



Corridor Crossings

STRATEGY



Local Policy Maker Group

3.23.2023





- **Background** and Recap
- **Program** Strategy
- **Project Delivery** Opportunities
- **Look** Ahead

Paths



Project Delivery Opportunities

Communicate roles, responsibilities, processes, and standards for individual projects.

Outcome: Crossings Delivery Guide



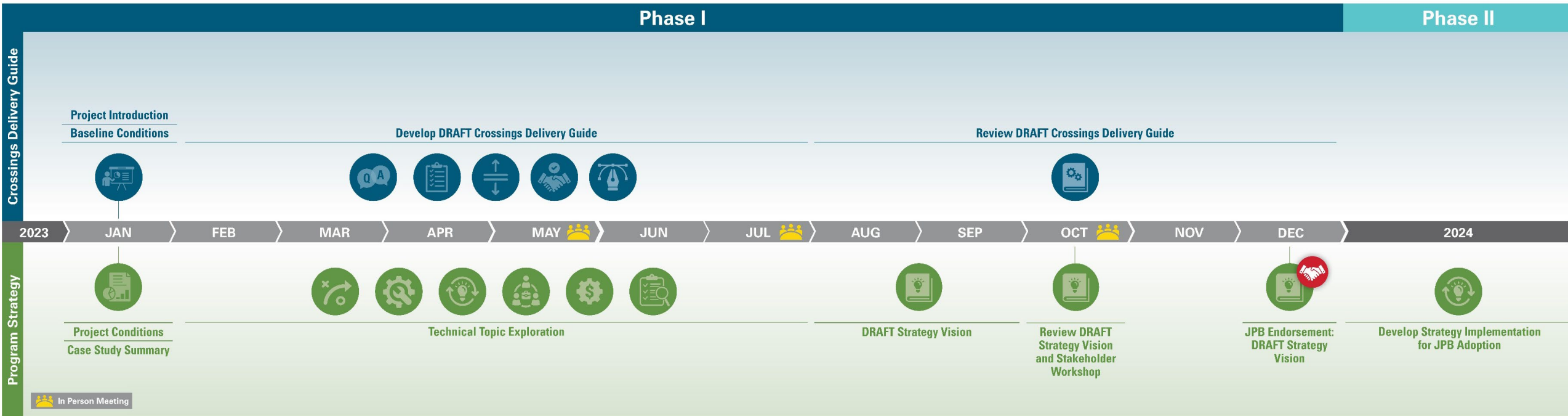
Program Strategy Development

Develop a shared, corridor vision with an incremental and implementable approach for regional benefits.

Balance vision with implementable action plan

Outcome: Program Vision and Strategy

Timeline

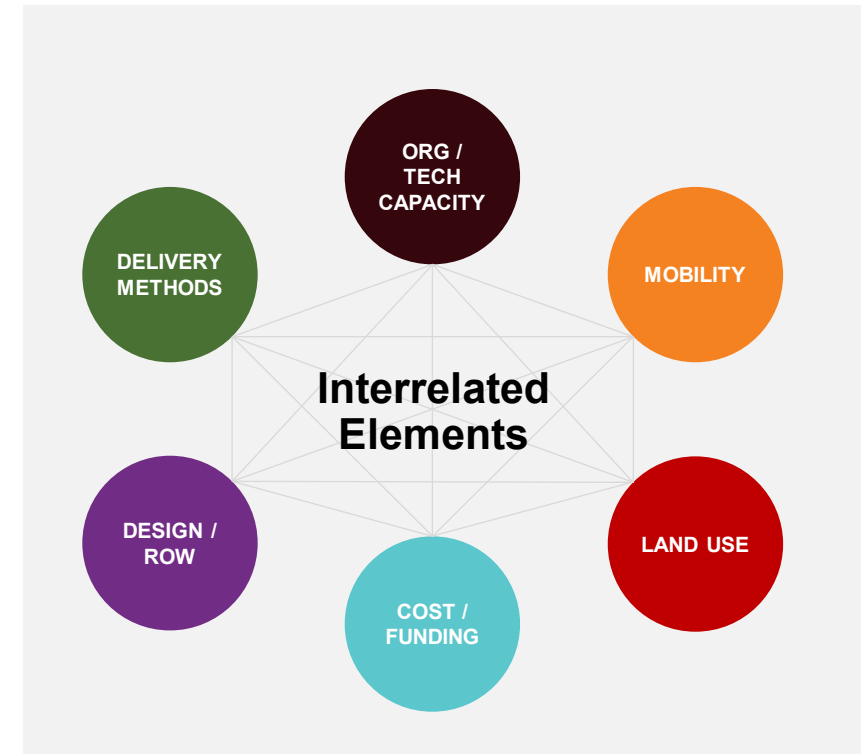


Recap of February Meeting

- Obtained feedback on CCS goals and evaluation measures



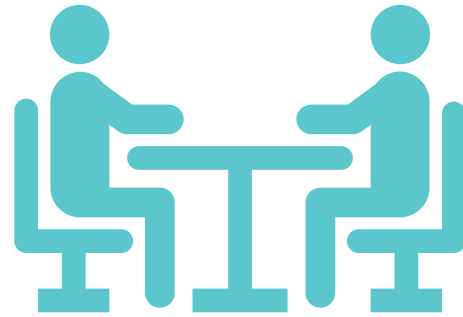
- Presented current project delivery process
- Discussed Program Strategy methodology and process
- Discussed Program Delivery approaches
- Presented technical exploration topics with case study examples



Recap of February Engagement



**7 External
Stakeholder
Meetings**



**49 Individual
Stakeholders
Engaged**



**35 Comments
Received and
Considered**

Meeting Goals and Outcomes



**Outline Program Strategy
Development**



**Establish a Baseline
Understanding of
Engineering Requirements
and Challenges**



**Feedback on Upcoming
Workshops**



This icon represents additional information provided in the Appendix for your reference.



This icon represents feedback is requested on content. However, questions and feedback are encouraged throughout presentation.



Program Strategy Development



Corridor Crossings
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Current Challenges



First come, first serve projects resulting in ad hoc delivery and lack of corridor-wide prioritization



Lack of funding available to meet needs of identified projects



Jurisdictions on their own to identify and apply for funding sources



Organizational and technical capacity is uneven across the corridor



Caltrain's involvement is reactive to city sponsored projects



Problem Statement



First come, first serve projects resulting in ad hoc delivery and lack of corridor-wide prioritization



Lack of funding available to meet needs of identified projects



Jurisdictions on their own to identify and apply for funding sources



Organizational and technical capacity is uneven across the corridor



Caltrain's involvement is reactive to city sponsored projects



There is a significant imbalance between the jurisdictions' grade separation ambitions and the current scale of corridor-wide funding, organizational, and delivery approach.



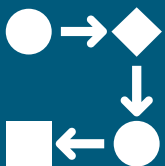
Purpose

The Corridor Crossings Strategy is an effort to **define a systematic corridor-wide approach** to crossings.

