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Greening America's Capitals

Greening East William Street

Carson City, Nevada

Office of Sustainable Communities
Smart Growth Program

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Greening America's Capitals

Greening America's Capitals is a 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) to help state capitals develop an implementable vision of distinctive, environmentally friendly neighborhoods that incorporate innovative 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.

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

Find more information about Greening America's Capitals at www.epa.gov/smartgrowth/greening-americas-capitals

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Executive Summary

Nevada Department of Transportation (NDOT) recently transferred East William Street to Carson City. The city would like to transform the street from a vehicle-dominated, high-speed corridor to a greener, more pedestrian and bicycle-friendly street—a green and complete street.

Carson City, Nevada requested technical assistance from the U.S. Environmental Protection Agency (EPA) to create a cohesive vision for East William Street and to begin planning, with local citizens and stakeholders, how the street could better serve the local community. Currently the street is wide, traffic is fast-moving, and there are few bicycle or pedestrian amenities. In some sections there are no sidewalks. EPA hired a design team to develop design options that improve the comfort of pedestrians and cyclists while also addressing other city goals to create a sense of community identity (the street is the main entry to downtown from the east); collect and treat stormwater runoff; and encourage economic development along the street.

This report includes a project area assessment of conditions along East William Street (presented in chapter 2); a discussion of project goals, challenges, and opportunities identified during the three-day workshop in Carson City (presented in chapter 3); and a set of design options for East William Street (presented in chapter 4). The design options outline a series of potential improvements that could help East William Street become a smaller, slower city street, while providing new opportunities to capture and treat stormwater runoff through the use of green infrastructure, and make the street more walkable and bikeable. The design options vary along the corridor, recognizing the different character and available right of way width of the street as it transitions from the Interstate to the downtown area.

The final chapter of this report, Next Steps and Funding, captures the robust discussions that occurred during the workshop between the design team, city, state and federal agency staff, and local business owners, residents, and other stakeholders. This chapter also presents ideas about how to pay for and implement the designs, and possible near-, mid-, and long-term actions that could catalyze improvements along East William Street.

1 | Introduction

East William Street has a rich history as an important transportation corridor in Carson City, Nevada. It once served as the Virginia City-Truckee (V&T) Railroad track line for freight and mining in nearby towns, served as part of the Pony Express route, later became part of the Lincoln Highway (State Highway 50), and is now a major city corridor that connects the newly constructed Interstate 580 (I-580) to downtown Carson City. In 2009, The Nevada Department of Transportation transferred the street to Carson City. Carson City wants to transform a 1.5 mile long segment of East William Street from an auto-oriented street into a green and complete street.

When East William Street was part of the state highway system, it was the primary traffic corridor into downtown Carson City with little accommodations for pedestrians and bicyclists. The extension of I-580 removed a significant amount of traffic from the corridor, and while traffic volumes have decreased, accidents have increased. Speed is believed to be the cause of many accidents because the street is wide, blocks are long, stoplights infrequent, and traffic volume is relatively low—all of which make drivers feel it is safe to drive fast. These and other conditions that are further described in this report create unsafe and uncomfortable walking and bicycling experiences, and discourage some residents from walking or biking along East William Street.

Carson City requested assistance from the EPA's Greening America's Capitals program to help enhance East William Street to:

- Improve pedestrian facilities and crossings at key intersections and along East William Street.
- Increase bicycle comfort and safety to encourage bicycle ridership.
- Improve vehicle circulation and reduce traffic speeds to safer levels.
- Create a sense of place and unique character along East William Street through business investment, public art installations, and attractive landscaping.
- Establish a gateway to downtown Carson City from I-580.
- Incorporate green infrastructure techniques along the corridor to help manage stormwater.

City staff identified five focus sites along East William Street which represent the various conditions along the street. It is intended that design options created for each of these sites could be used elsewhere along the street with similar conditions (or even elsewhere in the city).

The design team, hired by the EPA, made an initial site visit to Carson City to tour East William Street and meet with city planning, transportation, public works, and parks and recreation staff to discuss and understand current policies, collect local data and maps, and identify opportunities and challenges of the street. Based on information gathered on the site visit, the design team created a set of preliminary design options.

Following the initial site visit, EPA staff, Carson City staff, and the design team held a three-day workshop with stakeholders, residents, and staff from city, state and federal agencies to understand local priorities and challenges for East William Street, as well as potential partnerships to move street improvements forward. During the workshop, the design team presented and discussed preliminary design options at four focus group meetings and two public open houses. After collecting valuable comments and suggestions from community stakeholders and city staff, the design team refined the preliminary design options.

The design options in this report illustrate complete streets strategies combined with green infrastructure design features. Complete streets refers to a set of strategies that make streets and sidewalks safe for all users, including people walking, bicycling or driving. However, a street is not necessarily "complete" without considering its environmental performance. Incorporating green stormwater infrastructure into street design, known as "green streets," adds the environmental component. Green infrastructure includes a range of natural and built approaches to stormwater management–such as rain gardens, stormwater planters, and permeable paving–that mimic natural systems by capturing and treating polluted stormwater runoff and letting it absorb back into the ground rather than flow into the storm water system. The design options presented in this report envision East William Street as a green and complete street—a street that is more walkable and bikeable; better connects popular destinations; supports existing businesses; helps attract new development; and manages its own stormwater all while creating a more positive and attractive identity for Carson City.

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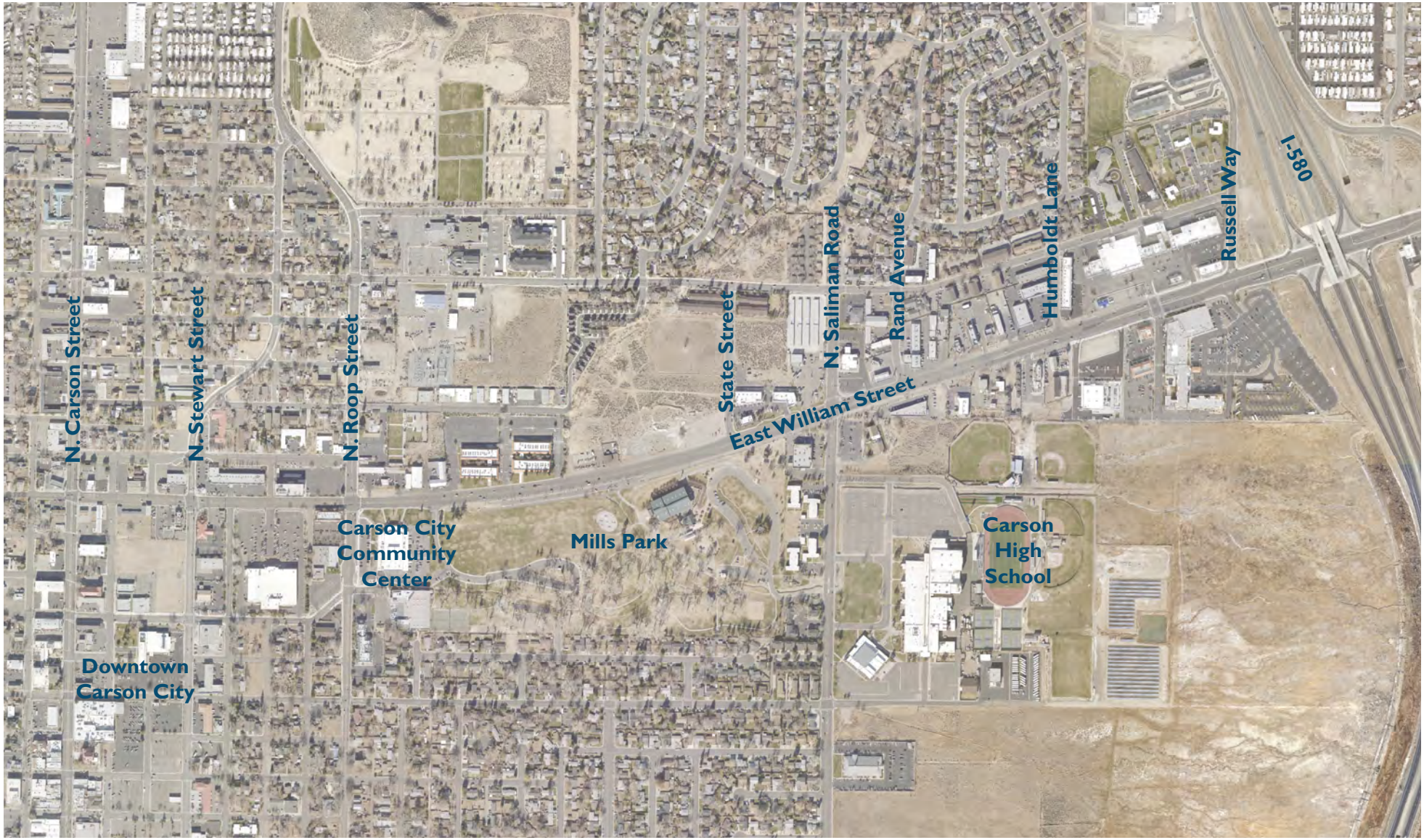

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Figure 1 Aerial view of the Greening East William Street and surrounding context. Source: Douglas County, Nevada.

2 | Existing Conditions

Carson City is located in the Great Basin, a region that experiences hot, arid summers and cold, snowy winters. It is windy year-round and like many arid regions, rain is infrequent, but when it comes, it is in heavy downpours.

East William Street, as a state highway, was designed to move a lot of traffic quickly through town. After I-580 was expanded, traffic on the street has decreased but all the travel lanes remain—four downtown (west of North Carson Street it goes down to two lanes) and six lanes at the Interstate. Blocks are long and intersections with stoplights are infrequent. The result is fast-moving traffic with only minimal accommodations for pedestrians and bicyclists.

Walking along and crossing East William Street can be difficult and uncomfortable. Sidewalks, when present, are typically narrow, in poor condition, and with no buffer between pedestrians and fast moving traffic. In many places, there is no sidewalk, or it is poorly defined because of parking and driveways, or obstructed with power lines and other utility poles. There is very little shade because there are very few street trees (a legacy of NDOT ownership when street tree planting was discouraged) and only a few storefronts with awnings over the sidewalk near downtown. Crossing East William Street is also challenging—the blocks are long so intersections are spaced far apart, and the intersections themselves are wide, making long crossing distances for pedestrians. Many intersections lack crosswalk markings or signals. There is usually one wheelchair accessibility ramp at each corner with little or no paved area behind the ramp for pedestrians to congregate and wait for the light to change. Because East William Street was designed as a highway with truck traffic, many corners have large radii which may cause drivers to either turn quickly without looking for pedestrians, or drive into marked crosswalks to turn right on red.

Bicyclists on East William Street do not fare any better than pedestrians. There are painted bike lanes between I-580 and Humboldt Lane, and a multi-use path on one or both sides of East William Street between Mills Park and I-580. Otherwise, there is very little consideration for bicyclists.

There is no transit service on East William Street and no plans to provide it (however design options in this report do not preclude the option for future transit service).

Because the street used to be a state highway, no on-street parking was allowed, and this remains the same today with the exception of along Mills Park where on-street parking is separated from travel lanes by a narrow landscaped median. Parking for businesses is off-street, primarily in front of buildings, with larger parking lots wrapping around the sides and rear of buildings. Most of the parking lots butt up to or even extend into the street right of way with no screening which makes for an uncomfortable and unattractive pedestrian experience. Sometimes when there are events in Mills Park, people park illegally on the north side of the street and run across the street—which is obviously hazardous.

