

INTEGRATION OF BICYCLES AND TRANSIT

INTRODUCTION

There exist numerous examples worldwide of transit providers that have successfully integrated their operations with bicycle use. These providers include ferry, rail and bus operators. This report addresses bus agencies that incorporate bicycle use within their operations .

Within bus transit providers, two categories distinguish the type of bicycle integration in use: interurban operations and intraurban operations. Bus operations which provide interurban service, often possess integration options not available to intraurban buses. Interurban options often include bicycle storage areas below or above the transit vehicle. This report primarily addresses the experiences of intraurban bus providers. For quick reference, the practices of thirteen of these providers are listed in chart form in Appendix A.

Bicycles have been integrated with intraurban bus transit in three primary areas:

1. INTEGRATION METHODS

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1. INTEGRATION METHODS

1.1. EXTERIOR ACCOMMODATION

Examples of accommodating bicycles on the exterior of buses can be divided into 2 categories:

1. Rear-mounted bicycle racks
2. Front-mounted bicycle racks

1.1.1. REAR-MOUNTED RACKS

Rear-mounted racks are among the first method of bicycle-bus integration utilized by intraurban bus transit providers in the United States. According to a 1994 Transit Cooperative Research Program report, San Diego Transit Corporation utilized a rear-mounted rack with a capacity of five bicycles starting in 1976. The report states, "San Diego transit has rear-mounted racks on 18 buses operating on 4 out of a total of 30 local routes."

Experience suggests that the use of rear-mounted bus racks has always been limited and more recently this method of bicycle integration has been abandoned by some bus transit providers, for example, Seattle METRO, in favor of front-mounted racks. However, rear-mounted racks have regained popularity for use on vanpools thanks to commercially available models. Through November of 1995, Seattle METRO had spent \$19,600 (local share) to so equip 72 vanpool vehicles with Hollywood III (2-4 bike capacity) racks.

The primary reasons for avoiding or abandoning rear-mounted bus rack systems are liability, maintenance and alighting concerns.

Poor visibility of the racks raises concerns that bicycles will be stolen or improperly loaded without bus driver knowledge. In addition, alighting bicycle users may fail to properly signal the bus operator, resulting in the bus leaving without the bicycle being removed from the rack. Further, maintenance of many models of buses occurs via the rear of the bus; consequently, rear-mounted racks may need to be removed for proper access to the rear service panels.

Finally, as will be discussed later, efforts to curb alighting bicyclists from forgetting to dismount their bicycles are more difficult to implement with rear-mounted systems.

It is likely that in the near future rear-mounted rack systems will remain limited in use to smaller, more controlled vehicles, such as vanpools. However, bicycle on bus ridership growth in many intraurban bus operations coupled with limited rack capacity, may force transit operators to look to viable means through which rear-mounted systems could be used. More research is needed in this area.

1.1.2. FRONT-MOUNTED RACKS

Front-mounted bus racks are by far the most popular method of transporting bicycles on buses in intraurban

TRANSIT OPERATIONS USING FRONT-MOUNTED RACKS

Over 50 providers use front-mounted racks on at least some of their buses, they include:

HART, Tampa, FL; Manatee County Transit, Bradenton, FL; Lee County Transit, Fort Meyers, FL; Tal Tran, Tallahassee, FL; Miami Dade Metro, Miami, FL; MARTA, Atlanta, GA; Good Earth Transit, Houma, LA; Miami Valley Rapid Transit, Dayton, OH; Hammond Transit, Hammond, IN; Capitol Metro, Austin, TX; Metro, Houston, TX; Metrolink (Bi-State Transit), St. Louis, MO; Madison County Transit, Madison County, IL; Duluth Transit Authority, Duluth, MN/Superior, WI; University of Minnesota Transit, Minneapolis/St. Paul; St. Cloud MTC, St. Cloud, MN; Sun Tran, Tucson, AZ; Valley Transit, Phoenix, AZ; Las Vegas City Bus, Las Vegas, NV; TA, Salt Lake City; Mountain Line, Missoula, MT; Boise Urban Stages, Boise, ID; Sun Tran, Albuquerque, NM; Tri-Met Transportation, Portland, OR; San Luis Obispo RTA, San Luis Obispo, CA; Edmonton Transit, Edmonton, Alberta; Foothill Transit, Covina, CA; Community Transit, Lynnwood, WA; C-Tran, Vancouver, WA; Monterey-Salinas Transit, Monterey, CA; Cape Cod RTA, Cape Cod, MA; Yuba-Sutter Transit, Yuba-Sutter, CA; Napa Valley Transit Agency, Napa, CA; Sunline Transit Agency, Thousand Palms, CA; King County Department of Metro Services, Seattle, WA; Mendocino Transit Authority, Mendocino, CA; Honolulu Public Transit Authority, Honolulu, HI; Fresno Area Express, Fresno, CA; Rogue Valley Transportation District, Medford, CA; Mankato Heartland Express, Mankato, MN; Queens Surface Transportation, Flushing, NY; Denver RTD, Boulder, CO; Visalia City Coach, Visalia, CA; Omnitrans, San Bernadino, CA; San Diego MTDB, San Diego, CA; Salem Area MTD, Salem, OR; Redding Area Bus Authority, Redding, CA; Santa Barbara MTD, Santa Barbara, CA; Portland, ME; Glendale, AZ; Santa Clara Valley Transportation Agency, Santa Clara CA; LINK, Chelan and Douglas Counties, WA; Los Angeles County Metropolitan Transportation Authority (MTA), Los Angeles County, CA; and Roaring Fork Transit Agency, Aspen, CO.



