

Joe's Creek Restoration and Greenway Trail and Lealman Exchange (LEX) Resilience Hub Project

NOAA Climate Regional Resilience Challenge Program

February 2024



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Supplemental Materials / Appendices

Preliminary Engineering Report - Executive Summary
 Resilience Hub Workforce Development Proposal
 Project Participation Team BMP Presentation
 Lealman Exchange Collective Impact Overview Presentation
 Key Project Staff Resumes

Letters of Support

Lealman CRA Letter of Support
 Florida Department of Transportation Letter of Support
 Florida Dream Center Letter of Support
 Innovation District Letter of Support
 Pinellas Economic Development Letter of Support
 Pinellas Housing Authority Letter of Support
 Pinellas Park Letter of Support
 Forward Pinellas Letter of Support
 Representative Castor Letter of Support
 Tampa Bay Regional Planning Council Letter of Support

1. Project Introduction

1.1 Background

Pinellas County, Florida is requesting about \$39 million in NOAA Climate Regional Resilience Challenge grant funding to improve resilience and enduring capacity for the residents of unincorporated Pinellas County (Lealman and West Lealman) and Kenneth City. **The cornerstone of this initiative is the Joe's Creek Restoration and Greenway Trail (JCRGT) coupled with the Lealman Exchange (LEX) Resilience Hub project, collectively referred to as "the Project."** The Project stands as a distinctive opportunity for Pinellas County to realize its resilience vision for the Joe's Creek corridor while aligning with the priority Risk Reduction goals outlined in the NOAA Climate Regional Resilience Challenge Program. The extensive size of this project and the varied components provide co-benefits that make this project a focal point for the County and contains significant opportunities for collaboration reaching well beyond the project's geographic limits.

The JCRGT is set to transform an approximately 5.0-mile corridor of Pinellas County right-of-way into a Greenway corridor. This transformation involves converting a highly urbanized drainage channel into a space with heightened flood reduction capabilities, inclusive of recreational green areas and a newly developed multi-modal trail. Crucially, this trail will bridge underserved communities like West Lealman, Kenneth City, and Lealman to the broader Pinellas Trail network and the LEX, identified as a Resilience Hub in the County's Sustainability and Resilience Action Plan. The Project extends its impact with enhancements to the LEX Resilience Hub, incorporating building hardening and expanded emergency power capacity to fortify its resilience during severe weather events. The LEX Resilience Hub further aligns with the County's workforce development initiative, contributing to long-term community resilience.

Collaboration and partnerships play a pivotal role in the success of all Project components. Given that Joe's Creek and the LEX are situated in historically disadvantaged areas, the Project prioritizes equity and inclusion. Lealman, designated a Community Redevelopment Area (CRA), operates under a comprehensive 30-year plan that guides development, economic revitalization, and redevelopment strategies, addressing blighted conditions and enhancing overall quality of life. Facilitated by a citizen-led Advisory Committee, the Lealman CRA ensures community representation and active participation in the redevelopment process, funded through the Pinellas County Board of County Commissioners. This Advisory Committee offers residents of this historically disadvantaged community both a voice and a seat at the decision-making table. The comprehensive approach, guided by community input and supported by data and analysis, lays a robust foundation for successful redevelopment, incorporating specific expectations, roles, relationships, and active engagement from both the public and private sectors.

1.2 Project History

Since its inception, this project has consistently held a top priority for the County, with extensive planning supporting the initiatives and complex aspects of the project. **Upon the**

finalization of the Joe's Creek Greenway Trail and Channel Restoration Project, the County will be positioned to attain the advantages outlined in the Pinellas County Watershed Management Plan (WMP). The WMP includes stormwater improvements to provide watershed-wide flood protection, erosion control, and enhanced water quality that will work together to minimize flood and health risks, improve resilience, and catalyze redevelopment in the Lealman CRA and other low- to moderate-income areas of the watershed.

Partners and Engagement

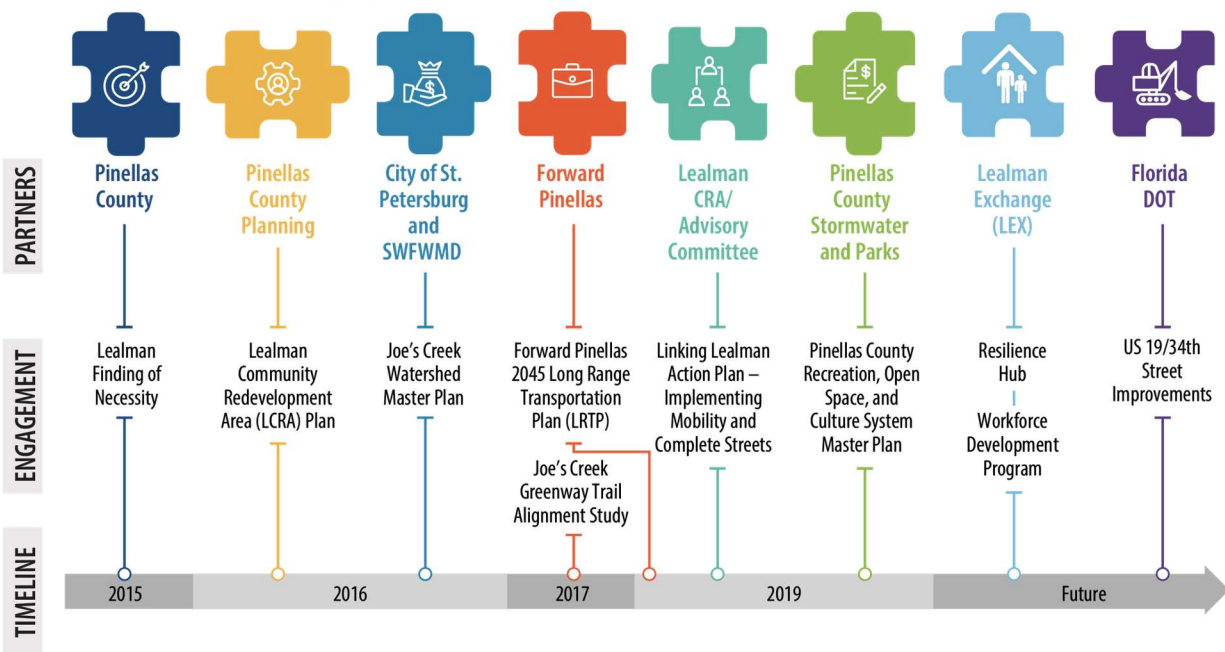


Figure 1. Timeline of Agencies, Partners, and Outcomes for the Project

Figure 1 details an abridged timeline of agencies, reports, and milestones for this Project. The channel restoration and greenway trail were developed from both a comprehensive watershed management plan, to determine the flood mitigation best practices, or solutions, and from a trail alignment study, which confirmed trail alignment. **Furthermore, this project was identified as a key initiative within the County's Resilient Pinellas Action Plan, the "first-ever comprehensive action plan to help make Pinellas County more resilient and sustainable"**¹. In 2017, the County metropolitan planning agency, Forward Pinellas, performed a Trail Alignment Study to identify a path forward for the proposed multi-use trail along the bank of Joe's Creek. In addition, Pinellas County completed the Lealman Community Redevelopment Area Plan and the Linking Lealman Action Plan which have continued to advocate for implementation of the trail to enhance the livability and quality of life in many adjacent areas, while also providing

¹ Resilient Pinellas Action Plan, 2023. https://pinellas.gov/wp-content/uploads/2023/06/Resilient-Pinellas-Action-Plan_ADA_FINAL.pdf

much needed flood mitigation and a resilience response to future climate conditions. With their support, it is the perfect time for this project to be completed and allow for residents who will benefit to flourish in their community. Most recently, the County completed preliminary design for the project and further refined the stream restoration components and best management practices (BMPs).

To fund the JCRGT planning and development, Pinellas County has received both local community support and federal grant support. Pinellas County's contributions, as well as other local funding has supported previous project efforts and continues to be essential to furthering current project progress. Funding support already secured for this project includes Southwest Florida Water Management District (SWFWMD) cooperative funding agreement, United States Department of Housing and Urban Development (HUD) CDBG-MIT funding, awarded through Florida Department of Commerce, and Resilient Florida funding. These funding commitments from various agencies demonstrate the collaborative efforts taking place and the project's significant cross department support at the state level.

