Desal Plant Project Interconnection

Rev 2

January 15, 2024

Executive Summary

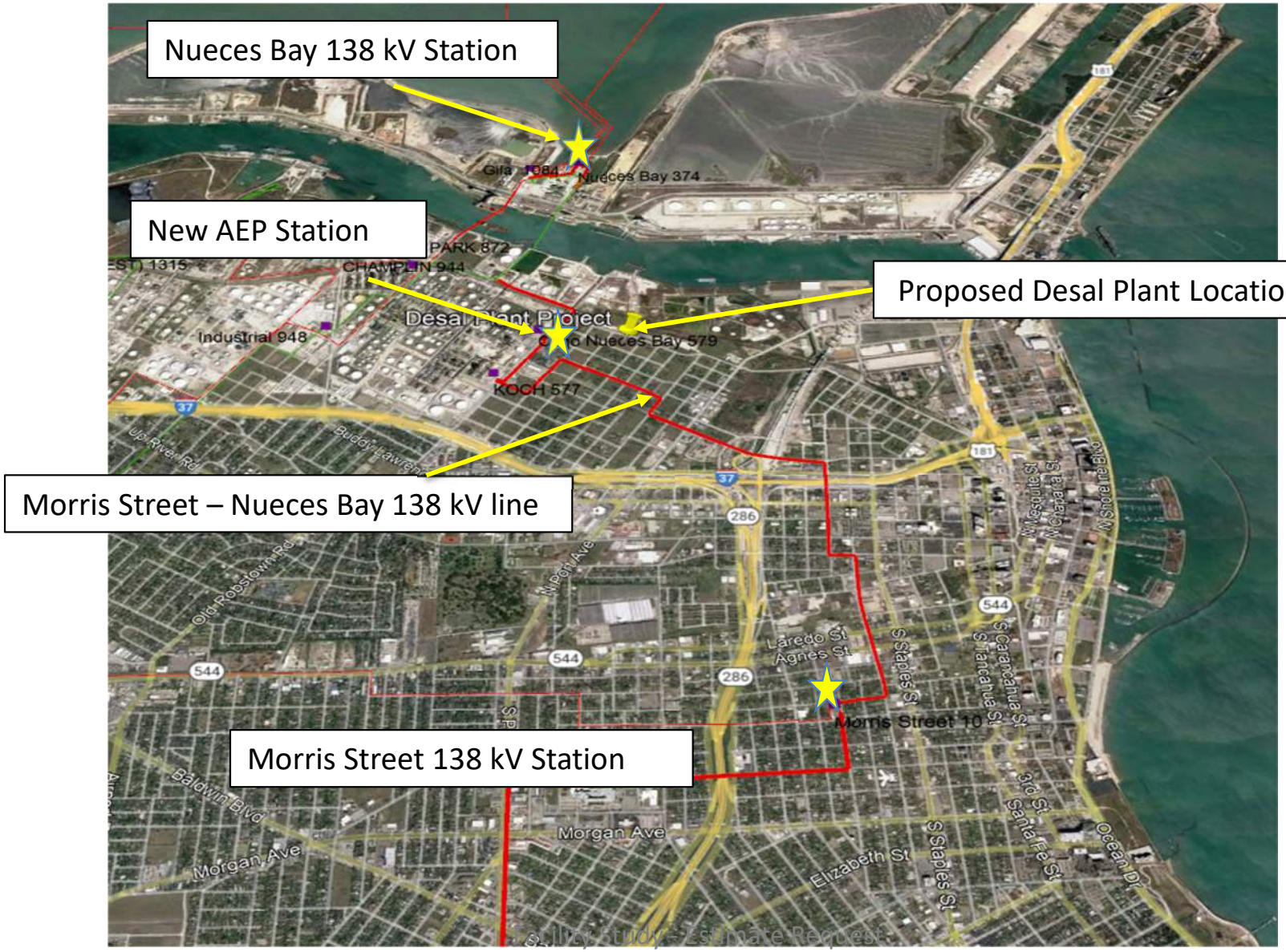
City of Corpus Christi is proposing a 20MW – 30MW desalination plant site to support the water usage needs in the Coastal Bend area. The customer has a property option with Flint Hills Refinery to acquire property for the proposed plant and AEP station near Nueces Bay Blvd and West Broadway St. in Corpus Christi, TX. This AEP Texas cost allocation is following an AEP preliminary engineering study that the City of Corpus Christi paid a deposit amount of $100,000.00 to obtain a more accurate AEP work scope and project cost estimate as well as determine the customer CIAC.

AEP Texas plans to serve this new desal plant with a radial permanent 138kV transmission terminal tied to the Nueces Bay to Morris Street 138kV transmission line. AEP will update remote end relays at Nueces Bay and Morris Street stations, as required.

