
Bicycle Parking Plan For Miami-Dade Transit

Prepared for the Miami-Dade Metropolitan Planning Organization



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Executive Summary

Project Objective and Process

The purpose of the Bicycle Parking Plan for Miami-Dade Transit is to develop recommendations for new and improved bicycle parking facilities at Metrorail stations, park-and-ride lots and other transit hubs. The Miami-Dade Metropolitan Planning Organization (MPO) hired the Center for Urban Transportation Research (CUTR) of the University of South Florida to conduct the study. In order to develop recommendations for new and improved bicycle parking facilities, the research was divided into several tasks. The first task was to conduct a review of five communities/transit agencies that have recently developed bicycle parking plans and/or integrated bicycles with transit using innovative methods. The five peers included: Portland, OR/Tri-Met; San Francisco/Bay Area Rapid Transit (BART); Atlanta/Metropolitan Atlanta Rapid Transit Authority (MARTA); Long Beach, CA/Metropolitan Transportation Authority-Long Beach Transit; and New Jersey Transit. The first task also included a review of ten bicycle parking products/concepts in order to provide information on the types of parking devices available and estimated costs.

The second task focused on an assessment of current conditions at all Metrorail and selected Metrobus hubs, and the creation of a digital photo log of the bicycle parking facilities already in place. The photo log is available on CD ROM included with Final Report. The next set of tasks involved developing and conducting a survey of bicyclists that use Miami-Dade Metrorail and Metrobus to identify their perceptions of current conditions and improvement needs. This set of tasks involved the design and distribution of a flyer announcing the survey, the development of the survey instrument, and implementation. All information was provided in English, Spanish and Haitian Creole. More extensive and in-depth interviews were conducted with bicyclists based on their willingness to participate. The data collected from the survey and interviews were analyzed to develop an understanding of the needs, wants and experiences of bicyclists that currently use the bus and rail systems.

Following the survey, the bicycle locker management system was reviewed in reference to management systems developed by other transit agencies, and plans for new transit hubs in the Cities of Homestead and Miami Beach were also examined to provide bicycle parking recommendations.

The project's final report is designed to provide recommendations for types, amounts and locations of bicycle parking needed and Metrorail and Metrobus hubs, estimated costs and potential funding sources, guidance for inclusion of bike parking in planned transit hubs, and a management plan for the administration and promotion of bicycle parking facilities.

Research Results

Peers Communities/Agencies

The review of peer communities/transit agencies was used to develop the survey instrument and identify innovative ideas to be considered for the Miami-Dade Transit bicycle parking plan. The City of Portland, in conjunction with Tri-Met, has developed one of the premier long-range bicycle plans in the country, which includes a separate section on bicycle parking policies. BART of the San Francisco area has recently upgraded their bicycle parking facilities and improved their bike locker management system. Along with BART, Long Beach/MTA has integrated the *Bikestation*® concept into their transit system. A *Bikestation*® is essentially a guarded valet parking facility for bicyclists, which generally also includes repair facilities and other services. Atlanta/MARTA is generally recognized as the first rail transit system to allow full, 24-hour bicycle access to the system. Currently, bicycles are restricted during peak hours on the Miami-Dade Metrorail, which represents a barrier to some bicycle commuters, according to the survey. New

Jersey Transit has made a considerable effort to reduce bicycle theft and improve bicycle parking facilities through the provision of secure bicycle lockers at their transit stations.

Bicycle Parking Products

Ten bicycle parking products, plus the *Bikestation*® concept, were examined to determine the range of facilities available and cost estimates. The products reviewed included: *American Bicycle Security Company's* Model 302 and Model 301V lockers, *Cycle-Safe's* Pro Park bicycle locker and Inverted U rack, *Dero's* Rolling Rack and Hoop Rack, *Madrax's* Heavy Duty Winder Rack, *Creative Pipe's* CS Series and eLockers, and Thunderbolt rack, and *Bike-Up's* Maximin Vertical rack and Ring Rack. The Association of Pedestrian and Bicycle Professionals recommends the "inverted U" type bike racks. A range of estimated costs based on product price and bicycle parking needs was developed from the information collected.