1.2 Project Location

The Joe's Creek Watershed is comprised of a 9,256-acre drainage basin located in the south-central portion of the County. **The main location for this project is within central Pinellas County, Florida, including the Cities of Pinellas Park, St. Petersburg, and Kenneth City, as well as an unincorporated portion of the County along Joe's Creek (Figure 2).** The Joe's Creek system includes a main branch and three tributaries identified as Miles Creek, Bonn Creek, and Pinellas Park Ditch No. 5. Dominant land use categories in the Joe's Creek watershed include residential (74.3%), commercial (13%), industrial (4.1%), and recreational open space (1.7%). The main channel of Joe's Creek flows from east to west, ultimately discharging into Cross Bayou. Joe's Creek and its watershed experience significant flooding, embankment erosion, and invasive species. Moreover, the creek and its watershed are impaired for nutrients (macrophytes), biologic indicators, and fecal coliform. In conjunction with the ecological restoration of this greenway, the County seeks to improve neighborhood connectivity through the addition of a multi-modal trail within the Joe's Creek ROW, improvements to the Resilience Hub, and a workforce development component which will collectively provide improved resilience to this portion of the County.

The project area includes a portion of the Lealman Community Redevelopment Area (CRA), which is the first CRA in unincorporated Pinellas County. In 2016, the County adopted the Lealman CRA Redevelopment Plan, which provides a comprehensive framework for guiding long-term development, economic development, and redevelopment revitalization strategies (Pinellas County 2016). Redevelopment of existing urban areas is expected to create opportunities for low-impact development, such as the Linking Lealman Initiatives in the CRA, improvements at Raymond H. Neri Community Park, and future transportation and stormwater projects.

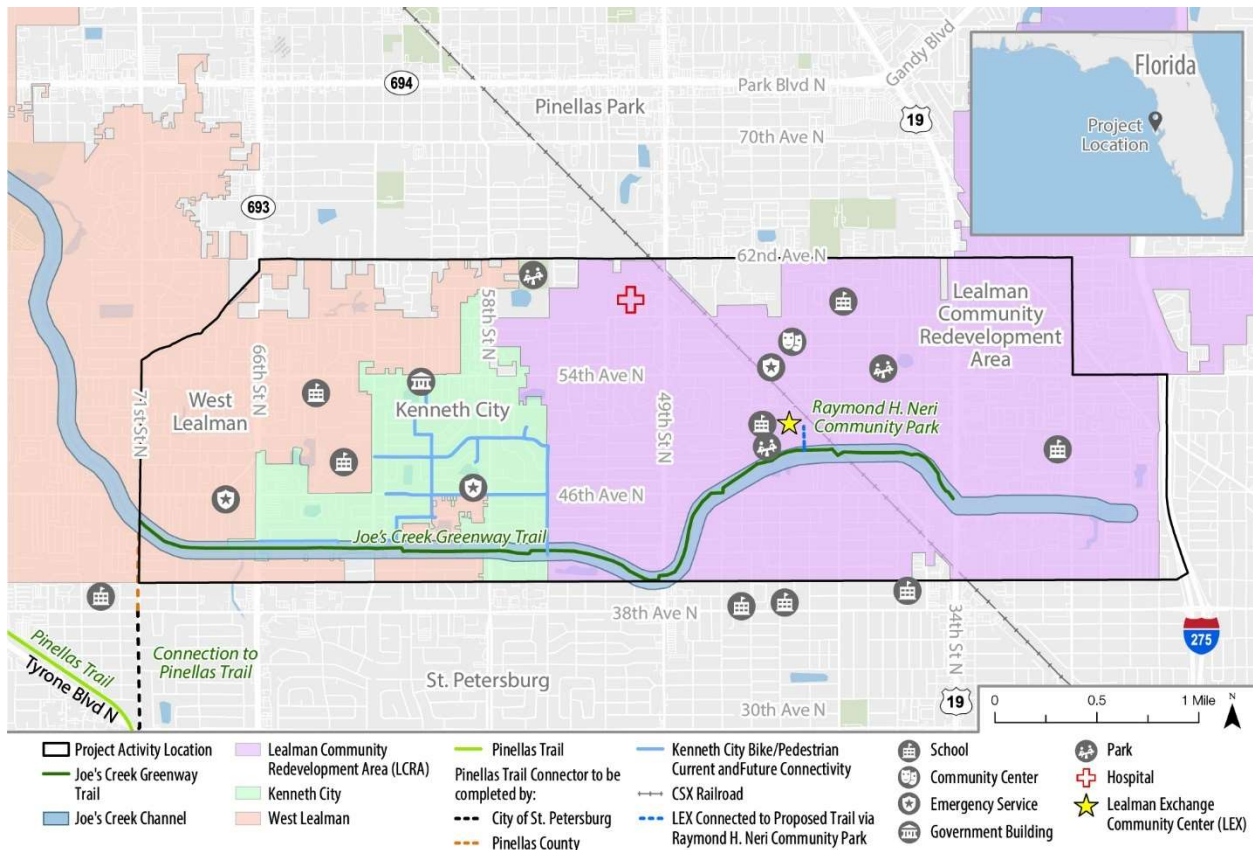


Figure 2. Proposed Project Activity Area

Large portions of Joe's Creek Watershed were developed from the 1940's through the 1970's, prior to the passing of the Clean Water Act and State stormwater regulations and did not incorporate attenuation or treatment systems. As such, this project is needed to improve the existing stormwater infrastructure and conveyance to provide flood mitigation to the traditionally underserved communities surrounding Joe's Creek. Roughly 90% of the census blocks impacted by this project are considered disadvantaged according to the Climate and Economic Justice Screening Tool (CEJST), Justice40 Initiative (Justice40), and/or Environmental Justice Index (EJI).

1.3 Project Social Equity Indicators

The watershed restoration and the LEX resilience hub components of the Project are conceived as integral elements of the broader revitalization efforts aimed at underserved communities within the Joe's Creek corridor. Roughly 90% of the census blocks impacted by this project are considered disadvantaged according to the CEJST, Justice40, and/or EJI. **Figure 3** below identifies the census tracks that are disadvantaged and/or socially vulnerable communities².

² CEJST / EJI / Justice40

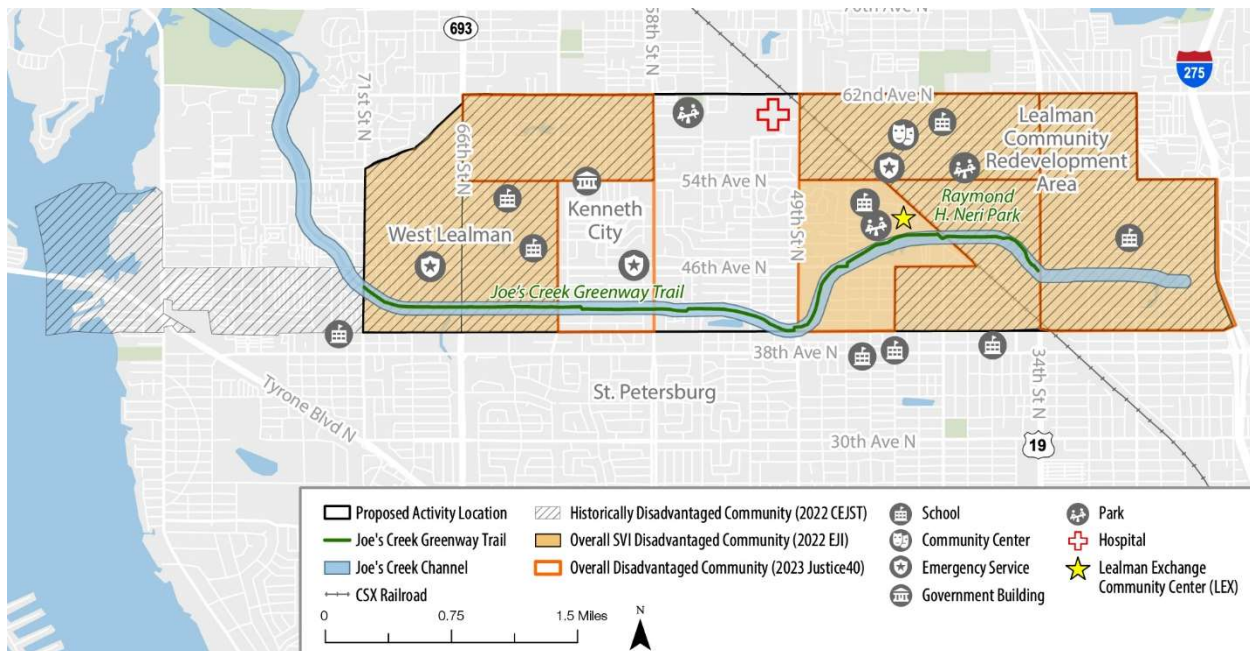


Figure 3. Census Tracts Classified as Disadvantaged within Joe's Creek Project Area

In a 2012 Economic Impacts of Poverty report by Pinellas County Health and Human Services, Lealman was identified as one of the five centers of poverty within the County, the impacts of which, resulted in an estimated cost to the county \$2.3 billion of foregone economic activity. The County responded by designating Lealman the first CRA in unincorporated county in 2016, and in 2018 invested \$11 million in the acquisition of the LEX to address a mid-county sheltering deficit and to try to close the opportunity gap by amplifying residents' access to services. The LEX Strategic Plan calls for public-private-partnerships providing programming in five pillar areas: educational advancement, economic empowerment, health and wellness, character and leadership, and community connectivity through the lens of a Collective Impact model. This balanced scorecard approach aims to invest in human capital to help residents reach their full potential and combat the social detriments of health that sadly otherwise restrict them, and the broader economic output of their community.