settings. As of February 1997, one manufacturer alone listed 26 bus transit agencies using a total of 3,199 front-mounted racks.

As with rear-mounted racks, pioneering transit operators that implemented front-mounted rack systems often designed and manufactured their own racks. Los Angeles, Phoenix, and Portland are examples of operators that first designed and manufactured their own racks. Today, as mass produced racks have been refined (often with the assistance of transit providers) to meet various safety and vehicle code requirements, most racks are purchased from independent rack manufacturers.

1.2. INTERIOR ACCOMMODATION

While a significant majority of transit providers utilize exterior racks to facilitate bicycle integration, some do provide for interior use in addition to exterior use. Notable examples include Santa Clara Valley Transportation Authority (VTA - Santa Clara, CA), Sonoma County Transit (Santa Rosa, CA), Pierce Transit (Tacoma, WA) and on cargo bay equipped Roaring Forks Transit Agency (RTF - Aspen, CO) buses.

Reasons for providing interior service vary. The VTA allows bikes on board at the driver's discretion if their two-capacity, front-mounted racks are full. Sonoma County does not allow its front-mounted racks to be used after dusk due to concerns over headlight diffusion, so bikes can be on board after dusk. Pierce Transit, experienced problems with interior use on busy routes and has since equipped these routes with exterior racks. RTF acts more as a regional provider on some routes; these routes and their new buses are equipped with under bus cargo bays which permit bicycle storage.

One provider, TRI-MET (Portland, OR) does allow bikes in buses, but only on its low-floor buses.

At least two providers, King County Metro (Seattle, WA) and that of Boulder, CO have abandoned internal bike storage after 1 and 18 month demonstration periods respectively. Both providers now use external racks exclusively. King County cites lack of excess capacity to handle bikes in buses while Boulder cites complaints from non-bicycling passengers, need for tie-downs in bus, and inability to provide consistent service during peak periods as reasons for eliminating the interior accommodations.

1.3. BICYCLE AMENITIES

The most successful of the bikes and buses providers include off-bus accommodations which complement

their programs. Bicycle parking facilities (or parking banks) are one such component. Bicycle parking facilities are often divided into three categories: Class I - Long term, covered or enclosed, secure parking; Class II - Mid term, secure (locks frame and wheels); and Class III - Short term, parking. Examples of each form include: Class I - bicycle lockers; Class II - locking arm racks; Class III - inverted "U" or ribbon racks.

Commuter stations which include shower facilities and storage areas are also considered bike-friendly amenities.

Some of the larger transit providers have found that providing off-bus bicycle amenities provide cost-effective means with which to promote alternatives to single-occupant motor vehicle trips. HART (Tampa, FL), King County Metro (Seattle, WA), Phoenix Transit (Phoenix, AZ), Pierce County Transit (Tacoma, WA), and TRI-MET (Portland, OR) all actively promote bicycle lockers and racks at bus stops, transfer points, and park and ride lots. Their experience demonstrates that, for instance, by placing bike lockers at park and ride lots, transit riders can effectively leave their cars at home and instead bike to the ride lot. Car to bike conversions can prove quite cost effective for the large users as the cost of providing one car parking space is often 10 or more times higher than providing even the nicest bicycle parking facility.

