



# AGENDA

## PENINSULA CORRIDOR JOINT POWERS BOARD

### Work Program – Legislative – Planning (WPLP) Committee Meeting

San Mateo County Transit District Administrative Building  
Bacciocco Auditorium, 2<sup>nd</sup> Floor  
1250 San Carlos Avenue, San Carlos CA

Committee Members: Charles Stone (Chair), Cheryl Brinkman, Cindy Chavez

**January 22, 2020 – Wednesday**

**3:00 pm**

1. Call to Order/Pledge of Allegiance
2. Roll Call
3. Public Comment on Items not on the Agenda  
Comments by each individual speaker shall be limited to three (3) minutes. Items raised that require a response will be deferred for staff reply.
4. Approve Meeting Minutes of December 19, 2019 MOTION
5. Update on Decision 3 of the Concept Layout for Further Development as Recommended by the Diridon Integrated Station Concept Plan INFORMATIONAL
6. Recommend Adoption of the Caltrain Rail Corridor Use Policy MOTION
7. Recommend Adoption of Transit-Oriented Development Policy MOTION
8. Caltrain Business Plan - Update Covering December 2019 and January 2020 INFORMATIONAL
9. Committee Member Requests
10. Date/Time of Next Regular WPLP Committee Meeting: February 26, 2020 at 3:00 pm, San Mateo County Transit District Administrative Building, 2<sup>nd</sup> Floor, 1250 San Carlos Avenue, San Carlos, CA
11. Adjourn

## **INFORMATION FOR THE PUBLIC**

All items appearing on the agenda are subject to action by the Board. Staff recommendations are subject to change by the Board.

If you have questions on the agenda, please contact the JPB Secretary at 650.508.6242. Agendas are available on the Caltrain website at [www.caltrain.com](http://www.caltrain.com). Communications to the Board of Directors can be emailed to [board@caltrain.com](mailto:board@caltrain.com).

*Free translation is available; Para traducción llama al 1.800.660.4287; 如需翻译,请电 1.800.660.4287*

### **Location, Date and Time of Regular Meetings**

Regular meetings are held at the San Mateo County Transit District Administrative Building located at 1250 San Carlos Avenue, San Carlos, one block west of the San Carlos Caltrain Station on El Camino Real, accessible by SamTrans bus Routes ECR, 260, 295 and 398. Additional transit information can be obtained by calling 1.800.660.4287 or 511.

The JPB meets regularly on the first Thursday of the month at 9:00 a.m. The JPB Citizens Advisory Committee meets regularly on the third Wednesday of the month at 5:40 p.m. at the same location. Date, time and place may change as necessary.

### **Public Comment**

If you wish to address the Board, please fill out a speaker's card located on the agenda table and hand it to the JPB Secretary. If you have anything that you wish distributed to the Board and included for the official record, please hand it to the JPB Secretary, who will distribute the information to the Board members and staff.

Members of the public may address the Board on non-agendized items under the Public Comment item on the agenda. Public testimony by each individual speaker shall be limited to two minutes and items raised that require a response will be deferred for staff reply.

### **Accessible Public Meetings/Translation**

Written materials in appropriate alternative formats, disability-related modification/accommodation, as well as sign language and foreign language interpreters are available upon request; all requests must be made at least 72 hours in advance of the meeting or hearing. Please direct requests for disability-related modification and/or interpreter services to the Title VI Administrator at San Mateo County Transit District, 1250 San Carlos Avenue, San Carlos, CA 94070-1306; or email [titlevi@samtrans.com](mailto:titlevi@samtrans.com); or request by phone at 650-622-7864 or TTY 650-508-6448.

### **Availability of Public Records**

All public records relating to an open session item on this agenda, which are not exempt from disclosure pursuant to the California Public Records Act, that are distributed to a majority of the legislative body will be available for public inspection at 1250 San Carlos Avenue, San Carlos, CA 94070-1306, at the same time that the public records are distributed or made available to the legislative body.

Peninsula Corridor Joint Powers Board  
Work Program – Legislative – Planning Committee  
1250 San Carlos Avenue, San Carlos CA

MINUTES OF DECEMBER 19, 2019

**MEMBERS PRESENT:** C. Stone (Chair), C. Chavez (via telephone)

**MEMBERS ABSENT:** C. Brinkman

**STAFF PRESENT:** J. Hartnett, J. Cassman, B. Fitzpatrick, C. Fromson, M. Jones, M. Reggiardo, S. Murphy, D. Seamans, R. Narayan

**1. CALL TO ORDER/PLEDGE OF ALLEGIANCE**

Chair Charles Stone called the subcommittee meeting to order at 9:11 a.m., and led the Pledge of Allegiance.

**2. ROLL CALL**

District Secretary Dora Seamans called the roll and confirmed a quorum of the committee. Director Brinkman was absent.

**3. PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA**

None.

**4. APPROVE MEETING MINUTES OF NOVEMBER 26, 2019**

Motion/Second: Chavez/Stone moved approval of the November 26, 2019 minutes.

Ayes: Chavez/Stone

Noes: None

Absent: Brinkman

**5. ADOPTION OF THE 2019 TITLE VI PROGRAM**

Wendy Lau, Caltrain's Title VI Administrator, provided an overview of the 2019 Title VI Program; a mandatory federal anti-discrimination program for agencies receiving federal funding. Ms. Lau reviewed the policies, procedures and activities incorporated into the updated program in which best practices were gleaned from the neighboring transit properties of Valley Transportation Agency, BART and the San Francisco Municipal Transportation Agency.

Director Chavez inquired about the modeling scenarios incorporated into the program, specifically around riders' income that may differ from the neighboring stations, how staff determined customer access as a core component of the guidelines and what the implications were for lack of access for the surrounding communities are and how to incorporate that into the guidelines. Responding, Ms. Lau stated there are many factors considered prior to making any service change and that a comprehensive analysis is performed prior to changing the program.

CEO Hartnett stated that Director Chavez' comments have been noted for the record.

Motion/Second: Chavez/Stone recommended Board approval of the Title IV program.

Ayes: Chavez, Stone

Noes: None

Absent: Brinkman

## **6. DRAFT CALTRAIN RAIL CORRIDOR USE POLICY (RCUP)**

Melissa Jones, Principal Planner, continued her presentation from the previous meeting and focused on the decision-making process that was incorporated into the draft policy for non-railroad uses. She stated requests to use property are primarily for development projects, commercial businesses, accessing facilities, pop-up events, farmers markets and utility-related uses.

Ms. Jones outlined the proposed policy and administrative process: for uses under five years, staff approval would be necessary and only if compatible with current and future railroad needs using established maps and the draft administrative document. For uses over five years: staff and Board approval would be necessary, only if compatible with current and future railroad needs, using the same administrative tools in the policy.

In response to Director Chavez, CEO Hartnett provided an example of a staff-approved five year use and the request to extend for two additional years. He confirmed that Board approval would be required for the extension of the additional two years.

Chair Stone inquired how the Board would know if the use is compatible with the future needs of the railroad, reiterating the need to be cautious with deploying the policy. Ms. Jones confirmed that the policy was intended to preserve the property needed for the present day and into the future. She stated the capital project overlay tool to look into the future would be critical when approving long-term requests and that the policy takes a conservative approach.

Director Chavez discussed opportunities to purchase land for construction-lay down space or other uses in order to allow the agency to monetize its assets. Ms. Jones reiterated that the intent of the use policy was to guide staff and the Board on the property that is currently owned. CEO Hartnett suggested creating a separate policy regarding future purchases to support future endeavors. He discussed other revenue-generating ideas, such as use of fiber and naming right opportunities, to name a few.

Ms. Jones discussed variances from the policy and an appeal process that would be built in. She identified the next steps, including possible Board adoption in January, 2020.

Chair Stone invited public comment.

### Public Comment

Drew, San Mateo, requested to incorporate maps and data in the use policy to reflect set out/maintenance track locations and station parking in San Mateo.

Roland Lebrun, San Jose, stated the regional perspective is missing from the policy and expressed concern over how to achieve future grade separations.

CEO Hartnett responded to Chair Stone regarding the proper forum for discussion of set out/maintenance tracks and stated that discussion would be inconsistent with what the use policy is trying to accomplish.

Motion/Second: Chavez/Stone recommended Board approval of the draft Use Policy, with the caveat that the Committee minutes include detailed comments of committee members.

Ayes: Chavez, Stone

Noes: None

Absent: Brinkman

## **7. DRAFT TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY**

Brian Fitzpatrick, Director, Real Estate & Property Development, provided a lengthy presentation based on the components in the Transit-Oriented Development policy. He noted that many of the draft policy components were based on comments from Board members and public comment. He outlined those components in detail and stated that the Board would be considering the policy at its January 2020 meeting:

- Maximizing development potential;
- Working with cities, private partners and non-profits;
- Not constraining existing density limits in surrounding communities;
- Entering into long-term leases with revenue participation makes sense;
- Retaining control of property over the long term;
- Focusing on “complete communities” (recognizing not every project needs to be mixed use);
- Working with communities to ensure the use(s) on JPB property makes sense within that community and partners can help meet specific community needs;
- Focusing on environmental sustainability/reducing private vehicle travel;
- Considering green development e.g. solar or banning natural gas;
- Encouraging east-west connections to Caltrain station areas;
- Considering shared parking in developments;
- Considering affordable housing;
- Recognizing the importance of affordable housing and understands the trade-offs;
- Considering tradeoffs between providing affordable housing vs. maximizing revenue.

Mr. Fitzpatrick discussed three affordable housing elements, after reviewing and comparing several in-state and out-of-state transit agencies’ TOD policies. He cautioned that any TOD project would fall under the local agencies’ zoning codes and restrictions where the development would be constructed:

- Requiring residential TOD to provide affordable housing onsite. Residential development would be required to offer at least 20 percent of units onsite at below market rents. At least 10 percent of units would be targeted to households with incomes of no more than 80 percent of Area Median Income

(AMI) and at least 10 percent of units would be targeted to households with incomes of no more than 50 percent of AMI;

- Partnering with developers to leverage other sources of affordable housing funds. Where possible, the JPB would encourage the use of outside sources of funding and financing to deliver affordable housing, such as Low Income Housing Tax Credits;
- Exploring creative ways to utilize smaller opportunity sites for affordable housing. The JPB will explore ways to utilize small or irregularly-shaped parcels for affordable housing, particularly sites that offer limited opportunity for commercially viable market rate housing development.

Mr. Fitzpatrick paused and answered questions of committee members regarding the varying dynamics of each TOD, based on a series of factors in the different jurisdictions of potential projects, including size of the project, the site, outside funding, zoning and affordability supplements that are available at the time. He reiterated the tradeoff-factor when developing policies and implementing projects.

CEO Hartnett provided a differing perspective; running an efficient transit system while maximizing the value of Caltrain assets to support the transit system, citing several examples of how that can be accomplished.

Chair Stone invited public comment with a limit of one minute per speaker, due to the hour.

#### Public Comments

April Mo, MidPen Housing, commended the Committee for considering the affordable housing policy in order to make the projects feasible.

Juan Espinoza, San Mateo County Carpenters Union, Local 217, requested to add a policy requiring contractors to qualify for pre-apprenticeship programs.

David Pollack, Housing Leadership Council, requested that Caltrain allow the homeless to park their vehicles overnight in underutilized parking lots.

Kelsey Banes, Peninsula for Everyone, encouraged adoption of an affordable housing element of 20 percent while maximizing the number of units at the Below Market Rate (BMR) level.

Lenora Ross, Housing Leadership Council of San Mateo County, expressed appreciation to the Committee and staff for developing the policy. She discussed a right of first refusal for affordable housing developers so that they can capture subsidy as well.

David Grabbe, Housing Leadership Council, supported the 20 percent minimum affordability level and the ratio of Low, very low and moderate income levels.

Tim Clark, Ladera Community Church, encouraged the 20 percent affordable housing level.

John Pimentel, Housing Leadership Council, supported the concepts in the draft policy with the caveat that staff has flexibility in deploying the policy.

Ronnie, requested that the Board ask themselves what their legacy should be and also commented on used car dealerships along the right of way or providing housing for its transit and low-income customers.

Roland Lebrun, San Jose, agreed with previous speakers' comments regarding affordable housing element in the policy but noted that TOD is appropriate in cities. However, along the right of way he noted it is referred to as Over Site Development (OSD), where a developer could create passing tracks, parking lots, etc.

Josh Becker, Menlo SPARK, urged the committee to set a policy that prioritizes affordable housing and make a lasting impact.

Motion/Second: Chavez/Stone recommended Board adoption of the Transit Oriented Development policy.

Ayes: Chavez/Stone

Noes: None

Absent: Brinkman

**ADJOURN**

The meeting adjourned at 11:08 a.m.

**PENINSULA CORRIDOR JOINT POWERS BOARD  
STAFF REPORT**

TO: Work Program - Legislative - Planning Committee

THROUGH: Jim Hartnett  
Executive Director

FROM: Michelle Bouchard  
Chief Operating Officer, Rail

SUBJECT: **UPDATE ON DECISION 3 OF THE CONCEPT LAYOUT FOR FURTHER  
DEVELOPMENT AS RECOMMENDED BY THE DIRIDON INTEGRATED STATION  
CONCEPT PLAN**

**ACTION**

Staff Coordinating Council proposes that the Committee recommend the Board receive the attached presentation regarding Decision 3 (utilizing existing track approaches into Diridon Station rather than a viaduct along Interstate 280/State Route 87) of the Concept Layout as recommended by the Diridon Integrated Station Concept Plan (Plan).

**SIGNIFICANCE**

Since September 2018 Caltrain staff have been engaged in co-creating the Plan, which has developed a vision for the future of San Jose Diridon Station in partnership with the Santa Clara Valley Transportation Authority (VTA), the California High Speed Rail Authority (CAHSR) and the City of San Jose (City) (together, the "Partners").

The Plan was developed with the assistance Arcadis/Bentham Crouwel (ABC), a consultant team solicited and managed by the Partners. ABC was tasked with developing three spatial layouts for a future Diridon Station. Spatial layouts were made up of "big moves" including the vertical configuration of the tracks, the location of the station platforms and concourse in addition to the rail alignment to the north and south of the station.

The three spatial layouts and big moves were as follows:

- **San Fernando Street** – At-grade station on San Fernando Street, which is most similar to today's station layout. It utilizes the existing northern and southern track alignment.
- **Santa Clara Street** – Elevated station on Santa Clara Street, which locates the station closer to BART, introduces an optimized northern track alignment and presents the opportunity to relocate the Caltrain Central Equipment and Maintenance Facility (CEMOF). This layout also provides an option to operate



some rail service over a new southern rail alignment on a viaduct over Interstate 280/State Route 87.

- **Stover Street** – Elevated station on Stover Street (between San Fernando Street and Santa Clara Street), which locates the station closer to BART, introduces an optimized northern track alignment and presents the opportunity to relocate CEMOF.

