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CITY OF MOUNTLAKE TERRACE

Transforming a Water Tower into a Civic Landmark

May 8, 2026

Project Team Introduction



Gary Schimek, PE
City of Mountlake Terrace



Nick Welling, PE
Peterson Structural Engineers (PSE)



Shae Godwin, EIT
Parametrix (PMX)

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Impetus of the Project

- First Impressions of Tank
- 2025/26 Budget
- World Cup Synergy
- Existing Structural Assessment
- General Fund Reality



Mural Design Begins!

Preparing for a new mural – mid 2025

Starting the Task: Mural Research

- Parametrix Researched Murals Completed by Other Municipalities
  - Completed interviews with staff from 5 cities
  - Local artist applies, constituents vote



City of Renton, WA



City of Bryan, OH

Starting the Task: Initial Questions

1. How do we plan a tank mural with **a future seismic retrofit in mind,** and on a limited budget?
2. What needs to be considered when **choosing exterior coating for a future mural?**



Next Steps: Site Visit

- Parametrix Engineers Assessed the Tank Coating's Current State
  - Previous lead testing
  - Abatement vs. elastomeric coating
- Used Drone for Aerial Imaging



Cross-Hatch Test



Current Logo

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Next Steps: Design

- PMX Completed 30% Mural/Recoating Design with Ability to Shift Focus to Retrofit Mid/Late 2025
  - City finds its financial position will likely not allow for mural funding
  - City wanted to continue working to improve such an important asset



Mural and Retrofit Considerations

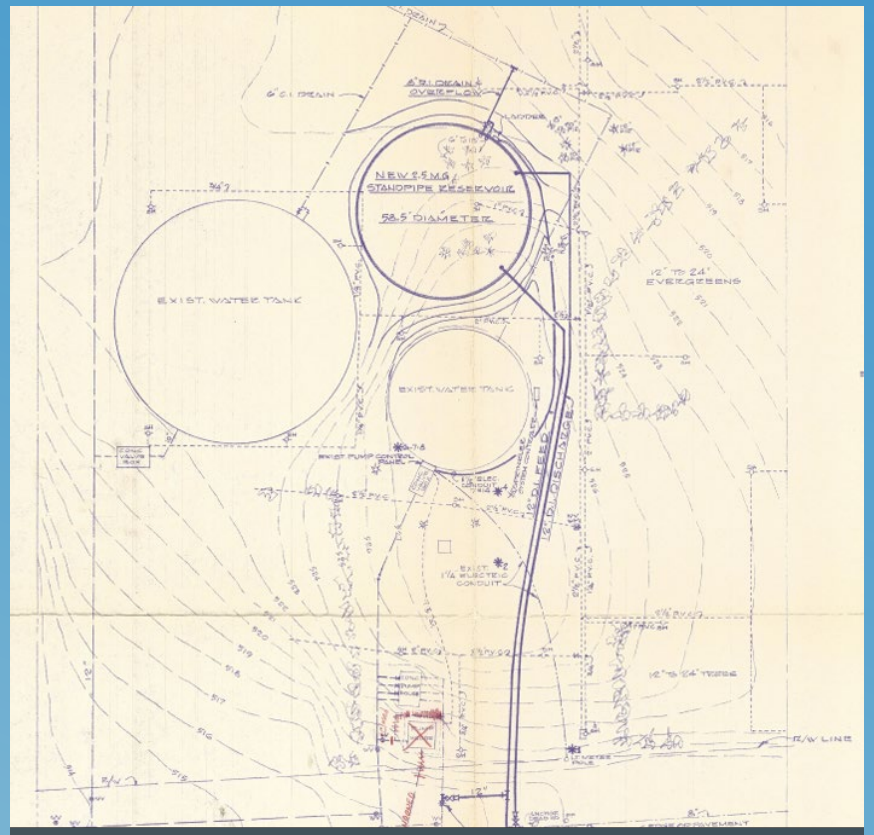
- Expectation for Addition of Shell Stiffeners onto the Tank (~40 ft from bottom)
  - Mural should be positioned on upper 50-130 ft
- Anchor Adjustments Will Require Reapplication of Coating



