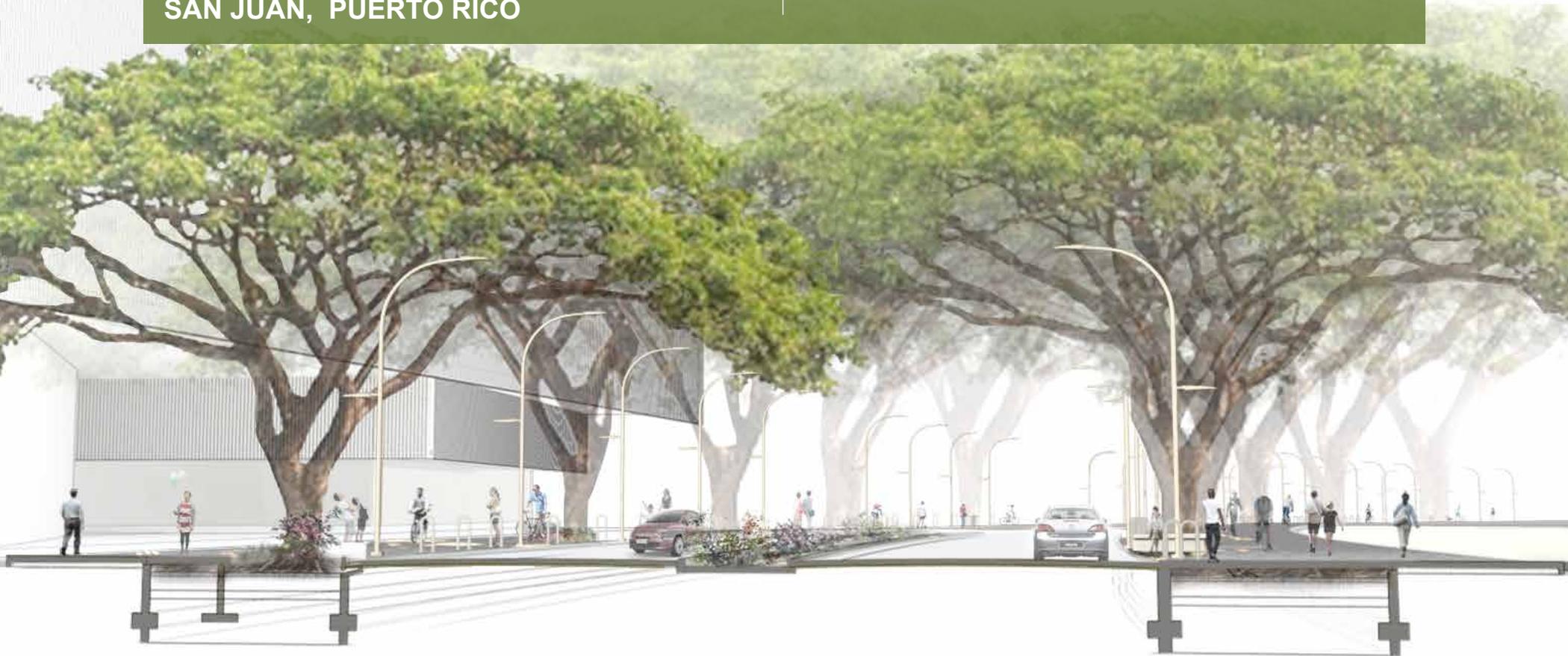


SCIENCE CITY URBAN INFRASTRUCTURE

SAN JUAN, PUERTO RICO

TIGER VI Capital Grant Application
April 25, 2014



COMMONWEALTH OF
PUERTO RICO
Puerto Rico Infrastructure
Financing Authority

PUERTO RICO | Science, Technology
& Research Trust

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The entire application and appendix materials, as well as additional information about Science City Urban Infrastructure are available on line at: <http://www.bgfpr.com/2013/Grants/TIGERGRANTS2014/TG2014ScienceCity.html>



COMMONWEALTH OF
PUERTO RICO
Puerto Rico Infrastructure
Financing Authority

April 23, 2014

The Honorable Anthony Foxx
Secretary
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: TIGER VI Discretionary Grant Proposal - Science City Urban Infrastructure Project, San Juan,
Puerto Rico

Dear Secretary Foxx:

We are excited to submit this application for \$16.8 million in TIGER VI discretionary grant funding, in support of the \$28 million "Science City Urban Infrastructure" project. The Science City is one of the principal initiatives of Governor Alejandro García Padilla's Administration; and a collective effort to develop an interconnected science community, where spatial proximity will allow increasing the rate and diversifying the pattern of collaborative research innovation, while promoting economic development.

The proposed project consists of the construction of a boulevard, an avenue and a four-lane multimodal bridge within a 70-acre redevelopment area in the heart of San Juan, Puerto Rico's capital city. It aims to transform the zones of influence of the Cupey and Centro Médico stations of the Tren Urbano rail system into transit-oriented development zones, integrated within a regional economic development plan. Connections between the Science City, Centro Médico, the new University of Puerto Rico Comprehensive Cancer Center and the University of Puerto Rico Molecular Sciences Building will be established by a variety of mobility options. These options will create an intermodal transportation grid that includes access to pedestrian and bicycle pathways, bus routes and the metro rail system, linking an accessible, multimodal transportation network within the district. The project will have a significant public benefit to cost ratio of 2.5; and it is strongly supported by the island's public policy, academic, and business communities.

Puerto Rico is still in the throes of a recession entering its 8th year with an unemployment rate of 14.7%, the highest in the country at the state level. The proposed project will spark an economic transformation based on the strategic development of Puerto Rico's pharmaceutical and medical industrial sector. It will directly support the creation of thousands of new, long-term, skilled and other job opportunities. The Science City Project will provide the necessary infrastructure for an energy efficient and sustainable cityscape where Puerto Rico's economy can thrive.

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With that in mind, the elements identified in the proposal are consistent with TIGER VI mission and goals. The Puerto Rico Infrastructure Financing Authority and its lead partner, the Puerto Rico Science, Technology & Research Trust, are committing \$11.2 million in non-federal funds toward the project. These funds are approved for this purpose and available for obligation immediately upon award of a TIGER grant.

We are truly optimistic about this opportunity to accelerate the island's economic recovery. Thank you for the opportunity to apply. If you have any questions, do not hesitate to contact me at your convenience.

Very truly yours,



Grace M. Santana-Balado, Esq.
Executive Director

2. TITLE PAGE



Project Title:	Science City Urban Infrastructure – Phase II
Location:	City of San Juan, Puerto Rico
Type of Application:	Capital Improvement
Applicant:	Puerto Rico Infrastructure Financing Authority (PRIFA)
Type of Eligible Applicant:	Unit of State Government
TIGER VI Grant Funds Requested:	\$16.8 million
Non-Federal Match:	\$11.2 million

3. PROJECT NARRATIVE

I. PROJECT BACKGROUND AND DESCRIPTION

The Puerto Rico Infrastructure Financing Authority (PRIFA) requests \$16.8 million in TIGER discretionary funding for the second phase (“Phase II”) of the \$28 million Science City Urban Infrastructure (SCUI - Phase II), a transportation capital project in San Juan, Puerto Rico.

The project seeks to redevelop an idle parcel into a center piece of economic development, by creating a landmark project that combines multimodal transportation elements to facilitate connectivity.

The project consists of the construction of two new intersecting primary roadways and a four-lane multi-use bridge that, in combination with improvements already under construction (“Phase I”), will provide the infrastructure backbone and transit connectivity for the development of “Science City”, a key strategic redevelopment zone set within the broader vision for the San Juan “Knowledge Corridor”. Science City is a major Transit Oriented Development (TOD), consisting of over 6 million sq. ft. for mixed-use purposes (including one-half million sq. ft. in laboratory /R&D uses) to be implemented within a 70-acre site.

The project was presented in the June 2007 *Science City Master Plan: The San Juan Knowledge Corridor* (see **Appendix A**) and adopted by the Puerto Rico Planning Board, the state planning agency, in 2011 after a thorough environmental process that included public participation. The TIGER VI grant will underwrite the key transportation



Figure 1:
Science City Urban Infrastructure Project Rendering.

components within the Science City project, linking Science City to the new University of Puerto Rico Comprehensive Cancer Center (UPRCCC) *Centro Médico*, the largest medical complex in the Caribbean; and the *Tren Urbano* (TU) metropolitan area rail transit system. Highways PR-18 and PR-21 disconnect these three locations from each other, harming residents’ ability to access these education and health centers and limiting the ability to create a walkable and accessible environment. The construction of the bridge and roadways will accelerate the completion of the overall project.

If the infrastructure project *were not* constructed, other critical development initiatives that would strengthen Puerto Rico’s position in the global knowledge economy would be postponed for a number of years (see Project

Economic Context, below). In a globally competitive environment, where jurisdictions throughout the world are competing for research-based activities, it could mean the permanent loss of biosciences activity in Puerto Rico. Should this happen, the U.S. could experience a loss of competitiveness by seeing basic science research capacity in the biopharma sector migrate to non-U.S. locations.