Aside from big moves, the spatial layouts were also made up from a “kit of parts” as they include a variety of station facilities and elements that facilitate access to and from the station and integration with the surrounding community and private development. Such elements include pedestrian, bike, local bus, intercity bus, light rail, taxi/transit network company, private vehicle and parking access.

ABC and the Partners took a “transit first” or “design from the tracks out” approach where rail infrastructure needs were established first to ensure sufficient space was set aside to accommodate future rail service as rail infrastructure is a less flexible, long-lasting and significant investment. ABC coordinated with the Business Plan team to ensure the spatial layouts were reflective of the adopted service vision.

Over the summer, ABC and the Partners weighed tradeoffs and benefits of the three spatial layouts and developed a fourth optimized layout with a combination of favored elements. The optimized layout is responsive to community feedback and attempts to preserve as much adjacent property as possible for development:

- **Elevated Dual Concourse** – Elevated station with platforms south of San Carlos Street and concourses located at Santa Clara Street (to connect with BART) and San Fernando Street. The layout utilizes the existing rail alignment to the north and could utilize either the existing alignment or Interstate 280/State Route 87 alignment to the south. The relocation of CEMOF would be necessary.

After the completion of additional technical work and outreach in the fall, the Partners recommended discontinuing the examination of the Interstate 280/State Route 87 alignment option. It was determined that the viaduct would spread impacts to additional communities while only partially reducing rail traffic on the existing southern corridor. The Partners believe that community concerns relating to safety, noise, vibration, and visual impacts, among others, would be better addressed through tangible improvements to the existing southern corridor.

Thus, the Partners recommended further studying the optimized layout with the use of the existing southern corridor, and officially dubbed this layout the recommended Concept Layout.

In December 2019, Caltrain and City staff looked to their respective Board and Council and received concurrence on the following big moves of the Concept Layout:

- **Decision #1:** Elevated Station Platforms
- **Decision #2:** Station Entrances at Santa Clara Street and San Fernando Street

The decision regarding the following big move was postponed until a San Jose City Council study session could be held on the topic on January 28, 2020 to further discuss the related analysis and findings:

- **Decision #3:** Existing Track Approaches into the Future Station

The decision to utilize the existing track approaches rather than pursue a viaduct along the Interstate 280/State Route 87 alignment returns to the JPB pending San Jose City Council's study session and potential support of Decision 3.

If Decision 3 is approved, the next step to advance the Concept Layout is to continue planning, analysis of rail operations, and conceptual design work on the rail corridor and station facilities. Over the next year, a critical planning focus will be on studying the best options to organize the Partner Agencies and technical expert teams, building a viable financial plan, developing environmental strategies, and designing an implementation path to build and govern the future station. The design and implementation strategy work will be conducted in close coordination with interdependent project efforts happening around the station area.

The Partner Agencies continue to be committed to the partnership set forth by the Cooperative Agreement. The Partners have agreed to jointly contribute and pursue funding for the next phase of study.

#### **BUDGET IMPACT**

There is no impact on the budget.

#### **BACKGROUND**

San Jose Diridon Station is a major transit hub located within downtown San Jose, the nation's 10th largest city. It is a historic train depot with not only Caltrain service, but also train service provided by Amtrak, Capitol Corridor Joint Powers Authority (CCJPA), and Altamont Commuter Express (ACE), as well as VTA light rail and bus service. The JPB owns the historic station depot, the Caltrain parking lots, the bus loop area, and the tracks and platforms. As the landowner, the JPB has a vested stake in the planning process not just for potential shaping of the Station itself, but also as it relates to development in the surrounding area.

With the planned addition of Bay Area Rapid Transit (BART) and California High Speed Rail service at the Station, as well as expanded Caltrain, ACE, Capitol Corridor and Amtrak service, the Station is expected to become one of the busiest intermodal stations in North America. To effectively accommodate such planned activity and future capacity needs, the Station must be reconfigured in an integrated fashion that connects all transit services with each other and with the surrounding urban environment.

Private development of the surrounding area in conjunction with the City of San Jose is accelerating, providing opportunities to fully integrate development with the Station itself. In recent months, Google has publically revealed concepts for development near the Station.

By the Partners working together to prepare the Plan, they hope to maximize funding to implement the Plan and deliver a world-class destination and transportation hub that provides seamless customer experience for movement between transit modes within the Station and into the surrounding neighborhoods and Downtown.

Prepared by: Melissa Reggiardo, Manager, Caltrain Planning

650.508.6283

**PENINSULA CORRIDOR JOINT POWERS BOARD  
STAFF REPORT**

TO: Work Program – Legislative – Planning Committee

THROUGH: Jim Hartnett  
Executive Director

FROM: Michelle Bouchard  
Chief Operating Officer, Rail

SUBJECT: **ADOPTION OF THE CALTRAIN RAIL CORRIDOR USE POLICY**

**ACTION**

The Staff Coordinating Council (SCC) proposes that the Committee recommend that the Board adopt the Caltrain Rail Corridor Use Policy, with minor revisions reflecting input received at the January 9, 2020 Board of Directors (Board) meeting.

**SIGNIFICANCE**

Peninsula Corridor Joint Powers Board (JPB) staff proposes adoption of the Caltrain Rail Corridor Use Policy (RCUP), which has been revised to add or change language on grade separations and air space, based on input provided by the Board following a lengthy presentation and discussion at the January Board meeting.

The RCUP is one of four interrelated planning and policy efforts that will collectively inform and guide the future use of JPB property. The other three projects include the Caltrain Business Plan, the Caltrain Station Management Toolbox (Toolbox), and the Caltrain Transit-Oriented Development (TOD) Policy.

**BUDGET IMPACT**

There is no impact on the budget.

**BACKGROUND**

Over the last six months, Caltrain staff has made extensive progress to develop the RCUP, a policy framework to guide the use of JPB Property and support delivery of Caltrain’s Long-Term Service Vision, which was adopted unanimously by the Caltrain Board on October 3, 2019. Included as an attachment to this staff report, the full draft RCUP consists of two main components: a set of maps of JPB property along the Caltrain corridor, and an administrative document to accompany the maps, which provides a decision-making framework regarding proposed non-railroad uses of JPB property.

Over the last few months, staff has been working closely with the Work Program – Legislative – Planning (WPLP) Committee to provide updates and seek feedback on the

RCUP's development, which has been closely aligned with the Caltrain Business Plan. The updates to the WPLP are summarized below:

- At its September 2019 meeting, the WPLP received a presentation with an update on the RCUP. It reintroduced the purpose of the RCUP and its connection to the Business Plan, introduced key terms for the RCUP, presented an illustrative RCUP map, and concluded with next steps.
- At its November 2019 meeting, the WPLP received a second presentation with an RCUP update. This presentation provided background and context on the RCUP project, explained the process for completing the technical analysis for the RCUP maps, and shared the draft RCUP maps and key findings.
- At its December 2019 meeting, the WPLP received a third presentation to provide an overview of the draft administrative framework that accompanies the maps. Staff also shared a copy of the full draft RCUP. The WPLP passed a motion to recommend Board adoption of the RCUP at the January 2020 JPB meeting.

In addition, staff provided an extensive update to the full Board on January 9, 2020 to share key draft findings for the RCUP project and the full draft RCUP policy framework. This update included background and context on the RCUP project, as well as an explanation for the process to develop the RCUP maps. Staff shared key draft findings from those maps, including a preliminary assessment of potential opportunity sites for development projects on JPB property. The update also introduced the high-level decision-making framework that accompanies the maps as the administrative component of the RCUP project. Following the presentation, Board members requested language be added to the RCUP to address opportunities for use of "air space," such as over stations and grade separations, perhaps as part of joint development projects.

After the RCUP is adopted by the Board, staff will complete additional administrative tasks to prepare the public-facing materials that will be used to implement the RCUP, including application forms and website updates. Staff has heard the specific concerns from some Board members that there should be Board review when short term leases are extended such that the cumulative lease term exceeds 5 years. This issue deserves meaningful attention and discussion in the context of the JPB's Policy Regarding Processing of Requests for Conveyance of Property Interests Involving Property Owned by the JPB (adopted pursuant to Resolution 2010-45). That policy, in part, delegates authority to the Executive Director to execute property right conveyances of shorter than five years, provided certain other conditions are met, including that all short term leases contain a claw back provision allowing the JPB to terminate the lease if the JPB requires the property for transportation purposes.

However, with the adoption of the RCUP, the next step is for staff to refine and update the JPB's Policy Regarding Processing of Requests for Conveyance of Property Interests

Involving Property Owned by the JPB. Accordingly, consistent with interests expressed by the Board, staff will work with the WPLP in the coming months to develop proposed comprehensive updates to the Property Conveyance Policy that reflect the intent and direction expressed in RCUP and specifically address appropriate safe guards and review for the issuance and renewal of short term leases.

The RCUP is a policy framework to assist the JPB in deciding upon future uses of its property and does not have a binding legal effect on the agency. It is therefore not considered a "project" under the terms of the California Environmental Quality Act (CEQA). Any actual change in use would be subject to review under CEQA, as appropriate.

More background information is available in the staff report from the January 9, 2019 meeting.

Prepared by: Melissa Jones, Principal Planner, Caltrain Planning

650.295.6852

RESOLUTION NO. 2020 –

BOARD OF DIRECTORS, PENINSULA CORRIDOR JOINT POWERS BOARD  
STATE OF CALIFORNIA

\* \* \*

ADOPTING THE CALTRAIN RAIL CORRIDOR USE POLICY

**WHEREAS**, the Peninsula Corridor Joint Powers Board (JPB) administers the Caltrain system and is owner of various properties along the Caltrain rail corridor; and

**WHEREAS**, the JPB frequently receives proposals for “non-railroad uses” of its property, such as for utilities, commercial businesses, development proposals, or government agency uses; and

**WHEREAS**, in accordance with its Policy Regarding Processing of Requests for Conveyance of Property Interests (initially adopted pursuant to Resolution 2010-45 and proposed for amendment at this February 6 meeting), the JPB has established an extensive review and approval process for proposed non-railroad uses of property, which considers design, engineering, and regulatory review, and which may conclude with issuance of Property Access Agreements for the proposed property uses; and

**WHEREAS**, the first step in the JPB’s review process for Property Access Agreements is to determine if a proposed use is compatible with the railroad’s current and future needs; and

**WHEREAS**, to prepare for the further modernization and expansion of the Caltrain rail service post-electrification, the JPB, working closely with stakeholders in both the public and private sectors, launched a significant undertaking in 2017 to develop a Caltrain Business Plan to articulate a long-term vision and business strategy for the system to the year 2040; and

**WHEREAS**, Caltrain Business Plan analysis indicates that Caltrain rail service could carry three or more times the current ridership with greatly expanded frequency and capacity and improved travel times; and

**WHEREAS**, on October 3, 2019, the JPB Board of Directors unanimously adopted the Caltrain 2040 Long-Range Service Vision (Resolution 2019-38) that envisions substantially expanded rail service by 2040, which is anticipated to require significant investments in conceptual capital infrastructure on the rail corridor in order to support the desired growth in train operations; and

**WHEREAS**, it is anticipated that significant portions of the JPB's property holdings on the rail corridor will be needed to support achievement of the Caltrain 2040 Long-Term Service Vision with growth in train operations and conceptual infrastructure investments; and

**WHEREAS**, staff has developed the Caltrain Rail Corridor Use Policy to provide a Board-adopted policy framework to use in the first step in the Property Access Agreement review process for proposed non-railroad uses of JPB property, specifically to guide decision-making regarding the compatibility of proposed non-railroad uses with the railroad's current and future needs; and

**WHEREAS**, the Caltrain Rail Corridor Use Policy is a policy framework to assist the JPB in deciding upon future uses of its property and does not have a binding legal effect on the agency and is therefore not considered a "project" under the terms of the California Environmental Quality Act; and

**WHEREAS**, Staff Coordinating Council recommends, and the Executive Director concurs, that the Board adopt the attached Caltrain Rail Corridor Use Policy.



**NOW, THEREFORE, BE IT RESOLVED** that the Board of Directors of the Peninsula Corridor Joint Powers Board hereby adopts the Caltrain Rail Corridor Use Policy, attached hereto as Exhibit A; and

**BE IT FURTHER RESOLVED THAT** that the Board of Directors hereby directs staff to review, and propose updates to, the Policy Regarding Processing of Requests for Conveyance of Property Interests Involving Property Owned by the JPB (adopted pursuant to Resolution 2010-45) to be consistent with and further the purposes of the Caltrain Rail Corridor Use Policy; and

**BE IT FURTHER RESOLVED** that the Board of Directors hereby authorizes the Executive Director, or his designee, to take any other necessary actions to implement the Caltrain Rail Corridor Use Policy.

Regularly passed and adopted this 6<sup>th</sup> day of February, 2020 by the following vote:

AYES:

NOES:

ABSENT:

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Chair, Peninsula Corridor Joint Powers  
Board

ATTEST:

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JPB Secretary

**PENINSULA CORRIDOR JOINT POWERS BOARD  
STAFF REPORT**

TO: Work Program - Legislative - Planning Committee

THROUGH: Jim Hartnett  
Executive Director

FROM: April Chan, Chief Officer, Planning/Grants/TA

SUBJECT: Caltrain Transit-Oriented Development Policy

**ACTION**

The Staff Coordinating Council (SCC) proposes that the Committee recommend that the Board adopt the attached Caltrain Transit-Oriented Development (TOD) Policy for approval at its February 6, 2020 meeting.

**SIGNIFICANCE**

The TOD Policy is one of four interrelated planning and policy efforts that will collectively inform and guide the future use of Peninsula Corridor Joint Powers Board (JPB) property. The other three planning and policy efforts include the Caltrain Business Plan, the Caltrain Station Management Toolbox (Toolbox), and the Caltrain Rail Corridor Use Policy (RCUP).

**BUDGET IMPACT**

There is no impact on the budget.

**BACKGROUND**

Over the past year, staff has made extensive progress in developing the TOD Policy, which sets forth a set of objectives and strategies the JPB could apply to its opportunity sites for joint development.

Staff has previously presented components of the TOD Policy for input and discussion to the full Board of Directors (Board) and the Work Program – Legislative – Planning (WPLP) Committee. At these meetings, staff obtained valuable Board direction and feedback on the goals and objectives associated with the TOD Policy. These meetings are summarized below:

- At the March 2019 Board Meeting, staff made a presentation that included the following items:
  - Background and context on current uses of JPB property
  - Update on four interrelated planning and policy efforts to guide future use of JPB property

- High-level Board discussion of potential goals and objectives for the TOD Policy
- Staff solicitation of feedback from the Board on the purpose and goal of the TOD Policy
- At its September 2019 WPLP Committee meeting, staff reintroduced the purpose and goals of TOD Policy, which staff had drafted to reflect comments made by the Board in the March meeting. Staff discussed the connection of the TOD Policy to the Business Plan, summarized previous Board comments and provided a series of policy objectives for input by the Committee.
- At the November 2019 WPLP Committee meeting, staff provided an update on the TOD Policy, discussed potentially developable sites identified as part of the RCUP process and explained three general categories of sites.
- At the December 2019 WPLP Committee meeting, staff presented the draft TOD Policy and presented information about the cost of providing affordable housing above and beyond what is required by local requirements.

