



Bicycle Parking Management Plan

Proposal for Adoption

October 2017



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EXECUTIVE SUMMARY

The following document presents a complete plan for managing Caltrain’s bike parking system. It was produced by the Peninsula Corridor Joint Powers Board (JPB), the entity that oversees Caltrain commuter rail service. Supported by a grant from Caltrans, this plan was developed between spring of 2016 and autumn of 2017 in a process that involved the Caltrain Bicycle Advisory Committee (BAC), the Caltrain Citizens Advisory Committee (CAC), a Technical Advisory Committee composed of local city and agency staff, and the JPB. This document supersedes the agency’s previous bike planning efforts and is considered to be the only active plan for Caltrain’s bike parking facilities, though the previous plans may still serve as reference documents. It is anticipated that the Bicycle Parking Management Plan will serve staff; members of the BAC, CAC, and JPB; partner agencies and cities; and members of the public.

This executive summary provides an overview of the Bicycle Parking Management Plan and its recommendations. It begins with context for the Plan and a summary of the planning process. It then presents key findings on the current bike parking use patterns and the potential market for bike parking at Caltrain. Then, it summarizes the goals that were developed for Caltrain’s bike parking system and the recommended management approach to deliver a high quality bike parking system for Caltrain passengers. Finally, it presents the Plan’s overall facility recommendations, potential funding sources, and near-term implementation activities.

CONTEXT FOR THE PLAN

Bicycling is a major mode of access and egress for Caltrain customers, and the agency provides both on-board bike parking facilities in dedicated bike cars and wayside bike parking facilities across the corridor. Today, the vast majority of Caltrain passengers accessing the system via bicycle bring their bikes on the board the train with them, and current use of Caltrain’s wayside bike parking facilities generally remains low. As Caltrain has experienced rapid and sustained ridership growth over the last decade, however, the number of passengers accessing the system via bicycle has also grown, and today, many peak hour trains do not have sufficient space to accommodate every bicycle on board. A robust plan for Caltrain’s wayside bike parking facilities can help address these current capacity and access issues.

Additionally, in the coming years, Caltrain ridership is expected to increase substantially with the completion of the Peninsula Corridor Electrification Project. Ridership may double by 2040, and it is anticipated that the number of passengers accessing the system by bicycle will grow substantially during the same time period, as well. While the new electric trains will provide one on-board bike space for every eight seats, they may still not provide sufficient on-board capacity to accommodate all future bike riders. Therefore, it is important that Caltrain’s wayside bike facilities provide a viable, attractive, and feasible option for passengers who bike to and/or from a Caltrain station today and in the future.

Despite the development of the Bike Parking and Access Plan - Implementation Strategy in 2014, the agency has seen mixed progress in terms of improvements to the bike parking system due to

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staffing shortages, funding challenges, and management difficulties. The Implementation Strategy identified several key “non-capital” issues related to bicycle parking and access, and primary among these was the need for Caltrain to establish a bike parking “management” plan to provide information and support decision-making related to bike parking, including:

- Understanding the bike parking needs of bicyclists and identifying factors that may influence them to bring their bikes on board the train rather than park at stations;
- Understanding the full operating and administrative costs and customer service implications of current and planned bike parking facilities, including keyed and electronic lockers (i.e., e-lockers), and staffed and unstaffed shared bike parking facilities; and
- Understanding how different administrative and management models could improve the financial and customer service performance of the Caltrain bike parking system.

DEVELOPING THE PLAN

Caltrain received a grant to develop a management plan for the agency’s bike parking system from Caltrans in 2015. Commenced in spring 2016, the Plan was led by the Caltrain Planning team and was developed under two main phases of work. The first phase included analysis of existing ridership datasets, on-board and online surveys with passengers, bike parking usage observations, and passenger focus group sessions. The research focused on existing travel patterns among Caltrain’s bike-using passengers, factors behind their travel choices, and interest in bicycle parking among the greater Caltrain passenger community. The first phase of work culminated in a better understanding the potential market for bicycle parking at Caltrain stations, as well as greater awareness of the types and qualities of bike parking facilities that would encourage more riders to consider parking their bicycle at a station.

The second phase of work focused on delivery of a high quality bike parking system. Building on the findings from phase one, goals and performance measures for the bike parking system were developed to guide future investments and track future performance of the system. Extensive research into peer agencies’ approaches to managing and funding bike parking systems was completed. Then, three management approaches and cost schemes were developed and compared. A hybrid management approach emerged as the preferred approach for Caltrain, and potential funding sources and implementation strategies were identified.

Throughout the process, the project team consulted with a Technical Advisory Committee composed of staff from partner agencies and cities, as well as Caltrain’s two public committees, the BAC and CAC. The members of the three committees contributed valuable feedback, insights, and ideas to inform and improve this Plan.

CURRENT BIKE PARKING USAGE

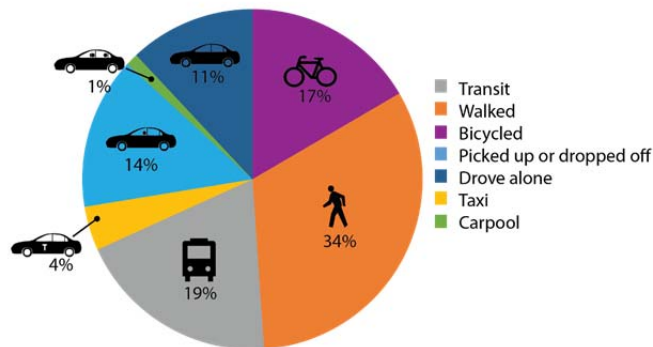
Bicycling is a major mode of station access and egress for Caltrain passengers. As shown in Figure E-1 below, it is estimated that 17 percent of passenger trips to and from a Caltrain station are made using a bicycle. Across the system, of the passengers accessing Caltrain stations via



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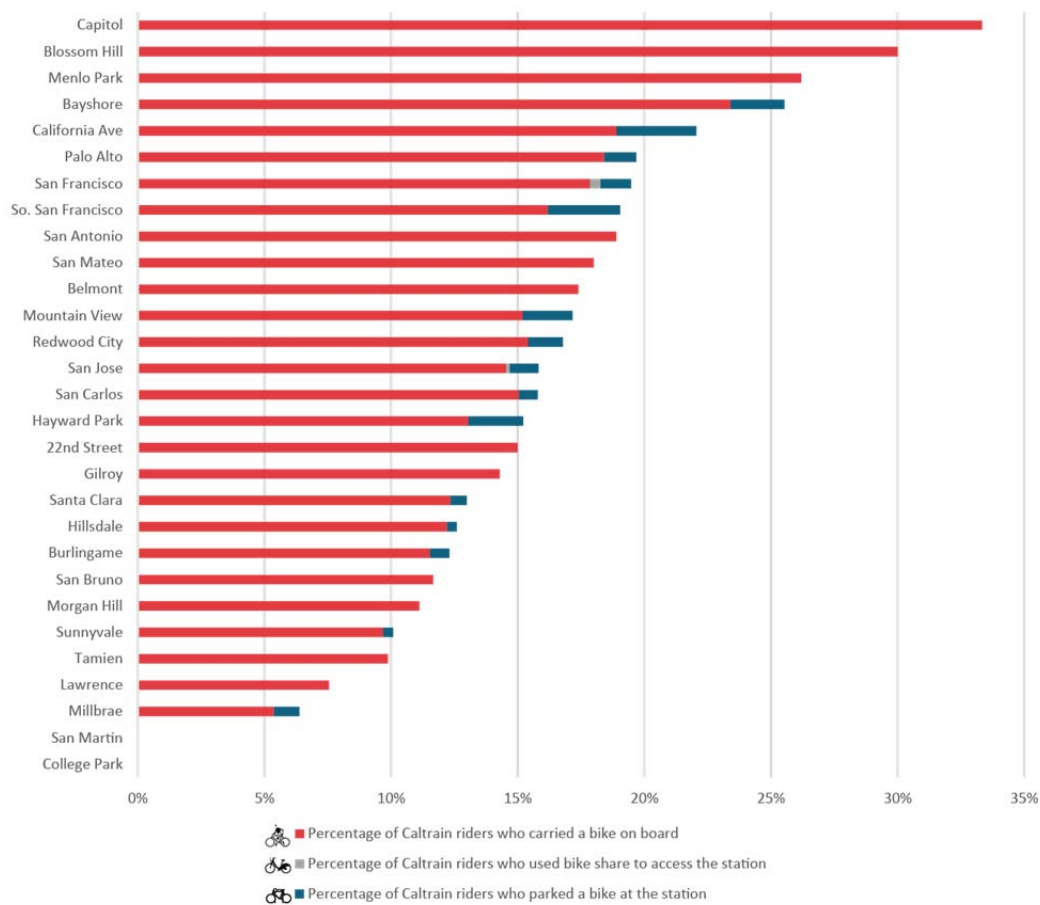
bicycle, 93 percent bring their bikes on board the train, six percent park their bikes at the station, and one percent use bikeshare. Figure E-2 illustrates this pattern on a station-by-station basis.

Figure E-1: Station Mode of Access and Egress – Overall



Source: 2014 MTC On-Board Passenger Survey

Figure E-2: Bike Access Mode Split by Station

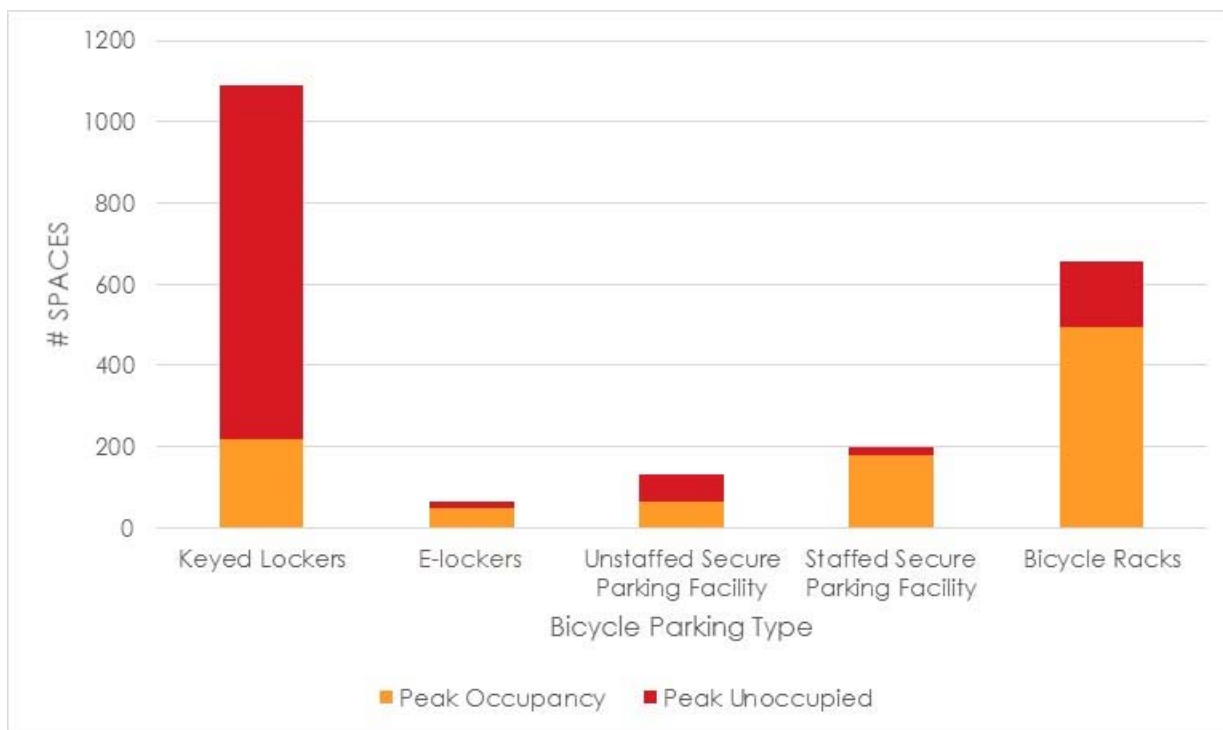


Source: 2014 MTC On-Board Passenger Survey



Caltrain’s system of wayside facilities varies substantially in quality and capacity from station to station. There are five main types of bicycle parking in the system today. These include keyed lockers, electronic lockers (e-lockers), unstaffed secure facilities, staffed secure facilities, and bike racks. Figure E-3 shows the relative capacity of each of these facilities and estimated occupancy rates for a typical weekday, based on data gathered and analyzed for this Plan. The staffed secure parking facility and e-lockers currently have the highest occupancy rates in the system. Keyed reserve lockers, which comprise the greatest share of bike parking facilities, currently have the lowest occupancy rate.

Figure E-3: Bike Parking Inventory and Occupancies



Source: 2016 Bike Parking Inventory; 2016 Occupancy Data

POTENTIAL DEMAND FOR BIKE PARKING

In the years to come, it is anticipated that there will be an increase in bike parking demand because of the overall growth in ridership on Caltrain. Growth in bike parking demand would occur even if the percentage of cyclists parking at stations remained the same as it is today, due to the anticipated increase in overall ridership. With investment in and improved management of Caltrain’s bike parking system, it is likely that the percentage of cyclists parking at the station will increase.

While overall growth in demand for bike parking is anticipated in the years to come, the Plan strived to provide greater nuance into understanding this potential demand through extensive customer research with surveys and focus groups. The customer research activities point to two

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key findings. First, there is not demand for bike parking from *all* of Caltrain's customers who ride a bike to or from a station. The majority of Caltrain users who bring their bikes on board need their bike on both ends of their train ride, and therefore, are not likely to start regularly parking their bicycles at stations. Second, while it may not be the majority of Caltrain's bicycling customers, there *is* a substantial number of customers who ride a bike to or from a station who would consider using bike parking facilities, if the parking facilities met their needs. With bike parking facilities and programs tailored to meet the needs of Caltrain's customers, it is likely that wayside bike parking facilities would be more frequently used.

The qualities in bike parking facilities that are most desired by Caltrain's passengers include a high level of security; a quick, easy, hassle-free experience; a guaranteed parking spot; availability on-demand without advanced registration; protection from weather; 24/7 availability; and cost-effectiveness. When asked about their interest in using various types of bike parking facilities, passengers demonstrated strongest interest in staffed shared bike parking facilities, followed by e-lockers, unstaffed shared facilities, keyed reserve lockers, bike racks, and bikeshare programs.

GOALS FOR CALTRAIN'S BIKE PARKING SYSTEM

Goals and performance measures have been developed for Caltrain's bike parking system to provide a structured performance measurement system to help monitor success and make improvements to Caltrain's bike parking system. The three goals, described below, will be used to strategically guide the agency's future decision-making about its bike parking system. The performance measures, described in detail in the Plan, will identify how Caltrain's bicycle parking system is being utilized by passengers, identify areas for improvement, and analyze the effects of actions taken to improve the system.

Goal 1 is to enhance the customer experience for Caltrain passengers. Its performance measures focus on the qualities of bike parking facilities that passengers identified as most important to them through the Plan's many research activities.

Goal 2 is to provide a viable alternative to bringing a bicycle on board for Caltrain passengers. Its performance measures address the supply and availability of bike parking facilities, to ensure that adequate facilities are available for customers who would like to park their bike at the station.

Goal 3 is to make efficient use of Caltrain's resources. Its performance measures focus on occupancy levels of the bike parking facilities, the net operating costs per use and per space for each type of bike parking facility, overall capital costs per parking space, and the amount of real estate devoted to each parking space at stations.

CURRENT AND RECOMMENDED MANAGEMENT APPROACH

Currently, Caltrain relies on multiple entities to manage and operate its bike parking system, including agency staff; Transit Services America, Inc. (TASI), Caltrain's contracted rail operator; bike parking vendors; and local cities and county agencies. Caltrain staff across multiple



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departments is responsible for the oversight and administrative operations of existing bike parking facilities. TASI staff handles all of the physical aspects of the bike parking facilities owned by Caltrain. The agency has contracts with two bike parking vendors to supply parking facilities at two stations along the corridor. Some of Caltrain's partners at local jurisdictions are involved in supplying, managing, and operating some bike parking facilities along the corridor as well. It is estimated that operating and managing Caltrain's existing bike parking system costs the agency about \$390,000 per year.

The current management approach has some successes and some challenges. The facilities operated and managed by third party vendors or local jurisdictions are generally performing well, with higher occupancy rates and fewer customer service issues. Facilities that are operated and managed by Caltrain staff and TASI staff, however, are not performing as well as they could be performing. Research as part of this Plan revealed that this is not due to deliberate negligence on the part of Caltrain or TASI staff, but rather is due to time and resource constraints. There is currently not one individual staff member whose primary responsibilities are focused on managing the bike parking facilities; instead, the responsibilities and duties are shared across staff in multiple departments. As a result, involved staff often face significant challenges of time and resource constraints to administer and manage the existing bike parking facilities. Delivery of bike parking facility and system improvements also remain a challenge.

This planning process provided an opportunity to investigate alternative management approaches and develop potential recommendations for Caltrain. Extensive research was completed to understand the management approaches for bike parking systems at national and international peer transit agencies. After researching and interviewing peer agency staff to learn from their successes and challenges, three broad management approaches for Caltrain were developed and analyzed, including a cost analysis. After conversations with staff at Caltrain and the BAC, and drawing from the successes of peer agencies, a hybrid management approach was developed for Caltrain's bike parking system and is recommended for implementation through this Plan. It is anticipated that this hybrid management approach will cost about \$570,000 annually. This is a net increase of about \$180,000 from the current costs to achieve substantially improved customer service outcomes for Caltrain passengers.

Under this approach, primary responsibility for Caltrain's bike parking system will be delegated to third party vendors that specialize in bike parking facilities and services. It will be important, especially as improvements are being implemented, to have dedicated resources focused exclusively on the bike parking system, with performance incentives tied to the outcomes of the system. The main responsibilities for bike parking vendors will include administration and management of all of Caltrain's bike parking facilities, customer interactions, and field activities as needed. Instead of TASI, new third party vendors would also be responsible for tracking and fulfilling maintenance, repair, and installation needs for all existing and future bike parking facilities.

Secondary responsibility will be assigned to a dedicated project manager for bike parking and access in Caltrain's Rail Division. The main responsibilities for the dedicated project manager will include managing the vendor procurement processes (including RFIs, RFPs, contracts, etc.),



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managing vendors, pursuing funding for the bike parking system (operating and capital), and managing and coordinating with internal and external stakeholders.

Additional support will come from other agency staff as needed, including the Rail Division (Contracts & Budget; Operations; Engineering and Maintenance), JPB Real Estate, Caltrain Planning, Marketing and Communications, and legal support.

FACILITY RECOMMENDATIONS

The recommended approach for this Plan to deliver a high quality bike parking system for Caltrain passengers is to first establish the new management regime, under the hybrid management approach described above, and then focus on planning for and delivering capital improvements along the corridor. For capital improvements, it is recommended that Caltrain generally increase the capacity of bike parking along the corridor, focusing on facilities that provide qualities desired by passengers, such as a high level of security, low cost, and on-demand availability. While additional bike rack capacity is recommended, especially at stations where the bike racks are reaching capacity, the main features of the proposed bike parking expansion focus on e-lockers, unstaffed secure facilities, and, at high-demand stations, staffed secure facilities. It is also recommended to provide uniformity throughout the Caltrain bike parking system in terms of payment systems, customer information, and equipment.

FUNDING FOR CALTRAIN'S BIKE PARKING SYSTEM

Currently, on-going operation and maintenance of Caltrain's existing bike parking system is funded primarily by the JPB's operating budget. Capital improvements for Caltrain's bike parking system, including new equipment and facilities, have historically been supported with the JPB's capital budget and grants from external sources. However, in recent years, due to capital budget funding shortages and the urgency of critical capital projects for the railroad itself, the agency has not been able to dedicate funding in its capital budget for new bike parking projects. The agency also decided to delay implementing improvements to the bike parking system while this Plan was being prepared, so that all of the agency's future bike parking projects are consistent with the final vision of this Plan. Lastly, local jurisdictions and agencies have provided funding for capital and operating costs of bike parking facilities that they own and operate along the Caltrain corridor.

Providing a high quality bike parking system for Caltrain passengers will continue to require on-going, direct funds each year to cover operational costs. Additional capital investment in Caltrain's bike parking system will be necessary to achieve the vision in this Plan and carry out the recommended improvements. Potential future funding sources include the JPB operating and capital budgets, JPB member agencies, local cities and agencies, grants, and other external sources. It is anticipated that the future dedicated project manager for bikes and access will pursue these funding sources and explore others.



IMPLEMENTATION ACTIVITIES

To begin implementation of this Plan, a key first step is to hire a new dedicated bike access project manager in the Rail Division group. It is proposed that this position be filled the end of the 2017 calendar year. To expedite the process, this position could be filled by a consultant or temporary staff with relevant experience. Then, during the 2018 calendar year, the dedicated project manager for bikes and access will commence work on critical implementation activities, as listed below. The implementation of the Plan and improvements to the bike parking system are expected to continue into years beyond 2018.

- Update Caltrain's station design criteria
- Develop detailed funding plan for bike parking system
- Seek additional funding from partners, grants, and other sources, and prepare FY 2019 JPB capital budget funding requests for bike parking
- Lead the RFP process for bicycle parking vendors
- Revise the contract with TASI as it relates to bicycle parking
- Transfer bike parking-related tasks to vendors and act as a liaison between the vendors and the Caltrain organization
- Plan for and manage bike parking capital improvement projects
- Develop performance targets for Caltrain's bike parking system
- Monitor bike parking usage and provide regular reporting of progress towards the goals and performance measures outlined in this Plan
- Serve as the coordinator for bike parking and access issues with internal and external stakeholders, including Caltrain staff, local jurisdictions, other agencies, and bikeshare companies.

CONCLUSION

Providing high quality bicycle access is an essential part of supporting the maintenance and growth of Caltrain's existing and future ridership. Today, Caltrain dedicates substantial onboard capacity and operational resources to ensuring that thousands of cyclists can bring their bikes on board the system every day. Going forward, Caltrain will continue to accommodate bikes on board its trains but must also support cyclists through significant improvements to the scale and quality of its wayside parking system.

The research and analysis in this Plan demonstrate that there is a significant market for high quality wayside bike parking within Caltrain's existing ridership. Additionally, with projected future ridership growth, it is anticipated that the demand for bike parking will remain strong in the years to come. However, Caltrain's existing structure for building, maintaining, and operating its bike



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parking system is not currently organized or resourced to support the expansion and operation of an improved bike parking system. Successful bike parking systems operated by Caltrain's national and international peer systems provide examples of alternative organizational and management strategies that deliver high quality parking outcomes to their customers. Through the organizational changes recommended in this Plan and a modest, ongoing investment of resources, Caltrain has the potential to build and sustain a bike parking system that will better serve its customers and ensure the continued growth of cycling as a primary mode of access to the system.