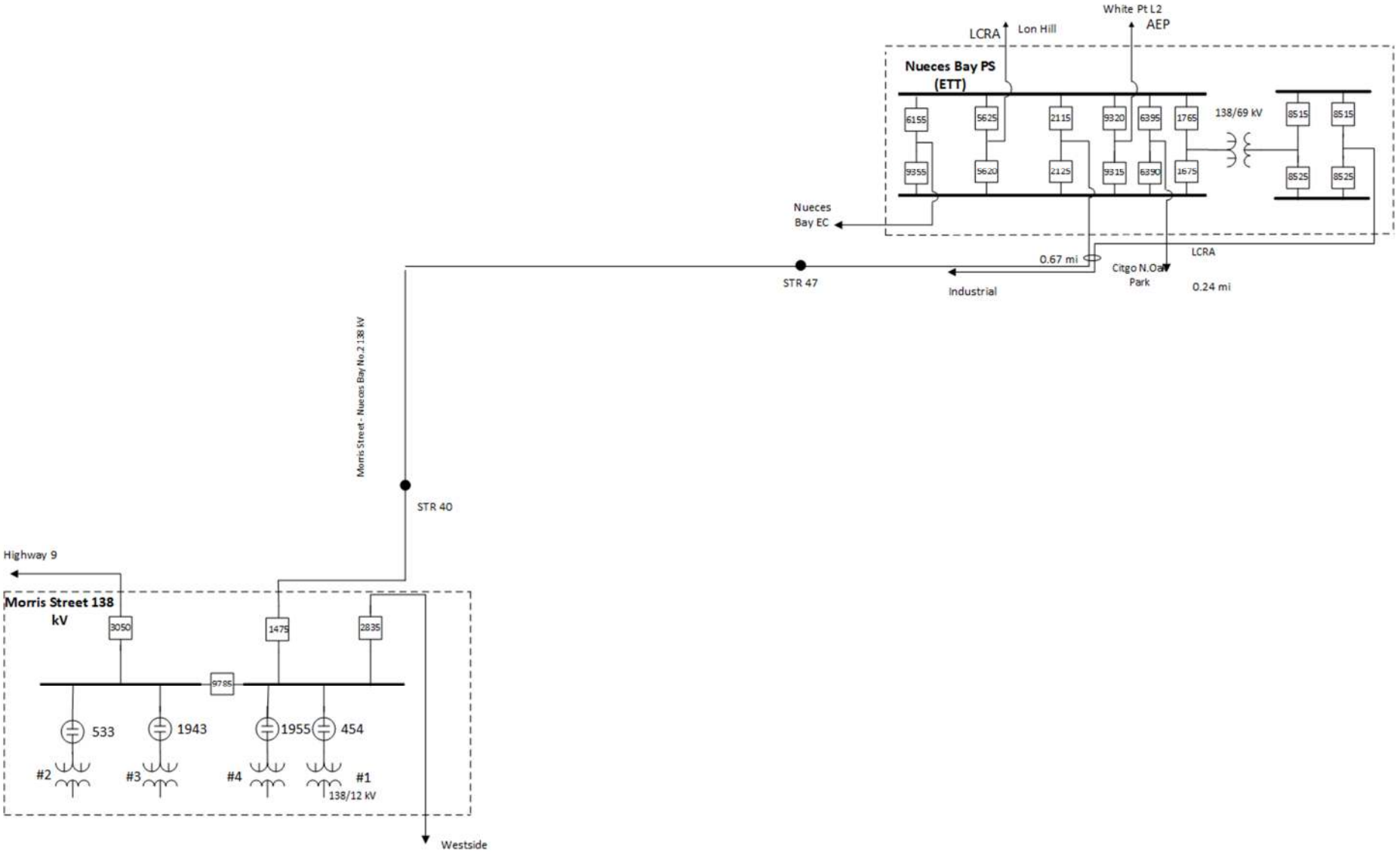
For the permanent work scope, AEP will build a 5-breaker ring bus station expandable to a 6-breaker ring bus configurations for future expansion. AEP will provide a dead-end structure to the POI located outside the AEP station fence. Project cost escalation has been added to the cost estimate for a proposed 2028 in-service date.

