Partnering for 21st Century Prosperity

UniversityCity, A Catalytic Local Project of Regional Significance

FIU FLORIDA INTERNATIONAL UNIVERSITY
UniversityCity

A collaboration between Florida International University (FIU), Miami-Dade Expressway Authority (MDX), Miami-Dade County, the City of Sweetwater, Florida DOT, IBM, TY Lin and others, UniversityCity is seeking USDOT support for a catalytic project of regional significance. UniversityCity is the missing ingredient for a Southeast Florida multimodal system and could result in an Advanced Transit Oriented Development (ATOD) prototype for the nation complemented by the deployment of a state of the art wayfinder smart phone application.

This project is in line with USDOT priorities and congruent with the vision of the HUD-DOT-EPA Partnership for Sustainable Communities. It supports a Miami-Dade Transit project, MDX decongestion strategies, FDOT projects and has been designated a priority project for Seven50, the Southeast Florida Partnership’s Sustainable Communities coalition. It leverages UniversityCity’s location and FIU’s standing both as the major educational, cultural, medical, athletic and social destination in Western Miami-Dade County and its success at providing innovative transportation and urban development solutions for South Florida.

By aggregating ridership of planned SR 836 Enhanced Express Bus Service in an Advanced Transit Oriented Development at a large public university; connecting two major Miami-Dade County destinations with an alternative to automobiles; and launching a new, comprehensive IT consumer app in partnership with IBM, the project has the potential of catalyzing transformation in South Florida. A collaborative vision, unified action and USDOT support is the winning strategy for success.
Critical Components of the UniversityCity Vision

The goal is to aggregate pedestrians and commuters; substantially increase transit ridership; increase modal shift by 10%; and transform the area into a vibrant hub of culture, education with an innovative business incubator district for medical services and health sciences.

- **FIU Smart Garage**, a $37 M approved project that will anchor a catalytic Advanced Transit Oriented Development (ATOD) and serve as a multi-modal transportation hub adjacent to US-41, Florida’s Turnpike and nearby SR-836.

- **SR 836 Express Enhanced Bus Service** between SW 147th Avenue and the Miami Intermodal Center (MIC) at Miami International Airport; this service will benefit from increased ridership aggregated in UniversityCity and a multi-modal hub at the FIU Smart Garage.

- **Smart Growth changes to the built environment** on FIU campus and in the City of Sweetwater, including traffic-calming and other safety elements which will further fuel investment for mixed-use development. Construction of the first 15 story student-oriented complex in UniversityCity is already underway. A critical element is a pedestrian-friendly bridge across 8th Street connecting the FIU campus with 109th Avenue, Sweetwater’s main street, and the new UniversityCity urban center.

- **Informed Traveler IT apps** A state of the art “wayfinder” program for transportation customers developed in partnership by FIU, IBM, and MDX will facilitate multi-modal utilization and SR 836 decongestion, with potential benefit for all of South Florida as a critical regional innovation.

FIU and City of Sweetwater Relationship
Smart Growth changes to the built environment

on FIU campus and in the City of Sweetwater, including traffic-calming and other safety elements.

Smarth Growth changes will propel private investment:
15 Story Student-Oriented Complex

Construction of the first 15 story student-oriented complex in UniversityCity is already underway.
FIU students will park in the FIU Smart garage.
**Bridge provides safe passage and serves as connection point**

Signature pedestrian-friendly bridge between FIU campus and Sweetwater’s Main Street conceptualized during charrettes by FIU architecture students, faculty and community residents. A pedestrian-friendly bridge is needed to facilitate safe walkability between the campus and Sweetwater’s emerging urban center.

![Bridge Concept](image)

**FIU Smart Garage supporting UniversityCity Advanced Transit-Oriented Development**

The transit terminal will enhance public safety by providing a centralized location for passengers to transfer safely between bus routes in lieu of high volume traffic roadways.