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1.0 INTRODUCTION

This chapter provides an introduction to Caltrain, its bicycle access programs and planning, the process for developing this Bicycle Parking Management Plan, and an overview of the contents of the Plan.

1.1 ABOUT CALTRAIN

Caltrain is a commuter rail service that operates between San Francisco and San Jose, with some trips extending further south to Gilroy. The 79-mile corridor has 32 stations and travels through 19 local jurisdictions across three counties. Caltrain service currently offers 92 weekday trips northbound and southbound. Service today includes a mix of “Baby Bullet” express, limited-stop, and local service. Baby Bullet service travels between San Francisco and San Jose with very limited stops, providing short travel times between popular stations during peak periods. Limited-stop service travels between San Francisco and San Jose (and sometimes Gilroy) and a selection of other stations, providing some travel time savings in the peak periods. Local service stops at all stations and operates in the off-peak periods and on the weekend.

Caltrain currently has over 62,000 boardings per weekday, and trains in the peak periods are often at or exceeding capacity. Caltrain ridership is expected to grow to 114,000 or more boardings per weekday by 2040. Recent ridership growth has been driven in part by employee pass programs and traffic congestion on the Peninsula’s highways.

1.1.1 Caltrain Modernization Program

Caltrain is currently undergoing a significant capital improvement program to electrify and upgrade the performance, operating efficiency, capacity, safety, and reliability of the commuter rail service. The Caltrain Modernization Program includes the electrification of the existing Caltrain corridor between San Francisco and San Jose; the installation of a Communications Based Overlay Signal System Positive Train Control (CBOSS PTC), which is an advanced signal system that includes federally-mandated safety improvements; and the replacement of 75 percent of Caltrain’s diesel trains with high-performance electric trains called Electric Multiple Units. The cost of electrification of the corridor and the purchase of the Electric Multiple Units is approximately \$1.98 billion, while the CBOSS PTC cost is approximately \$200 million. The \$2 billion program is funded through a nine-party agreement and a seven-party agreement that leverages local, regional, and federal funding. Electrification will enable reduced travel times, shorter headways, and greater reliability. The Caltrain Modernization Program is anticipated to be in revenue service by 2021. A second modernization phase for Caltrain is anticipated after 2021 to include additional enhancements to the railroad.

1.1.2 Peninsula Corridor Joint Powers Board

In 1987, representatives from San Francisco, San Mateo, and Santa Clara counties formed the Peninsula Corridor Joint Powers Board (JPB) to transfer administrative responsibility for Caltrain rail service from the State of California to the local level. In 1991, all JPB members signed a Joint Powers Agreement to address membership and powers, financial commitments for each member, and administrative procedures.

Caltrain is governed by the JPB, which is composed of nine members with equal representation from each of the three counties. VTA represents Santa Clara County and has three representatives, including one representative from the City of San Jose, another representative from another Santa Clara County city, and a third representative from the Santa Clara County Board of Supervisors. The San Mateo County Transit District represents San Mateo County and has one representative from the City Selection Committee, one representative from San Mateo County Transit District, and one representative from the San Mateo County Board of Supervisors. The City and County of San Francisco represent San Francisco County and have representatives from the mayor's office, the San Francisco Board of Supervisors, and the Municipal Transportation Agency. Member operating budget contributions are based on a boarding formula. Capital costs are shared by members for system-wide improvements and capital costs for local projects are funded by individual members.

Caltrain has two public committees that serve in an advisory capacity to the JPB. The Citizens Advisory Committee (CAC) is composed of nine volunteer members who serve in an advisory capacity to the JPB, providing input on the needs of current and potential rail customers, and reviewing and commenting on staff proposals and actions as requested by the board. There are three members from each county. The committee does not have independent duties or authority to take actions that will bind the Joint Powers Board of Directors.

Caltrain's Bicycle Advisory Committee (BAC) serves as the primary venue for the interests and perspectives of bicyclists to be integrated into the Caltrain planning processes. The committee is a partnership composed of nine volunteer members and Caltrain staff. There are three representatives from each of the three counties served by Caltrain: San Francisco, San Mateo and Santa Clara. One member from each county is a public agency staff member responsible for bike planning and/or policy development, one is a member of a bicycle advocacy organization, and one is a Caltrain bike passenger from the general public. The committee does not have independent duties or authority to take actions that will bind the Joint Powers Board of Directors.

1.2 CURRENT BIKE PROGRAMS AND PLANNING

Caltrain is committed to sustaining and growing the use of bicycles to access its system. Caltrain's Comprehensive Access Policy Statement (2010) and Strategic Plan (2014) both contain policy language emphasizing the importance of cycling as an efficient and sustainable means for customers to access the system and make first- and last-mile connections between

their homes, jobs, and the Caltrain system. Caltrain's Short Range Transit Plan FY2015-2024 also includes goals and objectives to improve multi-modal access to the stations.

Today, bicycles continue to be a major mode of access for Caltrain's customers, serving as the most popular mode after walking and transit.¹ To serve existing and future customers, there are two major components to Caltrain's bicycle program: bikes on board and wayside facilities. To support the agency's bicycle program, a number of bike planning efforts have been completed in the last ten years.

1.2.1 Bikes on Board

Caltrain has more on-board bike storage capacity than any other commuter rail service in the country.² Caltrain began its bike access program in 1992, and it involves designated train cars with racks to store bicycles. Bicycles are allowed on any train with space for storage, even during peak periods. Trains have 80 storage spaces distributed between two cars or 72 spaces distributed among three cars, depending on the fleet type. There are currently nine passenger seats for every bike parking space on board the trains. With the introduction of the new electric trains, the ratio will be improved for the bicycle access program such that there will be eight passenger seats for every bike storage space on board the trains.

Taking a bike on board allows customers to bicycle from their origin point to the train and then again from the train to their ultimate destination, thus providing both a first- and last-mile connection. The growth and success of Caltrain's bikes on board program is the result of the agency's sustained investment over the past 25 years, and Caltrain is proud to be able to offer this program to its customers. The vast majority of Caltrain customers who use a bicycle to access or egress the system bring their bike with them on board the train.

While most passengers who want to bring a bike on board can be accommodated, customers with bikes are denied boarding ("bumped") when the train's bike cars reach capacity. Bicycle bumping is a large concern of Caltrain riders who ride their bicycles to the station. There were 575 reported bumps in CY 2015. Bumps are most common at San Francisco, followed by 22nd Street, Hillsdale, Redwood City, Millbrae, Palo Alto, Menlo Park, Mountain View, San Carlos, Sunnyvale, and San Mateo.



Image 1 - Customer boarding Caltrain bike car

¹ Caltrain On-Board Passenger Survey, 2014

² FY2015-2024 Short Range Transit Plan

1.2.2 Wayside Facilities

In addition to on-board capacity for bikes, Caltrain and its partner transit agencies and cities provide a variety of bicycle parking facilities at stations. These wayside facilities help alleviate crowding on the bike cars by providing a space for customers to leave their bikes before boarding the train. Currently, however, Caltrain's system of wayside facilities varies substantially in quality and capacity from station to station and can be confusing for customers. Utilization of bicycle parking varies greatly throughout the system and is dependent both on the individual station and on the type of parking provided. It is estimated that system-wide less than 10 percent of Caltrain passengers who bike to the train leave their bike parked at a station.

Nearly all stations within the Caltrain system have bike racks, and most have secure, keyed bike lockers that can be rented directly from Caltrain. Overall, Caltrain currently has approximately 650 bicycle rack spaces and 1,100 keyed bike locker spaces at its stations. An additional several hundred spaces are available in the dedicated, enclosed facilities at San Francisco, Palo Alto, Menlo Park, and Mountain View stations. Most bike parking facilities at stations are owned and administered by Caltrain but others, including the bicycle facilities at Palo Alto and Mountain View, are owned or operated by a local jurisdiction or other entity.

1.2.3 Previous Bike Planning Efforts

The Caltrain Bicycle Access and Parking Plan (BAPP) was adopted by the JPB in 2008 and provided detailed guidance addressing Caltrain's wayside bicycle facilities. The plan included a variety of capital project recommendations for improving wayside bicycle access and parking throughout the Caltrain system and at specific stations.

Although Caltrain significantly expanded its on-board bicycle program in the last several years, capital funding constraints resulted in mixed progress with respect to the wayside bicycle improvements recommended in the BAPP. In the summer of 2013, Caltrain staff began work with the Caltrain BAC to revisit the 2008 plan and come up with a more cohesive strategy to systematically prioritize and implement the remaining capital recommendations included in the 2008 BAPP.

The resultant Implementation Strategy was submitted in draft form to the BAC in September of 2014 and was finalized by the end of 2014. The process resulted in the establishment of a cyclical Bicycle Wayside Capital Program to track project implementation, maximize grant opportunities, and provide a process to introduce and prioritize new capital projects as needs emerge. This prioritization process was temporarily put on hold while Caltrain staff prepared the Bicycle Parking Management Plan. An updated version of the prioritization process idealized in the BAPP will resume once the Bicycle Parking Management Plan has been implemented.

1.3 PURPOSE AND NEED FOR A BICYCLE PARKING MANAGEMENT PLAN

As Caltrain ridership has grown, the number of passengers using a bike to access the system has also grown, and many of these passengers take advantage of Caltrain's bikes on board program. However, due to the fixed number of bikes that can be brought on each train (80 or 72) and the popularity of Caltrain's bikes on board program, passengers who bike to Caltrain can face bike capacity issues on board the trains, especially during the peak commute periods and when the weather is comfortable for biking. Convenient and secure wayside bike parking facilities provide an important option for passengers who ride their bikes to the train, and these facilities can help ease crowding on board the trains in the bike cars.

Caltrain ridership is expected to increase substantially in the coming years, following completion of the Peninsula Corridor Electrification Project. Ridership may double by 2040, and it is anticipated that the number of passengers accessing the system via bicycle will grow substantially during the same time period. While the new electric trains will provide one on board bike space for every eight seats, in contrast to the current ratio of one to nine, it may still not provide sufficient on-board capacity to accommodate all future bike riders. Therefore, it is important that Caltrain's wayside bike facilities provide a viable, attractive, and feasible option for passengers who bike to or from a Caltrain station today and in the future.

Despite developing the Bike Parking and Access Plan - Implementation Strategy in 2014, the agency has seen mixed progress with respect to improvements to the bike parking system due to staffing shortages, funding challenges, and management difficulties. The Implementation Strategy identified several key "non-capital" issues related to bicycle parking and access, and primary among these was the need for Caltrain to establish a bike parking "business" or "management" plan to provide stakeholders with information to support decision-making related to bike parking, including:

- Understanding the bike parking needs of bicyclists and identifying the factors that may influence them to bring their bikes on board the train rather than park at stations;
- Understanding the full operating and administrative costs and customer service implications of current and planned bike parking facilities, including keyed and electronic lockers (i.e., e-lockers) and staffed and unstaffed bike parking facilities; and
- Understanding how different administrative and management models could improve the financial and customer service performance of the Caltrain bike parking system.

Staff in Caltrain's Planning Department applied for a grant from Caltrans' Sustainable Transportation Planning Grant Program to support development of a bike parking management plan for the agency. In late 2015, the agency was awarded the grant, selected a consultant team to assist with the project, and commenced work in spring of 2016. Development of the

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Plan benefited substantially from contributions from members of Caltrain’s BAC and CAC, as well as the project’s Technical Advisory Committee (TAC), composed of staff from various stakeholder entities, including local cities and county agencies. Throughout the planning process, members of the BAC, CAC, and TAC provided feedback, ideas, and guidance for the bike parking system.

Overall project objectives included:

- Work with customers and key stakeholders to identify the mobility needs of bicyclists using the Caltrain system and specifically understand the factors and constraints that influence them to take their bikes on board the train rather than park at a station or use a bikeshare system.
- Work with customers and key stakeholders to define clear customer service and financial performance measures and goals for Caltrain’s bike parking system.
- Support the advancement of capital planning activities by analyzing the customer service performance, capital costs, operating costs, and maintenance costs of current, planned and contemplated bicycle parking facilities.
- Analyze different management strategies and administrative options to improve the performance of Caltrain’s bike parking system.
- Identify a recommended set of management and administrative reforms to optimize the performance of Caltrain’s bike parking system and develop a clear implementation strategy and timeline.

This Bicycle Parking Management Plan supersedes the previous bike planning efforts and is considered to be the only active plan for Caltrain’s bike parking facilities, though the previous plans may still serve as reference documents. It is anticipated that the Bicycle Parking Management Plan will serve staff; members of the BAC, CAC, and JPB; partner agencies and cities; and members of the public.



Image 2 - Bike parking options at San Carlos Caltrain Station

1.4 BICYCLE PARKING MANAGEMENT PLAN OVERVIEW

The Bicycle Parking Management Plan is presented here in two sections, corresponding to the two general phases of work that were completed for the project. In general, this Plan presents the main findings from the various tasks that were completed as part of the grant. Full details can be found in the appendices of this Plan.

The first section of this Plan focuses on understanding Caltrain’s current bike parking system and how it is used, as well as the potential market for bike parking at Caltrain. It documents the current supply and use of bike parking facilities in the system and explores which types of bike parking facilities would best meet passengers’ needs. It strives to understand the potential market for bike parking facilities if Caltrain can meet its customers’ needs and interests.

The second section of this Plan focuses on how Caltrain can deliver a high-quality bike parking system to meet the needs of its passengers. It establishes goals and performance measures to track progress and guide improvements to the system. It also summarizes management approaches studied, before recommending a new approach to managing Caltrain’s bike parking system. It provides guidance on improvements to the bike parking system, superseding the 2014 Implementation Strategy and 2008 BAPP. Finally, it explores funding options for capital and operating costs for the bike parking system and delineates key steps and milestones for implementing the vision laid out in this Plan.



Image 3 - Bike racks at Hillsdale Caltrain Station (with Bay Bikes)

2.0 POTENTIAL MARKET FOR BIKE PARKING AT CALTRAIN STATIONS

The previous chapter described Caltrain’s current capacity challenges and the role that bike parking could play in alleviating crowding and better serving passengers. The purpose of this chapter is to describe the research activities that were carried out to confirm that there is a market for bicycle parking among Caltrain passengers and determine what kind of bicycle parking customers would most likely use.

2.1 CURRENT BIKE PARKING SUPPLY

Bicycle parking at Caltrain stations comes in a range of forms, listed below:

- Bicycle Racks
- Reserved Keyed Lockers
- On-demand Lockers (Electronic Lockers)
- Secure Facilities – Staffed
- Secure Facilities – Unstaffed

Bikeshare is separate but related to bicycle parking. Bikeshare kiosks provide storage specifically for bikeshare bicycles, and other forms of bikeshare that do not have specific kiosks can make use of specific types of bicycle parking, such as bike racks.

Stand-alone bicycle racks are located at all but three Caltrain stations and make up approximately 30 percent of the total bicycle parking supply across the Caltrain system. Bicycle racks are available on a first come, first served basis. Passengers use their own locks to attach bicycles to the rack and require no advanced registration or access card. Racks offer the lowest amount of security as bikes remain exposed; as such, they are best for occasional or short-term use. The bicycle racks identified in this Plan are owned by Caltrain, although many stations have bike racks in their vicinity that are owned by the local jurisdiction that could potentially be used by



Image 4 - Bicycle racks at Millbrae Station

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Caltrain passengers. Bike racks may also be located in shared facilities, as well, but these are counted separately in this Plan.

Keyed lockers are located at all but four Caltrain stations and make up approximately 50 percent of the total bicycle parking supply across the Caltrain system. Keyed lockers are rented on a semi-annual basis and locked with a key, which is assigned to a single user. Users must be registered in advance for the locker and pay a key deposit and a nominal fee. The majority of keyed lockers are administered by Caltrain. For these, the cost is \$33 for six months, with a \$25 key deposit. Keyed lockers at stations south of San Jose Diridon are administered by VTA. VTA lockers require a \$25 key deposit but have no ongoing monthly fees. Keyed lockers provide a higher level of security than racks by protecting the entire bicycle from theft and weather.



Image 5 - Caltrain keyed lockers

Electronic bicycle lockers are available on a first come, first served basis using an electronic debit card. BikeLink is the vendor which manages the e-lockers and electronic stored value cards. These cards can be used to access BikeLink bicycle lockers and unstaffed bike stations throughout the Bay Area, including at select Caltrain stations, most BART stations, and other transit facilities and popular destinations. The cost of using these electronic lockers is generally five cents per hour.



Image 6 - BikeLink electronic bicycle locker

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Secure parking facilities include controlled-entry bicycle parking facilities and staffed (“valet”) bicycle parking facilities. Secure parking facilities are available at San Francisco 4th and King (staffed), Palo Alto (unstaffed), Mountain View (unstaffed), and Menlo Park (unstaffed) Caltrain Stations. Palo Alto and Mountain View’s facilities are owned and operated by the local municipalities. The Menlo Park Bike Shelter is owned by Caltrain but is not actively managed or administered at this time. Each secure parking facility has been customized for local conditions, such as available space and demand, and is operated based on available capital funds and ongoing operational resources by Caltrain or partner municipalities.



Image 7 - Caltrain Bike Station (Source: San Francisco Bicycle Coalition)

The number of bicycle parking spaces in each bicycle parking category is shown in Table 1.

Table 1 Bicycle Parking Inventory

Bicycle Parking Type	Number of Spaces Owned and Operated by Caltrain	Number of Spaces Owned by Others	Total Spaces
Bike Racks	642	0	642
Keyed Lockers	995	94	1089
Electronic Lockers	4	62	66
Secure Facility - Staffed	250	0	250
Secure Facility - Unstaffed	50	136	186

See Appendix A for a full list of the different types of bicycle parking at each station.

2.2 RESEARCH METHODOLOGY

The following is a description of the four main types of research that were carried out to assess how Caltrain passengers use bicycles in conjunction with rail services, evaluate how existing bicycle parking facilities are used, and assess the attitudes Caltrain passengers have towards various types of bicycle parking facilities.

2.2.1 Analysis of Existing Data Sets

Relevant existing data sets were examined to understand the scale of bicycle usage among Caltrain passengers, the different ways in which bicycles are used to get to and from Caltrain stations, and the origin-destination patterns of bicycle users. The timing of the planning effort was such that the 2016 Triennial Customer Satisfaction Survey data set was not used, as it was not available until spring 2017. In addition, this data set would not have provided the same level of detail about bike trip characteristics as was available in the data sets described below.

2.2.1.1 2014 On-Board Passenger Survey

In 2014, during the months of October, November, and December, Caltrain conducted an on-board survey to better understand how people were using Caltrain. The survey was used by the Metropolitan Transportation Commission (MTC) to improve regional transit ridership forecasts as part of the regional travel demand model. The on-board survey consisted of two parts, the On-to-Off survey and the Main Survey. The On-to-Off survey identified boarding and alighting patterns of transit riders by having survey administrators ask simple questions of “where did you get on and where did you get off the train?” The survey collected 19,000 responses to this part of the survey.

The second survey, known as the Main Survey, was a face-to-face interview between the survey interviewer and the transit passenger that lasted approximately five minutes. This survey collected detailed origin-destination information, modes of access and egress, and passenger demographics. Caltrain received approximately 5,700 completed survey responses for weekday and weekend trips. For the Caltrain Bicycle Parking Management Plan, the responses from Caltrain riders who used bicycles to access and egress the stations were analyzed in depth.

Despite reflecting travel patterns from two years prior to the planning effort period, it was felt that due to the high level of detail in this data set and its large size, it would be valuable to examine in depth to understand the trip characteristics of bike passengers.

2.2.1.2 2016 Caltrain Annual Passenger Counts

Caltrain carries out an annual passenger count to assess ridership trends from year to year, provide data for evaluating service changes, allocate resources to address crowding, and validate revenue-based ridership estimates. For these counts, all passengers and bicycles are counted getting on and off trains at stations for five weekdays (typically in February), and the averages are reported as average weekday boardings and alightings. Similarly, all passenger

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activity is counted over a weekend, and the average of the Saturday and Sunday counts are used to estimate the average weekend boardings and alightings. For the Bicycle Parking Management Plan, the loads on the trains were examined to better understand the existing capacity constraints related to bringing bicycles on board.

Data on bikes denied boarding is also collected during this annual passenger count.

2.2.1.3 2013 Access Survey

A survey was carried out by Caltrain as part of the Peninsula Corridor Electrification Program Environmental Impact Report in June 2013 to assess how passengers were getting to 23 of the 32 Caltrain stations. Intercept surveys occurred during the morning peak between 6:30 AM and 10:30 AM over three days. An estimated 14 percent of AM peak boarding passengers were surveyed, with the percentage varying by station. Eight stations were surveyed on Monday, June 3, eight stations were surveyed on June 4, and seven stations were surveyed on June 5. One to five surveyors were deployed to each station, depending on AM peak demand, and they approached passengers on the platform with questions about how they had arrived at the station that morning. For the Bicycle Parking Management Plan, these values were examined to understand the distribution of access and egress modes to and from key stations in the AM peak and, among passengers who biked to a station, what they did with their bicycle at their origin station.

2.2.1.4 2015 Caltrain Bicycle Bump Reports

Passengers are encouraged to report being bumped on the Caltrain website, and the results are publicly available.

2.2.2 Stakeholder Engagement

Stakeholders were engaged over the course of the Bicycle Parking Management Plan to gather information related to bicycle parking, receive feedback on the project's approach, and to advise them of findings.

2.2.2.1 Technical Advisory Committee

The Technical Advisory Committee for the Bicycle Parking Management Plan was made up of representatives from five cities (Mountain View, Palo Alto, Redwood City, San Francisco, and San Jose), one company (Facebook), one university (Stanford University), the funding agency (Caltrans), the Bay Area Air Quality Management District, the Valley Transportation Authority (VTA), and two advocacy groups (San Francisco Bicycle Coalition and Silicon Valley Bicycle Coalition).

The Technical Advisory Committee met on the following dates:

Meeting #1: April 12, 2016



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Meeting #2: July 1, 2016

Meeting #3: February 22, 2017

Meeting #4: July 27, 2017

2.2.2.2 Bicycle Advisory Committee

As mentioned in the introduction, the Bicycle Advisory Committee has three volunteer representatives from each county served by Caltrain. The BAC members provided key feedback and input throughout the planning process for the Bicycle Parking Management Plan. Staff presented to this committee on the following dates:

Presentation #1: May 19, 2016

Presentation #2: January 19, 2017

Presentation #3: May 18, 2017

Presentation #4: July 17, 2017

Presentation #5: August 24, 2017

2.2.2.3 Citizens Advisory Committee

As mentioned in the introduction, the Citizens Advisory Committee has three volunteer representatives from each county served by Caltrain. The Bicycle Parking Management Plan was presented to this committee on the following dates:

Presentation #1: June 15, 2016

Presentation #2: August 15, 2017

Presentation #3: September 20, 2017

2.2.2.4 Website

The project is described on the following website, which also contains links to presentation material from Bicycle Advisory Committee and Citizens Advisory Committee meetings. The website also enables viewers to submit messages related to the project.

http://www.caltrain.com/projectsplans/Plans/Bike_Parking_Management_Plan.html

2.2.2.5 Joint Powers Board (JPB)

As mentioned in the introduction, the Joint Powers Board (JPB) Board of Directors has three representatives from each county served by Caltrain.



