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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 sustainable design strategies into their planning and development to create and enhance interesting, distinctive neighborhoods that have multiple social, economic, and environmental benefits. Jackson, Mississippi, was chosen as one of the five state capital cities to receive this assistance in 2011, along with Montgomery, Alabama; Phoenix, Arizona; Lincoln, Nebraska; and Washington, D.C.

More information about Greening America's Capitals is available at http://www.epa.gov/smartgrowth/greencapitals.htm.

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EXECUTIVE SUMMARY

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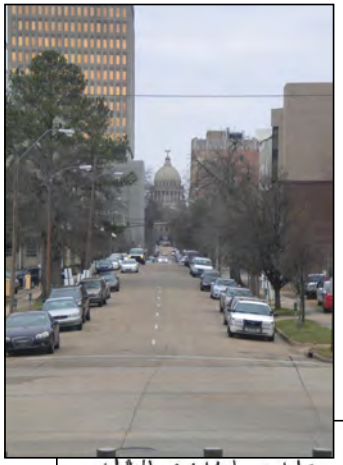

Figure 1. Existing conditions on South Congress Street facing the Mississippi State Capitol Building.

Figure 2. Sketch showing potential improvements for South Congress Street.

Congress Street, in downtown Jackson, Mississippi, is bisected by the state capitol building and grounds. In addition to the capitol building, many civic and government buildings line the street, including Jackson City Hall, Hinds County Courthouse, the Governor's Mansion, and the State Supreme Court. The city of Jackson selected Congress Street for the Greening America's Capitals program because of its prominence in the city. The city would like to make Congress Street more walkable, more attractive, and a model for sustainable design elsewhere in the city.

The design team, led by Jeffrey Carbo Landscape Architects, studied the existing conditions along Congress Street with multiple tours, then held a three-day workshop with federal, state, county, and city staff, as well as property owners, residents, neighborhood groups, local developers, and design professionals. During the workshop, participants discussed several potential design options to make Congress Street more walkable and attractive. Those discussions and meetings led to a final set of options prepared by the design team and presented at a public meeting on the last day for feedback. Those options were then refined by the team and are presented in this report.

The design options show how the city could reuse existing space within the street right-of-way to incorporate green infrastructure. Green infrastructure uses vegetation and soil to manage and clean rainwater where it falls. Green infrastructure strategies can help protect water quality and provide other environmental benefits. In addition, adding shade and vegetation to streets and sidewalks makes them more attractive and more pleasant for pedestrians. Along Congress Street, the design team proposed rain gardens, which are landscaped areas designed to collect and filter stormwater. The proposed rain gardens will also provide areas to plant trees, add vegetation, and include street furniture to give people places to congregate. Workshop participants were receptive to converting some on-street parking spaces into rain gardens, balancing the need for parking with the benefits that these gardens provide. The design team used great care to locate rain gardens in areas where the impact of lost parking would be minimal, and where parking requirements were not as great.

The design strategies in this report illustrate how incorporating green infrastructure and pedestrian improvements could help revitalize Congress Street in an environmentally and economically sustainable way, and create a model for all of Jackson, Mississippi. The ideas presented in this report could also be used to help revitalize other communities in Mississippi.

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Congress Street is located in the heart of Jackson, extending approximately one mile from Court Street in the south to Fortification Street in the north. Congress Street is divided into two distinct sections: North Congress and South Congress. The actual division between north and south is Capitol Street (site of the old state capitol), three blocks south of the new capitol building. However, the commonly accepted distinction, which this report uses, is that South Congress is in the city's central business district south of the capitol and North Congress refers to the more residential neighborhood north of the capitol. In addition to the capitol building, many civic and government buildings line the street, including the Jackson City Hall, Hinds County Courthouse, the Governor's Mansion, and the Mississippi Supreme Court. The only two public parks in downtown, Smith Park and the Josh Halbert Memorial Gardens (in front of city hall); also face South Congress (see Figure 5).

Besides the landmark buildings and public parks, the remainder of South Congress Street is mainly lined with office buildings and parking lots, particularly in the southern section. In the 1990s, the city undertook a streetscape revitalization effort to unify this section of the street. The project added benches, decorative light posts, and concrete brick pavers to a three-block segment of the street. However, in recent years, soil heaves (caused by expanded clay soils, as explained below) and trees that have outgrown their tree wells, have lifted these pavers, creating tripping hazards for pedestrians.

Four blocks of South Congress, from Yazoo Street to Pearl Street, are currently one-way, away from the capitol building, meaning that drivers are deprived of a view of the iconic building (see Figure 6). On-street parking lanes run along each side of the street for its entire length.

North Congress is more residential in character than South Congress, but has many homes converted to businesses such as law offices. Also fronting the street are the Davis Magnet School and the home of famed writer Eudora Welty, which is now a museum. As along South Congress, tree roots and soil heaves have damaged the sidewalks. Additionally, intersection crossings currently have no ramps for the disabled.

The soil creating the heaves under the sidewalks and streets is known as Yazoo Clay. It is a very heavy clay that swells significantly when wet and later shrinks as it dries. City maintenance staff have learned that in areas where replacing the soil itself is not feasible, it is best to try to keep the clay as dry as possible.

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Figure 3. Existing conditions on South Congress Street.

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Figure 4. Existing conditions on North Congress Street.

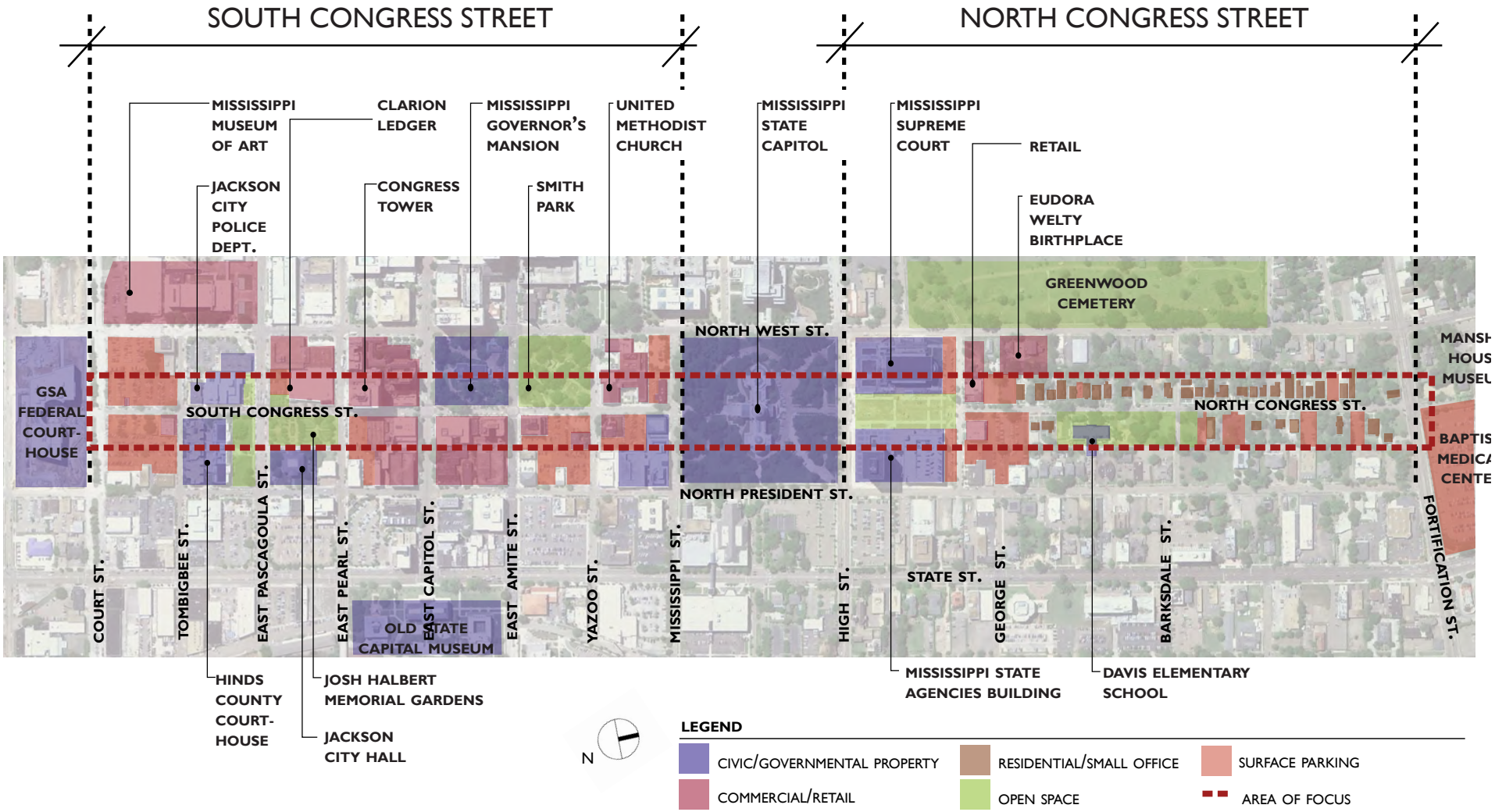

Figure 5. Existing landmarks and land use.

