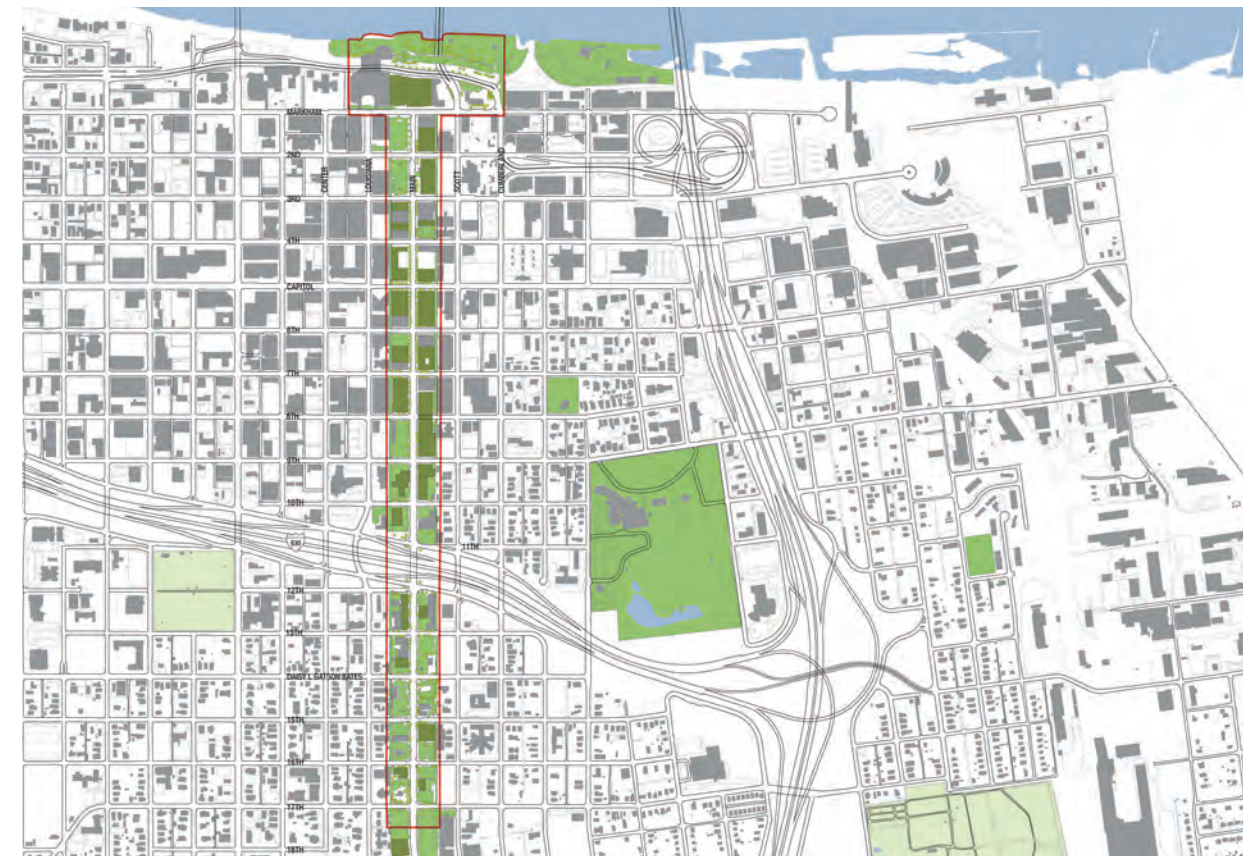


III. SITE ANALYSIS

Nelson Byrd Woltz analyzed the existing conditions along the Main Street corridor. These conditions included:

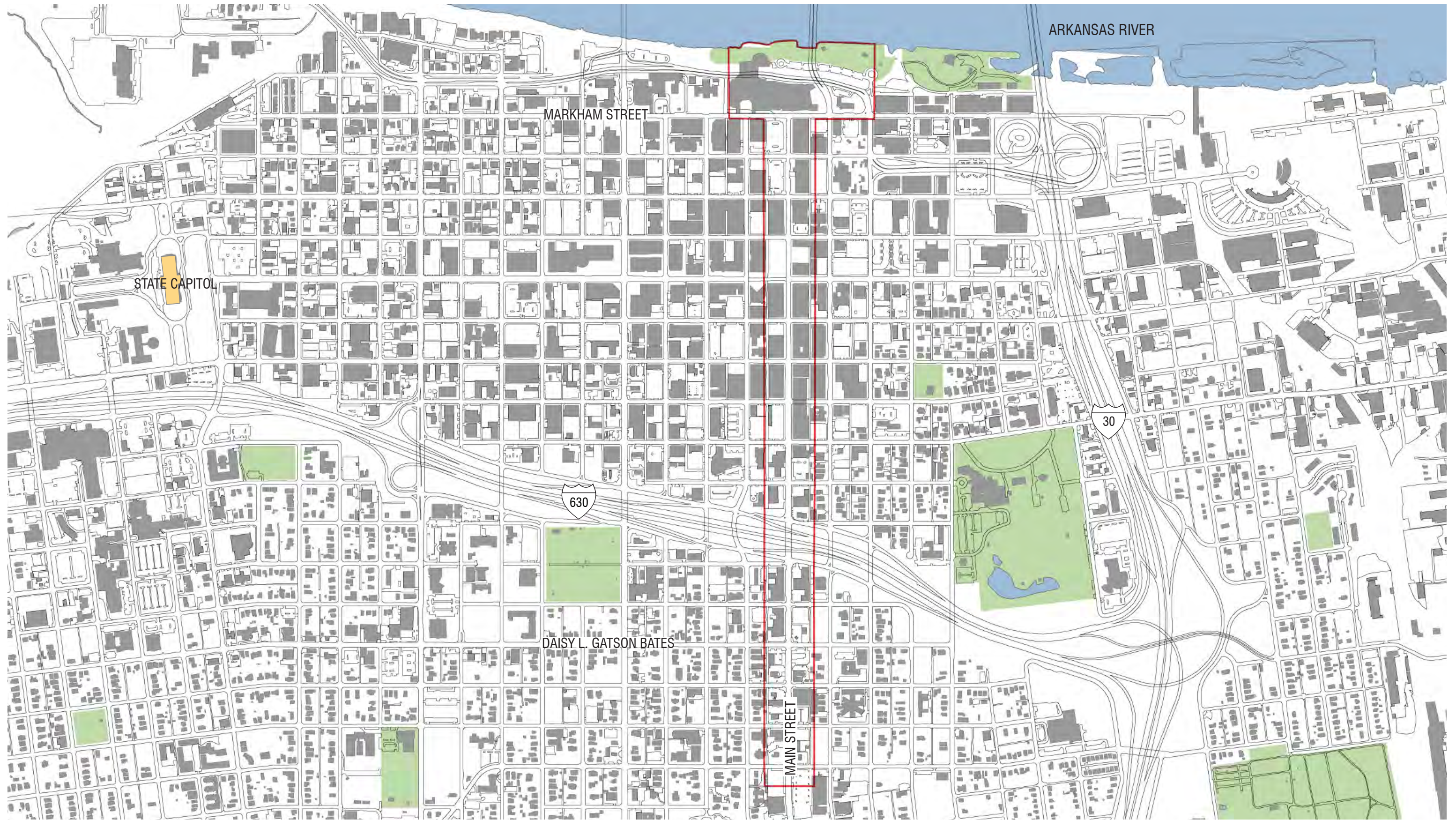
- Location of museums, major businesses and arts/entertainment establishments
- Pedestrian and automobile circulation
- Historic and existing topography, hydrology and stormwater flows
- Existing pervious and impervious surfaces

Documenting the existing built environment, current usage patterns and the flow of water through the downtown created a shared understanding between City staff and the design team about the current status of Main Street.



SITE ANALYSIS

DIAGRAMS



ARKANSAS RIVER

MARKHAM STREET

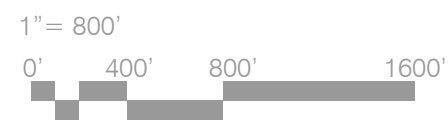
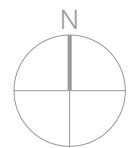
STATE CAPITOL

630

30

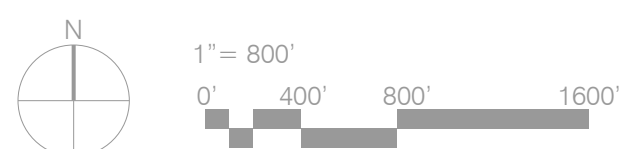
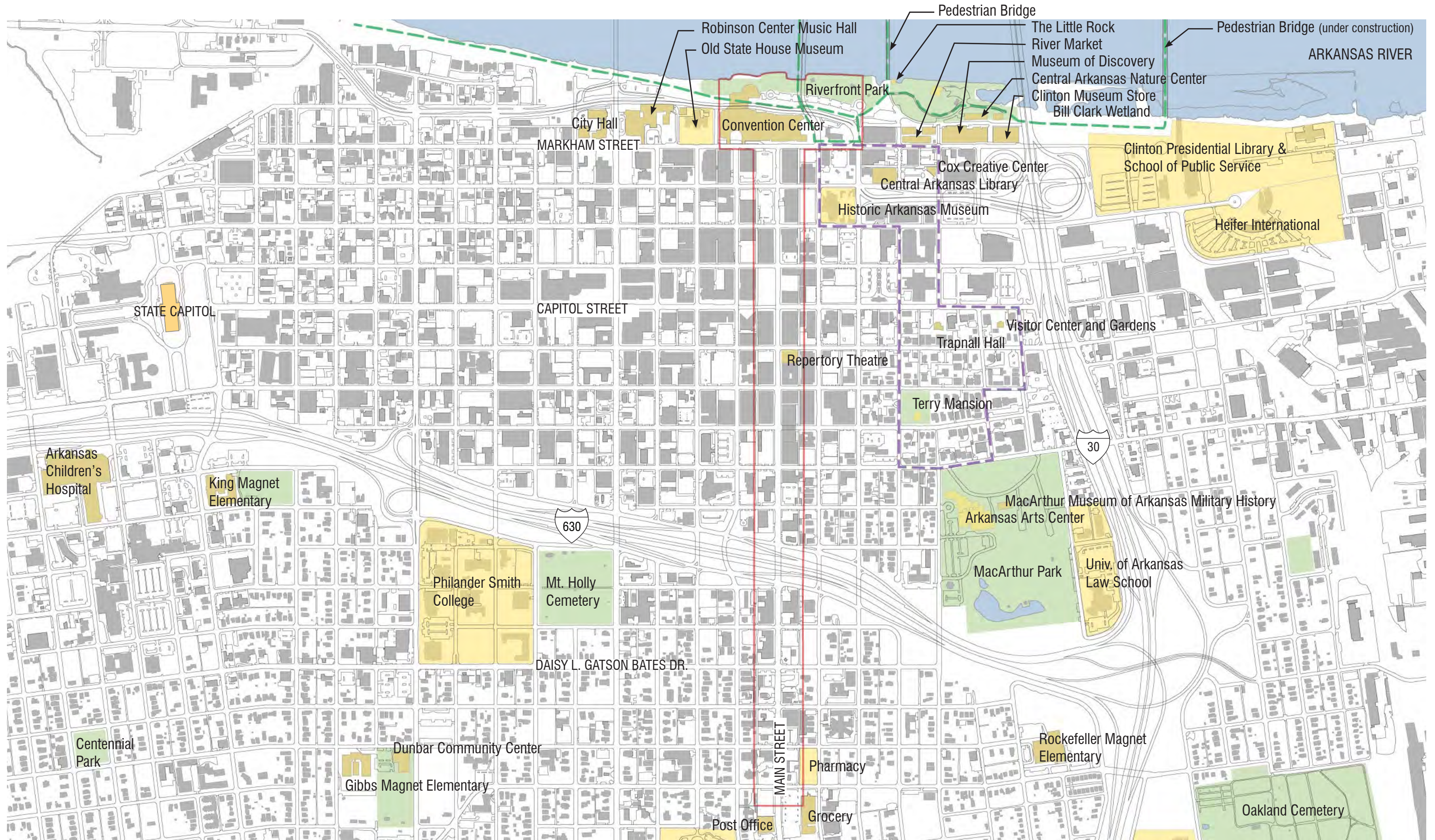
DAISY L. GATSON BATES

MAIN STREET



Main Street Project Area
 Greening America's Capitals: Little Rock

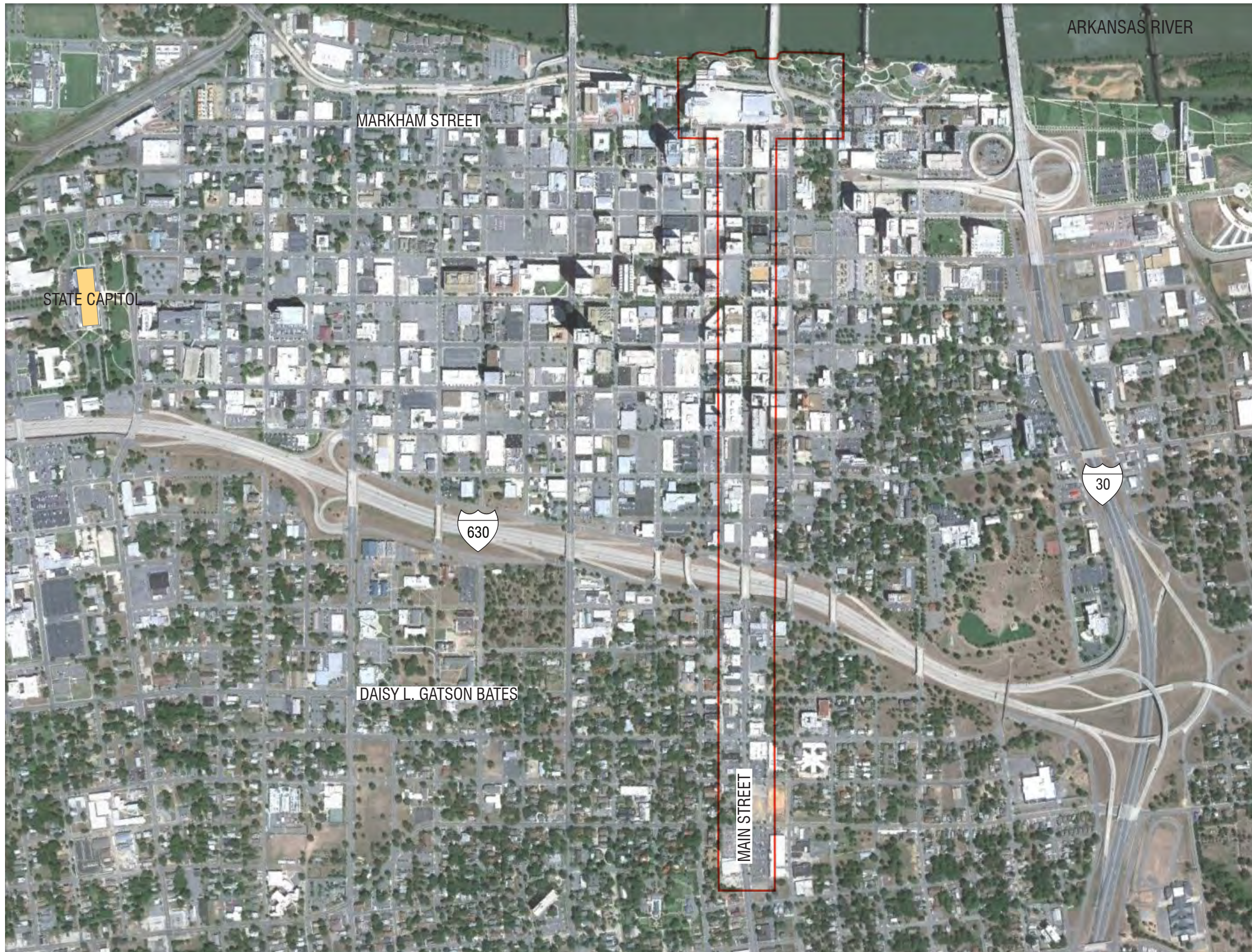




--- Museum Trail
--- River Trail

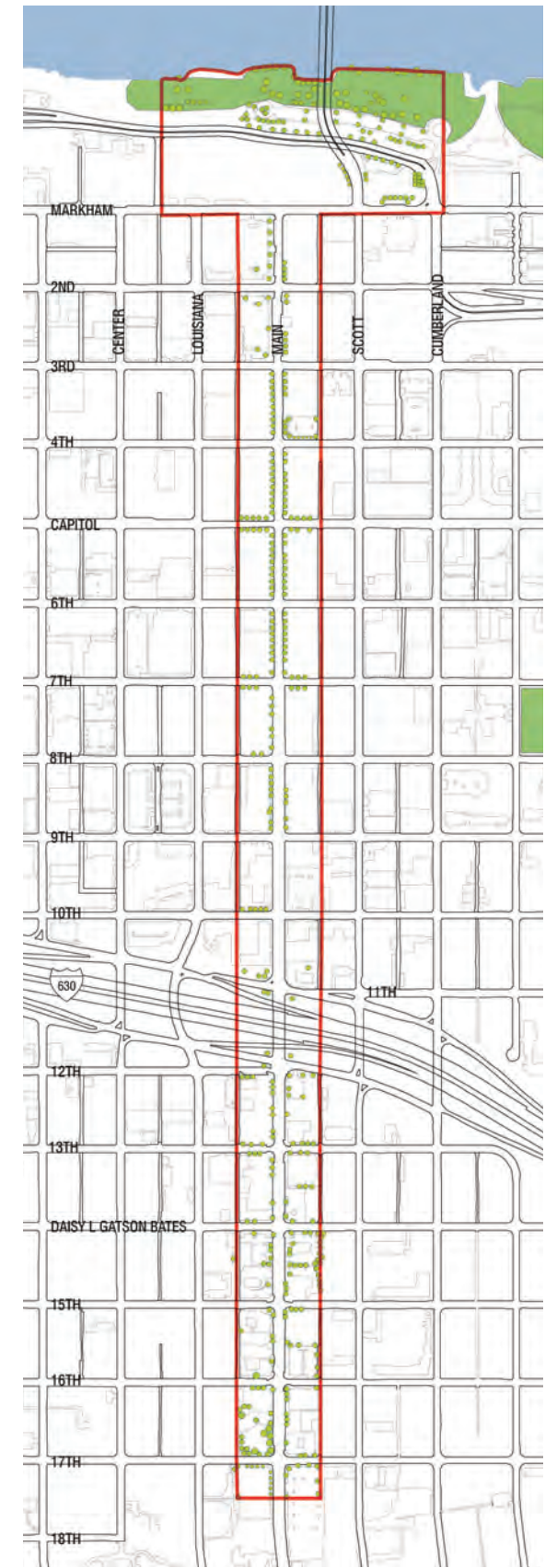
Downtown Sites of Interest
 Greening America's Capitals: Little Rock



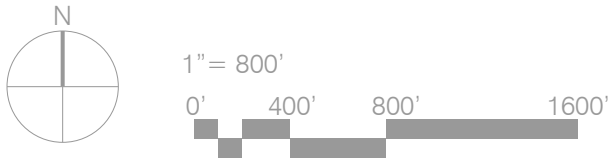


Aerial Photograph

Credit: Google Earth

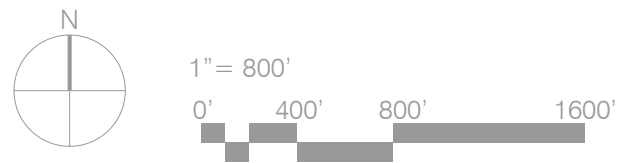
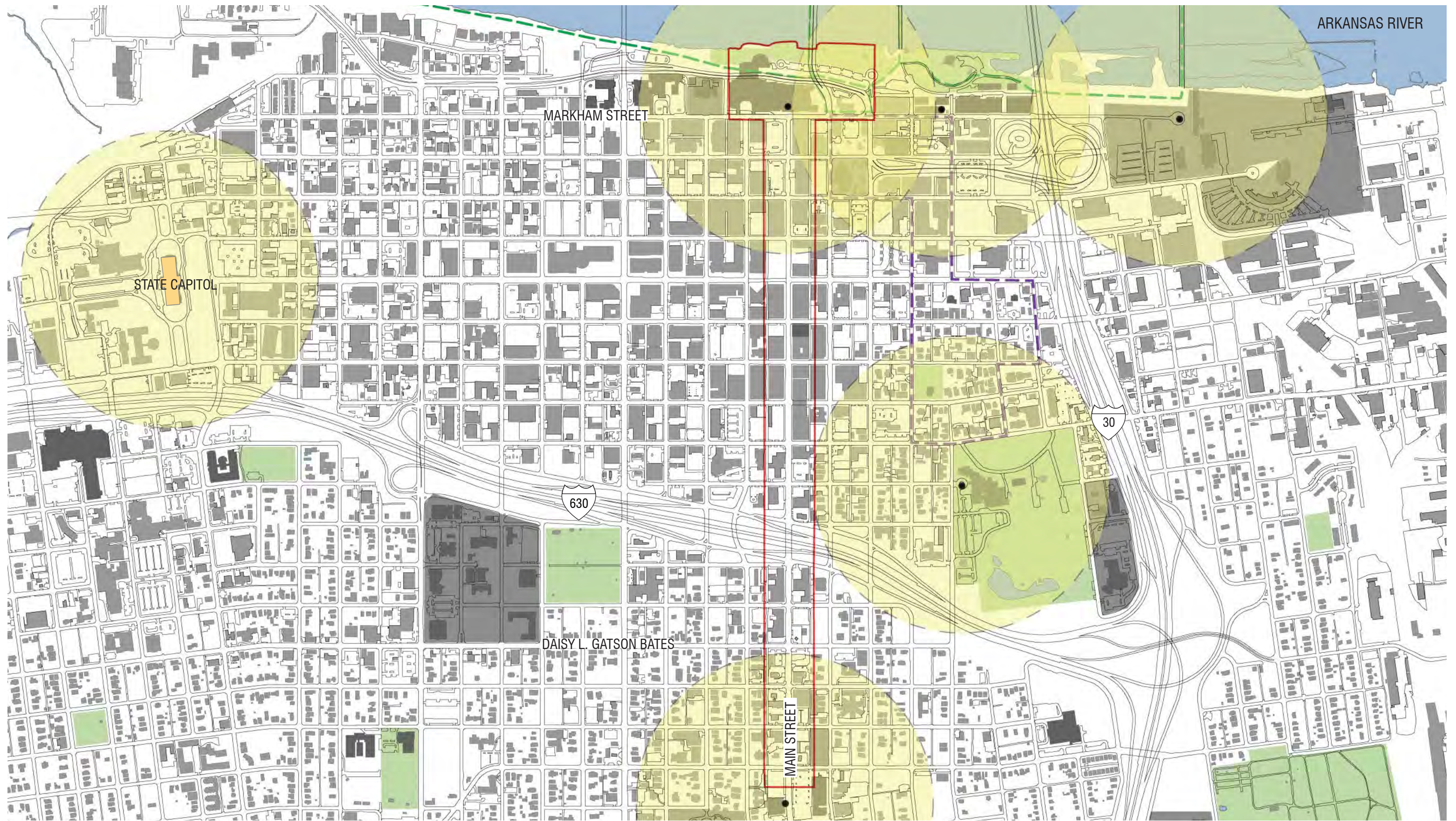


Existing Parks and Trees



Main Street Project Area
 Greening America's Capitals: Little Rock





Downtown Sites of Interest with 5-minute Walk Radius
 Greening America's Capitals: Little Rock



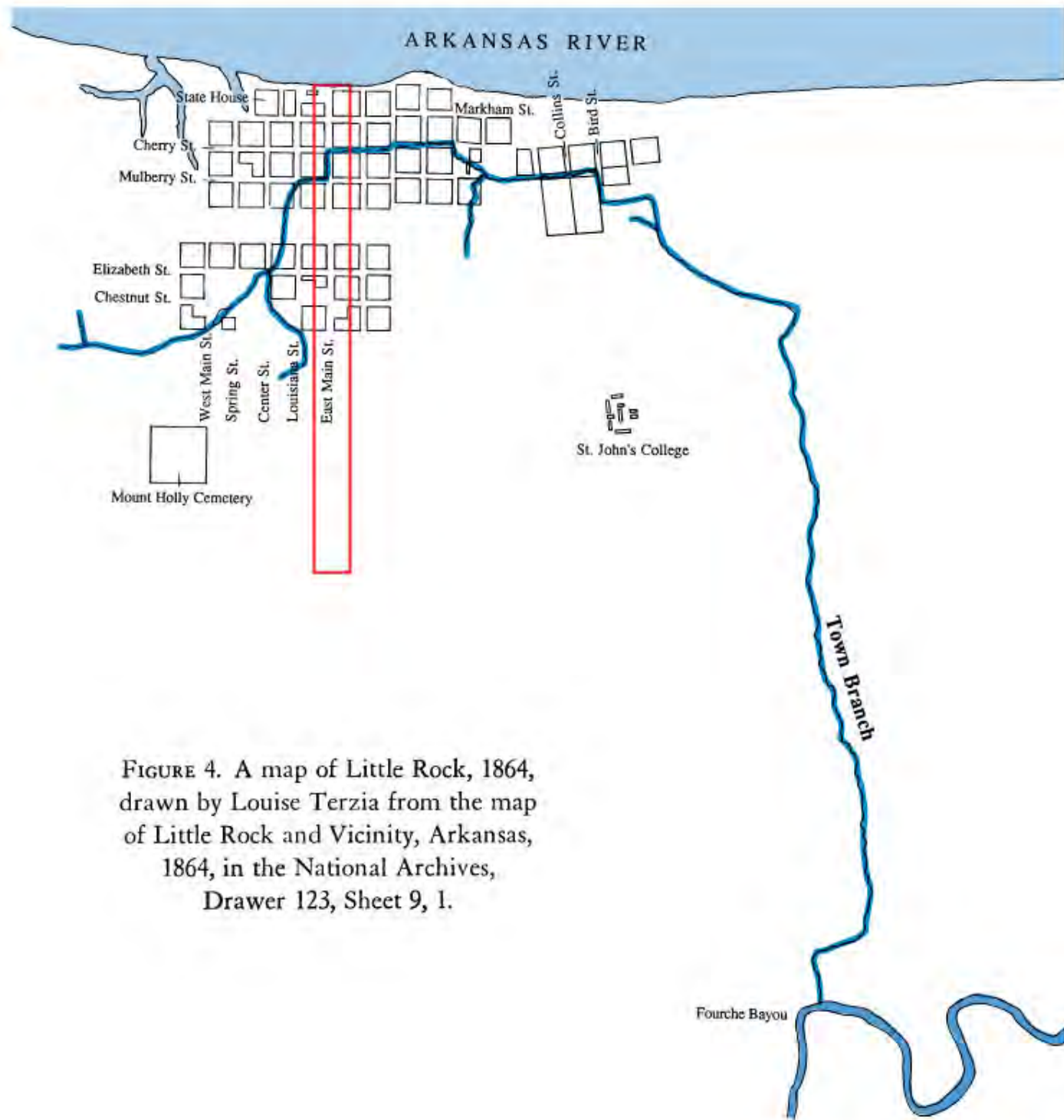


FIGURE 4. A map of Little Rock, 1864, drawn by Louise Terzia from the map of Little Rock and Vicinity, Arkansas, 1864, in the National Archives, Drawer 123, Sheet 9, 1.

