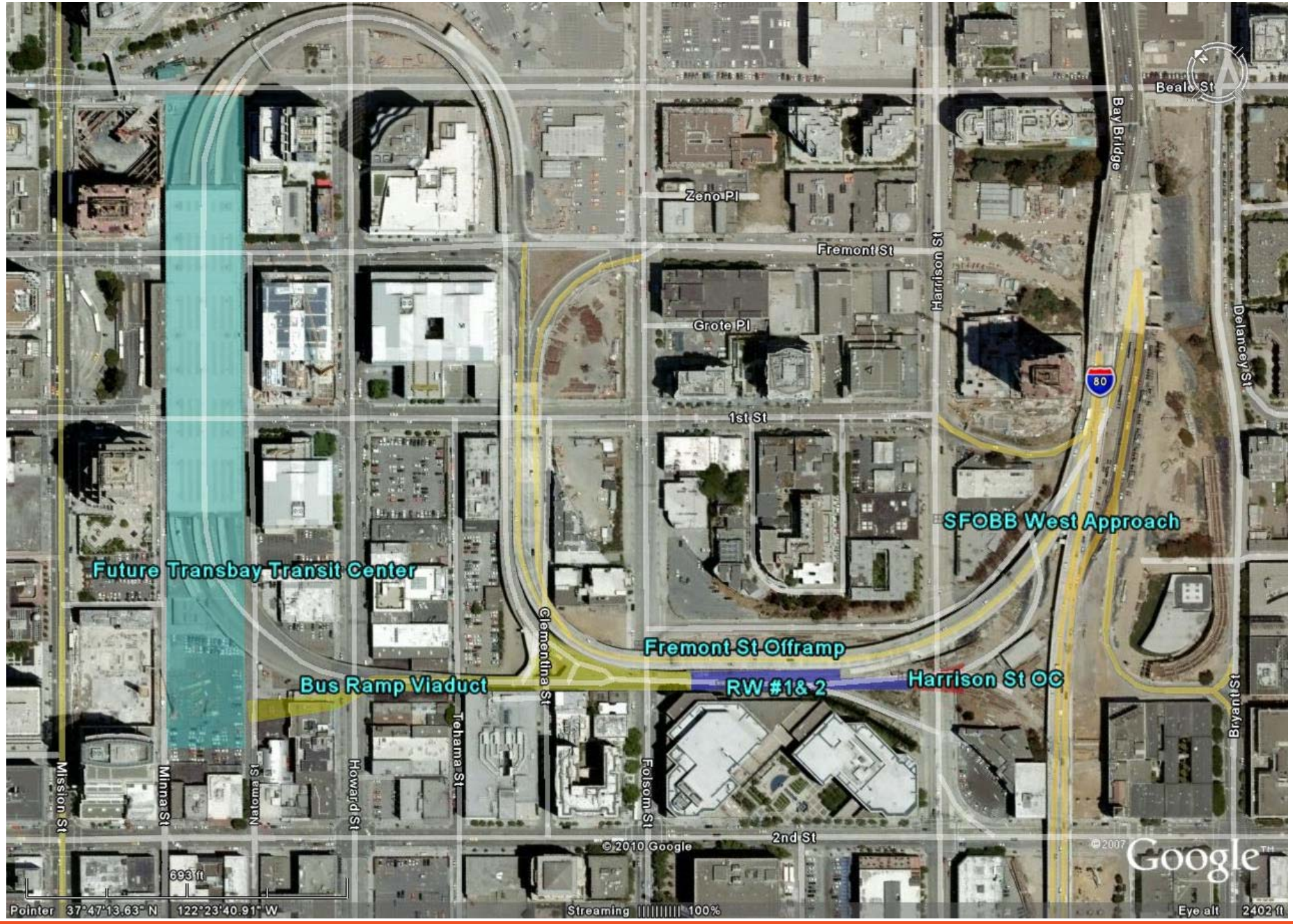
Transbay Transit Center
Bus Ramp Update

November 10, 2011

ARUP

Agenda

1. Introduction
2. Cable Stayed Structure
3. Viaduct
4. Harrison Street Overcrossings
5. Lighting
6. Seismic Design Criteria