The city requires property owners to detain and treat stormwater on site so even though there are few examples of green infrastructure used within public rights of way, there are examples of green infrastructure on private property. Private green infrastructure facilities are mainly bioretention areas or infiltration trenches that are lined with decorative rock. In a few places plants are in the retention areas but are too sparsely planted to provide much biotreatment.

Green infrastructure facilities can also infiltrate into the ground on sites where soils allow infiltration, the water table is not too high, and where earthquake liquefaction is unlikely. Where infiltration into the native soils cannot occur due to high ground water or liquefaction issues, stormwater can be collected into the subdrains below the green infrastructure and combined with storm flow in the city's traditional system. A portion of these waters are directed to an outfall in Mills Park. These waters flow within a man-made grass lined channel and eventually discharges into the Carson River.

Focus Sites

The Greening East William project looks specifically at five focus sites that represent the various conditions along East William Street. The existing conditions for the focus sites on the following pages are presented east to west, which corresponds to the funneling of traffic and decreasing travel lanes from the Interstate to downtown.

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Figure 2 Focus Site 1 aerial map.

Focus Site 1 – Interstate 580 to Russell Way

This portion of East William Street is the widest with six travel lanes. It serves as a major entrance and exit to I- 580 and is still controlled by NDOT. A large sign spans the street to direct traffic to freeway destinations. Sidewalks here have no landscaping to provide a buffer between pedestrians and fast-moving traffic. This street segment includes both bike lanes on the street as well as a shared bicycle and pedestrian pathway along the northern side of the street. Businesses are set back from the street with parking lots in front. There are very few sidewalks connecting the business to the street and those that are there are not very welcoming for pedestrians.

Figure 3 View looking east towards Interstate 580, north side of East William Street.

Figure 4 View looking east towards Interstate 580, south side of East William Street.

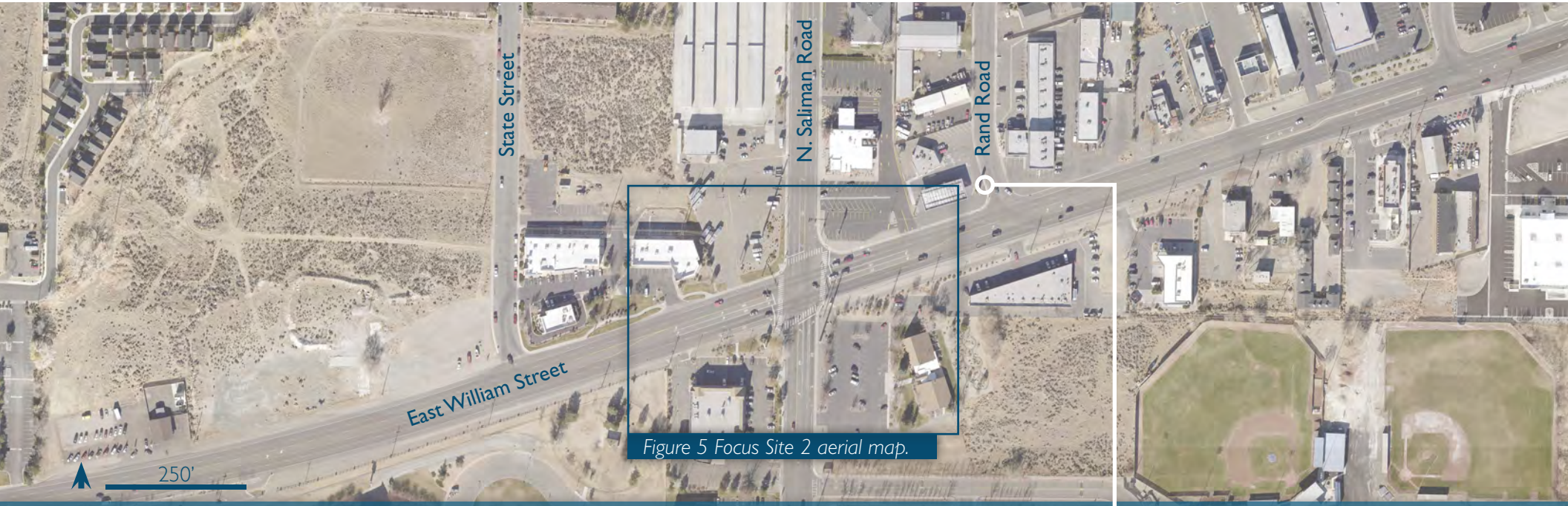

Figure 5 Focus Site 2 aerial map.

Focus Site 2 –Rand Avenue to North Saliman Road

The second focus site is a single block that typifies several prevailing issues along the remaining eastern portion of the project area. The intersection of North Saliman Road and East William Street is one of the busiest and widest intersections along the corridor, and has two left turn lanes on East William Street in each direction. In addition, there are four travel lanes and a dedicated right northbound turn lane. Carson High School is south of East William Street and generates a lot of foot and vehicle traffic. The intersection also serves high vehicle traffic at commute hours. Together, this situation creates an unsafe dynamic between large volumes of high school students crossing the street and heavy vehicle traffic. This focus site also illustrates the common occurrence of multiple wide driveways and parking spaces that directly abut and even encroach into the public right of way. Sidewalks are narrow with no buffer from traffic and there is little space for pedestrians, namely students, to wait comfortably at the intersection. There is a multi-use path on the south side of East William Street.

Figure 6 View looking west towards North Saliman Road. Image source: Sandra Wendel & Associates.

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Figure 7 Focus Site 3 aerial map.

Focus Site 3 – State Street to Mills Park Mid-Block

In this segment of East William Street a vacant lot is on the north side of the street and there is no sidewalk, curb and gutter, street lighting and landscaping. Mills Park is on the south side of the street and has on street, angled parking separated from the travel lanes by a narrow landscaped median. A shared use pathway is present along the park. Between North Roop Street (the west end of Site 4) and North Saliman Road (the east end of Site 3)—a length of over half a mile—there are no signalized crossings and only one intersection at State Street. State Street leads to many northern neighborhoods. Traffic moves quickly, posing a threat to pedestrians in general, and to park users who often park illegally on the north side of East William Street and jaywalk across the street.

Figure 8 View looking west towards State Street.

Figure 9 Focus Site 4 aerial map.

Focus Site 4 – Mills Park Mid-Block to North Roop Street

This segment of the street directly abuts Focus Site 3 with Mills Park and the Carson City Community Center to the south. Many of the same conditions exist as in Focus Site 3, and on-street parking in front of the park extends into this segment. There are low-rise commercial buildings and apartments on the north side. On the south side there is a sidewalk or multi-use pathway, but on the north side there is a combination of a narrow sidewalk, no sidewalk, or parking lots.

Figure 10 View along East William Street.

Figure 11 View looking east along Mills Park.

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Figure 12 Focus Site 5 aerial map.

Figure 13 View looking east towards North Fall Street.

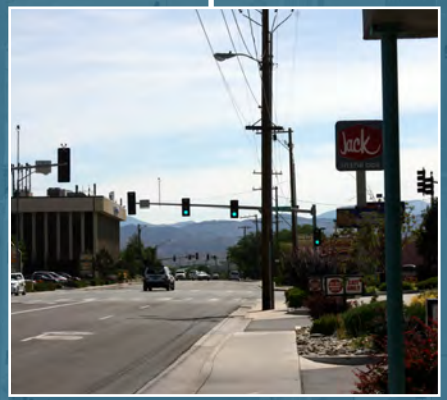

Figure 14 View looking east towards Stewart Street.

Focus Site 5 – North Stewart Street to North Carson Street

This focus site is located in the downtown core, and East William Street is the narrowest here and has the shortest blocks. North Carson Street is being redesigned to widen sidewalks and reduce travel lane widths and quantity (through a road diet) but East William Street still has only narrow sidewalks and no landscaping. Moreover, sidewalks are often interrupted by wide driveways. The intersection at North Stewart Street typifies several issues prevalent throughout the East William Street corridor, including large curb radii designed for heavy truck traffic and wide pedestrian crossing distances. Many buildings are set back from the street with parking placed in front of the buildings. No bike facilities are provided within this street segment, and there is no on-street parking. The southern leg of North Stewart Street experiences fairly heavy commute traffic between downtown and East William Street leading to and from I-580.

3 | Charrette

The design team, EPA, and Carson City staff hosted a three-day design charrette. The charrette had three major components: a series of four, topic-based focus group meetings; two public open houses; and on-going design workshops. The design team gathered feedback from a wide variety of stakeholders during this process, which helped the team refine the designs based on local goals and priorities.

The four focus group topics were 1) economic vitality; 2) transportation, walkability, and connectivity; 3) green infrastructure, art, and landscaping; and 4) implementation. Following a brief introduction of the Greening Americas Capitals program and a description of the preliminary design options, the focus group participants were prompted with a series of questions to gather feedback. Each focus group provided several important takeaways and identified community goals, some of which are described below.

There was general consensus among charrette participants on the following actions:

- Make the street safer and more comfortable for pedestrians and bicyclists, and see these kinds of improvements as an economic development strategy.
- Create a similar streetscape design on East William Street in the downtown as is being created on North Carson Street.
- Create an identity for East William Street through public art, signage, and informational kiosks with special consideration given to a "gateway" at I-580.
- Create more pedestrian crossings to reduce jaywalking.
- Provide better access, parking, and connections to Mills Park for both public events and day-to-day use.
- Develop a vehicular access management plan to guide better driveway design and location to improve pedestrian safety.
- Provide green infrastructure to manage runoff, and make it visible and educational.
- Add more landscaping and shade.
- Allow flexible or reduced parking requirements so that some businesses that were permitted by NDOT to use right of way for parking can meet the intent of the city's parking requirements without the use of right of way area.
- Implement change incrementally as the city obtains funding.

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Figure 15 Community members and city staff identified opportunities for improving East William Street during focus group discussions.

Figure 16 Open house presentation to community and stakeholders.

4 | Design Options

This chapter discusses and illustrates the design options for East William Street. These design strategies respond to the community's goals of increasing pedestrian safety and bicycle safety, establishing East William Street as a memorable place, creating a gateway at I-580 and an entrance to the city, and increasing environmental sustainability.

The design options for East William Street have been organized into three segments illustrated in Figure 16: Gateway, Park Blocks, and Downtown. The Gateway segment extends east-to-west from Interstate 580 to North Saliman Road; the Park Blocks are between North Saliman Road and North Roop Street (and front Mills Park); and the Downtown blocks are located between North Roop and North Carson Streets.

The design team developed options based on green and complete streets principles and refined those based on focus group discussions, public open house comments, and Carson City staff input. The following community priorities frame the ultimate design options agreed upon at the final public open house and presented in this report:

Transform East William Street from the character of a state highway to that of an attractive and comfortable city street. Design options "right-size" East William Street as it gets closer to downtown by narrowing and reducing lanes as traffic volumes decrease along the length of the street. Two roundabouts and a pedestrian activated crossing signal may also slow traffic for pedestrian safety, and these designs should consider emergency vehicle response and truck traffic.

Establish East William Street as a unique place and a gateway to downtown. The community talked a lot about the potential to see East William Street become a street that felt more connected to the high school, Mills Park, and the businesses that line the street. Several design options include landscaping, public art, lighting, and gateway and wayfinding signage. Together, these design elements are meant to reflect local history, sense of place, and the community's hopes, and plans, for the future of Carson City.

Increase safety and comfort for people walking. All design options consider pedestrian safety as a paramount goal for greening East William Street by including consistently wide sidewalks, multi-use paths, and running trails along the street. Additionally, the design options include special crosswalk paving, pedestrian activated crossing signals, roundabouts, and larger gathering areas at intersections and mid-block crossings to increase pedestrian comfort.