Through the involvement of the citizen led CRA, or through establishing citizen groups to guide placemaking and public art installations, among other project decisions, this project is committing to hearing the voices of the community and assuring that there is a seat at the table. **This project is committed to building on the collaborative partnerships that have been built over the years through the CRA and other organizations to ensure that voices of the local community are heard, and that the final project provides increased resilience for, and represents the character of, the neighborhoods it serves.**

1.3.1 Strategy for Advancing Equity and Support for Underserved Communities

The various facets of the project significantly contribute to promoting equity in the underserved community. Enhancing the well-being of this vulnerable community through the Project and related flood mitigation efforts will directly tackle the issues highlighted in the Lealman CRA

Finding of Necessity³. The multiple components of the project each contribute substantially to advancing equity in this underserved community. Improving this vulnerable community via the Project and associated flood mitigation activities will directly address the concerns identified by the Lealman CRA Finding of Necessity by providing a safe vital linkage to public transportation and the community, crossing over the CSX Railroad, and through lowering the 100-year base flood elevation within the mapped floodplain, which will uplift the community by reducing the development hurdles and increasing the potential for future development and investment. Furthermore, through the implementation of the multimodal trail and enhanced access to public transit, a reduction in the volume of motorized vehicles on the road is anticipated, leading to a decrease in gas emissions. The revitalized greenway will offer nearby residents recreational options, educational experiences, and access to natural surroundings. **Figure 4** illustrates the current 100-year floodplain and its implications across the Project area, encompassing disadvantaged communities.

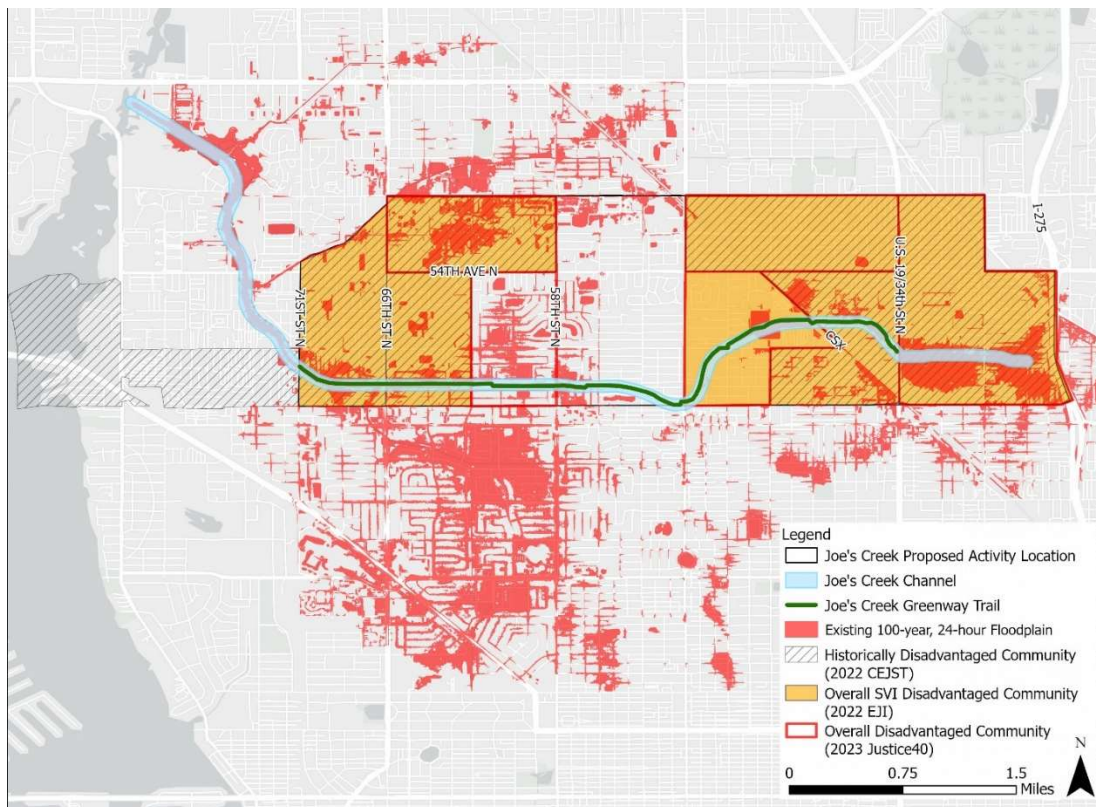


Figure 4. Existing 100-year Floodplain Impacts to Disadvantaged Communities in Project Area

The greenway trail and restored channel will provide citizens with close-to-home recreational opportunities, educational experiences, and access to natural landscapes. The trail will help the surrounding communities build pride ensuring that their neighborhoods are vibrant places to live, which have safe access to first-class recreational amenities and regional transit connectivity. Radically improving this underserved or marginalized community via the JCRGT

³ Finding of Necessity - <https://pinellas.gov/wp-content/uploads/2021/11/Lealman-Study-Area-Finding-of-Necessity.pdf>

Project will provide a safe vital linkage to public transportation and the community, crossing over the CSX Railroad, and through lowering the 100-year flood elevation within the mapped floodplain, which will uplift the community by reducing the development hurdles, especially in the adjacent industrial center, and increasing the potential for future development and investment. will offer residents nearby recreational options, educational experiences, and access to natural environments. The trail is instrumental in fostering community pride by ensuring that surrounding neighborhoods are vibrant places to reside, providing secure access to top-notch recreational facilities and regional transit connectivity. The transformative impact of the JCRGT Project on the underserved or marginalized community includes establishing a secure connection to public transportation and the community, crossing over the CSX Railroad. Additionally, by lowering the 100-year flood elevation within the mapped floodplain, the project aims to uplift the community, mitigating development obstacles, particularly in the adjacent industrial center, and enhancing the potential for future development and investment.

1.4 Project Elements

The climate risk reduction adaptation actions for this coastal community include a variety of components, each associated with one of three distinct projects: JCRGT, Resilience Hub Improvements at the LEX, and Workforce Development (WF). The actions associated with each project are listed below.

Joe's Creek Restoration and Greenway Trail (JCRGT)

- Flood mitigation
- Bank stabilization
- Water quality improvements
- Habitat restoration
- Create a safe route to economic opportunities and community amenities
- Enhanced greenspace and urban heat refuge
- Place-making and Public Art

Lealman Exchange (LEX) Resilience Hub

- Strengthening the gym to withstand a Category 3 hurricane
- Increased shelter capacity for weather events and urban heat refuge

Workforce Development (WF) and Community Preparedness Communications

- Partnership with the St. Petersburg Foundation, the Backbone Non-Profit for the LEX, to provide workforce development in support of climate resilience fields. The St. Petersburg foundation has a partnership network of over 79 local businesses and organizations to bring climate resiliency trainings to the LEX.

There have been some refinements, including partnership revisions and expansion of community place-making, to the project since the submission of the Letter of Interest. These

changes are generally informed by the recently completed Preliminary Engineering Report and the updated cost estimates.

2. Overall Resilience Vision, Strategies and Activities

The overall resilience vision, strategies, and activities for this project comprehensively remove risk for the most vulnerable populations and provide enduring capacity for current and future climate risk threats.

2.1 Joe's Creek Restoration and Greenway Trail (JCRGT)

This section outlines how the JCRGT meets the priorities of risk reduction, regional collaboration, equity and inclusion, as well as details project costs and technical merit information.

2.1.1 Risk Reduction

The JCRGT reduces flood risk both for the current storms, including the 100-year, 24-hour storm, and future climate threats.

2.1.1.1 Flood Mitigation Risk Reduction

A crucial element of the Project involves upgrading the existing stormwater infrastructure and conveyance to address flood mitigation along Joe's Creek. Significant portions of the Joe's Creek Watershed were developed between the 1940s and 1970s, predating the enactment of the Clean Water Act and State stormwater regulations. Consequently, these areas lack attenuation or treatment systems. The combination of soil composition, vegetation, canal geometry, and the predominantly urban, impervious watershed renders the banks of Joe's Creek susceptible to failure during high-water flows. By stabilizing the creek banks, the Project aims to reduce the risk of flash flooding caused by such bank failures.