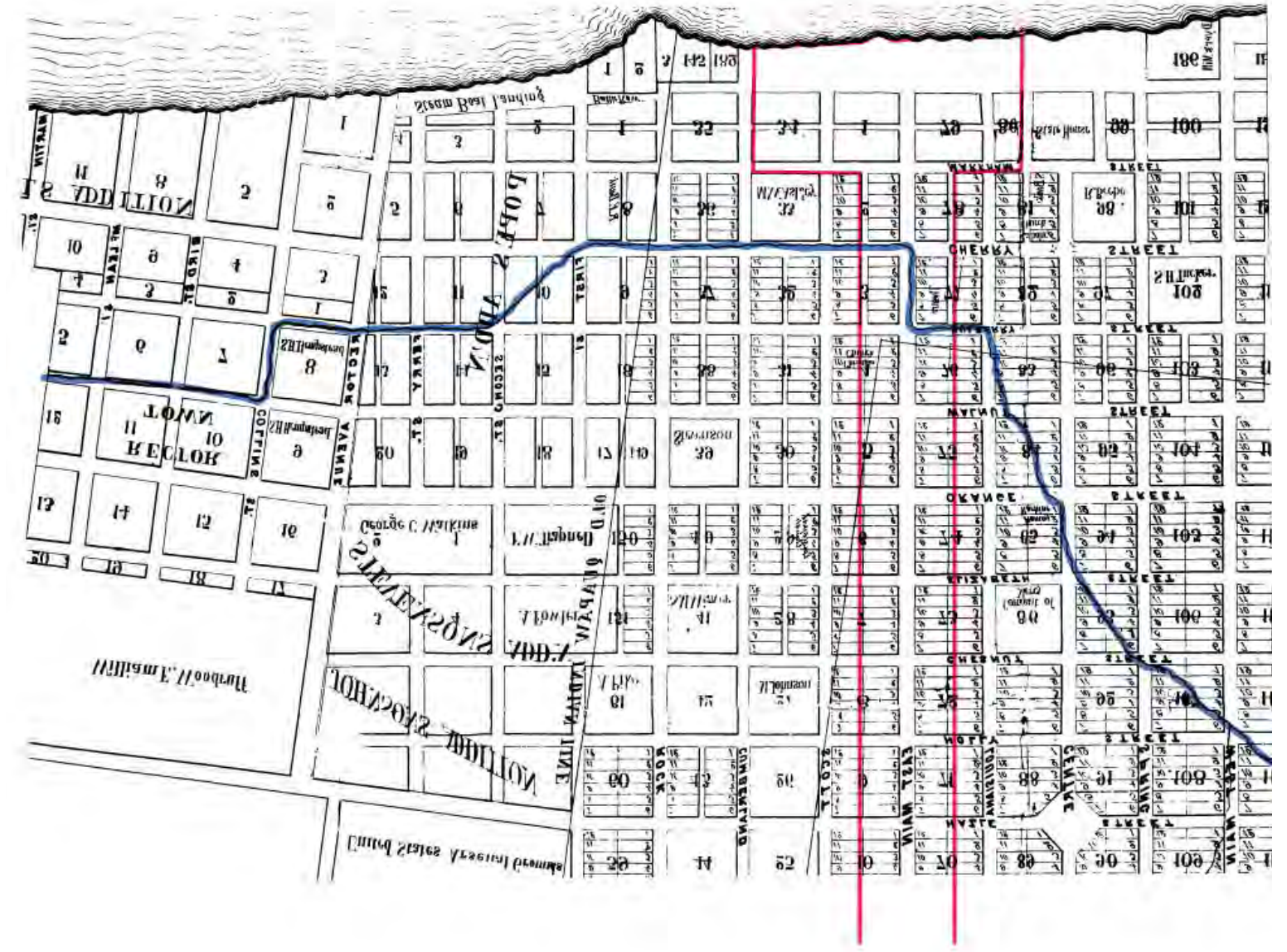
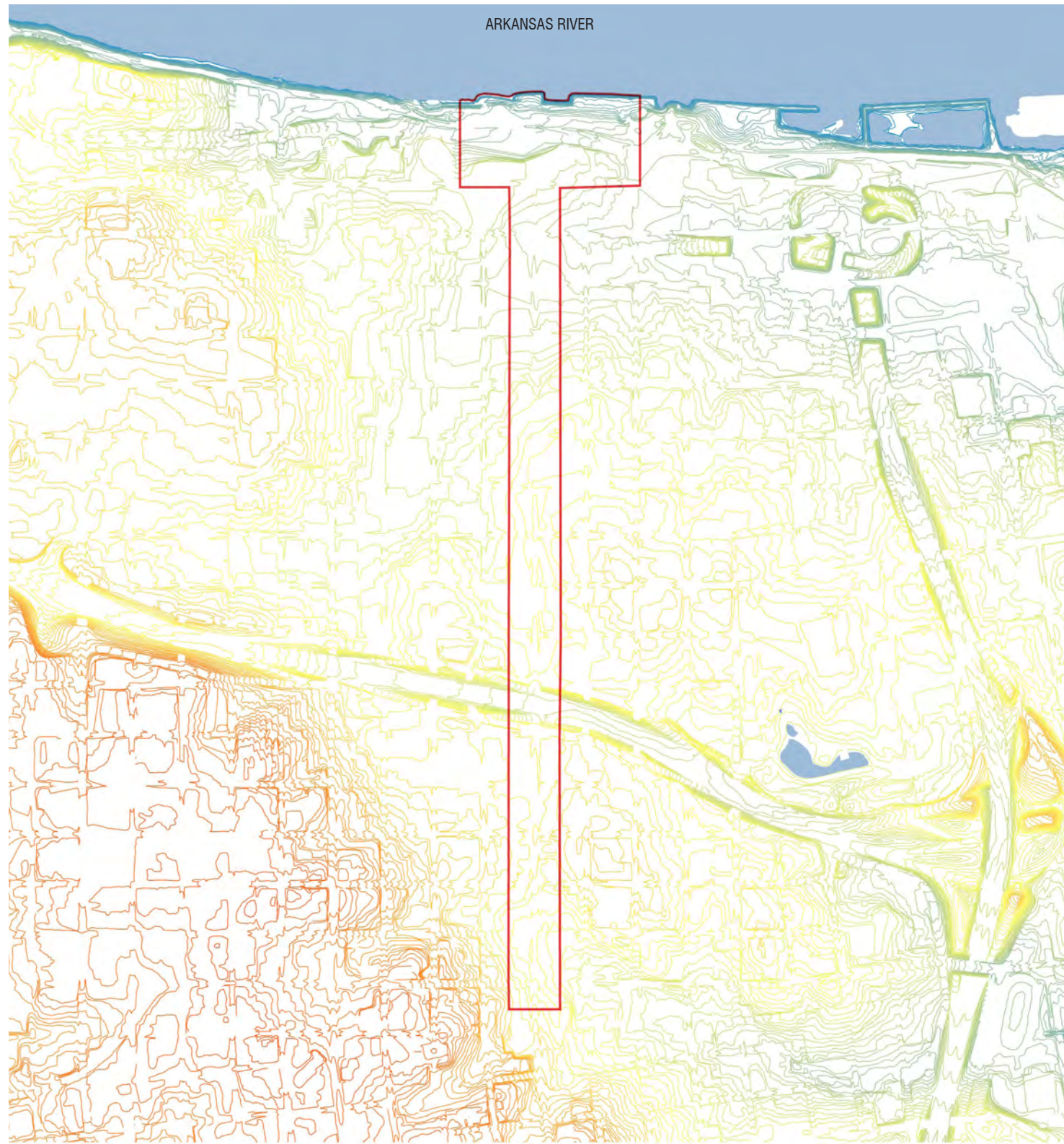


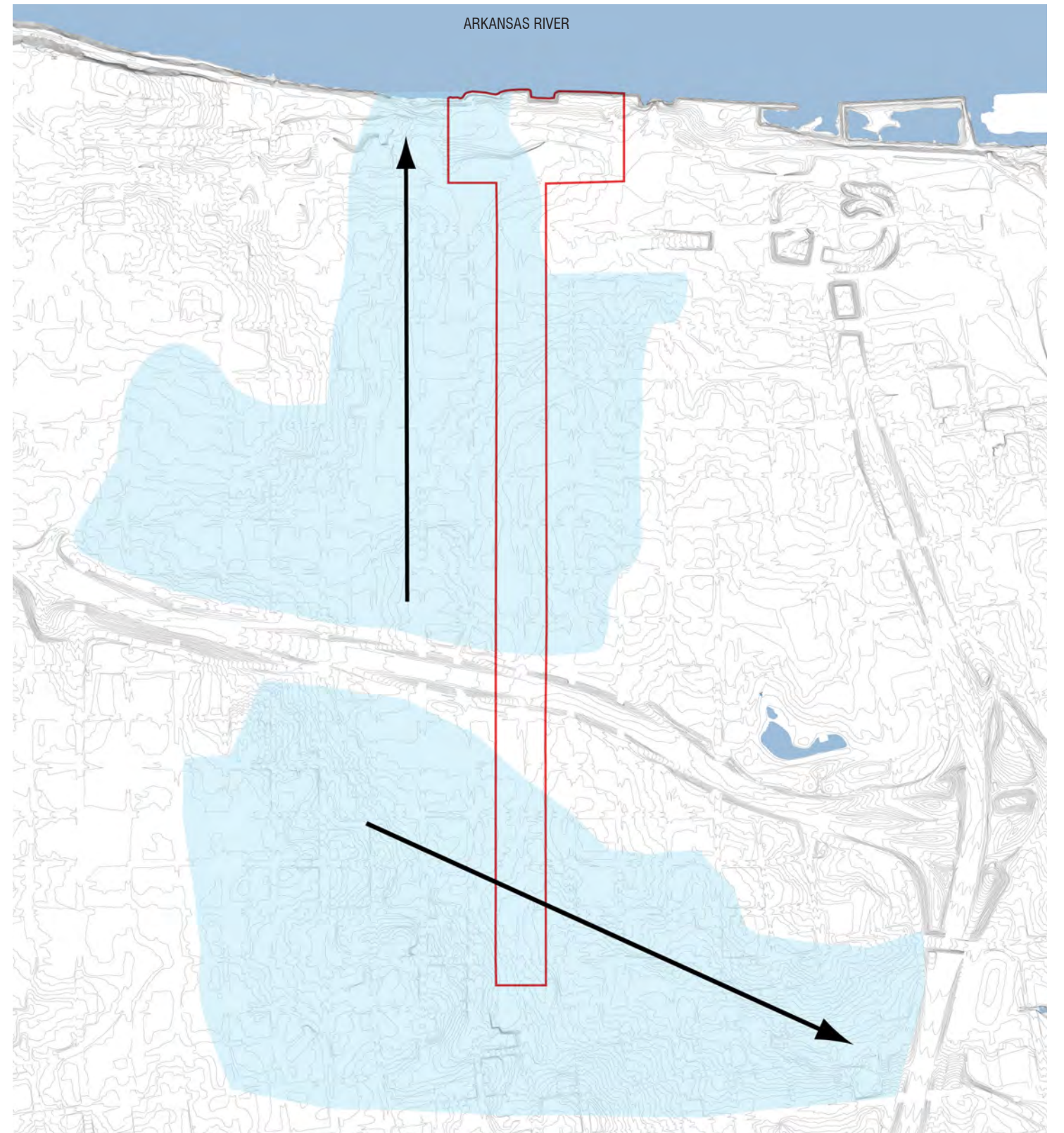
FIGURE 5. Plan of the city of Little Rock, c. 1865, shows a portion of downtown Little Rock as the Town Branch flows among lots and blocks. See also *Arkansas Gazette*, August 2, 1925. Names that appear on the map are Samuel H. Hempstead, Samuel M. Weaver, Dyer's Mill, Sterling Hartwell Tucker, the Reverend William W. Stevenson, Mary W. W. Elliott Ashley (the widow of Chester Ashley who had died in 1848). The branch actually turned south at Byrd Street.

Both diagrams adapted from Worthen, William. *The Arkansas Historical Quarterly*, Vol. 46, No. 4 (Winter, 1987), pp. 317-347.