The Bicycle Parking Management Plan was presented to the Board for adoption on the following date:

Board Presentation: October 7, 2017

2.2.3 Bike Parking Occupancy Observations

Observations were made of samples of Caltrain's bike parking facilities over the course of the planning effort to better understand how they are currently used. The sample sizes of each bike parking type varied depending on the ease of data collection.

2.2.3.1 Keyed Lockers

The team conducted a keyed locker survey at three Caltrain stations daily for the course of a workweek in November 2016. Stations observed were: San Carlos, Mountain View, and San Francisco. In total, these stations have 330 keyed lockers, which is approximately one-third of the keyed lockers at stations in the Caltrain system. These stations were selected for observation based on high levels of on-board bicycle boardings, high numbers of keyed lockers, geographic and land use diversity, and surveyor availability.

Appendix B describes the methodology used to collect data on keyed locker usage, the results of this data collection effort, and a memo on input received over the course of the research effort related to keyed lockers.

2.2.3.2 E-Lockers

A total of 66 BikeLink electronic lockers are available at six Caltrain Stations: Millbrae (24), San Mateo (12), Hayward Park (4), Hillsdale (12), Sunnyvale (4), and Tamien (10). Lockers at San Mateo, Hayward Park, and Hillsdale Stations are owned by the City of San Mateo. The lockers at Sunnyvale Station are owned by Caltrain. The electronic lockers at Millbrae Station are owned by BART. The lockers at Tamien are owned and operated by the Valley Transportation Authority (VTA). Data was requested from e-Lock Technologies for these e-Lockers to show usage over the previous year.

Appendix C provides information collected from e-Lock Technologies related to e-Locker usage at Caltrain stations.

2.2.3.3 Unstaffed Secure Parking Facilities

The unstaffed secure parking facility at Palo Alto Station, known as Bikestation Palo Alto, is an access-controlled bicycle parking facility on the western platform. Bikestation Palo Alto accommodates 96 bicycles in double-tier racks.

Menlo Park and Mountain View Caltrain Stations also feature access controlled bicycle parking facilities. These bike shelters accommodate 50 and 40 bicycles, respectively.

Information about the use of these bike rooms was collected from City and Caltrain staff.

2.2.3.4 Staffed Secure Parking Facilities

The staffed secure parking facility at San Francisco 4th and King Station, known as Caltrain Bike Station, offers valet bike parking for Caltrain customers with 200 dedicated bike spaces (but staff can accommodate over 250 bikes during peak periods). Usage data was requested from BikeHub, the operating partner of the Caltrain Bike Station, for use in the Bicycle Parking Management Plan.

2.2.3.5 Bike Racks

Bicycle rack occupancy was measured at five Caltrain stations on three weekdays in November 2016. Stations observed were: San Carlos, Redwood City, Palo Alto, Mountain View, and San Jose Diridon. In total, these stations have approximately 280 rack spaces. These stations were selected for observation based on high levels of bicycle boardings, high numbers of bike racks, geographic and land use diversity, and surveyor availability.

Data collected from a 2013 survey of bicycle racks throughout the system was also referenced during the project.

Appendix D describes the methodology used to collect data about bike rack usage and the detailed results of the data collection effort.

2.2.4 Customer Research

Information about customer attitudes and motivations was collected through an on-board passenger intercept survey targeting passengers who brought their bikes on board, a web-based survey that targeted all Caltrain passengers, and focus groups.

2.2.4.1 Bike Car Passenger Intercept Survey

The bike car intercept survey was conducted on July 26th, 27th, and 28th (a Tuesday, Wednesday, and Thursday) in 2016. The survey was conducted during morning peak hours in the bike cars of the trains, and only given to those riders who had brought bicycles on the train with them. This data collection effort was designed to complement findings from existing data sets. Surveyors received around 350 completed surveys.

Appendix E provides detailed information related to this survey, including the methodology, the survey tools, and the results.

2.2.4.2 Web-based Passenger Survey

An online survey was conducted to supplement feedback received through the bike car passenger intercept survey. The intention was to collect feedback from a broader audience with a survey open to everyone, not just cyclists in the bike car during the AM peak. The online

survey offered the ability to ask more detailed questions utilizing question skip logic based on a respondent's answer to a previous closed-ended question. The online survey was available from November 8 to November 29, 2016. Approximately 1,200 respondents participated in the survey.

Appendix F provides detailed information related to this survey, including the methodology, the survey tools, and the results.

2.2.4.3 Focus Groups

The team conducted three focus group sessions from December 6 to 8, 2016 in San Francisco, Mountain View, and San Carlos. The purpose of the focus group sessions was to help the team determine the motivations of customers when making choices about what to do with their bike when riding to a Caltrain station. Focus group participants were recruited from both the bike car intercept and online surveys. Participants were selected to represent a wide range of bike parking choices, including using the secure rooms, using bike racks, bringing a bike on board, using bikeshare, and using the keyed lockers. Overall, five participants were selected for each focus group and four attended each of the three focus group sessions. In total, 12 people participated in the focus group sessions. The discussions lasted for one hour and provided participants with an opportunity to discuss their experiences accessing the stations with a bicycle and bringing their bicycle on board. Customers received a \$50 gift card as an incentive and "thank you" for agreeing to participate in the focus groups.

Appendix G provides detailed input collected from these focus groups.

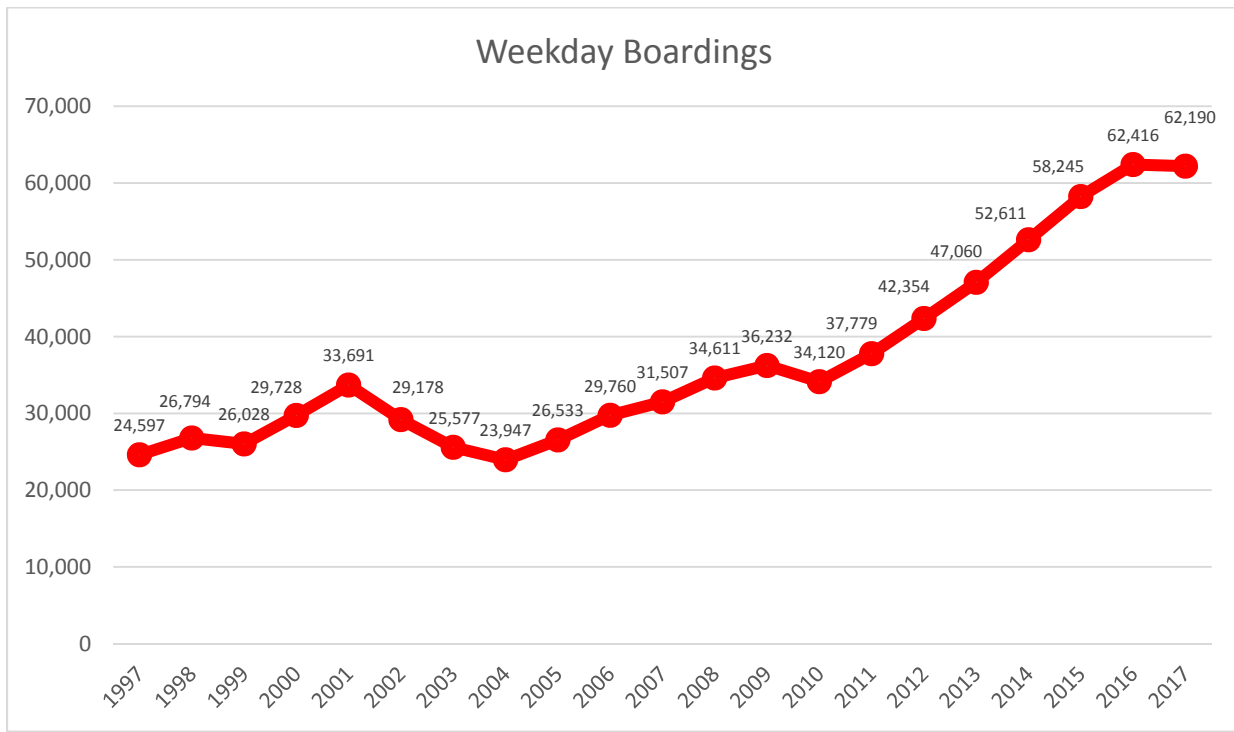
2.3 FINDINGS RELATED TO CURRENT BIKE PARKING USAGE

The following is a series of key findings from the research efforts that illustrate how Caltrain customers are accessing stations today and how they are using (or not using) bike parking facilities at stations.

2.3.1 Weekday Passenger Profile

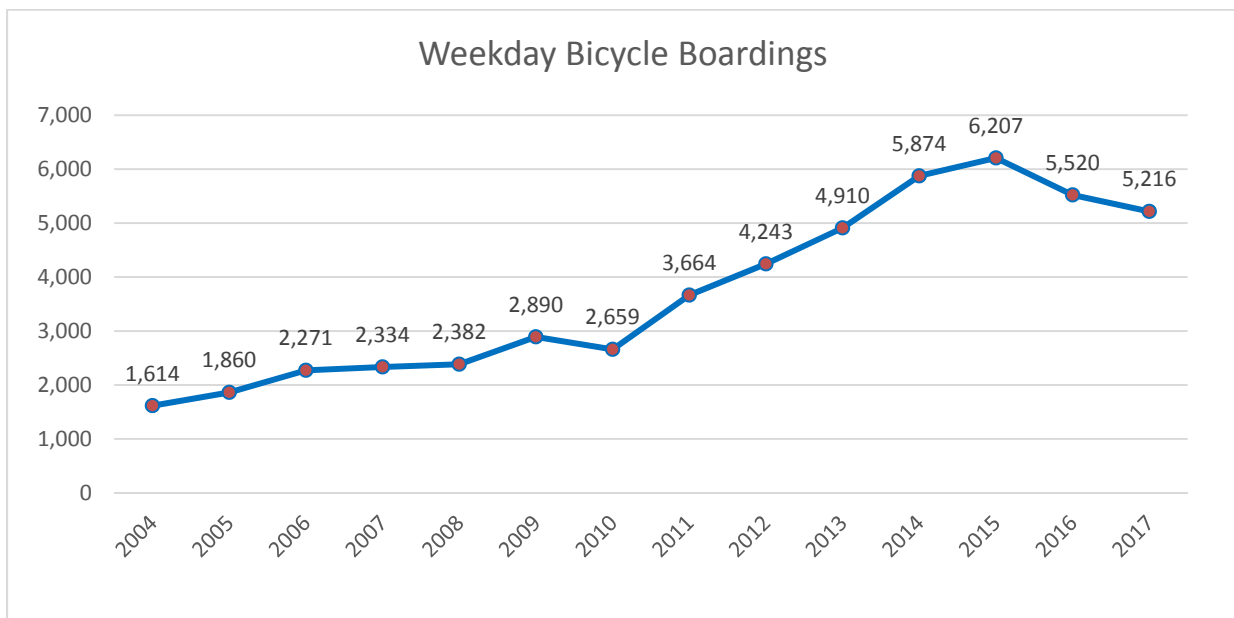
Figure 1 shows weekday boardings as estimated through annual passenger counts starting in 1997. Caltrain's significant ridership growth is putting pressure on its Bikes on Board Program. Figure 2 shows similar growth in bicycles that are brought on board each weekday.

Figure 1 Caltrain Weekday Ridership Growth



Source: Caltrain Annual Passenger Counts

Figure 2 Caltrain Weekday Bicycle Boarding Growth



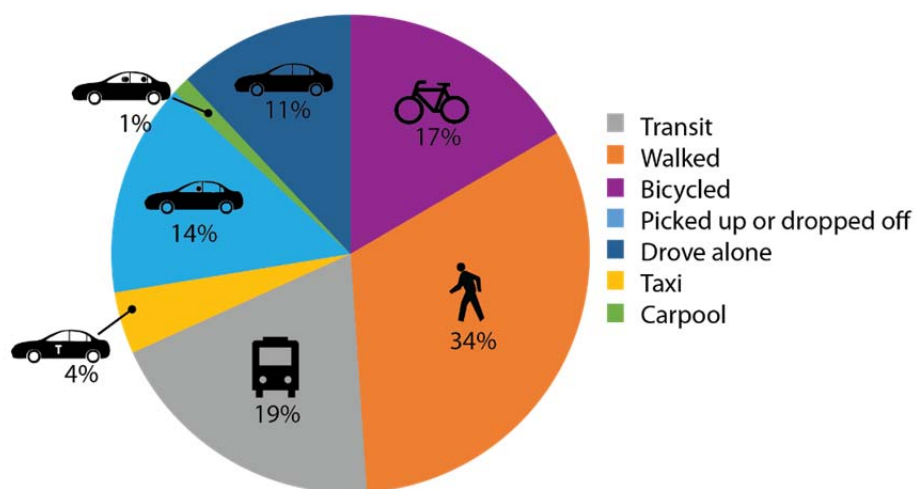
Source: Caltrain Annual Passenger Counts



2.3.2 Station Access Mode

Figure 3 shows the results of combining all of the trips made to and from a Caltrain station and categorizing them by mode. The results show that walking is the most common mode used for getting to and from a Caltrain station, while transit is the second most common mode. Biking still makes up a significant portion of access and egress trips as the third most common mode, accounting for 17 percent of these trips.

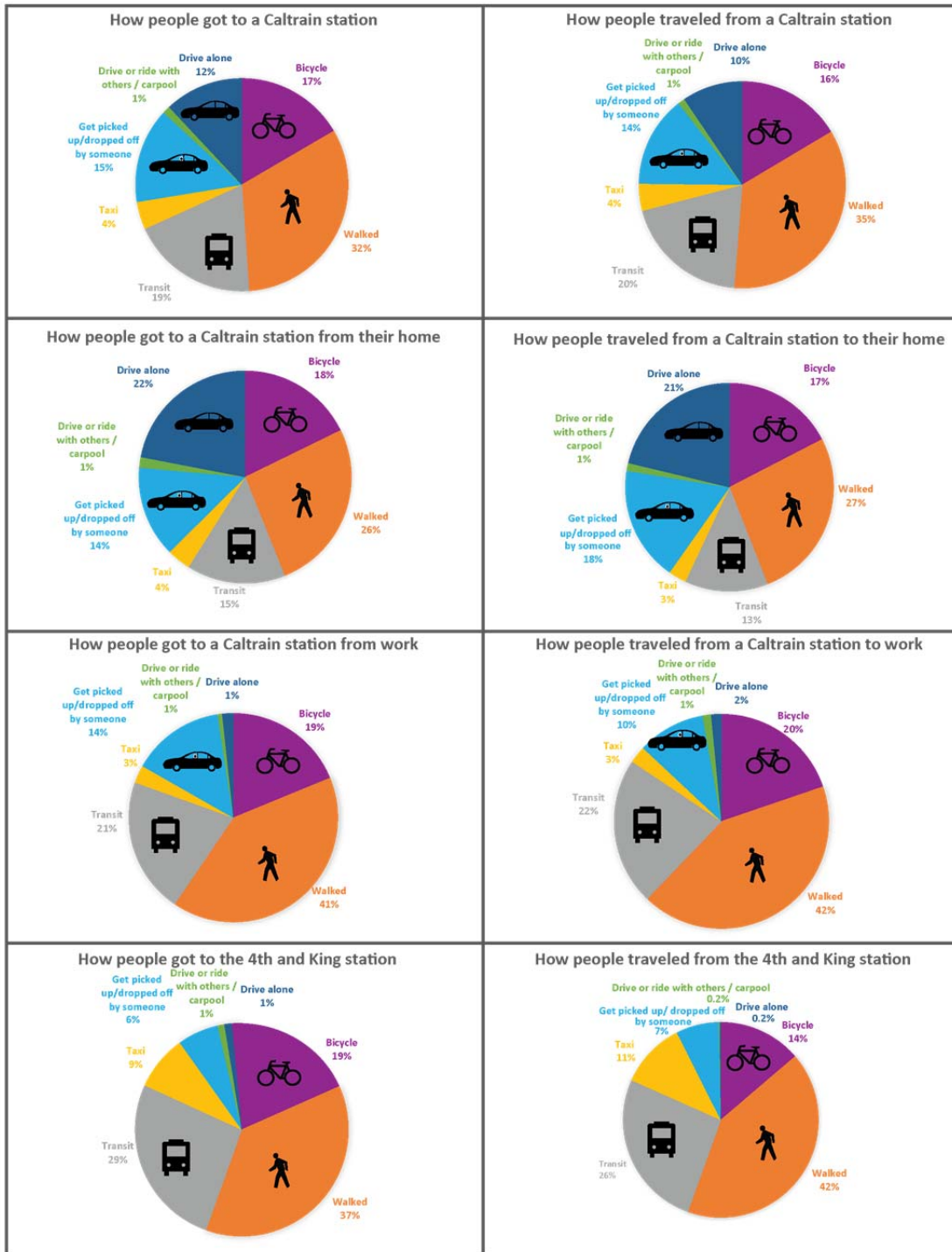
Figure 3 Station Access/Egress Mode Split - Overall



Source: 2014 MTC On-Board Passenger Survey

Figure 4 shows how access and egress modes are split for different types of trips. Bicycle usage changes only slightly among the different types of trips; this points to the versatility of bicycles, as well as to the ability of passengers to bring their bicycle on board and use it on both ends of their trip. In contrast, the share of trips by car changes substantially by type of trip. Trips to and from home have a higher proportion of car trips, while trips to and from work have a lower proportion of car trips and a higher proportion of walking and transit trips.

Figure 4 Station Access/Egress Mode Split For Various Types of Trips



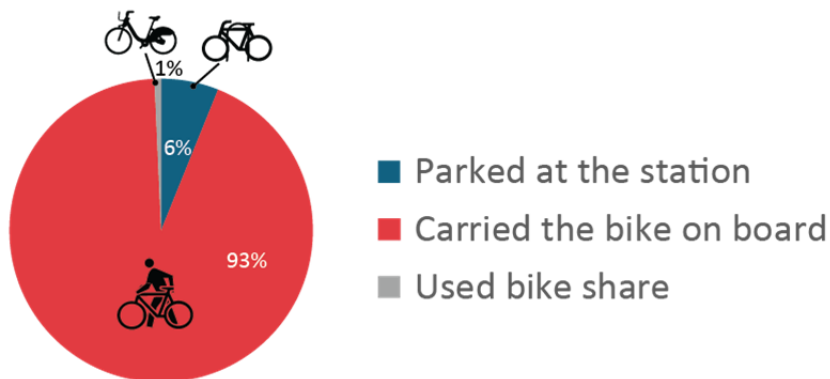
Source: 2014 MTC On-Board Passenger Survey



2.3.3 Bike Access Variations

Figure 5 shows the relative frequencies of activities that happen after a passenger has biked to a Caltrain station. The majority of these passengers bring their bike on board, while 6 percent park their bicycle. The remaining 1 percent of these passengers dock or park a bikeshare bicycle.

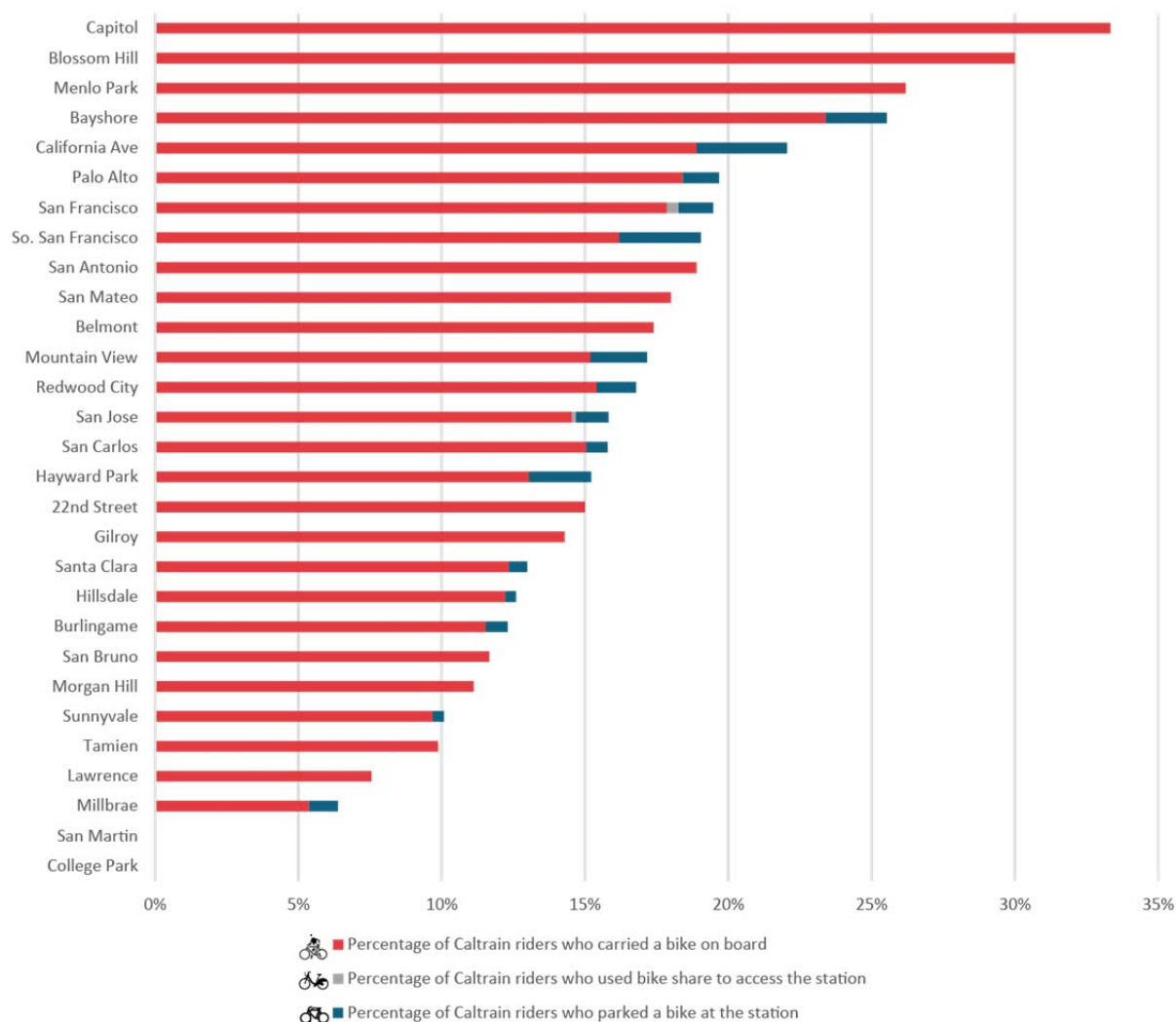
Figure 5 Bike Access Mode Split



Source: 2014 MTC On-Board Passenger Survey

Figure 6 shows similar information as Figure 5, but broken down by station and as a percentage of all access trips. Bringing a bike on board is consistently the most common action taken after a passenger has biked to a Caltrain station, but there is a range in the percentage of passengers who park their bicycle at a station.