The strategy aims to **align stakeholder ambitions into balance with an implementable program**, addressing:

- Funding
- Organization
- Program Delivery

Note: Active grade separation projects will continue in parallel





Program Delivery Approaches

Approach A: Independent Projects



- Project-by-project approach/management
- Local funding plan
- Aspirational goal, but no timeline
- Current approach for Caltrain

Approach B: Coordinated Projects



Long Island Rail Road

- Regionally coordinated approach to corridor funding
- Interjurisdictional communication about resources and schedule
- Coordinated corridor project delivery
- Aspirational goal with timeline

Approach C: System-wide



- Transparent and consistent methodology
- Robust and centralized project delivery
- Corridor-wide and regional funding
- Consistent project champion
- Aggressive goal with timeline



Developing a Shared Strategy





Program Strategy Goals

Safe and Equitable Mobility

 Eliminate collisions along the corridor

 Improve access and circulation, with priority for walking, biking, transit, goods movement, and emergency response

 Provide mobility choices during construction

Equitable Community Benefits

 Establish a framework for equitable investments

 Foster placemaking

 Improve quality of life and reduce environmental impacts for neighboring communities

Cost Efficiencies & Reliable Funding

 Facilitate design approaches and innovation that enable corridor delivery

 Streamline program delivery methods to reduce overall costs

 Leverage existing committed funding and promote new and stable funding sources

Implementable Program

 Define clear roles for Caltrain and its partners

 Accelerate construction and reap schedule efficiencies

 Establish clear program corridor objectives for delivery

 Organize partnerships for successful program delivery

Maximize Rail Corridor Utility

 Support implementation of adopted service vision

 Sustain service & minimize disruptions during construction

 Promote quality passenger experience and improve reliability

 Leverage value created by grade separations and/or closures



Program Strategy Look Ahead

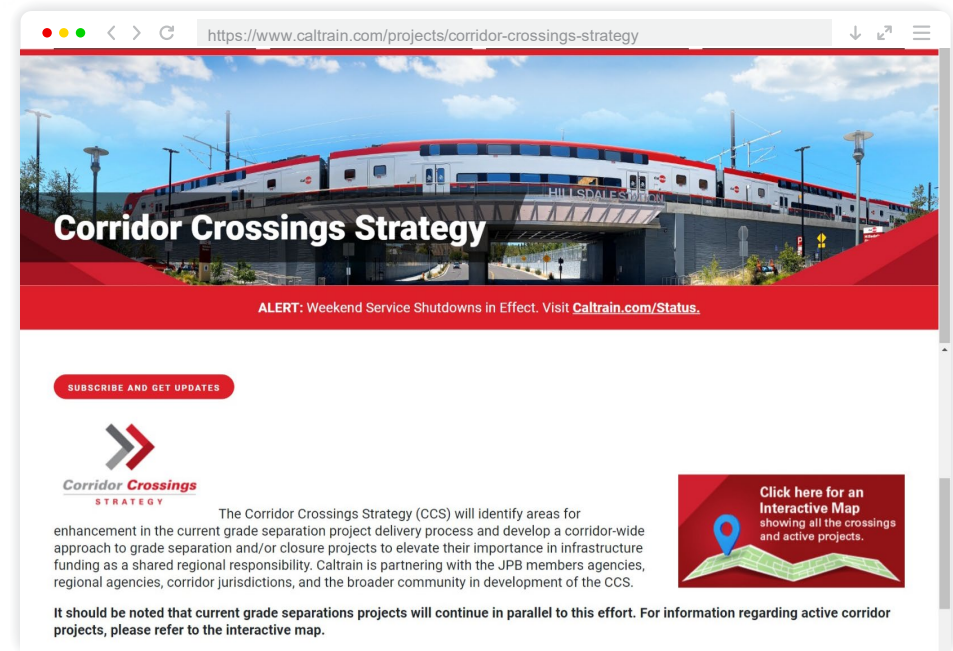


Program Strategy Introduction Report Coming Soon:

- Program Introduction
- Baseline Conditions
 - Summary of Challenges
 - Problem Statement
- Goals and Evaluation Measures
- Case Study Summaries



Actively updating CCS website with information for jurisdictions





Project Delivery Opportunities





Why bolster Project Delivery?



Initial Stakeholder Discovery Revealed



Desired understanding of
Caltrain processes and
procedures



Desired clarity of roles and
responsibilities in grade
separation process



Need for key design
criteria to plan G/S



Crossings Delivery Guide

- Intended for Caltrain, city staff, and partner agencies
- Living document updated as revisions are needed
- Online, user-friendly document that communicates the project delivery approach
- Includes FAQs for reference
- Examples of grade separations and/or closures

Processes and Procedures:

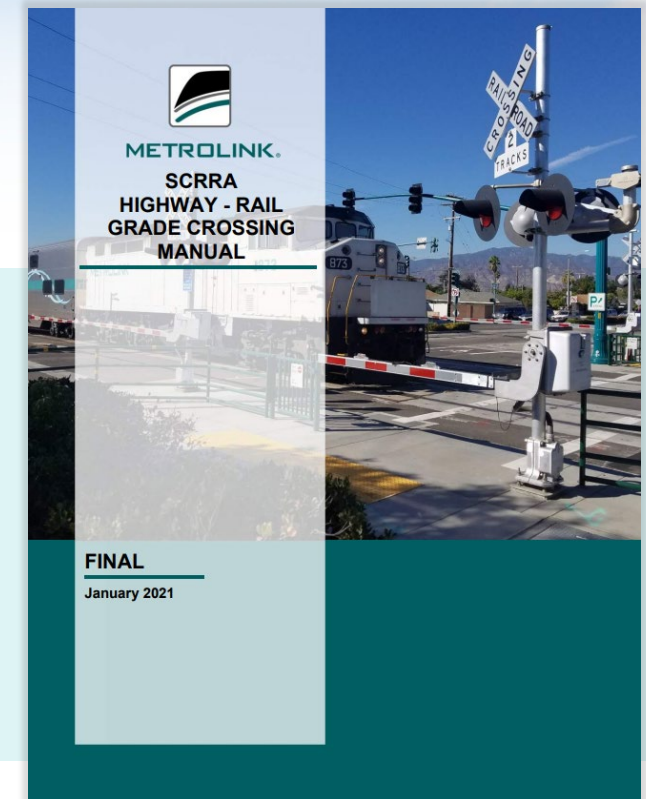
Design exceptions, project development process, service agreements, operational requirements during construction

Roles and Responsibilities:

Defined Caltrain, local jurisdiction, and JPB member agency roles

Key Design Criteria:

Horizontal and vertical clearances, Profile Grades, Design Speeds, Allowable construction methods





Crossings Delivery Guide Topics

PURPOSE: *Provide clear guidance for delivering a rail crossings project*

- ✓ Regulatory Environment and Stakeholders
- ✓ Funding & Grant Programs
 - Review funding sources and opportunities
- ✓ Highway-Rail Grade Crossings
- ✓ **Grade Separation**
 - Overview of components, railroad operations, and construction considerations

- ✓ **Planning/Evaluating for Crossing Treatments**
 - Discussion of Grade Separations and Closures
 - Key Design Criteria, discuss elements of flexibility and inflexibility
- ✓ Design Review Process & Implementation
 - Overview of typical project delivery process.



