City of Rialto Bike Share Feasibility Study

Existing Conditions and Best Practices Report

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1. Introduction

This report presents the existing conditions analysis and best practices research for the Rialto Bike Share Feasibility Study. The first section, Local Context Analysis, summarizes the methodology and results of the demand analysis for bike share in Rialto, and discusses the integration of bike share systems with transit options. The next section, Bike Share Technology, summarizes the different types of bike share (and scooter share) systems and provides a comparison of these systems. In particular, it focuses on dockless bike and scooter share, offering best practices for these rapidly evolving shared mobility systems. The final section summarizes the methodology and results of the Equity Analysis for Rialto, and provides research into best practices for incorporating equity into bike share systems.

2. Local Context Analysis

2A. Bike Share Demand Analysis

Methodology

Rialto Bike Share will provide bicycles located strategically around the city. This demand analysis was developed to determine the concentration of where people live, work, and play in Rialto. This analysis will serve as background information that will help define the optimal bike share service area and system to serve the City of Rialto.

The demand analysis is *quantitative* in nature and incorporates data available from the US Census and the City's GIS-based (Geographic Information Systems) data sets. The data is then used within a model developed by Alta Planning + Design to determine relative demand for bike share. The data inputs are based on:

- Residential density (where people live, including student housing)[1, 2]
- Employment density (where people work)
- Transit demand (where people take the streetcar, bus and MAX).
- Recreation demand (where people recreate focused on job locations related to cultural destinations, restaurants and retail establishments)

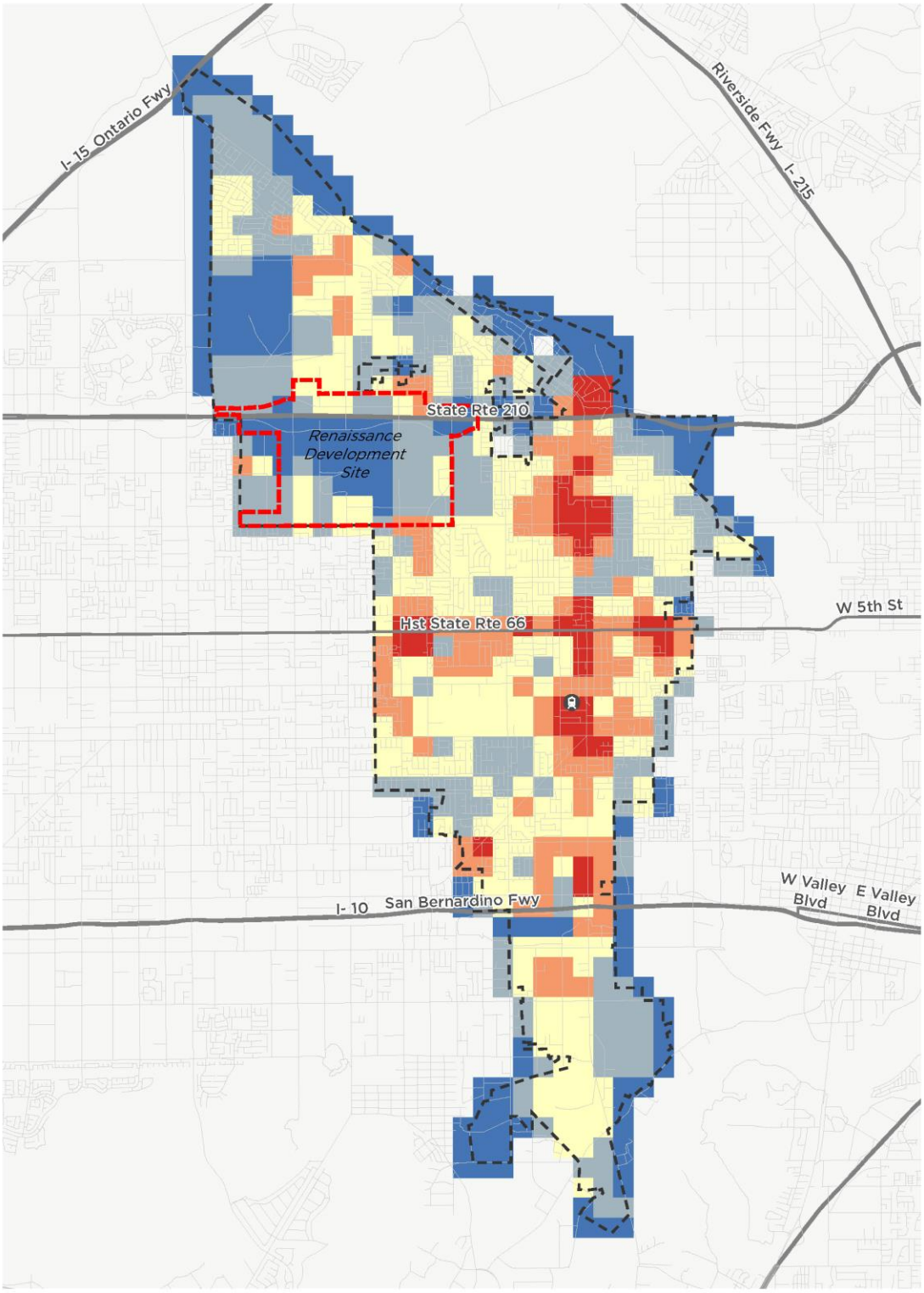
High demand areas were identified through a heat mapping exercise that allocated points based on where people live, work, take transit and recreate within Rialto. A "heat map" was developed to determine where demand for bike share exists. Colors are set at threshold levels to indicate relative demand within a 1000' by 1000' grid overlaid onto the City of Rialto. The accompanying "composite" heat map indicates the overall demand for bike share throughout Rialto. Areas with the highest potential demand for bike sharing are taken

[1]Residential density was calculated using data from the 2010 US Census to achieve the desired level of granularity (Census Block Groups). The Service Area Maps will consider areas of the city that have experienced disproportionate growth since 2010.

[2] It should be noted that residential density does not take into account temporary residents, i.e. those staying in Rialto hotels, inns and motels. Hotel, inn and motel employees are included in the employment density analysis, however, and serve as a *de facto* proxy for the increased demand that hotels—especially large hotels in walkable, commercial centers—create for bike share ridership.

into consideration for deployment of bike share. These locations will generate the most users and attract the highest value sponsorships, and as a result are the most likely to be financially sustainable.

Figure 1. Rialto Bike Share Demand



2B. Bike Share and Transit Integration

Overview

This section outlines the relationship between bike share and transit, including common opportunities, challenges, and associated benefits of creating a bike share system thoughtfully integrated with existing transit. While this information is based primarily on dock-based and hybrid bike share systems, considerations specific to dockless systems are noted where relevant.

Benefits of bike share and transit

Bike share has the potential to make getting to and from transit easier. It not only expands the options that exist for first mile and last mile access to transit, but it also addresses many of the challenges that people face when making their day-to-day travel decisions. The benefits of integrated bike share and transit include the following:

- **Affordable and convenient.** Taking bike share to transit can be more streamlined than accessing transit on a personal bike. It removes a wide range of experiences that may make a person opt out of using their personal bike, including: unfamiliarity with using a bus bike rack, limited availability of bike parking, concerns about bike theft, and costs of personal bike ownership and maintenance. Bike share can help some households reduce their number of short vehicle trips, or eliminate the need for a vehicle or an extra vehicle altogether.
- **Facilitates multimodal trip planning**. Bike share allows for multimodal round trips, when a commuter takes one mode in the morning then returns home by a different mode, or combination of modes in the evening. For example, a commuter could take bike share to the Rialto Metrolink station in the morning than catch a bus home in the evening.
- **Fills spatial gaps in the city's transit network.** When sited adjacent to key bus stops, bike share helps to fill in the gaps between transit lines and a rider's destination. As a "last mile" option, bike share expands the reach of the transit service area.
- **Fills time gaps in transit service**. Bike share provides a reliable, on-demand mode of transportation. Where transit service is time-limited, bike share is available later in the evening and earlier in the day. Where long headways exist or transit experiences delays, bike share can provide a more immediately accessible alternative.
- **Equity benefits**. Bike share can provide safe, convenient access to transit for historically-marginalized groups, such as people of color, those with lower incomes, or non-English speakers. Bike share can be particularly useful for those who work outside the 9am- 5pm schedule. Integrating with transit provides low income transit users with more opportunity to use bike share and enjoy an affordable, healthy, flexible way to navigate their commute.

Co-located bike share stations and transit stations or stops are the first "mobility hubs." Mobility hubs are places of connectivity where different modes of travel — walking, biking, transit, and shared mobility options — come together in one place to help people make connections quickly and get to where they need to go.

Opportunities to promote bike share and transit integration

The following strategies describe opportunities to create a bike share system that is closely linked with transit. These concepts and case studies should provide the City of Rialto with context and ideas for next steps for bike share supporting the Rialto Metrolink Station.

Fare integration

In order to promote multi-modal trips, bike-share and transit operators are increasingly integrating their fares so that a transit fare includes bike share access and vice versa. Fare integration is perhaps the most important way to reap the benefits of thoughtfully coordinated bike share and transit because it makes it seamless for commuters to switch between modes. While linking fares for the two systems can be tricky upfront, cities across the country that have persevered are seeing boosts in ridership for both modes. The following case studies explain how they've done it.

Case Studies

- **Pittsburgh, PA.** In September of 2017, Pittsburgh become the first U.S. city to offer free bike share access to transit riders (in 15-minute increments), demonstrating effective system integration and collaboration between agencies. Initial results from Pittsburgh pilot show 4.3% increase in bike share ridership, after previously flat growth.
    - Key takeaways:
        - Have a plan for the complex details of system integration to make it hard for the transit agency to say "no" to connecting the systems.
        - It is possible to integrate user experience without integrating the back end of each service provider, using RFID technology.

- **Milwaukee, WI.** Milwaukee integrated their transit and bike share systems, while maintaining two systems with different operational technology. The combined card in Milwaukee is actually two separate accounts combined on one card. Users acquire a special Bublr Bike Share sticker that attaches to the transit fare card and allows for connection to both systems.
    - Key takeaways:
        - Coordinated joint marketing is crucial for successful system integration, including co-branding and announcement of bike share stations co-located with transit
        - Ensure bike share and transit integration on the Transit App or other local transportation apps.
        - Intentionally locating bike share stations on bus routes. Eighty percent of bike share stations in Milwaukee overlap with bus routes.
        - Potential for joint station maintenance. Milwaukee is investigating opportunities for joint maintenance.

- **Helsinki, Finland**. In Helsinki, their integrated bike share and transit system became one of the most well-ridden systems in Europe in just two months. Bike share integrated with transit through transit cards, branding, and trip planning. Similar to Milwaukee, integration is seamless for the user experience, but the back end is still two financial transactions. Users still need two accounts, but it's easy to link them.
    - Key Takeaways:
        - Market as part of a regional transportation system and use the same branding as bus and street car to encourage users to view bike share as public transportation.
        - Acknowledge risks for generally underfunded transit agencies to use their funding to start bikeshare. To address this concern, the Helsinki government funded bike share up front to create and launch the system.

- **Fargo, ND**. The Fargo, ND bike share system is a great example of a successful small, location-based bike share system. In Fargo, bike share is integrated with university enrollment system. Students are automatically signed up with a season pass and their ID card allows them to check out bikes and ride the city bus. In 2016, the 11-station, 100 bike seasonal system saw 143,000 trips, for an average of 6-7 rides per bike per day—more per bike than Washington D.C or Paris that year.[3]
    - Key Takeaways
        - Importance of integrating systems as seamlessly as possible and eliminating barriers to entry.
        - Public engagement is important to shape how systems are integrated and to build community buy-in. School administration and student government were very involved in planning Fargo's bike share system from its inception.

