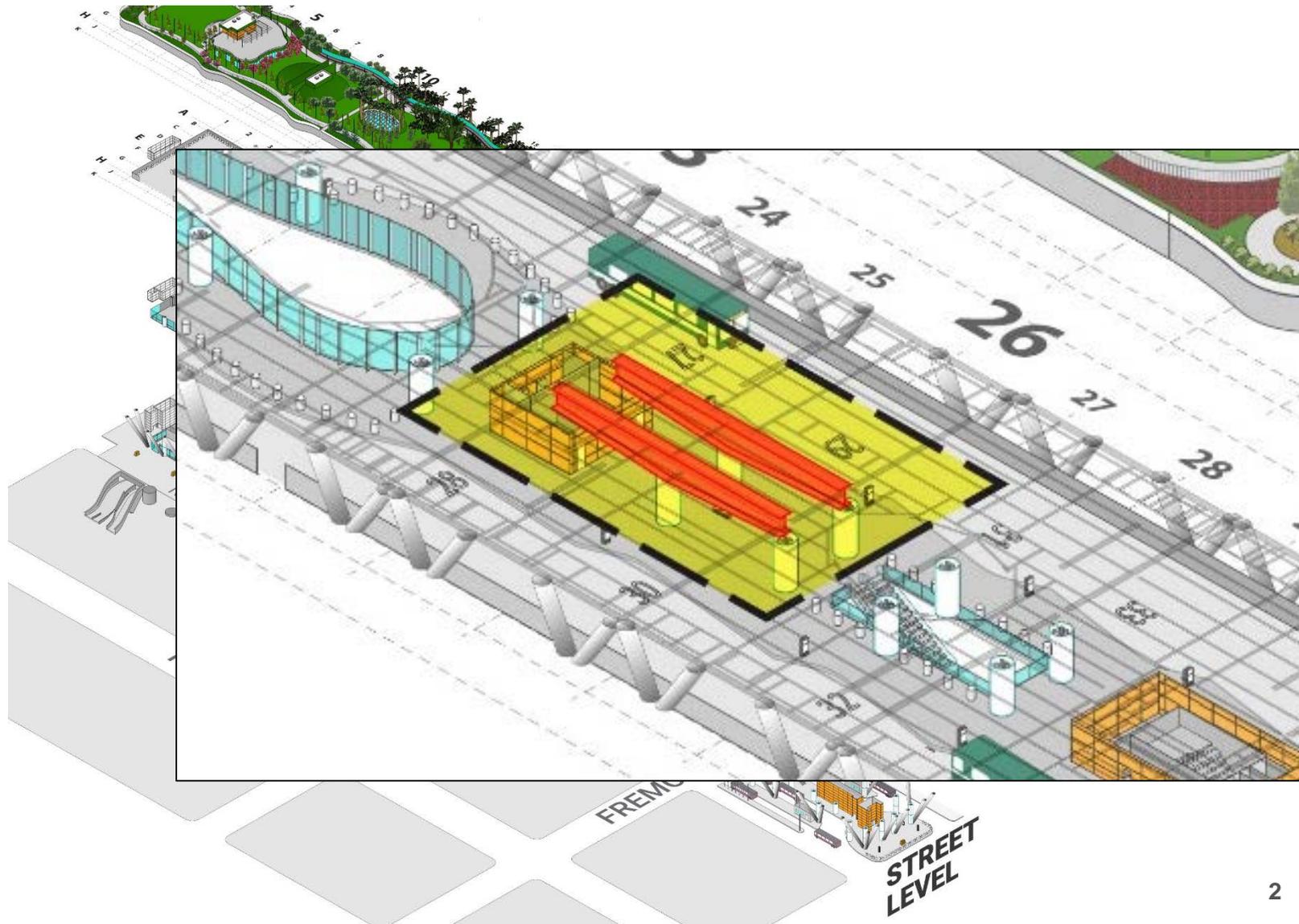


# Update on the temporary closure of the Salesforce Transit Center

October 2, 2018