Design Criteria Introduction



Goal

*Inform key elements
that are drivers of:*

Cost

Complexity

Schedule Impacts



Key Items

Vertical Clearance

Horizontal Clearance

Profile Grade

Overhead Catenary
System (OCS)
Infrastructure

Caltrain / UPRR Corridors



Caltrain and UPRR have different criteria





Regulatory Framework



Federal Rail Administration (FRA)

- Regulate and enforce rail safety, oversee federal funding programs, and regulate national rail transportation policy



California Public Utilities Commission (CPUC)

- Regulates California infrastructure to protect consumers, ensure safe and reliable service, and maintain a healthy economy

Design Criteria and Codes

AREMA American Railway Engineering and Maintenance-of-Way Association (AREMA)

- Vertical clearance, horizontal clearance, and profile grade



Union Pacific Railroad (UPRR)

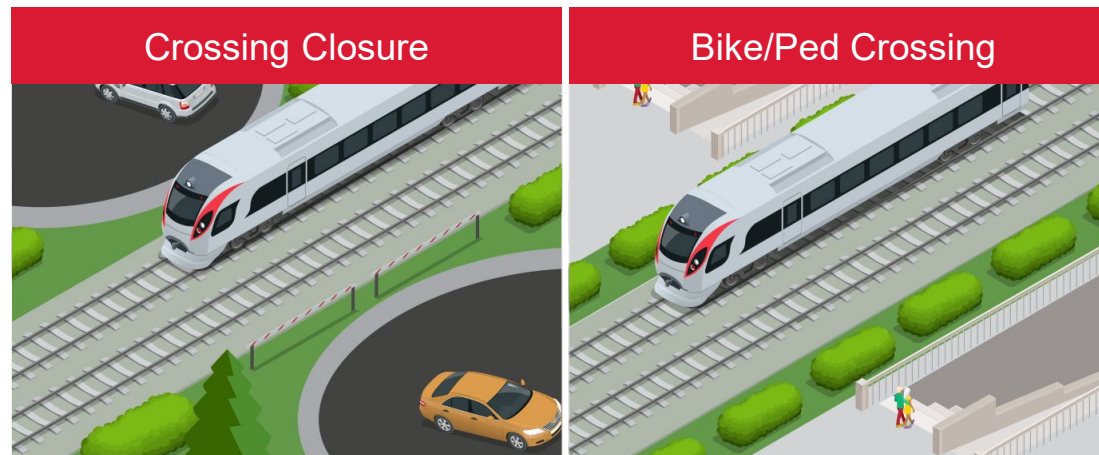
- Vertical clearance, horizontal clearance, and profile grade



National Electric Code

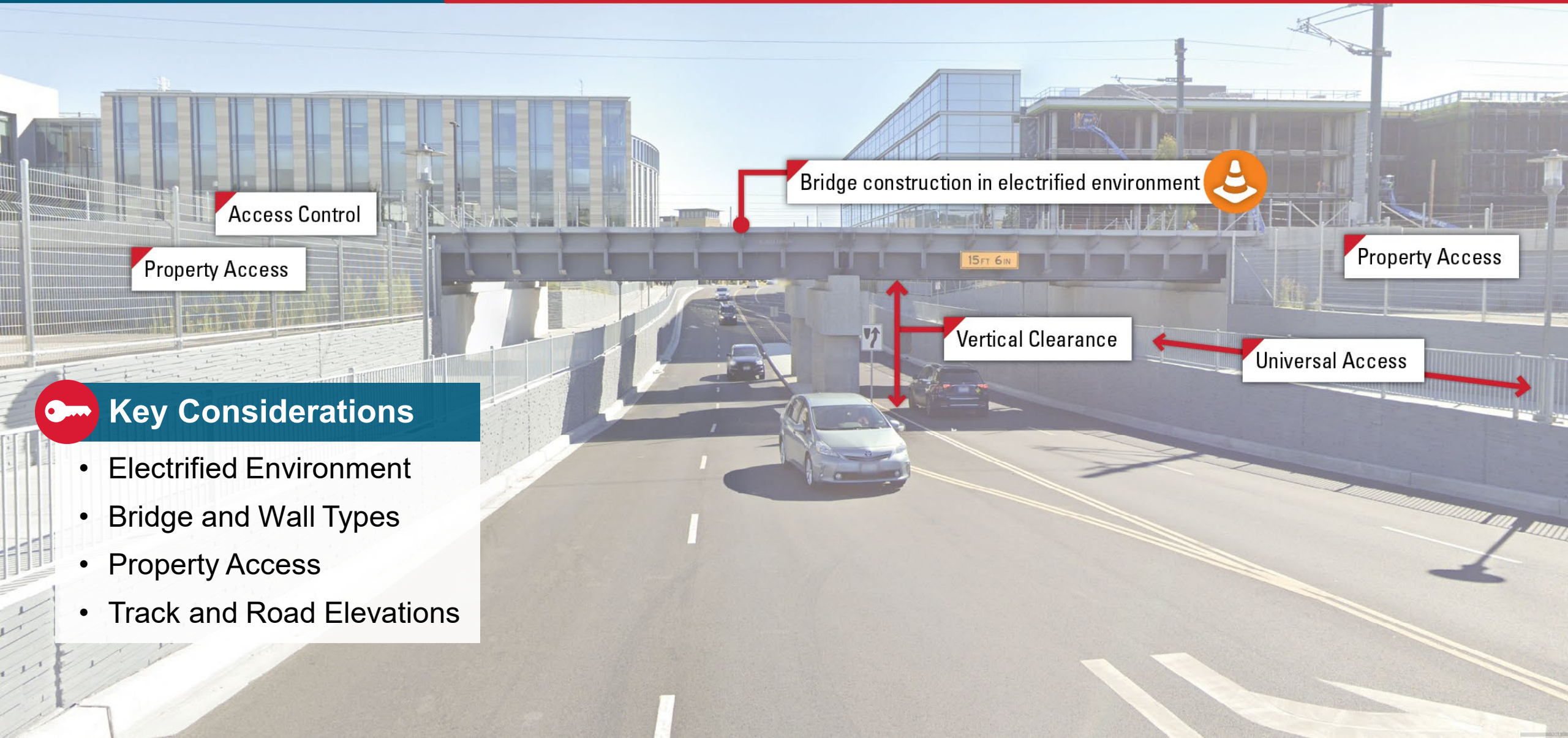
- Vertical and horizontal clearances to Overhead Catenary System (OCS) electrical lines

