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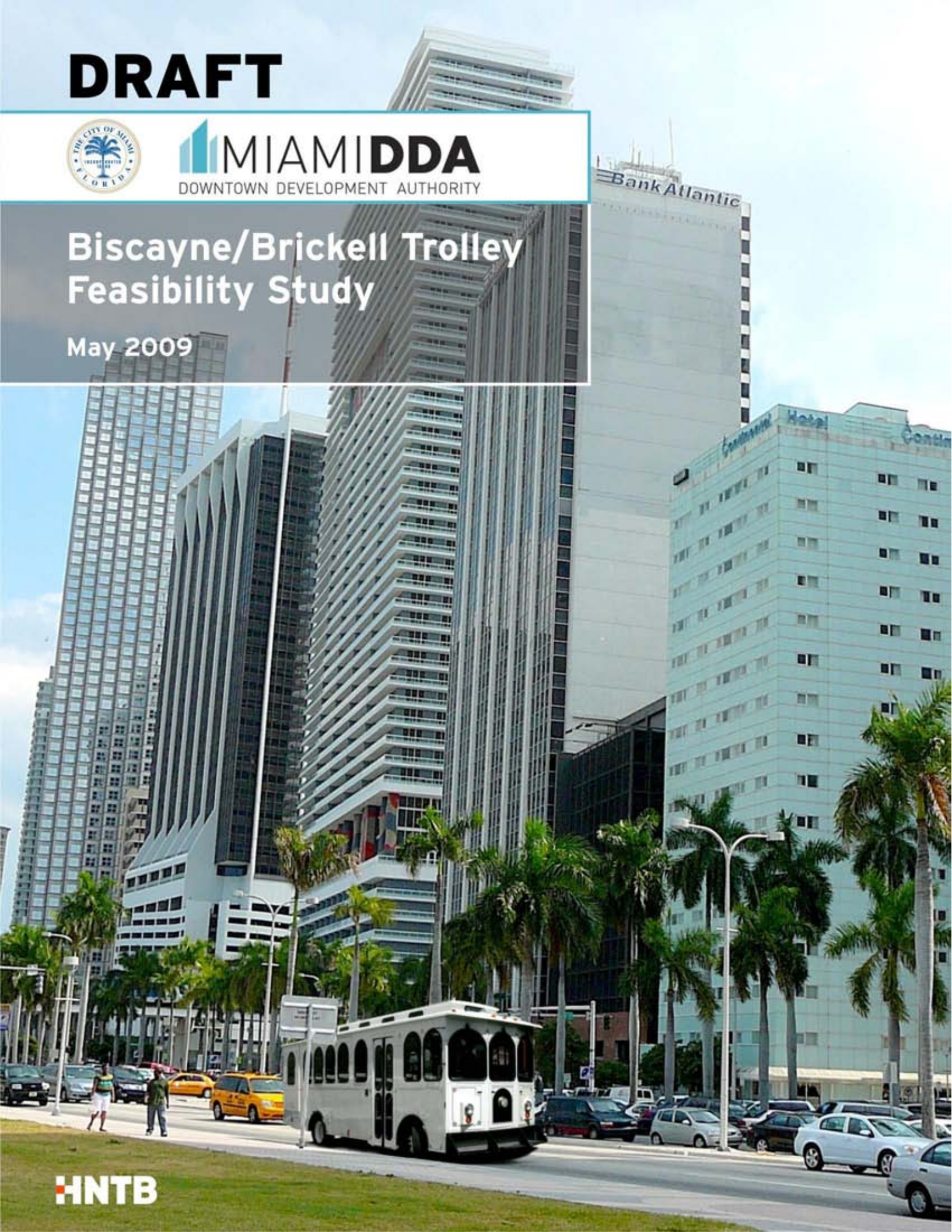
MIAMIDDA
DOWNTOWN DEVELOPMENT AUTHORITY

Biscayne/Brickell Trolley Feasibility Study

May 2009



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Introduction

The City of Miami's Downtown and Brickell areas constitute the most significant employment center and one of the densest urban centers within Miami-Dade County. Recent City and Downtown Development Authority (DDA) efforts have not only strengthened the major attraction to the area as an employment center, but also attracted more visitors and residents with a goal of creating a vibrant and thriving downtown. Although the general study area is currently served by Metrorail (the County's heavy rail system) and Metromover (the County's automated people mover), additional enhanced non-automobile dependent mobility is desired to serve and interconnect the new developments, and provide more efficient linkages to existing transit systems. Previous study efforts to enhance mobility in the area have included a feasibility analysis for a rubber tired Flagler Street circulator, a proposed fixed rail Streetcar to serve the area, and a transit circulator for the Brickell area. Limited funding has precluded the majority of these efforts from being implemented. However, as a result of the recently enacted American Recovery and Reinvestment Act of 2009, funding for implementation of a rubber tired circulator to serve the Downtown/Brickell area has been identified.