![Garage Concept](image)
Express Enhanced Bus Service proposed by Miami-Dade Transit will provide a safe, mixed-mode corridor for the 50,000 students attending one of the nation’s largest universities and commuters along the east-west axis of travel in Miami-Dade County.

Collecting commuters at UniversityCity’s Smart Garage adjacent to US 41, this route would be unique in that it has the potential to not only feed trips from the west to Metrorail and the Airport but also provide reverse commute services from the MIC to job rich areas in the City of Sweetwater and the City of Doral.

This service will also include a Transit Signal Priority (TSP) system to extend the green phase or shorten the red phase allowing for reduced travel time in the corridor and improved schedule adherence. This service would attract automobile commuters to switch from single occupancy car trips to transit, thus reducing traffic congestion along heavily congested State Highway System Roads (reducing by as many as 1,850 single occupant vehicles). The reduction in single occupant vehicular trips will reduce emissions and help maintain air quality, thus improving energy efficiency, reducing dependence on oil, reducing greenhouse gas emissions and benefitting the environment.

SR-836 Express Enhanced Bus Service project will enhance transit passenger mobility and safety in the area, foster livable communities, increase business opportunities in the area, reduce traffic congestion and contribute to improved air quality.

Near-term Plan
Long-term Plan
Informed Traveler Program and Applications (ITPA)

The benefits of basic intelligent transportation systems (ITS) are well known. They have been found to maximize the capacity of infrastructure and reduce the need to build additional highway capacity. For example, ITS can contribute significantly to reducing congestion, which costs U.S. commuters 4.2 billion hours and 2.8 billion gallons of fuel each year, costing the U.S. economy up to $200 billion per year. Overall, ITS can reduce congestion by as much as 20 percent or more. ITS also enables transportation agencies to collect the real-time data needed to measure and improve the performance of the transportation system, making ITS the centerpiece of efforts to reform surface transportation systems and hold providers accountable for results.

The proposed Informed Traveler Program and Applications (ITPA) would provide personalized, timely information and advice regarding the most efficient and cost effective travel paths for consumers. The ITPA will use a smartphone-based interface to provide personalized, timely information and advice regarding the most efficient and cost effective travel paths for users. The software will be predictive in nature, allowing users to make better travel decisions even before they get in their private vehicles. Taking each user’s preferences, needs, situational conditions, safety concerns, and schedules into consideration, the system might recommend the use of public transit, a delay to the start of a trip to avoid congestion, or an alternate route that avoids construction, accidents, or other delays. ITPA will also offer its users express transit routes and faster parking in smart garages as major time savers.

UniversityCity’s ITPA technologies are powered by FIU’s Industry-University Cooperative Research Center, funded by the National Science Foundation and in partnership with the University of Illinois at Chicago, Brown University, Northwestern University and IBM. These partners are developing a high-performance model for information processing and fusion in mobile environments to providing a collaborative integration between the real and virtual worlds.

First in U.S. Application
The focal point of the system will evolve, over time, from supporting travel to and from UniversityCity and the Miami Intermodal Center (MIC); ultimately supporting travel anywhere in Miami-Dade County and the Southeast Florida Region.
UniversityCity meets Goals of the Partnership for Sustainable Communities

UniversityCity has been designated a priority project for Seven50, the Southeast Florida Partnership’s Sustainable Communities coalition.

- 1. Provide more transportation choices.
- 2. Promote equitable, affordable housing.
- 3. Enhance economic competitiveness.
- 4. Support existing communities.
- 5. Coordinate policies and leverage investment.
- 6. Value communities and neighborhoods
The UniversityCity Coalition

The UniversityCity Coalition is the result of a new working relationship between Florida International University, the City of Sweetwater and the Miami-Dade Expressway Authority (MDX), Miami-Dade County and the private sector, focused on research and planning for the deployment of a bus rapid transit system between the university’s main campus and the Miami Intermodal Center (MIC) at Miami International Airport (MIA).

FIU and the City of Sweetwater have been working together to pursue joint economic development and urban planning goals, but the initiative also has regional significance.