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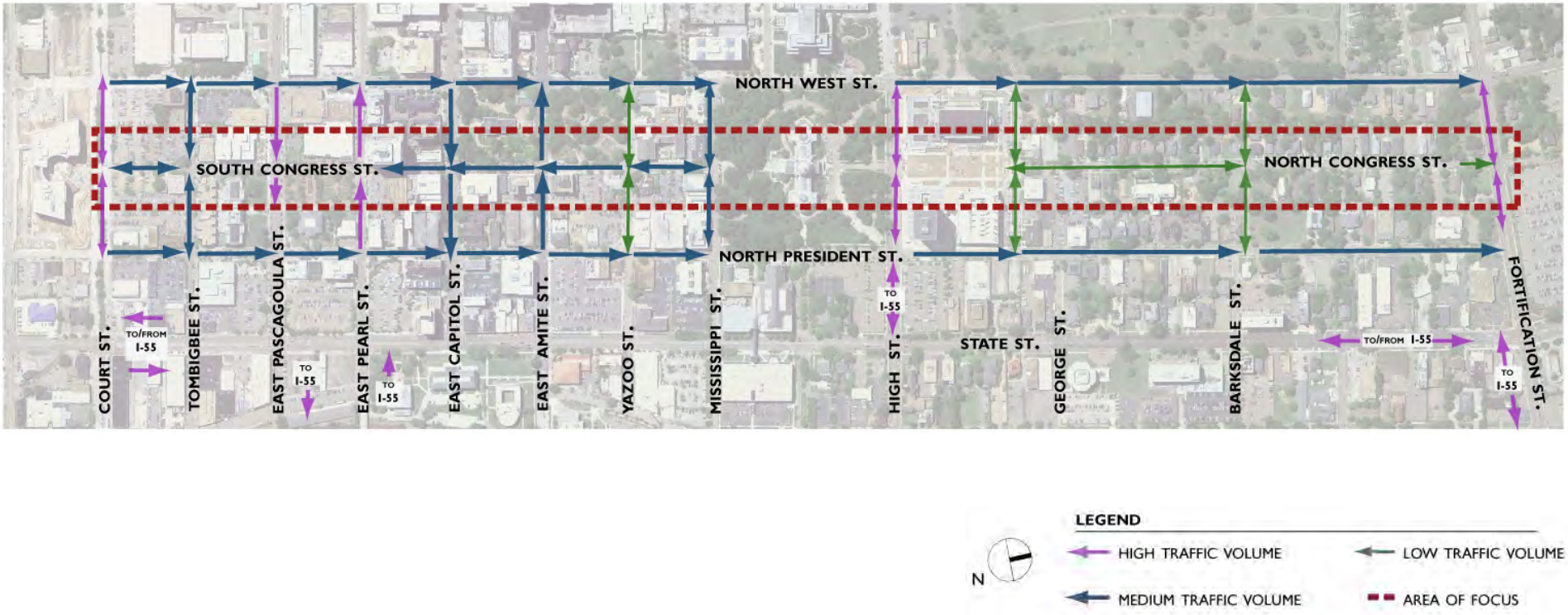

Figure 6. Traffic flow diagram.

PUBLIC OUTREACH

The design team solicited ideas and opinions from the community to develop design options for Congress Street. A three-day workshop was held Thursday, March 22nd through Saturday morning, March 24th 2012 that included six stakeholder meetings and two public presentations. A total of 90 community members participated.

Through the workshop, the team found that:

- The northern segment of Congress Street is quite different in character and use from the southern segment, requiring different design approaches.
- Participants overwhelmingly supported changing South Congress back to two-way traffic.
- Almost all participants supported building rain gardens to address stormwater issues and beautify the street, but they wanted the team to be sensitive to the need for on-street parking.
  - South Congress had more off-street parking opportunities so participants felt that some on-street parking spaces could be converted to rain gardens.
  - On North Congress participants felt the rain gardens should be incorporated into the existing landscaped areas along the street to keep as much on-street parking as possible.
- Participants wanted safer street crossings, repaired sidewalks, and better lighting.
- Participants did not feel it necessary to have a dedicated bike lane on either South or North Congress because they felt other, parallel streets were more suitable.
- Smith Park was identified as an underutilized yet important community amenity. The park currently has a negative perception due to its deteriorated conditions and the lack of visibility into the park because of the berms along South Congress and overgrown planted areas.
- City Hall's Josh Halbert Memorial Gardens should better connect to South Congress.

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Figure 7. Attendees at one of the public meetings held during the workshop.

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This section of the report illustrates the design options that were developed at the workshop and refined by the design team following feedback at the public meeting at the end of the workshop. The design options include:

- A typical street section and plan for both South and North Congress Streets.
- Conceptual designs for the Josh Halbert Memorial Gardens and Smith Park.
- A conceptual layout for the entire length of Congress Street with a series of before-and-after sketches.

Rain gardens are the most significant design feature added to the streetscape. The rain gardens collect and filter stormwater runoff and provide more areas for trees and landscape as well as places for people to sit in the shade and rest. Because the Yazoo Clay needs to be kept as dry as possible, the rain gardens are "non-infiltrative," meaning that rather than letting water soak into the ground, the gardens have a non-permeable lining along the bottom. Water in the gardens soaks through a layer of soil and is then collected by a perforated pipe and directed to the existing storm sewer system. Trees and plants selected for the gardens (see Appendix A) are able to "transpire" water quickly, meaning they can take up stormwater through their roots and evaporate it through their leaves. This is important since water is not being allowed to soak into the ground completely.

The design strategies for South Congress Street retain the existing road and sidewalk, and add alternating planting areas that will allow larger, contiguous rain gardens for tree and ground-cover plantings between the curb and sidewalk. The larger planting areas provide better growing conditions for trees because they allow more space for their roots. This reduces the occurrences of roots damaging adjacent sidewalks.

The tree plantings in this option would be more random in spacing. This would make a dying or declining tree less obvious than if the trees were spaced in a regular pattern along the street. The planted areas alternate on each side of the street to account for existing driveways. The planted areas extend to the edge of the travel lane, calming traffic in the corridor.

The sidewalks along the street would remain at their current width, allowing a larger, more flexible area between the building edge and the curb. This width allows enough room for pedestrians, as well as various outdoor seating configurations, including small outdoor cafés or restaurant seating areas. Seating would be provided along the street within the planting areas, which allows pedestrians to stop and congregate outside the lane of pedestrian traffic, leaving the sidewalk clear. Each rain garden would have a designated space for public art, which could rotate displays of sculptures by local artists.

The parking lane widths would remain the same, but a contrasting paving surface would help delineate the travel lane from the parking lane. This, too, will calm traffic, as the travel lanes will appear narrower, causing drivers to slow down. The city could also explore using permeable paving in the parking areas to better manage stormwater.

In this concept, the rain gardens occupy space within the parking zone, thereby reducing the number of parking spaces. Parking spaces would be in smaller pods of two to three spaces, breaking up the parking along the street into smaller, less obtrusive blocks.

The crosswalks would be raised to be flush with the sidewalk, making pedestrians more visible by putting them in a more prominent position. The raised crosswalk would provide an additional traffic-calming element at the intersections.