The Project Location and its Urban Context

The Science City project is located in the geographic center of metro San Juan (See **Figure 2** Location Map) . An important element of its strategic location is its proximity to the *Centro Médico* complex, an amalgam of seven major healthcare facilities, including the Veterans Administration

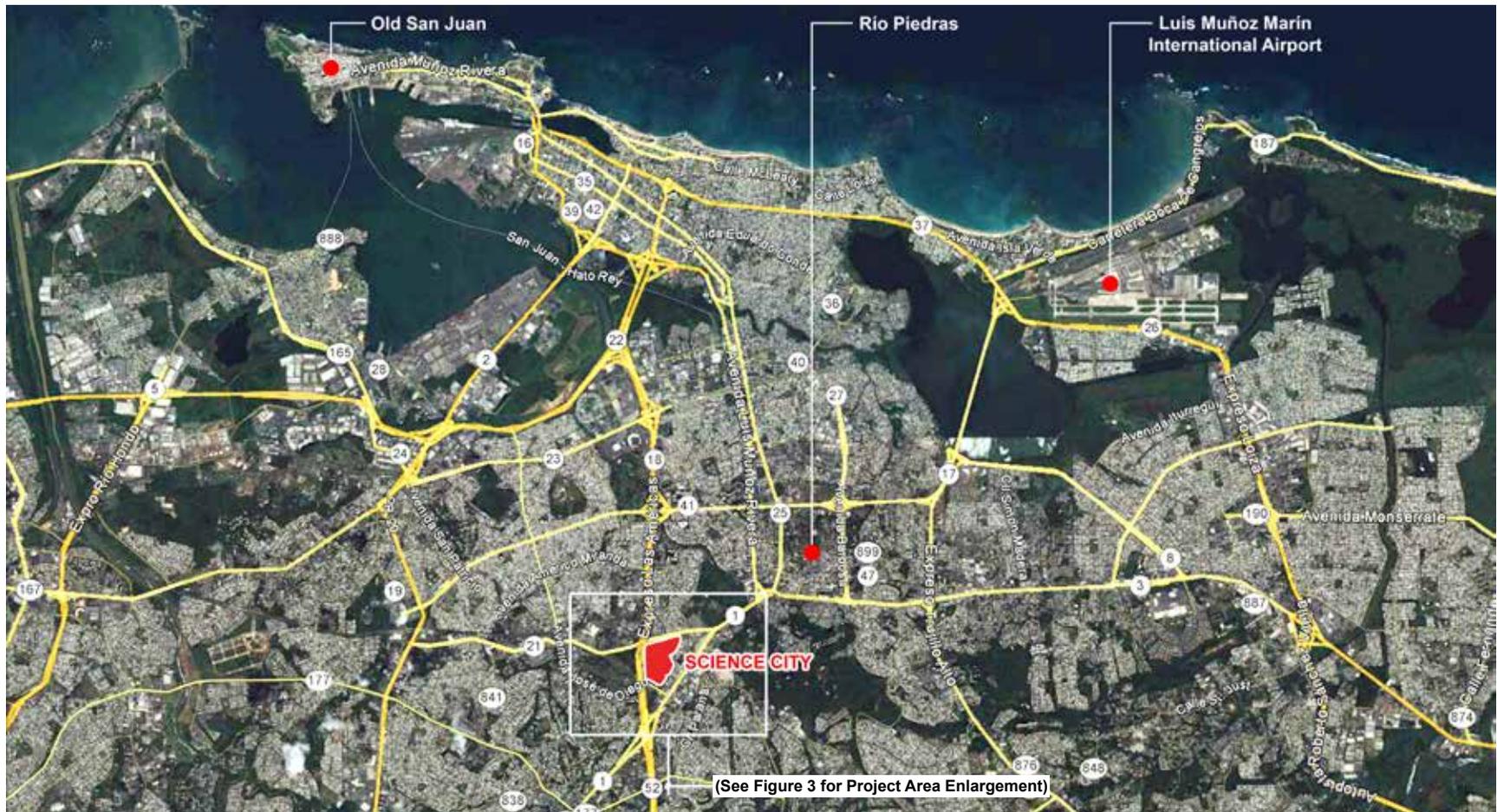


Figure 2: Location Map

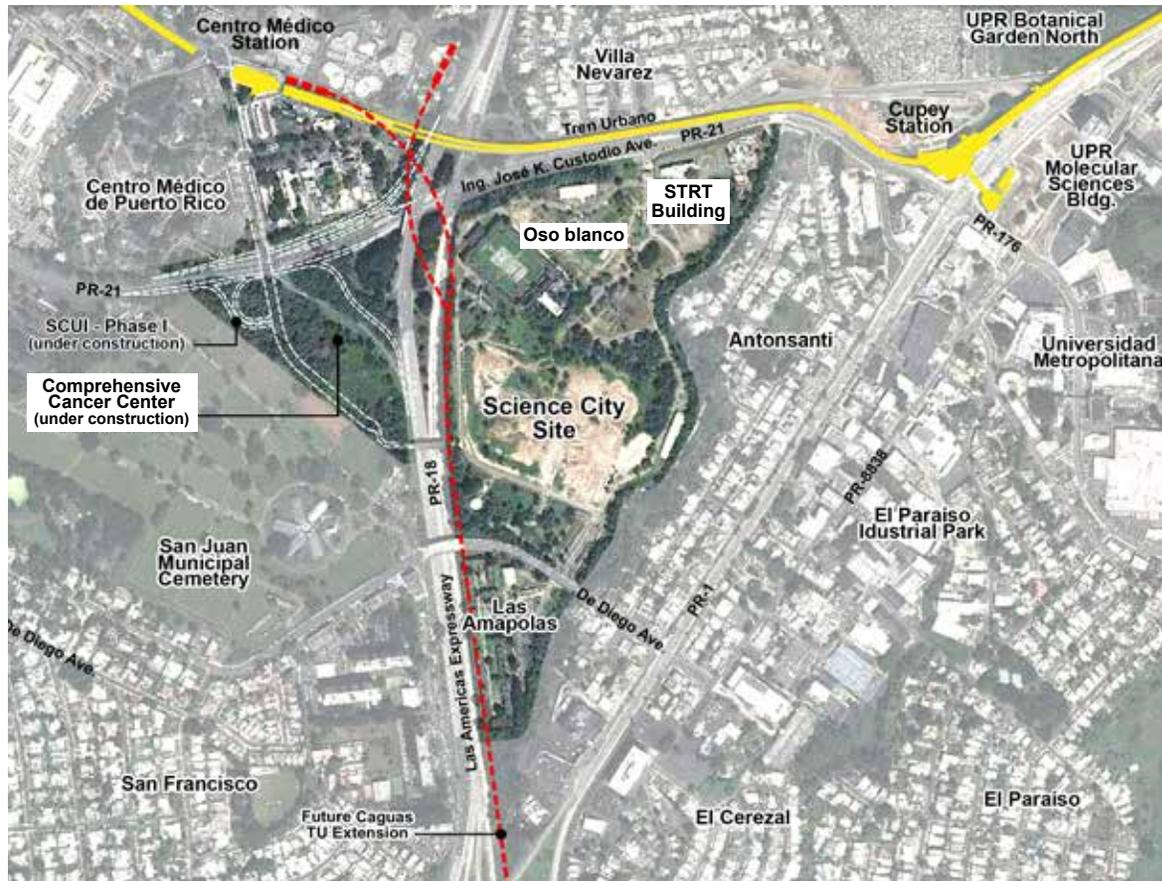


Figure 3: Project Site Area - Existing Conditions



Oso Blanco Penitentiary

hospital, the Medical Sciences campus of the University of Puerto Rico (UPR), and other important island health and science institutions (See **Figure 3** Project Site Area).

The Science City physical setting is the 70-acre site of the former state penitentiary complex, *Oso Blanco*¹, which is owned by the Puerto Rico Science, Technology and Research (Trust), the project partner. Most of the abandoned prison structures, with few exceptions, have been or are currently being demolished. Some structures have been recycled under an adaptive reuse strategy, such as the conversion in 2013 of the former correctional officer dormitory into the new Trust headquarters. The Trust also converted two floors of the edifice into the Trust’s “Innovation Center”, currently housing seven incubator firms.

The property is defined by a series of primary roads. Along its western edge is PR-18 (*Expreso Las Américas*), an expressway that is the main road for commuter traffic to San Juan from its south-

¹ Popularly referred to as “Oso Blanco” (meaning white bear) due to its imposing structure and 60 ft. white, walls.

ern suburbs and central-eastern Puerto Rico. Highway PR-21 is along its northern edge and De Diego Ave along its southern limits. *Buena Vista* creek defines its eastern edge, with highway PR-1 in close proximity and parallel to it. The property is within the zone of influence of two TU stations: *Centro Médico* and *Cupey* stations, whose ridership is 68,183 and 50,479 passengers monthly, respectively.² Highway PR-21 and De Diego Avenue, respectively, had an Average Daily Traffic (ADT) of 57,548 vehicles per day (vpd) and 23,720 vpd in 2008. PR-18, by contrast, had an ADT of 266,100 vpd (2002 data).

The PR Highway & Transportation Authority (PRHTA) has been implementing several projects over the past 15 years to alleviate traffic congestion on PR-21 and PR-18. The most recent are improvements to the PR-21/PR-18 intersection that implement key features of Phase I of the Science City Urban Infrastructure Project (summarized below) of which the proposed TIGER VI grant project is a pivotal, logical extension that completes the project.

The project will provide enhanced pedestrian and vehicular connections between the existing transit system and the proposed development initiatives, as current topographic conditions impede such movements even though properties fall within a 500-meter radius of the transit station. Furthermore, and as recommended in the Science City Master Plan, the *Centro Médico* station is being evaluated as the intermodal transfer location of a new rail mass transit system currently being planned that would connect the cities of San Juan and Caguas and parallel the most heavily traveled north-south expressway in Puerto Rico (PR-52, which merges into PR-18).

² *Centro Médico* is one of the stations with the highest ridership in *Tren Urbano*.

The Trust, acting within the framework of the Science City Master Plan, provided the planning, design and infrastructure framework to establish the facilities of the University of Puerto Rico Comprehensive Cancer Center (UPRCCC), in collaboration with the University of Texas M.D. Anderson Cancer Center. The Science City Master Plan allowed for the development of the UPRCCC parcel (on which construction began in February 2014) and contained the plans for the network that connects the UPRCCC, the *Centro Médico* and the Science City through a new typology of infrastructure that includes bicycle lanes, wide sidewalks and a sustainable and environmentally-sensitive design concept.

Economic Context

Puerto Rico, still in the grip of an 8-year economic recession, has limited resources and opportunities at its disposal with which to catalyze highly desirable economic development activities and job growth. Economic growth is critical in what is, arguably, the most economically distressed area of the United States, with an unemployment rate of 14.7% (compared to 6.7% for the nation) and a labor participation rate nearing 41%, the lowest in the country by nearly 20%. In its current situation, Puerto Rico is in need of initiatives or investments with an impact beyond its initial capital investment that address short, medium and long-term needs.