Figure 6 Bike Access Mode Split by Station

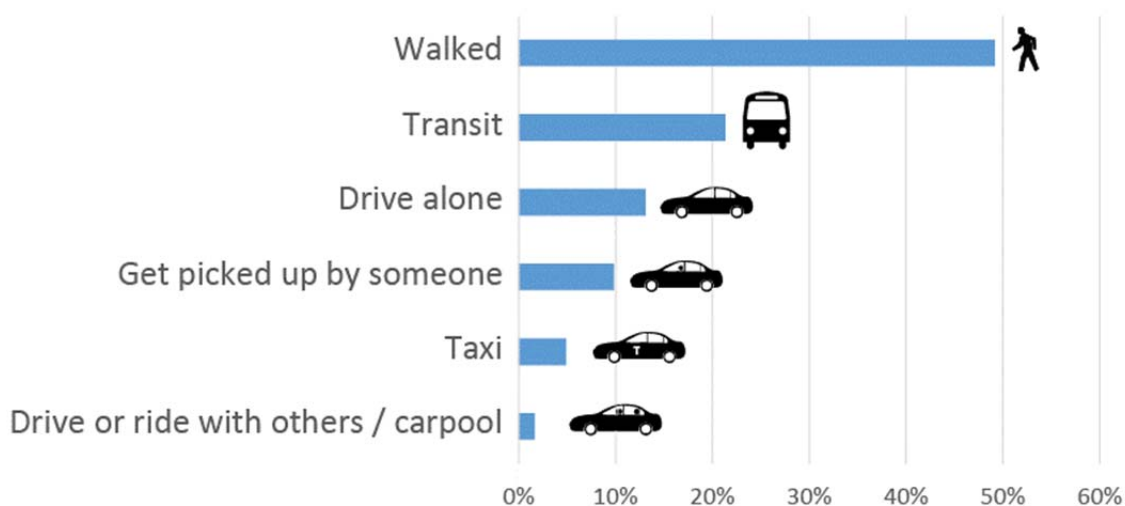


Source: 2014 MTC On-Board Passenger Survey

2.3.4 Egress Mode Used by Passengers Who Parked Their Bike

Figure 7 shows the egress mode for passengers who parked their bike at a Caltrain station. Note that in this case, the egress trip refers to any trip from the station where a passenger got off the train and travelled to their final destination. For example, if a passenger was traveling home at the time he or she was surveyed, it would be from the Caltrain station to their home. If a Caltrain passenger was on his or her way to work at the time of the survey, it would be from the Caltrain station to a work location. The most common mode of egress for such trips is walking, followed by transit. The third most common mode of egress for such trips is drive alone, which means that these passengers stored a car at one end of their trip and a bicycle at the other end of their trip.

Figure 7 Egress Mode for Passengers Who Parked Their Bike



Source: 2014 MTC On-Board Passenger Survey

2.3.5 Bike Security

Bike theft is a common issue in the San Francisco Bay Area, including along the Caltrain corridor. Caltrain passengers are encouraged to report bikes thefts at a station or on board the train to the Transit Police and to fill out a lost and found report. In 2016, 110 bike theft cases were reported, with only one theft occurring on board the train. Of the bike theft cases in 2016, 31 percent occurred at the Palo Alto Caltrain Station.

2.3.6 Bike Parking Usage

The following describes observations made of the current usage of Caltrain’s bike parking inventory. An attempt was made to capture peak usage during a typical weekday.

2.3.6.1 Keyed Locker Usage

Keyed locker occupancy rates ranged from 13-25 percent of rented lockers per day throughout the week for all three observed stations. Occupancy rates varied throughout the week and by station, as shown in Table 2. The highest rate of occupancy was seen on Friday in San Francisco, with 25 percent (40) of rented keyed lockers being used. The lowest rate of occupancy was seen on Monday and Tuesday in San Carlos, with 6 percent (2) of rented keyed lockers being used. Across the week, the average daily occupancy rate was 18 percent (28) in San Francisco, 12 percent (4) in San Carlos, and 15 percent (15) in Mountain View.

Observations are summarized in Table 2.

Table 2 Observed Keyed Locker Occupancy Rates

Station	Keyed Lockers	Rented Lockers	Occupancy Rate					
			Monday	Tuesday	Wednesday	Thursday	Friday	Average
San Francisco	180	159	14%	15%	15%	20%	25%	18%
San Carlos	36	34	6%	6%	15%	21%	12%	12%
Mountain View	116	104	13%	17%	17%	12%	14%	15%
TOTAL	332	297	13%	15%	16%	17%	20%	14%

Table 3 shows the results of the keyed locker observations in terms of how frequently the lockers were used. Over the course of the week, about two-thirds of lockers remained unused. There was minor variation in this rate at individual stations, with 65 percent of lockers being unused in San Francisco, 71 percent in San Carlos, and 72 percent in Mountain View. For San Francisco, the station with the highest locker usage and largest number of lockers, this translates into only 55 (of 159) rented lockers used over the course of the week. In San Carlos, 10 (of 32) rented lockers were used, and in Mountain View 29 (of 104) rented lockers were used.

Of the individual keyed lockers that had been used, most were used only once or twice throughout the week. 30 percent of utilized lockers had been used one time in the week, with another 30 percent used two times in the week. In San Francisco, 32 lockers (of 55 utilized) were used two days or less; in San Carlos, 7 lockers (of 10 utilized); in Mountain View 17 (of 29 utilized). Usage of the remainder of the utilized lockers was spread evenly across three, four, and five times in the week, with a small uptick in San Francisco for use all five days of the week. In San Francisco, 20 percent of utilized lockers (11 of 55) were used daily across the week.

Table 3 Observed Keyed Locker Weekly Usage rate

Days Used	San Francisco	San Carlos	Mountain View	Overall
0	65%	71%	72%	68%
1	11%	12%	6%	9%
2	9%	9%	11%	9%
3	4%	6%	4%	4%
4	3%	3%	3%	3%
5	7%	0%	5%	5%

2.3.6.2 E-Locker Usage

In general, usage of BikeLink e-lockers near or at Caltrain stations is high and increasing. Unlike the keyed lockers, e-lockers occupancy data is automatically recorded, so a full sample of occupancy over the previous year could be collected. The results are summarized in Table 4. Note that data from Tamien Station’s e-lockers are not shown because e-Lock Technologies does not have an operating agreement with the VTA at this time.



Table 4 Observed E-Locker Occupancy Rates

Station	Number of Lockers	Unique Cards per Space	Avg. Annual Rentals per Card	Avg. Rentals per Month	Avg. Occupancy Rate	Avg. Rental Duration (hrs)
Millbrae	24	5.7	22	250	50%	12.5
San Mateo	12	5.5	36	195	78%	13.0
Hayward Park	4	1.5	6	4	5%	5.7
Hillsdale	12	5.3	27	142	57%	11.7
Sunnyvale	4	13.8	14	54	65%	12.6
TOTAL	56	5.8	24	645	55%	12.5

The e-lockers at the Millbrae, San Mateo, Hillsdale, and Sunnyvale Caltrain Stations see peak period occupancy rates above 50 percent. San Mateo’s e-lockers show some of the strongest usage figures, with its twelve lockers completing approximately 160-220 rentals per month. The e-lockers at San Mateo regularly reach 100 percent occupancy during the summer and fall months, meaning that all lockers are full at some point during the day. During the winter and spring months, occupancy is still high, with an average occupancy rate of 75 percent.

While Sunnyvale e-lockers see approximately 45-60 rentals per month, this is proportional to usage seen at Millbrae, San Mateo and Hillsdale Caltrain Stations, given that Sunnyvale only has four BikeLink lockers.

The Hayward Park Caltrain Station is a significant outlier and its low e-locker usage rates may be due to the station’s location and limited peak train service. Hayward Park has the lowest use of e-lockers. Less than six rentals were made per month throughout 2016.

E-locker data shows the number of times in the last year that a unique user has parked their bike in a locker. One rental is counted every time an individual places a bike in a locker. The average user completed 20-30 rentals in the last year, demonstrating that many e-locker users are using the parking facilities on an occasional basis rather than every day.

An additional piece of information that can be derived from the e-locker data is the duration of the rentals. The average duration of the rentals at most stations is 12-13 hours, which suggests that they tend to meet the needs of people using Caltrain for work trips.

2.3.6.3 E-lockers vs. Keyed Lockers

The data from the five Caltrain stations north of Tamien Station with electronic lockers shows that average occupancy is typically much higher than average keyed locker occupancy. As described in the previous section, keyed locker occupancy at the sampled stations averaged around 15-20 percent per day. E-locker data reveals that occupancy rates are generally between 50-75 percent, but depend on the station and time of year. Peak times (summer and fall weekdays) can see occupancy rates of 85-100 percent.



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A key metric used to evaluate the utilization of e-lockers is the number of unique cards used per space in any 12-month period. This metric is generally one (at best) for a reserved keyed locker; any number higher than two indicates use by multiple customers. The Bay Area average for BikeLink e-lockers is 12. The utilization of BikeLink lockers based on unique cards used per space varies for each station. Millbrae, San Mateo, and Hillsdale each have around 5-6 unique users per locker, about half the Bay Area average. Hayward Park sees the lowest number of unique users, while Sunnyvale sees the highest, just above the Bay Area average.

In general, the e-lockers tend to serve many more unique users than keyed lockers. By their design, keyed lockers are only accessible to one user at a time, limiting their use to other potential customers when empty. With e-lockers available on demand to any user with a BikeLink card, they are able to serve an average of six times as many unique users. At Millbrae, for example, this means that 136 customers have been served by just 24 lockers, and at San Mateo 66 customers have been served by 12 lockers in the past year.

The high e-locker occupancy rates at the Millbrae, Hillsdale, San Mateo, and Sunnyvale Caltrain Stations are indicative of what e-locker utilization might be at other key Caltrain stations, since these stations are in the top ten for average weekday bike boardings. E-locker installations at Caltrain stations remain relatively small (with a maximum of 24 e-lockers at any given station) compared to the number of keyed lockers (with a maximum of 180 keyed lockers at any given station). Since no Caltrain stations have large installations of e-lockers, Table 5 below includes comparison figures for Pleasant Hill BART, which has had a highly successful e-locker installation, with over 100 e-lockers and daily station ridership that is comparable to the busiest Caltrain stations. The table also compares the potential revenue generated per locker from user fees, which typically range from 3-5 cents per hour for e-lockers and a flat \$33 per six months for keyed lockers.

Table 5 E-Locker vs Keyed Locker Utilization Rates

Locker Type	Assumed Average Weekday Occupancy	Assumed Average Unique User(s)	Potential Annual Revenue per Locker
Keyed	15-20%	1	\$66
E-Locker (Caltrain)	50-75%	6	\$52
E-Locker (Pleasant Hill BART)	80-100%	4	\$90

2.3.6.4 Unstaffed Secure Parking Facilities Usage

Table 6 shows the reported occupancy rates at each of the three unstaffed secure parking facilities in the system. The Palo Alto Bike Station typically has the highest number of spots used per day, as well as the largest capacity. The Menlo Park Bike Shelter is owned by Caltrain and was previously administered as part of the keyed locker program, but is no longer actively managed or administered due to staffing and resourcing shortages, so its usage has declined substantially.

Table 6 Reported Unstaffed Secure Facility Occupancy Rates

Unstaffed, Secure Facility	Parking Spots Available	Average Spots Used Per Day
Menlo Park Bike Shelter	50	Unknown, but observations and data suggest 0-1 users daily
Palo Alto Bike Station	96	67; 80% of users store bikes overnight
Mountain View Bike Shelter	40	110 rental agreements; 10-15 users daily

2.3.6.5 Staffed Secure Facility Usage

In 2015, the Caltrain Bike Station parked 47,300 bicycles. Daily parking counts for 2016 average between 145 to 180 bikes per day depending on the month. This translates into an average of 3,600 bicycles parked per month. Parking counts exceed 200 bicycles at least three to five days per month. This translates to overall monthly occupancy rates between 80-90 percent, with some individual days reaching rates over 100 percent. Overnight storage for commuters who pick up their bike in the morning upon departure from the Caltrain station is an important service offered by the Caltrain Bike Station. Approximately 60-75 bikes are left overnight at the Bike Station each day.

2.3.6.6 Bike Rack Usage

The overall bicycle rack occupancy rates for the five observed stations was 53 percent. This overall rate was consistent across all three days of observation, although occupancy rates at individual stations and for each observation day showed greater variation. The station with the lowest rate of occupancy was San Carlos, with 20-30 percent occupancy. The station with the highest occupancy was Mountain View, with 70-100 percent occupancy. In absolute numbers, Palo Alto saw the greatest number of bikes parked, with approximately 100 bicycles parked at racks each day. San Jose Diridon saw the fewest number of bikes parked daily, with as few as five bikes recorded. Observations are summarized in Table 7.

Table 7 Observed Bike Rack Occupancy Rates

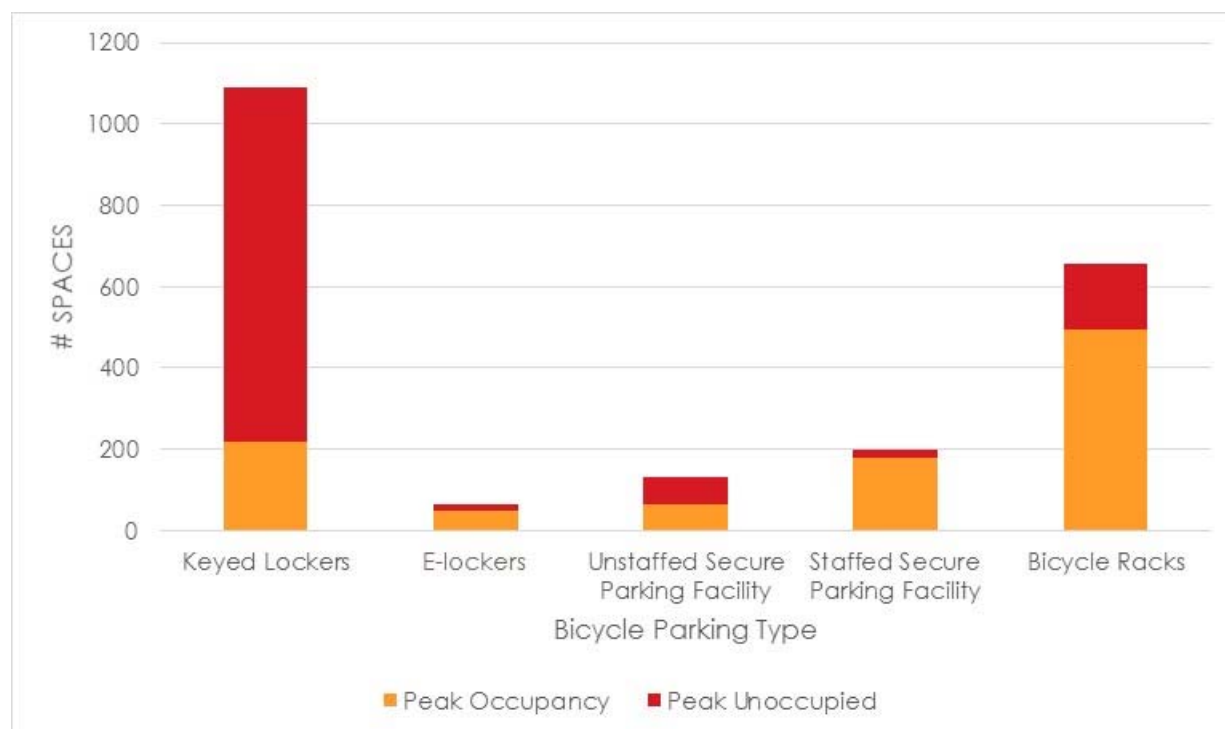
Station	Capacity	Occupancy Rate			
		11/1/2016	11/2/2016	11/4/2016	Average
San Carlos	40	18%	30%	20%	23%
Redwood City	20	55%	95%	70%	73%
Palo Alto	184	55%	51%	52%	53%
Mountain View	26	100%	81%	69%	83%
San Jose Diridon	10	50%	50%	70%	57%
TOTAL	280	54%	54%	51%	53%



2.3.7 Bike Parking Usage vs Supply

Based on the above observations, estimates of weekday occupancy for each type of bike parking facility in the Caltrain system are shown in Figure 8 along with the total supply of parking spaces. It appears that the e-lockers, unstaffed secure parking facilities, the staffed secure parking facility, and bicycle racks all exceed the average occupancy rate of the system, while the keyed lockers fall below the average occupancy rates. Specifically, the staffed secure parking facility in San Francisco appears to be the most intensely used, while keyed lockers appear to have the least intensity of usage among the different bicycle parking spaces. This assumes that the stations where bike parking occupancy was measured are typical of the system as whole. While these counts were not carried out at all stations, they were an attempt to acquire rough approximations of how Caltrain’s different bike parking facilities are used during peak times.

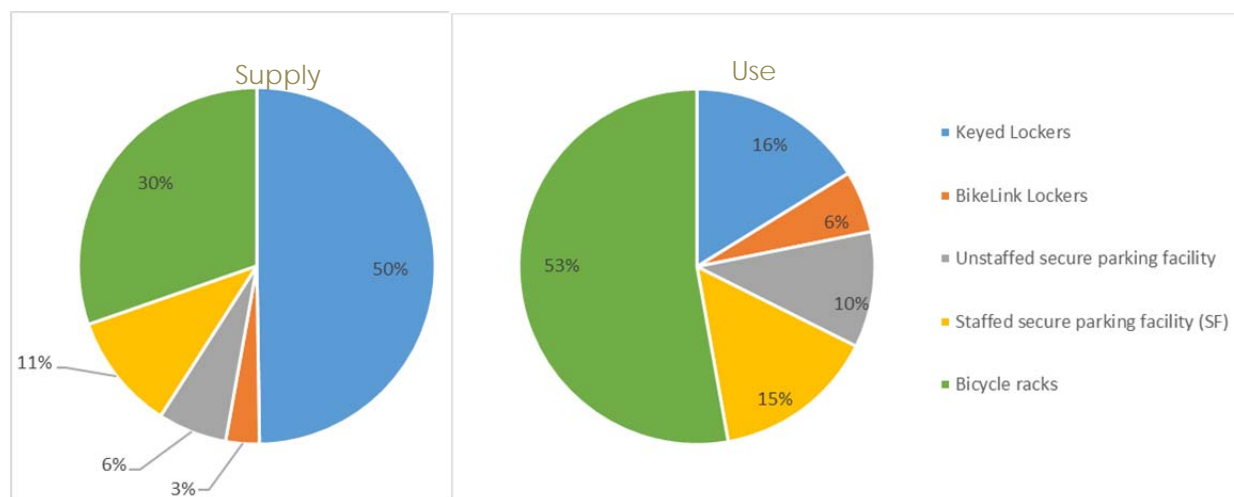
Figure 8 Caltrain Bike Parking Peak Period Occupancy (Estimated)



As shown in Figure 9, the online survey results tell a similar story to Figure 8 about inconsistent occupancy rates among the different types of bicycle parking. The percentage composition of the bike parking supply is shown on the left, while the percentage totals of reported use of bike parking facilities from online survey participants is shown on the right. It is notable that keyed lockers comprise half of the bike parking supply, but over half of the online survey participants report using bike racks for their bike parking needs. In addition, the staffed and unstaffed secure parking facilities have reported use rates that exceed their share of the bike parking supply. It is important to note that like the bike parking usage data collection effort, the online survey was

not intended to be a statistically accurate portrayal of bicycle parking usage, but it is assumed that it is an effective data set for comparing the usage of the different types of bicycle parking.

Figure 9 System Wide Bike Parking Supply Breakdown and Use



Source: Supply – Caltrain; Use – 2016 Online Survey

2.3.8 Current Bike Parking Usage Conclusions

The data shows that cycling plays a significant role in connecting customers to Caltrain. At the most popular stations for cycling, 20-25 percent of customers reach Caltrain by bike. Overall, for station access and egress, bicycling is the third most popular mode behind walking and transit, with 17 percent of customers using a bicycle to get to or from a station. This rate is nearly on par with transit use to stations and shows that cycling has a strong appeal to commuters, likely due to its low cost and flexibility. Because the majority of cyclists bring their bike on board, they use their bicycle as their first and last mile connection. Therefore, bicycle utilization rates are fairly consistent when comparing trips’ “mirrors” (e.g. the journey from home to a Caltrain Station and the journey from a Caltrain station back home, the journey from home to a Caltrain station and the journey to from a Caltrain station to work).

Just as Caltrain’s system of wayside bicycle parking facilities varies substantially in quality and capacity from station to station, utilization rates vary by station and for each parking facility. Occupancy and turnover are two key indicators generally used when evaluating parking efficiency and utilization. Occupancy is defined as the ratio of parking spaces occupied compared to the total spaces available; it gives an aggregate measure of how effectively the parking space is utilized. Turnover is the number of bicycles parked in a space over a given amount of time (e.g. day, week). The data collected as part of this study reveals occupancy levels of Caltrain’s bike parking facilities. Turnover data was not captured across all of the parking types as it requires intense data collection. However, it is a factor that may be worth evaluating in the future to more thoroughly understand movement patterns of cyclists who utilize wayside bicycle parking facilities.

With an average occupancy rate between 80-90 percent, staffed shared parking sees the highest use of any type of Caltrain bicycle parking facility. This shows that this is an attractive solution for encouraging customers to park their bikes at high volume stations with strong bicycle usage. Next, with average occupancy rates of 50-75 percent, bike racks and electronic lockers perform similarly. Both of these types of facilities operate in a similar manner in a first come, first served basis and are flexible parking options that are compatible with both occasional / short term parking needs and daily use. E-lockers have the added benefit of providing greater security compared to bike racks, but they may not appeal to all customers due to the hourly parking charge.

Unattended shared parking occupancy rates fourth, with an estimated 30-50 percent occupancy. The lower level of security compared to attended shared parking facilities, the need to pre-register, and lack of visibility or awareness of these existing facilities may be why occupancy is lower than other bicycle parking facilities. Finally, with occupancy rates ranging between 15-20 percent, keyed lockers are the least utilized type of bicycle parking facility. While the keyed lockers provide a high level of security and convenience desired by many cyclists, having each locker reserved for one individual results in low occupancy rates, as each registered user is unlikely to use their locker on a daily or regular basis.