Moreover, agencies which do not provide comprehensive bicycle integration on all buses can utilize racks and lockers stationed at various bus stops and transfer points to supplement modal options. For example, if certain routes do not provide bus racks, bicyclists can lock their bikes and board the bus. Additionally, during peak times, when bus racks may reach capacity, bicyclists can lock their vehicles and board the bus. By providing bicycle amenities, transit providers give bicyclists options and avoid leaving bicyclists stranded or waiting for the next bus.

2. KEY TOPICS OF INTEGRATION

2.1. DEMONSTRATION PROJECTS

Several transit agencies conducted demonstration or pilot programs prior to fully integrating their fleets. Three notable examples are Tri-County Metropolitan Transportation District of Oregon (TRI-MET - Portland, Oregon), Phoenix Transit System (Phoenix, AZ), and Boulder, CO.



TRI-MET

TRI-MET conducted a detailed one year demonstration program from June 29, 1992 to June 30, 1993. During this time, 1,349 permits were issued at a cost of \$5 each. Permits were issued only through TRI-MET and required watching a video and signing a waiver. Permit holders were entitled to use of both rail and bus service. The service for buses provided 66 exterior bike racks designed by TRI-MET mechanic Tony Malar and constructed specifically for TRI-MET use.

TRI-MET instituted a bus operator education program which included video, classroom and "hands on" training.

Surveys of the demonstration project included those to employees, users and other customers. The results showed that no significant complaints were lodged against the bike program. In fact, many favorable responses were garnered. Two months prior to the end of the program, the TRI-MET Board of Directors approved a resolution to formally adopt a permanent "Bikes on Transit Program."

Some changes to the initial program were approved as well. Five of those changes, as listed in the Bikes on TRI-MET Final Evaluation report:

1. Increasing the validity of permits from one year to two years, with no change in the cost of the permit (i.e. \$5.00 permit valid from 7/1/93 to 6/30/95);
2. Adding youth permits (for customers ages 8 through 15, inclusive); each youth must be accompanied by an adult, also with a valid permit, when using the system;
3. Increasing the number of bus routes equipped with bike racks, with a goal of 100% bike accessibility for all bus routes;
4. Testing the feasibility of expanding permit application locations to local bicycle shops; and
5. Establishing a goal of providing bike lockers at transit centers, park and rides and rail stations, based on ridership activity.

In addition, TRI-MET received 734 (20.2%) completed surveys in response to a mail survey to 3,646 bikes on buses permit holders in late 1994. A full 52% of those responding indicated that their trips were new trips to TRI-MET. Such a result indicates the ability of bicycle integration to create new riders and new trips to the provider.

PHOENIX TRANSIT SYSTEM

Phoenix Transit System conducted a 6 month demonstration program from February 28, 1991 to August 31, 1991. The demonstration utilized two-bike capacity, front-mounted racks on three routes using between 35 and 47 racks. Five surveys were conducted in three subject areas: 1. Bike user characteristics. 2. Operation observations. 3. User and passenger comments.

No injuries were reported and no major damage to either agency or private vehicles occurred. However, like the TRI-MET program, the racks used by Phoenix were of unique design and were modified to eliminate minor structural weaknesses.

No permit was required and no additional fare charged to use the Phoenix racks. In March of 1991, 153 trips utilized the racks, but by May of the same year 1100 rack uses were counted.

As a result of increased growth among users, enhancement of the program was encouraged and by July of 1992, Phoenix had installed front-mounted racks on all 350 of its buses. Ridership averages 1,000 users per month.

BOULDER, CO RTA

Boulder transit's experience with its pilot project is vastly different from that of TRI-MET and Phoenix. Boulder instituted an 18 month project that allowed bicycles inside buses, primarily during off-peak hours. Boulder experienced passenger complaints regarding the bicyclists taking up space and getting other passengers dirty. Bicycle users complained of the inability to use buses during peak hours - when bicycle users, like other passengers, most needed the service.

Boulder's experience revealed that the most successful routes were the longest routes, routes to and from recreational areas, and routes that help cyclists overcome barriers, such as bridge and highway crossings.

Boulder abandoned the interior bus accommodations and now has exterior front-mounted racks on all of its buses.

