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GREENING AMERICA'S CAPITALS

GREENING THE GOVERNORS' TRAIL

PIERRE, SOUTH DAKOTA

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 for 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 infrastructure strategies. EPA provides 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.

Pierre, South Dakota, was chosen in 2014 as one of five state capital cities to receive this assistance along with Austin, Texas; Carson City, Nevada; Columbus, Ohio; and Richmond, Virginia.

More information is available at
http://www.epa.gov/smartgrowth/greening-americas-capitals

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EXECUTIVE SUMMARY

The city of Pierre, South Dakota, requested assistance from the U.S. Environmental Protection Agency (EPA) through its Greening America's Capitals Program to create a cohesive vision of green and complete streets and public spaces for the city's Governors' Trail, which connects the state capitol building to the Missouri River. The city wants to create a new model for making pedestrians and cyclists safer and more comfortable in this area of the city, which is well-used by both residents and visitors. As part of this project, city staff also hope to enhance the Missouri River waterfront to make it more attractive and provide more recreation options.

This report includes a description of the three-day workshop held in the project area to engage stakeholders, residents, business owners, and community members in a process that outlined goals for the project and developed design options that respond to those goals. The report also outlines assets and challenges that informed the design options for several key locations. The city chose these locations based on their potential to help area businesses and residents, as well as their capacity to illustrate the transformative potential of green and complete streets. The design options illustrate improved amenities and safety features for pedestrians and bicyclists, as well as integrated green infrastructure components such as stormwater planters, permeable pavement, and street trees.

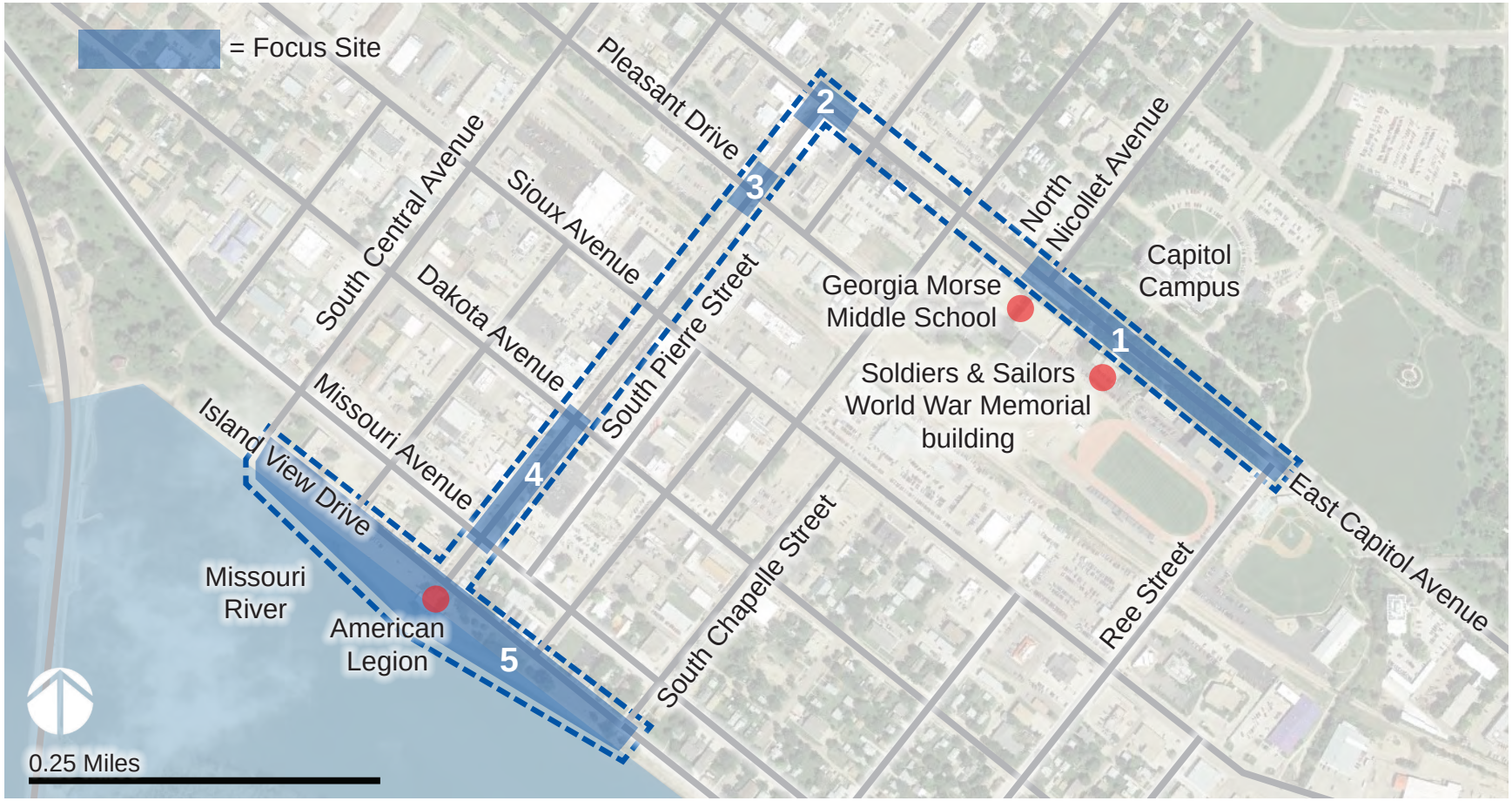

Figure 1: Design Concept Locations

1. East Capitol Avenue along the state capitol campus
2. Intersection of East Capitol Avenue and South Pierre Street
3. Intersection of South Pierre Street and Pleasant Drive
4. South Pierre Street between Dakota Avenue and Missouri Avenue
5. Missouri River Waterfront

INTRODUCTION

The Governors' Trail connects the state capitol campus, through the downtown commercial core, to the Missouri River waterfront. It is named "Governors' Trail" because a series of bronze, life-size statues of former South Dakota governors have been placed along the two streets that make the trail—East Capitol Avenue and South Pierre Street. The city of Pierre requested assistance from the U.S. Environmental Protection Agency's (EPA's) Greening America's Capitals Program to incorporate green infrastructure elements (landscape elements that collect and treat stormwater runoff) along this trail, better connect the state capitol campus to the riverfront, and enhance the downtown commercial corridor by:

- Improving pedestrian, bicycle, and vehicular circulation.
- Creating identifiable gateways to enhance local economic vitality.
- Increasing pervious area and landscaping, capturing stormwater runoff, and helping reduce localized flooding.

The project area is a section of East Capitol Avenue from the front of the state capitol campus east to South Pierre Street and south to the Missouri River waterfront. South Pierre Street divides the east and west portions of Pleasant Drive, Sioux Avenue, Dakota Avenue, and Missouri Avenue (for the remainder of this report, these roads will be referred to without their directional prefixes). The project area is approximately three-quarters of a mile long. The consultant team selected and hired by EPA was tasked with developing design options for five focus areas:

1. East Capitol Avenue along the state capitol campus.
2. Intersection of East Capitol Avenue and South Pierre Street.
3. Intersection of South Pierre Street and Pleasant Drive.
4. South Pierre Street between Dakota Avenue and Missouri Avenue.
5. Missouri River Waterfront.