- **Los Angeles, CA**. Launched in 2016, L.A's regional bike share system is one of the most fully integrated bike share and transit system in the country. Bike share and transit have the same pricing structure and can be paid for using the same TAP card and account. The systems are separate on the backend, but fully seamless for the user. Metro bike share is marketed explicitly as a way to access transit.
    - Key Takeaways
        - Moving towards a single app that allows for trip planning and payment for transit, bike share, ride sharing, electric vehicle charging, parking, and more.
        - Concern about who owns the interface between user and travel options.
        - Logistical challenges come along with such extensive public/private partnerships.
        -

E-bike share and transit

E-bikes increase the bike share system range. This expands the scope of the discussion from first and last mile usage to 1.5-2-mile trips to connect to transit and other destinations. Because e-bikes are 10-27% faster, less physically demanding than standard bikes, and require less exertion, people are able to travel further using bike share and more people with different physical abilities are able to use the bikes. E-bike share systems are growing quickly across the country and the world, as cities and companies discover the benefits of providing this service to their communities.

Electric-assist Bike Share Equipment

In the past three or four years, electric-assist bike (e-bike) share equipment has become more accessible. Companies that provide dock-based, dockless, and lock-to hybrid systems all have e-assist models that can be integrated into a current or future bike share program. All models require the rider to pedal the bicycle in order to get an "assist" from the electric motor. Though commercially available for private bicycles, no bike share models offer a throttle-based e-bike.

The handful of systems that employ e-bike share currently cap the top speed at 15 mph at which time the regulator cuts off any additional power. Because the e-bikes are powered by a battery, they must be recharged on a regular basis which creates a significant challenge for operators who must either swap the batteries or dock the bikes into a recharging station. Some systems offer credits for individual users who dock them into the recharging stations. The benefits of an e-bike share system (either partial or full) include the increased distance riders are able to cover and an enhanced ability to ride up and over hills.

[3] Corbin, April. "Why the Country's Best Bike Share Might be in Fargo". Better Bike Share Partnership. May 19, 2016.

Bike share parking

Regardless of the type of bike share selected, ample, prominent bike parking or bike share stations will need to be provided at the Rialto Metrolink Station and key locations around the neighborhood. Bike share parking should be located as close to the Metrolink station entrance/exit as possible, for maximum visibility and convenience. The following bike share station siting guidance and bike parking best practices should inform design and placement.

Bike Share Station Siting

NACTO offers the following principals for siting bike share stations or mobility hubs:

- **Accessible and Convenient.** Stations should be conveniently located and easy for pedestrians and cyclists to find and use, at any time, in any season.
- **Designed for Safety**. Stations should be considered as part of a city's traffic calming toolkit and located in areas with relatively high volumes of pedestrian traffic and good lighting.
- **Operationally Feasible.** Station locations should be easy to reach and service. They should have adequate sun exposure, if using solar power, and be accessible to rebalancing and maintenance vehicles
- **Enhance the Pedestrian Realm.** Stations should be placed in ways that enhance the quality of the surrounding pedestrian environment.
- **Part of the Streetscape Hierarchy.** Stations share space in a crowded streetscape. Stations should take precedence over moveable objects, such as drive rails and standard bike racks. Stations should not impede major, permanent streetscape elements such as hydrants, bus/ transit stops, and loading docks. While the station plate should not cover utility access points, bikes can overlap utility points.

Bike Parking Design Guidance

- Bike racks accommodate short-term bicycle parking and are meant to accommodate visitors, customers, and others expected to depart within two hours.
- On-street bike corrals (also known as on-street bicycle parking) consist of bicycle racks grouped together in a common area within the street traditionally used for automobile parking. Corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing high-volume bicycle parking. Bicycle corrals can be implemented by converting one or two on-street motor vehicle parking spaces into on-street bicycle parking. Each motor vehicle parking space can be replaced with approximately 6-10 bicycle parking spaces.

Bike Racks

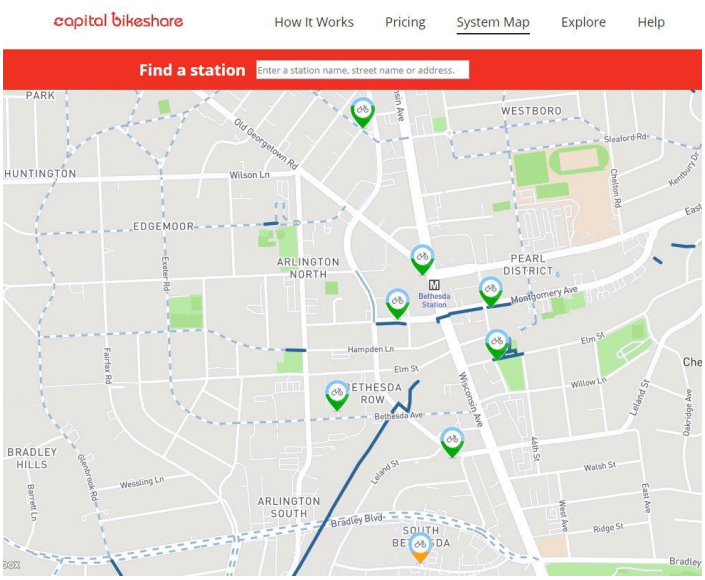
- 2 feet minimum from the curb face to avoid "dooring."
- 4 feet between racks to provide maneuvering room.
- Locate close to destinations; 50 feet maximum from a building's main entrance.
- Minimum clear distance of 6 feet should be provided between the bicycle rack and the property line.

Bike Corrals

- Bicyclists should have an entrance width from the roadway of 5-6 feet.
- Can be used with parallel or angled parking.
- Parking stalls adjacent to curb extensions are good candidates for bicycle corrals since the concrete extension serves as a delimitation on one side.

Bike share with a single focal point

Bike share systems with a single focal point can provide an important link in the overall transportation system and offer a starting point for a more comprehensive bike share system. For example, Capitol Bike Share, in Washington, DC region extends bike share network coverage to metro stations in suburban communities. This regional approach, tied to transit, offers commuters a key first and last mile connection on both sides of their commute and provides a guaranteed ride home at all hours of the day.



Capitol Bike Share satellite system around the Bethesda Metro Station.

Bike share at Rialto Metrolink Transit Station

Bike share will provide a key travel option for people traveling to and from the Rialto Metrolink station.

Opportunities

- Rialto public bus service, provided by OmniBus is primarily oriented north-south near the Metrolink station. Bike share could provide more efficient access to destinations east and west of the Metrolink station.
- Rialto public bus service also has 30-minute headways. Bike share could provide first and last mile connections between buses.
- Metrolink tickets already transfer to Omnibus bus fare, which could provide a starting point to arrange fare integration with the bike share system.
- Pacific Electric Trail, to the northwest of the station, is an excellent off-street facility and could be used by those using bike share.
- Rialto Bike Share has the opportunity to be the first system in the County and serve as an example for other cities that may be interested in increasing mobility and connections to transit.
- The City of Rialto could arrange for drop zones or bike hubs at bus stops to further integrate bike share and transit.
- The Metrolink Station includes ample space for a bike share hub or drop zone near the front of the station building.
- Numerous destinations are within a three-mile bike shed from the station including:
    - Downtown Rialto
    - Rialto Library
    - Rialto Community Services
    - Curtis Elementary School
    - Boyd Elementary School
    - Milor High School
    - El Super Grocery Store
    - Bud Bender Park
    - Rialto City Park

Constraints

- Rialto has only a limited existing bike infrastructure network within a three-mile bike shed.
- Because the Rialto bike share system will be used heavily by commuters, there will be a need for time-based rebalancing of the bikes. Bikes will flow towards the Metrolink station in the morning and away in the evening.
- Rialto must consider how to control the location of bike share bikes in the system because of the focus on a single focal point.

3. Bike Share Technology

3A. Shared Micro Mobility System Types

Bike and scooter share programs are designed to provide cost-effective, environmentally-friendly and convenient travel option for short trips within a city or region. The systems consist of a fleet of user-friendly and durable bicycles—either docked at stations throughout a city, or parked by users at their final destination—or lightweight electric scooters intended to be driven while standing. Both bike or scooter share programs are relatively inexpensive and quick to launch—compared to highway and transit projects—and can provide an extension to Rialto's public transportation system.

Bike Share

Bike share systems are typically structured to operate like automated bike rental for short periods. The structure encourages shorter, spontaneous trips in which bikes are checked out, ridden for a short period of time (typically 30 minutes or less) and either returned to any station in the system or parked at the final destination. Most systems employ a pricing schedule that encourages short, frequent trips and discourages bikes being in use for long periods of time. Some systems provide for unlimited, short trips for casual (24 hour) users or annual/monthly members—so-called "buffet" style of pricing—while others charge for each trip or each hour of use—so-called "a la carte" pricing. For either pricing model, the focus is getting to nearby destinations quickly and conveniently. Public bike share is not intended to compete with bike rental companies, which are intended for those interested in using a bicycle continuously for longer periods of time.

Evolution of Bike Share Technology

Bike share is not a 21st century concept and has been around for decades. Most of the 1st generation "systems" were volunteer-led and informally organized in a handful of cities, such as Amsterdam and Portland, Oregon in the 1970's, 80's and 90's. These programs experienced low to moderate success because of theft, vandalism, inefficient technology and insufficient operational oversight. However, in the past ten years, innovations in technology have increased user accountability and given rise to a new generation of technology-driven bike share programs. Advancements in credit card transaction capabilities, WiFi and RFID (radio-frequency identification) chips have allowed operators to introduce accountability and reduce theft and vandalism.

Many bike-share technology options include modular systems consisting of docking plates and kiosks that use solar power and wireless communication. This technology allows for bike share stations to be moved, relocated, expanded, or reduced to meet demand. "Smart-bike" systems allow the shared bicycles to be locked anywhere within a designated service area, either locked to a fixed object or locked to itself. The three bike share technology types are 1) "dock-based" equipment, 2) "dockless" smart-bike equipment and 3) "lock-to" smart-bike equipment.

In all cases, they represent a fleet of shared bikes for use by members (hourly, daily, monthly or annually) within a designated service area of a city or region. Depending on levels of use, bicycles must be redistributed (a.k.a. "rebalancing") from one station or part of the city to another to ensure that bikes are available in areas where members would typically be looking for them. All require a software back-end that keeps track of ridership information and can be linked in real time to a website or mobile device applications. The back-end also tracks the number of trips, the distance travelled and where the bicycle was both accessed and parked. The differences among the three technologies are described below.

"Dock-Based" Equipment

Dock-based bike share systems have existed In North America since Montreal's Bixi program in 2007. Because the equipment is relatively expensive—roughly $50,000 for a 20-dock station of 10 bikes each—most U.S. cities have received federal transportation grants and/or large corporate sponsorship deals to cover the high capital and operations costs. Docking points use strong magnets to secure the bicycles, powered by a solar panel typically affixed to the transaction kiosk. The kiosk provides the opportunity for casual users to purchase a short-term membership on demand, using a credit card. Bicycles within a dock-based system may only be secured properly at the station, so density of stations and high visibility is critical to success.

Dock-based bike share station in Madison WI

"Dockless" Smart-Bike Equipment

Dockless smart-bike equipment provides greater flexibility, as it allows the user to retrieve or park the bicycle anywhere within the designated service area. Dockless bikes are locked using a rear wheel lock enabled or disabled with a smart phone app. Because the technology is part of the design of the bike itself, centrally-located stations are not required for the system to function. As such, the costs are lower than dock-based systems and they offer a level of flexibility that some cities find very attractive. Many dockless bike share companies are supported financially by venture capital firms and have offered their systems at very little or no cost to the respective cities (though City staff time to assist with launch and oversight is necessary). Because of the low cost of the equipment and the fact that they can be parked anywhere, some dockless systems have suffered with far higher rates of vandalism and theft relative to the dock-based which are nearly impossible to remove from a station.

