



Corridor Crossings

STRATEGY



Bicycle and Active Transportation Advisory Committee
11.16.2023





AGENDA

- **Program** Refresher
- **Project** Progress
- **Delivery** Guide
- **Next** Steps



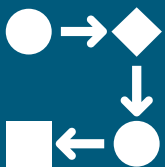
Purpose

As an outcome of the **Business Plan**, 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



Paths



Project Delivery Opportunities

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

Outcome: Crossings Delivery Guide



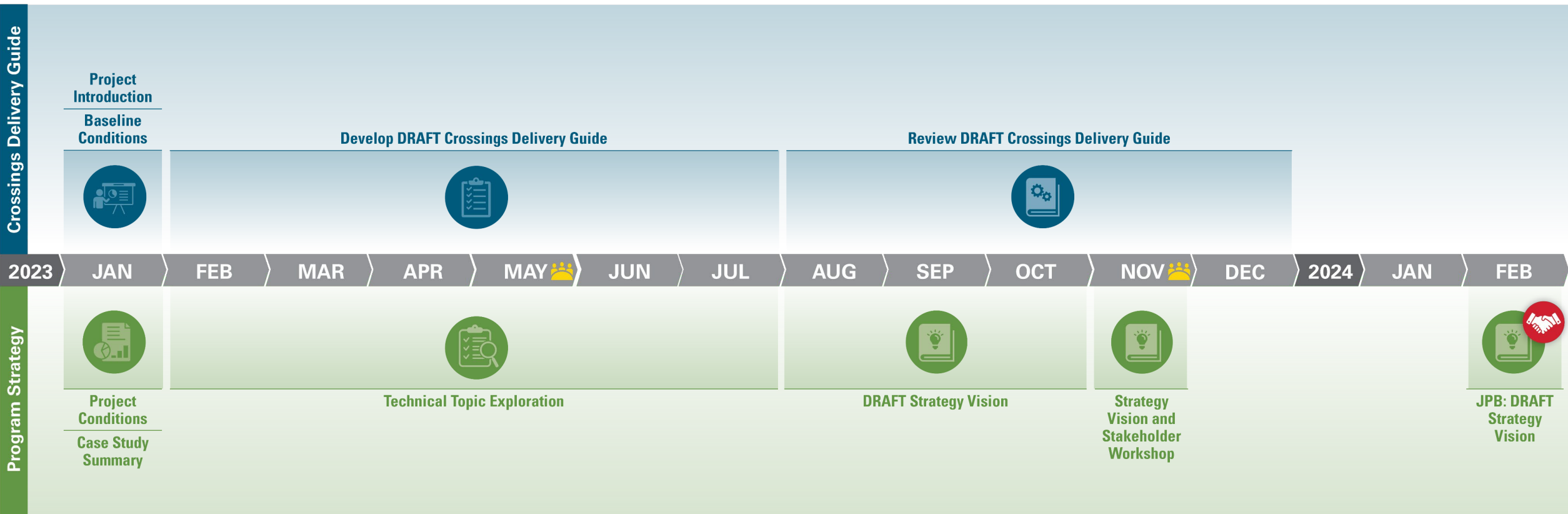
Program Strategy Development

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



In Person Meeting

Recap of March BATAAC Presentation

- Illustrated shared strategy development



- Reviewed Case Studies
- Outlined Technical Exploration Topics
- Presented on Program Strategy Goals