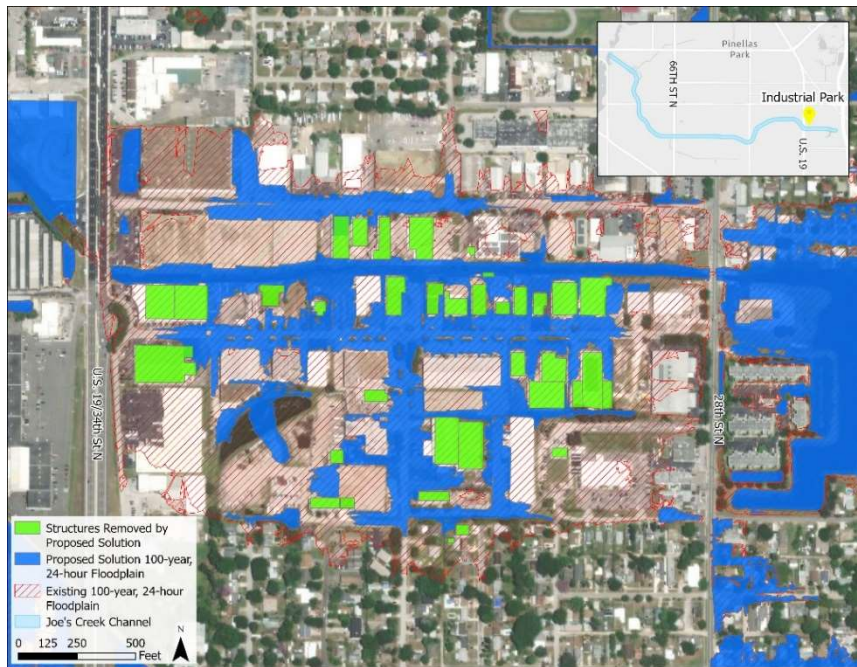


Figure 5. Structures Removed from Proposed 100-year, 24-hour Storm Floodplain

construction within a floodplain. The modernization of Joe's Creek and the mitigation efforts that will be conducted through this project will provide much needed flood mitigation, which can in turn encourage redevelopment in this important area within the County. A map identifying the Joe's Creek Industrial Park with its existing and proposed floodplain and structures removed from the proposed solution is shown in **Figure 5**. The structure is considered potentially flooded if the estimated average ground surface elevation within the footprint of the structure is below the modeled 100-year, 24-hour floodplain base flood elevation. This is a conservative estimate of structure flooding since most finished floors are above the ground. Where available, surveyed finish floor elevation of the structure was used. Roadways flooding is determined based on 25-, 50-, and 100-year level of service (LOS) analyses. The number of structures and length of roadway removed from the proposed floodplain are shown in **Table 1**, while the flood depth reduction in the Industrial Park area is captured in **Table 2**. Comparing the before and after construction flood depths, **approximately 96% of the flood impacted structures and 17% of flood impacted roadways are removed from the floodplain within the Industrial Park**. Flood stage reduction is also evaluated as a difference between existing and proposed peak stages obtained from pre and post modeled conditions. The peak stage reduction, as shown in **Table 2**, was more than 2 feet, which resulted in the removal of structures from the proposed 100-year floodplain extent and improved significant length of roadway flooding as shown in **Table 1**.

The topography of the project area ranges in elevations from 25 to 50 feet. There are some low-lying areas that are subject to development complications, due to being in the 100-year floodplain. The primary impacted area is the Joe's Creek Industrial Park, located between U.S. 19/34th St N and 28th St N, and some surrounding residential areas. These elevations and the presence of the 100-year floodplain present redevelopment challenges due to existing code restrictions and regulations regarding

Table 1. Flood Improvement Benefits within the Industrial Park

Structures removed from floodplain	Length of the road removed from flooding per LOS criteria (feet)
32	4088

Table 2. Flood Depth Reduction within the Industrial Park (100-year, 24-hour storm event)

Node	Existing Stage (ft)	Post Stage (ft)	Difference (ft)
NL0240	43.9	41.63	2.27
NL0241	43.92	41.69	2.23
NL0250	43.88	41.61	2.27
NL0260	43.88	41.61	2.27
NL0270	43.87	41.59	2.28
NL0480	43.85	41.52	2.33
NL0481	43.8	41.43	2.37

The restoration processes performed through this project will bring Joe’s Creek closer to its original natural state, resulting in an amenity that residents can benefit from. With the implementation of this project, subsequent opportunities become available to **employ more nature-based infrastructure projects for treatment attenuation both within the creek corridor and throughout the greater watershed**, including some on County lands. With the use of native plants, habitat and water quality within Joe’s Creek will improve and the watershed will become more resilient. The roots of native forested streambanks add resilience as they provide more strength to bank soils and provide more resistance than mowed man-made channels, which cannot effectively protect channels from erosion. Additionally, using native plantings creates desirable habitat and eliminates the need to mow, resulting in a **more natural and beautiful stream with a lower maintenance cost**.

2.1.1.2 Climate Change Risk and Risk Reduction

Pinellas County is a peninsular land mass and is especially vulnerable to sea level rise and coastal flooding impacts, especially as rising populations exacerbate flooding risk. **As noted in [NOAA’s Coastal County Snapshot](#), over 35% of land in the County falls within the designated 100-year floodplain, severely impacting residents.** Elderly and low-income residents, who may not have resources to adequately prepare or recover, make up a roughly a third of the impacted County population.

If the adaptive capacity of the Joe’s Creek system is not addressed proactively, its effectiveness in flood mitigation will decline with the realization of sea level rise predictions. Opting for nature-based solutions instead of traditional hardening methods enhances the system's capacity to adapt to evolving conditions.

[NOAA's Coastal Flood Exposure Mapper](#) identifies multiple areas of the Project corridor, including the Industrial Park, are exposed to coastal flooding and are within identified hazard zones. **Figure 7** shows almost the entire Joe's Creek corridor is within one of the 11 hazard zones identified in the Coastal Flood Hazard Composite.

Coastal Flood Hazard Composite

- 1 Hazard Zone
- 2 Hazard Zone
- 3 Hazard Zone
- 4 Hazard Zone
- 5 Hazard Zone
- 6 Hazard Zone
- 7 Hazard Zone
- 8 Hazard Zone
- 9 Hazard Zone
- 10 Hazard Zone
- 11 Hazard Zone

2.1.2 Regional Coordination and Collaboration



1

The County-led Project involves collaboration with multiple municipalities and agencies at the local, regional, and state levels, covering West Lealman, Kenneth City, and Lealman. Funding is sourced from various channels, including the State of Florida Department of Environmental Protection (DEP), Florida Department of Commerce (for United States Housing and Urban Development), and Pinellas County.

Numerous agencies and Pinellas County Departments, such as Parks and Environment, Storm Water, Transportation/Trails, Forward Pinellas (the local Metropolitan Planning Agency), the Florida Department of Transportation, the LEX, and the Lealman CRA, are actively engaged in this project. Additional partners, including the SWFWMD and the City of Kenneth City, contribute to the JCRGT. Community involvement features entities like the LEX, the Florida Dream Center, the Police Athletic League, and individual citizens.

A series of meetings and site visits, involving nine County departments and the communities, have been completed. The JCRGT project maintains an ongoing Project Participation Team (PPT) comprising over 35 representatives from various County departments, local municipalities, and the Lealman CRA. Demonstrating broad regional support, ten letters of support are included in the attachments.

2.1.3 Equity and Inclusion

In 2017 Forward Pinellas in collaboration with the County prepared a planning study to identify challenges and provide solutions to linking several environmental justice communities living along Joe's Creek. Forward Pinellas teamed with the County and Florida Health to strategize on revitalization of these communities by constructing the proposed multiuse path that would be built concurrent to the construction of the Joe's Creek improvements. The multiuse trail being constructed concurrently with the flood mitigation project will provide better connectivity to schools, the Pinellas Trail, community centers and other important community destinations. Data analyzed as part of the Preliminary Engineering study included identifying transportation needs for communities traditionally underserved in this area the County. **The project area includes approximately 8.9% of households with no access to a vehicle, which is in the highest range of the County's average for the percentage of households with no vehicle available.**

Community involvement in this project has been important to the County throughout. During the development of the project 11 public meetings have been conducted to gather input. Recently, the County held a project information session at the LEX to seek input from local citizens on the character and amenities to be included in the channel restoration and greenway trail. It was an opportunity to hear input from residents, as well as concerns. In addition, the County is a committed community partner.

