



Davis Amtrak Station

Access and Connections Study

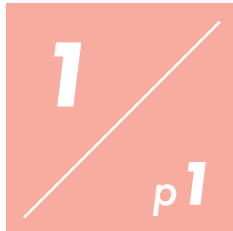
Prepared for **City of Davis**
April 28, 2020

FEHR & PEERS

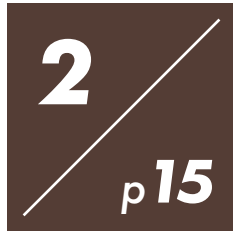
Funded by Caltrans Fiscal Year 2017-2018 Sustainable Transportation Planning Grant



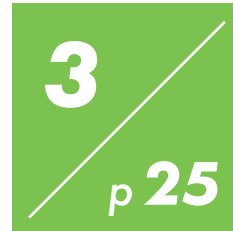
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Introduction



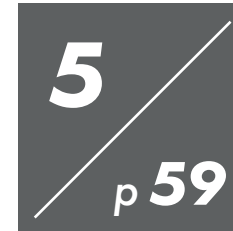
**Capitol Corridor
Ridership Trends**



**Station Access
and Equity**



**Station
Recommendations**



**Access
Recommendations**

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Introduction





INTRODUCTION

Purpose of This Study



The Davis Amtrak Station is the largest City-owned parcel of land in downtown Davis, and is of great strategic and symbolic importance to the area. The purpose of this study is to identify short-, medium-, and long-term options for improving access to this critical piece of infrastructure in order to:

- Increase train ridership
- Reduce vehicle miles traveled (VMT) and associated greenhouse gas (GHG) emissions
- Explore economic development opportunities at the infill site
- Enhance station safety

A Caltrans Sustainable Transportation Planning Sustainable Communities grant funded this study.

Methods and community engagement practices deployed as part of this study included the following:

- Field Visits and Observation
- Multi-Modal Driveway Counts
- Ridership Data and Forecasts
- Online and Intercept Survey of Station Users
- Engineering Inventory
- Historical and Plan Review
- Review of Best Practices
- Stakeholder Advisory Committee
- Community Outreach and Engagement

INTRODUCTION

Historical Gateway to Davis



The Davis train depot is both a physical and historical gateway to the city, whose development has been tied to the railroad from its founding.

Before settlers arrived in the area and were granted land from the Mexican government in the 1840s, the land was occupied by the Native American Patwin tribe(let). Ravaged by disease, the remaining Patwins left the area in the 1830s.¹

When the railroad station was constructed in 1868, developers of the California Pacific Railroad hoped to turn the unpopulated ranch land of what was then known as Davisville into profitable real estate.²

The first train rolled into Davisville Junction from Vallejo in the late summer of 1868, and the first plan for a town was officially recorded in November of that year.³ The planned 32-block grid makes up what is now

downtown Davis, with the station at its southeast edge. The following year, tracks were laid to connect Davisville north to Yuba City, through Woodland, creating the wye junction that exists today.

In 1906, Davis – as it became known – was selected to be the site of what is now the campus of the University of California, Davis. All of this development occurred before the invention and mainstreaming of the automobile. The station was a focal point for those entering town.

In 1913, the station received an upgrade as the city's gateway, when Southern Pacific began construction on the current Mission Revival-style depot and control tower to replace the original wood frame station. This concrete and stucco depot was listed on the National Register of Historic Places for its architectural significance in 1976.

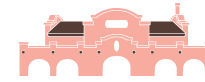
Road-building expanded with the popularity of the automobile in the early 20th century: the Yolo Causeway was completed in 1916, and the following year the Davis subway (Richards Boulevard underpass) replaced an at-grade railroad crossing for the State highway into Davis. Olive Drive, First Street, B Street, and Russell Boulevard were paved in the 1930s, and the Highway 40 bypass (now Interstate 80) was completed in the early 1940s, corresponding with (and perhaps bringing an end to) the historical peak of railroad traffic during World War II.





INTRODUCTION

Revitalized by Regional Rail



After decades of highway construction throughout the region and city planning that prioritized the private automobile, the Davis station was revitalized, and in 1991 the Capitol Corridor began an intercity passenger rail route. It now provides service over 170 miles, between San Jose and Auburn.

Today, the Davis station occupies roughly 3.2 acres in the center of the wye junction of the Union Pacific Railroad (UPRR) Mainline and West Valley Branch tracks. Nearly 40 trains per day use the Mainline tracks, including hourly Capitol Corridor

service (15 daily round-trips), daily Coast Starlight and California Zephyr services, and freight. Less than 20 trains per week use the eastern portion of the West Valley wye, and less than 10 per week use the western portion of the wye.⁴

The Davis station serves over 500 passengers per day, the second highest average weekday ridership of all stations on the Capital Corridor, with a total of over 380,000 passengers in 2018. The station also provides intercity bus connections to other Amtrak rail lines.

¹ History. <https://www.cityofdavis.org/about-davis/history-symbols>

² Davis, CA (DAV). The Great American Stations. <https://www.greatamericanstations.com/stations/davis-ca-dav/>

³ Town History. Davis Wiki. https://localwiki.org/davis/Town_History

⁴ US Department of Transportation Federal Railroad Administration Crossing Inventory Forms, OMB No. 2130-0017.

Fig 1 Davis Station and Surroundings



Old East Davis

West Valley Branch line restricts access from Old East Davis

Irregularly-shaped parcel limits building options

Mainline tracks and fencing restricts access from Olive Drive (a bike/pedestrian connection is planned)

Branch tracks with only one driveway limits access from Downtown Davis

Downtown Davis

Amtrak bus stop

Station building

Olive Drive neighborhood

INTRODUCTION

Multi-Modal Constraints



As a major destination and historical asset in Davis, the station continues to be a fixture in planning efforts for the City. It also persists as a challenge to the City's efforts to reduce dependence on single-occupancy vehicle trips. The station area is strongly defined by its hard triangular edges, bound by train tracks on all three sides.

A driveway near the H Street and Second Street intersection provides the only formal access to the site, as well as the only at-grade access across the West Valley Branch tracks. Both the West Valley and the Mainline tracks create barriers to access between the station and adjacent neighborhoods, including downtown Davis to the west, Old East Davis to the east, and the Olive Drive neighborhood to the south.

A 2008 study found that approximately 100 school-age children – and an additional 100 adults – were crossing the Mainline tracks every day at informal crossing locations in the vicinity of the station.⁵ In order to discourage such unsafe crossing from the Olive Drive neighborhood to the downtown area, UPRR erected a metal fence along the tracks in 2011.

Parking surveys show that the parking lot on-site fills well before 7:00 AM and remains full until the late afternoon. Bicycle ridership to the station is also high, and more than 50 bicycles are typically parked at the station throughout the day on weekdays. While bike ridership to the station is high, distances to residential neighborhoods at the far west, north and east edges of town are infeasible for many potential riders. Also, only two Unitrans routes serve the station with local bus service, limiting transit access from many Davis neighborhoods.

These factors, along with the numerous physical barriers and the on-site vehicular parking supply shortage, require new solutions to address first/last mile access at the station to increase Capitol Corridor ridership.

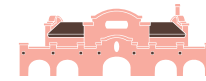
5 Guiney, Kaitlin, with Diana Budds, Jamie Davies-Shawhyde, Amy Lee, and Cristina R. Ramirez. *The Olive Drive Transportation Study: Analysis of Pedestrian Crossings of the Railroad Tracks near the Davis Amtrak Station*, 2008.





INTRODUCTION

What Are Mobility Hubs?



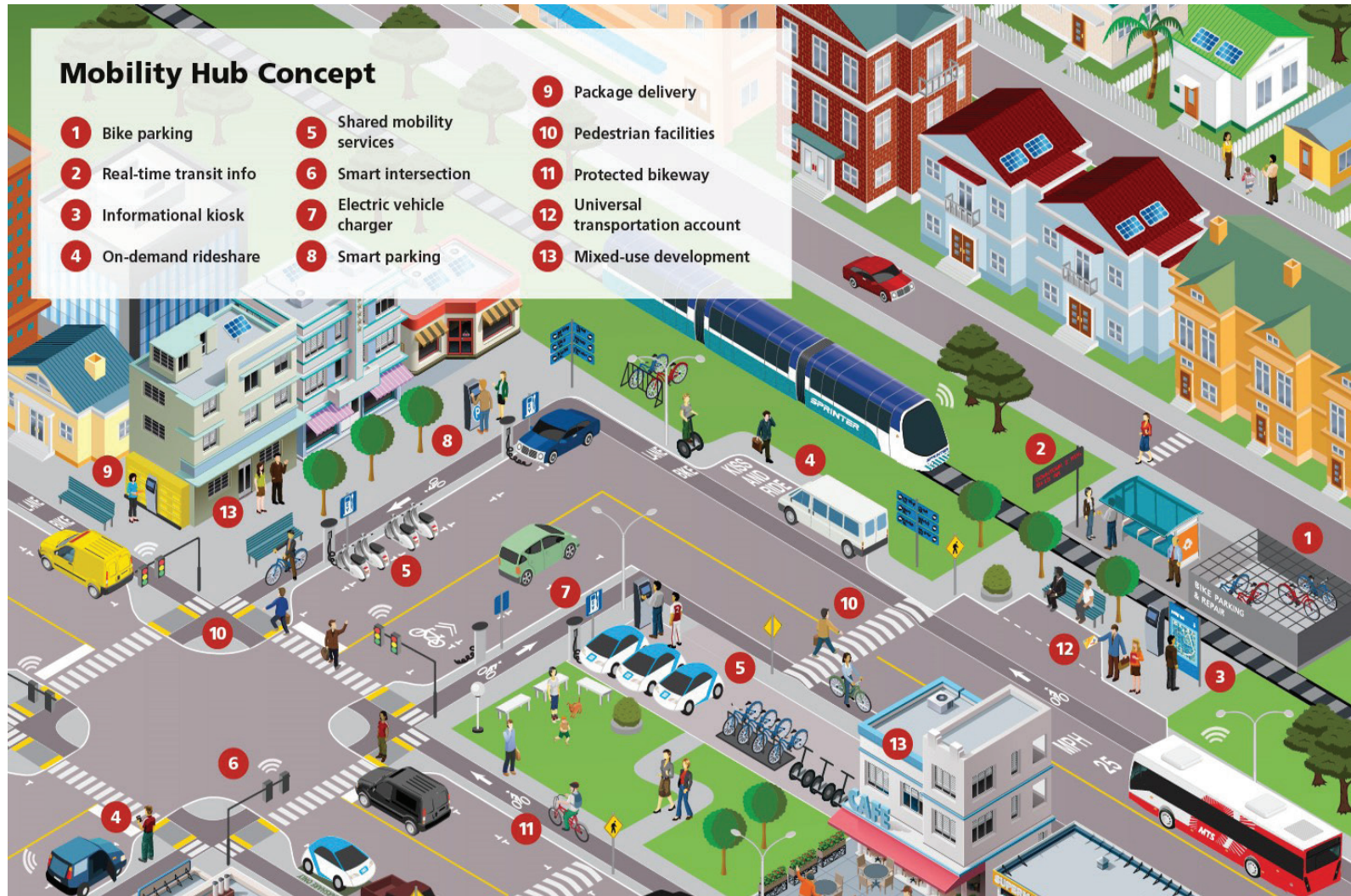
These planning efforts aim to increase the station site's productivity and transform it into a mobility hub rather than just a train station. Mobility hubs are places of connection that bring together multiple modes of transportation with information and technology to help people easily and efficiently assess their options for travel.

They can range in size and scale, depending on the specific context, and operate best in a network and/or hierarchy of types. For example, primary hubs might include significant regional destinations and serve high levels of travel demand, while secondary and tertiary hubs might serve local destinations with fewer modal options.

Several components will ensure the success of a mobility hub:

1. It offers a range of multi-modal transportation options
2. It is located in a dense urban area, with intensive land uses to support a critical mass of people who live, work, and/or shop in the vicinity
3. It gives high priority to pedestrians
4. It provides access to real-time information through embedded technology and/or free wifi
5. It contributes to the development potential of the area and serves as an anchor of economic vitality
6. It has a strong identity

Fig 2 Components of a Mobility Hub



Source: San Diego Association of Governments (SANDAG)

A Future Mobility Hub for Davis



Recent planning efforts envision more frequent rail service and increased ridership at the station, while also seeking to integrate the station with its surrounding neighborhoods and provide it with more attractive multi-modal access to accommodate this increased activity. The California State Rail Plan (2018) proposes 30-minute headways for intercity trains between Sacramento and Oakland by 2027, while Sacramento Regional Transit's long-range plan, TransitAction 2035, envisions up to 15-minute headways during peak hours between Davis and Sacramento.

The Olive Drive neighborhood, south of the station, was not part of the original Davisville 32-block grid. New development in the neighborhood calls for better connectivity to downtown Davis, and the station provides a significant opportunity site. In 2018, City Council approved the Lincoln40 Residential project in the Olive Drive neighborhood. An off-campus student housing complex, the project will house over 700 students on approximately 6 acres and will also help fund a bicycle and pedestrian crossing between the development and the Davis Amtrak

Station, a proposal identified in the City's 2013 update to its General Plan Transportation Element. The bicycle and pedestrian crossing helps support the City's goal of achieving 50% of trips by active modes and public transit in the city by 2035. The Transportation Element also calls for a bicycle sharing program, which was rolled out in May 2018. In a pilot led by the Sacramento Area Council of Governments (SACOG), JUMP launched 300 electric assist bikes in the Cities of Davis, West Sacramento, and Sacramento. An additional 600 bikes were added to the system later that summer, bringing the total to approximately 150 in Davis.

In anticipation of such developments in the Olive Drive neighborhood, in 2016 the City commissioned the Richards Boulevard – Olive Drive Corridor Study to investigate the multimodal operational and safety effects of four potential projects for the corridor that would provide better access and connectivity between the Olive Drive neighborhood and downtown Davis, including the train station.

Improvements in the area that the City is actively pursuing include the following:

1. The grade-separated pedestrian and bicycle connection from Olive Drive to the Davis Amtrak Station. This project is a high transportation priority for the City, and the City is actively pursuing grants to leverage Lincoln40's contribution and fund the crossing. In 2018, the City unsuccessfully applied for a state Active Transportation Program grant and plans to try again in 2020.
2. A bicycle path connection on Olive Drive at Pole Line Road. The project has received \$3.5 million through the state Active Transportation Program.
3. Reconfiguration of the I-80/Richards Boulevard interchange to improve vehicle flow, including a grade-separated Class I pathway for bicyclist and pedestrian safety. This project has received \$7.7 million in funding from SACOG
4. Closure of the I-80 westbound off-ramp to Olive Drive.

To accommodate increased activity at the train station, several plans have proposed changes to parking facilities and access to the site. The City's Beyond Platinum Bicycle Action Plan (2014) found that the Davis station had the highest bicycle usage and parking demands of any station on the Capitol Corridor. The plan noted that these bike parking facilities were 85% or more occupied a majority of the time, while the station experienced a high rate of abandoned bikes and the highest rate of bicycle theft of all public facilities in Davis. It included detailed recommendations for enhancing the existing bicycle parking facilities at the station, removing abandoned bikes more frequently, and increasing video surveillance to deter theft. It also reiterated the call for a bike share system.

The City has since made many of these changes: installing new e-lockers and additional bike racks, while JUMP bikes have launched across the City.



The 2014 Downtown Parking Management Plan recommended charging for vehicle parking at the station using pay-by-space kiosks in order to better manage parking supplies. This recommendation was recently approved in March of 2019 by the City Council for implementation.

The City's Downtown Davis Specific Plan – currently in draft form – offers the most comprehensive vision to date for integrating the station into downtown and other surrounding neighborhoods. It highlights the station as a gateway to Davis for those traveling along the Capitol Corridor and positions it as an anchor and designated special area for energizing what it calls the Heart of Downtown. The plan envisions replacing the station's parking lot with infill development and a public plaza consistent with the large-scale main street development and open public spaces of the surrounding Heart of Downtown neighborhood. The plan also includes a number of multi-modal improvements to streets that serve the station area, including identifying Third Street between H Street and

the UC Davis campus as a shared use street, with roadway design and treatments to improve the safety and comfort of bicyclists and pedestrians. A raised cycle track is proposed for H Street on each side, connecting the shared use Third Street to the station. Second Street would receive pedestrian priority with streetscape enhancements to strengthen it as the gateway to the train station depot. First Street is planned as a transit priority corridor, which might include queue jump lanes or transit-only lanes. Finally, an extension of the Class I shared use path on First Street is proposed to connect UC Davis with the train station, using the UPRR right-of-way to provide access to the station site.

In partnership with SACOG, Unitrans, Cool Davis, and the Capitol Corridor, the City will soon start the Davis Train Station Access Project as a Civic Lab 1.0 pilot project to work with mobile app vendors to increase vehicle occupancy rates and provide ride hailing services to improve first/last mile connections to the station.

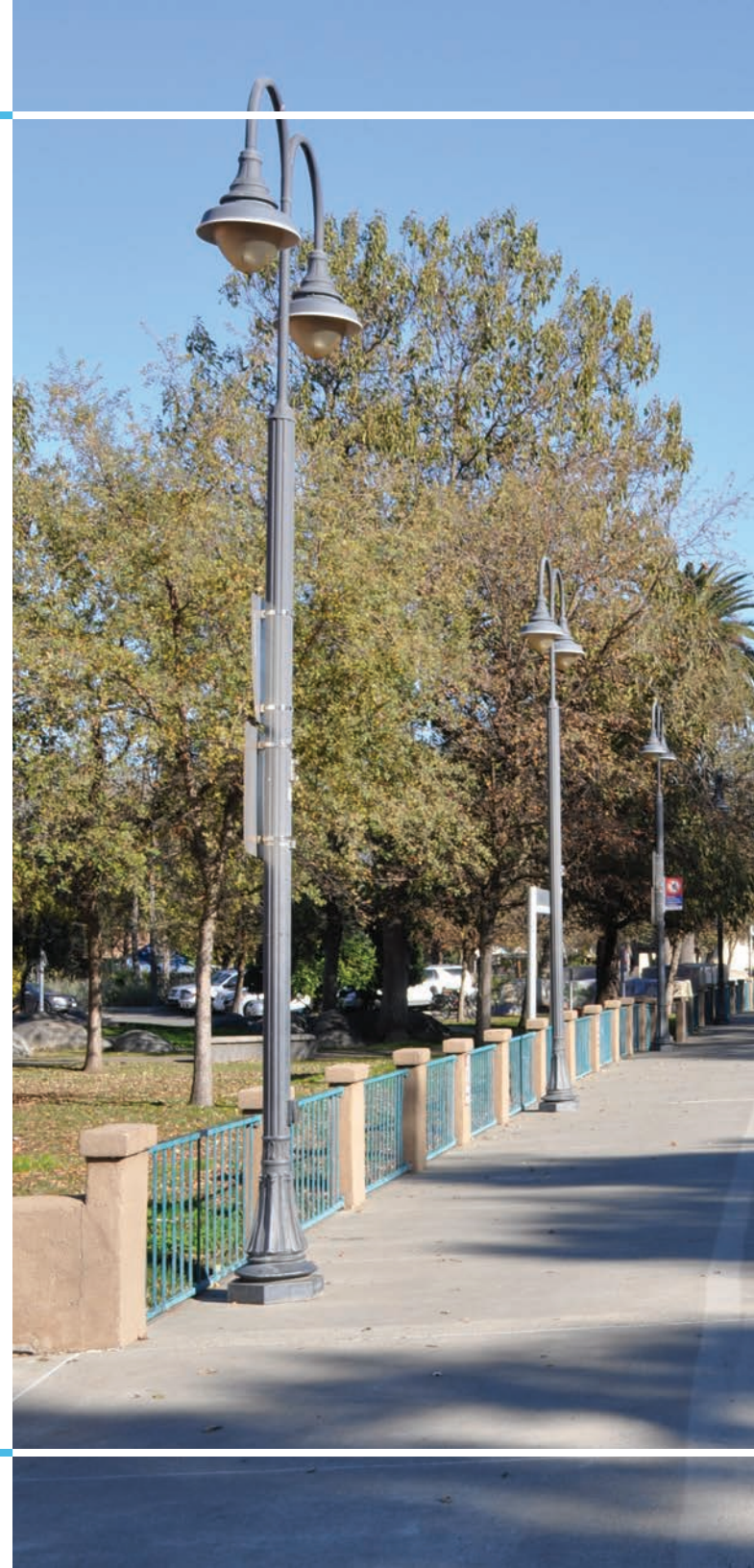


Fig 3 Heart of Downtown

Illustrative Plan for Heart of Downtown

Showing one possible build-out scenario by 2040.

Infill at E/F Street Parking Lot

This large lot is an opportunity for mixed-use or a high-intensity residential project.

Old City Hall

The historic site includes open space with a visual connection to the expanded E Street Plaza.

E Street and Third Street Improvements

Shared streets enhance the public realm.

Enhanced Davis Square

E Street Plaza expands to become Davis Square, a large central gathering space.

F Street Improvements

Cycle tracks will enhance bicycle connectivity through Downtown.

Amtrak Site Redevelopment

Infill and public space replace the existing parking lot.

Richards Boulevard Gateway

Redevelopment, including Davis Commons, forms a fitting large-scale gateway into Downtown.



Source: Downtown Davis Specific Plan, Public Review Draft, October 2019.



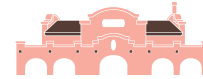
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A double-decker train with a blue and yellow livery is stopped at a station platform. The platform is paved with a yellow tactile strip along the edge. Several passengers are waiting on the platform, some standing and some sitting. The background shows trees and a clear sky. The text "Capitol Corridor Ridership Trends" is overlaid on the left side of the image.

Capitol Corridor Ridership Trends

Current Ridership at Davis



The Capitol Corridor Joint Powers Authority (CCJPA) provides regional commuter rail service between Auburn and San Jose.