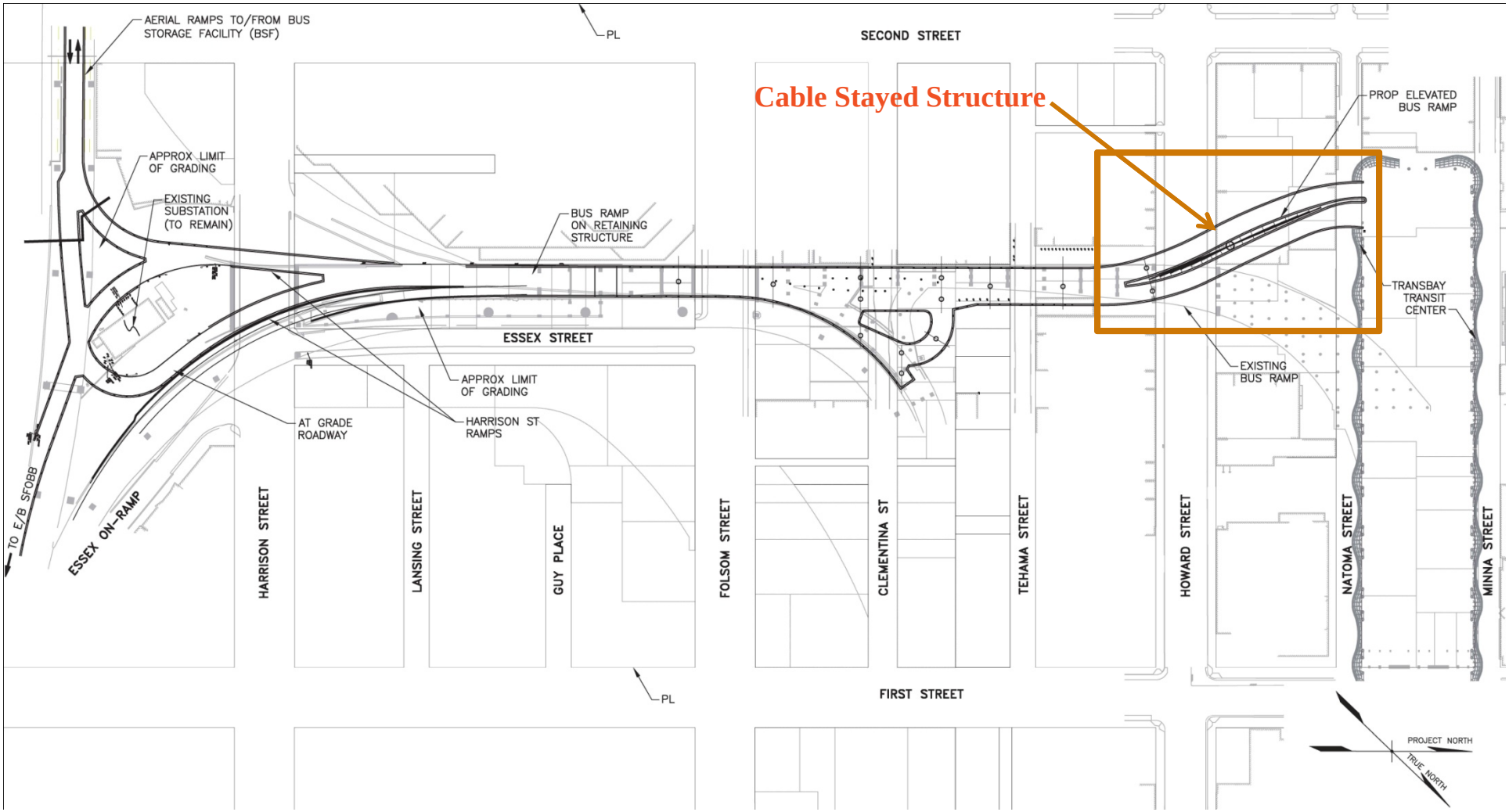

Future Transbay Transit Center
Bus Ramp Viaduct
Fremont St Offramp
RW #1& 2
Harrison St OC
SFOBB West Approach
Zeno Pl
Fremont St
Grote Pl
1st St
2nd St
Beale St
Bay Bridge
Harrison St
Delancey St
Clementina St
Tehama St
Howard St
Folsom St
Bryant St
Mission St
Minna St
Natoma St
80
© 2010 Google
© 2007 Google
693 ft
Pointer 37°47'13.63" N 122°23'40.91" W
Streaming 100%
Eye alt 2402 ft

ARUP

Agenda

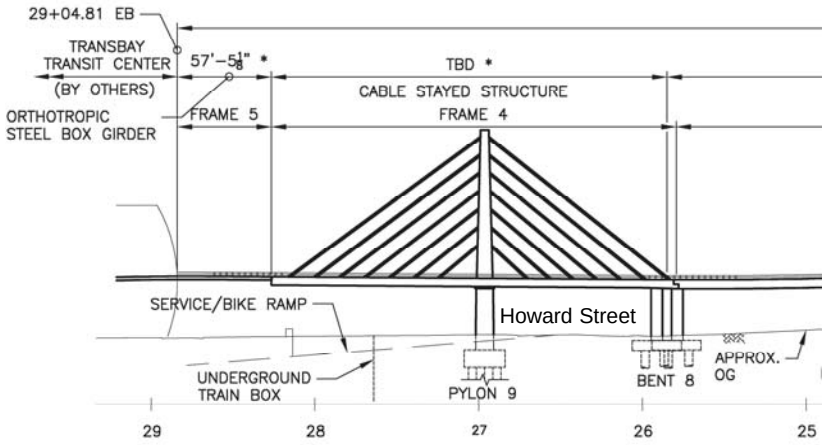
1. Introduction
2. **Cable Stayed Structure**
3. Viaduct
4. Harrison Street Overcrossings
5. Lighting
6. Seismic Design Criteria