Generated Image of Shell Stiffeners

Next Steps: Retrofit Design Preparation

- PMX Reamed with Peterson Structural Engineers to Complete New Task Work
- Terracon Completed a Geotechnical Site Investigation Late 2025
  - Found the tank needs more extensive retrofits than expected in 2024
  - Drawings from the 1970's previously referenced; were inaccurate



1971 Design Drawings

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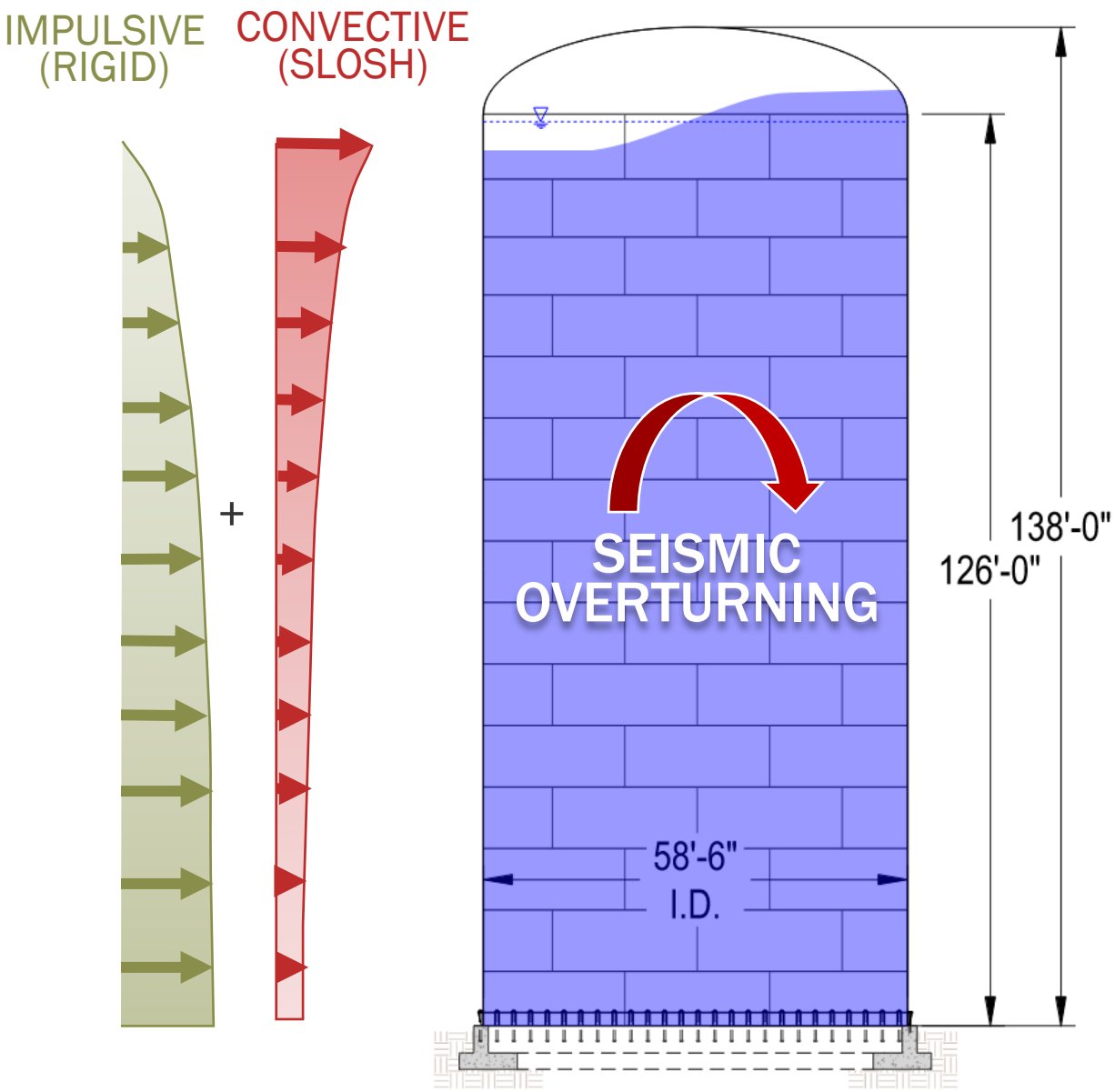
The Retrofit Analysis