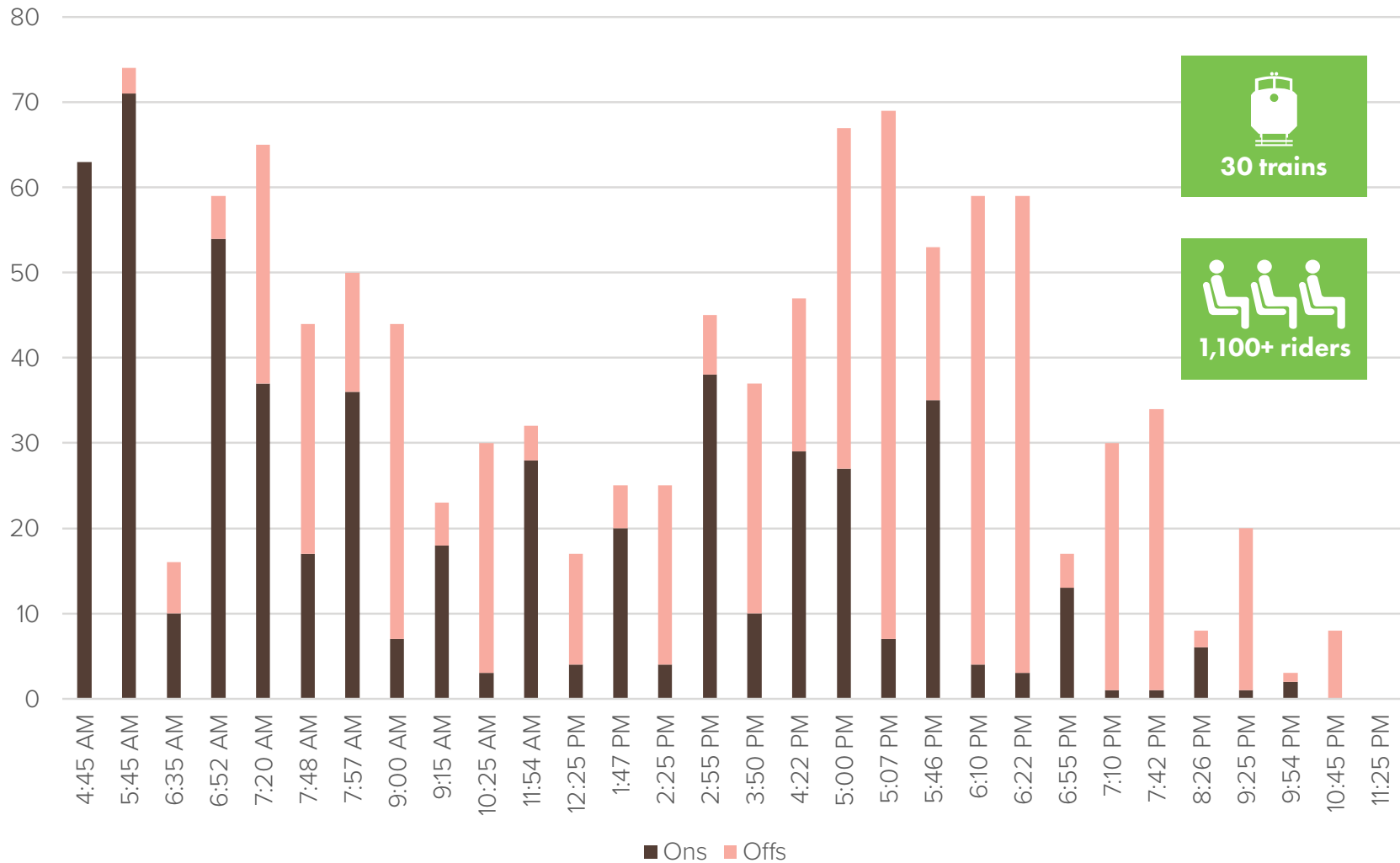
The station sees 30 trains per weekday from 4:45am to 11:25pm - 15 eastbound and 15 westbound, with an average ridership of 1,100. There are 22 trains per weekend day from 5:42am to 11:45pm - 11 eastbound and 11 westbound, with an average ridership of 300

For those who use the Davis station for Capitol Corridor service, most are traveling to and from either Sacramento or various stations in the East Bay.

Fig 4 Map of the Capitol Corridor

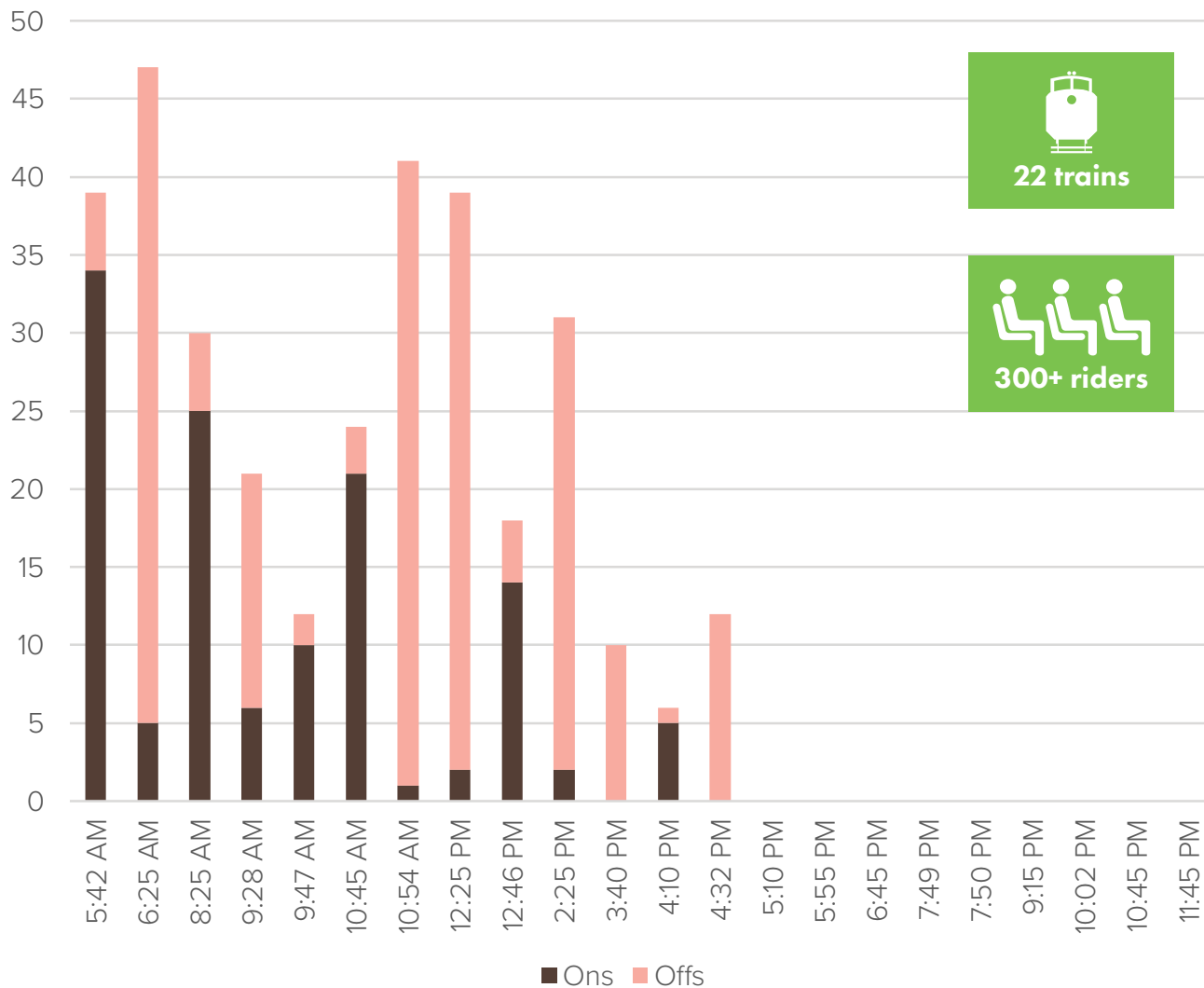


Fig 5 Capitol Corridor Ridership at Davis, Average Weekday



Source: Capitol Corridor Joint Powers Authority, September 2018

Fig 6 Capitol Corridor Ridership at Davis, Average Weekend Day



Source: Capitol Corridor Joint Powers Authority, September 2018



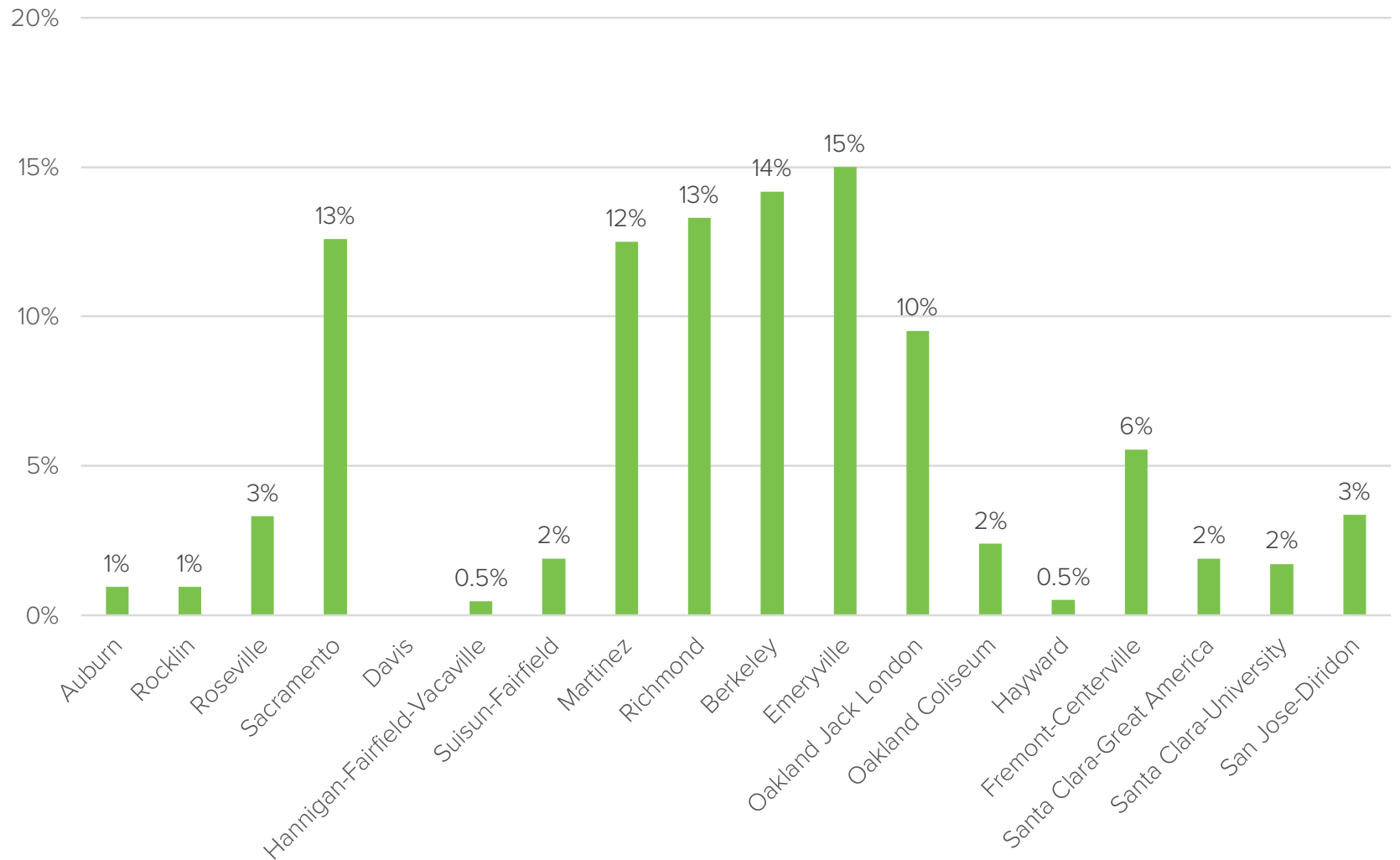


CP RV076 TOWER CP RV076 TOWER

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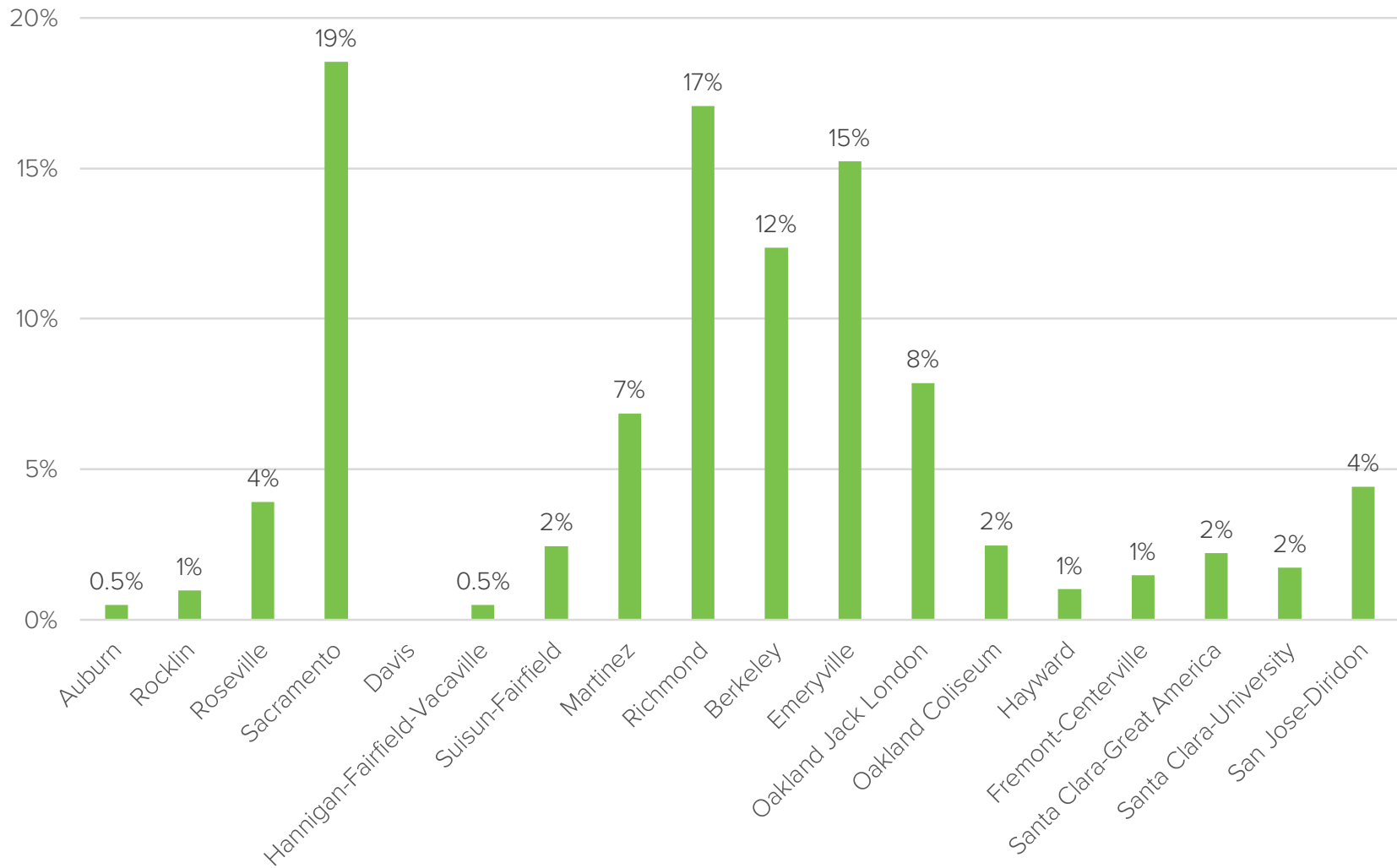
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Fig 7 Origins of Capitol Corridor Trips to Davis



Source: Capitol Corridor Joint Powers Authority, Capitol Corridor Usage Survey, Spring 2018

Fig 8 Destinations of Capitol Corridor Trips from Davis



Source: Capitol Corridor Joint Powers Authority, Capitol Corridor Usage Survey, Spring 2018

RIDERSHIP TRENDS

Future Ridership at Davis



Encouraging more regional commuters and other travelers to take Capitol Corridor has the potential to reduce vehicle miles traveled and associated greenhouse gas emissions throughout the region. Improving access to the station will ensure these potential riders can be comfortably accommodated and encouraged to shift modes.

1,181
2019 daily
weekday ridership⁶

1,993
2040 forecasted daily
weekday ridership⁷

↑ 812
Estimated ridership
growth, 2019-2040⁸

In 2040, shifting **812** trips from driving alone would save

28,964
vehicle miles
travelled every
weekday⁹

8.7
metric tons of green-
house gas emissions
every weekday⁹

8.8
metric tons of
CO₂ equivalent
every weekday¹⁰

⁶ Capitol Corridor Joint Powers Authority

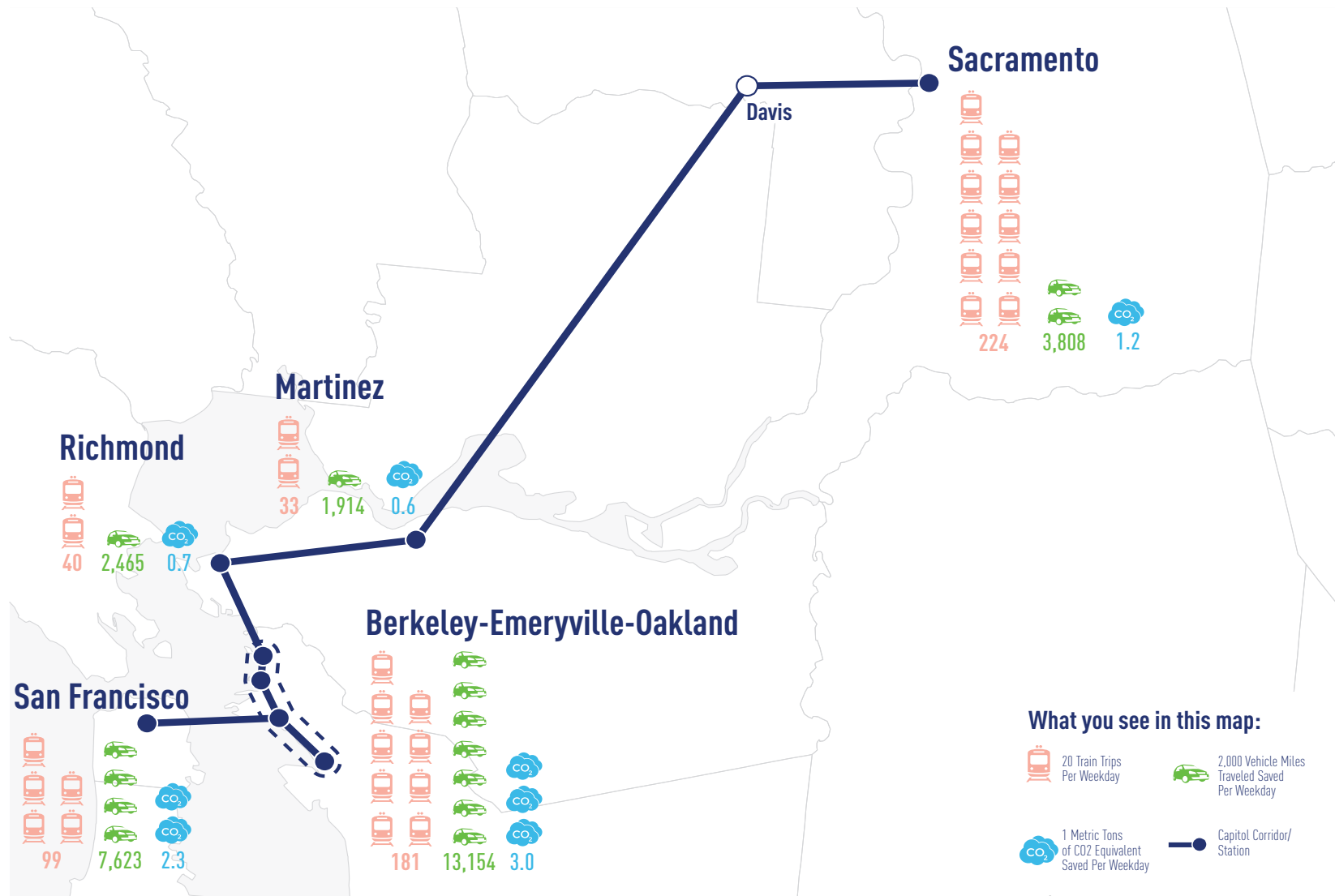
⁷ Forecast from the Direct Ridership Model developed for the Capitol Corridor South Bay Connect project on behalf of Capitol Corridor Joint Powers Authority, 2019.

⁸ Vehicle miles traveled (VMT) estimated using anonymized mobile phone GPS data to represent current travel patterns between Davis and other Capitol Corridor market areas.

⁹ This calculation was performed using the following assumptions: that 8.89 x 10⁻³ metric tons of CO₂ are emitted per gallon of gasoline, that each car or truck is averaging 22.3 miles per gallon, that Zero Emissions Vehicles make up 25 percent of the vehicle fleet, and that California has met its goal of 100 percent renewable energy.

¹⁰ CO₂ equivalent, CO₂e, describes different greenhouse gases using carbon as a common unit.

Fig 9 Vehicle Miles Travelled and Greenhouse Gas Reductions by Area





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Station Access and Equity

Station User Survey



An online survey was opened to the public for approximately one month between late May and early July 2019.