The purpose of this collaborative City of Miami and DDA effort is:

- to establish the service need for the study area given the existing transit service and information derived from a DDA mobility survey,
- identify the general route and alignment,
- identify hours of operations,
- evaluate vehicle types, fare structures, and
- estimate capital and operating costs.

A project for implementation will be the resultant recommendation. The report identifies the study area, summarizes the review of previous work within the study area, highlights the existing transit service in the study area and potential for enhanced connections, and assesses operating options for different alternatives that serve the proposed route. Operating and capital costs for the different scenarios were also developed.

1 Study Area

As depicted in **Figure 1**, the proposed trolley would generally serve the area just north of the Omni/Venetian Causeway, run south along Biscayne Boulevard to Brickell Avenue, terminating at the Rickenbacker Causeway. The proposed distance is approximately 4.5 miles. The potential for future expansion to the Midtown area is included as a dashed line and general travel time runs conducted along the route included the extension to the Midtown area for a total distance of approximately 6.0 miles.

Figure 1 – Proposed Biscayne/Brickell Trolley

2 Previous Study Efforts

In June 2000, the Center for Urban Transportation Research (CUTR) conducted feasibility studies of various shuttle services in the City of Miami for the Miami-Dade Metropolitan Planning Organization. One of the areas studied was the Brickell area. The study identified that the area contained 6 million square feet of office space, new high rise condominium developments and 20,000 residents all within an areas less than a square mile in size. The types of densities and mixed uses in Brickell were considered ideal for supporting mass transit. A proposed circulator was considered to contribute to the existing transit network of service by providing connectivity to the more eastern developments along Brickell. It would also act as a neighborhood circulator for residents and visitors to easily access points of interest in the area. Interviews conducted for this study indicated that individuals would use the shuttle between the more eastern portions of Brickell and Metrorail. Five different alignments and routes were analyzed. A recommendation to provide one vehicle to serve a preferred alignment was made and this service is in place today connecting the Brickell Key area to Metrorail.
In November 2003, the DDA completed a feasibility study of a proposed transit circulator along the Flagler Street corridor to encourage non-auto travel for local employees and visitors within the Central Business District (CBD). Alternative routes were considered with different headways during varying hours of operation. The goal for the Flagler Street circulator was to provide a better connection between the downtown area and the developing areas along Biscayne Boulevard and Brickell Avenue. The operating and capital costs for the proposed free shuttle service were estimated. Shuttle implementation was delayed along the corridor to await conversion of Flagler Street from a one-way to a two-way corridor and to identify funding. Currently, there is an existing Seaport Connector shuttle than runs along Flagler Street from the Government Center/Metrorail to Biscayne Boulevard.