The design options for each of the five focus areas envision the Governors' Trail as a green and complete corridor that is more pedestrian and bicyclist friendly, better connects local destinations, supports downtown businesses, and manages its own stormwater. A "complete street" aims to be both a great public space and a street that is shared by all users, including pedestrians, bicyclists, and transit riders, as well as, but not dominated by, drivers. Secondly, the street must perform in a way that is sensitive to the environment. This step is achieved by incorporating green infrastructure in the form of rain gardens, permeable paving, street trees, and stormwater planters that mimic the natural environment by capturing and cleaning polluted stormwater and letting it absorb into the ground (a process known as "bioretention") rather than flowing untreated into the Missouri River.

The Greening America's Capitals design team worked with city staff, local business owners, government officials, residents, and other stakeholders to assess the existing conditions of the corridor and develop design options to create a strong connection with the state capitol campus and downtown Pierre. Community concerns centered on lack of adequate pedestrian facilities, lack of street trees, lack of bicycle facilities, minimal connection from the state capitol campus to downtown, and no vision for the Missouri River waterfront. The design options envisioned, developed, and refined by the design team and stakeholders address the community concerns through wider sidewalks, narrower traffic lanes, pedestrian signage, designated shared use bicycle lanes, street trees, stormwater planters, permeable paving, and a more attractive and accessible waterfront.

WORKSHOP DESCRIPTION

The city of Pierre's Department of Parks and Recreation hosted a three-day design workshop at the end of July 2015. The design team held one public meeting and four focus group meetings, with stakeholders in each group discussing the vision and priorities for the five focus areas.

The first stakeholder group focused on the study area directly adjacent to the capitol building and grounds. Participants included staff from the state capitol facilities planning department. Priorities determined for this area included:

- Increase pedestrian safety and comfort with mid-block bulb-outs and crosswalks.
- Increase parking opportunities.
- Incorporate bike lanes to connect to existing trail systems in the community.
- Realign the capitol driveway further north on North Nicollet Avenue because many students at the school across East Capitol Street cross at this intersection, and the driveway creates confusion.
- Add vegetation and street trees.
- Create a more distinctive gateway for South Pierre Street.

The second stakeholder group focused on the study area of the intersection of East Capitol Avenue and South Pierre Street, as well as the intersection of South Pierre Street and Pleasant Drive. Participants included staff from the South Dakota Department of Transportation. Priorities determined for this area included:

- Make crosswalks more visible and accessible.
- Add parking opportunities.
- Add vegetation and street trees.

The third stakeholder group focused on the study area of South Pierre Street between Sioux Avenue and Dakota Avenue—the historic downtown for Pierre (South Pierre Street is also referred to locally as "Main Street" in the downtown). Participants were mainly business owners, and their priorities included:

- Incorporate bike lanes and bike parking racks.
- Add mid-block crossings.
- Add more trees, planting beds, seating, and public art.

The fourth stakeholder group focused on the study area along the Missouri River waterfront. Participants in this group included representatives from the American Legion, a lodge on the waterfront that attracts many people. Priorities for this area included:

- Reconfigure the existing gravel parking lot and incorporate planters to collect runoff.
- Create more opportunities to get near and in the water.
- Add more commercial development along the riverfront to attract tourism.
- Improve the area around the American Legion for large events.

SITE ANALYSIS

City staff and neighborhood partners selected the Governors' Trail as the project area for the Greening America's Capitals assistance because it includes a mix of assets and challenges that make it desirable for investments and improvements that can benefit the community, the local economy, and the environment.

The Governors' Trail gets its name from a series of bronze statues honoring each of South Dakota's governors. The city's goal in creating the trail was to build a lasting legacy for South Dakota's governors by unveiling three privately funded bronze statues each year beginning in 2012 until completion in 2022, when 30 statues will be erected. Currently, 12 bronze statues have been erected along the Governors' Trail.

The trail starts at the state capitol building, the grandest building in Pierre (Figure 2). Directly across from the capitol is the Soldiers and Sailors World War Memorial building (Figure 3). The two buildings' entrances face each other, and a midblock crossing connects the two. Currently, the crossing is not very visible and is in poor condition.

Next to the Soldiers and Sailors World War Memorial building is the Georgia Morse Middle School. The

Figure 2: The South Dakota State Capitol.

Figure 3: The Soldiers and Sailors World War Memorial building.

Figure 4: The five-way intersection along East Capitol Avenue near the Georgia Morse Middle School.

Figure 5: Recently renovated Upper Pierre Street.

intersection in front of the school is a five-way intersection because the main driveway for the capitol building is also here. This creates a very large and confusing intersection for both drivers and pedestrians, many of whom are school children (Figure 4).

At the "top" of South Pierre Street (known locally as "Upper Pierre"), where it intersects with East Capitol Avenue, is a handsome group of restored historic buildings that house restaurants, shops, offices, a bank, and a theater company (Figure 5). Upper Pierre is a destination for residents and visitors and serves as a gateway to the historic downtown closer to the river. Despite the impressive architecture, the streetscape lacks trees and other amenities like benches and bicycle racks. More could be done at this corner to emphasize the intersection as a gateway and make people want to "turn the corner" and walk down South Pierre Street to the downtown and the riverfront.

Moving down South Pierre Street to the river, the street slopes relatively steeply. The street has little shade, with few trees and plantings aside from a small garden on South Pierre Street at Pleasant Drive maintained by a local garden club. Furthermore,

street crossings for pedestrians and bicycle route markings are barely visible, creating confusion for pedestrians, bicyclists, and drivers at all intersections. This condition is typical for the entire length of South Pierre Street.

South of the rail bridge is Sioux Avenue. Sioux Avenue is a state highway and the major strip commercial corridor in the city, carrying a lot of fast-moving traffic, including many trucks. South of Sioux Avenue is Pierre's historic downtown. The downtown is a two-block stretch of South Pierre Street with many shops and restaurants. It has angled parking on the street and many free, public parking lots behind the stores. Many of the buildings are attractive, but there are few trees and amenities other than two bronze statues of former governors.

The Governors' Trail ends at the Missouri River. Currently at the terminus of the street is the American Legion (Figure 8). The building is modest but loved by local residents and attracts large crowds for concerts. The American Legion's parking lot is a gravel lot (Figure 9) that fronts right onto the river, and offers little else in terms of park amenities. Improving the riverfront at this location is a huge opportunity to

Figure 6: Looking down South Pierre Street from East Capitol Avenue to the Missouri River.

Figure 7: View to the south from the corner of Pleasant Drive and South Pierre Street where South Pierre Street goes under the tracks.

Figure 8: The American Legion at the terminus of South Pierre Street.

Figure 9: The American Legion's gravel parking lot along the Missouri River.

Figure 10: Pierre's stormwater system draining directly into the Missouri River.

bring more businesses and recreational uses to area that would serve both residents and visitors.

