

APPLYING INNOVATIVE FINANCING OPTIONS FOR A NEW FIXED-ROUTE TRANSIT LINE IN MIAMI-DADE COUNTY



FINAL REPORT
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Executive Summary

With the successful development of *People's Transportation Plan (PTP)* projects such as the Orange Line rail connection to the Miami Intermodal Center and Miami International Airport, the purchase of new Metromover vehicles, the purchase underway of Metrorail vehicles, and the purchase of hundreds of new buses, the community increasingly is focusing on the future of transit improvement in Miami-Dade County ("the County").

This Report analyzes the potential of real estate value capture revenue to partially offset the cost of developing a new fixed-route transit line in the County. Although the proposed transit line connecting Downtown Miami to Miami Beach, popularly known as the Baylink project ("the Project"), is utilized as an example, the methodology detailed in this report and the value capture model developed can be utilized for any corridor in the County.

The benefit of transit to private property owners through increasing property values and development is well documented. Value capture refers to the technique by which the agency responsible for development of a transit project monetizes a portion of this benefit. The revenue flows from value capture may then be pledged as repayment for a bond or other financing vehicle in order to provide funds for construction of the project.

Building upon the experience of other U.S. cities that have utilized value capture to fund transit, this Report details three methodologies that the County could use to help finance the Project. The three types mechanisms analyzed include the following:

1. Assessment District 1 (AD1) is an *ad valorem* assessment (essentially an increase in property tax) on the value of property in the study area.
2. Assessment District 2 (AD2) is a charge per square foot of development in the study area.
3. Tax-increment financing (TIF) does not require property owners to pay additional taxes or fees; rather, increases in property tax revenue due to rising property values and development in the study area are directed to the Project rather than the County General Fund.

Each of these mechanisms has policy considerations. Both ADs impose increased burdens on private property owners, which will likely meet resistance and could slow the growth of property values. AD1 considers the location and quality of development, which are part of assessed value, while AD2 treats all square footage the same. TIF does not increase out-of-pocket costs to private property owners, but does reduce funds potentially additionally available to the County for other uses. Furthermore, TIF generates revenue only as property values increase, while assessment districts generate funds as soon as implemented. The table below summarizes the mechanisms.

Real Estate Value Capture Mechanisms			
<i>Mechanism</i>	<i>AD 1</i>	<i>AD 2</i>	<i>TIF</i>
Type of Assessment	<i>Ad valorem</i> assessment (millage)	Assessment on the projected total floor area	<i>Ad valorem</i> assessment
Basis	Assessed value of the properties	Assessment per square foot of floor area	Assessed value of the properties
Pros	Progressive structure – those who benefit most pay the most	Simple computation. Does not vary with assessed value	No increase in amount property owners pay
Cons	Revenue can be unpredictable	Does not differentiate higher value property	Depends entirely on rising assessments

For each of the value capture mechanisms, key assumptions impacting the revenue flow include the following:

- **Area of Impact.** Greater Downtown Miami, Miami Beach below Dade Blvd, islands along alignment.
- **Density of Development.** The future floor area development that will be built by the end of the 30-year time horizon.
- **Pace of Development.** How rapidly development proceeds from existing to maximum allowed by current zoning regulations.
- **Value Premium.** The amount of increase in property value due to fixed-route transit and the timeframe in which the value increases.
- **Level of Fees.** The assessment districts impose new fees on property owners. The amount of the fee (per dollar of assessed value or per square foot) impacts the revenue generation.

An Excel model was created to analyze the revenue generated under each of these three mechanisms and the resulting bonding capacity that represents the construction funds that would be generated. It is important to note that for two of the types of value capture – AD1 and TIF - the funding generated is dependent on the level of assessments. The level of assessment assumed for this report are examples, not recommendations, based on the range experienced in other cities and sized to generate similar revenue levels for the three mechanisms. In other words, none of the three mechanisms *inherently* generates more revenue than the other – the projected revenue flow for the two ADs can be altered by changing the level of assessment.

It is also important to note that property valuation and rates of development are difficult to predict with accuracy because of changes due to larger economic issues (e.g., the Great Recession) that cannot be predicted accurately. Changes in the assumed rate of growth in property values and the time in which the study area develops toward the maximum allowed by zoning alter the findings. For this reason, several growth scenarios are provided in the report.

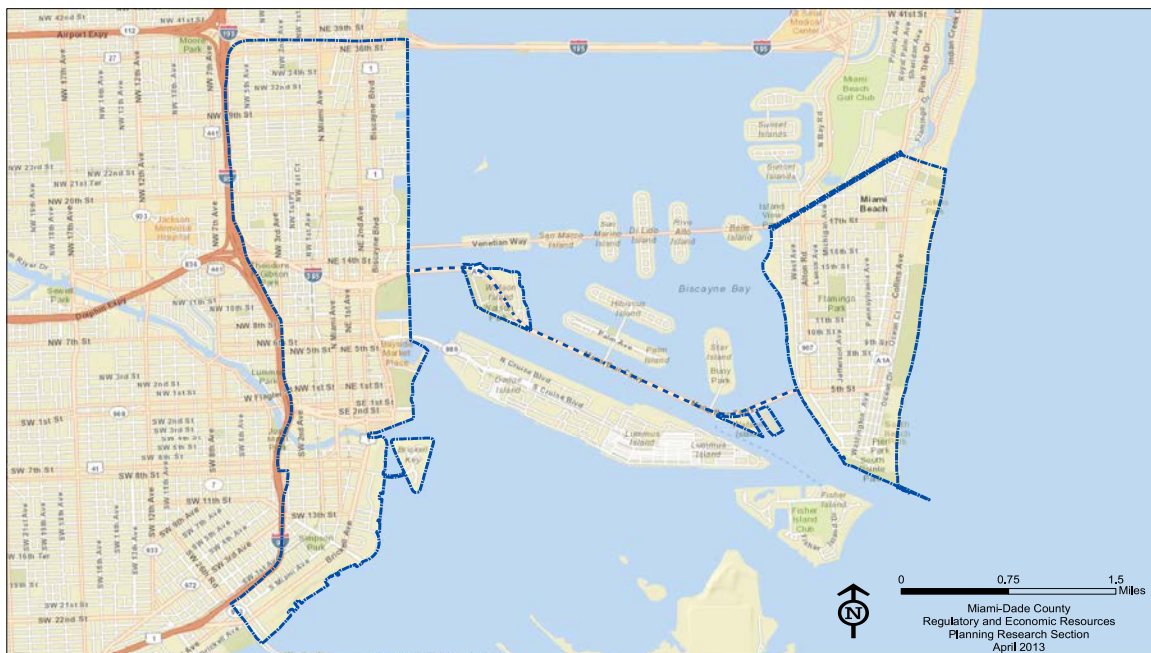
Example Project Description

The example Project is a fixed-route connection from Downtown Miami to the Miami Beach Convention Center. Last studied in detail in 2004, a locally preferred alternative (LPA) was

selected by the MPO Board. Due to concerns regarding technology, funding and other transit corridors prioritization issues, the project was not advanced into the preliminary engineering phase. However, this Report focuses on the potential scale of the possible revenue approaches, and is independent of transit Project implementation details including mode choice, alignment and station locations. To put the scale of discussion choices in context, the assumed Project cost is \$1 billion (B).

The analysis study area includes property in Downtown Miami and on South Beach. The entirety of the Greater Downtown Study Area, as defined by the Miami Downtown Development Authority (DDA) is included, reflecting the fact that the station locations are not known and that the connectivity benefits will accrue beyond simply the new transit line. All of South Beach south of Dade Boulevard is included, reflecting the fact that Miami Beach is only about 1.5 miles wide. Watson Island and Terminal Island are also included.

Analysis Study Area



Parking Revenue

Another source of potential revenue enhancement considered is automobile parking. Parking shows significant supply and demand in the Study Area. The report considers the revenue that could be generated by increasing parking fees in Downtown Miami and Miami Beach.

Value Capture Results

As shown in the graphs below, in the Medium Growth Case, the nominal revenue generated by real estate value capture over a 30-year period ranges from \$889 million to \$1,109 million (M). The bonding capacity of these cash flows was estimated assuming a 6% discount rate, approximately equivalent to the County's historic cost of capital and considering debt issuance fees and reserves. Under these assumptions, the County could borrow between \$342 M and

\$380 M for construction costs for the Project. This assumes that the markets would not demand a reduction due to the uncertainty of real estate development. If additional funds were needed, higher benefit assessment rates could be used for AD1 and AD2. Additional scenario analysis is provided in the report.

Due to its greater amount of development, the Downtown Miami portion of the study area generates a greater portion of the benefits than Miami Beach. Downtown Miami represents 58% of the capital bond funds generated by AD1, 88% for AD2, and 59% for TIF. Miami Beach provides 40%, 11%, and 40%.

The bonding capacity of parking fee revenue in Downtown Miami ranges from \$58 M to \$251 M, depending on the publicly-operated revenue increase and growth of privately-operated space inventory subject to surcharge. In Miami Beach, bonding capacity from publicly-operated parking revenue increase is projected to be \$100 M or more.

Combining real estate value capture and parking fees together, one estimate of the bonding capacity (that could be used for construction and potentially operations) is \$500-\$700 M.

Other Funding Sources and Financing Mechanisms

While there is significant value capture potential to support the project, additional funds will be required. These are likely to include federal New Starts grants under MAP-21 and future transportation bills for up to 50% of the project. In addition, funds may be available from state and local revenue streams such as Florida Department of Transportation (FDOT) grants and sales tax revenue.

Innovative financing, in the form of subsidized, subordinate loans on the federal level from the U.S. DOT TIFIA office, and on the state level from the Florida State Infrastructure Bank (SIB), could reduce financing costs. However, these funds are limited and highly competitive.

Public-private partnerships (P3), whether via joint development, operating, construction, and/or financing may provide some assistance to the Project. However, public funds will be needed to repay the private party, as transit does not produce surplus revenue. The primary benefit of a P3 is likely to be the transfer of construction cost risk rather than reducing the amount of public funding needed.

Please refer to prior CITT reports, *Evaluating Innovative Financing Opportunities for Miami-Dade Transit, 2009* ("CITT 2009 Report"); *Analysis of Operating Revenue Enhancement Opportunities for Miami-Dade Transit Phase I, 2010* ("CITT 2010 Report"); and *Analysis of Operating Revenue Enhancement Opportunities for Miami-Dade Transit Phase II, 2012* ("CITT 2012 Report"), for more details on innovative funding and financing options.

Operations

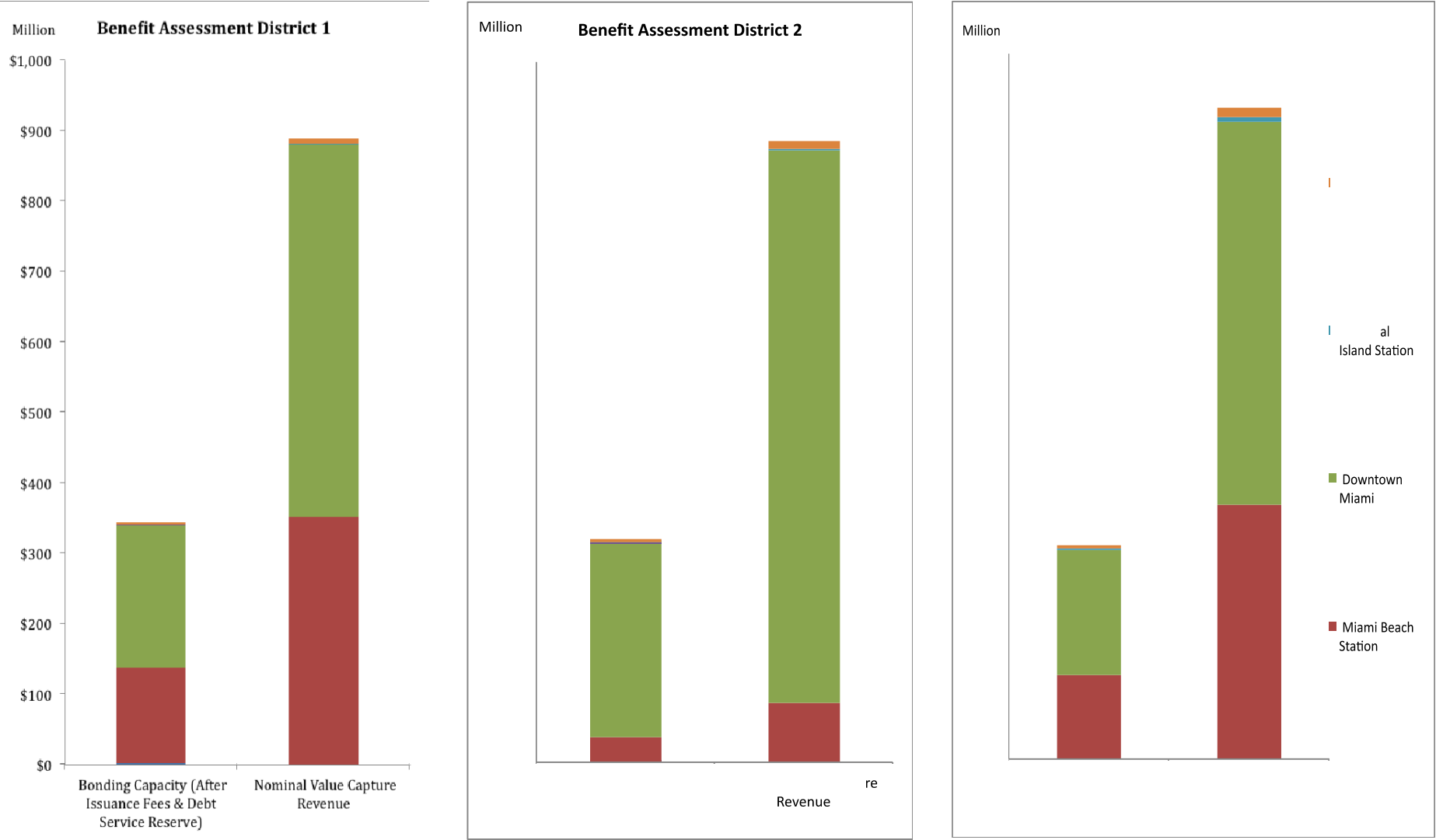
While this Report focuses on securing capital funding for development of the Project, funds to cover MDT's operating expenses for the prospective new transit line would also be key to consider throughout implementation, enabling operation of both the existing and new system in a state of good repair.

