STEEL WHEELS

PASSENGER RAIL IN CALIFORNIA AND THE WEST

Magazine of the Western Passenger Train Coalition

Fall 2025

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President's Commentary

Steve Roberts



Welcome to the new Steel Wheels 'E' Magazine. As I noted in the last print version of Steel Wheels, the former print version faced the insurmountable obstacles of cost increases (paper, printing, and mailing) and most importantly there are fewer printers and mail houses competing for RailPAC's low-volume business. The effort to streamline the process and find economies continued to be undermined by cost increases and the loss of supporting vendors.

In that issue I also indicated that RailPAC was overhauling its website and including Steel Wheels as part of its content. The revamp website was launched mid-August and now we have the new Steel Wheels 'E' Magazine. The goal for the 'E' magazine was to give readers the look of the print Steel Wheels with the wide range of articles featured in the print version. And Paul Dyson is 'From the Rear Platform' as expected. A new Steel Wheels will appear quarterly.

In addition to the Steel Wheels 'E' Magazine, RailPAC's new website has several features to keep RailPAC members informed and to provide resources for their advocacy. At the top of the landing page is an menu with links to all the sections of the website. The Resources section is where members will find links to agency Business Plans, performance data, projects, etc. There is a map of projects and their status. Because of the number of links this section is under development so not all links are posted yet. Next is the Steel Wheels 'E' Magazine. Links to specific articles are on the Steel Wheels cover or one can scroll down the pages to each article. Posted in the Commentary section are all the recent commentary letters RailPAC has sent to agencies regarding proposed projects and policy actions. Next is the Newswire section where current articles of interest from newspapers, newsfeeds, magazines, etc. are posted. It is real time news for members. Finally, there is a link to join, donate or renew your membership in RailPAC.

Below the menu is a scroll of the latest articles. The largest pictures are a scroll of all commentaries submitted by RailPAC. So, explore and enjoy! But a reminder, RailPAC's Website and Steel Wheels 'E' Magazine are designed to give you the tools for outreach to your local, state, and national legislatures, use it for advocacy of expanded rail service.

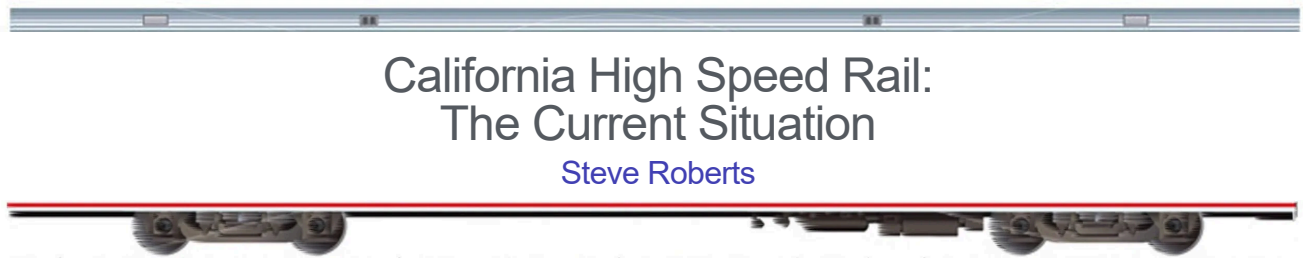
Turning to other recent initiatives, the key one is equipment. Amtrak has launched Acela II service on the Northeast Corridor. This is critical from the revenue perspective. With almost 30% more capacity per train than the Acela I trainsets, Amtrak stands to see a significant boost in ridership and ticket revenues, especially given constrained NEC airline capacity and reliability and the never-ending traffic congestion on I-95. Given the political situation, the boost in ticket revenues will provide Amtrak with a strong talking point in FY 26.

Under construction at Siemens in Sacramento are the Airo train sets with the first train set at Pueblo, CO for testing. It would appear that sufficient Airo train sets will be available for service on the Cascades in early 2026. The next chapter in the long-running long-distance equipment order is an RFP for lower density and high-density single-level coaches and cafes to replace the Amfleet II equipment. The high-density coaches, mixed with a lower density coach operated as Business Class, would be used on trains such as the Palmetto and Maple Leaf. This initiative could simply represent, along with the Airo train sets, an effort to clean out the Amfleet as early as possible or it could be "shot across the bow" for equipment manufacturers that Amtrak has options and to get serious about Amtrak's requirements for long-distance fleet replacement.