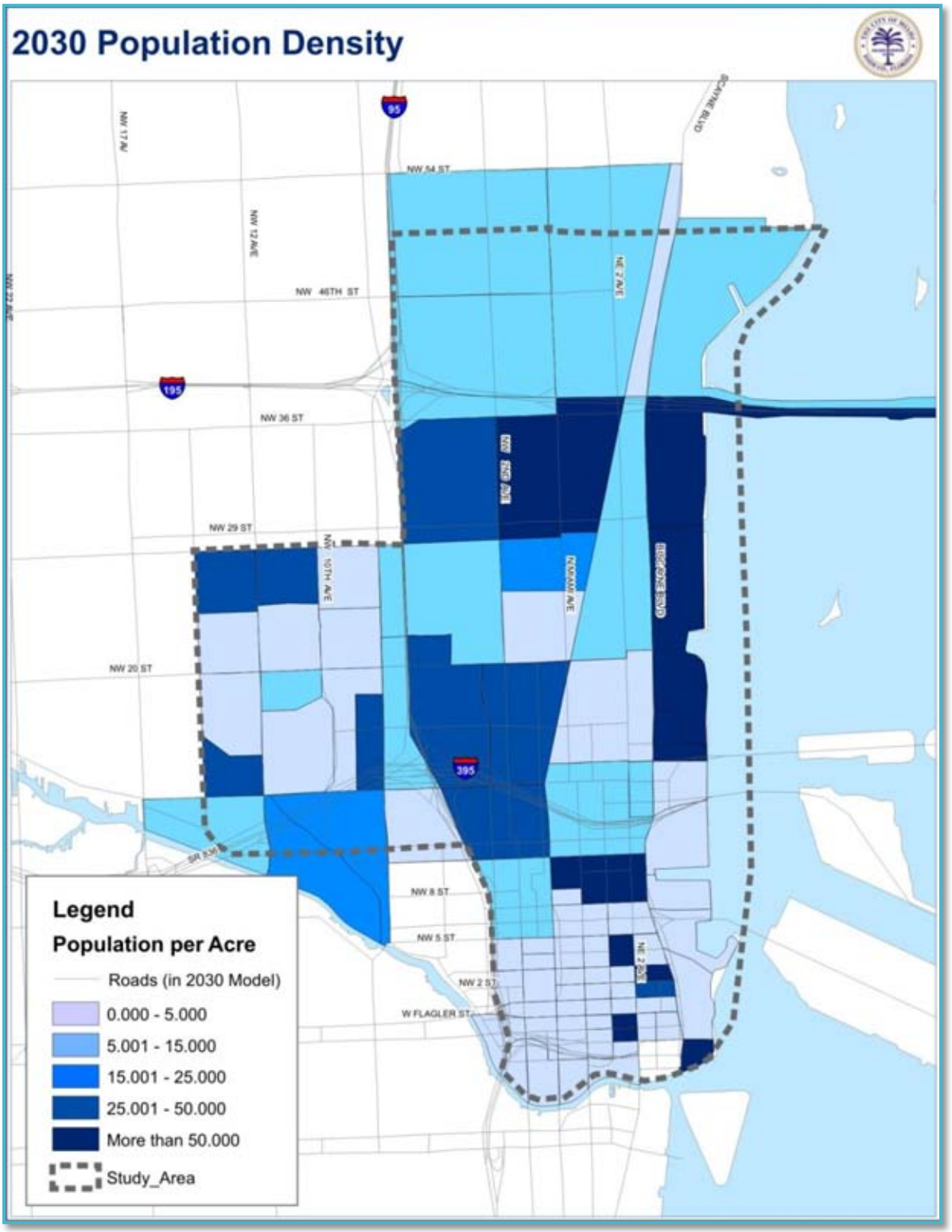
In 2007, the City of Miami completed an alternatives analysis for the implementation of a Streetcar that would connect three major destinations: the Midtown/Design District, the Health District/Civic Center area and the Central Business District.

In reviewing the above study efforts and other planning efforts undertaken by the Miami-Dade MPO it becomes clear that existing roadway and transit infrastructure would not adequately accommodate the significant amount of new residential units (50,000) and new retail/office space (over 8 million square feet) recently approved in the area. **Figure 2** indicates that in 2030 most north-south roadways in the study area will be operating over capacity with limited ability for expansion. **Figure 3** confirms that a significant amount of population density will be located along the Biscayne Boulevard corridor and southern Brickell Avenue in 2030. These densities per acre are some of the highest within Miami-Dade County and the most supportive of any future transit service.

Figure 2 – V/C Ratios in Downtown Miami

Source: Miami-Dade MPO Travel Demand Model

Figure 3 – Population Density



Source: Miami-Dade Metropolitan Planning Organization

3 Existing Transit Service

Existing regional transit service provides mobility options for commuter trips into and out of the study area via Metrorail, Metrobus and TriRail. Metrorail is a 20 mile long elevated heavy rail transit system which serves long distance travel at high speeds. Access to TriRail, which serves Broward and Palm Beach counties, is also provided via transfer from the Metrorail system. The regional transit system is complemented by the Metrobus, which is a traditional local and express bus service utilizing existing streets and highways. There are more than 20 Miami Dade Transit (MDT) bus routes that intersect with or serve the study area with varying headways and hours of operation. Transit trips into (external to internal) and out of (internal to external) the study area will continue to be served by this existing regional system.