According to an FTA General System Review, it was recommended that all transit agencies remove bike lockers from premises due to security reasons. Despite this recommendation, many transit agencies are still using and installing bicycle lockers, such as New Jersey Transit. There are a number of methods to deal with security issues other than eliminating bicycle lockers. For example, American Bicycle Security Company manufactures a security view window of perforated steel that provides maximum visibility with minimal weather exposure. Master keys can also allow transit security personnel to check the contents of bicycle lockers when necessary. Intelligent Key Dispensing Kiosks can also be used to track who is using bicycle lockers through scan cards and PINs, and allow only pre-qualified individuals use of lockers. The *Bikestation*® concept is another alternative for long-term parking.

The *Bikestation*® concept, essentially valet parking for bicycles, may be best suited for planned rail and/or bus transit facilities so that they can be incorporated into the design from the onset. However, the *Bikestation*® concept is only viable for stations with significant bicycle ridership. Based on the three *Bikestations* currently open, operating expenses range from \$30,000 to \$110,000 per year based on the storage of 75-100 bicycles per day. The Bikestation Coalition is a 501(c)3 organization that helps transit agencies develop, and maintain the facility.

Bicycle Count and Current Conditions

The number of bicycles found at Metrorail stations and selected Metrobus transit hubs ranged from 121 to 127. According to Miami-Dade MPO records, there were 53 bicycle locker renters at the onset of the project. Currently, there are 246 lockers located at the 21 Metrorail stations. However, 135 lockers (55%) are reported by the MPO to be damaged, of which 92 (37%) are deemed to be not rentable. Furthermore, 14 lockers had already been removed prior to the project. The majority of these lockers were installed in 1986, with some additional lockers added in the mid-1990s. Many of the lockers are located out of the sight of transit security making them attractive to thieves and homeless individuals who occupy some of them.

In regard to the 21 Metrorail stations, 6 stations do not have any bicycle racks. Of the 15 stations that have racks, 8 do not have sufficient rack space to meet the bicycle parking demand, as indicated by the amount of bicycle chained to fences, trees and lampposts. There are primarily three different styles of racks found at the stations, which include "wheel-bender" fence racks, inverted U racks, and rolling racks. (See Page 6 for pictures of rack types) Many of the "wheel-bender" racks are significantly damaged. In regard to the 10 Metrobus transit hubs selected for assessment, only one station, the SW 152 Street Busway, has a bicycle rack present and none had bicycle lockers available for patrons. Only two bicycles were observed at the transit hubs.

Bicycle Survey Results

CUTR conducted 72 surveys of bicyclists, with 15 bicyclists also participating in individual interviews as well. 79% of respondents combine bicycling and transit 4 days or more per week, and 73% are commuting to work. Over 40% also take their bicycles aboard the Metrorail at least one day per week, and 18% also use the bikes-on-bus program. Over half of respondents live within 2 miles of a transit station. The primary reasons for combining bicycling and transit are to save money, for exercise, and close proximity of their residences to transit stations. A third of respondents also reported that they do not have access to automobile. In terms of ethnicity, 52% of respondents were white/non-Hispanic, 22% were Hispanic, and 17% were either African-American or African-Caribbean. Over half of respondents were over the age of 40 and with 35% earning less than \$20,000 per year and 21% earning \$70,000 or

more. Overall, 82% indicated that more bicycle parking is needed, and 81% feel that better, more secure bicycle parking is needed. In terms of the most desirable characteristics of bicycle parking:

- 76% stated that having bicycle parking visible to MDT security guards is important to very important
- 72% stated that having covered bicycle parking is important or very important
- 71% stated that having a combination of short term (racks) and long term (lockers) parking at each station was important to very important

Bicycle Locker Management and Future Transit Hub Review

The best ways to improve bicycle locker management are by investing in a more durable and secure bicycle locker and placing them within view of transit security personnel posts. The current bicycle locker has proven to be vulnerable to damage from the elements and insecure. It is also recommended that supervision and surveillance of bicycle parking facilities, both racks and lockers, should be an explicit part of the responsibilities of security personnel. Another way of improving bike locker security is to place lockers within the station when space allows, so that access to the lockers is limited to transit patrons.