The County has reached out to both the LEX and the Florida Dream Center to both inquire how to best connect with the local population and receive meaningful feedback. **The JCRGT project has an established Public Participation Plan that outlines how the local community will be engaged to hear their voices, and documents and tracks all input.** Going forward, the project will leverage the relationships built within the community to continue consensus building and collaboratively develop a project that reflects the character and desires of the community. This

will be accomplished through an ongoing dialogue with the residents. Furthermore, the County recognizes the important placemaking opportunity that this project provides.

To ensure that the JCRGT project itself is reflective of the communities that it crosses, a placemaking and public art budget has been established. Currently, the Lealman CRA has a public art plan developed with the Lealman CRA Advisory Committee. In similar fashion, it is anticipated that a **citizens group that is representative of the multiple communities that the JCRGT serves will be formed to steer the choices and types of public art and placemaking that are incorporated into this project, specifically focusing on reflecting the spirit and character of the communities traversed by the JCRGT.**

2.1.4 Enduring Capacity

The project offers flood mitigation advantages against increased current and future flood threats from climate change including sea-level rise, storm surge, compound flooding and blue-sky flooding. Additionally, it presents an opportunity to utilize a project situated in close proximity to the LEX for imparting practical climate resilience skills to the local population. Further details on this aspect are elaborated under the WF project heading.

2.1.5 Project Costs

Project costs have been developed within the Preliminary Engineering Report (PER). Preliminary engineering and estimates are based on an engineer's opinion of probable construction cost, inclusive of a contingency on construction costs appropriate for the current project design level. Project costs for JCRGT are summarized in **Table 3**.

Table 3. JCRGT Project Costs

Creek Reach	Property Acquisition	Engineering (Design)	Additional Engineering (Permitting, Survey, Geotech)	Construction Inspection	Construction	Total
Reach C (US19/34th St. N)	\$2,460,000	\$640,000	\$240,000	\$320,000	\$10,024,000	\$13,684,000
Reach D		\$270,000	\$100,000	\$130,000	\$4,182,000	\$4,682,000
Reach F		\$150,000	\$60,000	\$70,000	\$2,331,000	\$2,611,000
Reach G		\$700,000	\$260,000	\$350,000	\$10,917,000	\$12,227,000
Reach H		\$610,000	\$230,000	\$300,000	\$9,526,000	\$10,666,000
Reach I		\$220,000	\$80,000	\$110,000	\$3,420,000	\$3,830,000
Reach J		\$530,000	\$200,000	\$260,000	\$8,210,000	\$9,200,000
Reach K		\$310,000	\$120,000	\$150,000	\$4,826,000	\$5,406,000
Total	\$2,460,000	\$3,430,000	\$1,290,000	\$1,690,000	\$53,436,000	\$62,306,000
Contingency						\$10,370,000
Total JCRGT Project Cost						\$72,676,000

As previously mentioned, this project has over \$45 million in current grant funding to execute these elements of the project.

2.1.6 *Technical Merit*

The JCRGT project is achievable, provides adaptation actions that will result in the stated benefits within the proposed timeframe, technically sound, safe for the public, and is sustainable. The JCRGT supports this through scientifically sound investigative methods (modeling, data, etc.) to support the merit of the planned activities. The project will be monitored post-implementation to ensure that the minimum flood reduction benefits are recognized and that downstream areas remain protected at least as well as before the project was implemented.

The County has recently completed the PER for the project in December 2023, which includes a watershed model refinement and an alternatives analysis. The PER and alternatives analysis will inform the detailed design, which is anticipated to commence in mid-2024.

The required permits and environmental approvals have been identified in the PER and are anticipated to take a year to obtain, including National Environmental Policy Act (NEPA). The NEPA determination is not currently required for this project; however, as this channel is previously disturbed, and these activities are maintenance of the existing drainage channel without wetland impacts, the JCRGT is anticipated to be Category X, Type II. As the PER is recently completed, coordination with the permitting agencies will be an early task as the full design phase commences (early-2024).

Within the PER, the creek channel itself was divided into unique geomorphic reaches to determine the best implementation method for each stretch of the creek. **Figure 8** shows the geomorphic reaches, and the areas that drain to them within the watershed. For each analyzed geomorphic reach, two alternatives were developed. The general differences between the alternatives were decisions between how to handle various obstacles within the County ROW and the resulting geometry of the creek channel within the corridor.

As mentioned earlier, exercises involving pre and post modeling were conducted to validate the project's benefits and ascertain that upstream mitigation measures were not merely displacing floodwaters downstream within the basin. By adopting a comprehensive approach to the entire hydraulic grade of the channel, this project accomplishes substantial reduction in upstream flood depths (refer to **Table 2**) without causing an elevation in downstream flood depths. This is achieved through the restoration of the creek, as this action widens the channel throughout most of the length, providing for better flow overall, and more inherent storage within the creek channel itself in the areas where the flow way cannot be widened (i.e., the bridge crossings).

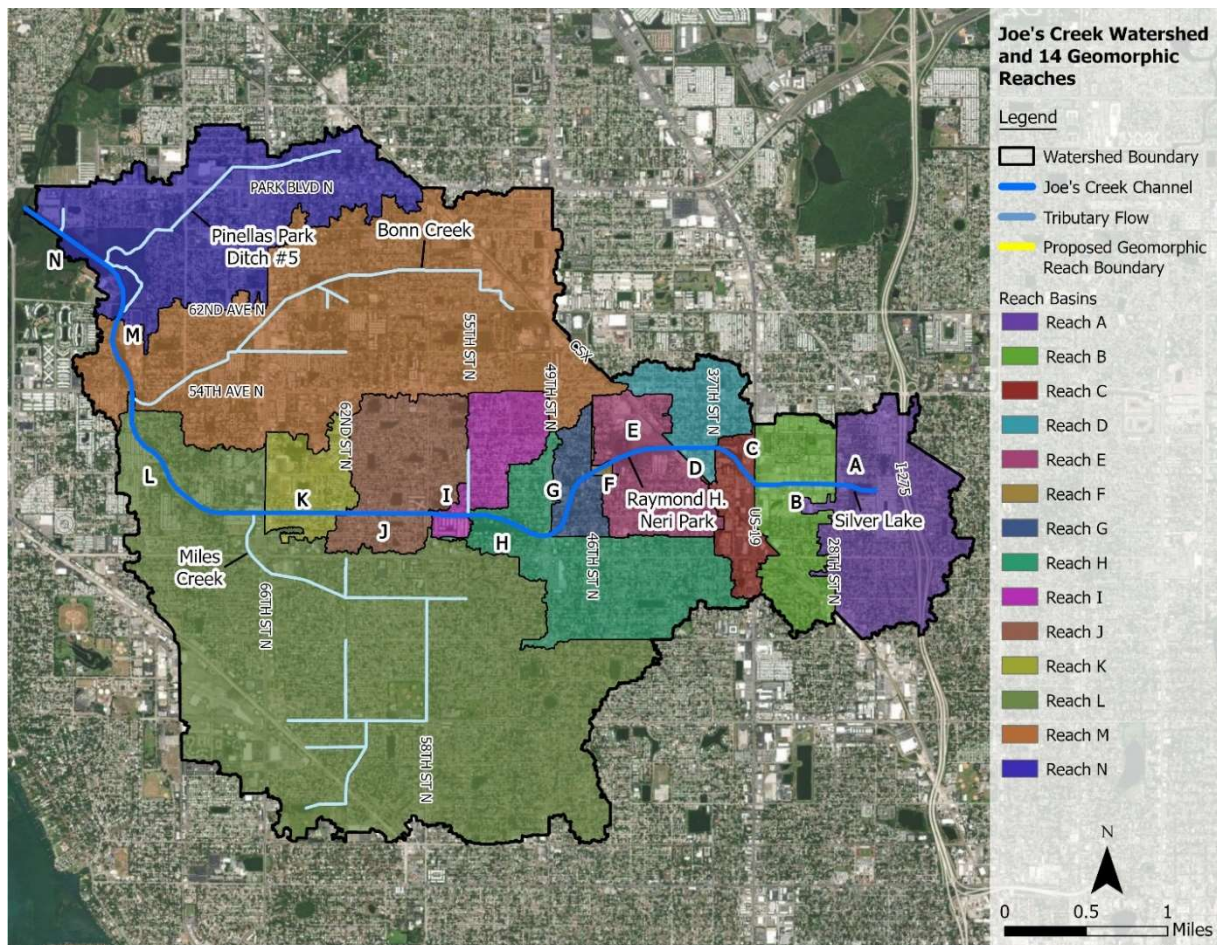


Figure 8. Joe's Creek Watershed and Defined Geomorphic Reaches for Alternatives Analysis

Each of these reaches has unique characteristics, as noted in **Table 4**.

