

LIFT Scholarship Exchange Experience for Innovation & Technology (SEE IT)
Sponsored by: WRF, WEF, and NACWA

TRIP REPORT

SCHOLARSHIP UTILITY: *Houston Water, Houston, Texas*

SCHOLARSHIP UTILITY CONTACT: *Aisha Niang, Assistant Director, Aisha.niang@houstontx.gov*

ATTENDEES:

- Aisha Niang, Wastewater Operations

TRIP DATE:

- August 30, 2019

UTILITIES/SITES VISITED:

- Juan Diaz Treatment Plant, Panama City, Panama

TECHNOLOGIES/INNOVATIONS SEEN: The use of tunnel system for storage and conveyance

TRIP BACKGROUND and RATIONALE (250 WORDS): *What technology did you select to visit? What is the problem you are trying to address? How did you envision the LIFT SEE IT scholarship trip helping your utility?*

Technology Visited: Large diameter tunnel systems

Problem: Houston Water is in the initial planning and design stages for consolidation and flow diversion projects for various waste resource recovery facilities. These projects will reduce plant facilities from 39 to 31 as well as minimizing the number of lift stations that are maintained and operated. Houston Water is convinced tunneling is the best option for eliminating SSOs in neighborhoods by lowering capacity issues and stabilizing rising costs via control of O&M and capital.

LIFT SEE IT: Close collaboration long with field trips would speed up learning, adopting and implementing tunnel innovations. The LIFT SEE IT exchange provided a foundation to pave the way to avoid project setbacks that other utilities have encountered.

TRIP SUMMARY (1 page max. Please include 10 photos and a 1-2 minute video montage from the trip. The video does not need to be professional, however if you have the means to create a professional video feel free to do so): *Why did you select the specific utility and technology for the visit? Based on your visit, do you think this technology/approach works for your utility? How useful was the trip in your decision-making process? What were some of the trip highlights and takeaways?*

Houston Water conducted research to find utilities that were in different phases of their tunneling projects and after an in-depth review, we chose to visit Seattle Public Utilities, Panama and DCWATER. Seattle could provide extensive knowledge of their planning and bidding procedure since they were in the project award process, DCWATER has a tunnel already in operation as well as one that is in construction and Panama had a completed tunnel that was feeding their water resource recovery facility.

Panama gave great insight into construction methods, lessons learned, and their in-depth approach to community outreach which had similarities to Seattle's. Seeing Panama's methods and how comparable they were to those implemented in the United States, hardened Houston's planning tactics and gave insight into staffing needs for this project.

Trip highlights and Takeaways:

- Provided insight into the planning involved with community outreach.
- Gave examples for the different types of outreach methods that were incorporated into Panama's program.
- Panama provided examples for different funding sources.
- Similar approach to Seattle with community engagement. Houston will most likely implement something similar before and during construction.

LIFT SEET IT Photos





MAIN OBJECTIVES

PANAMA'S SANITATION PROGRAM



- RECOLLECT**
TRANSPORT AND TREAT THE WASTEWATER FROM THE DISTRICTS OF PANAMA, SAN MIGUELITO, ARRABALAN, AND LA CHORRERA.
- ELIMINATE**
THE POLLUTION AND BAD ODORS CAUSED BY THE WASTEWATER.
- IMPROVE**
THE SANITARY CONDITIONS OF OUR CITY THROUGH THE SANITATION OF ITS BAY AND RIVERS.

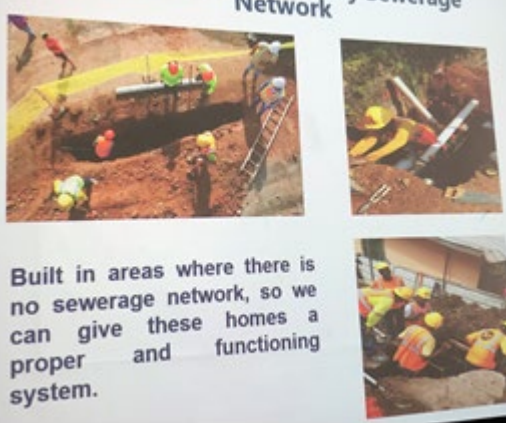
18 YEARS IN THE WORKS

PANAMA'S SANITATION PROGRAM



- 2001**: Inician Obras - Construcción de Redes San Miguelito I
- 2006**: Inicia Construcción de Planta de Tratamiento de Aguas Residuales en Juan Díaz
- 2009**: Entrega de Redes San Miguelito y colectores Tocumen, Betón y Río Abasco
- 2010**: Finaliza Colectora Matías Hernández
- 2012**: Planta de Tratamiento de Aguas Residuales inicia operaciones
- 2013**: Inicia Operación y Mantenimiento - Inicia San Marcos - Acercamiento al Estero Chorrera
- 2015**: Certificación Troncal - Inicio Operación Interceptor Este
- 2016**: Inicio Proyecto de Puntos Negros y Puntos Negros
- 2017**: Orden de Precedencia de la Planta de Tratamiento de Aguas Residuales - Inicio Operación de la Planta de Tratamiento de Aguas Residuales
- 2018**: Cumple Proceso de Aprobación de Inicial Acuerdo para Sanitarizar el Río Abasco
- 2019**: Cumple Proceso de Aprobación de Inicial Acuerdo para Sanitarizar el Río Abasco

Construction of Sanitary Sewerage Network



Built in areas where there is no sewerage network, so we can give these homes a proper and functioning system.

Construction of Sanitary Collectors



They are built alongside the rivers and nearby areas with the purpose of intercepting or collecting the wastewater that is being discharged in the rivers or brooks.