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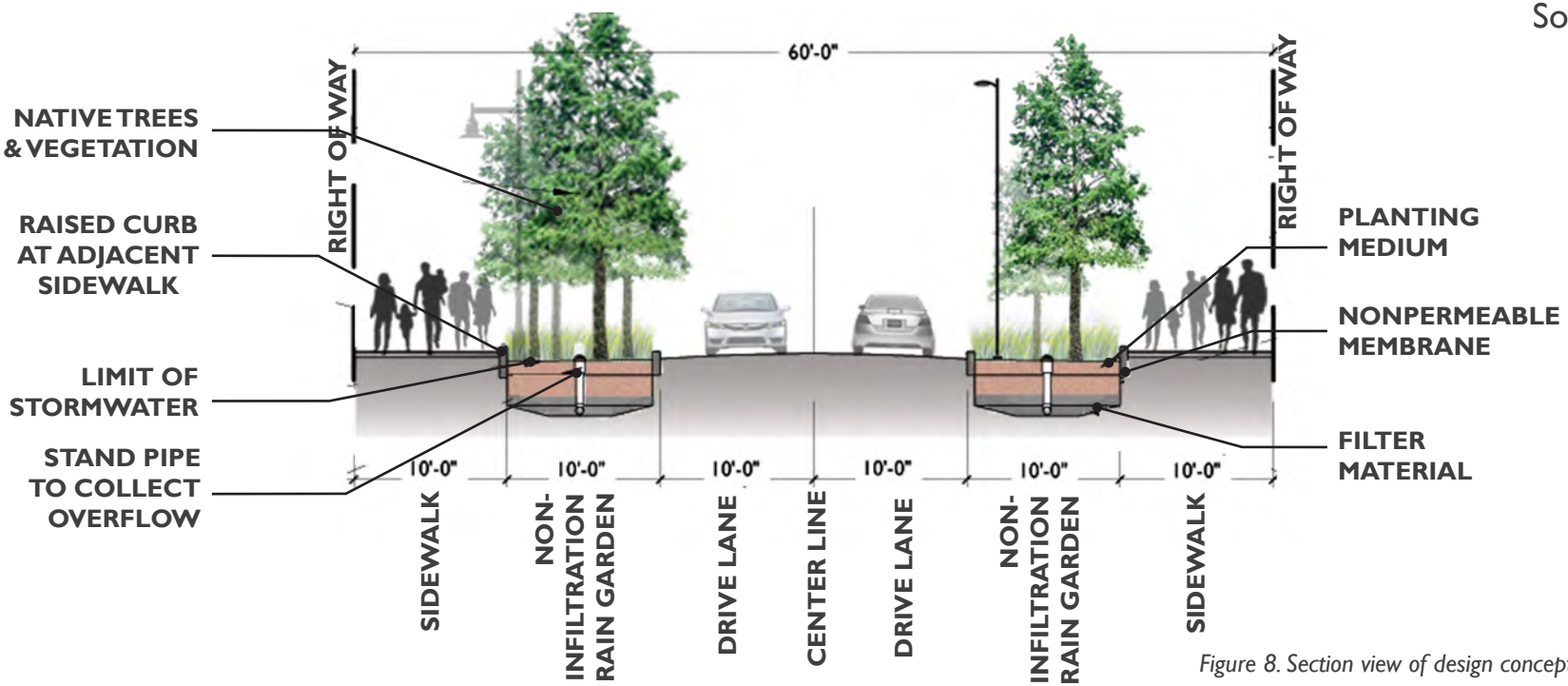

Figure 8. Section view of design concept for South Congress.

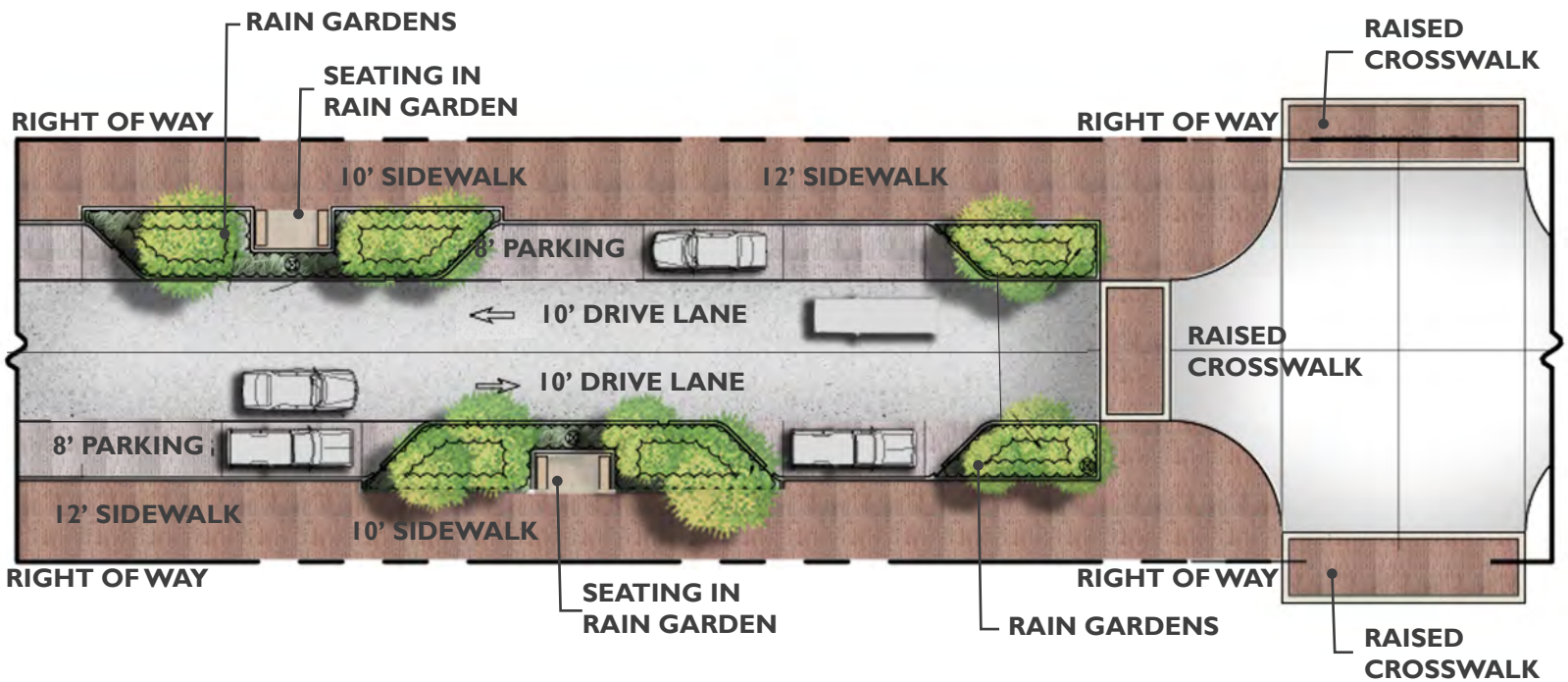

Figure 9. Plan view of design concept for South Congress.

The design strategies for North Congress Street include a six-foot-wide sidewalk as well as a six-foot-wide continuous planting area that would accommodate new and existing tree and ground-cover plantings between the curb and sidewalk.

The sidewalk is wide enough for pedestrians to walk side by side, and the continuous planting areas provide better growing conditions for trees than smaller planting areas. These strategies also could create a continuously planted edge along the street, creating a softer edge and more separation between vehicles and pedestrians. The tree plantings in this option are more linear and uniform in spacing.

The planted areas extend out at the intersections to provide a calming area as vehicles approach the intersection and the crosswalks. The bump-outs also provide a larger planting area at the intersections that could incorporate rain gardens and trees planted in a more informal pattern.

The parking lanes would remain the same width. Contrasting paving surfaces could delineate the travel lane from the parking lane, which would also calm traffic by making the travel lane appear narrower.

Small walkways are provided next to the parking to allow pedestrians to move the sidewalk from a car. Because parking in this portion on Congress Street is a priority for nearby residents and business owners, very few parking spaces were converted to rain gardens.

The crosswalks would be raised to be flush with the sidewalk, making pedestrians more visible and calming traffic at the intersections.

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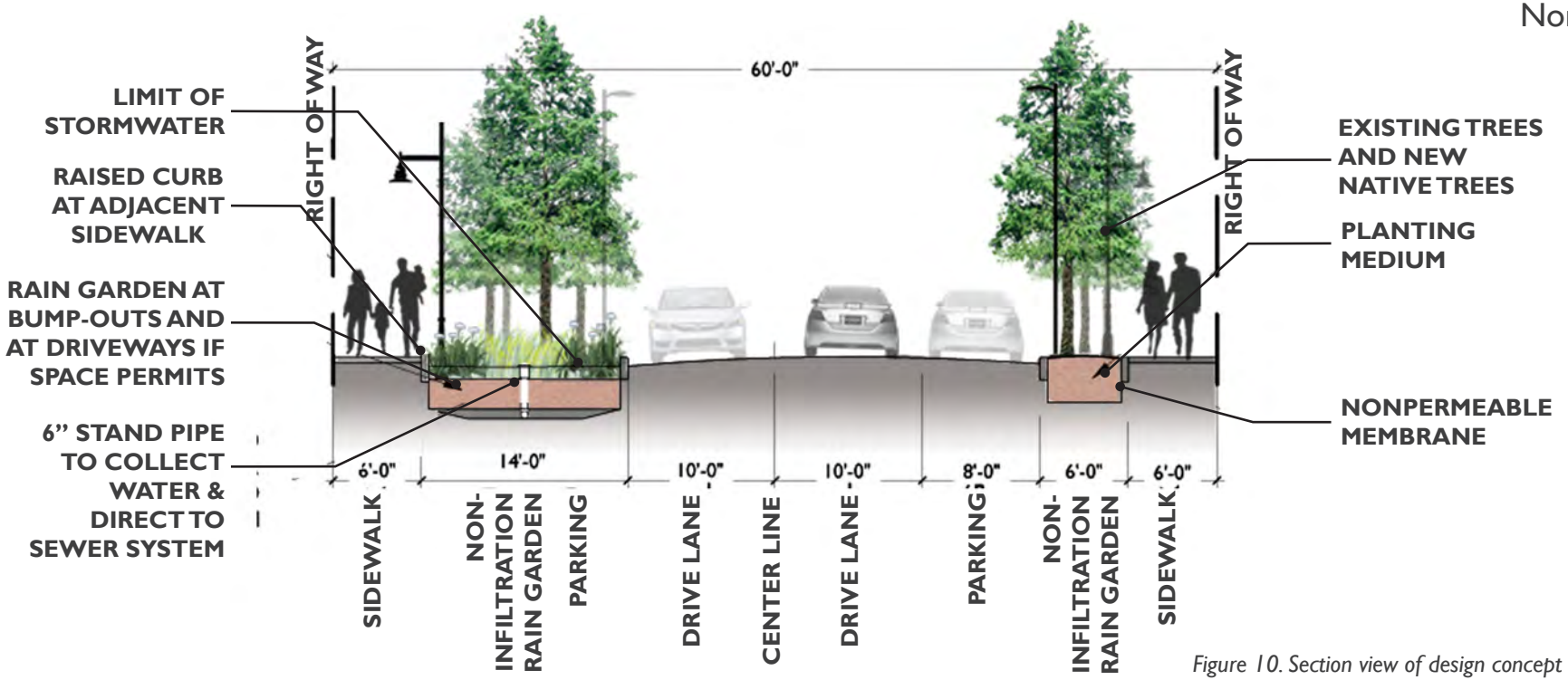