The biopharmaceutical industry has been the leading industrial sector in Puerto Rico's economic development since the mid-1970s. It has generated close to 25% of the island's Gross Domestic Product (GDP) in the last four decades and continues to be the main generator of exports,

responsible for over two-thirds of total manufacturing exports that, in turn, represent close to 98% of total exports. It generates some 90,000 direct and indirect jobs on the island, 15% of total private sector jobs. The contributions of the research based biopharmaceutical industry go beyond employment and incomes generated. However it has had a key role in Puerto Rico's efforts to transition to a knowledge-based economy.

For Puerto Rico to be a major competitor in the knowledge economy, it has had refocused its efforts with respect to the industry, moving from traditional manufacturing to research based manufacturing, and strengthening its Research and Development (R&D) infrastructure in order to provide an attractive location for research based activity in the biopharma sector.

The Science City project, the heart of the nascent Knowledge Corridor, is a key component of this infrastructure. Its goal is to create a centrally located urban space that can be shared by academia, the island's main medical facilities, research laboratories, and companies involved in the production and commercialization of biomedical products. The project will thus strengthen Puerto Rico's ability to compete in this industry on a global basis.

The project's long-term goal is to make Puerto Rico a hub of bioscience activity and strengthen the island's attractiveness as a location for the industry, particularly for stand-alone subsidiaries of larger, comprehensive research firms and promising start-up research oriented firms. Stand-alone firms and start-ups typically need to be located near research facilities and universities, where basic scientific research is undertaken as opposed to their parent companies, who might have in-house research capabilities. This is also true for start-ups in the sector.

In short, Puerto Rico is making a concerted effort to move away from the traditional manufacturing operations in the pharmaceutical industry to activities in the biosciences where research is a key component. The 152,000 sq. ft., state of the art, UPR Molecular Science Building, one-half mile from the Science City, the first and only facility in Puerto Rico dedicated exclusively to scientific research, and the 12-story, 286,000 sq. ft. The UPRCCC, with its focus on research as well as patient care, are prime examples of Puerto Rico's determination to ensure that the island is a competitive player in the growing knowledge economy.

Phase II of the Science City Urban Infrastructure Project will provide the basis for the initial development template and mobility network for the implementation of the Science City Master Plan as a truly TOD project. The long-term development agenda, representing more than 6 million square feet, is summarized below. See **Appendix B** for the approved distribution of land by use.

Table 1: Land Usage of the Science City Development

Elements of the Science City Development (according to the Master Plan land usage approved by the P.R. Planning Board)
> 1 million sq. ft. for biotechnology (laboratory space, research facilities, incubators for new enterprises)
> 396,000 sq. ft. of Office Space
> 300,000 sq. ft. of Commercial (Retail) Space
> 2,655 Residential Units
> 154,500 sq. ft. for a 100-room Hotel & Conference Center
> 90,000 sq. ft. of Public Space
> 5.3 acres of Parks, Plazas & Green Areas
> 4.1 acres for Vehicular Circulation and 7,696 Parking Spaces

Project Components

The project will provide critical access to a significant number of institutional sites destined for R&D, health, and life sciences uses by connecting integral components of Science City (the *Centro Médico* and UPRCCC) that have been intersected and cut off from each other by the island's major north-south thoroughfare, PR-18 (*Las Américas Expressway*), and the four-lane, east-west PR-21. The new arteries, in combination with the Phase I infrastructure improvements already underway, will connect pedestrians, vehicles and bus and rail mass transit systems within and beyond the Science City district. The implementation phases of the Science City Urban Infrastructure project are illustrated in **Figure 4**.

The implementation of the first phase of the Science City Urban Infrastructure is already underway (see **Figure 5**), triggered by the immediate need to provide vehicular and non-motorized means of access to the UPRCCC (construction started in February 2014) and an appropriate connection to *Centro Médico*. This phase involves eliminating the barrier represented by the existing PR-21 and PR-18 intersection. The existing

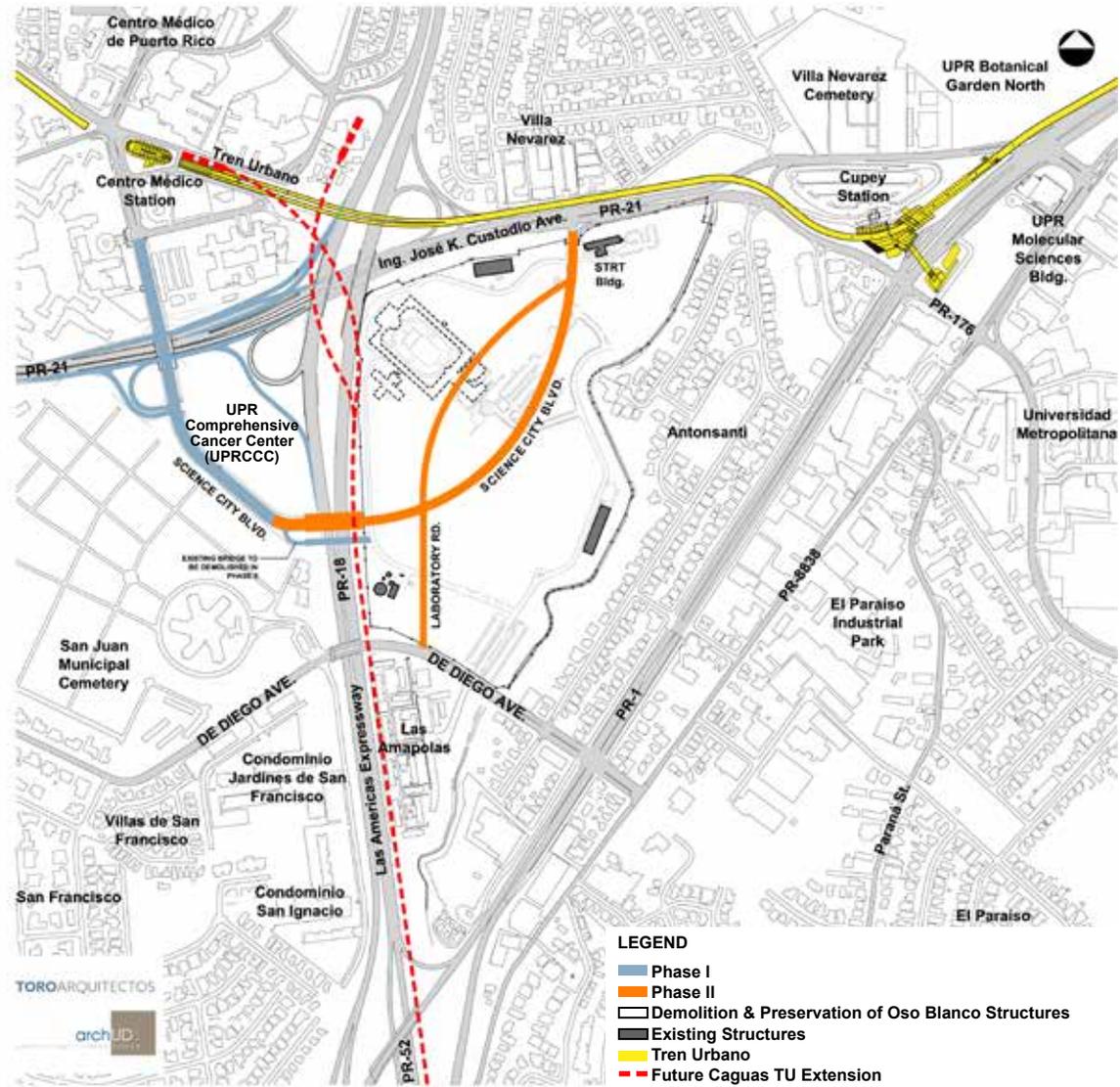


Fig. 4 Science City Urban Infrastructure Phase I & Phase II

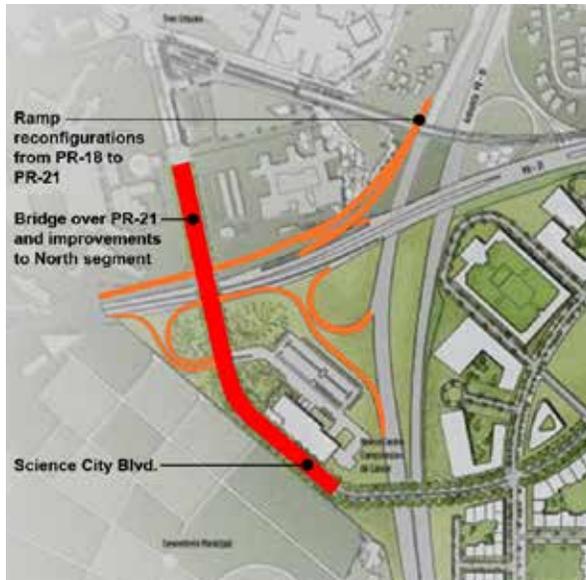


Fig. 5 Science City Urban Infrastructure Phase I



Fig. 6 Science City Urban Infrastructure Phase II (TIGER)

intersection and its on and off ramps have been reconfigured and two new bridges are under construction, providing access to the UPRCCC. Phase I also incorporates the initial segment of Science City Boulevard (from the western edge of PR-18, to the *Centro Médico* station). For a detailed description of Phase 1, please refer to **Appendix C**.

Until the new bridge over PR-18 is completed (a component of this TIGER VI application), the west side of Science City boulevard will connect with the existing, two-lane vehicular bridge that leads to the *Oso Blanco* site. The Phase I improvements represent a combined \$180 million investment by the UPR Comprehensive Cancer Center and the PRHTA. These improvements are slated for completion by 2016 and is expected to receive its first patients in soon thereafter. The TIGER funds requested are needed to complete the financing package to implement the key infrastructure elements. This will guarantee the planned connectivity for the Science City included in the design Phase II of the project (**See Figure 6**).

The major construction components of Phase II are:

> **Science City Boulevard.** A new half-mile, four-lane boulevard extension (26 to 30 mts. ROW) from the new Comprehensive Cancer Center, west of highway PR-18, to its intersection with highway PR-21, where the main entrance to the former penitentiary complex was located. Improvements to the intersection with PR-21 include: lane widening, lighting, drainage, pedestrian and bicycle lanes, traffic control devices, and safety improvements. The Boulevard itself will include new pedestrian and bicycle lanes that will provide a safe path from PR-21 to the UPRCCC and the Medical Center. This Boulevard will

be coordinated with other transportation projects that are presently underway as part of a larger PRHTA transportation improvements for PR-21.

