

The background image shows a city street scene. In the foreground, there is a concrete sidewalk with a metal curb. To the right of the curb is a grassy area with some weeds and a bush with green leaves. In the background, there is a road with a yellow excavator, a blue car, and a white van. There are trees and a traffic light visible in the distance.

PUG Sharing Technologies Seminar

**City of Richmond 22-23 Grade 5
Risk Assessment Analysis (RAA)
Line Replacement Project**

February 8, 2024

Presentation Organization

MEET THE TEAM

**ABOUT THE
PROJECT/PROGRAM**

**BENEFITS OF DESIGN-
BUILD vs DESIGN-BID-
BUILD**

INITIAL APPROACH

PROJECT RESULTS

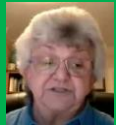
LESSONS LEARNED



Meet the Team



ROBERT ARMIJO



MARY PHELPS



JEFF BARICH



CHANDRASEKAR
VENKATRAMAN



JAYNE A. LOPEZ

D'Arcy & Harty



MIKE D'ARCY



NIALL FOGARTY



WILLIE TOBIN



Harris & Associates



FIDEL SALAMANCA



KOUROSH
IRANPOUR



SARAH CHOU

VW Hausen & Associates



VIVIAN HOUSEN

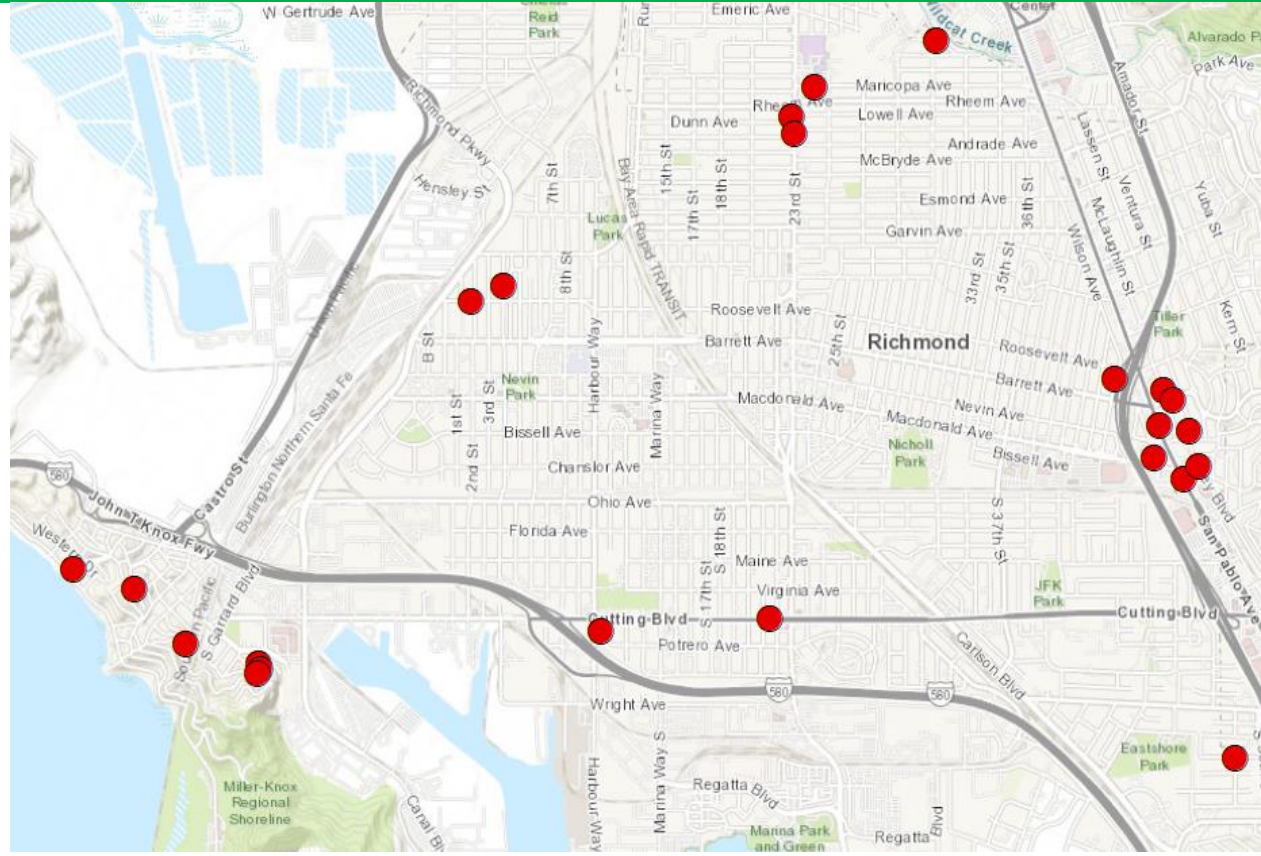
J. Majors & Associates



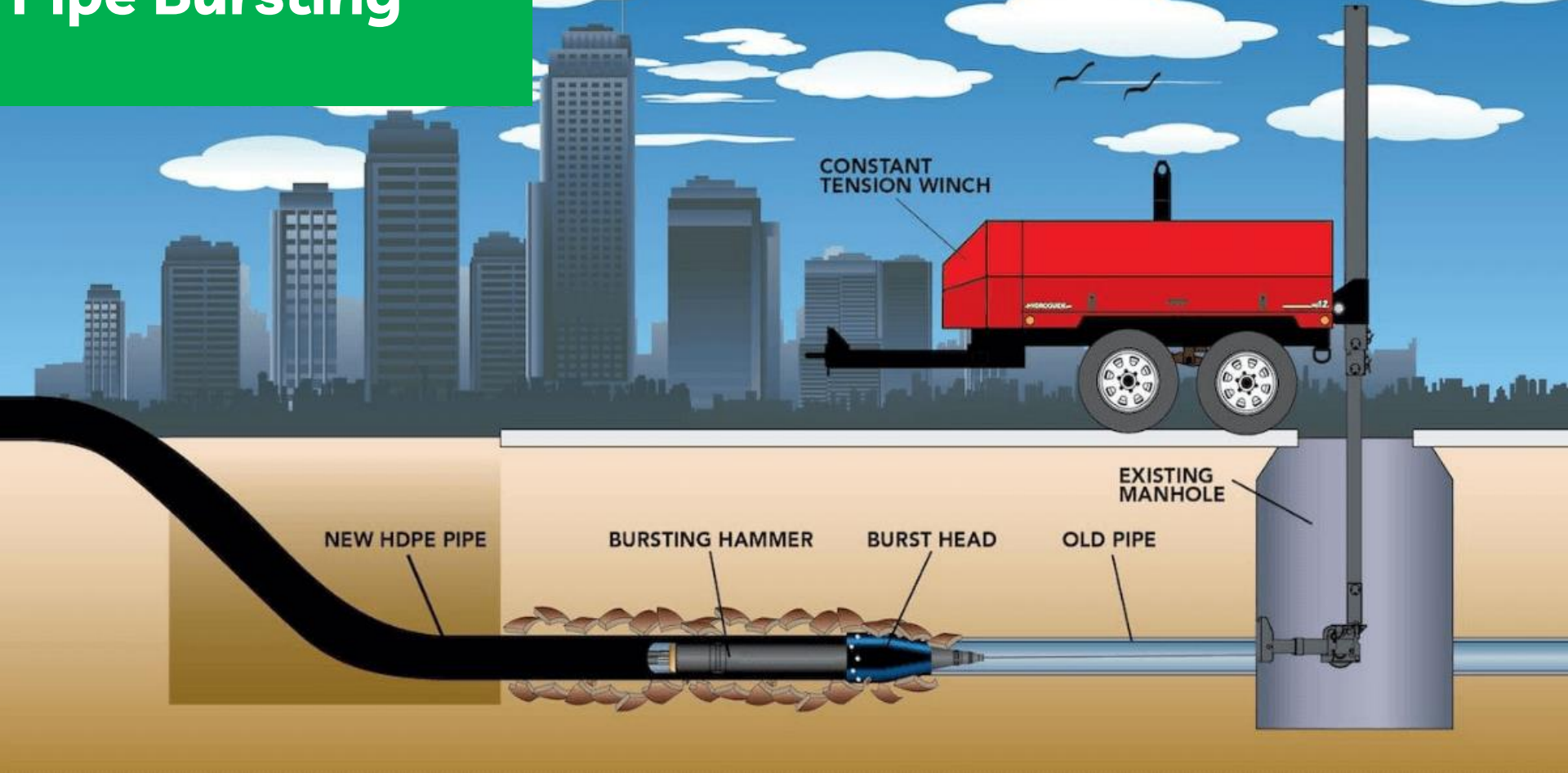
JACQUELINE MAJORS

Project Information

- Approximately 5,480 feet of SS
- Lines replaced via Trenchless Pipe Bursting and traditional open-trench
- Open Cut Utility Crossings
- Diameters range from 6-inch to 18-inch (included upsizing)
- 21 individual sites
- Design - Build Project



