

2019

Caño Martín Peña Urban Water Location Work Plan



Caño Martín Peña,
San Juan, Puerto Rico

Ingrid M. Vila Biaggi, MS, PE
Urban Water Ambassador
10/31/2019

I. Background

The Urban Water's Federal Partnership (Partnership) is a U.S. Environmental Protection Agency (EPA) lead effort that seeks to “revitalize urban waters and the communities that surround them, transforming overlooked assets into treasured centerpieces and drivers of urban revival”¹. To accomplish this, the Partnership leverages coordination among federal agencies, local government and partners, bringing together efforts through community-led revitalization engagements. In this framework, communities take center stage in the planning and development of work to improve water systems and promote their economic, environmental and social benefits. This collaborative effort will:

- Align Federal government programs and investment in these communities;
- Expand partnerships;
- Build local capacity;
- Find innovative ways to communicate the environmental and economic potential of safe and clean urban waters.

Fourteen federal agencies have embraced the program, acting as partners. In 2013, the Caño Martín Peña (CMP) was selected as one of nineteen sites nationwide to participate in the Partnership. The CMP Partnership is coordinated and implemented through the collaboration of the San Juan Bay Estuary Program (SJBE) and Corporación del Proyecto Enlace del Caño Martín Peña (ENLACE).

Since its inception in 2013, the CMP Partnership has established periodic meetings between Federal, state and local agencies and academic institutions to discuss issues related to the CMP. Such interactions subsequently transformed into an intergovernmental committee initiative that sought similar objectives for the CMP. In 2015, however, the CMP Partnership reengaged under a more formal structure holding meetings twice a year, developing a work plan and supporting on-going work being coordinated through ENLACE and the SJBPE.

There are many entities, such as the Grupo de las Ocho Comunidades aledañas al Caño Martín Peña, Inc. (G-8) and the Fideicomiso de la Tierra del Caño Martín Peña (Fideicomiso), working together as part of the CMP Partnership, with ENLACE and the SJBEP acting as main coordinator of activities. Initiatives are developed from discussions

¹ Urban Waters Federal Partnership: Vision, Mission and Principles

and identification of needs, based on community engagement and participation. Partners with expertise or capacity to help then coalesce to define work plans.

II. Partnerships

Following is the list of federal agency, local agency, local government and non-governmental organizations and private sector that have thus far been identified as key partners in this process for the Caño Martín Peña.

Federal Agency Partnership

- Department of Agriculture
 - U.S. Forest Service
 - National Resource Conservation Service
- Department of Commerce
 - Economic Development Administration
- Department of Defense – Army Corps of Engineers
- Department of Energy
- Department of Health and Human Services
- Department of Homeland Security
 - Federal Emergency Management Agency
- Department of Housing and Urban Development
- Environmental Protection Agency
- Small Business Administration

Puerto Rico Agency Partnership

- Corporación del Proyecto Enlace del Caño Martín Peña
- Puerto Rico Aqueduct and Sewer Authority
- Puerto Rico Electric and Power Authority
- Puerto Rico Department of Natural and Environmental Resources
- Puerto Rico Department of Housing
- Puerto Rico Highway and Transportation Authority
- Puerto Rico Planning Board
- Governor's Authorized Representative

Local Government Partnership

- Municipality of San Juan

Non-government organizations/ Private sector

- G-8
- Caño Martín Peña Community Land Trust (Fideicomiso)
- San Juan Bay Estuary Program
- HealthProMed
- Center for the New Economy
- OXFAM
- University of Puerto Rico
- Sacred Heart University
- University of Ponce
- Fundación Banco Popular

III. Overview of the Caño Martín Peña

The CMP is a 3.75-mile long tidal channel which serves as a main artery of the San Juan Bay Estuary (SJBE) in Puerto Rico: the only tropical estuary within the National Estuary Program. The eastern half of the CMP, historically between 200 to 400 feet wide, currently ranges in depth from 3.94 feet to 0 foot towards the San José Lagoon. Due to years of encroachment and fill of the mangrove swamps along the CMP, the channel no longer serves as a functional connection between the San Juan Bay (SJB) and the San José Lagoon (SJL) within the SJBE. Hurricane María exacerbated the environmental degradation and clogging of the CMP, increasing water pollution due to vegetation loss and debris.

