THE SMART MOBILITY HUB

Submission for the ITE Micromobility Sandbox Design Competition Challenge

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1 INTRODUCTION

The Walker Consultants team ("Walker") is pleased to enter a submission for the Institute of Transportation Engineers (ITE) Micromobility Sandbox Design Competition Challenge.

The goal of the challenge is to identify innovative solutions where current and future micromobility can co-exist with both faster and slower moving transportation options. ITE selected a three-block segment of East Bridger Avenue in Las Vegas, Nevada, between South Casino Center Boulevard and Las Vegas Boulevard to design and present a plan to accommodate existing and future mobility options, as well as a second location of our choosing. Walker selected a three-block segment in Sunnyvale, California.

The Walker team is comprised of eight transportation planning professionals. The team has extensive experiences working with municipalities across the country on transportation planning projects and studies related to curb management, micromobility, transportation network companies (TNCs), transportation demand management, parking supply/demand, as well as parking operations and design.

Walker Consultants is a private transportation and parking planning consulting firm with offices nationwide. The eight-person team is comprised of members from Los Angeles, San Francisco, Chicago, Minneapolis, and Phoenix. With varied experience and contexts to draw from, the Walker team was able to approach the design challenge with multiple viewpoints to develop a comprehensive design for the corridor that could work in a variety of contexts while also uniquely tailored to East Bridger Avenue.

Upon review of the area and competition parameters, Walker found that planning for a more multi-modal experience on East Bridger Avenue requires thoughtful and implementable curb management strategies. Curb management, in other words, bringing order and organization to the curb, has the potential to accommodate the use of multiple modes of travel while also ensuring that they do not impede one another. The ITE Curb Management Guide was heavily referenced and inspired both the methodology and treatments selected in the proposed design. In conjunction with curb management strategies, the team also incorporated opportunities to connect users with transportation options through technology.

The following provides a detailed discussion of Walker's methodology and proposed design plan for the East Bridger Avenue corridor, as well as graphical representations of the concepts.

WHO WANTS ACCESS TO THE CURB?

- ✔ Parking
- ✔ Taxis + TNCs
- ✔ Pedestrians
- ✔ Transit
- ✔ Bicycles
- ✔ Dockless Scooters + Bikes
- ✔ Deliveries
- ✔ Commercial, Social Gathering, Landscaping

2 EXISTING CONDITIONS

In order to develop a design for the corridor, Walker utilized the steps outlined in the ITE Curb Management Guide. Under the Treatment Selection Process in this guide, the first step is to inventory existing conditions. Understanding the existing land uses, activity centers, and transportation options is a vital part in selecting design treatments that support existing and future mobility options.

ACTIVITY CENTERS

Step 2 of the Treatment Selection Process in the ITE Curb Management Guide is to identify land use and activity considerations in order to develop modal prioritization.

Walker identified land uses within the study area and within a two miles radius. This provides an understanding of what land uses or activity centers people may access as they travel to/from the East Bridger Avenue corridor.

Additionally, based on a survey conducted in 2018 by Lime, a dockless scooter and bike company, average trip lengths were found to be one to one and one-half miles. Understanding the types of land uses and activity centers within two miles gives insight into the places and areas that could be reasonably accessed by these mobility options.[1]

Bridger Avenue Corridor

Existing land uses primarily consist of government (both County and Federal) and private sector offices as well as some retail uses.

East of the intersection of East Bridger Avenue/South Casino Center Boulevard is the Downtown Las Vegas Events Center. This event center hosts large concerts, festivals, and sports competitions. The event space's typical event capacity is for 2,500 people, but can accommodate up to 11,000 event attendees.

Beyond Bridger

The study area is within close proximity of the Golden Nugget Casino. Just north of the study area is the famous Fremont Street Experience, a major entertainment destination and tourism hot spot.

Located a few blocks east of the corridor, includes the Downtown Container Park (a dining, shopping, and entertainment complex), the Las Vegas Academy of Performing Arts, and numerous restaurants and shops. Approximately one mile west of the project area are other major activity centers including Symphony Park, Discovery Children's Museum, Clark County Government Center, World Market Center, and the Las Vegas North Premium Outlets.

OVERALL FINDINGS

In general, this segment of East Bridger Avenue appears to experience limited activity on the street, though it is host to multiple offices and retail uses and is within two miles of both large and small activity centers. Additionally, the Downtown Events Center is a major draw to the area, bringing in thousands of people to the area on event nights.

Figure 1 provides a map illustrating the existing land uses.

TRANSPORTATION OPTIONS

Existing transportation options on the East Bridger Avenue corridor, as well as nearby options, were evaluated. This provided insight into the types of facilities and services available, informing treatments selected to improve and enhance these existing facilities.

VEHICLES AND PARKING

Based on a review of traffic volumes provided by ITE, in general, traffic volumes on the East Bridger Avenue corridor are relatively low. On-street parking is provided on both sides of East Bridger Avenue, through the entire study area, with a posted time limit of four hours, seven days a week, from 8:00 a.m. to 10:00 p.m. Payment is required at a rate of $1.00 per hour. Additional public and private parking facilities are also provided along East Bridger Avenue, as well as within a two-mile radius.

Electric Vehicle Charging

There is a Tesla Supercharging station approximately 0.25 mile east of the study area on Bridger Avenue. Six EV charging stations are available at this location.