Desal Plant Project Interconnection Estimate Request

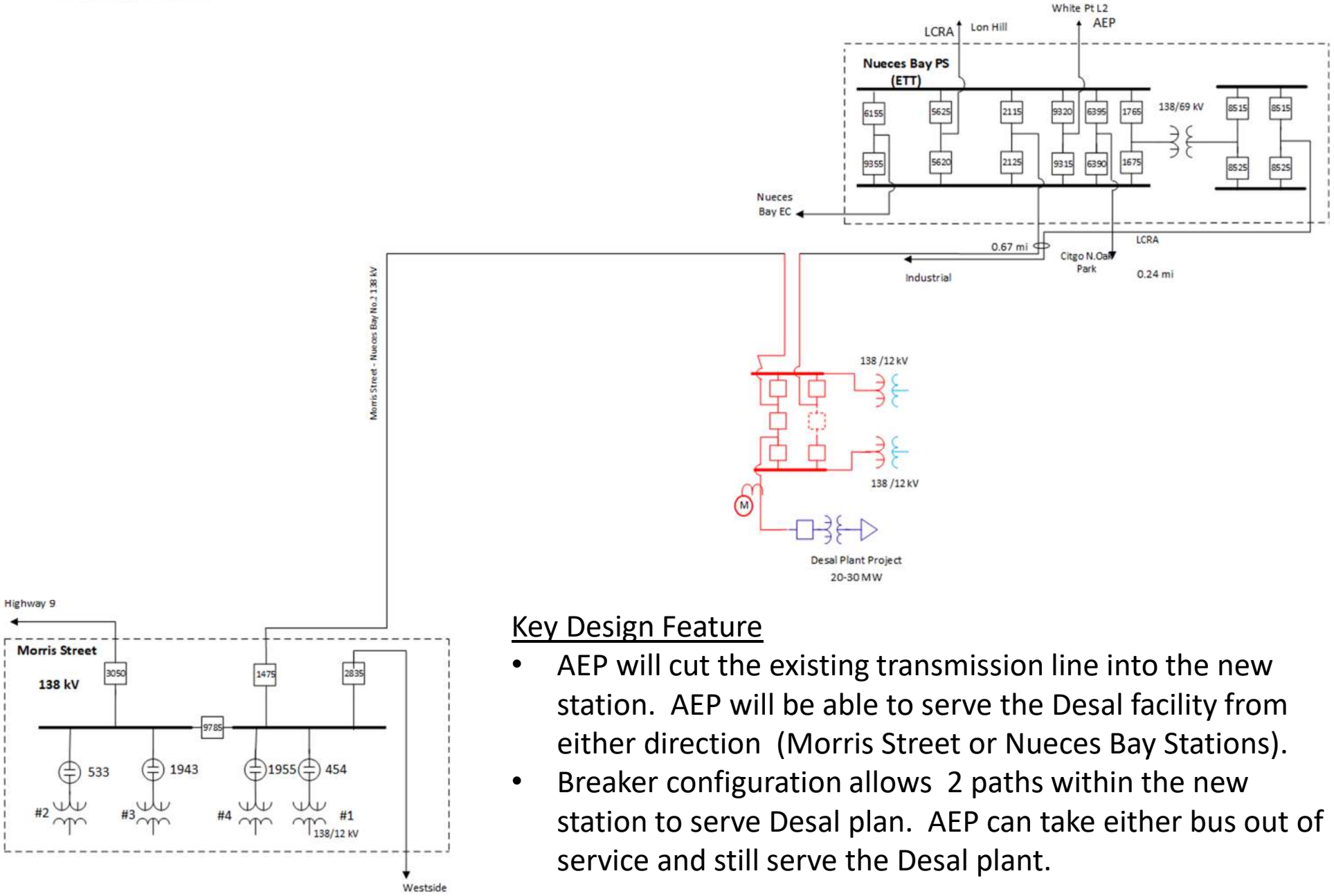
City of Corpus Christi is requesting to interconnect [20-30MW] of Industrial load near the Morris Street-Nueces Bay 138 kV line in Corpus Christi, TX.



System Electrical Diagram (existing)