According to the 2010 U.S. Census, there are approximately 26,000 residents living in the eight communities that make up the District. These communities are characterized by a long history of poverty, overcrowding, unsafe living conditions, exposure to significant environmental and health hazards, community marginalization, and social invisibility despite their strategic location in the heart of the San Juan Metropolitan Area. U.S. Census 2010 data (USCB 2010), U.S. American Community Survey 2010-2015 (ACS 2015) and ENLACE's own studies² provide a striking profile of the poverty prevalent in these communities and their pervasive socio-economic needs. Other significant data³ estimates that 23.8% of the population are immigrants (Foreign born), mainly from the Dominican Republic,⁴ 47.4% of the population age 25 or older lacks a high school diploma⁵; the median household income for families living in the CMP's District is \$10,836⁶; and there is an unemployment rate⁶ of 12.95 % in the CMP's District.⁷



In addition to the clogged CMP and socioeconomic conditions, there are structures in the Caño Martín Peña Special Planning District (District) that are not connected to an adequate sanitary sewer system, contributing to water quality degradation in the CMP and posing a threat to the health of the approximately 26,000 residents of the District. The combined

² Proyecto ENLACE, Primer Informe Socioeconómico, 2002, Estudios Técnicos (CPE 2002)

³ USCB 2010, ACS 2014 & CMP Studies.

⁴ United States Census Bureau. American Community Survey (2015)

⁵ Id.

⁶ Id. (5 years estimates)

⁷ Id.

storm water sewer lines and the regional sewer system contribute to high concentration of coliforms in the water: 2,000,000 col/100mL of fecal coliform and 1,200,000 col/100mL of enterococci.⁸ The lack of adequate sanitary and storm water infrastructure and clogged CMP results in frequent flooding and a constant risk that residents will come into direct contact with polluted water from the floods. Research conducted in the District shows that exposition to flood water leads to an increased risk of gastrointestinal diseases (GID) and a higher prevalence of chronic diseases, such as bronchial asthma and atopic dermatitis.⁹

The CMP Partnership seeks to make significant contributions to address the environmental conditions of the CMP and improve the public health and welfare of the eight communities that make up the District. To improve water quality, restore the watershed's ecosystem, and address public health and safety issues, the CMP Partnership is currently engaged in several initiatives with their local partner, ENLACE, which are also framed within the goals and objectives of the Comprehensive Development and Land Uses Plan for the District (CDP). One of the critical initiatives supported by the CMP Partnership is the Caño Martín Peña Ecosystem Restoration Project (CMP-ERP), which seeks to re-establish the tidal connection between the SJL and SJB through the dredging and channelization of the CMP, thus restoring tidal flow, significantly improving water quality, increasing biodiversity of the SJBE and providing ancillary flood risk mitigation benefits.

For the purpose of this Work Plan: Year 1 refers to October 2019-September 2020 and Year 2 refers to October 2020-September 2021.

IV. Partnership work

In 2015, the CMP Partnership Work Plan was developed to define projects and initiatives to be pursued as part of the collaboration. Work plan objectives were met in an 80%. Limitations to attain 100% compliance were mainly related to Puerto Rico's fiscal situation and the constraints it imposes on partners to meet planned activities. Funding limitations have caused the revision of project schedules several times in past years. Hurricane María exacerbated the environmental, socioeconomic, and public health issues faced by the residents of the CMP communities. A preliminary assessment conducted by ENLACE concluded that Hurricane María resulted in the destruction of over 75 homes, total or partial

⁸ Otero, Ernesto and Alberto Meléndez (2011). Estuarine Environmental Indicators for the San Juan Bay Estuary: Assessment of Sediment and Fish Tissue Contaminants, Draft Report. Prepared for the San Juan Bay Estuary Program and the United States Environmental Protection Agency, Region 2.

⁹ Sheffield PE, Agu DP, Rowe M, Fischer K, Pérez AE, Rodríguez LN, Avilés KR. (2014). Health Impact Assessment of the Proposed Environmental Restoration of Caño Martín Peña. San Juan, Puerto Rico.

destruction to over 1,200 roofs, and floods in 70% of the communities, in some areas for up to 4 days. The cost to rebuild the roofs partially or completely destroyed by Hurricane María is approximately \$15.6 million. The costs associated with the damage caused to other properties, such as appliances and vehicles, can easily exceed \$500,000.