Increase safety and comfort for bicyclists of all ages and abilities. The design options respond to a call for increased bicyclist safety and comfort. New wide multi-use trails could serve as family-friendly bicycle facilities while on-street bike lanes and buffered bikeways can serve more experienced bicycle riders and commuters.

Promote environmental sustainability. The design options introduce green infrastructure and landscaping throughout the corridor not only to manage and clean stormwater runoff, but also to establish East William Street as a unique street, and provide shade and comfort for pedestrians. Green street strategies include street trees in planters, rain gardens, and permeable surface treatments. Lighting and other elements such as pedestrian activated crossing signals could support the city's desire to use LED lights, solar power opportunities, and other sustainable energy strategies.

Provide on-street parking to buffer pedestrians and provide additional parking for nearby businesses and Mills Park. The design options use the full width of the city-owned right of way. In some situations, those designs repurpose existing off-street parking or vehicle access (either leased by NDOT to, or unknowingly used, by private businesses) that falls within the city-owned public right of way. By providing on-street parking in the downtown blocks and expanding the Mills Park parking lot, the design options calm traffic; provide additional parking spaces for businesses; and buffer people walking, running, or bicycling along the sidewalk and multi-use path from moving vehicles.

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Figure 17 Circulation and Street Segment Diagram. This diagram shows overall improvements and strategies that can be used in conjunction with existing facilities to create a green and complete street.

Figure 18 View looking west on East William Street towards Russell Way from Interstate 580 exit. Image source: Sandra Wendel & Associates.

Focus Site 1 – Interstate 580 to Russell Way

The design option establishes this block as a gateway to the city and downtown. The improvements consider the view that drivers see from the interstate and encourage them to exit and visit East William Street and Carson City's downtown area. To that end, the design option uses tall columnar trees and public art features that could be seen from the freeway. Street trees in linear planters could allow the multi-use trails to be buffered from vehicles and provide shade and comfort for pedestrians. Thematic street and pedestrian lighting, metal fencing reminiscent of railroad bridge trestles, and special paving could welcome visitors and reinforce the existing themed gateway character. New and widened 12-foot wide multi-use pathways could provide family-friendly access for people walking and riding bikes to downtown and to other destinations, including for those residents who live east of I-580.

The design options also provide green infrastructure within stormwater planters between the sidewalk and the curb and does not require narrowing the roadway.

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Figure 19 Perspective view west from I-580 exit illustrating how landscaping, thematic site furnishings, and public art can create a gateway into Carson City.

These planters have curb cuts to allow stormwater from the street to flow into the rock and landscape areas to capture and treat roadway runoff. These green infrastructure features could be designed for the arid climate using appropriate plants that can withstand drought and road salts (used during the winter).

During the charrette, stakeholders identified the northeast corner of Russell Way and East William Street as an opportunity area that might include a public gathering area and a visitor's kiosk to provide people with information about the local bike routes, Carson City destinations, and even a bike repair station. The city would need to coordinate with NDOT to implement designs for landscape planters, widened pathways, and gateway features. The city has begun exploratory talks with NDOT about how to obtain land from adjoining vacant parcels for use as part of planned right of way development.

Focus Site 1 - Interstate 580 to Russell Way

Interstate 580 to Russell Way Cross Section

1. Wayfinding signage.
2. Kiosk parking.
3. Gateway entry kiosk with public art.
4. Public art.
5. Columnar trees.
6. Stormwater planters.
7. Low rail fencing with train trestle pattern.
8. Pedestrian-scale lighting with banners.

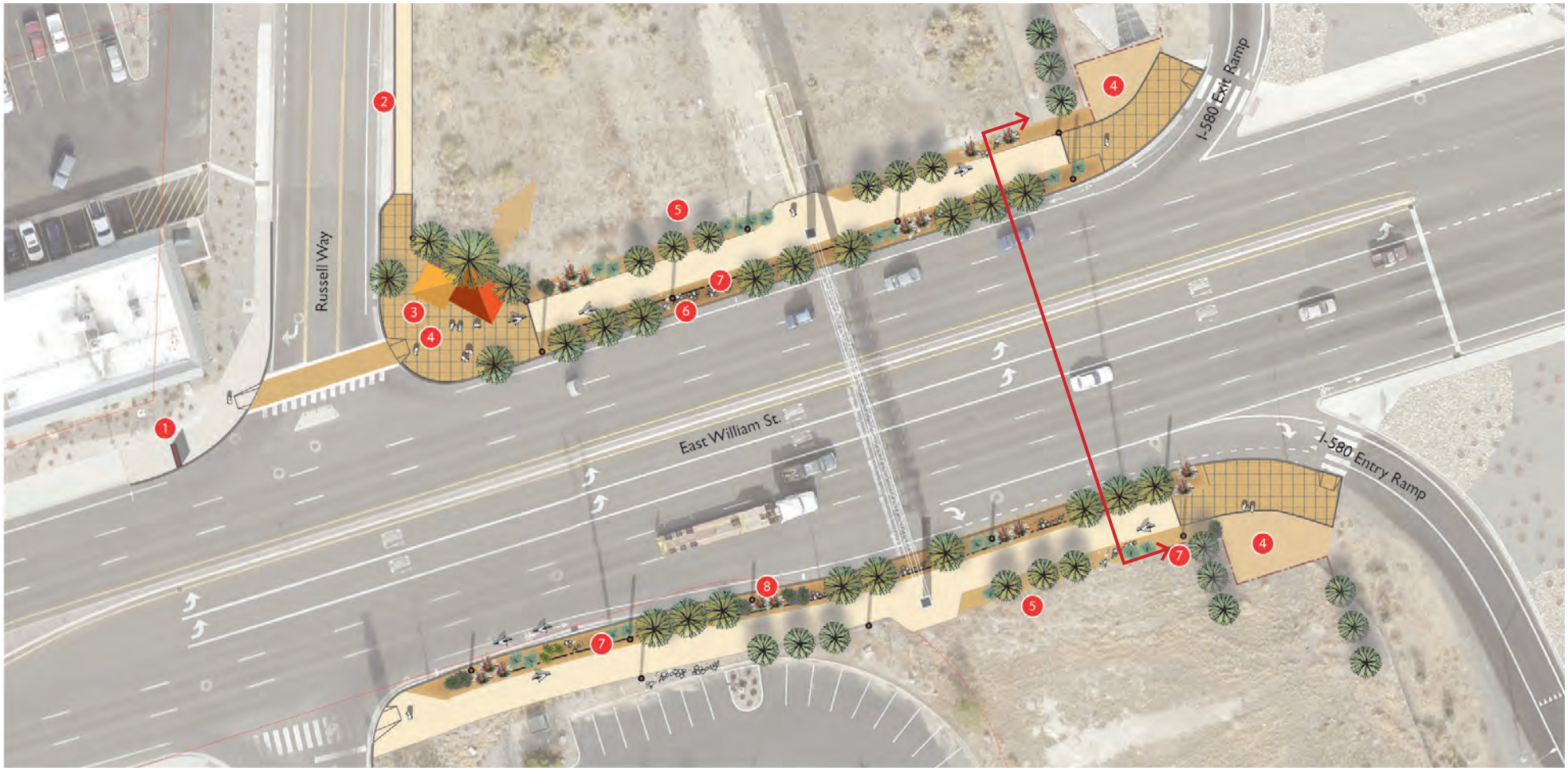

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Figure 20 Plan view of focus site.

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Focus Site 1 - Interstate 580 to Russell Way

Interstate 580 to Russell Way Cross Section

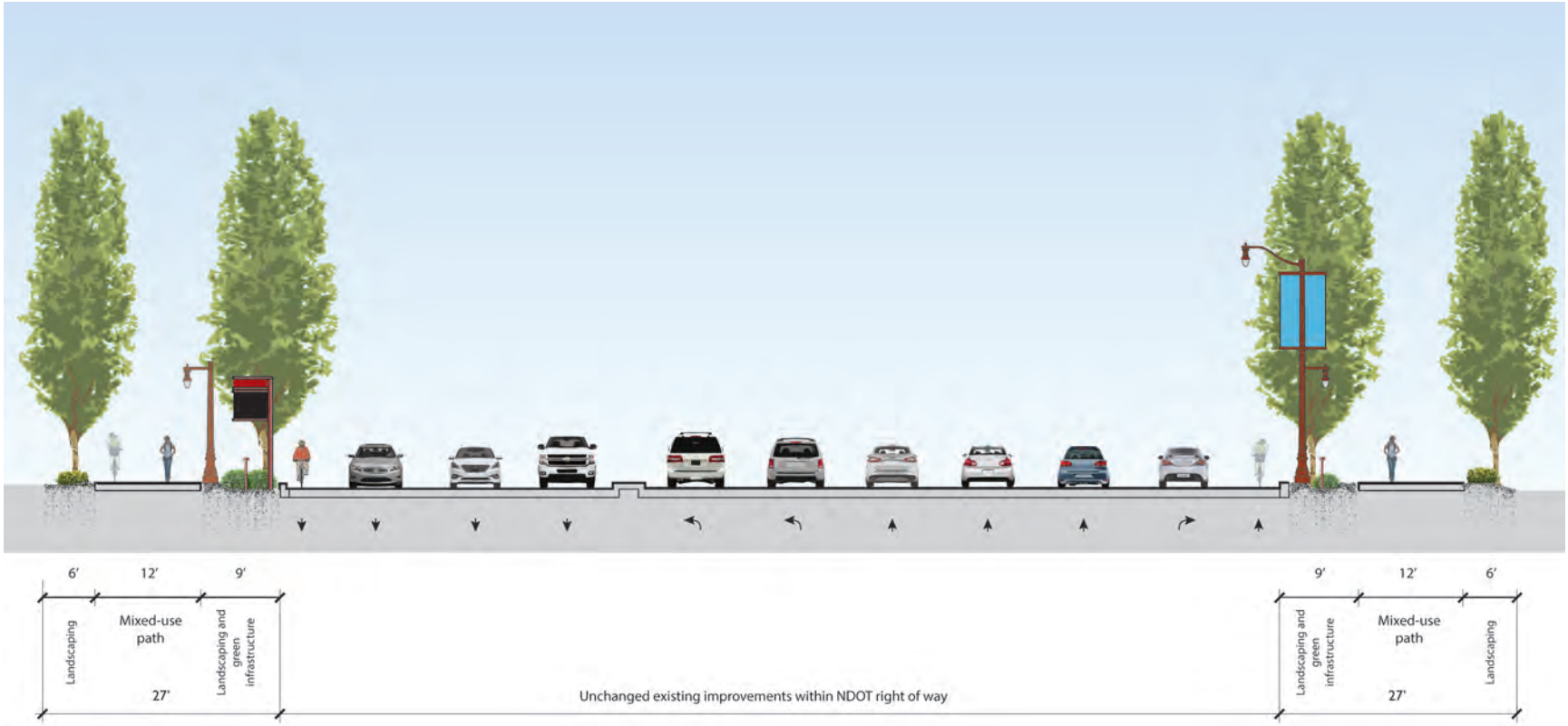

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Figure 21 Section view of East William Street.

Figure 22 Existing view of East William Street and North Saliman Road intersection looking east.

Focus Site 2 – Rand Avenue to North Saliman Road

This option demonstrates how a more attractive, pedestrian and bicycle-friendly street can be created without necessarily narrowing the roadway. City staff requested limited changes to the roadway at this focus site due to existing and future anticipated traffic volumes. The design option would remove one northbound left turn lane, remove one dedicated right turn lane, reduce the width of travel lanes, remove shoulders, and transition from four travel lanes to two west of North Saliman Road. These road reductions would allow for the addition of buffered bike lanes and a raised median placed east of North Saliman Road that would restrict potentially unsafe left turns by vehicles traveling eastbound on East William Street. Pedestrians not able to cross the full street at one time could use a push button placed on the median at the crosswalk to activate the crossing signal on demand. To accommodate a pedestrian push button, the median width would need to be at least six feet wide and preferably eight feet wide.