Cable Stayed Structure



ARUP

Cable Stayed Structure



ARUP

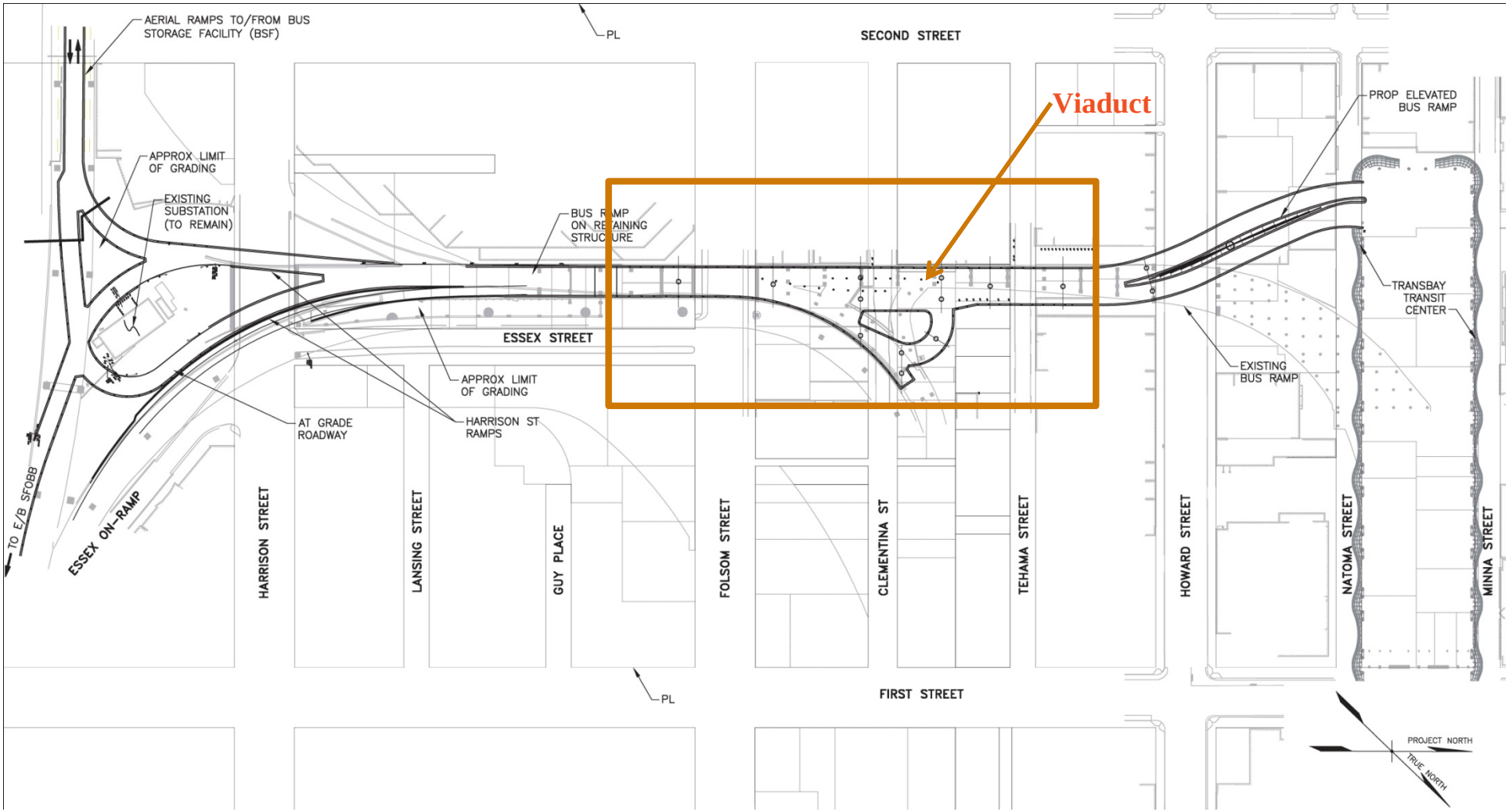
Cable Stayed Structure

ARUP

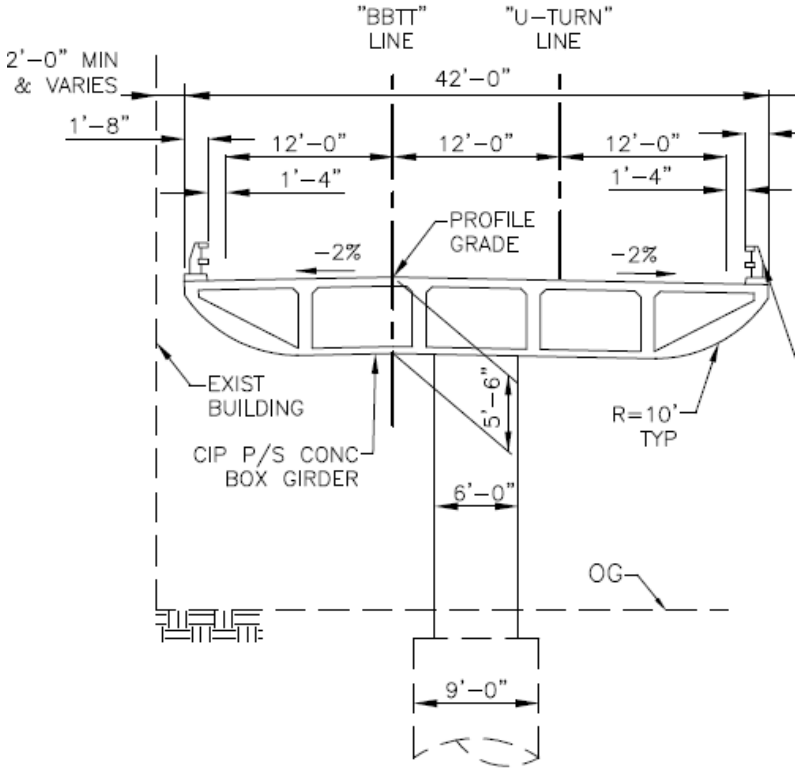
Agenda

1. Introduction
2. Cable Stayed Structure
3. **Viaduct**
4. Harrison Street Overcrossings
5. Lighting
6. Seismic Design Criteria

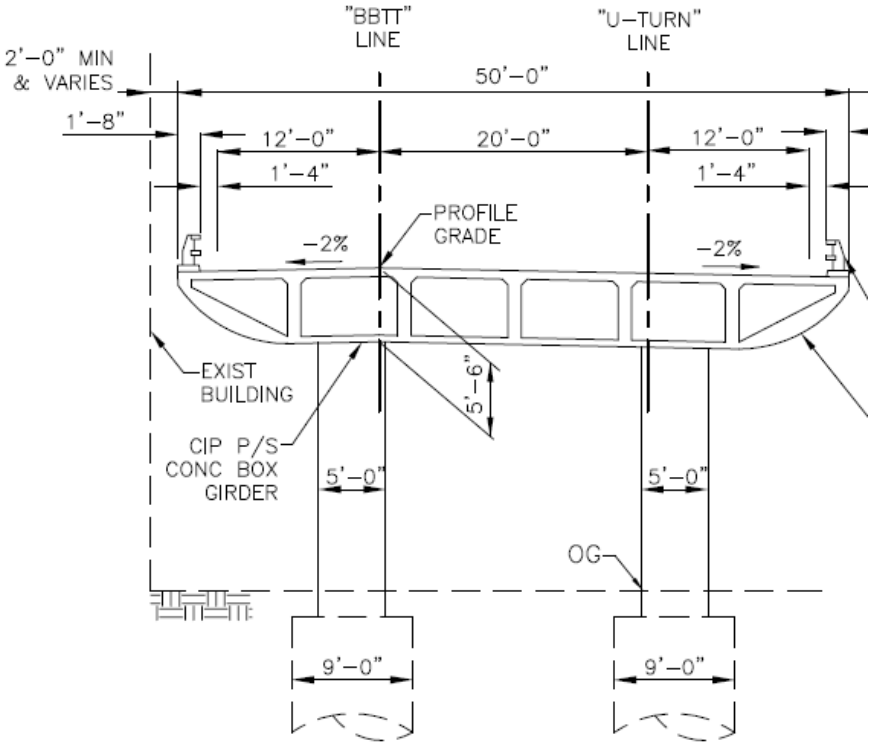
Viaduct


AERIAL RAMPS TO/FROM BUS STORAGE FACILITY (BSF)
PL
SECOND STREET
Viaduct
PROP ELEVATED BUS RAMP
APPROX LIMIT OF GRADING
EXISTING SUBSTATION (TO REMAIN)
BUS RAMP ON RETAINING STRUCTURE
TRANSBAY TRANSIT CENTER
ESSEX STREET
APPROX LIMIT OF GRADING
EXISTING BUS RAMP
AT GRADE ROADWAY
HARRISON ST RAMPS
TO E/B SFOBB
ESSEX ON-RAMP
HARRISON STREET
LANSING STREET
GUY PLACE
FOLSOM STREET
CLEMENTINA ST
TEHAMA STREET
HOWARD STREET
NATOMA STREET
MINNA STREET
PL
FIRST STREET
PROJECT NORTH
TRUE NORTH