The level of the Missouri River is controlled by both upstream and downstream dams, so for the most part, the level of the river remains relatively constant. The exception is when rainfall in the river's watershed is extreme, such as in 2011, when the U.S. Army Corps of Engineers began increasing releases from dams upstream from Pierre. In less severe cases of flooding and drought, the level of the Missouri River in Pierre can still change up to 2 feet in a matter of hours. Therefore, any improvements along the river need to take into account possible inundation. The quality of the water is also a concern. Pierre's storm sewers empty directly into the river (Figure 10). The runoff comes from buildings, streets, and parking lots—the impervious surfaces of the city—and is polluted with oil, litter, dog feces, and other debris. Because almost all of the project area is impervious, almost all of the area's runoff goes untreated into the Missouri River.

DESIGN OPTIONS

The design concepts respond to the challenges and assets described in the Site Analysis section, as well as feedback received from the workshop participants. The city chose the design concept locations because of their challenges with pedestrian and bike access, flooding, lack of stormwater management and green infrastructure, and because of the potential impacts from public investments to attract more local and out-of-town visitors.

Key ideas that informed the design options and responded to community concerns included:

- Improving pedestrian, bicycle, and vehicular circulation.
- Improving the downtown pedestrian experience through aesthetic improvements and identifiable gateways to enhance local economic vitality and sense of place.
- Incorporating green infrastructure elements to increase pervious area and landscaping, capture stormwater runoff, and help reduce localized flooding.

FOCUS SITE ONE: EAST CAPITOL AVENUE ALONG THE STATE CAPITOL CAMPUS

This section of East Capitol Avenue is the northernmost portion of the study area. It is a major destination along the Governors' Trail. In addition to the state capitol, this section of East Capitol Avenue has a variety of buildings on both sides, including state office buildings and the Georgia Morse Middle School. Pedestrian crossings in this area are barely visible, if they exist at all. The street's 80-foot right-of-way consists of two driving lanes and two lanes of parallel parking, but no designated bike lanes.

The intersection of East Capitol Avenue and North Nicollet Avenue includes the entrance point for the driveway onto the capitol grounds. This intersection has confusing street signaling and circulation patterns that create hazardous conditions for pedestrians and vehicular traffic. A wide tree lawn on the north side of the street is densely planted with street trees, providing shade for the 16-foot-wide sidewalk beneath the tree canopy. However, most of these trees are either reaching the end of their life cycle or are ash trees vulnerable to being destroyed by the emerald ash bore.

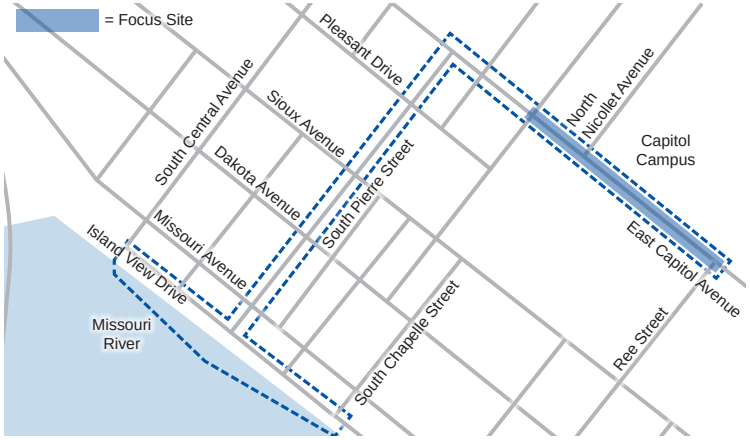

Figure 11: Context map showing the location of Focus Site 1.

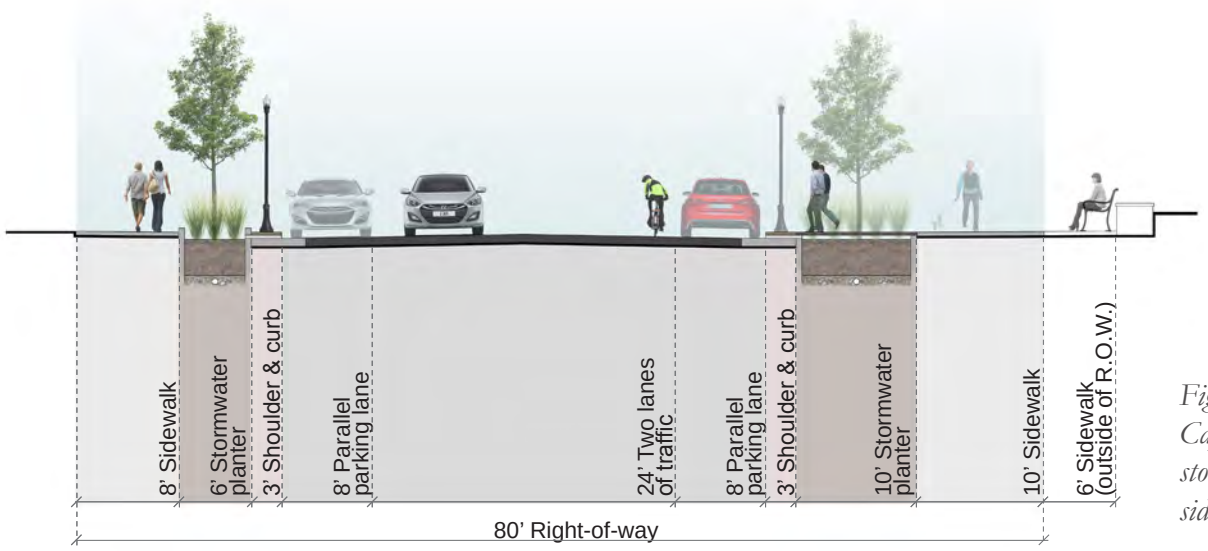

Figure 12: Typical section of what East Capitol Avenue could look like with stormwater planters, bike lanes, and a wider sidewalk on the south side of the street.

Figure 13: Current condition of the pedestrian crossing over East Capitol Avenue directly south of the capitol building.

Design options for this area included stormwater planters, a raised pedestrian crossing, and additional vegetation and street trees. Together, these amenities create a safer, more pleasant pedestrian experience that draws more attention to the historic architecture. The raised and textured crosswalk make the crossing more visible to drivers while drawing attention across the street to either the capitol building to the north or the Soldiers and Sailors War Memorial to the south. The trees provide shade, while their planters are designed to gather and retain stormwater runoff.

Figure 14: Design concept for the pedestrian crossing over East Capitol Avenue directly south of the capitol building. Stormwater planters and street trees could be added to a mid-block bulb-out. The added vegetation could help frame the capitol building and draw visitors' attention toward the historic building. A textured and colored pedestrian crossing would be more visible to drivers and would be safer for pedestrians crossing the street.