1,175
responses

88%
completion rate

Fig 10 Survey Respondents, by Gender and Race/Ethnic Identity

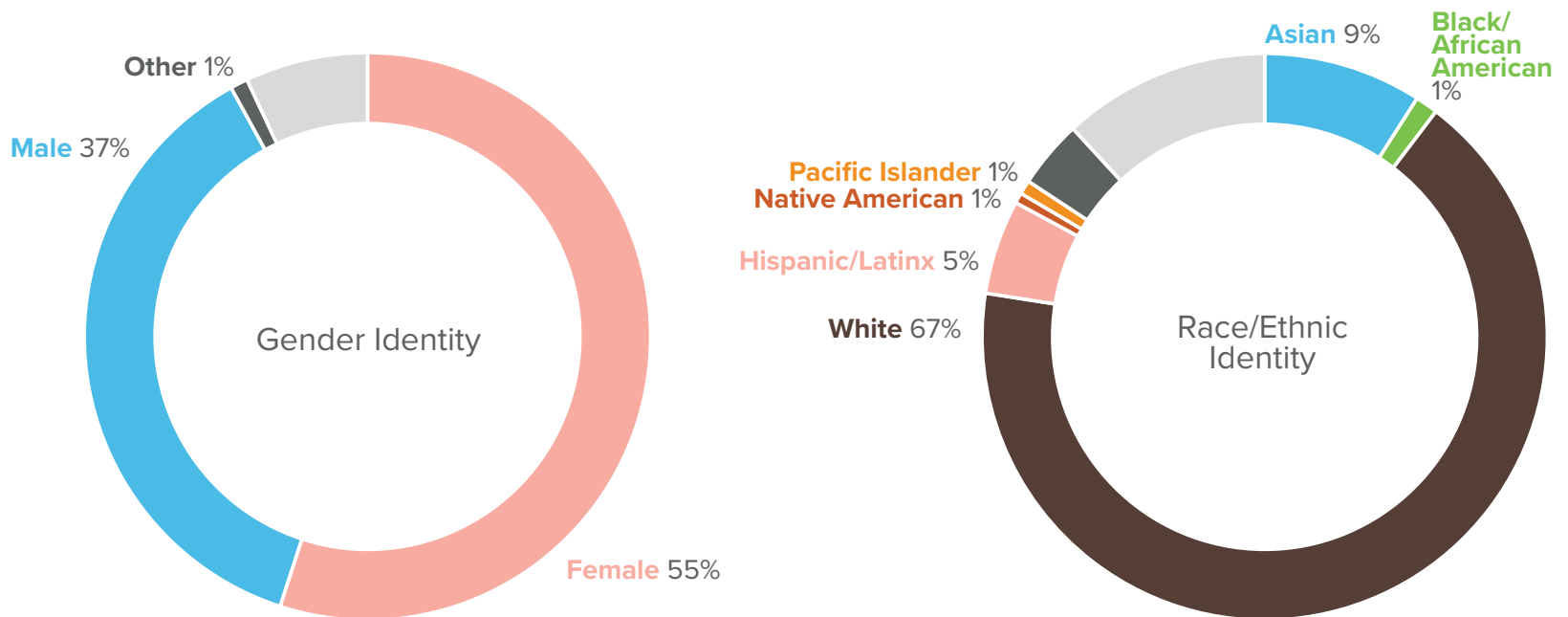


Fig 11 Survey Respondents, by Age and Annual Household Income

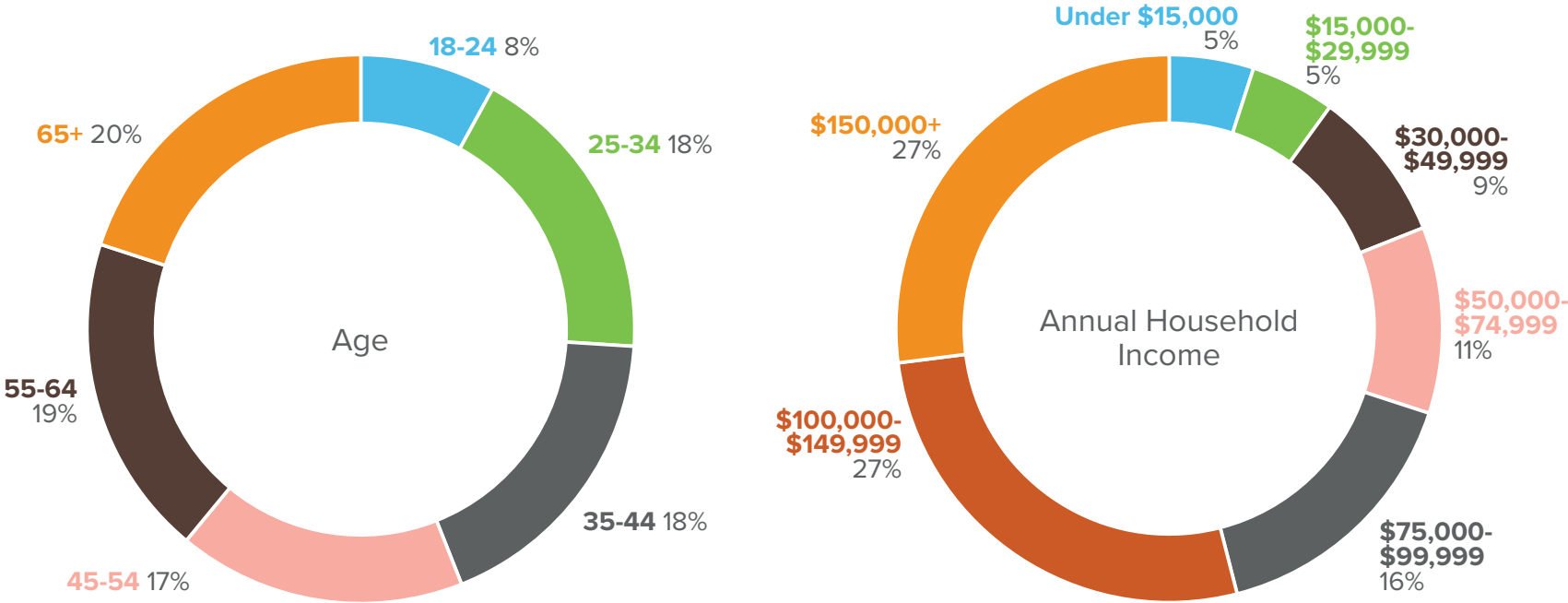


Fig 12 Where Do Station Users Come From?

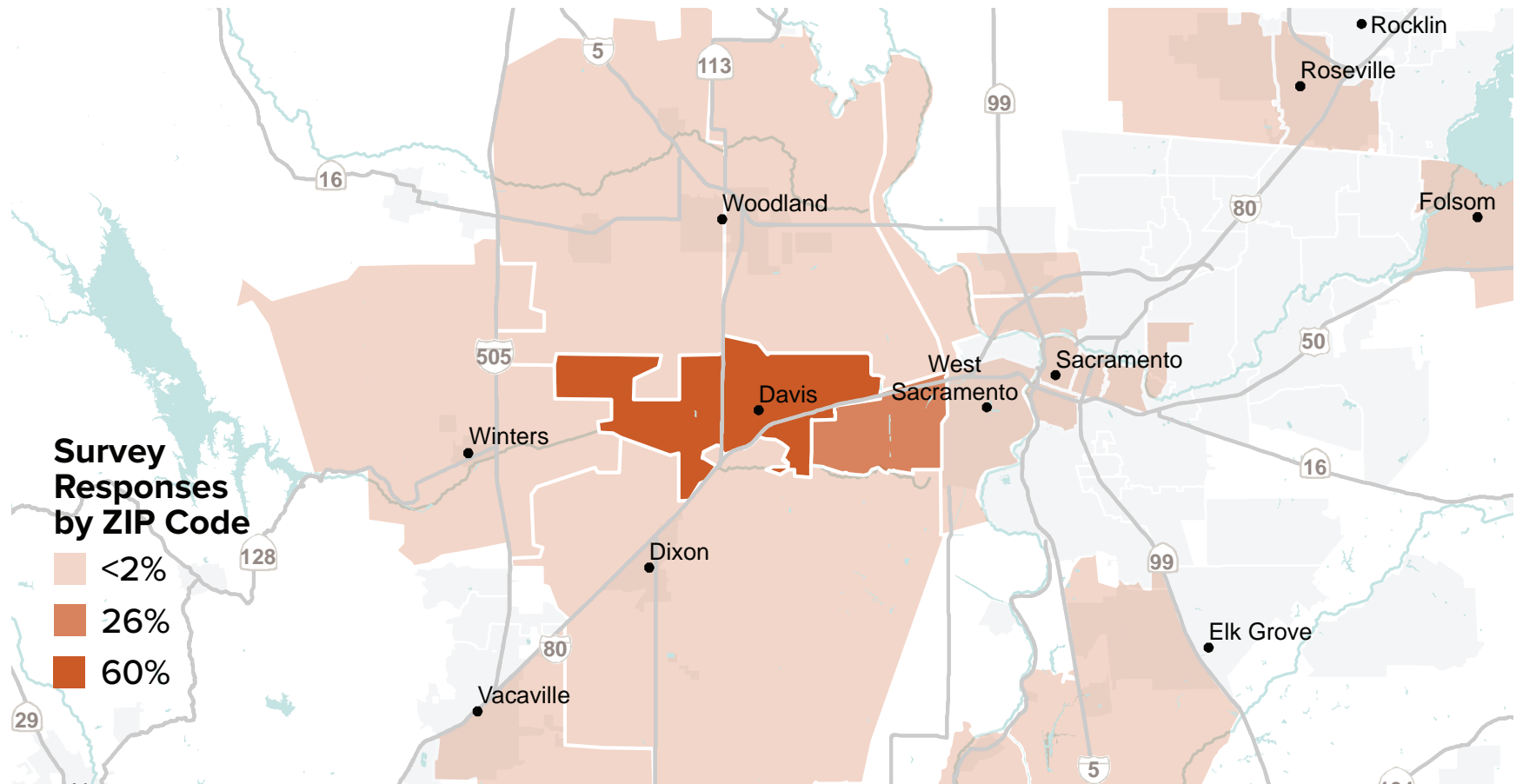


Fig 13 How Often Do You Visit the Station?

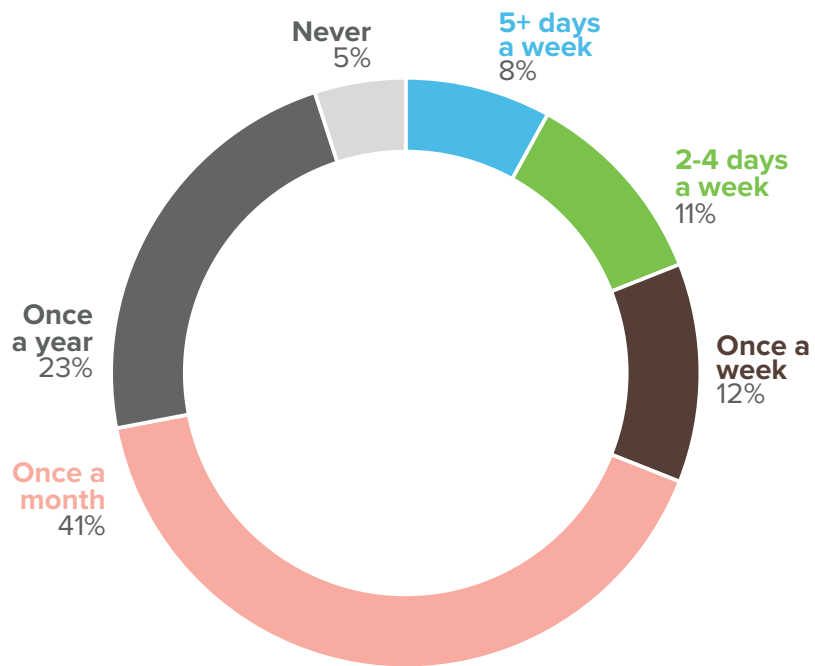



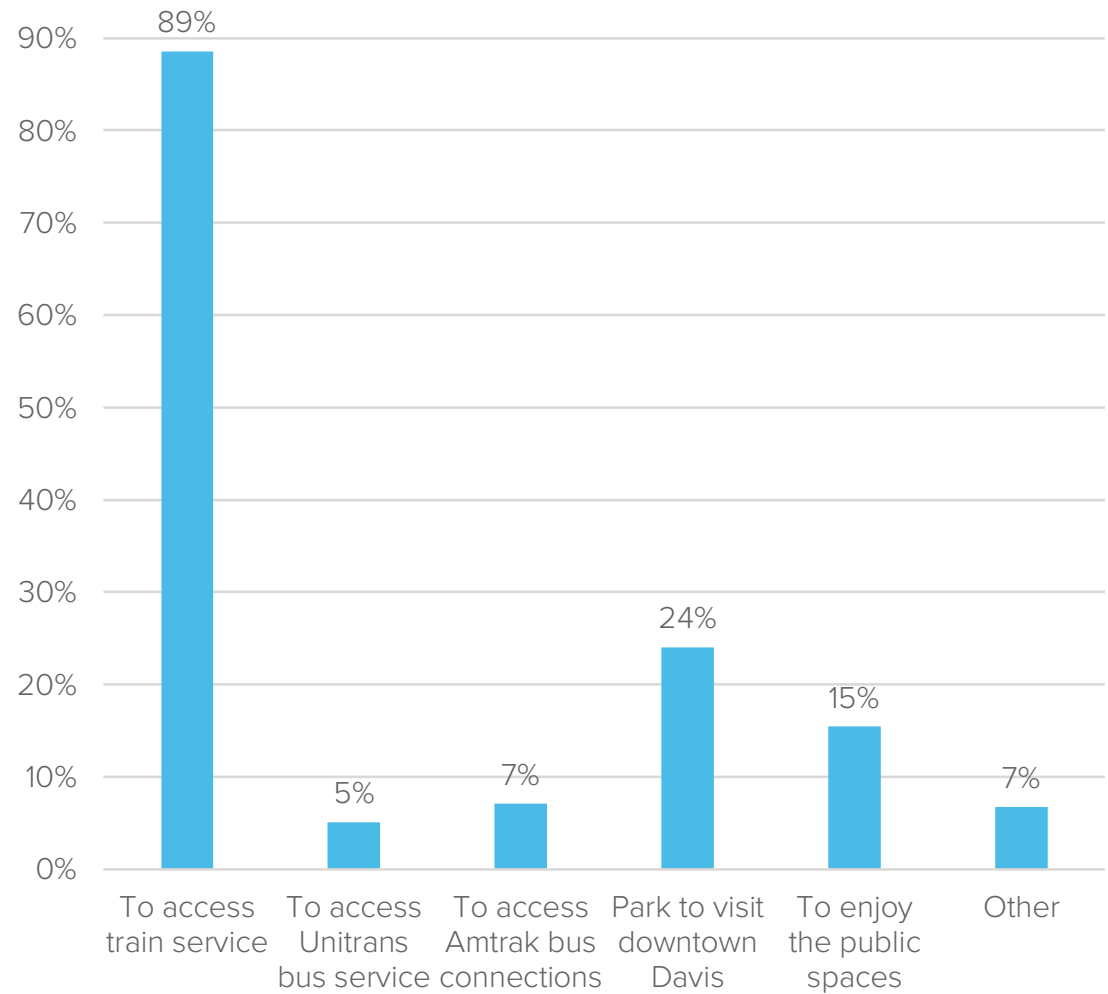


Fig 14 Why Do You Visit the Station?


15% of regular users visit the station to **enjoy its public spaces**

 *It is a lovely peaceful oasis of public space.* 

 *To watch trains go by with my toddler.* 





Regularity of Use



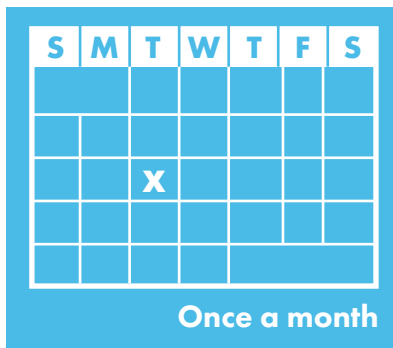
Of **those who visit the station five or more days a week**, over two-thirds access the station by driving alone or bicycling. These everyday users are slightly more likely than others to drive alone to the station.



Those who visit the station two to four days a week are less likely to drive alone and slightly more likely to bike to the station.

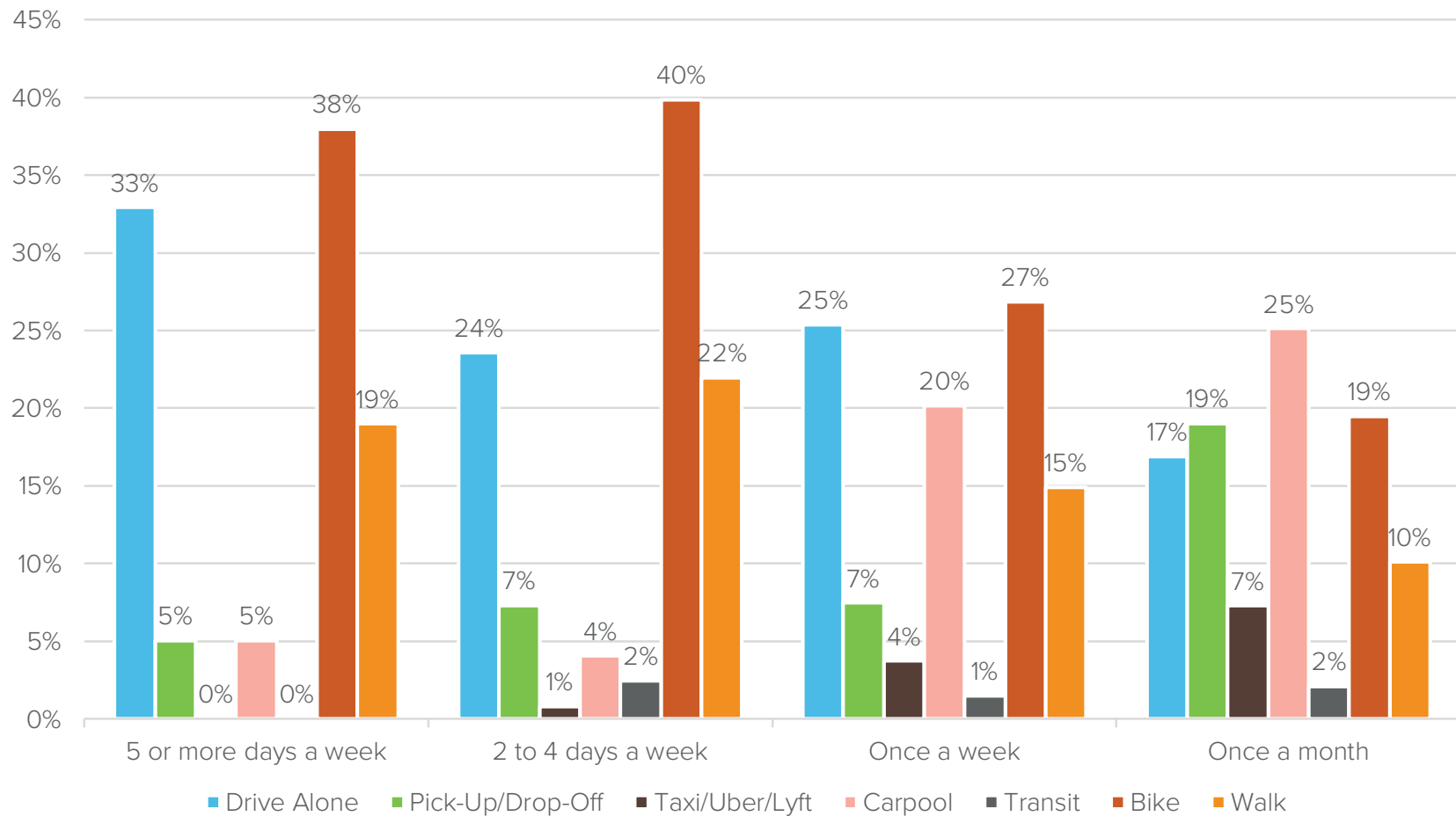


Among **those who visit the station once a week**, the share of bicyclists drops below 30%, while those who carpool rises significantly, to 20% of users. Taxi and transportation network companies (TNC) use also increases for weekly users.



Those who visit the station just once a month have the highest shares of carpooling (25%), pick-ups and drop-offs by friends or family (19%), as well as taxi, Uber, and Lyft (7%).

Fig 15 Mode of Station Access by Regularity of Use



Household Income



Those that **walk, bike, drive** (alone and with others), and **get dropped off** by a friend or family member are all similar in income profiles, with the majority (49% in the case of those that walk) making \$100,000 or more.

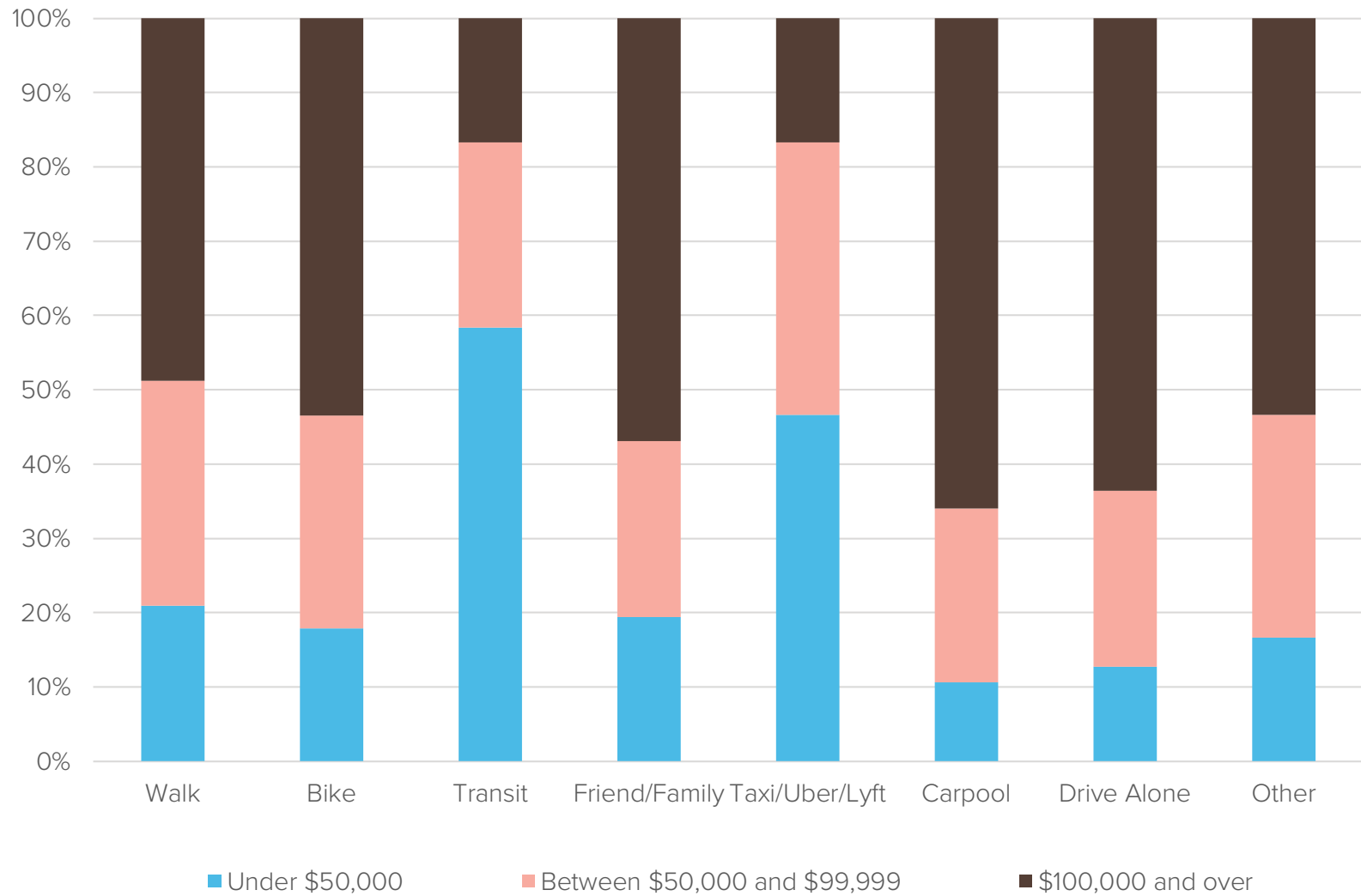


Among **transit** users, more than half make less than \$50,000 a year.



