I-275/Busch & I-275/Fowler
Innovation Gateway Concept Study

Hillsborough MPO
Metropolitan Planning
for Transportation

I-275/Busch & I-275/Fowler

Innovation Gateway Concept Study

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Cover image is conceptual and subject to change.

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1. Introduction to Innovation Gateway Concept Study

The purpose of the Innovation Gateway Concept Study is to develop preliminary design concepts for themed gateway statements at the I-275/Busch Boulevard and I-275/Fowler Avenue interchanges. These interchanges serve as entry points into the Innovation District, which includes the University of South Florida, several medical institutions, Busch Gardens & Adventure Island, the Museum of Science and Industry (MOSI), and the University Mall as major anchors.

As outlined in the study scope, the concepts developed should include landscape and hardscape features as well as lighting. Furthermore, the design concepts should be visible from both I-275 and the roadways passing underneath the interstate. Development of the gateway design concepts involved extensive coordination with staff from the Tampa Innovation Alliance, the City of Tampa, Hillsborough County, and the Florida Department of Transportation (FDOT) District Seven.

Finally, the design process took into account the implementation and practicalities of the proposals. Inspiration from aesthetic treatments in other cities was combined with the observations of specific conditions in the Innovation District, as well as local and state regulations regarding community aesthetic features.

1.1 Development of "Global Citizen" Theme

The first series of stakeholder meetings were held in September 2015. As summarized in **Appendix 1**, the project team collected data and conducted a site visit of both interchanges. Following the site visit, the team met with staff from FDOT District Seven regarding their requirements for Community Aesthetic Features (CAF) on state roadways. A separate meeting was held with the City of Tampa and Hillsborough County to discuss local regulations and issues or concerns.

These meetings were followed by a brainstorming session with all of the stakeholders. Images of aesthetic treatments from other cities around the country and world were presented. Based on input in the brainstorming session, the idea of theming the design concepts for the Innovation District around the notion of a "global citizen" was developed.

The preliminary concept plans combined aspects of environmental stewardship and aesthetic, innovative design to create a large-scale gateway that is visually stunning yet still provides sensitivity to functionality. But what does it mean to be a "global citizen"?

"It is a way of living that recognizes our world is an increasingly complex web of connections and interdependencies. One in which our choices and actions may have repercussions for people and communities locally, nationally or internationally."

"Global citizenship nurtures personal respect and respect for others, wherever they live. It encourages individuals to think

deeply and critically about what is equitable and just, and what will minimize harm to our planet."

- The International Development Education Association of Scotland (IDEAS), a network of organizations and individuals involved in the development education and education for global citizenship across Scotland (via www.ideas-forum.org.uk)

"An ethic of care for the world." -Hannah Arendt, political theorist

The global citizen concept has been interpreted by expressing a vibrant, large scale artistic gateway statement utilizing stainless steel, recycled glass rocks, native plant material, accent lighting, and sustainable practices such as rainwater/run-off collection to power the accent lighting. These concepts have been incorporated into the design proposals.

1.2 Design Principles and Development

The design principles were developed by the sustainable and creative motivations from the global citizen concept as well as criteria set forth through Florida Department of Transportation's (FDOT) Community Aesthetics Features (CAF) criteria.

FDOT Community Aesthetic Features

The Florida Department of Transportation (FDOT) includes requirements for Landscape and Community Aesthetic Features (CAF) in their Plans Preparation Manual. These CAF requirements are to be adhered to when enhancements are made in FDOT right-of-way (ROW), on FDOT structures, or on FDOT facilities for the sole purpose of representing, reflecting, or recognizing nearby community cultural and/or natural values and resources, or to enhance the sense of place through which a highway passes. These features are to be designed, maintained, and entirely paid for by the local government entity. CAF may be constructed by the local government entity, or included as part of a Department project.

Categories and Criteria

CAFs are placed into two categories by the FDOT: public art and local ID markers. Public art may be standalone or affixed to a structure. An art installation is defined as having no display of text, words, or alpha numeric characters. Local ID markers may also be standalone or affixed to a structure. Text such as municipality name or community name is allowed on local ID markers.

A summary of the criteria includes:

- Installations within limited access ROW and visible from the interstate mainline require FHWA approval
- CAFs are not allowed within the median of an interstate
- One standalone feature is allowed per mainline interstate approach
- Height limited to 25 feet above the nearest point of roadway
- Placement of CAFs along interstate are to be a minimum 50 feet from edge of travel lane
- Maximum letter height is 4 feet

Other FDOT Requirements

The following other FDOT requirements need to be met for the installation of CAFs:

- CAF shall meet all governing safety, access, and maintenance requirements
- Shall have an executed CAF Agreement
- Acknowledge that the FDOT can remove/relocate CAF due to lack of maintenance or need of additional ROW

Sustainable Design

Inspired by the ethical global citizen concept, the preliminary concept plans were developed with sustainability in mind in respect to existing stormwater capacity, lighting, and materials. The use of these sustainable features were well received by the stakeholders.