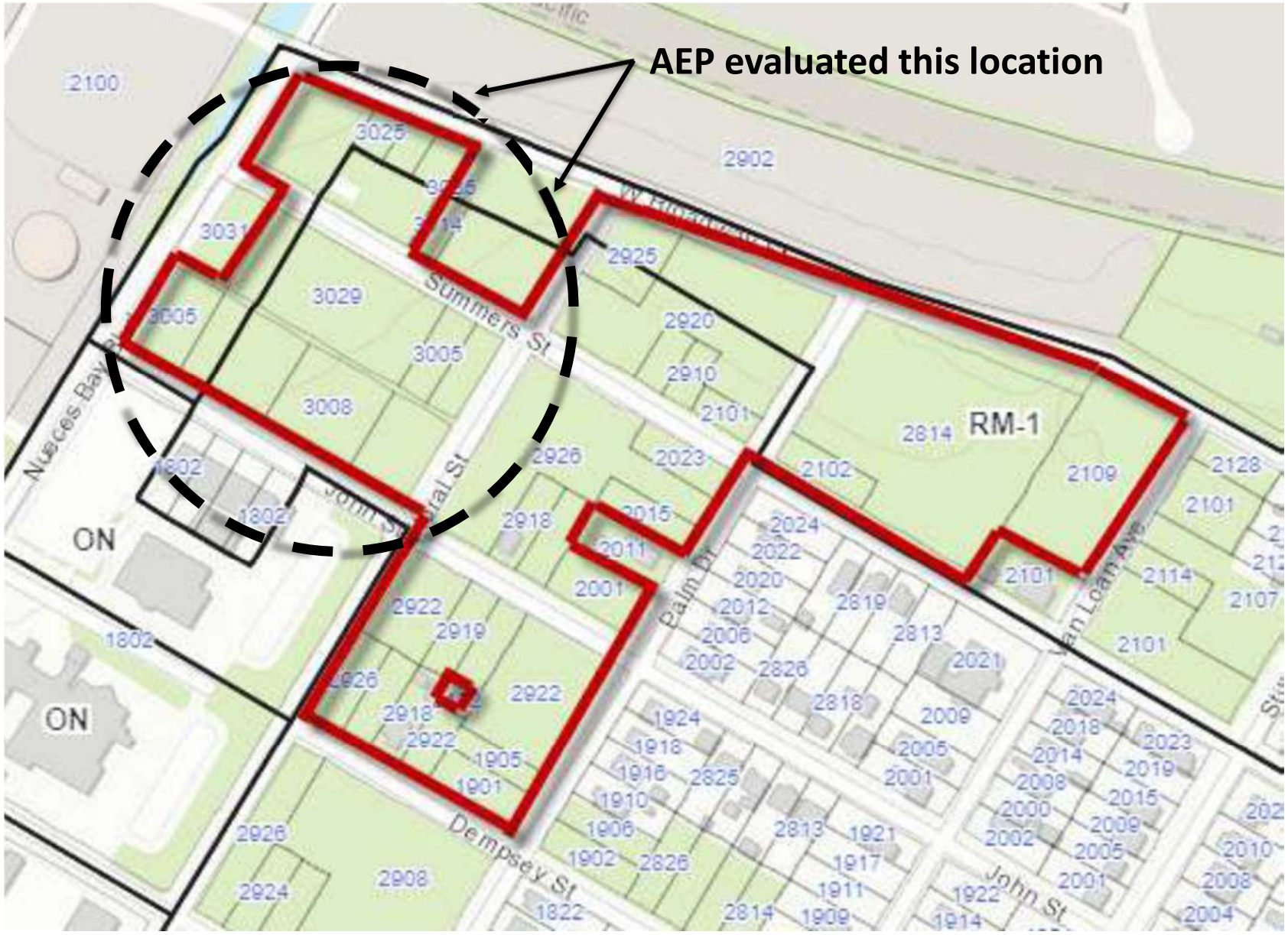
System Electrical Diagram (proposed)



Key Design Feature

- AEP will cut the existing transmission line into the new station. AEP will be able to serve the Desal facility from either direction (Morris Street or Nueces Bay Stations).
- Breaker configuration allows 2 paths within the new station to serve Desal plan. AEP can take either bus out of service and still serve the Desal plant.