TRANSIT

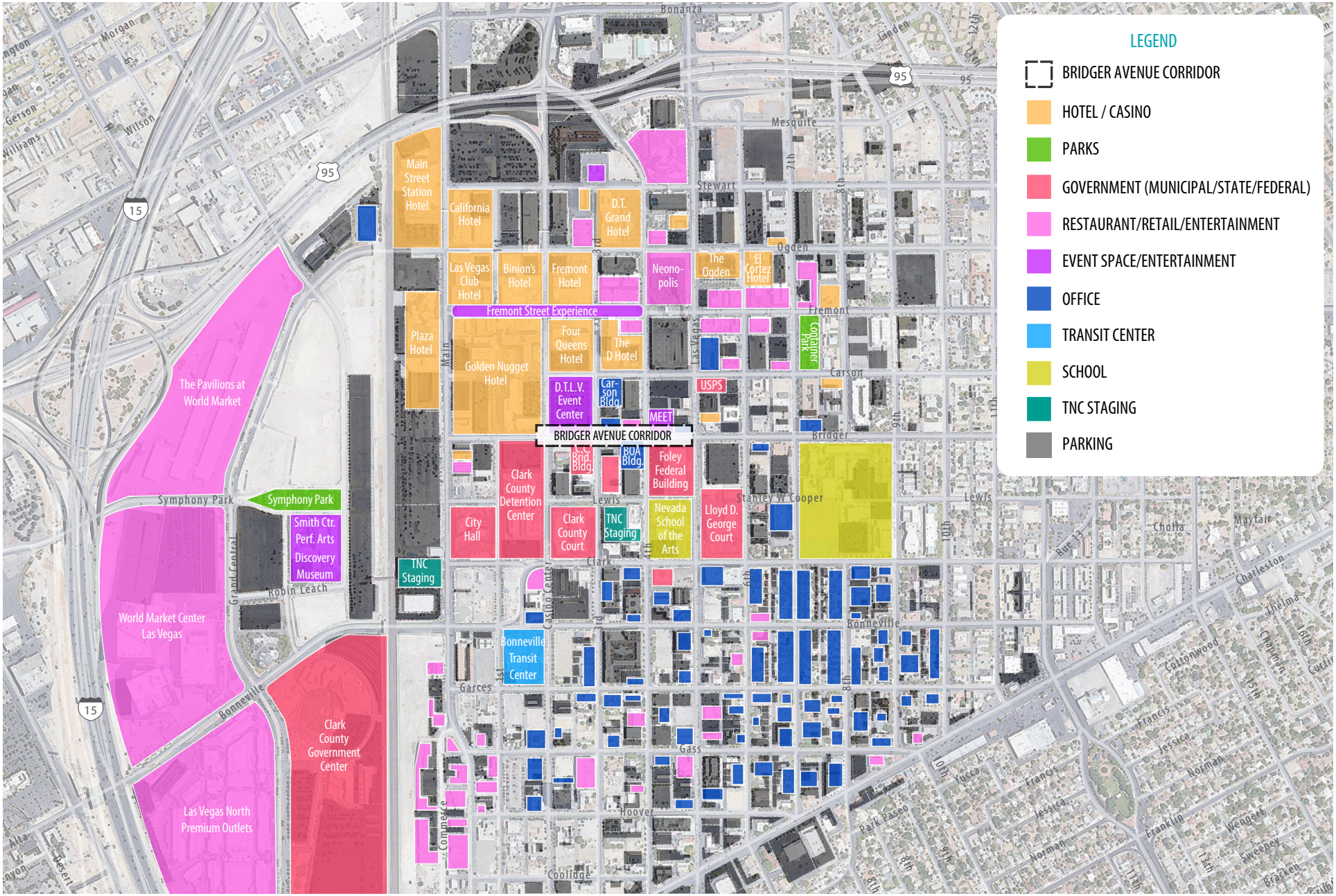
The Regional Transportation Commission of Southern Nevada (RTC) provides transit service within Downtown Las Vegas. There are currently no transit stops on East Bridger Avenue. However, there are several transit stops just one block north of the study area on East Carson Street. This includes stops for The Deuce, a bus that provides service from downtown to The Las Vegas Strip, as well as local, express, and regional routes.

The Bonneville Transit Center is located southwest of the study area, on South Casino Boulevard, one-half mile from the corridor. Local and express services stop at this transit center as well as Greyhound buses. Dedicated bus lanes are provided on South Casino Boulevard and are utilized by several of the transit lines in Downtown Las Vegas.

BICYCLE

Striped on-street, green, Class II, 5-foot wide, bike lanes are provided on East Bridger Avenue.

Figure 1: Bridger Avenue Corridor Context Map



Bike Share

RTC has a bike share program in Las Vegas with 21 stations throughout Downtown consisting of 200 bikes, including electric pedal-assist bikes. There are several bike share stations in close proximity to the study area, the closest is on 4th Street, south of Bridger Avenue.

PEDESTRIAN

There are 10-foot wide sidewalks in each direction the entire length of the segment. Marked pedestrian crossings are provided at each intersection with textured pavement, providing a delineation between the travel way and pedestrian space.

Curb extensions, or bulb-outs, are at each intersection, providing shorter crossing distances for pedestrians at the intersection.

DOCKLESS SCOOTERS

Las Vegas does not currently have a dockless scooter program. Electric scooters are permitted to be rented at store fronts, only, where they are checked in and out from the same location. In 2019, the Governor of Nevada signed AB 485 into law which allows local governments to regulate electric scooters, providing the framework for the potential creation of a future dockless scooter program.

TRANSPORTATION NETWORK COMPANIES

Transportation Network Companies (TNCs such as Uber and Lyft) are frequently used in Downtown. For the Downtown Las Vegas Event Center, there are designated TNC pick up and drop off locations, which vary based on type of event. Additionally, there are two parking garages in Downtown that provide staging areas for Uber drivers while they wait for customers to hail rides. Both garages are within approximately one-half mile of the study area.

AUTONOMOUS VEHICLES

The automotive supplier Aptiv has deployed 75 BMW self-driving sedans in Las Vegas, which are available to book through the Lyft app. The vehicles do not always operate in fully automated mode, as there are limitations: permission must be obtained to operate on private property, the vehicles cannot go on the highway in fully automated mode, and an operator is required in every AV vehicle. There have been more than 100,000 public rides recorded from Aptiv's AV fleet.

Figure 2 provides a map illustrating the transportation options available within two-miles of the study area.

JOURNEY TO WORK

In order to gain some understanding of how employees travel in the area, Journey to Work data was reviewed. Based on five year estimates from the 2018 American Community Survey for the census tract where the project area is located , 40 percent of workers drive alone, 4 percent carpool, 24 percent use public transportation, 17 percent walk, and 5 percent bike, use a taxicab, motorcycle or use other means. The remaining 11percent work from home.

CODE & POLICY REVIEW

The three block study area along East Bridger Avenue is the dividing roadway of two major planning districts of the City's Downtown Master Plan, the Civic and Business District to the south and the Resort and Casino District to the north.

The City's future land use plan and zoning code designates this area of East Bridger Avenue as commercial (downtown), general commercial (focusing on the location of the Events Center) and public facilities/civic (primarily the blocks of East Bridger Avenue closer to Las Vegas Blvd).