> **Single-span Bridge.** A new four-lane, 185-foot single-span bridge overpass will carry the Science City Boulevard over the 10-lane PR-18, connecting both sides of the boulevard and eliminating a major safety hazard created by a central pier of the current, obsolete two-lane bridge. The pier is in the center of the two reversible lanes of the 10-lane highway, which presents a safety hazard for vehicles using the reversible lane, evident by the number of accidents reported in the area. The new wider bridge will provide additional vehicular capacity, wide sidewalks and bicycle lanes to match the boulevard section being implemented as part of Phase I of the project. The current bridge will be demolished as part of the proposed project.

> **Laboratory Street.** A new nearly half-mile two-lane avenue that will contain two segments, one segment (27.9 mts. ROW) runs from the north end of Science City Boulevard southward to De Diego Avenue, including major improvements at that intersection. Improvements include: lane widening, safety improvements, traffic signal system improvements, pedestrian and bicycle lane connectivity. The north roadway segment (23.5 mts. ROW) will be located next to a future urban park and laboratory zone and a southern segment oriented to a mixed-use condition.

All ROW required for the implementation of the improvements are owned by the Trust or the PRHTA (PR-18 and the ROW segment west of PR-18 needed for the bridge and boulevard extension to meet Phase I improvements). **Appendix D** provides a detailed descrip-

tion of the scope of work. The construction of the primary roads, above, will include the construction of retention walls, utilities infrastructure, drainage, traffic signal systems, lighting, pavement markings and traffic signing. Lots for institutional and public use will be provided with pre-approved points of connections on-site for water, sewer, power and telecommunications to facilitate the permit process and implementation.

While the proposed primary roads and bridge will be built with TIGER VI and local funds, developers implementing future site improvements within Science City will build the secondary roads during the gradual and long-term process of implementation of the Science City plan.

The structures required to be demolished for the implementation of the Science City Infrastructure – Phase II improvements have already been demolished, with the exception of the main building of the former state penitentiary and for which demolition is now underway. Originally thought of as a site for recycled use, in-depth studies conducted by the Trust indicated the structure was unsafe and dangerously deteriorated. A demolition contract was awarded in March 2014 and demolition completion is scheduled for March 2015.

Transportation Challenges

The proposed project confronts significant transit challenges left behind by the dramatic industrialization and suburbanization that the city of San Juan underwent between 1940 and 1960 at its southern boundary, where the island's principal health and penitentiary institutions were constructed. The Science City is located where the former Oso Blanco Penitentiary resided; purposely

isolated for security reasons, with limited roadway surfaces and minimal site access. These challenges were exacerbated by the rapid expansion of a poorly planned and fragmented car-oriented road and highway network that resulted in a disorganized urban scape, which provoked a significant rise in quality of life and environmental sustainability costs. Likewise, the existing topographic conditions of the site cause at present, poor pedestrian and vehicular connections in the district and impede the adequate movement of people even when the properties are located within a 500-meter radius of two Tren Urbano rail stations.

In 2008, the PR Planning Board adopted the SCUI Master Plan; a planning, design, and engineering vision for this vital sector. The Plan addresses problems of traffic congestion, road network connectivity, pedestrian and bicycle friendliness, safety, economic development, the promotion of additional modes of transportation, and sustainability. It details a cohesive strategy for growth and redevelopment along the projected “Knowledge Corridor”, seeking to improve the safety and operational efficiency for all modes of travel, while increasing economic productivity, sustainability, and livability in the area. The plan recognizes the need for a balance between the movement of large volumes of vehicular traffic and people into and out of *Centro Médico*, the new UPRCCC, the Science City Development and TU; and the desire to create a safe, walkable environment that will encourage economic growth.

How the Project Addresses the Challenges

Requested TIGER VI funding will permit taking on the second phase of the Science City Urban Infrastructure proj-

ect to complete the transportation implementation strategy of the Science City Master Plan, as well as much needed alternative routes for local transportation between the PR-21 Expressway, De Diego Avenue and *Centro Médico*. This in turn will facilitate a safer, more attractive, and economically thriving corridor to serve the needs of residents and visitors throughout the region. A route analysis is included as **Appendix E** which shows the existing routes and the proposed routes to facilitate access and connectivity.

The proposed improvements addresses the traffic demands of the district and will provide access to and from De Diego Avenue which, in turn, will improve traffic conditions along the PR-1 corridor. The improvements will also reduce traffic congestion at the intersections with the PR-21 Expressway and De Diego Avenue; will lower the occurrence of auto accidents in the area and establish pedestrian and bicycle traffic pathways to facilitate non-vehicular alternatives. Furthermore, the project will use landscaping as a means to provide shelter from the tropical sun, incorporate innovative means to reduce influx into the existing storm sewer system; and offer transportation choices through a multi-lane boulevard that will feed a secondary network of streets for future development. In addition to the numerous safety and multi-modal transportation benefits, it is expected that accelerating the implementation of the public infrastructure improvements will attract and facilitate private investment and reinvestment. Moreover, the project will transform Science City into a TOD zone by fully integrating its infrastructure with the *Centro Médico* and Cupey Tren Urbano Stations, integrated within a regional economic development plan as well as the development of the parcels and its surroundings in a true TOD.

Expected Project Users

Science City Boulevard, Laboratory Street and the new bridge will link postsecondary educational institutions, hospitals and other medical care facilities, publicly owned lands destined for development for life science industries, technology and R&D, adjacent existing residential areas and new residential spaces with innovative environmental and transportation features. Tens of thousands of students, faculty, employees, business owners, hospital visitors, and residents are among the projected users of these newly developed roadways.

The project will enhance job and educational opportunities for American citizens by investing in a transportation project that connects new and old communities to centers of employment, education, and services which hold promise to stimulate long-term job growth, particularly in and economically distressed area such as Puerto Rico. Many of the direct and indirect employment opportunities will surely attract Puerto Rico's professional and middle class, which has been migrating due to the island's stagnant, depressed economic situation.

In addition, current tenants of the area will be primary and secondary beneficiaries of Science City. These primary beneficiaries include the seven incubators firms located in the Trust's Innovation Center (the first tenants in the Science City site). Also, a non-profit specialized hospital for children, Shriners Hospital, will be established in Science City. See **Appendix G1** for letters of Support. Additionally, entities that will be primary beneficiaries of the project, because of their relationships to science, research and the other institutions in and around the Science are:

The Puerto Rico Science, Technology & Research

Trust, the site owner and co-leader of this TIGER VI application. The Trust has reflected its commitment to the Science City project by investing in the recycling of a former correctional officer dormitory and relocating its main headquarters there, along with the seven firms mentioned above.

Centro Médico medical complex, a 277-acre area north of PR-21 and east of PR-18 that includes seven major medical facilities and over 30 other science/health institutions. Among these are:

- > **Veterans Administration Medical Center (VAMC)**, which meets the needs of nearly 150,000 Puerto Rican veterans and U.S. military personnel from Latin America. VAMC is a 348-bed tertiary care facility and teaching hospital with over 900 residents, interns and students trained at the facility annually.
- > **The UPR Medical Sciences Campus** with a 3,000 student enrollment in the School of Medicine and in the specialty schools of Pharmacy and Dentistry, Graduate School of Public Health, College of Health Related Professions and the School of Nursing. The campus has 623 full-time and 1,450 faculty and non-teaching personnel, respectively.

UPR Comprehensive Cancer Center whose new 12-story, 286,000 sq. ft., 96-bed hospital will be the first major tenant within the Science City area, with patient care scheduled to begin in 2016.

Molecular Sciences Building's 152,000 sq. ft. of laboratories and research facility contributes to the continued development in science and technology, offering an arena for cutting-edge research for nearly 100 of UPR's Puerto Rico's best scientists and researchers, joined by postdoctoral students, technicians and over 500 hundred students.

Secondary, neighboring beneficiaries include the 290-acre **UPR Botanical Gardens and Herbarium**, the 10,000 student, private **Universidad Metropolitana** and the 18,000-student **UPR Río Piedras campus**, a public research university and flagship of the UPR system, located on 289 acres 1.5 miles northeast of Science City (a 35-minute walk).

Finally, Phase II transportation components, in combination, will have independent utility with respect to the following:

- > They will provide access and infrastructure for the redevelopment of the site's 70 acres in order to implement a new economic development agenda and job creation strategy for Puerto Rico based upon a knowledge economy.
- > They will guarantee critical connections to adjacent, extant primary and secondary roadways.
- > They will provide access to and from the TU transit system through the segment of the Science City Boulevard being currently implemented as part of Phase I, in collaboration with the UPRCCC.

The Science City Urban Infrastructure project will demonstrate how new ideas can transform leftover, suburban outparcels into well-defined pieces of the urban fabric.

II. PROJECT PARTIES

Applicant. The Puerto Rico Infrastructure Financing Authority (PRIFA) is a public corporation and political subdivision of the government of the Commonwealth of Puerto Rico. Created by virtue of Law No. 44-1988 (the Enabling Act), provides assistance to other agencies or government entities and instrumentalities responsible for developing and operating infrastructure facilities. Also by virtue of its enabling act, PRIFA entered into an assistant agreement with the Puerto Rico Science, Technology & Research Trust, the project owner and partner, to submit submitting this application for TIGER VI funding.

With extensive experience in the administration of federal discretionary grants (including project reporting and compliance), PRIFA will oversee the design and construction of the project and will be the grant recipient, responsible for administering the grant.

PRIFA is providing non-federal matching funds in the amount of \$100,000 to support the project.

Lead Partner and Provider of Matching Funds.

The Puerto Rico Science, Technology and Research Trust, the owner of the *Oso Blanco* site, joins PRIFA in the proposed project.