Metromover is an elevated people mover system that serves internal transit trips within the study area mainly in the CBD, Brickell and Omni areas. It does not extend south to provide service to the residential portion of Brickell Avenue. Metromover covers a limited service area and expansion of the system is currently cost prohibitive. Four Metromover stations intersect with the proposed trolley route:

- The OMNI Station
- Bayfront Park
- Brickell Station
- Financial District Terminus

Although there is significant transit infrastructure and service in the study area, a new type of service would contribute to the future livability and sustainability of this relatively unique, high density area. The types of transit services that are lacking in the study area, that would not duplicate existing MDT service, are those that would serve the newer developments along the Biscayne Boulevard corridor and the more eastern areas of Brickell. As an example, the 2000 MPO study indicated that the closest Metromover station required a 15 minute walk from Brickell Key and eight minutes from Brickell Bay Drive. The normal range for those who would use transit is to walk no more than five minutes or one-quarter of a mile.

4 Proposed Trolley Service Need

To provide additional mobility for new residents, workers and visitors in the area, a Biscayne/Brickell trolley is envisioned which is convenient, predictable and complimentary to the existing bus and passenger rail network. The route would:

- Provide service within the downtown activity center and adjacent neighborhoods and accommodate shorter passenger trips that could not be served by line haul transit (longer route service)

- Serve the more eastern and southern developments along the Biscayne and Brickell corridors. Many of these developments include hotels offering entry level positions in the hospitality industry so that a shuttle providing fast service from Metrorail or Metrobus stations to these employment sites would be ideal
- Provide direct shuttle services to restaurants and entertainment venues along the Biscayne/Brickell corridors
- Provide more direct access to downtown without Metromover loop transfers
- Provide a dedicated service to the Biscayne/Brickell corridor to serve the community with its own identity. Given the number of MDT buses that go through the area, a dedicated service would minimize confusion.
- Provide access to the west with future connections to the planned Coral Way and Overtown trolley circulators.
- Provide better transit access to the residential portion of southern Brickell Avenue.
- Provide a Park-and-Ride opportunity at Miami Parking Authority Lots 22 and 23 at the southern terminus of the route.
- Contribute to the regional transportation network by providing a system to distribute shorter distance trips within the downtown area and vicinity, fulfilling a distribution function for the existing regional transit system. The circulator is proposed to interface with existing Metrorail and Metromover transit stops where possible and share existing Metrobus route stops where feasible. Any duplication between existing MDT fixed bus routes and the proposed circulator will be addressed through coordination with MDT.
- Pedestrian traffic is expected to increase as a result of new development and recreational opportunities coming to the study area. The proposed trolley would provide safe mobility access for this population, particularly during morning, midday and peak periods, and reduce conflicts between vehicles and existing transit buses. Additionally, safety for visitors and residents to the area's attractions would be increased by providing a mobility option during evening events, where pedestrian and vehicle conflicts may arise more frequently.

5 Outreach Efforts

As part of the study effort, several meetings were held in conjunction with the DDA to explain and promote the idea of the Biscayne/Brickell trolley. Two meetings were held by the DDA on March 4, 2009 and April 16, 2009 with the Biscayne/Brickell Trolley Stakeholders and two presentations were made on April 21, 2009 to the Brickell Area Association and on April 22, 2009 to the Brickell Homeowners Association.

Stakeholder and public response has been overwhelmingly in favor of developing a dedicated trolley service along the Biscayne/Brickell corridor.

In addition, the DDA conducted a survey to gauge public acceptance of a trolley service and glean some information regarding potential usage and basic ridership patterns. Out of a total of 578 responses 411 or 71% of the people surveyed thought there was a real need for a Biscayne/Brickell trolley service.

Details of the responses to each of the 8 survey questions are presented in the **Figure 4** and **Appendix A** contains more detailed results from focus groups surveys and letters of support obtained from area organizations.

Figure 4 – Survey Results

Constant Contact Survey Results

Survey Name: Apr 13 2009 Survey
Response Status: Partial & Completed
Filter: None
Apr 29, 2009 9:42:46 PM

What is your association with Downtown?

Answer	0% – 100%	Number of Response(s)	Response Ratio
Downtown resident		76	13.1 %
Downtown worker		365	63.1 %
Downtown visitor		53	9.1 %
Downtown student		25	4.3 %
All of the above		31	5.3 %
None of the above		18	3.1 %
No Response(s)		10	1.7 %
	Totals	578	100%

Is there a need for a Downtown Trolley along Biscayne Boulevard and Brickell Avenue?