At the January 2020 WPLP Committee meeting, staff will present the draft final TOD Policy. Staff will also discuss affordable housing, the cost impacts of developing replacement transit parking and the cost of addressing hazardous material in a TOD development site.

A final update on the TOD Policy is planned for the full Board in February 2020, at which time staff plans to seek adoption of the Caltrain TOD Policy.

The draft TOD Policy is based on feedback obtained in the above-referenced meetings and includes the following goals and objectives:

- It is important to maximize development potential.
  - Work with cities, private partners, non-profits.
  - Do not be constrained by the existing density limits in the surrounding community
- Entering into long-term leases with revenue participation makes sense.
  - It is important to retain control of property over the long term.
- Focus on complete communities, but recognize that not every project needs to be mixed use.
  - Work with communities to ensure the use(s) on each JPB property makes sense within that community.
  - Community partners can help meet specific community needs
- Focus on environmental sustainability and reducing private vehicle travel.
  - Consider green development standards such as a solar requirement or banning natural gas.
  - Encourage east-west connections to Caltrain station areas.
  - Consider shared parking in developments.

- Consider affordable housing.
  - Recognize the importance of affordable housing and understand there are trade-offs.
  - Reliable revenue sources are good, but the JPB should consider tradeoffs between providing affordable housing vs. maximizing revenue.

The final draft TOD Policy now includes the following recommendations for development of affordable housing as part of TOD projects:

1. Require residential TOD to provide affordable housing onsite: Residential development will be required to offer at least 20 percent of units onsite at below-market rents. At least 10 percent of units will be targeted to households with incomes of no more than 80 percent of Area Median Income (AMI) and at least 10 percent of units will be targeted to households with incomes of no more than 50 percent of AMI.
2. Partner with developers to leverage other sources of affordable housing funds: Where possible, the JPB will encourage the use of outside sources of funding and financing to deliver affordable housing, such as Low Income Housing Tax Credits.
3. Explore creative ways to utilize smaller opportunity sites for affordable housing: The JPB will explore ways to utilize small or irregularly-shaped parcels for affordable housing, particularly sites that offer limited opportunity for commercially-viable market-rate housing development.

Prepared by: Brian W. Fitzpatrick

650.508.7781

RESOLUTION NO. 2020 –

BOARD OF DIRECTORS, PENINSULA CORRIDOR JOINT POWERS BOARD  
STATE OF CALIFORNIA

\* \* \*

ADOPTING THE CALTRAIN TRANSIT-ORIENTED DEVELOPMENT POLICY

**WHEREAS**, the Peninsula Corridor Joint Powers Board (JPB) administers the Caltrain system and is owner of various properties along the Caltrain rail corridor; and

**WHEREAS**, the JPB, working closely with stakeholders in both the public and private sectors, launched a significant undertaking in 2017 to develop a JPB Transit-Oriented Development (TOD) Policy, with the aim of creating a Board-adopted policy that expresses the JPB's goals and strategic objectives for joint development and commercial business on its property; and

**WHEREAS**, the JPB adopted a long-range service vision, as part of the Caltrain Business Plan, on October 3, 2019, with articulates a long-term vision and business strategy for the system to the year 2040; and

**WHEREAS**, it is anticipated that significant portions of the JPB's property holdings on the rail corridor will be needed to support achievement of the Caltrain 2040 Long-Term Service Vision with growth in train operations and infrastructure investments; and

**WHEREAS**, staff has developed the Caltrain Rail Corridor Use Policy to provide a policy framework to guide decision-making regarding the compatibility of proposed non-railroad uses with the railroad's current and future needs; and

**WHEREAS**, built on the Business Plan and Rail Corridor Use Policy, the TOD Policy aims to address four important issues related to TOD projects: revenue objectives and

business terms, affordable housing requirements, land use targets, and a process for creating appropriate balance of access to stations; and

**WHEREAS**, the TOD Policy does not have a binding legal effect on the JPB and is therefore not considered a "project" under the terms of the California Environmental Quality Act; and

**WHEREAS**, Staff Coordinating Council recommends, and the Executive Director concurs, that the Board adopt the attached TOD Policy.

**NOW, THEREFORE, BE IT RESOLVED** that the Board of Directors of the Peninsula Corridor Joint Powers Board hereby adopts the Caltrain TOD Policy, attached hereto as Exhibit A; and

**BE IT FURTHER RESOLVED** that the Board of Directors authorizes the Executive Director, or his designee, to take any actions necessary to implement the TOD Policy.

Regularly passed and adopted this 6<sup>th</sup> day of February, 2020 by the following vote:

AYES:

NOES:

ABSENT:

---

Chair, Peninsula Corridor Joint Powers Board

ATTEST:

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JPB Secretary



***TOD Policy Update:  
Goals and Objectives***  
Board Planning Subcommittee  
January 22, 2020

## **PURPOSE OF PRESENTATION**

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- This is a continuation of the presentation from the January 2019 WPLP meeting
- Quickly review highlights of January presentation
- Further discuss an example of a typical TOD to illustrate the economics of requiring affordable housing, replacement parking for Caltrain patrons and potential soil remediation
- Present the staff recommendation for the affordable housing component of the TOD Policy
- Present TOD Policy and ask WPLP to recommend Board Adoption in February 2020

## HIGHLIGHTS OF JANUARY PRESENTATION (1 of 2)

---

- TOD Policy is a Board-adopted policy that expresses the Agency's goals and strategic objectives for joint development on its property
- Will apply to properties that are:
  - Owned by the Agency in fee simple
  - Available for development independent from a capital project  
(as identified by RCUP)



3

## HIGHLIGHTS OF JANUARY PRESENTATION (2 of 2)

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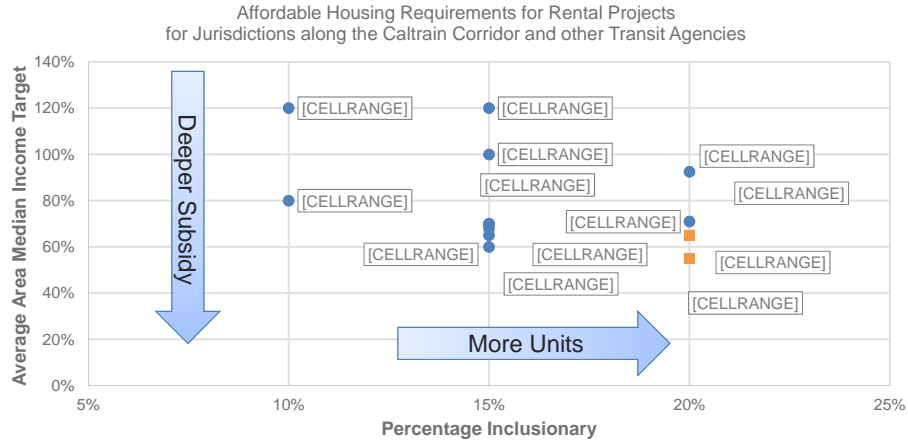
- **We reviewed WPLP comments from previous meetings:**
- Important to maximize development potential
  - Work with Cities, private partners, non-profits
- Long term lease with revenue participation makes sense
  - It's good to retain control of property over the long term
- Complete communities
  - Avoid hard and fast rules about mixed use, e.g. ground floor retail may not be needed as a part of every project
  - Work with communities to ensure the use on the JPB property makes sense within that community
  - Complete communities can reduce the need for private auto ownership



4



## REVIEW OF AFFORDABLE HOUSING POLICIES



\* BART prioritizes Very Low and Low Income households but does not specify the share going to each income category. The 65% AMI target assumes a 50/50 split between units affordable to Low and Very Low Income households.

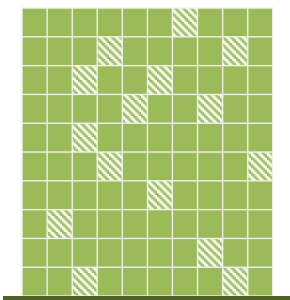


## ECONOMIC IMPACT OF AFFORDABLE HOUSING REQUIREMENTS

### ILLUSTRATIVE

#### Residential TOD:

- 85 Market Rate Units
- 15 BMR Units



- Based on ongoing analysis of the economics of multifamily housing along the Caltrain corridor, Strategic Economics developed an example to illustrate the economic trade-offs of an affordable housing policy
- Consider a joint development project proposal for 100 dwelling units
- Assume a **baseline level of affordability of 15% Below Market Rate units on-site**, affordable to Low Income and Very Low Income households (50/50 split)
- Assuming this baseline, joint development revenues to the Agency might be **\$10 million** (in net present value)
- This example assumes **no outside funding sources** for affordable housing and **no replacement transit parking**



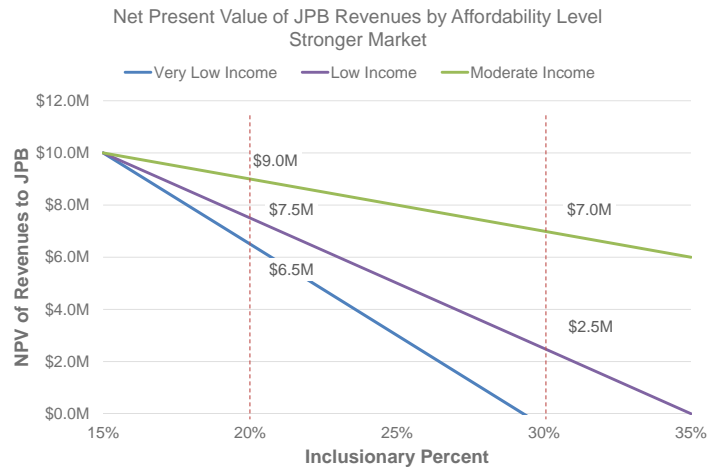
## ECONOMIC IMPACT OF AFFORDABLE HOUSING REQUIREMENTS

ILLUSTRATIVE

To attain a higher level of affordability without outside funding, the Agency may need to accept less ground rent to make up the difference in the reduced income from the development.

In this example, increasing number of BMR units beyond the baseline costs the Agency approximately:

- \$200,000 per additional Moderate Income unit (80-120% AMI)
- \$500,000 per additional Low Income unit (50-80% AMI)
- \$700,000 per additional Very Low Income unit (30-50% of AMI)



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## POTENTIAL FOR OUTSIDE FINANCIAL ASSISTANCE FOR AFFORDABLE HOUSING

- The size of the “funding gap” changes over time:
  - Currently, high development costs are impacting the feasibility of both market rate and affordable projects
- Extent to which additional outside funding will be available to support development of affordable housing will vary according to project specifics, location, timing and other factors
- Current local sources include Santa Clara County Measure A and San Mateo Measure K
- In some cases, JPB may be able to work with developers to position a project to make it more competitive for funding
  - E.g., Affordable Housing Sustainable Communities (AHSC) program is designed to encourage affordable housing developers and public agencies to work together, and can help to fund both affordable housing and transit improvements



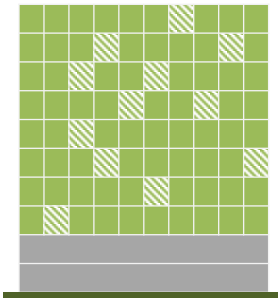
8

## OTHER POTENTIAL COSTS: REPLACEMENT PARKING

### ILLUSTRATIVE

#### Residential TOD:

- 68 Market Rate Units
- 12 BMR Units
- Caltrain Parking



Including replacement parking for Caltrain patrons has 2 impacts on the development value for JPB:

- JPB must reimburse the developer for **development costs of the parking, typically \$65,000 per parking space**
- Providing this **reduces the total area** that can be devoted to income-generating uses

In this illustrative example, including 60 spaces of replacement parking to serve Caltrain Agency revenues from **\$10 million to \$4.1 million**

(Note the development will have its own parking spaces serving the residential units in addition to the parking for Caltrain patrons)



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## OTHER POTENTIAL COST: SOIL REMEDIATION

Often former railroad sites are impacted by soils that need to be remediated, which has 2 potential impacts on the development of JPB sites:

- Constitute materials in the soils may impact potential uses of the site
  - Sometimes high levels of certain materials may limit uses that can occur on sites
  - Cost of remediation might make certain uses infeasible
- JPB may be responsible for paying the cost to remediate soils on its property
  - Costs are reduced if remediation occurs in conjunction with development
  - In the Hayward Park deal JPB is responsible for 90% of incremental costs to remediate hazmat with a cap of \$2 Million
    - Funds “come off the top” of lease revenue



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## ECONOMIC IMPACT OF AFFORDABLE HOUSING REQUIREMENT RECOMMENDED BY STAFF

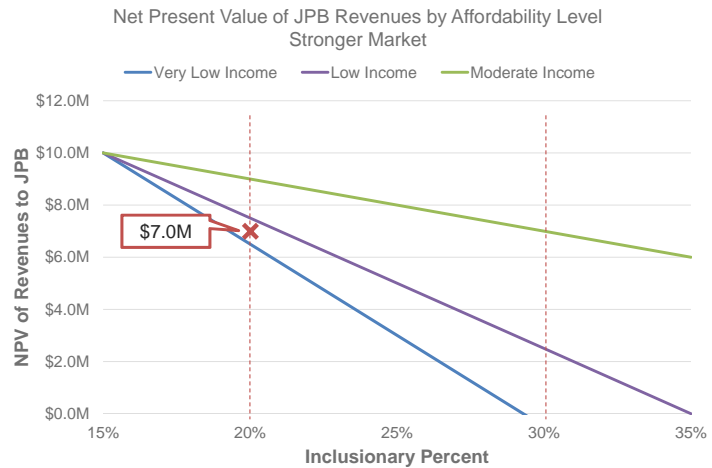
ILLUSTRATIVE

In this illustrative example, if the policy of JPB is to:

- Increase the affordable housing requirement from 15% to 20%, and
- Retain the even split between units affordable to Low and Very Low Income households

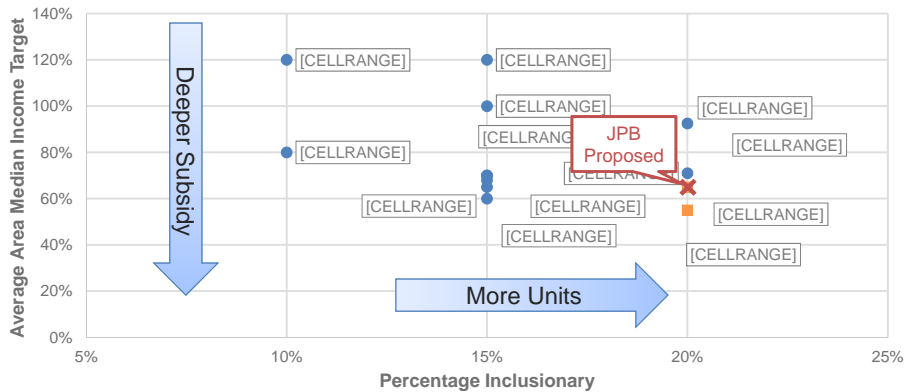
Then:

- The value of development to JPB is reduced from **\$10 million** to **\$7.0 million**



## REVIEW OF AFFORDABLE HOUSING POLICIES

Affordable Housing Requirements for Rental Projects for Jurisdictions along the Caltrain Corridor and other Transit Agencies



\* BART prioritizes Very Low and Low Income households but does not specify the share going to each income category. The 65% AMI target assumes a 50/50 split between units affordable to Low and Very Low Income households.