Conclusions

Value capture including parking revenues clearly can be a key part of a basket of fixed-route transit funding sources that includes traditional funds such as FTA New Starts funding, state grants and sales taxes, as well as innovative funding such as State Infrastructure Bank loans and joint development. Combining several funding and financing tools will increase the viability of the Project and enable the County to deliver it in the shortest possible timeframe.

This Report and the accompanying Models are intended to serve tools for County leaders to evaluate the potential approaches to fund the cost of developing new transit, by providing examples (not recommendations) and to consider in other corridors.

Analysis Results: Medium Growth Case



I. Introduction

A. Background and Purpose of the Report

This study, *Applying Innovative Financing Options for a New Fixed-Route Transit Line in Miami-Dade County* ("the Report") was requested by the Miami-Dade County Citizens' Independent Transportation Trust (CITT) to examine the potential to use value capture techniques and parking revenues to partially fund transit improvements in Miami-Dade County ("the County"). As a pilot analysis, the Report estimates the potential funding that can be generated by value capture and parking revenues to support the development of a fixed-route rail line from downtown Miami to the Miami Beach Convention Center ("the Project"). Specific details of this new fixed-route transit, such as the choice of transit technology, station locations, capital and operating costs are outside the scope of this study and not factored into estimating the scale of potential funding approaches.

This study is a continuation of CITT's efforts to develop new revenue streams and innovative financing options to improve the financial and operating performance of Miami-Dade Transit (MDT) and to support the development of transit projects. These reports include:

- *Evaluating Innovative Financing Opportunities for Miami-Dade Transit, 2009* ("CITT 2009 Report");
- *Analysis of Operating Revenue Enhancement Opportunities for Miami-Dade Transit Phase I, 2010* ("CITT 2010 Report"); and
- *Analysis of Operating Revenue Enhancement Opportunities for Miami-Dade Transit Phase II, 2012* ("CITT 2012 Report").

These studies examined MDT's potential to use non-traditional and innovative finance tools to reduce MDT's operating revenue gap, and to provide funds to develop proposed capital expansions. The CITT 2009 and 2010 reports highlighted value capture finance, among other innovative financing mechanisms.

CITT's financial consultant, Infrastructure Management Group, Inc. (IMG) teamed with Planning & Economics Group ("the Research Team") to prepare the Report on behalf of CITT.

B. Background of the Project – A Fixed-Route Transit from Miami to Miami Beach

Miami Beach is home to over 87,000 residents and centers its economy on tourism. Its beaches, nightclubs, and shopping attract residents from across Miami and tourists to support over 200 hotels. However, traffic must cross one of several causeways from the mainland to access the Beach, and congestion is common on the Beach. Furthermore, the need to provide rapid transit connectivity between the cities of Miami Beach and Miami is vital to the economic and environmental sustainability of both cities.

Consideration of connecting the mainland to the Beach with a fixed-route transit line has been included in long-term plans, but has not been studied in detail since 2004, when a locally-preferred alternative for the Baylink Project was established. Please see the Appendix 1 for detailed information about the Baylink project.

The Project was selected as an example to showcase how non-traditional and innovative financing approaches may be used to fund transit. For the purposes of this Report, the initial capital cost of the Project is assumed to be around \$1 billion (B).

C. Value Capture

This section of the Report provides a brief background on value capture techniques and a detailed discussion of the value capture potential for a prospective, example fixed-route rail line from downtown Miami to the Miami Beach Convention Center.

In the context of transportation infrastructure, value capture is defined as a financing technique “by which the agency responsible for the development of the urban transport infrastructure captures part of the financial benefits gained by land developers or the community at large.”¹ It is widely acknowledged that the presence of a transportation system has a measurable impact on the value of surrounding real property. According to the Urban Land Institute research team, review of multiple studies seems to show transit investments have resulted in increases in property values for nearby communities to a certain degree, in most cases.² This is because the property values are viewed as a comprehensive index of all the benefits generated by the development of a transportation system, including improved accessibility and an increase in business opportunities.³ Value capture finance is a way by which private property owners who benefit from a project partially fund the transportation investment by paying a form of tax or fee. The rationale behind value capture financing is that transportation investments create better access to real estate and, depending on the location and land use, such access creates significant value to property owners.

There are several value capture techniques in practice, including benefit assessment districts (ADs), tax increment financing (TIF) districts, joint development, development impact fees, land value tax, transportation utility fees, and others. Please refer to CITT’s 2009 report, *Evaluating Innovative Financing Opportunities for Miami-Dade Transit*, for further details. In this Report, the Research Team estimated the value capture potential under two value capture techniques: 1) benefit assessment districts, and 2) tax increment financing.

D. Objective of the Report

Like many transit agencies across the U.S., system expansion is facing severe funding challenges and budget constraints to developing infrastructure enhancements. Traditional sources of funding, such as federal and state grants and debt, will not be sufficient for planned infrastructure enhancements, such as the Project. A 2009 report by the Transportation

¹ Farrell, S., Tsukada, S., Kurawami, C. (1994). *Value Capture: The Japanese Experience*, Technical Report, Financing Transport Infrastructure c.f. Francesca Medda and Marta Modelewska, “Land Value Capture as a Funding Source for Urban Investment: The Warsaw Metro System”, Ernst & Young: Better Governance Program, 2009-10.

² Campbell, J. ULI Research Roundup: The Impact of Transit on Property Values. Accessed November 2013, <http://www.uli.org/infrastructure-initiative/uli-research-roundup-the-impact-of-transit-on-property-values/>

³ Farrell, S., et al. Ibid.

Cooperative Research Program (TCRP)⁴ found that transit funding is shifting toward directly earned revenues. The objective of this Report is to quantify the potential to partially fund the Project using real estate value capture and parking fees, and to identify key issues affecting this corridor and other potential future corridors possibly financed in part using value capture.

Automobile parking, already an important feature of land use and traffic management in Downtown Miami and Miami Beach, will see increased demand as further development occurs. Furthermore, increasing parking costs will encourage greater use of transit, reducing congestion and environmental impacts. Therefore, this Report considers the possibility of adding fees to public parking to help fund the fixed-route transit improvement.

Other sources of funding and finance would likely be used for the Project, such as federal New Starts/Small Starts Funds, Florida Department of Transportation (FDOT) and other State funds, the TIFIA program, the Florida State Infrastructure Bank (SIB), and public-private partnerships (P3). These are discussed in detail in prior CITT reports. This Report has conducted a brief discussion of the potential to fund the Project through these sources of financing.

E. Analysis Methodology

The primary question before the Research Team was as follows:

How much money can value capture techniques and parking revenues provide towards the capital costs of the Project?

To answer this question, the Research Team considered the findings of the previous CITT reports, conducted additional literature reviews, and developed an appropriate methodology to determine the potential funding available from value capture techniques for the Project's capital costs. The methodology pertinent to each source of finance is detailed in the respective sections of the Report.

F. Value Capture Analysis Model

The Research Team developed a Microsoft Excel spreadsheet model to carry out the analysis. The Value Capture Model includes three linked files:

- 1) A Master Sheet containing global assumptions regarding the scale and pace of development of the study area. This includes the types of properties included in assessment districts, the utilization of property, financial assumptions, assessment levels, and a table linking land uses to zoning categories. Each of these assumptions can be altered to analyze the results under different scenarios.
- 2) A separate Excel workbook was created for each of the sub-areas in the analysis (i.e., Downtown Miami, Miami Beach, Watson Island, and Terminal Island). Through links,

⁴ Transportation Research Board, *Report 129: Local and Regional Funding Mechanism for Public Transportation*, Transit Cooperative Research Program, 2009.

assumptions from the Master Sheet are combined with details of every parcel in the sub-area to calculate the annual revenue generated by the assessment districts or TIF for the sub-area.

3) Finally, a Summary workbook combines the results of each sub-area into a total value capture result for the entire study area, and analyzes the bonding capacity of the revenue flows.

G. Policy Considerations

It is important to recognize that this Report and the accompanying Value Capture Model are intended to serve tools for County leaders to evaluate the potential for value capture to fund the cost of developing new transit. This leads to two key considerations in understanding the findings of this report.

First, assumed rates for assessment district and parking fees selected by the Research Team for the Report are *examples, not recommendations*. The examples were selected based on the ranges found in other cities, and to ensure that the revenue generated by the different real estate options is of a similar magnitude.

Second, the Value Capture Model can be used for other transit corridors. All that is needed is to acquire data on current land uses, property/building values, and zoning codes in the new study areas, which can then be incorporated into the Master Sheet. Assumptions can then be adjusted to reflect the characteristics of the new study corridor.

II. Value Capture Financing

A. Real Estate Value Capture Techniques Analyzed

1. Benefit Assessment District

A benefit assessment district⁵ (AD) is a special tax or fee assessment area created to support the construction and/or operation of new transit service. A typical AD creates a zone around the stations, with property owners within the zone paying a tax or fee based on real estate valuation of such property (ad valorem benefit assessment), or a levy per square foot of floor area (specific benefit assessment). Frequently, residential property is exempted from the benefit assessment. Assessments can also be “tiered” to reflect the fact that properties nearer to the station have higher benefit. In special cases, as with the Dulles Metrorail extension in Fairfax County, a benefit assessment district may cover an entire rail corridor.

Because businesses must pay higher taxes in an AD, the districts can be controversial, and are only appropriate under certain conditions. ADs are most successful where new transit service can be shown to correlate strongly with increased sales at local businesses. The CITT 2009 report contains further details on ADs.

There are a number of projects where assessment districts have been used to help fund new transit. One of the earliest was in 1993, for the Metro Red Line (Segment One) subway in Los Angeles. There, the yearly assessment rate was determined by dividing the annual bond repayment by the assessable square footage. The assessment rate was levied on the gross square footage of the assessable improvement or parcel area (whichever was greater). Assessments ranged from about \$0.17 to \$0.30 per square foot, and would terminate once the 15-year bonds were retired. The special assessments excluded certain properties including residential, non-profit, and public properties. Finally, benefit assessments were leveraged to pay for debt service and provided approximately 9 percent of the total Segment One costs.

The Dulles Corridor Metrorail Project, a 23-mile extension of the existing metro rail system that will be operated by the Washington Metropolitan Area Transportation Authority (WMATA), is another good example for using an AD. Being built in two phases, the projected is expected to cost \$5.25 B, of which \$400 million (M) for the first phase is funded by an innovative AD that covers not just station areas, but includes land around the corridor in Fairfax County. The benefit assessment comes from the imposition of a voluntary tax on commercial and industrial properties within the Dulles Rail Phase 1 Transportation Improvement District, which was created by Fairfax County in 2004 for this specific purpose.⁶

The Seattle South Lake Union streetcar capital cost was funded up to 47 percent (\$25 M of the \$53 M project cost), through a benefit assessment district. A similar district was created to help fund the Portland streetcar, representing about 17 percent of the first phase of development,

⁵ Benefit assessment districts are also sometimes referred to as special assessment districts, local improvement districts, business improvement districts, and others.

⁶ See CITT 2009 Report for further details about this project.

and about 20 percent for each subsequent phase. In Portland, in addition to commercial real estate, non-owner occupied properties were included in the improvement district.

2. Tax Increment Financing

Similar to a benefit assessment district, tax increment financing (TIF) involves the creation of an assessment area. However, unlike an AD, property owners in the TIF assessment area pay no additional tax or fee on their property. Rather, the TIF district retains any increases in real estate taxes as property values rise and new development occurs due to the new transit service. Because they do not involve additional taxes or fees, TIF districts are more politically palatable than ADs. However, they are not without controversy, since they divert revenue otherwise going to the general fund. Furthermore, a TIF district may be most successful in economically disadvantaged neighborhoods that will enjoy growth due to transit.

TIF is being used to extensively finance transit development within the U.S. For instance, the San Francisco Transbay Transit Center, a multi-modal transit center in downtown San Francisco, was funded with expected TIF revenue of \$1.4B, amounting to 33% of the total project cost. The Portland streetcar, discussed earlier, also had a TIF component, which helped raise \$21.5M in bonds constituting about 21% of the cost. Appendix 2 contains a table with information on various transportation projects that have used value capture financing.

B. Real Estate Value Capture Methodology

Based on the above understanding of value capture, this Report estimates the potential for value capture financing of a fixed-route rail line from Miami to Convention Center at South Beach. The development of a new fixed-route transit line will generate value to owners of real estate in two interrelated ways. First, via increased real estate values near the transit stations, which is reflected as the **value premium**. Second, the presence of a transit system encourages **higher density of development** (as permitted by the applicable zoning regulation), on the land parcels around the transit system. The estimates are focused on identifying the potential revenues from special assessments and incremental tax financing.