Answer	0% – 100%	Number of Response(s)	Response Ratio
Yes		411	71.1 %
No		58	10.0 %
Unsure		97	16.7 %
No Response(s)		12	2.0 %
	Totals	578	100%

Would you ride a Downtown Trolley?

Answer	0% – 100%	Number of Response(s)	Response Ratio
Yes		459	79.4 %
No		62	10.7 %
Unsure		45	7.7 %
No Response(s)		12	2.0 %
	Totals	578	100%

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How often do you ride Transit (Metromover, Metrorail, and Metrobus)?

Answer	0% 100%	Number of Response(s)	Response Ratio
Always, it's my primary source of transportation		121	20.9 %
Sometimes, every now and then		274	47.4 %
Rarely, only on special occasions		121	20.9 %
Never		43	7.4 %
No Response(s)		19	3.2 %
	Totals	578	100%

Where would you primarily ride a Downtown Trolley to? Select all that apply.

Answer	0% 100%	Number of Response(s)	Response Ratio
Office		225	38.9 %
Shopping and Dining		363	62.8 %
Arts, Entertainment and Events (Arena, Perfroming Arts Centers, Museums, etc.)		352	60.8 %
School (College, public schools,etc.)		146	25.2 %
Civic Institutions (Government Center, Courts, etc.)		214	37.0 %
Parks (Bayfront Park, Museum Park, Brickell Park, etc.)		298	51.5 %
None of these		51	8.8 %
Other		34	5.8 %
	Totals	578	100%

What kind of trips would you primarily make? Select all that apply.

Answer	0% 100%	Number of Response(s)	Response Ratio
Park & Ride		152	26.2 %
Between buildings		295	51.0 %
Lunch		327	56.5 %
From/To Home		163	28.2 %
From/To Transit		157	27.1 %
None of these		41	7.0 %
Other		18	3.1 %
	Totals	578	100%

When would you primarily ride the Downtown Trolley during the work week (Monday to Friday)? Select all that apply.

Answer	0% 100%	Number of Response(s)	Response Ratio
Morning and evening rush hour		187	32.3 %
During normal business hours		282	48.7 %
Lunch time		324	56.0 %
Special events		336	58.1 %
None of these		48	8.3 %
Other		27	4.6 %
	Totals	578	100%

When would you primarily ride the Downtown Trolley on a weekend (Saturday and Sunday)? Select all that apply.

Answer	0% 100%	Number of Response(s)	Response Ratio
Daytime		255	44.1 %
Evening		211	36.5 %
Lunch time		123	21.2 %
Special events		368	63.6 %
None of these		92	15.9 %
Other		8	1.3 %
	Totals	578	100%

6 Potential Ridership

The proposed trolley services could potentially derive significant usage from several key components in the Downtown and Brickell area.

Sources of ridership potential include:

- The downtown and financial district daytime employment population of over 200,000 workers.
- Visitors and tourists to the area that populate the various hotels along the route.
- Residents both in the new apartment and condominium complexes built in and around downtown as well as the established residential areas along southern Brickell Avenue
- Existing transit passengers on Metrorail, Metrobus and the Metromover that would extend their trips to get closer to their final destinations

Formal travel demand modeling was not conducted as part of this study. However, reasonable projections of ridership can be inferred based upon the connectivity, current transit patterns and the proposed frequency of service for the proposed trolley route.

Given the wide range of destinations served by the proposed system it would be reasonable to assume that at least 30 passengers per bus per direction would avail themselves of this service during weekday peak hours (7–9 AM; 4-6 PM) and lunchtime hour (11:30- 1:30) service. During all other weekday hours, half that level or approximately 15 passengers per bus per direction would use this service.

Saturday service was assumed to generate 10 riders per bus per direction all day.

Assuming the service would run from 7AM to 7PM Monday through Saturday the following ridership levels could be expected.

On a typical weekday there would be 1,920 riders. On a typical Saturday there would be 960 riders. Therefore, on an annual basis assuming 260 weekdays and 52 Saturdays per year, the trolley service would achieve a ridership level of 549,120 passengers per year.