Grade Separation and Closure Types



Undercrossing

31st Avenue, San Mateo



Access Control

Property Access

Bridge construction in electrified environment



Property Access

Vertical Clearance

Universal Access

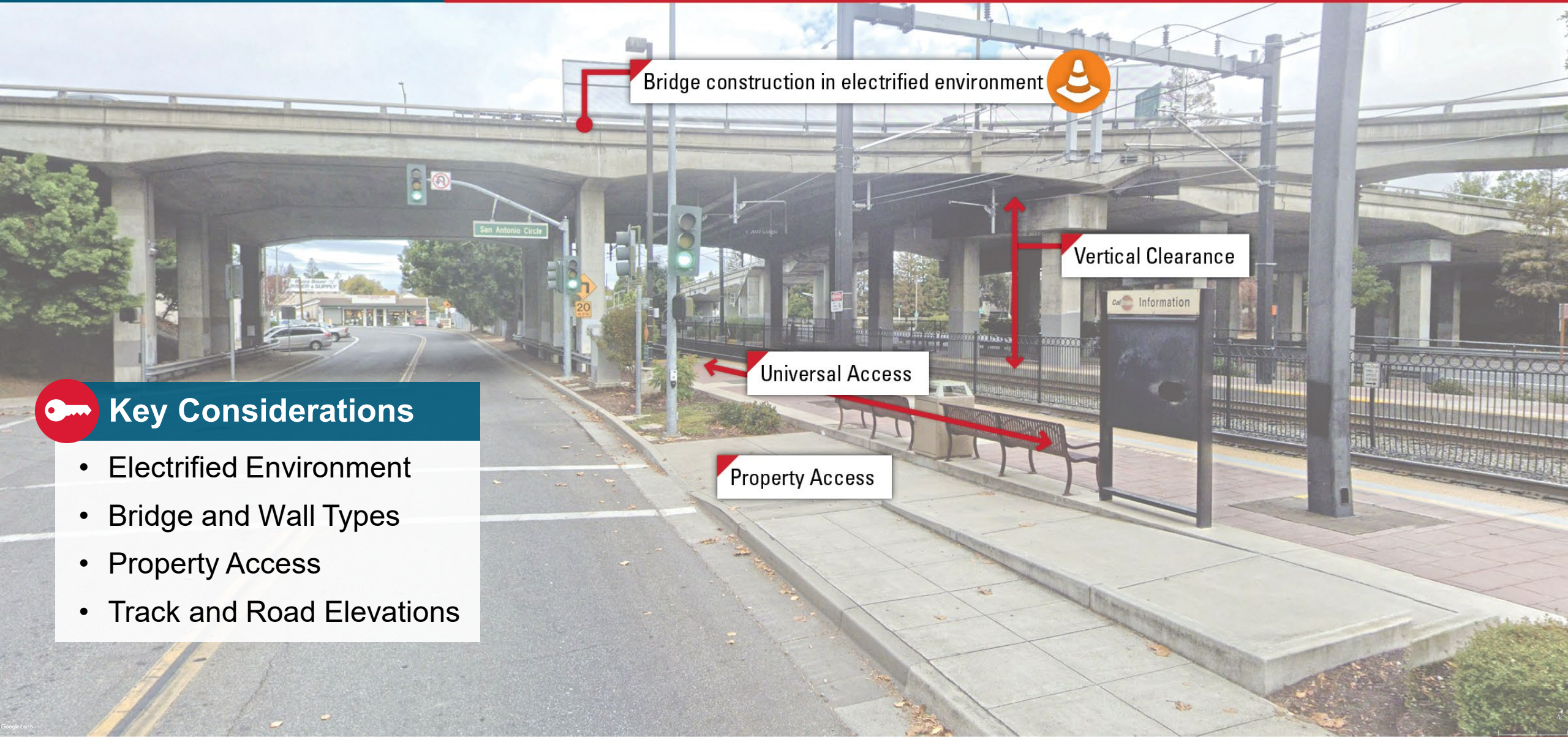


Key Considerations

- Electrified Environment
- Bridge and Wall Types
- Property Access
- Track and Road Elevations

Overcrossing

San Antonio Road, Mountain View

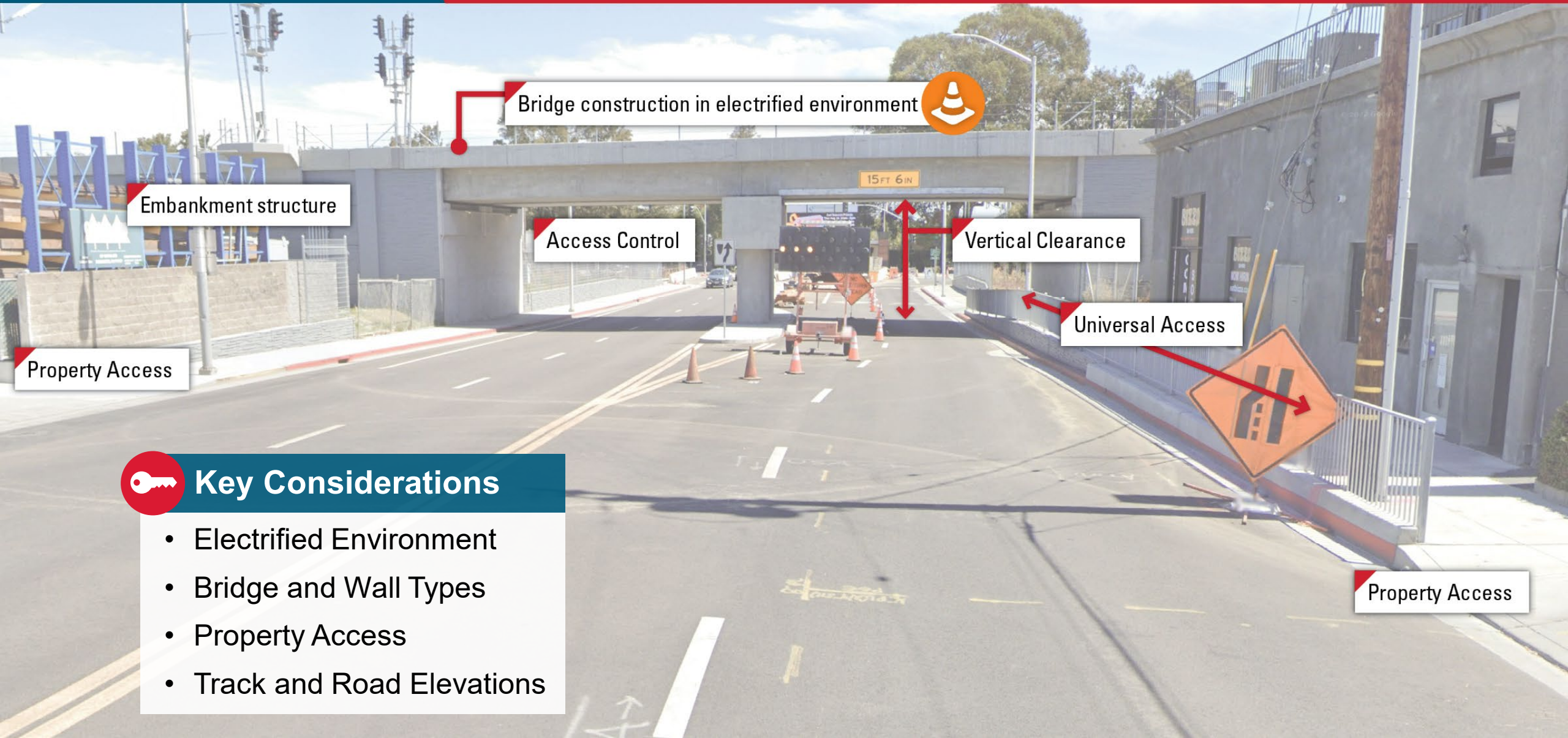


Key Considerations

- Electrified Environment
- Bridge and Wall Types
- Property Access
- Track and Road Elevations

Hybrid Crossing

25th Avenue, San Mateo



Bridge construction in electrified environment



Embankment structure

Access Control

Vertical Clearance

Universal Access

Property Access

Property Access



Key Considerations

- Electrified Environment
- Bridge and Wall Types
- Property Access
- Track and Road Elevations

Bicycle and Pedestrian Undercrossing

Brokaw Road, Santa Clara



Key Considerations

- Electrified Environment
- Structure and Wall Types
- Property Access
- Track and Road Elevations