Dockless smart-bikes at the pilot program In Durham

"Hybrid" or "Lock-to" Smart-Bike Equipment

Hybrid smart-bike equipment also provides a high level of flexibility, as users are typically allowed to retrieve or park the bicycle anywhere within the designated service area. Unlike the dockless bikes, they do not feature built-in wheel locks and must be locked to a fixed object using a U lock or heavy cable attached to the bike. These smart bikes are also called a hybrid between the two options described above because the need to lock to a fixed object provides the opportunity to easily create a group of branded bike racks and designate them as a "station" (see photo at right). Additionally, geofencing technology can be used to establish temporary "pop up" stations to accommodate special events or anticipated rises in demand in certain geographic areas.

"Lock-to" smart-bikes parked at a station in Orlando

The physical presence of the bike share station provides high level of visibility for the bike share program, allows users to easily locate a pod of bicycles, and offers predictability for where bicycles can be found at a given moment. Because of these advantages, operators of the lock-to equipment encourage users to return the bike share bikes to designated stations (sometimes called "hubs") through economic incentives. Typically, an additional fee of $1-$2 is charged for locking the bike outside of the hub, as long as it is within the broadly-defined bike share service area. Equipment is less expensive then dock-based because a pricey transaction kiosk is not required at all stations and the on-bike locking technology is far less expensive than the high-tech, dock-based stations.

Electric-assist Bike Share Equipment

In the past few years, electric-assist bike (e-bike) share equipment has become more accessible. Companies that provide dock-based, dockless and lock-to hybrid systems all have e-assist models that can be integrated into a current or future bike share program. All models require the rider to pedal the bicycle in order to get an "assist" from the electric motor. Though commercially available for private bicycles, no bike share models offer a throttle-based e-bike. The top speed for an e-bike share system is typically 15 mph at which time the regulator cuts off any additional power. Because the e-bikes are powered by a battery, they must be recharged on a regular basis which creates a significant challenge for operators who must either swap the batteries or dock the bikes into a recharging station. The benefits of an e-bike share system (either partial or full) include the increased distance riders are able to cover and an enhanced ability to ride up and over hills. E-bike expand the potential user base beyond who would use a standard bike.

Electric-assist bike share system in Birmingham

Evaluation of Bike Share Technology Options

All three bike share equipment locking types described above have strengths and weaknesses. To help determine which system is most appropriate for the City of Rialto's needs, it is helpful to consider issues for each option based on some key criteria outlined in the table below.

Table 1. Bike Share System Matrix

Criterion	Dock-based Equipment	"Dockless" Smart-bike Equipment	"Hybrid" Smart-bike Equipment
Bicycle Durability	40+ pound bike with proprietary components and internal cables to reduce vandalism; puncture proof tires	Dockless bikes are described as "off the shelf" and tend to be of lower quality; frequent replacement is necessary	40+ pound bike with proprietary components and internal cables to reduce vandalism; puncture proof tires
Ease of Use	Requires a key fob or swipe card for member access; casual users require interaction with transaction kiosk or a smart phone app to get a day pass	Short-term or long-term members access a bike using a QR code from their smart phones; some systems offer opportunities to get an unlocking code at participating businesses using cash	Members use RFID card or punch-in access code onto bike-mounted interface; casual users require interaction with transaction kiosk or a smart phone app to get a day pass
Level of Visibility within the Given Context	Highly visible stations, whether on-street or sidewalk; transaction kiosk and map panel add to the presence of the station	Other than the busiest destinations, visibility is minimal since bikes are typically parked alone or in small groups, sometimes off the beaten path	Highly visible stations, whether on-street or sidewalk (though less prominent typically than the dock-based system stations)
'Brandability' of Equipment	Branding space on rear fender, front basket and the kiosks that are required at every station	While branding space is available, because most dockless systems are at no cost to the city, they are typically without any branded logos	Branding space on rear fender, front basket and kiosks (though many stations may forego kiosk)
Site Planning and Installation Issues	Heavy steel plates require small crane and flatbed truck for installation of station docks; permits needed for the station to occupy the ROW	Permits typically are needed for general use of the ROW, not to occupy a particular area within the street or sidewalk	Standard or branded bike racks are typically mounted to small plate so no crane or large delivery truck required; permits needed for the station to occupy the ROW

Criterion	Dock-based Equipment	"Dockless" Smart-bike Equipment	"Hybrid" Smart-bike Equipment
Sustainability: solar power, local/domestic production	All vendor options use solar power; some products are manufactured in U.S. and Canada	All vendor options use solar power; limited production in U.S. and Canada (more typically in China)	All vendor options use solar power; limited production in U.S. and Canada (more typically in China)
Track Record of Existing Systems	Nearly all large and many mid-size cities use dock-based equipment with generally high levels of success and popularity	Dockless has existed in U.S. cities (primarily mid-size and small) for only a few years, so success has been hard to gauge at this point	Deployed in many mid-size and small (<100,000) cities and generally well received
Equipment Costs	Typical station with 8-10 bikes: $45,000 to $55,000 (owned by city or non-profit group)	Systems are typically owned by the equipment/operations vendor and provided to the cities at no costs (other than staff time); some revenue available to cities, depending on permit fees	Typical station with 8-10 bikes: $20,000 to $25,000, less if no kiosk used (owned by city or non-profit group)
Operational Cost	Typical fees are in the $2,000-$2,500 per bike range, annually paid for by sponsorship, user fees and occasional city/state grants	Operations come at no cost to the city; operators are supported by venture capital funding and user fees; in some areas maintenance and customer service has suffered	Typical fees are in the $2,000-$2,500 per bike range, annually paid for by sponsorship, user fees and occasional city/state grants

Scooter Share

Scooter share systems first appeared in California in 2017 as a new micromobility transportation option. Supplementing existing bike share service in most places, they have since quickly expanded to many communities across the U.S. The service utilizes app-based technology to offer short-term rentals of electric-powered scooters (e-scooters). Operation of the system functions much like that of a dockless bike share system described above, in which users park at their destination within a defined geographic service area. To end a trip, users are instructed to park the scooter on the sidewalk close to the curb and out of the pedestrian travel zone, or in a designated parking area.

Scooter share rider in Memphis TN

Companies typically hire a mix of independent contractors as well as regular employees to charge, deploy, maintain, and respond to complaints and service requests. Throughout the day, scooters are distributed throughout the city based on where they are deployed by staff, and where people end their trips. Similar to bike share, scooter share is designed to provide a cost-effective, environmentally-friendly and convenient travel option for short, one-way trips. However, scooters differ from bikes in that they require little physical effort on behalf of the user.

Benefits of scooter systems include broad appeal to a wide user base, their ability to customize short-term trips and close the gap between transit and destinations, and potential to reduce automobile trips. At the same time, the deployment of scooter programs around the country has revealed several areas where more consideration and work is needed to integrate scooters safely and smoothly into a community's traffic system. Concerns about scooters include their use on sidewalks and paths having a negative impact on pedestrian safety, the sometimes-disorderly ways users park the scooters—blocking sidewalks, bus stops and curb ramps—and the safety of using such small-wheeled vehicles on busy streets.

In 2018, multiple companies introduced scooter models and entered the market. Like dockless bike systems, over the relatively brief course of scooter share deployment the geographic spread and regulation of scooter systems has evolved dramatically. The following section explores dockless bike and scooter systems in more detail.

3B. Dockless Shared Mobility Best Practices

Background

Dockless bikeshare gained attention in 2017, when Seattle, WA issued the first permit for dockless bikeshare in the wake of a discontinued dock-based system. By issuing a permit to private bikeshare companies, the city was able to experiment with new shared-use models with little risk. In addition to Seattle, a growing number of private bikeshare companies, funded by venture capital, rapidly deployed dockless bicycles around the country, often without knowledge or permission from cities. Later that same year, dockless, stand-up electric scooters appeared in cities. Like dockless bikes, many companies such as Bird and Lime scattered scooters without notifying cities. Problems quickly emerged with bike and scooter "litter," abandoned units, vandalism and theft. Permits are now evolving to include requirements intended to prevent or mitigate these challenges.

In 2018, these companies expanded, making headlines for billion dollar valuations. Now, cities are instituting overall dockless mobility programs, rather than separate bike and scooter permits. This multi-modal dockless mobility permitting process has been used in Austin, Denver, and Palo Alto, among others. Dockless micromobility is expected to see continued growth, not only in numbers, but also in geographic distribution, variety of models and personal mobility devices, pricing and subscription plans, and integration with other public and private transportation systems. Larger ridehailing companies are acquiring or establishing partnerships with bike and scooter-share companies. Uber acquired the e-bike share company JUMP (Social Bikes) and Lyft has acquired Motivate and invested in Lime (formerly Lime Bike). Ridehail companies realized not only are customers substituting short car rides with micromobility, but the profit per trip was much larger. Smaller companies such as Gotcha are offering multi-modal packages, for example small electric shuttles, bike share, and scooters. In addition, companies are creating fleets as an employment or real estate amenity. For example, Los Angeles-based Envoy offers shared micro-mobility fleets in condominiums in Los Angeles, with plans to expand scooter and e-bike options.

Many cities have completed or are currently undergoing bike and/or scooter pilot programs, in which one or more vendors are permitted to distribute a fleet of bikes or scooters within a defined geographic region for a fixed period of time. Pilot programs give communities access to new transportation options, while allowing the city to determine whether or not dockless bikes or scooters help meet transportation needs. Data collection—not always available, depending on the vendor—including trip origins and destinations, routes, vehicle use, crash reports and complaints are collected and analyzed, in addition to structured community feedback. Pilot programs allow cities to stay adaptable and provide an opportunity to adjust permit terms, consider proposals from different service providers, and incorporate community input into program planning. The following sections highlight major aspects of system planning, policy and operations, drawing from current practices in comparable cities to frame potential applications in Rialto.

Best Practices

Defining Quality Standards

Jurisdictions regulate bike and scooter vehicle standards through program rules, permit terms, and ordinances, identifying quality standards and required maintenance response times.

Many look to the federal level for guidance on equipment definitions and standards. For example, the City of Charlotte requires that all bicycles meet the standards outlined in the Code of Federal Regulations (CFR) under Title 16, Chapter II, Subchapter C, Part 1512 – Requirements for Bicycles, and, lacking a specific federal guideline for scooters, stipulate that scooters "meet equivalent safety standards".

It is recommended that a jurisdiction require that all bicycles and scooters meet most, if not all, of the following standards:

- Designed to withstand the demands of outdoor and shared use
- Highly durable; theft and vandal resistant
- Safe, comfortable and easy to use by a wide range of users, and in the case of bicycles, include an adjustable seat
- Durable brakes
- Warning bell
- Security hardware
- Front lights that emit white light and a rear red light
- Safety information clearly posted on each device
- Customer service contact information clearly posted on each device
- On-board GPS device capable of providing real-time location and ridership data that meets the data sharing requirements required by the jurisdictions

To stimulate the removal of damaged units, many jurisdictions reserve the authority to inspect active units at any time, as well as terminate the permit for any unit that is determined to be unsafe for public use. Furthermore, required maintenance response times are advisable; vendors should remove any unit reported to be faulty or damaged within a maximum of 24 hours.

Fleet Size and Phasing

Communities piloting a dockless service for the first time may opt for deploying a limited fleet in the interest of gauging public interest in micro-mobility services, and observing modal interaction between scooters, bicycle, pedestrians, and motor vehicles. However, many communities are experimenting with setting performance

standards and planning for scalability from the beginning, with dynamic cap systems that require vendors to adjust fleet sizes based on user demand. This is a recommended approach in that it allows the program to remain adaptable to ridership trends, meet demand and minimize the issues associated with excess units (such as overcrowding at parking areas and sidewalk "litter").

For example, the City of Santa Monica launched a limited-term shared mobility pilot in the 2018 allowing up to four vendors and 3,000 units at the launch of the program (up to 1,000 bikes and up to 2,000 scooters). Additionally, the City identified a "Minimum Utilization Rate" (MUR) of three rides per unit per day for bikes, and four rides per unit per day for scooters. Under this cap system, each vendor must track their average trips per day per unit, and balance their fleet accordingly. Operators that fall below the MUR must remove units from the system, while vendors that achieve the MUR may petition to deploy additional units.