2.2. BOARDING AND ALIGHTING

Some providers, such as Santa Cruz Metropolitan District (SCMD - Santa Cruz, CA), King County Metro (Seattle, WA), and Roaring Fork Transit Agency (RFTA - Aspen, CO) do restrict areas of boarding and alighting for users of bicycle services.

SCMD prohibits loading or unloading bicycles on its front-mounted racks at 14 stops within the city. Safety concerns



are listed as justification for the restrictions. King County Metro prohibits boarding or alighting within its, "Ride Free Area," between 6AM and 7PM and restricts use to specific stops within a tunnel. RFTA restricts loading and unloading of bicycles between certain points along its routes (between Rubey Park Transit Center and the Intercept Lot).

2.3. TIME OF USE

Generally, most agencies providing bicycle accommodations do not restrict use by time of day. Providers instead restrict boarding and alighting at various stops or areas altogether.

One agency, Sonoma County Transit (Santa Rosa, CA), as discussed under *BICYCLES IN BUSES*, prohibits exterior use after dusk, but allows for interior use after dusk. Other agencies allow for more flexibility (e.g. interior use) during off-peak transit use periods and less flexibility (e.g. exterior use only) during peak transit use periods. Roaring Fork Transit Agency (RFTA - Aspen, CO) prohibits use of its front-mounted racks after 7:30 PM till dawn. Use after this time is limited to cargo bay equipped buses which are not consistently scheduled at night.

2.4. SEASONAL USE

Duluth Transit Authority (Duluth, MN/Superior, WI) buses are equipped with front-mounted racks from April to October. Roaring Fork Transit Agency (RFTA - Aspen, CO) buses are equipped with front-mounted racks from April to November. In Aspen, side-mounted ski racks are added for the Winter months. Currently, many bike-friendly systems are located in warm climate areas; consequently, most racks remain in use all year.

2.5. PERMITS, FEES & FARES

Very few transit providers require a permit. Those that do include: HART (Tampa, FL); Boulder, CO; Utah Transit Authority (Salt Lake City) and TRI-MET (Portland, OR). Of these, only TRI-MET and Utah Transit Authority charge a permit fee.

HART requires that permittees watch a brief video about their front-mounted racks and then provides a photo identification card. Each card also contains an identification number to aid in situations where cards are lost or stolen. TRI-MET likely has the largest permit program for a bikes on buses program with over 4,000 permits issued in 1996 (the

permits also apply to TRI-MET rail service). TRI-MET charges a one-time \$5 fee for the permit and has an orientation program with an emphasis on, "Rules and Regulations" (see Appendix B). Utah Transit Authority requires applicants watch a video on rack use and provides an identification card. All successful applicants under permitting agencies are required to sign waivers of legal action against the agencies.

No providers charge additional fares for bicycle users.

TRENDS IN PERMITTING

CalTrain, a rail provider for the San Francisco Peninsula area has recently abandoned its permit requirements citing administrative headaches. The MTA, the major light rail provider in Los Angeles which allowed bikes on its trains, has also recently dropped its \$6 permit charge and now will issue a temporary permit on the day of application good for 90 days while the permanent permit is being processed. Most agencies that have integrated transit with bicycles since 1995 have not required a permit process. The trend appears to be avoidance or abandonment of permit processes.

2.6. LIABILITY ISSUES

Sportworks nw, inc. is the largest supplier of front-mounted bicycle racks for buses in the United States. The company has sold racks to over 30 transit providers since the early 1990s. As of March 20, 1997, the company had no claims filed against it for losses related to its bike rack (see Appendix C).

While evidence exists of design concerns with various rack systems (especially those in place prior to about 1994), little evidence can be found of any bicycle or bus damage or passenger injury related to front or rear racks or on-board access. During TRI-MET's 1 year demonstration program (which used an in-house designed rack - see *DEMONSTRATION PROJECTS*) 4 claims were filed, resulting in a total award of \$25. All 4 claims related to bicycles falling off the racks (due to a design flaws that were corrected during the demonstration period).

Further discussion of attempts by transit providers to limit their liability can be found in this report under *PERMITS, FEES & FARES*.



2.7. AGE REQUIREMENTS

A minority of transit providers limit the age of bicyclists using the bicycle services. Three known examples are Sonoma County Transit (Santa Rosa, CA), TRI-MET (Portland, OR) and Roaring Fork Transit Agency (RFTA - Aspen, CO).