The Trust is a tax-exempt non-profit created by Law 214 of August 18, 2004. Its mission is to define and implement the Commonwealth of Puerto Rico's public policy pertaining to science and technology research and development, and to serve as an agent to promote investment and financing of the activities that will translate into the economic, social and educational wellbeing of the Island. Five of its eleven

Trustees are appointed public officials. The Trust acquired the *Oso Blanco* site from the Commonwealth government via a land/property transfer in 2007.

As the driving force behind the SCUI-Phase II, the Trust is making an \$11.1 million non-federal cash contribution and providing technical assistance with the project’s implementation, (see **Appendix G2** for Financial Commitment Letters).

The Memorandum of Understanding (MOU) between PRIFA and the Trust regarding the project is included as **Appendix H**.

Other Partners. The project has received unequivocal support from industry leaders, local government officials, and from the state’s executive branches. Support letters are included in **Appendix G1**.

III. GRANT FUNDS AND SOURCES / USES OF PROJECT FUNDS

USE OF FUNDS		SOURCE OF FUNDS			TOTALS	
#	Component	Federal TIGER VI Grant Funds	Non-Federal Match		Total Funds	As %
			TRUST	PRIFA		
1	Bid process for Construction Project	15,000	-	10,000	25,000	.09%
2	Architects/ Engineers Supervision during Construction	270,000	180,000	-	450,000	1.61%
3	Construction Management and Grant Administration	240,000	70,000	90,000	400,000	1.43%
4	Inspection Services during Construction	648,000	432,000	-	1,080,000	3.86%
5	Project Construction Cost	13,275,000	8,850,000	-	22,125,000	79.02%
6	Insurance	330,000	220,000	-	550,000	1.96%
7	Contingency	2,022,000	1,348,000	-	3,370,000	12.04%
Total Cost		\$16,800,000	\$11,100,000	100,000	\$28,000,000	100%
As %		60.00%	39.64%	.36%	100%	
		Total	\$11,200,00			
		Non Federal Match	40%			

IV SELECTION CRITERIA

Primary Selection Criteria

The Science City Redevelopment District is consistent with long term transportation objectives in the region. Completion of all phases of the project will have far reaching impacts on maintenance and life cycle costs. Also improved is the increase in user mobility options for residents and visitors.

This section describes how the Science City Urban Infrastructure Phase II meets TIGER VI primary selection criteria. The narrative presents the quantitative and qualitative benefits of the proposed project, based on the methodology recommended by the US DOT.

State of Good Repair

The proposed project consists of an investment in public roads that have been carefully planned to strengthen multi-modal transportation methods in a new, high-density development initiative that is fully tied to a new economic development paradigm that links R&D with the island's large-scale pharmaceutical manufacturing base. The project will reduce the burdens imposed on the existing roadway network, which suffer from a lack of connectivity and a historic dependence on the private vehicle, further deteriorating the existing roadway network, access to the Science City area, and impacting traffic conditions on the primary arteries leading to San Juan, where the majority of jobs are located.

The Trust has a long-term asset management strategy for new development initiatives to take place within the

proposed infrastructure network. This, in turn, provides more than adequate funding for the maintenance of all proposed infrastructure and relieves the city and state governments of responsibility for maintenance costs. The Science City Urban Infrastructure project is of major importance to the Trust, which has a sustainable stream of revenue at its disposal to promote further development of the site. Furthermore, the Trust obtained the *Oso Blanco* site free of liens, allowing it to become a sustainable source of revenue through development of the site by third parties, enabling the Trust to fully maintain and operate the proposed roadways.

Puerto Rico and Federal Transit Administration's past and future investments in the heavy rail *TU* system will be leveraged by the Science City project's promotion of high-density mixed used developments. Science City's direct ties with the *TU* will enable residents and users of the proposed infrastructure system to reduce their use of private vehicles to access *Centro Médico*, the island's principal medical care complex, by providing accessible and attractive infrastructure options for pedestrian and bicyclists. The project will make viable the completion of the basic urban infrastructure that will provide, when fully developed, critical connections to any future extensions of the *TU* system. Multimodal improvements will include the creation of comfortable pedestrian and bike lanes.

The Science City Urban Infrastructure Phase II will:

Reduce pavement damage

Pavement damage is caused by automobile traffic, measured by VMT in our benefit-cost analysis. The proposed project completion will reduce traffic and will save

an average of 0.6 VMT per day for approximately 20,500 vehicles, by providing a reasonable alternative to driving and, therefore, reducing the associated pavement damage costs. We estimate that the benefits from reduced future maintenance and repair needs will amount to \$1.68 million. Overall, there will be less damage to area highways and adjacent roads and the overall roadway system will remain in better repair.

Improve connectivity and multimodal capacity with replacement of existing PR-18 bridge

The narrow bridge that currently traverses PR-18 was designed for intermittent use for the old penitentiary. This bridge will be demolished. Highway PR-18 divides many west and east communities of metro San Juan. The proposed bridge enhances connectivity between communities by providing multimodal capacity for vehicles, bicycles and pedestrians, resulting in a significant paradigm shift.

Economic competitiveness

Economic productivity of land, capital or labor

The project will promote economic development through private investment in land development. The project will provide the primary means to reconceive a 70-acre, abandoned, unused area into a series of development parcels in accordance with the Science City Master Plan. The land value will increase from a current value of \$30,860,000 to \$44,938,236 during year one of the project's operation. This redevelopment will contribute to an increase in property values in an economically distressed area. With access and connections to the Science City, there is a well-founded expectation that the project will result in the most

productive use of land, as the value added by the Knowledge Corridor and Science City concepts should make the development attractive to private investors. This project will capitalize on connecting facilities and areas (such as *Centro Médico*, "old town" Río Piedras where the UPR campus is located, and the Botanical Garden & Herbarium) that were previously disconnected.

Improvement of long-term efficiency, reliability or cost competitiveness in the movement of workers or goods

The proposed project will provide all users, residents and employees with an economic competitiveness unparalleled by any other initiative in metro San Juan. The project will provide 21st century public infrastructure with intermodal facilities physically linked to the *TU* rail and *Metrobus* mass transportation systems and the government-sanctioned system of jitneys, all of which are more affordable modes of transportation than the use of private automobiles.

Most primary hospitals within the corridor comprised by the cities of San Juan, Guaynabo and Bayamón are linked by the *TU*, and Science City presents a revolutionary, environment-friendly infrastructure component that also incorporates other means of transportation, including limited bicycles and buses.

Long-term efficiency, reliability or cost competitiveness in movement of workers or goods

The proposed infrastructure will enable a highly efficient movement of workers by integrating workplace, residential and academic services within the zone of influence of the *TU* rail transit system. It will also place alternative mass transit systems, such as the *Metrobus* and the jitney net-

work, that operate around the Science City site within their reach, further creating efficiencies for users.

The completion of the SCUI-Phase II project will enhance the viability of the Trust's Science City development agenda and will influence the global competitiveness of the United States. Science City R&D components will interact with their mainland counterparts and will focus their activities on commercially viable projects, enhancing the island's capacity to attract manufacturing. This is in line with President Obama's goal of reactivating the nation's manufacturing sector and, as part of that effort, taking steps to return the manufacturing activities of U.S. firms from abroad. To the extent that Puerto Rico is able to develop the infrastructure for product and process development, it will become an attractive location for these firms to return their production to the U.S.

The completion of the project, a partial component of a broader infrastructure and economic development agenda being implemented in phases, will guarantee the successful completion of enhanced multimodal connections to Science City, the new center of employment, education, and services in San Juan. By doing so, the project will improve economic mobility and provide new opportunities to the economically distressed areas of the region.

The project will provide further economic development opportunities beyond those associated directly or indirectly with construction activities. The Science City infrastructure will enable the construction of other facilities associated with health, pharmaceutical, and research & development to transition Puerto Rico into a knowledge economy and capitalize on its global strength in the pharmaceutical manufacturing industry. R&D activities will foster employment at various levels and will link successful research

and patent achievements with the possibility of on-island manufacturing. Therefore, the economic benefit associated with the grant request will extend beyond construction completion and potentially become a critical component to reposition Puerto Rico in the global economy and strengthen its manufacturing capabilities, assisting in the creation of additional job opportunities over the long term.

The project will strengthen economic competitiveness and reinforce Puerto Rico as a biopharmaceutical and life sciences center of influence. Puerto Rico is a major competitor in the global pharmaceutical manufacturing industry. The project represents a new era for Puerto Rico as it maximizes the investments and resources of US-based companies by linking their R&D activities with a strong domestic manufacturing location. The proposed action will enable the creation of jobs in the R&D sector while it will preserve – and increase – those on the manufacturing side of the equation by making better and longer use of plants for which medical patents have, or are about to, expire. It will also assist in their transformation to maintain a constant stream of investment and revenue at an intellectually secure location regulated by federal laws and regulations. Without this connected infrastructure component, the entire agenda will be compromised.

It is expected that the SCUI-Phase II can produce \$142.2 million in government revenues in the construction phase and an average of \$18.98 million per year for the first 20 years of operation.

Job creation

The project will create more jobs than a typical road project. It is expected that 700 direct, indirect and induced jobs will be created during the construction phase,

according to the Puerto Rico Planning Board. The project will make a significant contribution to the long-term growth in employment in an area that has been in a depressed economic state for nearly 8 years, with unemployment levels higher than that of any state. Projections for the development of Science City as proposed by the Master Plan include the creation of 15,230 (direct and indirect) jobs in the construction phase and approximately 10,726 jobs per year for the first 20 years of operation, on average \$237 million per year, including the direct as well as the indirect and induced income.

The Science City Urban Infrastructure Phase II will:

Produce travel-time savings -- With the proposed project, travel time benefits are estimated to be 8.4 million hours over a 20-year or an average of 420,996 hours of time saved per year. These savings would only apply to the affected drivers, which are estimated at more than 20,500 drivers/users per day that will use the proposed roads. Time savings represent a net present value saving of \$27.4 million over the same 20-year period.

Result in vehicle operating cost savings -- Development of the proposed infrastructure will result in vehicle operating cost savings (fuel use, vehicle wear and tear) estimated at \$17.8 million over a 20-year period, amounting to an average of \$890,541 each year.

Without the improved vehicular and pedestrian access associated with the project, the development agenda of Science City will not be feasible. The proposed project is a key initiative that will contribute to the economic competitiveness of Puerto Rico as well as the U.S. over the medium-to long term, and will create and preserve jobs.