Another unique example of demand-based expansion policy comes from the City of Atlanta, GA, which has a permitting procedure for temporary dockless mobility fleet expansions to accommodate surges in demand that may accompany special events.

Service Areas

Establishing service areas for dockless bike or scooter deployment provides cities with some degree of control over the location of a permitted vendor's fleet. While there is no way to ensure riders will not remove units from designated service areas, vendors will collect and return "out-of-bounds" units to the desired operating zone as they rebalance the system (which may occur as frequently as daily or as infrequently as weekly, depending on a system's size and charging needs). In-app user warnings, fees, and fines may also be useful for keeping units within a desired service area. Once the service area boundary is established, users who leave a unit outside of the established boundaries is charged a fine through the vendor application. It is recommended that Rialto establish a service area boundary that roughly mirrors City boundaries, with specific exceptions. In order to extend transportation options to underserved populations, the City might consider extending its service area to include areas identified as Communities of Concern according to the results of the equity analysis completed for this Feasibility study: the Carvedale neighborhood to the east, and the Bloomington and Crestmore heights neighborhoods to the southwest.

Rebalancing and Charging Procedures

Depending on levels of use, units must be redistributed (a.k.a. "rebalancing") from one part of the city to another to ensure that units are available in areas where members would typically be looking for them. This may be particularly desirable if city officials have identified specific areas, such as downtown, the Rialto Metrolink Station, or underserved neighborhoods, that would benefit from enhanced mobility service. Rebalancing can happen concurrently with the daily collection and charging of units. While some vendors choose to employ in-house operations staff to balance and charge their system manually (particularly in key markets), contracting out day to day operations responsibilities to residents and local businesses is also common.

Sidewalk Use

Bikes and scooters are most compatible with bike lanes and low to mid speed travel lanes. Most municipalities strongly discourage, if not outright prohibit the use of bikes and scooters on sidewalks, to avoid posing unnecessary danger and discomfort to pedestrians. Sidewalk riding is one of the biggest challenges posed by scooter share in particular; however, this can be mitigated by explicitly prohibiting sidewalk riding in permit regulations and providing clear guidelines via the vendor application. In the long term, sidewalk riding can be mitigated by improving the bike lane and shared use path system.

Parking Policy

Improper parking procedures present another challenge in that bikes and scooters can create hazards for people traveling on the sidewalk, particularly those in wheelchairs, with visual impairments or ambulatory disabilities. Dockless bike and scooter parking policy has evolved immensely since the first generation of units deployed. While systems have long encouraged users to park in the "furnishing zone" of sidewalks (where bike racks, benches, trees and signage are located), cities have enhanced the formality and enforceability of dockless parking policy. This begins with setting a minimum sidewalk clearance requirement that riders are required to obey when parking. A recommended minimum requirement is that units be parked in the furnishing zone of the sidewalk, leaving at least 5' of unobstructed pedestrian walkway. Additionally, units should not be parked within 5' of a crosswalk, curb ramp, loading zone, fire hydrant, or transit stop.

"Drop zones" are another emerging tactic aimed at reducing improper parking procedures. Drop zones are small designated parking areas for dockless bikes or scooters within the public right of way, identified with paint and/or signage. Sidewalk drop zones have been installed in locations where bulb outs and extra-wide sidewalks leave ample right-of-way, while in-street drop zones may utilize no-parking zones with bollards outlining the box. Riders may receive in-app discounts for returning units previously outside of drop zones to drop zones, or may incur a small fee for parking units outside of drop zones. Drop zones functionally work like a bike share station, for a significantly lower cost. Ideal locations for drop zones can be determined through the same demand-based analysis used to cite potential locations for bike share stations. As infrastructure planning for shared mobility expands in Rialto, consider the implementation of drop zones for bike and/or scooter share parking. In the short term, a temporary drop zone at the Rialto Metrolink Station could be tested and evaluated, where many micromobility trips are likely to begin or end. Furthermore, rebalancing procedures should require that a minimum number of bikes or scooters are placed at the Metrolink Station each night, to accommodate anticipated morning commuter demand.

In-app messaging can be useful for educating users on legal parking procedures. Many companies require riders to confirm they have parked the bike or scooter correctly by submitting a photo through the company's app in order to end their rental. However, programs around the U.S. experience regular instances of illegal parking. When illegal parking does occur, detailing required complaint response times (generally one or two hours) in the permit terms and conditions holds vendors accountable for clearing public right-of-way in a timely fashion. Furthermore, explicitly stating that the city reserves the right to impound units that are left improperly parked beyond this complaint-initiated timeframe adds to the enforceability of parking standards. Municipalities may choose to charge a terms violation fine, release impounded bikes or scooters for a fee, or detract the cost of impound from a performance. Affected vendors may choose to charge responsible customers for improperly parking units.

Complaint Collection and Response

Local jurisdictions are increasingly defining their complaint collection and response expectations for vendors prior to permit issuance. This is particularly important due to the incidence of improper parking procedures blocking the right-of-way on streets and sidewalks.

Vendors should provide a 24-hour customer complaint platform that is capable of accommodating both English and Spanish speakers. Bikes and scooters should be clearly visually marked with a phone number and/or Web site that offers access to a customer complaint platform. Jurisdictions should also stipulate complaint response times for improper parking procedures. For example, vendors must respond to complaints of a unit obstructing public right-of-way (including pedestrian walkways, bicycle lanes, vehicle travel lanes, and on-street parking spaces) within 2 hours.

Age, Driver's License and Helmet Requirements

Some municipalities choose to set their own legal age requirement for operating scooters in particular, while others defer to vendors to decide who is eligible to rent their bikes or scooters. Cities that do implement this type of requirement can vary greatly in age limit, but most frequently choose the ages of 16 or 18.

Generally, cities managing bike and scooter systems are strongly encouraging riders to wear helmets, but ultimately defer to state helmet laws (or the absence thereof) to set regulations. Vendors also have the ability to set policies requiring riders to wear helmets while operating their units (though there is limited enforceability to such policies).

Community Outreach, Marketing, and Education

Vendors should be required to share in community outreach, marketing, and public education responsibilities related to the benefits of shared mobility services, as well as educate their consumers on safe and appropriate bike and scooter use.

For example, the City of Memphis requires that vendors conduct both general program marketing and targeted outreach to low-income communities. The City of Atlanta has taken a more comprehensive approach, requiring vendors to submit a User Education Plan (in addition to an Operations and Maintenance Plan and Equity Plan) as a component of the permit application process to evaluate how vendors intend to encourage sustainable transportation behavior, as well as promote safety. Marketing efforts in Rialto should be sure to include neighborhoods that have been identified as communities of concern in within the equity analysis of this Feasibility Study (West Downtown Rialto within City limits, and the Carvedale neighborhood to the east, and the Bloomington and Crestmore heights neighborhoods to the southwest).

Data Collection and Analysis

Defining data goals/priorities prior to issuing a permit gives municipalities the ability to plug specific data collection and reporting needs into the permit agreements they sign with vendors. This is a vital first-step to establishing data sharing partnership norms and conducting data-based evaluative processes. Cities should be as clear as possible when outlining their data requirements, being sure to specify: exactly what data fields they expect vendors to collect and report, how often they expect vendors to report this data, and what format they expect to receive the data in. Scheduling quarterly or monthly performance summary reports for vendors is a common requirement across systems. In addition to the high-level data found in performance summary reports, some cities are utilizing web-based data sharing platforms to receive real-time system information from vendors (using Mobility Data Specification API formatting). From there some municipalities, such as the City of Austin and the City of Louisville, publish up to date bike or scooter data online in the form of interactive maps, real-time data dashboards, and open source data files.

Vendors should provide Rialto City staff access to raw ridership data in both spreadsheet and geodatabase format. It is preferable that this data would be shared real-time through a web-based platform, though it may be more feasible for raw data to be shared with the monthly summary report referenced below. Raw data provided should, at minimum, include:

- Trip date and time
- Point of origin
- Point of destination
- Length of trip (in miles)
- Duration of trip (in minutes)

Vendors should also submit a monthly report to Rialto City staff including each of the following, at the minimum, for the reporting term:

- Average number of trips per day
- Origin and destination locations (presented in a mapped format)
- Average trip distance
- Average trip duration (in minutes)
- Average number of unique riders per day
- Average number of trips per unique rider per day
- Location and details of all reported crashes involving bikes or scooters
- Location of each complaint
- Nature of each complaint
- Description of vendor response
- Vendor response time for each complaint

Finally, in order to address potential issues of user privacy, consider establishing a policy allowing system users to opt out of inclusion in data collection through in-app settings and messaging.

Equity Considerations

Dockless bikes and scooters represent a relatively low-cost micromobility option for people who do not have access to a vehicle. However, the City of Rialto should consider the following to promote equitable access for potential dockless bike or scooter users and maintain safety for drivers and pedestrians.

- Provide a mechanism to sign up for a bike or scooter service without the use of a smartphone app (ie, through a Web-based portal). Some companies offer a call or text service to unlock for those without smartphones.
- Require that vendors offer a tiered or discounted pricing system (for example, lower fees for participants in programs such as SNAP (food assistance).
- Do not require a valid driver's license to operate a scooter.
- Require vendors to locate a certain percentage of their active fleet in low-income/high-unemployment areas.
- Require 2-hour complaint response times to remove improperly parked units, to ensure that sidewalks remain a safe place for the elderly, people in wheelchairs and people with ambulatory disabilities.
- Provide a complaint response platform that accommodates multiple languages.

The Permitting Process

Fees, Bonds, and Fines

Permit application fees can range anywhere from $100 to $1,300 depending on market size and stringency of review, with annual permit renewal fees typically cost half the original application fee. Individual bike or scooter permits themselves generally cost between $20 to $50 per unit and are often sold in bundled increments of 100 units to 500 units.

Holding a security bond is one avenue some municipalities are pursuing to ensure that public infrastructure damage and the cost of city labor to remove bikes or scooters is covered in the event a vendor is unwilling or unable to fulfill their obligations. The City of Dallas, for example, holds a $10,000 dockless vehicle bond. The

City of Los Angeles, on the other hand, holds a bond of $80 per unit to cover the cost of such circumstances. Charging fines between $500 and $1,000 for city code and permit terms violations is another mechanism for incentivizing regulation compliance.

Permit Term, Transferability, and Termination

Regardless of whether a city intends to run a temporary pilot or deploy permanent service, establishing fixed term permits of 6 to 12 months is important for keeping e-scooter programs and partnerships adaptable. Through an annual or biannual permit renewal process, cities have a natural opportunity to update the terms of granting a permit, terminate relationships with unsatisfactory operators, and consider proposals from new service providers. In addition to this natural reevaluation cycle, it is advisable that cities outline conditions under which they reserve the right to suspend or revoke a vendor's permit. Cities may also wish to specify whether permits are automatically transferable in the event a permitted e-scooter vendor is purchased by another company. Cities that choose to issue permits that are not automatically transferable have the option of requiring the new owner(s)/parent company to apply for a renewed permit or simply require the transfer approval be authorized by a suitable managerial figure.

Insurance Requirements

Municipalities that outline insurance requirements in the permit application process should require some combination of the following:

- Commercial general liability insurance of $500,000 to $1,000,000 per incident for death and bodily injury and $500,000 to $1,000,000 per incident for property damage (for a $1,000,000 to $2,000,000 annual aggregate)
- Cities may wish to negotiate coverage under a vendor's commercial liability insurance. The City of Los Angeles' permit terms stipulate that vendors must include "the City of Los Angeles, its officers, agents and employees" as additional primary insureds on their policy.
- Automotive liability insurance (for vendors that utilize motor vehicles in their operations procedures) of $500,000 to $1,000,000 per incident for death and bodily injury and $500,000 to $1,000,000 per incident for property damage (for a $1,000,000 to $2,000,000 annual aggregate)
- Employer liability insurance of $100,000 to $500,000 per incident bodily injury and disease (for a $100,000 to $500,000 annual aggregate)
- Workers' compensation insurance in compliance with state standards
- Cyber Liability/Information Technology Insurance of $500,000 to $1,000,000 per claim
- Sub-contractor coverage

4. Social Equity

4A. Spatial Equity Analysis

Why Consider Equity?