Significant on-going goals include critical transportation investments in the economic development potential of Sweetwater and West Miami-Dade; the deployment of a robust bus rapid transit system; reductions in traffic congestion, travel time, accidents, vehicle miles travelled, and travel costs for business, households and pedestrians.

The coalition, having garnered positive encouragement from the USDOT Secretary and professional staff, is exploring creative funding strategies that will demonstrate the connections between sustainability, innovative mobility, technology transfer, new urbanism, smart growth and equitable economic prosperity led by the nation’s top minority-serving research university and its community and industry partners.

The coalition is coordinating a set of more than $100 million in projects in addition to the most recent federal funding request; however, federal funds could be critical to completing certain elements and the ultimate success of the UniversityCity vision.

FIU is ready to partner with community and regional stakeholders in support of innovative Worlds Ahead transportation solutions that leverage planned infrastructure investments to achieve near-term and long-term goals.

For more information on UniversityCity Submitted TIGER Grant: cake.fiu.edu/TIGER2013/
In Conclusion

The UniversityCity Coalition is exploring multiple sources of funding to implement our vision, which will serve as a catalyst for a new urban destination in partnership with a large and growing urban research university. A strong collaboration is needed to leverage planned infrastructure investments and innovative technology to develop a viable transit alternative to cars to decongest area highways. As the university grows and UniversityCity develops on both sides of SW 8th Street, careful adjacent improvements and coordinated circulator vehicle networks will be critical to a safe, livable and walkable environment that both reduce congestion and the university’s carbon footprint.

Of regional significance, both Express Bus Service and our innovative wayfinder proposal, developed with IBM and Miami-Dade Expressway Authority (MDX), will leverage a potential customer base of more than 50,000 students, transportation related IT research expertise, and the platform of MDX.

Once deployed, and assuming multimodal success, USDOT and regional partners may want to develop more ATODs throughout South Florida and work with FIU to fully deploy ITPA throughout Southeast Florida.

As envisioned, this initiative could be a catalytic linchpin to connecting Southeast Florida’s emerging multimodal system via: various SR836, I-95, I-595, and I-75 express bus routes to Western and Eastern Broward County, Downtown Miami, the MIC and MIA, Port of Miami, Port Everglades, Amtrak, Metrorail, Tri-Rail, Airport Flyer (to Miami Beach), South Miami-Dade Busway, Kendall Cruiser and the proposed Fort Lauderdale Streetcar service. It’s a big vision that could be critical to USDOT support for a project of regional significance.

But first, we must take the next step together.
2013 TIGER/UniversityCity Summary

Overview
Florida International University (FIU), Miami-Dade Expressway Authority (MDX), Miami-Dade County (MDC), the City of Sweetwater (Sweetwater), Florida Department of Transportation (FDOT), IBM, T.Y. LIN International (TYLI) and others have been collaborating to develop UniversityCity as a project of regional significance. This UniversityCity team is pursuing USDOT FY13 TIGER funds to help:

- Construct an Advanced Transit Oriented Development (ATOD) prototype and propel a multimodal system of transport
- Deploy Informed Traveler Program and Applications (ITPA) as a state-of-the-art electronic wayfinder smart phone technology
- Catalyze a resilient and financially self-sufficient multimodal transportation system built to suit the Southeast Florida needs well into the 22nd century

This project is in line with USDOT priorities and congruent with the vision of the US HUD-DOT-EPA Partnership for Sustainable Communities. It supports the Miami-Dade Transit (MDT) SR 836 Enhanced Express Bus (http://www.miamidade.gov/citt/library/5_year_plan/rapid_transit_improvements.pdf) 836 Express project, MDX interests to reduce congestion on its toll road system, and FDOT's managed lane and highway improvement projects.