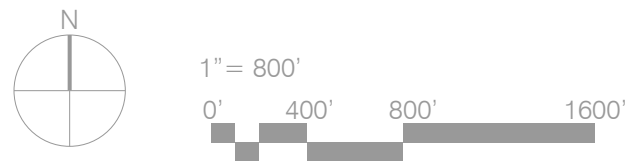




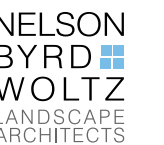
Existing (Current) Topography

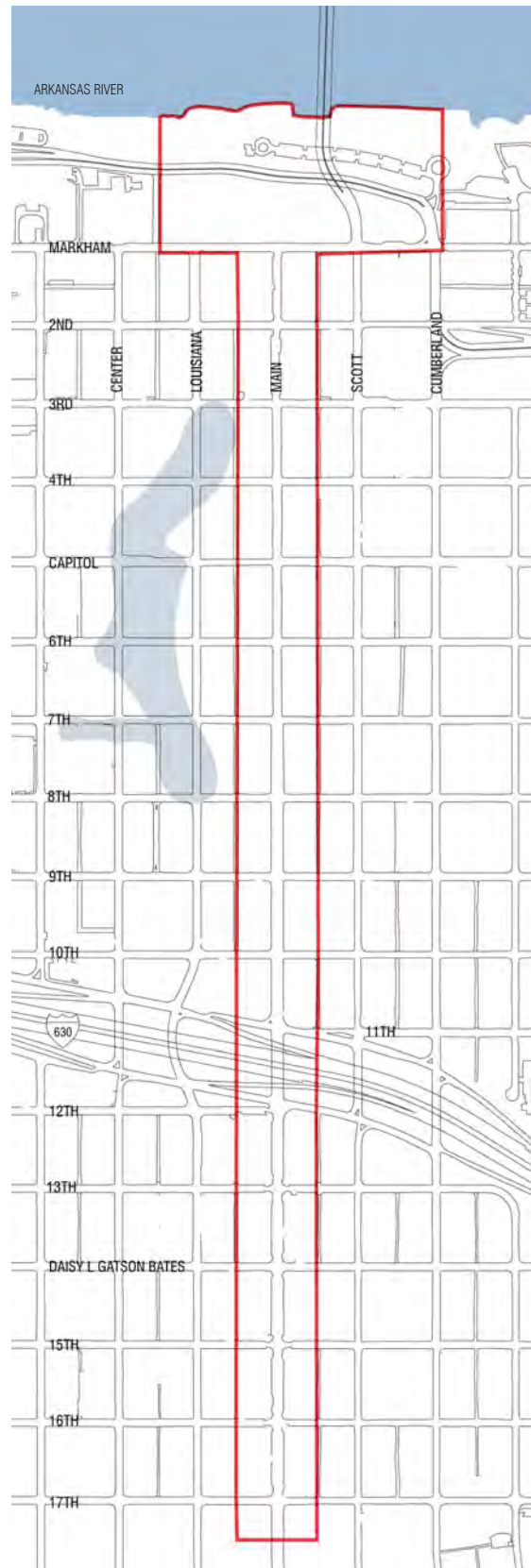


Existing (Current) Watersheds

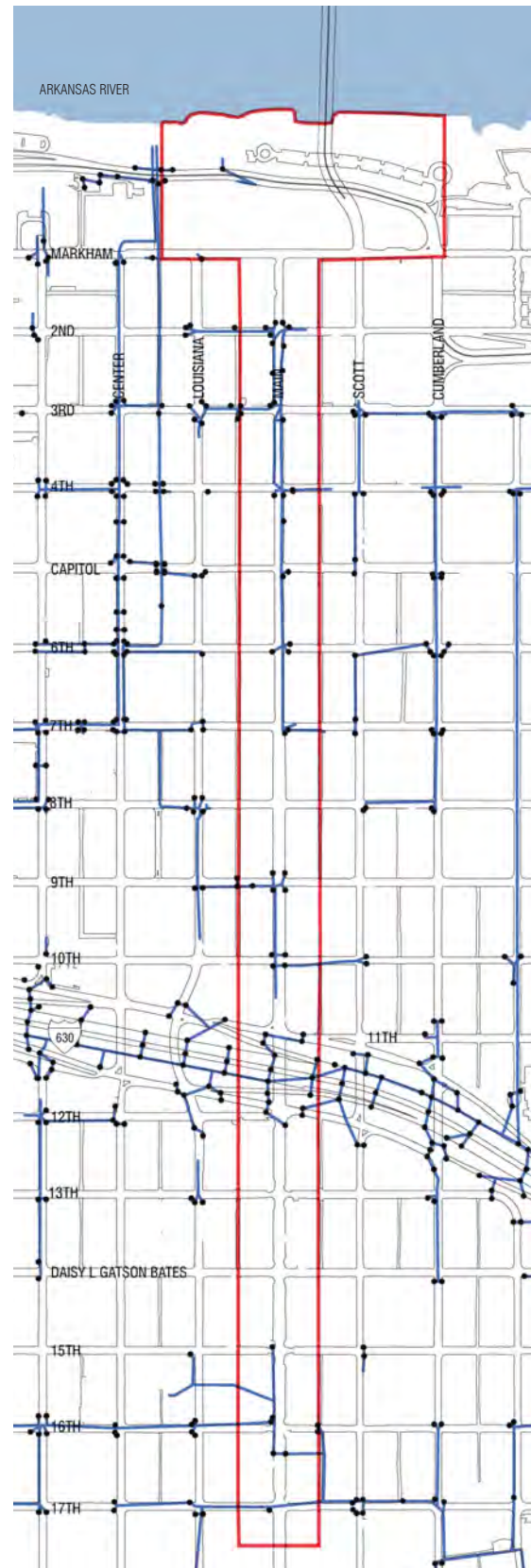


Stormwater Flows: Context
 Greening America's Capitals: Little Rock

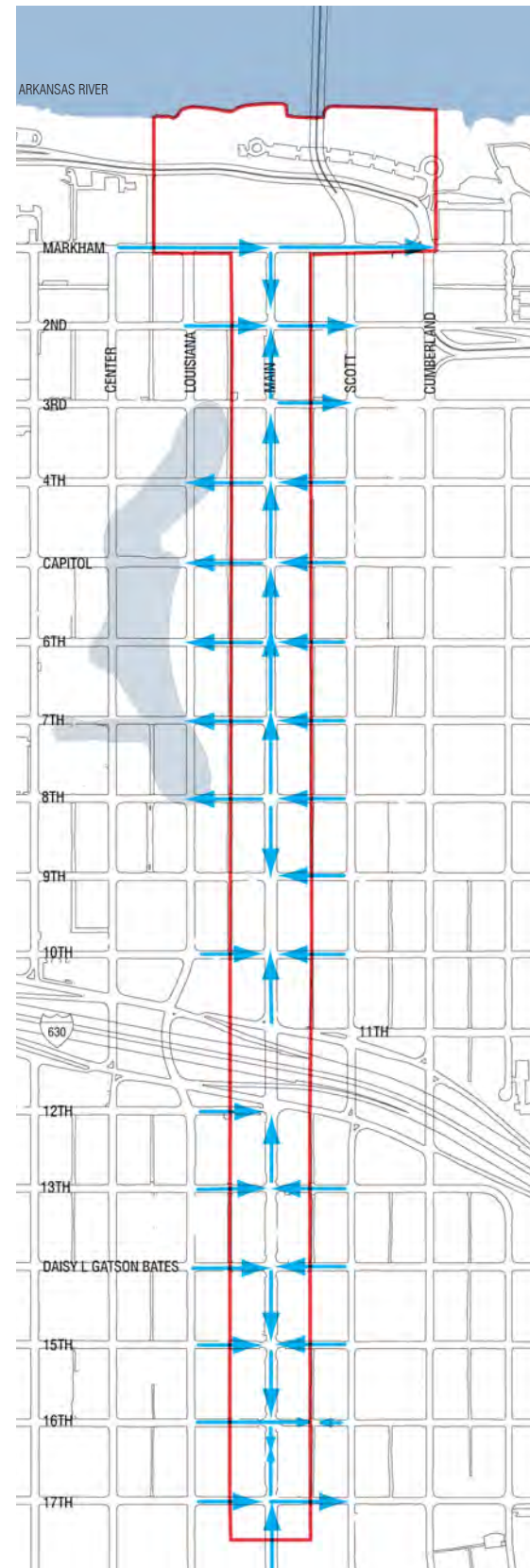




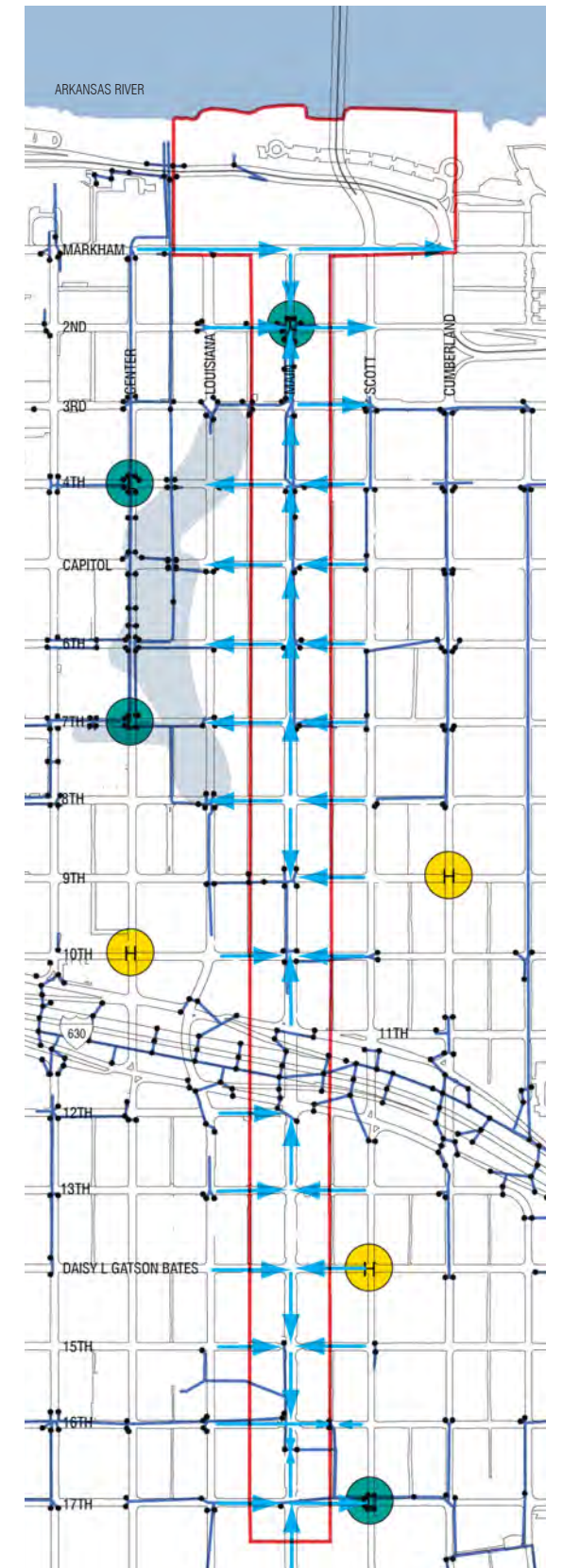
FEMA 500-year Floodplain



Stormwater Mains and Inlets

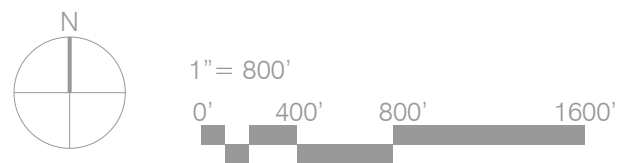


Street Flow

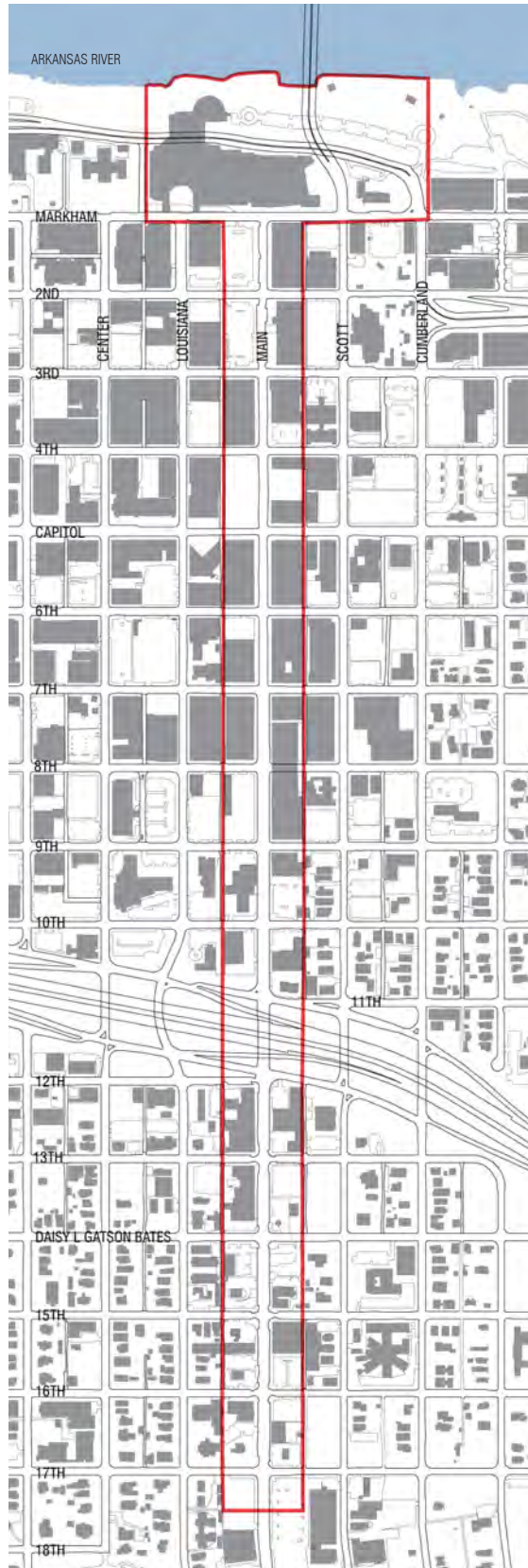


Stormwater Flows

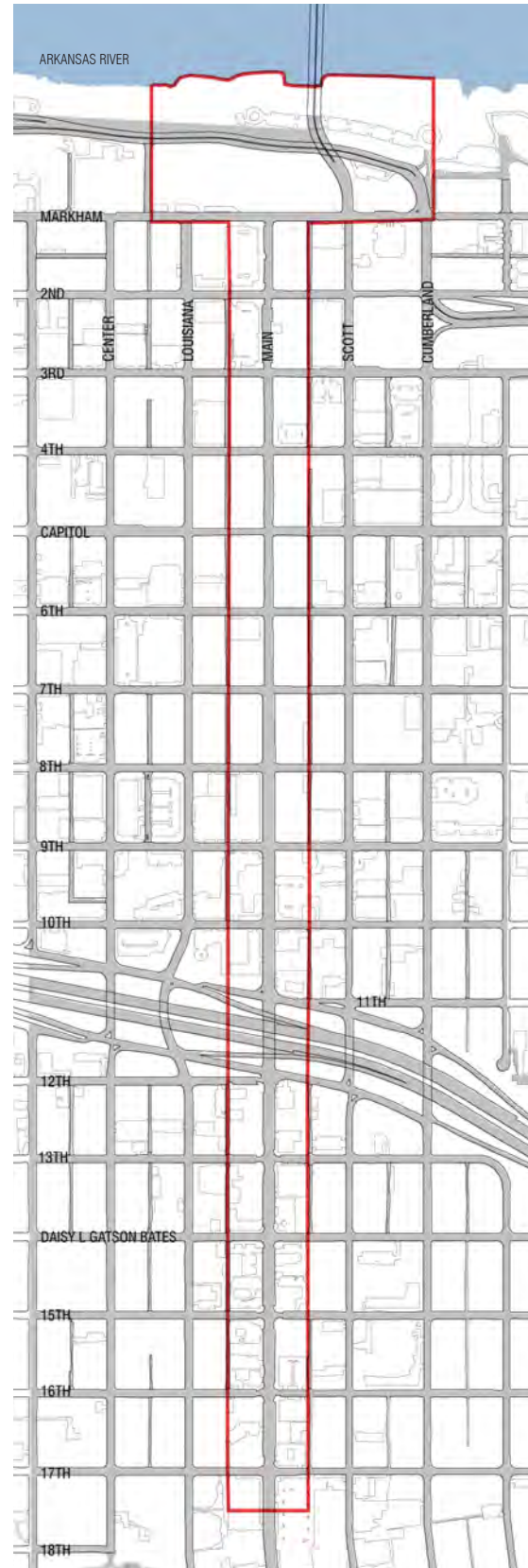
- High point
- Low point



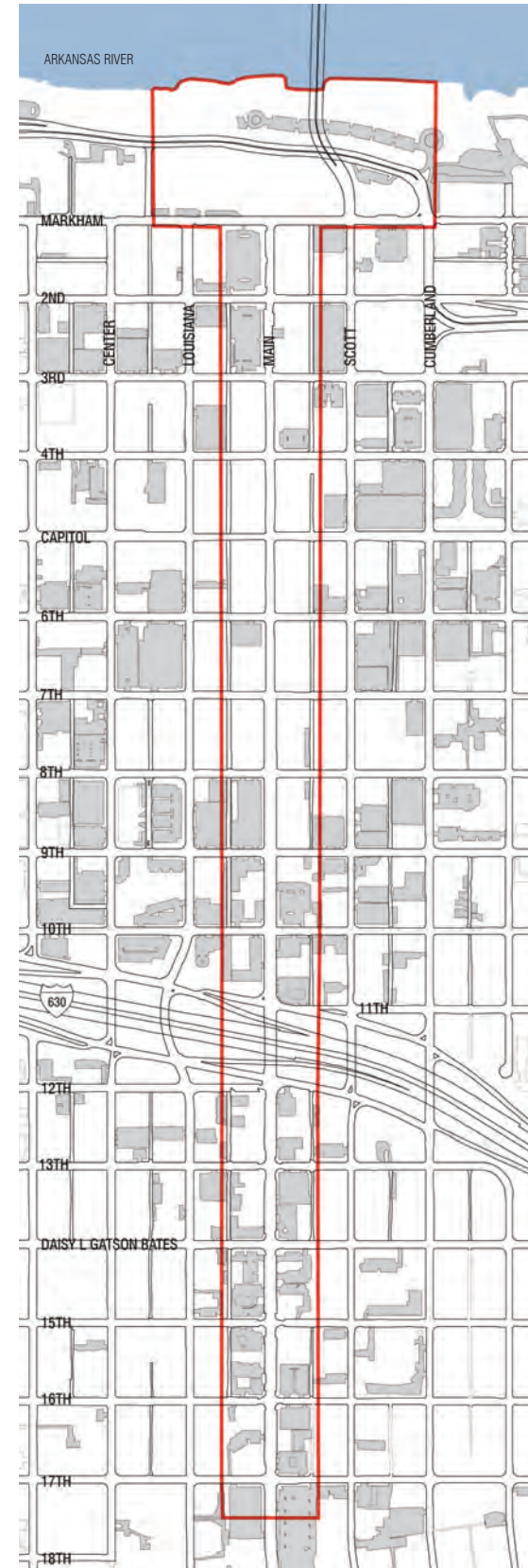
Stormwater Flows: Main Street
Greening America's Capitals: Little Rock



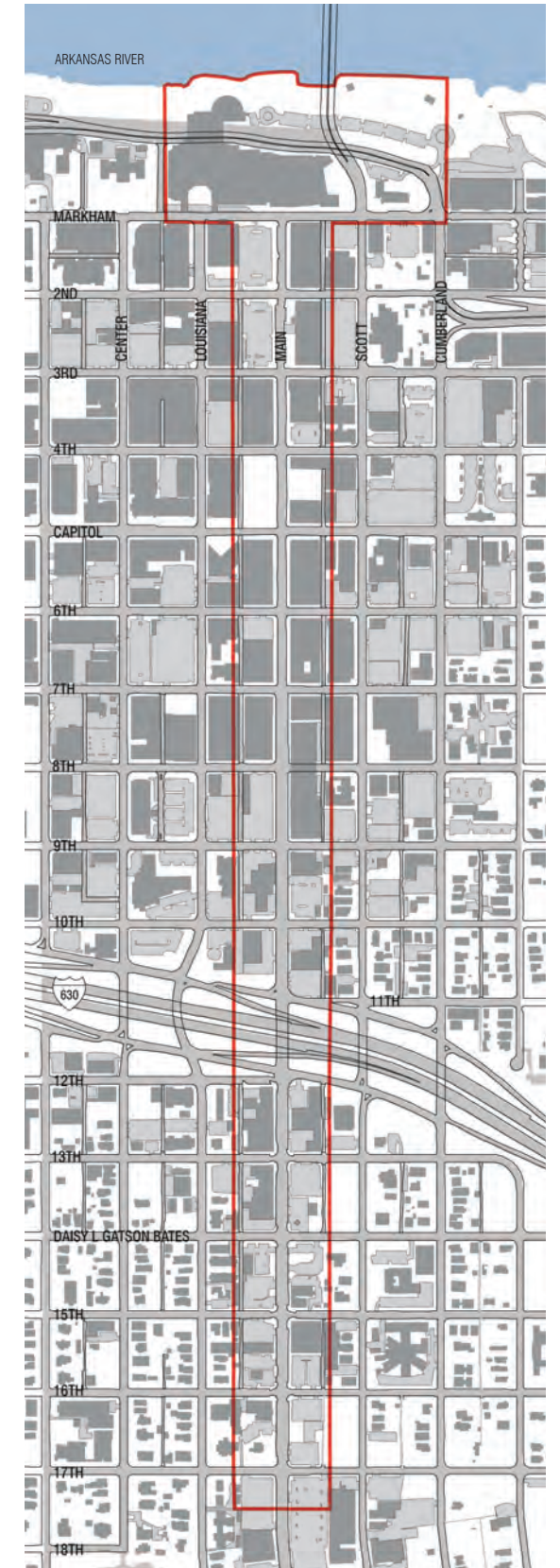
Buildings



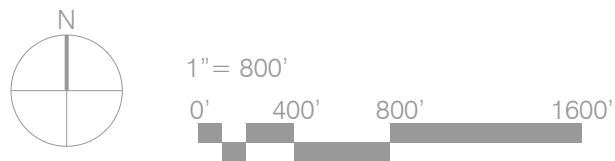
Streets



Parking Lots

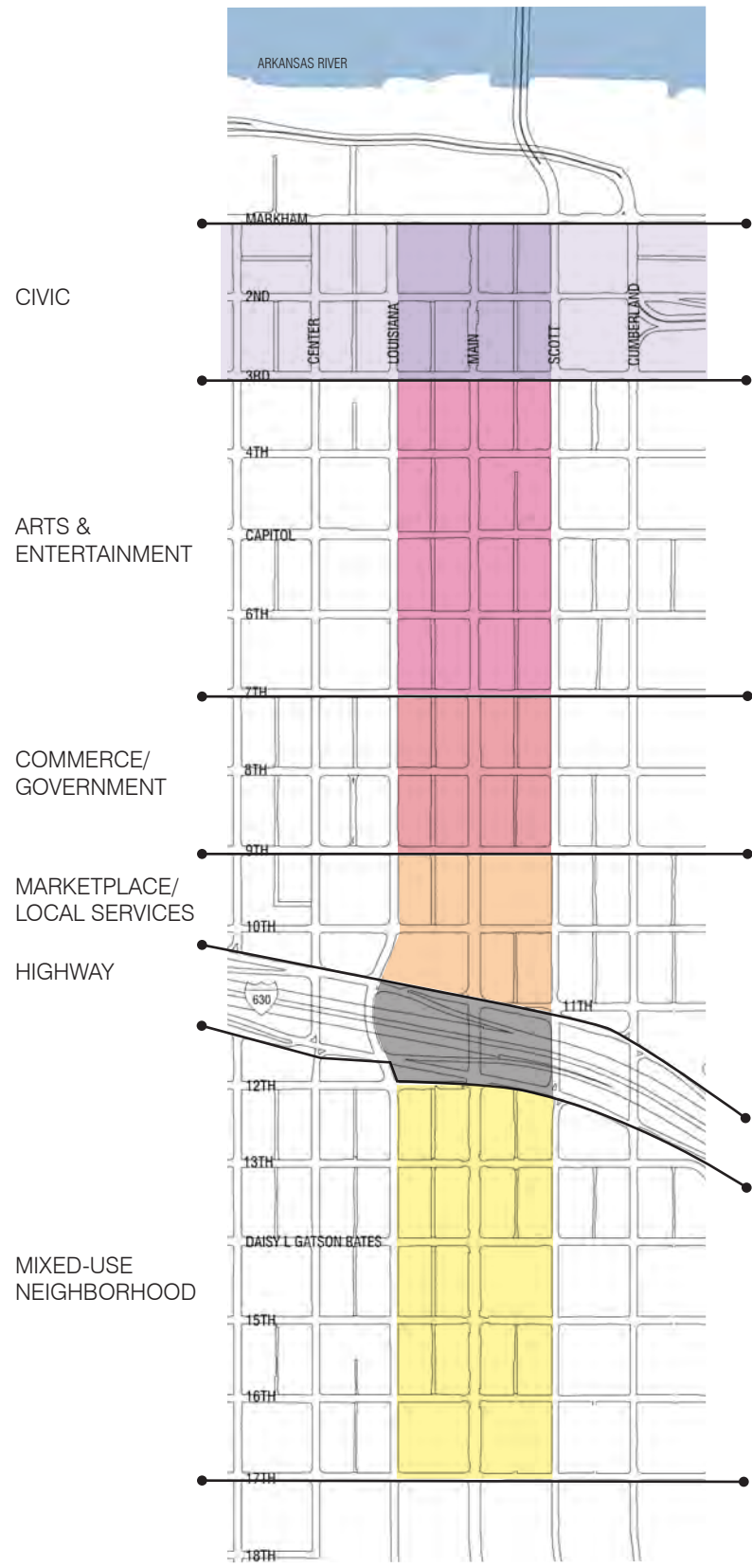


Impervious Surfaces

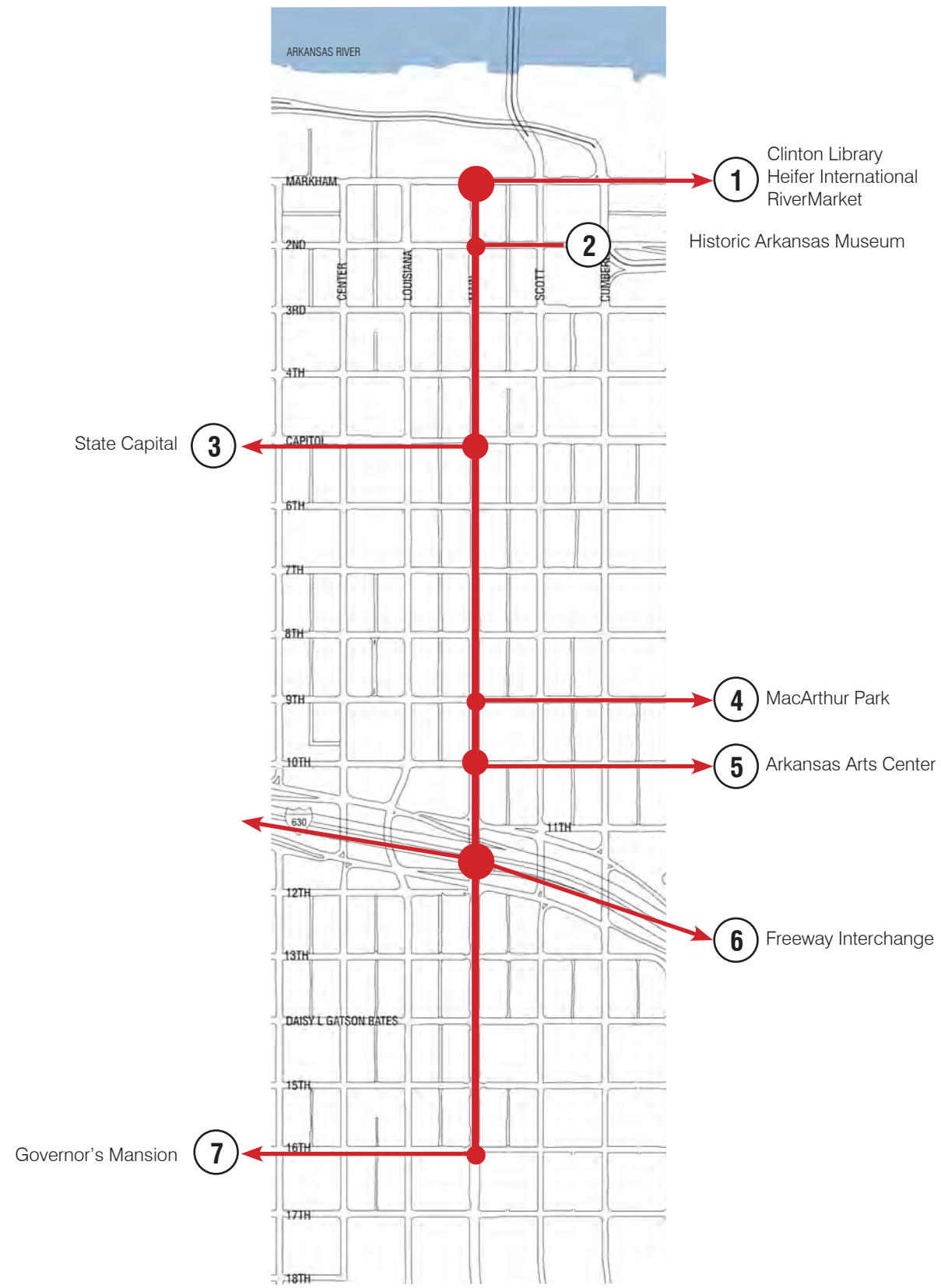


Impervious Surfaces

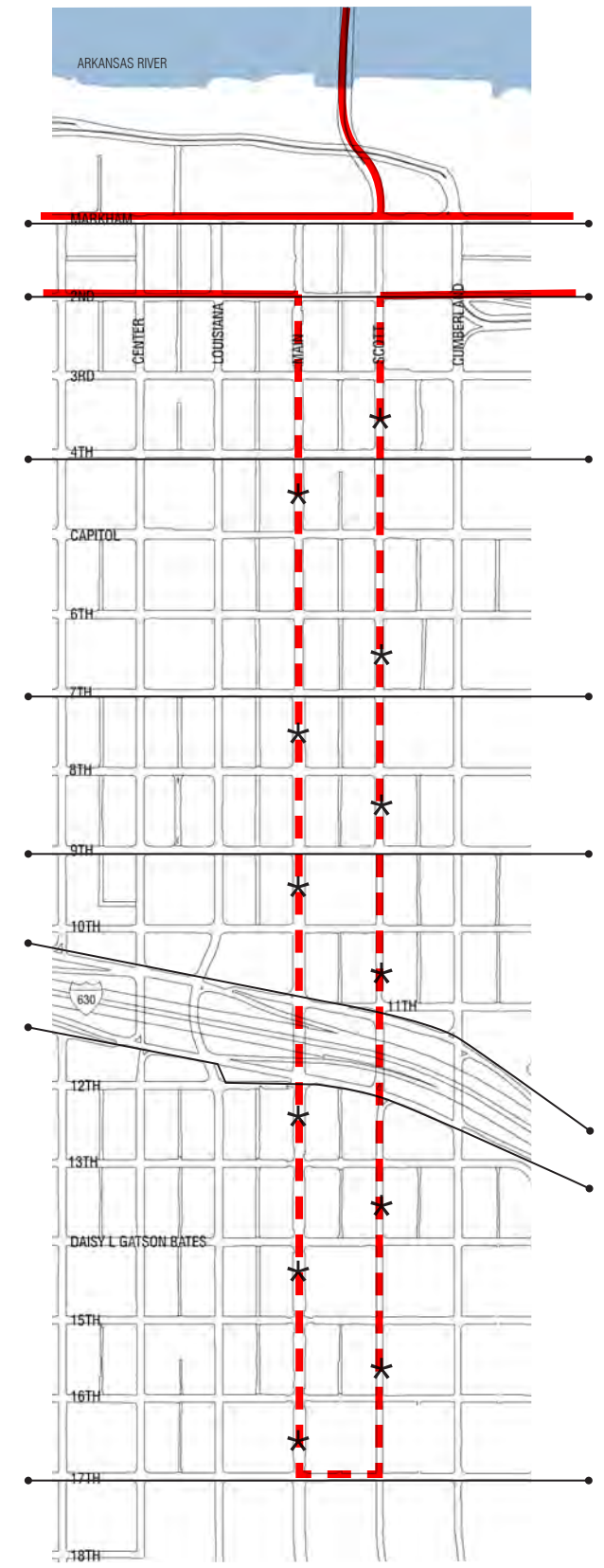
Greening America's Capitals: Little Rock



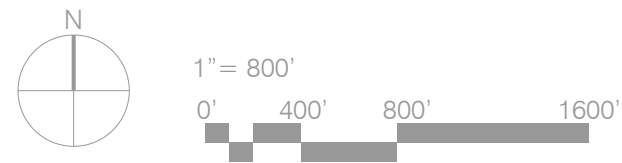
Potential Use Precincts



Nodes and Pedestrian Connections



Proposed Trolley Route and Stops



Districts and Connections

Greening America's Capitals: Little Rock



IV. MAIN STREET STRATEGIES

Creating a beautiful, functional, sustainable streetscape has been shown to have positive economic as well as environmental benefits. The proposals for a sustainable Main Street consist of 1) specific green infrastructure strategies; 2) enhanced pedestrian, bike and transit opportunities; and 3) specific catalytic nodes where these strategies can begin.

GREENING STRATEGIES

- Bioretention basins (raingardens) with native plantings
- Street trees (urban-tolerant, native, provide shade)
- Green roofs
- Downspouts linked to bioretention
- Porous parking

PEDESTRIAN, BIKE AND TRANSIT EXPERIENCE

People are more likely to walk further, or browse on a street for longer, when their route is shaded, varied and beautiful. Part of creating a sustainable, civic, downtown is to enrich the pedestrian experience by modulating ambient temperature through the use of bioretention basins and street trees. The pedestrian experience is also improved with new, safe crosswalks and a covered route on both sides of the highway bridge. A primary bike route has been identified off Main Street, but the incorporation of bike racks also improves the overall use of the Main Street corridor as a destination rather than as a throughway.

Expanding the trolley route is another way to create a pedestrian- and environmentally-friendly Main Street, by reducing automobile dependence, easily linking vibrant destinations, and providing both residents and tourists with an enjoyable and convenient mode of transportation.

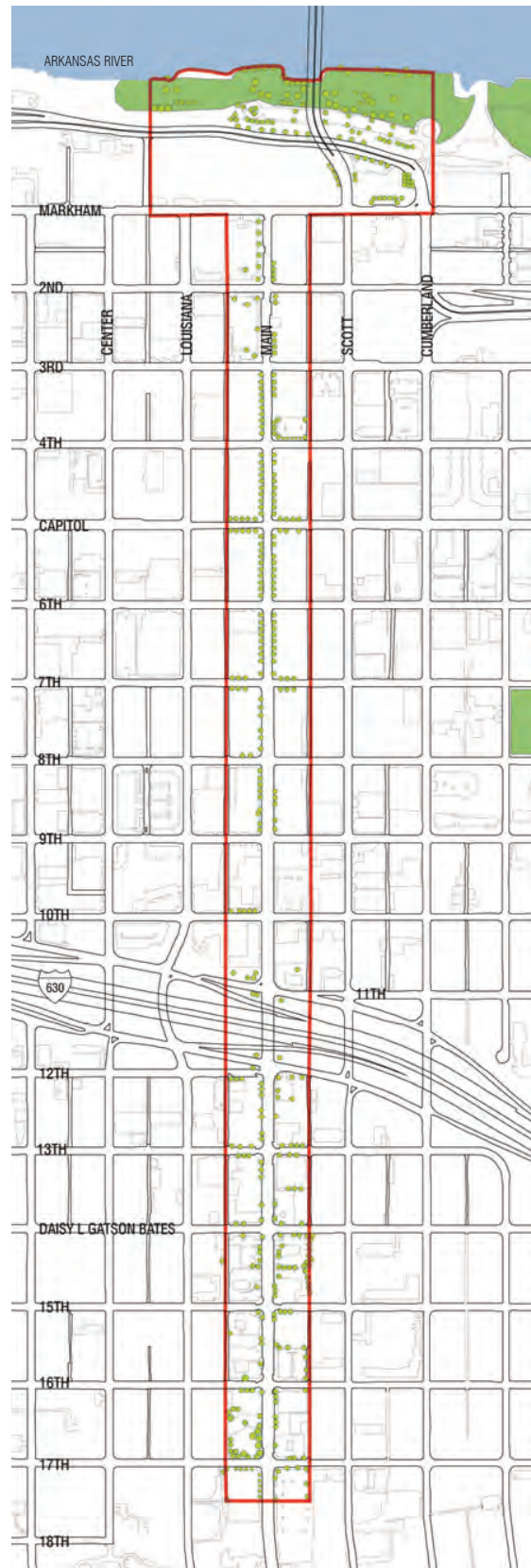
THREE NODES

The three nodes that have been developed also promote a more vibrant and sustainable corridor by creating destination and way-finding points along Main Street. These nodes are approximately 5-minutes of walking distance away from each other, creating links along the corridor to encourage pedestrian use and a strong sense of place.