2.4 FINDINGS RELATED TO POTENTIAL MARKET FOR BIKE PARKING

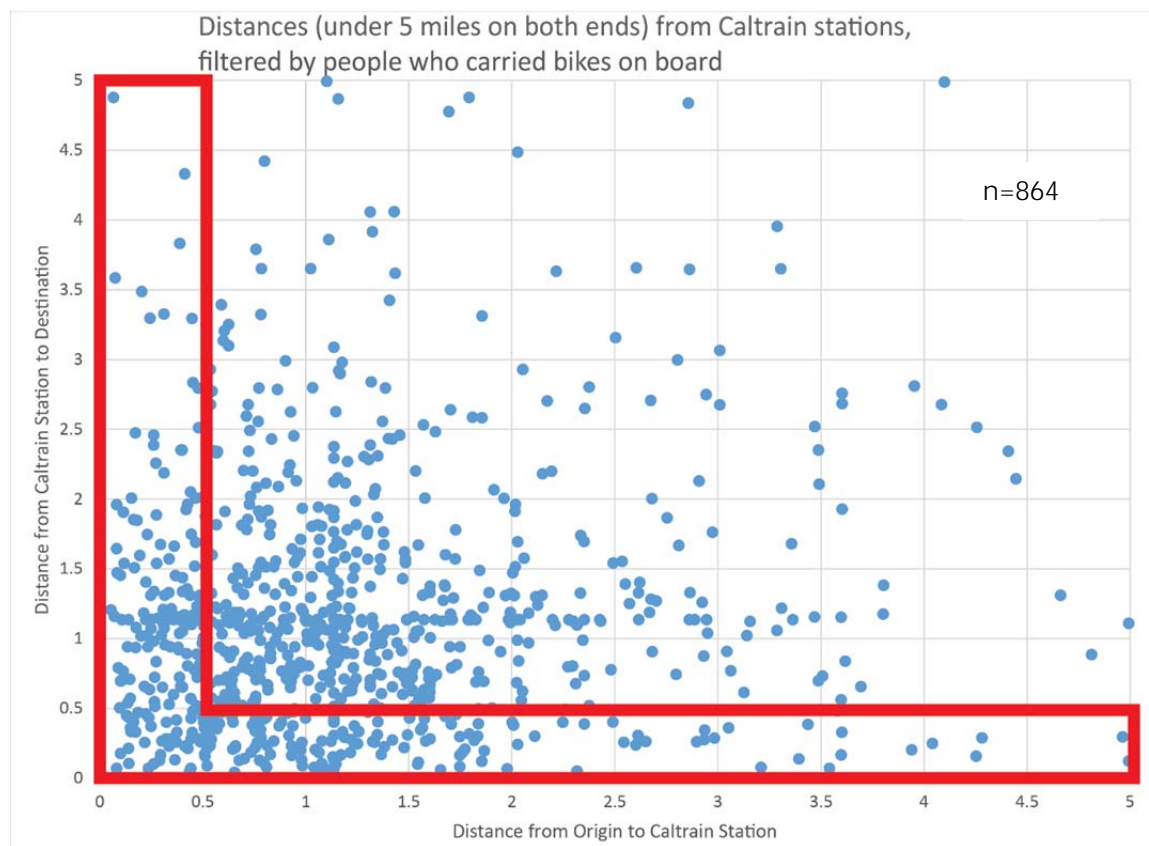
As previously discussed, customers' use of Caltrain's current bike parking facilities varies substantially today by station and facility type. A key objective for the Plan was to determine if the potential market demand for bike parking would increase if high quality facilities were provided at the stations. This section of the Plan examines various aspects that could influence the potential market for bike parking.

2.4.1 Trip Characteristics and Potential Use of Bike Parking Facilities

An important consideration in determining the potential market for bike parking is whether passengers' trips could be served by bike parking if high quality bike parking facilities were provided at the station. Analysis of passenger trip characteristics showed that a substantial number of trips could potentially be served by bike parking, if walking was a feasible mode on the other end.

Figure 10 plots the distance to and the distance from a Caltrain station for trips made with a bicycle on board (in which both the access and egress trip are less than five miles). The results of this plot shows that a large portion (37 percent) of these trips have one or both legs that are less than half a mile, shown in the red box on the graph. Such trips could potentially be substituted with a walking trip if the bike was parked at the station before boarding; this would presumably result in a fairly small change in travel time and convenience for the passengers.

Figure 10 Access and Egress Distances by Bicycle



Source: 2014 On-Board Passenger Survey

Table 8 provides similar information, using access time collected from the 2016 Bike Car Passenger Intercept Survey. It suggests that while 59 percent of passengers who have brought their bicycle on board have more than a five-minute ride on each end of their trip, 41 percent have one or both legs that are less than five minutes.

Table 8 Access and Egress Travel Time by Bicycle

	More than a five-minute ride to my destination	Less than a five-minute ride to my destination
More than a five-minute ride from my origin	160 (59%)	53 (20%)
Less than a five-minute ride from my origin	41 (15%)	15 (6%)

Note: This is based on the responses of 269 passengers.

Source: 2016 Bike Car Intercept Survey



2.4.2 Top Reasons for Bringing a Bike on Board

Another aspect of understanding the potential market for bike parking at Caltrain is examining passengers’ current reasons for bringing their bikes on board the train. In the 2016 Bike Car Intercept Survey, respondents were able to choose multiple reasons for bringing their bike on board. Most people (88 percent of respondents) brought their bikes on board because they reported they needed their bike on both ends of their trip. Twenty percent of respondents did not feel that their bike would be securely parked at the station.

Additional common answers were that respondents brought their bike on board out of habit (14 percent), or they needed it to run errands during the day (15 percent). A few people reported that signing up for bike parking was too much of a hassle (7 percent) or that they were not making a return trip to the same station (8 percent). A summary of responses to this question is included in Table 9.

Another problem encountered by a few riders (5 percent) was full bike parking. Seven people reported that bike parking was full at San Jose, three reported full bike parking at Sunnyvale, two at 4th and King in San Francisco, and one each at Hillsdale, Lawrence, Palo Alto, Santa Clara, and Tamien.

While Caltrain does not have control over the origins and destinations of its passengers, it does have control over the security of bicycle parking, the quantity of bicycle parking, and the hassle involved in bicycle parking, so it appears that Caltrain could have an impact on a portion of trips through investments in bicycle parking.

Table 9 Reasons for Bringing Bike on Board

Rationale Provided in Survey	Total Positive Responses	Percentage
I need a bike at both ends of my trip (I use a bike to ride both to and from Caltrain)	290	88%
I didn't feel like my bike would be secure parked at a station (worried about theft)	68	21%
I need to have my bike with me to run errands/make trips during the day	48	15%
I am used to bringing my bike onboard - I hadn't really thought about parking my bike at a station	46	14%
I am not planning to return to the same station so I need my bike with me	25	8%
Bike parking facilities at the station required advanced sign-up, cost money or involved rules and regulations that made it too much of a hassle to use	23	7%
Bike parking was full at the stations that I used	17	5%
There isn't any bike parking at the station I use	6	2%
I forgot something that I need to park my bike at a station (e.g. bike lock, BikeLink card)	1	0%
Note: Based on responses from 329 passengers		

Source: 2016 Bike Car Passenger Intercept Survey



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Table 10 shows the total responses about security by station. The stations at 22nd Street, Mountain View, Hillsdale, and Sunnyvale were locations where high percentages of respondents reported they did not feel that their bike would be secure at the station.

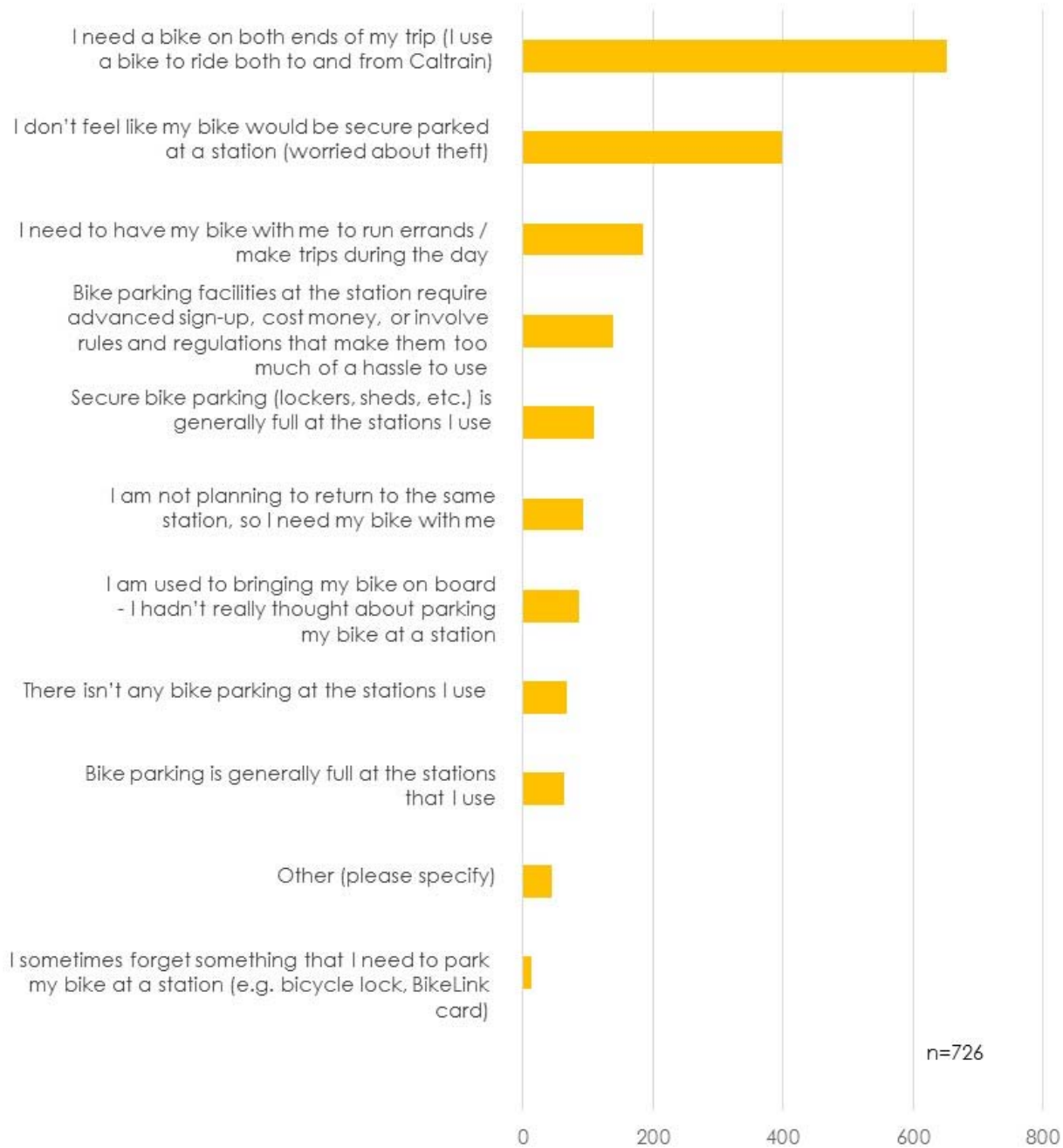
Table 10 Responses About Bike Parking Security

Caltrain Station	Number of respondents who did not feel their bike was secure at the station	Number of respondents who reported boarding at the station	Percentage of respondents who did not feel their bike was secure at the station
22nd Street	8	20	40%
Mountain View	7	18	39%
Hillsdale	4	11	36%
Sunnyvale	7	20	35%
Bayshore	1	3	33%
Millbrae	2	6	33%
Santa Clara	2	7	29%
San Jose	13	59	22%
4th & King (San Francisco)	18	89	20%
Menlo Park	1	7	14%
Redwood City	2	14	14%
Tamien	1	8	13%
Burlingame	1	12	8%
Palo Alto	1	14	7%

Source: 2016 Bike Car Passenger Intercept Survey

Respondents to the online survey were also asked about their reasons for bringing their bike on board and not parking their bike at a station. Among respondents who brought their bicycle on board, the need to have a bike to complete both the first-mile and last-mile portion of their trips was cited the most often, just as it was among respondents to the intercept survey. The second and third most common responses were consistent with the intercept survey responses, as well. These were feelings that their bicycle would not be secure parked at a station and that they needed their bicycle at their destination to run errands. The responses to the question about why passengers who brought their bike on board did so are summarized in Figure 11.

Figure 11 Reasons for Bringing a Bike on Board / Choosing Not to Park Your Bike



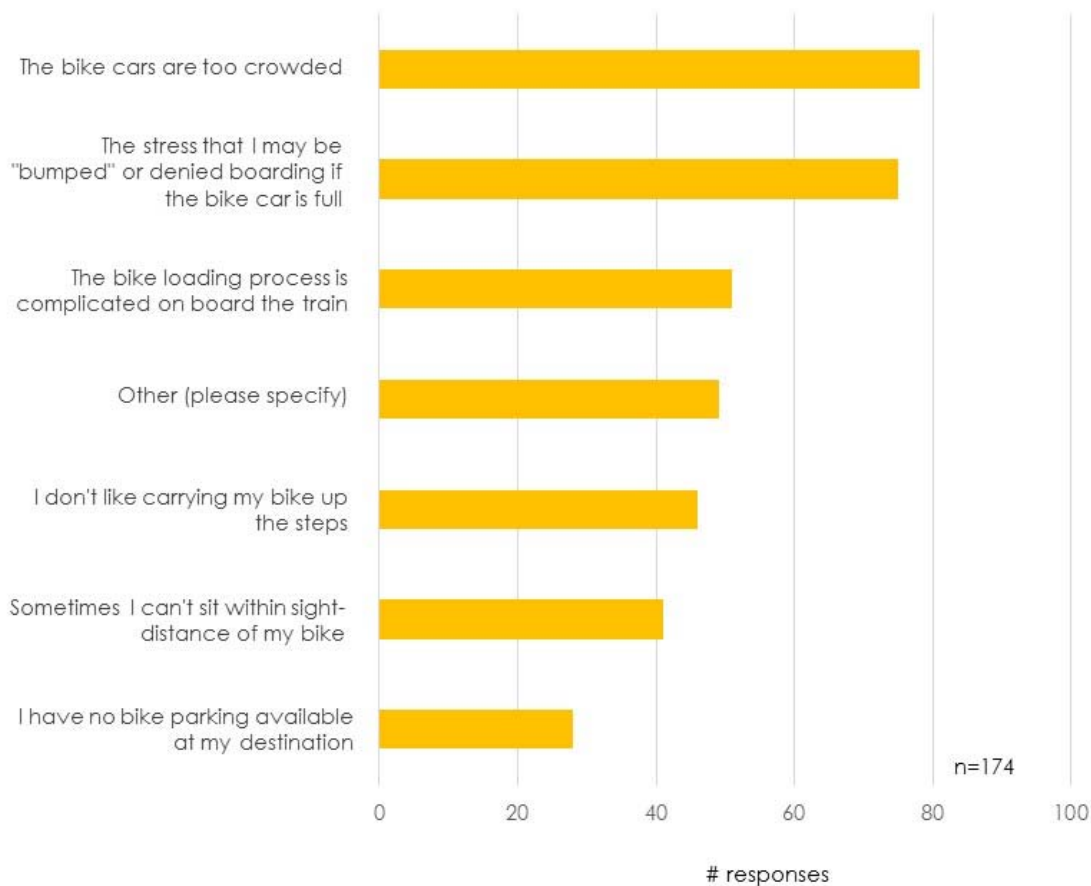
Source: 2016 Online Survey



2.4.3 Top Reasons for Not Bringing a Bike on Board

While the majority of passengers who bike to stations bring their bike on board, the online survey enabled the collection of responses from passengers who biked to stations but then parked their bike. The online survey asked respondents who rode their bicycle to a Caltrain station but who did not bring a bike on board to provide information on why they did not do so. Figure 12 summarizes these responses. Given the growth in ridership on Caltrain, the top three cited reasons - "the bike cars are too crowded," "the stress that I may be bumped or denied boarding if the bike car is full", and "the bike loading process is complicated on board the train," - will likely continue to impact passengers and make bicycle parking an attractive option for people who have a choice between parking their bicycle at a station and bringing their bicycle on board. Some of the other barriers to bringing a bike on board may actually be reduced in the future, such as the need to lift the bikes up the stairs, as Caltrain may transition to level boarding operation in the future if funding becomes available.

Figure 12 Reasons for Not Bringing a Bike on Board

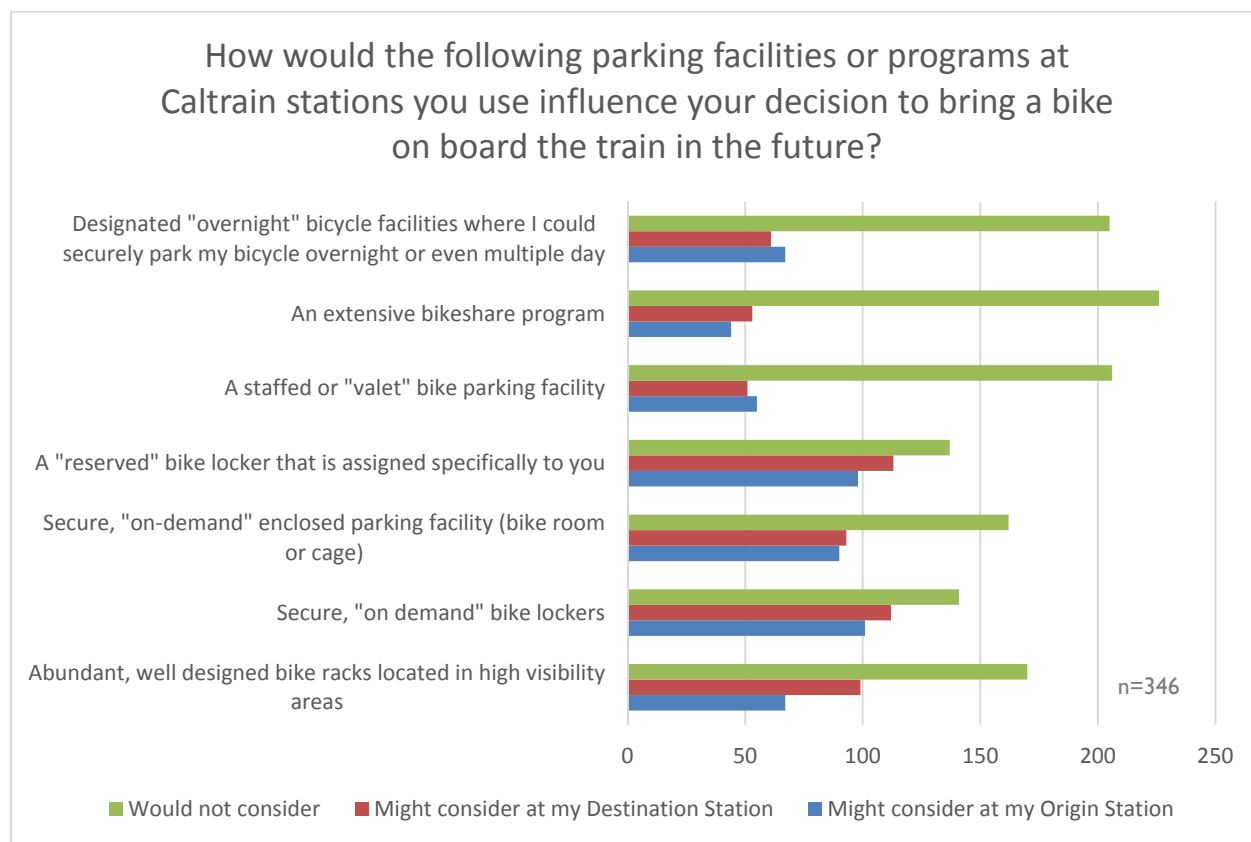


Source: 2016 Online Survey

2.4.4 Potential to Start Using Bicycle Parking

Figure 13 shows responses from the Bike Car Passenger Intercept Survey to the question of whether the provision of different types of bicycle parking would impact someone’s choice to bring their bicycle on board. While the majority of respondents overall did not believe that new and improved types of bicycle parking would change their habits, there was a substantial portion of passengers who would consider bike parking options either at their origin station or their destination station. The most popular options were reserved lockers and on-demand lockers, which would be considered for either the origin or destination station by over half of the respondents. In addition, the unstaffed secure bike parking facilities and well-designed bike racks in visible locations were popular with about half of the participants for either their origin or destination station.

Figure 13 Willingness to Use Different Types of Bicycle Parking Among Passengers Who Brought a Bike on Board



Source: 2016 Bike Car Passenger Intercept Survey

Respondents to the 2016 Online Survey were asked a similar question about the different types of bicycle parking, and the results are shown in Table 11. This survey showed a high willingness to use a wide range of bicycle parking options among respondents.

Table 11 Interest in Using Different Types of Bike Parking Among Online Survey Respondents

Bike Parking Type	Total Responses	Percentage
Staffed, Secure Bike Valet	809	80%
On-demand Bike Lockers	787	75%
Unstaffed, secure, enclosed bike facility	681	66%
Reserved bike locker	606	60%
Bike racks	517	49%
Extensive Bikeshare Program	461	45%
Note: Based on responses from 1012-1049 respondents to each question		

Source: 2016 Online Survey

2.4.5 Priorities for Investment

Respondents to the 2016 Online Survey were asked to prioritize potential bike parking investments. The result was the following list, which put on-demand bike lockers at the top of the list of priorities, followed by on-demand enclosed parking facilities, valet parking, reserved bike lockers, bike racks, and a bikeshare program.

1. On-demand bike lockers
2. On-demand enclosed parking facilities
3. Valet bike parking facilities
4. Reserved bike lockers
5. Bike racks
6. Bikeshare program

2.4.6 Focus Group Findings

The focus group participants generally agreed that leaving their bike at a station was preferable to taking their bike on board and an important option for Caltrain to provide, even if not all cyclists would use it. Participants who regularly used the secure wayside parking facilities (lockers and shared parking) said that it makes the commute more enjoyable. It allows bicyclists to bypass the bike car and find an open seat anywhere in the train. Participants stated that the bike car can be a stressful experience during peak times. By parking their bikes at stations, the anxiety stemming from needing to stack and monitor one’s bike and the fear of getting “bumped” from a train with a full bike car are removed from the commute.

Participants desired greater availability of secure parking facilities, with a general preference towards 24-hour access. Lockers were viewed as the most secure and convenient type of parking facility. Existing locker users expressed a strong affinity towards their lockers and appreciated the flexibility, all-day access, and gear storage it offers, compared to other types of secure parking facilities. Shared parking facilities were also viewed favorably, but some expressed concern about hours of operation (staffed) and limited security (unstaffed). The location of bicycle parking for all types of facilities was identified as key in making the parking convenient, attractive, and secure.



Image 8 - Example of a secured bike parking facility with 24-hour access (Credit: Toole Design Group)

2.5 CONCLUSIONS ON POTENTIAL MARKET FOR BIKE PARKING AT CALTRAIN

Drawing on the findings from the data analyses and customer research activities, this section presents conclusions about the potential market for bike parking at Caltrain.