Faced with this new panorama, the CMP Partnership supported ENLACE, the G-8, and Fideicomiso's efforts to provide immediate disaster relief to the District and promote long-term recovery efforts and initiatives. In the first two months after Hurricane María: 1,718 cy of vegetative material blocking access to streets and houses and representing risks to public health were removed; over 5,000 foods were prepared and distributed among residents; over 800 tarps were distributed among families who lost their roofs partial or totally; over 1,700 goods were delivered; three community centers were provided with solar energy installations; coordination with the U.S. Army Corps of Engineers resulted in the installation of over 600 blue roofs; and over 600 volunteers were mobilized to assist in these efforts. In addition, the G-8 implemented the "Techos para el Caño" initiative which aimed to rebuild roofs that María destroyed in the District, "replacing them with new, more resilient roofs made with traditional materials (wood and zinc) but with the appropriate design, installation, and anchoring so they can better resist future storms."¹⁰ As of November 2019, the G-8 has provided, through the "Techos para el Caño" initiative, has rebuilt the roofs of 115 families living in the District.¹¹

The CMP Partnership has demonstrated to be a valuable tool to advance CMP initiatives through improved coordination, communication and networking to achieve a more effective contribution to the CMP ENLACE Project. Partners learn of problems faced by communities, of projects and initiatives being developed by other partners, of progress being made in various fronts. Improved collaboration for approval of dredging related projects, resolution of issues and identification of new strategies has been achieved. Notwithstanding, support is still needed to achieve the just and equitable recovery of the communities that make up the District, especially the implementation of the CMP-ERP and related infrastructure and housing projects contained in the CDP. However, still in 2019 uncertainty related to fiscal limitations, reconstruction funding and how these impact Caño Martín Peña activities affect activities related to the partnership.

¹⁰ Hurricane Maria-From tarps to roofs in Puerto Rico. (n.d.). Retrieved from <https://www.globalgiving.org/projects/from-tarps-to-roofs-hurricane-maria-puerto-rico/>

¹¹ See, *id.*

V. Priority Initiatives

Initiative 1: Caño Martín Peña Ecosystem Restoration Project Construction New Start

The CMP-ERP is essential to achieve the rehabilitation of the SJBE as it addresses the need to restore the natural hydraulic connection between the SJL and the SJB, which has been eliminated through years of backfilling, sedimentation and other factors. The CMP-ERP is a key component of Comprehensive and Conservation Management Plan for the SJBE, as it is necessary to restore fish habitat, species diversity and the overall health of the system. The CMP-ERP “will decrease water residence time within the SJL, returning salinity and dissolved oxygen to more natural levels and restoring connectivity of the estuary, mangrove habitat for aquatic invertebrates and other native species”¹² The CMP-ERP is also critical to reduce exposure of residents to contaminated floodwater.

During the Work Plan period the goal is for the CMP-ERP to be selected by the U.S. Army Corps of Engineers (USACE) as a construction New Start under the agency’s Work Plan for Fiscal Year 2020 (Year 1) to begin construction of the CMP-ERP during Year 2.

Federal leads: USACE (lead federal agency), EPA (Clean Water Act Section 404 Environmental Compliance), State Historic Preservation Office, etc.

Partners/stakeholders: ENLACE (non-Federal Sponsor of the CMP-ERP), DNER (non-Federal Sponsor of the CMP-ERP), G-8, SJBE, Fideicomiso, SJBEP, Puerto Rico Federal Affairs Administration (PRFAA), Resident Commissioner’s Office, PR Environmental Quality Board, Municipality of San Juan, Municipality of Carolina, Institute of Puerto Rican Culture, among others.

Work plan activities:

- a. Support efforts for inclusion of federal budget and new starts under USACE’s Work Plan for FY 2020 to allow the CMP-ERP to compete construction new start;
- b. Support efforts with the office of the Assistant Secretary of the Army (Civil Works) and Office of Management and Budget (OMB) for selection of the CMP-ERP as a construction new start upon approval of USACE’s Work Plan for FY 2020

¹² Final feasibility report delivery package: Caño Martín Peña Ecosystem Restoration Project; Final feasibility report & environmental impact statement for the Caño Martín Peña Ecosystem Restoration Project; Final environmental impact statement, Caño Martín Peña Ecosystem Restoration Project, San Juan, Puerto Rico, available at <https://usace.contentdm.oclc.org/digital/collection/p16021coll7/id/2302/>

- c. Continue progress on Pre-Construction and Engineering and Design of Contract#1 of the CMP-ERP.