7 Operating Options

7.1 Routes/Alignments

As shown in **Figure 5**, the proposed trolley route begins at the City of Miami Parking area located underneath the Rickenbacker Causeway viaduct, travels along Brickell Avenue to Biscayne Boulevard and along Biscayne Boulevard to NE 17th Terrace where it circles around the Omni to the major transfer point with Metromover, then south along Biscayne Boulevard to SE 2nd Street to Brickell Avenue. The trolley would serve the Mary

Brickell Village area via SW 10th Street to SW 1st Avenue where it provides a major transfer connection point to Metrorail and Metromover, then back to Brickell Avenue along SW 13th Street and south to Rickenbacker Causeway. **Figure 6** shows an alternate routing through the Mary Brickell Village area that brings the southbound trolley route back along SW 7th Street with a stop at Tobacco Road then to the Brickell Station and back east along SW 10th Street to Brickell Avenue. Both routes are approximately 4.5 miles long with a proposed 1.5 mile long extension to the Midtown development area.

7.2 Potential Stops

The route proposes 28 stops including 4 transfer points with Metrorail and Metromover. The stops would mainly consist of distinctive community trolley signage and could be combined with existing MDT bus routes stops. This arrangement of stops has worked well with the existing Ft. Lauderdale trolley along Las Olas Boulevard. A circulator of this type requires closely spaced, conveniently located stops in order to attract a high number of riders. At the southern terminus of the route, a Park and Ride location could be established on Miami Parking Authority Lots 22 and 23 to provide drivers an option to park their car and continue their trip on the circulator to avoid Downtown and Brickell area traffic congestion.

Figure 5 – Proposed Trolley Route Option A

Figure 6 – Proposed Trolley Route Option B

7.3 Travel Time

Travel time runs were conducted along the route to simulate the trolley service. Six travel time runs were conducted in the northbound direction and six in the southbound direction. The travel time runs included the Midtown development, which is slated as a future extension of the service. Information from the travel time runs is included in **Appendix B**. The average travel time in the northbound direction was over 31 minutes at an average speed of 11.5 mph. The average travel time in the southbound direction was 33 minutes at an average speed of 10.4 mph. These runs did not encounter the opening and closing of the Brickell Bridge at the Miami River during the surveys. However, a 10 minute recovery/layover time was added for the service operating plans to account for events such as traffic delays and the bridge opening.

In order to assess the convenience of the proposed trolley bus system compared to the existing Metromover system, a series of hypothetical walking distance analyses were conducted. The purpose was to assess whether there is a notable difference between passengers accessing the trolley bus versus the Metromover at selected venues in Downtown and the Brickell area. It should be noted that one major benefit of the proposed trolley bus is that it provides a dedicated transit service that directly connects the lower Brickell and Downtown areas. The last stop on the Metromover is at the Financial District.

The pedestrian routes from the following venues to the respective services evaluated (Metromover vs. Trolley) are as follows:

- The Hilton/Omni Center
- Performing Arts Center
- American Airlines Arena
- Bayside Marketplace
- Intercontinental Hotel
- Four Seasons Hotel

These venues were chosen to be distributed evenly along the corridor and to be representative of typical trips that could be captured by both the Metromover and the proposed Trolley.

Walking distances from each venue to either the closest Metromover station or proposed trolley bus stop were calculated using internet mapping techniques. A walking speed of 4 feet per second (approximately 2.73 miles per hour) was assumed. Crossing a signalized intersection was assumed to incur a signal delay of 30 seconds. The vertical circulation by elevator, stair or escalator required to access the Metromover platform from street level was assumed to take 60 additional seconds. **Table 1** presents the results of this analysis.

Table 1 – Trolley Analysis Results

VENUE	METROMOVER			TROLLEY BUS CIRCULATOR			DIFFERENCE	
	Distance to Station	Time Required	Signalized Crossing	Distance to Bus Stop	Time Required	Signalized Crossing	Distance	Time
Hilton Omni Center	767 ft.	4.7 min	1	76 ft.	19 sec	No	748 ft.	4.4 min
Performing Arts Center	805 ft.	4.9 min	1	50 ft.	12.5 sec	No	755 ft.	4.6 min
AA Arena	917 ft.	6.3 min	3	236 ft.	59 sec.	No	681 ft.	5.3 min
Bayside Marketplace	863 ft.	5.6 min.	2	216 ft.	54 sec.	No	647 ft.	4.7 min
Intercontinental Hotel	476 ft.	3.5 min.	1	405 ft.	1.7 min.	No	68 ft.	1.8 min
Four Seasons	625 ft.	4.1 min	1	125 ft.	31 sec.	No	500 ft.	3.6 min