Viaduct Typical Sections



Single column bent



Multi – column bent

ARUP

Folsom Street Overcrossing – Old Structure

ARUP

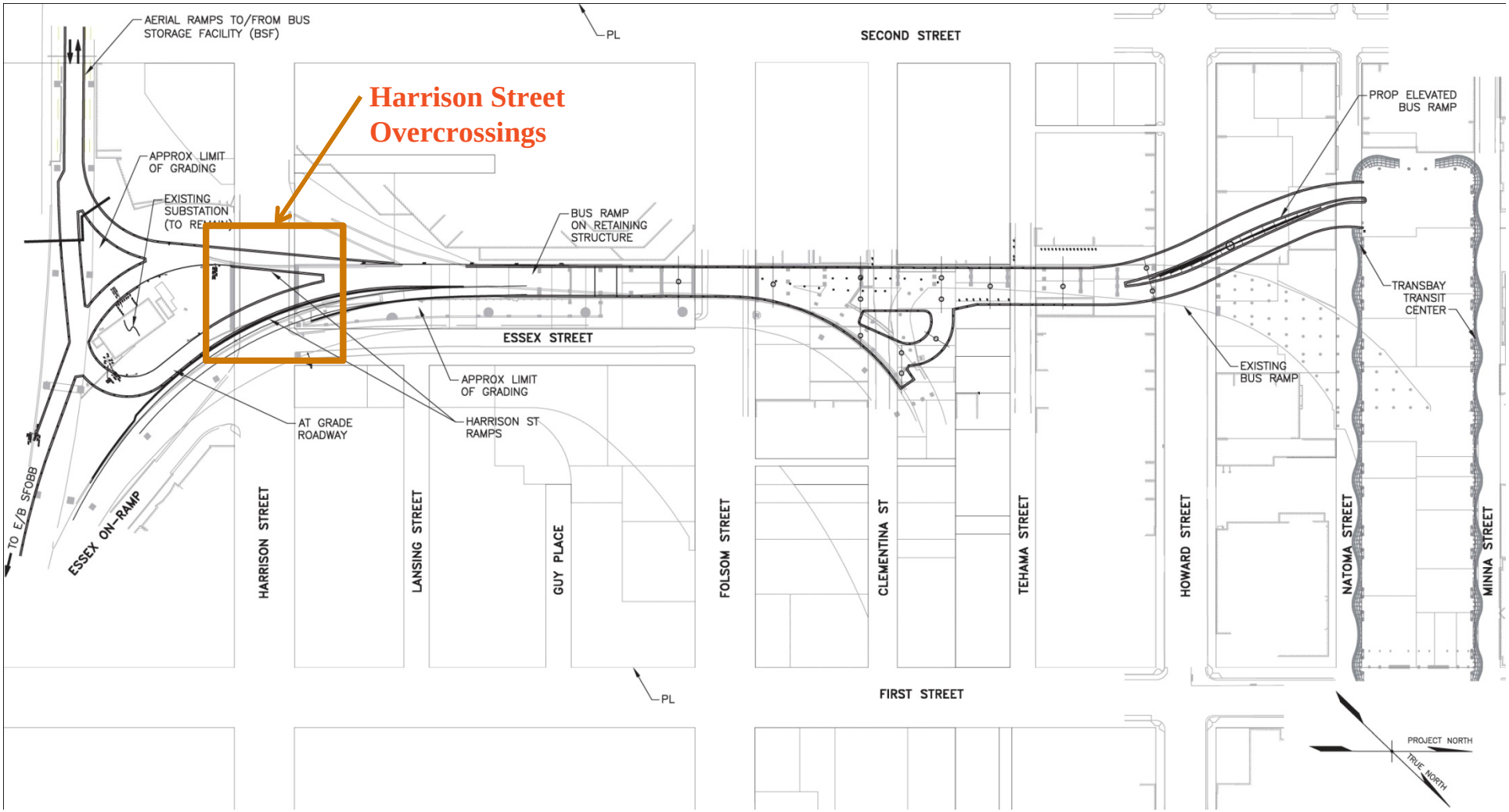
Folsom Street Overcrossing - Proposed

ARUP

Agenda

1. Introduction
2. Cable Stayed Structure
3. Viaduct
4. **Harrison Street Overcrossings**
5. Lighting
6. Seismic Design Criteria