The 2012 RTC Complete Streets study was also reviewed in order to use regional guidance in developing plans for the East Bridger Corridor.

MODAL PRIORITIZATION

Since traffic volumes are relatively low, it was determined that mobility options beyond driving should be prioritized. With limited vehicle travel to accommodate, the East Bridger Avenue corridor is a prime location to provide enhanced treatments for biking, walking, and new micromobility modes.

Additionally, the East Bridger Avenue corridor is within two miles of some of the most popular destinations in Downtown, as well as several public government buildings, private offices, shopping, and dining. With so much activity close to the study area, enhancing and providing greater access to existing facilities as well as utilizing new micromobility options may help reduce the need for private vehicle trips and provide greater connections from East Bridger Avenue to major destinations in Downtown.

Census data revealed that 24 percent of people in this census tract use transit to travel to work, indicating people are already using transit to commute. Furthermore, biking, walking, and micromobility can be utilized to provide a greater connection to transit stops.

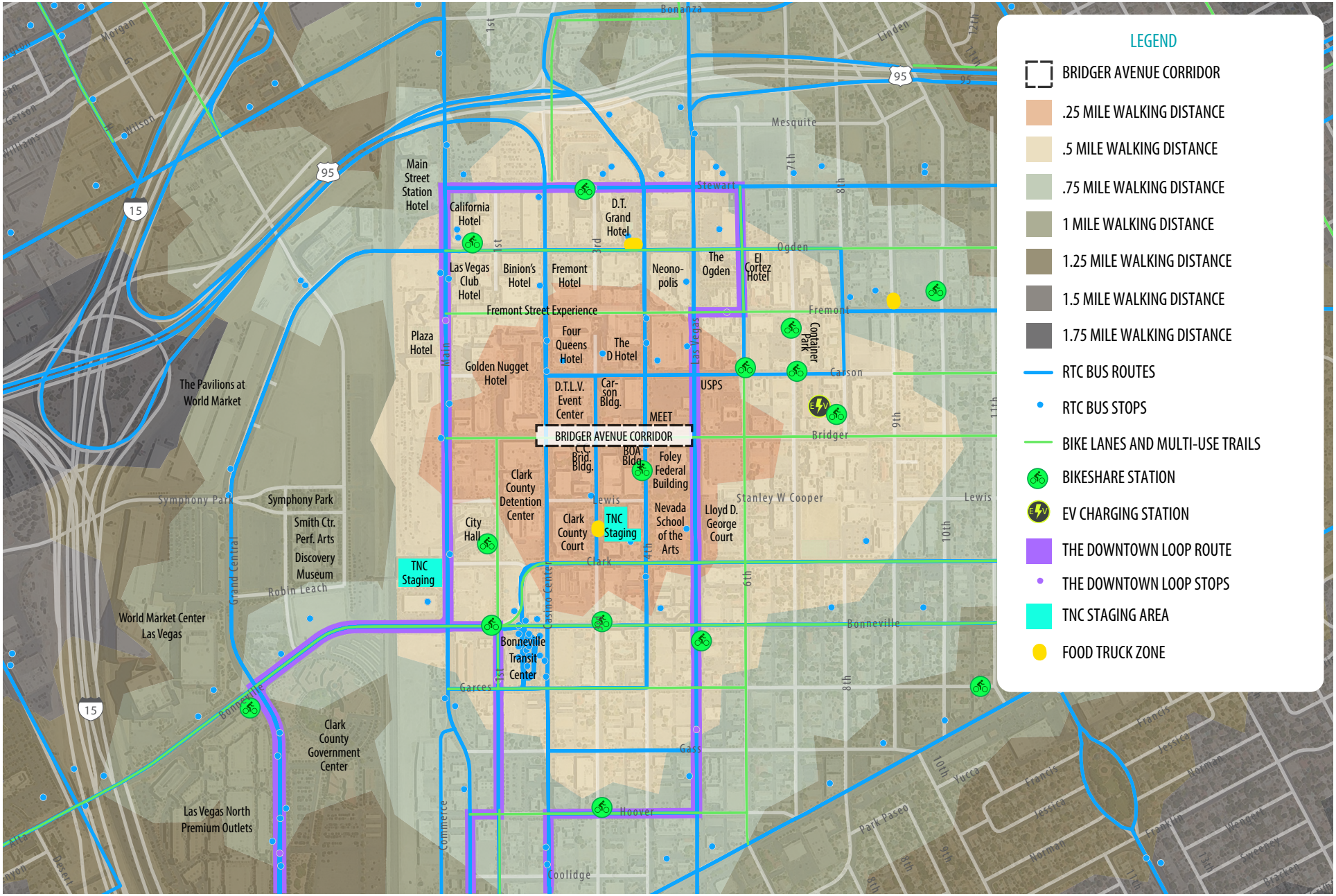
Encouraging people to choose options beyond the car may help reduce vehicle congestion and reduce greenhouse gas emissions. This also supports the State of Nevada's goals of reducing greenhouse gas emissions of 28 percent below 2005 levels.[2]

By prioritizing bike, pedestrian, and micromobility travel, the existing facilities on East Bridger Avenue can be utilized, reducing the cost and improving the ease of implementation.

It is also important to recognize and plan for the high levels of existing TNC usage in Las Vegas that will likely grow.

Further, while a lower priority on this roadway, ensuring that vehicles can still safely access and travel the corridor in conjunction with these other mobility options is important.

Figure 2: Existing Transportation/Mobility Map



3 DESIGN CONCEPT AND TREATMENT SELECTION

After a thorough review of existing conditions, Walker evaluated treatment alternatives and developed a plan for East Bridger Avenue. For ease of explanation, the corridor was broken up into three blocks and referred to as Block 1, Block 2, and Block 3.

OVERALL VISION

The vision for the East Bridger Avenue corridor is to provide greater connections and access to locations throughout Downtown Las Vegas through high quality, multi-modal transportation options. This vision is centered on providing protected bicycle facilities, incorporating new micromobility options, improving access to transit, and enhancing the pedestrian experience through art and landscaping.