Stormwater

The design concepts respect the existing stormwater capacity and offer the potential to enhance stormwater management with a rainwater/run-off collection system. The design concepts did not alter any of the current drainage infrastructure or outfall structures. Instead, the designs used the existing drainage outfalls as part of the design solution.

As an example, it was identified during the study process that the triangular drainage fields to the north remain wet frequently. As a method of working with current outfall systems, the design concepts propose creating water features in those frequently wet areas to help improve aesthetics.

Solar Collection and Accent Lighting

To further the sustainable qualities of the proposed designs, the concepts recommend creating an aesthetically-pleasing solar collection facility to create an appealing yet functional statement to power the proposed accent lighting.

Materials

Materials such as recycled glass rocks and the utilization of native plants are also part of the preliminary concept plans. The use of recycled glass was well received by the public during the public input process.

2. Design Proposals

The Gateway Innovation Study developed two potential design proposals for the Busch Boulevard and Fowler Avenue interchange areas. The design concepts establish creative and unique statements at both interchanges through vertical hardscape features and landscape improvements. The designs are developed around the theme of "What it Means to be a Global Citizen" by creating a sense of entry and innovation into the Innovation District.

The design concepts were developed with sustainability in mind, with the use of solar panels, recycled glass materials, and a rainwater collection system as aspects of the proposals. The proposed design options include two scenarios for the primary focal points of the project: 1) The installation of large, iconic pieces of public art, or 2) The construction of a sculpted Bridgeway arch statement. Under bridge enhancements including colored LED lighting, art enhancements and landscaping are also included with the design scenarios.

This section discusses specific elements included in the design options, the designs themselves, opinion of cost, and the next steps for the implementation of the designs.

2.1 Creative and Innovative Designs

Ideally, the gateway improvements will include elements above the bridge and under the bridge. The proposed concepts above the bridge are an art sculpture or a bridgeway arch. The conceptual elements below the bridge include lighting and/or painting that will make a statement. Renditions of the proposed designs are found on the following pages and images that were used as inspiration for the design elements can be found in **Appendix 2**.

Art Sculpture Element

Create two vertical art elements with the "global citizen" theme that would sit atop a sculpted earthen mound and extend 25 feet above the height of the bridge. The two vertical art elements ideally would not be the same. However, the use of materials would be similar and each element would utilize lighting to its greatest potential.

Bridgeway Arch

Construct a sculpted steel arch statement over the surface roadway that incorporates theme lighting in between the arched elements. The arches would have finishes and textures that create a textural feel during the day. At night, the introduction of lighting will provide a striking display of light that can be seen from the highway and from the surface roads.

Colored LED Lighting Under Bridge

Create an artistic statement by installing colored LED lights below the bridge. This improvement would involve power washing and/or painting the bridge elements to provide a clean canvas for lighting effects. The intent is to focus the attention of built elements outside of the bridge envelope to avoid attaching or hanging large elements from under the bridge or on columns. The currently sloped pavement below the bridge may be walled off with a free standing enclosure, or remain sloped.

Artistic Painting and Accent Lighting Under Bridge

Include artistic elements and/or painting of the walls under the bridge with accent lighting. These enhancements would provide a visual impact for those exiting the interstate from the north, providing the first images of the area. Art panels could be installed between the bridge piers, similar to plans for the Riverwalk underneath I-275 in downtown Tampa. Both the accent lighting and art panels could be changed frequently, allowing for rotating scenery.

2.2 Design Concepts

This section presents Design Concepts 1 and 2 for the I-275 interchanges with Busch Boulevard and Fowler Avenue.

Design Concept 1: Art Sculpture

The following lists other specific features included with Design Concept One:

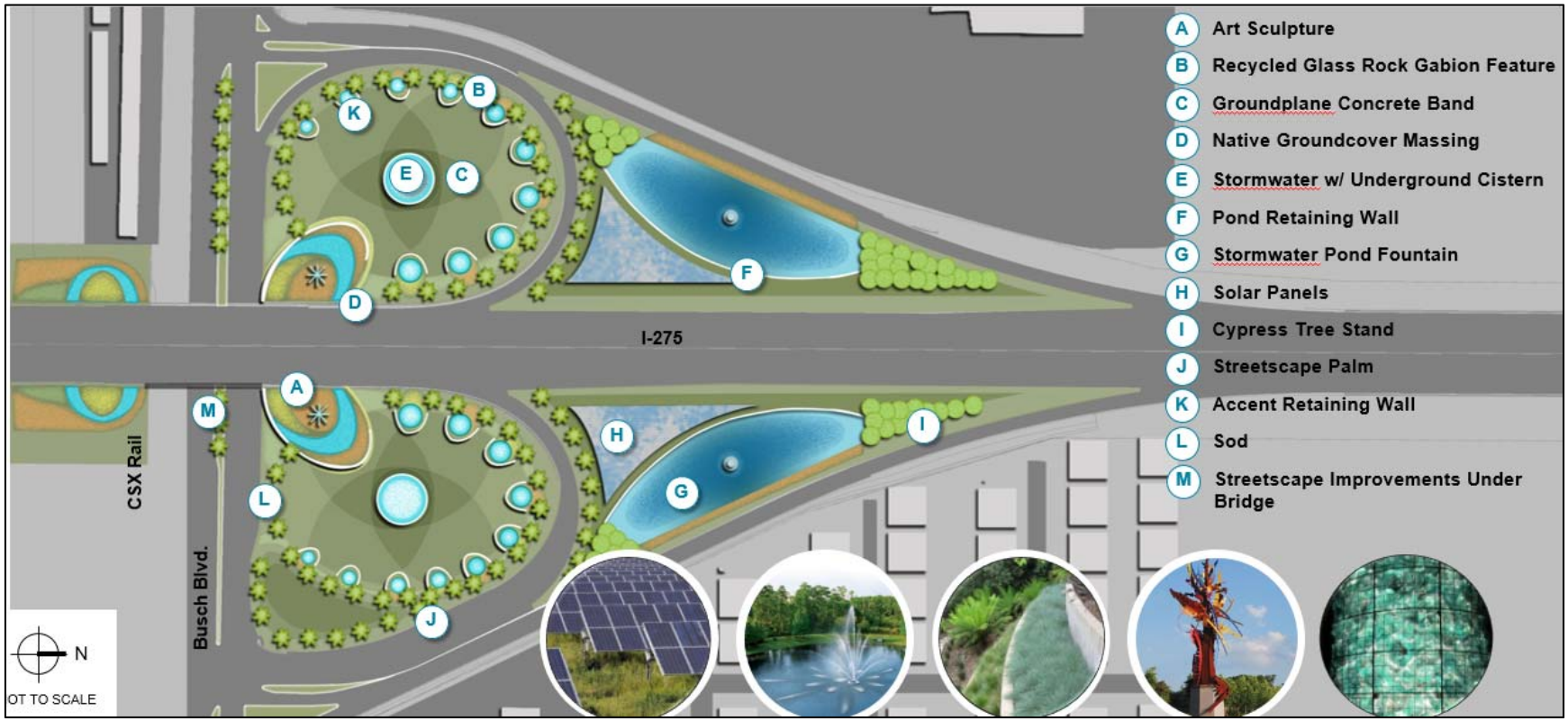
- Art Sculpture
- Recycled Glass Gabion
- Ground Plan Concrete Band
- Native Ground Cover Massing
- Pond Retaining Wall Streetscape
- Solar Panels
- Cypress Tree Stand
- Streetscape Palm
- Accent Retaining Wall