Also in Washington, September/October brings the usual end of year Budget battle for the next fiscal year. This year there are reports that the situation is especially fractious. As a result, there is a high probability of a government shutdown, potentially a long one. In past shutdowns Amtrak has managed its cash flow to remain in operation for at least a few weeks. The longer the shutdown, the more problematic it becomes, which is why the additional ticket revenue from the expanded Acela capacity will be welcome.

And to make things interesting, Union Pacific Railroad has proposed a merger with the Norfolk Southern Railway to create a transcontinental railroad. This is not a simple merger but one that would certainly force BNSF and CSX to merge remaking US railroading. Since new Surface Transportation Board merger rules require public benefits, coincidently both railroads have settled long-running On-Time Performance cases with Amtrak. No details are available for the settlement but there are hints it may include some binding enforcement requirements. Improved on-time performance is critical for Amtrak's financial situation, driving reduced costs, increased ticket revenues and improved Customer Satisfaction.

Finally, in a very forward leaning initiative, Ian Choudri CEO CAHSRA has put forward a strategy to link the Central Valley segment of high-speed rail to the Bay Area and Southern California. This plan challenges the Legislature to provide the tools (outlined in HSR Current Situation article) to allow the Agency to make meaningful progress and involve the private sector, to build faster, avoid future construction cost inflation, and build a commercially viable system.



Over the past few months there has been quite a stir around High-Speed Rail in California. There has been Federal action plus action by the California Governor's office, the California Legislature and the Agency. First a look at the Federal action.

FRA Audit and Claw-Back

The Federal action is the attempt to claw-back from CAHSRA two grants totaling $4 billion which are critical to completing the Merced to Bakersfield Initial Operating Segment. Overall, this is far from a "done deal". There are many rounds to go before it is resolved.
Most importantly, all the funds in question have been "obligated", which means there is a signed agreement between CAHSRA and USDOT for the funding and benchmarks for the spending. As a result, there is a very high bar for the "claw-back" of the funds. USDOT almost has to show fraud to win its case, i.e., the Authority purchased things other than bridges and right-of-way for HSR, etc.

The Administration's claims revolve around three main issues, not enough funding to complete the project, the Biden Administration DOT's prior review and approvals of the grants were illegal despite the fact these reviews met all the oversight requirements of grant administration and third, CAHSRA won't meet its 2033 schedule to finish Merced to Bakersfield as outlined in the grant agreements.

The first claim, CAHSRA doesn't have sufficient funding because the Administration is clawing back the funding, seems contrived and spurious. In addition, extension of the Cap & Trade Program from 2030 to 2045 would negate the first claim since funding would be available to complete MCD to BFD.