## AFFORDABLE REQUIREMENT ALLOWS FOR FLEXIBILITY

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- Example approaches:
  - JPB partners with a private developer who meets the requirement with a mixed income project (previous example)
  - JPB partners with an affordable housing developer that can leverage funding sources to deliver a 100% affordable project
  - JPB partners with both a conventional developer and an affordable developer for a combined TOD that meets or exceeds the requirement
- At Board discretion, JPB may accept reduced revenues in exchange for additional affordable units



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## STAFF RECOMMENDATION FOR AFFORDABLE HOUSING

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1. Require residential TOD to provide affordable housing onsite
  - Require a minimum of 20% of units affordable at each station area:
    - At least 10% of units targeted to Very Low Income households (no more than 50% of AMI)
    - The remainder of units targeted to Low Income households (no more than 80% of AMI)
  - No portfolio-wide goal because there are so few sites
2. Partner with developers to leverage other sources of affordable housing funds
3. Explore creative ways to utilize smaller and less conventional opportunity sites for affordable housing



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## RECOMMEND TOD POLICY FOR ADOPTION

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- Staff has appeared before the Board once and WPLP four times (before today) to discuss goals and objectives for TOD Policy
  - The policy includes feedback from these sessions and adds in recommendations as to affordably goals and objectives
  
- Staff recommends that WPLP recommend the TOD Policy for adoption by the Board of Directors at it's February 6, 2020 Meeting

## NEXT STEPS

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- Board asked to adopt TOD Policy
- Staff drafts Joint Development Guidelines
  - Includes more detailed inventory of potential development sites based on results of RCUP
  - Evaluates and refines potential strategies based on inventory

**Questions?**



**PENINSULA CORRIDOR JOINT POWERS BOARD  
STAFF REPORT**

TO: Work Program – Legislative – Planning Committee

THROUGH: Jim Hartnett  
Executive Director

FROM: Michelle Bouchard  
Chief Operating Officer, Caltrain

SUBJECT: **CALTRAIN BUSINESS PLAN – UPDATE COVERING DECEMBER 2019 & JANUARY 2020**

**ACTION**

Staff Coordinating Council proposes that the Committee recommend the Board of Directors (Board) receive a presentation providing an update on Caltrain Business Plan activities and progress during December of 2019 and January of 2020.

**SIGNIFICANCE**

Peninsula Corridor Joint Powers Board (JPB) staff has prepared the attached presentation describing analysis and project activities related to the Caltrain Business Plan that have been ongoing in December of 2019 and January of 2020.

Staff will provide the JPB with written updates or presentation materials on a monthly basis throughout the duration of the Business Plan project. These written updates will periodically be supplemented by a full presentation to the Board.

**BUDGET IMPACT**

There is no budget impact associated with receiving this memo.

**BACKGROUND**

In 2017, the JPB secured full funding for the Peninsula Corridor Electrification Project and issued notices to proceed to its contractors for corridor electrification and purchase of Electric Multiple Unit railcars. Now that construction on this long-awaited project is underway, the agency has the opportunity to articulate a long-term business strategy for the future of the system.

The initial concept for a Caltrain “Business Plan” was brought to the Board in April of 2017. The Board reviewed a draft scope of work for the Business Plan in December of 2017 and adopted a final Business Strategy and Scope of Work in February of 2018. Technical work on the Plan commenced in the summer of 2018. The Business Plan has been scoped to include long-range demand modeling, and service and infrastructure planning, as well as organizational analysis and an assessment of Caltrain’s interface



with the communities it traverses. In October of 2019, the JPB marked a major milestone in the Business Plan process with its adoption of a "2040 Service Vision" for the Caltrain system. This action sets long range policy guidance for the future of the Caltrain service and allows staff to move forward with completion of the overall plan by early 2020

Prepared by: Sebastian Petty, Director of Policy Development

650.622.7831



# Agenda for Today

## Process Overview

### Making it Happen: Options for Caltrain Service Over the Next Decade

CalMod: Improved Service in the 2020s

Going beyond CalMod

Ridership Forecasts (2020-2030)

### Work in Progress & Next Steps



# Process Overview

3

## What is the Caltrain Business Plan?

**What** Addresses the future potential of the railroad over the next 20-30 years. It will assess the benefits, impacts, and costs of different service visions, building the case for investment and a plan for implementation.

**Why** Allows the community and stakeholders to engage in developing a more certain, achievable, financially feasible future for the railroad based on local, regional, and statewide needs.



# What Will the Business Plan Cover?

## Technical Tracks



### Service

- Number of trains
- Frequency of service
- Number of people riding the trains
- Infrastructure needs to support different service levels



### Business Case

- Value from investments (past, present, and future)
- Infrastructure and operating costs
- Potential sources of revenue



### Community Interface

- Benefits and impacts to surrounding communities
- Corridor management strategies and consensus building
- Equity considerations



### Organization

- Organizational structure of Caltrain including governance and delivery approaches
- Funding mechanisms to support future service



# Timeline

July 2018 – July 2019

Development and Evaluation of Growth Scenarios

October 2019

Adoption of Long-Range Service Vision

Fall 2019

Rounding Out the Vision and Implementation Planning

Winter 2019-2020

Spring 2020

Completion of Business Plan



## Remaining Technical Analysis Making it Happen

With a 2040 Service Vision adopted, what will the next 10 years look like for Caltrain? What are the key actions and steps we need to focus on next?

Additional technical and policy analysis is underway to focus on what Caltrain can achieve over the next decade and the key near term steps and work that will be needed to make it happen



**Building towards the Vision with service concepts for initial electrification and options for growth and investment through 2020s**



**Accompanying financial projections and funding plan**



**Identification of a program of key planning, policy and organizational next steps**



## Remaining Technical Analysis Rounding Out the Vision

With a 2040 Service Vision adopted, how can Caltrain “Round Out” its vision for the future?

Additional technical and policy analysis are underway with a focus on areas that were highlighted as important through stakeholder outreach and help complete the picture of the railroad Caltrain hopes to become



**Analysis of connections to other systems & station access options**



**Equity analysis & focus on making Caltrain accessible to all**



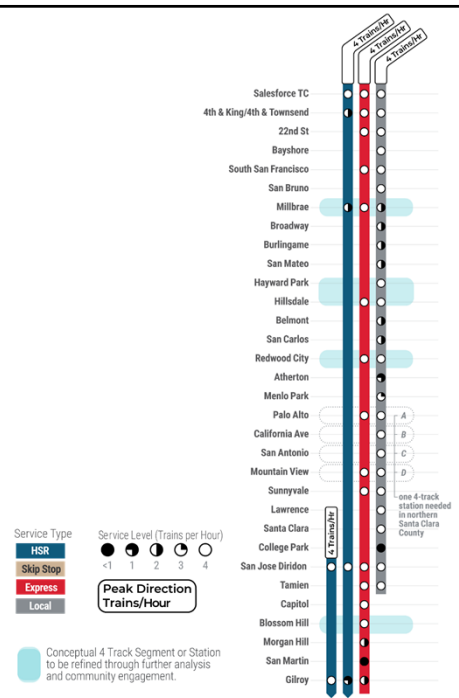
**Review of funding options and revenue generation opportunities to support the Vision**



# Making it Happen

## Caltrain's 2040 Service Vision Illustrative Service Details

<b>Trains per Hour, per Direction</b>	Peak: 8 Caltrain + 4 HSR Off-Peak: Up to 6 Caltrain + 3 HSR
<b>Stopping Pattern</b>	Local / Express with timed transfer in Mid Peninsula
<b>Travel Time, STC-Diridon</b>	61 Min (Express) 85 Min (Local)
<b>New Passing Tracks</b>	Millbrae, Hayward Park-Hillsdale, Redwood City area, Northern Santa Clara County, Blossom Hill
<b>Service Plan Description</b>	<ul style="list-style-type: none"> <li>Local and Express trains each operating at 15-minute frequencies with timed cross-platform transfer at Redwood City</li> <li>All trains serve Sales For Transit Center</li> <li>Trains serve Capitol and Blossom Hill every 15 minutes and Morgan Hill and Gilroy every 30 minutes</li> <li>Skip stop pattern for some mid-Peninsula stations</li> </ul>



# Caltrain's 2040 Service Vision - Investments

## CAPITAL COSTS

**\$23 BILLION**  
TOTAL CAPITAL COSTS\*

Capital costs include all projects from SF to Gilroy, knitting together a connected corridor with greatly improved service.



**\$9.4B**  
GRADE SEPARATIONS



**\$7.8B**  
TERMINAL IMPROVEMENTS



**\$3.3B**  
RAIL INFRASTRUCTURE AND SYSTEMS



**\$1.4B**  
STATION IMPROVEMENTS



**\$1.1B**  
FLEET UPGRADES

## OPERATING COSTS

**\$370 MILLION**  
2040 ANNUAL OPERATING COSTS\*

Caltrain is one of the leanest, most efficient transit services in the country. Today's annual operating and maintenance costs are \$135 million, and 73% is covered by fares. The vision would benefit from a similarly high farebox recovery ratio.

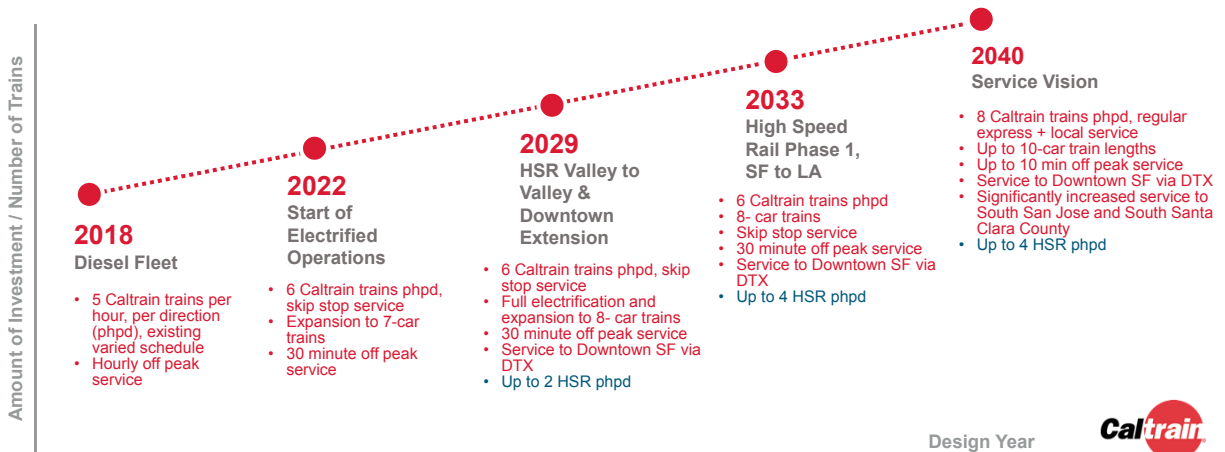
**\$266M**  
OPERATING COSTS COVERED BY FAREBOX (72%)



**\$104M**  
ANNUAL OPERATING INVESTMENT NEEDED (28%)

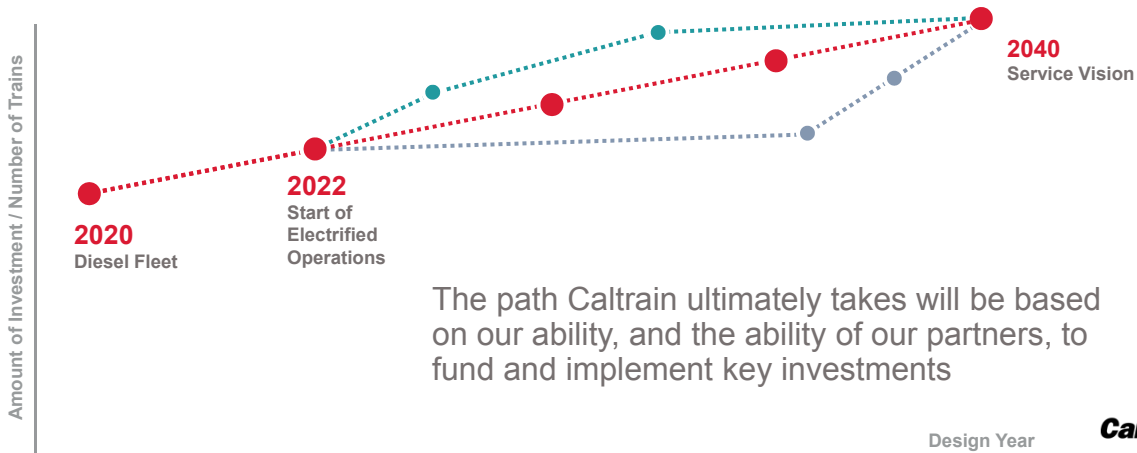
# Getting to the 2040 Vision

The “path” of milestone service improvements and investments used in initial Business Plan work was based on a simplified version of the existing plans of Caltrain and its partner agencies



## Getting to the 2040 Vision

With a long-range Service Vision established, we can optimize our approach. We can explore different “paths” or incremental steps that allow us to deliver improved service sooner



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## Key Questions for the Next Decade

What is the potential market demand for Caltrain service over the next 10 years – how can we grow to satisfy it?

Which benefits of the 2040 Service Vision could Caltrain deliver before 2030?

- How can we use the initial electrified system (CalMod) to deliver near-term service benefits and best meet market demand?
- How could we improve service further through subsequent incremental investments?