Table 4. Joe's Creek Geomorphic Reach Breaks Included in this Element and their Characteristics

Geomorphic Reach	Downstream Reach Break	Reach Characterization
Reach B	34th Street North/ U.S. 19	Joe's Creek is constructed as a concrete flume (vertical concrete sides and flat concrete bottom with little to no bottom slope).
Reach C	37th Street North Culvert	Short channel downstream of 34th Street North culvert flows into a wider pond area controlled by a concrete weir on the downstream culvert at 37th Street North. No slope within this reach with varying ROW.
Reach D	CSX Railroad Crossing	Downstream of a 4-to-5-foot concrete slope drop within the 37th Street North culvert, Joe's Creek is a uniform channel with no significant slope with steep banks and a wide ROW (200 to 250 feet).
Reach F	46th Street North Culvert	Short reach which receives flow over the Raymond H. Neri Community Park Lake Weir and rechannelizes into the V-shape characteristic of Joe's Creek. Little-to-no bottom slope with a small watershed.

Geomorphic Reach	Downstream Reach Break	Reach Characterization
Reach G	49th Street North Culvert	Highest energy reach with steepest slopes within Joe's Creek. Relatively deep channel with energy dissipated by riprap placed in the bottom of the channel to reduce energy.
Reach H	55th Street North Channel Inflow	Reach introduces large stormwater pipes at the upstream boundary where elevation drops approximately 4 to 5 feet through the 49th Street North culvert. Reach begins with sheet pile weirs with concrete caps installed in the channel in 2004 to reduce slope in this reach. Steep slopes continue with multiple stormwater inflows. Downstream reach break dictated by large 55th Street channel inflow.
Reach I	58th Street North Crossing	Reach flow increases due to upstream 55th Street North channel inflow as well as multi-step weir to reduce slope in reach. Left bank has parking lot encroachment in ROW. Reach begins to widen but still has the steep bank "V" shape to creek.
Reach J	62nd Street North Culvert	Reach receives stormwater pipe inflows concentrated at the 58th Street North crossing. Encroachment by parking lot on right bank from apartment complex limits ROW at start of reach. Little slope in this reach. A single weir is approximately two-thirds down the reach, downstream of the Kenneth City inlet on right bank. Steep bank with continued "V" shape to creek.
Reach K	66th Street North Culvert	Reach defined by stormwater inlet and sloped concrete apron under the 62nd Street North culvert. Little bottom slope for this reach. Single weir approximately 80 feet upstream of 66th Street North culvert. Final reach of "V" shape cross section.

As part of the planning process and alternatives analysis, the County reviewed and selected the most appropriate components of the project that would best support the County's resilience vision and provide the most benefit for the members of the community. As the reaches were evaluated, they were prioritized based on multiple factors including water quality benefits, habitat restoration, bank stabilization and mitigation of sediment transport and bank instability/failure.

Currently, the creek channel is steep and deep, which leads to slope instability. Over time, this diminishes the creek's drainage ability and increases flood potential. **This project aims to both stabilize the banks through establishing native vegetation on less steep bank inclines and improve drainage by improving the entire channel flow and hydraulic grade.**

The restoration itself will, to the extent possible, restore the channel to a more natural condition utilizing green infrastructure. **Figure 9** shows an example cross section where the channel is planted with native vegetation and the steep slopes are softened, as well as the plan view layout of a restored Joe's Creek channel.

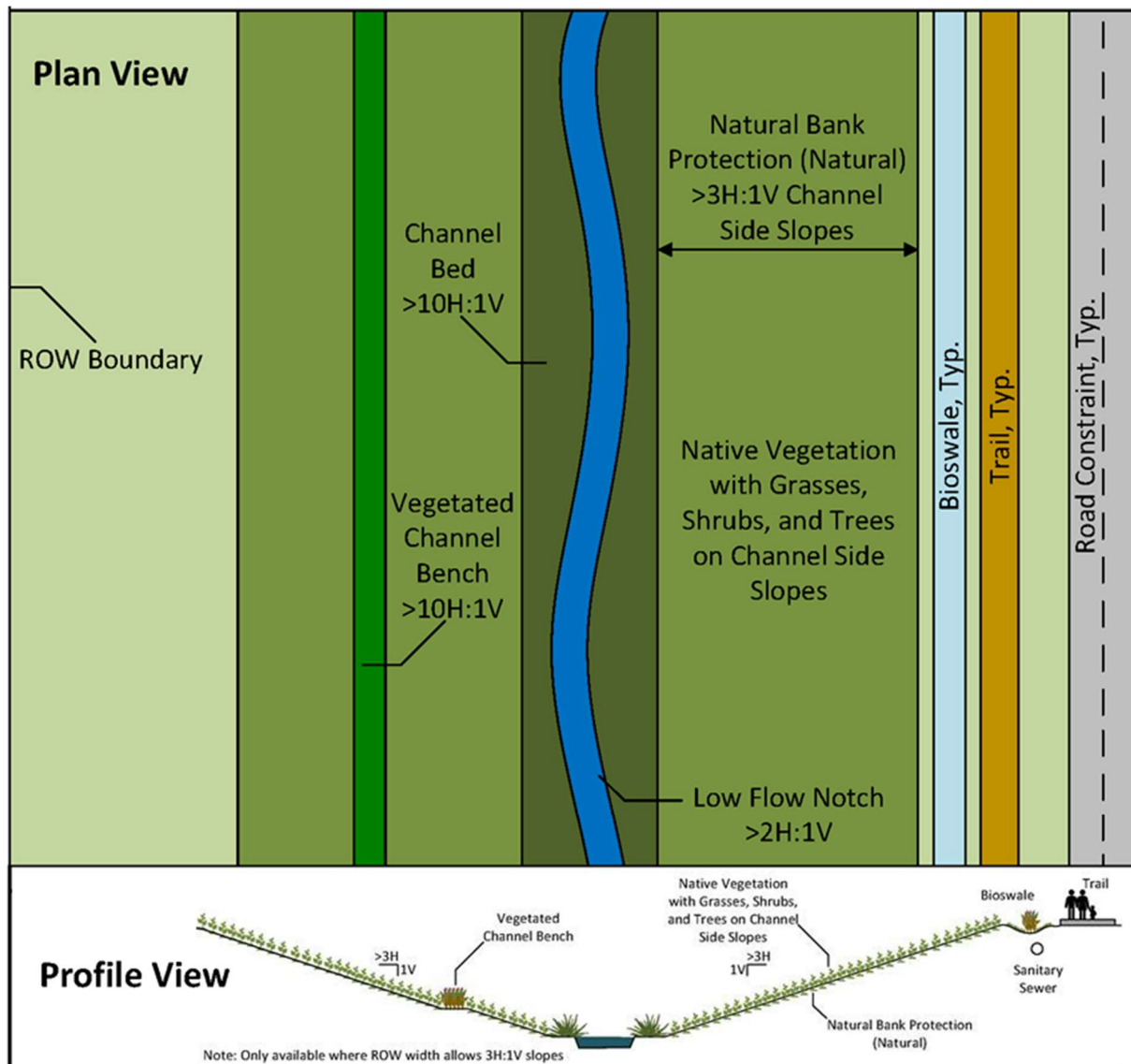


Figure 9 - Example Cross Section and Plan View of a Restored Joe's Creek Channel

Habitat restoration, both upstream and in the littoral zone (shallow areas that are dry between storms) is anticipated to support slope stabilization, provide aesthetic and recreational opportunities associated with the trail, and provide additional stormwater conveyance. The project will incorporate green infrastructure with the planned littoral shelves and bioswales, which will be planted with native species, will create opportunities for wildlife habitat and water quality improvement.

Inherent in this approach, due to the reduction in bank steepness and the implementation of the natural vegetation, is mitigation of slope instability and the risks of flash flooding due to bank failure. Furthermore, this approach reduces the overall maintenance burden for the County over the project's lifetime. The following reaches have been evaluated and selected as areas for project implementation: Reaches C, D, F, G, H, I, J, and K.

The project has technical merit, as has been fully developed in the PER. The project is feasible and achievable, and primarily occurring within existing County ROW. As noted, this project has received significant support from the community and local organizations, as well as other state and local funding, and continues to be a priority for the County.

Figure 10 shows the anticipated schedule for the major components associated with JCRGT component of this project. The project has recently completed Preliminary Engineering. Design is anticipated to be contracted this Spring, last twelve months, and be completed in Spring 2024. Permitting will take approximately a year, finishing at the end of 2025.

A NEPA determination is not currently required for this project; however, it is anticipated to be classified as maintenance activities and not require a full Environmental Impact Statement (EIS) (Type II, Category X) and is included within the permitting timeline. Procurement will last six months, and construction is anticipated to last about two and a half years.