Among **Uber, Lyft, and taxi** users, almost half earn less than \$50,000 a year.

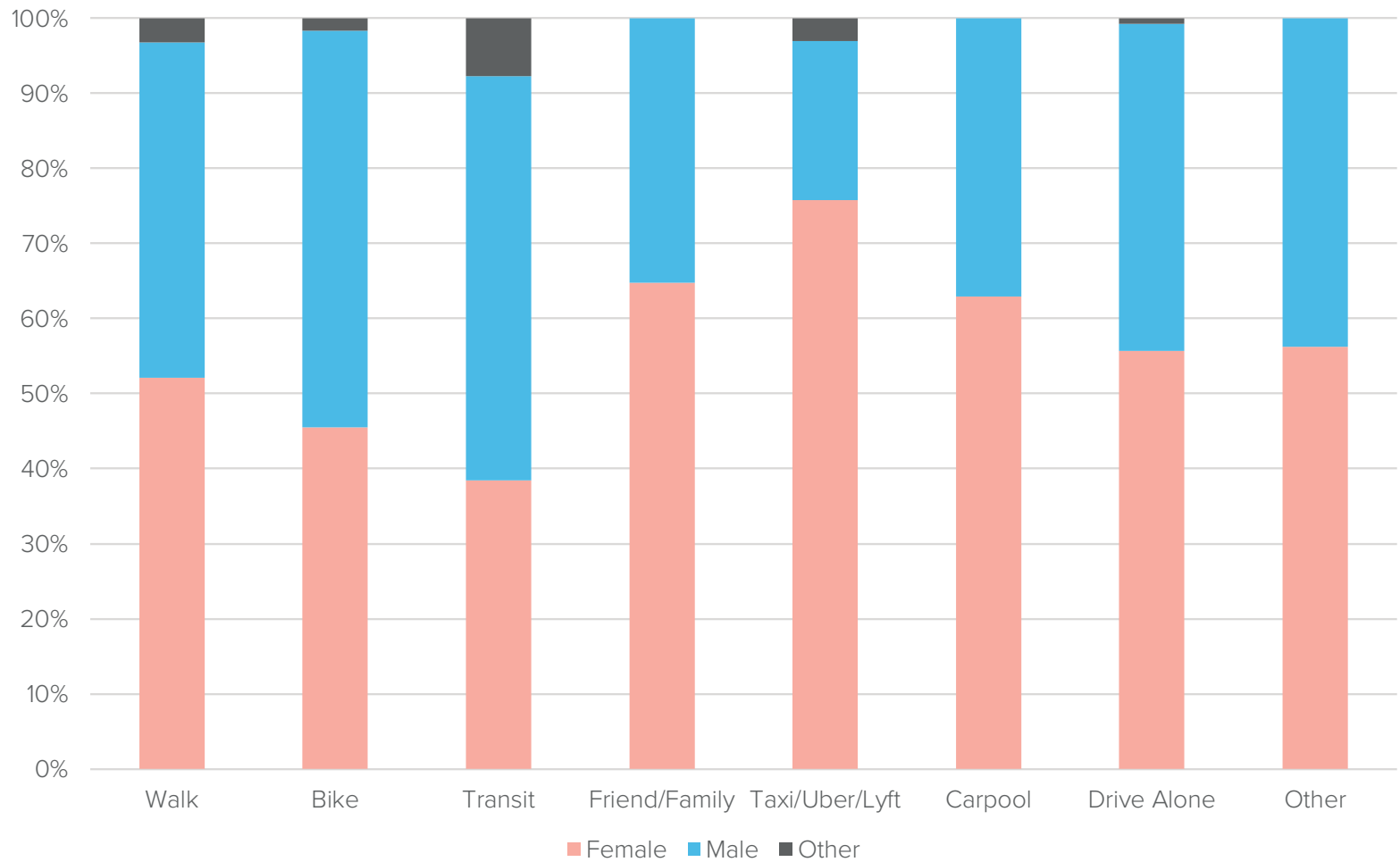
Fig 16 Mode of Station Access by Household Income



Gender Identity



Fig 17 Mode of Station Access by Gender Identity



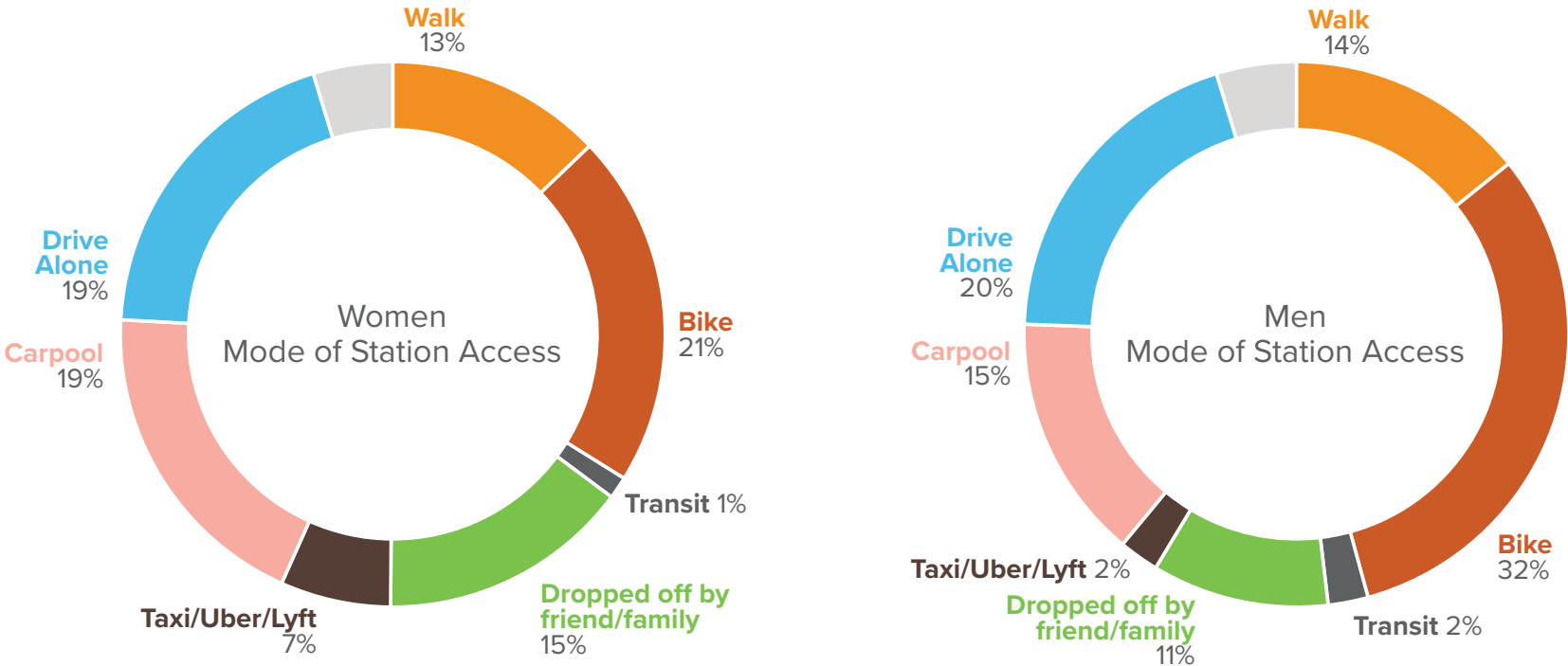
Women

Women are more likely to get picked up/dropped off by friend or family or by taxi/Uber/Lyft: they make up two-thirds of the users getting picked up and dropped off by friends and family, and more than three-fourths of those using taxis, Uber, and Lyft. They are also more likely to carpool, making up almost 2/3 of those carpooling to the station. However, they are less likely to bike or use transit.

Non-Binary

Those that identify as something other than male or female are overrepresented among those using transit to access the station.

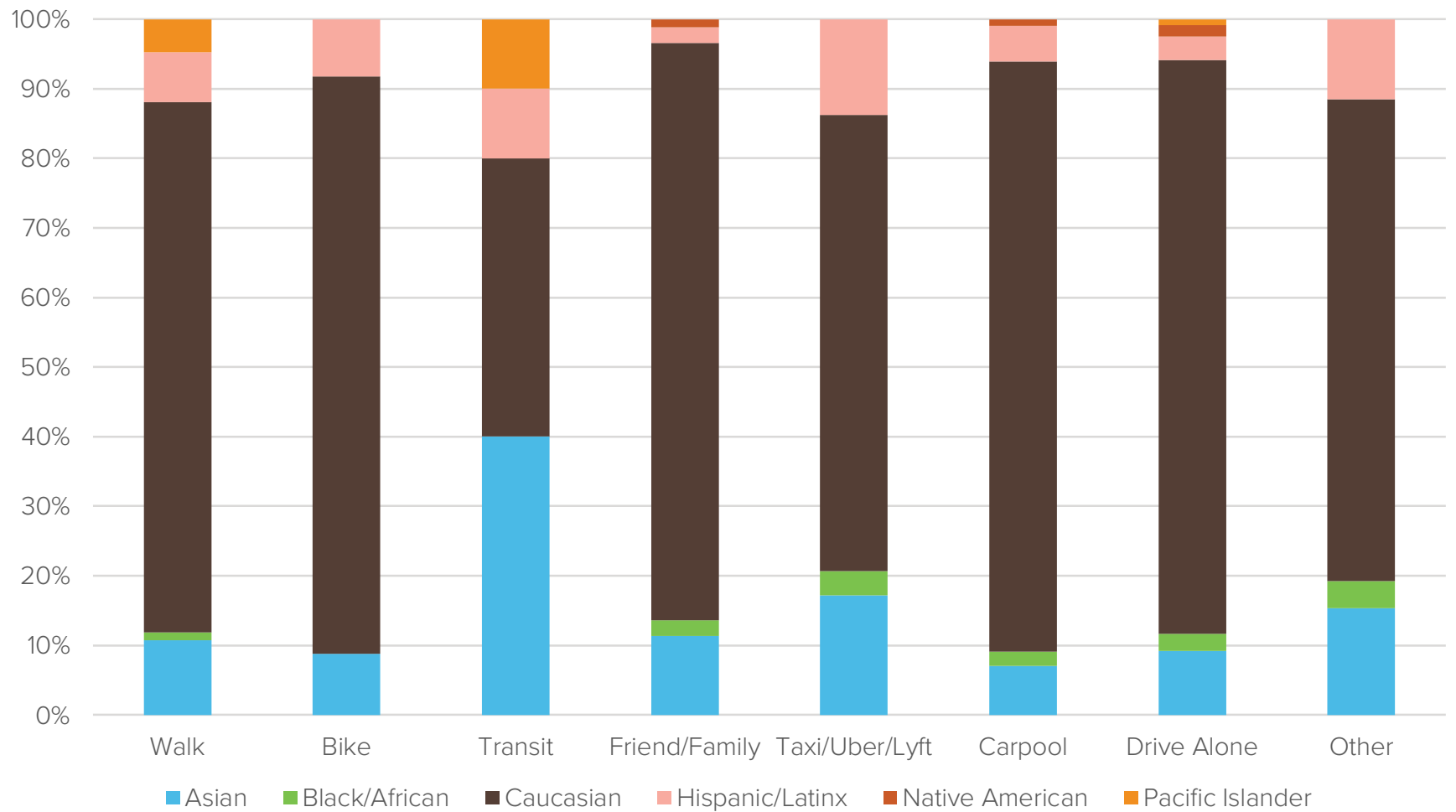
Fig 18 Mode of Station Acces: Men vs. Women



Race/Ethnic Identity



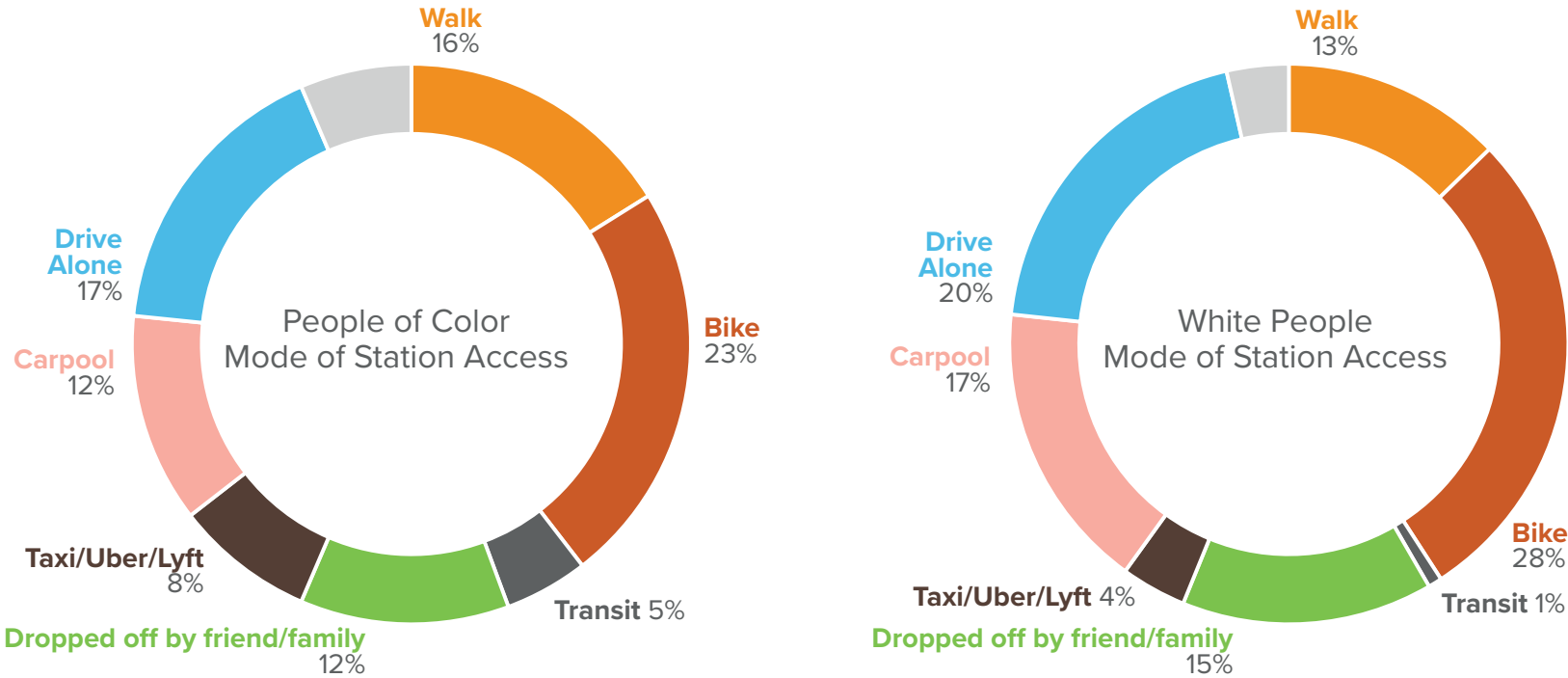
Fig 19 Mode of Station Access by Race/Ethnic Identity





Asian and **Pacific Islander** users are overrepresented among those accessing the station by transit. **People of color** altogether are five times more likely to access the station by transit, twice as likely to use taxi/Uber/Lyft, and less likely to drive to the station, whether alone or with others.

Fig 20 Mode of Station Access: People of Color vs. White People

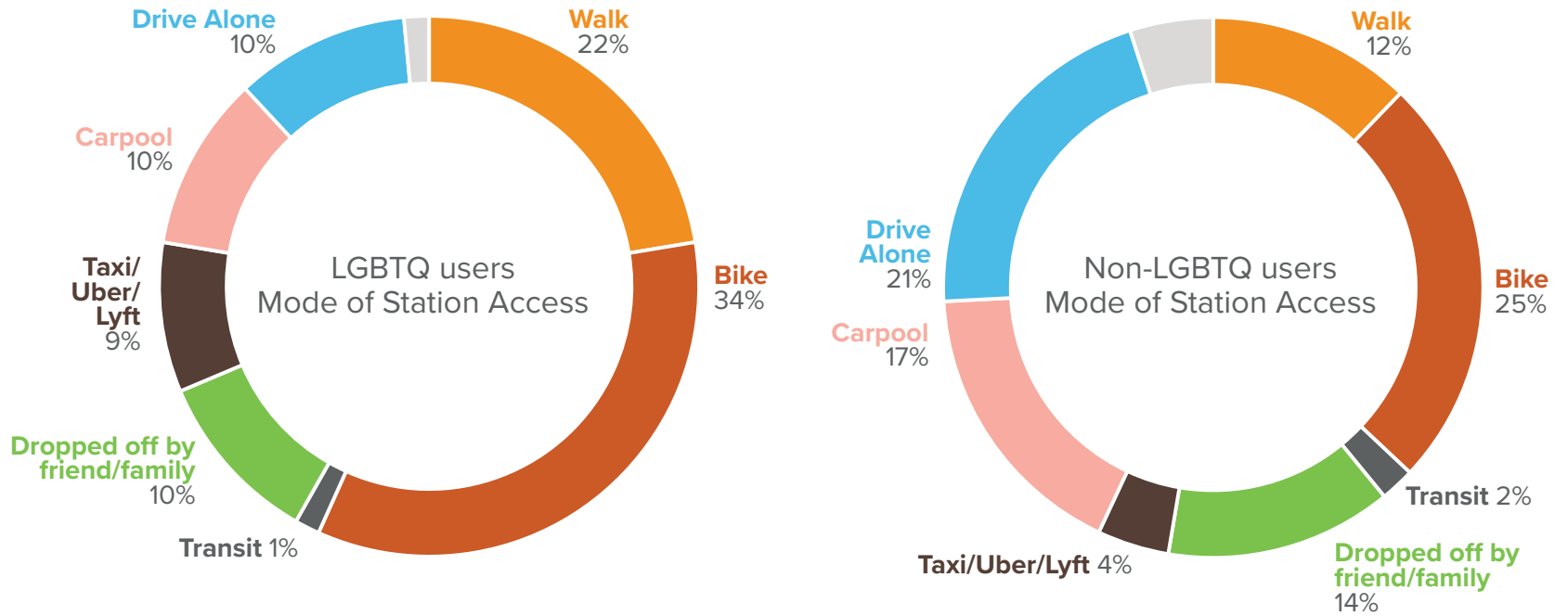


LGBTQ Identity



Those who identify as **members of the LGBTQ community** are almost twice as likely to walk, more likely to bike, and twice as likely to take taxi/Uber/Lyft to access the station, but about half as likely to take transit, carpool, or drive alone.