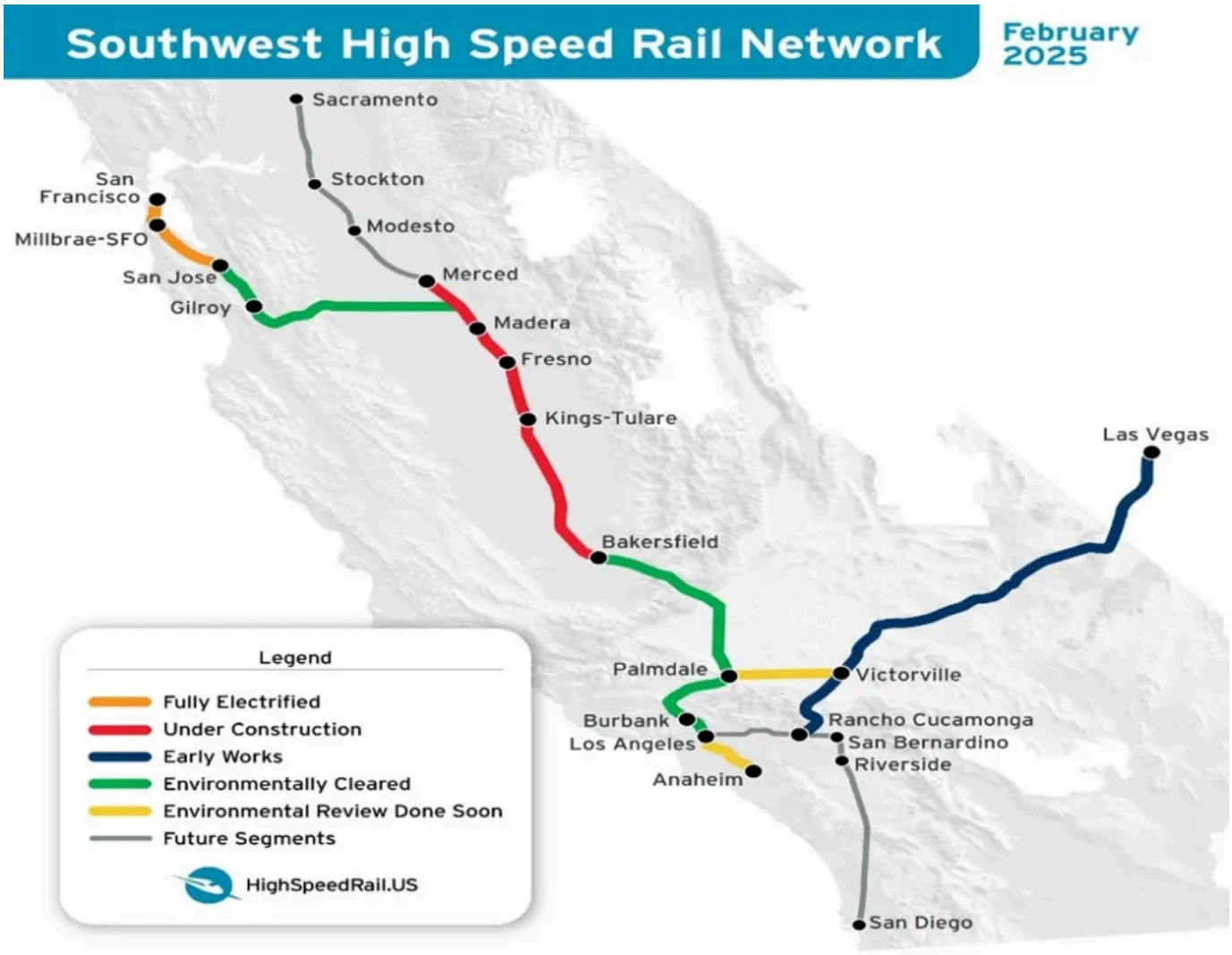
The second claim, the grants and timelines are invalid because the prior Biden Administration DOT approved them (and they met all the requirements) is politics, not evidence of malfeasance as will be required when the court reviews the case.

The third main claim, the project won't be finished until 2033, is speculative. It will not be provable until January 1, 2034.

CAHSRA has two other things going in its favor. All of the construction cost increases due to lawsuit and political delays which resulted in additional costs due to construction inflation were

paid with California funds, not with Federal funds. So, while the Administration may breathlessly cite them, they are not relevant for the core issues of a court case. CAHSRA's other advantage is that every month it is changing the facts on the ground – completing overpasses, track ready right-of-way, design work on the MCD and BFD extension, etc. – all requirements of the grants. Also, by the time this gets a court date track will be being laid.

In many ways this claw back effort and House investigations are headline grabbing "political theatre", lots of flash and smoke but little substance. The flip side of this initiative is that it has solidified support for the project among the public (67% approval rating in a recent poll), the legislature and Governor.



State Budget and Legislative Action

There is a major initiative within the Governor's Budget that will help to solidify the flow of funds to the high-speed rail project. The proposal is to extend the Cap & Trade program from 2030 to 2045. This extension will create a stable and predictable funding stream for the HSR program with at least $1 billion annually for High-Speed Rail to enable greater certainty and deliver the project more efficiently.

This guaranteed minimum funding level will also improve the project's ability to attract private capital and leverage additional funds upfront through the bonding of future funds, which will accelerate project delivery, lower long-term costs, and increase flexibility through alternative funding and construction strategies.