When half of lockers are damaged, it is difficult to maintain current renters and attract new ones. In fact, all five respondents who had previously rented a locker stopped renting after their bicycle was stolen or vandalized. The present cost of locker rental is \$25 for three months, \$45 for 6 months and \$70 for one year. However, 40% of survey respondents who currently rent a locker stated they would pay more for better and more secure bicycle lockers (over half of current locker renters responding to the survey earn more than \$70,000 per year). There are also intelligent key-dispensing kiosks and locker-use tracking devices available that could streamline locker management and provide a new source of funding through Intelligent Transportation Systems (ITS) programs.

The Urban Transit Village Park and Ride Facility has the potential to incorporate the *Bikestation*[®] concept. There is already a bicycle rest area containing bicycle racks and locker and a compressed air pump in the facility plans. It is recommended that planners contact the Bikestation Coalition or examine the possibility of a joint development venture with a bicycle shop to develop and maintain a bikestation-type facility. If a bikestation-type facility is deemed not feasible, all racks and lockers should be placed within view of security, well lit, and with appropriate signage directing bicyclists to facilities. Due to the prevalence of bicycling in Miami Beach, its Intermodal Facility is another possible location for a bikestation-type facility. Since this second site is only in the Feasibility stage, it is possible to include parking facilities into the design so that they are located in a secure, possibly restricted area.

Project Recommendations

Bicycle Parking Recommendations (see Table on page 6 for details)

The recommendations focus on a significant increase in and improvement of quality of short-term bicycle parking (racks) and a reduction in the number of, but improvement in the quality of long-term bicycle parking facilities (lockers). Specifically, the recommendations are to:

- ❖ Remove all current lockers, except at Dadeland North, and replace with new lockers:
 - Invest in high quality lockers that allow security personnel to view the contents of the locker but do not compromise the security of the bicyclist's property, such as perforated metal sheeting on locker door or walls, or viewing skylights.
 - Consider investing in intelligent key, scan card or PIN technology to streamline locker management and provide a secondary layer of security.
 - When feasible locate lockers within view of transit security personnel posts and under cover.
 - When space allows place lockers within the rail station so that access is limited to patrons.

- Recommended locker storage capacity is 190 bicycles. Since most lockers are designed with 2 separate bicycle compartments, this means 95 lockers are needed for the 21 existing Metrorail stations.
 - Placing lockers at Metrobus hubs is optional, since there does not seem to be any significant demand. However, the addition of high-quality and secure lockers could potentially generate demand. Some of the hubs included in the research are simply allocated parking spaces at strip mall-type commercial centers. The Metrobus hubs most conducive to having bicycle lockers are Harris Field, Miami-Dade Community College South Campus, and Metrobus Downtown.
- ❖ Remove all *wheel bender* racks, and replace with new inverted U racks.
- The *inverted U* racks at Brickell, Coconut Grove, Dadeland North, Dadeland South, Douglas Road, and South Miami can stay. The two *rolling* racks at Tri-Rail can stay.
 - When feasible locate all racks within view of transit security personnel posts and under cover. When racks cannot be located under existing roof structures, covered shelters can be built to protect bicycles from the weather.
 - When space allows place racks within the rail station so that access is limited to patrons.
 - At transit hubs and park and ride lots, convert a car parking space near the transit shelters to bicycle parking area.
- ❖ In general:
- Minor station modifications should be considered to improve visibility by security personnel and patrons. For example, the wall and berm structure around the lockers at the Coconut Grove station should be demolished to create an open plaza and improve visibility of facilities.
 - Eliminate the Bike and Ride permitting process in order to eliminate the public's access to transit
 - Investigate the liberalization of Metrorail Bike and Ride hours to allow bicyclists to take their bicycles aboard even during peak commute hours. In addition, it is recommended that patrons bringing bicycles aboard have access to all train cars (not only the last car) to mitigate the impact of liberalizing the peak hour commute restrictions.
 - In order to measure and evaluate the impact of policy changes and bicycle parking plan implementations, Miami-Dade Transit should regular track bicycle usage on Metrorail and Metrobus. Statistics found in this report could serve as benchmarks for future evaluations. This data should be reported in the Transit Development Plan (TDP) and monthly transit statistics reports.
 - A protocol needs to be developed to remove any bicycles abandoned at rail stations and left to rust on the bicycle racks. Warning notes can be attached to bicycles stating they will be impounded after a determined amount of days. Such bicycles can be donated to charity organizations. Security personnel should be responsible for monitoring bicycle racks and responding to the requests of bicycle patrons that report abandoned bicycles.