The goal of Walker's proposed design is to activate the street, supporting a vibrant, people centric space that brings life to the street by providing amenities and services that support employees, visitors, locals, and event attendees. In return, quality public spaces spark community development, improve the environment and public health, and pay economic dividends.[3]

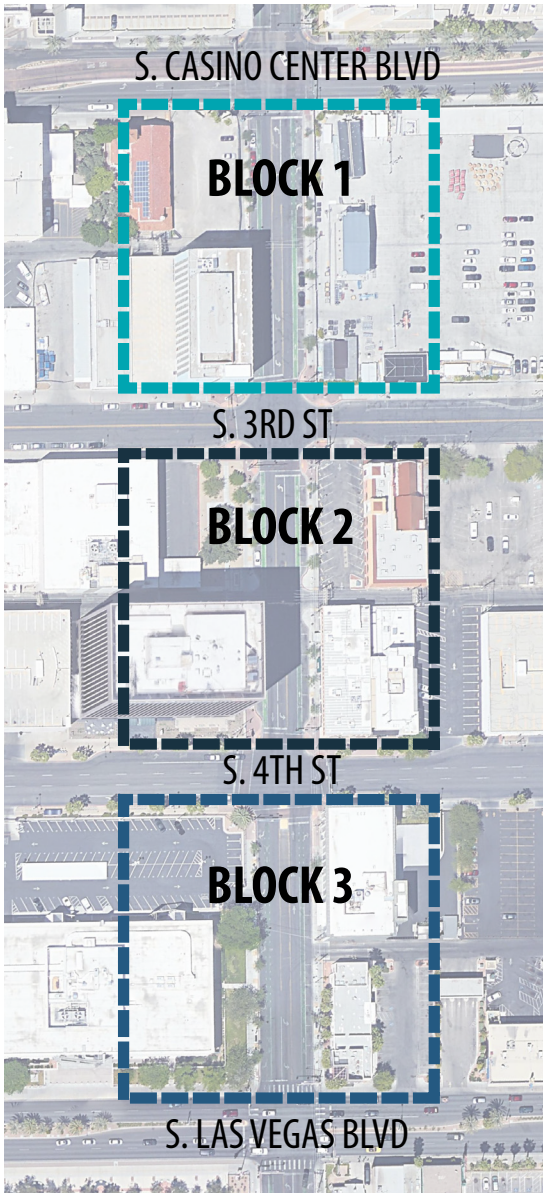
The intent of the proposed treatments is to provide a design that is feasible, cost-effective, serves a variety of users and needs, and a concept that could be replicated in a variety of settings.

Walker's design seeks to achieve these goals with the following design elements:

- Protected bike lanes through the entire length of the corridor that may be utilized by both bikes and micromobility options.
- Priority bike phasing and improved bike features through intersections.
- A smart mobility hub which provides micromobility staging, a bikeshare station, TNC pickup/drop-off space, and a digital kiosk providing transportation information.
- Enhanced pedestrian facilities through vibrant pedestrian crosswalks, landscaping, public art, a new midblock crossing, parklets, and new public space.
- Flexible parking spaces for short term pickup/drop-off and deliveries.

The proposed design largely utilizes the existing right-of-way, with changes primarily resulting in restriping, which would likely present significant cost savings. This would also contribute to the transferability of the approach as it would require minimal infrastructure or construction costs.

The following sections provide detailed discussions of the design, organized by block.



BLOCK 1: SMART MOBILITY HUB

Block 1 is envisioned to be the gateway to the East Bridger Avenue corridor. Referred to as the "Smart Mobility Hub," the recommendations on this block are intended to help connect both visitors and employees in Downtown Las Vegas with transportation options that will get them to major activity centers or nearby office buildings, retail, and restaurants, as well as provide an enhanced multi-modal experience.

PROTECTED BIKE LANES

A key feature of the proposed design is the reconfiguration of the right-of-way to provide protected bike lanes that will be utilized by both bikes and micromobility options. While introduced in this discussion of Block 1, the protected bike lanes are planned for the entire three-block corridor. Currently, bike lanes are located between the travel lane and parking lane. Walker recommends relocating the bike lane next to the curb, between the parking lane and sidewalk. The parking lane would serve as a buffer between bikes and/or scooters and traveling vehicles.

Protected bike lanes provide numerous benefits and can help transform the East Bridger Avenue corridor into a highly bike and micromobility-friendly street. Buffered bike lanes would provide cyclists and micromobility users more comfort in utilizing these options, as they would no longer be traveling next to faster moving vehicles. They may also help reduce instances of "dooring", when drivers open their doors into the bike lane, potentially colliding with oncoming cyclists. By providing a safer and more comfortable environment for cyclists and scooter users, fewer are likely to use the sidewalk, protecting the sidewalk as a pedestrian space.

Figure 3: Block 1 Concept Plan

Additionally, utilizing the parking lane as a barrier reduces the cost of implementation as it utilizes the existing pavement and right-of-way, primarily requiring restriping rather than new infrastructure.
Providing protected bike lanes that also allow for usage by scooters will likely reduce instances of scooters using sidewalks. In 2018, the City of Portland, Oregon issued a study on their scooter pilot and found that when scooter users were riding on a street within a standard bike lane, 21 percent of riders used sidewalks. By comparison, on streets with protected bike lanes, 8 percent of scooter riders used the sidewalk.[4]

Therefore, providing protected bike lanes benefits all mobility options. Vehicles and bikes will have their own separated, designated space, reducing conflicts. Scooters will be more likely to ride in the bike lane and not the sidewalk, leaving the sidewalk as a pedestrian realm. Increasing the comfort and use of these facilities is likely to encourage greater use of non-driving options.

Given the narrow cross section on East Bridger Avenue, it is difficult to provide bike lanes to a desired width of seven-feet with a three-foot buffer between the parking lane and bike lane. While more analysis would be required, an option for providing more right-of-way for bikes, scooters, and pedestrians would be the elimination of the continuous left-turn lane. This would require a more detailed analysis of traffic impacts with more recent data.

Right-Turn Lane, Bike Phasing, and Intersection Operations

Providing protected bike lanes will also change the existing configuration at the intersection of East Bridger Avenue/South Casino Boulevard. The current configuration requires vehicles wishing to use the right-turn lane to cross over the bike lane, potentially causing conflicts between cyclists traveling straight and vehicles turning right. In the proposed design, the bike lane would remain against the curb up to the intersection.