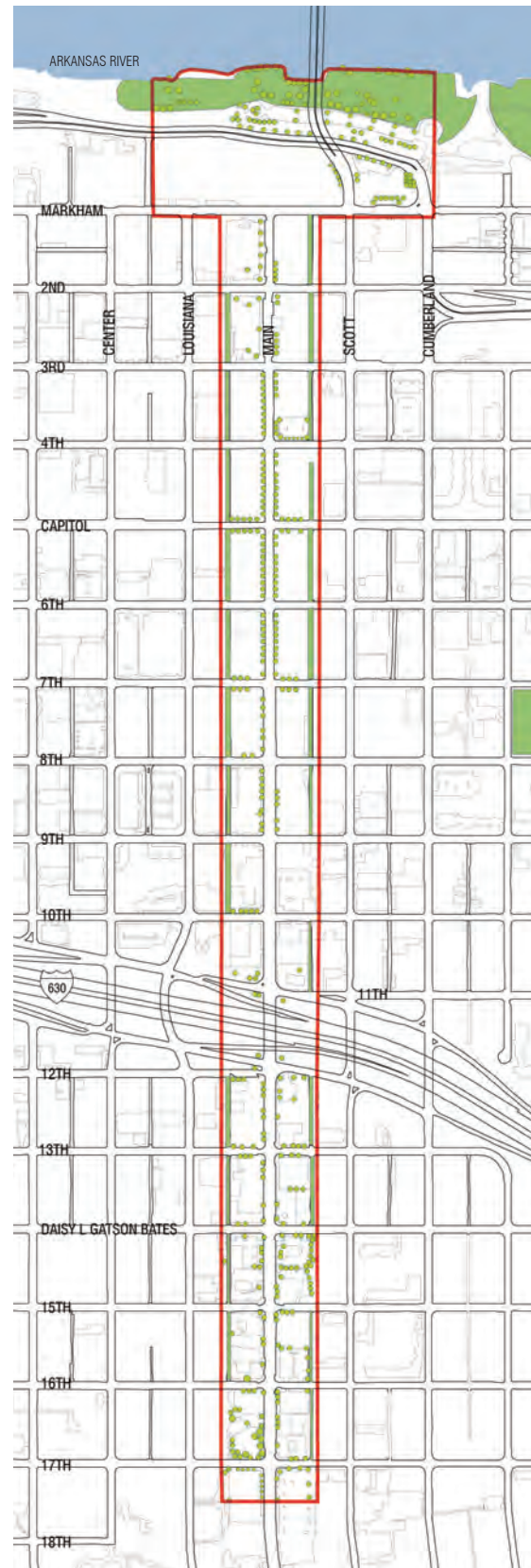


MAIN STREET STRATEGIES

PLANS + PERSPECTIVES + SECTIONS



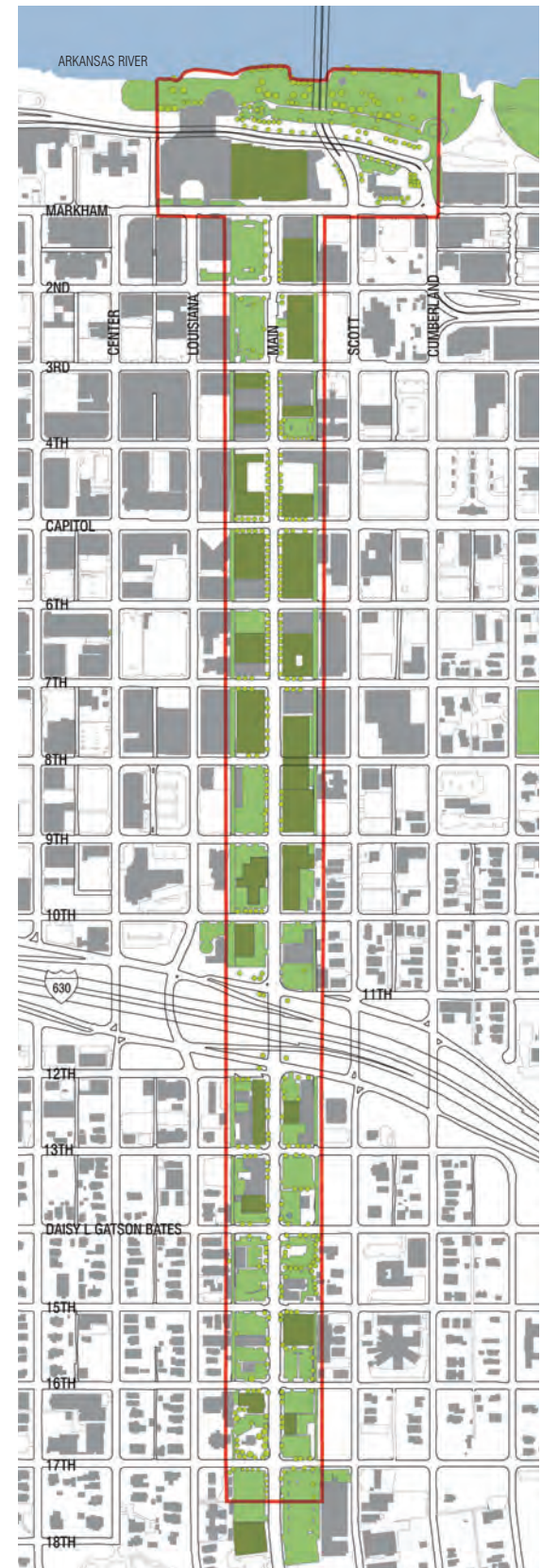
Existing Parks and Trees



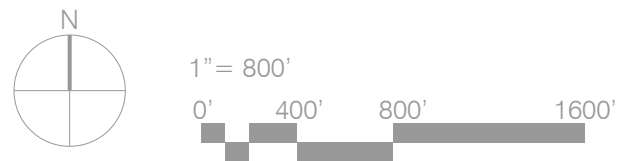
Add Green Alleys



Add Pervious Parking Lots

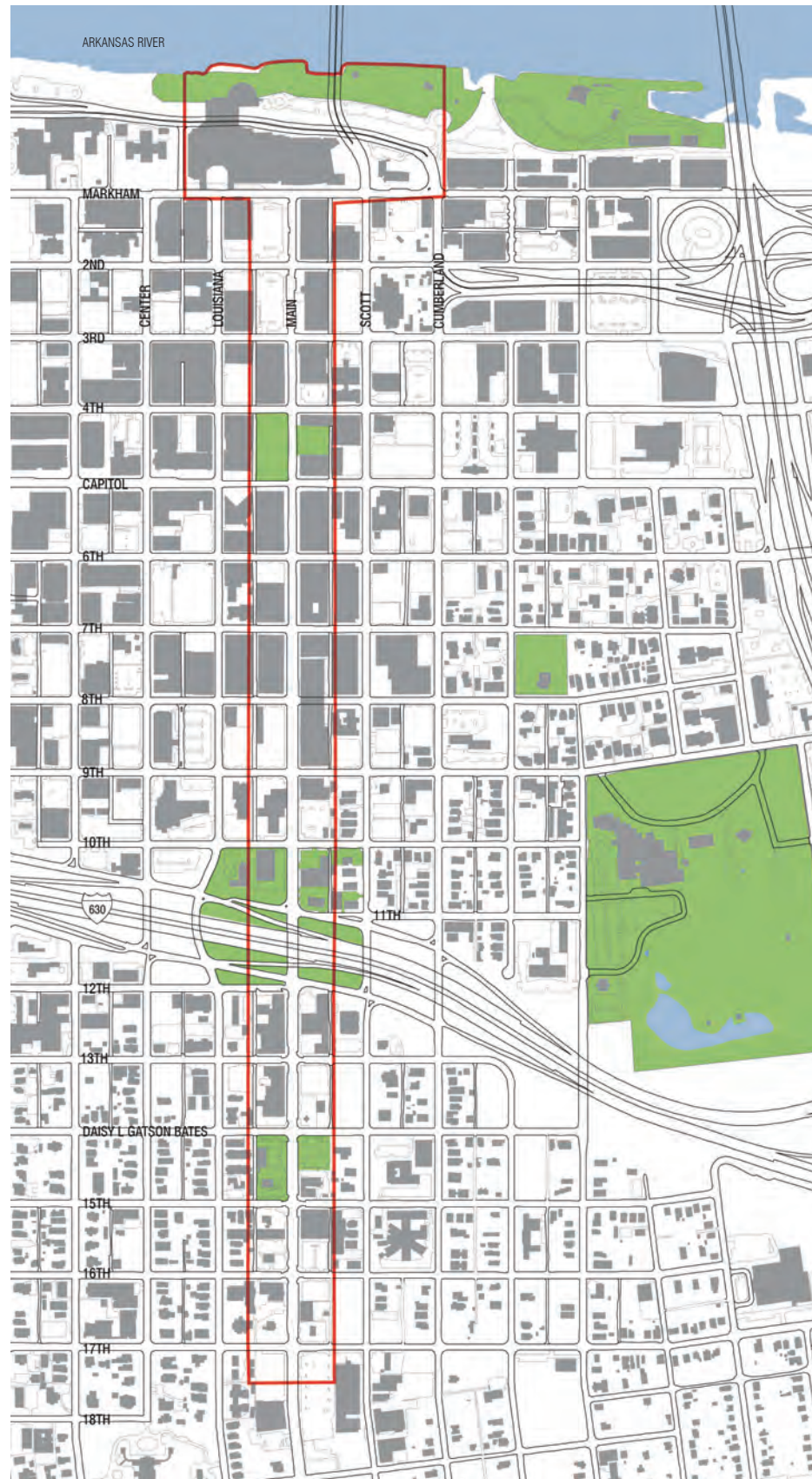


Add Green Roofs

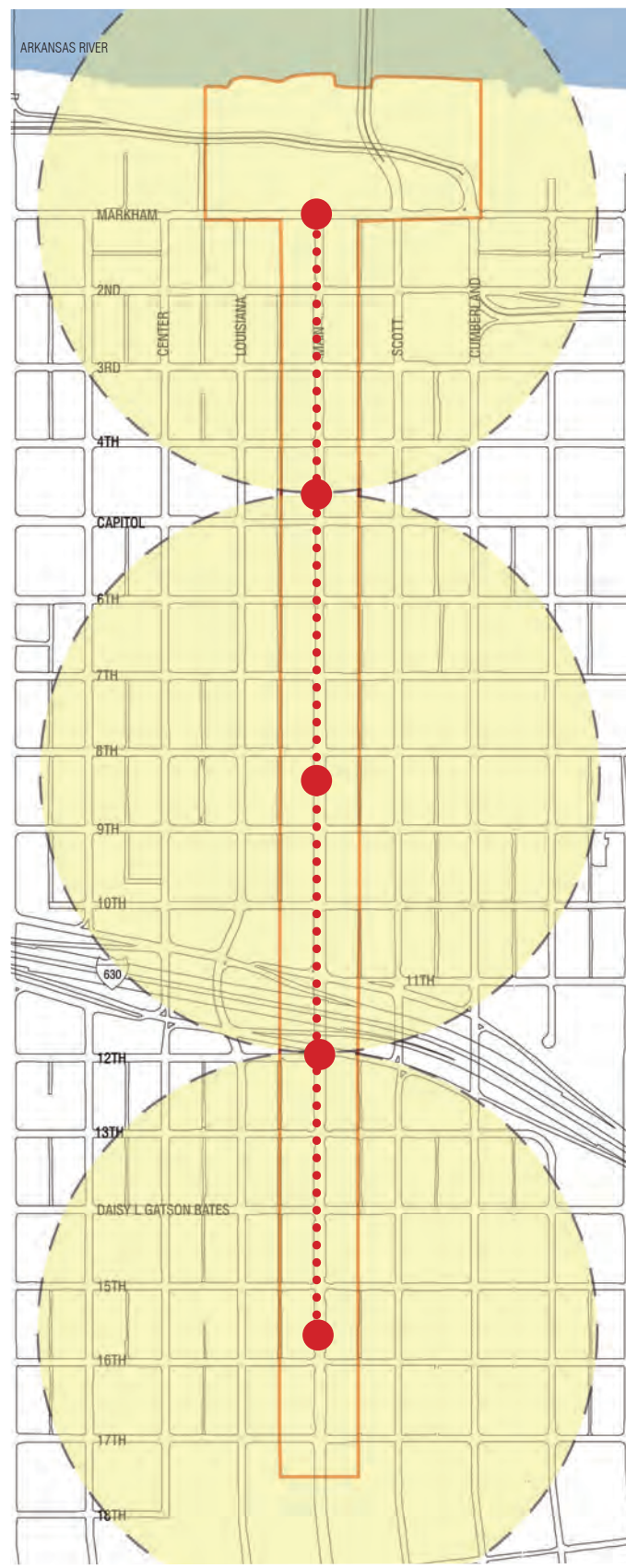


Greening Strategies
Greening America's Capitals: Little Rock

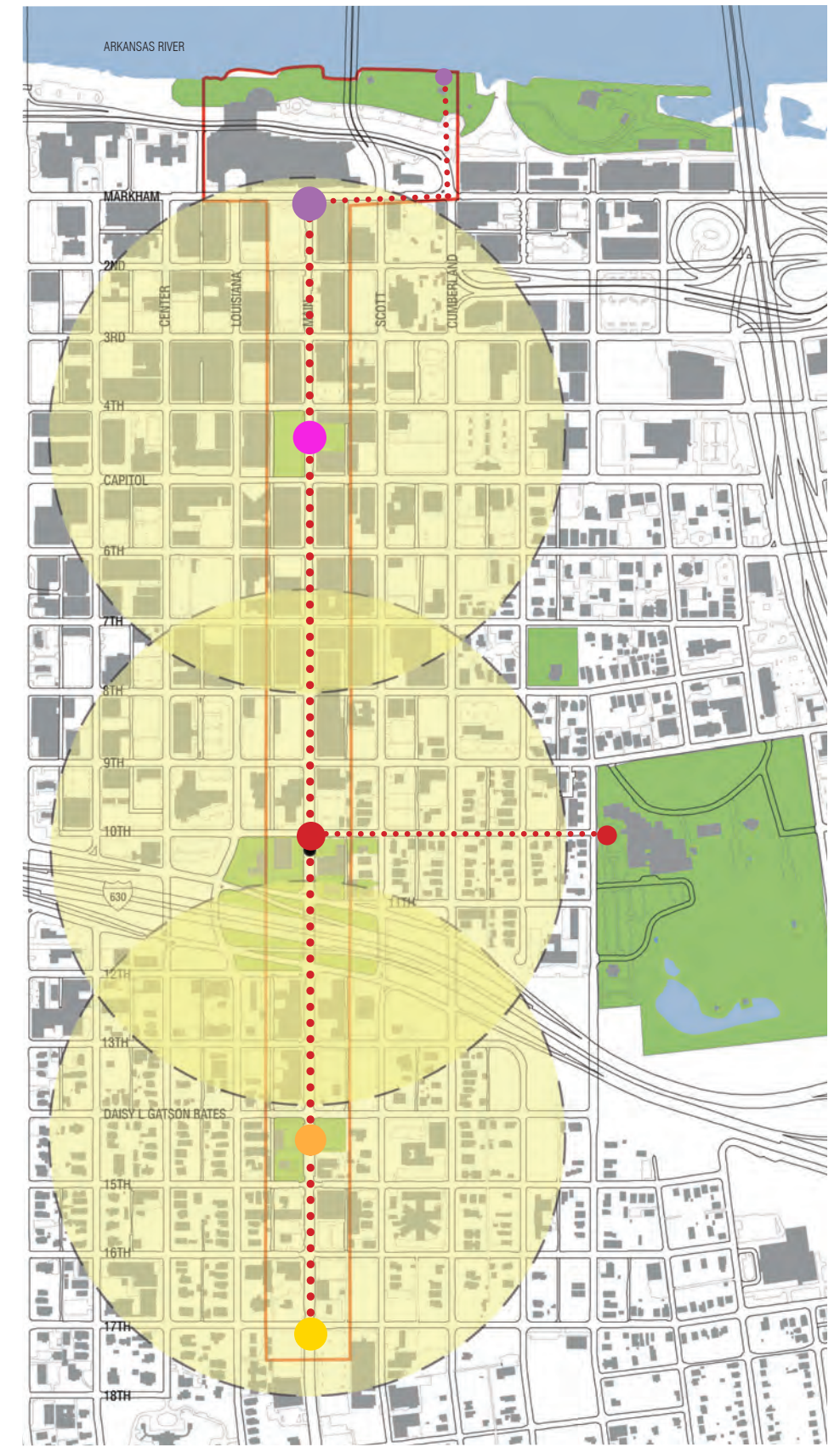




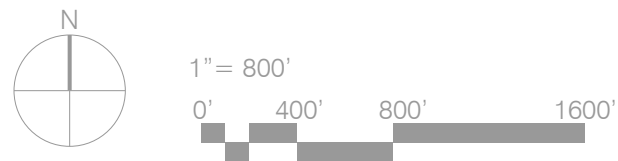
Green Nodes



5-minute walks



Creating a sustainable, walkable Downtown



Main Street: 5-minute walks
 Greening America's Capitals: Little Rock

1

NEIGHBORHOOD THRESHOLD

- demonstration sustainability parking lot and street edge
- green roof
- green alley
- anchor SOMA end of Main St.
- federal funding opportunity

2

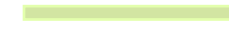
NEIGHBORHOOD PARK

- lunch and evening crowds
- focal point for SOMA/local Little Rock
- synergy/demonstration with Nursery
- "oasis"
- build on existing sculpture garden
- green alley

3

COMMUNITY MARKET INTERCHANGE

- orchards on interchange slopes
- nursery/handyman marketplace
- residential infill
- support local goods and services



STREETSCAPE

- increased tree cover
- stormwater solutions
- native plantings
- energy efficient lighting
- signage/branding

4

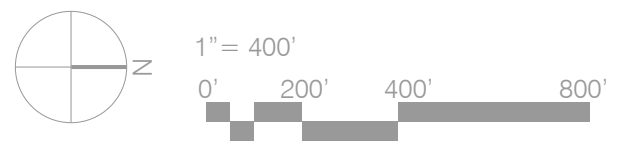
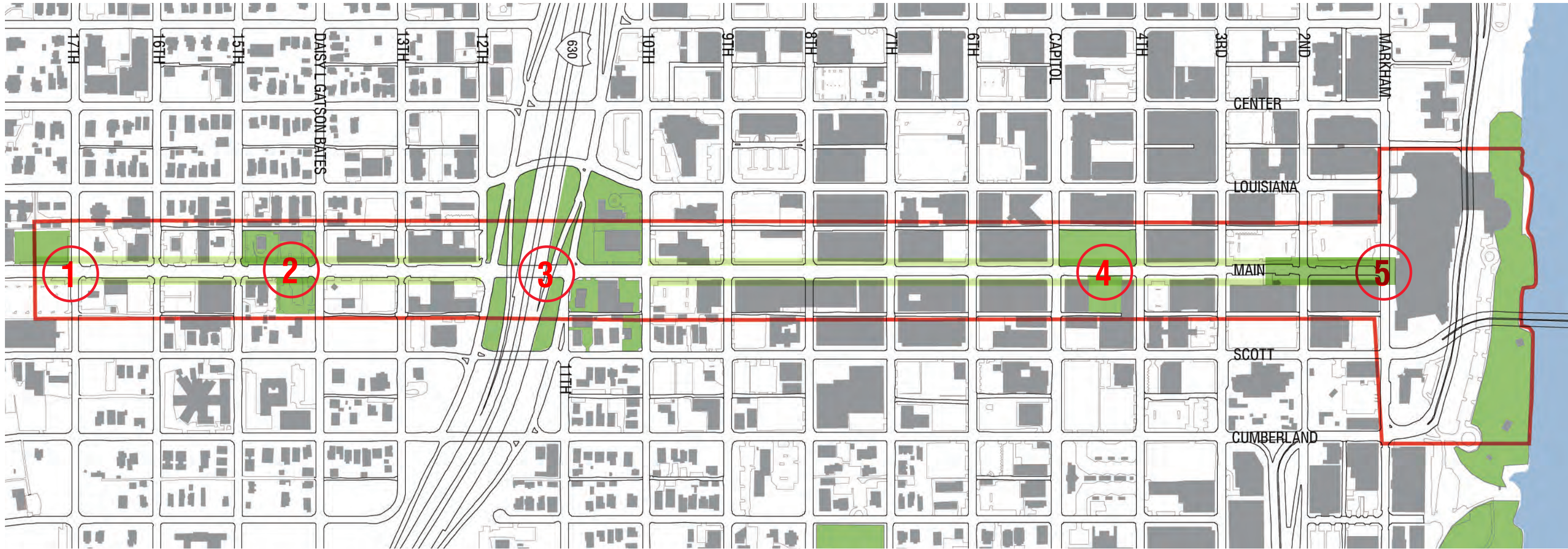
ARTS PARK

- lunch and evening crowds
- special events (plays, movies)
- focal point for Downtown
- water feature
- more intensive hardscape & plantings
- green alley

5

CIVIC THRESHOLD

- anchor River end of Main St.
- potential sculpture site
- sustainable stormwater demonstration site
- green alley



Main Street Opportunities
 Greening America's Capitals: Little Rock



NEIGHBORHOOD PARK

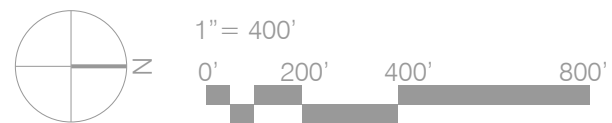
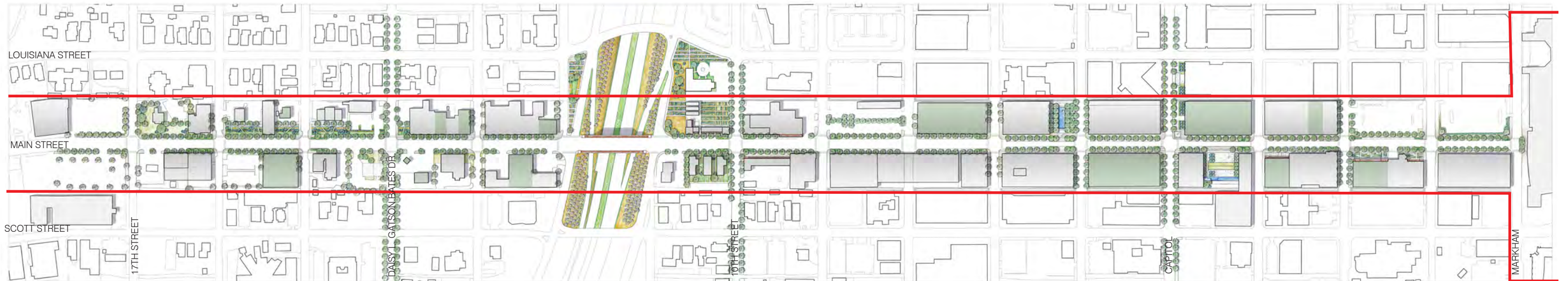
COMMUNITY MARKET INTERCHANGE

ARTS PARK

2

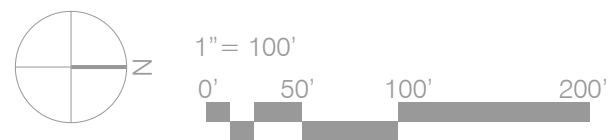
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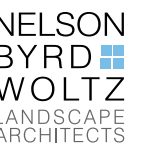
Three Opportunity Sites
 Greening America's Capitals: Little Rock

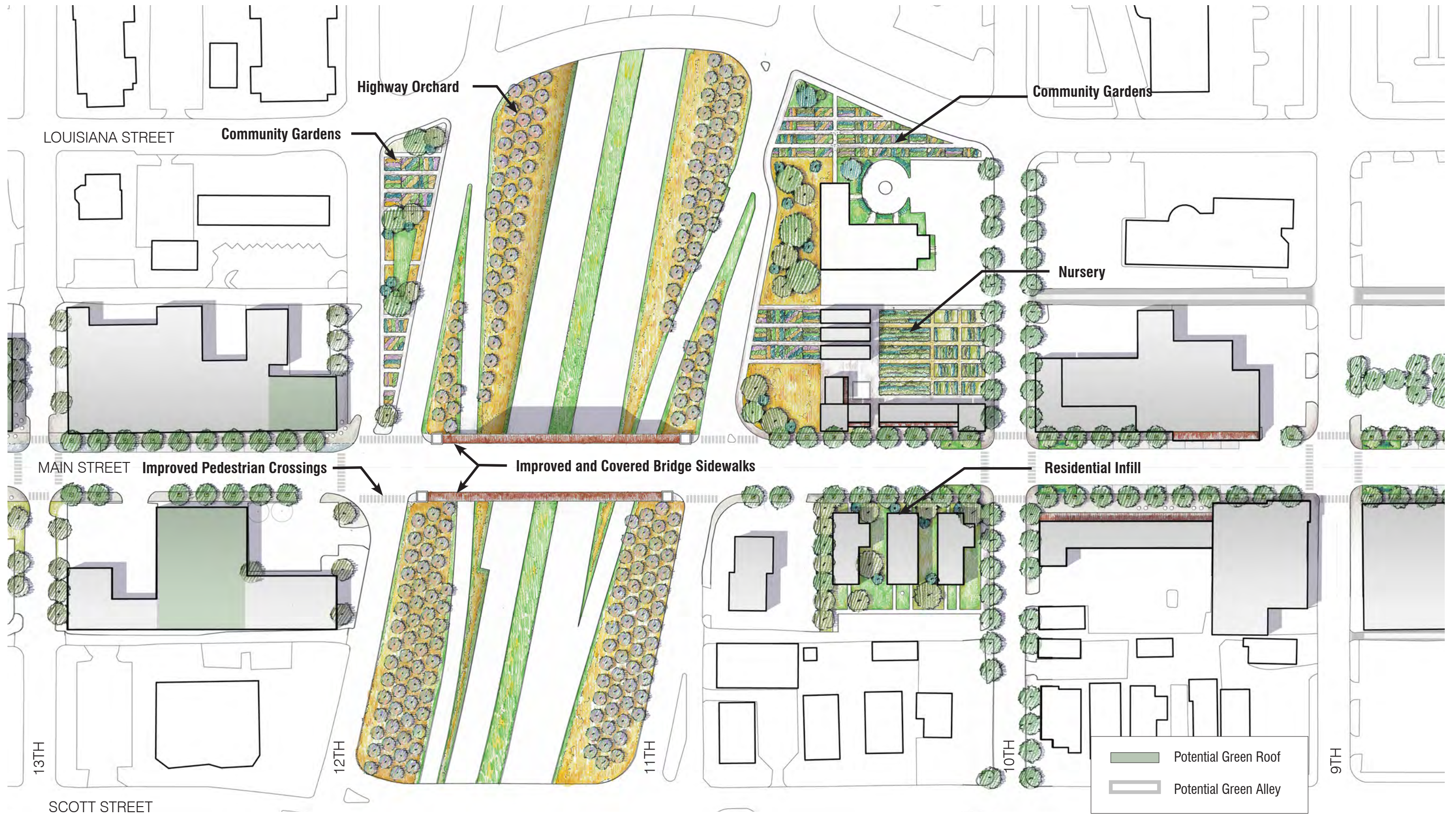




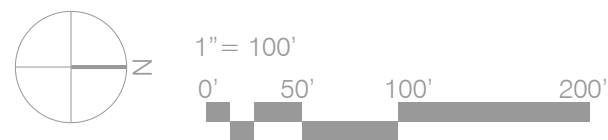
2 Neighborhood Park

Building on current development + vibrant community of SOMA
 Greening America's Capitals: Little Rock





3 Community Market Interchange
 Capitalizing on visibility of traffic along 630
 Greening America's Capitals: Little Rock