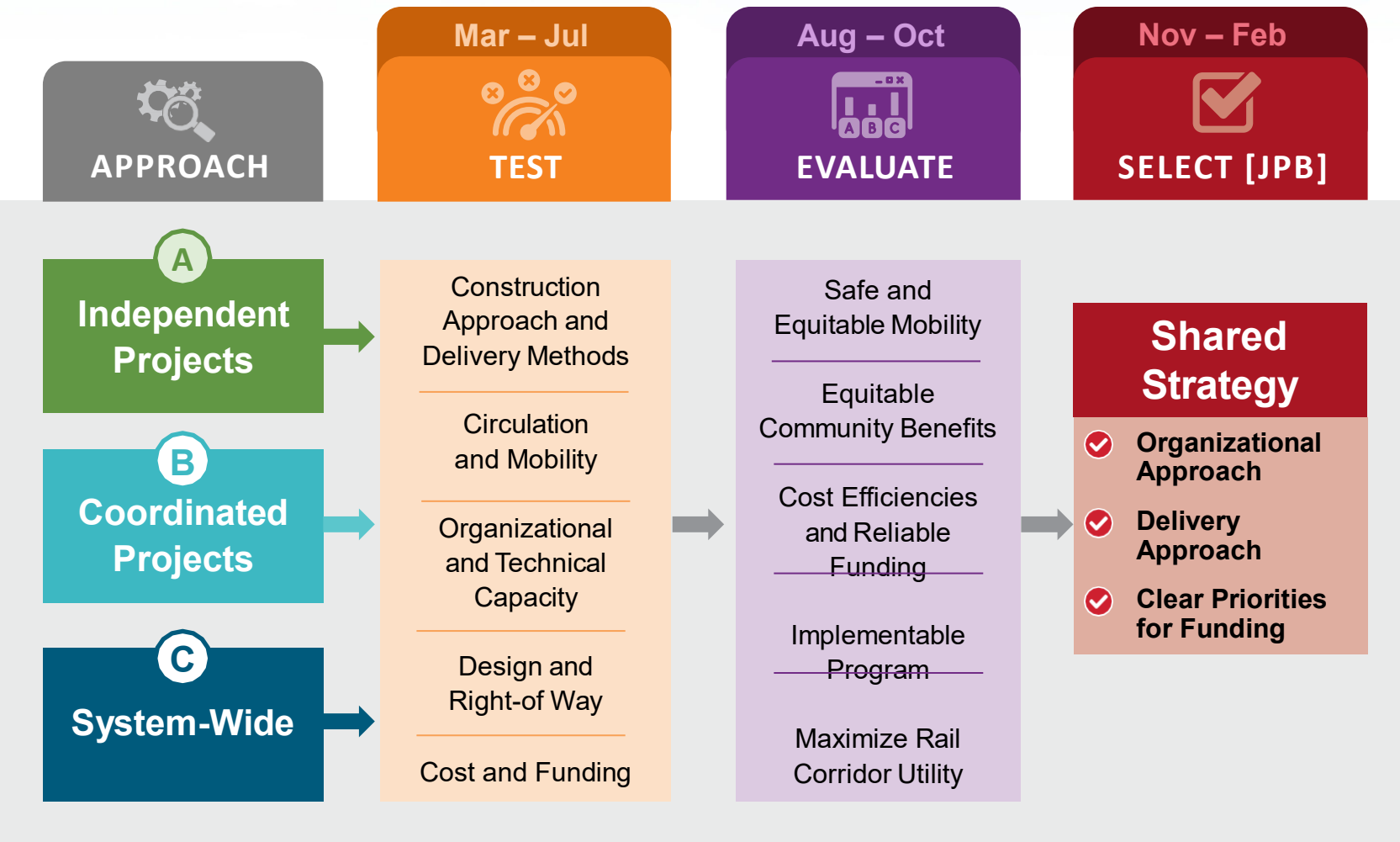
Project Progress



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Program Strategy Process

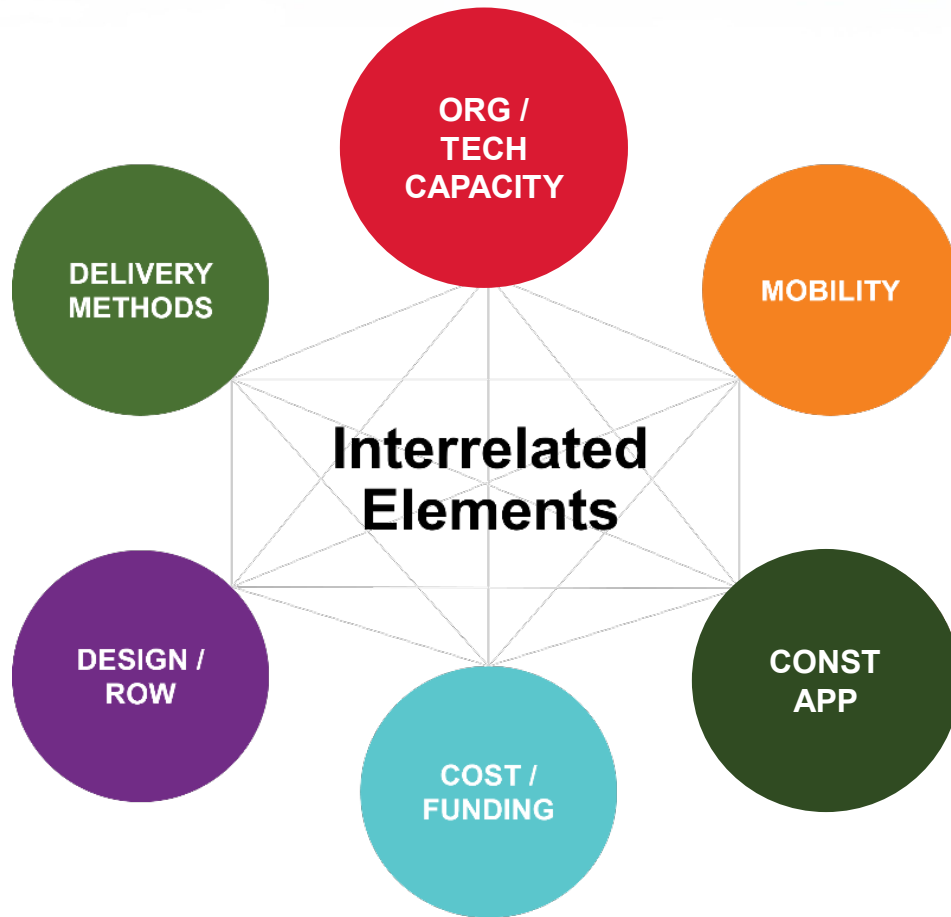




Recap of Technical Topic Exploration

TEST

EVALUATE



- Technical topic conclusions supported a coordinated program approach and the need to identify priority projects
- Key conclusions of the **technical topics** include:
 - **ORG / TECH CAPACITY:** Caltrain staff resources and capacity are constrained and additional resources would be needed to support deeper involvement in a grade separation program
 - **MOBILITY:** There is not corridor-wide consensus on a fully separated corridor; corridor communities want to focus on delivering priority projects
 - **CONSTRUCTION, DESIGN / ROW:** Consolidating crossing projects realizes numerous construction and delivery benefits, as well as potential efficiencies from coordinating project implementation
 - **COST / FUNDING:** Identifying priority projects helps region to identify complete funding for high-impact projects as quickly as possible

Delivery Guide Update



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From Numerous Meetings, Partners Desire...

A consolidated and coordinated program to accelerate the delivery of grade separation projects and to strategically pursue funding

That Caltrain take a proactive and consistent role in delivering grade separation projects

A consistent and transparent grade separation process

A continued role for cities and a need for a grade separation program to reflect community vision



DRAFT Crossings Delivery Guide

- Graphically engaging, easy to read guidance
- Design standards + project development and delivery

BRIDGE