This section on methodology outlines the key assumptions behind the estimates prepared by the Research Team. A step-by-step guide to the calculation of the potential value capture estimates is provided in Appendix 4. Note the Value Capture Model allows changing the amounts assumed as discussed below, to apply as needed to new example projects.

1. Key Assumptions

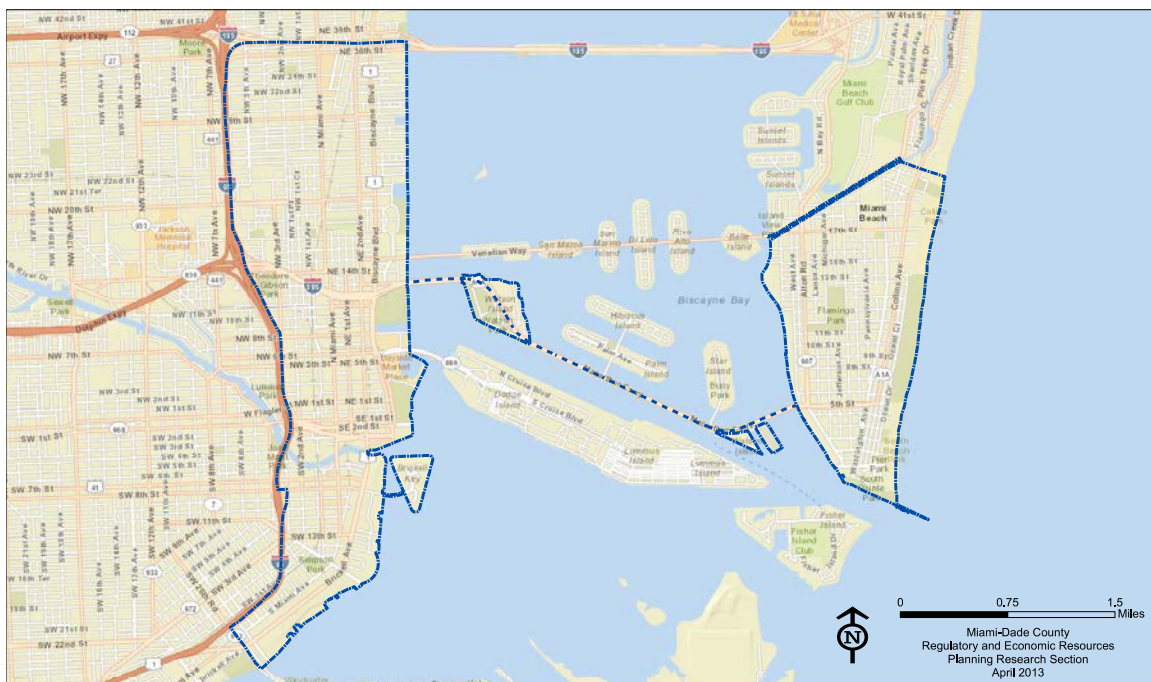
a. Geographical Area of Impact

Identification of the geographical area benefitting from the development of a transit station, which would be subjected to value capture is the critical first step. Research indicates that the geographical area of impact is wider for residential zones than for commercial zones. Typically, it ranges from about 1/2 mile for commercial real estate to a little less than 2/3 mile for

residential real estate.⁷ For instance, in the case of WMATA's New York Avenue Metro Station, only properties within 1/2 mile were assessed for benefits assessment. Similarly, in the case of Los Angeles Red Line Segment One Assessment District (District A1), 1/2 mile was the chosen geographical area.⁸

The geographical area for this study is unique in that Miami Beach is less than 1.5 miles wide. With the route alignment and station locations not outside the scope of this analysis, it makes practical sense to include the entire Beach area south of Dade Boulevard, where the Miami Beach Convention Center is located, in the analysis area. The causeway connection between the mainland and the Beach includes two areas, Terminal Island and Watson Island, with commercial activity that is included in the analysis. In Miami, since the alignment and station locations are similarly outside the analysis scope and the Project will provide connectivity benefits to existing fixed-route transit, the Greater Downtown Study Area, as defined by the Miami Downtown Development Authority, is included in the analysis.

Figure 1: Geographical Area of Analysis



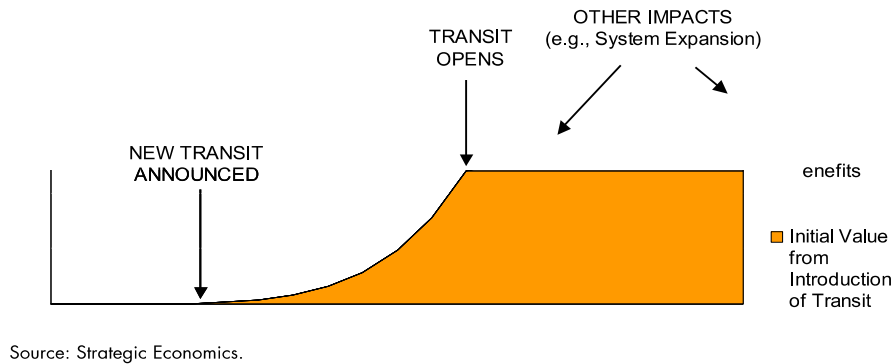
b. Time Period of Impact

Changes in real estate values due to the value premium and density of development could occur before the completion of the transit system (i.e., in anticipation of its completion), upon the completion, and in the long-term, as shown in Figure 2 below.

⁷ "Developing a Methodology to Capture Land Value Uplift Around Transport Facilities" available at <http://www.scotland.gov.uk/Publications/2004/11/20385/48337>.

⁸ Shishir Mathur and Adam Smith, *A Decision-Support Framework For Using Value Capture to Fund Public Transit: Analyses*, Mineta Transportation Institute, 2012.

Figure 2: The Value Premium from Transit Curve



Land use impacts and value premium are likely to accrue in an incremental manner over time based on how quickly the benefits of the transit system are realized. Therefore, the Research Team created growth schedules for each element for the project analysis period. In this schedule, the Research Team assumed that 50% of the value premium will accrue equally in the first five years, and the rest of the value premium will be realized equally over a period of 30 years, the chosen time horizon for the estimates.

A 30-year period was chosen for this analysis since this duration is a reasonable period to realize the full effects of value premium and changes in real estate. Furthermore, this corresponds with typical duration of long-term debt that the County issues.

c. Land and Building Values

The assessed value provided by the Miami-Dade County Property Appraiser is a combination of both land value and building value. The data available provided separate land and building values creating total market value (but not assessed value), for each parcel. The Research Team used the market value split as a proxy for determining the assessed land and building values.

d. Value Premium

The value premium attributable to real estate by virtue of the development of a nearby transit system is variable. Authoritative research on the precise impact is hard come by as the value of real estate is affected by several contextual variables⁹, including the scope of the transit infrastructure, real estate market conditions, traffic congestion and other neighborhood

⁹ Matthew Doherty, *Funding Public Transport Development through Land Value Capture Programs*.

qualities.¹⁰ One research study found that the value premium could range from 5-10% on residential real estate values and 10-30% on commercial real estate values.¹¹ Appendix 3 details the extent of value premium experienced near several completed transit projects in the U.S. Based on the review of literature on value capture, the Research Team has assumed a premium of 25% on the land value and 5% on the building value, as the Report's central/base case for Miami Beach, Terminal Island, and Watson Island. In the case of Downtown Miami, the central/base case was 7.5% on the land value and 5% on the building value.

It should be noted that the value premium may be different for commercial zoning districts and non-commercial zoning districts. For the Report, the Research Team assumed the same value premium for all the zones under consideration.

e. Intensity of Development

As discussed above, one of ways in which transit infrastructure enhances the value of real estate is by encouraging larger buildings in the vicinity of the transit line. That is, the availability of fixed-route transit encourages more intense (higher density) development of the land parcels subject to the maximum floor area ratio allowed in the respective zoning district. However, the higher-intensity development in the zoning districts will not occur immediately; rather, it will be incremental due to long lead times to plan and develop real estate, as well as market factors. Therefore, the Research Team created a schedule for the growth in the intensity of development wherein it is assumed that the future floor area development will occur steadily each year across the 30-year time horizon to reach the maximum development.

Furthermore, development up to the maximum floor area ratio (FAR) permitted under the zoning code is not a likely result for every land parcel, as not every property owner will choose to increase building size. In a study relating to Portland Central Business District, it was found that properties within two blocks of the streetcar line realized 75 percent to 90 percent of the FAR allowed by the zoning, compared with development at 43 percent for properties located more than three blocks from the line.¹² The Research Team therefore assumed that only 70% of the maximum potential FAR development would be achieved.

f. Types of Properties Included in the Analysis

The Research Team classified properties in the study area into two categories: one, properties that would be include in assessment districts for value capture, and, two, land uses that are excluded from assessment (e.g. residential, governmental, and non-profit land uses).

C. Value Capture Results

The following tables show the key results of the real estate value capture analysis. Table 1 details the total revenue expected over a 30-year period from each of the three value capture

¹⁰ Nadine Fogarty, et al., *Capturing the Value of Transit*, Center for Transit-Oriented Development, 2008.

¹¹ Matthew Doherty, *Funding Public Transport Development through Land Value Capture Programs*.

¹² E.D. Hovee & Company. *Portland Streetcar Development Impacts*, November 2005 c.f. Nadine Fogarty, et al., *Capturing the Value of Transit*, Center for Transit-Oriented Development, 2008.

techniques (i.e., AD 1, AD 2, and TIF). The table also includes the bonding capacity for the revenue streams, which is the amount of funds that could be utilized to pay for new transit service under the assumptions described above.

In addition, Table 1 incorporates several analysis scenarios. The three results rows vary the assumed pace of development towards the maximum assumed FAR, from a slow-growth scenario that assumes half of new development in twenty years over the 30-year period to the fast growth which assumes half of new development occurs in the first five years.

Second, the results for each value capture technique include ranges based on the land value premium and building value premium generated by the new fixed-route transit service. The analysis includes three premium levels, which create the ranges. It should be noted that the assumed land and building value premiums are lower for Downtown Miami than for the other analysis districts for two reasons: first, because the study area for Downtown Miami includes the geographically-large downtown development area, and second because the new transit will have a smaller marginal impact on the amount of transit service available since Downtown Miami is already served by MetroMover and Metro Rail.

Table 2 details the nominal value capture revenue and bonding capacity for each of the four study areas (Downtown Miami, Watson Island, Terminal Island, and Miami Beach). For simplicity, only the mid-level case for land and building value premium is included in Table 2.

As shown in the table, the total bonding capacity generated by real estate value capture is likely to range from \$306M to \$429M for AD 1 and AD 2, depending on the scenario. These results are based on assumptions described above; if additional funds are required, policy makers could chose to increase the benefit assessment levels. TIF bonding capacity ranges from \$221M to \$461M, depending on the pace of development.

Table 1: Value Capture Financing Estimates - All Stations						
All Stations	Assessment District 1		Assessment District 2		Tax Increment Financing	
<i>USD Million</i>	Bonding Capacity (After Issuance Fees & Debt Service Reserve)	Nominal Value Capture Revenue	Bonding Capacity (After Issuance Fees & Debt Service Reserve)	Nominal Value Capture Revenue	Bonding Capacity (After Issuance Fees & Debt Service Reserve)	Nominal Value Capture Revenue
Slow Growth - 50% of New Development in 20 Years	306 - 321	796 - 844	306	882	221 - 318	726 - 1,024
Medium Growth - 50% of New Development in 10 Years	332 - 348	861 - 911	380	1,066	305 - 404	932 - 1,241
Fast Growth - 50% of New Development in 5 Years	350 - 366	893 - 945	429	1,158	360 - 461	1,036 - 1,347
<p>Note:</p> <p>Assessment District 1 - benefit assessment of \$ 2 for every \$ 1000 of Assessed Value</p> <p>Assessment District 2 - benefit assessment of \$ 0.20 per square foot of floor area</p> <p>The ranges in estimates are due to various cases, which include: 1) 15% land value premium and 0% building value premium; 2) 25% land value premium and 5% building value premium; and 3) 30% land value premium and 10% building value premium. In the case of Downtown Miami, the cases include: 1) 5% land value premium and 0% building value premium; 2) 7.5% land value premium and 5% building value premium; and 3) 10% land value premium and 10% building value premium.</p>						

Table 2: Value Capture Financing Estimates						
	Assessment District 1		Assessment District 2		Tax Increment Financing	
<i>USD Million</i>	Bonding Capacity	Nominal Value Capture Revenue	Bonding Capacity	Nominal Value Capture Revenue	Bonding Capacity	Nominal Value Capture Revenue
Miami Beach						
Slow Growth - 50% of New Development in 20 Years	128	331	39	98	122	378
Medium Growth - 50% of New Development in 10 Years	136	351	41	103	144	432
Fast Growth - 50% of New Development in 5 Years	141	361	42	105	158	458
Downtown Miami						
Slow Growth - 50% of New Development in 20 Years	185	485	263	772	150	501
Medium Growth - 50% of New Development in 10 Years	202	528	333	947	211	653
Fast Growth - 50% of New Development in 5 Years	214	550	380	1,034	251	729
Terminal Island Station						
Slow Growth - 50% of New Development in 20 Years	0.4	1.1	0.4	1.5	1.6	5.5
Medium Growth - 50% of New Development in 10 Years	0.4	1.2	0.7	2.1	2.3	7.3
Fast Growth - 50% of New Development in 5 Years	0.5	1.3	0.82	2.3	2.8	8.1

Table 2: Value Capture Financing Estimates						
	Assessment District 1		Assessment District 2		Tax Increment Financing	
<i>USD Million</i>	Bonding Capacity	Nominal Value Capture Revenue	Bonding Capacity	Nominal Value Capture Revenue	Bonding Capacity	Nominal Value Capture Revenue
Watson Island Station						
Slow Growth - 50% of New Development in 20 Years	2.1	6.6	3.1	10.6	3.5	12.1
Medium Growth - 50% of New Development in 10 Years	2.9	8.5	4.7	14.5	5.3	16.5
Fast Growth - 50% of New Development in 5 Years	3.4	9.5	5.8	16.5	6.5	18.8
TOTAL						
Slow Growth - 50% of New Development in 20 Years	315.0	823.0	305.8	882.4	277.3	897.0
Medium Growth - 50% of New Development in 10 Years	341.5	889.0	379.7	1,066.0	362.3	1,108.9
Fast Growth - 50% of New Development in 5 Years	358.9	921.8	428.8	1,157.7	418.4	1,214.0
Note: Assessment District 1 - benefit assessment of \$ 2 for every \$ 1000 of Assessed Value Assessment District 2 - benefit assessment of \$ 0.20 per square foot of floor area The figures are mid-case numbers based on 25% land value premium and 5% building value premium. In the case of Downtown Miami, the mid-case is based on 7.5% land value premium and 5% building value.						