Figure 10. Section view of design concept for North Congress.

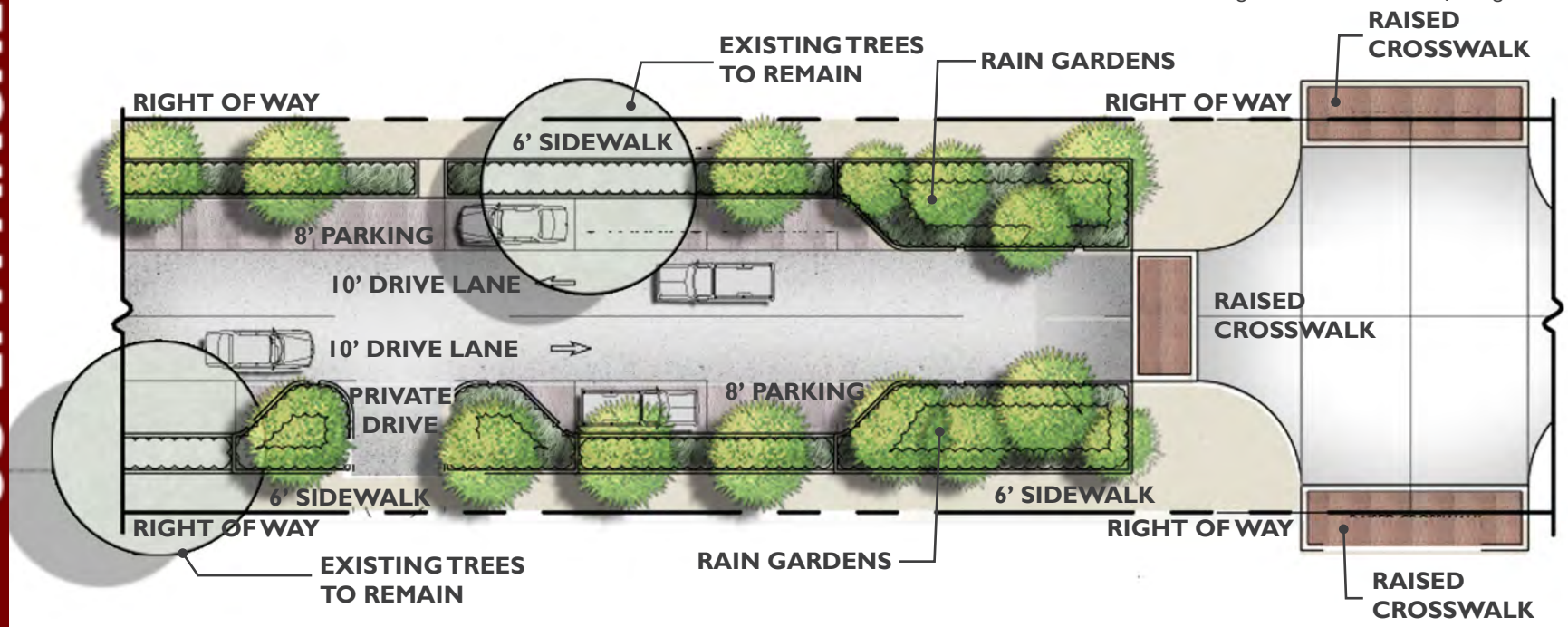

Figure 11. Plan view of design concept for North Congress.

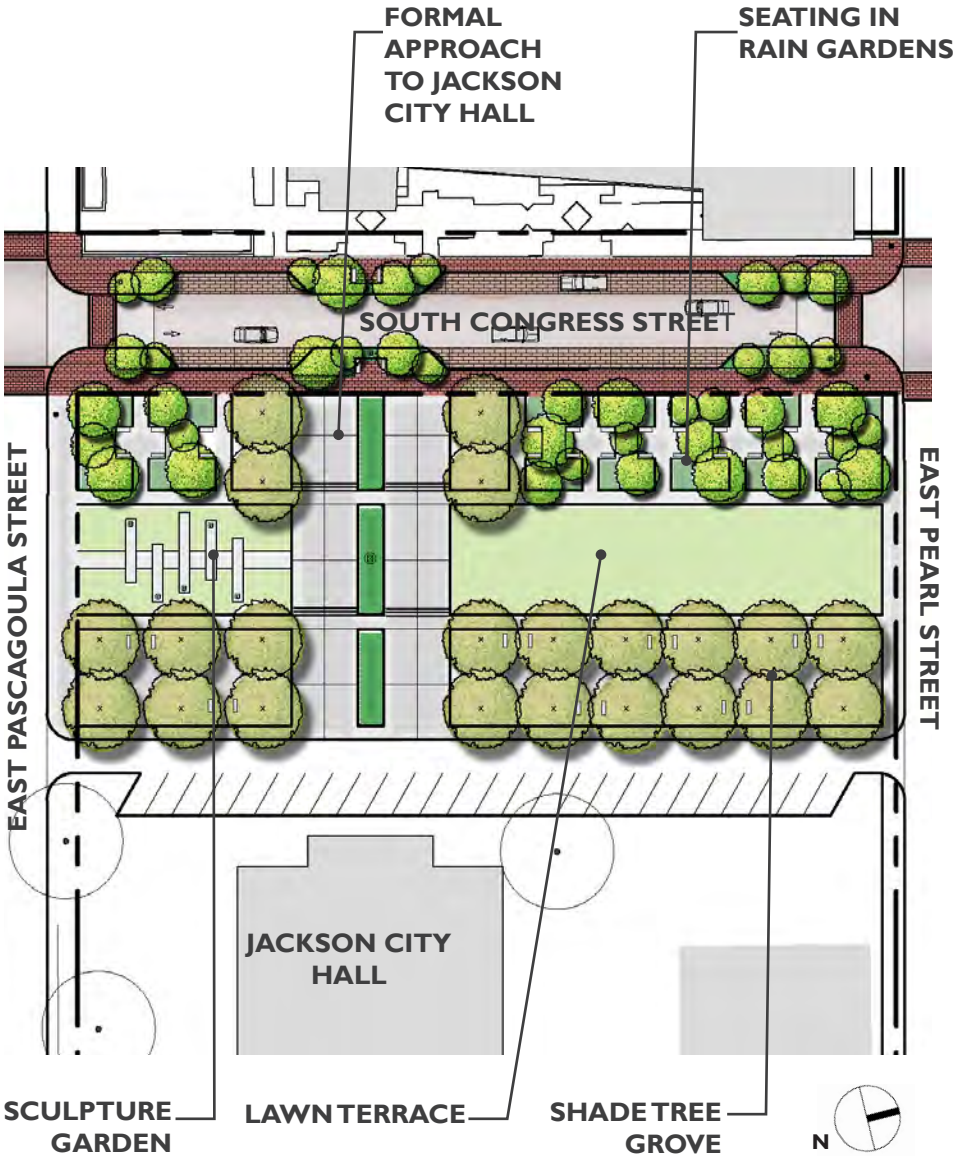

Figure 12. Design option for the Josh Halbert Memorial Garden.

The Josh Halbert Memorial Gardens serve as the entry for the Jackson City Hall from Congress Street. Community events like mayoral inaugurations and lighting the city's Christmas tree are held here. Workshop participants said that they would like the gardens to be active every day and to be more connected to South Congress Street.