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# CalMod: Improved Service in the 2020s



## Market Analysis

Additional Slides Included  
In Appendix



# Understanding Demand

Daily ridership demand for Caltrain service will likely exceed 90,000 passengers in the next decade. This growth is driven by several factors:



### Latent Demand

Improving Caltrain service and increasing capacity will make Caltrain more appealing for a wider range of trips



### Population and Employment Growth

Station areas will add over 100,000 new residents and employees within 1/2 mile of Caltrain stations, a ~30% increase over existing

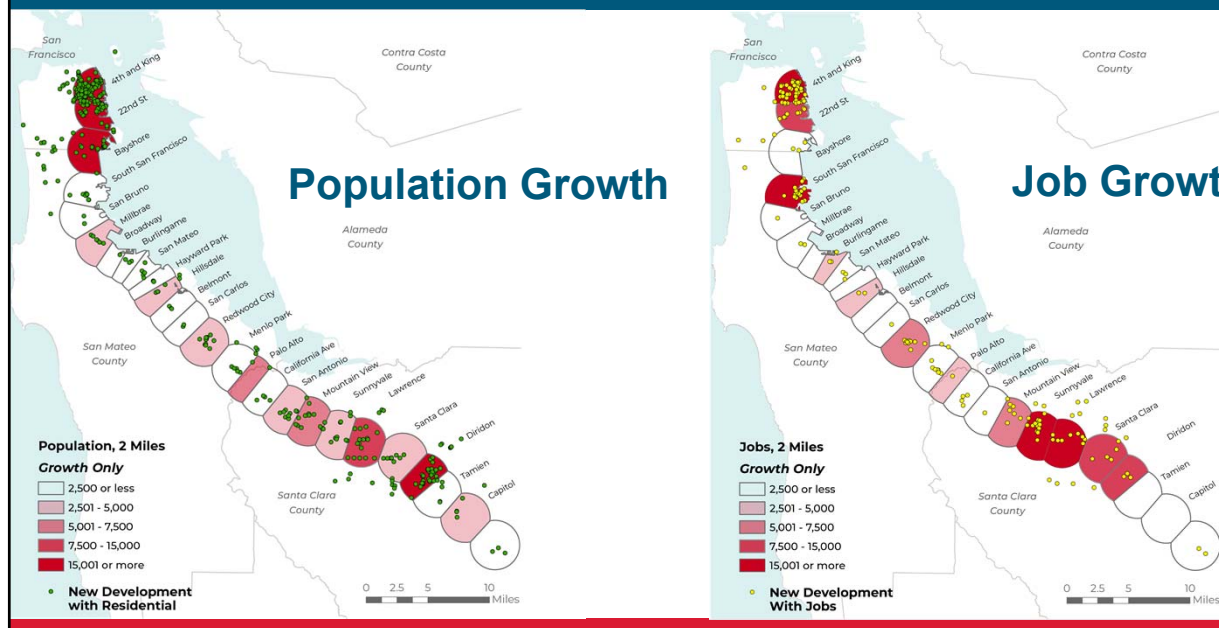


### Improved Connectivity

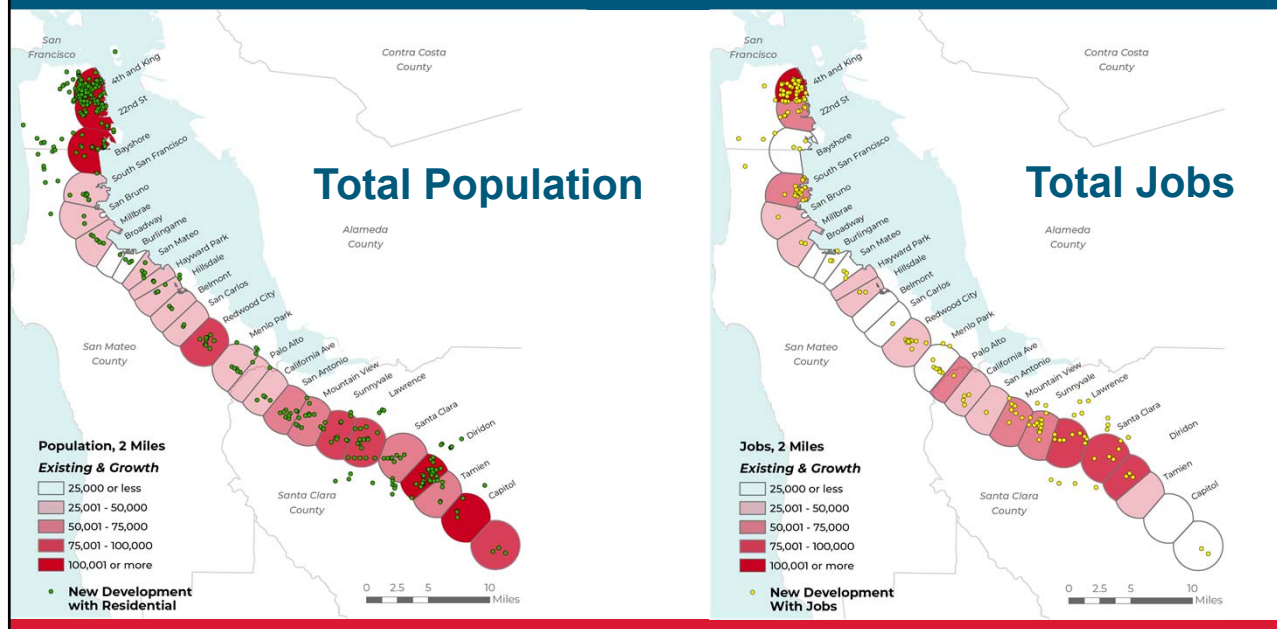
New connections like the Central Subway will extend Caltrain's reach



# Caltrain Corridor – Approved Growth



# 2020s Outlook



# 2020s Outlook – South of Tamien

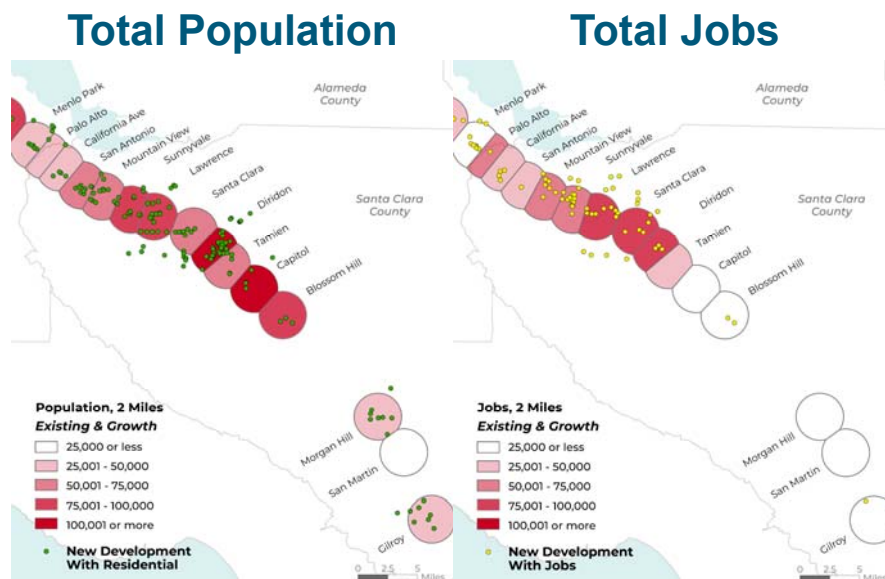
## Unmet Demand

Capitol and Blossom Hill have large populations that are underserved by Caltrain, while Morgan Hill, San Martin, and Gilroy have comparatively lower demand.

## Operational Constraints

Under the current agreement with Union Pacific, Caltrain can add up to two additional roundtrips to Gilroy to reach five trips per day. There is limited flexibility in when these trips can be added without affecting mainline service.

Two of these roundtrips could be extended south to Salinas subject to further planning and agreement by both the Caltrain Board and Union Pacific.



## Existing Ridership by Station

5

**Highest Ridership**  
>4,000  
Daily Riders

4th & King

Redwood City

Palo Alto

Mountain View

San Jose Diridon

4

**Moderate Ridership**  
2,000 – 4,000  
Daily Riders

Millbrae

San Mateo

Hillsdale

Sunnyvale

20

**Lower Ridership**  
<2,000  
Daily Riders

22nd Street

Bayshore

South San Francisco

San Bruno

Broadway

Burlingame

Hayward Park

Belmont

San Carlos

Atherton

Menlo Park

California Ave

San Antonio

Lawrence

Santa Clara

Tamien

Capitol

Blossom Hill

Morgan Hill

San Martin

Gilroy

## Potential 2020s Demand by Station

8

**Highest Ridership Potential**  
>4,000  
Daily Riders

4th & King

22nd Street

Millbrae

Redwood City

Palo Alto

Mountain View

Sunnyvale

San Jose Diridon

9

**Moderate Ridership Potential**  
2,000 – 4,000  
Daily Riders

Bayshore

South San Francisco

San Mateo

Hillsdale

Menlo Park

California Ave

San Antonio

Lawrence

Santa Clara

13

**Lower Ridership Potential**  
<2,000  
Daily Riders

San Bruno

Broadway

Burlingame

Hayward Park

Belmont

San Carlos

Atherton

Tamien

Capitol

Blossom Hill

Morgan Hill

San Martin

Gilroy

# Potential 2020s Demand by Station

8

**Highest Ridership Potential**  
 >4,000 Daily Riders

9

**Moderate Ridership Potential**  
 2,000 – 4,000 Daily Riders

13

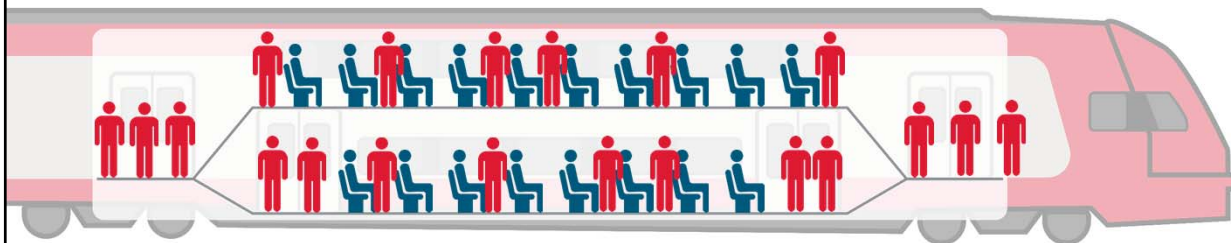
**Lower Ridership Potential**  
 <2,000 Daily Riders

Stations experiencing significant changes

4th & King	Bayshore	San Bruno
22nd Street	South San Francisco	Broadway
Millbrae	San Mateo	Burlingame
Redwood City	Hillsdale	Hayward Park
Palo Alto	Menlo Park	Belmont
Mountain View	California Ave	San Carlos
Sunnyvale	San Antonio	Atherton
San Jose Diridon	Lawrence	Tamien
	Santa Clara	Capitol
		Blossom Hill
		Morgan Hill
		San Martin
		Gilroy

# Train Capacity and Crowding

Even with increased service, crowding will continue to be an issue for Caltrain over the next decade as demand for service increases



- Caltrain provides approximately 3,800 seats per direction per peak hour today, which will increase to 4,144 with electrification.
- With standing room, Caltrain's hourly capacity peak hour capacity will increase from about 4,500 passengers per direction today to 5,400 with electrification, assuming even distribution of passengers between trains.



## Planning Priorities

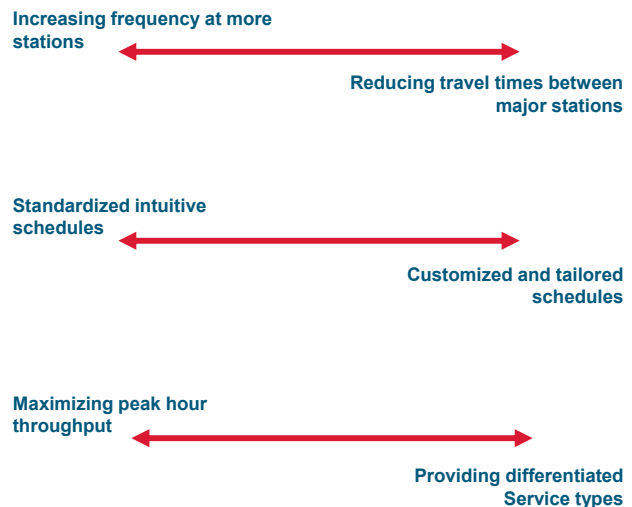


## How Can we Improve Service and Meet Market Demand Using CalMod?

The electrification of the Caltrain service between San Francisco and San Jose provides a transformative, near-term opportunity to improve service.

With this investment, Caltrain can begin delivering many, but not all, of the service improvements described 2040 Service Vision while also attempting to keep pace with growing market demand.

While CalMod provides an overwhelming improvement to the system as a whole we will still need to make choices about which service benefits and improvements we prioritize – there are tradeoffs



## Building Blocks of Service Planning: Mainline Stopping Patterns

Mainline times shown for San Francisco (4<sup>th</sup> & King) to San Jose (Diridon)

**Local** 80 Minutes  
Connects all stations regardless of demand



**Skip Stop** or **Zone** 70-75 Minutes  
Varied patterns connect some stations with higher demand



**Express** 60-67 Minutes  
Connects a few stations with highest demand



**Analytical Approach:** Combinations of Skip Stop, Zone, and Express patterns were evaluated for peak service. While local service is part of the 2040 Service Vision, it is not yet viable during peak hours due to infrastructure and fleet limitations.

## Building Blocks of Service Planning: Travel Time vs. Frequency

### Reduce Travel Times between Major Stations

- Minimize stops to save a few minutes in travel times for many passengers
- Demand in growing markets continues to be underserved



### Increase Frequency at More Stations

- Add stops and keep travel times about the same
- Serve more demand in growing markets



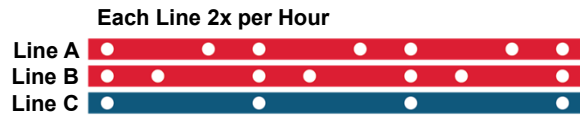
**Analytical Approach:** Service concepts tend to prioritize improving frequency over travel time given recent and projected growth patterns along the Caltrain corridor.



## Building Blocks of Service Planning: Standardization vs. Customization

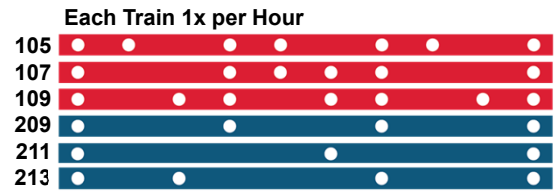
### Standardized Schedule

- Repeating clockface patterns
- Symmetrical in both directions
- Typically communicated as “lines” (eg the “A Line”)



### Customized Schedule

- Complex patterns that may vary by time of day
- May not be symmetrical in both directions
- Typically communicated as individual train numbers



**Analytical Approach:** Concepts developed focus on standardized, bi-directional schedules to create a more user-friendly experience and facilitate coordination with the region’s larger transit network.