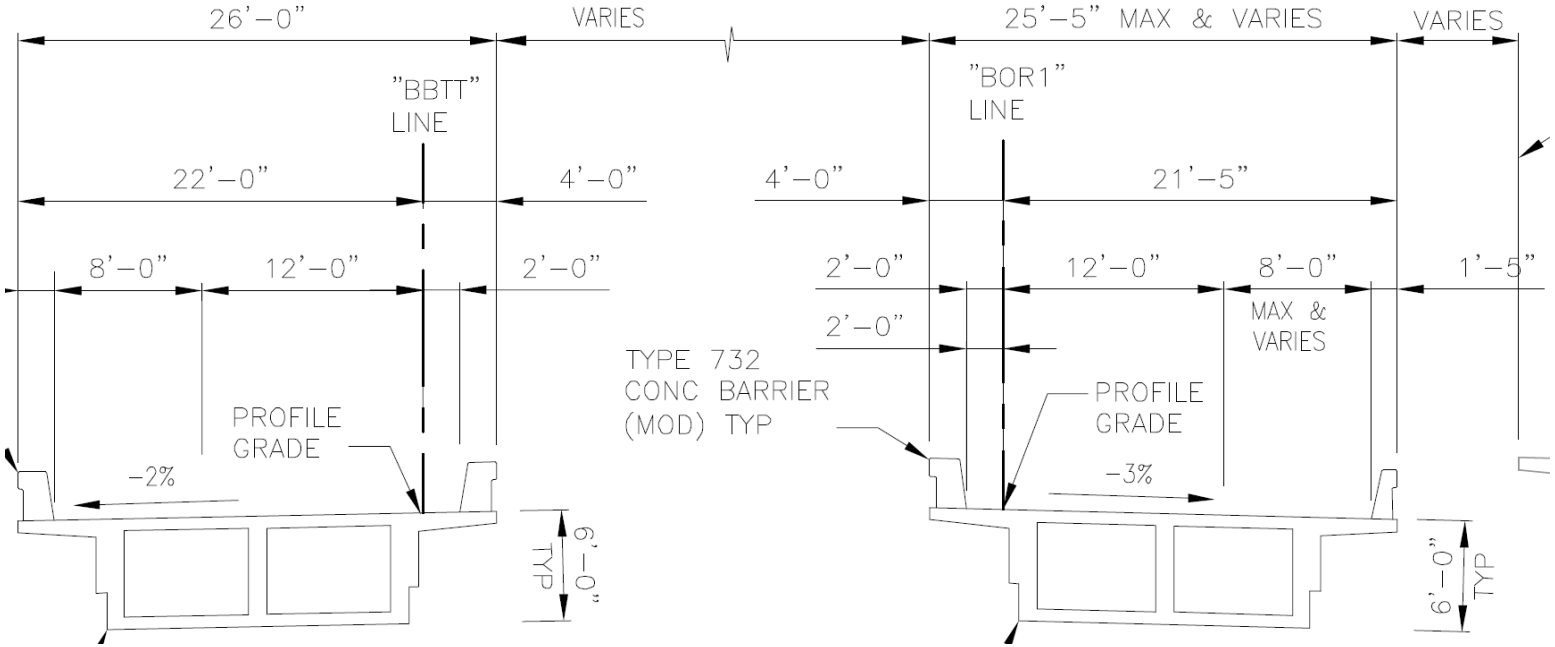
Harrison Street Overcrossings



ARUP

Harrison Street Overcrossings

- **New structures to replicate existing, adjacent off ramp**

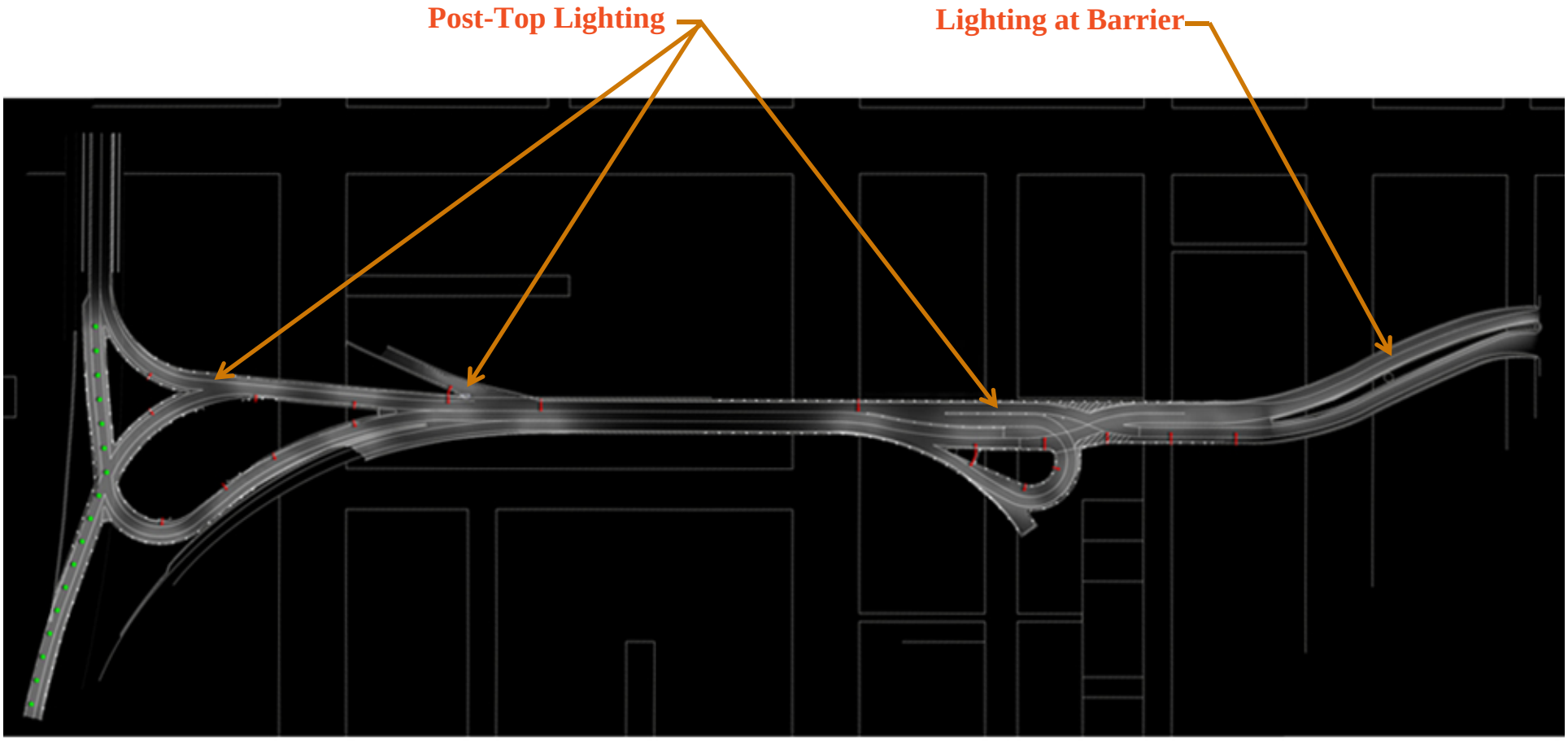


ARUP

Agenda

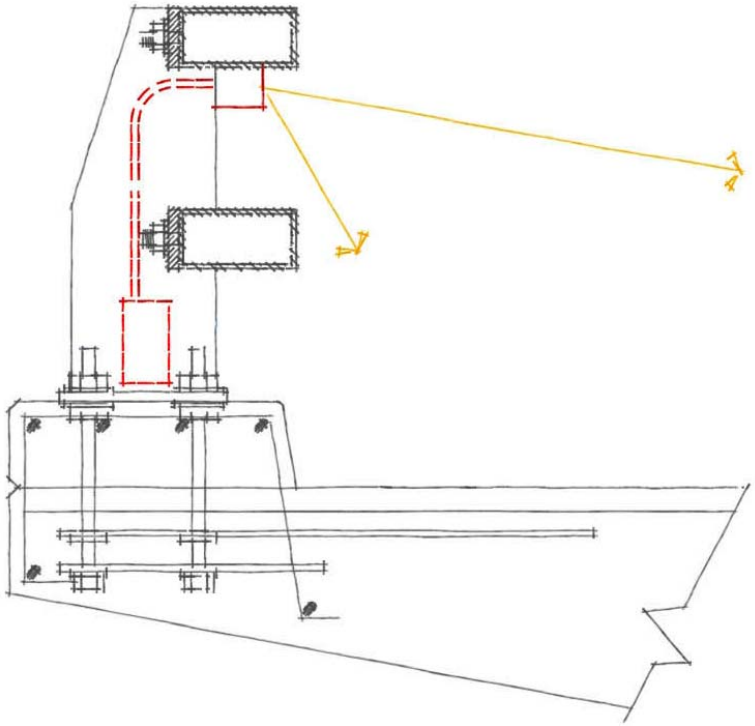
1. Introduction
2. Cable Stayed Structure
3. Viaduct
4. Harrison Street Overcrossings
5. **Lighting**
6. Seismic Design Criteria