UniversityCity has been identified as a priority project for Seven50’s SE Florida Prosperity Plan (the Southeast Florida Regional Partnership planning effort funded by a US HUD Sustainable Communities Regional Planning Grant). It will leverage: the location of FIU and Sweetwater adjacent the SR836 (Dolphin Expressway), Florida Turnpike Homestead Extension, and an underutilized freight rail corridor; FIU's standing as the major educational, cultural, medical, athletic and social destination in western Miami-Dade County and capacity to providing innovative transportation and urban development solutions for South Florida; and, the international reach and relationships of FIU students and faculty members as well as the residents of Sweetwater.

Goal & Vision
The goal is to: extend the travel shed of pedestrians and aggregate them at express transit stations; substantially increase transit ridership; increase modal shifts by 10%; and, transform the area into a vibrant hub of culture, education and research as well as an innovation business incubator district for medical services and health sciences.

UniversityCity becomes a project of regional and national significance by using: a) ATODs to increase express bus ridership; b) Advanced Intermodal and Multimodal Station (AIMS) to access 836 Express; and, c) ITPA as a new, comprehensive ITS consumer app to improve multimodal access to major Southeast Florida destinations (FIU, Miami Intermodal Center, Miami Beach, and destinations available via Amtrak, Tri-Rail, Metrorail, and the Golden Panther Express).

In the very near term, UniversityCity will allow transportation services to be optimized through interrelated initiatives:
- a $36 million FIU commitment for FIU Smart Garages linked via ITPA with the $21 million Sweetwater commitment for City Hall Intelligent Plaza and Parking Area (CHIPPA)
- a $24.6 million MDT commitment for 836 Express bus service linked via ITPA with the Airport Express bus service to Miami Beach and the many transportation options available at the Miami-Intermodal Center
- Smart Growth changes to the built environment on FIU Maidique Campus and in Sweetwater (e.g., pedestrian-oriented plazas, transit stops and AIMS; pedestrian corridor, complete street, traffic-calming and highway intersection safety improvements; community transit and metropolitan bus services as feeders to multimodal stations and regional express bus services; and a very attractive, shared-use, pedestrian-oriented, single-pylon, and cable-stayed bridge across US41 connecting the FIU campus with Sweetwater along the 109th Avenue main street as an iconic symbol of the new UniversityCity multimodal urban center).
University City Funding Components
$20,980,273 TIGER funds with local match of $102,829,521 totals $123,809,794 in project costs.

<table>
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<tr>
<th>US DOT TIGER Funds</th>
<th>FIU</th>
<th>Sweetwater</th>
<th>MDX</th>
<th>Florida DOT</th>
<th>Project Total</th>
<th>% of Project Total</th>
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<tbody>
<tr>
<td>SW 107th AVE Improvements - 6 lanes</td>
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<td>$32,875,708</td>
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<td>Sweetwater City Hall Intelligent Plaza and Parking Area (CHIPPA)</td>
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<td>$21,347,974</td>
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<td>SW 109th AVE Complete Street Improvements</td>
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<td>Community Transit Small Rubber Tire Trolley Rebuild, Repair, Enhance, and Operate</td>
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<td>Single Pylon Cable-Stayed Shared-Use Bridge over US 41</td>
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<td>FIU MMC Entry Plaza and Pavilions Project</td>
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<td>FIU MMC Complete Streets Project - Campus Walkways and Boardwalk</td>
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<td>FIU Construction Support Staff, Advisory Consultants, and Expenses</td>
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<td>Informed Traveler Program &amp; Applications</td>
<td>$8,000,000</td>
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<td>Conceptual Advanced Intermodal &amp; Multimodal Station (AIMS) platform</td>
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<td>Smart Parking Retrofit of Additional FIU Parking Garages</td>
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<td>Sustainable University City SAMS</td>
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<td>$20,980,273</td>
<td>$36,006,799</td>
<td>$23,478,014</td>
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<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
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<td>16.9%</td>
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**Project Impacts**

- **Modal Diversion (38% Shift):** From the projected two-way trips to/from University City as a result of interrelated, unique, useful and new: changes the character of the neighborhood from vehicle-centric to pedestrian-oriented multimodal; a shared-use pedestrian-oriented bridge over US41; at-grade intersection improvements; community transit and metropolitan feeder bus services; increased usage of express buses at the AIMS; and, ITPA deployment.