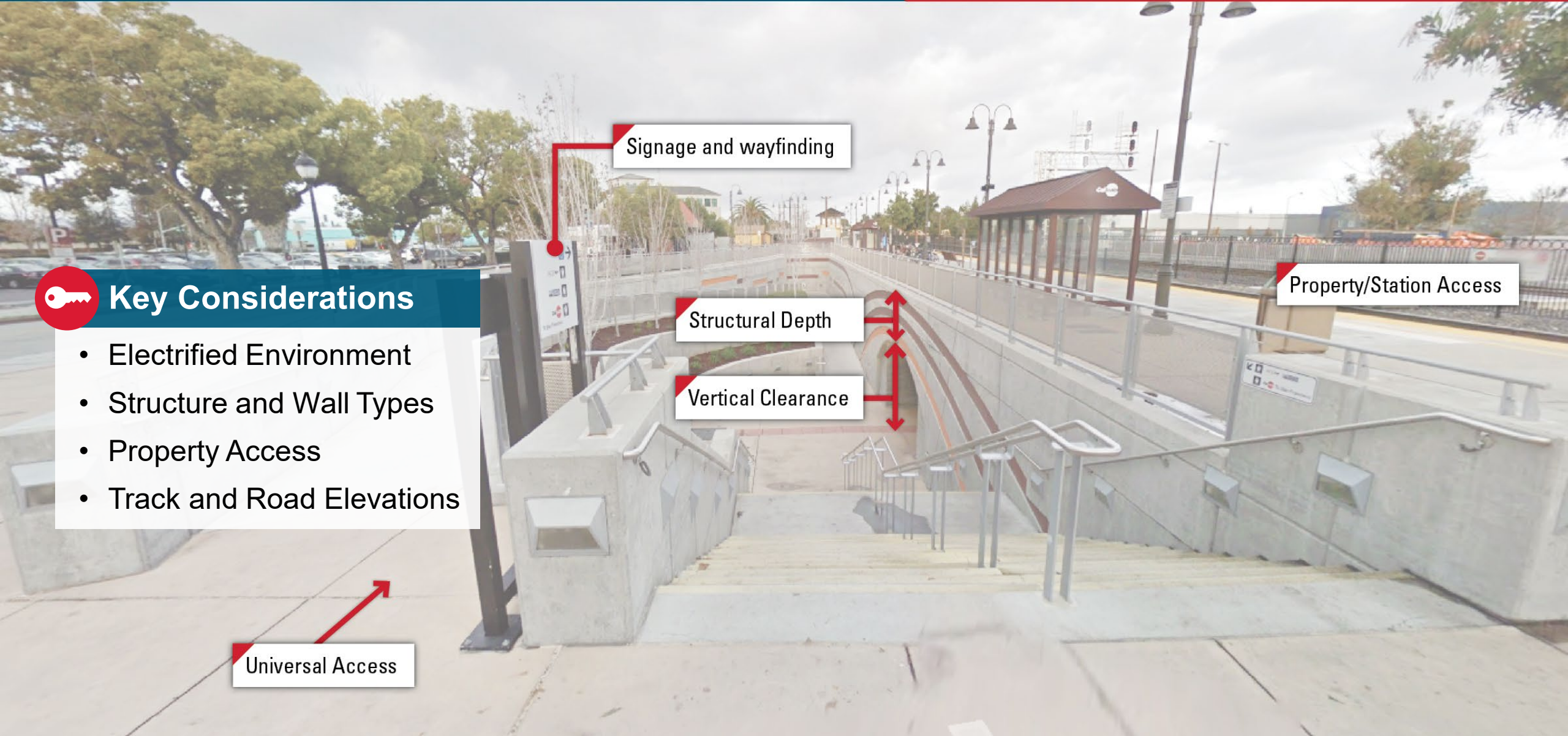
Signage and wayfinding

Structural Depth

Vertical Clearance

Property/Station Access

Universal Access





Takeaways



Caltrain's Crossing Delivery Guide will assist cities through grade separation, closures, or underpass processes



Future meetings will highlight technical components of the Guide



Grade crossing solutions vary by location and are affected by existing and future conditions



Regulatory agencies beyond Caltrain have specific design requirements for crossing elements

Look Ahead



May Mobility & Circulation Work Sessions

Goals:

- Present analysis findings for feedback and input
- Outline the trade-offs of different corridor improvement scenarios to foster a regional perspective

Topics:

- Mobility & circulation technical areas
- Assessment approach
- High-level area summaries
- Network analysis of conceptual scenarios

Activities

- Presentations with engagement activities built-in
- Small group discussion

Audience

- PPG, CSCG, and LPMG members

Location

- Middle of the corridor



May Mobility & Circulation Workshop

WE WANT YOUR
FEEDBACK



Which time would you prefer?

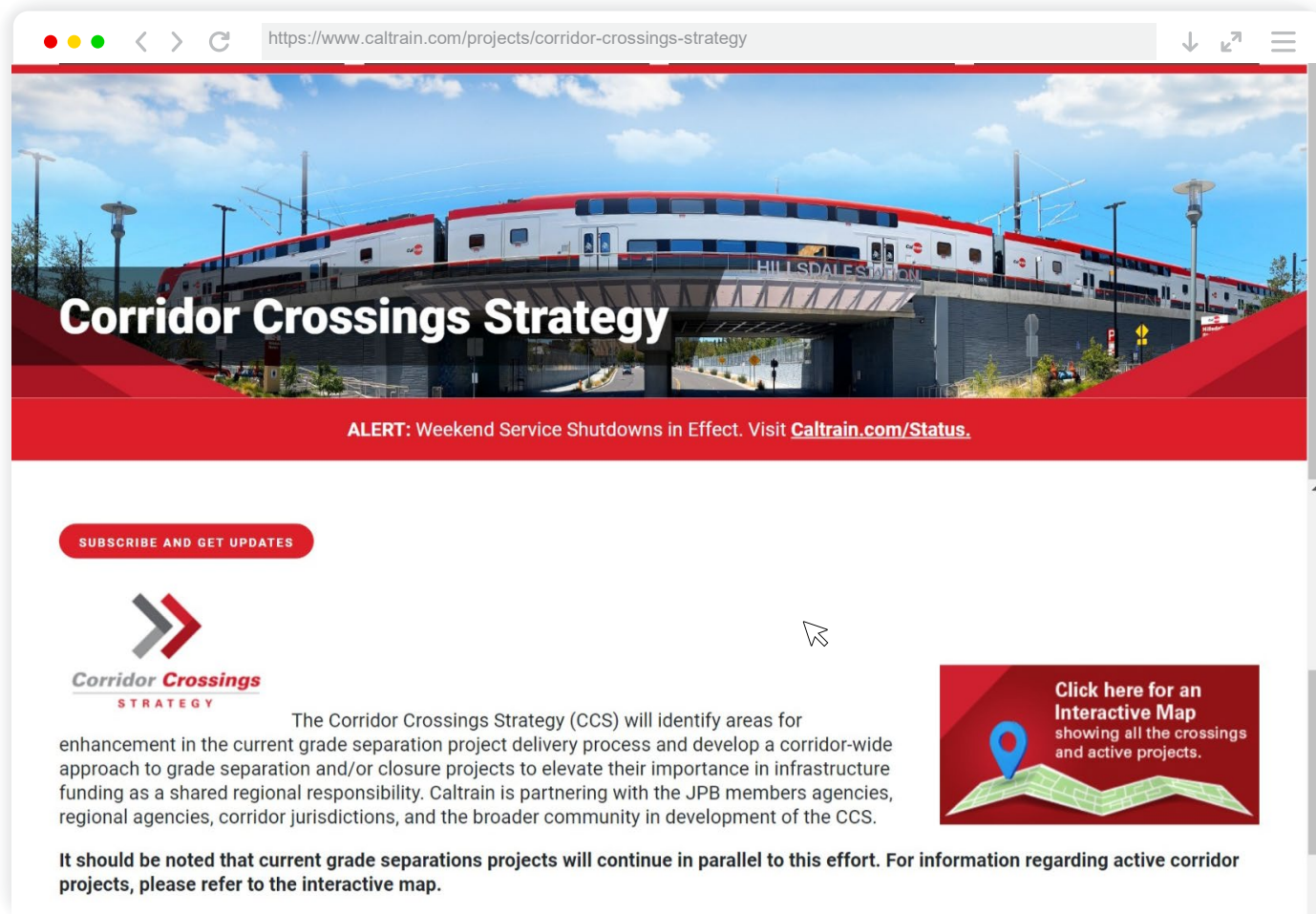


Scan QR Code to vote

Upcoming Stakeholder Engagement

Stakeholder Group	Name	Timeframe	Content
CSCG	City Staff Coordination Group	April	Construction Approach and Delivery Methods
LPMG	Local Policy Makers Group	April	
SAT	Stakeholder Awareness Team	April	Provide Program Introduction, Case Study Summary, and Program Strategy Approach.
AMP	Advocacy and Major Projects (JPB Subcommittee)	May	
GMG	General Managers Group	May	
JPB	Joint Powers Board	June	

Contact Information



Launch of Program Website:
<https://www.caltrain.com/CCS>



Contact Email:
CCS@caltrain.com

Appendix



Recap of February Feedback

Safe and Equitable Mobility

Consider zero collisions along the corridor as a goal in lieu of reduce frequency of collisions.