Fig 21 Mode of Station Access: LGBTQ vs. Non-LGBTQ users







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Station Recommendations

Community Engagement Timeline



- 9/13/19 Pop-Up at Friday evening ArtAbout
- 9/14/19 Pop-Up at Saturday morning Farmer's Market
- 9/18/19 Pop-Up at Wednesday evening Farmer's Market

Groundtruthing User Survey and Existing Conditions

- 4/25/19 Stakeholder Advisory Committee meeting #1 at Veteran's Memorial Center
- 5/29/19 Coffee and User Survey Pop-Up at Davis Amtrak Station

Data Collection and User Survey

- 11/2/19 Downtown Davis Plan and Davis Amtrak Station public workshop at Fellowship Hall
- 11/6/19 Stakeholder Advisory Committee meeting #2 at Veteran's Memorial Center
- 11/19/19 Presentation to Cool Davis at City Hall

Preliminary Designs

- 12/12/19 Presentation to City of Davis Bicycling, Transportation, and Street Safety Commission at Davis Senior Center

- 1/8/20 Presentation to City of Davis Planning Commission at City Hall

Vetting Recommendations

- 2/20/20 Community Workshop at Dresbach-Hunt-Boyer Mansion

- Fall 2020 Final Report to Bicycling, Transportation, and Street Safety Commission

Final Report





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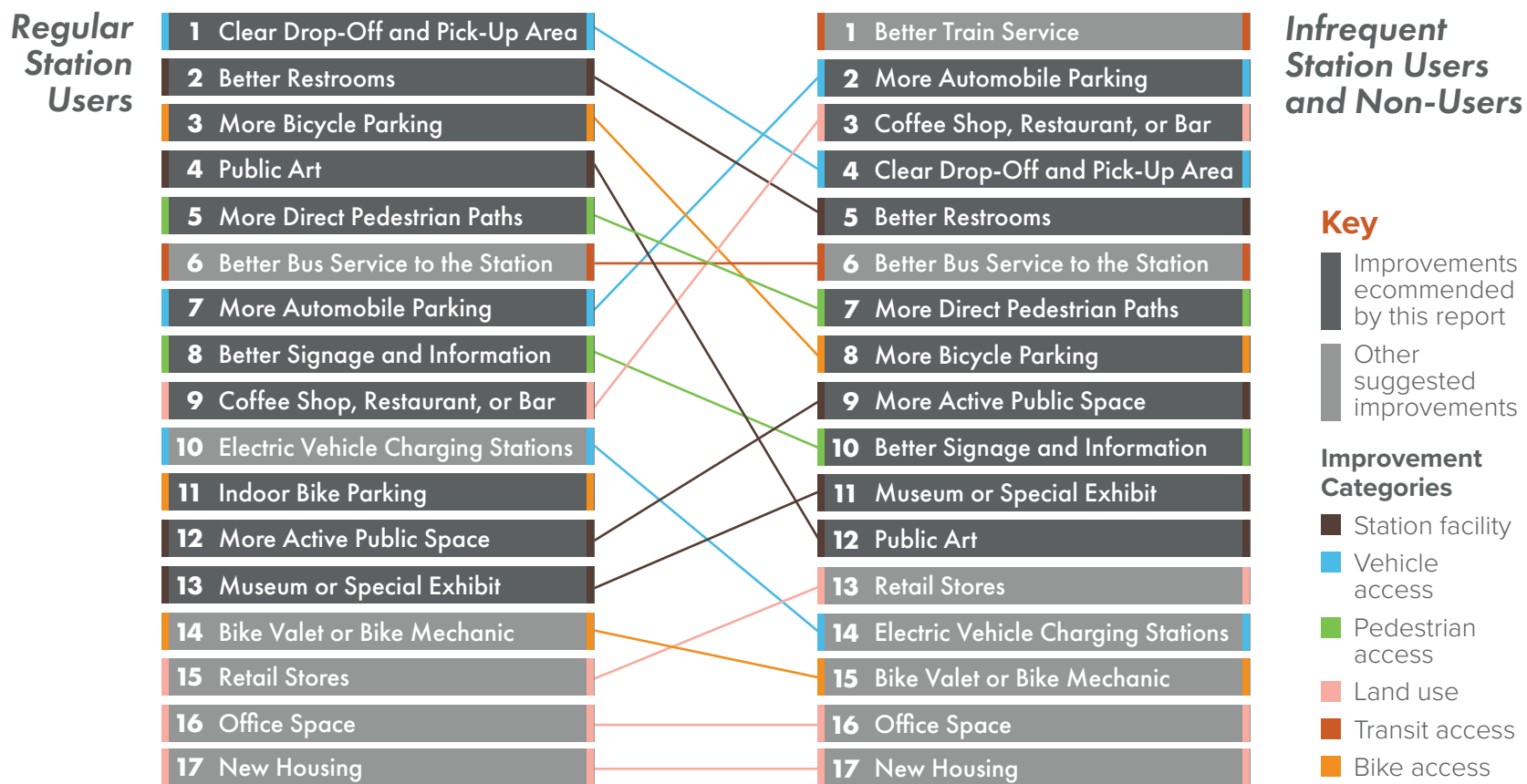
Student Alumni Association
CAA
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LAGS
LEO CARRILLO BEACH STATE
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STATION RECOMMENDATIONS

What Improvements Would You Like to See at the Station?

Fig 22 Level of Support for Various Station Improvements, Ranked



Clearer drop-off and pick-up areas and better restrooms were top 5 priorities for both groups.

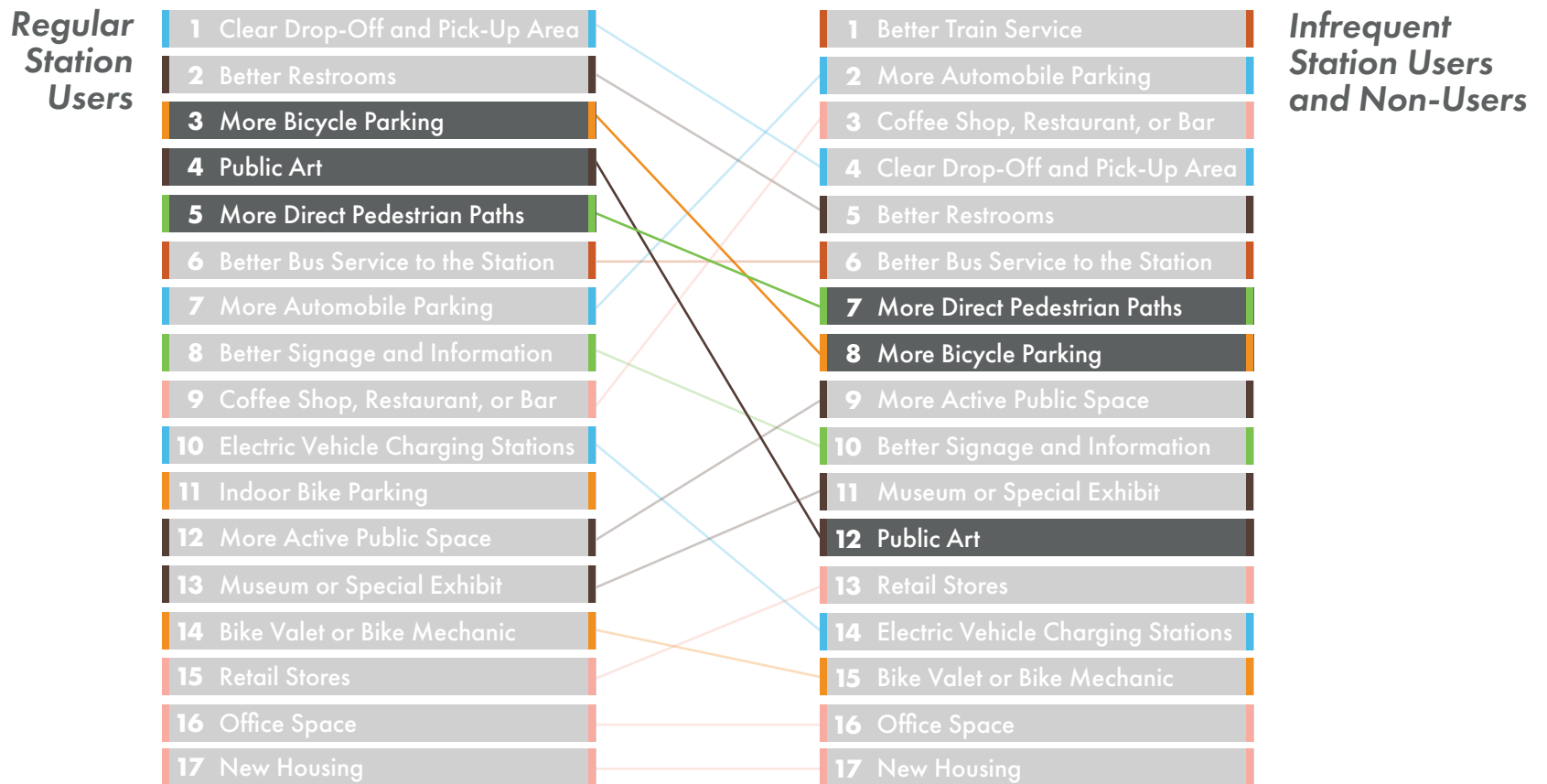
**Regular
Station
Users**

- 1 Clear Drop-Off and Pick-Up Area
- 2 Better Restrooms
- 3 More Bicycle Parking
- 4 Public Art
- 5 More Direct Pedestrian Paths
- 6 Better Bus Service to the Station
- 7 More Automobile Parking
- 8 Better Signage and Information
- 9 Coffee Shop, Restaurant, or Bar
- 10 Electric Vehicle Charging Stations
- 11 Indoor Bike Parking
- 12 More Active Public Space
- 13 Museum or Special Exhibit
- 14 Bike Valet or Bike Mechanic
- 15 Retail Stores
- 16 Office Space
- 17 New Housing

- 1 Better Train Service
- 2 More Automobile Parking
- 3 Coffee Shop, Restaurant, or Bar
- 4 Clear Drop-Off and Pick-Up Area
- 5 Better Restrooms
- 6 Better Bus Service to the Station
- 7 More Direct Pedestrian Paths
- 8 More Bicycle Parking
- 9 More Active Public Space
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- 14 Electric Vehicle Charging Stations
- 15 Bike Valet or Bike Mechanic
- 16 Office Space
- 17 New Housing

**Infrequent
Station Users
and Non-Users**

Regular users also included more bicycle parking, public art, and more direct pedestrian paths in their top 5 priorities.



Both groups ranked land use improvements, including adding retail, office, or housing to the site at the bottom of their priorities.

**Regular
Station
Users**

- 1 Clear Drop-Off and Pick-Up Area
- 2 Better Restrooms
- 3 More Bicycle Parking
- 4 Public Art
- 5 More Direct Pedestrian Paths
- 6 Better Bus Service to the Station
- 7 More Automobile Parking
- 8 Better Signage and Information
- 9 Coffee Shop, Restaurant, or Bar
- 10 Electric Vehicle Charging Stations
- 11 Indoor Bike Parking
- 12 More Active Public Space
- 13 Museum or Special Exhibit
- 14 Bike Valet or Bike Mechanic
- 15 Retail Stores
- 16 Office Space
- 17 New Housing

- 1 Better Train Service
- 2 More Automobile Parking
- 3 Coffee Shop, Restaurant, or Bar
- 4 Clear Drop-Off and Pick-Up Area
- 5 Better Restrooms
- 6 Better Bus Service to the Station
- 7 More Direct Pedestrian Paths
- 8 More Bicycle Parking
- 9 More Active Public Space
- 10 Better Signage and Information
- 11 Museum or Special Exhibit
- 12 Public Art
- 13 Retail Stores
- 14 Electric Vehicle Charging Stations
- 15 Bike Valet or Bike Mechanic
- 16 Office Space
- 17 New Housing

**Infrequent
Station Users
and Non-Users**

STATION RECOMMENDATIONS

Ownership, Rights, and Responsibilities



The Davis Amtrak Station is the largest City-owned parcel of land in downtown Davis.

A review of legal documents pertaining to the Davis Amtrak Station found that the City of Davis owns the depot building and signal tower, per the Bill of Sale dated March 25, 1996, while Southern Pacific (now Union Pacific, UP) retains an easement for access to and use of the signal tower, per the Corporation Grant Deed dated March 29, 1996.

As shown on Figure 23, the City owns “Parcel 1,” the station land, and UP owns “Parcel 2,” the right-of-way (ROW) along each set of tracks that surrounds Parcel 1 (See Figure 1). The City maintains an easement for station “appurtenances” that encroach on Parcel 2, per the Encroachment Easement Agreement dated March 29, 1996.

The City is committed to construct and maintain a barrier along the track sides of the station property (except for passenger loading area), per Corporation Grant Deed dated March 29, 1996. The City also leases part of Parcel 2 (railroad ROW) between the station and passenger loading on the mainline tracks for beautification and landscaping only, per Lease of Property dated April 8, 1998.

The City leases parts of the depot to Amtrak for its exclusive use and maintains other parts of the depot for common use. Amtrak must approve all new signage on the property, per Lease Agreement dated April 24, 1997 and renewed for the second time via Station Lease Renewal dated June 9, 2016.

Additionally, the City has the right to construct a 34-foot wide private road crossing within UP’s ROW at Mile Post 75.63, per Private Road Crossing Agreement dated April 8, 1998. This is the station’s existing driveway.

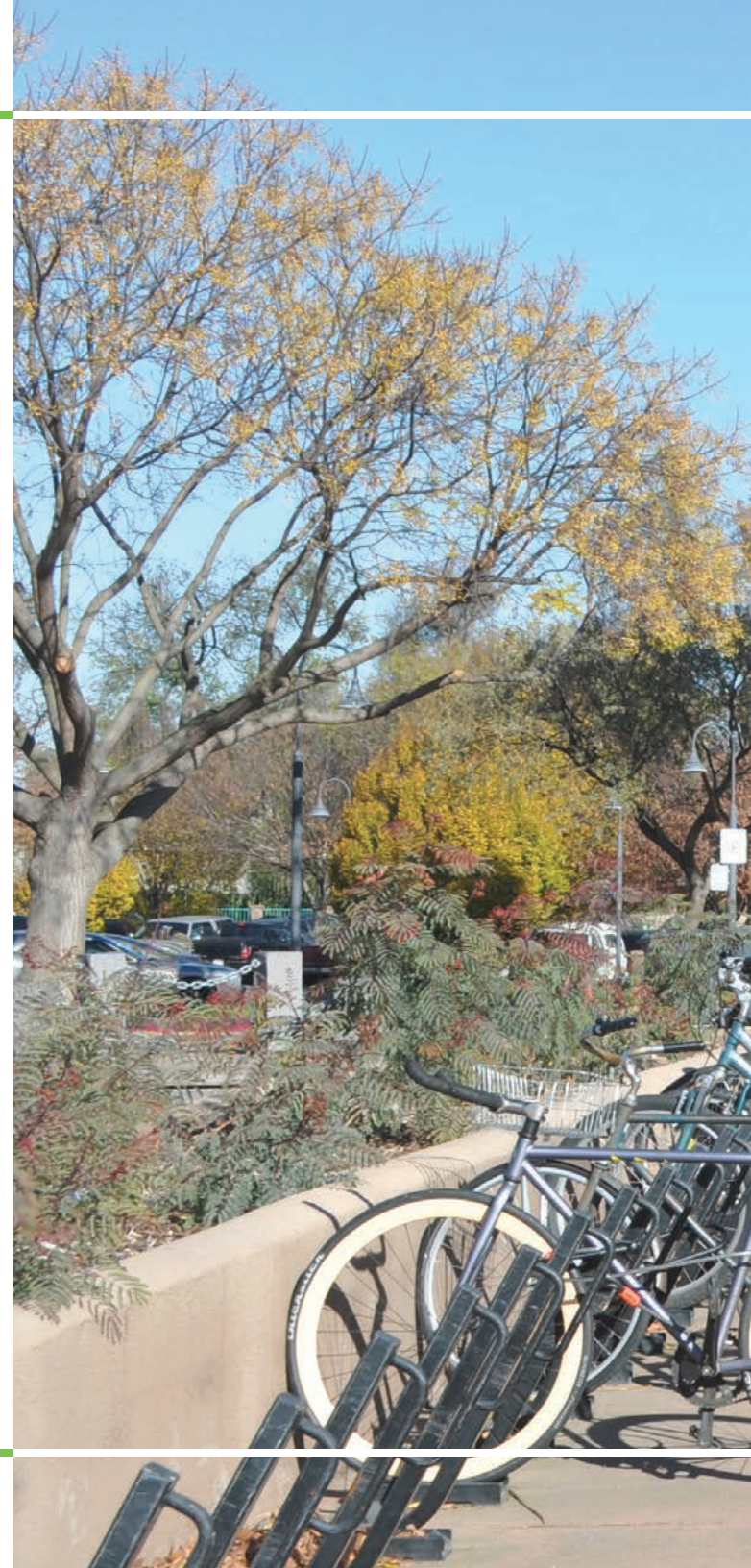
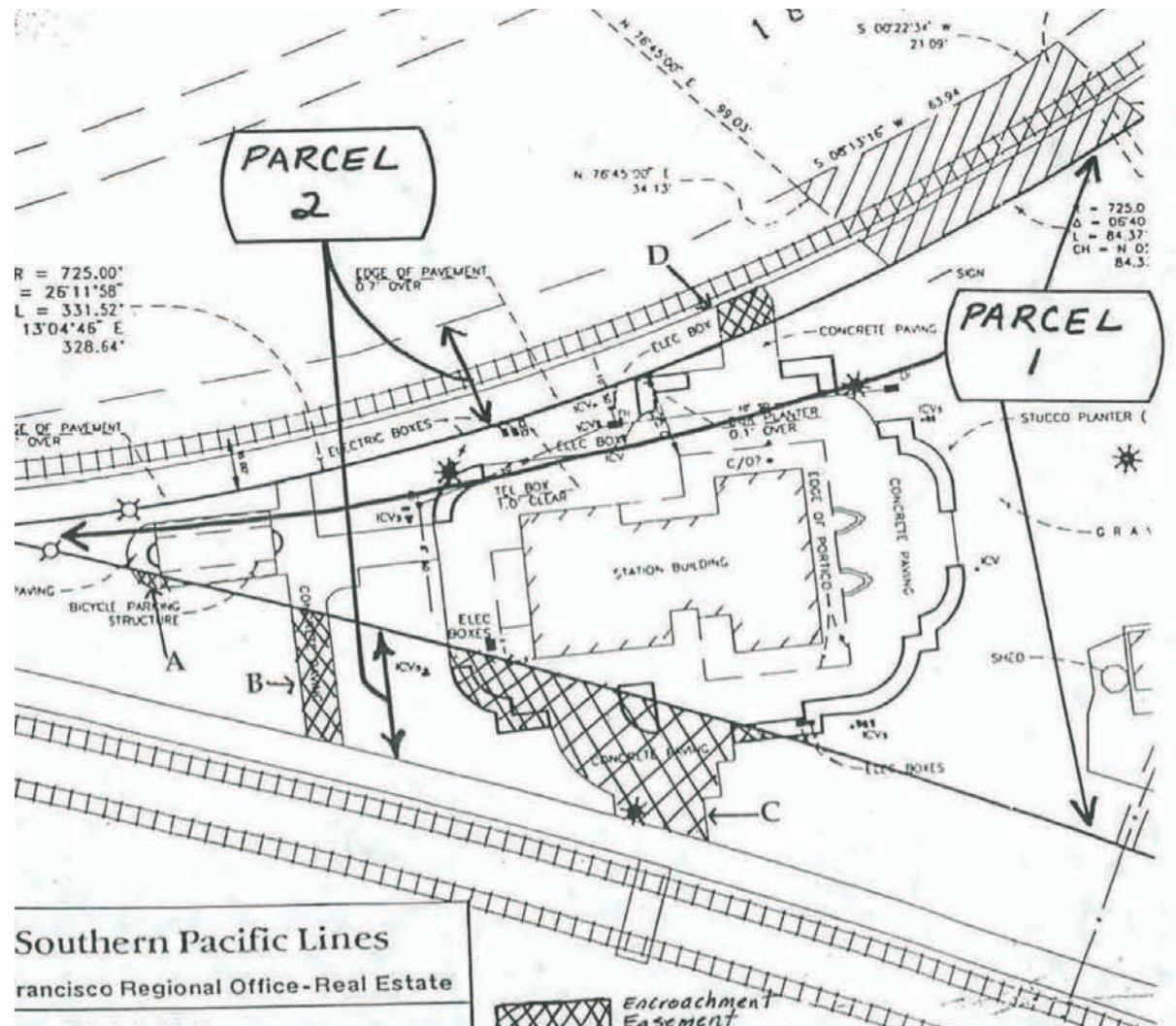




Fig 23 Land Ownership Around Davis Station



Source: Encroachment Easement Agreement, March 29, 1996

STATION RECOMMENDATIONS

Best Practices from Other Stations

The Davis Amtrak Station is uniquely constrained, with railroad tracks on all three sides. Nevertheless, many train stations across the country offer examples of improvements that the City of Davis might consider.

Davis Amtrak Station

1,100 riders daily weekdays
1.8 million riders annually (2018)

Harrisburg Transportation Center

Harrisburg, Pennsylvania
512,000 riders annually (2018)

This historic train depot includes the following services and amenities:

- Office space serving multiple tenants
- Large meeting room
- Newsstand selling newspapers, magazines, food, and beverages
- Small lockers for short-term personal storage
- Historic locomotive on display

30th Street Station

Philadelphia, Pennsylvania
4.5 million riders annually (2018)

The Porch is a public space located on the south side of 30th Street Station, Philadelphia's busiest train station, serving long-distance Amtrak and regional commuter (SEPTA) trains from the City's University City District, which is home to a number of college and university campuses, as well as medical and cultural institutions. Rotating food trucks, pop-up performances, lush landscaping, outdoor drinks, and comfortable swings make The Porch a popular location to relax and connect to the train.

Peekskill Station

Peekskill, New York
1000+ riders daily (2007)

This historic station serves regional commuter rail connections (MTA Metro-North) in the Hudson Valley north of New York City. Parts of the station building have been leased to a hospitality group with plans to convert the station waiting room into a casual eating experience, where customers will be able to dine on Italian specialty foods, coffee and breakfast all day, with light entrees, full bar service and a wine selection on the evening menu. The hospitality tenant will also clean and maintain the station.

Bakersfield Amtrak Station

Bakersfield, California
442,000 riders annually (2018)

This long-distance train station includes two sensor-activated outdoor fountains: one activates a water feature when a train is arriving and the other is activated after the train arrives, serving as a greeting fountain to arriving visitors.

Fullerton Amtrak Station

Fullerton, California
257,000 riders annually (2019)

This Mission Revival style historic depot, located near two colleges and universities (Cal State Fullerton and Fullerton College), serves long-distance Amtrak and regional commuter rail (Metrolink) connections. Santa Fe Express Café, located in the station building, includes outdoor seating next to the platform.



30th Street Station



30th Street Station



Fullerton Station



Fullerton Station

STATION RECOMMENDATIONS

Station Property and Building Recommendations



Activate the Plaza and Public Spaces



Programmatic options could include:

- Food truck stationed on parking lot island, in compliance with City of Davis permits and policies
- Small-scale farmer's market and/or grab-and-go breakfast and lunch options
- Public art, such as art installations that signal the coming and going of trains
- Historical or cultural exhibits

Improve the Station Building



- Improve restrooms
- Lease interior spaces for coffee stand or grab-and-go breakfast and lunch options, with provision that tenant maintains cleanliness
- Add bike room with secure indoor bike parking
- Café or bar with outdoor seating

I would love to see the station building have a prominent and clear entrance and digital features to help guide visitors to our downtown.