Peterson Structural Engineers begins their retrofit design work



Structural and Seismic Overview





2024 Preliminary Seismic Evaluation

Previous Work – Initial Evaluation

SCOPE

- Preliminary assessment
- Retrofit cost estimates

DEFICIENCIES

- Foundation
- Shell compression
- Nonstructural elements

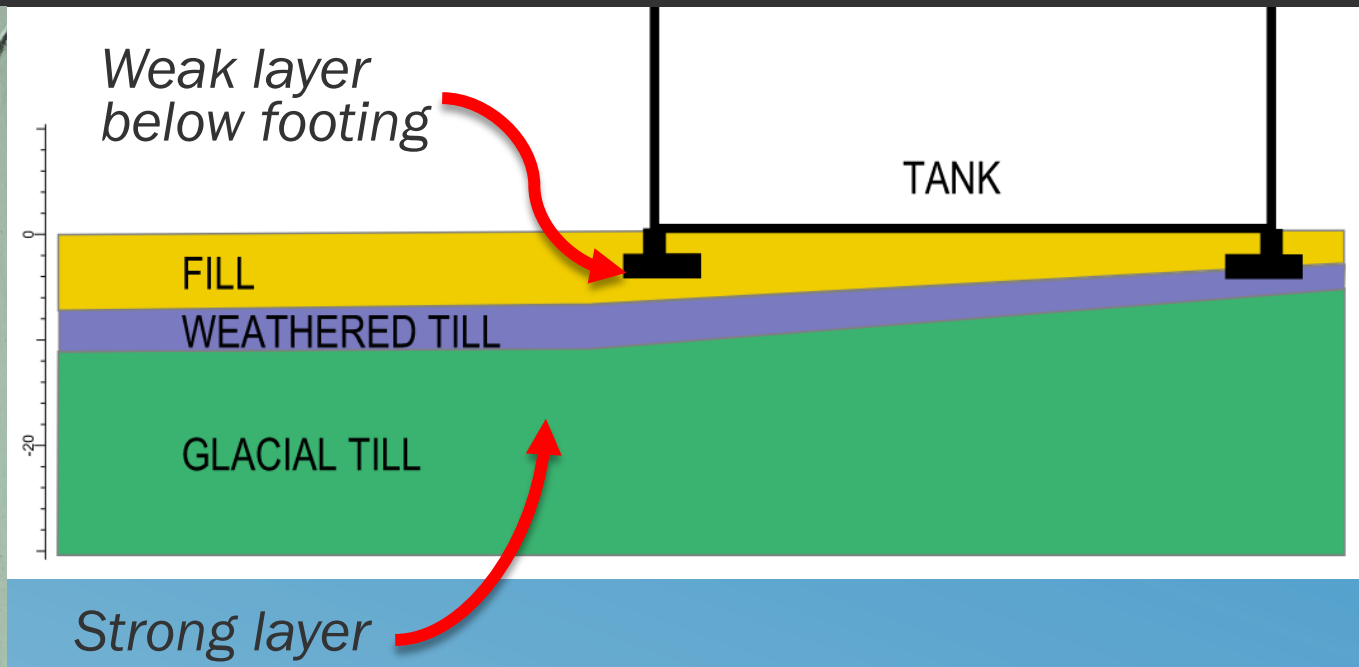
ASSUMPTIONS

- Seismic parameters
- Soil capacity
- Anchorage
- Foundation details

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Verifying Assumptions – Geotechnical Investigation