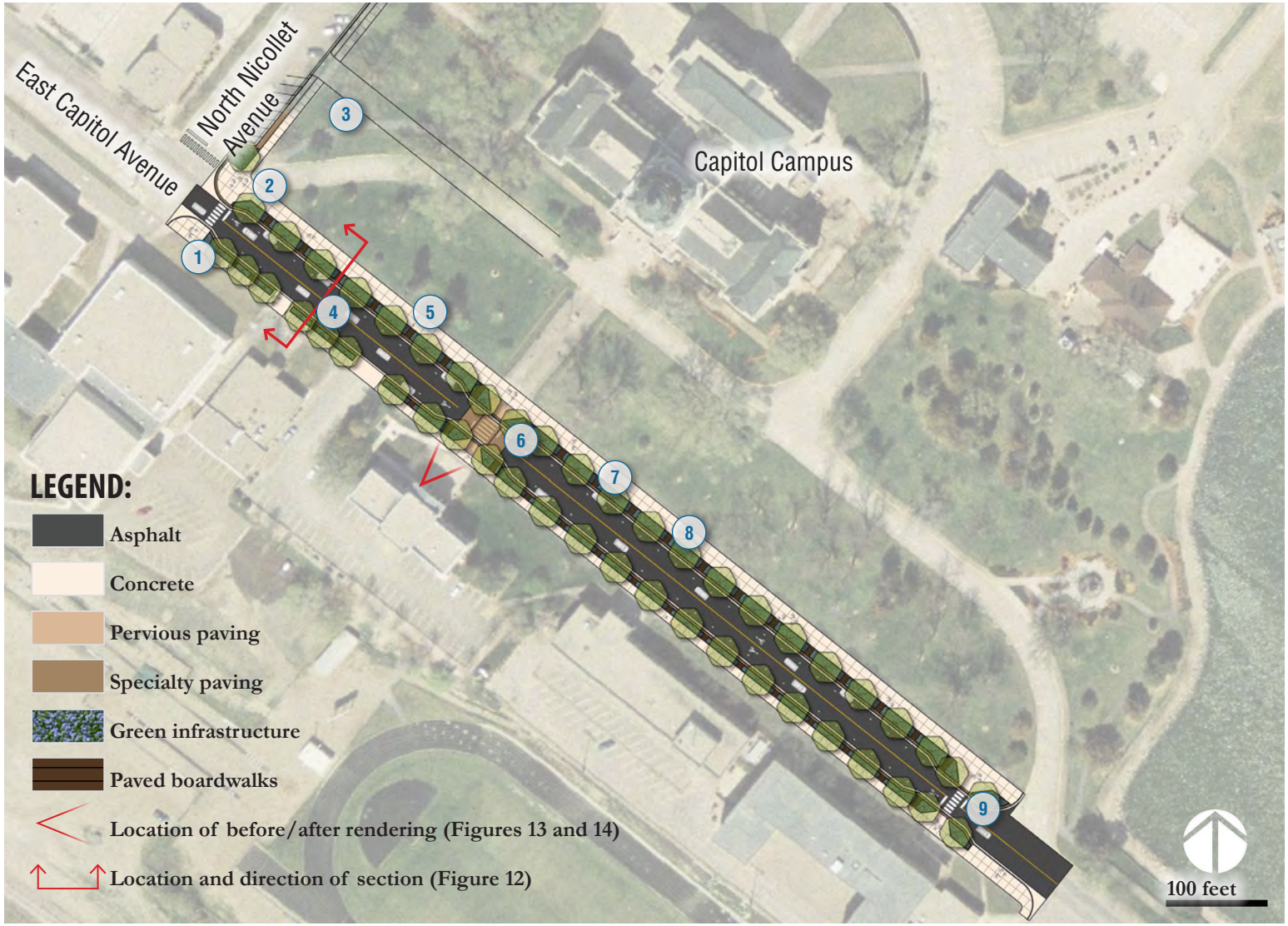

Figure 15: This plan shows the design concept for East Capitol Avenue.

DESIGN COMPONENTS:

1. Educational stormwater management signage and graphics can be displayed at the intersection of North Nicollet Avenue and East Capitol Avenue to educate visitors and Georgia Morse Middle School students about green infrastructure.

2. Governors' Trail statues and/or signage could be added at the mid-block crossing and corner bulb-outs to provide more locations for the statues and increase visitors' awareness of the trail.

3. The capitol campus access driveway could be realigned to provide access from North Nicollet Avenue, which would make North Nicollet Avenue and East Capitol Avenue a traditional T-intersection with corner bulb-outs to make pedestrians and drivers safer.

4. The existing cross-section of two travel lanes and two parallel parking lanes would be maintained; however, the travel lanes could be narrowed to 12 feet to encourage people to drive more slowly next to the parked cars. Travel lanes can also be striped as a shared-use lane to improve safety and indicate to drivers that lanes are to be shared with bicyclists.

5. The existing stone seat wall running along East Capitol Avenue would be maintained, as well as the large adjacent sidewalk to provide ample space for state employees and capitol visitors.

6. The mid-block crossing can include permeable pavers to manage and treat stormwater. This mid-block crossing creates a better visual connection to the state capitol building, provides another pedestrian route across the street, calms traffic, and adds additional space for seating.

7. Street trees in stormwater planters capture and treat stormwater on both sides of the street. These planters can also provide larger tree root zones, which gives the trees a healthier growing environment.

8. Paved boardwalks can provide crossings over the stormwater treatment planters and allow a larger, continuous bioretention area on both sides of the street.

9. Bulb-outs at pedestrian crossings can provide larger stormwater planter areas, protect pedestrians, and reduce pedestrian crossing distances.

FOCUS SITE TWO: INTERSECTION OF EAST CAPITOL AVENUE AND SOUTH PIERRE STREET

This T-shaped intersection terminates at the Hughes County Courthouse grounds. A small plaza with a governor's statue is directly across from South Pierre Street. This intersection is considered the gateway to the downtown retail core, and while Upper Pierre Street has recently undergone several improvement projects, this area presents several visual and circulation challenges. This section of East Capitol Avenue has unsafe crosswalks that are poorly marked. A narrow 75-foot right-of-way at this section of South Pierre Street has narrow sidewalks and no designated bike lanes. The sidewalks and pedestrian areas have no benches, street trees, or other plantings. The closely spaced building facades along East Capitol Avenue restrict views to South Pierre Street and the Missouri River waterfront, making it easy for visitors to overlook this critical turn in the Governors' Trail.

Design options for this area include stormwater planters, planted medians, crosswalks, and additional vegetation and street trees. Once again, these elements help keep pedestrians safe while also making the area more attractive. They come together to help calm traffic, allowing users to recognize the entrance into downtown along South Pierre Street and frame the view to the Missouri River.

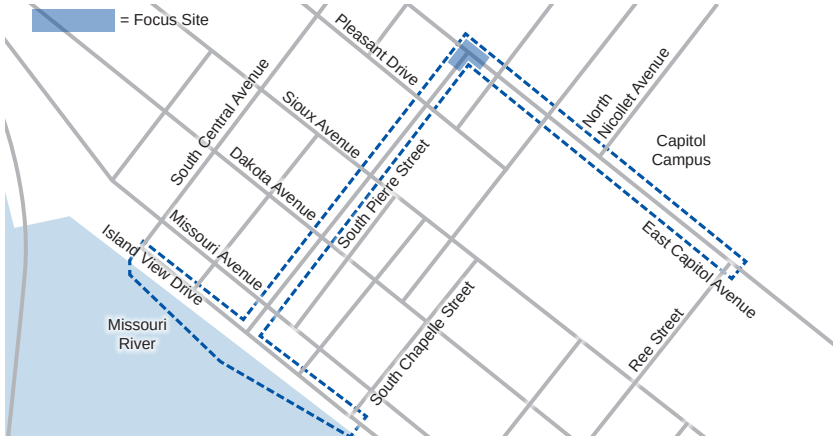

Figure 16: Context map showing the location of Focus Site 2.