A paved multi-use trail with adjacent compacted decomposed granite running trail and lined with landscaping on both sides could be used to provide family-friendly

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Figure 23 Perspective of East William Street and North Saliman Road intersection illustrating new landscaping, wider sidewalks along the street and at intersections, and buffered bike lanes could make the street more attractive and safe for pedestrians and bicyclists.

facilities. The decomposed granite running trail offers a more gentle running surface and separates runners from bicyclists and walkers. This design option also considers the addition of multi-use trails along portions of the north and south legs of North Saliman Road to better connect students to Carson High School.

To increase pedestrian safety and comfort, driveways could ramp up to the multi-use trail to emphasize the priority of pedestrians. Driveways could be consolidated and reduced in width to define the pedestrian space and limit pedestrian-vehicle conflict points.

Landscaping at this site could screen adjacent uses, buffer pedestrians and bicyclists from adjacent traffic, and capture and clean stormwater runoff. This design option is particularly unique for its green infrastructure opportunities. The option repurposes the portion of the Wells Fargo parking lot that encroaches into the public right of way as a rain garden for collecting and infiltrating stormwater runoff, and public art could also be incorporated. This green infrastructure element could become a prototype for a shared public-private facility if all parties could reach agreement.

Focus Site 2 - Rand Avenue to North Saliman Road

North Saliman Road and East William Street Intersection

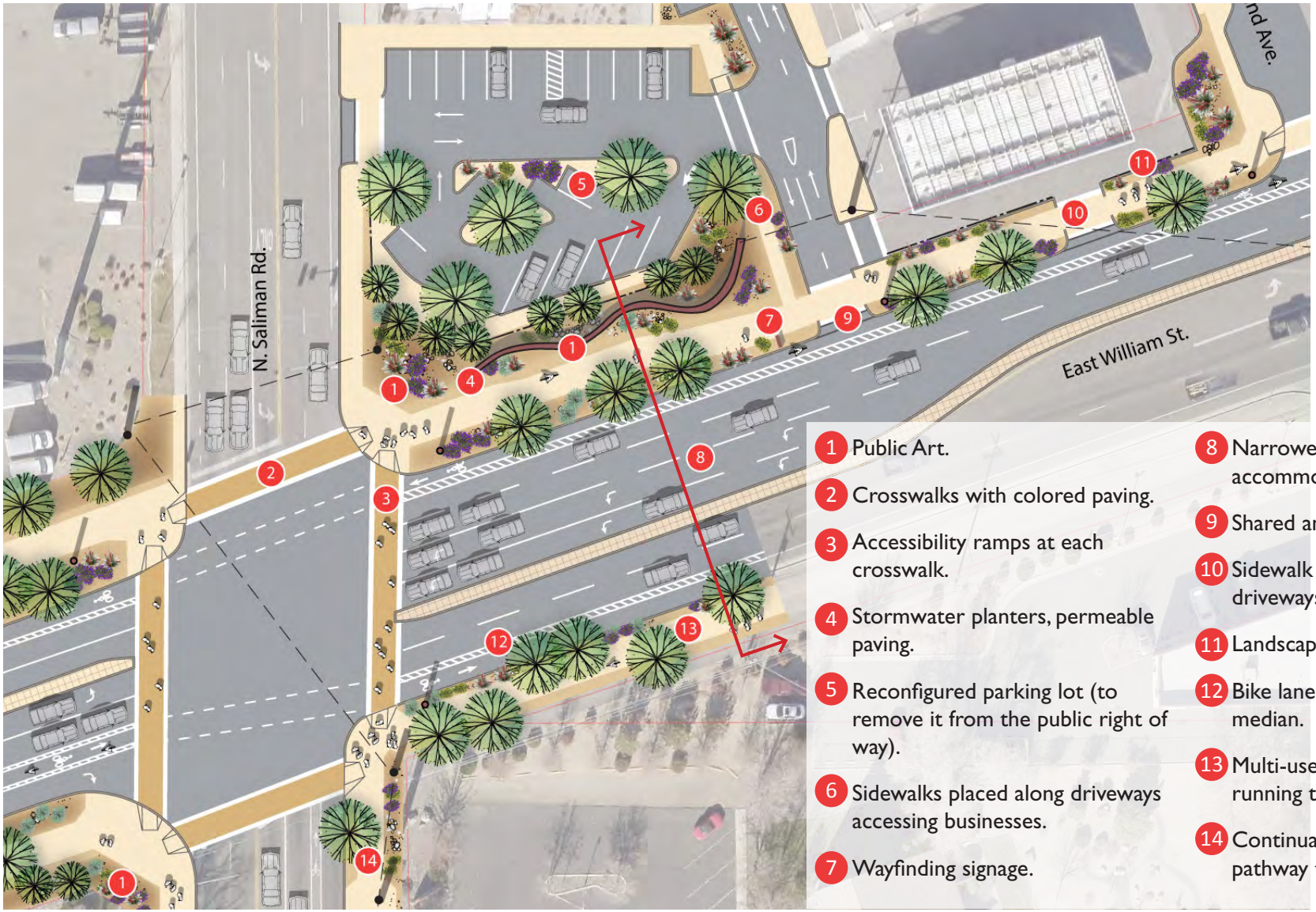

Figure 24 Plan view of focus site.

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Focus Site 2 - Rand Avenue to North Saliman Road

Rand Avenue to North Saliman Road Cross Section

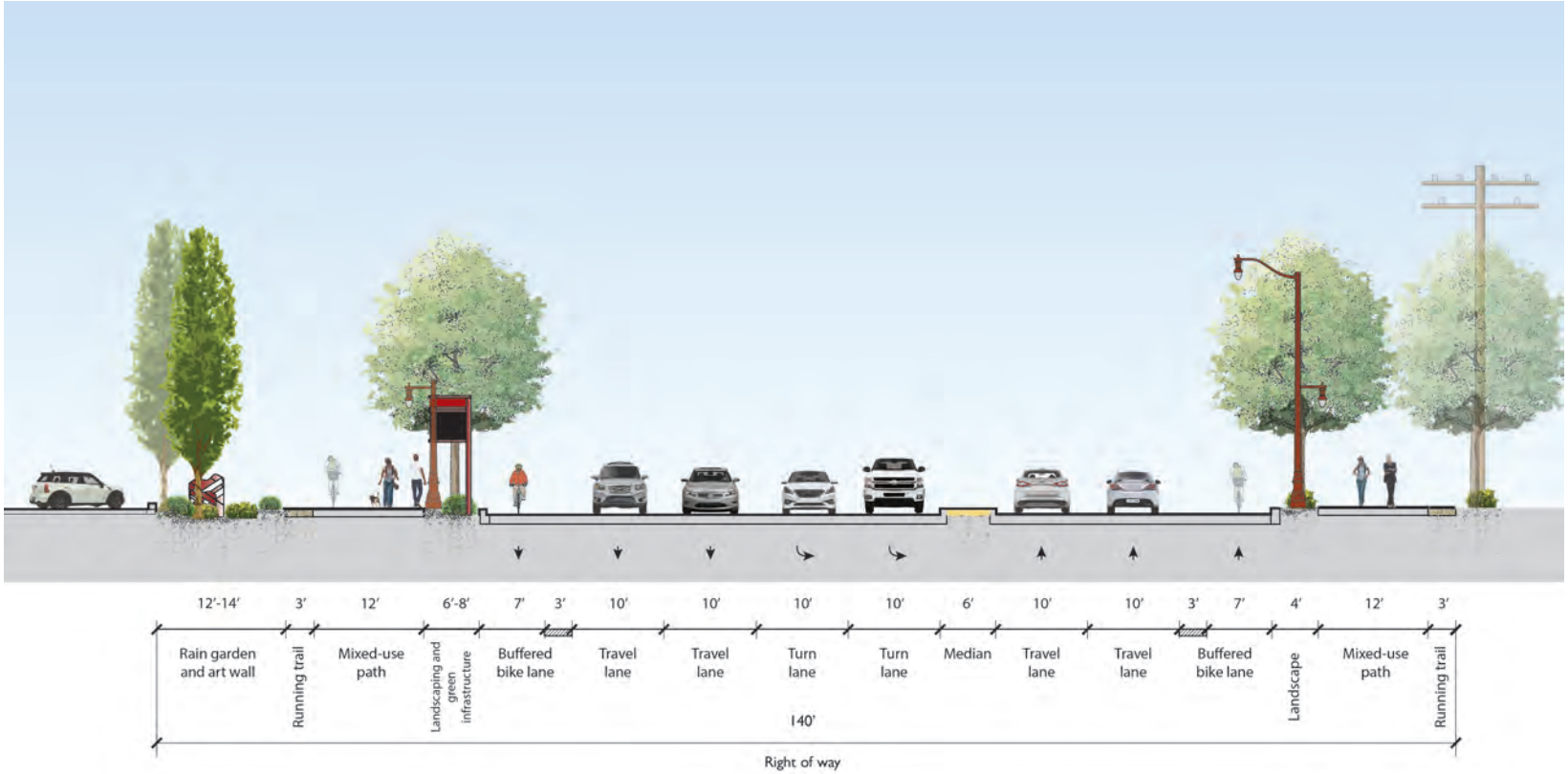

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Figure 25 Section view of East William Street.

Figure 26 View looking west towards State Street.

Focus Site 3 – North Saliman Road to Mills Park Mid-Block

Participants at the workshop really wanted to have better access to Mills Park since it is an important gathering place for the community. This design option therefore greatly improves the street environment and access to Mills Park by continuing the paved multi-use trails and accompanying compacted decomposed granite paths described in Focus Site 2. This would be buffered from the street by attractive landscaping with green infrastructure and have better lighting. More experienced cyclists could use the on-street buffered bike lanes. A new park entry near the State Street intersection provides better access to the park.

A wide landscaped median is included that brings some of the character of Mills Park into the street. In addition, permeable paving could be used along the curbs to capture rainfall, provide a safe space for city employees to stand while performing maintenance of the median, allow vehicle left hand turns only at designated points, and create a storage area for snow removal. Trees are not placed in the median so as not to obstruct views to the mountains. The median includes a raised planter to deter illegal U-turns and jaywalking.

At the State Street intersection a roundabout is included. The roundabout marks the transition of East William Street to a narrower, slower-moving street more appropriate for being next to a park as well as better reflects existing and

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Figure 27 Perspective view west towards State Street illustrating a roundabout with public art, landscaped medians, and a crosswalk with corner bulb outs.

anticipated traffic demand. The roundabout also allows for continuous, slow-moving vehicular traffic flow, while providing shorter distances for pedestrians to cross between both sides of East William Street.

A similar treatment opportunity may be considered at the entrance to Mills Park (located in Focus Site 4). Together, these two roundabouts can provide "book ends" to notify drivers that they have entered a unique space along East William Street while also calming traffic along a high-volume pedestrian area. The case study from Kings Beach provides an appropriate example of roundabouts used for a similar purpose (see Case Study - Kings Beach Roundabouts in Appendix A).

Those bicycling along East William Street have two choices when approaching the roundabout depending on their desired level of separation from vehicular traffic. Bicyclists could choose to continue through the roundabout with vehicle traffic. Alternatively, ramps before pedestrian crossings allow riders to join the off-street mixed-use pathway around the roundabout, returning back to the buffered bike lane using a ramp after the opposite pedestrian crosswalk.