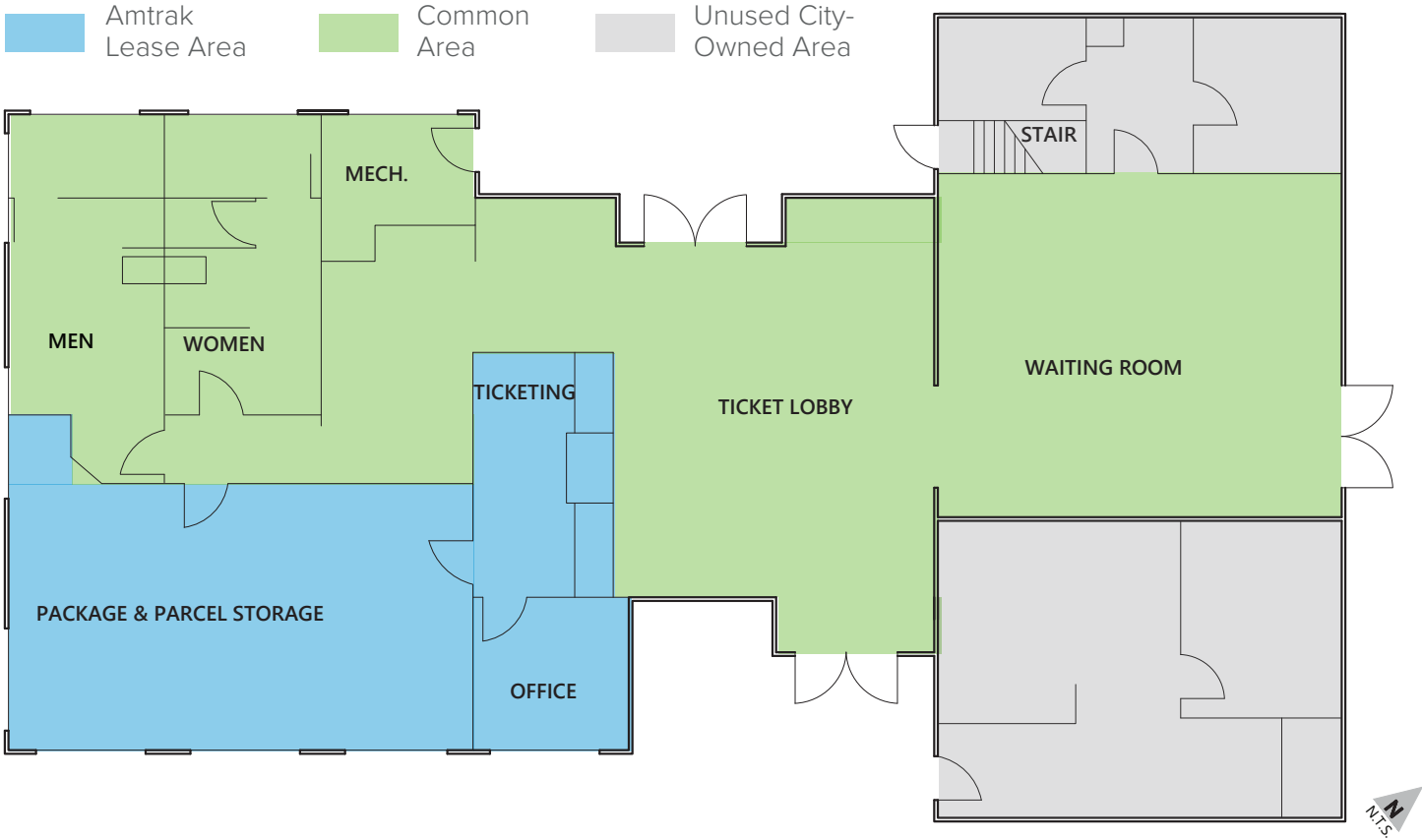
Need more and comfortable seating options, including shade and (more) shelter. All that pink concrete just gets hot in the summer and it's a wasteland.

Visible shopping, cafe space, with central plaza with more shade that connects back to downtown, improve upkeep of space around art benches.

When you're sitting inside the waiting area in the station on a cold/rainy morning, you can't see the ... tracks.

It would be nice to honor the history prior to the rail, recognizing the Patwin land and people that are the foundation of Davis.

Fig 24 Interior Building Sketch



STATION RECOMMENDATIONS

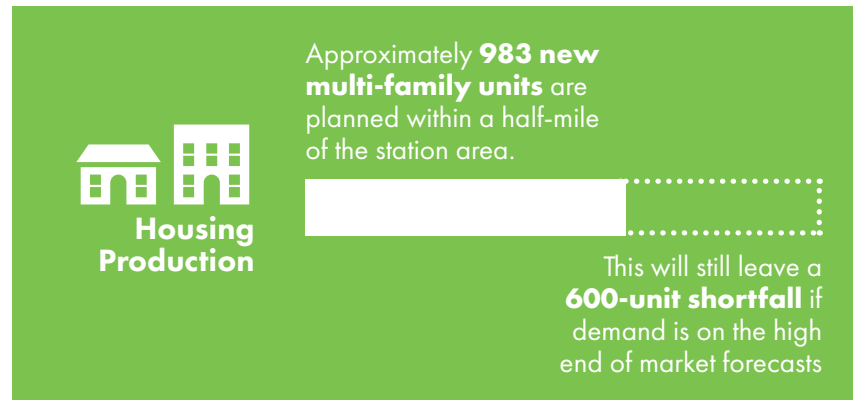
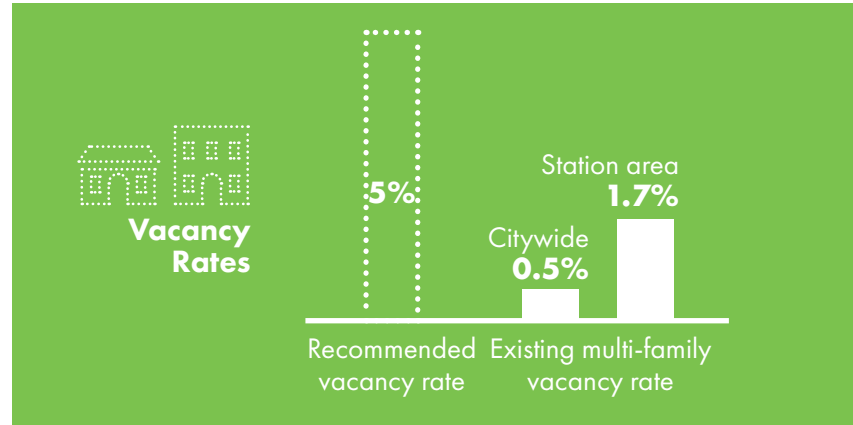
Housing Analysis



Because of its location in the heart of downtown Davis, the station site was explored for potential housing construction to address housing needs in the City and activate the station area. Housing is not recommended on the site at this time but may be considered if current plans for new development in the City fail to materialize.

Pedestrian and bicycle improvements across the mainline tracks are critical infrastructure to connect residents of existing and planned housing in the Olive Drive neighborhood to mobility options, goods and services, and employment accessed from the station.

Housing near the station attracts households that are smaller and younger than their citywide counterparts. Residents of the station area are also more racially and ethnically diverse and have lower incomes than households throughout the City. This suggests that the area attracts residents that could benefit from affordable housing options. The City may want to consider mitigating the displacement of mobile home and other affordable housing near the station.



DAVIS JUNCTION
CALIFORNIA PACIFIC RAILROAD
1868



DAVIS

5



Access Recommendations



ACCESS RECOMMENDATIONS

Multi-Modal Counts at the Station

To understand how people are traveling to and from the station, multi-modal turning movement counts were collected at the station driveway in May 2019. These counts were conducted on a typical Monday, the second Friday of the month (to coincide with ArtAbout from 5:00 to 9:00 PM), and a typical Saturday. The findings are displayed in Figures 25-27.






 *It's hard to bike or walk to the station when you have luggage. So driving is often the best option.* 

Fig 25 Count Location



Fig 26
 Station
 Driveway
 Counts
 by Mode,
 Weekdays

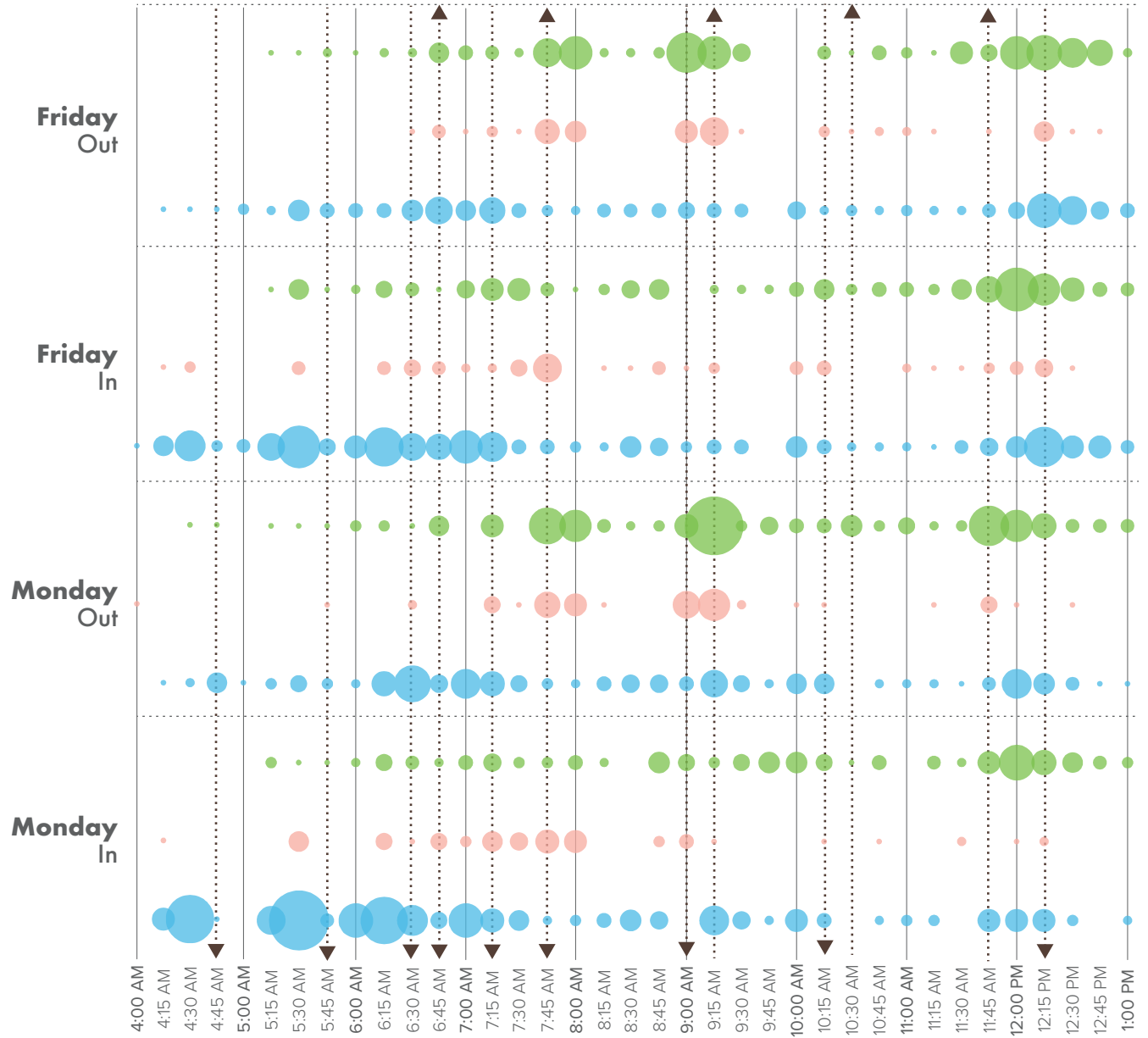
Modes

-  Car
-  Bicycle
-  Pedestrian

Driveway Count



Train Schedule



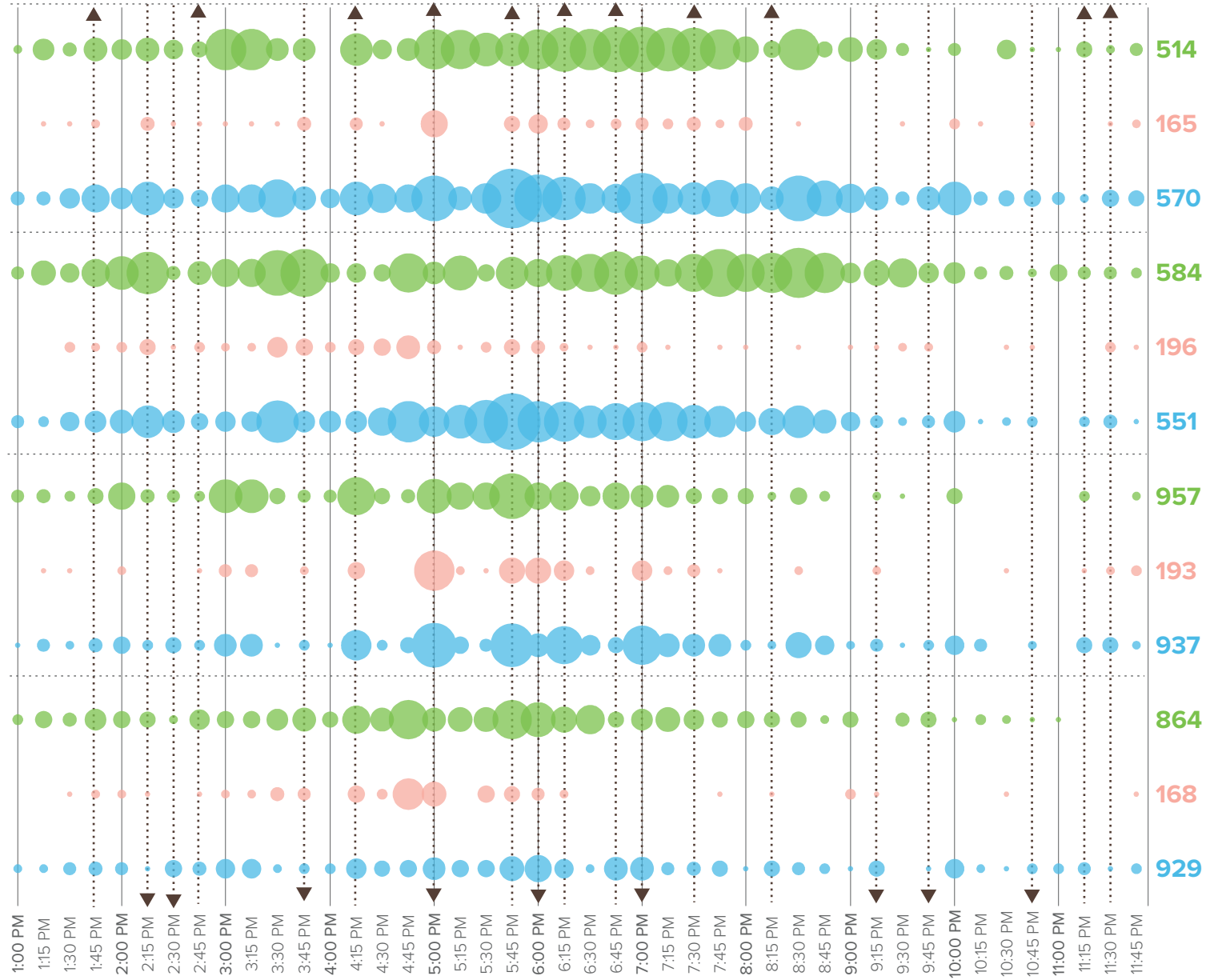





Fig 27 Station Driveway Counts by Mode, Saturday

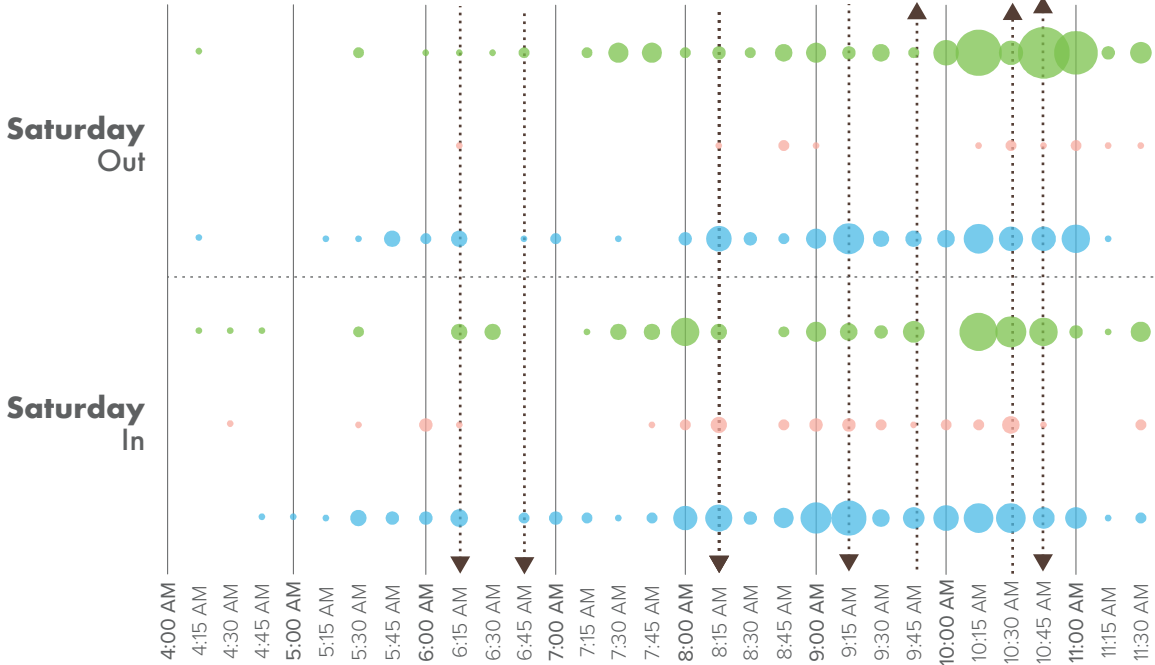
Modes

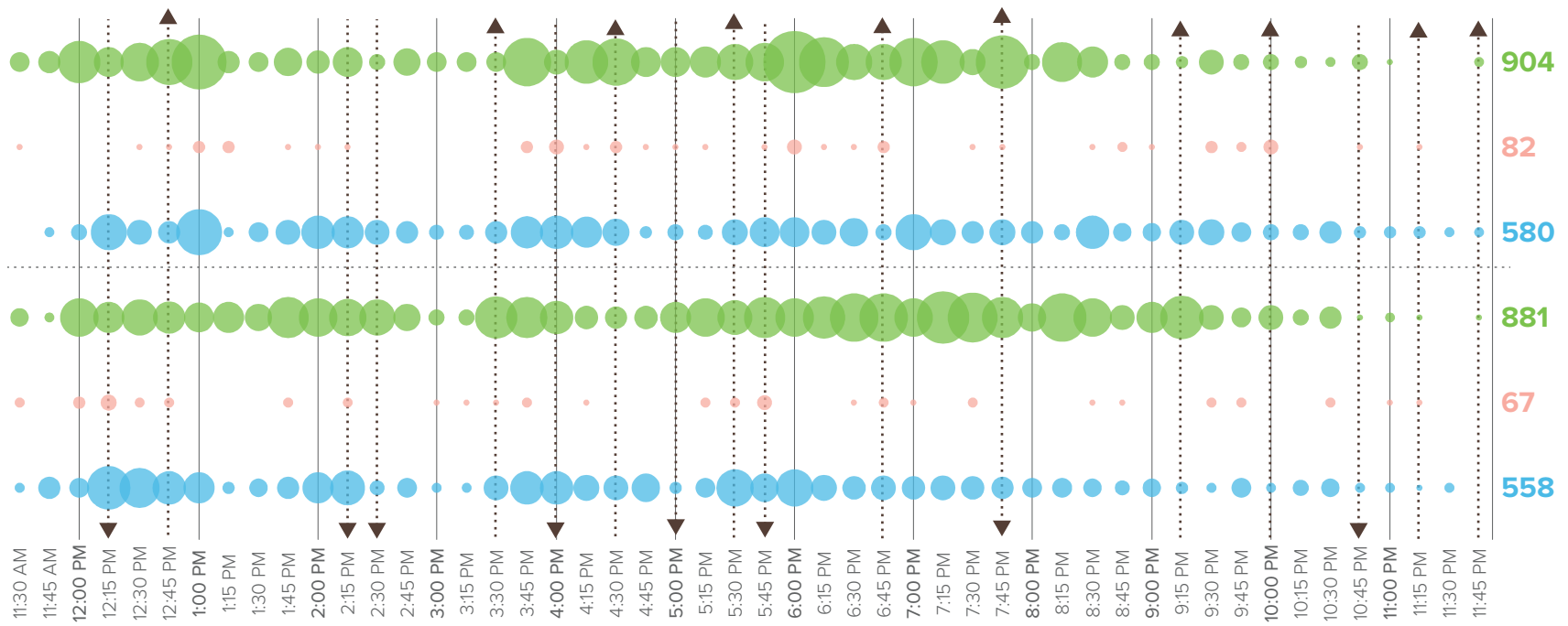
-  Car
-  Bicycle
-  Pedestrian

Driveway Count

- 1
- 10
- 50

Train Schedule

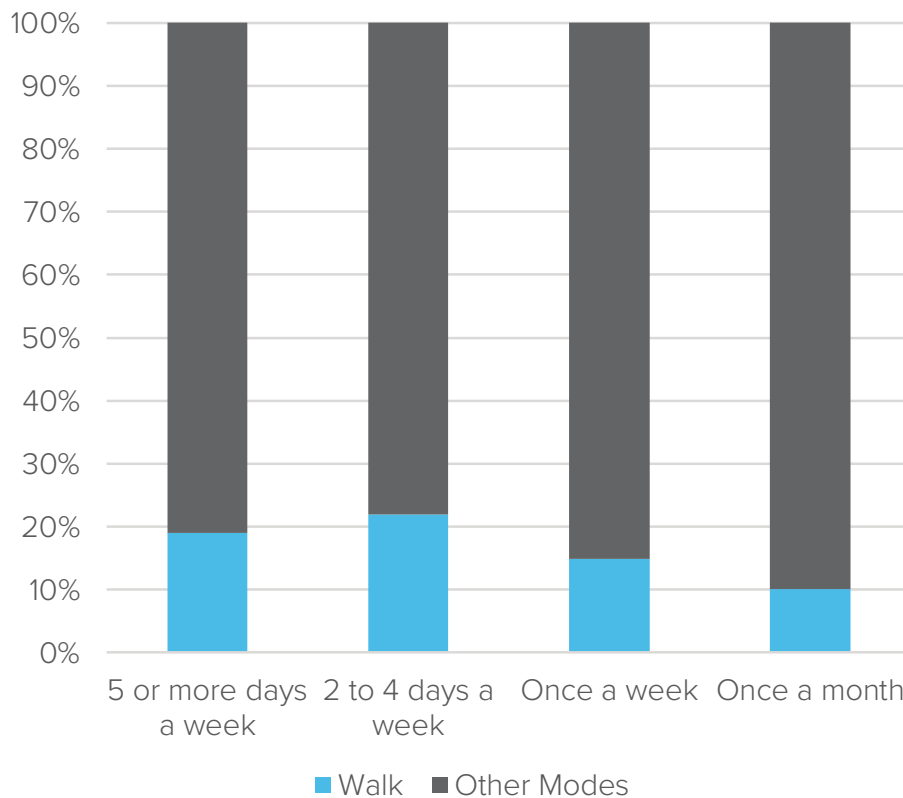




Walking Access



Fig 28 Walking Access by Regularity of Station Use



Regular station users are more likely to walk to the station than occasional station users.