Pipe Bursting



History of the Program

- City of Richmond replaces approximately 2 miles (>1%) of sewer line in the sewer collection system every year
- The completion data is shared with regulatory partners
- In 2021-22, the City championed an innovative Design-Build approach for replacing the line segments
- Pilot Program had 2 packages (7 lines and 8 lines)



Project Considerations & Benefits

- Project Pipe List is developed in a collaborative manner
 - City Public Works,
 - Collections systems operations,
 - Engineering consultant, and
 - City's Baykeeper Counsel
- Best value for City's investment – lines chosen based on:
 - condition,
 - capacity considerations,
 - operational priorities,
 - location - coordination with City's paving plan
- Project delivery method reduces execution times
- Unit pricing provided to City, can add or remove from the project and have defined pricing



Construction Benefits

- # of Lines gives the Contractor an opportunity to keep their crews productive and engaged.
- Flexibility provided to Contractors to partner with competent and collaborative design partners
- Easement Lines can be worked on for agreements while other work can continue – helps keep crews working
- Keep the crew busy by having laundry list of investigation, preparing to construct, completing pothole/CCTV



2022-2023 Project Approach

- City puts out RFP for competitive bid towards end of 2022
 - (three bids received in 2022)
- Bids required options for Unit Pricing from the Contractor
- Award in March 2023
- Order of Completion can be shifted to avoid down time for Construction Crews
- Weekly Team meetings to track ongoing tasks with many team stakeholders



Project Workflow

- City Provides NTP
- Jacqueline Majors distributes flyer to residents going to be affected
- Contractor begins Investigations (CCTV and utility locating) 1 week
- Designer begins Basemapping (2 days)
- Contractor provides utility data to Designer (Additional 2 days to incorporate)
- 30% Plans Developed
- City Review of Design to verify compliance with Richmond Standards (Vivian Housen - 2 days)
- Design approved, residents notified (D'arcy & Harty posts signs 48 hours in advance)
- Contractor begins work
- Completed construction
- Redlines provided to Designer for record drawings



PROJECT SCHEDULE

**RFP BIDS
NOV 30,
2022**

BIDS RECEIVED BY
CITY

APRIL 5, 2023

D'ARCY & HARTY NTP

JUNE 26, 2023

LAST LINE WRAPPED UP (16 PIPES
COMPLETELY INSTALLED,
EASEMENT LINES WERE DELAYED)

7 ADDITIONAL
LINES ADDED TO
CONTRACT,

**MARCH,
2023**

PROJECT
AWARDED

**APRIL 13TH,
FIRST
CHECK-IN.**

D'ARCY HARTY HAD ALL
SUBMITTALS IN FOR REVIEW,
CCTV PRE-INVESTIGATION
STARTS APRIL 19TH

**APRIL 26
PLANNED START,
2023**

SHOVEL IN THE
GROUND MAY 8TH,
DELAYED FOR CINCO
DE MAYO FESTIVAL

**OCT 18TH
DEMobilIZATION**

Hiccups along the way

- Easement Work takes a long time to get all necessary signatures
- Older neighborhoods, residents get on Next Door
 - Good and Bad
- Needed to get started on design prior to official NTP, may not work well with other team that did not have the trust already built
 - Harris has worked with D'arcy & Harty on previous DB projects and have long time working relationship
- When lines were changed, crews want to move faster than residents could be notified



Summary of Benefits/ Lessons Learned

- City of Richmond has taken a chance for trying to establish a method of getting more done for their City
- Deadlines to meet Bay Keeper agreement may not be feasible with the standard design-bid-build timeline
- Timing of the completion has saved the City by completing line replacement within a short timeframe
- Team has worked together and established strong working relationship built on trust
- Allowed City to expand scope of work with favorable pricing



Summary of Benefits/ Lessons Learned

- Construction of main scope completed between March 2023 and June 2023
 - Design Work completed in very short time frame
 - As potholing was completed, 30% Designs were issued within 3 days to contractor
 - Record Drawings issued once red-lines were provided by the Contractor
- Additional Lines added on a known unit-cost basis.
- Easement line work had to be shifted due to signature collection delays



Summary of Benefits/ Lessons Learned

Schedule Benefit

- Design and construction shortened to a few months within one calendar year, from multi-year process
- Unit-cost basis allows for City to easily swap or add lines (Can be accommodated because onus is on contractor and designer team)

Cost Benefit

- ¹Typical Design-Build on average approximately 20% cost reduction on a price per LF, ranging as high as 40%
- Does not factor in the time-value of money

¹Costs reduction based on 2023 Dollars, escalated original costs from various projects dating back to 2018



THANK YOU

QUESTIONS?