Expected outputs Year 1:

- Selection of the CMP-ERP as a construction new start under USACE's Work Plan for FY 2020
- Complete Geotechnical Investigations Phase III
- Conduct Sec. 404 Clean Water Act Testing Phase II
- Conduct Bridges Scanning
- Sign a memorandum of agreement with SHPO for compliance with Sec. 106
- Complete hydrodynamic modelling
- Update/Complete P&S for Contract #1 up to Barbosa. *Phase 1 of Contract #1 (CDRC Staging Area & San José Lagoon) is shovel ready*

Expected outputs Year 2:

- If New Start is granted, sign Project Partnership Agreement (PPA) by September 2020 and begin construction of Contract #1 Phase I
- Conduct Bridges Inspection
- Development of Plans & Specifications for Contract #2 (design under construction if new start is granted)

Initiative 2: Economic Benefit Assessment

A broader understanding that presents the opportunities and benefits that dredging the Caño Martín Peña could bring to the entire region is to be developed. The assessment must take into consideration community priorities and values and be able to integrate aspects such as the economic development value of connecting the Luis Muñoz Marín International Airport and the San Juan Bay via a water system, benefits of a restores ecosystem, its potential for eco-tourism and the possibility of developing trails and green spaces that can be enjoyed by the wider regional community, among others. In recent years the CMP Land Trust initiated some analysis in collaboration with local and international universities related to benefit cost and prepared a draft Request for Proposal to conduct a study.

Federal leads: Economic Development Agency (EDA) (through Municipality of San Juan), US Forest Service (USFS)

Partners/Stakeholders: G-8 communities, CMP Community Land Trust, Enlace, San Juan Bay Estuary, Municipality of San Juan, Center for the New Economy.

Work plan activities:

a. Economic Benefit Assessment

An economic benefit assessment of dredging and revitalization of the Caño Martín Peña is essential to continue gaining support from sectors. The study must validate and build upon the socio-economic benefits of the project which will improve quality of life conditions for residents and stimulate economic activity and competitiveness of the Metropolitan Area.

Expected outputs Year 1:

- Identifying possible programs, entities to help develop the EBA.

Expected outputs Year 2:

- Design the EBA.

Initiative 3: Infrastructure projects

Infrastructure projects include the relocation of current infrastructure that will allow for dredging works. These include the development of water, wastewater and stormwater systems in communities that lack these basic services or have deficient service, the walkway to be developed along the CMP to protect and integrate the CMP and communities. FEMA Mitigation Funds and Community Development Block Grant Disaster Recovery funds could potentially be used to develop some of these projects.

The following projects have already been completed:

- ✓ the Barbosa Avenue bridge relocation (PRHTA-2007)
- ✓ San Jose trunk sewer (PRASA-2014)
- ✓ 115kV power line relocation (PREPA-2015)
- ✓ Vacuum sewer system Barrio Obrero Marina (PRHTA-2008; pending finalization of correction of deficiencies)

Federal leads: Department of Housing and Urban Development (HUD), Federal Emergency Management Agency (FEMA), USEPA

Partners/Stakeholders: Enlace, G-8 communities, Puerto Rico Aqueduct and Sewer Authority (PRASA), Municipality of San Juan (MSJ), San Juan Bay Estuary

Work Plan Activities:

a. Israel Bitumul North

-Phase I estimated cost \$18.7 million

Phase IA for the project is fully designed and incorporates all three components (walkway-Enlace, potable and wastewater system-PRASA, stormwater system-Enlace). A \$9 million subsidy from the State Revolving Fund has been secured for this phase with the possibility of additional \$4.3 million SRF loan funding.

The critical path during the last semester of 2019 is to complete all documentation to secure the SRF subsidy, to finalize minor adjustments to design in order to prepare bid documents and to complete a Memorandum of Understanding between the three responsible entities (Enlace, PRASA, MSJ). Bidding is scheduled for the second semester of 2020. Project construction duration is 48 months.

b. Relocation of Rexach Siphon

Estimated cost: \$15 million

-PRASA: siphon relocation is designed, pending identification of funds by PRASA. This project is critical for the development of Buena Vista Santurce projects.

c. Relocation of Borinquen potable water line

Estimated cost: \$4.7 million

-PRASA: project was awarded for construction but a claim was taken to court by another bidder. Construction start is scheduled for second semester of 2020. Project construction duration is 15 month.

d. Israel Bitumul South

-PRASA- potable water and wastewater systems fully designed and funded. PRASA proposes dividing project in phases to start with the more organized portion of the community.

Pending final coordination between Enlace and PRASA as well as identification of funds to proceed with procurement.

e. Buena Vista Santurce Stormwater

Enlace received \$3.3 million in SRF grant to develop a Comprehensive Infrastructure Master Plan (CIMP) and Schematic Design for the Northern and Southern Region of the Caño Martín Peña & “Paseo del Caño Norte” and Buena Vista Santurce Infrastructure Construction Plans. Work related to the Master Plan and Construction Plans should be completed by 2021.

f. Barbosa Avenue Realignment

The project consists of the realignment of the Barbosa Ave., from the bridge over the Caño Martín Peña until the intersection with Rexach Street / Constitution Street. The bid announcement for the project was presented July 2019. Construction should begin in 2020.