In order to prevent conflicts between bikes and right-turning vehicles, priority bike phasing would be implemented at the intersection. A bicycle signal head would be installed at the intersection and give bicycles and scooters their own phase to travel through the intersection before vehicles are given a green light. Right-turning vehicles would also be prohibited from turning right on a red signal. This will require additional signage at the light stating, "No Right Turn on Red". The bicycle signal then would get a red when the right-turn only gets a green.

Alternatively there could be a bike signal head and a right-run signal head. The right-turn signal head would prohibit right-turns during the through phase of bike/pedestrians so the right turn would have its own phase as opposed to the bike/pedestrians, giving more time for bikes, less for right-turns.

Further, in order to provide greater bike visibility, the green bike lane would be extended through the intersections. Since bikes would likely not be present at each phase, bicycle detection can be used at the signal to alert the signal controller of bicycles, which will trigger the phasing. Clear guidance would need to be provided to cyclists on how to actuate the detection (e.g. where to stand or what button to push).

Protected Bike Lanes and Curb Extensions

Additionally, to maintain curb extensions at the intersections as well as to provide a protected bike lane throughout the corridor, the bike lane will be required to intersect the curb extension. In order to reduce conflicts between bikes and pedestrians at curb extensions, marked pedestrian crossings should be provided. Signage also may be provided indicating "Watch for Bikes and Scooters" to pedestrians and vice versa. This design also provides greater protections to cyclists traveling through the intersection, as the bulb-out provides a barrier between bikes and vehicles turning from other streets.

Traffic Operations

Based on the traffic data provided by ITE, traffic volumes on Bridger Avenue, Casino Center Boulevard and Third Street through the study area are low, with these roadways and intersections likely having significant excess capacity. Volumes on Fourth Street are low during the AM peak hour but higher in the PM peak hour as vehicles head towards the freeway. The proposed changes will reduce the vehicular capacity of East Bridger Avenue through the study area, while increasing the level of service for non-vehicular modes of transportation. Since right-turn volumes from East Bridger Street onto the cross streets in the study area are low, there is likely capacity for these movements even with the proposed signal phasing changes, however, additional analysis would be needed to confirm.

REALLOCATING THE PARKING LANE

With the reconfiguration, on-street parking on the north side of East Bridger Avenue on Block 1 would be reallocated to scooter and bike share parking, TNC pickup/drop-off space, and a TNC waiting area/parklet. With the abundance of both on-street and off-street parking in the area, it is anticipated that the removal of these spaces would have minimal impacts to parking availability. However, a parking supply and demand study would be required to confirm this.

Alternatively, if it is found that TNC pickup/drop-off is not needed at all times, these spaces may be utilized as "flex space" where they can serve as a standard parking space on non-event nights and then be converted to TNC only when needed.

Bikeshare and Scooter Parking

To preserve space on the sidewalk, scooter parking as well as an RTC bikeshare station would be located in the parking lane. This designated space would clearly indicate where users should pick up/drop-off their scooter and serve as a designated space for some bikeshare docking. A bikeshare station is currently located on Fourth Street, just south of East Bridger

Avenue. As part of this design, it is recommended that this bikeshare be relocated to Block 1 and incorporated into the smart mobility hub. Utilizing an existing bikeshare station may reduce the cost of providing one on Block 1.

Additionally, marked pedestrian crossings would be provided across the bike lane to improve visibility of pedestrians crossing the lane into the scooter/bikeshare parking area.

In order to delineate the bikeshare and scooter parking area, providing fencing or a barrier to the travel lane preventing drivers from entering the space, is recommended.

TNC Pickup/Drop-off

With TNCs being a prominent mode of travel and the presence of the Downtown Events Center, providing designated TNC pickup/drop-off space was determined to be an important feature in the design of this space to improve safety and help eliminate double parking. It is recommended that three of the existing on-street spaces on the north side of Block 1 be converted to pickup/drop-off space.

Additionally, one of the considerations that led to the recommendation of protected bike lanes on this corridor was the plan to provide both bike lanes and TNC pickup/drop-off space on Block 1. Since TNCs make quick movements pulling in and out of spaces, it presented a major conflict if the bike lane remained in its current location next to the travel lane, as TNCs would be required to cross it every time they entered the parking lane to pickup/drop-off. Therefore, TNC pickup/drop-off should be provided in the parking lane with the new configuration.

The Downtown Events Center currently does not have a designated pickup/drop-off space for TNC trips. The location of TNC pickup/drop-off varies by event and is announced the day of the event. Since East Bridger Avenue is a lower volume roadway, providing pickup/drop-off space that may serve the event center during the events, would be beneficial as it would likely not cause significant congestion on East Bridger Avenue. Pickup/drop-off space in this location may also be utilized in the future for shared autonomous vehicles, as they are more publicly used.

Also, if it is found that TNC pickup/drop-off is not needed at all times, these spaces may be converted to flexible parking spaces. This means they could be designated TNC pickup/drop-off during events, short-term parking, or a standard parking space on weekdays when events are not occurring.

Parklet/TNC Passenger Waiting Area

In addition to the TNC pickup/drop-off area and scooter/bikeshare parking area, it is recommended that a parklet be provided in the parking lane. While parklets are typically planned closer to retail or restaurant space, it is intended that this parklet space be utilized as a TNC passenger waiting area. This would provide event attendees or those traveling in the area a comfortable place to wait for their TNC ride or figure out where they need to go while calling a vehicle. Providing this space would also reduce the number of people waiting on the sidewalk for their TNC, reducing congestion on the sidewalk for pedestrian flow.

Additionally, since Las Vegas experiences high temperatures during the summer months, the parklet/waiting area should be designed with shade structures.

SMART MOBILITY KIOSK & WAYFINDING

Another key feature of the proposed design is the smart mobility kiosk. The kiosk would be a digital interactive touch-screen that would provide users information on transportation options in the area and nearby destinations, Specifically, the kiosks could demonstrate how to use electric scooters, how to rent bikeshare bikes, and where to wait for a TNC. Further, the kiosks could display the locations that scooters and bikes can provide access to, the location of nearby transit lines and routes,and location of nearby shopping and restaurants as well as walking distances to these locations.

The kiosks could also provide access to Wi-Fi, provide emergency calling services, provide maps, and trip planning and payment services. They could also show real-time travel information for transit.