A person's access to transportation options either enables or hinders their ability to get to work, buy healthy food, see a doctor, go to school, or socialize with their community. Many communities rely on a variety of modes to connect to basic services and opportunities that are necessary to live productive, fulfilling and healthy lives. However, convenient, safe, and affordable transportation options are not always available to those who need them the most. These communities, commonly labeled as vulnerable, are vulnerable because of poor financial, health and housing circumstances, and/or physical or communication limitations. Without appropriate transportation, vulnerable individuals and communities are prevented from fulfilling basic needs.

Often, traditionally vulnerable populations, such as children, older adults, people of color, people with limited English proficiency, and low-income families rely heavily on affordable transportation options, specifically walking, biking and transit.[4][5][6] A lack of high-quality walking, biking, and transit facilities can result in unsafe and/or long travel. Uneven distribution of active transportation infrastructure can also result in health, safety, mobility, and economic benefits accruing to those who are more fortunate, while increasing hardships for vulnerable populations. Transportation facilities are essential components in creating communities of opportunity and reducing the disproportionate economic and health burdens of vulnerable communities.[7]

The terms "equity" and "equality" are sometimes used interchangeably, which can lead to confusion. In this analysis, equity is defined as trying to understand and provide disadvantaged communities with what they need to live healthy and productive lives. These needs include access to jobs, housing, and other critical services. Equity recognizes that different people experience different barriers to securing their needs. In contrast, equality aims to ensure that everyone gets the same things to live healthy and productive lives, regardless of need. Working towards equity may mean that active transportation funding is prioritized for areas with greater concentrations of disadvantaged populations instead of being distributed equally based on geography. This analysis uses concentrations of children, older adults, people of color, people with limited English proficiency, and low-income families as equity indicators. Equity is important for these groups because of their common reliance on active and public transportation.

Alta conducted equity analyses to identify where the majority of these vulnerable individuals reside within Rialto's study area. Understanding where these individuals are most densely located helps to prioritize transportation improvements. Increasing transportation opportunities for these the communities that most depend on such services provides better access to life-enhancing services and opportunities. At the same time, some vulnerable communities may perceive active transportation facilities and improvements as drivers of

[4] Dannenberg A, Frumkin H, Jackson R. Making Healthy Places. 1st ed. Washington D.C.: Island Press; 2011.
[5] International City/County Management Association. Active Living for Older Adults: Management Strategies for Healthy & Livable Communities.; 2003. http://www.ca-ilg.org/sites/main/files/file-attachments/resources__Active_Living.pdf. Accessed February 11, 201
[6] Mckenzie B. Modes Less Traveled—Bicycling and Walking to Work in the United States: 2008–2012. Am Community Surv Reports. 2014.
[7] Center for Infrastructure Equity. Transportation Equity. PolicyLink. 2016. http://www.policylink.org/focus-areas/infrastructure-equity/transportation-equity.

gentrification.[8] Deliberately and thoughtfully engaging vulnerable communities in policy, planning, and design processes is essential to hear and elevate the voices of the vulnerable communities.

Methods

The project team conducted an equity analysis using readily available demographic information from the US Census Bureau. All data was obtained from the 2016 American Community Survey (ACS) 5-year estimates and analysis was conducted at the census tract level for Rialto. Quantifying these indicators is necessary to compare demographics of study area geographies. Each of the five indicators received equal weight in determining the composite equity score. For this analysis, the following indicators were used:

- **Race**: This was measured using the percent of the population that identifies as nonwhite.
- **Income:** This indicator measures individuals living at or below 200% of the Federal Poverty Level, which is a threshold set by the U.S. Census Bureau and is updated annually.
- **Educational Attainment:** This indicator was determined by the percentage of the population over 25 years of age that does not have a high school diploma or equivalent.
- **Limited English Proficiency (LEP):** This indicator measures the percentage of the population that identifies as not speaking English well or at all.
- **Access to a Vehicle:** This indicator measures the percentage of household who do not have regular access to a vehicle.

All indicators are used to help understand access to transportation options by populations that have specific mobility needs or have historically been disadvantaged (LEP, Race, Income, Education). Mobility needs among these populations can have a variety of implications, including the ability to access recreational facilities or relying on active transportation networks for daily trips. While this analysis does not directly assess access to existing facilities, the results help to identify areas in which more facilities may be needed or access to existing facilities should be improved.

It is important to note that results of the equity analysis demonstrate the relative need based on each of the indicators defined above. Results for each tract are based on a comparison to all census tracts within Rialto, California in order to provide greater context for the relative need identified through these indicators. The resulting maps are a tool used in the planning process that helps the project team identify areas in which equity can be addressed through the resulting plan. The analysis below corresponds to the accompanying maps.

Equity Analysis Results and Discussion

The following equity analysis results provide indicator rationale, the observed trends in Rialto, and the indicator-specific recommendations.

Race: Non-White Population

Rationale: Racial or ethnic minorities are more likely to live in areas with poor or limited active transportation facilities, educational opportunities, job resources, and healthy food outlets.[9][10] Black individuals are over four

8 Geoghegan P. Blame it on the bike: does cycling contribute to a city's gentrification? The Gaurdian. www.theguardian.com/cities/2016/oct/05/blame-bike-cycling-contribute-city-gentrification. Published October 5, 2016.

9 Dannenberg A, Frumkin H, Jackson R. Making Healthy Places. 1st ed. Washington D.C.: Island Press; 2011.

10 Rubin V. Sustainable Communities Series: Regional Planning for Health Equity. PolicyLink. 2015

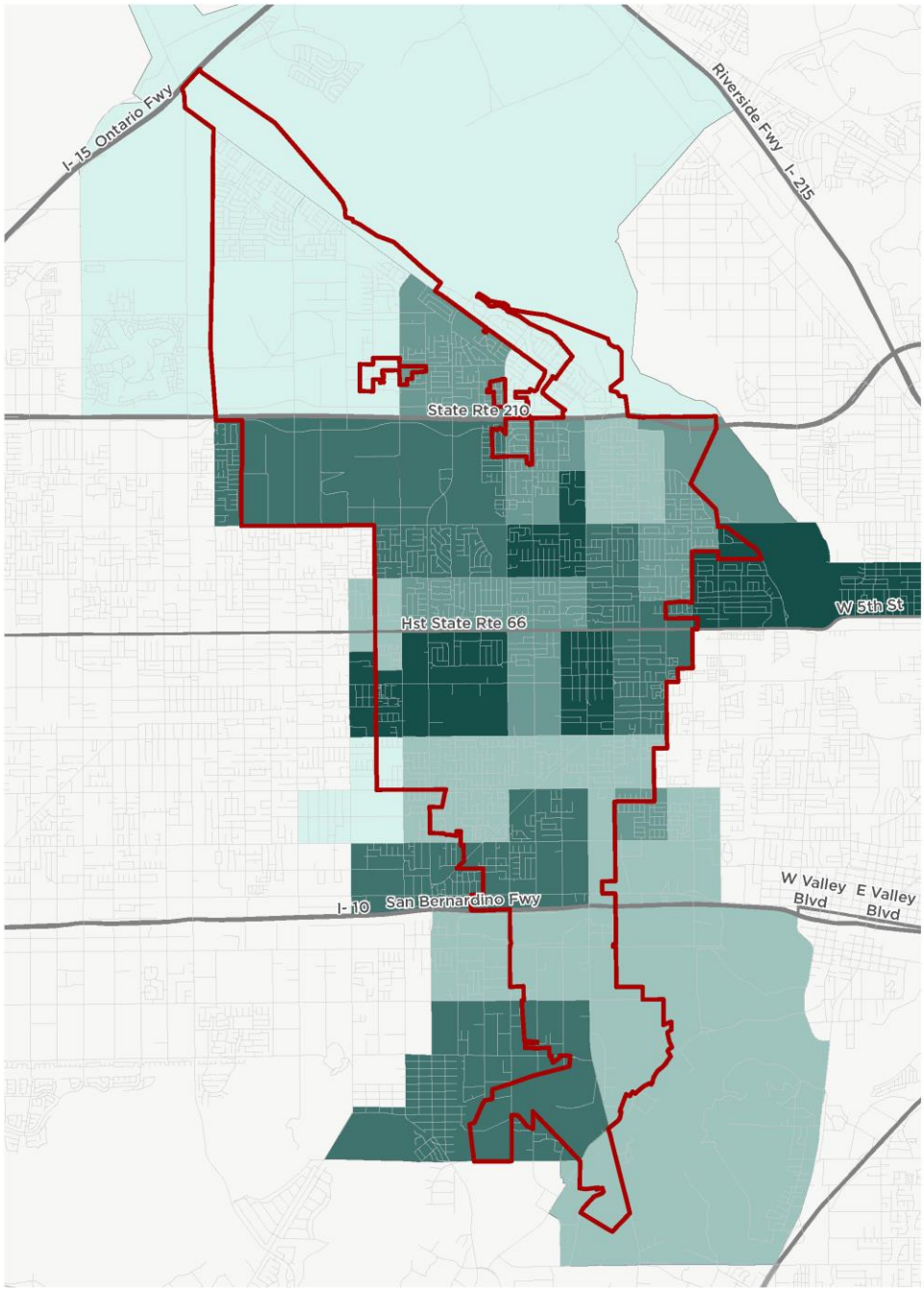
times and Hispanics are three times as likely to not have access to a household car compared to their white counterparts, regardless of income.[11] Additionally, communities of color are more likely to experience low social cohesion within their residential area because of limited activated public spaces.[12] The deficits of active transportation facilities are consequences of social and institutional marginalization, including job and housing discrimination. In turn, these deficits exacerbate the disproportionate health burdens communities of color experience. Lastly, communities of color experience a greater proportion of pedestrian crashes and have increased risk of mortality after pedestrian injury.[13][14] Therefore, increasing active transportation facilities and connectivity may promote physical activity, enhance economic opportunities, and increase transportation safety.

Findings: Non-white populations range from 71% of a census tract population to 95% in Rialto. Higher concentrations of non-white populations are located south of state route 20 And state route 66. The main route for transit is route 66. While there are a couple of segments of facilities along 2nd St and Rialto Ave, there is a dearth of routes for walking and bicycling.

Recommendations: Increased bicycle and walking facilities should be considered especially in areas away from existing transit service, and in areas to connect to transit. Facilities around large employers and key services, such as health care and quality food outlets, should be considered as a priority.[15] Facility planning, designing and implementation should be done with special attention to input and ideas from the communities of color. [16]

[11] Berube A, Deakin E, Raphael S. Socioeconomic Differences in Household Automobile Ownership Rates: Implications for Evacuation Policy. *Brookings Inst*. 2006.
[12] Cutts B, Darby K, Boone C, Brewis A. City Structure, Obesity, and Environmental Justice: An Integrated Analysis of Physical and Social Barriers to Walkable Streets and Park Access. *Soc Sci Med*. 2009;69:1314-1322.
[13] Maybury RS, Bolorunduro OB, Villegas C, et al. Pedestrians struck by motor vehicles further worsen race- and insurance-based disparities in trauma outcomes: The case for inner-city pedestrian injury prevention programs. *Surgery*. 2010;148(2):202-208. doi:10.1016/j.surg.2010.05.010.
[14] Equity. *Vis Zero SF*. 2015. http://visionzerosf.org/equity/.
[15] Dannenberg A, Frumkin H, Jackson R. *Making Healthy Places*. 1st ed. Washington D.C.: Island Press; 2011.
[16] Rubin V. Sustainable Communities Series: Regional Planning for Health Equity. *PolicyLink*. 2015.