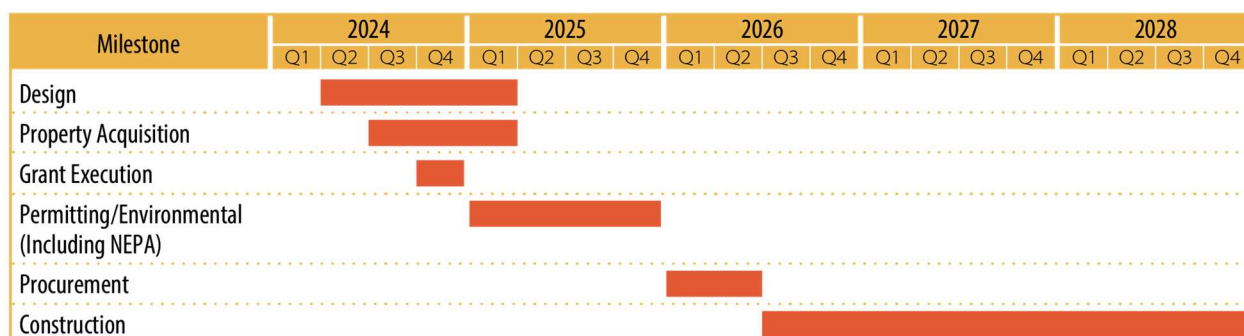


Figure 10. Anticipated Schedule for Implementation of the JCRGT

2.2 Lealman Exchange (LEX) Resilience Hub

The LEX project entails the strengthening of the gymnasium portion of the LEX to withstand a Category 3 hurricane, providing expanded shelter capacity for the historically disadvantaged population residing in the neighboring area.

2.2.1 Risk Reduction

Aligning directly with NOAA's risk reduction program priority, the enhancement of the LEX addresses an existing shelter deficit in Pinellas County. The LEX, spanning 77,000 square feet, is a community campus comprising three buildings, progressively developed by Pinellas County into a Resilience Hub. The main campus building received a generator installation in 2020, and **further hardening of the facility aims to designate it as a special needs shelter for residents dependent on electricity. The project involves installing a generator and reinforcing the gymnasium to augment shelter capacity, ensuring the building can withstand a Category 3 hurricane and accommodate an additional 480 general population residents or up to 160 special needs residents during severe weather events.** To enhance resilience, the project includes the installation of a second generator for backup power and a well to serve as a potable water source during extreme weather events. Detailed information about the project is

available in the preliminary engineering report provided in the supplemental information.
Regional Collaboration

The LEX provides community access to a variety of partners and services, with over 79 collaborators supporting the LEX. These partners are local and regional partners from around the Tampa Bay area and the State of Florida who are dedicated to improving the community that the LEX serves.

2.2.2 Equity and Inclusion

For the LEX improvements, the Lealman CRA Advisory Committee will be involved to ensure that the residents have a voice in the project. As mentioned earlier, this committee, consisting of Lealman community residents, plays a pivotal role in shaping policies and overseeing project implementation, ensuring that traditionally marginalized populations have a seat at the table regarding decisions about the LEX and the Lealman CRA as a whole.

This Advisory Committee offers residents of this historically disadvantaged community both a voice and a seat at the decision-making table. The comprehensive approach, guided by community input and supported by data and analysis, lays a robust foundation for successful redevelopment, incorporating specific expectations, roles, relationships, and active engagement from both the public and private sectors.

2.2.3 Enduring Capacity

This project provides enduring capacity to the community by expanding existing shelter capacity. The supplementary generators aim to offer power and cool spaces to residents during power outages, extending beyond post-storm scenarios. It also reinforces enduring capacity by establishing the LEX as a central hub for accessing services and relief, not solely during or after storms but also on regular days. This approach raises awareness about additional programs, including workforce development, provided by the LEX.

The LEX will also house the workforce development component of the project, which leverages the implementation of this iconic project with the opportunity to provide climate resilient workforce skills, as explored in more detail under the WF header.

2.2.4 Project Costs

Project costs for this element of the project were determined in a preliminary engineering report and consist of a preliminary engineer's opinion of probable costs. The values include an appropriate contingency for the current level of design development. **Table 5** details the cost estimate for the gym hardening, inclusive of contingency.

Table 5. Gym Hardening and Shelter Upgrades Estimate

Element	Estimate
Design/Permitting	\$500,000
Construction	\$2,500,000
Total	\$3,000,000

Additional details are available in the Budget Narrative and the PER, provided as supplemental information.

2.2.5 Technical Merit

This project has completed preliminary engineering (report provided in supplemental information) and will not begin design until after grant execution. The design is scheduled for one year and permitting about eight months. Procurement takes about six months, and construction is expected to last 14 months. A high-level schedule is shown in **Figure 11**.

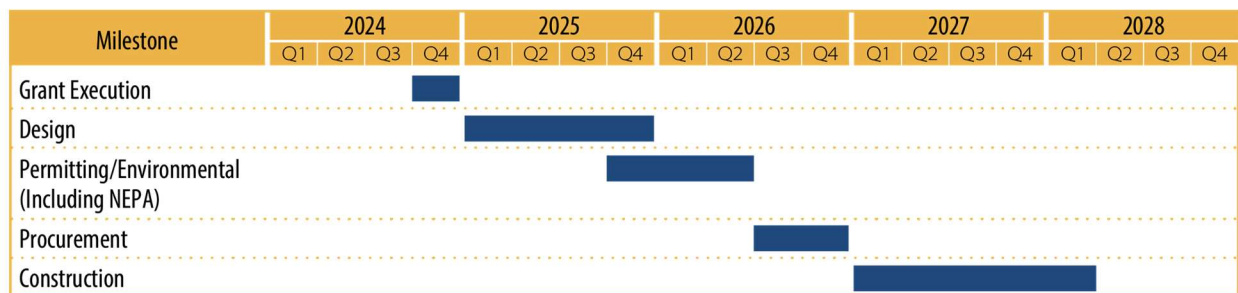


Figure 11. Anticipated Schedule for Implementation of the LEX

2.3 Workforce Development (WF) – Enduring Capacity

The LEX is proposing a workforce development aspect to pair with the implementation of this project, the backbone non-profit for the LEX the St. Petersburg Foundation, and the 79 agencies included in the LEX collective impact partnership as well as the supporting partners of this project including Tampa Bay Regional Planning Council a NOAA affiliate. The elements of the climate resilience workforce development and communication plan include:

- Youth outreach on the JCRGT project to expose students to environmental science, flood mitigation, climate adaptations and engineering projects within their community
- Tech-Driven Workforce Training – to include GIS data analysis, climate resilience job support roles, and fill critical roles aspects of workforce development
- Enhance community communication on opportunities for climate resilience

2.3.1 Young Adult Resiliency Programming

This project proposal would establish a partnership with St. Pete Innovation District, Maritime and Defense Tech Hub, the Ocean Team, Florida Fish and Wildlife, University of South Florida to bring environmental science and climate change education to the local disadvantaged youth within this community.

- **Annual STEAM Day:** continue to host the inaugural Lealman STEAM Day event to provide STEM/STEAM education to the youth of the Lealman Community
- **Community Engagement:** Utilize the greenspace and ecology of Ray Neri Park and Joe's Creek to connect students to their local environment, fostering an understanding of climate issues.

- **After-School Programming:** Develop after-school programs and clubs that supplement and expand the climate, marine, technology, and biology education received by Lealman students in public schools.

2.3.2 *Tech-Driven Workforce Training – Climate Resilience Workforce Expansion*

This project proposes expanding the current LEX Tech-Driven Workforce Training to have a specific climate resilience workforce aspect. **This targeted workforce development activity will design and implement programs to train and retrain the local community workforce with a focus on technology, particularly in science, technology, engineering, and math, as it applies to climate resilience jobs.** Furthermore, as it is practicable, these skills will be developed in the framework of exposure to the JCRGT project implementation. Specific activities for this include:

- **Geographic Information System (GIS) Data Analysis Skill Building:** Partner with GIS specialists to utilize existing digital literacy partnerships and create a candidate pipeline proficient in processing and analyzing GIS climate and resilience data.
- **Climate Resilience Job Support Roles:** Develop training programs specifically tailored to prepare candidates for support roles in jobs related to climate resilience.
- **Fill Critical Climate Resilience Positions:** Build a pipeline of candidates trained in climate resilience to address the demand for skilled professionals, aiming to fill crucial positions in Pinellas County.
- **Leverage Digital Tools for Effective Climate Communication:** Integrate technology training to leverage digital tools for communication, information dissemination, and data management related to climate resilience.
- **Resilient Facilities Operation and Maintenance:** Curriculum focusing on the operation and maintenance of resilient facilities that will create community resilience for climate emergencies. Hands-on training for utilizing emergency equipment and communication systems.
- **Climate-Resilient Infrastructure Development:** Specialized courses in applied manufacturing, construction, and carpentry skills providing skills relevant to building climate-resilient infrastructure that is both resilient and sustainable.
- **Apprenticeship and Networking:** Networking opportunities with industry professionals for career advancement. Integration of apprenticeship initiatives to provide hands-on experience and mentorship opportunities for climate resilience skills and fields.