Property To Be Purchased by City



Information From The City

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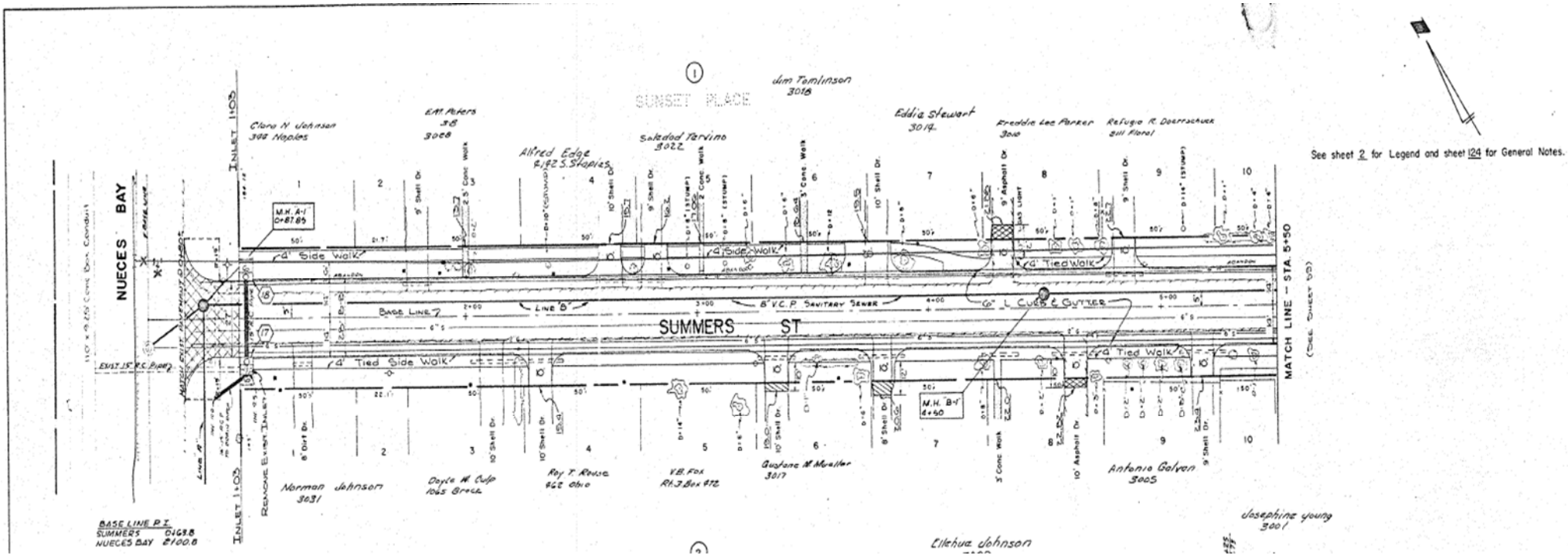
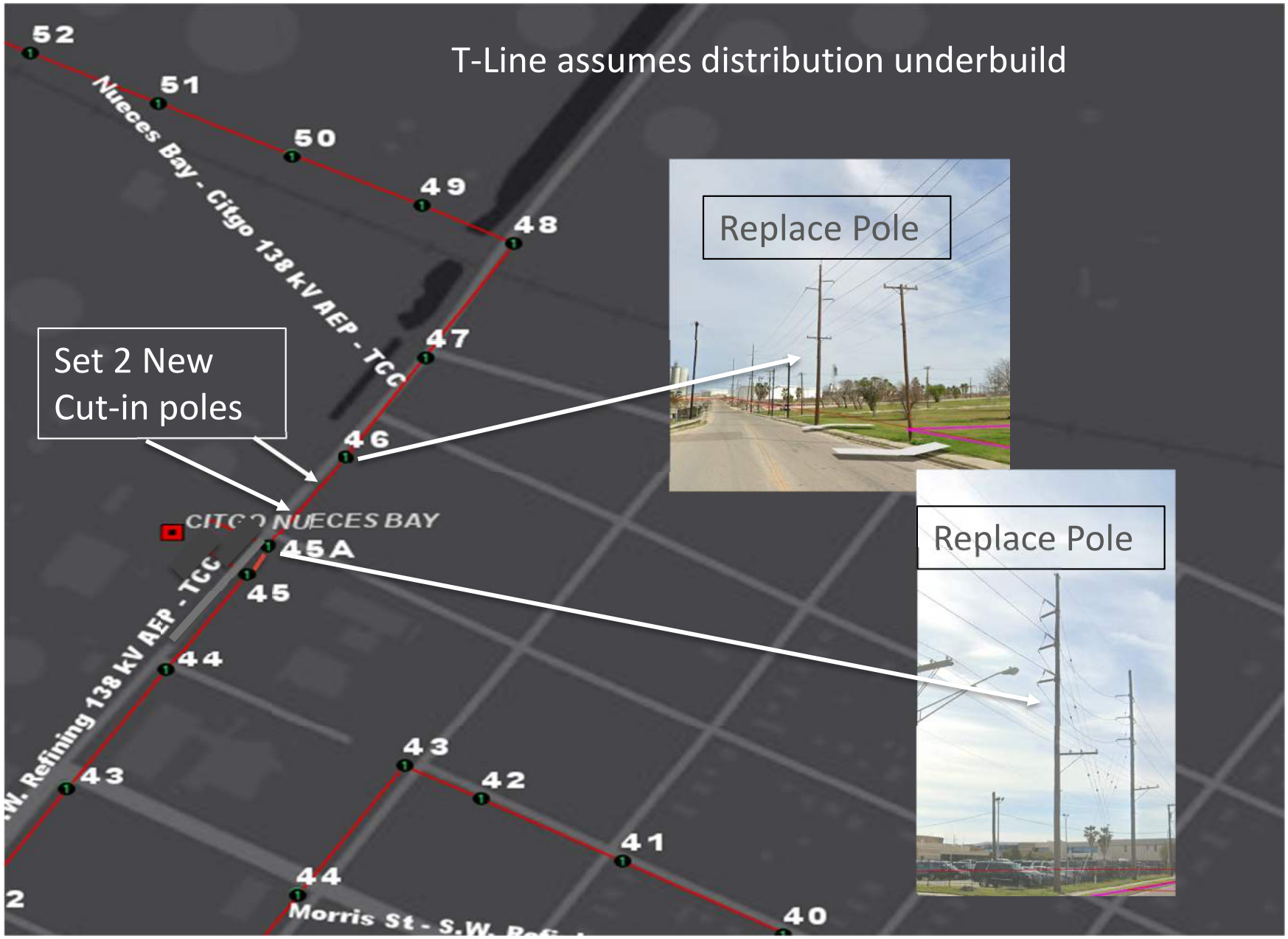
Summers Street