As this analysis demonstrates, the trolley bus service is much easier to access than the Metromover in each instance, sometimes by a significant margin of 4 or 5 minutes. The bus circulator would not compete directly with the Metromover with its dedicated guideway and short headways running above downtown traffic and congestion. However, the efficient access times do show that the trolley is a viable alternative for quick access between buildings and key destinations. In addition, the trolley requires no vertical circulation being fully at-grade and it also avoids the discomfort felt by some passengers with being isolated on an exposed elevated Metromover platform. It would provide a reasonable alternative to the Metromover that does not serve the eastern and southern areas of the study area that well. The trolley service could attract choice riders that are not currently using public transit services. Once acclimated to the idea of using public transit by using the circulator trolley, these riders would be more willing to utilize other transit choices such as the Metromover, Metrobus, or Metrorail thus increasing transit usage overall.

7.4 Vehicle Type and Staffing

Local trolley services are typically provided with minibuses due to their ease of maneuverability and their less intrusive appearance. A small size minibus/trolley similar to what has been recently implemented in the cities of Doral and Coral Gables is what is envisioned for this service. A smaller vehicle will be most advantageous

in a dense, active area such as the Biscayne/Brickell area where drivers have to negotiate narrow streets and tight radii. Although vehicles with low floors are preferred, trolleys in downtown Ft. Lauderdale and Coral Gables have lifts for handicapped accessibility. Low-floor minibuses do make boarding easy for everyone particularly the elderly and disabled. Low-floor minibuses also help speed the boarding/alighting process, thus helping in faster route service and more reliable schedules. In addition, pursuant to the City's policy on Green Initiatives, green vehicle technologies will be the preferred option.

The City of Miami anticipates securing the vehicles, staffing, operations and maintenance needed for implementing the trolley service, through a "turnkey" provider via the City's procurement process. At that time, specifications for the desired type of vehicle, staffing requirements, and other specifications will be included in the procurement documents. In order to determine the number of vehicles necessary for the route, various operational scenarios were developed.

7.5 Hours of Operation and Headways

Four alternative scenarios were developed in terms of hours of operation and headways to determine operating and capital costs for the service. The alternatives assumed operation of the service from the Rickenbacker Causeway parking area to the Omni Center only and did not include the Midtown future service area. All the alternatives also assumed 10 minute recovery/layover time for each one-way trip. All the alternatives also assumed a 20% spare bus ratio. Detailed information on the alternatives developed is included in **Appendix C**. **Table 2** shows the different service levels and operating assumptions.

Table 2 – Service Levels and Operating Assumptions

LOW SERVICE LEVEL	LOW/MID SERVICE LEVEL	MID SERVICE LEVEL	HIGH SERVICE LEVEL
20 minute headways all day	15 minute headways all day	10 minute headways in the peak and 20 minute headways in the off-peak	10 minute headways all day – extended route to Midtown/Design District
Hours of operation 6am to midnight Monday to Saturday	Hours of operation 7:00am to 7:00 pm Monday to Saturday	Hours of operation 6am to midnight Monday to Saturday	Hours of operation 6am to midnight Monday to Saturday
Number of buses- 5	Number of buses- 8	Number of buses- 10	Number of buses- 12

7.6 Planning Level Cost Estimates

7.6.1 Capital Costs

A review of various manufacturers and operating trolley bus systems was conducted as part of this study. A wide range of vehicle costs was encountered given the different configurations and drive technologies employed. At the low end were diesel powered trolley bus coaches that could be purchased for $200,000 or less. These vehicles could also be specified to run on bio-diesel fuel to minimize their carbon emissions. Hybrid electric vehicles with gasoline engines and battery power cost in the $300,000 to $350,000 range while the newest technology, nearly zero emission fuel cell vehicles cost over $600,000 each. **Appendix D** contains specifications and cost information for the various vehicles identified.

Capital cost can also be minimized if a procurement order is placed for more vehicles at a time. Purchasing more vehicles would be more cost effective per vehicle than purchasing fewer since the manufacturer can take advantage of cost efficiencies and economies of scale. Since the Biscayne/Brickell trolley is one of several that the City is considering implementing such economies should be realized.