- Caltrain requires vertical clearance from the top of the Caltrain tracks to the top of the underpass structure. For overhead crossings, Caltrain requires additional clearance requirements due to the presence of the OCS equipment and system. See Chapter 7 for the specific clearance requirements.
- Retaining walls provide structural support to the facility.

OCS SYSTEM

- The OCS equipment influences the construction requirements for all crossing types, as well as the vertical clearance requirements for overhead crossings.

FENCING

Protective Bridge Fencing: A 10-foot tall protective solid barrier is required to ensure the safety of both the trains and the public. The barrier is intended to prevent pedestrians and bicyclists from touching or throwing items to the tracks.

Underpasses generally have fencing to separate public and private property, as well as to prevent intrusion into the Caltrain ROW.

Access Control Fencing: For passenger safety, fencing may need to be installed to separate passengers from vehicular traffic and the railroad. This includes fencing between the rails, as well as fencing to separate stations from adjacent streets.

PEDESTRIAN AND BIKE ACCESS

- Stairway and universal access ramps to this tunnel are required in order to provide access for all ages and abilities. Bike storage can be provided on stairways to allow cyclists an easy method to transport their bicycle through the facility.
- Bike lockers offer a more secure form of bicycle storage at crossing facilities, especially ones with stations nearby.
- Plant areas around crossing entrances can activate the area and provide an inviting place for the community. Environment should be well lit and well maintained.
- Concave mirrors and CCTV cameras can contribute to better visibility areas that are covered. Maintaining secure level of visibility in an underpass facility is critical to user comfort.