Safe and Equitable Mobility metrics need to be elevated when deciding when and what grade separations to do, with the other goals following.

Most collisions along the corridor are with pedestrians and not just vehicles.

Equitable Community Benefits

How do we talk about and value placemaking around the stations when the land is owned by multiple property owners?

Consider reducing GHG emissions as a goal with reduced gate down times.

Outreach needs to be included as part of the program approaches.

Cost Efficiencies and Reliable Funding

“Reduce cost escalations for Caltrain-delivered projects” should be added.

It is important for the CCS to look at how to maximize local funding opportunities.

Need to add “minimize total construction” to minimize disruptions.

Implementable Program

Important to maximize partnerships and how agencies can come together to move forward.

Importance of clarifying when project handoff needs to occur.

Efficient project delivery is paramount to a successful program.

Important to think about prioritization.

Grade Separation and Closure Considerations



Grade Separation and Closure Considerations



Key Considerations

- Existing and future transportation network
- City long-range plans
- Incidents at the crossings
- Existing utility network
- Adjacent land uses
- Placemaking / Urban Fabric
- ***And many others...***



Crossing Closure

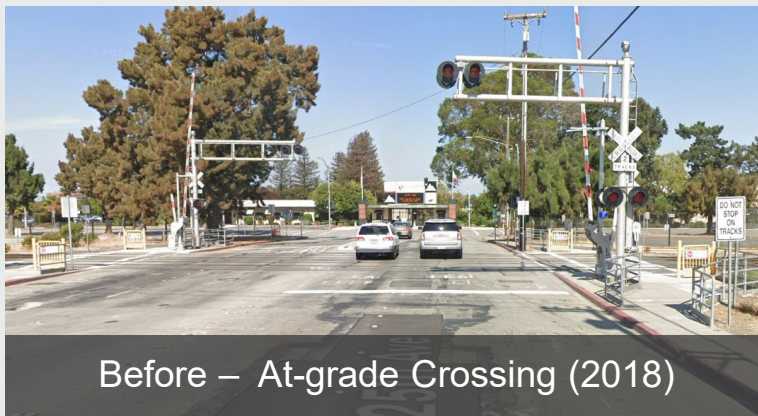
Key Considerations:

- Eliminating high-exposure crossings
- Maintain community connectivity
- Ability to implement depends on the surrounding transportation network

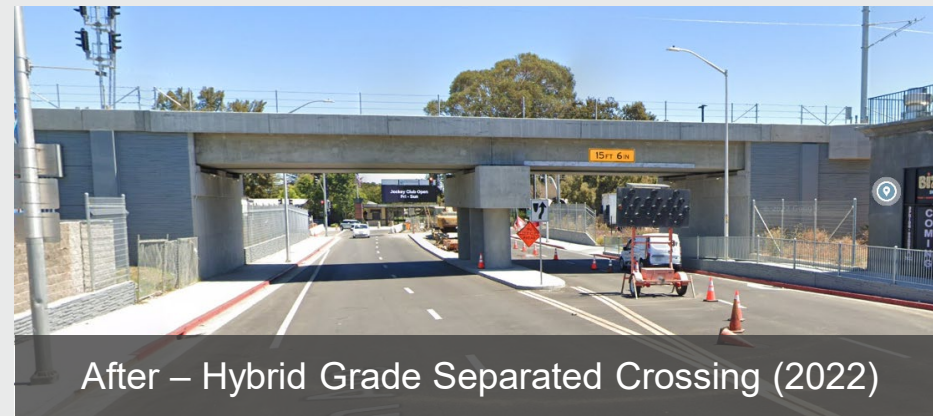


Considerations for Hillside Station's Crossings

25th Avenue

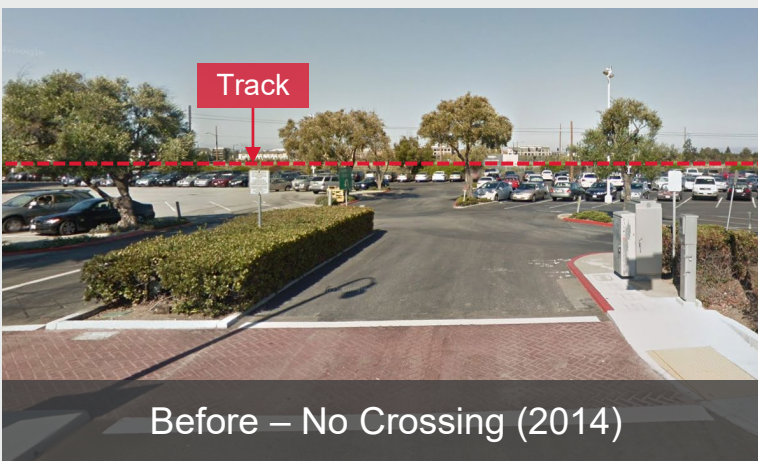


Before – At-grade Crossing (2018)



After – Hybrid Grade Separated Crossing (2022)

31st Avenue



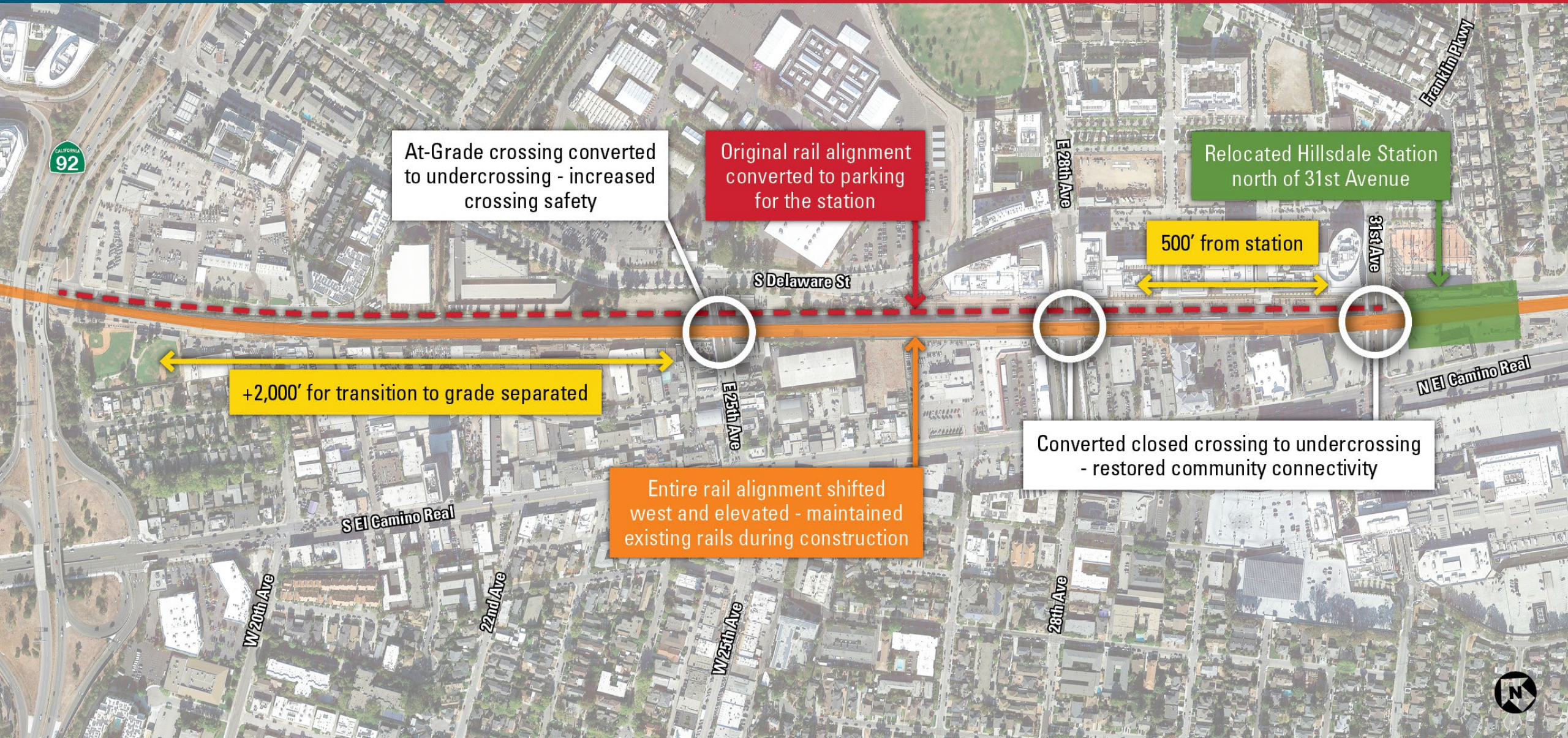
Before – No Crossing (2014)