III. Parking Revenue

Parking fees are another potential mechanism that could be leveraged, and the Research Team sought to estimate prospective revenue in the Study Area described below, to help fund the construction and/or operation of the fixed-route transit line. Furthermore, the estimates in the scenarios presented in this Report are examples provided for County leaders and stakeholders to evaluate the potential of this revenue source, not as recommendations – same as the value capture analysis.

The Research Team evaluated parking space revenues, focusing on the South Beach zone (south of 23rd Street) in the City of Miami Beach's Parking Department, which is slightly larger than the Study Area (south of 17th Street) studied for the value capture scenarios (see Geographical Area of Impact section (II)(B)(1)(a), Figure 1, page 14). Using the City's area segmentation provided more readily-available historical data, without materially affecting the analysis.

The Research Team evaluated parking space revenues in the Greater Downtown Study Area, as defined by the Miami Downtown Development Authority (Miami DDA) and corresponds to the area studied for the value capture scenarios (also Figure 1, page 14). Historical aggregate as well as current detailed data were available for parking in the Study Area. The primary differences for the data sources were among sub-areas within the Study Area: Brickell, Central Business District (CBD) and Omni as commonly referenced by the Miami DDA; and Downtown, Overtown and the Wynwood-Edgewater neighborhoods as referenced by Complete Consulting Services Group (CCSG), the parking surcharge administrator for the City of Miami.

A. Legislative and Policy

In 2003 the Florida Legislature adopted Florida Statute 166.271 authorizing certain municipalities to impose a discretionary per vehicle surcharge of up to 15 % of the amount charged for the sale, lease, or rental of space at parking facilities (except airports, seaports, county administration buildings). Only municipalities with population over 200,000 can levy the surcharge. In Miami-Dade County there are only two municipalities which qualify – City of Miami and City of Hialeah. The statute also requires "no less than 60 percent and no more than 80 percent of surcharge proceeds shall be used to reduce the municipality's ad valorem tax millage or to reduce or eliminate non-ad valorem assessments." In 2004 the City Commission passed Ordinance No. 12563 which imposed a surcharge on the sale, lease, or rental of space at parking facilities in the City of Miami at the maximum rate of 15%. Municipal on-street, residential and others deemed by the City were also exempted from its surcharge policy.¹³

B. Parking Industry and Inventory

Public use parking is privately or publicly managed parking infrastructure that can be used by any member of the public, and therefore excludes resident-, employee- or patron-only parking.

1. Miami Beach

The City of Miami Beach Parking Department is the sole public sector operator and is the single largest provider of parking in the City. The department manages and operates 66 metered surface parking lots

¹³ CITT-FIU Metropolitan Center, Parking Surcharge Study, 2012

and 10 garages for a total of more than 11,100 spaces combined municipal off-street parking citywide (including over 8,000 in the Study Area)¹⁴. It also handles about 8,500 on-street parking spaces throughout the city and around 1,500 in the Study Area. The City's parking system includes residential permit programs and special event parking programs.¹⁵

The City of Miami Beach is responsible for setting parking rates.¹⁶ Meter rates and time limits are established based on the demographics of each area, with consideration given to level of parking activity and market rates for off-street parking.

Miami Beach's Parking System Fund accounts for the parking operations of the City and is one of its four major proprietary funds; this enterprise Fund had reported operating revenues in FY 2012 of \$36.82 M from charges for services, and \$5.52M from permits, rental and other fees. The City of Miami Beach has pledged parking revenues for parking system indebtedness, and according to the City's Comprehensive Annual Financial Report for FY 2012, the total principal and interest remaining to be paid on the outstanding Parking Debt is approximately \$75.6 million. Principal and interest paid in FY 2012 was approximately \$4 million (pages 68 and 128).

According to a study, Analysis of Revenue Enhancement Opportunities through Parking Fees, prepared by the Florida International University in 2012 ("FIU 2012 Study"), there are about 6,700 private facility spaces throughout the city.

2. Downtown Miami

The publicly managed parking in Miami is operated by two entities: City of Miami, via Miami Parking Authority (MPA), which is officially known as Department of Off Street Parking (DOSP), is an agency of the City, and manages over 36,000 spaces citywide including 14 garages, 86 surface lots, and 11,300 on-street spaces; and Miami-Dade County, via either the Internal Services Department (ISD) Parking Operations or Miami-Dade Transit (MDT). ISD manages over 5,000 parking spaces at approximately 12 parking locations throughout the areas of Downtown Miami and the Civic Center; the latter is not part of the Study Area of this Report. MDT manages about 9,600 spaces at 17 stations as part of Metrorail, including about 1,000 spaces among 5 stations in Miami; however, none in the Study Area. Table 4 on the following page shows there are about 15,500 total public-operated spaces in the Study Area: 9,400 MPA garage & lots, 4,600 Miami-Dade, 2,500 on-street.

The Comprehensive Annual Financial Report (CAFR) for the City of Miami and the Annual Report of the Miami Parking Authority for FY 2012 reported revenues for parking lots, on-street parking, and off-street parking at \$25.4 M; and after including management/administrative and other fees, total charges for services about \$26.5 M; and total overall revenue of \$29.1 M with investment earnings. The FY 2012 CAFR presents an estimate of the average revenue per space for the City of Miami of \$1,172.¹⁷ It is

¹⁴ From Miami Beach "Lot and Garage Locator" on website, accessed 10/30/2013

¹⁵ From website <http://web.miamibeachfl.gov/parking/>, accessed 10/30/2013.

¹⁶ At the beginning of Fiscal Year 2012, the Parking System hourly rates for metered parking, in the South Beach Parking Zone, were increased by \$.25 or 16.6%, from \$1.50 to \$1.75. The hours of enforcement for this parking zone continue to be 9 AM to 3 AM. Metered parking hourly rates in the middle and north areas continue to be \$1.00 and hours of enforcement are 8 AM to 6 PM.

¹⁷ Available at <http://www.miamigov.com>.

important also to note, the City has pledged 20% of the City's Parking Surcharge as one of three sources of future revenue proceeds through 2039 to repay 2 series of Special Obligation Revenue Bonds (Miami 2012 CAFR, page 59); fixed rate revenue bonds on behalf of DOSP (page 60).

The majority of available parking within the Study Area is provided by the private sector. Private sector operators range from valets and lots connected with an individual hotel, restaurant or entertainment venue, to larger parking operator organizations managing garages and lots which support commuters, special events and downtown business patrons. Some private operators found include Central Parking System, Park West Parking, and American Car Parks.

For information on rates, enforcement and payment methods, please refer to "Impact of Parking Supply and Demand Management on Central Business District (CBD) Traffic Congestion, Transit Performance and Sustainable Land Use" (July 2012 Final Report), prepared for Florida Department of Transportation by the University of Florida Department of Urban and Regional Planning. (Note that FDOT report has a narrower focus than this Report's Study Area.)

A parking inventory compiled for the Study Area shows that it is relatively available (over 60,000 spaces) and relatively inexpensive.¹⁸ Table 3 below summarizes the universe of parking in downtown Miami, based on reviewing inventory data from the July 2012 FDOT/UF CBD Parking Study's Appendix E and from September 2013 extract of surcharge database from CCSG.

Table 3: Parking Inventory for Greater Downtown Study Area in Miami					
	Surface Lot	Garage	On Street	Other	Total
Public Facilities					
Downtown	4,000	7,200	2,500	-	13,700
Overtown	1,500	-	-	-	1,500
Wynwood-Edgewater	300	-	-	-	300
Subtotal Public	5,800	7,200	2,500	-	15,500
Private Facilities					
Downtown	12,300	26,000	-	4,300	42,600
Wynwood-Edgewater	700	3,500	-	200	4,400
Subtotal Private	13,000	29,500	-	4,500	47,000
Grand Total Study Area	18,800	36,700	2,500	4,500	62,500
Source: Research Team Estimates based on CCSG and FDOT/UF Report data					

¹⁸ "A 2011 survey confirmed that daily and hourly parking rates in Miami are below the National average. A large supply of low-cost parking undermines congestion mitigation objectives, such as increased vehicle occupancy and transit use." (FDOT/UF CBD Parking Study, July 2012 Final Report, page 15)

C. Methodology

In light of the policy and regulatory environment described above in Section (III)(A) above, there appear to be three options for parking revenue opportunities that could be applied for supporting the rapid transit project.

First, the public agencies could raise rates, and pledge or dedicate incremental parking services fee revenues to fund the transit project. For example, MPA already annually provides excess revenue distribution to the City of Miami as guided by 1998 bond ordinance section 509, such as \$6.0M of MPA's \$28.0 M total FY2012 expenses, per MPA Annual Report. Similarly in Miami Beach for 2012, \$7.7 million was transferred from the Parking Systems fund to that City's general fund for operating activities (CAFR, pages 61-62). In each case, the public parking operator would not affect any covenants or restrictions of revenues pledged to date. This option has the benefit of being both the most directly implementable as well as contributing to policy goals identified in the 2012 FDOT/UF study recommendations (congestion management, capacity utilization, equitably bearing parking costs, etc.).

A second approach could apply to the City of Miami. Within the current legal structure, surcharge rate cannot be raised beyond the currently allowed 15%; the City could apply incremental future Surcharge revenue and fund the project as receipts increased after a certain point, such as by private sector future expansion of facilities or improved market rates. The City would freeze surcharge revenue at current levels for current uses & covenants. Among the projects currently in process are Brickell City Center (expected 3,100 spaces in two-level underground garage), Miami Central Station (proposed with 1,000-space Overtown Parking Garage, plus parking being considered at downtown bus terminal) and Design District (recommended mixed-use special area plan as amended up to 3,800 spaces). The projected incremental inventory is expected to include some non-publicly-available parking such as residential. However, it also is difficult to estimate the impact of significant developments on market rates and operator revenue, and on ensuing surcharge collections.

The third (longer term) option is that it may be feasible to work with the Legislature to amend FS 166.271 – for example, to raise the maximum allowable surcharge or broaden the allowable uses or applicable municipal jurisdictions.

Similar to the estimating methodology under the real estate value capture mechanisms, parking fees and rates of development are difficult to predict with accuracy because of changes due to larger economic issues (e.g., the Great Recession) that cannot be predicted accurately. Changes in the assumed rate of growth in parking revenues and the time in which the study area develops toward the maximum allowed alter the findings. For this reason, low, medium and high growth scenarios are provided in the report. Based on these estimated parking surcharge revenues, a bonding capacity was calculated.¹⁹

D. Parking Revenue Estimates

1. Future public sector revenue growth

To determine levels for low, medium and high-growth rate scenarios, historical trends for public sector parking fee revenue were examined. Table 4 below shows five years' revenue from each CAFR, and

¹⁹ Please see Appendix 4 for the bonding capacity calculation methodology.

excludes administrative fees, rentals, other (ancillary) operating revenue, as well as non-operating revenue. Miami-Dade County CAFR does not separately report parking financials; however, its inventory is approximately one-sixth of MPA (6,000 versus 36,000) as described in Section (III)(B)(2).

Table 4: Citywide charges for services to parking customers by Public Operator (millions)							
Revenue	2008	2009	2010	2011	2012	5-year Growth Rate	Projected growth as increment basis
Miami Beach	\$25.6	\$28.3	\$30.0	\$34.9	\$36.8	10.9% per year	\$4.0
MPA	\$19.5	\$20.8	\$22.5	\$24.2	\$25.4	7.5% per year	\$1.9

Thus 5%, 10% and 15% growth rates appear as reasonable assumptions for the three scenarios and yield the following examples shown in Table 5.

Table 5: Parking Revenue Financing Estimates – Incremental Public Operator Rates (millions)				
	30-year cumulative revenue			Bonding Cap Range
	Low 5%	Medium (10%)	High (15%)	
Miami Beach	\$279	\$724	\$1,999	\$94 - \$484
Miami	\$132	\$344	\$950	\$44 - \$230

Beginning from a first year shown in Table 4 as \$4.0 M for Miami Beach may generate between \$279 M and nearly \$2 B over 30 years in parking revenue in Miami Beach, which may be leveraged for \$100 M or more bonding capacity. Beginning first-year \$1.9 M for Miami may generate \$132 M to nearly \$1 B over 30 years in parking revenue in the Downtown Study Area, and \$44 M or more bonding capacity.