The goal of the smart mobility kiosk is to provide easy-to-access, centralized, information on transportation options in the area and how scooters and bikes may connect people with their destinations. Walking distances may also be provided to popular locations.

Additionally, these kiosks could be especially helpful in connecting people on East Bridger Avenue to transit options on adjacent streets.

For pedestrians, directional signage is also recommended at the corners of intersections. This signage should indicate to pedestrians the direction to walk to popular locations (such as Fremont Street or Container Park) and how far of a walk it is to access them. While one of these signs is proposed in Block 1, this is a concept that could be translated at every block or intersection within the study area.

ENHANCED PEDESTRIAN REALM

In addition to providing improved facilities for bikes, scooters, and TNCs, Walker also identified opportunities to enhance the pedestrian realm and encourage people to walk. The study area already contains sidewalks, marked pedestrian crosswalks, and curb-extensions at most corners. However, while these facilities are available, the area is lacking in other features that create a greater pedestrian experience.

The Downtown Events Center is fenced off along the north side of East Bridger Avenue with an iron fence and what appears to be black tarp. With plans to create the smart mobility hub and encourage more people to walk, bike, and use scooters, creating a more visually interesting space in the pedestrian realm is

recommended. The proposed design includes plans for a mural along this section of East Bridger Avenue, either covering or replacing the existing black fence along the event center. The City could enlist local artists to create art that is representative of the culture of Downtown Las Vegas.

The southern side of East Bridger Avenue on Block 1 is currently abutted by a parking lot and a dark, concrete building. The proposed design includes plans for increased landscaping along this segment to screen the parking lot as well as provide more greening and landscaping for pedestrians to enjoy while walking through the area.

At the intersections, enhanced crosswalks are recommended. While the crosswalks are already paved and marked crossings, redesigning the crosswalks with a more artistic and vibrant design can provide both greater visibility and additional public art in the area.

EV PARKING

On the southern side of East Bridger Avenue, the proposed design includes plans to convert at least one of the existing on-street parking spaces into an electric vehicle-only parking space with a charging station.

BLOCK 2: GATHERING SPACE

The vision for Block 2 is focused on providing gathering space along East Bridger Avenue that may serve employees of the office buildings as well as visitors to the area. There is currently little to no public space in the area where office employees or residents and visitors can rest or take a break outside. There is also only one restaurant in the study area, located in Block 2.

Design plans for Block 2 include an elevated public space with food vendors, a parklet associated with an existing restaurant, and a continuation of the protected bike lanes through Block 2. Providing enhanced public spaces would also create a more enjoyable and comfortable pedestrian experience for those walking through the area.

PUBLIC SPACE

East Bridger Avenue was found to have limited public space or restaurant options that could serve the local population of employees. With several offices located right on East Bridger Avenue, providing outdoor space that allows employees to take a break or have lunch was a key motivation in this design.

Mini-Park

On the southern side of East Bridger Avenue, at the intersection of East Bridger Avenue/South Third Street, just north of the Clark County Law Library, there is an existing landscaped space with trees, planters, and some seating. While this space is likely privately owned and maintained, it is recommended that the City partner with the owners of this space to create an improved public area at this location, essentially a "mini-park" located along the corridor.

While some landscaping exists, it is limited, with a lot of pavement, and clear visibility of the Clark County Law Library parking lot. As part of this design, the area would be enhanced with more landscaping, trees for shading, public benches and picnic tables, as well as a weekly, small, Farmer's Market or food vendor stalls. Since dining options are limited, providing additional dining options could help in activating the street, creating a more comfortable, and fun, place for employees and visitors to the area. Trees and landscaping could be utilized to screen the neighboring parking lot. Bike racks could also be provided in this space to encourage people to arrive by bicycle. With the high temperatures that occur in Las Vegas, a shaded area with seating could also provide welcome refuge for those walking or biking through the area.

Parklet

AmeriBrunch Café is currently the only restaurant on East Bridger Avenue. There is no existing outdoor dining available at the café and the sidewalk space is limited. The proposed design includes removing the parking space in front of the AmeriBrunch Café in order to provide some outdoor dining space. Due to the Las Vegas heat, shade structures should be provided with the parklet. Similar to the mini-park concept, this could provide additional space to gather on the street and give opportunity for employees to leave their office buildings during lunch or for a break.

The design also includes a continuation of the protected bike lanes. Therefore, a marked pedestrian crossing would be provided across the bike lane from the curb to the parklet at this location.

MIDBLOCK CROSSING

The design also proposes providing a midblock crossing, approximately where the alleys are located in the middle of the segment. This could provide a more convenient connection from the office buildings to the café. In order to improve visibility of those crossing, a raised crossing is recommended as well as signage notifying drivers that they are approaching a pedestrian crossing.

CARSHARE

Since this area is heavily populated with office land-uses, a new mobility element that could be added to the area is a carshare vehicle. This would provide employees who arrive by transit, biking, e-scooter, or on-foot with access to a vehicle when they need to leave the area for midday meetings or appointments. Therefore, the design plans include replacing one of the existing parking spaces with a carshare space.

BIKE LANES, CROSSWALKS, AND LANDSCAPING – CONTINUE FROM BLOCK 1

The protected bike lane configuration described in the Block 1 section would be maintained through Block 2. This would also include bike phasing at the intersections and no-right-turn on red restrictions, as well as continuing the bike lane through the intersection. See the Block 1 discussion for more details.

The design includes continuing to provide enhanced crosswalks that are more vibrant and incorporate public art, as proposed for Block 1. Additional landscaping and opportunities to provide public art and murals should also be considered to shield parking lots, increase pedestrian comfort and walkability, as well as provide more shade for those walking.

BLOCK 3: FLEXIBILITY & ACCESS

Block 3 of East Bridger Avenue has limited activity, consisting of a few buildings including MEET (an event space), a bank, and a large federal government building, as well as a parking lot. With limited land uses likely being accessed in this area, Block 3 is primarily focused on the continuation of the existing protected bike lanes, provision of more landscaping to enhance the pedestrian experience, and provision of flex space to serve the MEET space.