Figure 17: Current condition of the intersection of East Capitol Avenue and Upper Pierre Street.

Figure 18: Design concept for the intersection of East Capitol Avenue and Upper Pierre Street. A colored and textured intersection makes pedestrian crossings more visible. Stormwater planters and street trees have been added along the rights-of-way and in a center median. These elements work together to calm traffic, making bicyclists and pedestrians crossing the street safer.

Figure 19: Plan view of the design concept for the intersection of East Capitol Avenue and South Pierre Street.

DESIGN COMPONENTS:

1. A median in the middle of Capitol Avenue just west of the intersection can calm traffic and give pedestrians a safe place to rest. A monument in the middle of the median can provide enhanced signage for South Pierre Street and direct people going from the capitol campus to the downtown business district.

2. The area around the existing governor's statue can be enhanced with additional landscaping.

3. Corner bulb-outs at pedestrian crossings can provide larger stormwater planter areas, protect pedestrians, and reduce pedestrian crossing distances.

4. Larger landscape areas can allow stormwater from the sidewalk to infiltrate and be taken up by plants. They also can provide additional spaces for governors' statues.

5. Pervious paving over stormwater tree trenches can manage, treat, and store stormwater while allowing air flow and nutrients to reach the tree roots and help keep the trees healthy.

6. Street trees can provide shade and help reduce ambient air temperatures, making the space more comfortable for pedestrians.

FOCUS SITE THREE: INTERSECTION OF SOUTH PIERRE STREET AND PLEASANT DRIVE

At this significant downtown intersection, South Pierre Street transitions from one-way to two-way traffic and widens to four lanes. At this point, northbound traffic from the south can turn only east or west at the intersection. The intersection has no signal and no marked crosswalks. It is an unconventional intersection with minimal signage and no marked bike lanes, causing hazardous conditions for all users. On the northeast corner of the intersection, there is a small green space on private property managed by the Pierre Master Gardeners. There is little other vegetation in this area, including no street trees or other sources for overhead shade.

The design option for this area reconfigures the intersection into a roundabout-type intersection to slow traffic, making the lanes less confusing for drivers to navigate and safer for pedestrians and bicyclists. The roundabout also allows cars to move continuously and not have to stop at the sloping intersection, which can be problematic in icy conditions. Plant beds and medians would add stormwater retention and overhead shade.

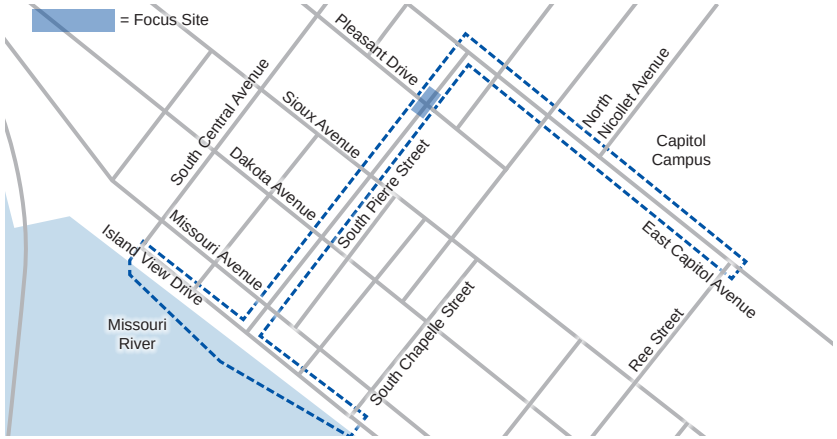

Figure 20: Context map showing the location of Focus Site 3.

Figure 21: Current condition of the intersection of South Pierre Street and Pleasant Drive.

Figure 22: Design concept for the intersection of South Pierre Street and Pleasant Drive. The major design option at this site is a roundabout added to the intersection of South Pierre Street and Pleasant Drive. A roundabout could benefit this area by simplifying traffic patterns, slowing the average traffic speed, and creating safer and shorter distances for pedestrians to cross the street. Stormwater planters, street trees, and aboveground planters could calm traffic while adding visual appeal to the intersection.

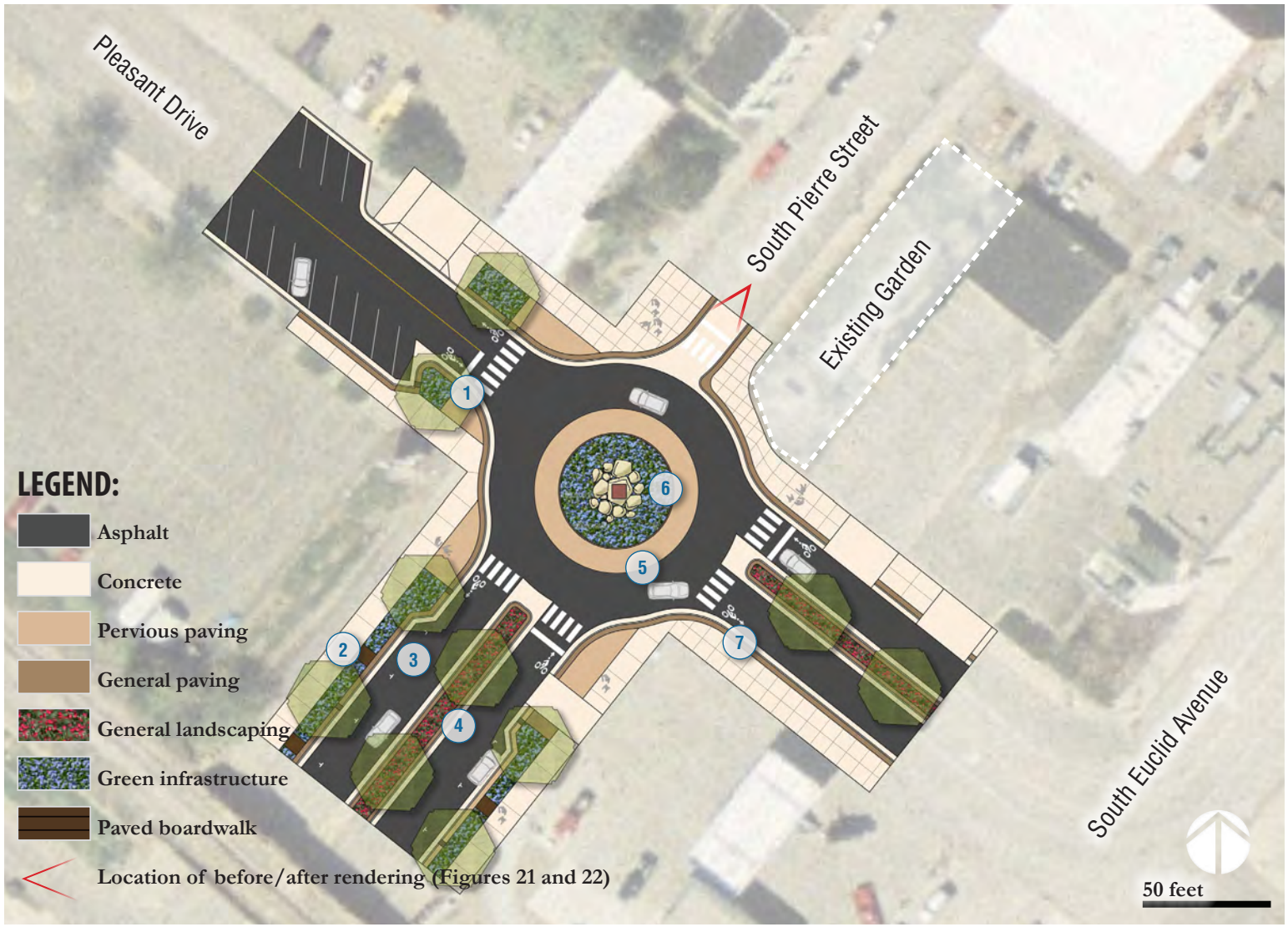

Figure 23: Plan view of a possible roundabout reconfiguration of the intersection of Pleasant Drive and South Pierre Street.