Table 3: Summary of Annual Jobs for Science City

Summary of Annual Jobs for Science City	
Type of Industry	20 year average
Direct Residential Jobs	985
Indirect and Induced Residential Jobs	1,182
> Housing Jobs – Total	2,167
Commercial – Direct Jobs	1,210
Commercial – Indirect & Induced	2,178
> Commercial Direct, Total	3,387
Office – Direct Jobs	1,151
Office – Indirect & Induced Jobs	921
> Office Jobs – Total	2,072
Hotel – Direct Jobs	116
Hotel – Indirect & Induced	85
> Hotel, Direct Total	201
School – Direct Jobs	16
School – Indirect & Induced	7
> School –Total	23
Convention Center – Direct Jobs	83
Convention Center – Indirect & Induced	60
> Convention Center Total	143
Laboratory Jobs – Direct	1,821
Laboratory Jobs – Indirect and Induced	911
> Laboratories Center Total	2,732
Total Direct Jobs	5,382
Total Indirect and Induced Jobs	5,344
TOTAL ANNUAL JOBS IN SCIENCE CITY	10,726

Quality of Life

The Science City Urban Infrastructure Phase II will:

- > Increase Land Value
- > Create benefits from walking and the use of bicycle paths
- > Reduce noise pollution
- > Serve the Partnership for Sustainable Communities

Increases land value — In terms of land value increases, the connectivity will allow future developments which will increase the land value from \$112.17 per square meter to \$212.79 per square meter. This appreciation is based on comparable land values in the area. Current value of land is \$30,860,000. And it is expected that the land value will increase to \$44,938,236. The net benefit is \$14,078,236 which is assumed to be a one-time benefit occurring during year 1 of the project.

Walking and bicycle path benefits — The proposed development will provide a walking and biking path of approximately 1.9 miles. The societal benefits of walking and biking in the proposed paths include two types of benefits: an extended life expectancy by reducing certain health conditions such as heart disease, type II diabetes, and the medical expenses an individual will pay, and an external benefit at large from the improved health of the individual thus reducing costs in subsidized medical care, emergency room visits, and marginal reductions in group health insurance rates. The total benefits of walking and bicycling in the proposed development area estimated at \$1.6 million, which include \$1,541,521 in walking benefits and \$64,644 in bicycling benefits.

Noise pollution reduction and benefits —

The reductions in VMT create corresponding reductions in noise pollution at a cost of \$0.001 per VMT, as estimated by the Federal Highway Administration. The new routes save each of the estimated 20,500 daily vehicles 0.6 miles/day. It is projected that the 20-year benefit in reduced noise will be approximately \$168,178.

Serves the Partnership for Sustainable Communities

> **Providing more transportation choices** — Science City Master Plan and primary infrastructure is a TOD consistent with Federal Transit Administration (FTA) guidelines. The proposed mix of uses, its services and density are designed to invest in communities that prioritize transit rather than the private vehicle. Properly lit, shaded and free of architectural barriers for the physically challenged, the Science City Urban Infrastructure will enable future employees, residents and workers within Science City to consider it as a live/work opportunity, with a variety of multimodal options fully inserted in its infrastructure and its immediate context.

> **Promoting equitable, affordable housing** — The proposed initiative includes a residential component consisting of 2,655 vertical, residential units, approved by the Puerto Rico Planning Board. Since its inception, the possibility of including workforce housing requirements has been a major consideration that could permit broad strata of residents to benefit from the innovative infrastructure and its insertion as a new urban initiative within San Juan. The project expands location- and energy-efficient housing choices

for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.

> **Supporting existing communities** — San Juan has had to rethink its planning and development. The repurposing of an 82-year old penitentiary complex from a self-contained facility with guards, walls and barbed wire will make this site accessible to the public and integrate it into a thriving urban community. In addition, it presents new mobility options and the support services essential to a community. Science City will demonstrate that a new urban space can be created within older communities with desirable connections to and from transit and that operates efficiently and with respect to the environment.

> **Value communities and neighborhoods** — The project infrastructure will enable residents of adjacent communities and neighborhoods to experience a public infrastructure that dramatically differs from that of typical developments in San Juan. It will reclaim connections lost with the construction of PR-18 and PR-21 and enable adjacent communities and neighborhoods to insert themselves into a new community in Science City. There they will be able to benefit from new services and employment opportunities and take advantage of the multimodal system found along its sidewalks with integrated bike lanes.

> **A project developed in coordination with land-use planning and economic development** — The Knowledge Corridor and Science City have their origins in sustainable development practices, particularly given their relationship with transit. Their thorough planning, as reflected in the

Master Plan that guides the project, incorporates Puerto Rico's new economic agenda by linking Corridor tenants and by correlating the R&D component and the pharmaceutical manufacturing capability of Puerto Rico, a recognized, global competitor in this industry. The Knowledge Corridor brings together a family of tenants in the fields of education, research, health and life sciences and establishes a planning scenario that can benefit from the corridor's geography while it also inserts a new planned community rooted in an economic development agenda that thrives on the Corridor's tenants.

From a planning standpoint, the Corridor is defined by the geographical limits of a proposed TOD district, documented via a Resolution of the Puerto Rico Planning Board in 2004 and the Science City itself, which also earned the Planning Board's approval for its infrastructure and development activities. The economic development agenda has its origin in Law 214 of August 2004, which created the Puerto Rico Science, Technology & Research Trust, and proposed a new economic development strategy and direction based upon a knowledge economy. An amendment to this law, enacted in 2011, established the "Scientific City District of Puerto Rico" and offered a series of economic incentives, including tax breaks, to future tenants or users of the Science City. The Comprehensive Cancer Center (UPRCCC) became the first entity to request inclusion within the district and has begun construction of its facilities within the district's boundaries.

Accessibility — The project will provide new, fully accessible public infrastructure that broadens accessibility to its immediate surroundings, particularly to the 277-acre *Centro Médico*, the largest medical complex in the Caribbean.

In addition to its multimodal qualities, the project provides connections that will reduce vehicular traffic by enabling multiple transportation modes for connecting the surrounding sectors with *Centro Médico*, the UPRCCC and other Corridor entities.

Land Use Changes — The construction of the project will result in the re-utilization of public land and presently abandoned and dilapidated structures. The construction fosters the repurposing of public properties that possess unique location characteristics and other advantages such as close proximity to public transportation.

Ridership — As a direct result of improvements associated with the Science City Urban Infrastructure project, coupled with the development of Science City itself and the long-term implementation of other projects within the Knowledge Corridor, there will be increased ridership on the existing mass transportation systems within the area and the Corridor. This increase will be driven by the expansion of existing facilities, new uses to be developed within the project area and the influx of new employees.

Environmental Sustainability

Reduction of Emissions — The development of the proposed boulevards will reduce the vehicle miles traveled of 20% of the current vehicles that transit in the adjacent roads which will reduce emissions by 6,000 tons of CO₂ per year for the first 20 years of operations. It is estimated that the total savings for the first 20 years will be of 80,016 tons of CO₂ and a present value of \$3.8 million or \$189,601 each year.

The project will also bring about a reduction in green-house gas emissions (and dependence on oil) by facilitating access to mass transit. The proposed infrastructure also invites people to walk on the wide, shady, well-lit sidewalks, and/or use bicycles to get to the TU Centro Médico or Cupey stations.

Innovative landscaping that provides heat reduction and reduces storm water impacts — Science City's innovative storm water management system is designed to enable adequate growth of tropical species while reducing the volume of storm water that flows into the public storm sewer system.

The project has an approved Environmental Impact Statement that found no adverse impacts. Furthermore, given its setting within a developed area of metro San Juan, no wetlands or endangered species were found within the project limits. In terms of water quality, all proposed development will be connected to the public aqueduct and sewer systems and no proposed action presents a risk associated with water quality. The TOD nature of the project also contributes to an improvement in air quality by enabling higher densities within transit zones of influence.

The Science City Master Plan presents a variety of environmental initiatives for future development actions that the Trust intends to require as part of any request-for-proposals for developments. These initiatives include the presence of green roofs, rainwater harvesting and solar-powered generation. With respect to the public infrastructure component, the proposed design recharges the ground by diverting storm water into engineered structural soil areas that process the influx and provide nutrients to landscape components, while reducing the volume of

discharges into the public storm sewer system. The new green ceiling over the public ROW, achieved by harvesting tropical rain trees that will cover the roadway cross-sections and foster habitats for bird species, expands the adjacent Botanical Garden habitat. Refer to **Appendix L** for more details.

Safety

The design of the project includes a series of features that improve safety for different transportation modes and users. The main accesses at the intersection of Science City Boulevard with PR-21 (north entry) and Laboratory Street with De Diego Ave. (south entry) will be modified to provide safe pedestrian crossings and traffic signal systems with wireless communications. Also, the construction of the new single span bridge over PR 18 expressway will eliminate the central pier of the existing, obsolete two-lane bridge. The pier is in the middle of the two reversible lanes of the 10-lane highway, which has represented a major safety hazard for many years; evident by the number of accidents reported in the area.

The proposed design will fully comply with the recently adopted “Complete Streets Policy” providing a safer multimodal transportation system. Design features such as properly dimensioned and signed streets; wider and well-lit sidewalks, ADA provisions, and bike paths, along the new streets will accommodate pedestrians and bicyclists in a safe infrastructure. All these improvements, including traffic calming measures to reduce vehicle speeds and increase driver attentiveness, are expected to reduce both the number and severity of accidents.

The project will result in:

Accident cost savings -- The development of the proposed boulevards will reduce traffic in the adjacent roads by approximately 20,531 vehicles per day. Reductions in Vehicle Miles Traveled (VMT) lower the incidence of traffic accidents. The cost savings from reducing the number of accidents include direct savings (e.g., reduced personal medical expenses, lost wages, and lower individual insurance premiums) as well as significant avoided costs to society (e.g., second party medical and litigation fees, emergency response costs, incident congestion costs, and litigation costs). The estimated present value of accident reduction benefits amount to \$20.1 million over a 20 year period.