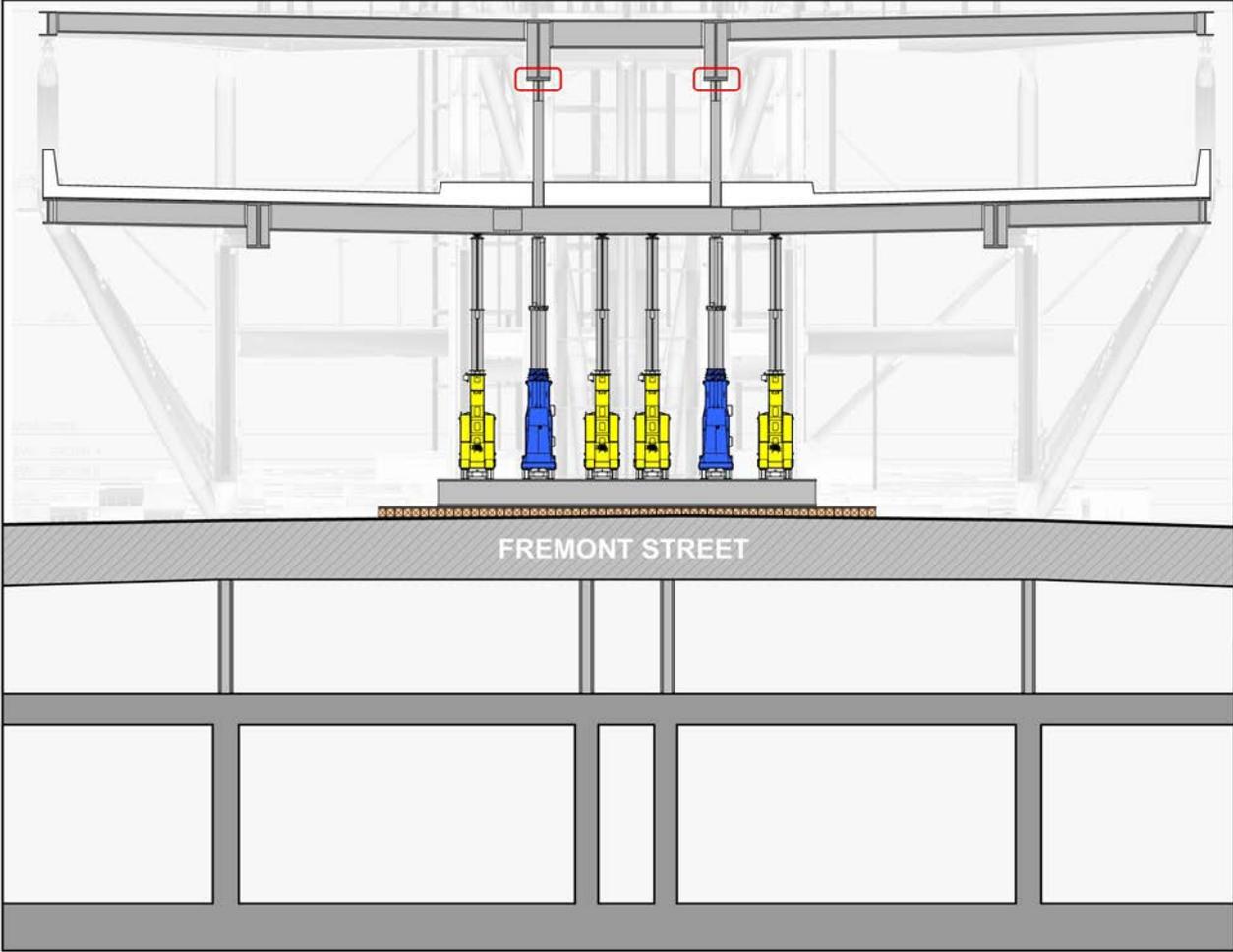
# Isometric View



# Hanger Beam



# Fremont Street Temporary Support Schematic – Phase 1



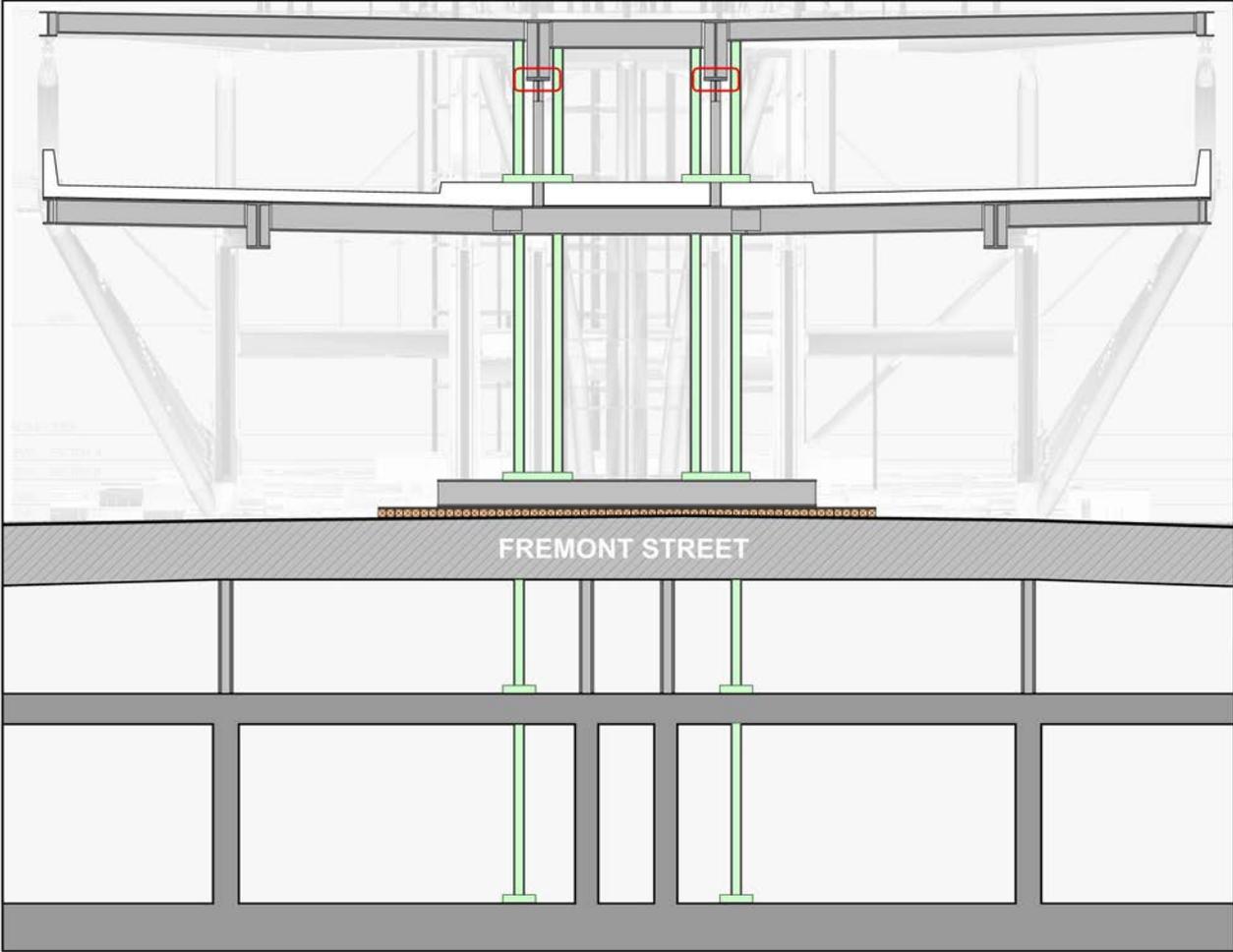
# Fremont Street Temporary Support Initial Stabilization - Phase 1