Rain gardens and stormwater planters are placed within the roundabout and street landscape areas to capture and treat stormwater runoff. In addition to unique landscaping opportunities, these spaces provide excellent opportunities for public art along East William Street.

Focus Site 3 - State Street to Mills Park Mid-Block

State Street and East William Street Intersection

1. Shared and consolidated driveway.
2. Sidewalk level maintained at driveways.
3. Bike lanes with striped buffer median.
4. Public Art.
5. Stormwater planters.
6. Bicycle access ramp.
7. Crosswalk with colored paving.
8. New entry to Mills Park.
9. Multi-use pathway with adjacent running trail.
10. Wayfinding signage.

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Figure 28 Plan view of focus site.

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Focus Site 3 - State Street to Mills Park Mid-Block

State Street to Mills Park Mid-Block Cross Section

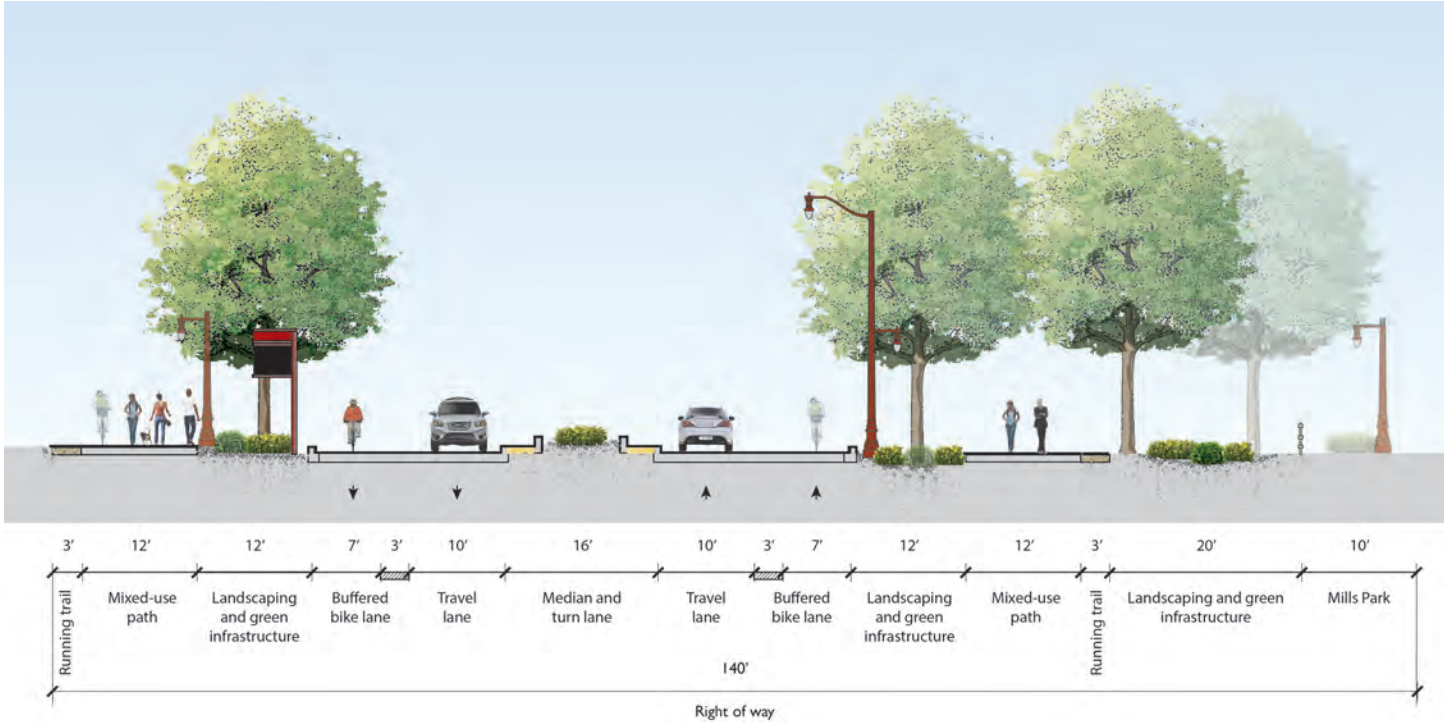

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Figure 29 Section view of East William Street.

Figure 30 Existing view looking south across East William Street towards Mills Park.

Focus Site 4 – Mills Park Mid-Block to North Roop Street

This focus site is directly adjacent to the previous site and continues the same street improvements to provide residents and visitors better access to Mills Park. The difference is that in this segment there is existing on-street parking (separated by a narrow median from travel lanes) along the park edge that this design option maintains and expands. The increase in parking along Mills Park, doubling the existing number of parking spaces, could help reduce the need for people to park illegally across the street and then jaywalk to access the park.

A new multi-use pathway connects neighborhoods from the north to East William Street without causing pedestrians to walk through the parking lot of an intervening office building complex (which is the common path currently taken). Landscaped screening can be placed along the path, as well as the sidewalks abutting parking areas, to make the walk more comfortable and attractive. This multi-use pathway leads to a new mid-block crossing with a pedestrian activated crossing signal connecting into the park. The median would permit pedestrians to cross a shorter street width, made up of only one travel lane and a buffered bike lane, at one time.

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Figure 31 Perspective looking south across East William Street towards Mills Park illustrating a midblock crossing and new streetlamps, landscaping, and street trees.

Like other focus sites, bicyclists along this segment would be afforded two options for riding. Slower, family-friendly riders could use the wide multi-use pathway, while more experienced riders could use the on-street buffered bikeway. The multi-use pathway and accompanying running trail, buffered on both sides by landscaping, street trees, public art, and lighting would offer a comfortable and unique place for people to walk, run, and bike along East William Street.

Stormwater runoff is managed and treated via stormwater planters along the street, in rain gardens behind the multi-use pathway where more space is possible, and with permeable paving within the median, left turn lanes within the median, and parking stalls within the Mills Park parking lot.

Focus Site 4 - Mills Park Mid-block to North Roop Street

Mills Park Mid-Block Crossing Plan

1. Multi-use pathway with adjacent running trail.
2. Stormwater planters and permeable paving.
3. Expanded parking lot.
4. Sidewalks and crosswalks placed along driveways to access businesses.
5. Sidewalk level maintained at driveways.
6. Public Art.
7. Bike lanes with striped buffer median.
8. Multi-use pathway connecting to northern neighborhoods.
9. Mid-block crossing with colored paving.
10. Landscape screening.

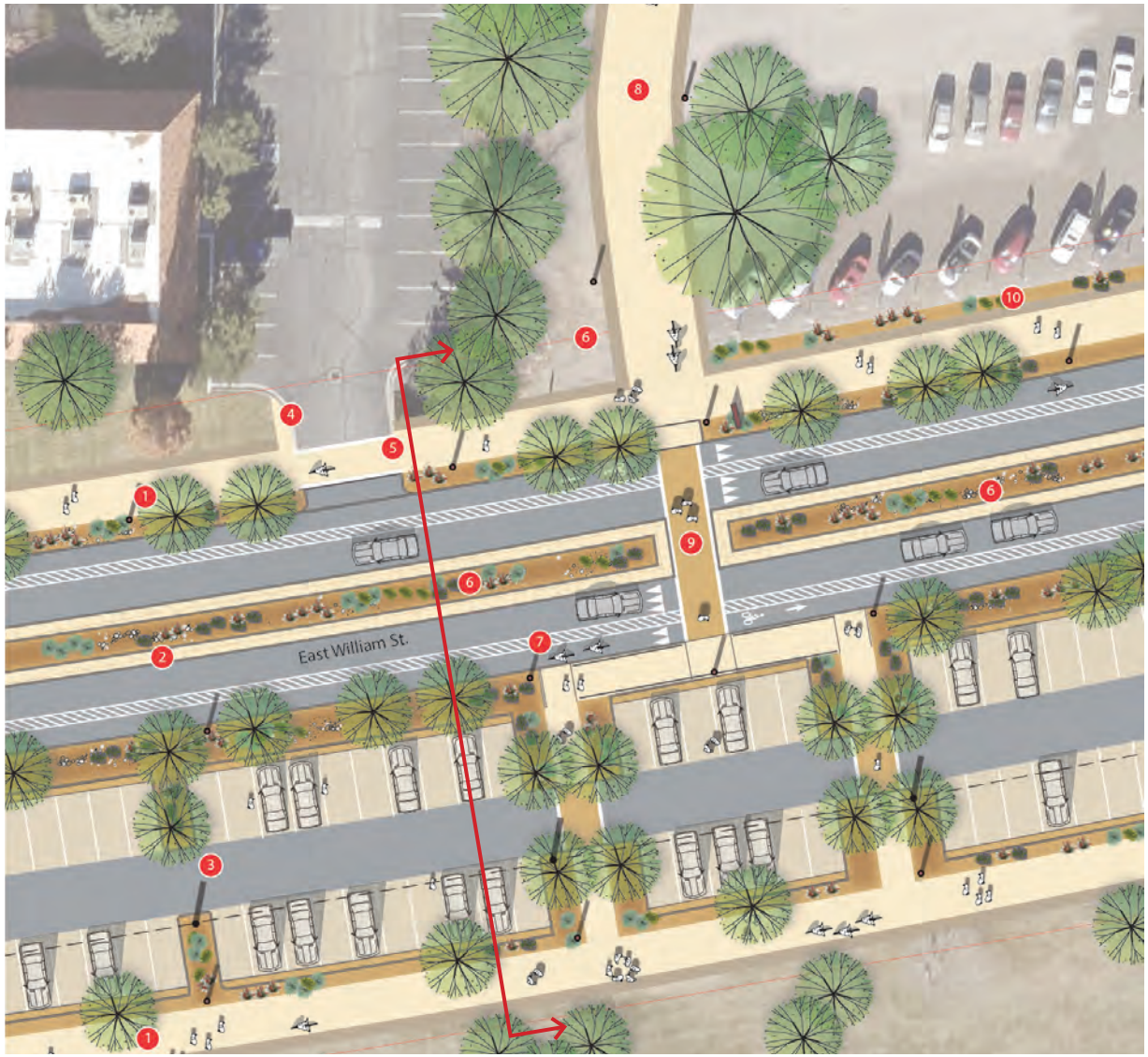

Figure 32 Plan view of focus site.