After – Undercrossing (2022)

Considerations

25th Avenue, Hillsdale's Crossing, San Mateo



At-Grade crossing converted to undercrossing - increased crossing safety

Original rail alignment converted to parking for the station

Relocated Hillsdale Station north of 31st Avenue

500' from station

+2,000' for transition to grade separated

Entire rail alignment shifted west and elevated - maintained existing rails during construction

Converted closed crossing to undercrossing - restored community connectivity

Design Criteria Introduction



Design Criteria Introduction



Goal

*Inform key elements
that are drivers of:*

Cost

Complexity

Schedule Impacts



Key Items

Vertical Clearance

Horizontal Clearance

Profile Grade

Overhead Catenary
System (OCS)
Infrastructure

Caltrain / UPRR Corridors



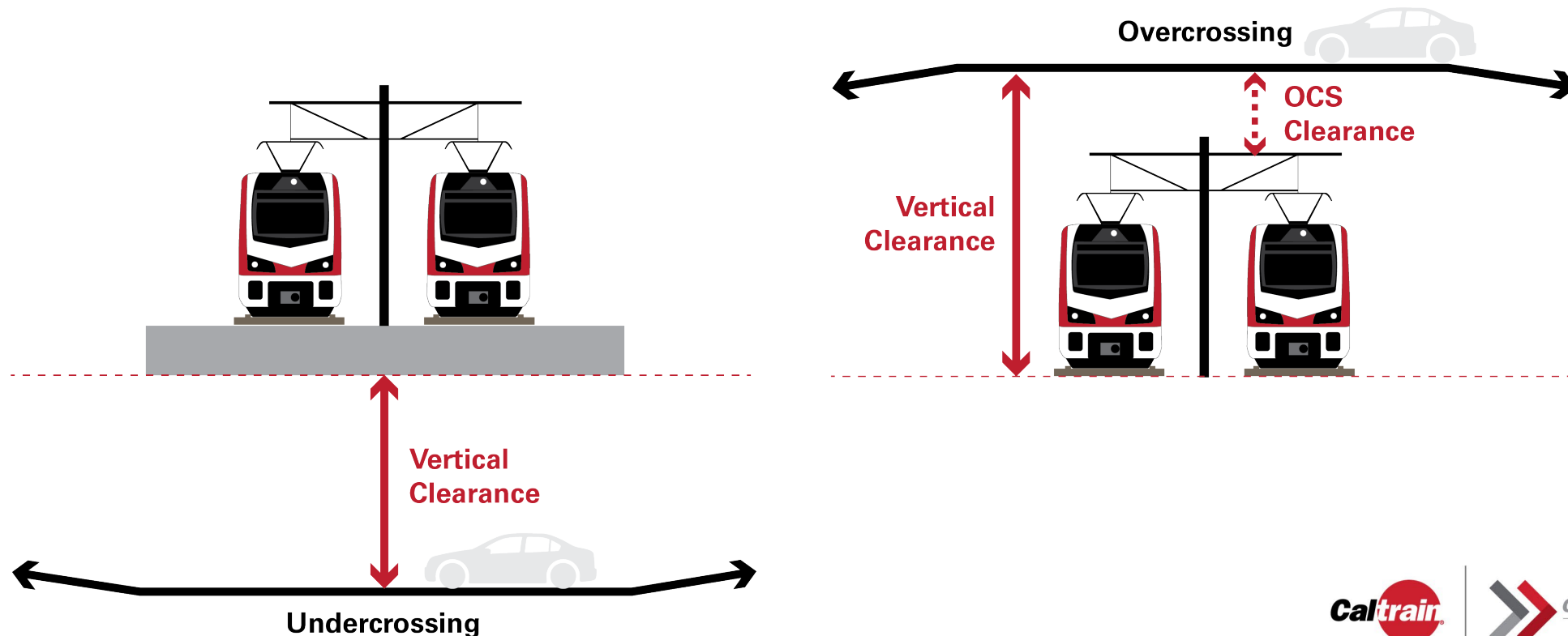
Caltrain and UPRR have different criteria



Vertical Clearance

Definition:

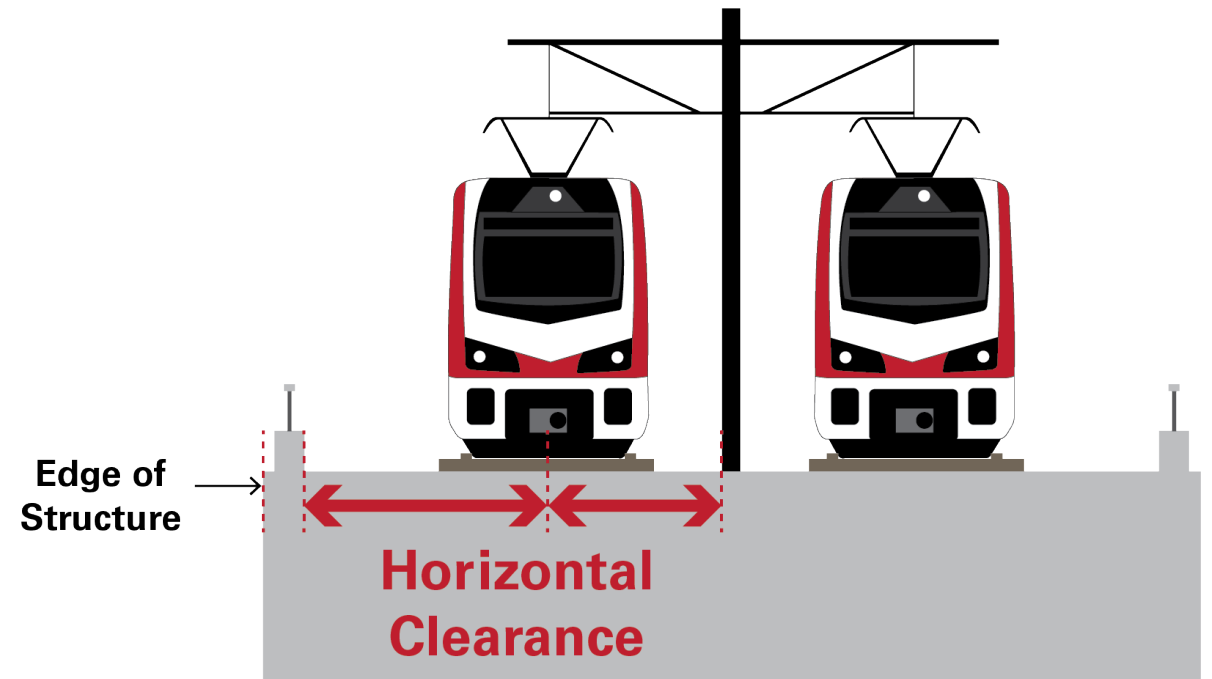
- The upright area within which a train may operate, and corresponding equipment may exist
- Will determine total height of an undercrossing & overcrossing