- Under Bridge
- Sod
- Stormwater Pond Fountain
- Stormwater w/Underground Cistern

Design Concept 2: Bridgeway Arch

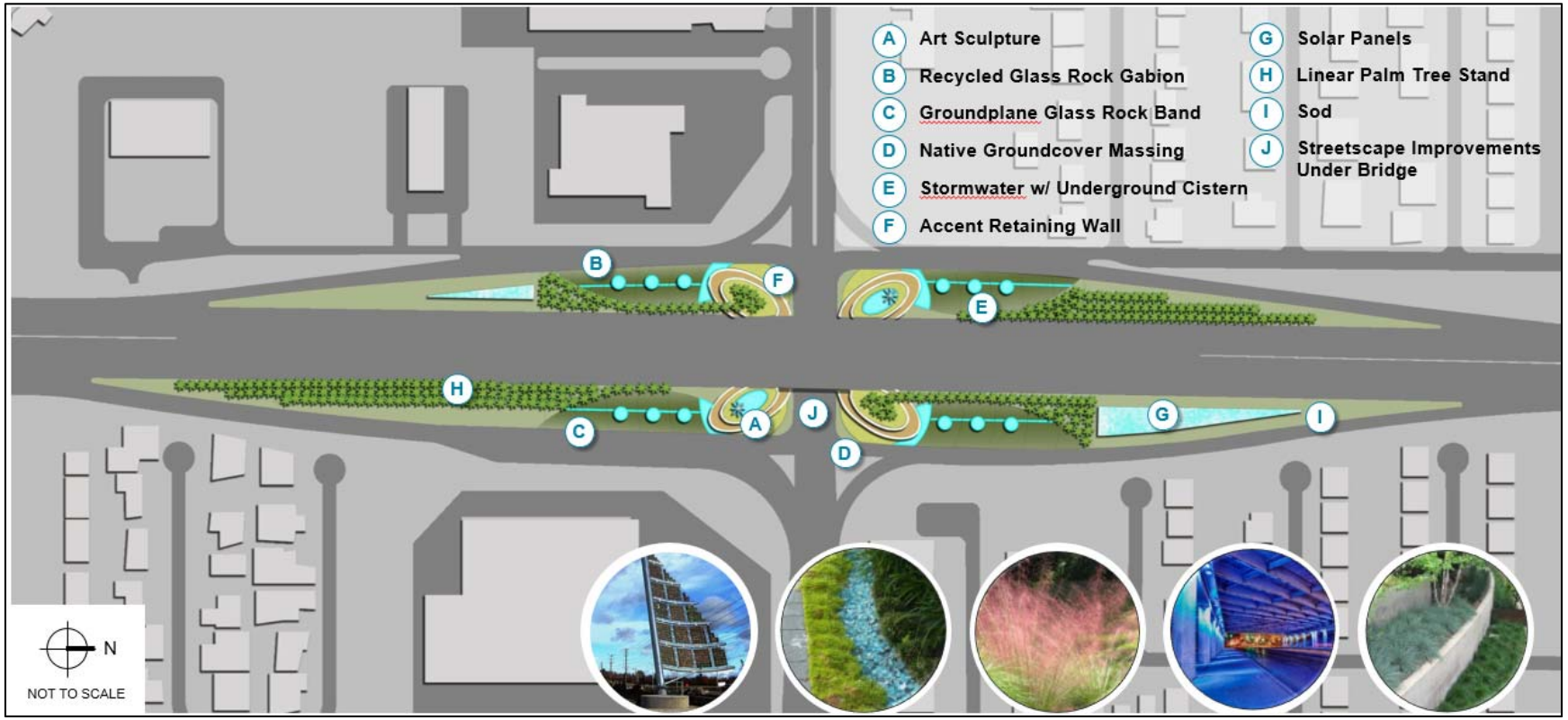
The following lists other specific features included with Design Concept Two:

- Bridgeway Arch
- Accent Retaining Wall
- Native Ground Cover Massing
- Stormwater Facility
- Solar Panels
- Recycled Glass Wall
- Streetscape Palm
- Sod
- Streetscape Enhancements Under Bridge
- Recycled Glass with Underground Cistern

Design Concept 1: Art Sculpture | Busch Boulevard



Design Concept 1: Art Sculpture | Fowler Avenue



Design Concept 1: Art Sculpture | Materials

Sculptural solar panels

Underbridge lighting and aesthetics

Stormwater pond fountain

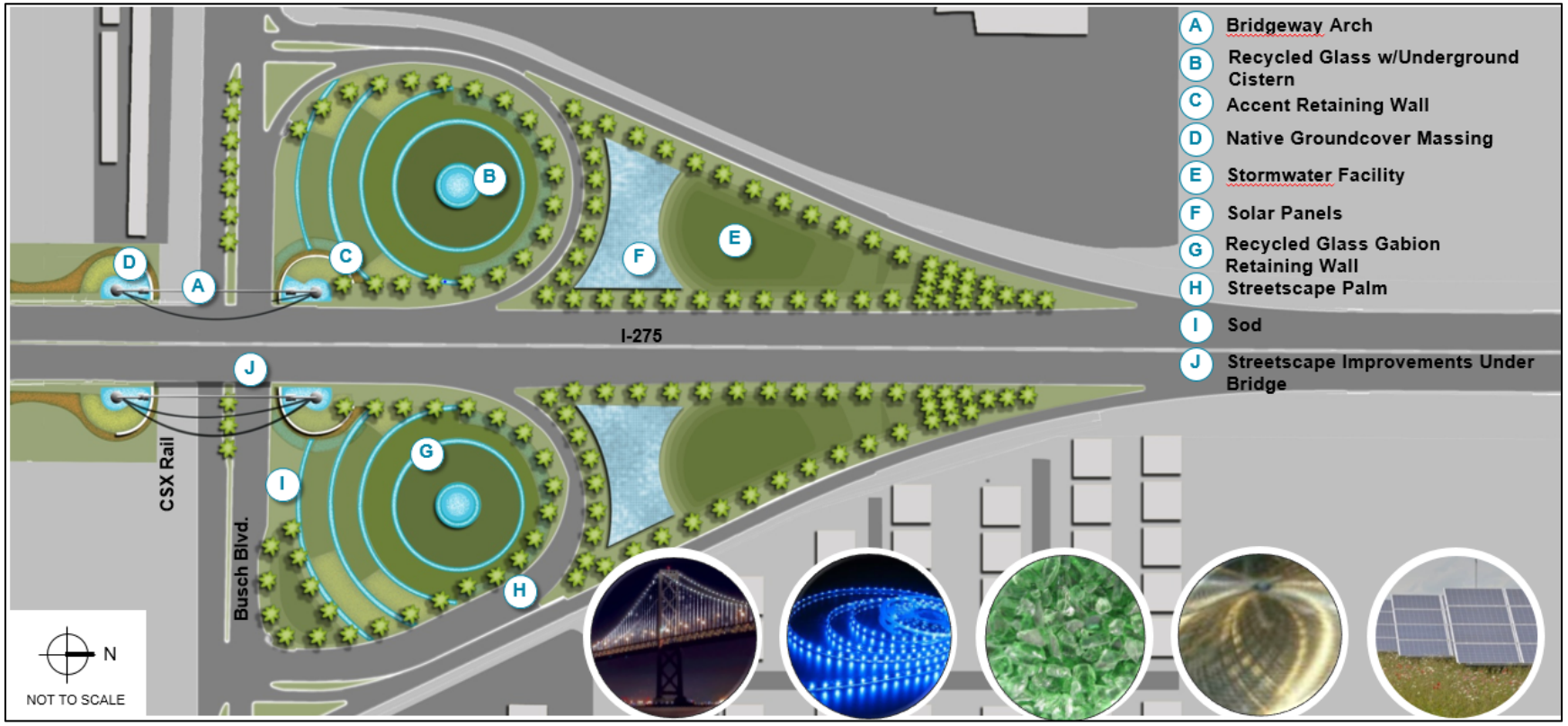
Cypress tree stand

Recycled glass gabion

Unique art sculpture

Design Concept 1: Art Sculpture | Character Sketch

Design Concept 2: Bridgeway Arch | Busch Boulevard



Design Concept 2: Bridgeway Arch | Fowler Avenue

Design Concept 2: Bridgeway Arch | Materials

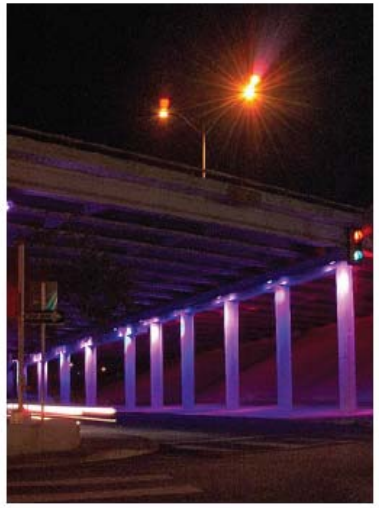
Bridgeway aesthetic treatment

Solar panel field

Bridgeway arch lighting

Recycled glass groundplane treatment

Tiered landscape beds



Underbridge lighting

Design Concept 2: Bridgeway Arch | Character Sketch

2.3 Initial Cost Estimates for Design Concepts

This section provides a preliminary estimate of the probable construction costs of the design concepts. Note that cost estimates for the Busch Boulevard interchange are higher for both concepts, as there is a much larger area to cover.

Appendix 3 includes further detail on cost estimates.

Concept 1: Art Sculpture

- Busch Boulevard = $4.0 million
- Fowler Avenue = $2.0 million

Concept 2: Bridgeway Arch

- Busch Boulevard = $4.8 million
- Fowler Avenue = $2.9 million

3. Refinement of Design Concepts and Next Steps

The initial design concepts were presented to the stakeholders group at a meeting on November 13th, 2015. Following that meeting, some concerns were raised by FDOT District Seven staff related to the compatibility between the design concepts and the rapidly evolving plans for Tampa Bay Express (TBX) capacity improvements. A meeting with FDOT was held on January 28th, 2016 to discuss the scope of the Innovation Gateway Concept study, adherence to the FDOT's Community Aesthetic Features (CAF) review process, and status of TBX designs for the area.

3.1 Continued Coordination

A primary result of the meeting was an agreement to continued coordination between all of the stakeholders, with progress meetings scheduled approximately every six weeks. A summary of the meetings held during the study are included in **Appendix 4**. The first of these additional meetings was held on March 15th, and preliminary design concepts for TBX were discussed. FDOT offered to review the initial Innovation Gateway design concepts and provide comments in relation to FDOT standards as well as consistency with the TBX design.

A follow up meeting was held on May 5th, where FDOT presented more refined TBX plans. During that meeting, it became apparent that the TBX toll lanes would not initially extend to Bearss Avenue and that toll gantries might be installed on I-275 between the Busch Boulevard and Fowler Avenue interchanges. These toll gantries could provide an opportunity for a high impact gateway feature over the interstate to complement the landscape and under bridge enhancements being considered.

Additional information on toll gantries was collected, including various design concepts and potential costs. The information was discussed with City, County, Innovation Alliance, and MPO staff on May 23rd. Refinements and additional information on toll gantries was collected, and then discussed at the stakeholder meeting on June 23rd. At that meeting, FDOT reported that the gantries likely would not extend across the entire interstate, somewhat limiting the design impact they could have. Some toll gantry images are included with other Inspiration Photos in Appendix 2, with more details provided in **Appendix 5**.