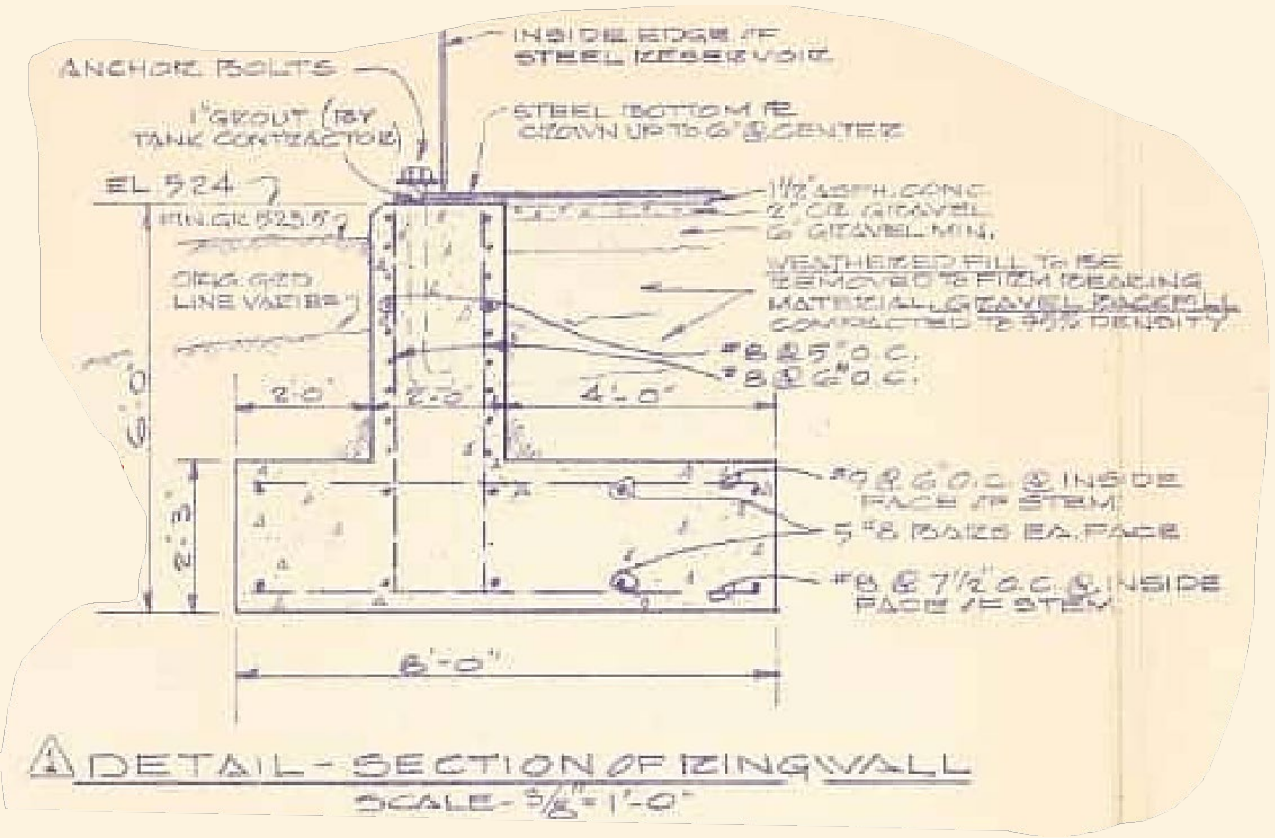


RESULTS

1. Confirmed seismic parameters
2. Limited soil bearing capacity

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Verifying Assumptions - Anchorage