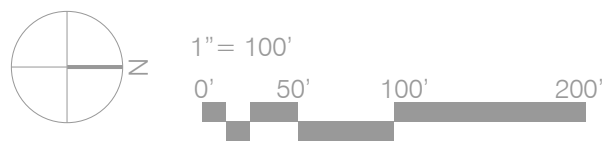


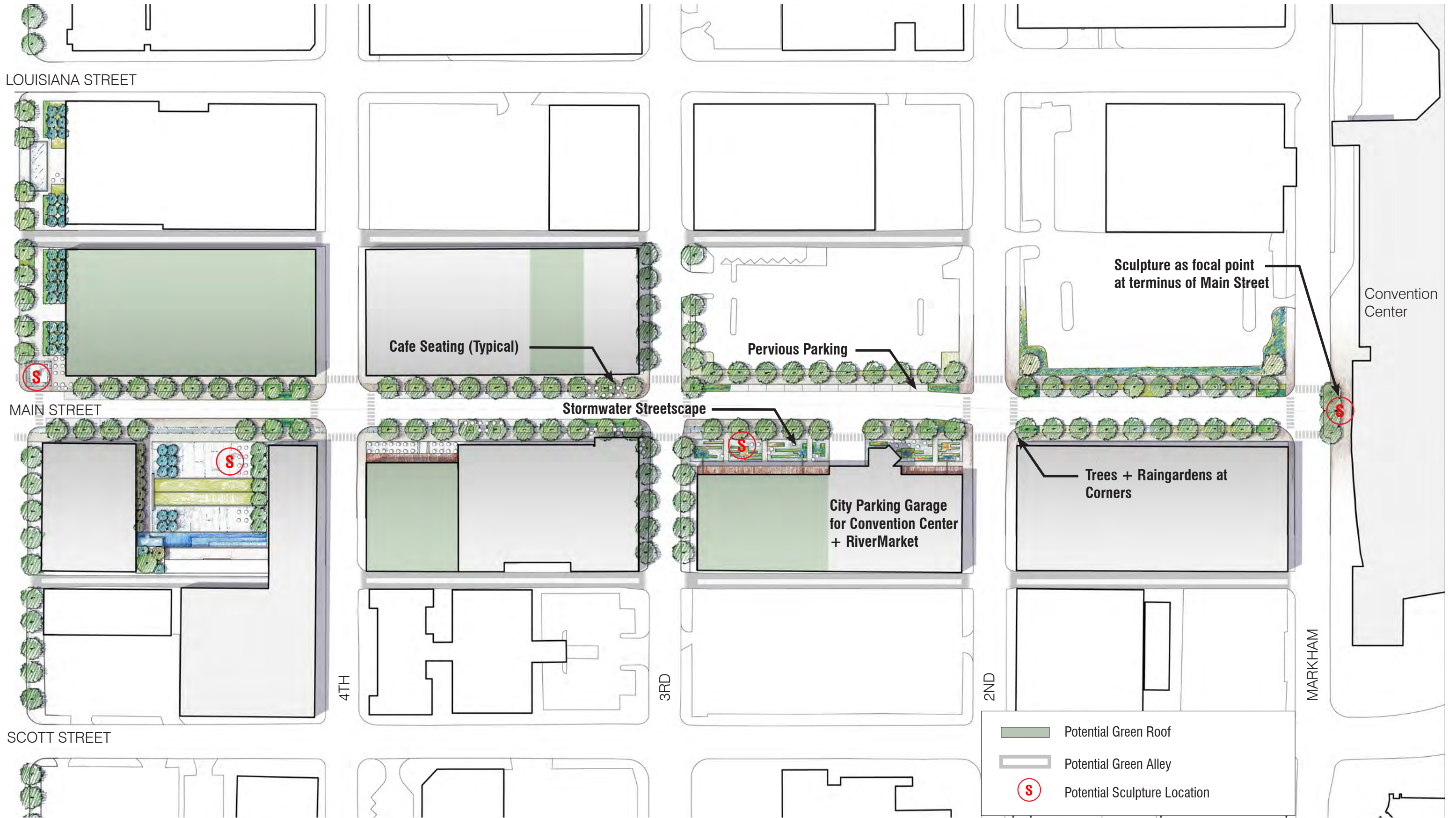


4 Arts Park and Plazas

Enhancing the Repertory Theater and downtown Business/Arts District with Civic Spaces

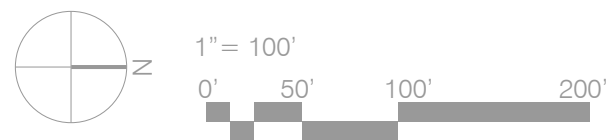
Greening America's Capitals: Little Rock

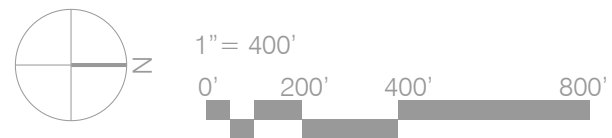
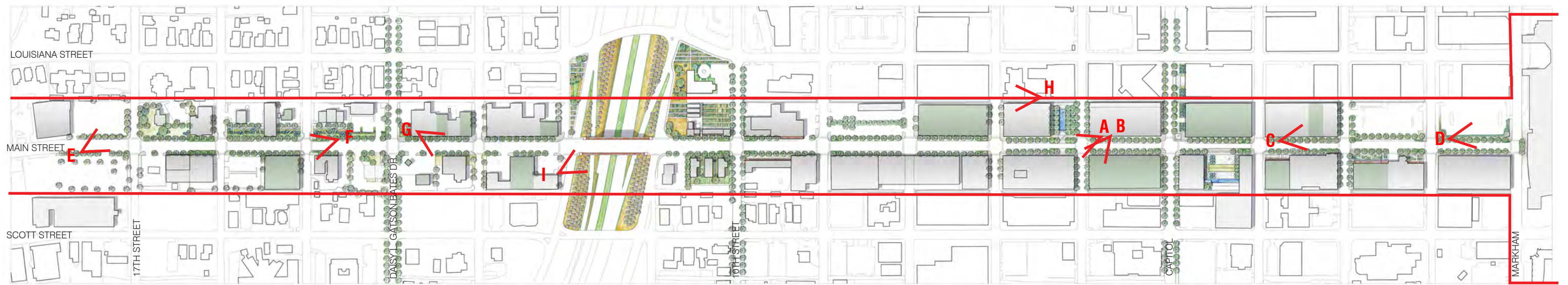




5 Civic Threshold

Capturing RiverMarket + Convention Center traffic for Main Street destinations
 Greening America's Capitals: Little Rock





Locations of Perspective Images
 Greening America's Capitals: Little Rock



A

BIORETENTION BASIN

The bioretention basins, or raingardens, along Main Street will detain and filter stormwater runoff, providing multiple benefits to the City's infrastructure by reducing need for expanded capacity, reducing wear on existing pipes, and filtering out pollutants before the water flows back into the river.

The raingardens also signal renewed civic commitment to the downtown and SOMA communities and serve as educational opportunities.

The basins will be planted with ecologically appropriate native plants, such as the *Eupatorium maculatum*, *Camassia leichtlinii* and *Juncus effusus* pictured here, that are well adapted to urban conditions and fluctuations in water levels. They are also meant to be attractive in multiple seasons and easily maintainable.

TROLLEY

Expanding the trolley route is another way to create a pedestrian- and environmentally-friendly Main Street, by reducing automobile dependence and easily linking vibrant destinations.



EXISTING VIEW (Southwest corner of 6th and Main, with Repertory Theater in background)



PROPOSED BIORETENTION BASIN + TROLLEY SYSTEM

Conceptual Street Perspectives

Greening America's Capitals: Little Rock



B

DOWNSPOUT RAIN GARDEN

The raingardens can be directly linked to downspouts from surrounding buildings. This creates a dramatic visible sign to visitors about the commitment of the City to a more sustainable system, and about where the water is coming from and how it is flowing in their streets.

GREEN ROOFS

Green roofs are important in retaining and detaining stormwater, reducing the ambient air temperature (or urban heat island effect) in the City, and reducing the heating and cooling needs of a building.

POROUS PAVERS

Porous pavers provide structured surfaces for parking, yet let stormwater percolate into the ground and into the nearby raingardens.



EXISTING VIEW (Southeast corner of 6th and Main, with Repertory Theater in background)



PROPOSED BIORETENTION BASIN + PORUS PAVING PARKING LANE + DOWNSPOUT RAIN GARDEN + TROLLEY TRACK

Conceptual Street Perspectives

Greening America's Capitals: Little Rock



C

CAFE SPACE

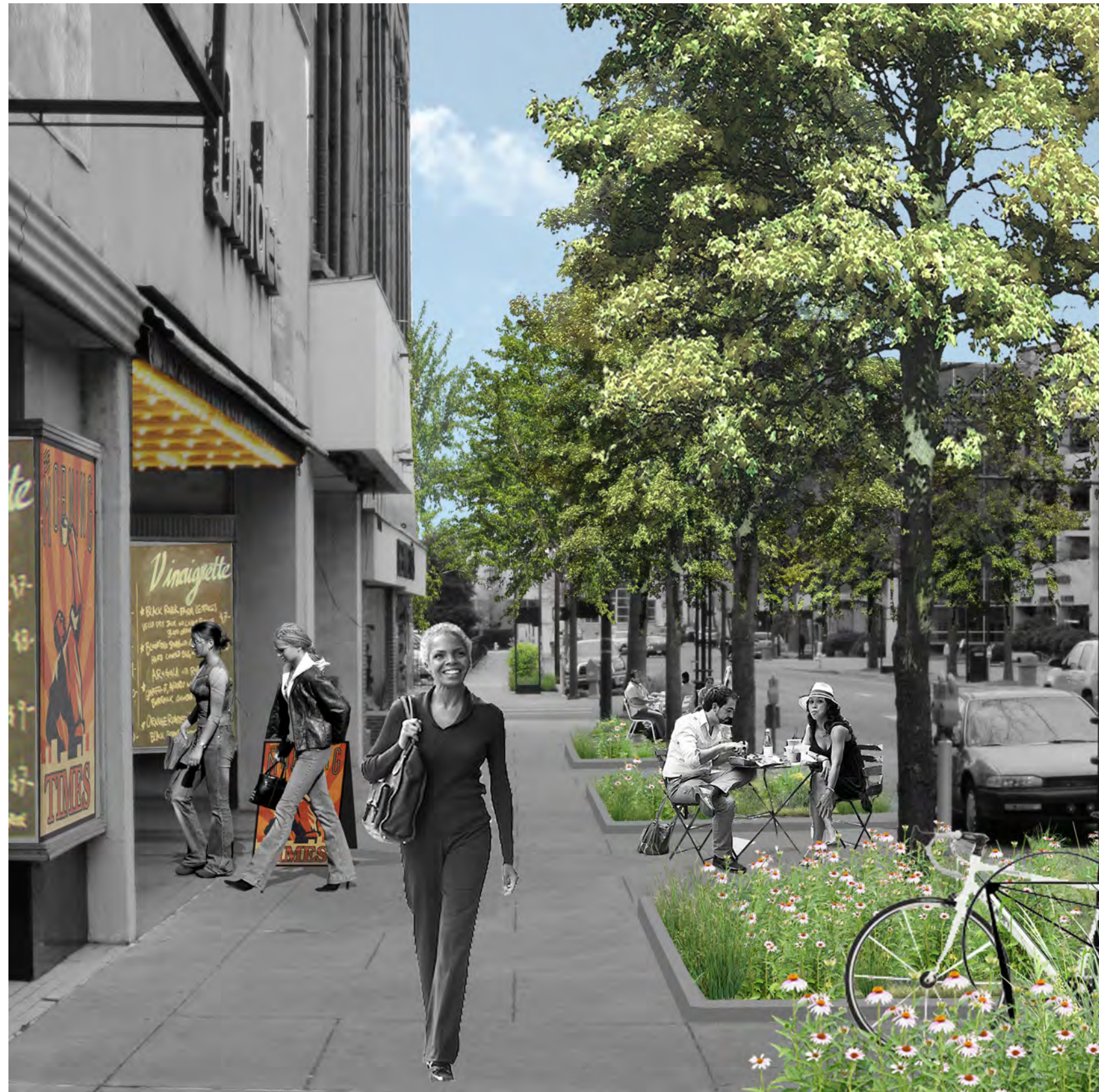
Main Street can become an urban destination of choice, offering shaded and vibrant cafe seating. This will encourage the lively arts and entertainment establishments in the downtown, and build on the vibrancy of the Rivermarket scene.

BIKE RACKS

Encouraging multi-modal transportation is important for Main Street. Adding bike racks in addition to the expanded trolley line and pedestrian amenities creates a healthy and accessible downtown and enhances the ability of Main Street to become a destination.



EXISTING VIEW (Main Street, looking north from 4th)



PROPOSED BIORETENTION BASIN + CAFE SPACE + BIKE RACKS

Conceptual Street Perspectives

Greening America's Capitals: Little Rock



D

GREENING of SURFACE PARKING

Surface parking lots are major opportunities to capture and filter stormwater runoff and provide a richer pedestrian experience. Bioswales between the sidewalk and parking lot (as shown on the left of the photo-rendering) can be lushly planted, shading pedestrians and cars, and reducing the urban heat island effect. In addition, people are more likely to walk further, or browse on a street for longer, when their route is shaded, varied and beautiful.



EXISTING VIEW (Main Street, looking north from 3rd)



PROPOSED BIORETENTION BASIN + POROUS PAVING PARKING LANE + GREENING OF SURFACE PARKING

Conceptual Street Perspectives
Greening America's Capitals: Little Rock



E

POST OFFICE PARKING LOT

The surface parking lot of the Post Office is an opportune site for bioretention basins (raingardens) that could capture and filter water from the large existing parking lot.



EXISTING VIEW (Main Street, showing Post Office parking lot and street at 17th).



PROPOSED BIORETENTION BASIN + NATIVE SHADE TREE PLANTINGS

Conceptual Street Perspectives
Greening America's Capitals: Little Rock



F

NEW CROSSWALKS

Main Street needs to be accessible to all users, and to be scaled to the pedestrian. New crosswalks are an integral part of this effort, particularly in the SOMA neighborhood where the street is wider and traffic seems to therefore move faster.

The crosswalks can also be used to successfully identify the neighborhood or the Main Street green infrastructure program. (See Precedents: Indianapolis Cultural Trail as an example).

NEW BUILDINGS

Appropriately scaled new construction will be important in revitalizing the corridor, and is already happening on some key parcels. Wherever feasible, facades should engage the pedestrian on the sidewalk, have minimal setbacks, and place parking in the rear to allow gardens and civic space along the street.



EXISTING VIEW (Corner of Main and 15th, looking south)



PROPOSED NEW BUILDINGS + NEW CROSSWALKS + BIORETENTION BASIN

Conceptual Street Perspectives
Greening America's Capitals: Little Rock



G

MURALS

Public art, including murals, can also play an integral part of any civic streetscape. Murals can represent the history, culture and hopes of the City or of a neighborhood. It can also be an important way to engage different parts of the community, including building owners and developers, students and educators (who may develop the art as a school project), artists, and even scientists, historians and tourists. (See Precedents: Philadelphia's Mural Arts Program as an example).



EXISTING VIEW (Main Street, looking northeast towards 13th)



PROPOSED POROUS PARKING + SHADE TREES + MURAL



GREEN ALLEYS

Alleys can be logical places to make significant improvements in green infrastructure. Any of the strategies utilized on streets (green roofs, downspouts into raingardens, porous pavers, murals) can be used in alleys. Porous paving is particularly effective, as trucks can still drive on it, but it will face less wear and tear than on regular streets. See Precedents: Chicago's Green Alley Program as an example.



EXISTING VIEW (Alley east of Main between 6th and 7th)



PROPOSED GREEN ALLEY (BIO-RETENTION BASIN + GREEN ROOF + DOWNSPOUT + POROUS PAVERS + MURAL)

Conceptual Street Perspectives Greening America's Capitals: Little Rock





BRIDGE IMPROVEMENTS

The pedestrian experience on the bridge connecting downtown and SOMA can be strengthened by adding a distinctive shade canopy and sidewalks along both sides. The shade canopy could incorporate solar panels to power street or pedestrian lighting.

HIGHWAY PLANTINGS

The highway embankments of I-630 are a great place to make a bold statement about Little Rock's new initiatives. Planting the embankments with American crabapple - the Arkansas state tree - creates an instant identity as a sustainable, beautiful state capital.



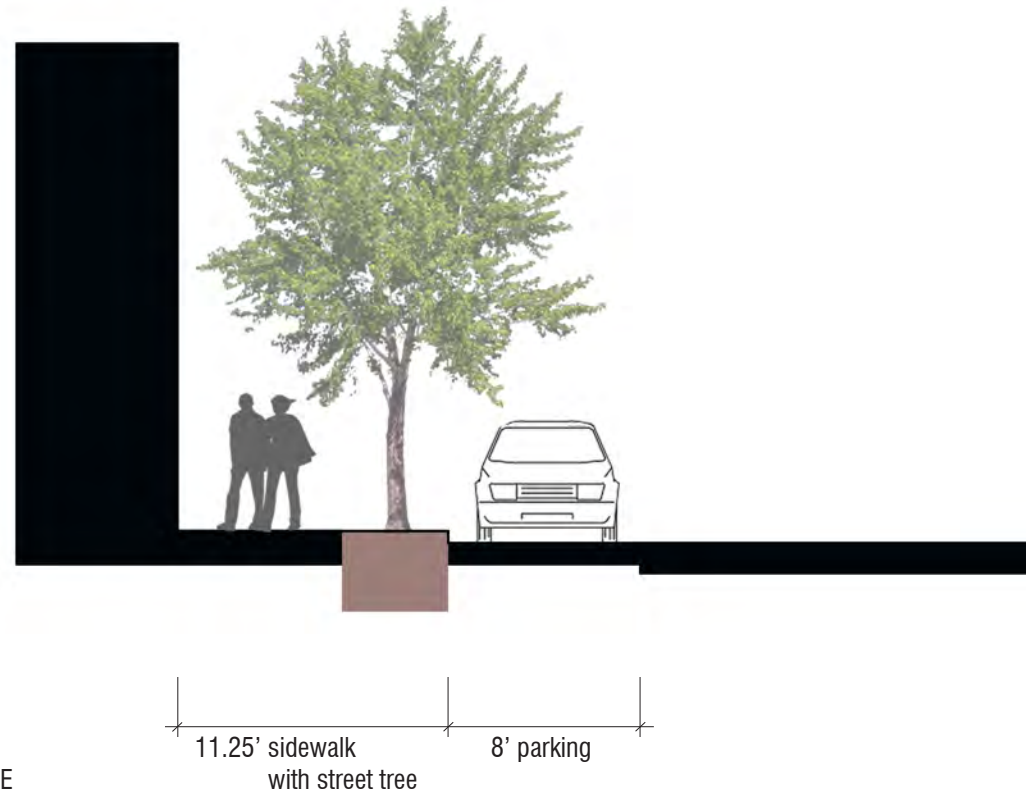
EXISTING VIEW (Bridge over highway 630, from southeast)



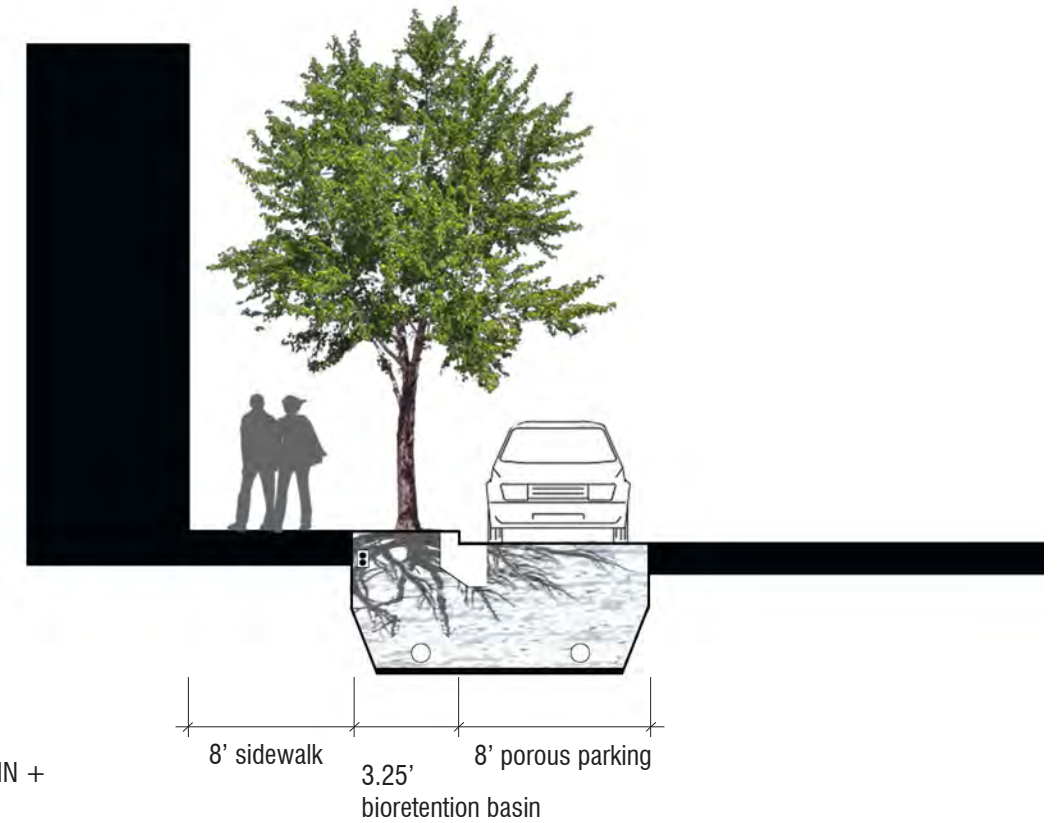
PROPOSED BRIDGE ENHANCEMENTS FOR PEDESTRIAN EXPERIENCE

Conceptual Street Perspectives Greening America's Capitals: Little Rock

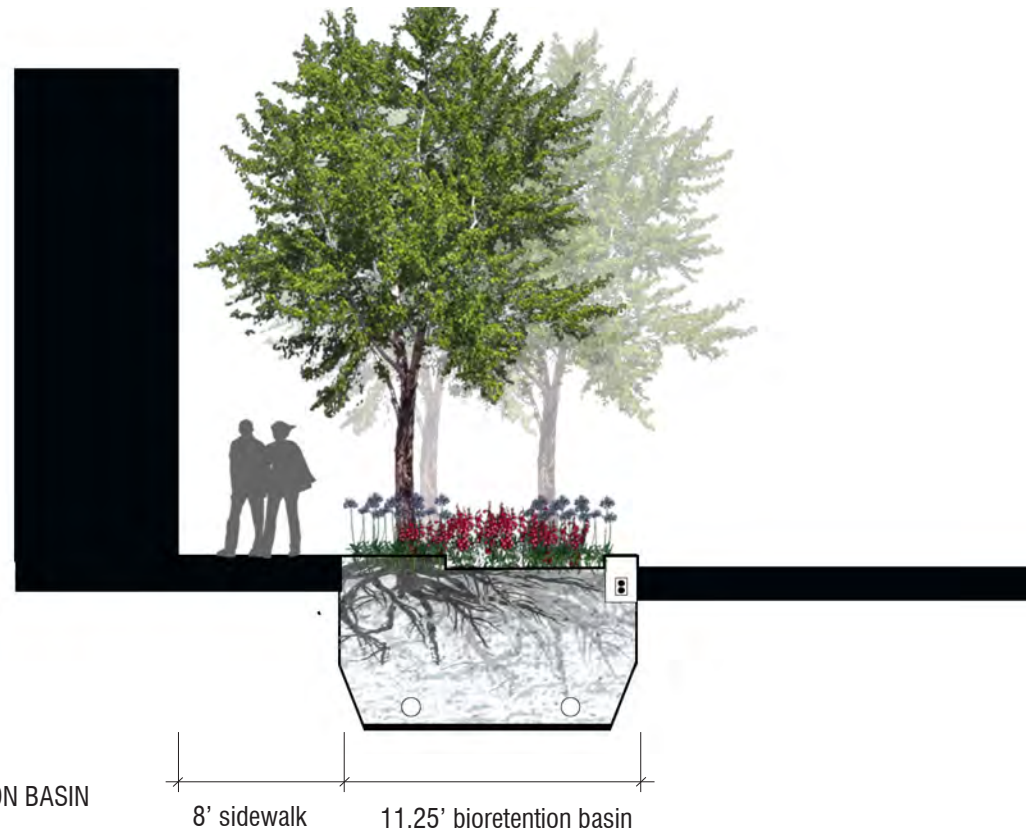




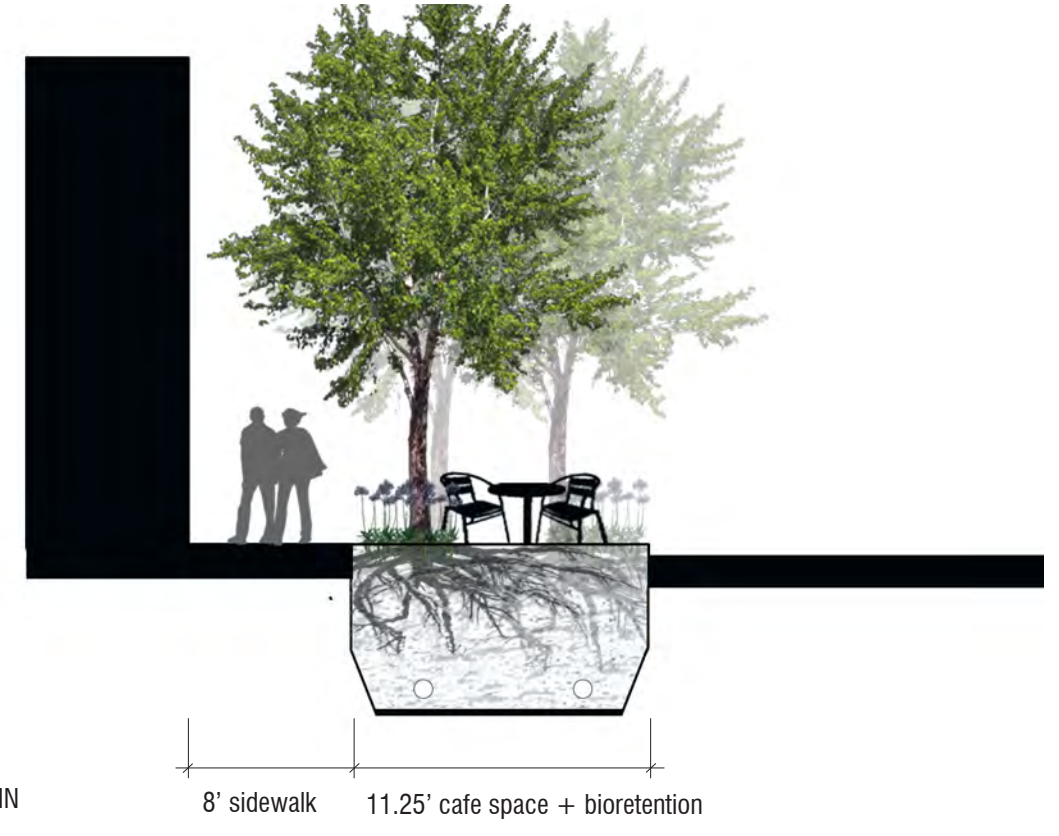
EXISTING: LIMITED TREE ROOT SPACE + IMPERVIOUS PARKING



SECTION 'A': PROPOSED BIORETENTION BASIN + POROUS PARKING



SECTION 'B': PROPOSED BIORETENTION BASIN (PLANTED)