## Building Blocks of Service Planning: Combining Service Patterns

### Mixing Different Service Patterns

- Passengers choose between different train types
- Demand can be concentrated on some very crowded trains, while other trains may be half empty



### Similar Service Patterns

- Train types are broadly similar in terms of overall stopping structure and time between major stations
- Demand is more evenly distributed between trains – helping maximize overall throughput



**Analytical Approach:** Both parallel and differentiated service patterns have been considered.





# Service Concepts & Evaluation

Additional Slides  
Included In Appendix



## Introducing Four Service Concepts

<b>Two Zones with Express</b>	Zone 1	2 trains/hour		74 min
	Zone 2	2 trains/hour		70 min
	Express	2 trains/hour		67 min
<b>Three Zones</b>	Zone 1	2 trains/hour		71 min
	Zone 2	2 trains/hour		71 min
	Zone 3	2 trains/hour		70 min
<b>Skip Stop with Express</b>	Pattern A	2 trains/hour		75 min
	Pattern B	2 trains/hour		75 min
	Express	2 trains/hour		60 min
<b>Distributed Skip Stop</b>	Pattern A	2 trains/hour		71 min
	Pattern B	2 trains/hour		71 min
	Pattern C	2 trains/hour		71 min
		Trains per hour: (for all service patterns)	6 2 4 2 6 2 2 6 2 6	



# Service Concept Evaluation Metrics



## 1 - Service Metrics

- I. Travel Time
- II. Maximum Wait Time



## 2 - Capacity Metrics

- I. Crowding
- II. Ability to Support Ridership Growth



## 3 - User Experience

- I. Internal Connectivity
- II. External Connectivity



# Summary – Comparison to Existing Service

Metric	Two Zone with Express	Three Zone	Skip Stop with Express	Distributed Skip Stop
Travel Time	Similar	Similar	Similar	Similar
Maximum Wait Time	Slightly Better	Slightly Better	Slightly Better	Better
Throughput Capacity & Crowding	Slightly Better	Slightly Better	Similar	Better
Able to Support Significant Ridership Growth	Partially	Partially	No	Yes
Internal Connectivity	Similar	Similar	Similar	Similar
External Connectivity	Slightly Better	Slightly Better	Slightly Better	Better

# Summary – Comparison to Existing Service

Metric	Two Zone with Express	Three Zone	Skip Stop with Express	Distributed Skip Stop
Travel Time	Similar	Similar	Similar	Similar
Maximum Wait Time	Slightly Better	Slightly Better	Slightly Better	Better
Throughput Capacity & Crowding	Slightly Better	Slightly Better	Removed from Consideration	Better
Able to Support Significant Ridership Growth	Partially	Partially	Removed from Consideration	Yes
Internal Connectivity	Similar	Similar	Similar	Similar
External Connectivity	Slightly Better	Slightly Better	Slightly Better	Better



## Service Levels at Stations

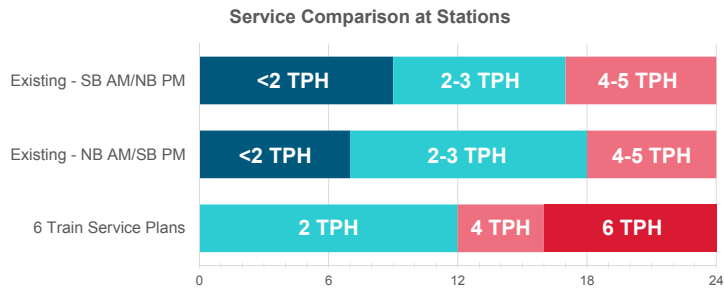


# Service Frequency Improvements

To aid in comparison, all of the service concepts have been developed using a *uniform set of illustrative frequency assumptions* (eg there is no difference between concepts in the number of stops a specific station receives)

All service concepts *double* the number of stations that receive at least four trains per hour, per direction.

All service concepts provide *at least* two trains per hour, per direction to all mainline, regularly served stations.



# Illustrative Service Levels

Service levels shown *are illustrative*. Final service planning and schedule development for CalMod will involve consideration of additional data and public input and may include considerations related to:



Current Market Demand and Ridership Patterns



Approved Station Area Growth



Station Access and Connectivity Opportunities



Social Equity and Geographic Equality



Transportation Demand Management Policies

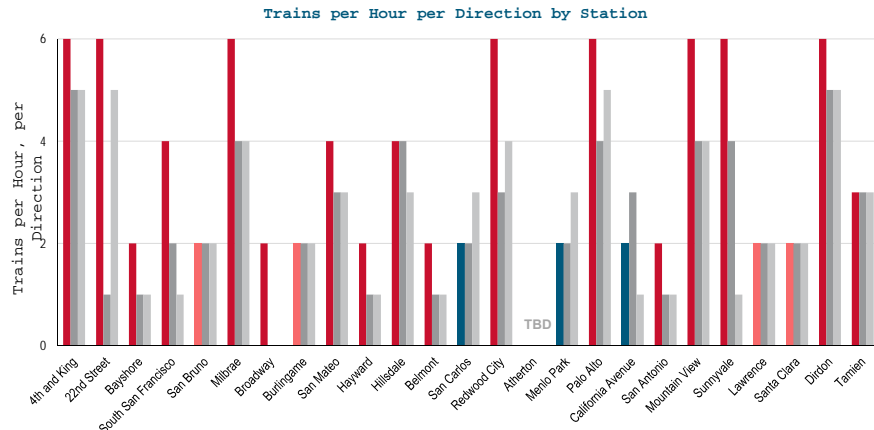


# Illustrative Peak Period Service Levels by Station (Mainline)

## Change in Peak Period Service Levels

- Service Increases (17 Stations)
- No Change (4 Stations)
- Service Reduction (3 Stations)
- Existing NB AM/SB PM
- Existing SB AM/NB PM

Hourly Service levels are the same for all service concepts



## Illustrative Service Plans

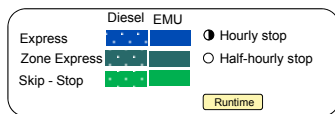


# Illustrative Service Plans

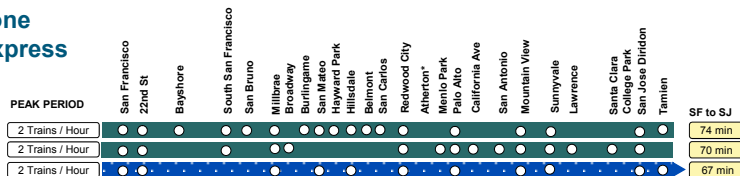
Caltrain has prepared two sets of illustrative service plans to carry forward for further analysis.

**Two Zone with Express** – two zone patterns (north and south of Redwood City) with a regional express pattern offering different travel times and wait times

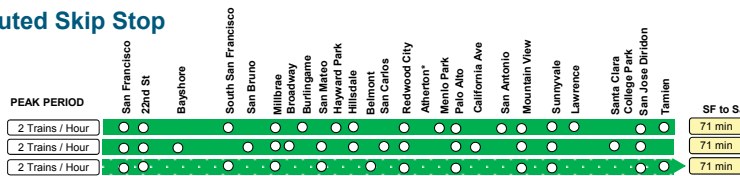
**Distributed Skip Stop** – three skip stop patterns offering similar travel times and regular wait times at major stations



## Two Zone with Express



## Distributed Skip Stop



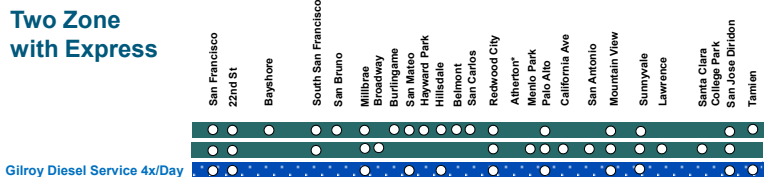
\*Service level TBD

# Service South of Tamien

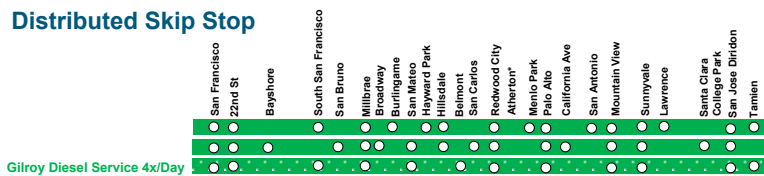
Caltrain will increase service to Gilroy to four roundtrips per day. Passengers from south of Tamien would have a one-seat ride to major stations and a transfer at Diridon Station to reach minor stations.

Arrival and departure times would be similar to today, with one later AM train and one later PM train. Service may be extended to Salinas, pending key agreements and funding, adding about one hour to travel times.

## Two Zone with Express



## Distributed Skip Stop



\*Service level TBD

## Off-Peak and Weekend Service

With electrification, Caltrain has the opportunity to increase off-peak and weekend service levels to better meet corridor demand.

However, operational and financial constraints may affect what kind of service Caltrain is able to provide and when.

### Goals

- Increase Caltrain's market share during off-peak and weekend periods
- Offer competitive travel times between major stations
- Provide a legible schedule transition between peak and off-peak (Two Zone with Express concept has some advantages in this regard)
- Maintain flexibility to accommodate construction and maintenance windows



Example Off-Peak Pattern



## Implementation Process and Next Steps

This analysis has been developed to provide updated concepts for how the investments currently being made as part of CalMod can be used to serve market demand and begin delivering some of the key benefits of the 2040 Service Vision

Preferred concepts shown will be used to continue planning for various aspects of CalMod implementation and launch of electrified service in 2022.

### Developing a Final Service Plan for CalMod

- Preferred Service Concepts shown are illustrative and are intended to help advance analysis and planning
- As the PCEP approaches completion, Caltrain will undertake a supplemental planning process to determine the final 6tph schedule that the railroad will operate – this will include;
  - Selecting the ultimate concept or “style” of service to be operated
  - Determining individual station service levels
  - Confirming off-peak and weekend service levels
- This process will include additional public and stakeholder input as well as analysis of updated ridership and survey data



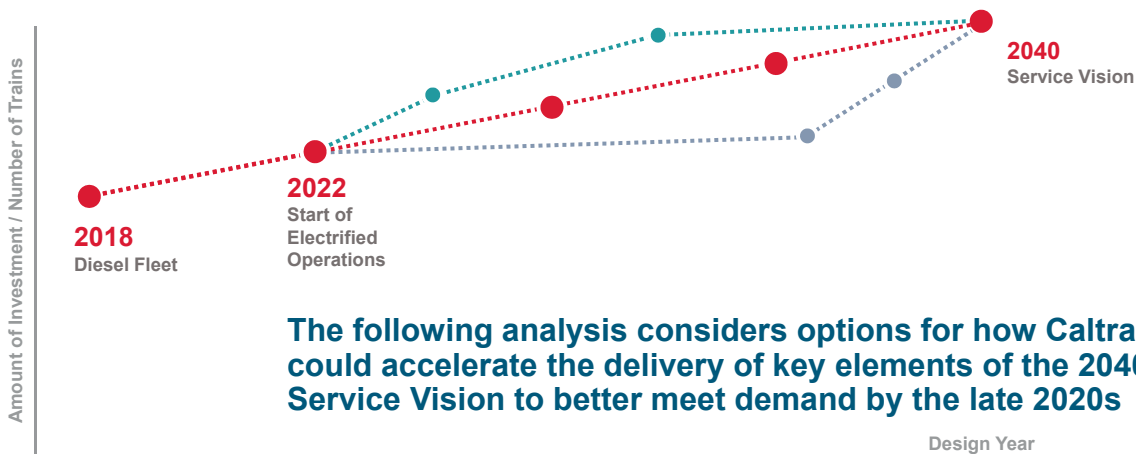
# Going Beyond CalMod

Paths to Incrementally Improving and Increasing Service



## Getting to the 2040 Vision

CalMod will provide tremendous service benefits to the corridor. However regional growth projections suggest that there is medium-term demand for even more service and capacity



The following analysis considers options for how Caltrain could accelerate the delivery of key elements of the 2040 Service Vision to better meet demand by the late 2020s



## Adding Capacity and Increasing Service to Grow Ridership

**Toward the end of the 2020s, Caltrain is expected to reach capacity during peak hours.**

Caltrain will not be able to accommodate additional ridership growth in the 2030s without adding capacity. This poses a challenge for accommodating land use growth, DTX, Dumbarton rail, and other potential changes on the corridor.

**While smaller, interim improvements may ease capacity, the most significant improvement to service and capacity involves expanding service to eight trains per hour, per direction.**



## An Interim Step- Not the Full 2040 Service Vision

Increasing mainline service in the mid- to late 2020's would be an interim step- not the full implementation of the 2040 Service Vision.

Major investments at terminals and in passing tracks infrastructure are not assumed.

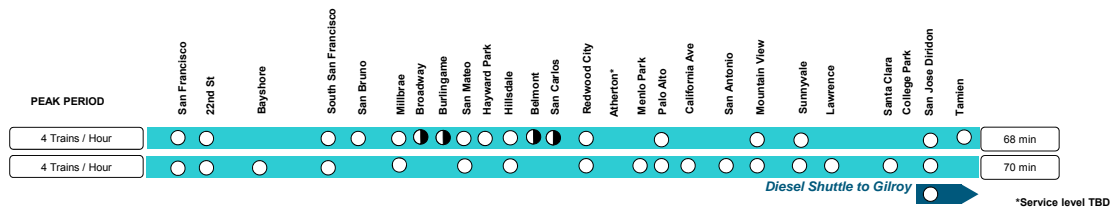
Making near-term, tactical investments to increase service to 8 trains per hour per direction would *precede* the full buildout of the 2040 Service Vision. As such, many important aspects of the 2040 Service Vision would not yet be fully achieved, including:

- Ability to operate a peak-hour express / local service pattern with timed transfers
- Ability to lengthen trains to 8- or 10-cars
- Direct service to downtown San Francisco
- Greatly expanded and electrified service south of Tamien Station to Gilroy

Fully achieving the 2040 Service Vision would require the overall buildout discussed and documented in the Business Plan process to date.



# 8 Train Illustrative Service Plan



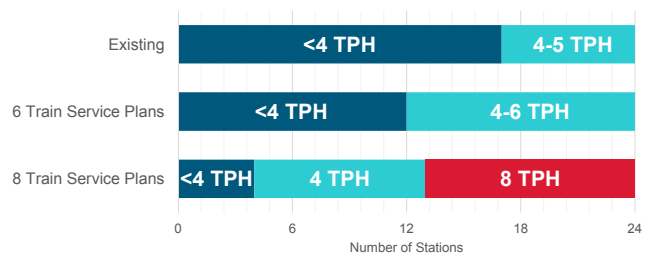
- An 8-train Caltrain service would likely look like a hybrid of the zone express and skip stop patterns with 8 trains per hour, per direction.
- There is limited flexibility in the service structure due to lack of new passing tracks and the constraints of Caltrain's existing signal system.
- Diesel service to/from Gilroy would terminate at San Jose with a timed transfer mainline service. This service could be increased to 5 round trips per day and would have more flexibility to customize departure and arrival times based on public input.



## Increasing Service at Stations

**Increasing service from six to eight trains per hour, per direction enables more frequent service to more stations.**

With an interim 8 tphpd service, 20 of 24 mainline stations would receive at least four trains per hour, per direction, and nearly half of stations would receive eight trains per hour, per direction.