Figure 2. Racial Indicators of Equity in Rialto



Education: No High School Diploma or Equivalent

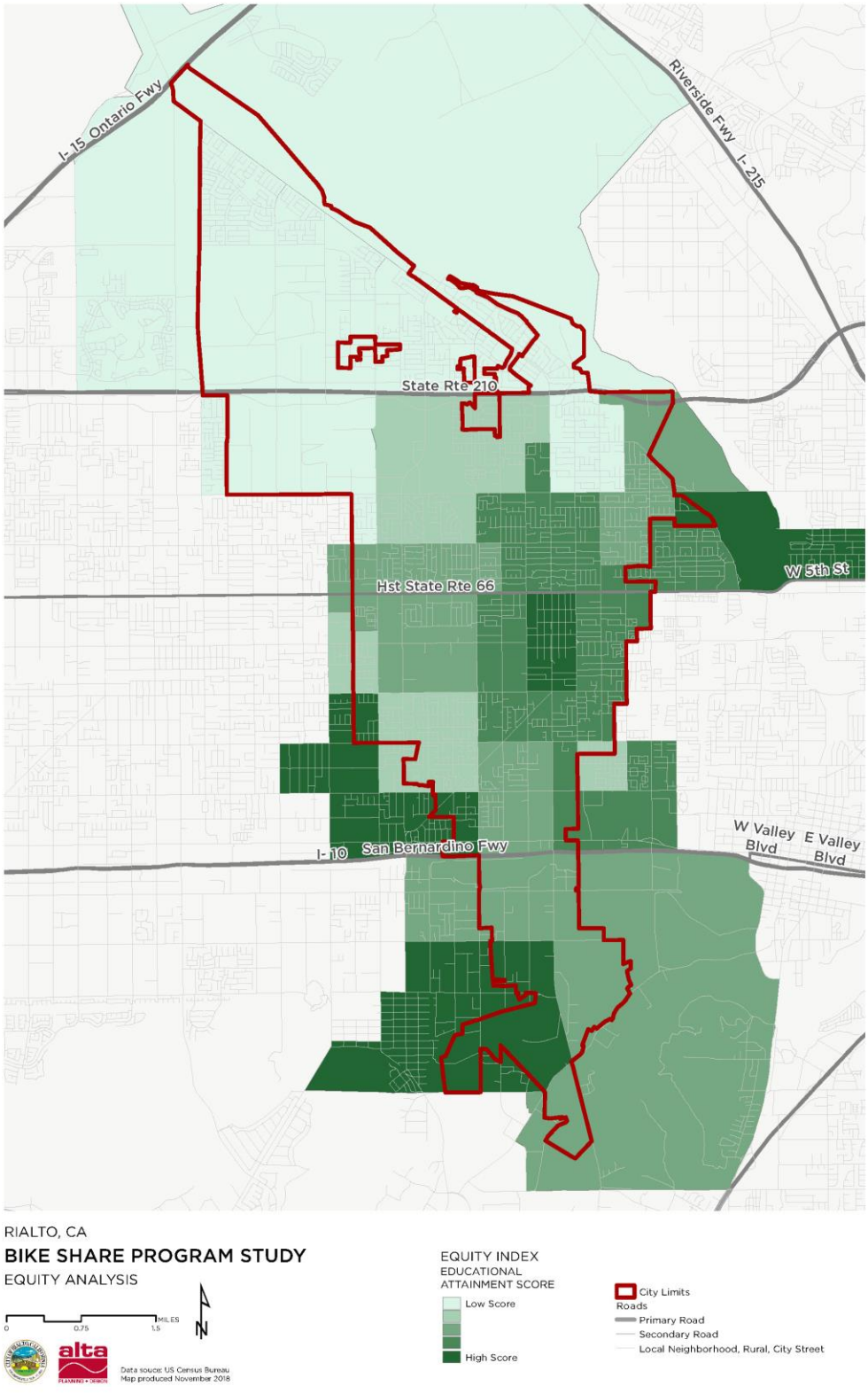
Rationale: Nationwide those without high school diplomas have the highest rates of walking and the second highest rates of biking to and from work.[17] These individuals may depend on walking and biking due to financial constraints and lack of adequate and/or convenient transportation options. Educational attainment, as a socioeconomic indicator, correlates with income levels. Therefore, although this population is most likely to walk to work, individuals without high school diplomas tend to live in areas without adequate biking and walking facilities and with increased exposure to environmental hazards. Boosting active transportation resources in areas where these individuals reside could promote increased access to educational resources and job opportunities, and enhance residents' physical activity.

Findings: Populations without a high school diploma are primarily found in the along the east side of state route 66. The census tracts of the population without a high school diploma ranges from 15% to 56%, with a mean of 33% across Rialto. Within Rialto, there is a concentration of those without a high school diploma along the east side of state route 66. While Rialto does not have an abundance of bicycle and walking facilities, higher percentages of the population without a high school diploma are located further way from non-motorized transportation networks and transit lines.

Recommendation: A greater provision of facilities that accommodate recreational and utilitarian trips may require additional consideration of access and network coverage. Specific consideration should focus on connections to/from multipurpose or joint uses of life-long educational resources, community centers and health care facilities.

[17] Mckenzie B. Modes Less Traveled—Bicycling and Walking to Work in the United States: 2008–2012. *Am Community Surv Reports*. 2014.

Figure 3. Educational Indicators of Equity in Rialto



Limited English Proficiency

Rationale: Individuals with limited-English proficiency, or who identify as not speaking English well or at all, tend to rely more on active transportation as their primary means of transportation (11%) than the average English speaker (4%).[18][19] General low economic status of LEP individuals may attribute to low car ownership rates and high reliance on active transportation facilities.[20] Additionally, low economic status correlates with living in regions without safe transportation investments. Given low car ownership and poor active transportation conditions, immigrants and LEP individuals are more likely to walk and ride along roads that lack appropriate biking and walking facilities, forcing individuals into unsafe transportation situations. Therefore, access to active transportation services is critical for LEP individuals to access basic employment and other necessities.

Findings: In general, areas with higher concentrations of limited-English proficiency are found in the southern portion of the Rialto, as well as pockets near the intersection of Base Line Rd and Riverside Ave, and Riverside Ave south of Foothill Blvd. Census tracts range from having 4% of the population identify as limited-English up to nearly 22% of the population. The mean percentage Rialto-wide is just over 14%

Recommendation: Additional, multilingual outreach is needed in communities with high LEP concentrations to better understand active transportation access needs.[21] Engaging LEP communities using focus groups in the policy, planning, and designing processes may assist in creating more appealing transportation improvements.[1] LEP populations may be less likely to engage in planning processes because of language barriers and language exclusion, and if so, they may not be as likely to advocate for active transportation facilities in their area.[22]

[18] Litman T. Evaluating Transportation Equity: Guidance For Incorporating Distributional Impacts in Transportation Planning. *Victoria Transp Policy Inst*. 2016;8(2):50-65. http://ecoplan.org/wtpp/wt_index.htm. Accessed October 15, 2016.

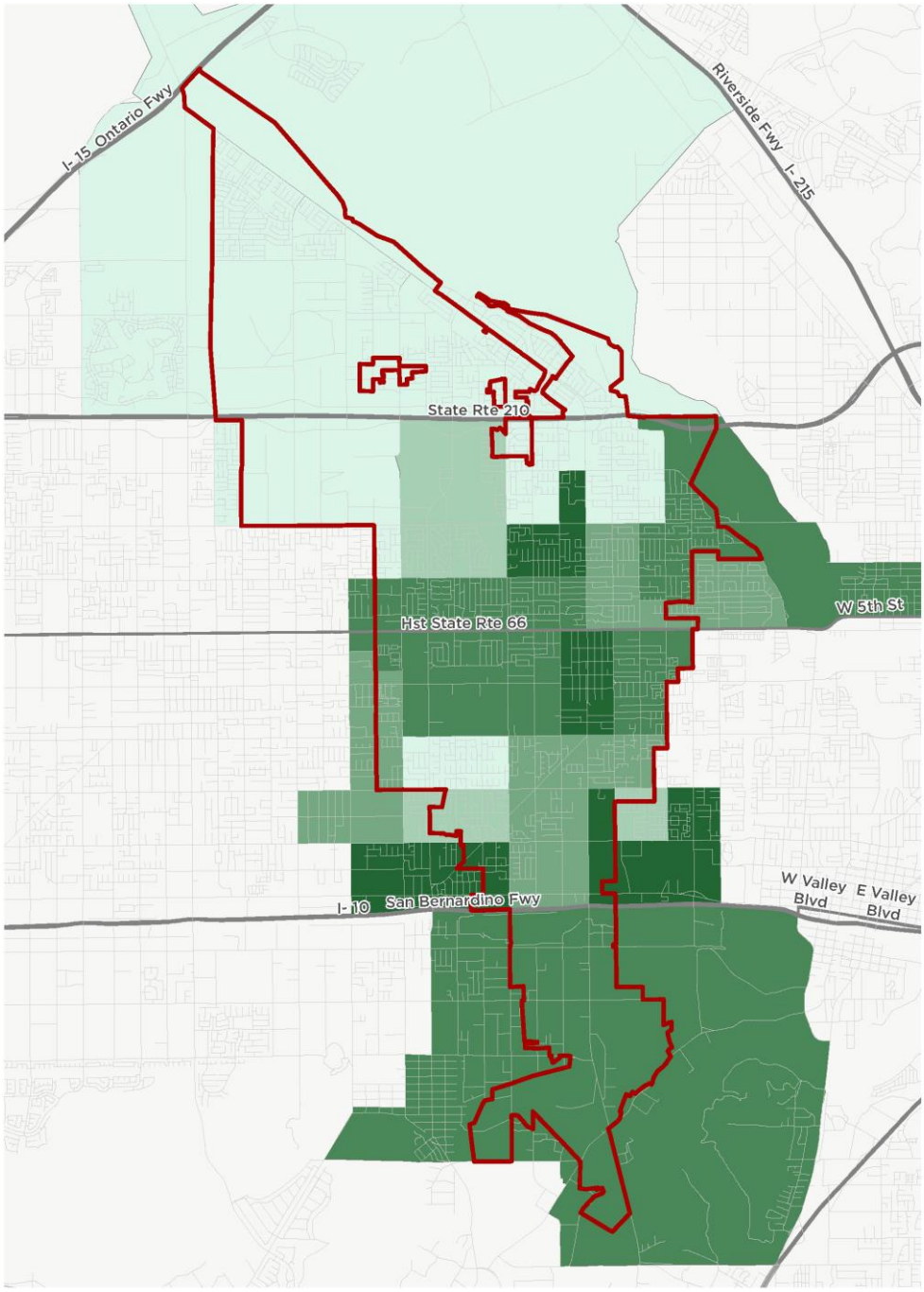
[19] U.S. Government Accountability Office. *Transportation Services: Better Dissemination and Oversight of DOT's Guidance Could Lead to Improved Access for Limited English-Proficient Populations*. Washington D.C.; 2005.

[20] Liu R, Schachter H. Emergency Response Plans and Needs of Communities with Limited English Proficiency. *Transp Res Rec J Transp Res Board*. 2007;2013:1-7. doi:10.3141/2013-01.

[21] PBS&J. How to Engage Low-Literacy and Limited-English-Proficiency Populations. *Fed Highw Adm*. 2006;Feb.

[22] Sandt L, Combs T, Cohn J. Pursuing Equity in Pedestrian and Bicycle Planning www.pedbikeinfo.org. *Pedestr Bicycl Inf Cent*. 2016;(March).