DETAIL - SECTION OF RINGWALL

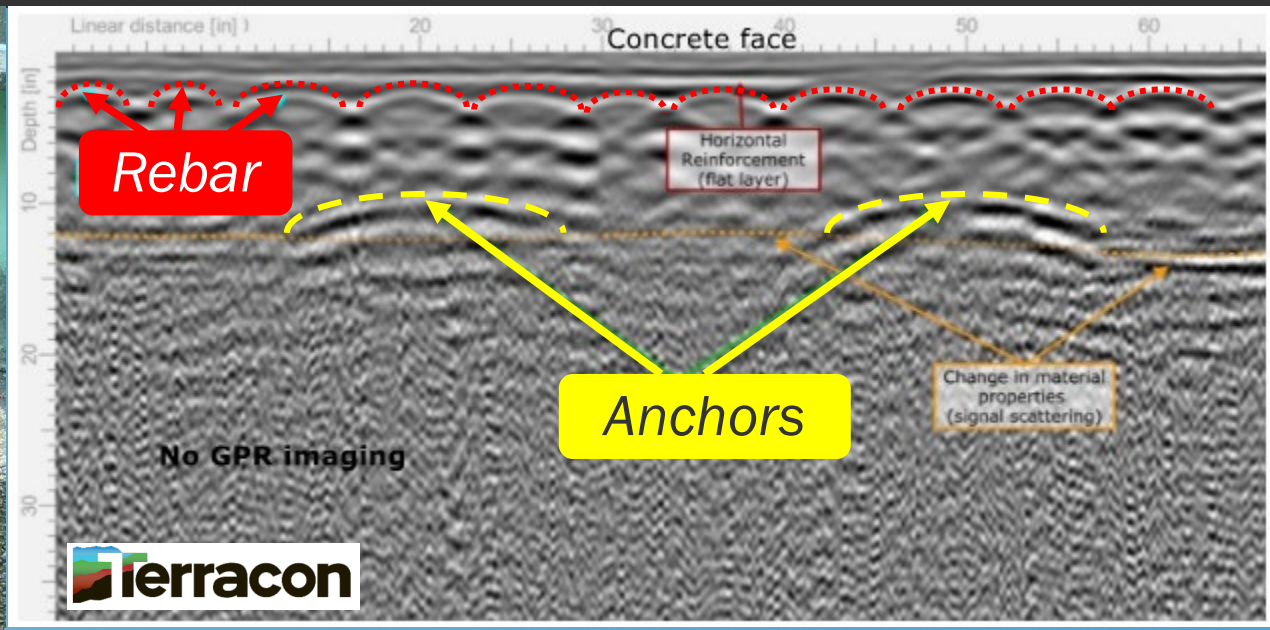
SCALE - 3/8" = 1'-0"



Verifying Assumptions – Anchorage and Foundation



Ground Penetrating Radar (GPR)



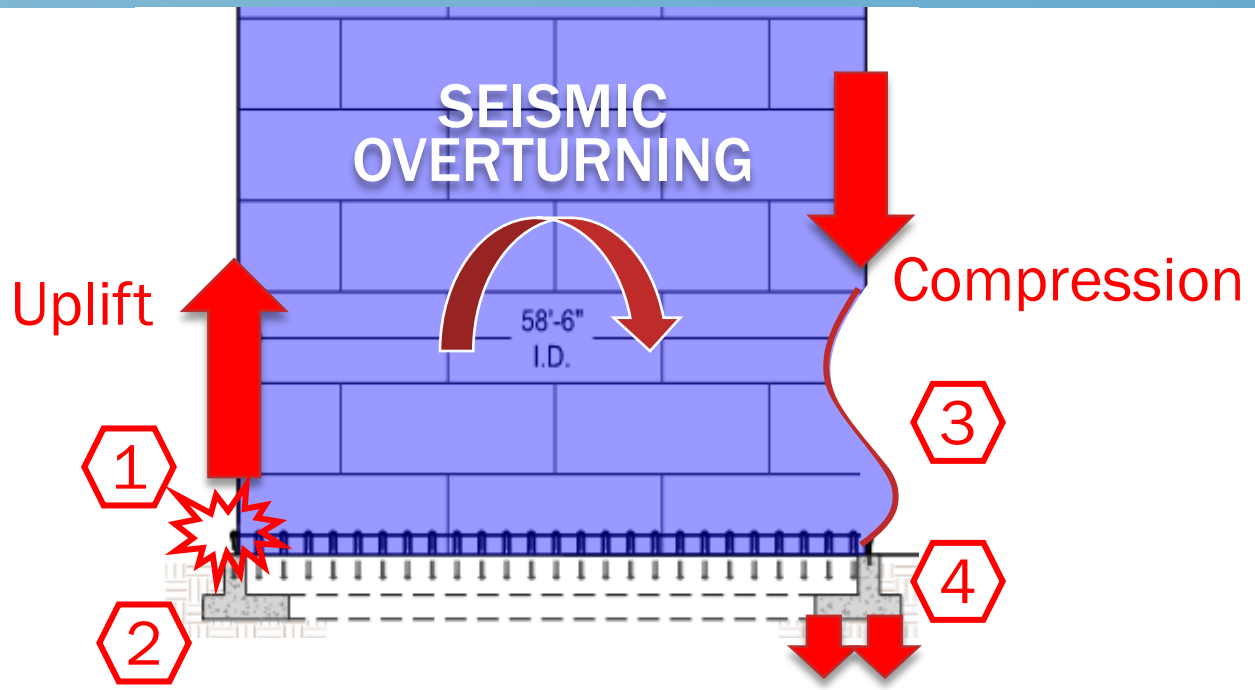
RESULTS

1. Confirmed foundation geometry
2. Shallow anchor embedment limits capacity

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Updated Seismic Deficiencies