DESIGN COMPONENTS:

1. Expanded sidewalk zones can include pervious paving to accept stormwater runoff from the sidewalk.

2. Paved boardwalks can provide crossings over the stormwater treatment planters and allow a larger, continuous bioretention area.

3. A road diet for South Pierre Street and Pleasant Drive could remove two lanes of traffic and reallocate the space for additional sidewalks, street trees, medians, and green infrastructure. These additions can encourage people to drive more slowly and protects bicyclists and pedestrians. The wider sidewalks can strengthen the connection to the rest of South Pierre Street.

4. Medians can calm traffic, create a refuge for people crossing the street, and use street trees to help reduce ambient air temperatures.

5. The intersection could be reconfigured to a roundabout. The roundabout directs vehicular traffic while keeping it moving through the intersection. It can be safer for bicyclists and vehicles and shorten the distance for pedestrians to cross the street.

6. The center landscape area in the roundabout could capture, treat, and infiltrate stormwater. The center landscape area can also provide a place for public art or a governor's statue.

7. Travel lanes can be marked with bicycle lane symbols, providing a shared-use lane to improve safety and indicate to drivers that lanes are to be shared with bicycles.

Note: Pierre Street is a South Dakota DOT (SDDOT) highway from Pleasant Drive to Sioux Avenue and SDDOT must be involved in any design changes.

FOCUS SITE FOUR: SOUTH PIERRE STREET BETWEEN DAKOTA AVENUE AND MISSOURI AVENUE

This block is part of the city's historic Main Street business district and has many shops and restaurants. The street is two lanes of one-way traffic moving south. The 100-foot right-of-way allows for two rows of angled parking, generous pedestrian bulb-outs at the corners, and 16-foot-wide sidewalks.

There is one governor statue at the corner of South Pierre Street and Dakota Avenue, with potential locations for several other statues along this block in landscape planters and at corner bulb-outs. There are also opportunities to add landscaped areas that could add much-needed vegetation and shade.

Figure 24: Context map showing the location of Focus Site 4.

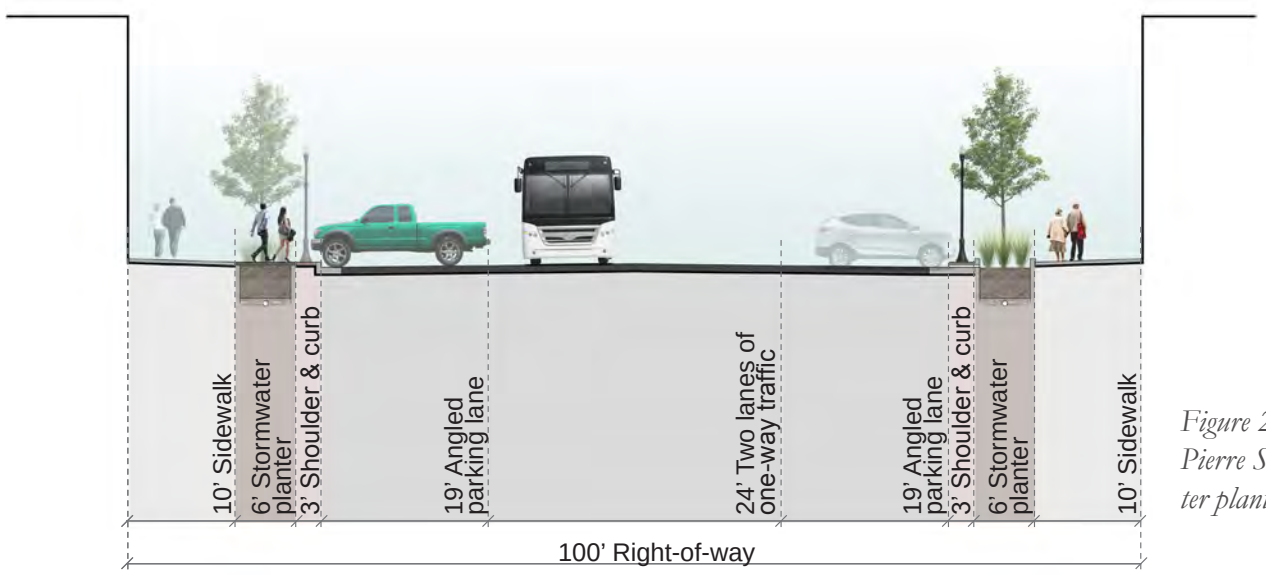

Figure 25: Typical section of what South Pierre Street could look like with stormwater planters, street trees, and bike lanes.

Figure 26: Current condition of the block-long segment of South Pierre Street between Dakota Avenue and Missouri Avenue.

Design options for this area include stormwater planters, a raised pedestrian crossing, and additional vegetation and street trees. These amenities work together to provide a safer, more pleasant pedestrian experience that draws more attention to the businesses along South Pierre Street.

Other design options include street trees to provide shade, planters that have been designed to gather and retain stormwater runoff, and textured crosswalks to make drivers more aware of these pedestrian crossings.

Figure 27: Design concept for the block-long segment of South Pierre Street between Dakota Avenue and Missouri Avenue. Framing the American Legion at the terminus of South Pierre Street, the stormwater planters and street trees add shade and visual appeal along South Pierre Street. Bike lanes and more visible pedestrian crosswalks can keep people safer as they cross the street.

Figure 28: Plan view of a possible reconfiguration of South Pierre Street.

DESIGN COMPONENTS:

1. Corner bulb-outs at pedestrian crossings can provide larger stormwater planter areas, protect pedestrians, and reduce pedestrian crossing distances.

2. Wider sidewalks can provide space for stormwater planters, bicycle racks, public seating areas, and outdoor displays or dining for local businesses.

3. Street trees in stormwater planters capture and treat stormwater. These planters have larger tree root zones, which give the trees a healthier growing environment. Street trees can also provide shade and help reduce ambient air temperatures, making the space more comfortable for pedestrians.

4. The mid-block crossing could include permeable pavers to manage and treat stormwater. This crossing gives pedestrians another route across the street, can provide additional seating areas, and calms traffic.