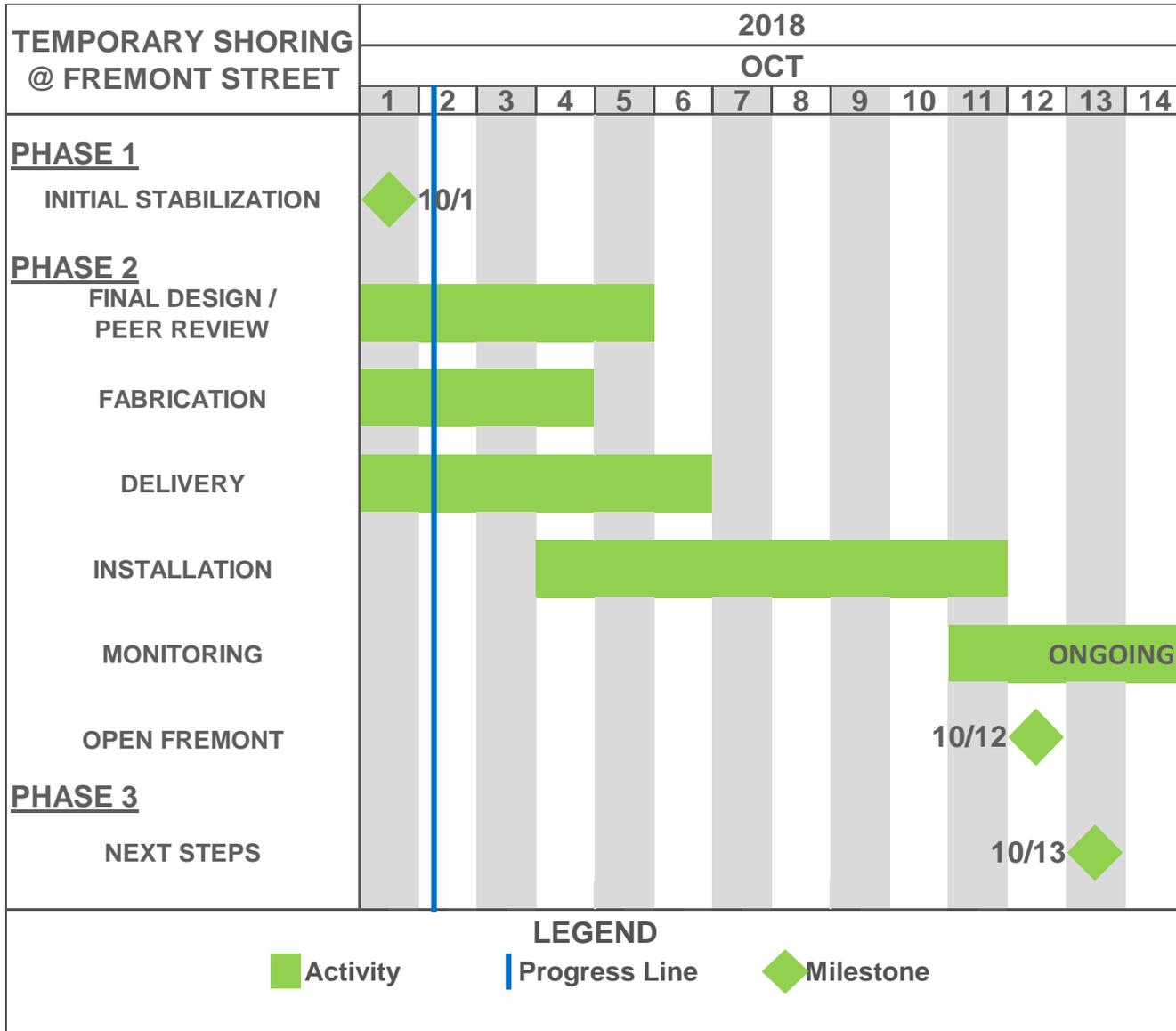
# Fremont Street Temporary Support Schematic – Phase 2