Figure 4. Linguistic Indicators of Equity in Rialto



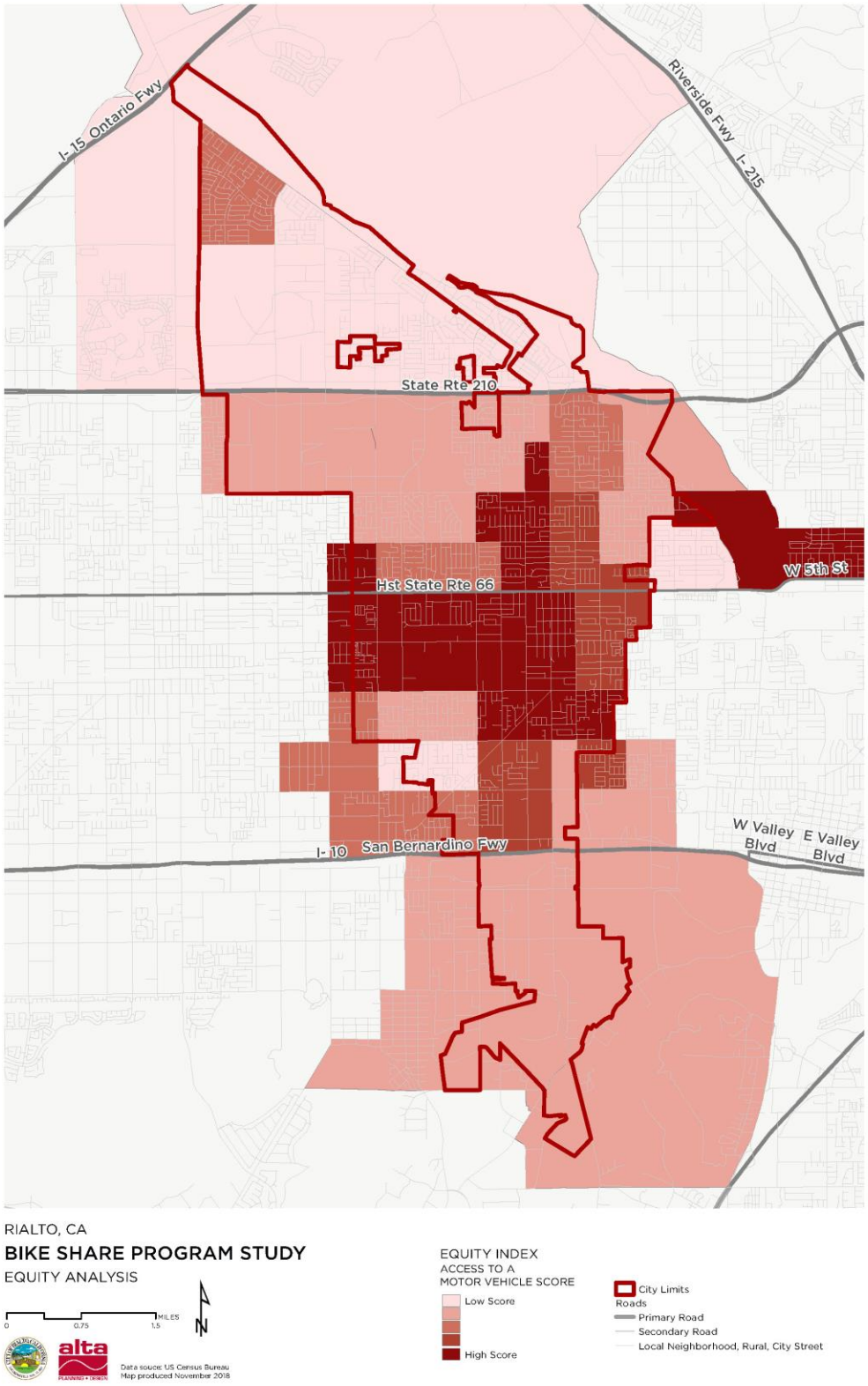
Access to a Motor Vehicle

Rationale: In less urbanized locations, specifically those with limited transit access and coverage, access to a motor vehicle carries strong implications for one's ability to reach employment, access healthy foods, and reach basic services.[27] A diverse transportation system that offers multiple modes, including transit, bicycling, and walking, reduces reliance on automobiles and can provide for more equitable access to services.[20] Providing access via quality walking and bicycling infrastructure is one method for increasing equity in access for locations with limited vehicle availability.[20] Studies have also found that access to a motor vehicle improves employment rates, as it provides a reliable means to commute to work.[27]The addition of safe and comfortable walking and biking routes, as well as developing improved connections to transit, have the ability to also serve as a reliable means to commute to work. This has the potential to alleviate the necessity of a motor vehicle to reach employment opportunities.

Findings: In general, areas with higher concentrations of no motor vehicle access are found south of Route 66 and north of West Randall Ave. Census tracts range from having 1% of households not having access to a motor vehicle, up to nearly 17% of the population, with the mean percentage Rialto-wide is just over 5%. There are transit lines that run through these concentrations – on route 66, Merrill Ave, and Riverside Ave.

Recommendation: Facility development should be considered in areas with limited access to vehicles. Implementation of safe walking and bicycling connections to transit centers can facilitate transit access, while low-stress facilities, such as separated trails, may better connect more rural locations employment centers, schools, and quality food centers.

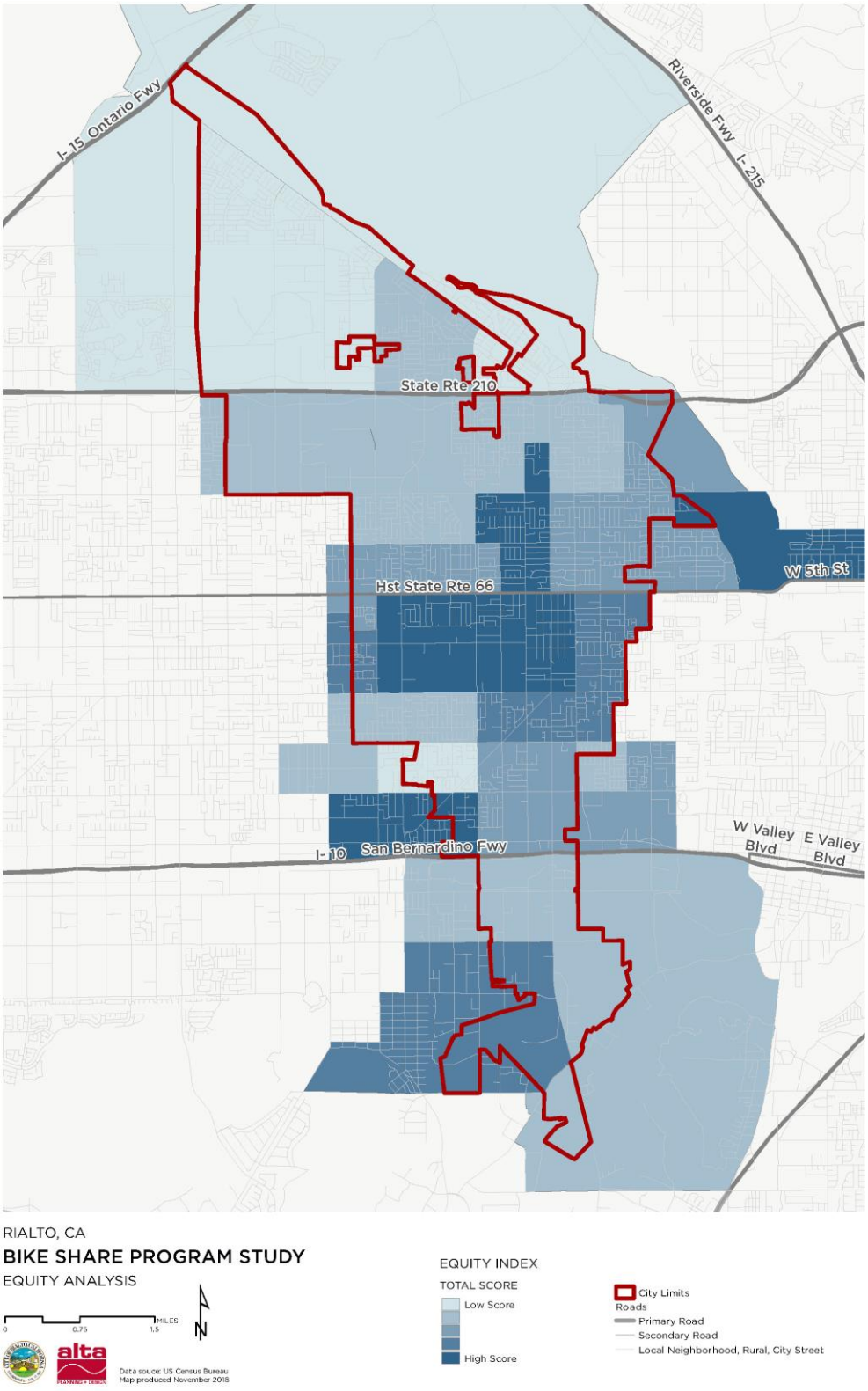
Figure 5. Driving Indicators of Equity in Rialto



COMPOSITE EQUITY

The composite equity analysis displays the sum of the results from each of the indicators explored above. The census tracts that represent higher need are typically found within areas of the Rialto that have less access to existing non-motorized transportation networks. Higher relative need is found in the central portion of the study area, and, to a smaller degree, the pocks in southwest Rialto. Investing in active transportation facilities in these areas of highest need will likely improve access to health and economic advancing opportunities.

Figure 6. Composite Equity Score in Rialto



4B. Equity Research

Overview

As the City of Rialto develops a new bike share program, it is critical to build a system that equitably serves all users of the transportation system. Access to transportation can help or hinder a person's ability to get to work, attend school, buy healthy food, visit a doctor, and socialize or otherwise contribute to their community. Traditionally, the community members most susceptible to experiencing the negative impacts of limited mobility options have been children, senior citizens, people of color, and people with limited access to a car, limited formal education, living in a lower-income household, or with limited proficiency with speaking English. Identifying locations and developing inclusive programs that can serve these historically marginalized communities can help close the gap in individuals' access to Rialto's transportation network, particularly the Metrolink Station, and can help foster new opportunities for economic and social inclusion.

The terms "equity" and "equality" are sometimes used interchangeably, which can lead to confusion. This analysis defines equity as trying to understand and correct imbalances in the distribution of resources so that all populations have access to what they need to live healthy, productive lives. This definition recognizes that populations experience different barriers to securing those resources and may require varying levels of investment to correct historical imbalances. Conversely, equality describes the goal of consistent, unvarying allocation of resources to all populations, regardless of need. A focus on equity, as opposed to equality, may mean that Rialto prioritizes funding for transportation investments in areas with more people from historically marginalized communities, and programs that promote access to these communities.

This memo outlines key bike share equity programs, examples from other cities, and lessons learned from the growing body of bike share equity literature.

Bike Share Equity Programs

Many studies have documented both the rapid increase in bike share systems and the fact that certain groups are underrepresented among bike share users, including: people of color, people with lower incomes, women, seniors, and people with less education. [23] [24] Lack of bike share systems and stations in neighborhoods where higher percentages of people in these groups live and work is one contributing factor.[25] Cost, lack of payment options, lack of credit, and lack of familiarity with bike sharing are other potential barriers.[26] The following strategies and programs illustrate how bike share systems around the country are working to **address these barriers and make bike share more inclusive and accessible.**

[23] Buck, D., R. Buehler, P. Happ, B. Rawls, P. Chung, and N. Borecki. (2013). "Are Bikeshare Users Different from Regular Cyclists? A First Look at ShortTerm Users, Annual Members, and Area Cyclists in the Washington, D.C.,Region." Transportation Research Record. No. 2387, pp 112-119.

[24] Shaheen, S., Martin, E., Chan, N.D., Cohen, A.P., and Pogodzinki, M. (2014). "Public Bikesharing in North America During a Period of Rapid Expansion: Understanding Business Models, Industry Trends and User Impacts." MTI Report 12-29. Mineta Transportation Institute.

[25] Ursaki, J. and L. Aultman-Hall. (2016). "Quantifying the Equity of Bikeshare Access in U.S. Cities." Transportation Research Board Annual Meeting, 2016. Paper # 16- 0426

[26] Hoe, N. (2015). "Bike Sharing in Low-Income Communities: Perceptions and Knowledge." April-October 2015. Temple University Institute for Survey Research Report.