In addition to the buses an additional capital cost outlay would be the design, manufacture and installation of street signs for the trolley bus stops along the route. Recent information was obtained from the Coral Gables system which has deployed attractive signs all along the Gables trolley route. These signs cost $324,000 for 68 assemblies which is about $4,700 each. For estimating purposes the Biscayne/Brickell trolley system would require 60 assemblies or individual sign locations at approximately $5,000 each with an additional 10% contingency for a total cost of $330,000. The extension of trolley service to the Midtown/Design District would require the installation of an additional 15 signs.

Depending on the operating plan selected the capital cost would vary due to the different number of vehicles and bus stop signs required. **Table 3** presents the various options and their respective capital costs.

Table 3 – Trolley Options and Capital Costs

Operating Scenario	Bus Cost* (Number)	Sign Cost** (Number)	TOTAL CAPITAL COST
LOW	$892,500 (5 buses)	$330,000 (60 signs)	$1,222,500
LOW-MID	$1,428,000 (8 buses)	$330,000 (60 signs)	$1,758,000
MID	$1,785,000 (10 buses)	$330,000 (60 signs)	$2,115,000
HIGH	$2,142,000 (12 buses)	$412,500 (75 signs)	$2,554,500

* Bus cost of $170,000 per vehicle assumed plus 5% contingency;** signage cost of $5,000 per sign plus 10% contingency

7.6.2 Operating and Maintenance Costs

Information has been collected from various existing shuttle services in the local area including the cities of Aventura, Doral, Ft. Lauderdale, Coral Gables and others (see **Appendix D**). This information includes capital costs for vehicles and operating costs. The operating costs for the various shuttles ranged from $48 to $68 per revenue hour. Revenue hours are determined by the schedule of operation. The National Transit Database does not report rubber tired trolleys as a separate mode but combines it with overall bus operations. Their revenue hour estimates ranged from $48 to $150 for bus operations. The City of Miami recently completed a circulator study for the Health District area where the standard operating cost assumed was $60 per revenue hour. Based on this information, $60 per revenue hour was assumed for the proposed Biscayne/Brickell trolley service, although it may be higher since the cost of the reporting requirements for receiving federal stimulus dollars is not included in any of the similar shuttle service estimates. Based on the schedule of operation for the 4 different scenarios, **Table 4** presents the estimated operating costs for the trolley service.

Table 4 – Operating Costs

LOW Service Level O&M costs	
Total Annual Revenue Hours:	23,088
Total Annual Operating Costs	$1,385,280
LOW/MID Service Level O&M costs	
Total Annual Revenue Hours:	23,712
Total Annual Operating Costs	$1,422,720
MID Service Level O&M	
Total Annual Revenue Hours:	32,448
Total Annual Operating Costs	$1,946,880
HIGH Service Level O&M costs	
Total Annual Revenue Hours:	57,720
Total Annual Operating Costs	$3,463,200

7.7 Proposed Funding

The Biscayne/Brickell trolley service start-up is scheduled to be funded with American Recovery and Reinvestment Act of 2009 funds for capital equipment and Florida Department of Transportation public transit funds for operations and maintenance costs. The City's required share of O&M costs (50% of the total) is scheduled to be funded through a "turnkey" procurement, with the City's share of People's Transportation Plan funds (transit half-cent surtax). The City does not anticipate any fare box recovery from the trolley operation and estimates that the service will be free or a nominal charge. Similar to the Metromover system, patronage on a free distributor system is higher and a free system would also contribute to less potential for operational delays along the route. The desired headways would therefore be easier to maintain.

8 Conclusions

The proposed Biscayne/Brickell trolley would:

- Provide transit service where none is provided now (more eastern areas of the CBD and southern Brickell Avenue where the newer developments are located) and minimize duplication of MDT service
- Provide a link with other transit transfer points including Metrorail, Metromover, and Metrobus whenever possible to encourage greater use of transit to access the Biscayne/Brickell area from the regional system
- Provide an easy to understand distinctive route for the downtown/Brickell community
- Provide connection to major points of interest for tourists and workers in the area
- Provide better connectivity to points north and west through the other proposed City of Miami trolley routes
- Provide a transit service for short trips serving as many destinations as possible.
- Provide a Park and Ride opportunity to capture additional riders at the Rickenbacker Causeway.

The proposed service would encourage non-auto travel for local employees, and visitors to the area which is a main goal of the City's and the DDA's Transportation Master Plans.

A final selection of vehicle procurement and operating plans will be made upon consultation with area stakeholders, the DDA, City of Miami staff and the City Commission.