LIGHTING

- Human-scale lighting should be implemented throughout the facility and its associated entrance and exit areas. Good visibility improves safety of the crossing and the sense of security of its users. Lighting is especially important for facilities that are not directly connected to stations, larger roadways, and other infrastructure.
- Skylights can be used in underpass facilities to provide more natural light in the tunnel, leading to a more secure feeling facility.

ROADWAY FOOTPRINT

- Wayfinding signs help users orient themselves spatially along the Caltrain corridor and can help them understand where the crossing ends on the other side of the tracks.
- Transit integration, like the straight-through bus stop and drop-off zone, help facilitate connections to the rail crossing. Care of connector to local bus and train routes is a key consideration for any bicycle and pedestrian facility.

DRAINAGE

- Implementation of permeable facilities and greenery relieves some pressure from the facility drainage system and makes the facility more attractive.
- Drainage systems are required to manage rainwater within facilities. In underpass facilities, pumping water from the facility typically requires an identified pump station due to the lower elevation.

4 Funding and Grant Programs

This section discusses the importance of developing a detailed funding plan and provides an overview of the available funding sources for grade separation projects. Grade Separation projects can be expensive and may require the project sponsor to secure grants from multiple sources. Grade-separations have been recognized as a priority in California and there are several available funding programs for local agencies to support these types of projects. That said, while Caltrain can serve as a partner in obtaining funding, they are unable to help fund grade-separations specifically. The charter between SFMTA, SMCTA, and VIA, which serves as the basis for Caltrain operations, explicitly states that Caltrain funds may only be used for operations, which would not include grade-separations.

Funding Plan

A detailed funding plan that aligns with an accurate and conservative cost estimate is crucial for advancing grade separation projects. The funding plan and project cost estimates should be developed as early as a project's initiation phase. Those funding commitments should be updated semiannually or yearly corresponding to the local jurisdiction's fiscal year. Cost estimates should also be updated regularly as the project progresses through phases of development and to represent current market conditions. Caltrain recommends that local entities frequently update the project costs. Soft costs should also be considered including Caltrain's management of the grade separation project. Soft costs also should include contingency which should vary depending on the phase of the project. As the project advances and there are fewer risks and unknowns, the contingency may be reduced. Refer to Table XX for Caltrain's contingency guidance for capital improvement projects. More details on project cost and funding for each phase can be seen in Figure XX. Complete funding for a project phase should be secured before a phase begins to facilitate projects advancing through phases in an efficient manner.

Project Sponsor

Local agencies are the project sponsors responsible for preparing and executing a funding plan to support all phases of a grade separation project in the Caltrain corridor. While Caltrain staff's expertise is necessary to support grade separation projects, using Caltrain funds to advance local jurisdiction projects is not allowed. Caltrain can only use public funds towards delivering cost-efficient rail services under the current regulation, which requires dedicating all Caltrain funding toward the management, operation, and maintenance of the commuter rail service.

Key Chapter Takeaways:

- Grade-separations recognized as a priority in California—Several funding programs available for local agencies
- Caltrain cannot direct funds toward grade-separation projects but can serve as a partner in obtaining funds
- Funding sources: Federal, Statewide, County, Local, and Private
- Minimizing project delays with detailed funding plan that correlates with a frequently updated project cost
- Local agency responsible for preparing, identifying, and executing funding requirements set by the grant program and communicate the requirements with Caltrain staff early in the process.