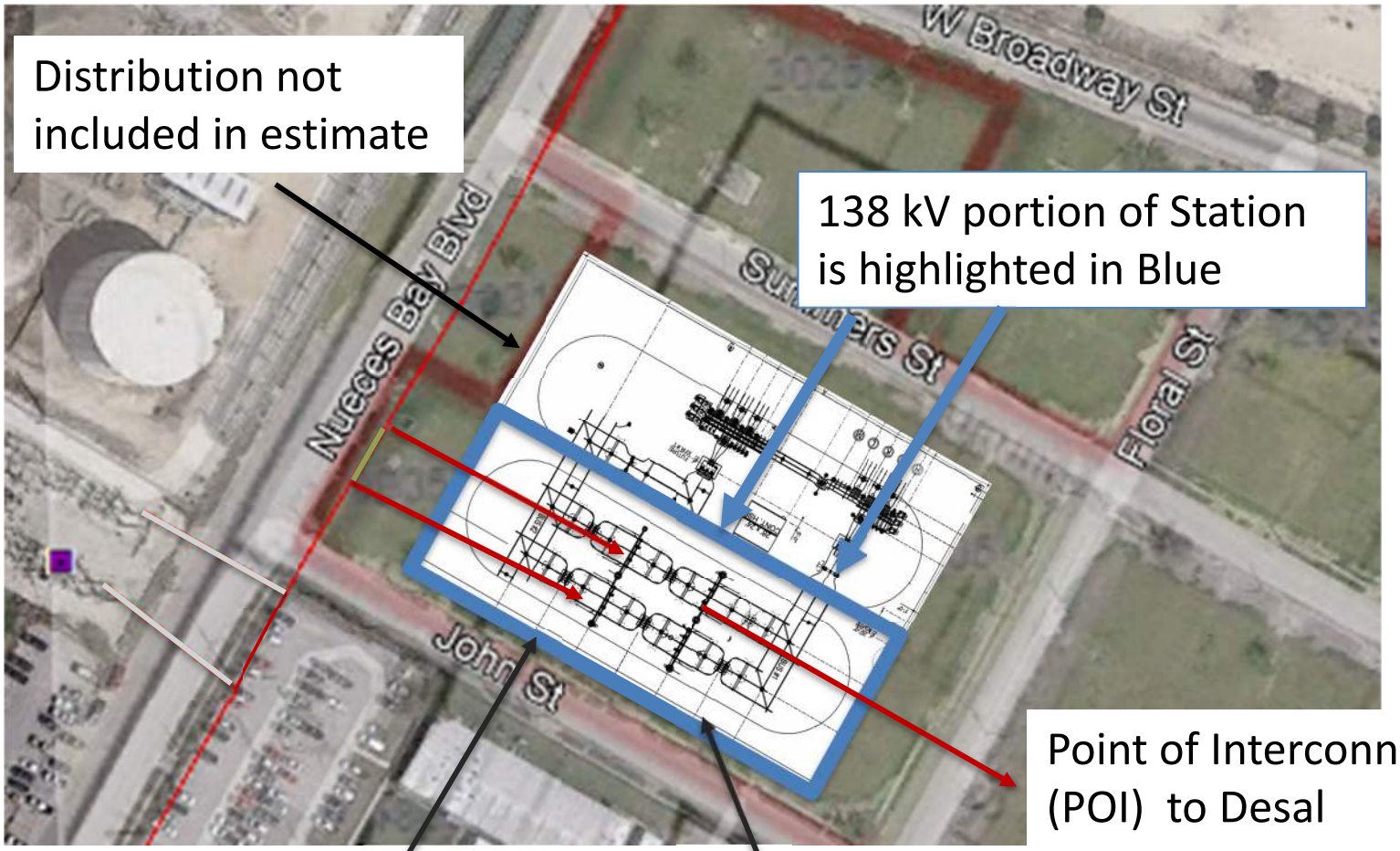


Proposed Interconnect Location

Transmission Interconnect
(2 New poles, 2 replacement poles)