Since the major improvements in this design are located in Block 1 and 2, improvements to Block 3 should largely serve to assist bringing walkers, cyclists, and scooter riders to the Block 1 and 2 corridor so they can access the public amenities, find a place to rest, or visit the micromobility hub to gather information on where to go next or how to get around the area. Additionally, it will help connect these buildings to Block 2 where office workers or employees could walk to the public space or restaurant for lunch or a break. In order to support the corridor as a whole, wayfinding signage should be provided in Block 3 to notify cyclists, walkers, and micromobility users that if they continue on East Bridger Avenue, they may access the smart mobility hub. This could also include walking distances to the hub as well as activity centers in the area, similar to the signage described for Block 1.

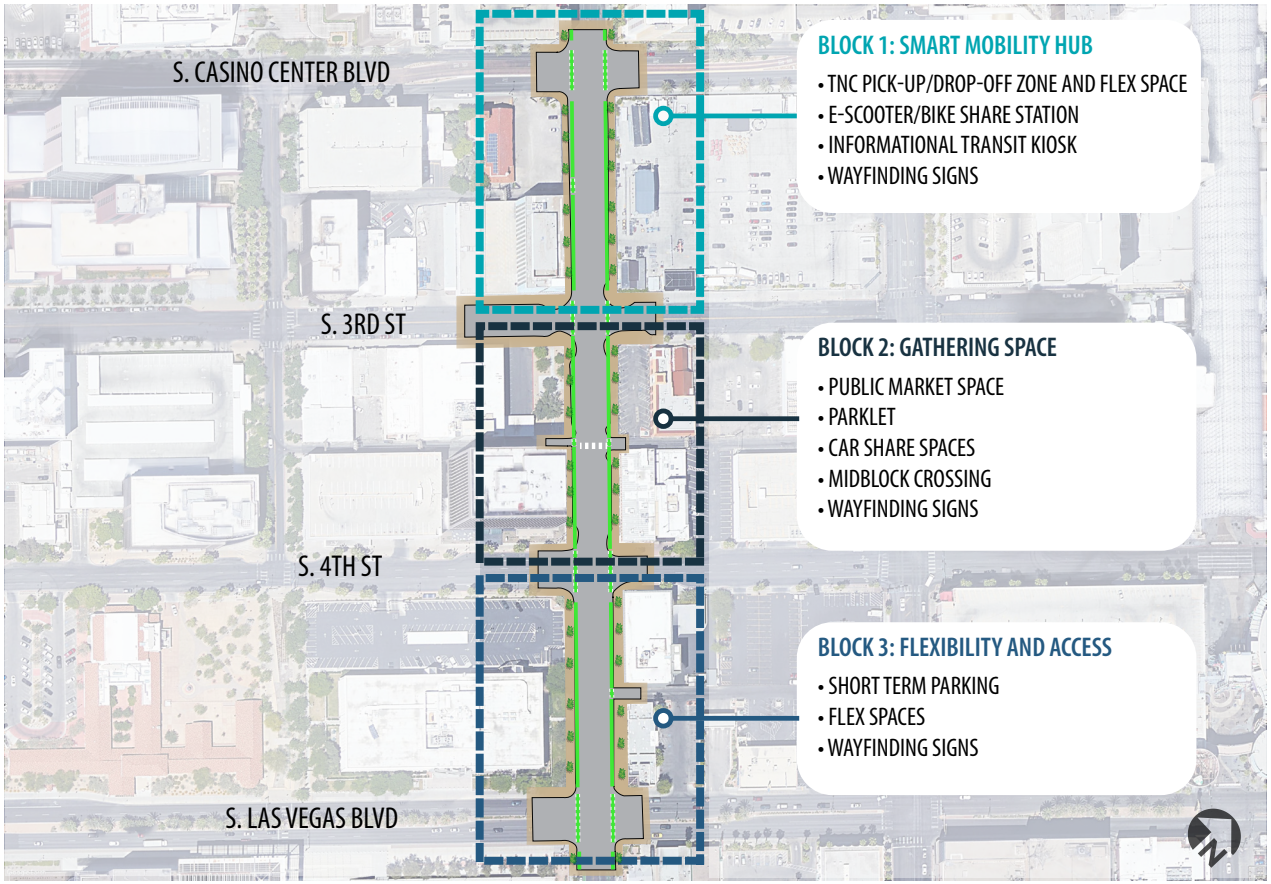
FLEX SPACE

An additional feature planned for Block 3 is conversion of two of the parking spaces in front of the MEET building to flex space. MEET is a private event space that hosts weddings and corporate events, among others.

With the high use of TNCs in downtown, this flex space could be used as TNC pickup/drop-off during events. Additionally, it could be utilized for short-term loading/unloading for event staff or those needing to drop off materials and supplies for an event.

When events are not occurring, the spaces could remain as standard parking spaces.

Figure 4: Bridger Avenue Corridor Highlights



4 CONCEPT TRANSFERABILITY

To demonstrate the transferability of the proposed design, the same design concepts were applied to a three-block segment in Sunnyvale, California located in Silicon Valley. Walker Consultants completed a downtown parking and transportation study for the City of Sunnyvale in 2019 and found ample opportunities to implement greater mobility options in the area.

The segment is located on East Washington Avenue, between South Taaffe Street and South Sunnyvale Avenue in Downtown Sunnyvale. It is lined with mixed-use residential buildings with ground floor retail, multiple retail and dining establishments, as well as the City's historic Murphy Avenue. Murphy Avenue is a major draw to the area, hosting several popular restaurants, bars, and retail stores. There are also several offices for large and small tech companies including Apple and Nokia, within close proximity to the East Washington Avenue corridor.

Future development plans in Downtown Sunnyvale include new retail, office space, and mixed-use retail, that will double the size of downtown's square footage.

There is a Caltrain transit station just north of the East Washington Corridor, which provides transit services throughout California's Bay Area.

This segment of East Washington Avenue is designated as a Class III bike route, with shared lane markings (bike sharrows) on the street. The City currently allows dockless bikes in downtown. Scooters are not permitted to operate in Sunnyvale, however, the City has expressed some interest.

There is currently no dedicated TNC pickup/drop-off space in downtown despite frequent, and growing, use of TNCs in the area. Businesses have expressed frustration with TNCs double parking or blocking travel lanes to pickup/drop-off.

While Sunnyvale has close access to multiple transportation options, driving remains the primary mode of travel for most residents, employees, and visitors to downtown.