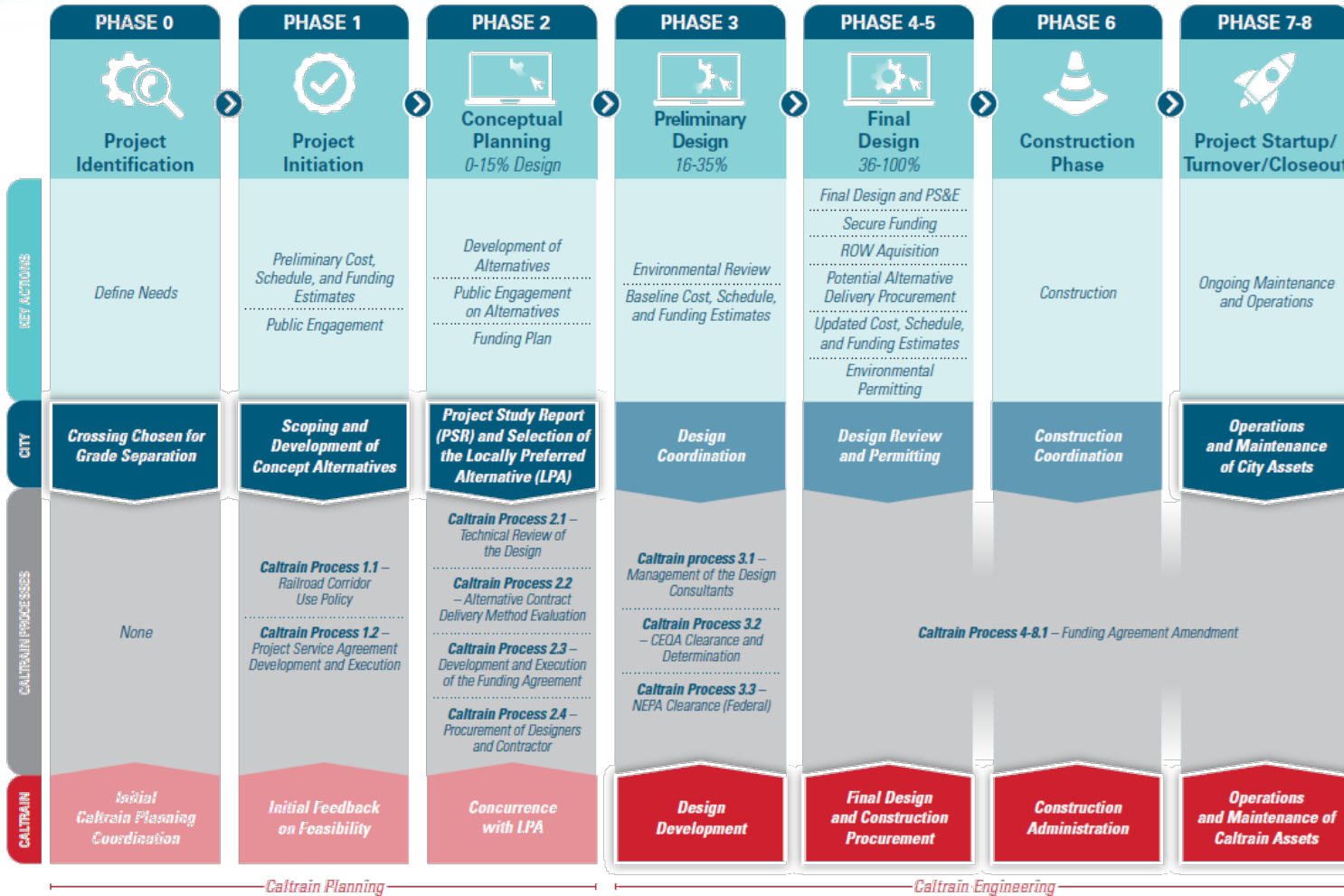
17 | Corridor Crossings Delivery Guide Manual



DRAFT Crossings Delivery Guide – Outline and Structure

| Background | Project Initiation |
|---|---|
| <ul style="list-style-type: none">• Corridor Overview• Regulatory Environment• At-Grade Rail Crossings | <ul style="list-style-type: none">• Project Implementation Process• Planning a Grade Separation• Funding and Grant Programs |
| Grade Separations | Project Delivery and Implementation |
| <ul style="list-style-type: none">• Key Considerations and Caltrain Design Criteria<ul style="list-style-type: none">○ <i>Governing Design Standards</i>○ <i>Vertical Clearances for Overpasses</i>○ <i>Vertical Clearances for Underpasses</i>○ <i>Profile Grade</i>○ <i>Horizontal Clearances</i>○ <i>Structural Design</i>○ <i>Design Variances</i>○ <i>Operational Impacts</i>○ <i>Grade Separation Components</i>• Grade Separation Types | <ul style="list-style-type: none">• Delivery Methods• Construction methods |