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Focus Site 4 - Mills Park Mid-block to North Roop Street

Mills Park Mid-Block Cross Section

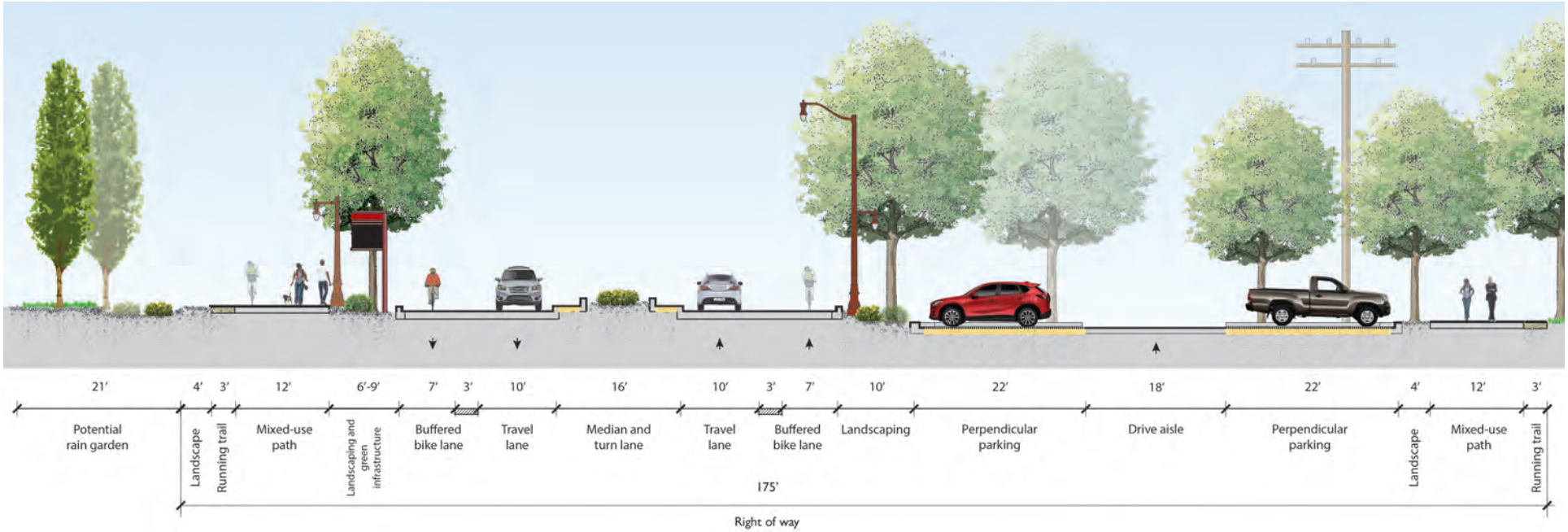

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Figure 33 Section view of East William Street.

Figure 34 Existing view of East William Street looking west towards North Stewart Street. Image source: Sandra Wendel & Associates.

Focus Site 5 – North Stewart Street to North Carson Street

This design option illustrates improvements to East William Street as it enters downtown. Participants at the charrette voiced eagerness to have a similar level of transformation on East William Street as is planned for North Carson Street and the downtown area. That includes continuing the character, materials, and colors; and a road diet that reduces travel lanes from four to two with one center turn lane. Additionally, each lane is reduced in width. This road diet provides additional space for wider sidewalks, landscaping, parking lanes, and bike lanes—all the amenities one would expect in a downtown.

The design option includes on-street parking, corner bulbouts with benches and landscaping, street trees, more visible crosswalks, wayfinding signage, information kiosks, bicycle parking, and public art. The turning radii at each corner is reduced (more typical for a downtown) and each crosswalk has its own wheelchair accessibility ramp. The southeastern corner radius of North Stewart Street can have an even smaller radius because the new bike lane causes vehicles to make their right turn away from the curb; this can help make pedestrians more visible to drivers and allows for shorter pedestrian crossings. Driveways are ramped up to

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Figure 35 Perspective of East William Street looking west towards North Stewart Street illustrating a bulbout with landscaping, street trees, and bench. Note how the crossing distance is now reduced.

the sidewalk. Bike lanes with a painted buffer median continue into downtown. Together these features create a more comfortable atmosphere for visitors and residents to downtown.

The landscaped areas at the bulbouts and along the street can be used as part of a green infrastructure system that collects runoff and allows it to infiltrate in to the ground. Permeable paving can be used in the parking lanes and medians to allow more stormwater infiltration, and to visually narrow the street and slow traffic.

It is important to note that the existing curbline is maintained in this design option (with the exception of the bulbouts at the corner) because of the high cost required to shift the curb and gutter and other utilities a short distance.

Focus Site 5: North Stewart Street to North Carson Street

North Stewart Street and East William Street Intersection Plan

1. Bike lanes with striped buffer median.
2. On-street parking with permeable paving.
3. Narrowed driveway.
4. Information kiosk.
5. Bike parking.
6. Sidewalk level maintained at driveways.
7. Permeable paver planting strip and stormwater planters.
8. Benches.
9. Small intersection corner radii.
10. Public Art.

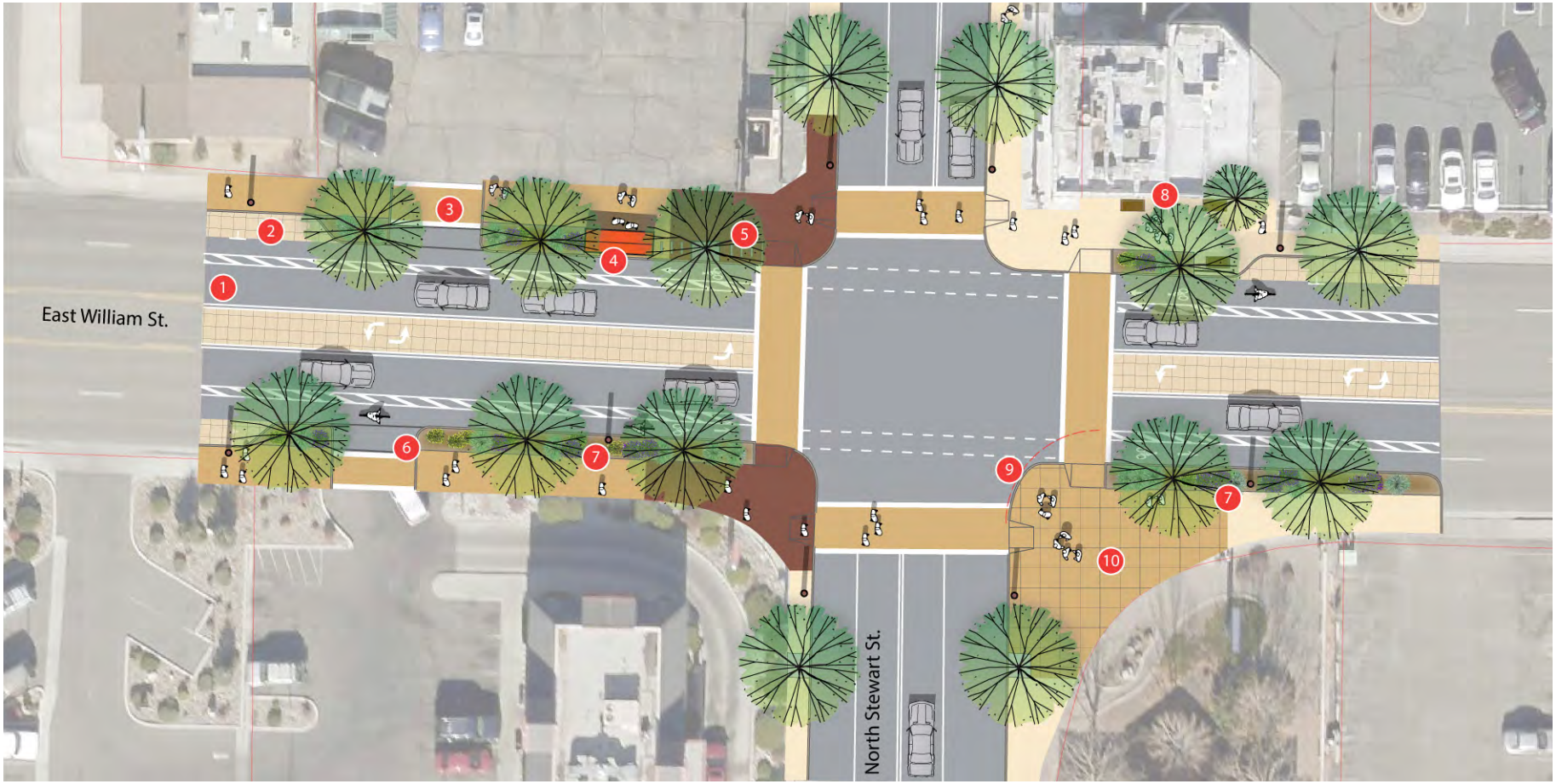

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Figure 36 Plan view of focus site.

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Focus Site 5: North Stewart Street to North Carson Street

North Plaza Street to North Fall Street Cross Section

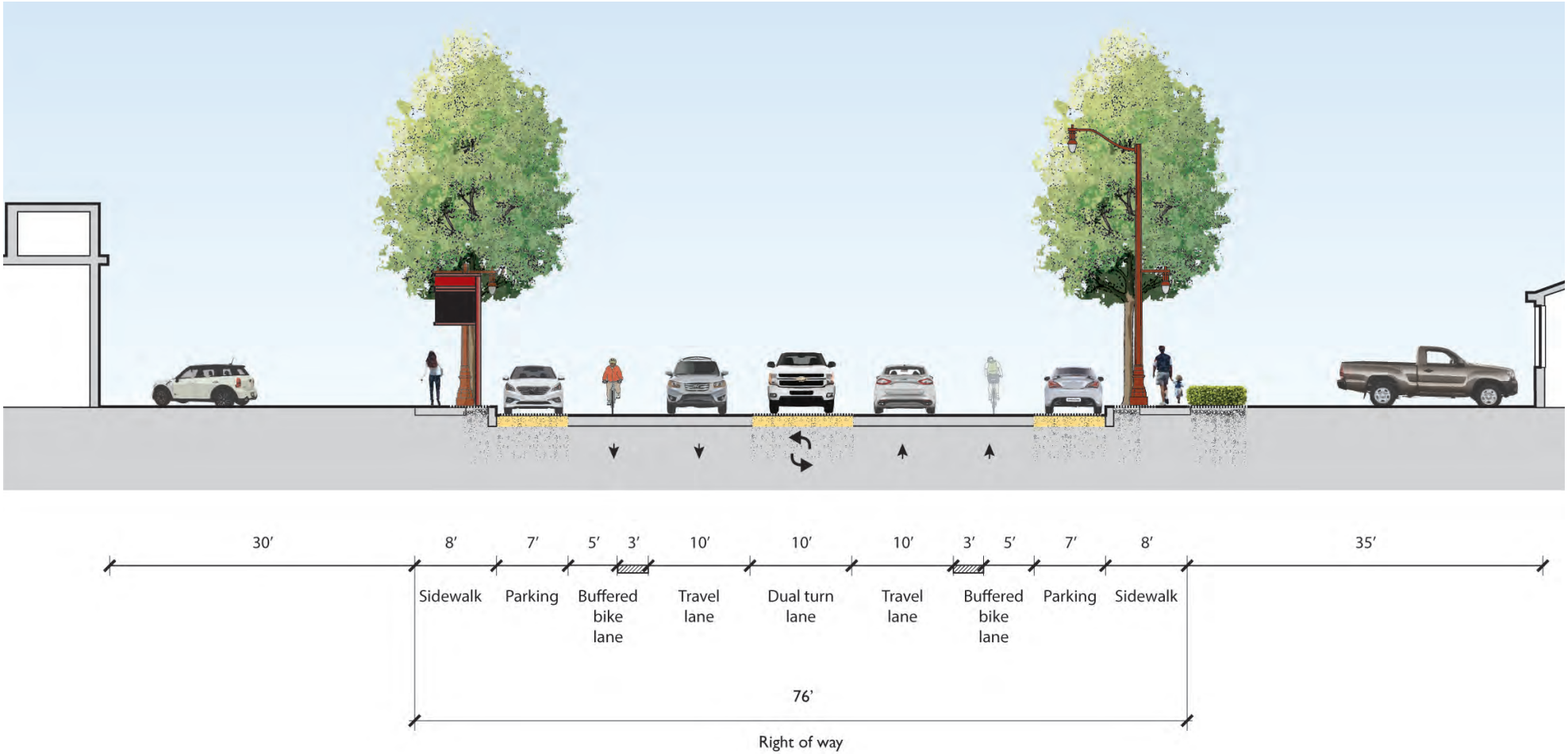

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Figure 37 Section view of East William Street.

5 | Next Steps and Funding

The design options presented in this report, as well as associated planning and policy efforts being undertaken by Carson City, could be a catalyst for a range of improvements along East William Street. Summarized below are action items for near-, mid-, and long-term and potential funding sources and community partnerships.