5. Larger landscape areas can receive runoff from the sidewalks and street and allow it to infiltrate and be taken up by plants. They also can provide additional spaces for governors' statues.

6. The existing cross-section of two one-way travel lanes and two angled parking lanes would be maintained. Travel lanes can be striped as a shared-use lane to improve safety and indicate to drivers that lanes are to be shared with bicycles.

FOCUS SITE FIVE: MISSOURI RIVER WATERFRONT

South Pierre terminates at the Missouri River waterfront. Because the waterfront is under the jurisdiction of the U.S. Army Corps of Engineers and South Dakota Game, Fish and Parks, its uses along the waterfront are limited and must remain recreational. A log cabin from 1946 sits at the terminus of South Pierre Street and currently is home to the American Legion. This building is a local icon and a major draw. The area is mainly a gravel parking lot for the American Legion and devoid of any green space, despite city parks being on either end. The area is essentially a "missing link" in the city's waterfront. The other notable features in this area are the outfalls for the storm sewers from three major streets (South Central Avenue, South Fort Street, and South Chapelle Street) that drain directly into the river.

Design options proposed in this area include the American Legion patio and pier extension, which would allow a more diverse range of entertainment, as well as a boat dock offering access to this area from the river. The gravel lot is reconfigured to make better use of the space, paved, and includes stormwater planters to collect and treat runoff.

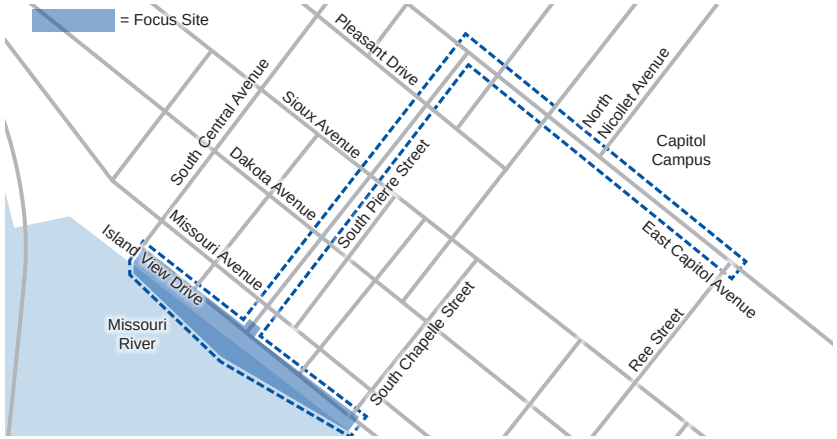

Figure 29: Context map showing the location of Focus Site 5.

Figure 30: Current condition of the Missouri River waterfront near the American Legion.

Figure 31: Design concept for the Missouri River waterfront near the American Legion. A patio and entertainment space extends south of the American Legion. The patio includes a monument marking the levels of historic Missouri River floods. The parking lot is reconfigured. Recreational trails are added. Together, the trails and parking help make the site more accessible to local and out-of-town visitors. Other amenities include a sand beach, a natural rock canoe launch, and a boat dock off of the American Legion pier.

Figure 32: Plan view of a possible reconfiguration of the Missouri River waterfront.

DESIGN COMPONENTS:

1. A bike trail connects Steamboat Park to the west, Griffin Park to the east, and downtown Pierre to the north.
2. Boardwalks over the river give visitors nice views and places to fish.
3. Riparian zone plantings along the river's edge can allow a native habitat while also providing erosion protection from the river's varying water levels.
4. Large boulder baffle structures at the outlet of each storm sewer can dissipate the force of stormwater in large rain events. In small rain events, the sloped baffle structure would encourage stormwater to flow into large rain gardens next to the river on either side of the baffle.
5. A canoe launch next to the parking lot and a small beach area can provide access onto the river.
6. The existing gravel parking lot is reconfigured, and stormwater planters added to collect and treat runoff.
7. The public space around the American Legion is expanded to accommodate large gatherings, more seating, and food kiosks.
8. South Pierre Street is converted to a public plaza with seating, stormwater planters, and public art such as a governor's statue.
9. A dock allows boaters to stop and visit the downtown, which they currently cannot do.
10. Steps down to the river give people an opportunity to put their feet in the water, sit, and enjoy the view.
11. Rain gardens planted with riparian zone plants and armored with gabions along the river can provide areas for stormwater to be captured and treated before filtering or overflowing into the Missouri River. These areas can also be natural river habitat for native wildlife and plants.

NEXT STEPS AND FUNDING SOURCES

The design options presented in this report could serve as a catalyst to help the city of Pierre make improvements and attract more investment to improve the Governors' Trail and downtown. This chapter includes options for near-, mid-, and long-term next steps that the city and its key partners could take to achieve their goals for downtown Pierre. This chapter also notes potential funding sources that were identified and discussed during and after the design workshop.

Near-term (2016 to 2017)

- **Develop a downtown business owners association.** Working with community stakeholders to create a business owners association can help reach shared goals and implement strategies to integrate green and complete street concepts. Key partners might include the county, the state, and downtown business owners to sponsor and maintain improvements such as planters and trees.

- **Implement streetscape features and elements for Upper Pierre Street (between Pleasant Drive and East Capitol Avenue).** Once a downtown business owners association is formed and its role for maintenance outlined, the association can work with the city to enrich and unify the streetscape on the newly constructed Upper Pierre Street. This could include improvements such as above ground planters, benches, trash receptacles, and bicycle racks.

- **Implement improvements to South Pierre Street between Dakota Avenue and Missouri Avenue.** The city can implement green infrastructure and pedestrian improvements as part of the South Pierre Street improvement project. The city could undertake more detailed design and preparation of construction documents to implement the improvements. This could include all or some of the features identified in the design options. The city and the downtown business owners association would partner to identify roles for maintenance of the improvements. Funding for this project has already been identified with the city's current budget.

- **Coordinate East Capitol Avenue design options with the state's Capitol Grounds Beautification Committee.** The city can work with the state to advance the strategies, goals, and design options to implement green and complete streets on the capitol grounds. As a part of this effort, the city could also coordinate with the state to improve vehicular and pedestrian circulation within the grounds as it pertains to East Capitol Avenue.

- **Implement improvements to East Capitol Avenue between North Nicollet Avenue and Ree Street.** The city can implement green infrastructure and pedestrian improvements as part of the East Capitol Avenue improvement project. The city could undertake more detailed design and preparation of construction documents to implement the improvements. This could include all or some of the features identified in the design options. The city and state would partner to identify roles for maintaining the improvements. Funding for this project has already been identified with the city's current budget.

- **Identify and implement initial improvements for the Missouri River waterfront.** The city could undertake more detailed design along the Missouri River waterfront to further the green infrastructure strategies and goals identified in this report. If the city can identify funding, it could then prepare construction documents for the first phase of improvements along the Missouri River waterfront. For a potential first phase, participants in the Missouri River waterfront focus group identified the large gravel parking lot south of Island View Drive between South Pierre Street and South Central Avenue.