DRAFT Crossings Delivery Guide – Process Overviews



City Lead Caltrain Lead Internal Caltrain Phase Gates

*White outline indicates whether City or Caltrain is leading that phase

| Project Phases and Tasks | City/Local Jurisdiction | Funding Agency | Caltrain | County |
|---|-------------------------|----------------|----------|--------|
| PHASE 3: 16-35% PRELIMINARY DESIGN | | | | |
| 3.1: Develop Project Management Plan (PMP) | C | C | LEAD RA | I |
| 3.2: Submit Complete Streets Checklist (for VTA 2016 Measure B funds only) | RA | C | C | I |
| 3.3: Update the funding plan | RA | C | R | I |
| 3.4: Advance design to 35% development | C | C | RA | C |
| 3.5: Evaluate alternate Project Delivery Approaches (DBB, CM/GC, PDB) and make findings in a public meeting (JPB Board) | C | C | RA | I |
| 3.6: Formation of a Technical Working Group (TWG) | C | C | RA | C |
| 3.7: Develop Preliminary Public Art Plan | RA | C | C | I |
| 3.8: Attend and present to City Councils as needed | RA | C | RA | I |
| 3.9: Lead ongoing community outreach | RA | C | R | I |
| 3.10: Lead the Environmental Clearances (CEQA, NEPA as required) | C | C | RA | I |
| 3.11: Risk Assessment | C | C | RA | I |
| 3.12: Update Project Cost /Budget | C | C | RA | I |
| 3.13: Amend Cooperative Agreement / MOU for Final Design (if applicable) | RA | RA | RA | I |
| 3.14: Issue RFP or Exercise Option for Final Design | C | C | RA | I |
| 3.15: Review the bid | RA | RA | RA | I |
| 3.16: Select consultant and issue Notice to Proceed (NTP) for Final Design | RA | RA | RA | I |
| 3.17: Environmental Documentation | C | C | RA | I |
| 3.18: Update Funding Plan | RA | C | RA | I |
| 3.19: 35% Phase Gate Management Committee | C | C | RA | I |
| 3.20: Prepare Staff Report and Board Resolution for JPB Board for Funding Agreement to advance the design to 100% | C | C | RA | I |
| 3.21: Evaluate and Execute Alternate Project Delivery Pre-Construction Services Contract, or PDB, if applicable | C | C | RA | I |

Active Transportation Components

- Freight rail access still needs to be accommodated during a closure. This right to access is codified in the Trackage Rights Agreement between Caltrain and UPRR.
- Full track closure windows will only be allowed during non-revenue hours.

Active Transportation

Pedestrian, Bike, and Micro-Mobility Access

Facilities for people walking and biking should be considered for all grade-separated crossings. Critical elements to support these modes include accessible sidewalks, bicycle lanes, multi-use trails, and crosswalks.

For the purposes of this discussion and simplicity, "pedestrians" or "people walking" also includes people using strollers, wheelchairs, or other mobility assistance devices; "cyclists" or "people biking" also includes people using scooters or other active transportation and micro-mobility modes. Active transportation modes are the most vulnerable roadway users, and care should be taken to provide safe, convenient facilities for people walking and biking. **These facilities should be designed in a way to support intuitive, comfortable, and secure use and should be identified and prioritized in the early planning stages of a project.**

Given the scale of grade separation projects, these projects offer a prime opportunity to increase active transportation access for the surrounding community. Improvements to surrounding infrastructure should be prioritized and closely coordinated with local partners.

Access Priorities

Caltrain has clarified access priorities through its Comprehensive Access Program Policy, dated May 2010. In accordance with this policy, access to Caltrain facilities (including grade separations) should be prioritized by the following transportation modes:



Shared and Separated Bike Facilities

Where a crossing serves as the only protected bicycle crossing within 0.5-miles or could serve as a link in the local agency's or region's bike plan, the facility should be designed to allow for through-bike-movements without dismounting.

If there are reasonable alternative routes and the site is extremely constrained, requiring bikers to dismount and walk their bike may be acceptable. However, designing facilities to work with how people want to travel will increase correct usage and safety for all users. Additionally, providing comfortable, convenient, active transportation facilities will help encourage more active transportation travel, contributing towards local, regional, and state greenhouse gas reduction goals.