During the three-day charrette, the design team, staff from the city and from regional, state and federal agencies, as well as local residents and business owners identified tasks, programs, and policies that could help the city and its partners implement the design options illustrated and discussed in this report.

Near-Term (2016 to 2018)

- **Adopt a resolution to support Greening East William Street.** The Carson City Board of Supervisors could adopt a resolution to support moving forward with implementation of the design options presented in this report.
- **Implement a road diet on the downtown segment of East William Street.** The first three blocks of East William Street, Focus Site 5, includes design options that could be implemented in the near term to create a sense of place, maintain community excitement, and serve as a showcase for the full project. As a first step, the city could re-stripe and paint the blocks to remove travel lanes and add parking, bike lanes, crosswalks, and corner bulbout areas. Planters or bollards at the corners could also be used to temporarily delineate the widened pedestrian zone. At a later phase, as funding is obtained, the city could install permeable pavers, landscaping, and curb reconstruction for corner bulb-outs. By implementing interim improvements, the city could promote the larger project and demonstrate initial improvements that may spur additional private partnerships, create business reinvestment and development, or garner grant funding. The Phoenix, Arizona case study provides a good example about how the city reactivated and rejuvenated a similar corridor with interim painting interventions (See Appendix B).
- **Perform technical studies and implement a road diet and roundabouts for the East William Street corridor.** The city could begin the process of developing traffic models and conducting related technical studies to confirm the viability of a road diet and roundabouts to create a comfortable, attractive, and functional street for all modes of travel.
- **Work with NDOT to obtain additional right of way near I-580.** With the city's and community stakeholder's desire for a gateway into the city at I-580, it is apparent the existing right of way is too narrow to achieve the desired goals. The city should continue to coordinate with NDOT to obtain additional right of way near I-580 to be able to provide for gateway features.
- **Study and implement an access management plan.** The city has no access management plan or policy which makes the placement of and ability for shared driveway entrances difficult to mandate and control. The city could develop an access management plan to require the design and engineering of driveways that create a safe and attractive public environment while maintaining functional needs of private owners.
- **Implement signal timing adjustments.** Several participants identified a couple of intersections along East William Street that have temporal/peak traffic problems that may be improved by adjusting signal timing. Signal timing adjustments could improve traffic flow for vehicles turning onto or from East William Street. Similarly, those improvements could increase crossing time, and thereby safety, for pedestrians crossing to and from major destinations including Mills Park and Carson High School.
- **Continue to investigate NDOT agreements of East William Street right of way.** The city should continue to investigate the various licenses, leases, easements, and other agreements NDOT made with adjacent property owners. This review could help the city understand the areas of East William Street being used by businesses and then determine the feasibility and timing of implementing pedestrian, bicycle, landscaping, art, lighting, and other

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improvements along the street. Where there is no agreement with NDOT to use the East William Street right of way but private development is using it, the city could request that the private entity vacate the right of way.

- **Study and implement parking guidelines for the East William Street corridor.** Many of the design options identified for East William Street return the public right of way from private-serving, off-street parking to public uses and benefits including landscaping, sidewalks, and multi-use trails. As a consequence, the businesses that currently lease the right of way from the city or are just using the land for their parking requirements may not have sufficient parking spaces on their own property to satisfy zoning requirements. The city could consider developing parking standards and guidelines for the East William Street businesses to maintain consistency and reduce potential confusion. Many business owners requested this kind of clear guidance during the charrette. In addition, the city could generally review their parking standards to determine if revising parking standards is warranted. This could include reducing parking ratios, discouraging parking between the street and the building within the downtown blocks, and providing flexibility in parking standards to account for the anticipated change in travel mode due to increased and improved pedestrian and bicycle facilities and associated improvement in the comfort for people who walk or ride a bicycle in the area.
- **Study and implement green infrastructure design guidelines.** Several stakeholders encouraged the city to study and implement guidelines for green infrastructure in the project area. The design options identified for East William Street illustrate how permeable paving, stormwater planters and tree wells, rain gardens, and other techniques can be used to capture, slow, treat, and infiltrate runoff prior to it moving downstream. The city could provide assistance and guidance for private property owners to implement similar techniques that, if coordinated, could further these goals along the corridor.
- **Coordinate shared parking strategy for major community events.** Community stakeholders identified Mills Park and Carson High School event parking as a major issue. On occasion, both facilities may host coinciding community events that require a significant level of parking that cannot be met by their facilities alone. To improve this situation, the event organizers could coordinate use of private off-street parking lots in the area. Additionally, event sponsors could encourage visitors to use alternative modes of transportation including bicycling and walking to attend events.
- **Institute a pop-up art program.** Establishing a rotating pop-up art program could promote community interest in the East William Street project and other areas of the city until a more formal public art program can be developed. These temporary art installations could also provide a venue and low-cost opportunity for emerging artists. Community stakeholders suggested that the city reach out to nearby Burning Man artists, as well as to local artists and Carson High School student artists.
- **Coordinate upcoming development opportunities.** The city could coordinate with private developers and property owners within or adjacent to the East William Street corridor to establish partnerships that advance the agenda and plans for East William Street.
- **Pursue "Pavement-to-Parks" or "Tactical Urbanism" installations**. Pavement-to-parks projects are where portions of a roadway are repurposed from vehicle use to public open space by closing off a roadway, or removing a portion thereof, with the use of street furniture, paint, and/or planters to define a pedestrian space. "Tactical urbanism" is a related concept of using paint, planters, and other low-cost, sometimes temporary, improvements to provide bulb-outs and other complete streets elements at a lower cost as final designs and funds are raised to build full improvements. These interventions can improve pedestrian safety, calm traffic, and enhance the attractiveness of the street. Pavement-to-Parks can be applied at complicated intersections or excessively large paved roadways with right turn lanes where cars are not

required to stop. These streets and intersections can create a safety hazard for all street users, especially pedestrians. Public open space improvements can range from larger painted corner bulbouts to an expanded public plaza with painted surfaces, public art, planters, tables, seating, canopies, and/or stormwater features. These strategies are increasingly being employed in cities across the United States. See the case study of Lower Grand Avenue in Phoenix, Arizona in Appendix B.

Mid-Term (2018-2020)

- **Capitalize on local and regional outdoor active lifestyle and activities.** To attract new and return visitors, many stakeholders suggested that the city capitalize on its local and regional outdoors active lifestyle and actively promote sports tourism and family-friendly opportunities. Activities revolving around biking, marathons, triathlons, street fairs, and others could be organized to draw crowds into Carson City for socializing and competitive events that highlight the value of East William Street as a safe, comfortable corridor for people to walk, bike, and drive.
- **Develop and establish a public art program.** The city could continue to investigate funding opportunities to develop and implement a public art program. Establishing a public art program could create a unified process and shared community goals, and provide direction for the city as a whole, and specifically along corridors such as East William Street. Partnering with community, arts, and business associations, the program could be based on integrating art into the community to reinforce city placemaking goals. The program could identify priority sites, a process for solicitation and selection, and sources of funding.
- **Develop a design competition for public art along the corridor, including that which reflects the history of Carson City.** Public art is an important element that the city wishes to see incorporated throughout their community. The design options presented identify numerous locations throughout East William Street for potential public art installations. Carson City, in conjunction with arts and business associations, could develop and manage design competitions to solicit, select, and install unique artwork along the corridor and within the city.

Long-Term (2021 and beyond)

- **Consider potential transit route along East William Street.** East William Street was previously US Route 50 owned by NDOT, and the design and use of the street were not conducive to transit service. Now under city ownership, there is the potential to provide cross-town transit service connecting businesses and local points of interest to downtown Carson City and beyond. By planning for transit along East William Street, complete streets designs that include transit options may be more competitive for federal transportation grant dollars.

Funding

The use of green and complete streets can also help projects compete for limited infrastructure improvement funding from regional, state, or federal agencies. Green and complete streets elements can be easily integrated with other street improvements and support sustainable and multi-modal concepts emphasized by many funding entities.

Participants in the focus group on implementation identified several potential funding sources that the city and its partners can use to advance the design options described in this report. The design team also researched and suggested additional potential funding sources.

Federal and National Sources

- **EPA's Clean Water Act Section 319 grants** are directed to demonstration projects that reduce nonpoint source pollution. Green infrastructure elements of the design options could be eligible for funding through this program.[1]
- **EPA's Brownfields Program** works to protect the environment, promote partnerships, strengthen the marketplace, and facilitate sustainable reuse. EPA's Brownfields grants and technical assistance give communities and other stakeholders resources to prevent, assess, and cleanup properties where the

1 United States Environmental Protection Agency. Polluted Runoff: Nonpoint Source Pollution. *http://www.epa.gov/polluted-runoff-nonpoint-source-pollution/319-grant-current-guidance*. Accessed on January 19, 2016.

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potential presence of a hazardous substance may complicate sustainable reuse. Sites within the project area may be eligible for Brownfields grants and technical assistance.[2]

- The U.S. Department of Agriculture Forest Service offers a cost-share grant program, through the **National Urban and Community Forestry Advisory Council**, aimed toward program development that addresses strategies in the Ten Year Action Plan. Greening East William Street could qualify for this grant through the priority strategy to "build human health through urban and community forestry."[3]
- **EPA's Office of Water** has a plethora of grants and funding sources. The **Clean Water State Revolving Fund (CWSRF)** provides eligibility to projects aimed to manage nonpoint source pollution, recapture stormwater, and reduce water use. Another such program is the **Green Project Reserve.** It is a program that serves as 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.[4] **Section 106 Water Pollution Control Grants** provides assistance to build and sustain effective water quality programs.[5]
- **EPA's Urban Waters Small Grants Program** funds research, training, and studies that advance the restoration of urban waters by improving water quality through activities supportive of community revitalization and other local priorities. Grants of up to $60,000 have been awarded. About 19 percent of recent grants have been given to advance green infrastructure.[6]
- Under the **Department of Housing and Urban Development**, the **Community Development Block Grant (CDBG) Program** offers the **Section 108 Loan Guarantee Program**. Section 108 provides financing for a range of development related projects including public facilities and site improvements. These loans can act as a catalyst for private development.[7] CDBG funds allocated to the city for use in low to moderate income areas could be used to implement the design options as well.
- The **U.S. Department of Transportation** passed a new bill, **Fixing America's Surface Transportation Act or "FAST Act"** which was signed into law on December 4, 2015[8]. This law allots $835 million annually for biking and pedestrian infrastructure over the next two years, increasing to $850 million annually for the following three years. A block grant has been created under this Act; walking, bicycling and road safety projects remain eligible activities. The former Transportation Alternatives Program (TAP) was discontinued as a stand-alone funding source, but the funding source remains available moving forward as a set-aside of the Surface Transportation Program Block Grant. Programs including improvement of non-motorized travel options, bicycle and pedestrian facilities, environmental mitigation activities such as stormwater management, and Safe Routes to School are eligible for consideration.[9]
- The **U.S. Department of Transportation's Surface Transportation Program Block Grant** provides annual funds to NDOT that could be used for a variety of project types, including some of the design options provided in this report.