These figures also likely underestimate those walking to and from the station from their cars parked downtown or in adjacent neighborhoods, as well as those that park in the station lot on evenings and weekends and walk downtown.

Asked what prevents them from walking to the station, other survey respondents gave the following top five reasons: It offers a range of multi-modal transportation options

1. It's too far to walk
2. The weather is not comfortable for walking
3. Age or health issues
4. Not feeling safe walking to and from the station
5. Pedestrian facilities are in poor condition



What improvements can be made to remove or reduce these barriers?

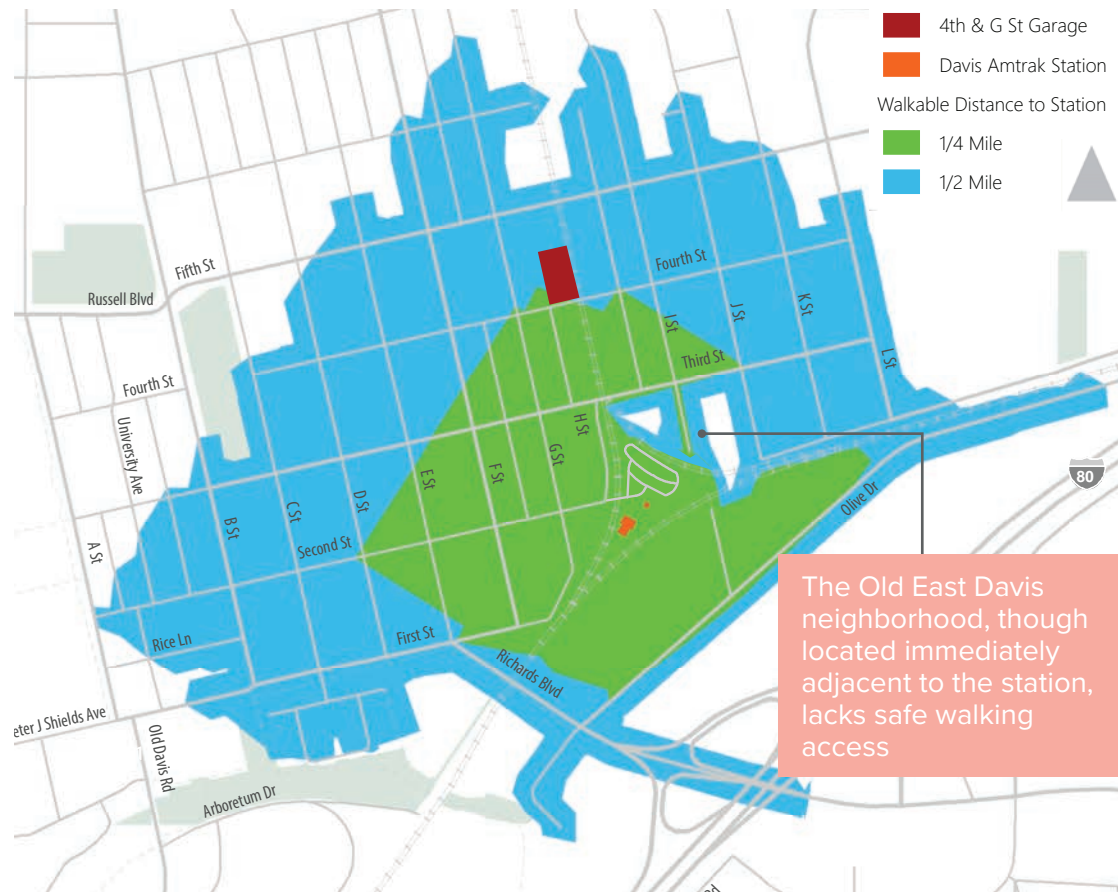
I love having downtown shops and restaurants so close by, but the walk from the station to the downtown area is awkward and unwelcoming.

The station doesn't provide a comfortable or safe walking passage over the tracks to downtown. One must scoot along the edge, hoping cars won't hit you.

I'd be happy to walk from my house to the train station if 1) there were more trees around Davis to provide shade and cover in the summer and 2) there were many more lights at night and in the wintertime.

Additional access to the property, possibly from second street by the PG&E substation.

Fig 29 Pedestrian Access to Davis Station





On a typical Monday in May 2019, at least 80 people access the station by informal walking paths throughout the day.

Nearly three-quarters of these track crossings came from the neighborhoods of Old East Davis, near the intersection of J Street and Second Street. The other crossings came about equally from the other two ends of the property, as shown. Of those using informal paths, 80% did so on foot, while 20% rode or walked bicycles across the tracks. Regular station users are more likely to walk to the station than occasional station users.

Though a fence prevents most mainline track crossings from the Olive Drive neighborhood, several holes are visible in the fence, suggesting that some station users still cross the tracks to access the station. The planned grade-separated connection will address such desire lines.

Fig 30 Where Do Station Users Come From?

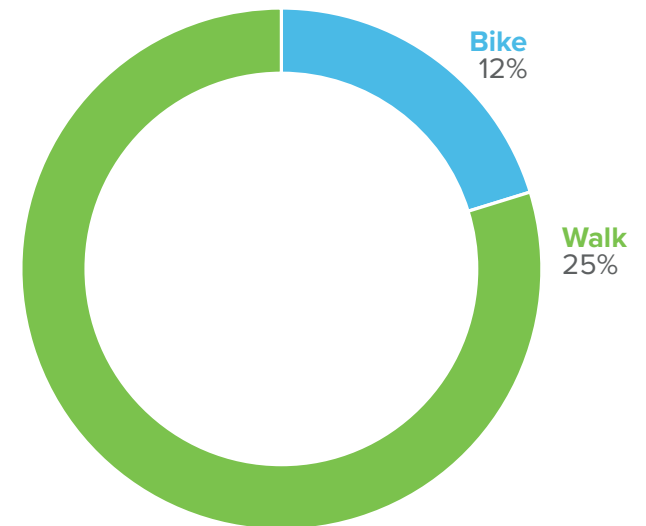


Fig 31 Track Crossings



Walking Access Recommendations



Highest Priority:

- 1 Grade-separated pedestrian and bicycle connection from Olive Drive to the station.

Included in the Downtown Davis Plan:

- 2 Third Street becomes a shared street
- 3 Second Street becomes pedestrian-priority
- 4 First Street and H Street become shared-use paths and transit-priority

Other Potential Improvements:

- 5 Adding sidewalk to the north side of the station driveway
- 6 Wayfinding and signage to guide new users between the platform, station building, and destinations in downtown and at UC Davis
- 7 Improved lighting along the platform, plaza, and parking lot
- 8 Additional seating and shade outside near the platform
- 9 Improved track crossing at the station driveway to make the surface more user-friendly for wheelchairs, strollers, and wheeling luggage
- 10 Enhanced pedestrian crossings at the intersection of Second Street and H Street, potentially including high visibility crosswalks, plaza-style pavers, raised pedestrian crossings, and/or a raising the intersection
- 11 Activation of the plaza
- 12 Sidewalk adjacent to class IV separated bikeway along the current railroad tracks parallel to H Street, providing off-street access from Third Street, and improve design of new structures to support a pleasant and safe walking environment
- 13 Partial mode (walk, bike, transit) at-grade crossing of the track connecting to Old East Davis, as well as an additional grade-separated connection from Old East Davis



shared street

2

12 sidewalk providing off-street access

track crossing

13

improved track crossing

improved lighting

track crossing

enhanced pedestrian crossings

9

5 sidewalk

7

1

high priority pedestrian corridor

3

activation of plaza

11

more shade and seating

8

improved wayfinding

6

shared-use paths and transit priority

4

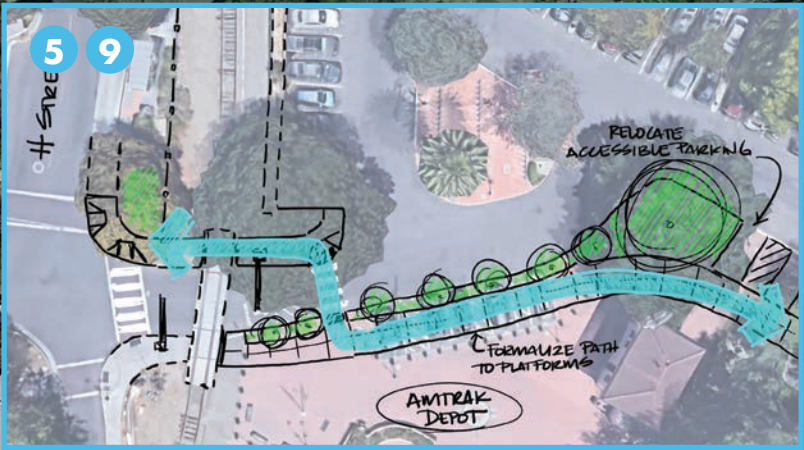
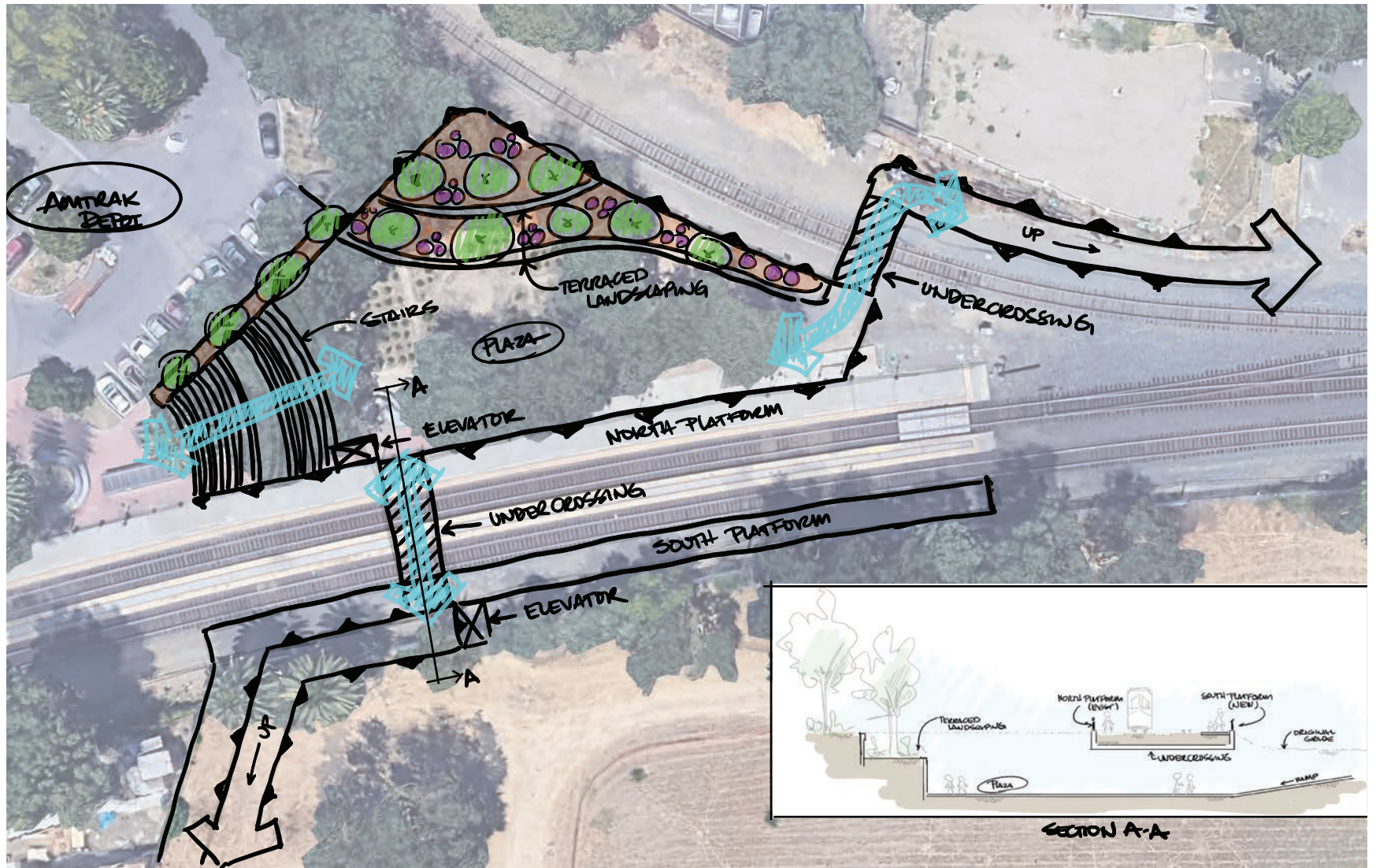


Fig 32 Track Crossing Concept

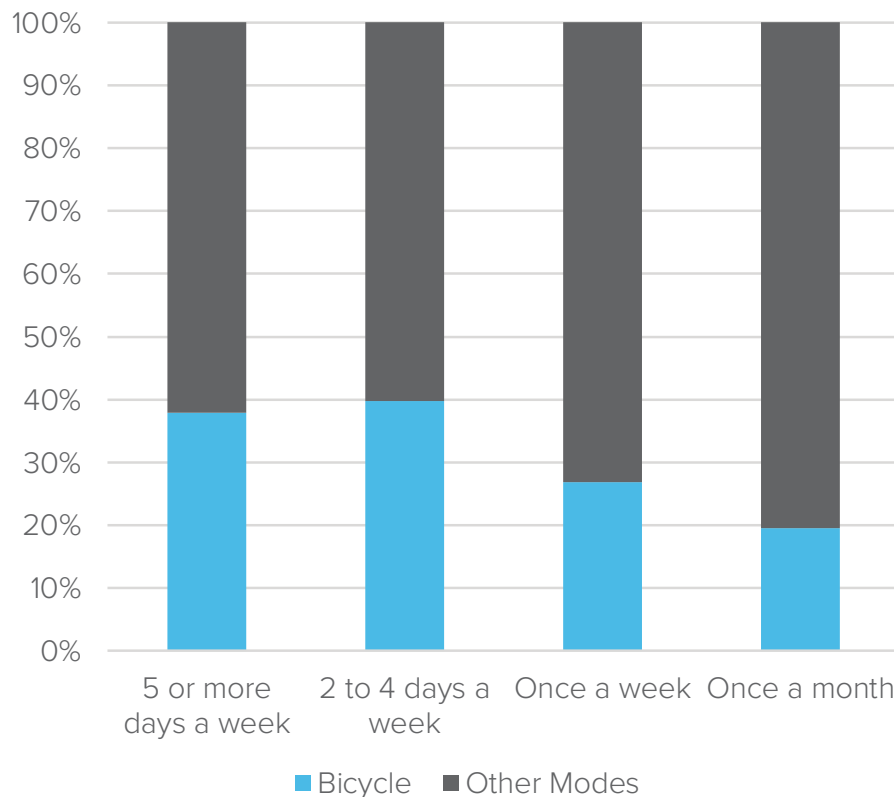




Bicycle Access



Fig 33 Bicycle Access by Regularity of Station Use



People choose to ride bicycles when their experiences exceed or match that of other modes of travel for convenience, speed, safety, and practicality. The Davis bikeway network connects many of the city's residents to the station with low stress bikeways. Figure 29 shows the areas of the city within a short 1-mile and 2-mile ride to the station.

Regular station users are more likely to bike to the station than occasional station users, who more often may be traveling with luggage.

Asked what prevents them from riding their bikes to the station, other survey respondents gave the following top five reasons:

1. It's too far to bike
2. The weather is not comfortable for riding
3. There's not enough secure bike parking/storage
4. I don't feel safe sharing the road with cars
5. Age or health issues



What improvements can be made to remove or reduce these barriers?

“ I have witnessed multiple close calls involving cars and bikes at [the station driveway]. Oncoming traffic does not yield to bikes exiting the station like it should. This safety issue would be my number one priority in redesigning the station. ”

“ There are not enough JUMP bikes at the station. ”

“ It would be really nice to have a more direct connection from the depot to the arboretum (and therefore to the UCD campus), going along the tracks all the way to the Davis commons. ”

“ Covered secure bike parking would be helpful. ”



Bike Storage

Supply

225
total spaces

197 bike racks
28 bike lockers

The City has received a \$42,000 grant from Caltrans to purchase and install **12 eLockers** at the station. They are scheduled to be implemented in early 2020.

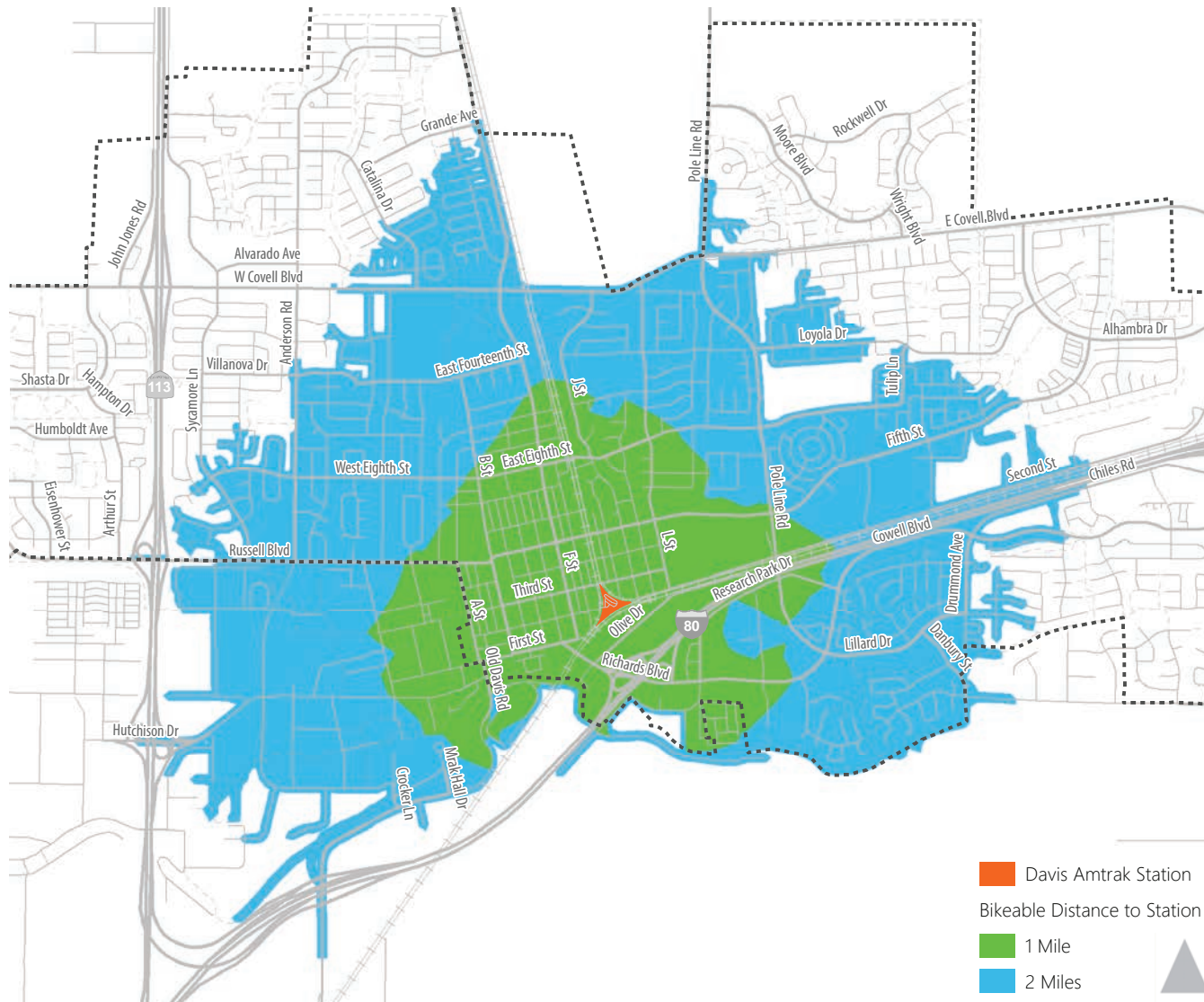
Demand

83%
peak weekday
occupancy

31%
peak Saturday
occupancy

Utilization is highest near the train platform, while racks located in the parking lot and on the southwest side of the station building mostly lie unoccupied.

Fig 34 Bicycle Access to Davis Station





Minor Delays Possible Due
To Track Maintenance
November 1 - 9
GoToCaltrans.gov

Information

Bicycle Access Recommendations



Highest Priority:

- 1 Grade-separated pedestrian and bicycle connection from Olive Drive to the station.
- 2 Additional eLockers on the site.