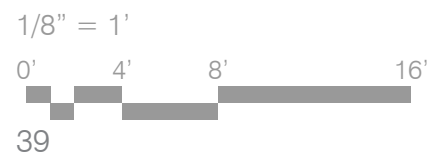
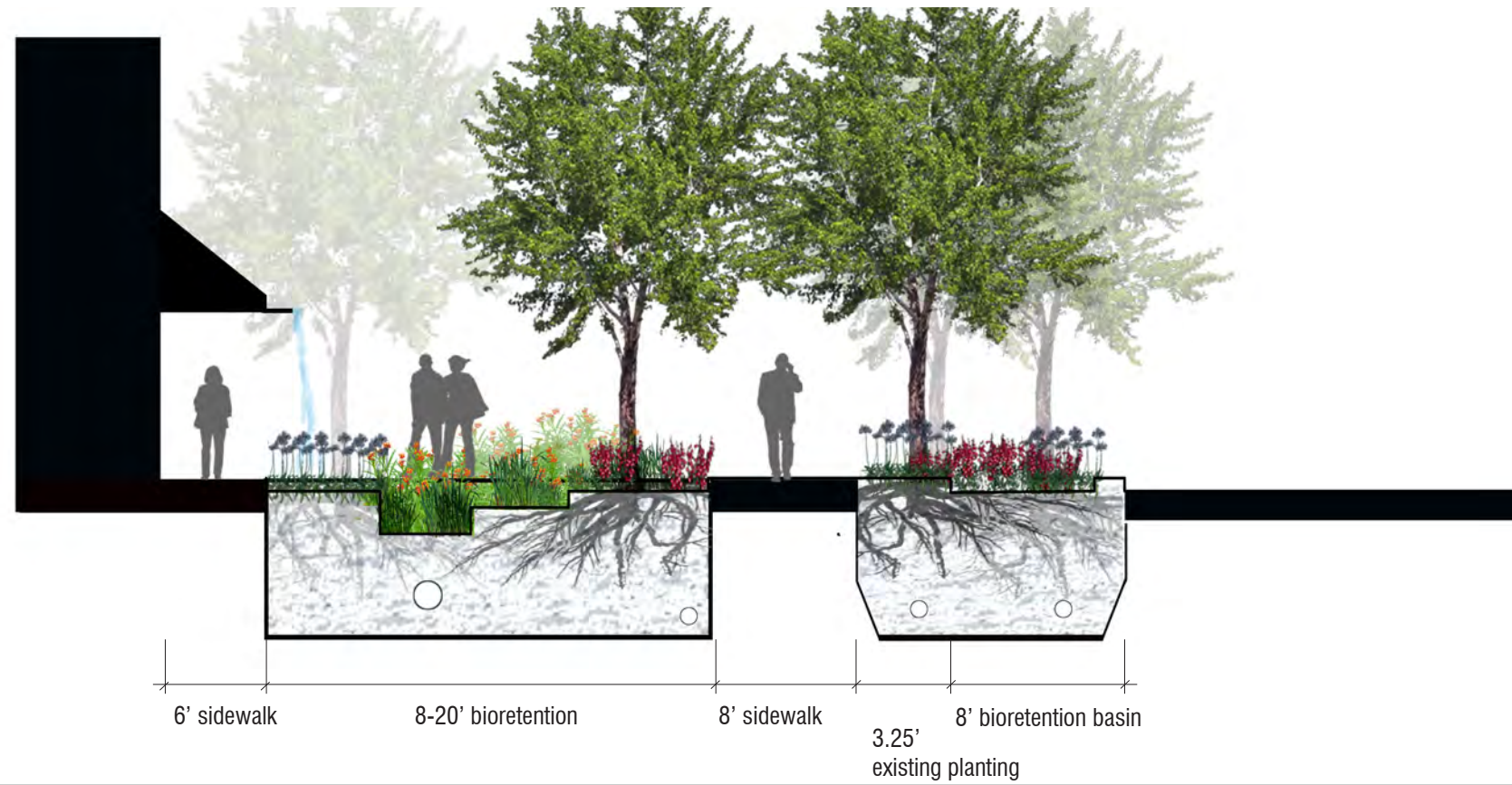
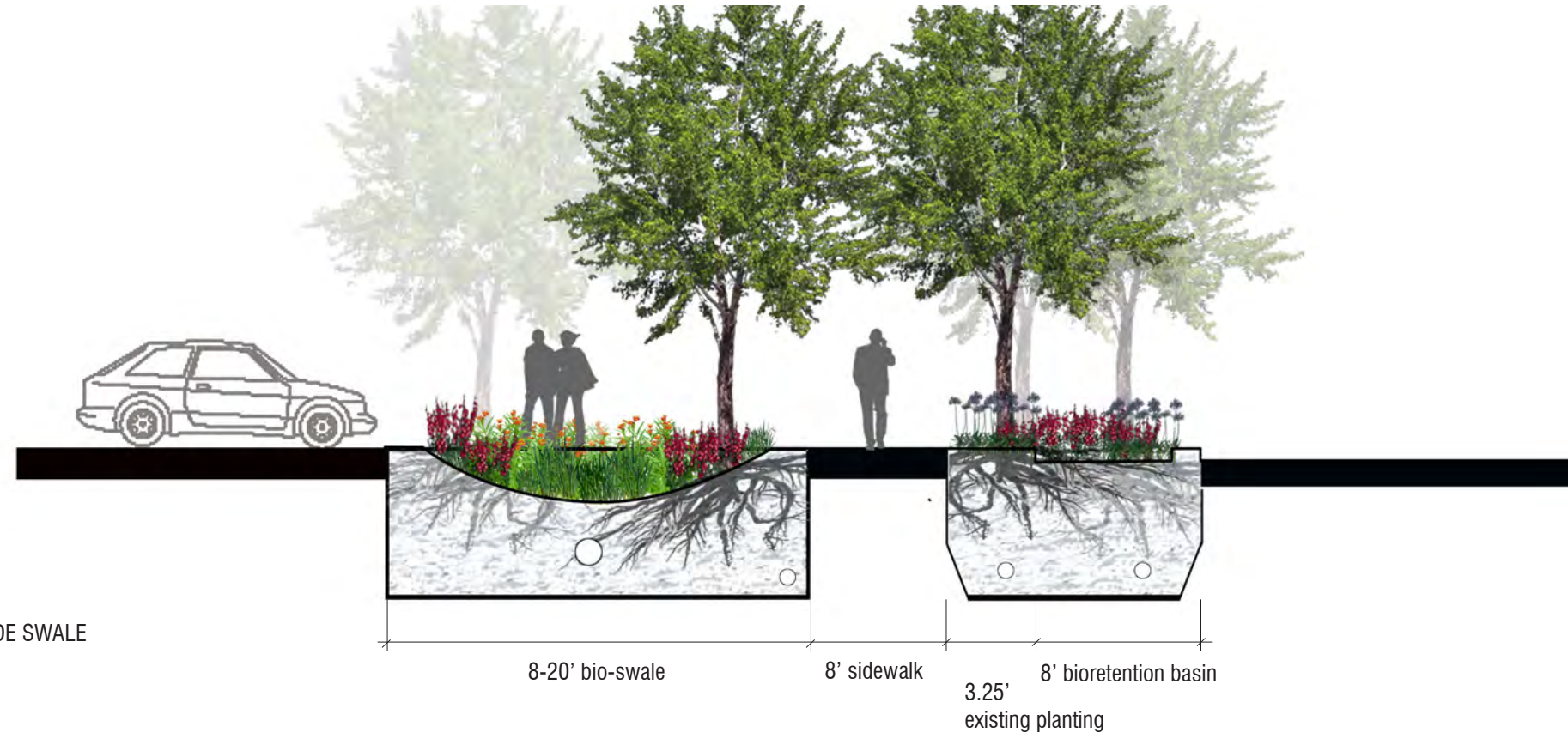


SECTION 'B': PROPOSED BIORETENTION BASIN (CAFE)



Conceptual Street Sections
Greening America's Capitals: Little Rock





Conceptual Street Sections
 Greening America's Capitals: Little Rock



PRECEDENTS

CASE STUDIES + STREETScape ELEMENTS

V. PRECEDENTS

The following case studies* are presented because they represent excellent and instructive examples of using sustainable infrastructure to revitalize an urban neighborhood. There is a growing body of literature and expertise in academia, at professional conference, in government agencies, and in city departments. While much of this is disseminated on the web, we encourage Little Rock staff to personally contact relevant cities and agencies to learn more. Street infrastructures- with their complex interactions between utilities, traffic, historic needs and neighborhood concerns, hydrology and existing buildings- will always be singular projects. However, there are important lessons about funding, design, and most importantly, implementation, that can be gained from previous experiences.

- Chicago has been a leader in green building and infrastructure for several years. Their Sustainable Street Pilot Program includes cost analysis, implementation documentation, and post-construction evaluation that is meant to help other cities in creating green streets. They also have established a city-wide Green Alleys program and handbook.
- Lansing, Michigan has recently re-built a section of its Main Street near the Capitol building and carefully designed and sequenced construction to deal with necessary utility improvements at the same time as stormwater. Their scale and scope is comparable to Little Rock.
- Indianapolis' Cultural Trail stretches across the city, but the quality and integration of signage, lighting, crosswalks, bike facilities, raingardens and public art along the trail, particularly in the downtown sections, are well worth a close look.
- Lynchburg is another example of creating a new network of pedestrian-friendly streets that also deal with significant stormwater issues. The raingardens and porous parking are both beautiful and functional.
- Birmingham Railroad Park and CityGarden in St. Louis are examples of the redevelopment potential of sustainable infrastructure on underutilized blocks in an urban core. In both examples, world-class, destination parks were created downtown and have spurred additional downtown development and excitement.
- CityGarden employs a number of green infrastructure tactics related to stormwater that help alleviate the impact of runoff on St. Louis' overburdened combined stormwater/sanitary sewer system, and on the Mississippi River to which it discharges.

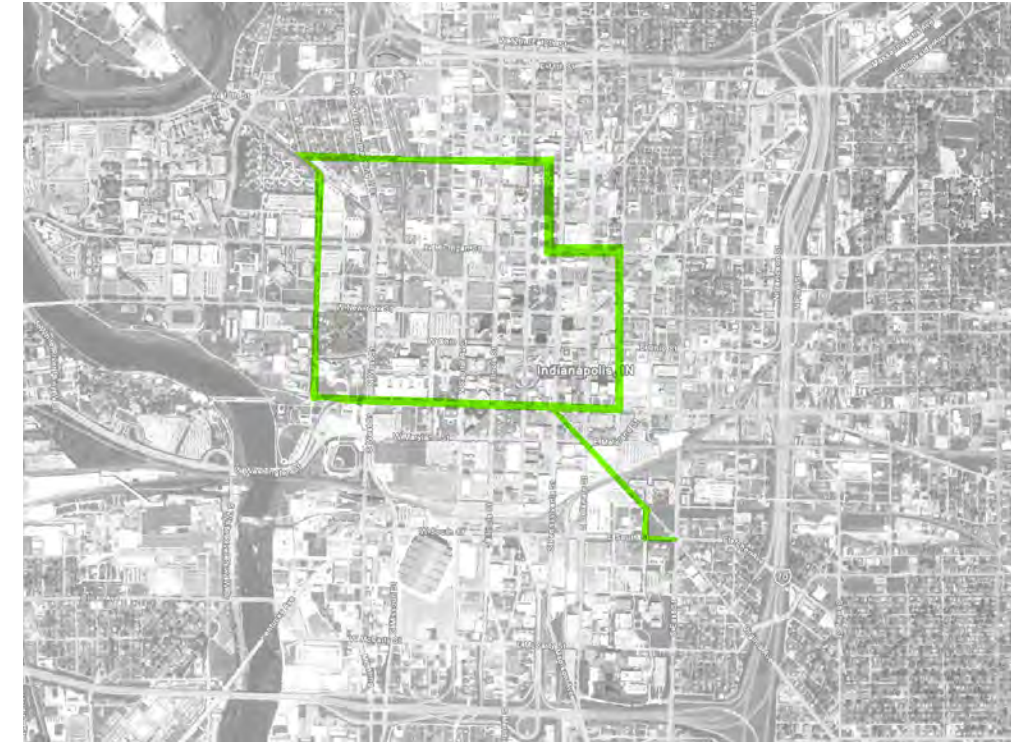
*Information and photos gathered from individual City websites as noted, GoogleEarth, NBWLA, www.sitephocus.com, and *Green Streets As A Community Revitalization Strategy Webinar* hosted by US EPA Region 5, March 1, 2011.



Chicago, IL: Cermak Rd./Blue Island Ave. Sustainable Street Pilot Program



Birmingham, AL: Railroad Park



Indianapolis, IN: Cultural Trail (bike and pedestrian streetscape)



Lansing, MI: Main Street Sustainable Streetscape



St. Louis, MO: CityGarden



Little Rock, AR: Main Street

LANSING: MICHIGAN AVENUE STREETScape

Who: City of Lansing (Michigan), with C2AE and Tetratich

Scope: Urban streetscape (4 blocks)

When: task force 2004, Design 2006, Completed 2008

Cost/Funding Sources:

MDEQ - Clean Michigan Initiative Grant; EPA Region 5 - 319 Non-point Source grant; Michigan Dept of Transportation - Federal Transportation Enhancement Funding

Contact/More Information:

Chad Gamble, City of Lansing

www.lansingmi.gov/pubserv/cso/michigan_ave_rain_gardens.jsp

<http://gogreengolansing.com/>

www.c2ae.com/who-we-serve/municipal/michigan-ave.html

Notes:

A collaboration between federal, state, and local government, and private businesses and contractors, for both funding and implementation. Within the City, collaboration was particularly important to make the utilities and engineering work smoothly with the rain gardens.

The rain gardens will be part of new EPA case study to document the innovation, quality, implementation activities and institutional arrangements that led to a positive outcome on the project.

The rain gardens were developed in conjunction with the City's CSO work as a means to clean, control and reuse storm water in an urban environment. They are an initial step as part of a much larger water quality improvement initiative throughout the City in conjunction with the City's Storm Water NPDES Phase II permitting efforts.

As part of this same project, C2AE designed the pedestrian approach to the State Capitol building along Michigan Avenue to complement the street improvements made in conjunction with CSO separation. The concept was to adorn Lansing's main downtown thoroughfare with a warm and friendly streetscape while highlighting the City's innovation and "green" focus through the use of the rain gardens. Special attention was given to selecting plantings that would create a formal yet inviting approach to the Capitol. The trees and plant beds were accented by ornamental paving and site furnishings.

Design Challenges & Solutions

- Public Perception esp. Pedestrian safety and storefront access
- Bioretention Layout
 - Existing utilities
 - Tie-in to Existing Storm System
 - Existing Landscaping and Driveways
 - Constructability/Structural and cost concerns



RECARGA Flow Method Assumptions:

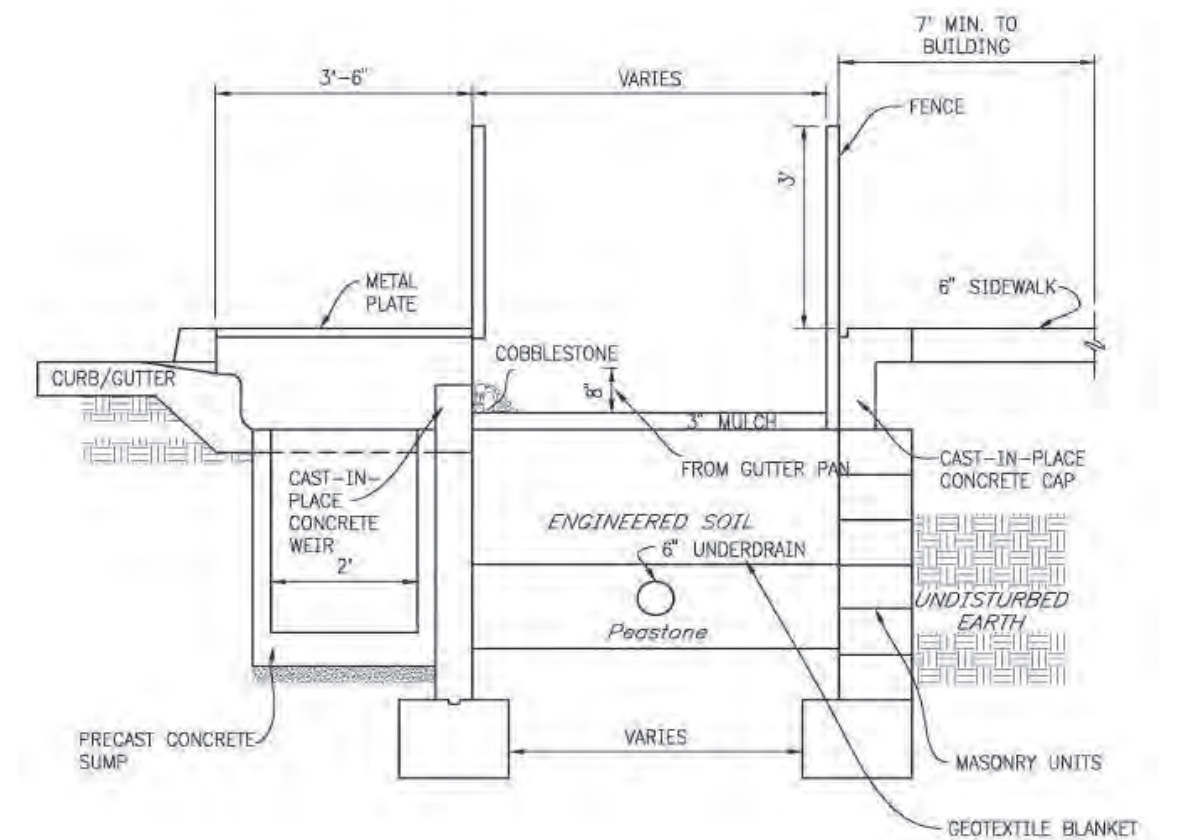
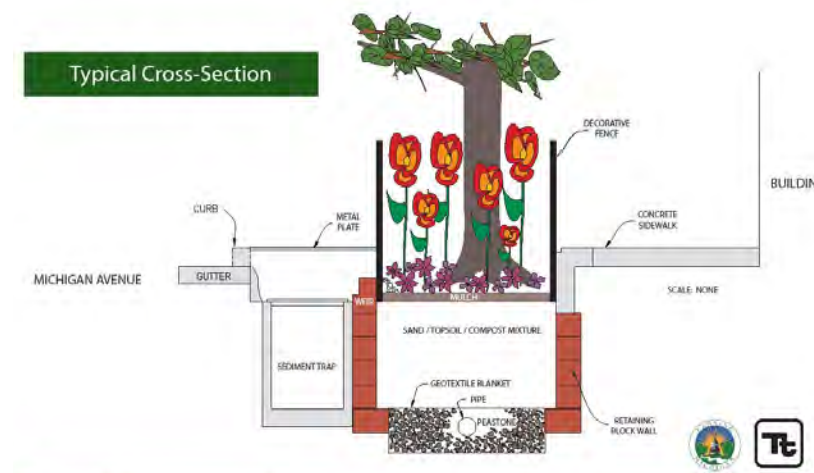
- Native soil allows no infiltration
- Engineered soil ~ 4 in/hr
- Inlet is not constrained
- No backwater effect
- SCS Type II Distribution

Typical Bioretention (555 SF, 0.37 ac tributary)

- No overflow at a 1-inch event
- Overflow at 2-month event (1.12 in.)

Largest Bioretention (1766 SF, 0.28 ac tributary)

- No overflow at 25-year event (4.09 in.)
- Overflow at 50-year event (4.63 in.)



Precedent: Lansing

Greening America's Capitals: Little Rock



NELSON
BYRD
WOLTZ
LANDSCAPE
ARCHITECTS



Main Street after construction



Main Street during construction



Main Street after construction



Main Street after construction

Precedent: Lansing
Greening America's Capitals: Little Rock

CHICAGO: CERMAK RD-BLUE ISLAND AVENUE SUSTAINABLE STREET PILOT

Who: City of Chicago Department of Transportation

Scope: Urban corridor, streetscape best practices

When: Pilot for best practices; under construction 2011

Cost/Funding Sources: \$16.6 million. Funded by the City of Chicago, with grants from Illinois Environmental Protection Agency and Federal Highway Administration. Support from ComEd.

Contact/More Information: CBISS Brochure (pdf)

Janet Attarian, Project Director

jattarian@cityofchicago.org

Notes:

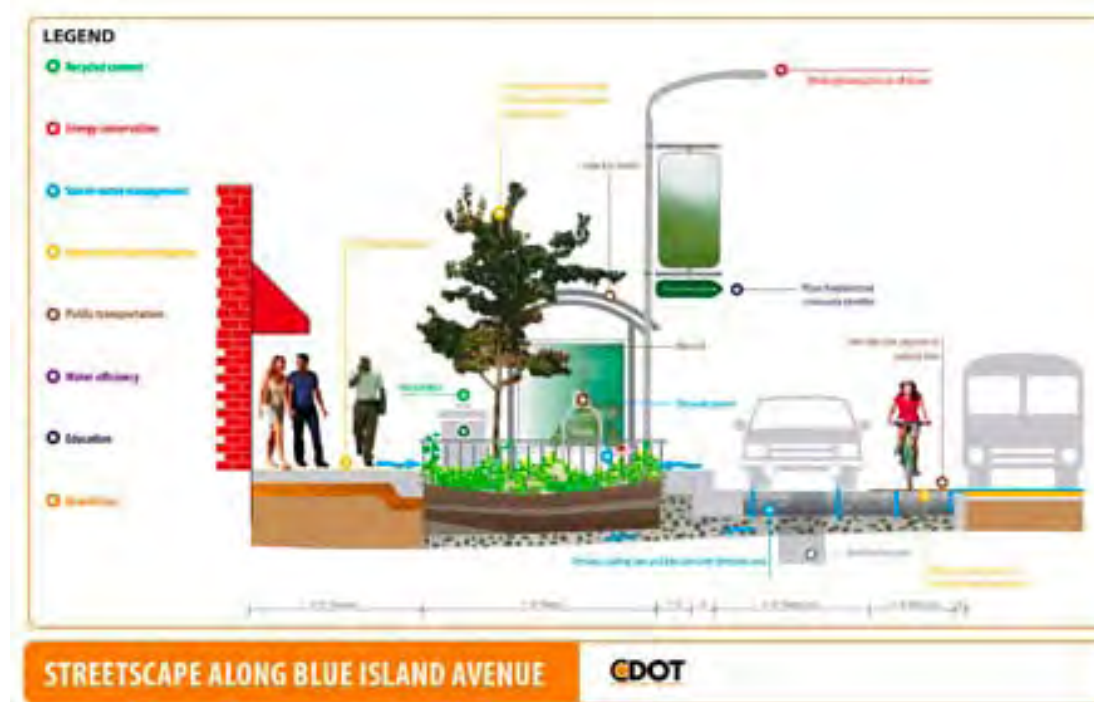
The city's first "sustainable streetscape" intended to use the most innovative practices in order to test and monitor implementation and performance at all levels. Cost is 21% below average block cost. The project is being evaluated based on LEED-ND, Sustainable Sites, Illinois DOT sustainability standards and others for comparative purposes. Attarian stressed that the project should create a beautiful space that residents want to use for daily activities.

The 1.5-mile-long streetscape will include new sidewalk and roadway surfaces, street trees and landscaped planters, roadway and pedestrian lighting, and light pole and free standing community identifier elements. Sustainable features include:

- Recycled content—Recycle at least 90 percent of construction waste, and specify new materials with at least 10 percent recycled content. (Large contractor learning curve).
- Energy conservation—reduce energy use below the typical streetscape baseline; use reflective surfaces on sidewalks and roadways; use dark-sky-friendly light fixtures
- Stormwater management—Divert 80 percent of the typical average annual rainfall from the storm sewer system through use of pervious pavements, bioswales and infiltration planters.
- Urban heat island mitigation—reduce ambient summer temperatures on streets and sidewalks through use of reflective pavements on roadways, light-colored sidewalks and trees for shading
- Alternative transportation— provide new ADA compliant sidewalks and ramps, improve bus stops with signage, lighting; add bike lanes along Blue Island and bike racks throughout project
- Water efficiency—eliminate potable water sources for irrigation; use native or climate-adapted, drought-tolerant plants for all landscaping
- Education—through community identifiers and self-guided tour brochures highlight innovative, sustainable features of streetscape
- Monitoring—CDOT will partner with the Metropolitan Water Reclamation District to monitor the project and measure its environmental impacts.



Cermak Road during and after construction of permeable parking, stormwater storage, and sidewalk planters.



Precedent: Chicago

Greening America's Capitals: Little Rock

CHICAGO: GREEN ALLEYS PROGRAM

Who: City of Chicago Department of Transportation

Scope: City alleys (over 100 installed)

When: Pilot began 2006; continues

Funding Sources:

Contact/More Information:

Green Alley Handbook (pdf)

http://www.cityofchicago.org/city/en/depts/cdot/provdrs/alley/svcs/green_alleys.html

Janet Attarian, Project Director

jattarian@cityofchicago.org

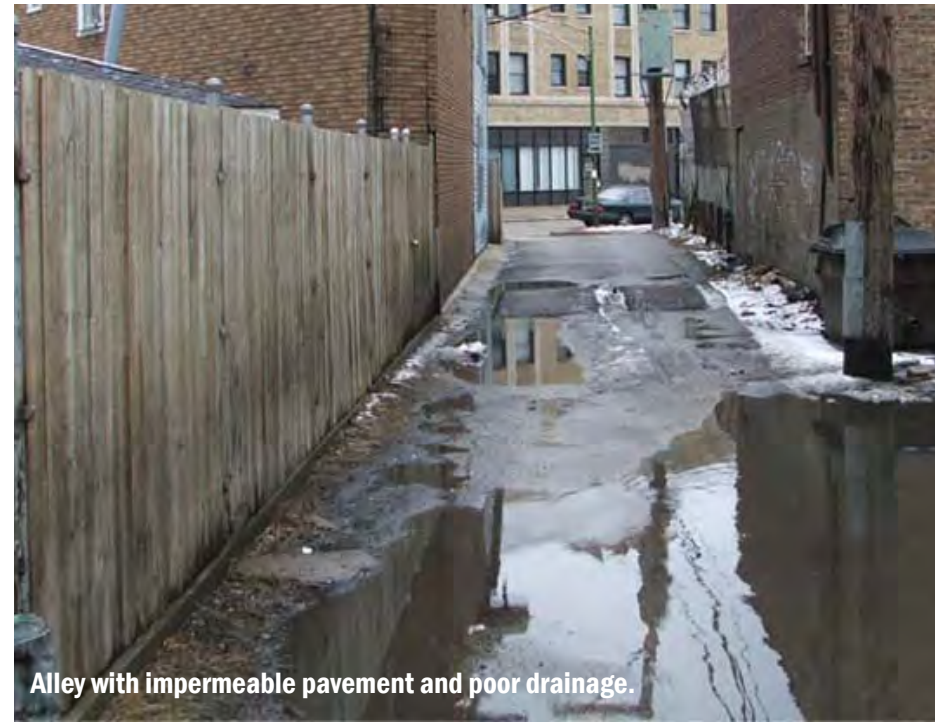
Notes:

Green alleys incorporate a variety of characteristics:

- Permeable pavements (asphalt, concrete or pavers) that allow stormwater to filter through the pavement and drain into the ground, instead of collecting on hard surfaces or draining into the sewer system. The pavement can be used on the full width of an alley, or simply in a center trench.
- Open bottom catch basins--installed in alleys to capture water and funnel it into the ground
- High-albedo pavement, a lighter-colored surface that reflects sunlight instead of absorbing it, helping reduce the urban heat island effect
- Recycled materials, such as concrete aggregate, slag and recycled tire rubber

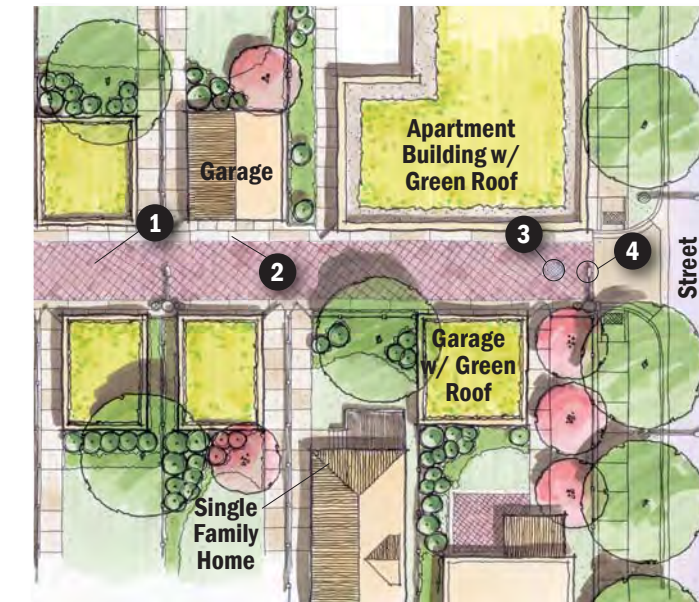
Other green alley techniques include using proper grading and pitch to facilitate drainage, and using dark sky-compliant light fixtures to reduce light pollution and provide uniform illumination.