3.2 Next Steps

While final design concepts for the Innovation Gateway have not been developed yet, much was gleaned from this initial study. The CAF review process has been defined and the steps necessary to garnering approval from FDOT are understood. Furthermore, the Innovation Alliance is commencing a branding study and designs are being developed for streetscape enhancements within the area. Both of these efforts will inform refined gateway design concepts for the I-275/Busch Boulevard and I-275/Fowler Avenue interchanges. Finally, the larger stakeholders group has agreed to continue meeting on a regular basis to discuss coordination between the gateway design concepts and TBX designs. Opportunities to for collaboration will be considered, as combining some elements of the gateway design concepts with the TBX project may offer cost and time savings.

4. Appendices

Appendix 1. Existing Conditions

Site visits were conducted in order to gather information, record observations, and note opportunities and strengths. The following pages provide the context and existing conditions of the study.

Appendix 1.1 Boundary

Boundary | Innovation District

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Appendix 1.2 Context Busch Boulevard

Context | Busch Blvd.

Appendix 1.3 Busch Boulevard Existing Conditions

Existing Conditions | Busch Blvd.

Eastbound Busch Blvd. at Exit Ramp Intersection

Eastbound Busch Blvd. approaching I-275 Overpass

Eastbound Busch Blvd. at I-275 Overpass

Eastbound Busch Blvd. under I-275 Overpass

Appendix 1.4 Fowler Avenue Context

Context | Fowler Ave.

Appendix 1.5 Fowler Avenue Existing Conditions

Existing Conditions | Fowler Ave.

Eastbound Fowler Ave. near Central Ave. Intersection

Eastbound Fowler Ave. at Central Ave. Intersection

Eastbound Fowler Ave. at I-275 Overpass

Eastbound Fowler Ave. under I-275 Overpass

Appendix 2. Inspiration Photos

Appendix 2.1 Public Art Inspiration

Gordon Huether Sculpture, ABQ East Gateway

I-4 Ybor City, Tampa, FL

Odyssey

Sculpture

Bridge Design, Broadway-Viaduct

Appendix 2.2 Local ID Markers Inspiration

I-185 Fort Benning Entrance, Fort Benning, GA

Pensacola Beach, FL

Welcome Sign Las Vegas, NV

Hollywood Sign, Hollywood, CA

I amsterdam logo on the back of Rijksmuseum on Museumplein

Historic US 66 Gateway, Tulsa, OK

Los Angeles International Airport

Orlando Entryway, I-4 Orlando, FL

Appendix 2.3 Underbridge Treatments Inspiration

Art panels being installed along the Tampa Riverwalk

Proposed treatment for underbridge aesthetics as part of the I-4 Ultimate Project in Orlando

Uplighting beneath the Crosstown Connector in Tampa

Appendix 2.4 Accent Lighting Inspiration

Under Bridge Lighting

Under Bridge Lighting

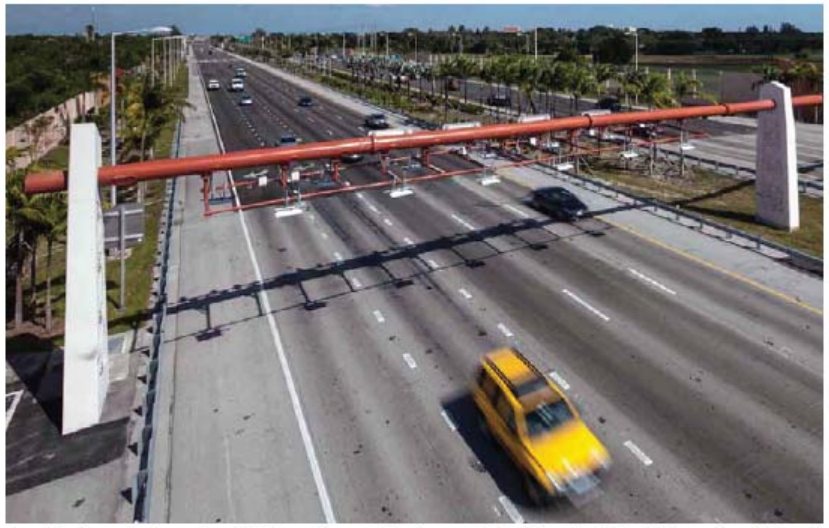
Crosstown Connector, Tampa, FL

Under Bridge Lighting

Under Bridge Lighting

Appendix 2.5 Toll Gantry Aesthetic Options

A typical aesthetic treatment for toll gantries on Florida's Turnpike



A painted monotube gantry with themed concrete piers on SR 836 west of Miami International Airport

This toll gantry on the Crosstown Connector in Tampa spans the entire width of the roadway

At night, this gantry creates a colorful aesthetic expression

Appendix 3: Design Concept Cost Estimates

Appendix 3 provides a detailed breakdown of the concept designs per feature. Note that the solar farm costs do not include any available government grant funding/rebates.