2 United States Environmental Protection Agency. Brownfields. *http://www.epa.gov/brownfields.* Accessed on January 19, 2016.
3 Urban and Community Forestry. Urban and Community Forestry Advisory Council. *http://www.fs.fed.us/ucf/nucfac.* Accessed on January 19, 2016.
4 United States Environmental Protection Agency. Clean Water State Revolving Fund. *http://water.epa.gov/grants_funding/cwsrf/.* Accessed on January 19, 2016.
5 United States Environmental Protection Agency. Water Pollution Control (Section 106) Grants. *http://www.epa.gov/water-pollution-control-section-106-grants.* Accessed on January 19, 2016.
6 United States Environmental Protection Agency. Urban Waters Small Grants Fact Sheet. *http://www2.epa.gov/urbanwaters/urban-waters-small-grants-fact-sheet.* Accessed on January 19, 2016.
7 United States Department of Housing and Urban Development. Section 108 Loan Guarantee Program. *https://www.hudexchange.info/section-108/.* Accessed on January 19, 2016.
8 United States Department of Transportation. Fixing America's Surface Transportation Act or "FAST Act". *https://www.transportation.gov/fastact/.* Accessed on January 21, 2016.
9 Nevada Department of Transportation. Transportation Alternatives Program. *http://www.nevadadot.com/TAP/.* Accessed on January 19, 2016.

- The **U.S. Department of Transportation's Highway Safety Improvement Program (HSIP)** also makes annual allotments to NDOT, and complete streets are an eligible use of the funds.
- The **U.S. Department of Transportation** provides a Transportation Investment Generating Economic Recovery, or **TIGER, Discretionary Grant program**. This program provides grants to fund capital improvements in surface transportation infrastructure that are innovative; increase pedestrian, cyclist, and transit safety; and support accessible transportation that can revitalize communities. The city is interested in improving many of their arterial corridors throughout the city, and could package these arterials together to submit for a TIGER Grant. [10]
- The **National Endowment for the Arts (NEA)** provides numerous grants that support the arts and creative placemaking, including the **Our Town Grant.** The Our Town Grant program **funds design and the commissioning for and creation of public art,** but does not support project construction. Matching grants of between $25,000 and $200,000 are available, and require a one-to-one match. Depending upon the grant amount, a partnership between a non-profit organization with a local government entity, or solely a non-profit, industry, or university organization is required to receive the grant award.[11]
- **ArtPlace America** is a consortium of various foundations with national financial partners and government agencies serving as strategic advisors to integrate the arts and culture into the planning and development of communities where art making improves community or place. The **National Grants Program** offers grants ranging from $50,000 to $500,000, while the **Community Development Investments** offers one-time grants of up to $3 million. Other grants programs are available. Funding requires a nonprofit partnership with the city, or are targeted for non-governmental organizations.[12]

10 United Sates Department of Transportation. TIGER Discretionary Grants. *https://www.transportation.gov/tiger.* Accessed on January 19, 2016.

11 National Endowment for the Arts. Grants. *https://www.arts.gov/grants and https://www.arts.gov/grants-organizations/our-town/arts-engagement-cultural-planning-and-design-projects-grant-program-description.* Accessed on January 19, 2016.

12 ArtPlace. *http://www.artplaceamerica.org.* Accessed on January 19, 2016.

- The **Kresge Foundation** provides **operating and project supportive grants and program investments** to promote and integrate creative placemaking-based arts and culture into communities. These grants and investments could be assessed for developing and implementing an arts program.[13]

State Sources

- **Nevada Division of Environmental Protection** Bureau of Water Quality Planning has a **319(h) Nonpoint Source Grant Program**, open to any project that will improve conditions to Nevada's watersheds and protect against nonpoint source pollution. The grant provides funding to qualifying counties, conservation districts, regional agencies, and others.[14]
- Due to numerous reasons, **NDOT funds** are currently not available for street improvements, and may continue to not be available for the foreseeable future. The city should continue to monitor and work closely with NDOT to ascertain when funding may be available, and the process to acquire such funding.
- The Nevada Division of Forestry's (NDF) **Urban and Community Forest (U&CF) Grant Program** for community tree planting projects will not be funded for the near future. Any funds that do become available for sub-grant awards will target community program development in the areas of developing tree ordinances and management plans, performing tree inventories, or to provide professional forestry staffing. NDF Urban Forestry staff is available to provide technical assistance for grant projects funded from other sources".[15]

13 The Kresge Foundation. *http://kresge.org/.* Accessed on January 19, 2016.

14 Nevada Department of Conservation and Natural Resources. Grant Opportunities. *http://dcnr.nv.gov/conservation-district-program/grant-opportunities/*; Nevada Division of Environmental Protection. Nonpoint Source Grant Program. *http://ndep.nv.gov/bwqp/nps319h.htm;* and Nevada Division of Environmental Protection. 319(h) Grant Proposal and E-Form Instructions. *http://ndep.nv.gov/bwqp/file/NPS_e_form_instructions.pdf.* Accessed on January 19, 2016.

15 Nevada Division of Forestry. Urban and Community Forestry. *http://forestry.nv.gov/forestry-resources/urban-and-community-forest/.* Accessed on January 19, 2016.

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- **The Governors Highway Safety Association provides Section 402 State and Community Highway Safety Grant Programs**. Its purpose is to "provide grants to states to improve driver behavior and reduce deaths and injuries from motor vehicle-related crashes." East William Street could be a candidate for this program due to the implementation of a road diet and other strategies, which will reduce vehicle speeds and increase roadway safety.[16]
- The **Nevada Arts Council** offers many different **grants** focused on artists, educators, non-profits, and public institutions that could be used to provide various art and culture programs.[17]

Community and Other Sources

- **Sales tax for East William Street.** East William Street is one of the corridors which was identified by the city for future capital improvements in 2014. A 1/8 cent sales tax was implemented in 2014 to pay for various capital projects, including the improvement of this corridor. Approximately $600,000 has been earmarked for improvements along the portion of East William Street within the Greening America's Capitals project area. These funds could be used for various beautification and infrastructure improvements. The city recognizes that additional funding and support for the ultimate design and construction of the street are needed.
- The **Carson Water Subconservancy District** works with local entities to provide assistance on projects that incorporate better water quality and outreach and education to promote watershed health and stewardship.[18]
- **The Greenhouse Project**, located on the Carson High School property, could be a partner for selecting and growing locally cultivated plants and trees to be used in the green infrastructure and landscape planters along the corridor.[19]
- **Alliance for Community Trees** is an organization that offers its members grants for community tree planting as well as other types of grants and scholarships. They also have an extensive list of resources for urban forestry.[20]
- A **business improvement district** could be created for stormwater, landscape and lighting, or other streetscape improvements to help fund capital investments and operations and maintenance of potential improvements. The properties and/or businesses that would contribute to the improvement district will depend upon the specific boundary and improvements of the district. This business improvement district could link with and build upon the efforts and programs of the Carson City Downtown Business Association and the existing business corridor improvement and infrastructure projects tax measure process.
- The **Downtown Business Association** could consider expanding and changing their funding and investment strategies to assist with capital investments and operations and maintenance of potential improvements.
- **Muscle Powered Carson City** is a citizen-based organization aimed at making Carson City healthier for all citizens and safer and more accessible for bicycling and walking through education and advocacy.[21] It is unknown if Muscle Powered Carson City provides grants or other non-monetary resources, but this could be investigated.

16 Governors Highway Safety Association. Section 402 State and Community Highway Safety Grant Program. *http://www.ghsa.org/html/stateinfo/programs/402.html.* Accessed on January 19, 2016.
17 Nevada Arts Council. *www.nac.nevadaculture.org.* Accessed on January 19, 2016.
18 Carson Water Subconservancy District. What We Do. *http://www.cwsd.org/what-we-do/.* Accessed on January 19, 2016.
19 The Green House Project. *http://carsoncitygreenhouse.org/.* Accessed on January 19, 2016.
20 Alliance for Community Trees. What We Do. *http://actrees.org/what-we-do/.* Accessed on January 19, 2016.
21 Muscle Powered Carson City. About. *http://musclepowered.org/about/.* Accessed on January 19, 2016.

Appendix A

Case Study: Kings Beach Commercial Core Improvement Project, Kings Beach, CA

A portion of Highway 28 in Kings Beach, California, part of Placer County and located in close proximity to Carson City, is undergoing a road diet and construction of a pair of roundabouts. These improvements will slow yet maintain highway traffic flow traveling through downtown, create a comfortable and safe pedestrian and bicycle environment, develop a more attractive downtown, and improve water quality before runoff is released into Lake Tahoe.[1] The two roundabouts are approximately 800 feet apart (located at either end of one block) and provide direct access to both side streets and off-street business and visitor parking.

Figure A-1 Wide sidewalks of permeable paving increase pedestrian comfort and treat stormwater runoff. Image source: Sandra Wendel & Associates.

The plan was begun as a community grassroots effort and reduces four lanes to three and adds bicycle lanes, wider sidewalks, landscaping, and other amenities, along with gateway roundabouts. The project included other improvements to community streets to create a walkable district. Extensive community outreach was undertaken with numerous stakeholders. Funding included sources such as the Main Street program and local, state, and federal organizations and agencies. The overall project cost is $50 million, with construction to be completed in 2016.

The space within roundabouts can provide opportunities for public art. The town of Kings Beach, through Tahoe Public Art, a consortium of local art and business associations, held a public art competition to solicit, select, and install sculptures within the roundabouts.[2] The local community was involved in the selection of the final artworks.

The American Public Works Association, Sacramento chapter, selected the Kings Beach Commercial Core Improvement Project as the 2015 Complete Street Transportation Project of the Year.

Figure A-2 Roundabouts create gateways. Image source: Sandra Wendel & Associates.

Figure A-3 Roundabouts calm traffic. Image source: Sandra Wendel & Associates.

1 Placer County Online. "Kings Beach Core Project set to begin construction". *http://placercountyonline.com/2015/kings-beach-core-project-set-to-begin-construction/*. Accessed on October 10, 2015.

2 Sierra Sun. "Leaf, fish structures to grace North Lake Tahoe roundabouts". *http://www.sierrasun.com/News/15610232-113/leaf-fish-structures-to-grace-north-lake-tahoe-roundabouts*. Accessed on October 10, 2015.

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Appendix B

Case Study: Lower Grand Avenue, Phoenix, Arizona

The city of Phoenix was a recipient of EPA's Greening America's Capitals design assistance.[3] The city selected Lower Grand Avenue as its project because the city wanted to make the street more walkable and bikeable. In 2013 the city implemented a "paint and planters" approach to quickly and cheaply implement street improvements before longer-term complete street work could be done.

Lower Grand Avenue was restriped from five lanes to three lanes, freeing space for on-street parking and bike lanes. Artistically enhanced painted crosswalks, bulbouts, and bike lanes were added, as were planters and seating to encourage pedestrians to gather and stay.[4] Because most of the improvements relied on paint, the cost and time to design and implement the project was much less than a larger capital improvement project. This allowed the project to be completed in less than a year of the plan's adoption and provided benefit until funding for the full project could be secured.

The city has found that the implementation of these simple techniques has created a vital district and spurred economic reinvestment and development in the corridor. Lower Grand Avenue has become an established arts and small business district. Festivals, events, and other activities are ongoing and attract large crowds.

Figure B-1 Paint and planters are cost effective and immediate interim techniques to improve multi-modal comfort and opportunities. Image source: PLANet and City of Phoenix, Arizona.

Figure B-2 Decorative crosswalks create instant placemaking. Image source: City of Phoenix, Arizona.

Figure B-3 Temporary solutions can increase community and economic vitality. Image source: PLANet and City of Phoenix, Arizona.

3 United States Environmental Protection Agency. Greening America's Capitals: Phoenix, AZ. *https://www.epa.gov/smartgrowth/greening-americas-capitals#phoenix*. Accessed on March 22, 2016.

4 Downtown Devil. "Two Phoenix events combine festivities to promote arts and local business". *http://downtowndevil.com/2014/09/02/59655/phoenix-festivities-arts-business/*. Accessed on January 25, 2016.

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