2. Future Surcharge revenue growth on added private-operator inventory

CCSG data records for FY2012 show City of Miami Parking Surcharge revenue was approximately \$14.1 M for the Downtown Study Area (operators' revenue indicated as \$94.1M in the Area). This was on reported inventory of 50,000 spaces²⁰.

To gauge the scale of potential incremental revenues from the Study Area for a potential rapid transit project, Table 6 presents low, medium and high growth scenarios in inventory (not prices) similar to the ones analyzed for value capture revenue. For the approach of utilizing growth of Surcharge revenue, the assumed pace of development included half of the example 20% increase in garage parking supply for the 30-year analysis period for the respective scenario: over 15 (low), 10 (medium), or 5 years (high growth). Parking rates were kept unchanged for simpler, consistent examples.

Table 6: Parking Revenue Financing Estimates, added Private Operator Inventory (millions)				
	30-year cumulative Surcharge revenue			Bonding Cap Range
	Low (15 years, +10% inventory)	Medium (10 years, +10% inventory)	High (5 years, +10% inventory)	
Miami	\$47	\$54	\$62	\$14 - \$21

²⁰ It is noted this total differs from Research Team estimates in (III)(B) of the 47,000 available in the Study Area, primarily due to sources' identifying Museum Tower spaces.

The above table illustrates that the limited pricing potential of the downtown Miami parking market (described in Section (III)(B)(2) above) does not appear a strong candidate for generating significant incremental cash flow from surcharge on operators' revenue, as a standalone source for the potential rapid transit project.

3. Expanded surcharge via legislation

Implementing revenue to apply to the fixed route transit project from expansion of the state statute regarding the parking surcharge could include increasing the maximum allowed rate (applicable to Miami currently at 15%) and broadening the allowable jurisdictions to include Miami Beach. For the purposes of this Report, only example revenue amounts are presented here; action plan details such as timeframe are outside this study's scope and thus the approach is far more unknown or uncertain.

As an example of potential revenue from revised legislation – to raise the surcharge by five percentage points, to a total 20% – could add \$4.7 M the first year in the Downtown Study Area (based on \$14.1 M surcharge collections reported by CCSG as noted above). The range of incremental revenues over 30 years, using growth rate scenarios of 5-15% as outlined earlier, is estimated as \$327 M to \$2.3 B, and its estimated bonding capacity is \$122 M to \$632 M.

As further example of potential revenue from revised legislation – to allow Miami Beach to collect a 20% surcharge as well – the first year could add \$0.6 M, assuming one-eighth the scale of current collections as Downtown study area of Miami. (Previous study estimated private parking in Miami Beach as 6,700 spaces, however operator revenue is unavailable; CCSG identified study area inventory as 50,000 spaces.) Using same 5-15% growth scenarios, the range of 30-year incremental revenues is estimated \$40 M to \$290 M, and bonding capacity is estimated \$15 M to \$79 M.

4. Parking revenue example results

The following Table 7 shows the key results of the parking revenue analysis, detailing the bonding capacity for combining two potential revenue sources: increased public operator rates and incremental private operator inventory. In addition, the range reflects all three growth scenarios. The table excludes the third potential source of expanded legislation, in light of much greater range of unknown or uncertain implementation aspects such as initial lead time.

Table 7: Bonding Capacity of Combined 30-year Parking Revenue Approaches, millions			
	Downtown Miami	Miami Beach	Total
Increment of Public Rates Increased	\$44 - \$230	\$94 - \$484	\$138 - \$714
Incremental Surcharge of Private Supply	\$14 - \$21	Not yet applicable	\$14 - \$21
Total	\$58 - \$251	\$94 - \$484	\$152 - \$735

These results are based on assumptions described above, and provided as example mechanisms for consideration by policy makers on potential sources and levels to support innovative financing for a prospective rapid transit project.

IV. Alternative Financing

Besides the innovative sources of finance such as value capture and parking revenues, this Report also briefly explores alternative sources of financing available for transit development. Three specific alternative sources of finance are dealt with below. The Report does not deal with other sources of alternative finance such as P3s including availability payments.

A. Transportation Infrastructure Finance and Innovation Act (TIFIA)

TIFIA is a federal loan program sponsored by the U.S. Department of Transportation. Initiated in 1998, TIFIA provides subordinate, patient capital to projects meeting its criteria. TIFIA may also provide a line of credit or loan guarantee to support a transportation project. TIFIA loans are a powerful tool for transportation projects because they can be structured to delay principal repayment, they are subordinate to senior bonds (although there is a “springing lien” right in the case of default), and have low interest rates.

The interest rate on the TIFIA loan is set at the equivalent U.S. Treasury rate plus one basis point. For a 35-year TIFIA loan, the rate would be 3.64% (as of July 9, 2013). Of course, this rate can change every day. Currently such rates are highly competitive with comparable financing alternatives, such as tax-exempt or taxable debt.

In general the following projects are eligible for TIFIA financing or credit support: highway facilities, transit projects, rail projects, public freight rail facilities, and certain port facilities.

Under the Moving Ahead for Progress in the 21st Century Act (MAP-21) legislation passed in 2012, several important changes have been made to the TIFIA program:

- 1) Increasing authorization from \$122M in past years to \$750M in FY 2013 and \$1B in FY 2014 in TIFIA budget authority from the Highway Trust Fund to pay the subsidy cost of credit assistance. After reductions for administrative expenses and application of the annual obligation limitation, TIFIA will have approximately \$690M available in FY 2013 and \$920M in FY 2014 to provide credit subsidy support to projects. Although dependent on the individual risk profile of each credit instrument, collectively, and based on historic subsidy costs, this budget authority could support approximately \$6.9B in lending capacity in FY 2013 and \$9.2B in lending capacity in FY 2014.
- 2) Expanding eligibility to include related improvement projects grouped together, so long as the individual components are eligible and the related projects are secured by a common pledge. This is particularly relevant for transit projects that may rely on a sales tax pledge, allowing transit sponsors to finance several projects over a period of time with a series of TIFIA loans, similar to a bank credit facility.
- 3) Increasing the percent of eligible project costs that can be covered by a TIFIA loan from 33% to 49%, if the project can demonstrate the overwhelming benefits of that increase.

The increase in the TIFIA program partially addresses the tremendous demand for TIFIA among a variety of projects throughout the US. This demand grew in part due to the tight credit environment in the recession as well as the attractiveness of the TIFIA terms for major, new transportation projects.

However, with the increased availability a number of new projects have sought TIFIA funding as evidenced in the 28 letters of interest submitted to TIFIA as of January 17, 2013. All told these projects add up to \$41.3B. If sponsors of these projects sought 33% of projects costs, this would amount to \$13.5B of TIFIA financing needed. In theory this amount could be fully covered by the above new TIFIA capacity of approximately \$16.1B in the next two years. Truly assessing whether TIFIA will be oversubscribed or not will depend on whether projects request more or less than the standard 33% project cost, whether they will meet TIFIA eligibility criteria, and whether they will be ready to go to financing. The latter is a key point since large projects that TIFIA loans tend to finance are subject to a variety of project delays, due to environmental issues, obtaining other financing sources, and other issues. TIFIA will not commit to projects that have a high probability of such delays.

Among other key elements of a successful TIFIA proposal are ensuring that the project is creditworthy and has available to it dedicated revenue sources. The TIFIA statute states that the TIFIA credit instrument shall be repayable, in whole or in part, from tolls, user fees or other dedicated revenue sources that also secure the senior project obligations, if there are any. The USDOT interprets "dedicated revenue sources" to include such levies as tolls, user fees, special assessments, tax increment financing, and any portion of a tax or fee that produces revenues that are pledged for the purpose of retiring debt on the project. Furthermore, TIFIA requires each project sponsor to obtain ratings from at least two credit rating agencies, indicating that the project's senior obligations (which may be the TIFIA credit instrument) are rated investment grade (i.e. BBB- or higher).

Besides creditworthiness, the following are the other major eligibility requirements of the project as per MAP-21:

- 1) Fosters partnerships that attract public and private investment for the project.
- 2) Proceeds at an earlier date or can demonstrate reduced lifecycle costs.
- 3) Reduces contribution of Federal grant assistance for the project.
- 4) Project is ready to commence construction in no more than 90 days from execution of a TIFIA credit instrument.

Miami-Dade County has already used TIFIA funding as part of the financing for the Miami Intermodal Center. Further TIFIA opportunities may exist for the Orange Line and the FEC corridor.

B. SIB Loans

The Florida State Infrastructure Bank (SIB) is a FDOT program that provides funding to transportation projects in the state. SIB loans may be subordinate to senior debt, so long as senior debt has a BBB credit rating or better. When funds are available to the SIB program, there is an annual application process. Applicants provide a proposed drawdown and repayment schedule, which may include a number of years with no interest accrual and/or no principal repayment. The applicant also selects the interest rate it would like to pay. However, the SIB program is competitive, and applicants requiring a smaller subsidy (whether from low interest rates or repayment holidays) are more likely to receive funding.

The FDOT SIB program includes two components: Federal-Funded Projects where a portion of SIB loan funds are provided by the federal government for Title 23 projects, and State-Funded Projects entirely funded by Florida that expands eligibility to airports and other facilities. The fixed-route Project and other MDT assets would be eligible for SIB funds.

To date, the Florida SIB program has provided 85 awards totaling nearly \$1.28B, including transit and other transportation projects. As shown in the Table 5 below, SIB awards average \$10.7-\$18M (for Federal and State capitalized accounts), covering 35-40% of project costs. SIB loans tend to be small, with loans over \$25M provided for only four projects: the Jacksonville Port Authority MOL container terminal (\$50M), SR-50 highway lane additions (\$105M), the Miami International Airport 25th Street viaduct (\$49.9M), and the Florida's Turnpike Seminole II project (\$55.5M). However, other projects, including the central Florida commuter rail/Sunrail, MDX expansion, Miami MIC, and Panama City-Bay County airport were selected for multiple SIB awards, often totaling much higher levels.

Table 9: FDOT SIB Loans						
USD Thousands	Project Size		SIB Loan Size		Loan % of Project Cost	
	Federal	State	Federal	State	Federal	State
Minimum	1,900	819	200	819	9%	2%
Maximum	265,300	2,250,000	55,483	105,020	100%	100%
Average	37,921	216,484	10,700	18,232	40%	35%
Median	21,693	53,407	8,361	13,500	30%	25%

C. New Starts Program

The Federal Transit Administration's (FTA) discretionary New Starts program is the federal government's primary financial resource for supporting locally-planned, implemented, and operated transit "guideway" capital investments. Eligible fixed-guideway projects include, but are not limited to, rapid rail, light rail, commuter rail, automated guideway transit, people movers, and exclusive facilities for buses (such as bus rapid transit) and other high occupancy vehicles. In the past, FTA's New Starts program has helped make possible hundreds of new or extended transit fixed guideway systems across the country, varying from heavy to light rail, and commuter rail to bus rapid transit systems. In July 2012, a new authorization was enacted entitled the Moving Ahead for Progress in the 21st Century Act (MAP-21) that changed several aspects of FTA's New Starts program, with a key objective of streamlining the New Starts evaluation process. MAP-21 also introduced a new project justification criterion of "congestion relief".

A New Starts project is defined to mean a new fixed guideway project, or a project that is an extension to an existing fixed guideway, that has a total capital cost of \$250,000,000 or more or for which the project sponsor is requesting \$75,000,000 or more in New Starts funding. Evaluation of proposed New Starts projects are based on summary ratings for two categories of criteria: (1) project justification; and (2) local financial commitment. Within these two categories, projects are evaluated and rated against several criteria. FTA has proposed to give equal weight to the two categories of criteria, and similarly equal weight to the various criteria within these categories.

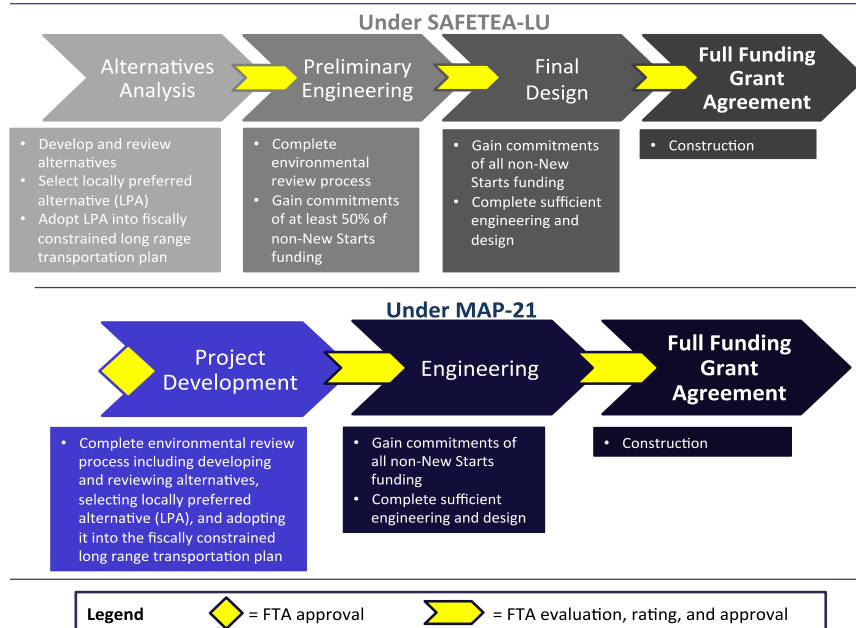
The project justification criteria are as follows: (1) mobility improvements; (2) environmental benefits; (3) congestion relief; (4) economic development effects; (5) cost-effectiveness, as measured by cost per

rider; and (6) existing land use. FTA must find that the proposed project is supported by an acceptable degree of local financial commitment, including evidence of stable and dependable financing sources to construct, maintain and operate the transit system or extension, and maintain and operate the entire public transportation system without requiring a reduction in existing services.