Connecting Diverse Communities

Bike share station location and service area are critical components of an equitable bike share system. While bike share systems typically launch in high demand (and presumed higher revenue) areas, such as downtowns and near tourist destinations, considering geographic and social equity when deciding where to locate a system in Rialto can help provide multiple, lower-cost transportation options for a wide range of local residents. The National Association of City Transportation Officials (NACTO) guidelines recommend that bikeshare stations be no more than 0.4 miles apart to have truly comprehensive, equitable networks well-integrated with common destinations and existing transit.[27] Research from Portland State University finds that usership drops dramatically if a station is more than a quarter mile walk. [28]

For example, in Pittsburgh, PA the Healthy Ride bike share system opted to double their number of stations and expand service to serve more neighborhoods by reducing the size of underused stations from 19 docking points to 6-8 docking points per station.[29] One of the results of this innovation has been increased ridership in newly-served communities, particularly for short, everyday bike trips.

In Detroit, MoGo bike share is expanding to suburban communities through the creation of satellite bike share hubs for outlying pockets of residents.[30] The purpose of this style of expansion is to cover Detroit border communities who live near other jurisdictions and face a fragmented transportation system. Bike share would provide flexible, predictable service to connect people to different jurisdictions' transit systems. As of December 2018, MoGo is conducting outreach with stakeholders in target areas to build community ownership and drive the process forward.

Flexible Payment Options: Discounted Memberships and Cash Payment

Discount and cash payment options are key strategies to include lower income bike share riders who may not have access to credit or may not be able to afford the transportation service at the standard fare. Among cities with station-based bike share systems, 32% have an income-based discount program, using income thresholds or living in affordable housing as criteria, a 33% increase since 2016.[31] Over the past couple years, many bike share providers, both public and private, have implemented cash payment options where users can go to designated locations to add cash to their accounts. Reload locations are often social service providers, bike share offices, and local grocery/convenience stores. Limebike, Capital Bike Share, Portland Biketown, New Orleans Bike Share, and many more offer a cash payment option.

Boston offers an example of a discounted membership program SNAP cardholders in the Boston metropolitan area can get a $5 monthly bike share pass through the SNAP Card to Ride program.[32] The full system membership cost is $99 per year. The SNAP Card to Ride program offers unlimited 60-minute rides, increased from 30-minute trips previously available. Cities of Boston, Brookline, Cambridge, and Somerville, along with Motivate, the Department of Transitional Assistance, and the public health department work together to verify SNAP program participation efficiently and conveniently in person or online, so that people are not deterred

[27] National Association of City Transportation Officials, (2016). "Bike Share Station Siting Guide." Nacto.org.
[28] McNeil, Nathan, Jennifer Dill, John MacArthur, Joseph Broach. Breaking Barriers to Bike Share: Insights from Bike Share Users. NITC-RR-884c. Portland, OR: Transportation Research and Education Center (TREC), 2017.
[29] Cox, S. "Pittsburgh Adds Bike Share Density with Small Station Model," Better Bike Share Partnership. Betterbikeshare.org.
[30] Cos, S. "Detroit Provides Adaptive Bikes, Will Expand System," Better Bike Share Partnership. Betterbikeshare.org.
[31] National Association of City Transportation Officials, (2017). "Bike Share in the U.S.: 2017," Nacto.org.
[32] Cox, S. "Boston Debuts Regional Discounted Bike Share Memberships," Better Bike Share Partnership. Betterbikeshare.org.

from signing up. Furthermore, the program has removed the financial hold that used to be placed on rider payment accounts, which had been a major deterrent for low income riders.

MoGo in Detroit offers a similar program called the AccessPass. Six months after implementation, AccessPass sales made up 18% of all long-term pass sales. MoGo also offers a well-used cash-payment membership option which is well used by AccessPass holders, that contributes to fast, flexible, and convenient access to transportation for hundreds of residents.

Transit fare card integration with bike share trip fare is another important bike share equity tactic. See Chapter 2B of this report for more information.

Partnerships with Non-Profits and Social Services

Bike share providers should collaborate and form partnership with local non-profits and social service providers who already work directly with historically-marginalized communities. Local non-profits and social service providers have deep knowledge about community needs and communication channels for additional outreach needs. Bike share providers should look for ways to add capacity and support local groups, such as paying advocates for their time, creating local jobs, and being responsive to community needs.

For example, Indego bike share system in Philadelphia operates a community ambassador program that pays representatives of local non-profits to serve as links between the Indego Bike Share program and their communities.[33] Indego Ambassadors promote bike share, plan events such as community rides or classes, and serve as a resource for bike share issues or questions from their community. Ambassadors focus on building bike share that is inclusive for the whole community and addressing barriers for specific groups. The bike share ambassador for the Bicycle Coalition of Greater Philadelphia focuses on the Latino community and youth by holding targeted events and creating materials in Spanish.[34] They strive to conduct comprehensive outreach to address the needs of their constituents.

The ambassador program is one component of the Better Bike Share Partnership, a collaboration between the City of Philadelphia, Bicycle Coalition of Greater Philadelphia, and the National Association of City Transportation Officials (NACTO), funded by the JPB Foundation.[35] The collaboration aims to build equitable and replicable bike share systems—in Philadelphia and offer guidance globally.

Adaptive Bikes

In the past several years, many bike share systems have begun to offer adaptive bikes for people with limited mobility to expand the benefits of bike share beyond the typical able-bodied user and respond to critiques from disability rights advocates. The mobility, recreation, and inclusion benefits are abundant, but challenges remain. Adaptive bike share bikes require specialized maintenance, are not always intuitive to use, and create logistical challenges for commuting. Pilot projects in several cities in 2017-2018 sought to address these challenges.

For example, in summer 2017, the City of Portland, OR ran a pilot program called Adaptive Biketown, renting out tricycles, hand cycles, and side-by-side tandem bikes.[36] The Adaptive Biketown pilot ran for 14 weeks and matched the low-cost pricing structure of the city's traditional bike share program. The City partnered with a

[33] Indego, (2018). "Meet the Indego 2018 Community Ambassadors," Rideindego.com.
[34] Cox, S. "Philadelphia's Bicycle Coalition is Committed to Bilingual and Youth Outreach," Better Bike Partnership. Betterbikeshare.org.
[35] Cox, S, editor. "About Us," Better Bike Share Partnership. Betterbikeshare.org
[36] Cohen, J. (2018). "Portland Says Adaptive Bike-Share Pilot Was a Win," Next City. Nextcity.org.

local non-profit to run the Adaptive bike share program out of their office, conveniently located on a main off-street bike path. After a successful pilot launch, the City is working to increase ridership and make the program more like traditional bike share, with additional rental locations and a streamlined rental process.

Targeted Marketing

A recent study on bike share barriers conducted by Portland State University (PSU) found that people of color and people with lower incomes are more likely to find out about bike share from targeted marketing and outreach than through their networks, highlighting the success and necessity of targeted marketing as part of an equity program. The study featured a robust survey of bike share uses from Chicago, New York, and Philadelphia. Specifically, the study found that typical sources for information about bike share were: talking to someone at an event, information at work or school, or from a newspaper or online source. A large majority of survey respondents said that their eligibility for a discounted membership was very important to their decision to get a bike share membership, compared to other users who primarily joined because of the convenience of using bike share.[37]

Lessons Learned

The following lessons learned are gleaned from recent bike share equity literature. **Overall, station location, comprehensive outreach and affordability are pillars of an equitable bike share program. Additionally, bike share program managers have identified the importance of launching a program with equity and inclusion in place from the start, rather than retrofitting equity-focused outreach or expansions to historically-marginalized communities after a program is already established in a high-demand area.**

Discounted memberships inspire people to join bike share.

A survey of bike share users in Chicago, Philadelphia, and New York found that two-thirds of bike share users of color or lower incomes were "very likely" to renew their memberships, and rode just as frequently as higher income, white bike shares users. As described above, survey respondents cited discount memberships as a main reason they joined bike share and reported that they were saving more on transportation overall by using bike share, an encouraging sign for retaining members, even if discounts end. [38]

Access to bike share, fuels demand for more bike share.

While there are many ways to increase the service area of a bike share network, dockless equipment or a hybrid mix can be the easiest way for cities to provide that coverage. City Lab research shows that affordability and other equity improvements cannot make up for lack of geographic access.[39]

Strong, local community engagement and targeted marketing are essential for offering bike share within historically-marginalized communities.

Before a bike share system is implemented, it is important to build community "buy-in" to attract users to a system and build trust in the program. Thoughtful community engagement is essential. Portland State University research found that lack of knowledge of about the bike share system is a significant barrier for lower income people of color. Thirty-four percent of low-income people of color said that not knowing enough about bike share was a barrier, compared to 19% of higher income respondents of color or 7% of higher income white

[37] McNeil, Nathan, Jennifer Dill, John MacArthur, Joseph Broach. Breaking Barriers to Bike Share: Insights from Bike Share Users. NITC-RR-884c. Portland, OR: Transportation Research and Education Center (TREC), 2017.
[38] IBID
[39] Baca, A. (2018). "What Cities Need to Understand About Bikeshare Now," Citylab. Citylab.com

people.[40] The same study found that more personal sources of information, such as talking to a bike share outreach staff person, volunteer, or community center staff were more effective than more passive sources of information at inspiring community members to try bike share.

Community engagement should be designed with a feedback loop, so that there are clear ways to incorporate recommendations from the community into the bike share system design and programming. For example, community input can:

- influence the specific location of a station,
- help identify nonprofit partners to support program outreach,
- change crime prevention strategies, and/or
- guide new investments in bike infrastructure.

NACTO and the Better Bike Share Partnership just released a new community outreach guide, "Strategies for Engaging Community: Developing Better Relationships through Bike Share" that offers guidance on how cities, advocates, and bike share practitioners can develop programming to address community-oriented mobility goals:

- Increase access to mobility,
- Get more people biking, and
- Increase awareness and support for bike share.[41]

After they become users, people of color and lower income bike share users ride just as much as white, higher income users.

Both groups generally rode more than 11 trips a month, and a third rode more than 20 trips. People of color and those with lower incomes were more likely to ride for fun or for exercise than white, higher income users. Though not a large share of overall trips, bike share users of color and/or lower income were more likely to use bike share for school, daycare or religious-related trips, as well as for trips related to looking for work or job/skill training. [42]

Safety is a top concern for many people of color thinking about trying bike share.

Both traffic safety and personal safety fears are preventing people of color and those with lower incomes from trying bike share.[43] Traffic safety concerns, resulting from poor infrastructure or proximity to vehicles, is the biggest barrier across all racial and income categories. People of color have more personal safety concerns, resulting from violence, crime, or being targeted by the police than white bike share users.

Reduce liability and hidden fees.

Large potential fees for lost or stolen bikes is a deterrent for people with lower incomes from using bike share.As described in the previous section, some bike share systems require a deposit or have steep fees for lost or stolen bikes. Eliminating these fees across the board or just for lower income users can make people feel more

[40] McNeil, Nathan, Jennifer Dill, John MacArthur, Joseph Broach, Steven Howland. Breaking Barriers to Bike Share: Insights from Residents of Traditionally Underserved Neighborhoods. NITC-RR-884b. Portland, OR: Transportation Research and Education Center (TREC), 2017.
[41] "Strategies for Engaging Community." NACTO, Better Bike Share. 2018. Betterbikeshare.org.
[42] McNeil, Nathan, Jennifer Dill, John MacArthur, Joseph Broach. Breaking Barriers to Bike Share: Insights from Bike Share Users. NITC-RR-884c. Portland, OR: Transportation Research and Education Center (TREC), 2017.
[43] Schneider, B. (2017). "What Keeps Bike Share White," Citylab. Citylab.org.

comfortable using the system. For example, Divvy in Chicago set up a loss liability fund to protect people from these high charges.[44]

[44] IBID