New, safer streets in accordance with Puerto Rico’s “complete street policy” – The design of the two new roads and the bridge comply fully with the recently adopted “complete streets policy”. As previously indicated, the project has widened sidewalks, enhanced crosswalks and pedestrian refuges, surface treatments and pavement markings, raised medians, improved bus stop placement, traffic calming measures, dedicated bicycle lanes and treatments for physically challenged travelers, among other features that enhance accessibility.

Secondary Selection Criteria

Innovation

This project’s physical development is based on an urban infrastructure that takes into account and gives

priority to the well being of its residents and those who will make use of the area on a daily basis, making this a sustainable and socially responsible project.

The most innovative strategies incorporated in the proposed project address the need to create a strong ecological and sustainable development featuring a responsible and efficient use of water. The proposed design strategies for the drainage component of the Science City Boulevard and Laboratory Street address this challenge using distinct infrastructure design strategies. In addition, these strategies will sustain the long term survival of the *Samanea Saman* tree species (called for in the design in order to provide the comfort and protection required for the pedestrians and other users of the streets in a tropical climate).

The inclusion within the proposed streets of ample, shaded sidewalks, secure bike paths, and traffic calming features, and a systematic effort to provide for a safe and accessible right of way, are other innovative strategies not common in Puerto Rico. The main accesses at the intersection of Science City Blvd. with PR-21 (north entry) and Laboratory St. with De Diego Avenue (south entry) will be modified to provide safe pedestrian crossings and traffic signal systems with wireless communications.

A detailed presentation of the “green” design approach adopted for the project, the diverse design strategies used for the Urban Landscape and Infrastructural components in terms of the typologies and the innovative Storm Water Treatment strategies is provided in **Appendix L**.

Partnerships

The project enjoys the broad support of the key institutions in the island’s public and private sectors that are within the metropolitan area to be impacted. Among the partners collaborating on this project are:

- > Hon. Alejandro García Padilla, Governor, Commonwealth of Puerto Rico
- > Alberto Bacó, Esq., Secretary, PR Economic Development & Commerce Department
- > Uroyoán Ramón Emeterio Walker, PhD, President, University of Puerto Rico
- > Miguel Torres Díaz, PE, Secretary, PR Dept. of Transportation & Public Works
- > Javier E. Ramos Hernández, PE, Executive Director PRHTA
- > Ana Ríus Armendáriz, MD, Secretary, Puerto Rico Department of Health
- > José Dávila Pérez, MD, Executive Director, UPR Comprehensive Cancer Center
- > Irving Jiménez, Executive Director, Puerto Rico Medical Services Administration
- > The Shriners Hospital
- > Trust tenants

As stated in Section I, non-federal funding for this project stems from two sources of funding and totals \$11.2 million. This represents 40% of the project budget. The PRIFA as the applicant, and project manager, is obligating

\$100,000 in local funding towards the project. The Trust is providing \$11.1 million in private funding.

In addition to Phase II, PRIFA is coordinating the Puerto Rico Highway & Transportation Authority’s ongoing, \$21 million, Phase I of the Science City Urban Infrastructure and the UPR’s \$159 million investment in the construction of the \$159 million Comprehensive Cancer Center.

Disciplinary Integration

The Science City Master Plan is a prime example of a robust interdisciplinary integration. The effort, which launched a large-scale planning initiative, focused on establishing the framework to achieve a unique economic development project that could catalyze the links between educational, research, environmental, health and life sciences entities, within the conceived Knowledge Corridor. A variety of planning efforts during the last 10 years contained many of the proposed actions included in the Knowledge Corridor and Science City Master Plan which, in turn, became the basis for the proposed infrastructure.

This collaboration brought together all stakeholders in the collective area to invest in a market that fits within the world-class pharmaceutical research, engineering, and manufacturing capabilities of the Puerto Rican workforce and to create a transit-connected, environmentally-friendly, knowledge-based infrastructure that will catapult Puerto Rico’s economy into the 21st century.

Results of Benefit-Costs Analysis

A Benefit-Cost Analysis was conducted in April 2014. The analysis performed by *Estudios Técnicos*, a distinguished Puerto Rico consulting firm, was conducted in

Table 4: Summary of Benefits

Summary of Benefits	
Net Present Value (2014 dollars) for 2014-2034	
Total Benefits – Life Cycle Benefit	\$ 86,633,811
Total Costs	\$ 34,611,549
Benefit-Cost Ratio	2.50
Total Benefits	
State of Good Repair	Benefit
Pavement Maintenance and Repair Savings	\$ 1,681,785
Economic Competitiveness	
Travel Time Savings	\$ 27,389,998
Operating Cost Savings	\$ 17,810,817
Quality of Life	
Land Value Increases	\$ 14,078,236
Transit and Bicycle Path Benefits	\$ 1,606,165
Noise Pollution	\$ 168,178
Environmental Sustainability	
Emission Benefits	\$ 2,089,597
Savings in CO2 (\$)	\$ 1,702,427
Savings in CO2 (tons)	\$ 80,016
Safety	
Fatalities	\$ 10,156,395
Injuries	\$ 3,304,943
Property Damage	\$ 6,645,269
Total	\$ 86,633,811

accordance with the benefit-cost methodology recommended by DOT. The full Benefit-Cost Analysis is provided in **Appendix K1** and a BCA Matrix is included as **Appendix K2**. Benefits Exceed Costs by 2.5:1

V. PROJECT READINESS

Environmental Approvals

Since the proposed project is located in a previously impacted area (the site of the former *Oso Blanco* penitentiary), no adverse environmental impacts are expected for the construction of Science City Urban Infrastructure improvements. Furthermore, the Science City Master Plan has a Final Environmental Impact Statement approved by the Puerto Rico Environmental Quality Board and an approval of the development action from the Puerto Rico Planning Board. (See Environmental Impact Statement, **Appendix I**). As a point of reference, Phase I of the Science City Urban Infrastructure, consisting of the PR-18/PR-21 grade-separated interchange, obtained approval of a Categorical Exclusion in November 2012. To comply with the National Environmental Policy Act (NEPA) process, a Categorical Exclusion is being developed to be submitted for review by the PR-DOT and FHWA.

Currently, the project design is 90% complete, with preliminary endorsements requested from the main infrastructure entities (PR Aqueduct & Sewer Authority, PR Electric Power Authority, the Telecommunications Regulatory Board and PRHTA). Comments will be collected and incorporated into the design documents within the next six months, and the NEPA requirement will be submitted immediately thereafter. It is estimated that the NEPA process will take approximately seven months, based on the project being granted a Categorical Exclusion.

The only issue that could potentially delay the proposed schedule is the mitigation of contaminated soil due to the demolition and removal of a diesel tank where the old

penitentiary was located. This 2,000-gallon diesel tank was installed in 1979 and may have leaked into the surrounding soils. The Trust is currently performing the necessary studies, in coordination with the Puerto Rico Environmental Quality Board, to determine the extent of the mitigation remedies required. Preliminary estimates indicate that the area could be mitigated within 6 months, which would not delay the process for NEPA requirement. If the soil study reveals an unexpected condition, the Trust is already consulting with several mitigation companies, to have a response plan in place, but we do not expect major issues with the mitigation process. As part of the preconstruction activities, the Trust will be removing the contaminated soil and will dispose or process in an appropriate facility. Costs for this activity will be incurred by the Trust, which has the funds available to manage this potential contingency.

Legislative Approvals

No further legislative steps or approvals are necessary to enable construction of the Project (Science City Urban Infrastructure Phase II). The project responds to the public policy established under Law 214 of August 18, 2004, which created the Trust, dealing with economic development based on a knowledge economy, involving the development of the science, technology and research fields. The “Science City District of Puerto Rico” was created as a 2011 amendment (Law 208 of 2011) to Law 214 of 2004. Initially limited to the *Oso Blanco* property, its provisions made allowances for the inclusion of other, adjacent properties, such as those resulting from the UP-RCCC project. The UPRCCC has been, in fact, the first project outside of the original district boundaries, but within

the area Master Plan, to be included as part of the Science City district.

The SCUI-Phase II is framed on TOD principles adopted as public policy established in Law 207 of 2000 and complies with the objectives of Law 201 of September 2010 that adopted the “Complete Streets” concept as public policy in Puerto Rico.

State and Local Planning

As noted above, Science City Urban Infrastructure Phase II is a central component of the Master Plan adopted and endorsed by the Puerto Rico Planning Board and primary infrastructure government agencies. The plan for Science City was the result of a thorough coordination of transportation strategies (*Tren Urbano*, multimodal and highway access connections), land use (TOD, mixed-use proposals) and economic development (knowledge economy) strategy decisions reflecting public policy priorities dating back to 2006. This coordination has led to actions that are more specific, such as the inclusion of the ongoing reconstruction of the PR-18/PR-21 interchanges as the first phase in the State Transportation Improvement Program (STIP) as of 2012. The proposed Science City Urban Infrastructure Phase II is expected to be included by the Metropolitan Planning Organization as part of the STIP and in the 2040 Long Range Transportation Plan (2040 LRTP). A letter from Miguel Torres Díaz, PE, Secretary of the Dept. of Transportation & Public Works is provided in **Appendix G1** in which this is discussed.

Phase II is the first new development in Puerto Rico that will contain many key elements of a “complete street” concept, a public policy adopted under Puerto Rico’s Law

201 of September 2010, insofar as it provides quality accessibility for all transportation modes, is sensitive to the community context, and will be the beginning of a transportation network for all means of travel.

Finally, in January 2011, the PR Planning Board approved the SCUI concept Infrastructure concept as part of the approval of the Master Plan (Land Location Plan). It reflects the redevelopment policies and development parameters of the “City of San Juan Land Use Plan” of March 13, 2013, particularly with the *Tren Urbano* overlay district and station zones of influence.

Technical Feasibility

A summary of the scope of work for the project is included in **Appendix D**. A complete set of the 90% design final construction drawings is included in **Appendix J1** and the construction specifications are outlined in **Appendix J2**. As the schedule summary in **Table 6** shows, the project is on schedule to start construction in July 2015, assuming availability of TIGER VI funding. As part of the broader project conceptualized in the Master Plan, the project is the second phase of the plan to connect the site of the former penitentiary to *Centro Médico*. Together, these projects improve access to an area designed to stimulate and accommodate the various developments already in progress or planned in the area. This phase does not require any ROW acquisition, therefore eliminating any delays associated with land acquisition.