As I write this the final language of the proposal is being negotiated with the Legislature. The Authority continues to work with the Administration and Legislature to maximize the dollars available to the program and the length of time those funds are available.

Overall, Governor's proposal indicates strong support for the High-Speed Rail Program.

One of the key goals of the Legislature this session is to address barriers to the timely construction of major projects, this includes high-speed rail. Being considered are initiative to lay more track sooner and reach population centers sooner.

Under consideration are initiatives to streamline processes and improve coordination for local government permitting, third-party agreements (i.e. utilities) and site-specific environmental reviews. One of the goals would be to establish time limits on all parties under which these tasks would be completed.

Changes are also proposed to increase flexibility for project sequencing outside the Merced – Bakersfield Initial Operating Segment. This was restricted under guidelines established in prior legislation (SB198). Unless changed, this will hinder the Authority from fully leveraging funding opportunities gained with the revised Cap & Trade program to unlock private sector engagement, funding, and innovation to start work on other route segments (Gilroy – Chowchilla, Palmdale – Bakersfield).

A final proposal being considered is to establish a special court for the efficient and timely adjudication of eminent domain cases. This court and staff would become subject matter experts for eminent domain cases.

All these key modifications will support more certainty around the efficient and timely delivery of the high-speed rail system, utilize limited public funds more prudently, and achieve significant project schedule savings.

RailPAC's California State Rail Plan: 2025 Update

Steve Roberts



The 2024 California State Rail plan was released in January 2025. The state rail plan is a comprehensive vision by CalSTA of California's future rail network. While outlining a comprehensive vision RailPAC, while strongly supporting the majority of the Plan initiatives, feels it has some shortcomings that will leave California short of offering the network it aspires to, that travelers can ride today in Switzerland.

That is the reason for the picture, a fully electrified Stadler Intercity KISS trainset traveling on the Swiss Federal Railways, the vision for California.

In the *2nd Quarter 2023 Steel Wheels*, RailPAC, based on the draft of the Rail Plan, published its vision of the "stretch goals" needed to move forward. RailPAC's 2025 update, while similar to the 2023 overview, adjusts for projects completed and modifies some of RailPAC's recommendations

regarding proposed projects to achieve service goals more rapidly. However, like the 2023 RailPAC comments, RailPAC is still disappointed by the slow progress made in delivering expanded service and the infrastructure needed to support that service.

Southern California Region Metrolink/Coaster

Objective

To create Swiss style clockface regional rail service with local transit connections to provide door to door mobility throughout the region. It should be noted that the whole country of Switzerland would fit between Palm Springs and Santa Barbara and has a system that provides door to door transit with bus connections at 30-minute intervals for most of the country.



Metrolink train 860 approaches the station in San Clemente, California, on August 25, 2018. SCAX F59PHI 883 is leading this Oceanside to San Bernardino train as it skirts the Pacific Ocean on this late summer afternoon.

Near-Term Construction / Funding

- Complete Sierra Siding North.
- Begin construction on Fullerton Jct. realignment.
- Replace CA 1 overcrossing in Dana Point and extend Serra Siding.
- Complete Irvine train maintenance facility.
- Complete double track Brighton – Roxford.
- Realign CP Maple (Olive Subdivision Jct.) for faster speeds.
- Add additional capacity Raymer – Bernson; double track extensions from Raymer and Bernsten, mid-segment siding or relocated Northridge Station with a double track center platform station.
- Continue to move forward in constructing double track on Metrolink's San Bernardino Line.
- Move forward and complete as a priority, LinkUS Phase A (Los Angeles Union Station Through Tracks).
- Complete EIR, move to 100% design, and pre-construction, Del Mar Bypass Tunnel.
- Complete double track projects not associated with bypass tunnels in San Diego County.
- In conjunction with Caltrans, SCRRA should undertake a test of discontinuous catenary by installing a key segment on catenary on a route with demanding power requirements (grades) such as Metrolink's Antelope Valley Line.