Estimated Cost and Funding Sources

The estimated cost of the bicycle parking improvements outlined above and shown in the chart on page 5, ranges significantly based on the particular bicycle rack and locker product used. The cost of a high quality, secure locker ranges from approximately \$1000 to \$2000 dollars. Since most lockers have two separate compartments, and therefore store two bicycles, the cost per bicycle ranges from \$500 to \$1000. As a result, the cost to meet the recommended locker capacity, including 10% for shipping, ranges from approximately \$115,500 to \$210,000. The recommended inverted U locks can range from \$40 to \$100. Cost also changes based on whether or not the racks are bolt into a concrete pad or imbedded into the pad. The cost to meet the recommended rack capacity, including

10% for shipping, ranges from approximately \$6,500 to \$15,000. As a result, combination of both short term parking (bicycle racks) and long term parking (bicycle lockers) ranges from \$122,000 to \$225,000. This cost does not include installation or removal of old racks and lockers. In terms of installation, most rack can be installed by bolting them onto a concrete pad, or by anchoring them within the concrete. The racks that are bolted in are generally more expensive, but have lower installation costs in terms of labor. Racks anchored within the concrete are more secure.

The primary funding sources include FHWA Enhancement Funds, Congestion and Air Quality (CMAQ) funds, and FTA Transit Enhancement Funds. All three of these major funding sources specifically reference bicycle parking improvements as acceptable projects.

Bicycle Parking Policy, Administrative and Promotional Recommendations

Within the appropriate documents, such as the County's Comprehensive Plan and MPO's Long Range Transportation Plans, specific language regarding bicycle parking at Metrorail and Metrobus stations should be included. Such language should include the incorporation of both short and long term bicycle parking at all current and future Metrorail stations and major Metrobus transit stations. A standard amount of short and long term bicycle parking capacity should be established so that their inclusion in station design is standardized. When feasible, bicycle parking should be placed under cover and within sight of transit security personnel posts.

The administration of the bicycle parking facilities may remain on the control of the MPO Bicycle and Pedestrian Coordinator or moved to the transit agency in order to centralize all operations. Maintenance of the bicycle parking facilities should remain the responsibility of the transit agency, and transit security personnel should be responsible for the surveillance of racks and lockers. Appropriate signage will serve to promote the integration of bicycling and transit. Signage at Metrorail stations is needed to guide bicycle-commuting patron to parking and instructions on the process to rent a locker. Metrorail cars should have signage that instructs patrons bringing their bicycles on board where to store the bicycle while on the train. Furthermore, the policy of restricting access to bicycles on Metrorail during peak commuting hours should be re-evaluated in order to determine whether or not the hours of restriction could be decreased or eliminated through modifications to train-car seating design to provide more efficient use of space.

It is also recommended that Miami-Dade Transit should eliminate the permit requirements for the Bike and Ride program as it restricts the public's access to transit. Information on the Bike and Ride Program rules and restrictions should be incorporated into the signage and markings at each station in addition to its current presence on the agency's website.

Further promotion of integrating bicycling and transit can be accomplished through coordinated efforts with South Florida Commuter Services, the regional Commuter Assistance Program for the Miami-Dade area. South Florida Commuter Services provide assistance to commuters who are seeking an alternative to driving alone and work with employers to develop alternative commute programs and encourage the use of Commuter Choice tax benefits under IRS Section 132(f). South Florida Commuter Services already has a database of commuters who have sought information on alternative modes and work with a network of businesses that are interested in providing commute benefits to their employees.

Lastly, in order to measure and evaluate the impact of policy changes and bicycle parking plan implementations, Miami-Dade Transit should regular track bicycle usage on Metrorail and Metrobus. Statistics found in this report could serve as benchmarks for future evaluations. This data should be reported in the Transit Development Plan (TDP) and monthly transit statistics reports. Other counties in Florida, such as Hillsborough and Broward, already collect data on bikes-on-bus usage. Such information would also be a valuable addition to the National Transit Database.