Accommodation Selection

People driving, biking, and walking typically have different speeds and needs. To minimize potential conflicts and improve the user experience, separate facilities for each user group should be provided when feasible. Where accommodating all transportation modes is appropriate, facility types are noted in order of preference below:

1. Separate vehicle, bike, and pedestrian facilities
2. Separate vehicle facilities and a widened shared use path
 - a. Provide a widened shared use path that allows for bikes to travel through the grade-separated crossing without dismounting
3. Separate vehicle and pedestrian facilities
 - a. Bikes must dismount and walk their bike along a widened sidewalk

Location Selection

When parallel to roadways, pedestrian and bike facilities at grade-separated crossings may be placed on one or both sides of the roadway depending on the adjacent land uses and network configuration. Typically, providing pedestrian and bike facilities on each side of the roadway will increase convenience, safety, and correct usage.

Bike Facility Design

Bike facility type (i.e. Class II, III, IV) should be selected using NACTO's "Choosing an All Ages & Abilities Bicycle Facility," which considers vehicle speeds and volumes to make a facility type recommendation,

Shared Use Path Design

Shared use paths (also referred to as Class I or multi-use paths) along crossings must be designed to meet local, state, and ADA requirements, including maximum grades. Accessible curb ramps with truncated domes must be provided at intersections, as applicable. The path geometry should be designed to allow bikes to safely navigate turns at appropriate speeds. Signs or pavement markings encouraging bikes to yield to pedestrians and travel at appropriate speeds should be provided.

Shared use path width should consider the daily and peak hour number of anticipated pedestrians and cyclists and user comfort. General recommended and minimum clear widths are noted below.

- Minimum: 8-foot path with 2-foot clear shoulders on each side of path
- Preferred: 12-foot plus path with 2-foot clear shoulders on each side of path
- Alternative Minimum: 2-foot shoulder, 8-foot bike path, 6-foot pedestrian path

Alternatives to Bikes Dismount Signs

It is important to consider alternatives to requiring bikers to dismount and walk their bikes at crossings. There is a delicate balance between meeting all user needs and protecting vulnerable roadway users. Signage and pavement markings may be used to encourage slower bicycle speeds and pedestrian priority, allowing people to continue biking slowly through the overhead or underpass crossing. A few examples are included below:

- "Pedestrian Priority Zone, Ride Slowly"
- "Bikes Yield to Peds"
- "Shared Path, Please consider other path users"
- "Bike at Walking Speed"
- "5 MPH"



Additional Pedestrian and Bicycle Facility Elements and Bike Accommodation

While sidewalks, bike lanes, and shared-use paths serve as the foundation of the pedestrian and bicycle experience leading up to and along a crossing, there are additional elements that are essential to creating a safe and inviting active transportation experience. The following elements should be considered in the crossing design, either along or leading up to the crossing, and should be included in the design as contextually appropriate:

- Station access routes
- Access to adjacent properties
- Intersection treatments (curb extensions, leading bike and pedestrian intervals, crossing refuge islands, crossing treatments, crosswalks, conflict markings, bike signals, dedicated/protected intersections, etc.)
- Pedestrian scale lighting
- Landscaping
- Bike racks and bike lockers
- Placemaking features, such as art, shade, and street furniture

These elements should be designed in a way to support comfortable and secure use of the facilities. These elements should be identified and prioritized in the early planning stages of a project so that all crossing users can be accommodated.



Active Transportation Components

- Delivery Guide instructs that facilities for people walking and biking should be designed in a way to support intuitive, comfortable, and secure use and should be identified and prioritized in the early planning stages of the project.
- Delivery Guide provides information on
 - Access priorities
 - Shared and separated bike facilities
 - Accommodation and location selection
 - Bike facility and pedestrian facility design
 - Shared use path design
 - Alternative to bikes dismount signs
 - Additional pedestrian and bicycle facility elements and bike accommodation

Look Ahead



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**NOVEMBER
WORKSHOPS**



November CSCG Workshop Agenda

Topic:

- 👉 Organization and Coordinated Program Approach

Logistics:

- 🕒 In-Person Meeting
 - *During regularly scheduled meeting date (11/15)*
 - *10:00 AM – 12:00 PM*

Location:

- 📍 Mountain View City Council Chambers





November LPMG Workshop Agenda

Topic:

- 👉 Identifying Priority Projects and Funding Strategy

Logistics:

- 🕒 LPMG In-Person Meeting
 - 11/30
 - 4:00 PM – 6:00 PM
 - *Open to the public!*

Location:

- 📍 Mountain View City Council Chambers



Q&A



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