2.3.3 *Enhance Community Communication on Opportunities for Climate Resilience*

This aspect seeks to expand the role of the existing Lealman Voice Community Newsletter. Currently bi-weekly, this Lealman-centric news and communications initiative was developed by the St. Petersburg Foundation to provide a platform for citizens, service providers, businesses, and other Lealman stakeholders to promote, discuss and celebrate the activities and

accomplishments in the Lealman Community. Since its launch, the Lealman Voice has become the primary means of direct communication with the greater Lealman Community. Much of the content is community-sourced or provided by local service providers, Collective Impact partners, Pinellas County, and the surrounding municipalities of St. Petersburg, Kenneth City, and Pinellas Park. The St. Petersburg Foundation provides professionally reported content, interviews citizens for the Lealmanite column, collates the submitted content, formats, and packages, and promotes the newsletter. With additional funding, the newsletter can also report on local climate challenges and serve to better inform the local community of risks and how individuals can mitigate climate risks. One aspect of climate resilience that would be particularly suited to this is the implementation of green infrastructure solutions. As an example, the Lealman Voice Community Newsletter can publish a series of articles on what green infrastructure solutions are and how individuals can implement them, including resources and instructions.

2.3.4 Regional Coordination and Collaboration

The partners that the LEX currently works with that will support this initiative are the St. Petersburg Foundation, [St. Petersburg Innovation District Maritime and Defense Technology Hub](#) and [Ocean Team](#); Florida Fish and Wildlife Conservation Commission (FWC), and the Tampa Bay Estuary Program, among others. The LEX will also draw upon the expertise of the NV5 Geospatial NOAA partnership to leverage lessons learned and in an advisory capacity to bolster the effectiveness of the expanded programs. These collaborators all serve much larger areas than just the Project area, both regionally and statewide. Through these collaborators, technology transfer and lessons learned will propagate throughout their regions of influence.

2.3.5 Equity and Inclusion

The LEX is part of the Lealman CRA, and its budget and programming is defined by the Lealman CRA Advisory Committee. This citizen-led group allows the residents to have a say in LEX programming and expenditures. Furthermore, the LEX is designed to serve the local community, and the majority of benefits from these programs will build up the local community workforce to fill climate-resilience positions.

2.3.6 Enduring Capacity

The workforce development (WF) component of this initiative seeks to establish sustainable adaptation capacity by fostering skill development for a workforce prepared for climate challenges. The LEX has previously identified the essential skillsets needed to cultivate a workforce ready for employment, many of which overlap with the skills required for a climate-ready workforce, particularly in science, technology, engineering, and mathematics (STEM) domains. Through high school outreach, the project aims to expose over 1000 students to job opportunities in climate-resilience fields.

The implementation of the JCRGT project is anticipated to necessitate the involvement of more than 20 professionals with diverse specialties. These roles include a project manager, multiple environmental engineers and scientists, multiple engineering designers, an engineering design

manager, a water quality modeler, multiple hydraulic and hydrologic (H&H) modelers, and a GIS data analyst. Aligning with the expansion of workforce development that equips individuals with foundational skills for these fields, the project implementation phase serves as a crucial point of contact, offering firsthand exposure to these vital climate-resilience positions. This exposure is especially significant for the traditionally underserved population served by the LEX. The LEX currently works with over 79 agencies for a wide variety of workforce development activities.

2.3.7 Project Costs

For this aspect of the project, \$500,000 has been budgeted for all programming. The framework for governance, collaboration, and refined budgeting will be determined after grant award with input of all collaborative partners. At this time, it is imagined that the budget will be contract award to the St. Petersburg Foundation via the Lealman CRA, and will pay for salaries (40%), program/curriculum development and administration (30%), transportation (20%), and supplies and equipment (10%).

2.3.8 Technical Merit

The WF aspect of this project is expanding current successful workforce development programs at the LEX, using partnerships that have already been established. The NV5 Geospatial NOAA partnership has been added to the project to provide strategic guidance to enhance program effectiveness and success.

3. Overall Qualifications of Applicant

Pinellas County Public Works is experienced in implementing large capital infrastructure projects, having installed approximately \$344.3 million dollars of public infrastructure in the last five years, including projects that include federal funding and grant administration. Public Works has a team dedicated to the implementation of capital projects within the stormwater section comprised of experienced professionals. For large and complex designs, the County relies on engineering consultants to complete construction documents and support the County with specialty inspections and expertise during construction. Furthermore, the County is also responsible for maintaining the infrastructure that they build. This includes buildings, trails, stormwater mitigation projects, roads, and bridges. The operations and maintenance team are a member of the project production team and is involved with design decisions.

The proposed Project Manager and Project Engineer is Paul Miselis P.E. Resumes for key staff can be found in the supplemental materials section. Grant administration is expected to be executed by a specialty contractor to be determined, with experience administrating large-scale federal grants for infrastructure projects. The LEX improvements will be managed through the Lealman CRA in partnership with Pinellas County Emergency Management.

This project is supported by CDBG-MIT (US HUD), and the County is pursuing funding from the USDOT RAISE program.

This project leverages a significant body of planning work that led to the PER project. The PER was developed with a steering committee comprised of over 35 members of various County departments, adjacent municipalities, and state agencies to best take advantage of multidisciplinary scientific and technical knowledge across departments and agencies.

The collaborators for this project have experience and capacity to execute this project and are truly excited for the opportunity to do so. Collaborators are described in more detail in the individual project sections, above, where the collaborators are contributing.

4. Project Costs

Project costs have been developed for the various aspects of the project and are detailed in the previous sections, as well as the Budget Narrative. For the JCRGT and the LEX, the project has completed preliminary engineering and estimates are based on an engineer's opinion of probable construction cost, inclusive of a contingency appropriate for the current project design level.

Overall project cost for all Project elements is approximately \$84 million. The County currently has about \$45 million in grants from CDBG-MIT and Resilient Florida, which brings the grant request to approximately \$39 million. The costs are described in more detail in the budget narrative. Engineers' Opinion of Probable Construction Cost can be found in the supplemental materials.

The County will continue to pursue applicable grant funding opportunities, such as the United States Department of Transportation "Rebuilding American Infrastructure Sustainably and Equitably" (RAISE).

5. Outreach and Engagement

This project has had ongoing outreach and engagement throughout, which is described in both the project history and the individual sections for the project. As the project advances, the County employs various strategies to enhance and maintain communication and information sharing with stakeholders. For internal stakeholders and collaborators involved in the JCRGT section, the Project Participation Team (PPT) serves as a platform for disseminating project information and gathering feedback for integration into design decisions. This established County process has been in place since October 2022.

Regarding the LEX, information sharing and guidance on the project occur through the Lealman CRA and the Lealman CRA Advisory Committee. Similarly, collaborators for the WF portion of the project will convene at the project kickoff to develop details and governance in coordination with the Lealman CRA Advisory Committee, a citizen-led activation committee.

The final component of outreach focuses on the placemaking and public art aspect of the JCRGT section. A citizen committee, reflecting the diversity of communities served by the project, is envisioned to provide guidance on the project's location, types of placemaking activities, and public art installations. Within budget constraints and project boundaries, these installations will authentically capture the character and spirit of the community.

6. Evaluation

Monitoring and evaluation of the project will be both qualitative and quantitative perspectives, considering the numerous anticipated co-benefits. The project's objectives are geared towards fostering enduring improvements in the region, and the monitoring approach aligns accordingly. To gauge the effectiveness of flood mitigation across the project area, ongoing assessment of future weather events and associated flooding will be conducted to ascertain the true level of service provided by the project in terms of flood reduction.

Anticipated co-benefits include expected future development, fostering economic growth and opportunities within the project area. The progress of development will be continuously monitored post-project completion. Additionally, the enhanced utilization of greenspaces and recreational areas along the revitalized Joe's Creek represents another benefit, with ongoing monitoring of recreational space usage planned after project completion.

Evaluation of the workforce development success will be based on program participants who successfully complete the program and the subsequent workforce opportunities arising from this developmental initiative. The impact of gym hardening and resilience hub improvements will be measured by the overall increase in sheltering capacity at the LEX. The workforce development aspect of the project will be closely monitored at the participant level. Collectively, these performance measures will comprehensively assess the success of the project.