TASK AUTHORIZATION

FLORIDA INTERNATIONAL UNIVERSITY
BOARD OF TRUSTEES (FIU)

TASK AUTHORIZATION NO: MDX-14-12-FY14-TA-01

DATE PREPARED: 18-Dec-13

NOT TO EXCEED AMOUNT: $265,261.00

COMPENSATION TYPE: Limited Amount

TASK DESCRIPTION: Informed Traveler Program & Applications (ITPA) Work Plan Development of the ITPA

DATE PREPARED: 18-Dec-13

TA Section

<table>
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<tr>
<th>G/L Account(s)</th>
<th>Service(s) Description</th>
<th>Cost</th>
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<tr>
<td>10030005 55500</td>
<td>See Attached Scope of Work</td>
<td>$265,261.00</td>
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</tbody>
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BILL TO: Juan Toledo, P.E.

Date: 2/3/14

GEC Project Manager (if applicable): N/A

工作计划相关

FIU Authorized Representative: Robert M. Gutierrez, M.S., Director Division of Research

Date: 2/7/14

MDX Authorized Representative: Juan Toledo, P.E., Deputy Executive Director/Director of Engineering

Approval/Certification of Task Authorization Completion, Voided, or Cancelled

Both the Consultant and MDX confirms that the Service(s) authorized herein have been either completed in conformance with the Contract and the requirements of this TA, Voided, or Cancelled.

Completed [ ] *Voided [ ] *Cancelled [ ]

*Justification:

Date: N/A

GEC Project Manager (if applicable): N/A

工作计划相关

FIU Authorized Representative: Robert M. Gutierrez, M.S., Director Division of Research

Date: N/A

MDX Authorized Representative: Juan Toledo, P.E., Deputy Executive Director/Director of Engineering

V1.0

7/11
Scope of Work
Informed Traveler Program & Applications (ITPA)
Work Plan Development of First Phase of the ITPA

Background
The University City Prosperity Project has been awarded a FY2013 TIGER Discretionary Grant to address transportation mobility and safety problems facing Miami-Dade County and the Southeast Florida Region. One of the major components of this project is the development of a first phase of the Informed Traveler Program and Applications (ITPA). ITPA will provide personalized, timely information and advice regarding the most efficient and cost effective travel paths for consumers – in advance of their travel decision points. This would include easy to access and use of information needed to avoid congestion, construction or accident delays and to otherwise optimize each trip; whether and how to use transit or other modes, delay the start of a trip, take an alternate route, and act on secondary destination suggestions, to easily park, and to encourage remote parking with completion of the trip via transit.

The program’s software will be predictive in nature, allowing users to make better travel decisions before they decide whether or not to get in their private vehicles. ITPA will evaluate historical and real-time information about events, traffic performance measures, emergency service calls, transit service measures, weather, construction, special events, and other information. It will offer faster and reliable parking on the street and in smart garages as a major time saver. ITPA users will be able to query the system about multiple travel options (and their costs and benefits) before they begin their trip. Travel plans will be adjustable during the trip to account for delays. Using advanced information technology platforms, intelligent transportation systems, and smartphone-based software, ITPA will provide significant benefits to the traveling public.

ITPA will be developed in four phases (transit/smart parking use; initial automotive traveler use; localized robust ITPA deployment and use; and, regional robust ITPA deployment and use) using expertise available at FIU through the Lehman Center for Transportation Research (LCTR) and the National Science Foundation’s FIU-FAU-Dubna Industry/University Cooperative Research Center for Advanced Knowledge Enablement (I/UCRC-CAKE) as well as at IBM. Further support will be available from experts as to StreetSmart parking technology from Pirouette Inc., sub-centimeter aerial imagery form ALTA Pix Inc.’s balloon platforms, and elsewhere.

The development of this system will be based on an initial architecture prepared for the TIGER Discretionary Grant. This scope of work is for Phase 0, which involves the development of the work plan of the ITPA system including the development of system requirements and architecture. Phase 0 will be conducted using MDX funds to produce the ITPA work plan by accomplishing Tasks 1, 2, 3, as described in Tasks 1, 2, and 3 of this scope of work. These three tasks funded by MDX will have to be completed to begin Phase 1 of the ITPA, which will be funded by the Tiger Grant. The total amount allocated to the Phase 1 of the ITPA is $2,241,836 ($2,029,832 from USDOT and $212,004 from FIU). The spending of this amount on various ITPA components will be defined the work plan, developed in Phase 0 utilizing MDX funds according to the MDX and other stakeholder requirements.
The TIGER funds allocated for the Phase 1 of the ITPA will be for the purpose of delivering platform to support:

- FIU transit and passenger movements between the FIU’s Modesto A. Maidique Campus (Maidique Campus), the Biscayne Bay Campus and the Engineering Center with the potential for an additional stop at either the Miami Intermodal Center, Metrorail’s Palmetto Station and the Golden Glades Interchange multimodal facilities
- Smart parking in FIU Maidique Campus locations, certain Sweetwater locations, and certain remote locations connected to FIU by express transit.
- ITS, traffic signalization and other improvements to reduce any traffic delays along US 41 and SW/NW 107th Avenue as FIU express transit vehicles approach the Advanced Intermodal and Multimodal Stations (AIMS) at Parking Garage 6 (PG6)

As indicated above, Phase 1 (with a total budget of $2,241,836) will focus on smart parking and smart transit implementations. It is expected that these ITPA transit and parking implementations will increase transit use by FIU students and Sweetwater residents including increasing their use of the SR 836 express bus to the MIC, and additional destinations via Miami airport, Amtrak, Metrorail, and Metrobus. This is expected to reduce the congestion on SR 836.

The impacts of Phase 1 including the impacts on transit use, strategic parking patterns, and diversion (in time, mode, and route) will be examined and presented to the project stakeholders. After Phase 1 impacts are validated to produce the desired impacts, Phase 2 will begin utilizing future funding sources. Phase 2 will involve the delivery of ITPA enhancements that is focused on 20,000 cars that would typically use SR 836, SR 112, and I-95, and the Homestead Extension of the Florida Turnpike.

**Goal and Objectives**

The goal of this proposed scope is to provide additional details for the USDOT TIGER Grant Award (approximately $2,368,836 will be allocated to ITPA) and an initial architecture prepared for the TIGER Discretionary Grant. The specific objectives are:

- Define the functions provided by the system
- Define architecture for functions in scope, non-functional requirements, data/systems integration, and joint release plan
- Define roles, responsibilities, and governance
- Identify budget requirements

**Task Authorization: ITPA Work Plan**

In the tasks of this Work Plan task authorization will be undertaken based on stakeholder inputs to ensure that requirements with the implementation of the system are provided. These efforts will employ standard project management best practices to provide research, analysis and documentation regarding the requirements and planning for the ITPA project. It is anticipated that the IBM platform will be used for mobile, integration and algorithm development. This platform will communicate with the off-line and on-line data integration and decision support tools (IRISDS and ITS/DCAP) developed by LCTR for the Florida Department of Transportation to receive data from these tools and to allow these
tools to utilize the predictive travel time for other regional applications. TerraFly operated by I/UCRC-CAKE is anticipated to be the main platform for traveler route/mode assignment and will also communicate and integrate closely with the LCTR through the IBM platform.

**Task 1 - Review of Data, Systems and Technologies:** This task will include review and assessment of existing data, systems and tools and will include physical or electronic meetings attended by all project participants. In addition, the project team will conduct extensive technology review of products related to the project tasks.

This task will also involve a collaborative effort between FIU and IBM and will require selected management, administrative, technical and subject matter experts from both parties to participate in meetings. It will employ a review methodology that evaluates a set of capabilities, both common and specific, as well as examining technologies and systems with the intent of building a plan that will deliver innovative travel solutions that will fit within the Phase 1 budget and future phases of the project. In addition, this task will involve reviewing mechanisms and facilities for development, testing and hosting environments.

Prior to the start of and in preparation for the meetings, the participating team members will be identified, capability areas will be selected, pre-meeting reading documentation will be reviewed and initial findings captured.

Issues to be reviewed in the meetings will include assessing existing and new capabilities against the four major functional areas of the proposed solution:

- Parking
- Real-time Situational Awareness
- Travel Suggestions and Options
- Transit Routing Instructions and Guidance

The meetings will be driven by a detailed agenda. The approach will employ a repeatable proven methodology that involves review, analysis, and the creation of findings that will be scored and used to facilitate selection of the scope. The team will produce an actionable set of recommendations aligned with the capabilities for implementation for this initial phase.

Proposed deliverables from the sessions will include findings, scorings and recommendations with the intent to guide budget allocations.

**Task 2 – Development of System Requirements and Design:** This task will include the documentation of functional and non-functional requirements, architecture overview, use cases, joint release plan and estimated budget for Phase 1.

**Task 3 - Production of Final Report:** This task will produce a final report that documents all the activities and results of the project.
Budget and Schedule

The work as summarized above is estimated to cost $265,261. The principal investigator for this project will be Dr. Mohammed Hadi, PE (LCTR at FIU) Dr. Naphtali Rishe (I/UCRC-CAKE at FIU) will serve as a Co-PI. Below is project budget estimate (including fringe benefits and indirect cost).

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<th>Budget Item</th>
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<th>Task 2 Cost ($)</th>
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<td>Mohammed Hadi, Ph.D., PE</td>
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<td>Naphtali Rishe, Ph.D.</td>
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<td>Tom Gustafson</td>
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Time Schedule

- 2/10/2014 to 3/10/2014
- 3/11/2014 to 5/5/2014
- 5/6/2014 to 6/2/2014