Green Alleys are part of CDOT's "green infrastructure" -- which includes recycled construction materials, permeable pavements and other efforts.

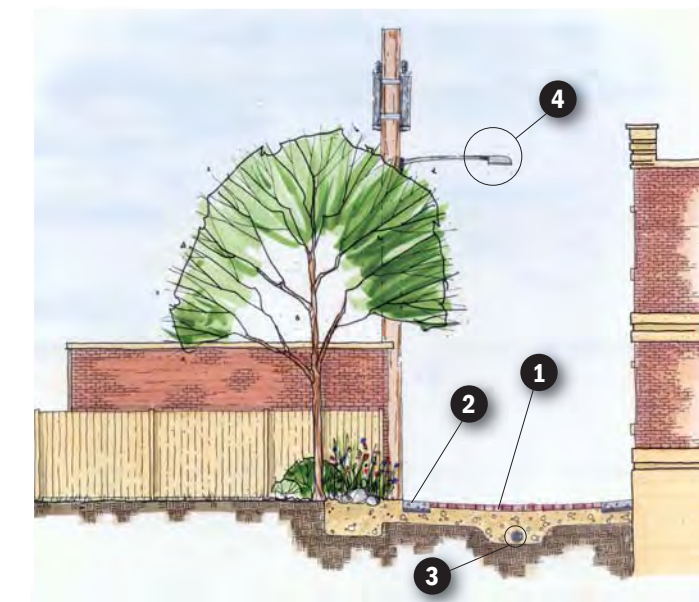


Green Alley Pilot Approach #2:

Full Alley Infiltration Using Permeable Pavement



Plan



Section

There are 4 different pilot approaches outlined in the Handbook, with varying degrees permeability, illustrated with diagrammatic plans and sections.

Precedent: Chicago

Greening America's Capitals: Little Rock



NELSON
BYRD
WOLTZ
LANDSCAPE
ARCHITECTS

BIRMINGHAM: THREE PARKS INITIATIVE and PRIZE2theFUTURE CHALLENGE

Who: Community Foundation of Greater Birmingham
Scope: Competition for ideas for a new park
When: Spring 2011
Cost/Funding Sources:
Contact/More Information: www.prize2thefuture.org

Notes:

The Community Foundation committed \$1 million in 2006 to a three-park project. Over the next 15 months, in partnership with Region 2020, the Community Foundation led the Three Park Initiative, a campaign to raise money from area philanthropic foundations and businesses for Railroad Park, Red Mountain Park and Ruffner Mountain Nature Center.

When this part of the campaign ended in January 2008, businesses and foundations had committed more than \$15 million to fund the first phase of all three parks. These gifts, combined with federal, county and city dollars and additional fundraising by the individual parks, will help to create Railroad Park as a new urban destination and Red Mountain Park as a ridgetop attraction in the Oxmoor Valley and to expand Ruffner Mountain, including a new education center and wetlands area.

Prize2theFuture Background:

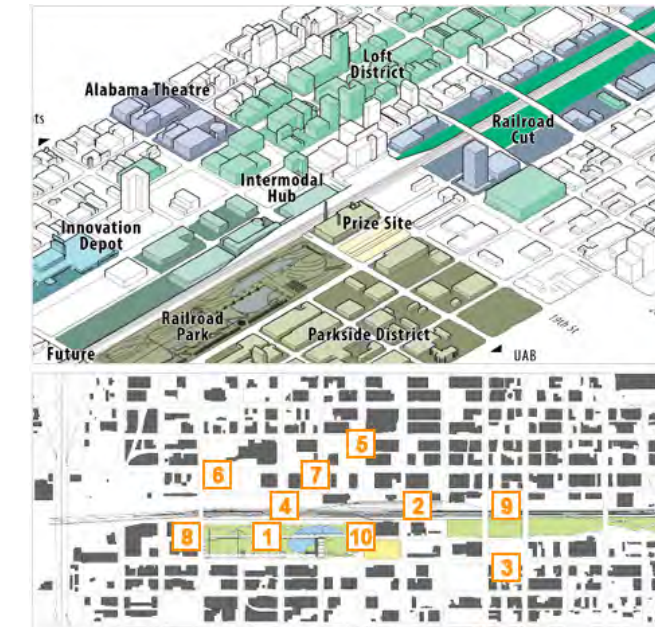
Three years ago, in response to citizen requests for more parks and greenspace across the city of Birmingham, Alabama, the Community Foundation of Greater Birmingham provided leadership and \$1 million dollar in seed money to create two new parks and enhance another one. The Three Parks Initiative represents more than 2,000 acres total and is now well underway, transforming Greater Birmingham into a national leader in terms of greenspace per capita.

The enthusiasm generated by Railroad Park [see separate sheet] is just the beginning of energizing the city center. Visionary donors - people committed to supporting the next transformational investment of the Community Foundation - are investing in the Prize2theFuture to draw the best ideas from individuals and teams from around the world. The Community Foundation and the City of Birmingham have identified a one square block area immediately east of Railroad Park that now is underutilized as a surface parking lot.

The Prize2theFuture physical site is part of a longer range master plan to connect Railroad Park to the historic Sloss Furnaces National Landmark by creating a linear, green connector path that runs through the heart of Birmingham. A regeneration of the Prize Site holds the potential for renewal, for connectivity and for vibrancy that will serve as important signs of further innovative developments to come. In short, it's a block that's critical to the Greater Birmingham community.



The Prize2theFuture Challenge:
 "What is your idea for the Prize2theFuture physical site that will transform Birmingham into a cooler, more vibrant city?"



The \$50,000 Prize Site
 Prize2theFuture, an international online competition, is seeking to transform this city block into something cool.
 From this aerial view looking north over the eastern end of Railroad Park, the prize site is clearly visible. It's the parking lot just to the right of the two tall chimneys of Alabama Power Company's Powell Avenue Steam Plant.
 Originally opened in 1895, the plant still supplies heat to buildings in Midtown Birmingham and the UAB campus nearby.

Precedent: Birmingham
 Greening America's Capitals: Little Rock



BIRMINGHAM: RAILROAD PARK

Who: City of Birmingham/ Railroad Park Foundation (client); Tom Leader Studio (landscape architect)

Scope: Urban park (re-use; 4 blocks, 19 acres)

When: Completed 2010

Cost/Funding Sources: \$17.5 million

Contact/More Information:

Notes:

TLS worked extensively with a public / private partnership to build this downtown central park and master plan the rail corridor. This project celebrates the active participation of 11 tracks of well-loved trains that slowly lumber through this downtown on a viaduct.

The park site is a former warehouse and brick-making site and much of the park is formed with materials recovered from historic uses. The park is four blocks long by one block wide and was historically, the lowest point in town. The scheme draws on this ample water in creating a large reservoir for irrigation which also discharges through a stream and series of ponds as a summer fountain. Needed floodwater storage is created by excavating for this water system, using the spoils to create a series of knolls along the rail viaduct. The "Rail Trail", located atop this little mountain range is a series of on-grade and bridge connections which allow train-spotting up close, views over downtown and of the frequent large music events and parties within the park. The park contains performance venues of varying scales from small to extra large such as the annual "Crawfish Boil" attracting 30,000 music fans. Noisy or quiet, day or night, the park is only completed by the industrial ballet of freight cars slowly rolling in both directions.

TLS also designed a structure which grew out of the park master plan to accommodate park food service, concessions, administration, rest rooms, and storage on a strict budget. These functions were housed in a series of four wooden "boxcars" along the edge of the park's main entry plaza. Above these, a shed-like metal roofed canopy extends the entire 220 feet of the plaza length to provide sun and rain shelter as well as frame the "east gate" to the park lakes and open space beyond.



Precedent: Birmingham
Greening America's Capitals: Little Rock

INDIANAPOLIS: CULTURAL TRAIL

Who: Public-private partnership, managed by a 6 person Cultural Trail Management Team of local civic leaders, with hired consultants. <http://www.indyculturaltrail.org/team-members.html>

Scope: 8 mile urban greenway; public art; interpretive signage

When: 2007-2012 (Seven corridor segments over 5 years)

Cost/Funding Sources: \$55 million. The Cultural Trail is made possible by a large public and private collaboration led by Central Indiana Community Foundation (including \$2 million matching fund from one donor), the City of Indianapolis and several not-for-profit organizations devoted to building a better city. \$20 million from DOT.

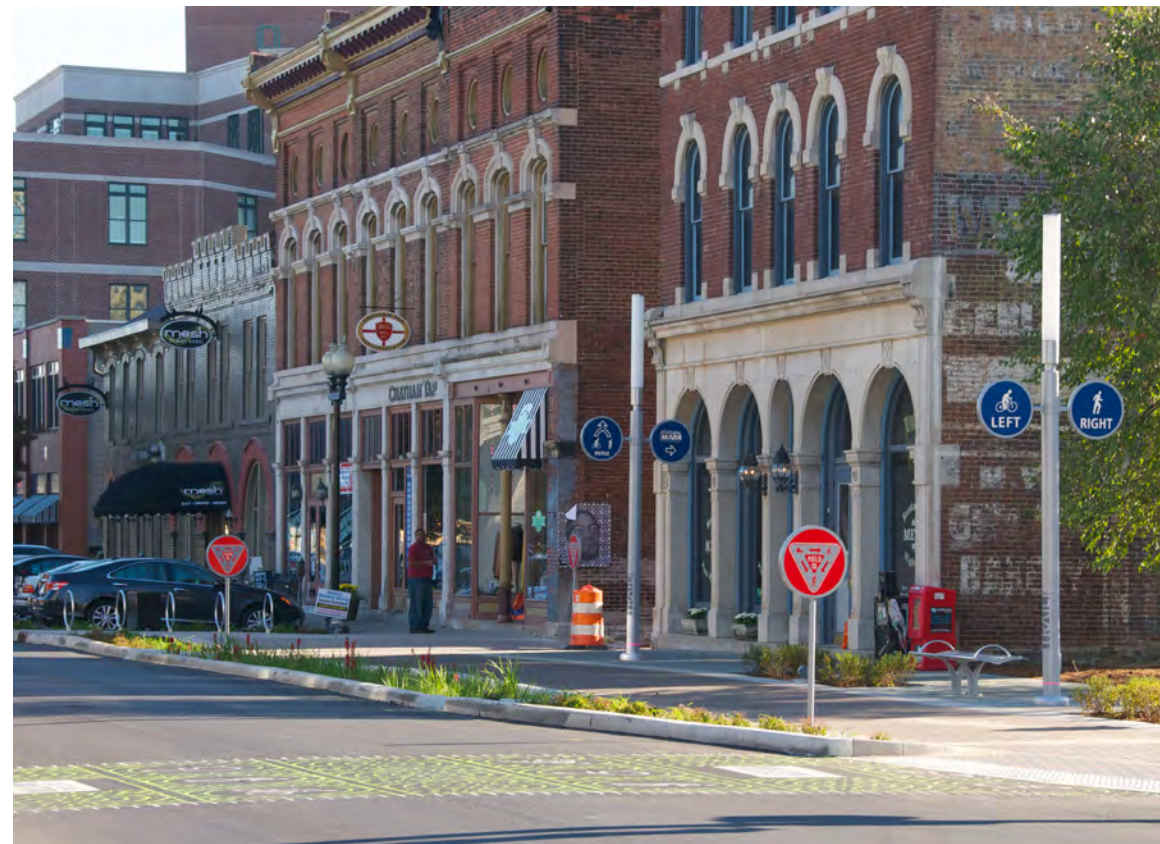
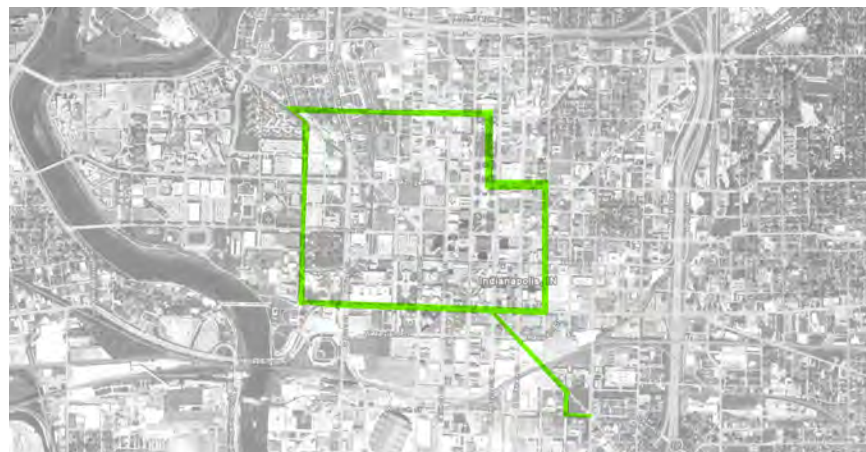
Contact/More Information: www.indyculturaltrail.org (very clear; up to date, including construction schedule, public art installations and competitions)

Notes: The Indianapolis Cultural Trail: A Legacy of Gene & Marilyn Glick is a world-class urban bike and pedestrian path that connects neighborhoods, five downtown Cultural Districts and entertainment amenities, and serves as the downtown hub for the entire central Indiana greenway system. It also connects to The Canal & White River State Park, the Wholesale District and the Monon Trail.

Currently \$2 million (over 4% of the construction budget) has been allocated to public art -- a major design component of the Cultural Trail. Guiding the team's effort is a mission to create a world-class, 21st century icon and an unprecedented model for multi-modal transportation systems in urban areas.

Other features:

- Extensive use of stormwater planters (a brochure explains them and the plantings).
- Community bike program.
- De-icing and salting regulations (see website).
- There is a Maintenance Endowment.



The Cultural Trail is located in an urban, downtown context.



Planting stormwater basins bring beauty to the streetscape.



Historic and cultural signage, as well as seating and plantings, are important features.



Lighting and seating make the space safe and welcoming.

Precedent: Indianapolis
Greening America's Capitals: Little Rock



Downspouts flow into stormwater basins along the Cultural Trail.



"Prairie Modules 1 & 2" references our agricultural and urban environment and is designed to invite spatial interaction and experiential awareness. Through a partnership with Indianapolis Power & Light, this is the first public art installation in Indianapolis to return solar power to the electrical grid.



The Cultural Trail links with the Canal Park, which has also undergone renovation.



A corner bio-retention basin.



A bio-retention swale and the Trail between parking lots and the street.



Innovative, safe crosswalks also brand the Cultural Trail.

Precedent: Indianapolis
Greening America's Capitals: Little Rock



ST. LOUIS: CITYGARDEN

Who: The Gateway Foundation (Client), NBWLA (Landscape Architect) and Durham Associates (Local Architect)

Scope: 2 block (2.9 acre) public sculpture garden and city park

When: 2007 - 2009; Opened July 1, 2009

Cost/Funding Sources: \$30,000,000

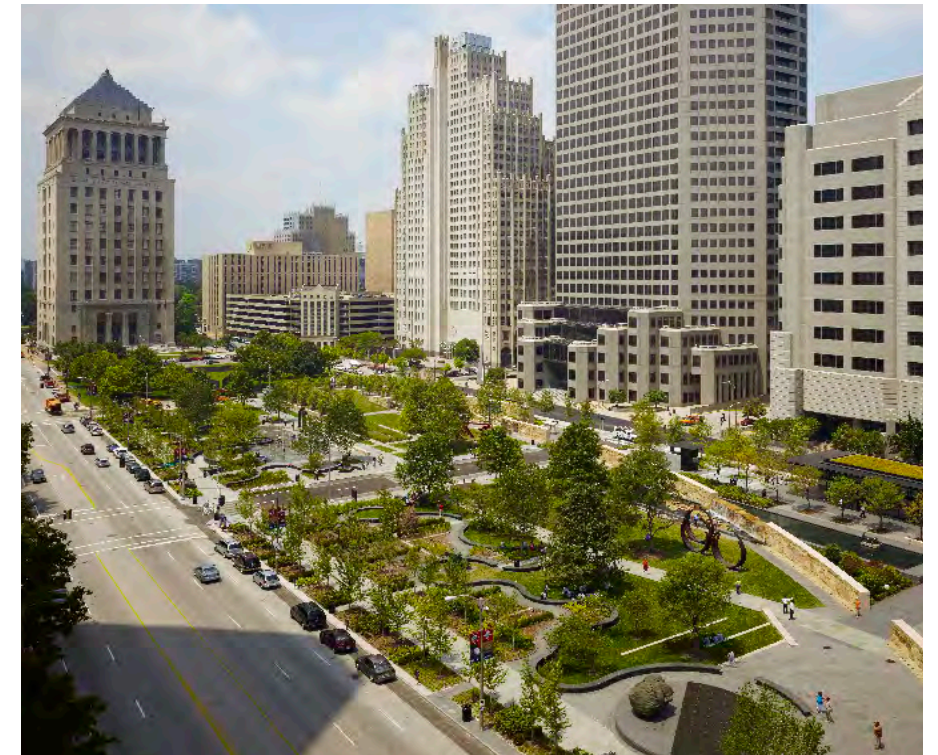
Contact/More Information: NBWLA

Notes: Citygarden's 2.9 acres include a variety of experiences to accommodate the diverse interests of St. Louis residents, and provide a completely free and open gathering space for all. With careful planning and clear communication with our client, this \$30 million park was completed in just over two years – from design inception to the public opening – with weeks to spare before the set completion date: baseball's All Star weekend. The park is highlighted by water expressed in a variety of reflective and vibrant forms, by a café featuring locally-grown food, by a series of plantings that are primarily Missouri natives, and by an extensive collection of contemporary sculpture unbound by fences.

Donated to the City by the Gateway Foundation, Citygarden realizes a long-term goal of revitalizing the Gateway Mall with an active public gathering space. Citygarden creates a place that is at once a sculpture garden, botanic garden, and city park. As a sculpture garden, it is designed to be an inviting and inspiring setting for a variety of contemporary sculptures while remaining free and open to the public at all hours. Its spaces create a diverse array of experiences for a population with wide ranging interests. As a botanic garden, Citygarden features native Missouri trees, shrubs, perennials, groundcovers, grasses, and wildflowers. Plantings were selected in collaboration with horticulturists from the Missouri Botanic Garden to create a beautiful and engaging place for year-round enjoyment. As a city park, Citygarden attracts thousands of visitors from St. Louis and beyond. In the intense summer heat, it serves as an urban oasis. The garden's three fountains and shade, afforded by the lush plantings, keep Citygarden active.



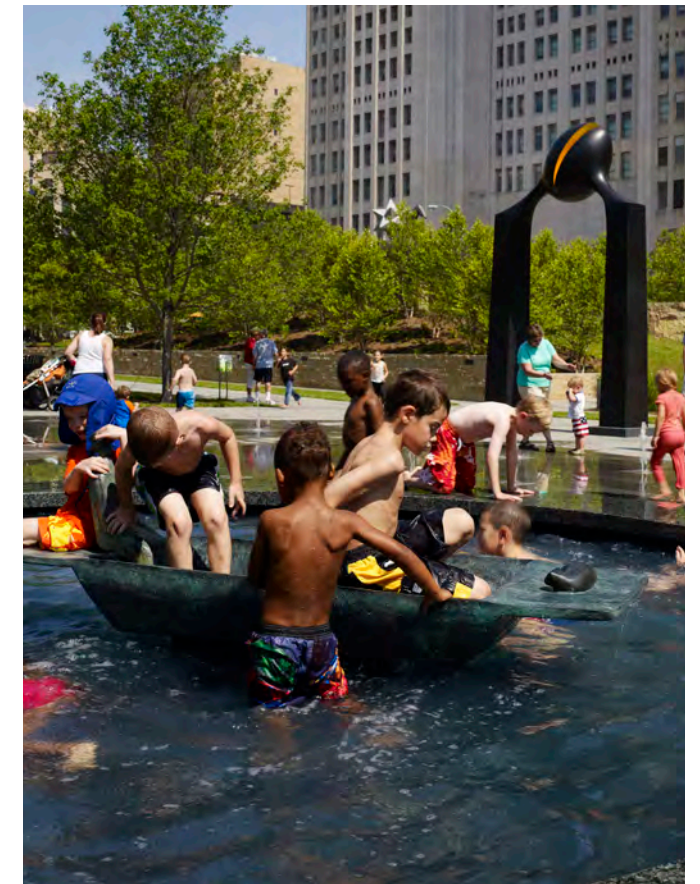
The Cafe creates an additional destination, and helps to frame other historic buildings.



CityGarden is an urban, downtown, civic heart of St. Louis.



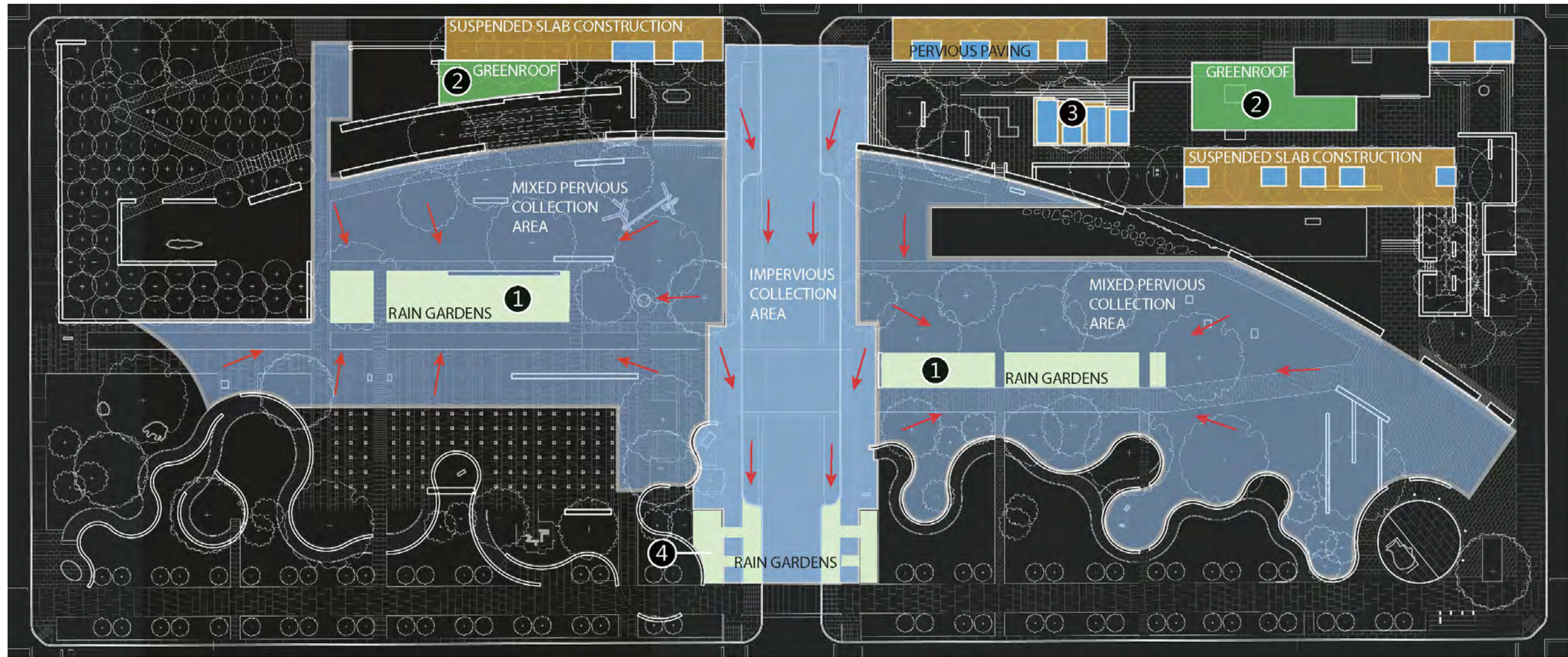
The Arch is set off by a landscape at once ecological, civic and beautiful.



All ages are drawn to the spaces.

Precedent: St. Louis

Greening America's Capitals: Little Rock



Precedent: St. Louis
 Greening America's Capitals: Little Rock

LYNCHBURG: RIVERFRONT IMPLEMENTATION PLAN

Who: City of Lynchburg (Client), NBWLA (Landscape Architect)

Scope: planning and design services for 14 acres downtown, including Phase I: Jefferson Street North streetscape and raingardens.