The garden is currently designed as a manicured "parterre" garden, meaning it is laid out in formal, geometric shapes. Parterre gardens are primarily designed to be seen from above and are not well-suited to accommodating large crowds.

This design option would reconfigure the gardens to better accommodate community events and to work better as a park for daily use. There is a change in grade between Congress Street and city hall. This design option would regrade the site into terraces, each with its own character and use. The top terrace, closest to city hall, is a shady promenade for small gatherings. The central terrace is a flexible open lawn space where visitors and city employees can have lunch, yet it can also accommodate larger crowds for community events. The lower terrace, at the same level as Congress Street, has seating areas tucked into rain gardens filled with lush native tress and vegetation.

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Figure 13. Before image of the Josh Halbert Memorial Garden.

Smith Park is the last remaining park from the original plan for Jackson, which had incorporated a checkerboard of parks throughout the city, much like Savannah, Georgia. The park currently has a network of concrete fountains and channels that are in disrepair, and structures that include a bandstand and small pavilion. The landscaping and fountains create small, irregularly shaped gathering spaces, and berms that separate the park from South Congress Street. Workshop participants wanted to see the park become more attractive and accommodate more activities.

The design option for the park removes the berms from South Congress Street and creates an open lawn in the center for festivals, concerts, or just throwing around a frisbee. The concrete fountains and channels are replaced with rain gardens that collect runoff from the surrounding streets.

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Figure 14. Before image of the Smith Park.

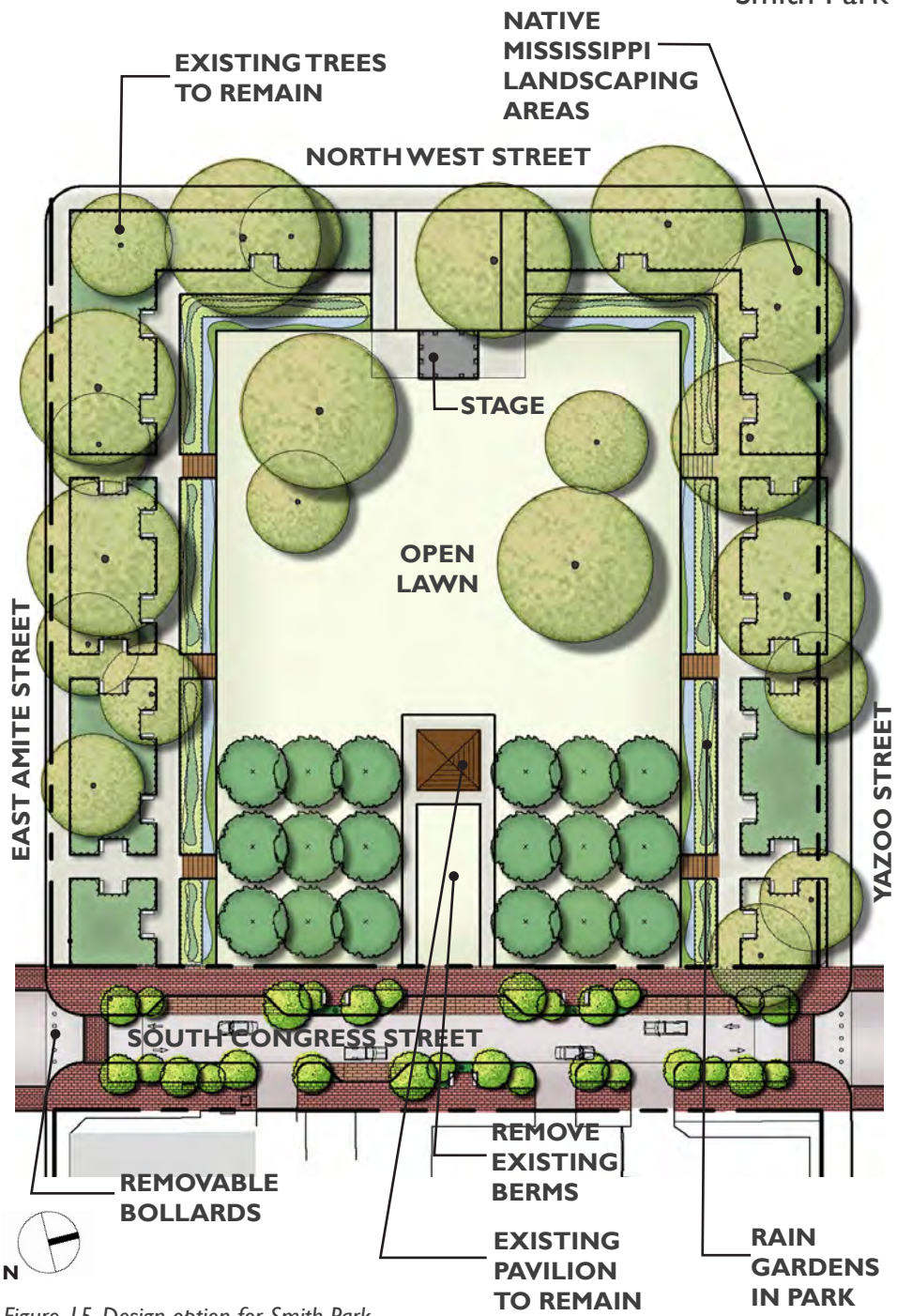

Figure 15. Design option for Smith Park.

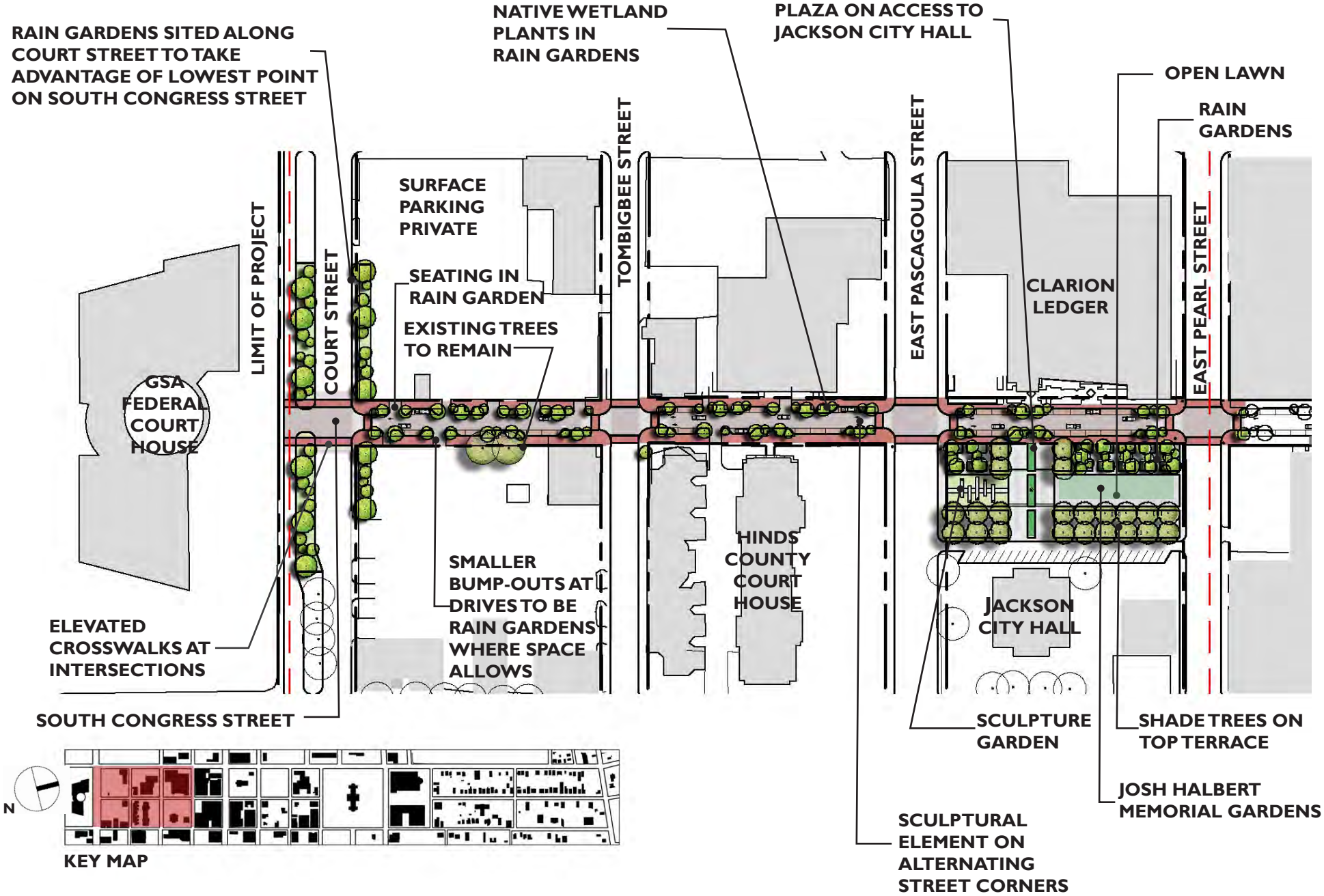

Figure 16. Conceptual layout for South Congress from Court Street to East Pascagoula Street.