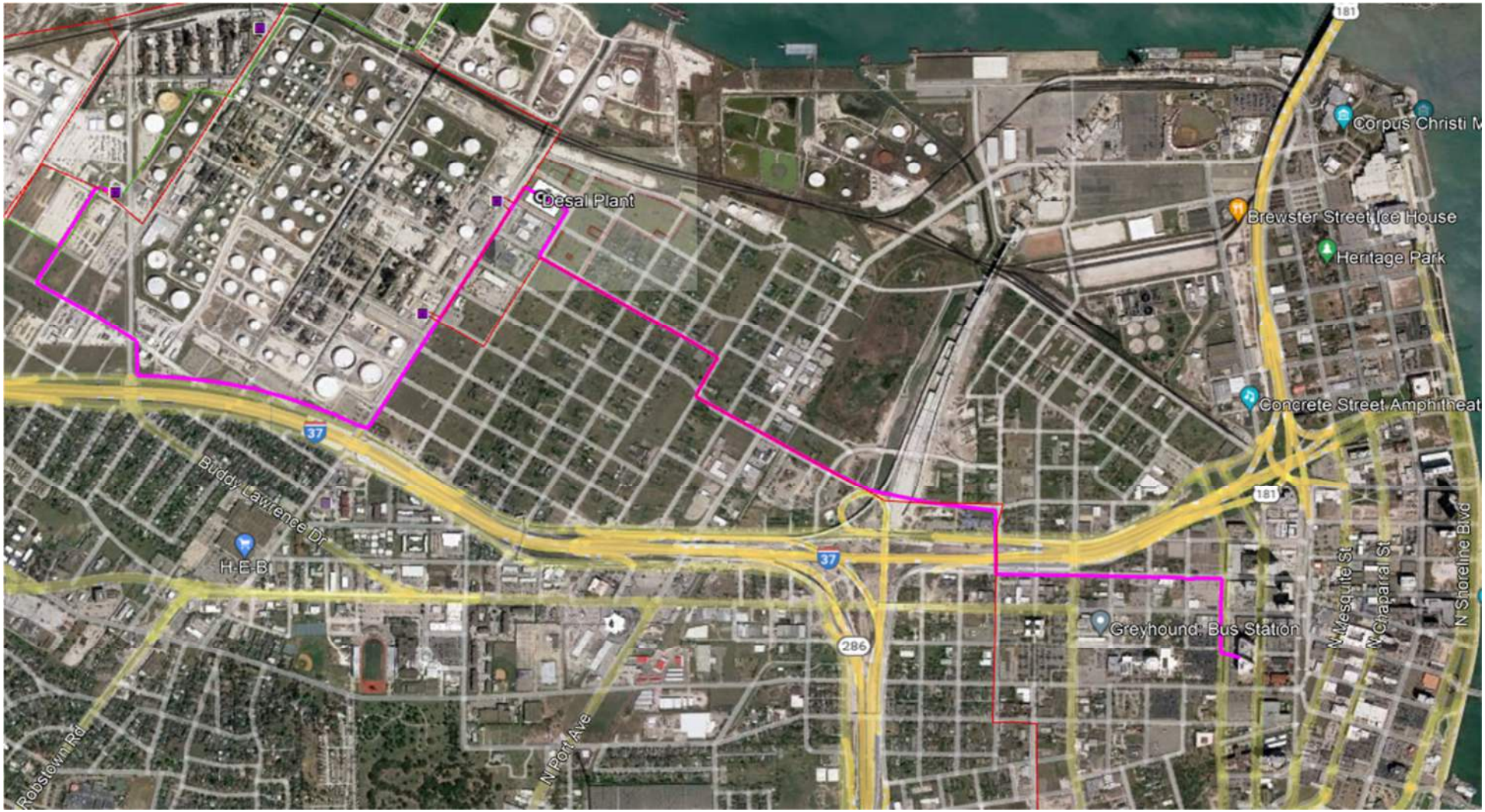


Proposed Station Layout



Station is being designed to have 2 distribution bays. Only 138 kV station, highlighted in blue is included in attached estimate

Communications Path
Cost Not Part of Desal Project



Fiber will be mostly on distribution, but will use some transmission structures and some underground by the Corpus HOB building

Scope

TLE Scope:

- Cut in the Morris Street - Nueces Bay 138 kV line
- Build ~0.1 miles two 138 kV lines from the Morris Street –Nueces Bay to the new stations (795 ACSR, single circuit structure, 2000 A)
- Install fiber

Real Estate/ROW:

- City to provide ROW and Property for lines from cut in points to the new station.