As part of streamlining the New Starts application process, MAP-21 created a “project development” phase, which essentially combines the previous “alternative analysis” and “preliminary engineering” phases. During the project development stage, the local project sponsor is expected to conclude the review required under NEPA, select a locally preferred alternative (LPA), adopt that LPA into the fiscally constrained regional long range transportation plan and develop sufficient information for FTA to evaluate and rate the project. Once “project development” is complete, if the project meets the criteria for advancement, the project will begin the “engineering” phase. Upon completion of “engineering” phase, the project will be eligible for a construction funding commitment. The below figure provides a snapshot of the New Starts process, highlighting the changes brought in by MAP-21.

Figure 3: New Starts Project Development Process

New Starts Project Development Process

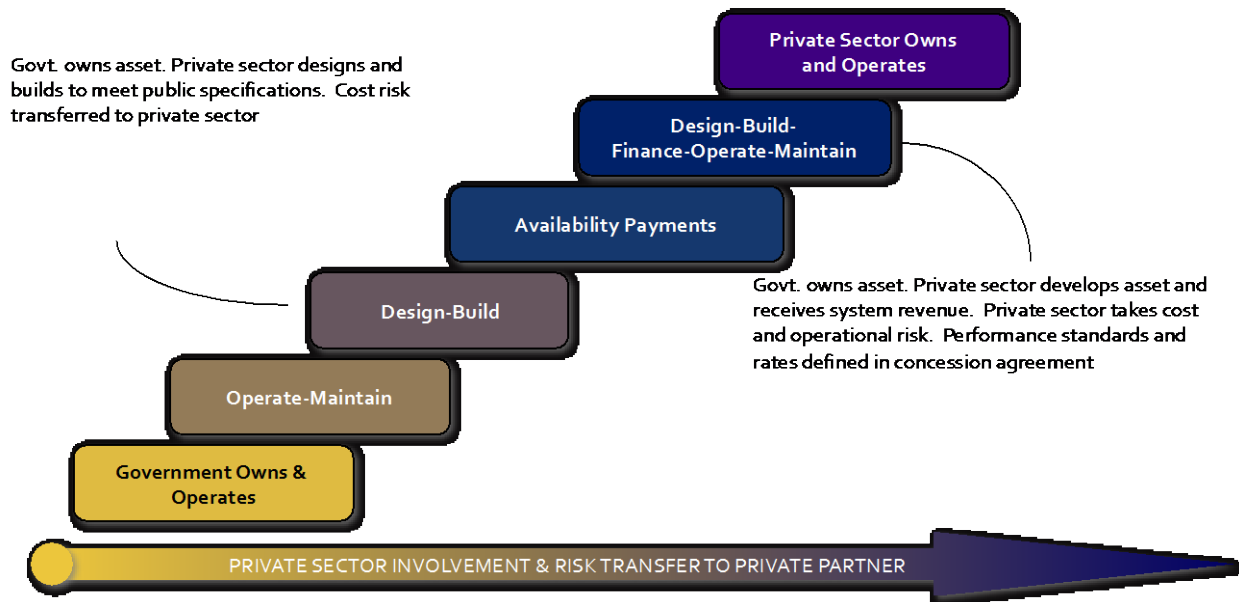


D. Public-Private Partnership

Traditional public transportation projects have involved the use of design-bid-build contracts followed by the public operation of the completed systems. However, in certain cases, the private sector is better situated to manage specific risks, notably certain construction, technology and operational risks. These risks are transferred through some form of agreement between a private sector entity and the public sector project sponsor, in a P3. Through appropriately structured P3s, the private sector can bring in efficiencies due to its ability to manage certain risks better or at a lower cost than the public sector.

The figure below depicts the continuum of project deliver options, from traditional public development to pure private development. Various project delivery options available for consideration are presented below.

Figure 4: Continuum of Project Delivery Options



1. Public Sector Ownership & Operation (Design-Bid-Build)

In this traditional form of project delivery, the design and construction of the facility are conducted by different entities. As a result, the Design-Bid-Build (DBB) process is divided into two separate phases for design and construction. In the design phase, the project sponsor either performs the work in-house or contracts with an engineering and design firm to prepare the preliminary engineering plans and environmental clearance, which typically results in a project plan at the 30 percent completion stage, and the final drawings and specifications for the project. Once the design phase is complete, the project sponsor separately contracts with a private construction firm through a competitive bidding process. Under a DBB delivery approach, the project sponsor, not the construction contractor, is solely responsible for the financing, operation, and maintenance of the facility and assumes the risk that the drawings and specifications are complete and free from error. The DBB selection process is based on negotiated terms with the most qualified firm for the design phase; while the award of the construction contract typically is based on the lowest responsible bid price. The majority of surface transportation projects in the U.S., including most transit capital projects, currently use the DBB approach.

2. Operate-Maintain

In this form of delivery, the public sector still owns the facility and has all responsibility for capital development, but enters into a contract with a private sector entity to operate and maintain the facility. Compensation to the private operator may include incentives based on performance, however, little risk is transferred to the private sector.

3. Design-Build

Unlike DBB, where the design and construction phases of a project are procured using two separate contracts with little or no overlap in the respective project work phases, the Design-Build (DB) delivery approach combines the design and construction phases into one fixed-fee contract. Under a DB contract, the design-builder, not the project sponsor, assumes the risk that the drawings and specifications are free from error. While the design and construction phases are performed under one contract, it is important to note that the design-builder may be one company or a team of companies working together. The DB selection process may be based on a negotiation with one or more contractors or a competitive process based on some combination of price, duration, and qualifications. Increasingly DB contracts are being awarded on the basis of best value, considering each of these factors.

The DB delivery approach is a relatively new process for the transportation industry in the U.S., particularly for transit. Since its introduction in the early 1990s, DB has become a successful, well-established process for delivering major capital projects by the private sector. As other sectors become more successful with DB delivery, transportation agencies are increasingly interested in the potential to apply DB as a means to improve the cost-effectiveness (time, cost, and quality) of traditional contracting practices.

4. Design-Build-Operate-Maintain and Build-Operate-Transfer

Under a Design-Build-Operate-Maintain (DBOM) or Build-Operate-Transfer (BOT) delivery approaches, the selected private sector entity is responsible for the design, construction, operation, and maintenance of the facility for a defined/agreed period of time. The private sector entity must meet all agreed-upon performance standards relating to physical condition, capacity, congestion, and/or ride quality. The potential advantages of the DBOM or BOT approach are the increased incentives for the delivery of a higher quality plan and project because the private partner is responsible for the performance of the facility and for maintaining the project in its complete and fully operational state for a specified period of time after construction. In addition, certain risks, such as construction overruns or delays, are transferred to the private sector. Since 2000, a number of transit projects in the U.S. have been procured as DBOMs including the NJ Transit Hudson-Bergen LRT MOS-1 and MOS-2, the JFK Airtrain, and the Dulles Metrorail.

5. Design-Build-Finance-Operate-Maintain

The Design-Build-Finance-Operate-Maintain (DBFOM) delivery approach is a variation of the DBOM approach. The major difference is that, in addition to the design, construction, operation and maintenance of the project, the private sector is also responsible for some portion of the project's financing. The potential advantages of the DBFOM approach are the same as those under the DBOM approach but also include the transfer of the financial risks to the private sector entity during the contract period. While the project sponsor retains ownership of the facility, the DBFOM approach attracts private financing for the project that can be repaid with revenues generated during the facility's operation. In addition, revenue generated by the public sector through taxes or other public sources can also be used to repay the private financing. Utilizing long-term public sources of revenue to pay down privately financed projects allows the public sector to enjoy the benefits associated with a leveraged project without issuing bonds or otherwise incurring debt on its balance sheet.

6. Availability Payments

One mechanism that can be used to accomplish performance-based compensation in an asset that does not generate sufficient revenue to encourage private investment is an availability payment. Such a mechanism can be used in conjunction with any of the project delivery mechanisms presented above where an on-going maintenance or operational responsibility exists. In such a situation, an availability payment structure would require the private sector entity to accept risk related to the ongoing performance in the design, construction, operations and maintenance of the transit project, while the revenue risk is retained by the public sector. Concessionaires would receive periodic payments based solely on the condition and/or performance of the facility. A portion of future payments to the private sector concessionaire could be withheld if agreed upon levels of performance are not met. In addition, incentive payments associated with higher levels of service can be a component of the payment. Accordingly, this payment structure provides a strong incentive to the private sector to perform at or above specified standards.

Transit project P3s face unique challenges that existing toll roads with dedicated revenue streams do not face. In this system, as with most transit systems, the fare revenue covers less than 50% of operating and maintenance expenses. In order to create a long-term P3, one key challenge is to identify a robust stream of revenues. The use of construction phase “milestone payments” and long-term “availability payments” have emerged as a way to provide a revenue stream for the private party as well as maintain a mutually beneficial contractual relationship for transit and other projects that are not associated with a dedicated funding source. Currently, availability payments have been used in the U.S. for the development of social infrastructure, hospitals, schools and prisons. Florida’s I-595 and the Miami Port Tunnel are successful examples of the use of availability payments in the toll road sector. The Denver Eagle P3 projects are the best examples in the U.S. transit sector.

7. Build-Own-Operate (Private Sector Ownership and Operation)

Under a Build-Own-Operate (BOO) delivery approach, the design, construction, operation, and maintenance of a facility is the responsibility of the contractor. The major difference between BOO and other P3 approaches is that with a BOO approach, the private sector entity owns the facility and is assigned all operating revenue risk and any surplus revenues for the life of the facility. Given transit project’s lack of net revenues, BOOs are rare for these types of projects.

8. Pre-Development Agreements

Pre-Development Agreements (PDAs) are suitable when the public sector sponsor seeks private sector innovation and participation in defining and accelerating an optimally feasible project. The approach is ideal when the overall feasibility of the proposed project has not been determined. PDA contracts are usually awarded in a phased manner; an initial phase to determine feasibility and a secondary flexibly structured implementation phase. The public and private partners co-invest in pre-development activities. Typically, the public sector sponsor retains complete control over the environmental clearance process while the private sector developer/operator performs the necessary technical studies.

If the project proves feasible, the private sector developer/operator has the right of first negotiation for agreements covering the implementation phase. The implementation phase agreements can take the form on any project delivery approach (DBFOM, etc.).

E. New P3 Law in Florida

A new P3 law came into effect in Florida on July 1, 2013, after Governor Rick Scott signed a bill into law authorizing counties, municipalities, school boards and other political subdivisions in the state to enter into P3 agreements to provide for public infrastructure including transportation facilities that “serve a public purpose”. In passing the new law, the legislature acknowledged that “there is a public need for timely and cost-effective” procurement of public infrastructure, but there are “inadequate resources” to develop the same. Furthermore, the legislature stated that P3s have demonstrated that they can meet those public needs by “improving the schedule for delivery, lowering the cost, and providing other benefits to the public.”

The legislature’s purpose is also to encourage investment in the state by private entities; to facilitate various bond financing mechanisms, private capital, and other funding sources for the development and operation of, including expansion and acceleration of such financing to meet the public need; and to provide the greatest possible flexibility to public and private entities contracting for the provision of public services.

Some of the key features of the new law are as follows:

- Creation of a seven-member task force to recommend P3 guidelines, including guidelines related to the factors public entities should consider when procuring a P3 project. The task force is required to submit its recommendations by July 1, 2014.
- The new law recognizes unsolicited proposals and provides the procedure for the consideration of unsolicited proposals.
- The law requires that the public entities to perform an independent analysis of the proposed P3 project to demonstrate the cost-effectiveness and overall public benefit before the procurement process is initiated or the contract is awarded.
- Financing provisions in the new law allow public entities to lend funds to private enterprises and utilize innovative finance techniques including federal loans, commercial bank loans, and inflation hedges. Additionally, public entity may provide its “own capital or operating budget to support” a project including debt issuance, but prohibits the public authority from indemnifying the financing source.

The new P3 law provides the Miami-Dade County with the authority to leverage P3s as an option to realize the fixed-route transit line, and rely on innovative financing techniques highlighted in this report to fund the project subject to the satisfying all other federal, state and local regulations. The P3 guidelines expected to be submitted by July 1, 2014, would provide more clarity and direction on using a P3 option for the Project.

V. Conclusions

As demonstrated by projects across the U.S., fixed-route transit drives significant value to real estate located along the corridor. With public funding limited at the federal, state, and local level, it is challenging to develop new fixed-route projects using only traditional revenue sources. Mechanisms that enable the County to monetize some of the benefits transit creates are powerful tools to provide funding from private property owners. In addition, the direct connection between the new transit and increasing property values and development provides strong rationale for value capture.