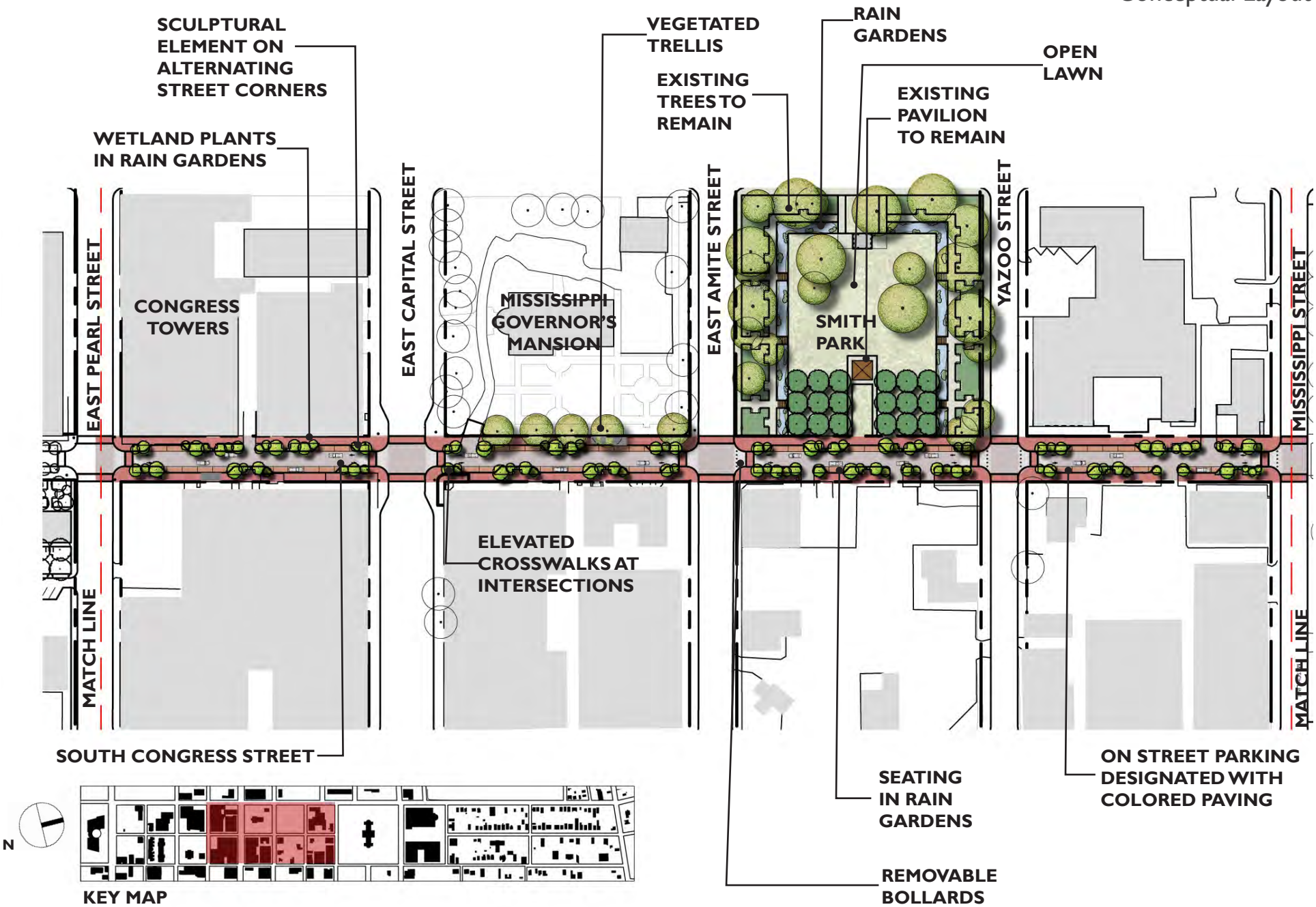

Figure 17. Conceptual layout for South Congress from East Pearl Street to Mississippi Street.

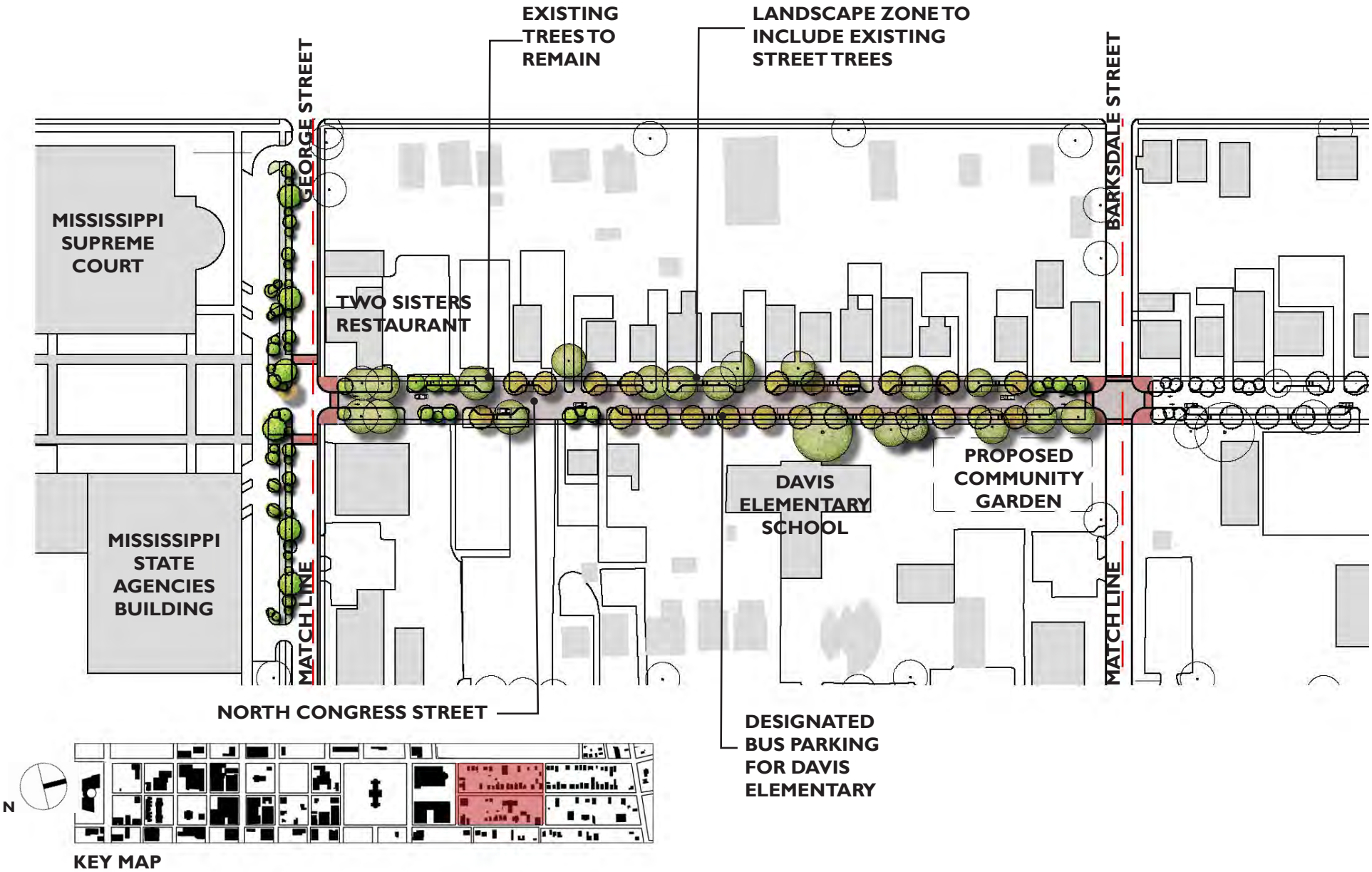

Figure 18. Conceptual layout for North Congress from George Street to Barksdale Street.