Mid-Term Planning/Funding

- Move forward in identifying the recommended option, environmental planning, funding strategy and 30% design for the San Juan Capistrano/ San Clemente Bypass Tunnel. As part of planning effort, evaluate the option of retaining battery EMU local service on a stub branch to beach stations in lieu of a costly underground station within the San Clemente tunnel.
- Develop funding strategy to accelerate LINKUS Phase B.
- As funding becomes available, begin 30% design and pre-construction activities (mapping, geotechnical, utility identification for the three grade separations required by BNSF to fully utilize the capacity of the third main track Redondo Jct. To Fullerton. These grade separations have independent utility and widespread near-term benefits.
- Begin planning process for Miramar bypass tunnel.
- Initiate planning for overhead electrification Moorpark – San Diego (either full or segment overhead electrification (See HSR Policy Section).
- Begin planning process for overhead electrification Via Princessa – Burbank. .
- Begin planning process for overhead electrification San Bernardino – LAUS.

Near-Term Service

- The goal is thirty-minute clockface schedules on the core lines.
- Continue to conduct a review of ridership and schedules on other lines to determine the optimum all-day service given the current post-pandemic demand patterns with a special focus on developing new ridership markets.
- Establish a pool agreement between NCTD and SCRRA for through commuter rail service San Diego – Lancaster and San Diego – San Bernardino.
- Better integrate Pacific Surfliner service with Metrolink and Coaster.
- Evaluate fare/promotion opportunities as a result of the Integrated Ticketing Project to provide more flexibility for riders.
- Also evaluate opportunities where Metrolink/Coaster service can act as feeder or replacement service to key hub transfer stations enabling the LOSSAN Corridor to provide limited stop service Los Angeles – San Diego.
- Alternatively, explore operating LOSSAN Corridor trains as a three-class service with expanded frequencies. See LOSSAN Corridor section for additional details),

Mid-Term Service

- Utilize the overhead electrification on the San Bernardino Line to operate Brightline trains from Las Vegas to serve Los Angeles Union Station directly by operating on the San Bernardino Line from Rancho Cucamonga.

Long-Term Service

- Utilizing CAHSRA's Palmdale – Burbank tunnel, operate Metrolink regional rail service from Lancaster to Orange County.

LOSSAN

The Los Angeles San Diego San Luis Obispo Rail Corridor is the busiest in the State and second busiest in the nation. However, total passenger ridership from the three services (Amtrak Surfliner, Coaster and Metrolink) is only a few thousand per day, far below the state's Vehicle Miles Traveled 2045 reduction goals and is way below the potential that the population could support (See Figure 1 below). Since RailPAC and other groups successfully campaigned for the expansion of service in the 1980's, progress has been painfully slow. While the



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number of trains has increased, infrastructure improvements lag behind resulting in poor punctuality and reliability. Journey times have not improved since the 1960s. Now, the line's very existence is in jeopardy from coastal erosion. RailPAC is reiterating its call for a major investment program to upgrade the line to provide a service appropriate for the population and importance of the coastal region.

Near-Term Construction / Planning

- Complete defensive works to protect vulnerable coastal areas from flooding, coastal erosion, storm surge and sea level rise.
- Complete Serra Siding north, replace CA 1 over crossing bridge in Dana Point and extend Serra Siding south.
- Complete double-track projects not associated with bypass tunnels in San Diego County.
- Complete extension of the Leesdale siding.
- Complete construction of Ortega spur track as a passenger train siding.
- Complete construction of Goleta and Central Coast (San Luis Obispo) layover and service facilities.
- Complete construction of the Rice Ave. grade separation.
- Move forward and complete as a priority, LinkUS Phase A (Los Angeles Union Station Through Tracks).
- Identify and begin planning process for the San Diego layover, service and maintenance facility.
- Complete Environmental Study, move to 70% design and pre-construction for the Del Mar Bypass Tunnel.
- Reconstruct Carpentaria Station as a double track, center platform facility.
- Move forward with additional capacity between Raymer – Bernson.
- Move to LOSSAN Corridor to Step Two of Corridor ID process.

Mid-Term Planning / Funding

- Move with urgency in identifying recommended option, environmental planning, funding strategy and 30% design for the San Juan Capistrano/ San Clemente Bypass Tunnel.
- Develop funding strategy to accelerate LINKUS Phase B.
- Begin planning process for Miramar bypass tunnel.
- Initiate planning for the overhead electrification Moorpark – San Diego (supplemented with segments of overhead electrification, See HSR Policy Section).