2.5.1 Bike Parking Demand Factors

The customer outreach efforts through the bike car intercept survey and online survey attempted to understand what factors would prevent a Caltrain passenger from using bicycle parking and what factors might encourage bicycle parking use. In a question that asked passengers who had brought their bicycles on board why they had done so, the following responses point to the role of bicycle parking in this decision. While the most common answer was that customers needed their bicycle for the trip, other passengers pointed to deficiencies in the available bicycle parking options. The most common deficiency was that the parking was not secure, and therefore, passengers were worried about the theft of their bicycle. A similar question was asked in the online survey, in which 399 respondents said that they were worried about the theft of their bicycle. Smaller, but significant, numbers of respondents cited the hassle of bicycle parking, bicycle parking spaces that were all taken, and bicycle parking that was not available, as shown in Table 12.

Table 12 Parking Facility Barriers

Reason for Bringing a Bicycle on Board / Not Parking a Bicycle at a Caltrain Station	Percentage of respondents to the intercept survey	Percentage of respondents to the online survey
Worry about theft	21%	22%
Hassle of parking bicycle	7%	8%
Bicycle parking is full	5%	6%
Bicycle parking is not available	2%	4%

Other factors may be taken into consideration when considering the potential demand for bicycle parking, namely the perceptions of safety at the station where a personal bike would be stored, the threat of being bumped, and the overall level of demand at the station.

The responses from the customer research activities point to two key findings. First, there is not demand for bike parking from *all* of Caltrain’s customers who ride a bike to or from a station. The majority of Caltrain users who bring their bikes on board need their bike on both ends of their train ride, and therefore, are not likely to start regularly parking their bicycles at stations. Second, while it may not be the majority of Caltrain’s bicycling customers, there *is* a substantial number of customers who ride a bike to or from a station who would consider using bike parking facilities, if the parking facilities met their needs. With bike parking facilities and programs tailored to meet the needs of Caltrain’s customers, it is likely that wayside bike parking facilities would be more frequently used. The following table ranks the various types of bicycle parking against the desired qualities of bicycle parking that were identified as important to customers; green dots represent facilities that provide the desired quality, yellow dots represent facilities that somewhat provide the desired quality, and red dots represent facilities that do not provide the desired quality. This table was created with input from the TAC.

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Table 13: Ability of Parking Types to Address Barriers to Bicycle Parking

Desired Quality of Bicycle Parking	Racks	Keyed Lockers	E-Lockers	Unstaffed Shared Bicycle Parking Facilities	Staffed Shared Bicycle Parking Facilities	Bikeshare
Secure	●	●	●	●	●	●
	Racks are easy to access by thieves, but less so if located in a well lit or heavily travelled part of the station.	Keyed lockers hide the presence of a bike and make access difficult for thieves.	E-lockers obscure the presence of a bike and make access difficult for thieves.	Unstaffed shared parking facilities make access difficult for thieves, but there is concern that a thief could follow a registered user in through an access-controlled door.	Staffed shared parking facilities deter thieves because of the staff presence.	Shared bikes are not owned by the users, so bicycle security is not a concern.
Hassle-free	●	●	●	●	●	●
	Racks do not require reservations.	Keyed lockers require registration and payment, but day-to-day use is generally easy.	E-lockers require registration and payment, but day-to-day use is generally easy.	Unstaffed shared parking requires registration and payment, but day-to-day use is generally easy.	Staffed shared parking requires no registration or payment.	Bikeshare requires registration and payment, but day-to-day use is generally easy.
Bicycle parking space is guaranteed	●	●	●	●	●	●
	Racks can fill up and leave some passengers without a parking option.	Keyed lockers are always available to the individual with a key.	E-lockers can fill up and leave some passengers without a parking option.	Unstaffed shared bicycle parking can fill up and leave some passengers without a parking option.	Staffed shared bicycle parking can fill up and leave some passengers without a parking option.	Docked bikeshare kiosks can be empty and leave some passengers without a bicycle to check out, or the kiosk spots can be filled up and leave a passenger without a space to return a bike.



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Desired Quality of Bicycle Parking	Racks	Keyed Lockers	E-Lockers	Unstaffed Shared Bicycle Parking Facilities	Staffed Shared Bicycle Parking Facilities	Bikeshare
Bicycle parking is available on demand to anyone upon arrival	●	●	●	●	●	●
	Rack usage requires no registration.	Keyed lockers require the completion of a registration process, including payment by check. There is also uncertainty about how long one has to wait to lease a locker.	E-locker usage requires the completion of a registration process that offers multiple means of payment.	Unstaffed shared parking usage requires the completion of a registration process that typically includes visiting a City Hall office during work hours.	Staffed shared parking usage requires no registration.	Bikeshare usage requires a registration process that can be completed at the kiosks.
Weather protection is provided	●	●	●	●	●	●
	Racks may or may not offer weather protection based on their location.	Keyed lockers provide protection from the rain and the sun.	E-lockers provide protection from the rain and the sun.	Unstaffed share parking is placed in covered structures that provide protection from the rain and the sun.	Staffed shared parking is placed in covered structures that provide protection from the rain and the sun.	Bikeshare may or may not offer weather protection based on the location of their kiosks.
Quick to use	●	●	●	●	●	●
	Rack usage requires no waiting.	Keyed lockers require no waiting.	E-lockers require no waiting.	Unstaffed shared parking may require additional time to use because they are not distributed around a station and because it may take time to get in and out of the doors.	Staffed, shared parking may require waiting at peak times.	Bikeshare requires no waiting.



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Desired Quality of Bicycle Parking	Racks	Keyed Lockers	E-Lockers	Unstaffed Shared Bicycle Parking Facilities	Staffed Shared Bicycle Parking Facilities	Bikeshare
24/7 access	●	●	●	●	●	●
	Racks are placed in public areas where access is not restricted by time of day.	Keyed lockers are placed in public areas where access is not restricted by time of day.	E-Lockers are placed in public areas where access is not restricted by time of day.	Unstaffed shared parking is placed in public areas where access is not restricted by time of day.	Staffed, shared parking has limited hours of access to contain operating costs.	Bikeshare is placed in public areas where access is not restricted by time of day.
Cost effective – to Caltrain	●	●	●	●	●	●
	Racks offer high usage for low capital and operating costs.	Keyed lockers require significant resources within Caltrain to manage payments and maintain the lockers, but lockers have low usage.	E-lockers require significant upfront capital costs, but the annual operating costs are low and usage is high.	Unstaffed shared parking requires significant upfront capital costs, but the annual operating costs are low.	Staffed shared parking requires significant upfront costs and on-going operating costs, but they are heavily used.	Bikeshare does not cost Caltrain, but it provides passengers with an attractive amenity.
Cost effective – to users	●	●	●	●	●	●
	Racks are free to use and require equipment most cyclists already have (locks).	Keyed lockers require regular payments which become cost effective if the locker is frequently used.	E-lockers require payment by the hour, and could become less cost-effective if used every day and for many hours each day.	Unstaffed shared parking requires either a payment for access or a payment by hour, but these are generally low and in line with the costs of the keyed lockers and e-lockers.	Staffed shared parking is free to use and does not require any special equipment from the cyclist.	Bikeshare use requires payment, and the payment structure is typically such that one-time or occasional use is not cost-effective to users, while regular/daily use is very cost-effective to users.



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Desired Quality of Bicycle Parking	Racks	Keyed Lockers	E-Lockers	Unstaffed Shared Bicycle Parking Facilities	Staffed Shared Bicycle Parking Facilities	Bikeshare
<p>Notes:</p> <ul style="list-style-type: none"> ● : Provides the quality ● : Somewhat provides the quality ● : Does not provide the quality 						

2.5.2 Potential Growth

The research and analysis completed for this Plan demonstrate that there is a significant market for high quality wayside bike parking facilities within Caltrain’s existing ridership. In the years to come, it is anticipated that there will be an increase in bike parking demand because of the overall growth in ridership on Caltrain. Growth in bike parking demand would occur even if the percentage of cyclists parking at stations remained the same as it is today, due to the increase in overall ridership. With investment in and improved management of Caltrain’s bike parking system, it is likely that the percentage of cyclists parking at the station will increase.

That said, the research completed for this Plan suggests that there is not currently demand for bike parking from all of Caltrain’s passengers who ride a bike to or from a station. Among passengers who currently bring their bicycle on board the train, research suggests that less than half could be persuaded to park their bicycle at a station. Many of these passengers have trips that are most effectively completed with a bike used for the first- and last-mile connection. The survey data also indicated that not all customers have simple trip patterns; some customers use their bikes to run errands during the day, while others return to different stations in the evening than they departed from in the morning. It is unlikely that all of these customers could be served by bike parking facilities for trips to and from Caltrain stations.

Nonetheless, a substantial portion of passengers indicated that they would consider parking their bicycle at a station if the parking provided was secure, easy to use, and had sufficient capacity. The passengers best suited to be served by bike parking facilities are those who start or end their journey within walking distance from a Caltrain station, do not require their bike during the day, are susceptible to bumps due to the time they travel and the station they use, or complete round trip journeys to and from the same station. Other customers who could potentially be served by bike parking facilities are the 14 percent who responded that they brought their bike on board out of habit in the bike car passenger intercept survey. These customers likely realize that they could complete their trip in an alternate way using modes such as walking or transit for one leg of their trip.

Security and availability of parking facilities were two key issues raised in the customer research activities that, if addressed, could encourage greater use of bike parking. Security was a primary concern for nearly all respondents. One fifth of those who take their bikes on board identified fear of theft as a reason to bring their bike on board. In the online survey, over half of respondents revealed that they do not feel that their bike would be secure at a station. This demonstrates that secure bicycle parking options are an essential component of meeting the needs and desires of customers and making bicycle parking an attractive and viable option that ultimately increases the demand for bike



Image 9 - Staffed parking facilities offer high security to customers

parking at Caltrain stations.

Full bike racks and lack of available secure parking options were also cited as reasons people do not park their bikes at stations. Five percent of intercept survey respondents cited full bike parking as a reason they brought their bike on board. In the online survey, 14 percent of respondents said that secure bike parking is generally full at the stations they use, eight percent said bike racks were full, and nine percent said there was no bike parking at their station. Addressing these concerns with additional bike parking facilities or more efficient utilization of existing facilities will create more space for cyclists wishing to park at stations and will better meet demand and allow more individuals to leave their bikes at stations instead of bringing them on board.



Image 10 - Full bicycle racks at Mountain View Station

2.5.3 Implications for Different Bicycle Parking Types

Looking to the future, investment in bike parking facilities that can best meet customers' needs will be critical to encouraging wayside facility use. Better management and administration of the bike parking system is also important to increasing the use of bike parking facilities.

Bike Racks. Bike racks are useful for short-term/occasional trips and offer a convenient parking option for cyclists who are bumped from trains at full bike capacity. The field survey counts confirmed that the bike racks are being used by passengers, but many stations had racks with abandoned bicycles or bicycles that had parts stolen from them, taking up space and potentially deterring others from parking their bike there. Customers also indicated that the full bike racks discourage their use. More bicycle racks could be of use at high volume stations, such as Palo Alto and Mountain View Caltrain Stations. Improved management and monitoring of the bicycle racks will provide a better understanding of their true occupancy rates and which bikes have been abandoned.

Keyed Lockers. The keyed lockers have many attractive features for customers, such as 24/7 access, overnight and multi-day parking, security, and physical ease of use (except when stacked). Keyed lockers meet the needs of many Caltrain passengers, many of whom ride multiple days a week and need secure parking. However, the field survey counts indicated that many of the lockers are not being used on a daily basis. The focus group input suggested that many people would like to use these lockers, but find that the lockers are unavailable or the sign-up requirements are onerous, confusing, and inconvenient. With better management and administration, as well as communication with passengers, the existing set of keyed lockers would be able to serve more bikers per day and Caltrain would have a better understanding of their true occupancy rates. One downside of the keyed lockers is that they take up more space

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per bicycle than other forms of bicycle parking, while only serving one customer each, so investment in the provision of additional keyed lockers is not advised.

E-Lockers. On-demand electronic lockers offer an attractive bike parking solution at many stations and can serve multiple customers. The e-lockers offer a bicycle parking option that is both secure and can match the level of demand for bicycle parking at higher demand stations. The customer survey work and focus group input indicated that e-lockers are a popular option for cyclists, a finding which was confirmed by examining the use of existing e-lockers in the system. Investment in e-lockers is recommended in the future. They could be used in place of keyed lockers in some higher demand stations where space may be limited. Additional passenger communications and marketing could help inform riders about how e-lockers work.

Secure Bicycle Parking Facilities. Secure bike parking facilities are shared parking spaces that balance the need for security and weather protection with the need for space efficiency in the station areas. The customer survey work and focus group input indicated that secure bike parking facilities are a popular option for cyclists; indeed, the staffed secure parking facility at San Francisco currently sees the highest occupancy rates of any bike parking facility on the system. Investment in secure bicycle parking facilities is advised, especially at Baby Bullet stations. Some could operate as valet parking, and others could act as self-serve facilities. Ideally, all of the self-serve bike rooms would operate with the same access system to maximize convenience for passengers. Additional passenger communications and marketing could help inform riders about how the various bike facilities work.

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3.0 DELIVERING A HIGH QUALITY BIKE PARKING SYSTEM

The findings from the first phase of research and analysis for the Bicycle Parking Management Plan confirmed that there is unmet potential demand for bike parking facilities in the Caltrain system, if Caltrain can provide a high quality bike parking system for its customers. It culminated in an understanding of the range of ideal bike parking facility improvements that would serve passengers and could best meet the potential market demand for bike parking. As a public agency with limited resources, however, Caltrain must strive to meet this market demand using strategic improvements in a resourceful, efficient, and effective way.

Building off of the findings described in Chapter 2, this chapter focuses on how Caltrain can *deliver* a high quality bike parking system to meet the needs of its customers and increase the use of wayside bike parking facilities. It describes the proposed goals and performance measures for the bike parking system, the recommended approach for managing and administering bike parking in the future, recommended improvements to the system, funding options, and an implementation plan.

3.1 GOALS AND PERFORMANCE MEASURES

Goals and performance measures for Caltrain’s bike parking system have been developed to inform future decision-making, guide future investments, and measure and monitor success. This section of the Plan first provides an overview of these goals and performance measures. Then, the goals and performance measures are presented along with the performance of the existing system and the performance trends that have been set for each measure.

3.1.1 Overview of Goals and Performance Measures

A structured performance measurement system will serve Caltrain by specifying key areas of achievement and success for the agency’s bike parking system, as well as establishing a methodology to measure and monitor progress and to identify areas for improvement. There are three general components to this performance measurement system, described below:

- **Goals** identify key areas of achievement and desired outcomes for Caltrain’s bike parking system.
- **Performance measures** provide specific, measurable statements to support achievement of a goal and serve to track progress towards goals.
- **Performance trends** for each measure provide an indicator for desired future performance to support achievement of the goals.

Goals and performance measures will be used to strategically guide the agency’s future decision-making about its bike parking system. The performance measures will identify how Caltrain’s bicycle parking system is being utilized by passengers, identify areas where

improvements may be needed, and analyze the effects of actions taken to improve the system. Ultimately, this structured performance measurement system will help the agency monitor the success of Caltrain’s bike parking system and make improvements and investments to better meet the needs of passengers and the agency.

Goals and performance measures for the bike parking system will be used by Caltrain staff and members of the Joint Powers Board, and they will be made available to external stakeholders and members of the public. It is anticipated that the goals and performance measures will be tracked annually, with the performance results published online.

3.1.2 Methodology

Building on the findings from the extensive research and analysis that was conducted as part of the planning process for this Plan, goals were developed around three key achievement areas. Performance measures to track progress towards each goal were then developed; each is measured using data from Caltrain’s bike parking system and rider surveys, with results quantified. The performance trend for each measure is generally intended to improve performance to be better than it is today; they indicate the desired change for the future performance as an increase, decrease, or maintenance of the same level. These performance trends will be further refined as detailed, quantified performance targets for each measure are developed over the next year to support Caltrain’s bike parking system.

Members of Caltrain’s Bicycle Advisory Committee and the Plan’s Technical Advisory Committee provided key input and feedback in the refinement of the goals and performance measures. It is anticipated that the goals, performance measures, performance trends, and future performance targets may be revisited and revised in the years to come, as Caltrain’s bike parking system evolves and improves.

3.1.3 Bike Parking System Goals and Performance Measures

The goals and performance measures are presented in the table below. Each goal is assigned a number, such as Goal 1, and its associated performance measures are each assigned the goal number and letter, such as Performance Measure 1A. The performance of the existing system is shown for each measure. As part of the implementation of this Plan, detailed performance targets will be developed for each measure to specify a desired level of performance to be achieved in support of the goal.

Goal 1 is to enhance the customer experience for Caltrain passengers. Its performance measures focus on the qualities of bike parking facilities that passengers identified as most important to them through the Plan’s many research activities.

Goal 2 is to provide a viable alternative to bringing a bicycle on board for Caltrain passengers. Its performance measures address the supply and availability of bike parking supplies, to ensure that adequate facilities are available for customers who would like to park their bike at the station.

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Goal 3 is to make efficient use of Caltrain’s resources. Its performance measures focus on occupancy levels of the bike parking facilities, the net operating costs per use and per space for each type of bike parking facility, overall capital costs per parking space, and the amount of real estate devoted to each parking space at stations.

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Table 12 Bike Parking System Goals and Performance Measures

#	Goals and Performance Measures	Performance of Existing System ¹	Desired Performance Trend ²	Notes on Performance Measure
Goal 1: Enhance customer experience for Caltrain passengers				
1A	Bicycle parking that is available 24 hours a day, 7 days a week	91%	↔	Calculated as the percentage of all spaces that are part of facilities that do not have operating hours and are available with self-serve access. Includes bike racks, keyed lockers, e-lockers, and unstaffed secure facilities.
1B	Bicycle parking that is weather protected	74%	↑	Calculated as the percentage of all spaces that are part of facilities that are covered/indoor or lockers that prevent exposure to rain and sunlight. Includes some bike racks, keyed lockers, e-lockers, and unstaffed and staffed secure facilities.
1C	Bicycle parking that is secure with low risk of theft	64%	↑	Calculated as the percentage of spaces that are part of facilities that provide the highest level of security (lockers, secure staffed facilities). Includes keyed lockers, e-lockers, and staffed secure facilities. Spaces in unstaffed secure facilities are not included here based on perceptions that thefts could still occur in facilities like these.
1D	Bicycle parking that is hassle free, easy to use, and available at no cost to customer	41%	↑	Calculated as the percentage of spaces that are part of facilities that do not require pre-registration and do not cost customers to use them. Includes bike racks and staffed secure facilities.
1E	Bicycle parking that is available on demand	50%	↑	Calculated as the percentage of spaces that are part of facilities that are not reserved and are available on a first-come, first-served basis. Includes bike racks, e-lockers, and unstaffed and staffed secure facilities.
Goal 2: Provide a viable alternative to bringing a bicycle on board				
2A	System-wide supply of bike parking spaces	2,233	↑	Calculated as the number of bike parking spaces available at stations throughout the Caltrain system.
2B	System-wide availability of keyed lockers to rent	28%	↔	Calculated as the annual average percentage of total keyed locker spaces that are available to rent.



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#	Goals and Performance Measures	Performance of Existing System ¹	Desired Performance Trend ²	Notes on Performance Measure
2C	System-wide availability of e-lockers at peak times	55%	↔	Calculated as the annual average percentage of total e-locker spaces that are available at weekday peak times.
2D	System-wide availability of bicycle racks at peak times	58%	↔	Calculated as the annual average percentage of total bicycle rack spaces that are available at weekday peak times.
2E	System-wide availability of unstaffed secure facilities at peak times	57%	↔	Calculated as the annual average percentage of spaces in unstaffed secure facilities that are available at weekday peak times.
2F	System-wide availability of staffed secure facilities at peak times	24%	↔	Calculated as the annual average percentage of spaces in staffed secure facilities that are available at weekday peak times.
2G	Ratio of cyclists parking vs bringing their bicycle on board	0.06	↑	Calculated as the number of boardings by people who had parked their bicycle at one or both ends of their trip divided by the number of boardings by passengers who brought a bicycle on board with them, per the most recent weekday passenger data collection efforts.
Goal 3: Make efficient use of Caltrain’s resources				
3A	System-wide occupancy of keyed lockers at peak times	15%	↑	Calculated as the annual average percentage of total keyed locker spaces that are occupied at weekday peak times.
3B	System-wide occupancy of e-lockers at peak times	53%	↑	Calculated as the annual average percentage of total e-locker spaces that are occupied at weekday peak times.
3C	System-wide occupancy of staffed secure facilities at peak times	76%	↑	Calculated as the annual average percentage of total staffed secure facility spaces that are occupied at weekday peak times.
3D	System-wide occupancy of unstaffed secure facilities at peak times	43%	↑	Calculated as the annual average percentage of total unstaffed secure facility spaces that are occupied at weekday peak times.
3E	Annual net operating costs per bicycle parking space	\$173	↓	The total operating costs of Caltrain’s bike parking facilities divided by the total number of spaces provided



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#	Goals and Performance Measures	Performance of Existing System ¹	Desired Performance Trend ²	Notes on Performance Measure
3F	Annual net operating cost per bike parked	\$2	↓	The total operating costs of Caltrain’s bike parking facilities divided by the total estimated number of bikes parked
3G	Annual net operating cost per bike parked for Caltrain's bike racks	\$1	↔	The annual net cost of operating the bike racks by the estimated number of bikes parked.
3H	Annual net operating cost per space for Caltrain's bike racks	\$95	↓	The annual net cost of operating the keyed lockers divided by the number of bike rack spaces (assumes 2 spaces per bike rack).
3I	Annual net operating cost per bike parked for Caltrain's keyed lockers	\$7	↓	The annual net cost of operating the keyed lockers divided by the estimated number of bikes parked.
3J	Annual net operating cost per space for Caltrain's keyed lockers	\$226	↓	The annual net cost of operating the keyed lockers divided by the number of keyed locker bike spaces.
3K	Annual net operating cost per bike parked for Caltrain's e-Lockers	\$2	↓	The annual cost of operating the e-lockers divided by the estimated number of bikes parked.
3L	Annual net operating cost per space for Caltrain's e-Lockers	\$334	↓	The annual net cost of operating the e-lockers divided by the number of e-Locker bike spaces.
3M	Annual net operating cost per use for Caltrain's staffed secure bicycle facilities	\$2	↓	The annual cost of operating the staffed secure facilities divided by the estimated number of bikes parked.
3N	Annual net operating cost per space for Caltrain's staffed secure bicycle facilities	\$337	↓	The annual net cost of operating the staffed secure bicycle facilities divided by the number of the facilities' bike spaces.
3O	Annual net operating cost per bike parked for unstaffed secure bicycle facilities	n/a	n/a	The annual cost of operating the unstaffed secure bicycle facilities divided by the estimated number of Caltrain boardings associated of bikes parked.