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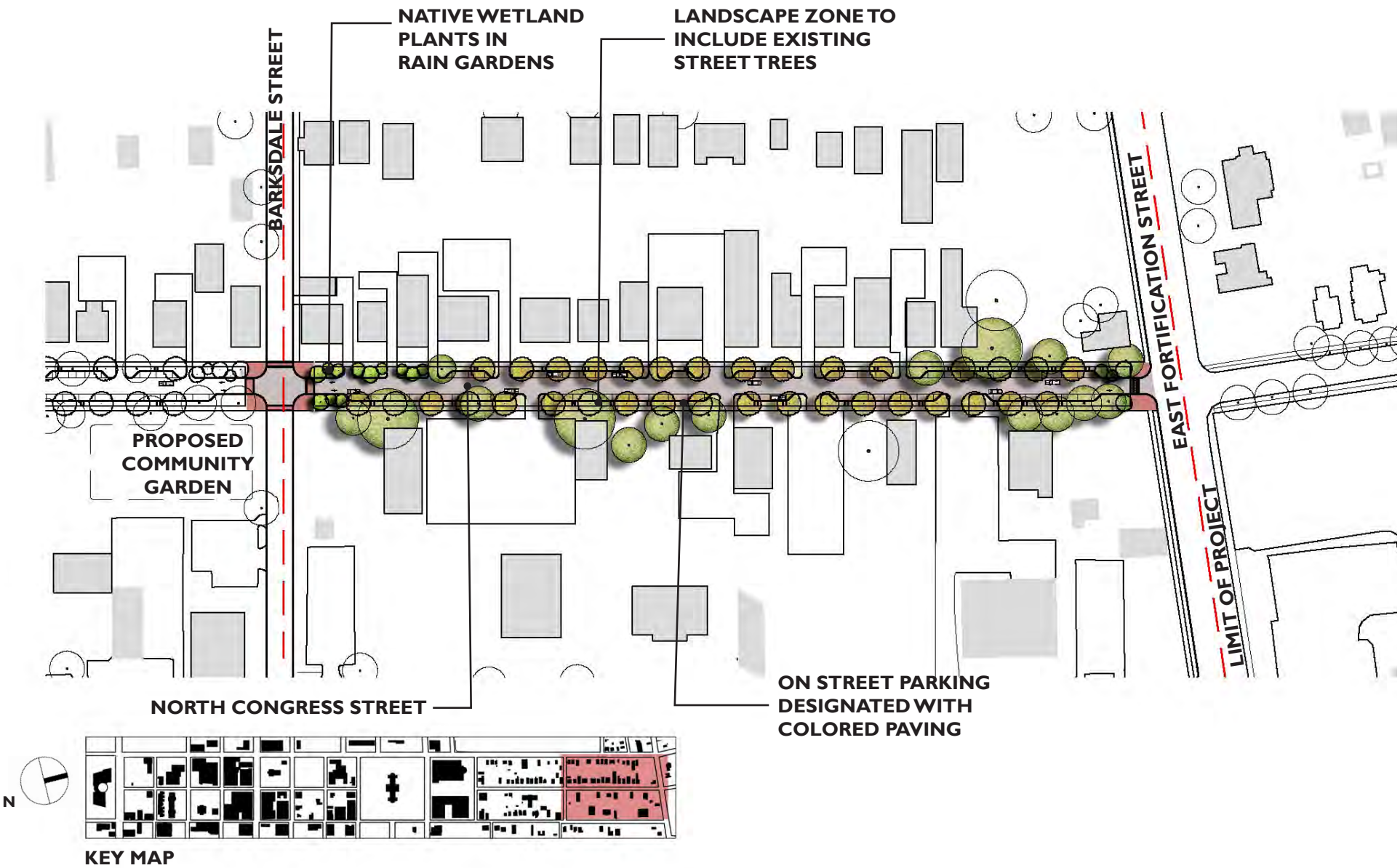

Figure 19. Conceptual layout for North Congress from Barksdale Street to East. Fortification Street.

Perspective Drawing-South Congress

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Figure 20. Existing conditions on South Congress Street in front of Congress Towers.

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Figure 21. In many places, tree roots have grown beyond the tree wells, lifting pavers and creating tripping hazards for pedestrians.

Figure 22. Sketch showing mid block rain gardens with seating areas. Each rain garden would include a trash receptacle and area for displaying sculptures by local artists.

Perspective Drawing- South Congress from Federal Courthouse

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Figure 23. Existing condition of South Congress Street, looking north from the federal courthouse. Traffic on this portion of the street is one-way, heading away from the capitol building.

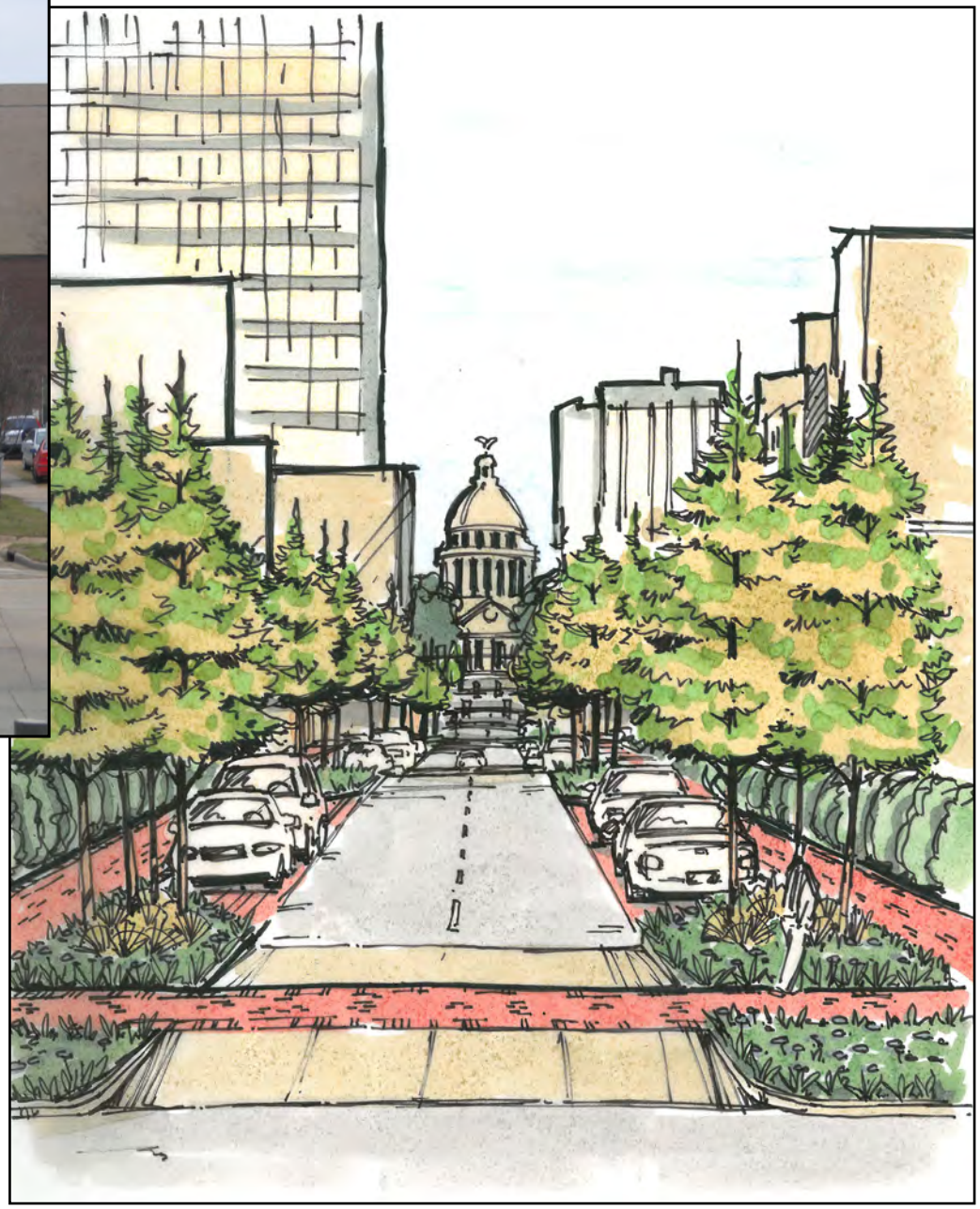

Figure 24. Sketch showing rain gardens at bump-outs, two-way vehicular traffic, and raised pedestrian crosswalks.

Perspective Drawing- South Congress at Smith Park

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Figure 25. Existing conditions on South Congress Street looking south with Smith Park on the right. The berms between the park and the sidewalk were intended to separate the park from the hustle and bustle of a busy downtown.