Sonoma requires users to be 14 years of age, but allows riders 8 to 14 years of age to use the service if accompanied by an adult. TRI-MET requires users to be 16 years of age, but allows for youth permits for those ages 8 to 15 years. Youth permit users must be accompanied by an adult of at least 18 years age. RFTA allows use by children under age 14 if accompanied by an adult.

Most transit providers do not mention age requirements in their literature, and some, like Hillsborough Area Regional Transit Authority (Tampa, FL) and King County (Seattle, WA) even recruit youth users by promoting the program through the school system. Reasons for limiting youth users appear to be related to the safety concerns presented by young users using the front bus area, the ability to properly secure smaller bikes, and the effect of child carrier seats blocking the bus operator's line of vision. However, few intraurban agencies restrict age, and no reported liability claims or other hazard indicators have been found.

2.8. OPERATIONS

2.8.1. ADMINISTRATION

In a report released by the Transit Cooperative Research Program in 1994, 21 transit agencies responded to a survey regarding bicycle-transit programs. Of these, thirteen provided interior or exterior bicycle accommodations. All of the aforementioned thirteen reported the ability to administer their bicycle accommodation programs with existing staffing levels. The survey also found that only a small percentage of staff time was needed to oversee promotional, educational, contractual, and service aspects of the bicycle programs. Most staff time occurred in the initial stages of bicycle integration, especially where demonstration programs were conducted.

Where bike rack use training is provided for bus drivers, the training typically includes three areas: 1. Bike rack familiarization. 2. Adjustment of side convex mirrors to view front of bus. 3. Awareness of additional spatial requirements of a deployed rack.

2.8.2. MARKETING

Most agencies reviewed for this report utilized very basic marketing tools such as brochures, web sites, and bicycle shop outreach to promote their programs. Bikes on buses "kick-off" functions are often held in conjunction with locally sponsored "Bike to Work Day/Week" activities. Local bicycle advocacy groups, transportation management agencies, and related governmental agencies are frequently included in efforts to promote bicycle integration programs.

Data on ridership levels and common experience suggest that successful marketing programs appreciate certain demographic, geographic and operational characteristics.

Demographic factors considered in successful marketing programs target high school, college, and university students. HART, of Tampa, Florida, utilizes its mobile permitting van to promote its front-mounted bike racks. The van travels to local schools and staff distribute information about the program to students.

Geographic marketing components are also important. Where ridership data has been collected, long routes which allow cyclists to surmount topographical obstacles such as hills or man-made structures such as tunnels, overpasses, and narrow and/or high-volume traffic corridors are the routes most utilized by bicyclists.

Finally, operational features are considered when marketing bicycle-transit synthesis programs. For instance, routes with excess capacity can easily accommodate bicycle use without effecting existing service. These routes tend to be lower density areas which have lower volume traffic corridors and fewer perceived bicycle obstacles than areas with numerous high volume traffic corridors.

2.9. MOTOR VEHICLE CODES

Pennsylvania State Police banned bicycle racks in that state after it was discovered that with the addition of the racks state maximum vehicle length codes were violated. This code problem has been addressed by other jurisdictions. Bicycle racks are present on intraurban buses in at least 22 states and additional states allow inter-urban buses with bike racks. Some states have created specific exceptions within the motor vehicle code for bicycle accommodation on buses.

California is one such state. State code 5400(a) states, "No vehicle shall exceed a length of 40 feet." The code goes on to exempt 9 uses including San Diego's rear



racks in (7):

A bus when the excess length is caused by a device attached to the rear of the bus designed and used exclusively for the transporting of bicycles. This device may be up to 10 feet in length, if the device, along with any other device permitted pursuant to this section, does not cause the total length of the bus, including any device or load, to exceed 50 feet.

Front-mounted racks are exempted under the following language in (8):

A bus operated by a public agency or a passenger stage corporation, as defined in Section 226 of the Public Utilities Code, used in transit system service, other than a school bus, when the excess length is caused by a folding device attached to the front of the bus which is designed and used exclusively for transporting bicycles. The device, including any bicycles transported thereon, shall be mounted in a manner that does not materially affect efficiency or visibility of vehicle safety equipment, and shall not extend more than 36 inches from the front of the bus when fully deployed. The handlebars of a bicycle that is transported on a device described in this paragraph shall not extend more than 42 inches from the front of the bus. A device described in this paragraph may not be used on any bus which, exclusive of the device, exceeds 40 feet in length or on any bus having a device attached to the rear of the bus pursuant to paragraph (7).