Roadway lighting

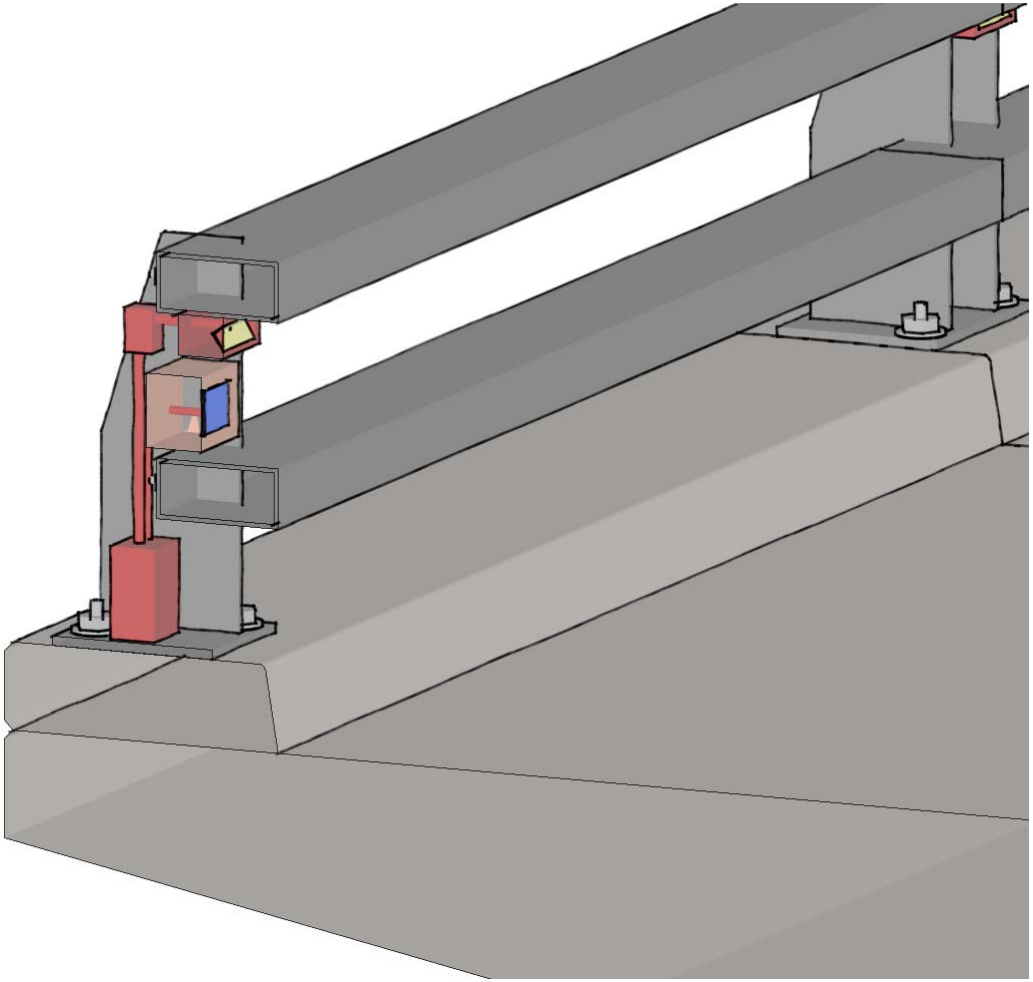


ARUP

Lighting at Barrier



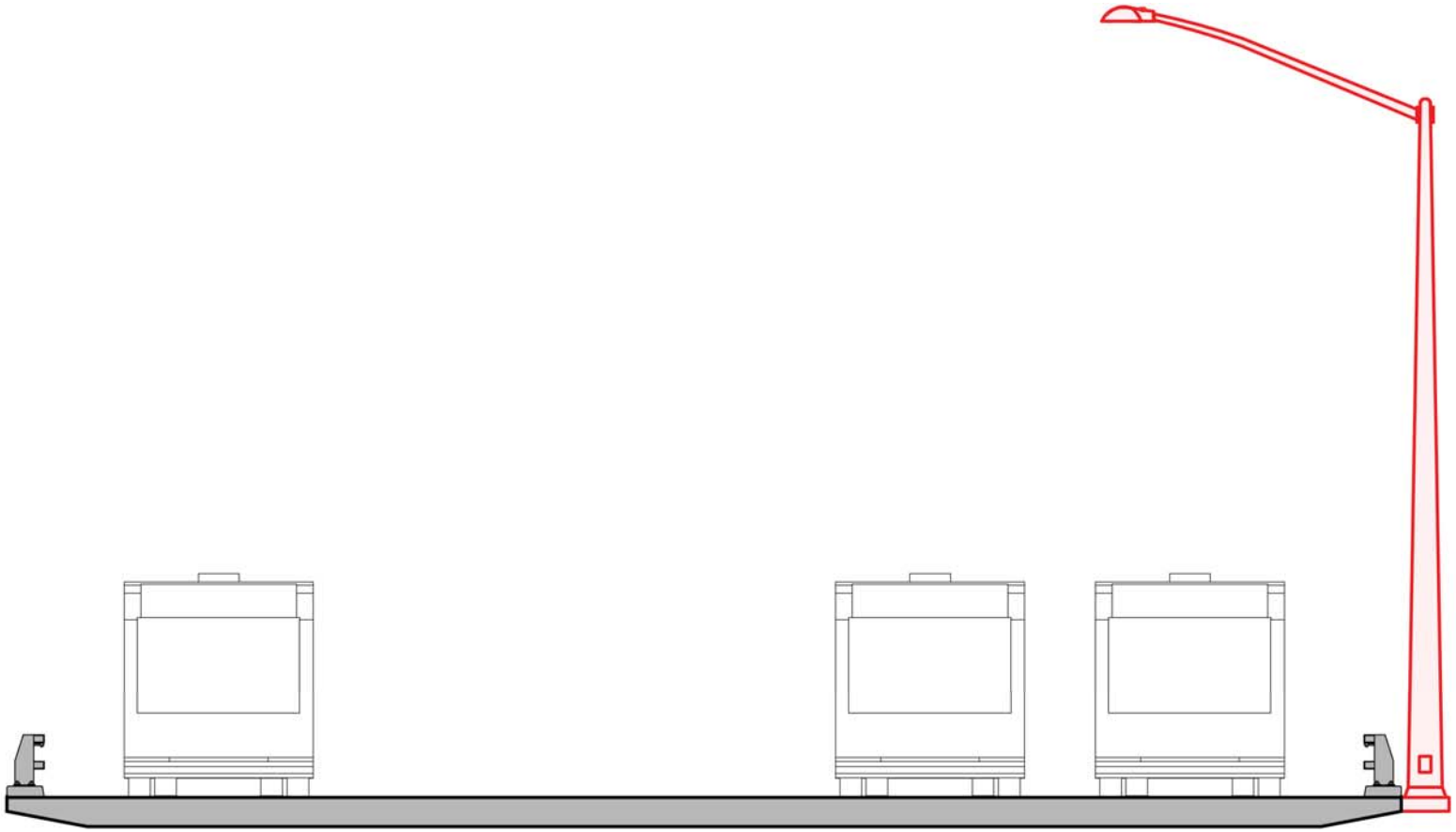
Section Through LED Light at Guardrail



Isometric Section Through Sensor and Light

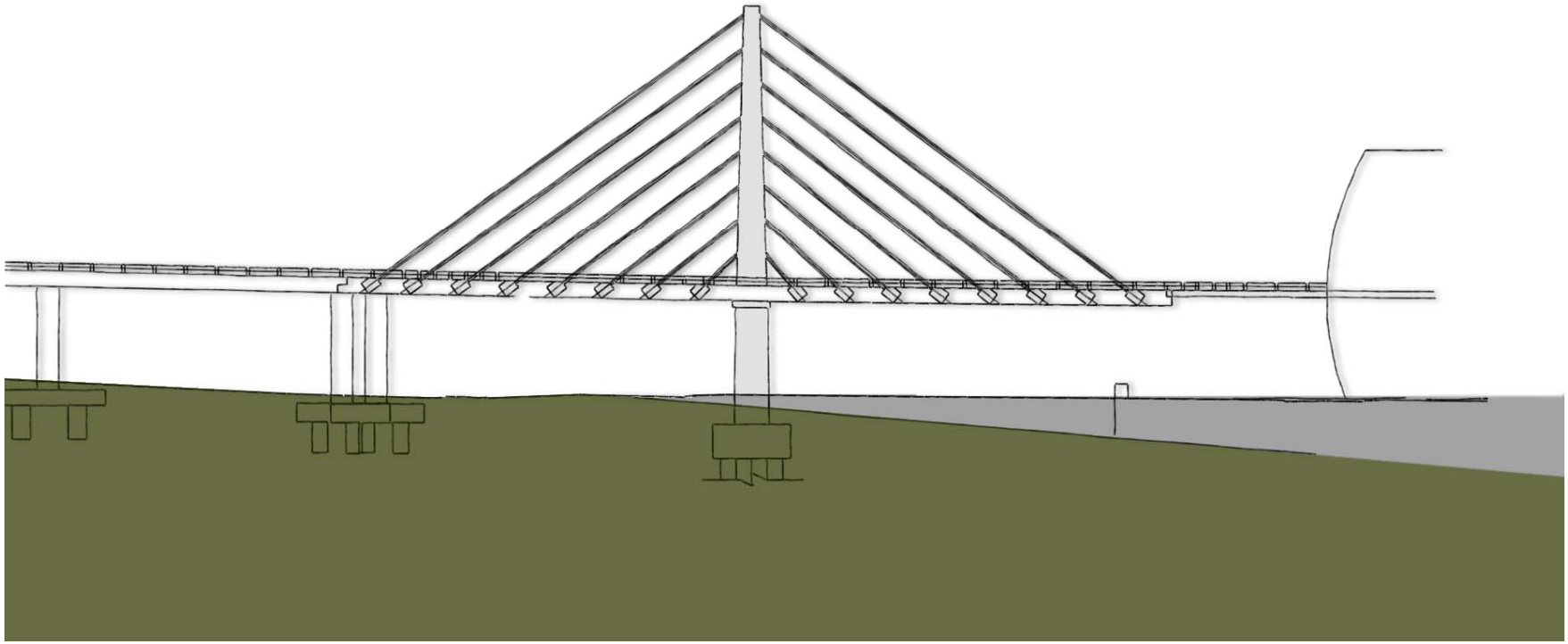
ARUP

Post-Top Lighting



Lighting at Cable Stayed Structure Slot

Lighting effect from space between roadways

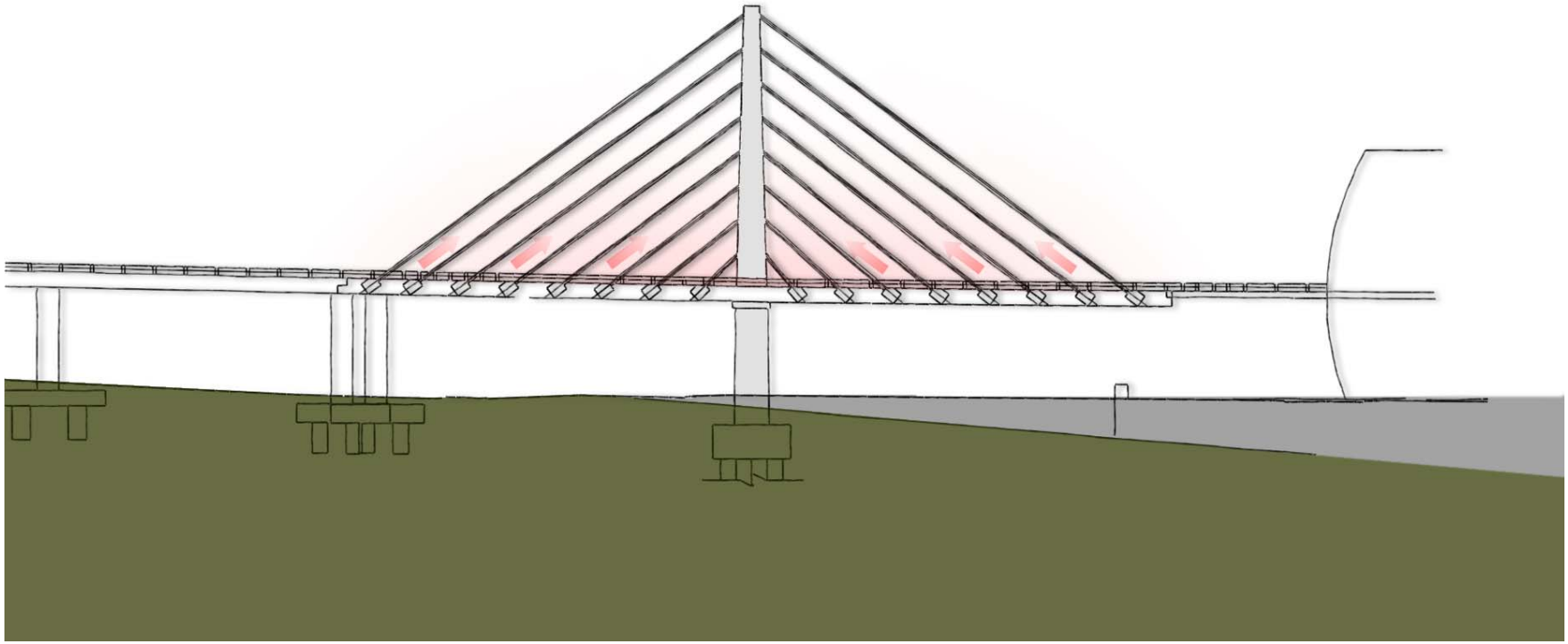


ARUP

Lighting at Cable Stayed Structure Slot