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#	Goals and Performance Measures	Performance of Existing System ¹	Desired Performance Trend ²	Notes on Performance Measure
3P	Annual net operating cost per space for Caltrain's unstaffed secure bicycle facilities	n/a	n/a	The annual net cost of operating the unstaffed secure bicycle facilities divided by the number of the facilities' bike spaces.
3Q	Capital cost per bicycle parking space	\$1,485	↓	The estimated total replacement cost of Caltrain's bicycle parking inventory divided by the number of spaces provided.
3R	Square feet per bicycle parking space	8.67	↓	The estimated total amount of space in the system used up by bicycle parking divided by the number of spaces provided.

Notes:

1. Most existing performance measure estimates are based on observations from a single week, with the assumption that they reflect average performance for the entire year. It is assumed that future bike parking management efforts will entail processes for more comprehensive data collection.
2. The “up” arrow (↑) means that Caltrain desires the metric to increase, the “down” arrow (↓) means that Caltrain desires this metric to decrease, and the “level” arrow (↔) means that Caltrain desires this metric to remain steady.
3. Capital and operating costs include Caltrain-owned bicycle parking.
4. Square feet per bicycle parking space is calculated for all facilities, regardless of whether they are owned by Caltrain or not.
5. Annual cost per boardings only takes into account recurring costs associated with operating and maintaining bicycle parking (i.e., capital/installation costs are omitted).
6. Trips associated with a specific type of parking mean either a boarding that was preceded by someone storing their bicycle in that type of parking or an alighting that will be followed by someone retrieving their bicycle from that type of parking.
7. Caltrain is not actively managing its unstaffed, secure facility at Menlo Park Station so the performance of this bicycle parking type at the related trends have been marked as n/a.



3.2 MANAGING CALTRAIN'S BIKE PARKING SYSTEM

To improve the performance outcomes of Caltrain's bike parking system, options and policies for management of bike parking systems were researched and analyzed to formulate a recommended management approach for Caltrain. This section provides an overview of the current management approach, other potential bike parking system management options researched, an explanation for the management approach selected, and details about the recommended management approach.

3.2.1 Overview of Caltrain's Current Management Approach

Currently, Caltrain relies on multiple entities to manage bike parking at its stations, including Transit Services America, Inc. (TASI), agency staff, vendors, and local cities and county agencies.

TASI is the contractor that operates the Caltrain rail line and provides facility and maintenance services along the rail corridor. With regards to bike parking facilities, TASI staff handles all of the physical aspects of the bike parking facilities owned by Caltrain, including routine maintenance services and emergency repairs for bike facilities, installation of new parking facilities at stations, and all aspects of keys and locks for the keyed lockers (making duplicate keys, sending keys to customers, fixing broken locks, etc.). In addition to the physical aspects of bike parking facilities, TASI is also responsible for the customer service telephone line for the keyed locker program and responding to customers' phone calls and voicemails.

Caltrain staff is responsible for the oversight and administrative operations of existing bike parking facilities. Staff from the Rail Operations Department, Finance Department, and Marketing Department all coordinate and assist with managing the agency's existing bike facilities; there is currently no one staff member wholly dedicated to managing the bike parking facilities. Currently, staff across the various departments face significant challenges of time and resource constraints to administer and manage the existing bike parking facilities. This can sometimes contribute to customer service issues for passengers, as discussed earlier in the Plan. At this time, Caltrain staff lack time and resources to pursue procurement and installation of additional bike parking facilities and expansion of bike parking programs; therefore, delivery of bike parking facility and system improvements currently remains a challenge for the agency.

Currently, Caltrain staff in the Rail Operations Department oversee and manage TASI efforts in the field along the rail corridor, such as overseeing maintenance repairs and assisting with emergencies for bike parking facilities. Much of Caltrain staff efforts on bike parking facilities are focused on overseeing and administering the keyed bike locker program, and these efforts are led by staff in the Finance Department with support from the Marketing Department. Keyed locker program duties include maintaining the locker database, processing locker rental applications, helping with customer service issues, billing and invoicing, maintaining the website, and coordinating with TASI staff on their field efforts.

As discussed earlier in the Plan, Caltrain contracts with two bike parking vendors to supply parking facilities at two stations along the corridor. Bike Hub manages the staffed shared parking facility at San Francisco 4th & King Station, while e-Lock provides e-lockers and associated e-



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locker service and maintenance at the Sunnyvale Station. Caltrain staff from the Real Estate Department is involved in managing the contracts for those vendors, while staff from the Rail Operations Department assists vendors as needed in the field.

Also discussed earlier in the Plan, some of Caltrain’s partners at local jurisdictions are involved in supplying, managing, and operating some bike parking facilities along the corridor. Several cities have created their own unstaffed, shared bike parking facilities at Caltrain stations, such as Palo Alto and Mountain View, which they own and manage. San Mateo has placed Bikelink e-lockers at its stations, while VTA staff has placed lockers at stations south of Diridon. BART owns and operates some e-lockers at the Millbrae station. As needed, Caltrain staff from the Real Estate Department is involved in managing agreements and contracts, while staff from the Rail Operations Department assists city partners when necessary in the field.

3.2.1.1 Current Management Successes and Challenges

Some aspects of Caltrain’s current system of managing its bike parking facilities are performing well, while others face some challenges. Contracts with vendors that specialize in bike parking have proven to be a winning management strategy for attracting higher use and fewer customer service issues. This is exemplified with the San Francisco 4th and King Bike Valet Station, which is the most successful and highest performing facility on the corridor. E-lockers along the corridor are also contracted to a third party vendor and perform well. Additionally, Caltrain’s partnerships with local cities and agencies to provide bike parking facilities at or near stations have also proven successful, especially with the unstaffed secure facilities in Mountain View and Palo Alto.

Nevertheless, despite a large supply of wayside bike parking facilities and demonstrated interest from passengers in using bike parking facilities, the majority of Caltrain’s bicycling passengers currently bring bikes on board. The research completed for this Plan revealed that the agency’s current management approach for the facilities that it operates and manages is likely contributing to the current pattern of low daily use rates of bike parking facilities (though it is by no means the only contributing factor). Investigation into the current management approach at the agency showed that while there are many entities involved in the management today, there is not one clear “owner” of bike parking and access at the agency. As a result, tasks related to the agency’s bike parking facilities—such as managing and administering the keyed locker program, providing customer service, pursuing funding for new capital investments, making improvements to facilities in the field, and other tasks—all compete with other staff responsibilities related to running and operating the transit service. With very limited time and resources, management and administration of the bike parking system currently remains a challenge for the agency.

To deliver a high quality bike parking system that aligns with market demand as well as the goals and performance measures identified in this Plan, a change in the management approach is needed, building on the current successes and resolving some of current challenges.



3.2.2 Bike Parking System Management Approaches

3.2.2.1 Peer Agency Management Approaches

Extensive research on bike parking management was conducted to determine best practices for transportation agencies. It focused on learning from peer transit or rail agencies that manage large bike parking systems, including BART, RTD (Denver), LA Metro, Translink (Vancouver, British Columbia), and Dutch Railways (Netherlands). Research included interviews with staff at the peer agencies, as well as policy and contract reviews. Topics researched for each peer agency included overall bike parking management approach; delineation of bike parking activities that are managed in-house, through contracts with external vendors, or by partner agencies; agency staffing requirements; standards and performance metrics; operating and capital costs; and funding sources.

See Appendix H for a summary of various bicycle parking management arrangements at peer agencies.



Image 11 - Short-term bicycle rental option in the Netherlands (Credit: Tyler Golly)

3.2.2.2 Three Management Approaches Studied

Based on the findings from the peer agency research, three potential management approaches for Caltrain were developed and analyzed. Each approach included a detailed, in depth assessment of roles and responsibilities, necessary organizational changes within the agency, and potential implementation activities. Cost estimates were also developed for each management approach as an additional factor to be considered. Building on the agency's current management approach, each approach focused on the "who, what, and how"

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aspects of delivering future improvements to the system. A summary of each approach is discussed below, followed by a table with the pros and cons of each approach. Details on the cost estimates for the three approaches can be found in Appendix J. Details on the recommended management approach are discussed in the following section.

Decentralized Approach. Under the decentralized approach, Caltrain would acknowledge that the agency's limited resources and competing priorities impede its ability to be a successful and effective bike parking provider, and the agency would shift its management approach to no longer take a leading role in providing bike parking along the corridor. It would designate responsibility for many aspects of the bike parking system to Caltrain's partners, primarily local cities and county agencies. It would build off current conditions in which some cities and county agencies provide e-lockers and unstaffed, secure facilities at some stations. Caltrain's city and county partners would lead bike facilities improvements at stations, while Caltrain would develop improvement guidelines for the partners to reference, in support of uniformity throughout the corridor and meeting passenger demand with appropriate quantities and qualities of bike parking facilities.

The current management system for the agency's existing bike parking facilities would be maintained, so Caltrain would continue to operate the bicycle parking facilities that are its responsibility today, including keyed lockers, and current vendor contracts would be maintained. Over time, the agency could shift some of its existing bike parking facilities to willing partners along the corridor, such as local cities or partner agencies; this could potentially include bike lockers and the shared bike parking facility at San Francisco. It is estimated that the decentralized approach would cost the agency about \$320,000 each year. This would reflect a drop in costs related to bicycle parking compared to today, with cities and other agencies generally paying for new facilities.

Centralized Approach. The centralized approach would retain and expand Caltrain staff responsibilities for managing and administering the bike parking system. The agency would hire new staff to be dedicated specifically to bike parking and access; the new staff would procure, install, and manage all future improvements to bike parking facilities, as well as manage and administer existing (and new) facilities. The new staff's responsibilities would include marketing; monitoring bike parking demand (or collecting usage data from vendors); procuring and overseeing installation of new bike parking facilities; applying for and pursuing funding for the bike parking system (to cover capital and operating costs); administering the keyed lockers and unstaffed secure facilities; providing customer service; coordinating with internal and external stakeholders; and assisting with maintenance of facilities as needed.

While Caltrain staff would play a leading role in bike parking management in this option, some aspects of the bike parking system would continue to be outsourced to vendors, building on the agency's existing successful contracts for staffed shared parking facilities at San Francisco and e-lockers at Sunnyvale. TASI would continue to provide some support in the field for Caltrain's existing bike parking facilities. Similarly, cities and county agencies would still be involved in bike parking facilities as needed and desired, such as by providing their own facilities at stations as desired or providing funding or real estate for future improvements. It is estimated that the

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centralized approach would cost the agency approximately \$600,000 each year. This would reflect an increase in costs related to bicycle parking compared to today.

Third Party Approach. The third-party approach would transfer management functions for most aspects of bicycle parking to contracted vendors, building off of current practices in which Caltrain provides secure, staffed facilities and on-demand lockers through vendor contracts. Under this approach, Caltrain would contract with third party vendors to procure, install, and manage improvements to bike parking facilities, as well as assume responsibility for management and administration of existing (and new) facilities. Responsibility for the bike parking system would remain with Caltrain, but it would delegate the management and administration functions to third party vendors.

Caltrain staff responsibilities would be limited to managing the contract and procurement processes for bike parking vendors. Staff would develop a strategic vision to guide the procurement activities, outline specific requirements, and oversee the RFP process(es) to bring bike parking vendors on board to manage the agency’s facilities and lead improvements. To maximize the performance of the vendor, it is assumed that Caltrain would allow them to raise revenues through bike maintenance services, sales, advertising, and possible user fees. It is estimated that the third party approach would cost the agency approximately \$420,000 each year. This would reflect an increase in costs related to bicycle parking compared to today.

3.2.2.3 Evaluation of the Three Management Approaches

The pros and cons of the three management approaches are discussed in the table below.

Table 13 Pros and Cons of Three Management Approaches

Management Approach	Pros	Cons
Centralized	<ul style="list-style-type: none"> - Provides the agency with control and flexibility with respect to bike parking facility improvement delivery (timing and locations) - Ensures uniformity of bike parking facilities along the corridor at all stations 	<ul style="list-style-type: none"> - Increases workload for staff and requires new staff to be hired to ensure delivery of improvements - Requires greater agency involvement with customers - Requires Caltrain to procure and install new bike parking facilities - Requires higher start-up costs and on-going operating costs for agency - Reduces the potential for innovation and technology to be incorporated into bike parking system
Decentralized	<ul style="list-style-type: none"> - Reduces start-up and operating costs to the agency - Avoids the need for new staff to be hired - Provides the potential for innovation and technology to be incorporated into bike parking system 	<ul style="list-style-type: none"> - Reduces agency control of bike parking facility improvement delivery (timing and locations) - Requires ongoing staff coordination with partners - Creates uncertainties about capital and operating funding (relies on partners) - Creates uncertainty about uniformity of



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		bike parking facility improvements across the system
Third Party	<ul style="list-style-type: none"> - Allows agency to partner with third-party bike parking specialists to efficiently deliver improvements to bike parking system - Requires less agency involvement with customers - Increases the potential for innovation and technology to be incorporated into bike parking system - Avoids the need for new staff to be hired - Provides potential for operating costs to be subsidized by vendor services and sales 	<ul style="list-style-type: none"> - Requires ongoing capital funds and operating subsidies for vendors - Requires agency staff to manage third party vendors and contracts and procurement processes

3.2.3 Recommended Approach: Hybrid Approach

The three management approaches were reviewed and discussed with the Caltrain Bicycle Advisory Committee, Caltrain staff across multiple departments and the agency's leadership team. Ultimately, a clear consensus formed to recommend a hybrid management approach, blending the centralized and third party approaches to deliver a high-quality bike parking system for Caltrain.

The decentralized approach was not favored due to concerns about achieving the goals for the bike parking system. With a decentralized approach, Caltrain would take a supportive role in the improvement process and rely on local jurisdictions and partner agencies to lead improvements to bike parking along the corridor; however, there were a number of questions about if, when, and how facility improvements would actually be delivered without Caltrain leading the process. Additionally, questions were raised about whether this approach would successfully and equitably deliver a high-quality bike parking system that meets customers' needs or provide enhancements to the customer service aspect of the system. There were also concerns about the uniformity, quality, and reliability of the future bike parking facilities across the system if each local jurisdiction delivered its own improvements. While costs were estimated to be lowest under this approach, the uncertainties concerning delivery of improvements across the system ultimately made this approach the least favorable.

In contrast, some aspects of the centralized approach showed greater promise for achieving Caltrain's goals for the bike parking system, making it a more appealing option. New dedicated staff would lead improvements to the bike parking system and institute changes in the administration of the system to make it more effective and efficient. Staff would also be responsible for improving customer service and enhancing passenger experiences with the bike parking system. However, it was expected that substantial organizational and staffing changes within the agency would be necessary to achieve the vision of this approach, as well as significant financial resources. Given Caltrain's unstable funding situation, it was not clear if implementing this approach would be immediately feasible or sustainable over time.



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Of the three options, the third party approach was favored because it showed greatest promise for achieving Caltrain’s goals for its bike parking system. Under this approach, the agency would rely almost completely on bike parking specialists to manage the system and deliver improvements, thus ensuring a higher level of customer service for passengers while also saving staff time and resources. Additionally, with this approach, Caltrain could potentially benefit from innovations in the bike parking industry through a partnership with a knowledgeable and experienced bike parking specialist. Costs were anticipated to be lower than the centralized approach but higher than the decentralized approach, as well. However, one limitation of the third-party approach was that it did not resolve the agency’s current issue of staffing shortages for the bike parking system and did not create a clear lead internally at the agency.

Therefore, the hybrid approach was developed to combine the third party approach with the centralized approach. Following the centralized approach, a dedicated project manager at Caltrain could oversee and manage the bike parking system internally, serving as the lead coordinator with internal and external stakeholders. This dedicated project manager could manage and oversee the process of bringing additional vendors on board; then, following the third-party approach, the bike parking specialists could assume responsibility for most aspects of the bike parking system. The hybrid approach could take advantage of cost savings with the third-party approach, an important consideration due to Caltrain’s unstable funding situation; it could provide an opportunity for innovation in the bike parking system as it grows and evolves over time. It is anticipated that the hybrid management approach would cost the agency about \$570,000 per year.

3.2.4 Hybrid Management Approach Details

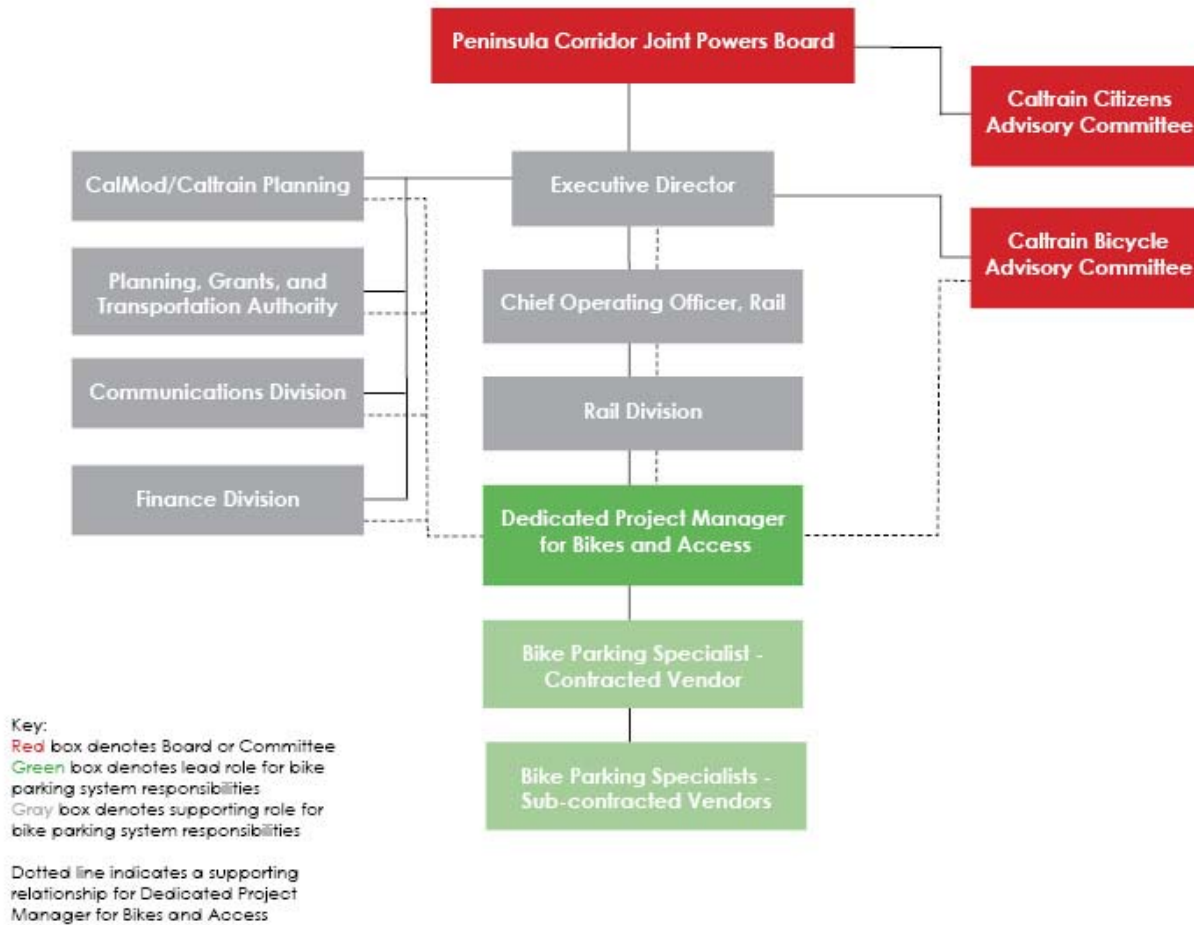
Under this approach, primary responsibility for Caltrain’s bike parking system will be delegated to third party vendors that specialize in bike parking facilities and services. The main responsibilities for bike parking vendors will include administration and management of all of Caltrain’s bike parking facilities, customer interactions, and field activities as needed. Instead of TASI, new third party vendors would also be responsible for tracking and fulfilling maintenance, repair, and installation needs for all existing and future bike parking facilities.

Secondary responsibility will be assigned to a dedicated project manager for bike parking and access in Caltrain’s Rail Division. The main responsibilities for the dedicated project manager will include managing the vendor procurement processes (including RFIs, RFPs, contracts, etc.), managing vendors, pursuing funding for the bike parking system (operating and capital), and managing and coordinating with internal and external stakeholders. Additional support will come from other agency staff as needed, including the Rail Division (Contracts & Budget; Operations; Engineering and Maintenance), JPB Real Estate, Caltrain Planning, Marketing and Communications, and legal support.

This management structure is diagrammed in the organizational chart shown in Figure 14. Appendix K includes an extensive table that delineates the various activities needed to deliver a high-quality bike parking management system. It specifies which entities are responsible for each activity under the new management approach, including lead roles and supportive roles. It is anticipated that these roles and responsibilities may evolve during Plan implementation.



Figure 14 Proposed Organizational Chart for the Hybrid Management Approach



3.3 RECOMMENDED IMPROVEMENTS

The following are recommended improvements for bike parking at Caltrain stations, building off of the findings presented in Chapter 2. These recommendations and the entire Plan supersede the Bike Parking and Access Plan – Implementation Strategy from 2014, even though it seeks out many of the same improvements. Rather than serving as a prescriptive list of what must be done where and when, these recommendations are intended to serve as a framework to guide future improvements for both Caltrain and its partners at local municipalities and other agencies. Some specific near-term recommendations are suggested, as well.

3.3.1 Systemwide Recommendations

Overall, it is recommended that Caltrain provide a significant increase in bike parking capacity throughout the system, particularly with bicycle parking options that are secure and easy to use for Caltrain passengers. While adding bicycle parking capacity, Caltrain should aim to put the facilities at convenient access points around a station so that the process of storing one's bicycle is as convenient as possible. As innovations in bike parking technologies continue to be developed and adopted in the industry, such as facility and payment innovations, the agency should consider their suitability and feasibility for implementation in the Caltrain bike parking system as appropriate.

For the keyed lockers, it is recommended that Caltrain increase marketing for and actively manage registrations to encourage more use. It should also aim to invest in an online registration and payment system for keyed lockers to reduce burden on staff time. Customer service and marketing for the keyed lockers should be improved. Caltrain should maintain the current supply of keyed lockers, but when the equipment is no longer functional or additional funding resources are identified, remove and replace them with e-lockers or unstaffed, secure bicycle rooms, as these forms of bicycle parking can serve a larger number of passengers in a smaller space.

For the electronic lockers, it is recommended that Caltrain provide them throughout the system, especially at medium and high volume stations. E-lockers can meet customer expectations for secure bicycle parking that is available 24/7 while also meeting Caltrain's goal of controlling the operating costs associated with bike parking. It is recommended that the number of e-lockers provided at a station be no less than eight to assure users that a locker will always be available to them; however, at a higher volume station, it is recommended that at least 24 e-lockers be provided to meet demand. E-lockers should be promoted to Caltrain customers to encourage use, and if possible, their use should be integrated with Clipper card.