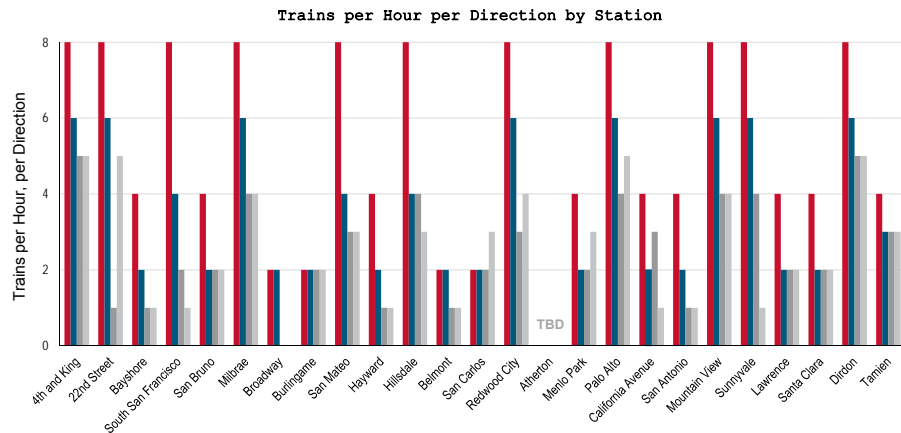


# Increasing Service to Stations

20 stations could receive at least four trains per hour, per direction.

## Illustrative Change in Peak Period Service Levels

- Illustrative service at expanded "8tph plan"
- Illustrative service at initial CalMod level
- Existing NB AM/SB PM
- Existing SB AM/NB PM



# Overall Investments

The following parallel and programmatic investments are assumed to be occurring throughout the 2020's- they are needed to support the overall success of the system and the full implementation of the 2040 Service Vision



## Grade Separations

Planning and construction of grade separations and grade crossing improvements



## Station Improvements

Programmatic improvements to Caltrain stations and investments in station access and connectivity



## Major Investments

Work on major terminal projects (including Diridon and DTX), major station investments, and partner projects including HSR

## What Specific Incremental Investments and Changes Would be Needed?

The following key investments would specifically be needed to implement an interim 8-tph service. These investments are consistent with the overall program assumed in the 2040 Service Vision



### Expanded EMU Fleet

To provide 8 tphpd direction mainline service, Caltrain will need to expand its EMU fleet



### More Train Storage

The railroad will need to add storage capacity to accommodate additional trainsets



### Holdout Rule Elimination

Once 8 trains per hour per direction are operating on the corridor, remaining "holdout" rule stations will need to be rebuilt or closed

## What Specific Incremental Investments and Changes Would be Needed?

The following key investments would specifically be needed to implement an interim 8-tph service. These investments are consistent with the overall program assumed in the 2040 Service Vision



### Level Boarding

Level boarding is needed to ensure reliability and to keep dwell times as short as possible



### Gilroy-SJ Shuttle Service

Remaining diesel service south of Tamien would be converted to a shuttle service until the UP corridor is rebuilt and electrified. Service levels could be increased to 5 round trips per day under existing agreements with UP



### Minor Track Work

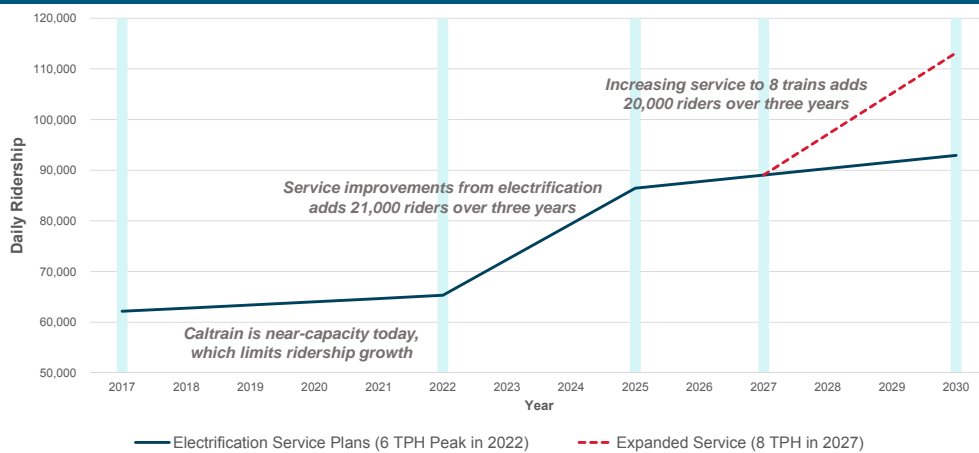
Minor track work would be needed to accommodate increased train volumes around Diridon Station

# Ridership Forecasts

2020-2030



## Change in Weekday Ridership Over Time



# Ridership Forecasts, 2019-2030

Ridership Unit	2019	2025	2030	
	5 TPH	6 TPH	6 TPH	8 TPH
Average Weekday	63,400	86,500	92,900	113,200
Average Weekend Day	11,800	23,600	25,200	25,200
<b>Annual</b>	<b>18.4M</b>	<b>26.1M</b>	<b>28.1M</b>	<b>33.6M</b>

Over the next decade, Caltrain could nearly double ridership by increasing service from five to eight trains and doubling to quadrupling service at many stations

By 2025, Caltrain could serve about 35% more passengers than today with either zone express or skip stop service

*Note: Ridership forecasts are relatively comparable between zone express and skip stop patterns in 2025. 2030 Forecasts assume no DTX, which may add another 30,000 weekday riders (~9M annually) after opening.*



Work in Progress

## Station Access Work Plan

The Business Plan presents an opportunity to evaluate Caltrain's current role in station access and how this role may need to change over time to support the service vision.

The Business Plan will provide a high-level assessment of potential paths forward at a system-level, but will not address investment needs at individual stations.



### What role does Caltrain play in station access?

- Review existing programs and investments



### What is Caltrain's station access vision?

- Consider several paths forward:
  - a. A hands-off approach
  - b. A proactive investment in parking
  - c. A proactive investment in multimodal access



### How do we get there?

- Identify most pressing access needs and priorities



## Equity Assessment Work Plan

The equity assessment is intended to help us understand how the Service Vision could improve equitable access to Caltrain and develop a series of policy interventions that would improve equitable access further.



### Opportunities & Challenges

- Review of existing plans
- Stakeholder interviews
- Market assessment



### Analysis of the Service Vision

- Qualitative & quantitative evaluation of the Service Vision



### Recommendations

- Context-specific recommendations as outcomes from the analysis of the Service Vision and opportunities and challenges.



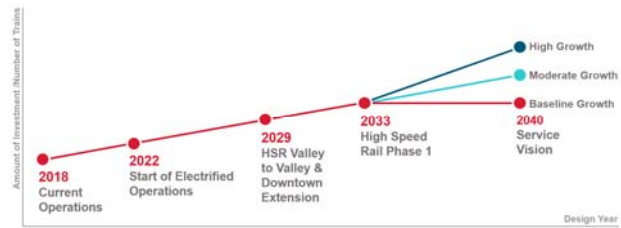
# Funding Work Plan

Service Vision includes \$25.3 Billion in corridor investments by Caltrain, cities and partner agencies and operating costs of \$370 M/year by 2040

This phase of work will identify new funding and revenue sources to support the increase in capital and operating costs.

The funding work plan will develop:

- 10-year Funding Plans to support incremental increases in service from 2019-2029
- A Funding and Revenue Strategy to support the full implementation of the Service Vision by 2040



CALTRAIN BUSINESS PLAN  
CAPITAL INVESTMENTS: DESCRIPTION 1 OF 2

INVESTMENT CATEGORY	2019	2020	2021-2029		2030-2040		2 OF 2	
			2021	2029	2030	2040	2040 MODERATE	2040 HIGH
 10-15-19-20 New High-Speed Rail (HSR) Valley to Valley & Downtown Extension								
 10-15-19-20 New High-Speed Rail (HSR) Valley to Valley & Downtown Extension								
 10-15-19-20 New High-Speed Rail (HSR) Valley to Valley & Downtown Extension								
 10-15-19-20 New High-Speed Rail (HSR) Valley to Valley & Downtown Extension								



FOR MORE INFORMATION  
[WWW.CALTRAIN2040.ORG](http://WWW.CALTRAIN2040.ORG)  
[BUSINESSPLAN@CALTRAIN.COM](mailto:BUSINESSPLAN@CALTRAIN.COM)  
 650-508-6499





# Appendix



## Market Analysis

Additional Slides Included  
In Appendix



## Near-Term Growth: County-Level Findings

County	Population Growth Pipeline	Job Growth Pipeline	Total Population + Job Growth	% Growth over Existing	% of Growth within ½ mile of Caltrain	% of Growth within 2 miles of Caltrain
San Francisco	99,600	78,000	177,600	11%	23%	82%
San Mateo	30,400	56,700	87,100	7%	37%	87%
Santa Clara	82,700	122,600	205,300	7%	17%	64%
<b>Total</b>	<b>212,700</b>	<b>257,300</b>	<b>470,000</b>	<b>8%</b>	<b>23%</b>	<b>75%</b>

Inventory of all development projects that are approved or under construction in cities along the Caltrain Corridor to assess mid-2020s demand:

- Based on review of City planning websites
- Excludes developments proposed/under review and growth allowed under specific plans that has not resulted in individual project entitlements
- Prorates major SF developments like Candlestick Point based on latest information on phasing



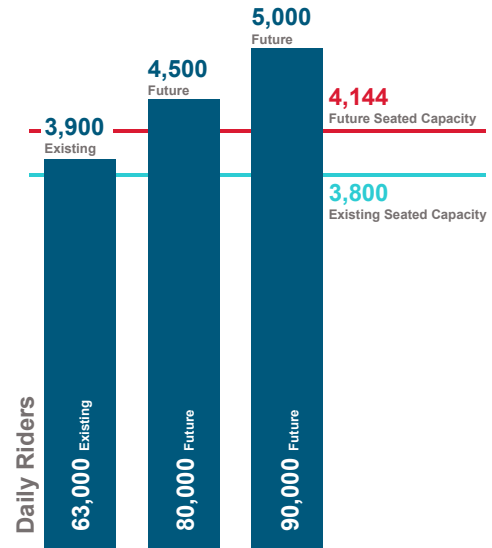
## Near-Term Growth: Corridor-Level Findings

Distance	Category	Existing	Under Construction	Approved	Total Growth	Mid-2020s Estimate	% Growth over Existing
Within ½ Mile of Stations	Population	195,000	24,600	32,100	56,800	<b>251,800</b>	+29%
	Jobs	196,300	28,200	28,500	56,700	<b>253,000</b>	+29%
	<b>Population + Jobs</b>	<b>391,300</b>	<b>52,800</b>	<b>60,600</b>	<b>113,400</b>	<b>504,800</b>	<b>+29%</b>
Within 2 Miles of Stations	Population	1,599,700	85,000	98,500	183,500	<b>1,783,100</b>	+11%
	Jobs	1,423,100	132,800	68,600	201,400	<b>1,624,500</b>	+14%
	<b>Population + Jobs</b>	<b>3,022,700</b>	<b>217,900</b>	<b>167,100</b>	<b>384,900</b>	<b>3,407,600</b>	<b>+13%</b>

## Existing & Future Crowding Capacity

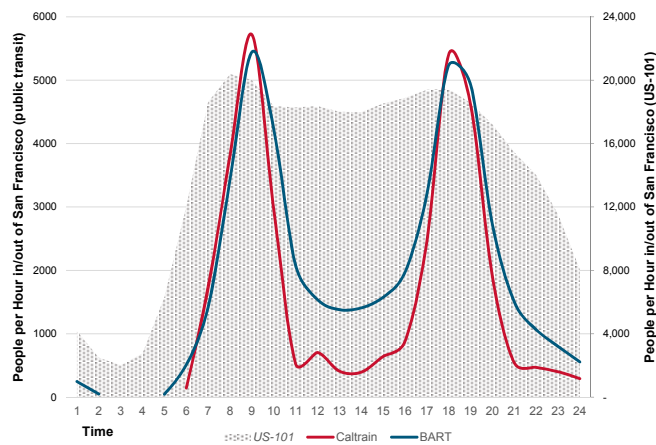
- Today, Caltrain carries up to 3,900 passengers per hour at its peak load points. 7 trains exceed a comfortable crowding level of 900 passengers during peak periods
- Caltrain would need to accommodate 4,500-5,000 passengers per peak hour at 80,000-90,000 daily riders, which approaches the throughput capacity of a six-train mixed fleet (5,400)
- The effective capacity of the system may be lower depending on the degree to which trains are differentiated:
  - Differentiating faster and slower trains reduces Caltrain's effective capacity by concentrating demand on a few trains
  - Similar service patterns across all trains maximizes the effective capacity by spreading demand evenly across all trains

Passengers per Hour per Direction



## Off-Peak & Weekend Service

There is substantial unmet demand for midday and weekend Caltrain service, although this demand is difficult to measure

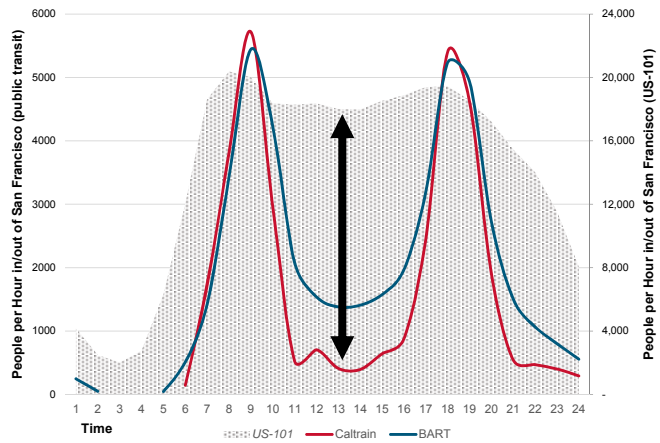


# Off-Peak & Weekend Service

## Measured Against US-101 Trips

Traffic volumes on US-101 no longer experience peak periods; there is all-day bidirectional travel and intermittent congestion.

Yet, Caltrain's share of US-101 in/out of San Francisco is 10 times higher during peak periods than off-peak and weekend periods.

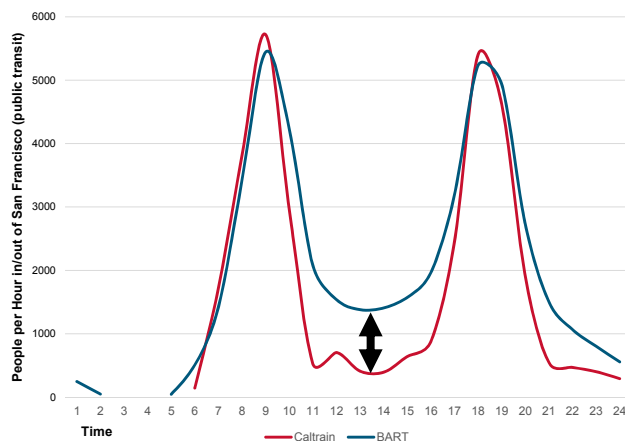


# Off-Peak & Weekend Service

## Measured Against BART Ridership

Caltrain serves more peak period passengers than BART traveling between the Peninsula and San Francisco, but BART serves three times more passengers during off-peak times.