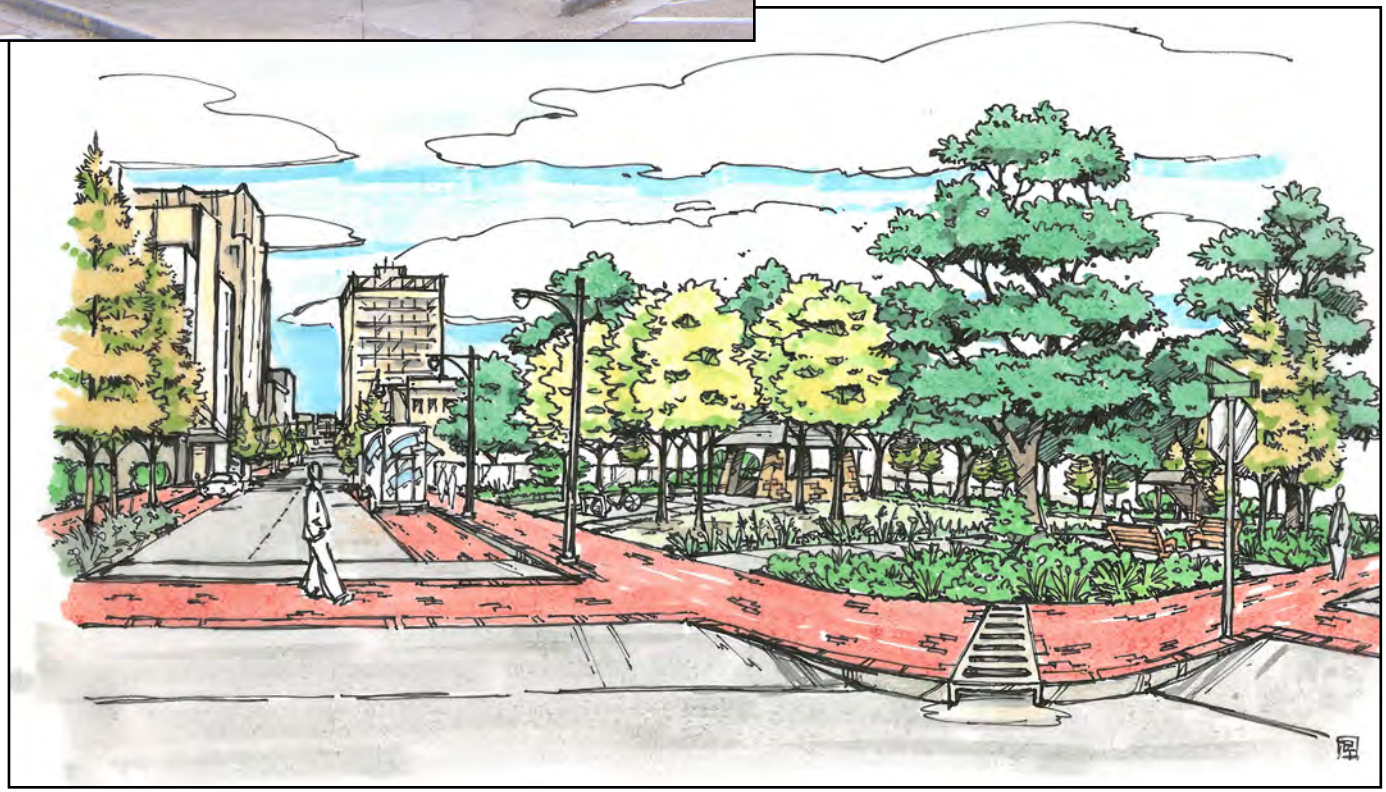

Figure 26. Sketch showing Smith Park as an open space bordered with large shade trees. Water collected from the intersection would be channeled into rain gardens in the park. This portion of the street could be blocked off with removable bollards to create overflow space from the park during special events.

Perspective Drawing- North Congress at Barksdale Street

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Figure 27. Existing conditions on North Congress Street, looking south toward the capitol building. Though the area appears residential, most of the buildings are used as offices for small businesses. These businesses need on street parking, particularly during business hours.

Figure 28. Sketch of North Congress Street, with raised pedestrian crosswalks, native plants with high transpiration rates in rain gardens, and colored paving in the parking lane (in the background).

Perspective Rendering-North Congress near George Street Intersection

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Figure 29. Existing conditions on North Congress Street looking south with the state senate office building grounds beyond.

Figure 30. Sketch showing how existing trees could be incorporated into the rain gardens and how on-street parking could be designated with colored paving.

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Many communities across the country have adapted their streets to make them more walkable, attractive, and environmentally friendly by incorporating green infrastructure. Nashville, Tennessee, for instance, built rain gardens in one of its most prominent downtown streets (see Appendix B) that captures stormwater, reduces street crossing distances for pedestrians, and adds more vegetation to the downtown area.

The vision created for Congress Street in this report is just a starting point for Jackson. The city will have to determine which elements of the vision, if any, it wants to implement. Implementation would mean refining the design schemes, having more stakeholder and public meetings, and identifying funding sources. The design options address multiple challenges—stormwater management, pedestrian improvements, economic revitalization, public health, and urban forestry—but those challenges can yield multiple funding opportunities. The city of Jackson can apply to different funding sources for the same design options depending on how it frames the issue.

Some cities involved in the first year of the Greening America's Capitals program have found funding for implementation by strategically framing their challenges to fit available funding sources, For example, Little Rock, Arkansas, has a design for its Main Street similar to the design option for Jackson, and successfully applied for an EPA stormwater management grant administered through the Arkansas Resources Commission. Little Rock also received an "Our Town" grant from the National Endowment of the Arts by tying its streetscape improvement to an overall commercial revitalization strategy. Charleston, West Virginia, received a Transportation, Community, and System Preservation grant from the U. S. Department of Transportation to improve a downtown plaza and connecting walkways. The private sector is also an important player in implementation. If a city commits to improving a sidewalk, the abutting property or business owners might be willing to contribute more funding to further enhance their "front door." Just as the design team was creative in its options for Congress Street, the city of Jackson needs to be creative in its implementation of the vision.

A shade canopy and enhanced streetscape of native trees and plants were selected for drought tolerance, reflected heat tolerance, high transpiration rate, and low maintenance which helps support the area's ecoregion. Native rain garden plants tolerate a range of conditions from drought to bog while providing a habitat for wildlife and nature to be observed and enjoyed by pedestrians.

Street Trees

www.plantplaces.com Steve Foltz

Figure 31. Green Ash

www.plantplaces.com Brandan Jones

Figure 32. Tulip Poplar

www.plantplaces.com R. Scott Beuerlein

Figure 33. Black Gum

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Figure 34. Bald Cypress

www.plantplaces.com R. Scott Beuerlein

Figure 35. Pond Cypress

Underplanting

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Figure 36. Creeping Rush

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Figure 37. Dwarf Palmetto

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Figure 38. Gama Grass

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Figure 39. Common Sedge

www.plantplaces.com Melissa Benoit

Figure 40. Switch Grass

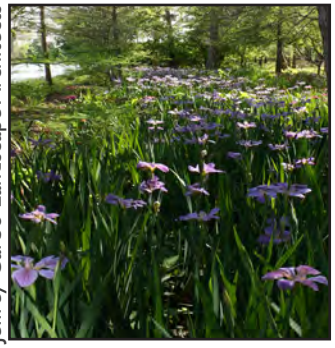

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Figure 41. Iris varieties

Deaderick Street, Nashville, Tennessee

Deaderick Street is a historically and civically important street in downtown Nashville, just as Congress Street is in downtown Jackson. The street connects the city and county courthouse and the Tennessee State Capitol. It is located in one of the city's combined sewer areas and has had flooding problems in the past.

The street was rebuilt in 2008-2009. The changes included:

- Removing several unhealthy trees.
- Installing larger and deeper planting areas for new trees and providing more space to capture stormwater.
- Installing rain gardens in the pedestrian bulb-outs at intersections and using plants that are adaptable to extreme wet and dry conditions.
- Using engineered soils in the tree planting areas and rain gardens.

The result was a net increase of more than 700 percent of pervious area within the street that could collect stormwater and let it soak into the ground. Additional capture areas divert approximately 1.2 million gallons of stormwater per year from the Cumberland River. In addition to the stormwater benefits, several other sustainable elements were incorporated into the streetscape, including LED lighting, recycled-steel furniture, recycled concrete, and solar-powered parking meters. The improvements helped prevent and control stormwater flooding and reduced wastewater management costs.

The renovation of Deaderick Street supports the historic significance of the street and enhances the corridor's status as an important civic axis in downtown Nashville.

- Enhancement cost - under $5 million.
- Funded through Department of Public Works.
- Benefits: 700% increase in pervious area through rain gardens, planting areas, and porous concrete. Increased shade, LED pedestrian streetlights & traffic signals, and solar powered parking meters.
- Recycled materials used in concrete walks, pedestrian light poles, tree grates, fence, trash/recycling containers, and pedestrian guidance signs.
- One of the first applications of "green street" methods in Southeast.
- Catalyst for other projects including Korean Veterans Boulevard Extension, 28th Avenue Connector, and a comprehensive Green Infrastructure Master Plan.

www.hawkinspartners.com

Figure 42. Deaderick Street is on an axis with the Tennessee State Capitol.

www.hawkinspartners.com

Figure 43. The rain gardens along Deaderick Street in action during a light shower.

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