Horizontal Clearance

Definition:

- The horizontal area within which a train may operate, and corresponding equipment may exist
- Will determine where objects can be placed in relation to the railroad
- May determine structure widths



Profile Grade

Definition:

- For portions of corridor where UPRR operates, profile grade is restricted by the UPRR Trackage Rights Agreement
- The rise or fall in elevation of railroad track
- Will determine how quickly trains can climb and descend
- Often measured as a percentage

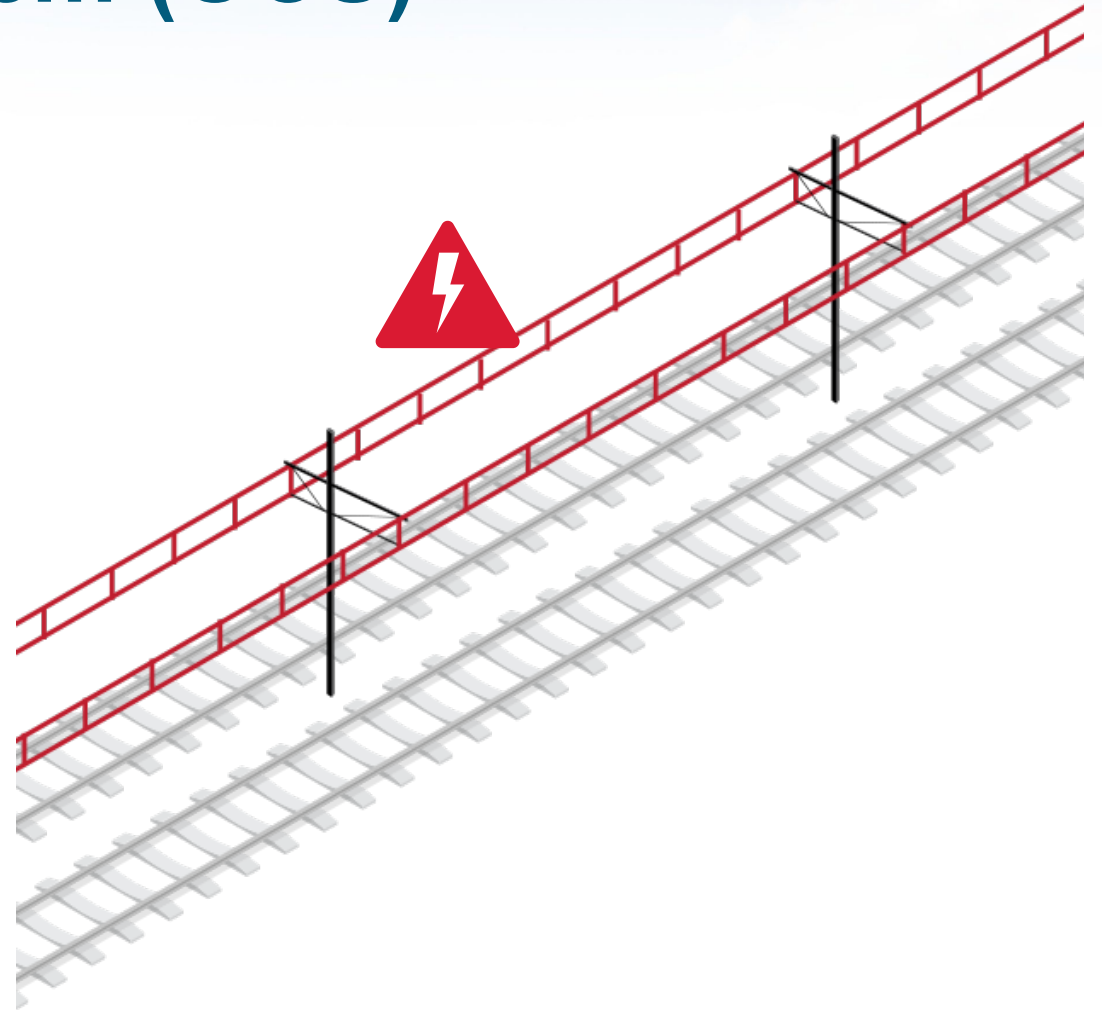
$$\frac{\text{Vertical Change (Ft)}}{\text{Horizontal Distance (Ft)}} \times 100 = \%$$





Overhead Catenary System (OCS)

- 25kV electrical system that will power the new electric trains
- Underground foundations and conduits
- Overhead electrified wires
- Work around this system will require specialized rules and processes



Rail Corridor Use Policy (RCUP)

- Adopted in 2020 by JPB
- Process to determine if the proposed use is compatible with the railroad's current and future needs for its property
- RCUP review process, additional design, engineering, and regulatory review is required **before** a Property Access Agreement can be approved and issued by the JPB
- Early coordination with Caltrain Planning is recommended
- RCUP application form is being revised

CALTRAIN RAIL CORRIDOR USE POLICY

DECISION-MAKING FRAMEWORK FOR PROPOSED NON-RAILROAD USES OF JPB PROPERTY

OVERVIEW

The purpose of this Rail Corridor Use Policy Review is to determine if a proposed use of JPB property is compatible with the railroad's current and future needs. Following the compatibility review for the Rail Corridor Use Policy, proposed uses require additional review to complete the Property Access Agreement approval process, including design, engineering, and regulatory review.

APPLICATION RECEIVED

Staff determines the location, type, and duration of the proposed use, and references the RCUP maps to determine in which Property Use Zones (PUZs) the use would be located:



PRELIMINARY USE COMPATIBILITY DETERMINATION

Staff consults the list of allowable uses for the relevant PUZ to determine if the proposed use is allowable and, if applicable, if it will terminate before any capital projects are anticipated to start at the location.

If the proposed use is deemed **preliminarily incompatible**, staff will work with the applicant to determine if changes to the proposed use might change this determination. The applicant may then resubmit their application and start the review process again.

FINAL USE COMPATIBILITY DETERMINATION

If the proposed use is deemed **preliminarily compatible**, staff will check if the proposed use:

- is compatible with the needs of stations if it falls within PUZ 2.
- needs to comply with the TOD policy.

COMPATIBLE

If the proposed use is determined **compatible**, staff moves on to complete the rest of the Property Access Agreement review and approval process, which must be completed before the Agreement can be granted.

INCOMPATIBLE

Applicants may appeal an incompatibility determination by submitting a **Use Variance** application. A Staff Recommendation will be prepared for the Board to review along with the application, and the Board may approve, approve with conditions, or reject the application.