Included in the Downtown Davis Plan:

- 3 Third Street becomes a shared street
- 4 Second Street becomes pedestrian-priority
- 5 First Street and H Street become shared-use paths and transit-priority

Other Potential Improvements:

- 6 Adding more secure bicycle parking near the station building and platform, including relocating underutilized racks from parking lot island and southwest corner of the site to the plaza near the tower building; indoor bike storage using some of the station building's unused space; and adding designated JUMP bike racks and/or parking zones for micromobility
- 7 Expand station driveway to include a dedicated bike lane
- 8 Wayfinding and signage to guide new users between the platform, building, and destinations in downtown and on the UCD campus along most comfortable bicycle routes
- 9 Class IV separated bikeway with adjacent sidewalk along the current railroad tracks parallel to H Street, providing off-street access from Third Street
- 10 Partial mode (walk, bike, transit) at-grade crossing of the track connecting to Old East Davis, as well as an additional grade-separated connection from Old East Davis



shared street

3

9 separated bikeway

7 bike lane

2 more eLockers

6 more secure bike parking

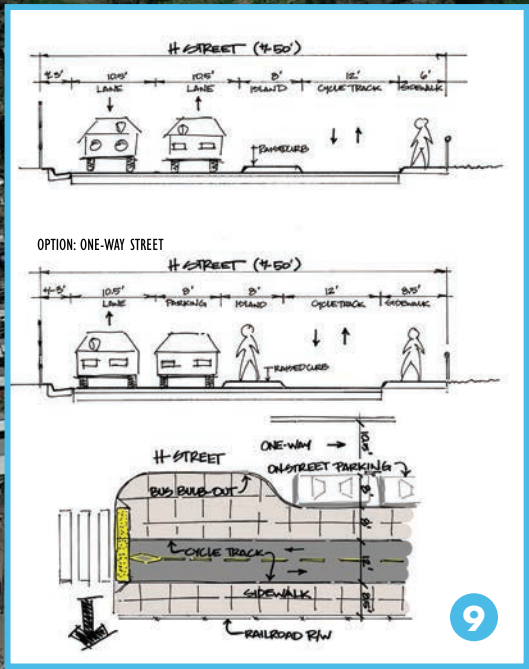
8 improved wayfinding

4 high priority pedestrian corridor

5 shared-use paths and transit priority

10 track crossing

1 track crossing



ACCESS RECOMMENDATIONS

Bus Access



Local Bus Service



Weekdays



Route E stops nearby at Third and F Streets



Unitrans bus shelters are located on both sides of H Street, just north of the Amtrak Station driveway. The shelters provide shaded seating and trash and recycling bins.



Weekend



The intersection of Third & H Streets presents a safety concern for Unitrans buses making a westbound left onto H Street to access the station. Buses must stop before any railroad tracks and cannot stop on any tracks. When making a westbound left from Third Street onto H Street, however, buses are confronted with the challenge of yielding to oncoming traffic without stopping on the tracks.

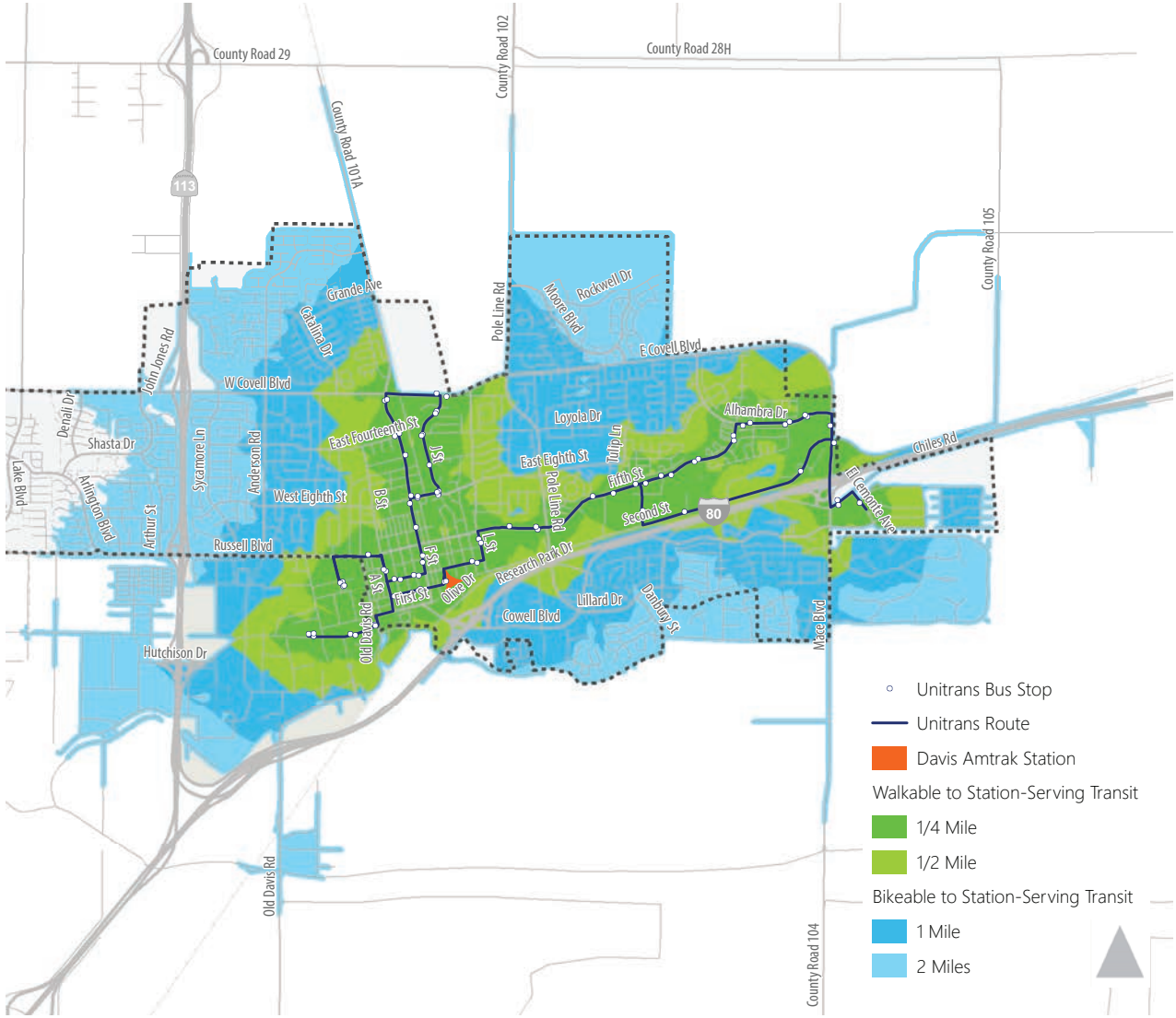


Yolobus routes connecting to Winters, Woodland, West Sacramento, and Sacramento are accessible from downtown Davis and provide free transfers with a Capitol Corridor ticket.

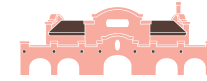
Regional Bus Service

Amtrak San Joaquins provides daily thruway bus service between Redding and Stockton, with multiple stops in Davis, including three times northbound and five times southbound per day. The Amtrak bus shelter is located on H Street, south of the station driveway. It provides no shade or protection from the elements, and minimal seating and lighting. It also lacks connection to the station.

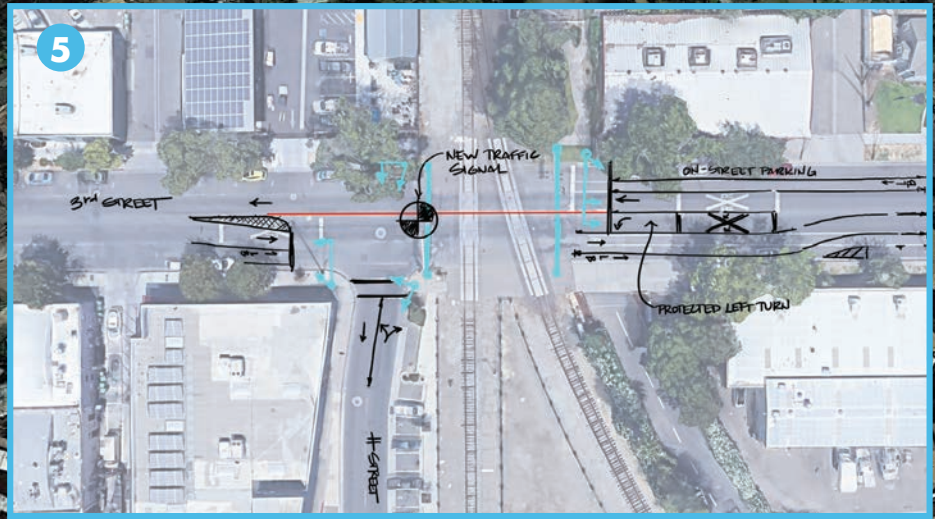
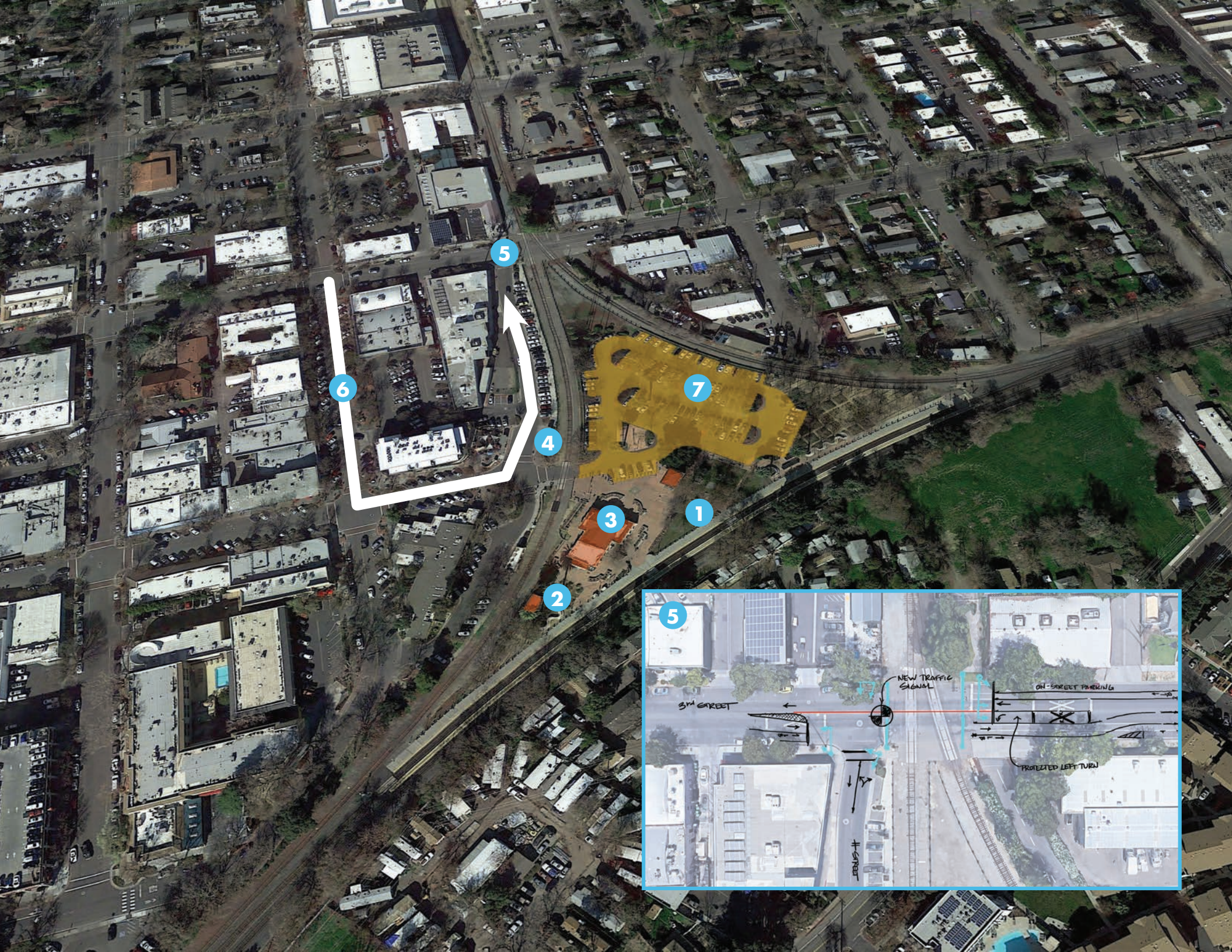
Fig 35 Bus Access to Davis Station



Bus Access Recommendations



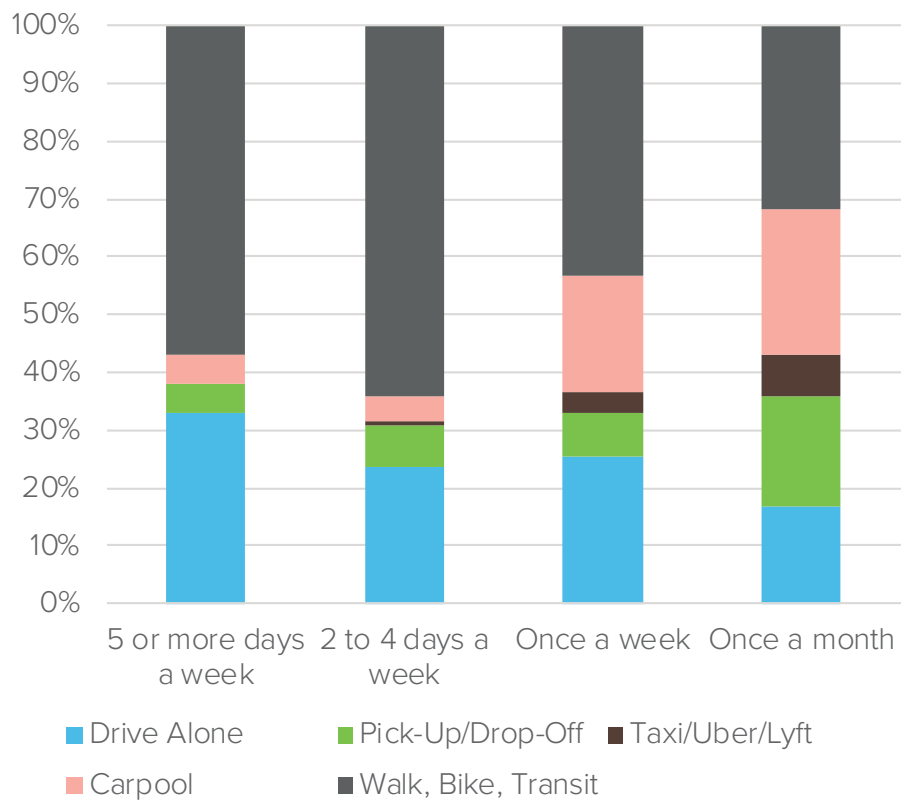
- 1 Wayfinding and signage with schedule information and guidance to connect station users to and from Unitrans, Yolobus, and Amtrak thruway bus shelters
- 2 Add shade and/or indoor seating options at Amtrak thruway bus shelter
- 3 Provide real-time information and/or digital connectivity between the Amtrak station building and thruway bus shelter, so bus riders can wait in the station and know when their bus will arrive
- 4 Consider co-locating Amtrak thruway bus shelter with Unitrans stop
- 5 Evaluate a signal at the intersection of Third & H Streets with a protected left-turn phase in the westbound direction to accommodate Unitrans buses accessing the station.
- 6 Explore conversion of H Street to one-way northbound to accommodate passenger loading and consolidate bus shelters. Unitrans routes to the station would avoid westbound left-turns from Third Street and instead loop through G Street to access the station.
- 7 With development of the station parking lot, consider moving the Amtrak thruway bus shelter onto the station site



Vehicle Access



Fig 36 Vehicle Access by Regularity of Station Use



Regular station users are more likely to drive alone to the station, although occasional users are more likely to get to the station in a passenger vehicle: they are considerably more likely to get a ride from someone, including a TNC like Uber and Lyft, or carpool.

The intersection of Second & H Streets is stop-controlled on H Street. The convergence of multiple modes at this intersection and the narrow station driveway, along with only partial control at the intersection, contributes to confusion, conflict, and safety concerns.

There is only one way in and out. It'd be nice to have another entrance.

Need 4 way stop or future traffic circle at the intersection of 2nd and H Street.

I would support the City buying out the car wash (help them relocate to a nearby location) and using that land for direct access to 3rd Street.

Microsimulation of pedestrian, bicycle, and vehicle volumes at the intersection of Second & H Streets under existing conditions and 2040 estimates showed that as the intersection serves more users of all modes, it becomes increasingly inefficient and, potentially, less safe.

**Projected
increase in users**



+23% vehicles



+17% bicycles



+52% pedestrians*



9.3	13.5
seconds per vehicle	seconds per vehicle

1.0	2.5
seconds per vehicle	seconds per vehicle



7.6	11.2
seconds per bike	seconds per bike

1.5	3.6
seconds per bike	seconds per bike

*Delay is not calculated for pedestrians because all other modes yield to pedestrians in the simulation



Passenger Loading

On a Friday between 5 pm and 6 pm, when activity at the station peaks, we observed:

26
pick-ups

Average Dwell Time:

10 minutes

Maximum Number of Vehicles Waiting Simultaneously:

10

Vehicles were generally parked at the white curb space

12
drop-offs

Average Dwell Time:

30 seconds

Maximum Number of Vehicles Waiting Simultaneously:

2

Vehicles sometimes blocked accessible parking in front of the station and backed into the driveway

In the future, with increased ridership, we might expect to see the following:

46
pick-ups

21
drop-offs

“Lately, I have noticed issues with cars backing up waiting for passengers when a train comes. It can back up into the other streets. It’s only at specific times, but it makes all forms of mobility dicey.”

“As soon as you drive in, Uber and Lyft drivers drop off their clients. They do not go to the designated drop-off area.”

ACCESS RECOMMENDATIONS

Vehicle Access Recommendations



Passenger Loading Recommendations:

- 1 Enforce 3-minute loading zones at white curbs
- 2 Relocate or modify maintenance vehicle access to the plaza, adding chains adjacent to "keep clear" markings
- 3 Move accessible parking closer to the platforms, and replace the existing area with white curbs
- 4 Convert parking on H Street to 20-minute parking for passenger pick-up
- 5 Add sidewalk on the west side of H Street
- 6 Activate the back side of the buildings along H Street
- 7 If the parking lot is converted to some other use, and autonomous vehicles have changed travel behavior, convert all parking on H Street to loading

Other Vehicular Access Recommendations:

- 8 Add taxi stand to H Street
- 9 Expand station driveway to include dedicated bike lane and sidewalk on the north side



ACCESS RECOMMENDATIONS

Parking



135
automobile parking
spaces on-site*

- 126** general-use spaces
- 5** accessible spaces
- 2** electric vehicle charging spaces
- 2** 20-minute spaces
- * additional unmarked spaces are used along perimeter curbs

Amtrak patrons currently park for free from 5:00 a.m. to 5:00 p.m. with a paper permit, collected at the Amtrak kiosk and displayed on their dashboard. This same paper permit allows Amtrak patrons to access overflow parking in the public garage located at Fourth and G Streets.

The City Council voted in March 2019 to charge for parking at the station, as part of its broader effort to manage downtown parking supplies based on recommendations in the Downtown Parking Management Plan.

Future trends in transportation, such as autonomous vehicles and shared vehicle fleets, could greatly reduce future parking demand at the station. Airports and hotels, which – like regional train stations – experience high traffic from business travelers and other visitors, are already seeing declines in parking revenue and demand as a result of Transportation Network Companies (TNCs) such as Uber and Lyft.

Building structured parking on the site would require large capital outlays on a fixed asset that may not be financially viable in the future.



\$10 million

the cost to build replacement parking in a structure.

\$5 million

the cost for each additional level with about 100 spaces



Parking Options



Convertible Parking

Because many places are already experiencing a decline in parking demand due to the popularity of TNCs such as Uber and Lyft, private developers and public institutions that are building new parking structures are increasingly opting for structure designs that can be converted to non-parking uses in the future. Uses that can be accommodated in smartly designed parking structures include office and retail space, as well as hotels.

Existing parking structure designs typically include sloping or staggered floors, low ceilings, and no heating or cooling. Building parking structures that can be converted to other uses in the future requires designing with flat surfaces, standard ceilings, and enclosures to make heating and cooling possible. Such flexible designs may cost 50 percent more than standard parking structures.

Make the current parking lot a four-story parking facility.

Add more parking if office space and cultural amenities are added.

A parking structure in that location would be a magnet for crime and would change the historical and peaceful demeanor of the station as it is.

Parking is the worst part of taking the train. I would pay for parking if more spots are made available.

More handicapped spaces.

Automated Parking

Install Parking Access and Revenue Control System (PARCS) to allow paid parking, including gated or gateless enforcement. Gateless systems use license plate reader (LPR) technology and are more space- and time-efficient than gated systems. Work with Capitol Corridor and Amtrak to coordinate purchase of train fare and parking in a single ticket.

Option A Management of Existing Parking Supply

Wayfinding and signage to guide drivers to the garage at Fourth Street and G Street, as well as information and signage at the Fourth Street and G Street Garage about using an Amtrak parking permit

Option B Parking Structure

Replace lot with four-story parking structure (approximately 400 spaces), including commercial and/or office space on lower levels using liner buildings or wrapping to support a pedestrian friendly environment and maintain design consistency with the rest of Downtown Davis. Note that the size and shape of the site may prohibit these design solutions.

Fig 36 Option B Parking Garage Concept



ACCESS RECOMMENDATIONS

Future Proofing



The last several years has seen a sea change in transportation technologies and travel behavior away from private vehicle use and towards mobility-as-a-service (MaaS). This trend includes app-based ride-hailing services from Transportation Network Companies (TNCs) like Uber and Lyft, as well as shared micromobility options such as shared bikes and scooters. Electric-assisted devices, such as the JUMP bikes popular in Davis, are making active transportation more accessible and extending the reach of active modes.

In the future, connected autonomous vehicles and autonomous microtransit are likely to further revolutionize transit-oriented development and urban mobility. Because they do not require a driver, autonomous vehicles are likely to reduce the need for parking near popular destinations. Where they do park, they will require less space (similar to the space optimization of stacked parking that valet affords today).

It is important that recommendations to improve multi-modal access at the Davis Amtrak Station keep these future trends in mind.





ACCESS RECOMMENDATIONS

Conclusion



Community engagement and analysis of various data sources shows there is not an immediate need for a grand redevelopment of the Davis Amtrak Station.

Future improvements can and should build incrementally on the strengths that already exist on-site, including the historic buildings, peaceful environment, proximity to downtown Davis and multiple residential neighborhoods, and high rates of walking and biking.

The recommendations included in this report also take advantage of projects planned adjacent to the station and prioritize improvements based on highest need, as identified from public participation in the planning process.

Planned improvements in downtown Davis, and the Olive Drive neighborhood with necessitate circulation improvements through the station area and at the station driveway. Increased Capitol Corridor ridership, changes to transit service, and ever increasing rideshare usage will spur enhancements of the pick-up and drop-off areas at the station.