Secure, shared bike parking facilities are an important investment consideration along the Caltrain corridor at stations with high passenger and/or bike access volumes. While the capital investment in a bike shed or bike room is substantially more than other types of bike parking facilities, the security, space efficiency, convenience, and weather protection provided by these facilities make them more attractive to customers and more likely to generate higher occupancies. It is recommended that Caltrain actively identify locations for new secure facilities at higher volume stations, such as those served by Baby Bullet trains. These facilities should also

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be considered where there may not be sufficient space for a large number of e-lockers. If long-term, on-going operation is financially feasible for the Caltrain organization, staffed secure facilities with long operating hours should be pursued given the level of security and services provided for customers. For unstaffed, secure facilities, Caltrain should aim for an online registration and payment process using the same platform as the keyed lockers and allow for integration with Clipper card. These facilities should become more uniform in how they operate, what they are called, how they are marketed, and how they are managed.

For bike racks, Caltrain should remove abandoned bikes and aim to increase the number of bicycle racks at stations where occupancy regularly exceeds 85 percent.

A number of cities on the Peninsula are actively exploring and launching bikeshare initiatives and programs. Caltrain should continue to support cities' bikeshare initiatives that serve Caltrain passengers; however, it is critical that any bikeshare programs on Caltrain property maintain the safe operation of the railroad and do not impede the safety of passengers.

It is also recommended that Caltrain improve its communications with customers about the bike parking system. Caltrain should provide highly visible and up-to-date signage and information about bike parking options at stations, as well as on the agency's website. The agency should strive to provide high quality customer service for passengers who use bike parking facilities and improve the marketing and publicity of bike parking facilities.

See Appendix I for recommended facility layouts.

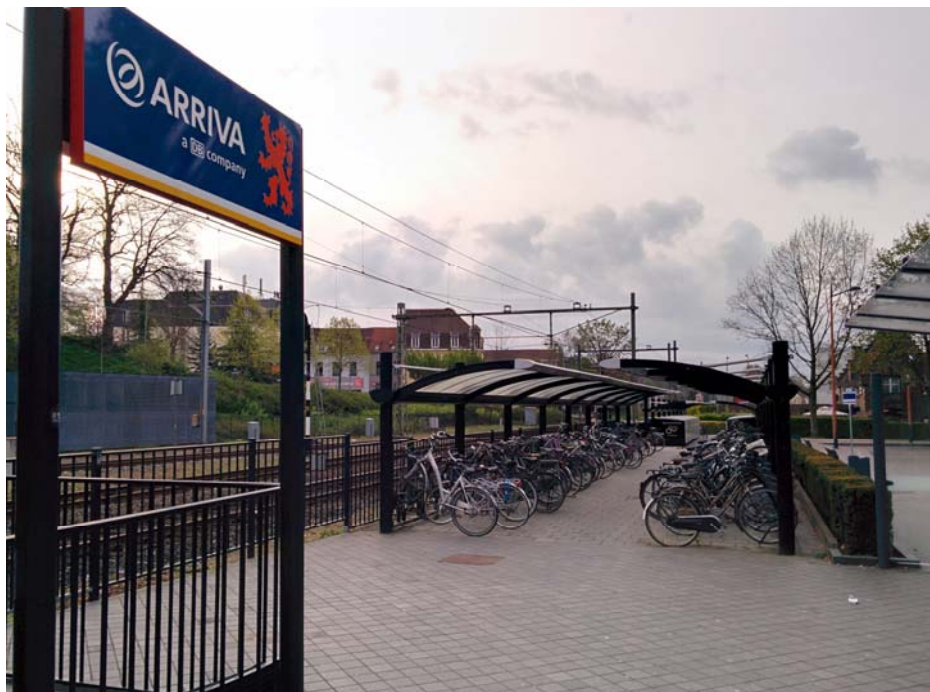


Image 12 - Covered bicycle parking at a rail station in the Netherlands (Credit: Tyler Golly)

3.3.2 Specific Recommendations for Near-Term Improvements

The following list of near-term recommendations would help achieve Caltrain’s goals, and the agency will strive to achieve these within the next two to three years.

- Provide additional bike racks at most stations, but at Palo Alto, Redwood City, and Mountain View in particular where the existing bike racks appear to be fairly full. Regularly remove bikes that have been abandoned at bike racks.
- Provide e-lockers at stations such as San Francisco - 4th & King, 22nd Street, San Carlos, Mountain View, Redwood City, San Jose, and Sunnyvale where they could complement other forms of bicycle parking and/or add capacity where bicycle parking capacity is needed. Add additional e-lockers at stations such as Millbrae, San Mateo, and Hillsdale.
- Identify locations for and open secure shared facilities at additional high-use stations such as San Jose, San Mateo, Redwood City, California Avenue, and Sunnyvale.
- Open a staffed, secure facility at a high-use and mid-corridor station such as Palo Alto to help address crowding on trains and to alleviate bumping.
- Continue to support local jurisdictions and partner agencies in their efforts to provide bike parking options and bikeshare at or near Caltrain stations.
- Improve customer communications and customer service related to the bike parking system.

3.4 FUNDING SOURCES

Additional investment in Caltrain’s bike parking system will be necessary to achieve the vision in this Plan and carry out the recommended improvements described in Section 3.3. However, funding for wayside bicycle improvements presents a significant challenge. This section provides an overview on potential sources of funding that could be used to provide capital and operating funds for Caltrain’s bike parking system.

3.4.1 Overview of Caltrain’s Funding and Budgeting

The Peninsula Corridor Joint Powers Board (JPB), which owns and operates Caltrain, is a Joint Powers Authority, and its members consist of representatives from San Francisco, San Mateo and Santa Clara counties. The JPB does not have a dedicated source of funding, and its financial resources are limited primarily to annual member contributions and revenues earned through operations. Through the agreement that formed the JPB, all three members share in covering capital costs and operating deficits for the agency.

Caltrain’s operating and capital budgets operate on a single fiscal year term, from July 1 to June 30, and each year, the budgets must be approved by members of the JPB. Each spring, the agency generates its preliminary operating and capital budgets, a process that includes carefully estimating the agency’s operating and capital costs for the next fiscal year;

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forecasting revenue earned through operations; and anticipating additional funding sources from external entities, such as grants from the state or federal governments.

If the preliminary operating budget forecasts a deficit, the agency strives to supplement the preliminary budget with additional financial contributions from the JPB members. For the section of the Caltrain corridor between San Francisco and San Jose, all three of the JPB member counties share in contributing funds to cover Caltrain's operating deficit. Member contributions to the operating budget are based on the morning peak boardings by county of origin. For the section of the Caltrain corridor between San Jose and Gilroy, Santa Clara County's member agency, VTA, is solely responsible for covering operating deficits.

A variety of funding sources are used to form the capital budget, which like the operating budget can face shortfalls each year. External sources often provide substantial amounts of funding for capital projects, but these external sources frequently include constraints on what types of capital projects the funds can be used for. If critical capital projects face funding shortfalls, the additional capital costs are also generally shared equally by the JPB members for the system-wide projects on the section of the railroad between San Francisco and San Jose. In contrast to system-wide projects, local capital projects receive funds from individual members. For capital projects on the section of the Caltrain corridor between San Jose and Gilroy, Santa Clara County's member agency is solely responsible for covering funding shortfalls.

Each year, the preliminary budgets are adjusted to account for any member contributions before they are finalized. Then, the budgets are adopted by the JPB and finalized for the next fiscal year.

3.4.2 Current Funding for Caltrain's Bike Parking System

Currently, on-going operation and maintenance of Caltrain's existing bike parking system is funded primarily by the JPB's operating budget. This includes costs for current vendor contracts (including TASI), allocated costs for agency staff time, and maintenance and repairs of existing facilities under TASI's contract. Revenue generated from the bike locker program, estimated to be about \$33,000 for calendar year 2016, is deposited into the general revenue treasury and supports the agency's operational budget.

New equipment and facilities to provide bike parking spaces along the corridor have historically been supported with the JPB's capital budget and grants from external sources. However, in recent years, due to capital budget funding shortages and the urgency of critical capital projects for the railroad itself, the agency has not been able to dedicate funding in its capital budget for new bike parking projects. Additionally, the agency decided to delay implementing substantial improvements to the bike parking system while this Plan was being prepared, so that all of the agency's future bike parking projects are consistent with the final vision of this Plan.

In addition, local jurisdictions and agencies have provided funding for capital and operating costs of bike parking facilities that they own and operate along the Caltrain corridor.



3.4.3 Future Funding for Caltrain's Bike Parking System

Given Caltrain's fiscal constraints and funding uncertainties, it is important that funds be identified and secured for the future bike parking system. The following is an initial list of potential sources of funds to be pursued by the future bike access project manager. Once the funds are secured, they will be adopted as amendments into the appropriate JPB budgets. It is anticipated that the future dedicated project manager will actively research and pursue other sources of funds for the bike parking system, as well.

JPB Capital and Operating Budgets: There will be an on-going need for direct funding to achieve and maintain a high quality, actively managed bike parking system for Caltrain. Many of the costs of the bike parking system, especially operational costs, cannot be paid for with grants and will require dedication of on-going funds from the JPB's budgets. It is anticipated that the JPB's operating budget will continue to cover costs for the existing bike parking system, and there may be opportunities in the future for the capital budget to include funds for bike parking projects.

JPB Members: Recognizing the need to balance the on-board accommodation of bicycles with improvements to wayside bicycle facilities, the JPB committed to identifying and investing \$3 million in capital funding into wayside bicycle improvements in 2015. These funds were envisioned to be separate from the annual member contributions to the capital and operating budgets, and it was anticipated that they could be sourced from local transportation ballot measures, such as Measure A in San Mateo County. Caltrain decided to wait until this Plan was finalized to request these additional bike project funds. It is anticipated that one of the first implementation measures for this Plan will be for staff to begin working with the JPB members to obtain these funds. These contributions from the JPB members could form an important foundation for implementing improvements to the bike parking system, including adopting the hybrid management approach with the dedicated project manager and additional contracted vendor services.

Local Jurisdictions and Agencies: Historically, local jurisdictions and agencies have partnered with Caltrain to provide bike parking facilities along the corridor, to supplement the bike parking facilities provided by Caltrain at key stations along the corridor. Typically, the local jurisdictions and agencies supply the funding for capital and operating costs for these facilities that are not owned by Caltrain. Looking forward, it is anticipated that they will continue to own and operate their bike parking facilities. In addition, the agency should explore additional partnership opportunities with local jurisdictions; for example, they could provide funds for additional facility projects and matching funds for grants. It is anticipated that the dedicated project manager for bike parking at Caltrain will continue to partner with local jurisdictions and agencies on funding for bike parking facilities.

Grants: Sources of grant funds for bike parking projects have historically been limited. However, successful sources of capital funding for Caltrain have included grants from the Bay Area Air Quality Management District and from Caltrans. Potential sources in the future include grants administered by state, regional, county, or city agencies and organizations. The grants could pertain to topics related to transportation, such as grants to support active transportation

modes; the environment, such as environmental grants to promote the benefits derived from non-auto transportation modes; and public health, such as grants to support public health benefits from active transportation modes. It is anticipated that the dedicated bike access project manager will actively research and pursue grant opportunities for bike parking facilities.

Other External Sources: It is possible that other external sources could provide funding assistance for the bike parking system, such as private employers or organizations along the Caltrain corridor. It is anticipated that the dedicated project manager for bike parking will investigate potential partnerships with other external entities to support Caltrain’s bike parking system.

3.5 IMPLEMENTATION

This section of the Plan provides an overview of implementation activities needed to achieve the vision for Caltrain’s bike parking system presented in this Plan.

3.5.1 Next Steps for Implementation

The following list presents critical activities to carry out to implement the hybrid management approach and improve Caltrain’s bike parking system for its passengers.

1. **Hire Dedicated Project Manager for Bike Access.** The agency will hire temporary staff or a consultant to fulfill the role of future bike access project manager. As discussed in the Management Approach section of this Plan, the dedicated project manager report to the Rail Division of Caltrain. It is estimated that this position will be a full-time position in the near term but may become a part-time position after funding is resolved and contracts are finalized with bike parking vendors.
2. **Continue Collaboration with Internal and External Stakeholders.** The future bike access project manager will assume responsibility for all communications and partnerships regarding Caltrain’s bike parking system, serving as the lead contact and coordinator for all internal and external stakeholders. Internal stakeholders include all staff members at the agency whose support, assistance, or expertise is needed for the bike parking system. External stakeholders include but are not limited to members of the public, local jurisdictions, county agencies, community stakeholder groups (such as Silicon Valley and San Francisco Bicycle Coalitions), private bike facility and equipment entities (including bikeshare companies), Caltrain’s Bicycle Advisory Committee, Caltrain’s Citizen Advisory Committee, and the Peninsula Corridor Joint Powers Board.
3. **Update Caltrain Design Criteria.** Caltrain’s Engineering and Construction Department provides general design oversight of all improvements within the Caltrain right-of-way, including new construction, rehabilitation, and maintenance. Its engineering standards provide minimum requirements and guidance for planning and design of facilities. The future bike access project manager will work with Caltrain’s engineers to update the engineering standards and design criteria for bike parking facilities, with the goal of updating and

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streamlining the process of installing, implementing, and improving bike parking facilities at Caltrain stations across the corridor.

4. **Develop Funding Plan for Bike Parking System.** A major task for the future bike access project manager will be to develop a funding plan for Caltrain's bike parking system. The funding plan should include detailed capital and operational costs for the bike parking system to implement the vision of this Plan. It should also identify potential funding sources for capital and operational costs and include a detailed plan for pursuing and obtaining funds, as well as a timeline (short and long term). Potential funding sources should include but not be limited to the various sources listed in the Funding section of this Plan. This may include identifying precise potential sources of funds for bike parking from the JPB's funding partners in San Francisco, San Mateo, and Santa Clara counties.
5. **Secure Funding for Bike Parking System.** Based on the funding plan developed, the future bike access project manager will pursue funding for the bike parking system. Operational funding as well as capital funding should be pursued, and it is likely that this effort will be on-going until the funding plan is realized. It is likely that the future bike access project manager will need to work with numerous stakeholders to obtain the funding, including the JPB's funding partners in San Francisco, San Mateo, and Santa Clara counties, as well as Caltrain staff. The funds should be transferred, including from funding partners, to the JPB and amended into the capital or operating budget for Caltrain.
6. **Research and Pursue Grants for Caltrain's Bike Parking System.** The future bike access project manager will research and pursue grants for capital and operating funds to support Caltrain's Bike Parking System. They will be responsible for working with Caltrain's grants team and completing and submitting grant applications.
7. **Submit Funding Requests for FY19 Capital Budget.** Coordinate with Caltrain staff, partners, other stakeholders, and contracted vendors (if available and as needed) to determine if a funding request (or requests) for capital funds for bike parking system improvements is needed for Fiscal Year 2019 (July 1, 2018 – June 30, 2019). This should be based on the funding plan developed as part of the implementation of this Plan. If a funding request is needed, determine appropriate budget request amount. Complete and submit all necessary forms, budgets, and documentation for JPB Capital Budget funding requests for Fiscal Year 2019.
8. **Draft Request(s) for Proposals.** Once funding has been secured, the future bike access project manager will lead the process to outsource bike parking management and administration duties to contracted vendors. They will draft one or multiple Request for Proposals (RFP) to solicit bike parking services, working closely with staff in the Rail Division's Contracts and Procurement Department to ensure they are correct and compliant with the various agency requirements. The

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RFP will be open to the public and not limited to vendors currently on contract with the agency. At a minimum, vendor duties to be solicited through an RFP or multiple RFPs should include but not be limited to the following list. The future bike access project manager will work with Caltrain staff on the strategy for grouping or dividing services in the RFP(s). For instance, rather than including all services in the list under the same RFP, it is possible that the first three items in the list could be issued under the one RFP, while the last two could be issued under a separate RFP.

- a. **Keyed Locker Management and Administration:** Manage locker database; maintain and keep current the public website for Caltrain's keyed bike locker program; collect, process, and fulfill customer registration requests for vacant lockers, including assigning lockers and distributing keys; collect and process customer rental fees, including renewal invoicing and billing; log and track locker maintenance requests from customers; and coordinate with TASI to ensure maintenance requests are completed.
- b. **Maintenance, Repairs, and Customer Service for Bike Parking Facilities:** Maintain existing and future bike parking facilities, including emergency repairs and routine maintenance; manage customer service email and phone lines for all of Caltrain's bike parking facilities; promptly respond to and resolve customer service questions, requests, and complaints; coordinate with Caltrain staff on requests and complaints where needed; maintain an organized and comprehensive customer service log that is regularly shared with Caltrain staff; and maintain and keep current public website with information about Caltrain's bike parking facilities, including information about those facilities not owned by Caltrain.
- c. **Monitoring the Facilities for Usage and Potential Improvements:** Track and monitor bike parking facility usage in the field at every station regularly; deliver usage reports to Caltrain staff; annually report on bike parking system performance, including performance on this Plan's goals and performance metrics; assess the need for potential changes to the bike parking system to better meet agency, customer, and vendor needs; and recommend potential improvements to the bike parking system.
- d. **Managing the Purchase and Installation of New Parking Facilities:** Coordinate with Caltrain staff on plans for new bike parking facilities to be owned by the agency (including but not limited to those recommended in this Plan); draft architectural/engineering plans for new facilities as needed; purchase new bike parking facilities and equipment on behalf of the agency, with approval from Caltrain staff; and coordinate and assist TASI and Caltrain staff with equipment and facility installation as needed.
- e. **Operating and Managing New Bike Parking Facilities:** If they are installed and owned by Caltrain, operate and manage new bike parking facilities that

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require management (such as shared, secure bike parking facilities that are either staffed or unstaffed), including all duties listed above for keyed locker management and administration; and operate and provide staffing for new staffed, shared, secure bike parking facilities.

9. **Finalize, Release, and Evaluate RFP.** The future bike access project manager will have appropriate Caltrain staff and legal support review the RFP to finalize it, before leading it through the release process. After the proposals are received, they will form the necessary evaluation and selection committees, and complete the process to finalize the selection of the vendor(s).
10. **Finalize Contracts with Selected Vendors.** The future bike access project manager will work with the Rail Division's Contracts and Procurement staff to create, negotiate, and finalize the contract(s) with the bike parking specialist(s) selected through the RFP process.
11. **Revise TASI Contract.** Once a new vendor(s) is in place and operational, the future bike access project manager will work with the Rail Division's Contracts and Procurement staff to modify TASI's contract to remove terms of the contract that include duties related to the bike parking facilities along the corridor.
12. **Lead Process to Shift Management Duties to Vendors.** Because the selected bike parking vendor(s) will be assuming responsibility for many duties currently carried out by Caltrain staff and TASI, it will be necessary for the future bike access project manager to lead the process to smoothly and successfully shift the management and administration to vendors. This will require that the future bike access project manager work closely with Caltrain staff in the Rail and Finance Divisions, among others; TASI staff; and the vendor(s).
13. **Establish Performance Targets for Goals and Performance Measures.** The future dedicated bike access manager will develop detailed performance targets for each performance measure, to support progress towards achieving the goals for the bike parking system. These targets should be quantified where possible, and may be informed through the RFP process and any of its associated detailed cost information. The dedicated project manager should confer with Caltrain staff in the setting of performance targets. These performance targets should be finalized before the first presentation of the monitoring plan, discussed below.
14. **Plan for and Deliver Bike Parking Facility Improvements.** Once the bike parking vendor(s) are managing and operating the existing bike parking facilities, the future bike access project manager will begin collaborating with the vendor(s) to plan and deliver bike parking facility and equipment improvements and additions. It is anticipated that the vendor(s) will lead the process from the conceptual design phase to delivery, but the future bike access project manager will serve as the liaison between the vendor and Caltrain staff and work closely with the vendor to ensure successful delivery of improvements. Improvements should draw on the recommendations in this Plan.

3.5.2 Timeline

A timeline for the implementation steps discussed above is presented in Figure 15. It extends through the end of 2018, though implementation activities are expected to extend into years beyond 2018. It is anticipated that the future bike access project manager will update the tasks and timeline as work and time progress, as part of the monitoring plan discussed in more detail below.

CALTRAIN BICYCLE PARKING MANAGEMENT PLAN – PROPOSAL FOR ADOPTION

Figure 15 Proposed Implementation Timeline

Task	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18	07/18	08/18	09/18	10/18	11/18	12/18
Hire Dedicated Project Manager for Bike Access	Shaded	Shaded	Shaded												
Continue Collaboration with Internal and External Stakeholders				Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Update Caltrain Design Criteria				Shaded	Shaded	Shaded	Shaded								
Develop Funding Plan for Bike Parking System				Shaded	Shaded	Shaded									
Secure Funding for Bike Parking System				Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Research and Pursue Grants for Caltrain’s Bike Parking System				Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Submit Funding Requests for FY19 Capital Budget					Shaded	Shaded									



CALTRAIN BICYCLE PARKING MANAGEMENT PLAN – PROPOSAL FOR ADOPTION

Task	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18	07/18	08/18	09/18	10/18	11/18	12/18
Draft Request(s) for Proposals															
Finalize, Release, and Evaluate RFP(s)															
Finalize Contracts with Selected Vendor(s)															
Revise TASI Contract															
Lead Process to Shift Management Duties to Vendors															
Establish Performance Targets for Goals and Performance Measures															
Plan for and Deliver Bike Parking Facility Improvements															

Note: Implementation timeline extends through 2018, but it is anticipated that implementation activities will extend into years beyond 2018.



3.5.3 Monitoring Plan

To track and evaluate success in delivering a high-quality bike parking system for Caltrain passengers, the new future bike access project manager will deliver an annual Caltrain Bike Parking System Report to the Bicycle Advisory Committee, followed by the Joint Powers Board. The report will include an overview of system improvements made to date, as well as evaluation and tracking of progress towards this Plan’s goals and performance measures. It will also highlight plans for the bike parking system in the coming year, building on the timeline presented above. The report can incorporate the system monitoring and performance information supplied by the agency’s contracted vendors, but ultimately the future bike access project manager is responsible for verifying and compiling accurate and up-to-date information for the annual report. The delivery of the annual report will be targeted for the end of each calendar year, but may be shifted if needed due to the BAC or JPB meeting schedule. If the future bike access project manager is unable to compile or deliver the annual Bike Parking System Report, the Chief Operating Officer for Rail will assign the responsibility to another agency staff member.

In addition, the future bike access project manager will report to the Rail Division of Caltrain and keep the department leadership abreast of issues, challenges, and successes related to the bike parking system. It is expected that they will regularly report to and update the agency leadership throughout the year, so that there is broad awareness of the status of Caltrain’s bike parking system internally at the agency.



Image 13 - Stacked bicycle parking racks at a rail station in the Netherlands (Credit: Tyler Golly)

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