It is unclear whether most states have specific language pertaining to bicycle racks. In the case of California, language existed which prohibited bicycle rack implementation, therefore, rather than the deletion of that language, the code wording was amended to accommodate racks. For example, in the above paragraph, language which limited bike racks to 18 inches was amended to allow for a 36 inch deployed rack. It is unlikely that most states have bicycle rack codes existant. Therefore, changes may not be necessary as long as the buses comply with overall maximum vehicle length requirements. Legal requirement concerns are not prolific among transit providers.

De facto, rather than de jure issues are more likely obstacles. For instance, in the case of Santa Cruz Metropolitan Transit District, as of March 1997, the entire fleet possesses front-mounted racks except for a "few older buses on Route 1.... These buses are not able to support the racks due to turning radius issues."

2.10. COST & FUNDING SOURCES

Cost varies based upon the type of integration which transit agencies choose. Typically, interior accommodation requires only minimal additional capital costs such as straps with which bicycles can be tied into wheelchair storage wells or other areas. Exterior accommodation costs vary with the type of rack (front or rear) and the order size.

Most front-mounted rack systems cost from \$300-\$400 per rack (usually, two bicycle capacity each).

While some pioneering transit agencies procured bicycle racks with local funds, most funding sources today depend heavily on federal transit aids. Some of these include: the Congestion Mitigation and Air Quality Improvement Program (CMAQ), Surface Transportation Program (STP) funds, and Section 25 of the Federal Transit Act.

Most of the above programs provide for an 80%-90% federal cost share with a 10%-20% local share.

3. CONCLUSIONS

Most successfully integrated bicycle and transit programs hold three phases of development in common. First, agencies initiate a preliminary program of bicycle accommodation. Second, the initial program is refined and improved based upon the preliminary experience (Often, service is expanded significantly). Third, the program expands to include the addition of bicycle-friendly amenities such as bicycle lockers stationed along bus routes.

As the success of bicycle integration grows, many transit agencies have the benefit of learning from the experiences of the bicycle integration pioneers. Thus, more recently, transit agencies have been able to combine the above three phases into one well implemented bicycles and transit program.

One of the main obstacles in successfully integrating bicycles and transit remains the heavy skepticism of transit managers and administrators. Bus operator concerns, coupled with an unwillingness to add new elements to an operation by managers and administrators prejudice attempts to implement bicycle integration measures. Fortunately, many examples exist which show that most, if not all, of the original concerns prove unfounded and successful integration does occur where bicycle integration is attempted.



The number of bicycle accessible transit agencies has most certainly doubled in number since 1994. In addition, those agencies which provided bike access prior to 1994 have continued to expand their accessibility by including racks or service to all their routes and buses. Many of these older providers have also added other bicycle amenities such as bicycle parking facilities (especially class I, i.e. long term, secure bicycle lockers).

Evidence suggests that most transit providers (especially smaller agencies) avoid a permitting process. Of thirteen agencies for which information was available, four required a permit or identification card for users; two of those four agencies charged for the permit. To date, none of the known intraurban bicycle accessible agencies charge an additional fare to ride. Although limited, the preponderance of evidence suggests that permits for bicycles on or in buses will not become the rule among transit providers. In fact, if the experience with bikes on rail providers is any indication, the trend may be to eliminate existing permit processes.

Great room exists for expanding the marketing of bicycle integration programs. Bike integration programs often appeal to some of the same demographic sectors that ride buses: students, non-car owners, and low-income populations. However, bike-transit synthesis can also be marketed to areas heretofore off-limits to transit alone. One such example is low-density areas surrounding higher density cities. Transit agencies that accommodate bicycles can market park and ride lots and feeder services to these areas in which fixed-route services may be cost prohibitive.

In general, the integration of bicycles and transit has proven to be a cost-effective means through which gains in ridership, accessibility and service areas can occur. In recent years, the number of transit providers that accommodate bicycles has increased dramatically. Additionally, those transit agencies which pioneered bicycle integration have dramatically expanded their bicycle accessibility by providing more racks, more interior accommodation or more bicycle amenities. Where more detailed studies have been conducted upwards of half of all bikes on buses riders tend to be new riders making new transit trips.

Therefore, it seems likely that as transportation planners search for more multimodal solutions to the problems of increasing traffic congestion and parking shortages, they will inevitably include bicycle and transit integration in their recommendations.