Financial Feasibility

\$28 million is required to complete Phase II of the Science City Urban Infrastructure. No further public

infrastructure investments will be necessary to realize the development of Science City and the benefits described in this application. The requested \$16.8 million in TIGER VI grant funds will be matched by an \$11.2 million non-federal, local contribution (40% of the construction budget). (See Financial Commitment Letters in **Appendix G2**). In addition, the project demonstrates a substantial positive benefit/cost ratio, as described in the Benefit-Cost Analysis (see the complete BCA in **Appendix K1** and Matrix in **Appendix K2**). The project budget appears below:

Fiscal & Project Management Experience

Table 5: Project Budget

PROJECT BUDGET		
Item	Phase	Budget
1.	Bid Process for Construction Project	\$ 25,000
2.	Architects/Engineers Supervision during Construction	450,000
3.	Construction Management and Grant Administration	400,000
4.	Inspection Services during Construction	1,080,000
5.	Project Construction Cost	22,125,000
6.	Insurance	550,000
7.	Contingency	3,370,000
		\$28,000,000

The Puerto Rico Infrastructure Financing Authority is the government agency responsible for financing, administering and managing the infrastructure projects of the Commonwealth of Puerto Rico. PRIFA was designated by law to oversee the implementation of Puerto Rico’s American Recovery and Reinvestment Act (ARRA) funds and provide public guidance throughout the process, providing support to the Puerto Rico government agencies, public corporations and municipalities, managing ARRA-funded projects and programs. As a result, PRIFA is in the process of monitoring 336 ARRA awards totaling \$5.7 billion granted from the federal government. PRIFA’s responsibility included interagency and municipal coordination, and coordination with non-profit organizations.

ARRA funds *directly* managed by PRIFA included:

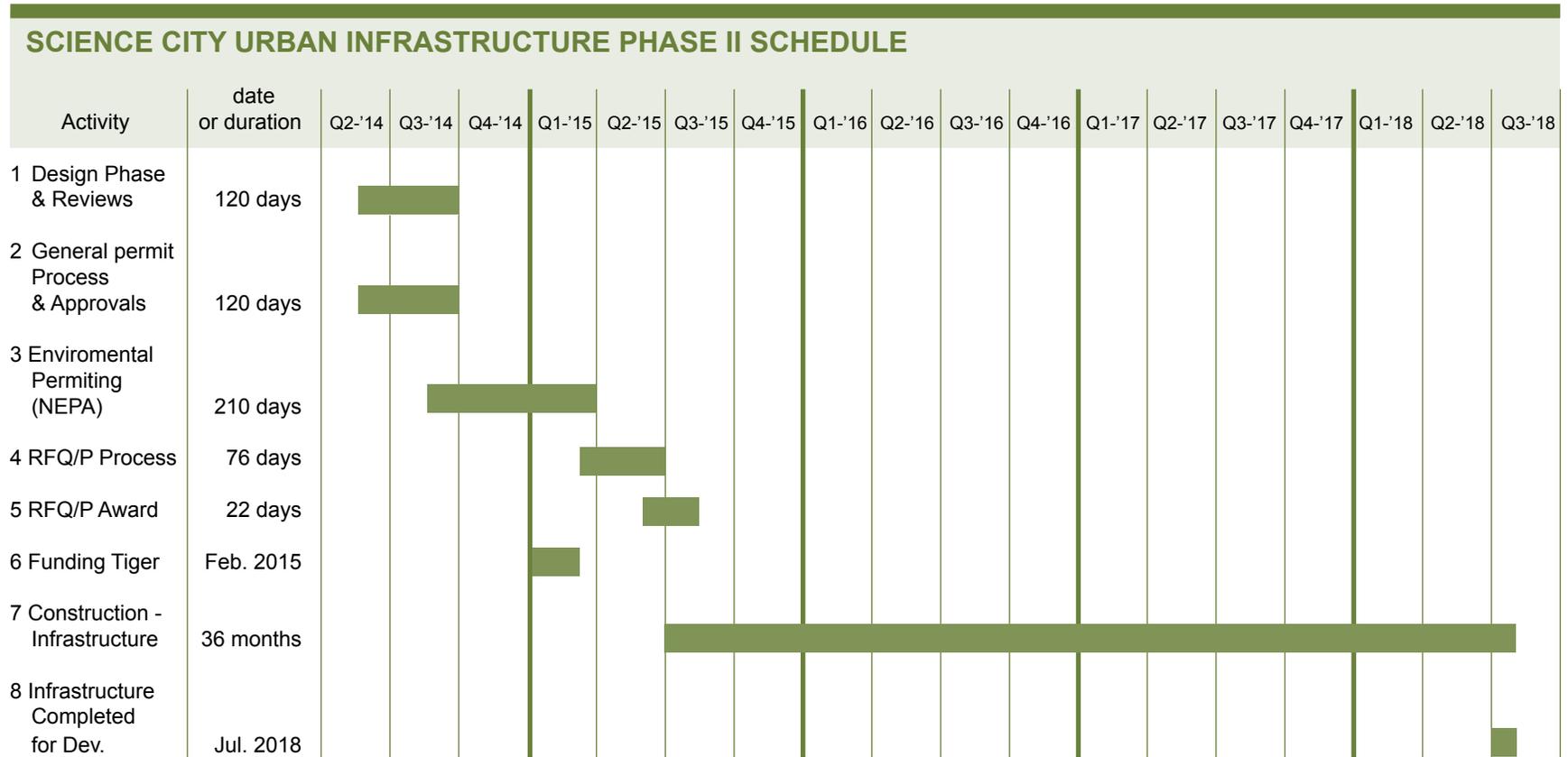
- > \$95.3 million from the federal Department of Energy’s ARRA programs.
- > \$75.0 million in State Fiscal Stabilization funds.

PRIFA also handled \$168.6 million in USDOT funding for capital infrastructure investments.

Project Schedule

A summary of the proposed SCUI Phase II schedule is presented below (For detailed project schedule see **Appendix O**).

Table 6: Project Schedule



Assessment of Project Risks and Mitigation Strategies

The Trust has determined that the project presents a low-risk effort, listing, anticipating or addressing any issues of concern below:

> **Cost** – Costs are based on construction of similar designs and construction projects within the project area. Labor, material and equipment will be scheduled and approved in a manner that minimizes cost increases. Procurement specifications will be developed to ascertain the best construction value.

> **Design** – Due to the advanced state of design currently underway or completed and close coordination with appropriate regulatory agencies, there is little concern that the present design documents will require significant or costly revisions.

> **Acquisition** – All required ROW is owned by the Trust or the PRHTA, thus no issues related to ROW acquisitions are identified.

> **Procurement Delays** – This project has been identified as a high-priority project due to its potential impact upon the Puerto Rican economy. From a procurement standpoint, the project is basically ready for issuance and its announcement will be extremely well received by the local construction industry, which has been particularly hard hit by the difficult economic situation the island has experienced in recent years.

> **Environmental Risk** – As previously documented, the proposed action presents little or no risk to the environment. The soil contamination issue should be mitigated by August 2014. The Trust should finish the preliminary studies within a 30-day period and mitigation should be completed before the end of the 3rd Quarter 2014, in time to begin the NEPA process.

VI. FEDERAL WAGE RATE CERTIFICATION

PRIFA has signed a federal wage rate certification stating that will comply with Subchapter IV of Chapter 31 of Title 40 of the United States Code (included at the end of the document).

4. LIST OF TABLES

Table 1 – Table 1 Land Usage of the Science City Development

Table 2 – Grant Uses of Funds and Sources

Table 3 – Summary of Annual Jobs for Science City

Table 4 – Summary of benefits - BCA

Table 5 – Project budget

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Figure 1: Science City Urban Infrastructure Project Area: Phases I and II (TIGER)

Figure 2: Location Map

Figure 3: Project Site Area – Existing Conditions

Figure 4: Science City Urban Infrastructure Phase I & II

Figure 5: Science City Urban Infrastructure Phase I

Figure 6: Science City Urban Infrastructure Phase II

6. APPENDICES

- Appendix A** – Science City Master Plan: The San Juan Knowledge Corridor
- Appendix B** – Approved distribution of Land by Use
- Appendix C** – Phase I Description
- Appendix D** – Scope of Work
- Appendix E** – Route Analysis
- Appendix F** – Tren Urbano and Metrobus Route Maps
- Appendix G1** – Letters of Support
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- Appendix H** – MOU between PRIFA and the Trust
- Appendix I** – Environmental Impact Statement
- Appendix J1** – Final Construction Drawings
- Appendix J2** – Construction Specification Drawings
- Appendix K1** – Benefit Cost Analysis (BCA)
- Appendix K2** – BCA Matrix
- Appendix L** – Science City Urban Landscape / Infrastructure Design Approach
- Appendix M** – Puerto Rico Planning Board Consultation
- Appendix N** – Detailed Project Budget
- Appendix O** – Detailed Schedule

The entire application and appendix materials, as well as additional information about Science City Urban Infrastructure are available on line at:
<http://www.bgfpr.com/2013/Grants/TIGERGRANTS2014/TG2014ScienceCity.html>



COMMONWEALTH OF
PUERTO RICO

Puerto Rico Infrastructure
Financing Authority

CERTIFICATION

TIGER Discretionary Grants FY2014
Subchapter IV of chapter 31 of Title 40, United States Code
(Federal Wage Requirements)

The Puerto Rico Infrastructure Financing Authority (PRIFA), as an applicant for the U.S. Department of Transportation TIGER VI Discretionary Grant Program funding, hereby certifies that it will comply with the requirements of subchapter IV of chapter 31 of Title 40, United States Code (Federal wage requirements), if awarded TIGER VI funding for the Science City Urban Infrastructure Project.

Authorized Representative: Grace M. Santana Balado, Esq.,
Executive Director

A handwritten signature in blue ink, appearing to read 'G.M. Balado'.

Date: April 22, 2014