BART provides six times more service than Caltrain during off-peak times, but connects fewer people and jobs on the Peninsula than Caltrain.





# Service Concepts & Evaluation

Additional Slides  
Included In Appendix



## Introducing Four Service Concepts

<b>Two Zones with Express</b>	Zone 1	2 trains/hour		74 min
	Zone 2	2 trains/hour		70 min
	Express	2 trains/hour		67 min
<b>Three Zones</b>	Zone 1	2 trains/hour		71 min
	Zone 2	2 trains/hour		71 min
	Zone 3	2 trains/hour		70 min
<b>Skip Stop with Express</b>	Pattern A	2 trains/hour		75 min
	Pattern B	2 trains/hour		75 min
	Express	2 trains/hour		60 min
<b>Distributed Skip Stop</b>	Pattern A	2 trains/hour		71 min
	Pattern B	2 trains/hour		71 min
	Pattern C	2 trains/hour		71 min
		Trains per hour: (for all service patterns)	6 2 4 2 6 2 2 6 2 6	



# Service Concept Evaluation Metrics



## 1 - Service Metrics

- I. Travel Time
- II. Maximum Wait Time



## 2 - Capacity Metrics

- I. Crowding
- II. Ability to Support Ridership Growth



## 3 - User Experience

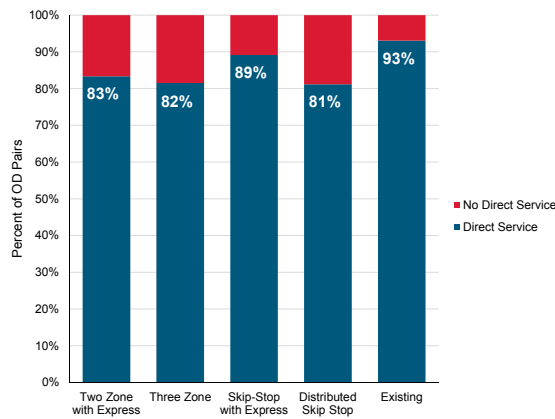
- I. Internal Connectivity
- II. External Connectivity

Detailed Slides Included In Appendix

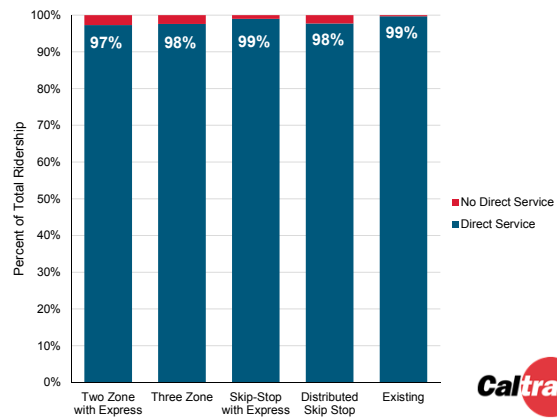


# Internal Connectivity

Trip Pairs with Direct Service



Riders with Direct Service



# 1 - Travel Time to/from San Francisco

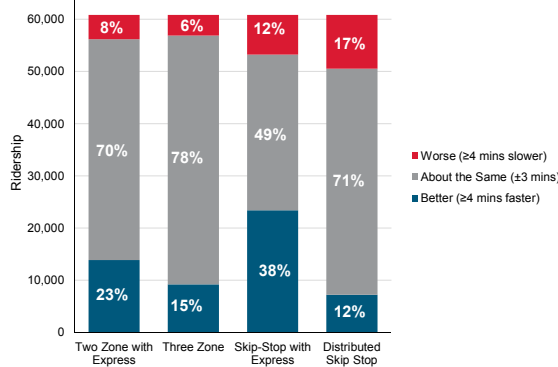
All four concepts offer mostly similar travel times to San Francisco compared to the 'typical best' existing travel time

*Typical best defined as the median fastest time in the current timetable. For example, 4th & King to Diridon Baby Bullet travel times vary from 62 to 69 minutes, with a median time of 66 minutes.*

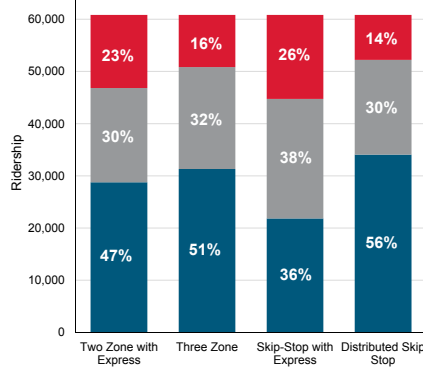
Change in Travel Time by Station	Two Zone with Express	Three Zone	Skip Stop with Express	Distributed Skip Stop
<b>Better (≥4 mins faster)</b>	5	4	3	4
<b>About the Same (+- 3 mins)</b>	15	16	14	17
<b>Worse (≥4 mins slower)</b>	3	3	6	2

# 1 - Change in Travel Time and Wait Time by Existing Ridership

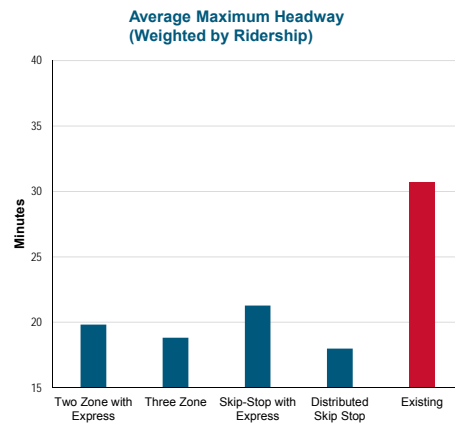
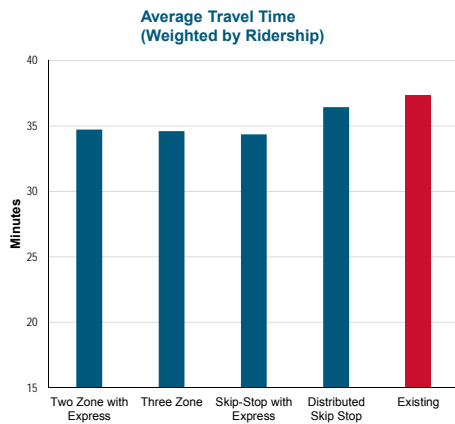
Change in Average Travel Time by OD Pair (By Total Ridership)



Change in Maximum Headway by OD Pair (By Total Ridership)



# 1- Travel Time & Wait Time Systemwide



## 1 – Service Comparison to Existing

Metric	Two Zone with Express	Three Zone	Skip Stop with Express	Distributed Skip Stop
Travel Time	Similar	Similar	Similar	Similar
Maximum Wait Time	Slightly Better	Slightly Better	Slightly Better	Better

### Travel Times

All concepts provide similar travel times to existing, although each pattern preferences different station pairs

### Maximum Wait Times

All concepts provide a similar reduction in maximum wait times, although the Distributed Skip Stop is the only concept to provide regular intervals at major stations



# 1 – Service Comparison to Existing

Metric	Two Zone with Express	Three Zone	Skip Stop with Express	Distributed Skip Stop
Travel Time	Similar	Similar	Similar	Similar
Maximum Wait Time	Slightly Better	Slightly Better	Slightly Better	Better

## Travel Times

All concepts provide similar travel times to existing, although each pattern preferences different station pairs

## Maximum Wait Times

All concepts provide a similar reduction in maximum wait times, although the Distributed Skip Stop is the only concept to provide regular intervals at major stations

# 2 – Capacity Metrics

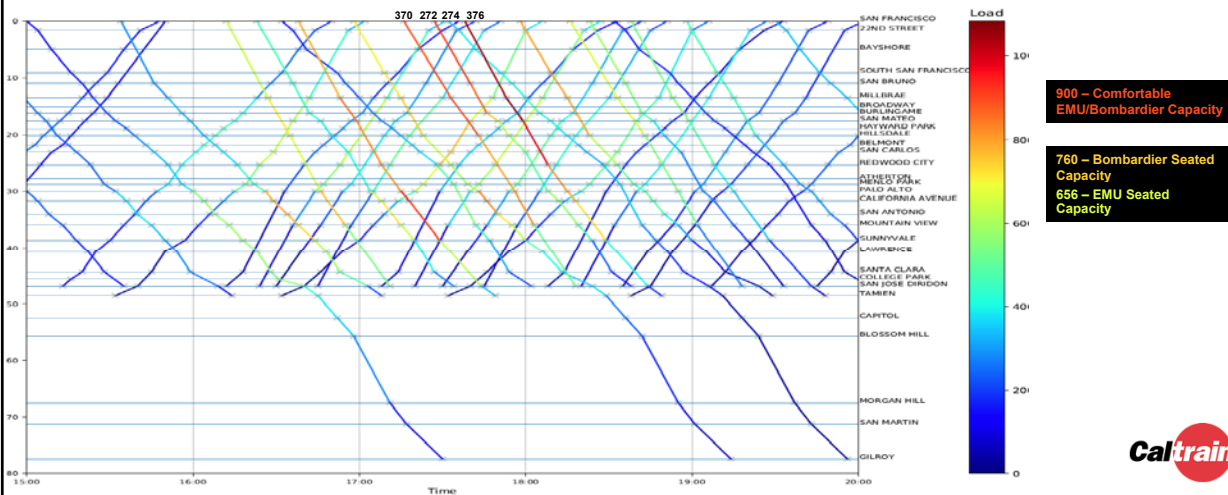
Internal Connectivity

External Connectivity

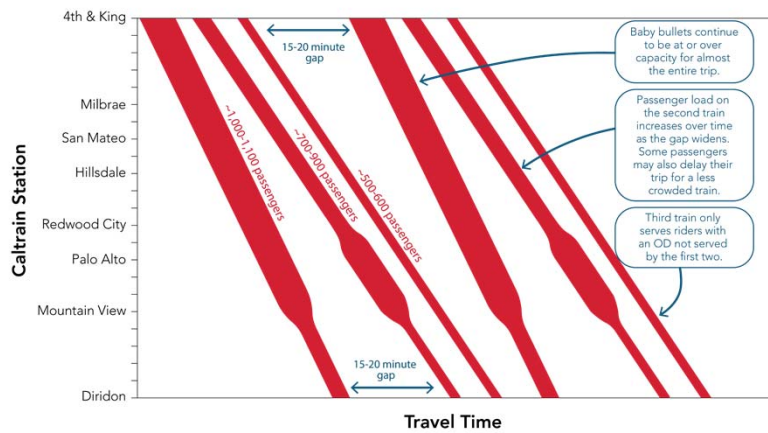


## 2 – Crowding Effects of Irregular Wait Times and Differentiated Service

### Passenger Loads: PM Peak



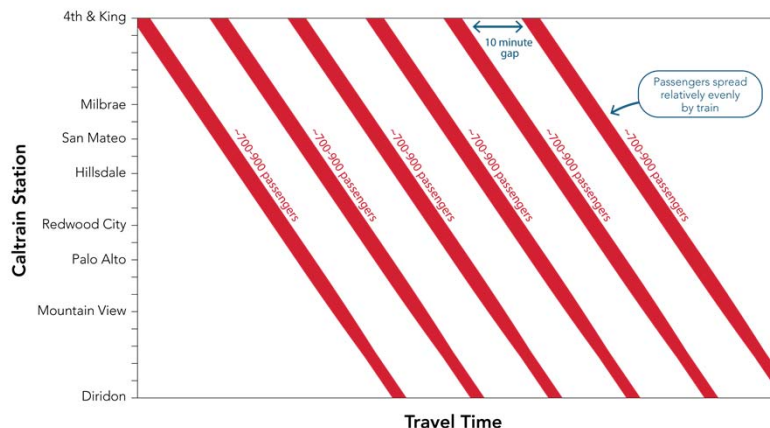
## Crowding Effects – Skip Stop with Express



Skip Stop with Express has the lowest effective capacity and least room for ridership growth.



# Crowding Effects – Distributed Skip Stop



Distributed Skip Stop has the highest effective capacity and most room for ridership growth.

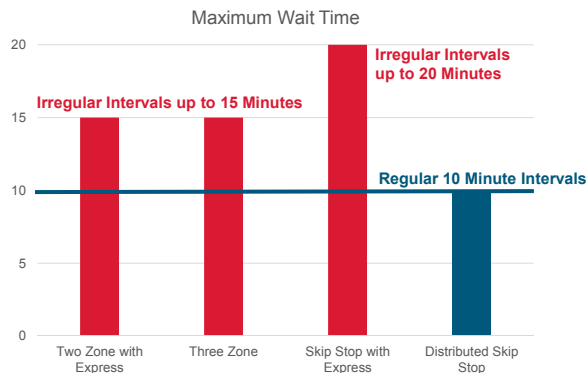


# Wait Times at Major Stations



Depending on the service concept, Caltrain may still experience irregular wait times at major stations served by all trains. This has ramifications for Caltrain's ability to manage crowding for trains and stations, coordinate transfers, and provide a user-friendly experience.

Only the Distributed Skip Stop concept would maintain regular 10 minute intervals serving all major stations.



## 2 – Crowding Comparison to Existing

Metric	Two Zone with Express	Three Zone	Skip Stop with Express	Distributed Skip Stop
Throughput Capacity & Crowding	Slightly Better	Slightly Better	Similar	Better
Ability to Support Significant Ridership Growth	Partially	Partially	No	Yes

- The Two Zone with Express and Three Zone concepts would spread riders somewhat evenly across trains, but would still experience some capacity issues due to bunching
- The Skip Stop with Express would concentrate riders on express trains, which will not alleviate current crowding conditions or provide room for growth
- The Distributed Skip Stop would spread riders across trains relatively evenly and maximize effective capacity

## 3 - Rider Experience Metrics

Internal Connectivity

External Connectivity



Photo credit SPUR

# 3 - User Experience Comparison to Existing Service

Metric	Two Zone with Express	Three Zone	Skip Stop with Express	Distributed Skip Stop
Internal Connectivity	Similar	Similar	Similar	Similar
External Connectivity	Slightly Better	Similar	Similar	Better

### Existing Riders

All concepts serve nearly all existing riders with more frequent direct service, although none serve all existing riders

### Intermodal Transfers

The Distributed Skip Stop provides efficient transfers at key intermodal stations, while the Two Zone Express provides a good transfer to BART at Millbrae

## Two Zone with Expresss

Express		Diesel EMU		Hourly stop
Local				Half-hourly stop
Zone Express				Runtime Tam - 4 <sup>th</sup> &K
Skip - Stop				XX min