SE/PCE/Telecom:

- Construct (5) breaker 138 kV ring bus laid out as Breaker and a Half to current standards and include:
  - Five (5) 138 kV, 3000 A, 63 kA Breakers and it associated disconnect switches
  - All new series equipment shall be rated to a minimum of 2000 Amps.
  - Terminate line into new terminals
  - Two terminals for distribution banks
  - Install Telecom equipment and terminate fiber
  - TFC component for customer
  - Update Relaying and Protection
  - Install DICM, ground grid, fence, etc.
  - AEP will install revenue metering on the customer line

Morris street 138 kV station

- Upgrade line relaying

Nueces Bay 138 kV Station

- Upgrade line relaying

Developing the Estimate

Overall estimate development:

- AEP procures its materials and manages its projects in-house
- AEP develops its facilities based on common components and standards
- AEP uses blanket contracts and pricing for its materials, outside engineering and construction
- For an estimate, AEP station and t-line engineering develops the materials list based on AEP standards and a common station configuration.
- AEP maintains a proprietary estimate database of every project in every region at the detail level for each piece of equipment and configuration.
- Estimation spends considerable effort evaluating current equipment pricing and escalation, but in today's market the estimate uncertainty is higher than pre-COVID costs.

For the Desal project:

- Station developed a layout based on the ultimate configuration of the station.
- The estimate was developed based on the high-side configuration only to provide a more reflective estimate allocation.
- The estimate was based on a five-breaker ring laid out as a breaker and a half configuration. This is a standard AEP configuration.
- The bottom up was based on a recent project in the area using this same configuration, but with current equipment and construction costs.
- The top-down evaluation was based on current year AEP catalog pricing for Texas and this configuration.
- Escalation was assumed at 5% per year for five years and included in overall project cost.

Project Assumptions

- Property will be provided by the City, only survey and legal costs are assumed (note, this assumption can change based on City preference)
- POI consists of a single dead-end structure. Customer will build to POI location
- Station assumes a single POI, but can accommodate an additional POI by adding a breaker to the current station layout and POI dead-end.
- No retention pond is assumed – No significant underground pipeline removal/rerouting.
- Metering will be inside the AEP station.
- Telecom costs include only splices. Fiber buildout is a separate project.
- No Access road
- No special permitting

Project Estimate

Description	Estimate
Line: Cut-in Morris St-Nueces Bay 138kV line w/two 0.1 mile lines	$1,900,000
Line: POI Struct and Span (138kV)	$500,000
ROW	$50,000
REAM (Property for new station)	$50,000
Station: Build new 5 brkr 138kV ring bus laid out as Breaker and Half	$9,500,000
Station: Morris St - Update line relay settings	$300,000
Station: Nueces Bay - Update line relay settings	$300,000
Telecom (TFC)	$500,000
Subtotal	**$13,100,000**
Escalation 5% per year - 5 years	**$3,619,288**
	Total $16,719,288

Allocation Considerations

- Costs are allocated between City of Corpus Christi and AEP Texas Transmission Rate Base based on current Tariff.
- POI 100% to be paid by City of Corpus Christi.
- 1/5 of station paid by City of Corpus Christi; 4/5 to AEP Texas.
- AEP Texas will pay transmission line cut-in, other T-line costs, telecom costs, remote station updates, property fees and ROW, and permanent meter.
- CIAC to include taxes at 8.35%
- High side station may be securitized, system improvements and station low side will not be securitized.

Customer Allocation

Cost Allocation

Component	Allocation To City of CC	Allocation to AEP Texas	Total
Line: Cut-in 138kV Transmission Line	$0	$1,900,000	$1,900,000
Line: Install POI structure & span	$500,000	$0	$500,000
ROW: placeholder if required	$0	$50,000	$50,000
REAM: property for new station	$0	$50,000	$50,000
Station: 5 breaker 138 kV station	$1,900,000	$7,600,000	$9,500,000
Telecom: (TFC)	$0	$500,000	$500,000
Station: Remote Ends (2)	$0	$600,000	$600,000
Project Cost Escalation	$662,880	$2,956,408	$3,619,288
Total	$3,062,880	$13,656,408	$16,719,288

Schedule Considerations

- AEP will work to meet the City's required in-service date
- Current material lead-times require at least 32 to 36 months to complete.
- Schedule Activities:
  - Sign LOA
  - Months 1 -4 - Set up project regulatory assets, contract database and invoice CIAC.
  - Month 4 – Order long lead materials.
  - Months 6-10- Complete site survey and geotech; refine detailed scopes.
  - Months 11-20 – Detail engineering design and procurement.
  - Month 21-22 Bid and start site work.
  - Months 25-36 – Construct station and T-line components.

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Questions?