Value capture alone is inadequate to finance the Project, or other fixed-route transit. However, it can be part of a basket of funding sources that includes traditional funds such as FTA New Starts funding, state grants, and sales taxes, as well as innovative funding such as State Infrastructure Bank loans and joint development. Combining several funding and financing tools will increase the viability of the Project and enable the County to deliver it in the shortest possible timeframe.

Real estate value capture via benefit assessment districts or tax-increment financing could reasonably fund more than 30% of a \$1B Miami-Miami Beach fixed-route line. With established development in both Downtown Miami and on South Beach, zoning codes that allow for significant increases in density, and traffic congestion in the corridor, the Project includes the major attributes for value capture success.

The actual revenue from value capture depends on the type and level of the benefit assessment or the details of the TIF district. The choice of mechanism itself does not necessarily dictate the amount of the value capture benefit; that is, the results presented are examples and should not be read as stating that one technique necessarily will generate more revenue than the others. Rather, the details of the value capture mechanism are largely a policy question beyond the scope of this report.

Value capture is not a perfect tool. Assessment districts can be controversial, particularly given the recent economic uncertainty. TIF districts, while not requiring extra payment from property owners, reduce potentially additional funds that would otherwise flow to the County for other uses. Furthermore, TIF revenue is entirely dependent upon real estate property value increases, which are difficult to forecast. This can impact the bankability of TIF revenue for construction bond issuances.

Parking fees are an additional source of funding for fixed-route transit. Increasing parking rates along with dedicating the current (Miami) 15% surcharge on parking revenues will encourage use of the new transit line, coupling a policy objective with a financial benefit. In total, parking-related revenues from both Miami Beach (\$100 M or more) and Downtown Miami (\$58 M to \$251 M) could generate at least \$50 M in construction funding for the Project.

The value capture and parking models developed to analyze the revenue flows for this analysis can be easily updated as new information becomes available regarding project characteristics and the County economy and real estate market. The model is, therefore, a tool that can help guide decision-makers in the development of a funding and financial plan for the corridor. For example, the Miami-Dade Metropolitan Planning Organization (MPO) recently initiated a Beach Corridor Transit Connection Study. The value capture model and this analysis can enhance the MPO study and contribute to the full financial plan for the selected transit project.

Appendix 1 - Background and Description of the Bay Link Project

In 2002, the Bay Link Study SDEIS²¹ found that bus routes between the cities were saturated, and that a superior form of public transit was therefore necessary. The proposed Bay Link Project was expected to decrease congestion, support current and future infrastructure, and connect major public and private investment in the region's economic core. It would also maximize regional transit investment to date, and provide a connection for future network extensions.

Originally, the Bay Link Project was planned to be an extension of the existing, elevated Metromover automated line from downtown Miami to Miami Beach. Despite the Miami-Dade MPO's release of a locally-preferred alternative (LPA) in 2003, a 2004 study saw little value in using Metromover compared to light rail transit (LRT) or bus rapid transit (BRT). It was found that the Metromover technology would have lower ridership, higher capital costs, greater operating costs per passenger, and increased visual impact compared to surface modes, while offering no significant advantages. The City of Miami Beach also decided it was uninterested in elevated transit of any type, ruling out any Metromover extensions into the city's core. In the comparison study, LRT emerged as more technically mature, procurable, and inexpensive-to-operate than BRT, while having higher initial capital costs.

The Miami-Miami Beach Transportation Corridor Study, completed in August 2004, found that streetcars were preferred over typical light rail vehicles. This was due to streetcars' smaller size, their better aesthetics, ease of construction, and compatibility with the then-planned downtown Miami Streetcar network. It also presented a revised LPA with a separate Miami Beach "Beach Circulator" alignment and 42 total stations throughout downtown Miami and Miami Beach. On September 8, 2003, during a Special Commission Meeting, the Miami Beach City Commission, by a four-to-three vote, approved the streetcar mode and bi-directional loop route, with some modifications. On November 2, 2004, Miami Beach held a straw ballot election that included a non-binding question asking Miami Beach voters if there should be a light rail streetcar connection between South Beach and Miami. Citizens of Miami Beach voted 55/45 in favor of the Bay Link project.

The estimated capital cost of the proposed streetcar system was \$482.7M, and annual operation and maintenance (O&M) cost of \$12.1M, both in 2004 Dollars. As of 2004, the project was planned for completion in 2023. Due to outstanding concerns over noise, vibrations and impact on the aesthetics in South Beach, as well as lack of funding, the Bay Link Project has not progressed further.²² Furthermore, there have been no significant updates to the project cost or schedule since 2004.

²¹ Miami-Miami Beach Transportation Corridor Study (Project No. E01-MPO-01), 3/2001 and Bay Link Miami-Miami Beach Transportation Corridor Study Supplemental Draft Environmental Impact Statement Locally Preferred Alternative Report (together Miami-Miami Beach Transportation Corridor Study, 2002).

²² City of Miami Beach, Committee Memorandum, Finance and Citywide Projects Committee, July 9, 2012.

Appendix 2 - Value Capture Examples

<i>Project Name</i>	<i>Project Description</i>	<i>Year</i>	<i>Value Capture Mechanism(s)</i>	<i>Value Capture Revenue (USD Million)</i>	<i>Total Project Cost (USD Million)</i>	<i>Value Capture Revenue as a Percentage of Project Cost</i>
Atlanta Beltline	A 22-mile transit loop along underused railroad corridors in Atlanta, including mixed-use transit-oriented developments, 1,300 acres of new parks and green space, and 33 miles of walking and biking trails.	2005	TIF	\$1,700	\$2,800	61%
Seattle South Lake Union Streetcar	A 2.6 mile streetcar line connecting Seattle's South Lake Union neighborhood to the Westlake Hub	2005	BAD	\$25	\$53	47%
City of Portland Streetcar	An 8.0-mile continuous loop (4.0-mile in each direction) through multiple neighborhoods in Portland.	Several phases from late 1990s through 2000s	TIF and BAD	\$41	\$103	40%
San Francisco Transbay Transit Center	Multi-modal transit center in downtown San Francisco serving ten transportation systems, including high-speed intercity passenger rail. Project includes a new mixed-use, transit-oriented neighborhood with residential towers, shops, parks, and office buildings on surrounding land.	2010	TIF and BAD	\$1,400	\$4,185	33%
Washington, D.C. Metro New York Avenue	An in-fill station designed to be a catalyst for transit-oriented economic development	1998	BAD	\$25	\$110	23%

<i>Project Name</i>	<i>Project Description</i>	<i>Year</i>	<i>Value Capture Mechanism(s)</i>	<i>Value Capture Revenue (USD Million)</i>	<i>Total Project Cost (USD Million)</i>	<i>Value Capture Revenue as a Percentage of Project Cost</i>
Station	in Washington's NoMa neighborhood.					
Washington, D.C. Metro Dulles Corridor Extension	A 23-mile extension of the existing Metrorail system, which will be operated by the Washington Metropolitan Area Transit Authority.	2004 (Phase 1) 2009 (Phase 2)	BAD	\$730	\$5,250	14%
Los Angeles Metro Red Line, Segment One	5 underground heavy rail stations in downtown Los Angeles.	1993	BADs	\$130	\$1,420	9%
Seattle Bus Tunnel	A five-station, 1.3 mile transit tunnel under the downtown area	Pre-1990	BAD	\$20	\$469	4%
Pleasant Hill Transit-Oriented Development	Construction of one portion of a multiple property transit-oriented development, and pay for a variety of public infrastructure improvements at the transit-oriented development site, including replacement parking garage, backbone infrastructure (roads, drainage, etc.) and place making infrastructure (parks, plazas, and street furniture).	NA	TIF and BAD	\$750	NA	NA
Dallas' Transit-Oriented Developments	Basic infrastructure improvements—including water and sewer systems and parking garages—at the transit-oriented	NA	TIF	\$182	NA	NA

<i>Project Name</i>	<i>Project Description</i>	<i>Year</i>	<i>Value Capture Mechanism(s)</i>	<i>Value Capture Revenue (USD Million)</i>	<i>Total Project Cost (USD Million)</i>	<i>Value Capture Revenue as a Percentage of Project Cost</i>
	developments					
State Center Transit-Oriented Development	Lease state-owned land adjacent to Baltimore's Cultural Center Light Rail Station and State Center Metro Station to a developer for construction of a mixed-use, mixed-income transit-oriented development. Project sponsors to use tax increment financing backed by a special assessment to repay bond debt.	NA	TIF backed by BAD	\$100	NA	NA
Owings Mill Transit-Oriented Development	Lease state-owned land to construct a transit-oriented development at the Owings Mills Metro Station in Baltimore County, MD. Project sponsors to use tax increment financing to help pay for the construction of two state-owned parking garages at the transit-oriented development.	NA	TIF and BAD	\$60	NA	NA
MacArthur Station Transit-Oriented Development	Transit-oriented development including residential units, commercial and neighborhood-serving retail, replacement parking structure, new public roads, and various other improvements to	NA	TIF	\$17	NA	NA

<i>Project Name</i>	<i>Project Description</i>	<i>Year</i>	<i>Value Capture Mechanism(s)</i>	<i>Value Capture Revenue (USD Million)</i>	<i>Total Project Cost (USD Million)</i>	<i>Value Capture Revenue as a Percentage of Project Cost</i>
	the transit station.					
Savage Town Center Transit-Oriented Development	Pay for the construction of a parking garage at the transit-oriented development at the Savage Commuter Rail Station in Howard County, MD.	NA	TIF	\$14	NA	NA

Source: United States Government Accountability Office (GAO), *Federal Role in Value Capture Strategies for Transit is Limited, but Additional Guidance Could Help Clarify Policies*, Report to the Congressional Committee, 2010.

Appendix 3 – Review of Value Capture Results for Other Projects

<i>Variable/ Location</i>	<i>Premium Effect</i>	<i>Transit Type</i>	<i>Year</i>	<i>Source</i>
Single-family Home Sales Price				
San Francisco Bay Area BART System	+17% within 500 feet of station	Rapid Transit	1979	Blayney-Dyett Associates/David M. Dornbusch & Co., Inc. "Land Use and Urban Development Impacts of BART," San Francisco: Metropolitan Transportation Commission, 1979.
San Diego San Diego Trolley System	+2% within 200 feet of station	Light Rail	1992	VNI Rainbow Appraisal Service. "Analysis of the Impact of Light Rail Transit on Real Estate Values," San Diego Metropolitan Transit Development Board, 1992.
Portland MAX Light Rail System	+10.6% within 1,500 feet of station	Light Rail	1993	Al-Mosaind, M. et al. "Light Rail Transit Stations and Property Values: A Hedonic Price Approach," Transportation Research Record, 1400:90-94, 1993.
Sacramento Sacramento Light Rail System	+6.2% within 900 feet of station	Light Rail	1995	Landis, J. et al. "Rail Transit Investments, Real Estate Values, and Land Use Change: A Comparative Analysis of Five California Rail Systems," Institute of Urban and Regional Development, UC Berkeley, 1995.
Santa Clara County VTA Light Rail	-10.8% within 900 feet of station	Light Rail	1995	Landis, J. et al. "Rail Transit Investments, Real Estate Values, and Land Use Change: A Comparative Analysis of Five California Rail Systems," Institute of Urban and Regional Development, UC Berkeley, 1995.
Chicago METRA Commuter Rail System	+20% within 1,000 feet of station	Commuter Rail	1997	Gruen, A. The Effect of CTA and METRA Stations on Residential Property Values, Regional Transportation Authority, 1997.
St. Louis MetroLink Light Rail System	+32% within 100 feet	Light Rail	2004	Garrett, T. "Light Rail Transit in America: Policy Issues and Prospects for Economic Development," Federal Reserve Bank of St. Louis, 2004.
Condominium Sales Price				
San Diego San Diego Trolley System	+2% to 18% within 2,640 feet of station	Light Rail	2001	Cervero, R. et al. "Land Value Impacts of Rail Transit Services in San Diego County," Urban Land Institute, 2002.