1. Anchor Failure
2. Foundation Uplift
3. Shell Buckling “Elephant Foot”
4. Soil Failure/Settlement





Example of elephant foot buckling.
Courtesy of California at Berkeley

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What we Know



Critical Infrastructure

- Post-earthquake water supply
- Community recovery
- Emergency response

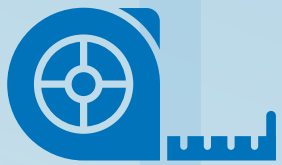


Seismic Deficiencies

- Doesn't meet current codes
- Risk of damage or loss of service

Seismic Evaluation and Retrofit – Next Steps

1. Verify Assumptions
2. Determine Deficiencies
3. Retrofit Alternatives
4. Retrofit Design
5. Construction





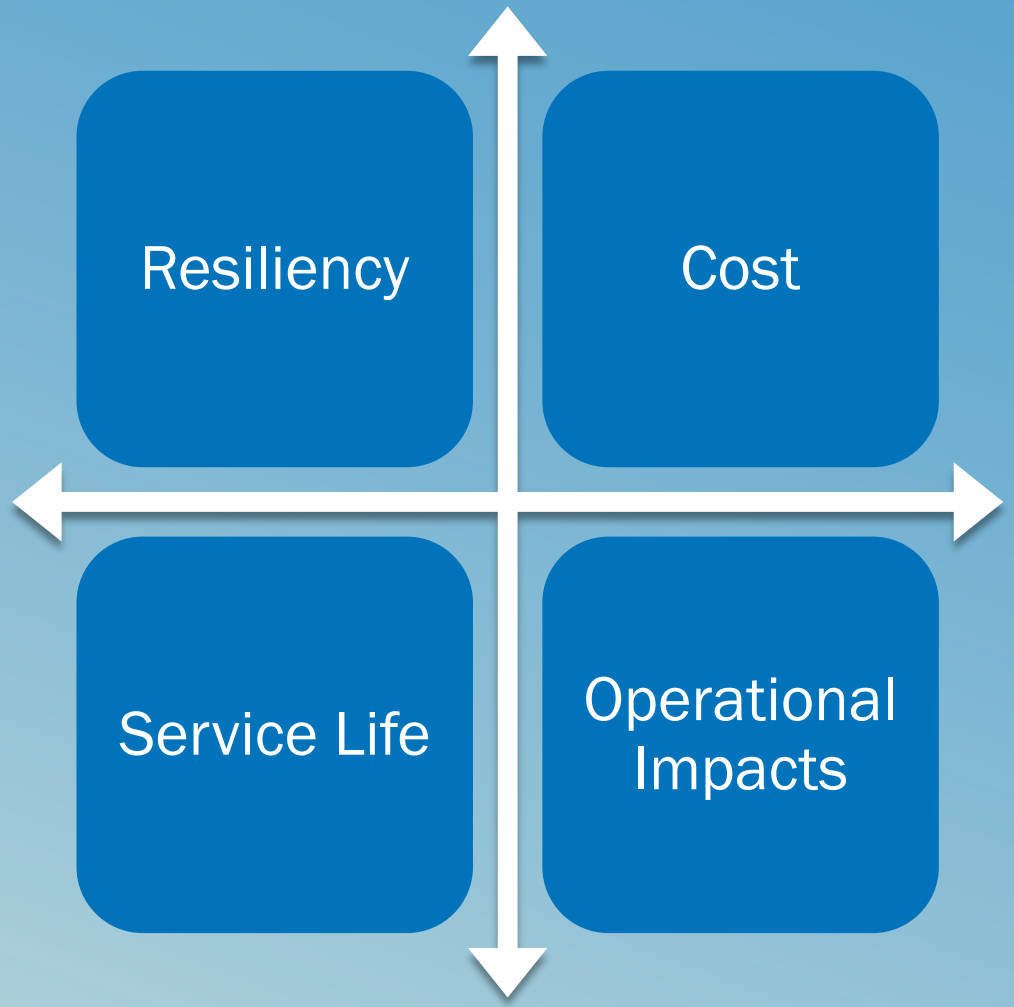


We are here

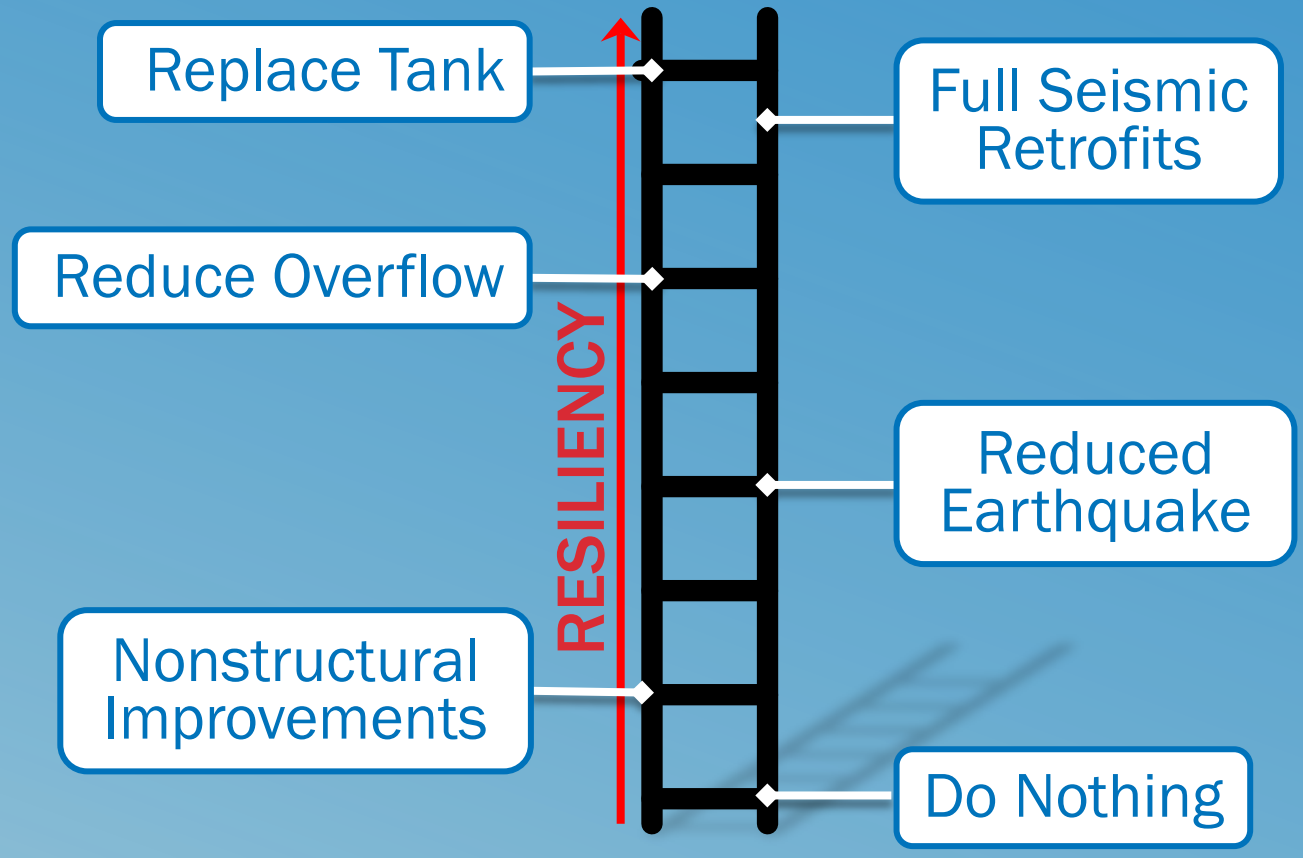
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Alternatives Analysis

Considerations



Retrofit Options



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Takeaways and Next Steps



Closing

- Next Steps
  - Design Status
  - 2027/28 Budget
  - Mural



Generated Image of Mural

Thank You For Attending

Please feel free to ask questions!