Expected outputs Year 1:

- Israel Bitumul – Bid and construction start for Phase IA.
- Relocation Rexach Siphon – Identification of PRASA funding to begin bid
- Relocation of Borinquen potable water line – Construction Start
- Israel Bitumul South – finalize coordination PRASA/Enlace, identify funds.
- Buena Vista Santurce Stormwater – Master Plan work and Construction Plans should be well advanced.
- Barbosa Avenue Realignment – Construction start

Expected outputs Year 2:

- Israel Bitumul – Phase IA Construction
- Relocation Rexach Siphon – Construction Start if funds identified in Year 1
- Relocation of Borinquen potable water line – Construction completed
- Israel Bitumul South – Bid announcement
- Buena Vista Santurce Stormwater – Securing funding to proceed with construction
- Barbosa Avenue Realignment – Construction

Initiative 4: Housing

Includes the relocation of residents, acquisition of property, construction of new housing and rehabilitation of existing housing. Already over 300 structures have been acquired and families have already been relocated.

Federal leads: HUD, FEMA

Local partners/stakeholders: Enlace, G-8 communities, PR Housing Department, MSJ, State Hazard Mitigation Officer (COR3)

Work plan activities:

- a. Comprehensive housing acquisition, relocation, construction action program
Need to pursue a comprehensive housing action program for the Caño Martín Peña that allows planned funding for housing acquisition, relocation, construction in order for infrastructure and dredging related projects to move forward swiftly. Both FEMA Mitigation Programs as well as CDBG-DR could serve to implement the program.

Expected outcomes Year 1:

- Define and pursue strategy for funding source (FEMA or CDBG-DR) that will allow to move forward with housing plan in coordination with infrastructure projects.

Expected outcomes Year 2:

- Implementation of housing acquisition, relocation, construction action program in the CMP.

Initiative 5: Sustainability and Expanding Support

Sustainability is the core of the Caño Martín Peña effort. Aside from initiatives related to ecosystem restoration, Enlace and the G-8 pursue additional activities to improve quality of life and resiliency of residents. These initiatives also help to expand overall project support.

Federal leads: USEPA, USFS

Local partners/stakeholders: Enlace, G-8 communities, DNER, Climate Change Council, OXFAM

Work plan activities:

a. Rainwater Harvesting Pilot Project

The development of a pilot project for the analysis, implementation and monitoring of rainwater harvesting strategies in 3 structures located in Buena Vista Santurce. The pilot project will be evaluated as an additional strategy to manage rainfall discharges and significantly reduce the community's susceptibility to flooding events. The pilot project arises from the recommendations stated in the Storm Water Collection System Conceptual Design for the Buena Vista Santurce community. The design report recommends further development of rainwater harvesting strategies throughout the community, specifically the usage of the approximately 20 acres of roof's footprint area of about one thousand (1,000) estimated structures located within the community.

b. Energy projects

As explained earlier the Caño Martín Peña communities are adversely affected by flooding during rain and severe weather events. Aside from flooding, basic services such as power service are frequently affected as well. Embracing new resiliency models, it is essential to explore more sustainable ways to deliver power service to these communities and implement effective conservation strategies. The possibility of developing in the Caño communities a renewable energy project, coupled with conservation methods, should be explored.

c. Climate change adaptation

The Caño Martín Peña is a zone vulnerable to climate change conditions. Better understanding of the effects of climate change in the zone is essential to develop resilient infrastructure and adaptation mechanisms that will enable communities to plan and address future impacts. Further collaboration with the local Climate Change Council (DNER, USFS, others) needs to be explored. There is opportunity for incorporating climate change elements in the development of the CMP H/H study.

d. Expanding support

The Caño Martín Peña project is an important program that requires ample support from different sectors of society to achieve progress at the desired pace. Additional resources are needed to leverage and take full advantage of opportunities available.

Expected outcomes Year 1:

- Initiate water harvesting project under Environmental Justice Grant.
- Identify partners for sustainable energy project.
- Explore with Climate Change Council possible collaborative efforts related to climate change and inclusion in H/H study.
- Seek to incorporate and expand participation and engagement of local/state/federal entities.

Expected outcomes Year 2:

- Identify other opportunities to expand water harvesting initiative.
- Implement sustainable energy project if community decides to move forward.
- Define specific initiatives related to climate change.
- Seek to incorporate and expand participation and engagement of local/state/federal entities.