BICYCLE PARKING PLAN FOR MIAMI-DADE SUMMARY CHART

Miami Dade Transit Bicycle Parking Plan: Bicycle Parking Needs and Recommendations								
Station/Park and Ride Lot	Average Bicycle Count	Bike Racks Present	Bicycle Lockers Available	Bicycle Lockers Rented	Lockers Damaged/ Not Rentable	Comments	Recommended Short Term Parking Needs (rack capacity) ¹	Recommended Long Term Parking Needs (locker capacity) ²
Attapattah	7	1	12	0	11/9	Insufficient rack capacity; damaged <i>wheel-bender</i> rack	12	6
Brickell	7	1	0	NA	NA	Insufficient rack capacity; inverted U rack	10	4
Brownsville	1	0	12	0	6/0	No rack	10	6
Civic Center	0	0	0	NA	NA	No rack; no lockers, some space limitations	4	4
Coconut Grove	13	2	28	12	18/15	Insufficient rack capacity; 2 inverted U racks	12	20
Culmer	0	0	0	NA	NA	No rack; no lockers	4	4
Dadeland North	11	1	2	2	0/0	Insufficient rack capacity; Lockers do not need replacement, but more lockers are needed	16	8
Dadeland South	12	2	18	9	8/6	Insufficient rack capacity; 1 inverted U rack; 1 <i>wheel-bender</i> rack	16	16
Douglas Road	6	2	18	2	14/0	2 inverted U racks	16	10
Dr. MLK, Jr.	2	1	0	NA	NA	1 <i>wheel bender</i> rack	10	6
Earlington Heights	4	1	24	2	24/20	1 "rail" rack	10	10
Gov't Center	2	1	0	NA	NA	1 <i>wheel bender</i> rack	10	10
Hialeah	11	1	44	1	20/20	Insufficient rack capacity; 1 <i>wheel-bender</i> rack	20	10
Northside	3	0	20	0	7/4	No rack	10	10
Okeechobee	10	1	10	7	2/2	Insufficient rack capacity; 1 <i>wheel-bender</i> rack	20	16
Overtown/Arena	3	0	0	NA	NA	No racks, no lockers	10	4
Santa Clara	2	1	10	3	5/0	1 <i>wheel bender</i> rack	10	10
South Miami	12	3	36	8	10/6	Insufficient rack capacity; 2 damaged <i>wheel-bender</i> racks; 1 inverted U rack	16	16
Tri-Rail	4	2	0	NA	NA	Rolling Racks are sufficient and in good shape	No extra needed	4
University	8	1	10	1	10/5	Insufficient rack capacity; 1 <i>wheel-bender</i> rack	20	6
Vizcaya	3	0	12	6	6/5	No rack	10	10
Golden Glades	1	0	0	NA	NA	No rack	4	0
Hammocks T.C.	0	0	0	NA	NA	No rack	4	0
SW 152 Busway	0	1	0	NA	NA	1 <i>wheel-bender</i> rack	4	0
MDCC S. Campus	0	0	0	NA	NA	No rack	4	(2)
Coral Reef	0	0	0	NA	NA	No rack	4	0
Cutler Ridge	0	0	0	NA	NA	No rack	4	0
Harris Field	0	0	0	NA	NA	No rack	4	(2)
Metrobus D'town	1	0	0	NA	NA	No rack	4	(4)
72 St. and 88 Ave.	0	0	0	NA	NA	No rack	4	0
Sunset Strip	0	0	0	NA	NA	No rack	4	0
TOTALS	124	22	246	53 (22%)	135(55%)/ 92(37%)	6 Metrorail stations w/o racks, 8 with insufficient space for bicycles; 37% of lockers not rentable	280	190/(198)

¹ Assuming the inverted U racks at Brickell, Coconut Grove, Dadeland North, Dadeland South, Douglas Road, and South Miami and the rolling rack at Tri-Rail stay in place.

² Bicycle lockers at transit hubs are optional additions, as bicycle counts did not show any significant demand. Racks should be made available at all transit hubs.

Bicycle Parking Rack Types

“Wheel Bender” Fence Rack



Inverted U Rack



Rolling Rack