Design Concept 1: Busch Boulevard

Item Description	Qty.	Unit	Unit Cost	Extended Cost
CAF Sculpture	2	EA.	$ 400,000.00	$ 800,000.00
Gabion Features w/Glass Rock and Lighting	20	EA.	$ 25,000.00	$ 500,000.00
Retaining Wall (4'-0" ht.)	14,000	SF.	$ 50.00	$ 700,000.00
Glass Rock Mulch	1	Allow	$ 20,000.00	$ 20,000.00
Pond	1	Allow	$ 150,000.00	$ 150,000.00
Pond Fountain	1	Allow	$ 50,000.00	$ 50,000.00
LED lighting	1	Allow	$ 250,000.00	$ 250,000.00
Trees 65 Gal.	44	EA.	$ 800.00	$ 35,200.00
Palms 14' CT	85	EA.	$ 1,500.00	$ 127,500.00
Groundcover	1	Allow	$ 125,000.00	$ 125,000.00
Sod	1	Allow	$ 100,000.00	$ 100,000.00
Irrigation	1	Allow	$ 250,000.00	$ 250,000.00
Solar Farm	0.8	AC.	$ 500,000.00	$ 400,000.00
			Subtotal	$ 3,507,700.00
			15% Contingency	$ 526,155.00
			Total	**$ 4,033,855.00**

Design Concept 1: Fowler Avenue

Item Description	Qty.	Unit	Unit Cost	Extended Cost
CAF Sculpture	2	EA.	$400,000.00	$ 800,000.00
Gabion Features w/Glass Rock and Lighting	6	EA.	$ 25,000.00	$ 150,000.00
Retaining Wall (4'-0" ht.)	2,000	SF.	$ 50.00	$ 100,000.00
Glass Rock Mulch	1	Allow	$ 10,000.00	$ 10,000.00
LED lighting	1	Allow	$100,000.00	$ 100,000.00
Palms 14' CT	180	EA.	$ 1,500.00	$ 270,000.00
Groundcover	1	Allow	$ 50,000.00	$ 50,000.00
Sod	1	Allow	$ 40,000.00	$ 40,000.00
Irrigation	1	Allow	$100,000.00	$ 100,000.00
Solar Farm*	0.25	AC.	$500,000.00	$ 125,000.00
			Subtotal	$ 1,745,000.00
			15% Contingency	$ 261,750.00
			Total	**$ 2,006,750.00**

Design Concept 2: Busch Boulevard

Item Description	Qty.	Unit	Unit Cost	Extended Cost
CAF Arch	2	EA.	$ 1,000,000.00	$ 2,000,000.00
Glass Gabion Retaining Wall (2'-0" ht.) w/Lighting	1300	CY.	$ 75.00	$ 97,500.00
Retaining Wall (4'-0" ht.)	3,500	SF.	$ 50.00	$ 175,000.00
Glass Rock Mulch	1	Allow	$ 50,000.00	$ 50,000.00
LED lighting	1	Allow	$ 200,000.00	$ 200,000.00
Palms 14' CT	142	EA.	$ 1,500.00	$ 213,000.00
Groundcover	1	Allow	$ 500,000.00	$ 500,000.00
Sod	1	Allow	$ 100,000.00	$ 100,000.00
Irrigation	1	Allow	$ 250,000.00	$ 250,000.00
Solar Farm	1.2	AC.	$ 500,000.00	$ 600,000.00
			Subtotal	$ 4,185,500.00
			15% Contingency	$ 627,825.00
			Total	**$ 4,813,325.00**

Design Concept 2: Fowler Avenue

Item Description	Qty.	Unit	Unit Cost	Extended Cost
CAF Arch	2	EA.	$750,000.00	$ 1,500,000.00
Retaining Wall (4'-0" ht.)	6,000	SF.	$ 50.00	$ 300,000.00
Glass Rock Mulch	1	Allow	$ 15,000.00	$ 15,000.00
LED lighting	1	Allow	$100,000.00	$ 100,000.00
Trees 65 gal.	28	EA.	$ 800.00	$ 22,400.00
Palms 14' CT	68	EA.	$ 1,500.00	$ 102,000.00
Groundcover	1	Allow	$ 50,000.00	$ 50,000.00
Sod	1	Allow	$ 40,000.00	$ 40,000.00
Irrigation	1	Allow	$100,000.00	$ 100,000.00
Solar Farm	0.6	AC.	$500,000.00	$ 300,000.00
			Subtotal	$ 2,529,400.00
			15% Contingency	$ 379,410.00
			Total	**$ 2,908,810.00**

Appendix 4: Stakeholder Meetings

The following appendix summarizes the stakeholder meetings conducted for the study.