Lighting effect from space between roadways

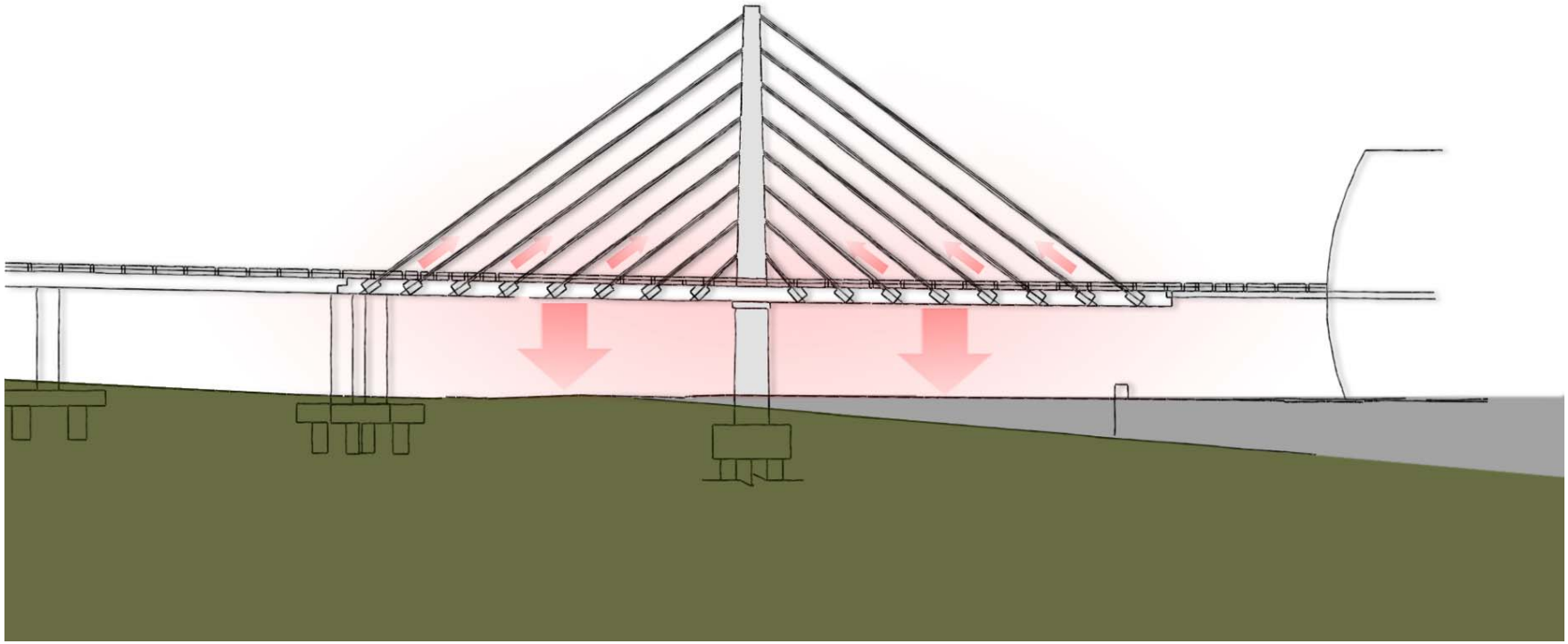
- Up-light glow to accent cables



Lighting at Cable Stayed Structure Slot

Lighting effect from space between roadways

- Up-light glow to accent cables
- Down-light to create safe, inviting environment



Agenda

1. Introduction
2. Cable Stayed Structure
3. Viaduct
4. Harrison Street Overcrossings
5. Lighting
6. **Seismic Design Criteria**

Seismic Design Criteria

- **We have worked with the TJPA's Seismic Review Committee to derive project specific design criteria.**
  - Frieder Sieble, University of California, San Diego
  - Mason Walters, Forell/Elsesser Engineers
  - Loring Wyllie, Degenkolb Engineers
- **The seismic design criteria for the Bus Ramp are developed to provide a common level of seismic performance for the Bus Ramp and the TTC structure.**
- **Performance criteria for the Bus Ramp are very similar to those used in the design of the Bay Bridge Skyway.**

Questions?