- **Safety:** With the construction of the RRAC University Apartments, 1000 student trips across US 41 can be expected each day. In the last five years there were: 18 traffic accidents at the US41/SW 109th Avenue intersection; 19 traffic accidents at the US 41/SW 112th Avenue intersection; and, 20 traffic accidents at the US41/SW 107th Avenue intersection. With bridge, community transit and at-grade crossing improvements, no pedestrians or bicyclists are expected to be involved in traffic accidents (all pedestrian/bike movements are safely diverted to multimodal, multi-level and traffic-calmed SW 109th Avenue intersection with US41).

- **Pedestrian-Oriented Shared-Use Bridge Crossings: To accommodate up to 1000 trips per day.** Currently only 2% of the affected population or 71 individuals cross US 41 per day.

- **Travel Time Reduction (10% Overall):** Current Miami-Dade average commute time is 28.9 minutes-
  - ITPA: 10% reduction in travel time for an estimated 20,000 users and an increase by 10% in users per year.
  - SW 107 Avenue Improvements: Reduced traffic time of 1 minute for 2,600 of the current Annual Average Daily Traffic figure of 5200.

- **Environment: Reduced Emissions (GHG and non-GHG):** Reductions in VMT results in reduced emission benefits. Landscaping and other sustainable surface treatments will be preferred throughout this project in lieu of traditional hardscape.

- **Jobs:** University City will generate approximately 527 short-term jobs. Beyond construction, there will be new jobs created for people hired to operate the improved community transit created through this TIGER grant and further expansions of thereafter.
Benefit Cost Analysis

Based on major project components (complete street improvements, attractive pedestrian-oriented shared-use bridge, community transit, smart parking garages with advanced intermodal and multimodal station, Informed Traveler Program & Applications, and SW 107th Avenue improvements) the following benefit-cost ratios are established:

<table>
<thead>
<tr>
<th></th>
<th>3% discount rate</th>
<th>7% discount rate</th>
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<tr>
<td>Present Value of Total Benefits</td>
<td>$492,683,197.60</td>
<td>$216,914,618.52</td>
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<tr>
<td>Present Value of Total Costs</td>
<td>$115,852,548.71</td>
<td>$103,717,484.41</td>
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<td>Benefit-Cost Ratio</td>
<td>4.25</td>
<td>2.09</td>
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Costs and benefits derived from previous years were adjusted to 2013 dollars through inflation calculations based on GDP Price Deflators as reported by the US Department of Commerce’s Bureau of Economic Analysis. The 2013 price deflator factor was based on the 2013 first quarter deflator.

Project Readiness

All local, state and federal requirements will be meet by June 2014 in order for USDOT to obligate funding in advance of September 30, 2014

- **Legislative approvals:** None required
- **Environmental Approvals:** UniversityCity would use infrastructure associated with existing or planned projects that have either already gone through the regulatory permitting process or has begun initial coordination with the affected resource agencies
- **State and Local Planning:** In addition to Sweetwater and the private developer RRAC, Miami-Dade County (MDC), FDOT, MDT, MDX, and Miami Dade Aviation Department have all agreed to assist with this Project
- **Technical Feasibility:** TYLI, IBM, Ouri Wolfson, Perkins + Will, FIU’s I/UCRC-CAKE and LCTR, Trias and Associates and others have provided the professional and expert information needed to ensure technical feasibility for the Project
- **Financial Feasibility:** The budgets allocated for the critical components of the UniversityCity project have been approved and will be sufficient to complete the projects to their full expectations and positive impact
- **Project Risks and Mitigation Strategies:** Detailed work analysis already undertaken with primary vendors, partners and others to assure contracting for capital improvements can quickly be undertaken once TIGER awarded and in-depth ITPA risk assessment, planning and data availability and analysis will begin using MDX funds ($265,000) immediately upon TIGER award announcement and before TIGER funds are available.