September 21: Initial Inquiry Meeting with FDOT

- PPM Chapter 9: Landscape and Community Aesthetic Features
- Public Art/Local ID Marker
- Maintenance by Local Government Entity

September 24: Initial Inquiry Meeting with City of Tampa and Hillsborough County

- “Lights on Tampa”
- Irrigation Access Available/Texas Phoenix Palm Decline
- Low Maintenance

September 24: Innovation Alliance Kick-Off Meeting

- Inspire People
- Sense of Arrival
- “Global Citizen” Theme

November 13: MPO and Innovation Stakeholder Meeting

- Introduction of designs
- Individual Stakeholder Review Surveys

January 28: FDOT District Seven Meeting

- Study Overview
- CAF Standards Compliance
- FDOT Issues Discussed

March 15: MPO and Innovation Stakeholder Meeting

- Coordination w/Tampa Bay Express Preliminary Design (FDOT)
- City of Tampa Processes Overview
- Key Decision Points
- Next Steps (MPO)

May 5: MPO and Innovation Stakeholder Meeting

- Potential FDOT Funding
- Maintenance of Enhancements
- TBX Construction

May 23: Next Steps Discussion Meeting

- Toll Gantry Design Options
- Coordination with other Innovation Alliance initiatives
- Future Scope of Work and Schedule

June 23: MPO and Innovation Stakeholder Meeting

- Toll Gantry Location and Design
- Coordination with Innovation Branding

Appendix 5: Additional Toll Gantry Design Information

Appendix 5 provides additional information on various toll gantry designs and general costs. It is worth noting that the costs shown are for full-span systems, and the gantries being considered in the study area may only be partial-span systems.

LEVEL 1 – Trichord

Simple Structure, no architectural treatment

The most basic type of toll equipment structure is the tri-chord gantry which is basically an overhead sign structure. This type of gantry requires that overhead equipment maintenance be performed with a bucket truck or platform lift. This will require a partial or full lane closure, depending on the roadway section. Given the potential impact of Maintenance of Traffic requirements during overhead equipment maintenance, this type of toll equipment structure is typically used on lower volume ramps. Also, this type of "bare bones" gantry offers minimal aesthetics.

- *ELECTRONIC TOLLING POINT DESIGN, 2013 Design Training Expo*

LEVEL 2 – Custom Trichord

Simple Structure, Some architectural treatment thru color and shape

LEVEL 3 – Accessible Gantry

Structure allows for maintenance access from above, some architectural treatment thru color, shape, and cladding

The second type of toll equipment structure utilized is the accessible gantry. This type of gantry is so named because the toll equipment is accessible by the maintenance technicians from on the gantry structure. This means that equipment can be maintained from above the roadway during live traffic. The toll equipment support arms are able to be rotated back onto the gantry walkway for serving. Access to the overhead gantry structure, which is traversable, is with a scissor-lift truck which allows access to a raised platform and stairway. This type of gantry provides a greater opportunity for some enhanced aesthetic treatments.

-ELECTRONIC TOLLING POINT DESIGN, 2013 Design Training Expo

LEVEL 4 – Custom Accessible Gantry

Structures become more custom and complex,
More use of color and type of materials, specialty lighting

LEVEL 5 – Custom

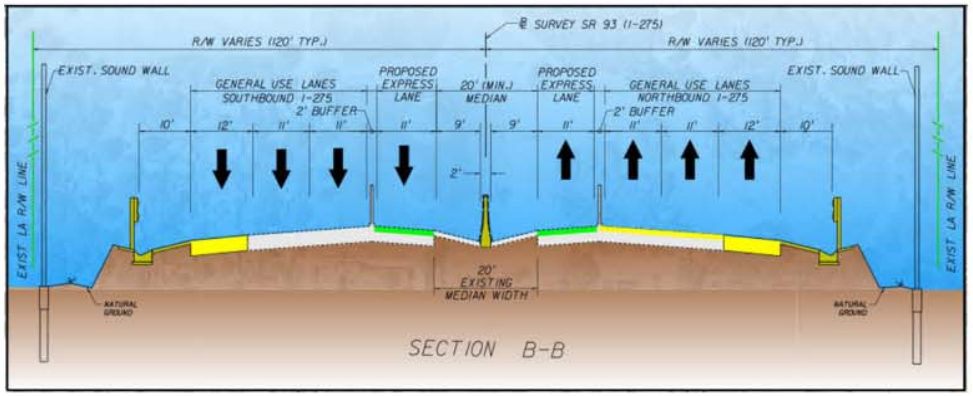
Large Custom Structures, Custom Architectural Treatment

LEVEL 5 – Custom

Estimated Construction Cost $7.4 million – $9.0 million

Rough Cost Estimate

Assuming a min. 150' span and max. 200' span toll gantry over I-275, located between E Busch Blvd. and E Fowler Ave.



LEVEL 1 (Trichord)	$870,000 - $1.1 million
LEVEL 2 (Trichord with custom treatment)	$950,000 - $1.3 million
LEVEL 3 (Accessible Gantry)	$1.7 million - $2.3 million
LEVEL 4 (Accessible Gantry with Custom Treatment)	$2.0 million – $2.7 million
LEVEL 5 (Full Custom Gantry, Large Scale)	$5.0 million - ???

*These estimates were based one 2013 cost estimates for a Trichord and Accessible Gantry.
Costs were adjusted for inflation (3%/year).