# Fremont Street Temporary Support Schematic – Phase 2



# Schedule



# Next Steps after Shoring Installation

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- Sampling and Testing (2 weeks)
- Determine Cause
- Design of permanent fix
- Peer Review of permanent fix over Fremont
- Install permanent fix
- Open the Facility
- Complete a 2<sup>nd</sup> Peer Review of the Facility

# Oversight

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- Proposed 2018 Peer Review Panel
  - Anticipates 4 members
  - Complete review of permanent fix
  - Complete review of the entire Facility
- Structural and Seismic Review Committee (Peer Review) on original design and pertinent shop drawings

# Structural and Seismic Review Committee (SSRC)

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- The SSRC formed November 2008 to provide guidance on the Transit Center Structural Engineer's design assumptions
- In November 2009, SF DBI requested TJPA employ SSRC members to assist in Transit Center structural plan review per Administrative Bulletin 82
- Guidelines and Procedures for Structural Design Review:

# Structural Design Review Process

Structural Review Element	SF DBI Scope of Structural Service Category
<b>Ground Motion Hazard Evaluation</b>	<ul style="list-style-type: none"> <li>• Earthquake Hazard Determination</li> <li>• Site Specific Ground Motion Characterization</li> </ul>
<b>Structural Basis of Design</b>	<ul style="list-style-type: none"> <li>• Seismic Performance Goals</li> <li>• Basis of Design, Design Methodology &amp; Acceptance Criteria</li> </ul>
<b>Soil Structure Interaction Analysis</b>	<ul style="list-style-type: none"> <li>• Mathematical Modeling &amp; Simulation</li> <li>• Interpretation of Results and Analysis</li> </ul>
<b>2D Finite Element Analysis</b>	<ul style="list-style-type: none"> <li>• Mathematical Modeling &amp; Simulation</li> <li>• Interpretation of Results and Analysis</li> </ul>
<b>3D Finite Element Analysis</b>	<ul style="list-style-type: none"> <li>• Mathematical Modeling &amp; Simulation</li> <li>• Interpretation of Results and Analysis</li> </ul>
<b>Buttress Design (Review of Arup's peer review reports, Workshop Attendance)</b>	<ul style="list-style-type: none"> <li>• Basis of Design, Design Methodology &amp; Acceptance Criteria</li> <li>• Interpretation of Results and Analysis</li> </ul>
<b>Shoring Design (Seismic Increment only by SDR)</b>	<ul style="list-style-type: none"> <li>• Basis of Design, Design Methodology &amp; Acceptance Criteria</li> </ul>
<b>Substructure (Train box) Construction Documents</b>	<ul style="list-style-type: none"> <li>• Member Selection &amp; Design</li> <li>• Detail Concepts &amp; Design</li> <li>• Construction Documents including Drawings &amp; Specifications</li> </ul>
<b>Superstructure (Primary Steel Frame) Construction Documents</b>	<ul style="list-style-type: none"> <li>• Member Selection &amp; Design</li> <li>• Detail Concepts &amp; Design</li> <li>• Construction Documents including Drawings &amp; Specifications</li> </ul>
<b>Bus Ramp</b>	

# Original Structural and Seismic Review Committee Members

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- Loring Wyllie** – Senior Principal, Degenkolb Structural Engineering
- Mason Walters** – Senior Principal, Forell/Elsesser Structural Engineering
- Jack Moehle** – Professor of Structural Engineering, UC Berkeley
- Robin McGuire** – Senior Principal, Lettis Consultants International, Inc.
- Frieder Seible** – Professor Emeritus  
Structural Engineering UCSD Jacobs School of Engineering
- Jonathan Bray** – Professor of Geotechnical Engineering,  
UC Berkeley Faculty Chair in Earthquake Engineering Excellence

## Proposed 2018 Peer Review Team

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- **Structural Steel Design and Engineering Expertise**
- **Forensic Expertise**
- **Materials/Metallurgy Expertise**



# Thank You

**TJPA**  
TRANSBAY JOINT POWERS AUTHORITY

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