<i>Variable/ Location</i>	<i>Premium Effect</i>	<i>Transit Type</i>	<i>Year</i>	<i>Source</i>
Apartment Rental Rate				
San Francisco Bay Area BART System	+5% within 1,320 feet of station	Rapid Transit	1991	Bernick, M. et al. "A Study of Housing Built Near Rail Transit Stations: Northern California," Institute of Urban and Regional Development, UC Berkeley, 1991.
San Diego San Diego Trolley System	+0% to 4% within 2,640 feet of station	Light Rail	2001	Cervero, R. et al. "Land Value Impacts of Rail Transit Services in San Diego County," Urban Land Institute, 2002.
Santa Clara County VTA Light Rail	+4.5% within 1,320 feet of station	Light Rail	2002	Cervero, R. "Benefits of Proximity to Rail on Housing Markets: Experiences in Santa Clara County," Journal of Public Transportation, Vol. 5, No. 1, 2002.
Office				
Washington, D.C. Metrorail System Downtown Washington Station	+9% within 300 feet of station	Rapid Transit	1981	Rybeck, W. "Transit-Induced Land Values," Economic Development Commentary, 16-20, October 1981.
Washington, D.C. Metrorail System Silver Spring Station Washington, D.C.	+14% within 300 feet of station	Rapid Transit	1981	Rybeck, W. "Transit-Induced Land Values," Economic Development Commentary, 16-20, October 1981.
Washington, D.C. Metrorail System	+12.3% to 19.6% within 300 feet of station	Rapid Transit	1993	Cervero, R. et al. "Assessing the Impacts of Urban Rail Transit on Local Real Estate Markets Using Quasi-Experimental Comparisons," Transportation Research, 27A, 1:13-22, 1993.
Atlanta MARTA System	+11% to 15.1% within 300 feet of station	Rapid Transit	1993	Cervero, R. et al. "Assessing the Impacts of Urban Rail Transit on Local Real Estate Markets Using Quasi-Experimental Comparisons," Transportation Research, 27A, 1:13-22, 1993.
San Francisco Bay Area BART System - East Bay Stations	No premium effect within 2,640 feet of station	Rapid Transit	1995	Landis, J. et al. "Rail Transit Investments, Real Estate Values, and Land Use Change: A Comparative Analysis of Five California Rail Systems," Institute of Urban and Regional Development, UC Berkeley, 1995.
Dallas DART Station Areas	+10% within 1,320 feet of station	Light Rail	1999	Weinstein, B. et al. "The Initial Economic Impacts of the DART LRT System," Center for Economic

<i>Variable/ Location</i>	<i>Premium Effect</i>	<i>Transit Type</i>	<i>Year</i>	<i>Source</i>
				Development and Research, University of North Texas, 1999.
Santa Clara County VTA Light Rail	+15% within 2,640 feet of station for commercial	Light Rail	2001	Weinberger, R. "Commercial Rents and Transportation Improvements: Case of Santa Clara County's Light Rail," Lincoln Institute of Land Policy, 2001.
Santa Clara County VTA Light Rail - Downtown San Jose Stations	+120% within 1,320 feet of station for commercial land in a business district	Light Rail	2002	Cervero, R. et al. "Transit's Value Added: Effects of Light Commercial Rail Services on Commercial Land Values," Presented at TRB Annual Meeting, 2002.
Retail				
San Francisco Bay Area BART System	+1% within 500 feet of station	Rapid Transit	1978	Falcke, C. "Study of BART's Effects on Property Prices and Rents," Urban Mass Transportation Administration, U.S. Department of Transportation, 1978.
San Diego San Diego Trolley System	167% within 200 feet of station	Light Rail	1992	VNI Rainbow Appraisal Service. "Analysis of the Impact of Light Rail Transit on Real Estate Values," San Diego Metropolitan Transit Development Board, 1992.
San Francisco Bay Area BART System - East Bay Stations	No premium effect within 2,640 feet of station	Rapid Transit	1995	Landis, J. et al. "Rail Transit Investments, Real Estate Values, and Land Use Change: A Comparative Analysis of Five California Rail Systems," Institute of Urban and Regional Development, UC Berkeley, 1995.
Dallas DART Station Areas	+30% within 1,320 feet of	Light Rail	1999	Weinstein, B. et al. "The Initial Economic Impacts of the DART LRT System," Center for Economic Development and Research, University of North Texas, 1999.

Source: Cambridge Systematics Inc. et al, Economic Impact Analysis of Transit Investments, Transportation Research Board, 1998; PriceWaterhouseCoopers, Review of Property Value Impacts at Rapid Transit Stations, Richmond/Airport – Vancouver Rapid Transit Project, April 2001; Smith, J. et al, Financing Transit Systems Through Value Capture, Victoria Transport Policy Institute, September, 2006 c.f. Nadine Fogarty, et al., Capturing the Value of Transit, Center for Transit-Oriented Development, 2008.

Appendix 4 - Value Capture Estimation Methodology

Below is an overview table that summarizes the methodology adopted to estimate the value capture revenue potential under three different value capture mechanisms identified by the Research Team for this Report. It must be noted that steps 1-7 are common to Assessment District 1 (ad valorem), Assessment District 2 (square foot assessment), and TIF. Detailed elaboration of the steps in the table is provided in following pages.

Overview of Value Capture Estimation Methodology	
Step	Steps Common for AD 1, AD 2, and TIF
1	Identified study area boundaries where benefits accrue in Downtown Miami, South Beach, and Watson and Terminal Islands.
2	Each Assessment Description in the Miami-Dade County Property Appraiser's parcel-wise database was matched to a zoning district based on the best fit between the Assessment Description and the permitted uses under each zoning district.
3	Assessed Value was split into land and building value per square foot by using the percentage of Market Value by land value and building value as a proxy for determining the split of land and building values in the Assessed Value. Where the split was unavailable, land value was assumed to be 70% of the Assessed Value.
4	A value premium was applied to the average assessed land value per square foot of floor area. Similarly, a value premium was applied to the average assessed building value. The premiums were applied according to a schedule of value premium growth.
5	The current FAR under each Assessment Description was calculated by dividing the building area by the land area.
6	The maximum allowable FAR for each Assessment Description was determined from applicable Miami-21 and City of Miami Beach zoning regulations. By subtracting the current FAR from the maximum allowable FAR, the potential to add more floor space was calculated, termed as "FAR Available for Development".
7	If the FAR Available for Development was positive, the potential for new floor area development was calculated by multiplying the land area by the FAR Available for Development. It was assumed that only 70% of the FAR Available for Development would be utilized. By adding the new floor area to the existing floor area, cumulative floor area for each assessment description was derived.

Overview of Value Capture Estimation Methodology			
Step	AD 1 (ad valorem)	AD 2 (square foot assessment)	TIF
8	The projected total floor area was multiplied by the average Assessed Value per square foot of floor area to estimate the Assessed Value of projected total floor area for each Assessment Description.	A specific benefit assessment per square foot of floor area of \$0.20 was applied to the projected total floor area to derive the total potential revenue through a specific Benefit Assessment on square footage of floor area.	The projected total floor area was multiplied by the average Assessed Value per square foot of floor area to estimate the Assessed Value of projected total floor area for each Assessment Description.
9	A Benefit Assessment of \$2 for every \$1000 of Assessed Value was applied to the Assessed Value of projected total floor area to calculate the potential revenue from Benefit Assessment in the study area.	Not Applicable	The current County Millage of 4.7035 was applied to the assessed value of projected total floor area to calculate the potential County Tax revenue in the study area.
10	Such benefit assessment revenue generated from only the Assessment Districts added to determine the annual value capture through value premium and denser development of land parcels.	Not Applicable	The County Tax revenue for Year 0 was subtracted from the County Tax revenue of all subsequent years to derive the incremental County Tax revenue.

1. Benefit Assessment District – Value Capture Through Value Premium and Higher Density of Development (AD 1)

The Research Team estimated the potential annual revenue generated by the benefit assessment millage rate/fee for every year of the 30-year period for properties inside the study area. This analysis took into consideration the premium on the average assessed value due to transit access and higher density of development of the land parcels. AD 1 is essentially an *ad valorem* assessment based on the assessed value of the properties.

In this Report, the Research Team applied a benefit assessment of \$2 for every \$1000 of Assessed Value of the properties in the assessment area. This is comparable to WMATA's Dulles Corridor Metrorail Project's Phase 1 assessment of 22 cents per \$100 of assessed value (in addition to normal property taxes). In Phase 2, a special assessment of five cents per \$100 of assessed value on properties the Phase 2 area in 2010, rising to 20 cents per \$100 of assessed value in 2013.²³

The below steps were followed to estimate the benefits of AD 1:

²³ <http://www.metroplanning.org/news-events/article/6384>

Step 1 – The Research Team first started with the zoning information in the study area, and identified certain zoning districts as Assessment Districts wherein a pre-determined benefit assessment would be levied on the Assessed Value of the property.

Step 2 – Each Assessment Description in the Miami-Dade County Property Appraiser’s parcel-wise database was then matched to a zoning district based on the best fit between the Assessment Description and the permitted uses under each zoning district.

Step 3 – Thereafter, Assessed Value was split into land and building values per square foot. The percentage split between land and building values of Assessed Value was not available. Rather, the split of the Market Value by land value and building value was used as a proxy for determining the split of land and building values in the Assessed Value. Where the split was unavailable, land value was assumed to be 70% of the Assessed Value. This assumption was based on observing the average percentage of land value across the different Assessment Descriptions that ranged from 60% to 80%, and therefore, the Research Team chose a middle figure of 70%.

Step 4 – A value premium was applied to the average assessed land value per square foot of floor area due to the development of the transit system. Similarly, a value premium was applied to the average assessed building value. The premium was applied according to a schedule of value premium growth, both for land and building values.

Step 5 – The current FAR under each Assessment Description was calculated by dividing the building area by the land area.

Step 6 – Based on the zoning district allocated to each Assessment Description (Step 2), the maximum allowable FAR for the Assessment Description in question was determined. By subtracting the current FAR (Step 5) from the maximum allowable FAR, the potential to add more floor space was calculated, termed as “FAR Available for Development”.

Step 7 – If the FAR Available for Development was positive, then the Research Team calculated the potential for new floor area development by multiplying the land area by the FAR Available for Development. As explained in the assumptions to the calculations, not all of the allowable FAR is developed on each property. Therefore, for the Report, it was assumed that only 70% of the FAR Available for Development would be utilized. For instance, if the FAR Available for Development was 1, then it implied that only 0.70 of that would be developed.

By adding the new floor area to the existing floor area, projected total floor area for each assessment description was derived. Thus, the projected total floor area for each assessment description for each year over the 30-year horizon was calculated.

Step 8 – Thereafter, the projected total floor area was multiplied by the average Assessed Value per square foot of floor area to estimate the Assessed Value of projected total floor area for each Assessment Description.

Step 9 – A Benefit Assessment of \$2 for every \$1000 of Assessed Value (along the lines of County Millage), was applied to the Assessed Value of projected total floor area to calculate the potential revenue from Benefit Assessment in the study area.

Step 10 – Finally, revenue generated by the benefit assessments was added to determine the annual value capture from value premium and denser development of land parcels.

2. Benefit Assessment District – Value Capture Through Benefit Assessment on Square Foot of Floor Area (AD 2)

AD 2 is based on a specific benefit assessment on the projected total floor area in the Benefit Assessment Districts. After determining the FAR Available for Development and annual projected total floor area, a benefit assessment per square foot of floor area is applied to the projected total floor area. For instance, in the case of Los Angeles Red Line Segment One, a benefit assessment was charged at a variable rate (up to \$0.33) per square foot of the building or parcel, whichever was greater. The rates were \$0.17 for first five years (1992–1997), \$0.27 for the next five years (1997–2002), and \$0.33 for the next seven years (2002–2009), for an average of \$0.25 per square foot for the entire 17-year assessment period.²⁴ As an example, the Research Team applied a benefit assessment of \$0.20 per square foot of the projected total floor area. Policymakers would need to decide the actual AD assessment.

Steps 1 to 7 from AD 1 (described above) were followed with one additional step. The additional step, Step 8, involved applying the specific benefit assessment per square foot of floor area of \$0.20 to the projected total floor area (which includes both the existing and new floor area) to derive the total potential revenue through a specific Benefit Assessment on square footage of floor area.

3. Tax Incremental Financing (TIF)

To calculate the incremental County property tax revenue if achievable using TIF, this Report considers the County Tax revenue from value premium and denser development in all zoning districts (including residential zones) at the existing County millage rate. County Tax revenue before the announcement/development of transit system (Year 0) continues to flow to the general fund, while incremental County Tax revenue above this amount in subsequent years after the announcement/development of transit system is used to support transit. In this calculation, it is assumed that there will not be a change in County millage rate and the incremental County Tax revenue is derived from increases in the assessed value per square foot of floor area and denser development of land parcels.

Steps 1 to 8 performed in the calculation of AD 1 (described above), were utilized for this calculation, with two additional steps.

Step 9 – In this step, the current County Millage of 4.7035 was applied to the assessed value of projected total floor area to calculate the potential County Tax revenue from the study area.

²⁴ Shishir Mathur and Adam Smith, *A Decision-Support Framework For Using Value Capture to Fund Public Transit: Analyses*, Mineta Transportation Institute, 2012.

Step 10 – The County Tax revenue of Year 0 was subtracted from the County Tax revenue of all subsequent years to derive the incremental County Tax revenue.

4. Bonding Capacity of the Value Capture Revenues

The revenues from real estate value capture will flow annually during the study period. The County may choose to leverage the revenue stream by issuing revenue bonds, backed by the value capture revenues alone or combined with other County revenues pledged.

Utilizing the potential revenue that could be raised through value capture mechanisms, the Research Team estimated the bonding capacity of such revenue. The net present value (NPV) of the revenues, less 10% for bond issuance fees and debt service reserves, from the 30-year period was calculated by discounting it at a rate of 6%. This discount rate was based on the long-term cost of capital of Miami-Dade County, derived from the Official Statements of recent bond issues during 2012, and is similar to the average interest rate paid by Miami-Dade County on the long-tenured bonds of about 5%.²⁵ The Research Team added another percent (100 basis points) to historic rates to account for potential future increase in interest rates, given the current low interest rate environment.

Furthermore, the Research Team recognized that there is uncertainty in realizing the above-mentioned value capture revenue streams, as they are contingent on the accrual of value premium and actual development of future floor area. The levels of uncertainty are, however, different for the three value capture mechanisms. Both AD 1 and AD2 yield revenues even without any value premium or new floor area development, although increased AD 1 revenues requires either value premium or further development to take place, whereas, AD 2 revenues are contingent only on further development of floor area. TIF on the other hand is much more uncertain. Without value premium or new floor development, revenue from TIF would be zero.

²⁵ The 5% interest rate was also in line with the 20-year (1993-2013) average interest rate paid by 20-Bond Index consisting of 20 general obligation bonds that mature in 20 years. The average rating of the 20 bonds is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corporation's AA rating. www.bondbuyer.com.