- **Develop design standards and a maintenance plan for complete and green streets.** The city can develop design standards and a maintenance plan for complete and green streets to facilitate the implementation of the Governors' Trail design options and other concepts that will come from developing policies and plans. Several standard and guidance documents are available online, but two resources in particular could be helpful to Pierre: the Institute of Transportation Engineers' *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* [1] and the city of Philadelphia Water Department's *Green Streets Design Manual* [2]. The Philadelphia Water Department also has a good maintenance manual for green infrastructure: Philadelphia Water Department's *Green Infrastructure Maintenance Manual Development Process Plan* [3]. EPA has a Green Infrastructure Wizard[4] that is a searchable database of EPA resources related to green infrastructure. Search queries are based on who the user is and what information is being sought.

- **Conduct further design and engineering studies of the South Pierre Street and Pleasant Drive intersection and Euclid Avenue between Pleasant Drive and East Capitol Avenue.** If funding could be identified, further design and analysis and a thorough and transparent public process could help the city and SDDOT reach an agreement on a preferred design concept for the South Pierre Street and Pleasant Drive intersection, Pleasant Drive and Euclid Avenue intersection, and Euclid Avenue between Pleasant Drive and East Capitol Avenue. The city and SDDOT could work together to identify funding and define a scope for a more detailed design and engineering study for the area.

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[1] Institute of Transportation Engineers. Designing Walkable Urban Thoroughfares: A Context Sensitive Approach: An ITE Recommended Practice. 2010. http://www.ite.org/css/online/index.html.

[2] Philadelphia Water Department. "*Green Streets Design Manual.*" 2014. http://www.phillywatersheds.org/what_were_doing/gsdm.

[3] Philadelphia Water Department. "Green City, Clean Waters." http://phillywatersheds.org/what_were_doing/documents_and_data/cso_long_term_control_plan. Accessed Nov. 4, 2015.

[4] EPA. "Green Infrastructure Wizard." http://www2.epa.gov/communityhealth/green-infrastructure-wizard. Accessed Nov. 4, 2015.

Mid-term (2018 to 2020)

- **Continue to implement improvements along the Missouri River waterfront.** City staff and key stakeholders along the Missouri River waterfront can continue to discuss newly identified projects or new funding opportunities that will allow phased implementation of the Missouri River waterfront design option.

- **Partner to put empty lots and parking lots along the Missouri River waterfront to better use.** The city, downtown business owners association, property owners, and other stakeholders can work together to put temporary uses in vacant lots and parking lots to create interest and activity along the Missouri River waterfront. Uses might include art installations, food trucks, mobile retail, farmers market, and similar temporary installations. The "Pavement-to-Parks" installation on South Pierre Street from Missouri Avenue to Island View Drive could also be a strategy to pursue. The design intent of this strategy is to repurpose portions of the roadway from vehicular use to pedestrian space, using street furniture, paint, and/or planters. Public open space improvements can range from larger painted corner bulb-outs to an expanded public plaza with painted roadway surfaces, public art, planters, tables, seating, canopies, and/or stormwater management features.

- **Implement preferred improvements to South Pierre Street and Pleasant Drive intersection.** Following selection of the preferred design concept for the two intersections and accompanying Euclid Avenue section, the city and state could choose to move forward with final design and construction.

Long-term (2020 to 2025)

- **Implement improvements to the South Pierre Street and East Capitol Avenue intersection.** If the city can identify funding, it could undertake more detailed design and preparation of construction documents to implement the improvements at the intersection. This could include all or some of the features identified in the design options.

- **Continue to implement improvements along the Missouri River waterfront.** City staff and key stakeholders along the Missouri River waterfront can continue to discuss newly identified projects or new funding opportunities that will allow phased implementation of Missouri River waterfront design option.

- **Review and update the green streets operations and maintenance plan.** The operations and maintenance plan should remain current with best practices and be regularly updated with information gathered from staff feedback, community input, and monitoring of green infrastructure strategies.

Including green and complete streets in projects can help the city identify and compete for infrastructure improvement funding from regional, state, and/or federal agencies. These elements can easily be adapted and integrated with other street improvements and support concepts that many funding agencies emphasize. Several potential funding sources that the city and its partners could explore to implement the design options are listed below.

Federal funding sources

- **EPA's Clean Water Act Section 319 Grants** are directed to demonstration projects that reduce nonpoint source pollution, can be used only for items not required under a stormwater program, and are subject to state priorities. Green infrastructure elements of the design concepts could be eligible for funding through this program.[5]

- **EPA's brownfields grants and technical assistance** give communities and other stakeholders resources to assess and clean up properties where actual or potential presence of a hazardous substance could complicate reuse. Grants can also be used for green infrastructure planning. Sites in the project area could be eligible for this assistance.[6]

- **Green Project Reserve,** part of the EPA's Clean Water State Revolving Fund, is a water quality financing source that helps communities meet the goals of the Clean Water Act. Nonpoint source pollution control and green infrastructure can be eligible for funding through this program.[7]

- **EPA's Office of Water** has grants and other funding programs, including the **Section 106 Water Pollution Control** (to establish ongoing water pollution control programs).[8]

[5] EPA. "Clean Water Act Section 319." http://water.epa.gov/polwaste/nps/cwact.cfm. Accessed Nov. 4, 2015.

[6] EPA. "Brownfields and Land Revitalization." http://www.epa.gov/brownfields. Accessed Nov. 4, 2015.

[7] EPA. "Green Project Reserve." http://water.epa.gov/grants_funding/cwsrf/Green-Project-Reserve.cfm. Accessed Nov. 4, 2015.

[8] EPA. "Water Pollution Control (section 106) Grants." http://www2.epa.gov/water-pollution-control-section-106-grants. Accessed Nov. 4, 2015.

State funding sources

- **The Consolidated Water Facilities Construction Program** under the **South Dakota Department of Environment and Natural Resources** provides grants and loans for water-related projects. Green infrastructure elements of the design concepts could be eligible for funding through this program.[9]

- **The South Dakota Department of Agriculture** administers funds from the **U.S. Forest Service's Urban and Community Forestry Program.** Funding is available to cities that plan to increase their community tree canopy coverage and provide multiple environmental and education benefits with stormwater management and water quality improvements.[10]

Community and other funding sources

- **Pierre** identified funding in its Capital Improvements Program for 2016-2021 to make street improvements to East Capitol Avenue and South Pierre Street. The city can build on these planned improvements to respond to the issues identified through the Greening America's Capitals project.

- **A downtown business association** or special improvement district could be created for stormwater, landscape, lighting, and other streetscape improvements to help fund capital investments and operations and maintenance of improvements. The properties and/or businesses that would contribute to the improvement district will depend upon the specific boundary and improvements of the district.

- **The city could explore public-private partnerships** for planting and maintaining street trees and green infrastructure such as a volunteer street tree management or stewardship program. Volunteers could include master gardeners, the general public, and/or students.

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[9] South Dakota Department of Environment and Natural Resources. "Consolidated Water Facilities Construction Program." http://denr.sd.gov/dfta/wwf/consolidated/consolidated.aspx. Accessed Nov. 4, 2015.

[10] South Dakota Department of Agriculture. "Urban and Community Forestry Comprehensive Challenge Grants." http://sdda.sd.gov/conservation-forestry/grants-loans/community-forestry-challenge-grants. Accessed Nov. 4, 2015.

EPA United States Environmental Protection Agency