The smart mobility hub concept developed for the East Bridger Avenue could be transferred to the East Washington Corridor. Walker's concept is proposed on a segment between South Taaffe Street and South Frances Street, on the north side of East Washington Avenue. There is currently on-street parking along the entire length of the East Washington Avenue corridor. These spaces would be reconfigured to provide three TNC pickup/drop-off spaces, a parklet, scooter and bike parking, as well as a digital kiosk.

The TNC pickup/drop-off would help reduce instances of double parking or making dangerous maneuvers to pickup/drop-off passengers. Locating the TNC area here provides a central location in downtown that could serve a variety of land uses in the area such as retail, residential, office, and dining. The TNC pickup/drop-off is only a one-block walk to access Murphy Avenue and would reduce congestion on a narrow, dense street.

The parklet could serve as a TNC waiting area, public seating area, or additional dining space for restaurants and cafes in the same location.

Scooter and dockless bike parking would also be provided in the parking lane. The existing dockless bikes in downtown are currently parked on the sidewalks, potentially causing some barriers to pedestrian travel. Corralling dockless bikes, and scooters in the future, would preserve the sidewalk for pedestrians.

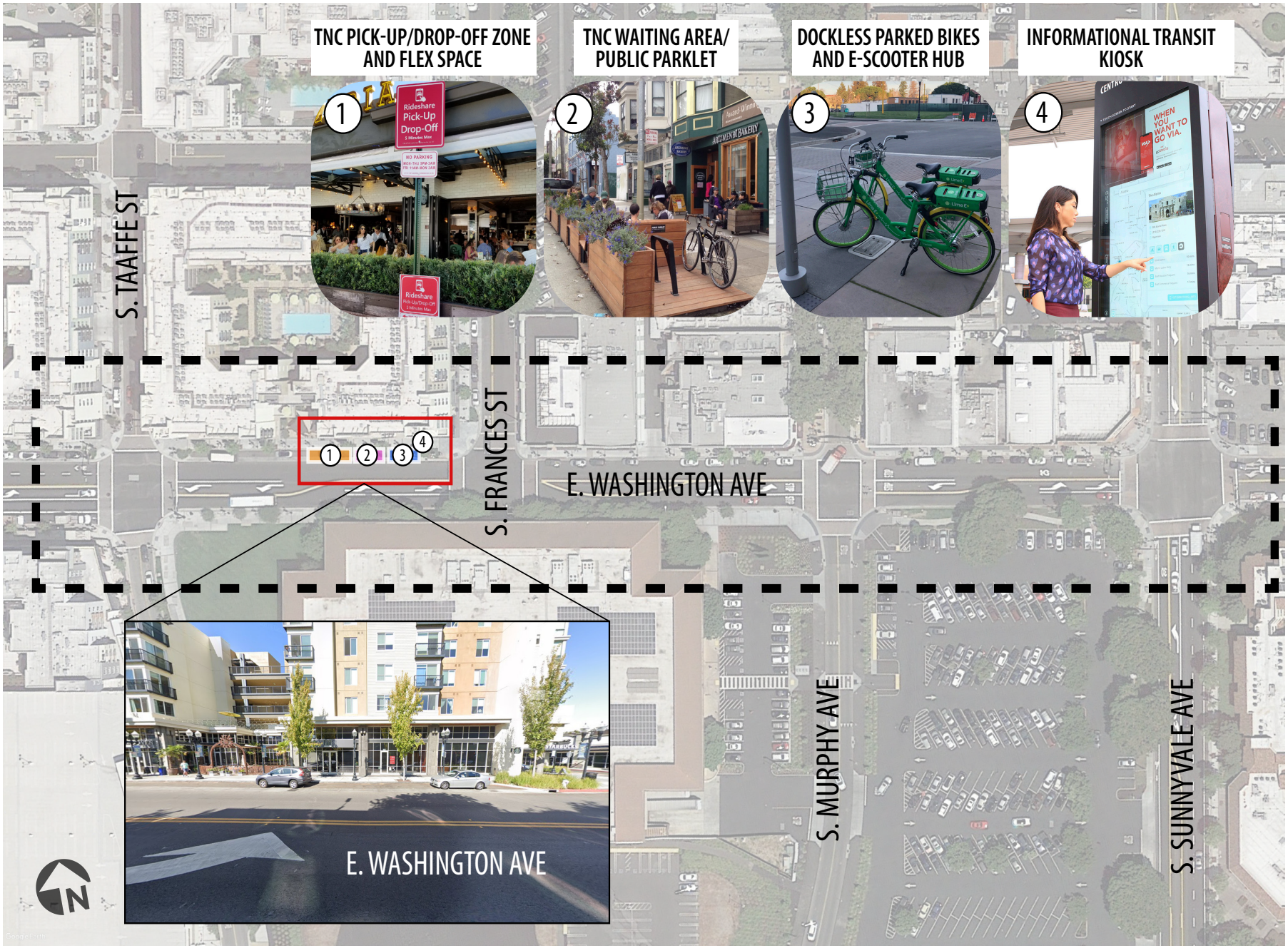
Further, a smart kiosk that provides users with transportation options, local route maps, real time travel times, and education materials (like how to rent a scooter,) is a transferable and implementable solution in almost any setting. In Sunnyvale, residents, employees, and visitors would benefit from having centralized hubs that will help them figure out how to access downtown locations. This could be especially helpful for educational purposes to show community members and visitors there are ways to get around without a vehicle.

While shared lane markings are provided on East Washington Avenue, indicating a designated bike route, with a relatively active population of cyclists in the area, providing bike lanes on East Washington Avenue is also recommended. This would be important with the introduction of scooters to the area as riders are less likely to ride on sidewalks if bike lanes are provided and shared with scooters.

Downtown Sunnyvale is relatively small, requiring only about a five to 10-minute walk from end to end. Despite the short distances, community members have perceived the walk to be longer and more cumbersome due to the disconnected feel of the environment. To encourage residents, employees, and visitors to walk more in downtown, enhanced pedestrian crosswalks could be implemented at intersections.

While some features of the East Bridger Avenue design are unique to that specific corridor, the overall concept of a smart mobility hub that prioritizes biking, walking, transit, and micromobility, can easily be applied in a different setting. It also can help illustrate ways that micromobility options can be incorporated into the system, provide greater access to nearby locations and connect more people to transit.

Figure 5: Sunnyvale, CA Smart Mobility Hub Concept



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