When: 2006- ongoing

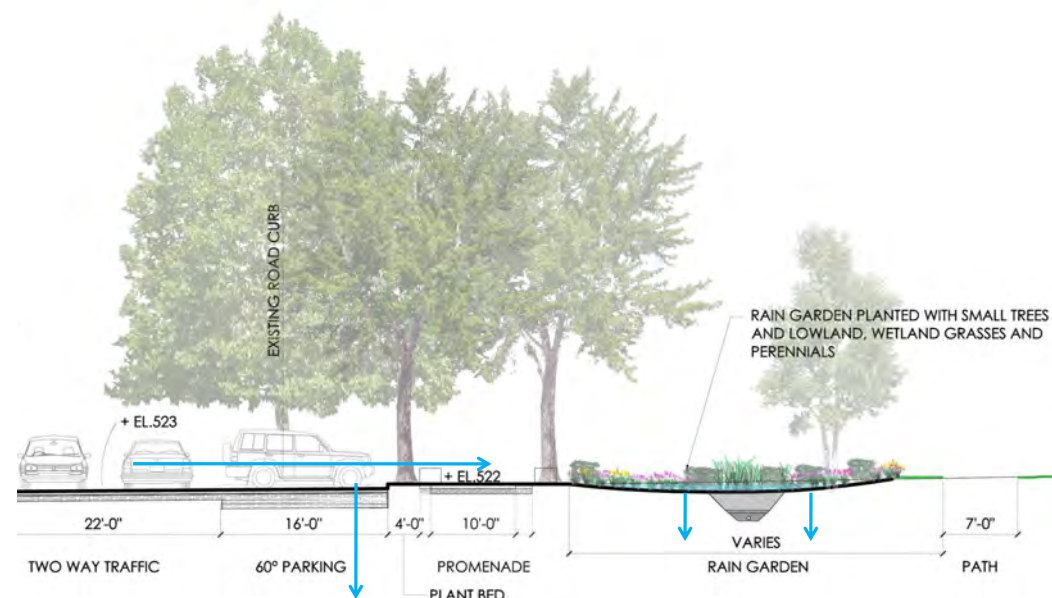
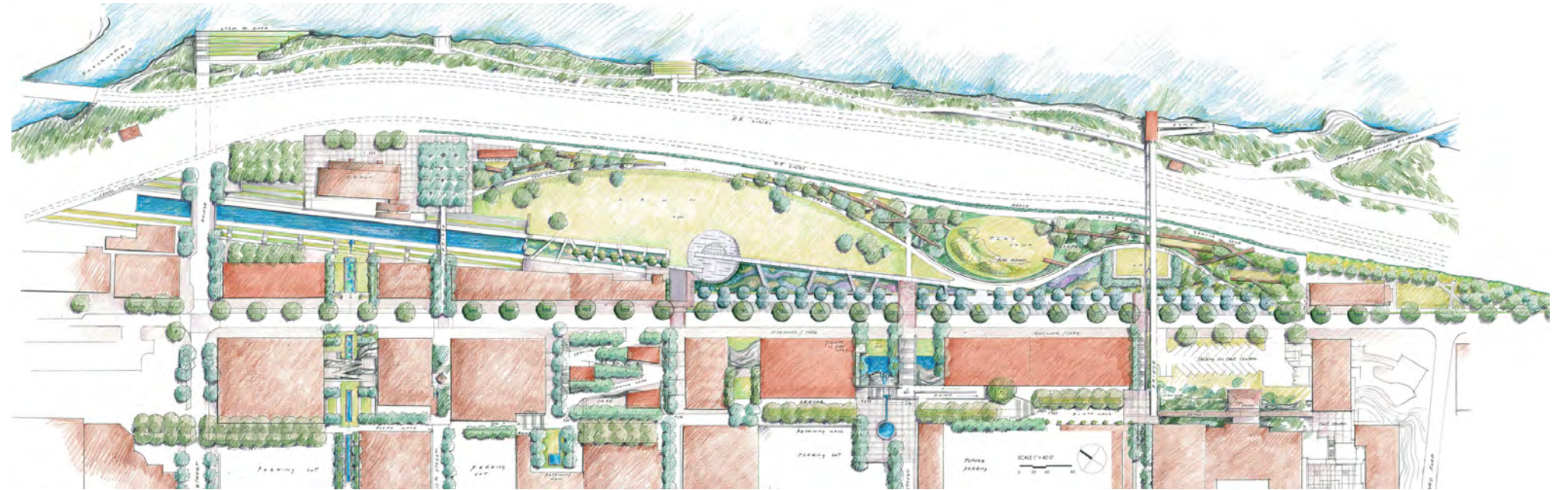
Cost/Funding Sources: \$2.4 million

Contact/More Information: NBWLA

Notes: NBW was selected by the City of Lynchburg to develop an Implementation Plan for the revitalization of the Downtown Riverfront in 2006. NBW assessed the existing conditions in relation to the proposed master plan for the entire downtown area (by Sasaki Associates in 2002), culminating in a plan that identified and prioritized a series of achievable projects. Included in the plan are an 8-acre Riverfront Park and the renewal of nearby urban streets with multiple spaces for stormwater management, recreation, interpretive facilities, and gathering. It includes a re-imagined mixed-use pedestrian corridor, restored streets, and public ways with dedicated outdoor café spaces, play areas, a large canal basin, fountains, and an events plaza. The design process involved several meetings with City and private stakeholders and was endorsed by City Council in 2006.

The first Riverfront project, Jefferson Street North, a streetscape that incorporates significant bioretention, was opened to public in June 2010. Construction documents are underway for Jefferson Street South and The Lower Bluff Walk Corridor. This pedestrian arts and dining corridor will connect Main Street and the Riverfront. Included in this work are design guidelines for the site development and architecture in the area.

As part of this project, NBW initiated a detailed stormwater strategy that will help the downtown in its stewardship of the James River Watershed and provide a model for sustainable practices. Inherent in this project is the re-direction of runoff from the overburdened combined City sewer system to new porous parking areas and extensive raingardens. The raingardens have flowering native plants and interpretive signage and are an educational and aesthetic asset to the City.



Precedent: Lynchburg
Greening America's Capitals: Little Rock





Precedent: Lynchburg
 Greening America's Capitals: Little Rock



Chicago, IN: Eye-catching solar and wind-powered light and signage.



Indianapolis, IN: Cultural Trail



Indianapolis, IN: Cultural Trail

Lighting and Signage Precedents

Greening America's Capitals: Little Rock



Washington, DC



Portland



Portland



Washington, DC



Washington, DC



North Bethesda, MD (North Bethesda Terrace by NBWLA)

Streetscape Stormwater Precedents Greening America's Capitals: Little Rock

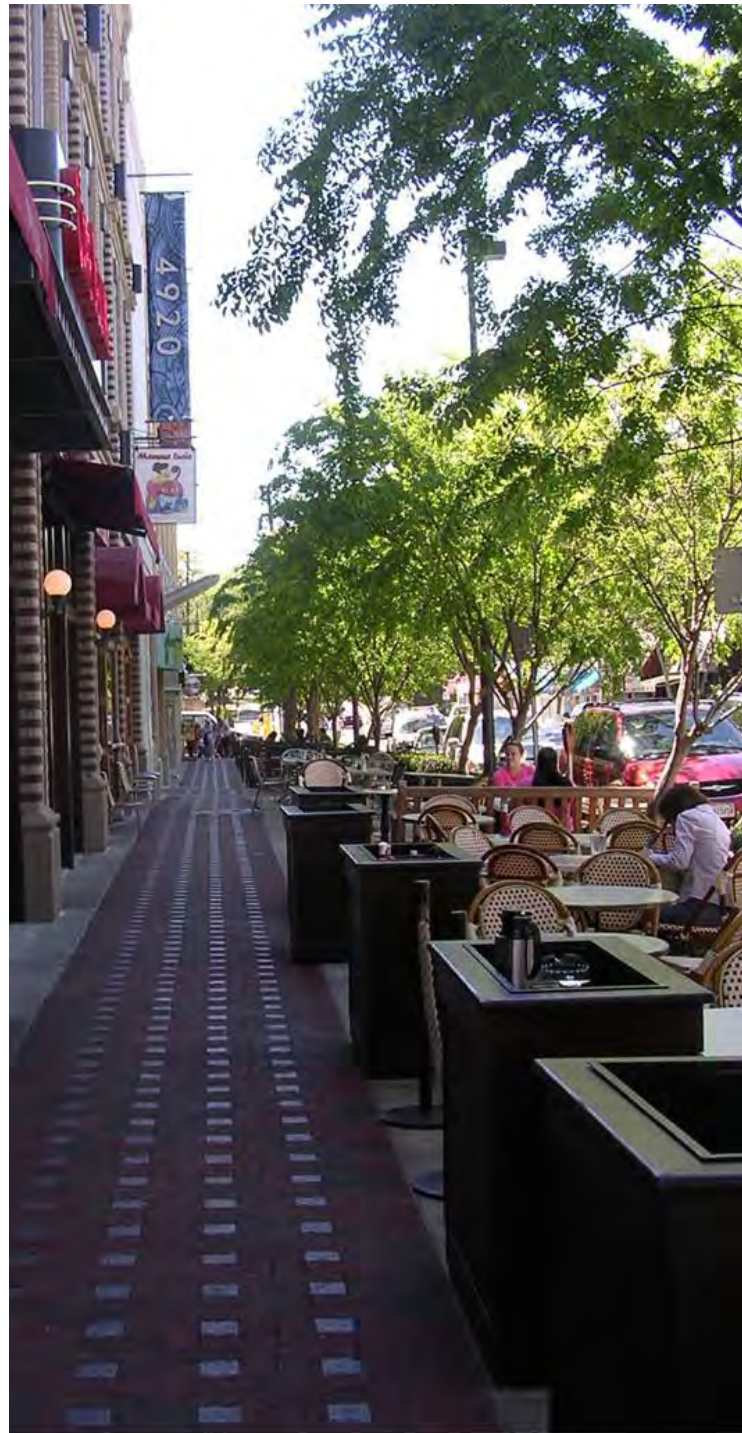


CityGarden, St. Louis (NBWLA)



CityGarden, St. Louis (NBWLA)

Street Tree Precedents
Greening America's Capitals: Little Rock



North Bethesda, MD



North Bethesda Terrace (NBWLA)



North Bethesda Terrace (NBWLA)

Street Tree Precedents
Greening America's Capitals: Little Rock



NEXT STEPS

IMPLEMENTATION + FUNDING

VI. NEXT STEPS

The Greening America's Capitals: Little Rock report can be used as a tool in applying for both private and public grants and funding. An important next step is finding and acquiring the resources and funds to produce specific designs, and subsequently construct the ideas and green infrastructure projects developed with the City of Little Rock and depicted in this report.

The first major areas to be engaged should be the three catalytic nodes: the SOMA Neighborhood Park, the Community Market Interchange, and the Arts and Civic Park between 4th and Capitol. Developing these nodes will create newly vibrant areas of Main Street at easily walkable distances from each other, and demonstrate multiple sustainable strategies to the public at key locations. These additional points of interest will help draw more people and businesses to Main Street.

However, there are immediate, intermediary steps that can be taken even before these larger projects begin. These hinge on the importance of engaging private property owners and City departments to take initiative while working in concert with the overall Main Street strategies. These include effective and visible bio-retention; pedestrian amenities including beautification and shade; and safe, inviting civic spaces.

Private property owners can take the first steps in activating the public realm with cafe seating or working with the City to create bio-retention between parking lots and sidewalk. City departments, such as DOT, can begin improvements to the street right of way in key locations. This may include designating some on-street parking as increased cafe seating or bio-retention plantings in order to create inviting spaces.

Coordinating necessary utility and street improvements with an overall, long-term vision for the street, which would include porous parking lanes, bio-retention areas, and increased cafe space is critical for ensuring cost-efficient efforts and minimal levels of frustration and disruption. [See Precedents: Lansing and Chicago, and contact their staff, for more information on their effective implementation strategies].

FUNDING SOURCES

I. Federal and/or State Resources

- 1) EPA's 319 Grant Program http://www.epa.gov/owow_keep/NPS/cwact.html
- 2) EPA's State Revolving Fund for Clean Water
http://water.epa.gov/grants_funding/cwf/cwsrf_index.cfm
- 3) FHWA funds through Metro: Could be used for Road diets, bump outs, bike lanes
- 4) FHWA Transportation Enhancement Program www.fhwa.dot.gov/environment/te/index.htm
- 5) Federal Transit Administration, Livable and Sustainable Communities Program
http://fta.dot.gov/publications/publications_10935.html
- 6) Department of Energy, Qualified Energy Conservation Bonds
 - Federal money, \$30 million for Arkansas
 - Administered by Arkansas Development Finance Authority (ADFA)
 - Could be used for green roofs, efficient lighting, and street trees

II. City/County Resources

- 1) Pulaski County Brownfield Revolving Loan Fund (BFRLF)
- 2) Downtown CDC: diversifying to include market-based improvements to streets and sidewalks because of a loss of public funds to do so. They will have a vested interest in connecting smaller improvements to have a continuous look.
- 3) 12th Street Plans: City streetscape between University and Central High School.
- 4) Department of Corrections for labor assistance
- 5) Metro: Congestion mitigation funds available as related to EPA's nonattainment finding
- 6) Central Arkansas Water: demonstration project

III. Community Resources

- 1) Arkansas School of Architecture and Landscape Architecture
 - Solar manufacturer set to underwrite some of their projects
 - Use studio projects to generate ideas
- 2) University of Arkansas Community Extension Service: street tree and raingarden expertise or implementation
- 3) Climate Showcase Community Grants: UAMS staff/residential energy efficiency (may not be a direct connection to this work)
- 4) Community-based projects
 - Brick drive
 - eStem garden patch
 - Tailgate football event at Center Street
 - Other volunteer days to bring energy and attention to Main Street

- 5) Home Depot Foundation
- 6) Local businesses (matching funds)

Other synergistic community partnerships could be formed with arts organizations, the Clinton Library, community gardens/local food organizations, The University of Arkansas and other colleges and schools, Arkansas Children's Hospital and other health organizations (health outcomes), and other local foundations and businesses. Local businesses and City departments such as the Parks and Recreation department will be especially crucial for implementation.

Contacts:

The U.S. Environmental Protection Agency (EPA)
Abby Hall and Clark Wilson, EPA Washington, Office of Sustainable Communities
1200 Pennsylvania Avenue, N.W. Washington, DC 20460
(202) 272-0167

EPA Region 6

Suzanne Perea	Perea.Suzanna@epa.gov	Green Infrastructure Coordinator
Karen Peycke	Peycke.Karen@epa.gov	Brownfields/Land Revitalization Coordinator
Fountain Place 12th Floor, Suite 1200		
1445 Ross Avenue, Dallas, TX 75202-2733		
(214) 665-2200		

Federal Highway Administration, Arkansas (FWHA - AR)

Sandra Otto, Division Administrator	501.324.5625	Sandra.Otto@dot.gov
Randal Looney, Environmental Coordinator Specialist	501.324.6430	Randal.Looney@dot.gov

FTA

Don Koski, Community Planner	817.978.0571	Donald.Koski@dot.gov
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HUD

Steve Coop, Field Liason	501.324.6142	Steve.Coop@hud.gov
Nicolas Ramon, Field Liason	817.978.5976	Nicolas.Ramon@hud.gov

Arkansas State Highway and Transportation Department

David Laumer, Bicycle-Pedestrian Coordinator	501.569.2921	Bud.Laumer@arkansashighways.com
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VII. RECOMMENDED PLANT LIST



Greening America's Capitals: Little Rock

NBWL
Recommended Plant List

KEY

(N) = Native to Arkansas
* = Recommended by NBW
** = Highly recommended by NBW

F = Full sun
P = Part shade
S = Shade

W = Wet soils
A = Average soils
D = Dry soils

	Common Name	Scientific Name	Sun	Moisture	Height	Characteristics	Comments
Trees							
	Red Buckeye	Aesculus pavia	F-S	W-A	10-15'	Salmon/red flowers in spring; attracts hummingbirds, bees.	In use at Ark Game and Fish Nature Center
	*(N) Serviceberry	Amelanchier arborea	F-S	A-D	15-30'	White spring flowers; Magenta fruit attracts birds	
	(N) Pawpaw	Asimina triloba	F-P	W-A	15-30'	Fall color, fruits. Dark red flowers Apr-May.	
	** (N) River Birch	Betula nigra	F-P	W-A	30-90'	Multistemmed desired; seeds attract birds. Attractive bark.	Recommended for Raingarden
	** (N) Redbud	Cercis canadensis	P-S	A-D	15-30'	Magenta flowers Apr-May precede reddish leaves that fade to green.	
	(N) Fringe Tree	Chionanthus virginicus	F-P	W-A	15-25'	Creamy white fragrant flowers in May; dark blue fruit in fall.	In use at Ark Game and Fish Nature Center
	(N) Witch Hazel	Hamamelis virginiana	P	A	7-30'	Creamy to bright yellow flowers in fall and winter; golden fall color. Many cultivars.	
	(N) Southern Magnolia	Magnolia grandiflora	F-P	A	35-60'	Large fragrant flowers. Evergreen.	
	** (N) Sweetbay	Magnolia virginiana	P	W	12-20+'	2-3" white flowers spring; fruit attracts birds. Semi-evergreen. Delicate structure.	Recommended for Raingarden
	American Crabapple	Malus coronaria	F	A	15-40'	Arkansas state tree; fragrant white blooms April-May.	Use along Hwy 630
	(N) Black Gum	Nyssa sylvatica	F-P	W-D	30-60'	Yellow, orange, red-purple fall color; honey plant for bees	
	(N) Laurel Oak	Quercus laurifolia	F-P	W-A	40-60'	Transplants well; shiny leaves; acorns	
	(N) Willow Oak	Quercus phellos	F-P	A	60+'	Yellow fall color; not as messy as some oaks; tolerant of urban conditions	
	(N) Bald Cypress	Taxodium distichum	F-P	W-A	50-75'	Cypress knees produced in or near water	
Shrubs							
	(N) False Indigo	Amorpha fruticosa	F	A-D	6-10'	Deep purple flowers with gold stamens attract butterflies	In use at Ark Game and Fish Nature Center
	(N) Beautyberry	Callicarpa americana	P-S	W-A	1-2'	Small white to pink flowers in summer; purple berries in fall	In use at Ark Game and Fish Nature Center
	(N) Buttonbush	Cephalanthus occidentalis	S-P	W-A	5-12'	Round white flowers in June; nutlets in winter; attracts bees, birds, butterflies	In use at Ark Game and Fish Nature Center
	(N) Wild Hydrangea	Hydrangea arborescens	P-S	W-A	3-6'	White lace cap flowers; attracts bees	In use at Ark Game and Fish Nature Center
	(N) Winterberry	Ilex verticillata	P-S	W-A	3-6'	Bright red berries on female plants into wint; attracts birds	Recommended for Raingarden
	** (N) Sweetspire	Itea virginica	P	W-A	1-3'	White flowers, red berries; good screen plant; attracts	Recommended for Raingarden; In use at Ark Game and Fish Nature Center
	(N) Spicebush	Lindera benzoin	P	A	3-12'	Attracts birds	In use at Ark Game and Fish Nature Center
	(N) Southern Wax Myrtle	Myrica cerifera	F-P	W-A-D	5-25'	Tolerates salt and fluctuating water levels	In use at Ark Game and Fish Nature Center
	*(N) Swamp Azalea	Rhododendron viscosum	F-P	A-D	2-4'	White flowers in spring; fall color; honey plant	Recommended for Raingarden; In use at Ark Game and Fish Nature Center
	(N) Fragrant Sumac	Rhus aromatica	F-P	A-D	2-4'	Fall color; good for stabilizing embankments	In use at Ark Game and Fish Nature Center
	Rose	Rosa sp.	F	A	2-6'	Yellow, red, pink, white blooms in summer. Many cultivars available.	Use carefree, long-blooming, shrub varieties in planters or drier areas (not raingardens)
Flowering Perennials							
	(N) Columbine	Aquilegia canadensis	F-P	A	1-3'	Drooping, 5 part bells bloom April-June	Recommended for Raingarden; In use at Ark Game and Fish Nature Center
	*(N) Swamp Milkweed	Asclepias incarnata	F	W-A	4-5'	Pink blooms late summer	Recommended for Raingarden; In use at Ark Game and Fish Nature Center
	(N) Butterfly Milkweed	Asclepias tuberosa	F	A-D	1-3'	Orange blooms June-Aug; attracts butterflies	
	*(N) White False Indigo	Baptisia alba	F-P	A-D	2-4'	White blooms Apr-May, attracts butterflies	In use at Ark Game and Fish Nature Center
	(N) Poppy Mallow	Callirhoe papaver	F	A-D		Magenta blooms Mar -July; prostrate	In use at Ark Game and Fish Nature Center
	** Camass Flower	Camassia leichtlinii	F-P	W-A	3-4'	White or blue star-shaped flowers on tall racemes in Apr-May. Western native.	Recommended for Raingarden
	(N) Wild Hyacinth	Camassia scilloides	P	A	1.5-2'	Blooms Apr-May. Leaves wither in summer.	Recommended for Raingarden
	(N) Tall Coreopsis	Coreopsis tripteris	F	A-D	2-8'	Yellow ray flowers July-Sept	In use at Ark Game and Fish Nature Center
	*(N) Purple Coneflower	Echinacea purpurea	F-P	A-D	2-5'	Purplish-pink blooms June-Aug; attracts birds, butterflies	In use at Ark Game and Fish Nature Center
	(N) Rattlesnake Flower	Eryngium yuccifolium	F	A-D	4-5'	Greenish-white round blooms June-Sept; can look messy	In use at Ark Game and Fish Nature Center
	** (N) Mist Flower	Eupatorium coelestinum	F-P	W-A	1-3'	White to blue flowers Aug thru frost; tolerates poor drainage; spreads	Recommended for Raingarden; In use at Ark Game and Fish Nature Center
	** (N) Joe Pye Weed	Eupatorium fistulosum	F	W-A	3-10'	Use cultivar for smaller, tidier plants; pink blooms Aug-Oct attract butterflies	Recommended for Raingarden
	(N) Wild Geranium	Geranium maculatum	F-P	A	1-2'	Pink flowers Apr-May attract butterflies	In use at Ark Game and Fish Nature Center
	(N) Narrow-leaf Sunflower	Helianthus simulans	P	W	3-7'	Gold ray flowers Aug-Nov. Gangly, best for naturalizing in wet conditions.	In use at Ark Game and Fish Nature Center
	*(N) Alumroot	Heuchera americana	F-P	A	1-2'	Greenish bells June-Aug; forms clumps	
	(N) Marsh Blazing Star	Liatris spicata	F	A	2-4'	Intolerant of wet soils in winter. Upright clumping magenta flowers in summer	In use at Ark Game and Fish Nature Center
	(N) Blazing Star	Liatris squarrosa	F	D	2-4'	Intolerant of wet soils in winter. Upright clumping magenta flowers in summer	In use at Ark Game and Fish Nature Center
	*(N) Cardinal Flower	Lobelia cardinalis	F-P	W-A	2-4'	Scarlet stalks July-Sept	Recommended for Raingarden
	(N) Great Blue Lobelia	Lobelia siphilica	F-P	W-A	2-3'	Blue stalks July-Sept	
	(N) Wild Bergamot	Monarda fistulosa	F-P	A-D	2-4'	Pink globular flowers July-Sept; attracts butterflies, hummingbirds	
	Daffodils	Narcissus sp.	F	A	0.5-2'	Fragrant yellow cup flowers Mar-Apr.; Many cultivars of varying size and shades.	
	(N) Sundrops	Oenothera fruticosa	F	A-D	1-2'	Bright yellow open flowers May-June	In use at Ark Game and Fish Nature Center

Recommended Plant Lists

Greening America's Capitals: Little Rock



(N)	Black-eyed Susan	Rudbeckia fulgida	F	A-D	2-3'	Yellow ray flowers June-October	
(N)	Cut-leaf Coneflower	Rudbeckia laciniata	F-P	A	2-9'	Yellow ray flowers July-Sept	
(N)	Large Coneflower	Rudbeckia maxima	F	A-D	5-7'	Yellow ray flowers June-July	In use at Ark Game and Fish Nature Center
(N)	Rough-leaved Goldenrod	Solidago rugosa	F	W-A	2-4'	Small yellow flowers along racemes bloom Sept-Oct. Does not cause hay fever	
(N)	Spider Lily	Tradescantia virginiana	F-P	A	1-3'	3-part purple-blue flowers May-July with iris-like leaves.	In use at Ark Game and Fish Nature Center
(N)	Rose Vervain	Verbena canadensis	F	A-D	0.5-1.5'	Good for edge or ground cover. Magenta flowers April - Oct.	
(N)	Culver's Root	Veronicastrum virginicum	F	W-A	3-7'	White, rose, blue flowers on tall spikes May-Aug. Many cultivars vary size & color.	
(N)	Common Blue Violet	Viola papilionacea	F-P	W-A	0.5'	White to blue flowers Mar-May. Edible. Ground cover.	In use at Ark Game and Fish Nature Center

Vines

*(N)	Cross Vine	Bignonia capreolata	F-P	A	35-50'	Semi-evergreen, woody vine with orange-red flowers May-June. Will spread.
*(N)	Yellow Jessamine	Gelsemium sempervirens	F	A	12-20'	Evergreen, twining vine with yellow fragrant flowers Feb-Apr
*(N)	Coral Honeysuckle	Lonicera sempervirens	F	A	10-20'	Deciduous, vigorous twining vine with orange-yellow flowers May-June.
*(N)	Virginia Creeper	Parthenocissus quinquefolia	F-P	A	30-50'	Deciduous, vigorous, woody vine with red fall color.
(N)	Passionflower	Passiflora incarnata	F-P	A	6-8'	White to purple fragrant blooms July-Sept; may be herbaceous in colder areas.

Grasses & Grass-like

** (N)	Inland Sea Oats	Chasmanthium latifolium	F-P	W-A	2-5'	Clumping, upright, ornamental grass with bronzy, showy seed-heads in fall.	Recommended for Raingarden; In use at Ark Game and Fish Nature Center
(N)	Purple Lovegrass	Eragrostis spectabilis	F	A-D	1-2'	Warm season bunchgrass in sandy soils; airy purple seed-heads in August.	
** (N)	Soft Rush	Juncus effusus	F	W	1-3'	Upright shiny basal clumps of round blades in moist soil to 4" standing water.	Recommended for Raingarden
** (N)	Gulf Muhly Grass	Muhlenbergia capillaris	F-P	W-A-D	2-4'	Showy, airy, purplish seedheads in late summer.	Recommended for Raingarden
** (N)	Switchgrass	Panicum virgatum	F-P	W-A	3-6'	Clumping tall grass with good fall color; esp. in cultivars. Tolerates varying soil.	Recommended for Raingarden
(N)	Little Bluestem	Schizachyrium scoparium	F	A-D	2-4'	Attractive silver fluffy seedheads and orange fall color.	

Information on this list adapted from:

Lady Bird Johnson Wildflower Center, The University of Texas at Austin, Native Plant Database. www.wildflower.org/plants/

Missouri Botanical Garden, Kemper Center PlantFinder. www.mobot.org/gardeninghelp/plantfinder/Alpha.asp

PlantNative. www.plantnative.org/index.htm

Recommended Plant Lists

Greening America's Capitals: Little Rock