Near-Term Service Improvements

- Better integrate Pacific Surfliner service with Metrolink and Coaster. Evaluate fare/promotion opportunities facilitated by the Integrated Ticketing Project (ITS) to provide more flexibility for the rider.
- In addition, evaluate opportunities where additional Metrolink/Coaster service can act as feeder or replacement service to certain stations enabling the Pacific Surfliners to provide limited stop service Los Angeles – San Diego.
- Consider operating some San Diego – LA 500 series trains to Palmdale/Lancaster providing a one seat ride from the western high-desert to Orange County/San Diego and laying the foundation for connections to high-speed rail (while the Burbank tunnel is being constructed).

A strategy that would simplify and somewhat mitigate the overlap of multiple track ownership and service providers would be to more clearly delineate the cities and markets served by each carrier. Under this strategy LOSSAN would provide three classes of service, Economy Coach (unreserved), Reserved Coach and Business Class. The fares for Business Class and Reserved Coach would mirror current Pacific Surfliner fares while Economy Coach would mirror current Metrolink and Coaster fare levels. The Caltrans all-agency Integrated Ticketing System (ITS) would facilitate this three-class service.

Mid-Term Service Improvements
Focus the LOSSAN service on longer distance city pairs (within Metrolink/Coaster Service areas) and local service north of Moorpark and between Laguna Niguel and Oceanside. Coordinated schedules combined with ITS would facilitate transfers from Pacific Surfliner trains and Metrolink/Coaster trains at key transfer stations.

Metrolink's service area along the corridor would run from Moorpark to Laguna Niguel. Additional Pacific Surfliner frequencies utilizing the current Metrolink track slots would operate north of Moorpark and between Laguna Niguel and Oceanside. As a result, both Metrolink and Coaster's service area would match county track ownership boundaries.

The expanded three-class Pacific Surfliner service with discount Economy Class would aid in integrating all three services from the customer perspective. It would also bring discount economy service to additional city pairs and riders and expand local service to Ventura and Santa Barbara County.

Long-Term Service Improvements

- Using overhead catenary, electrify Moorpark – San Diego with overhead catenary for regional and intercity trains.
- Operate dual-mode through High-Speed trains Sacramento– San Diego via the electrified LOSSAN Corridor.

Figure 1.

Objective: An intercity and local passenger train service that is comparable to the London-Birmingham route in the UK

2019 CORRIDOR COMPARISONS	**LOS ANGELES – SAN DIEGO**	**LONDON – BIRMINGHAM**
Route Miles	128 miles	112 miles
Population of Combined Metro Areas	18 million	11.7 million
Driving Time (no traffic)	2 hours	2 hours 30 minutes
Fasted Train Trip	2 Hours 55 Minutes	1 hour 22 minutes

Peak Hour Frequency	1 train/hour	6 trains/hour
Punctuality	75% within 5 minutes	70% within 5 minutes
Average Train Speed	43 MPH	81 MPH

Corridor ID

The Corridor Identification and Development (Corridor ID) Program is a comprehensive intercity passenger rail planning and development program consisting of three discreet steps that will help guide intercity passenger rail development throughout the country and create a pipeline of intercity passenger rail projects ready for implementation.

The Corridor ID initiative for the LOSSAN Corridor is the extension of the corridor to San Ysidro to more directly serve the Tijuana, Mexico Metro area (2.2 million in population) and enhancing the LOSSAN Corridor with more frequencies and improved reliability. The LOSSAN Corridor is currently in Step 1.

Coast Line (Los Angeles – San Jose)

Objective

Develop this underutilized right-of-way to benefit tourism, local mobility and commerce. The northern and southern connections into San Jose and Los Angeles are already publicly owned and the owner of the center section of the line, Union Pacific, has very little freight business other than between Oxnard and Los Angeles.



Coast Starlight southbound crosses Elkhorn Slough – Chris Mohs

Action

- State purchase from Union Pacific the remainder of the line not in public ownership from Burbank Junction to Lick (south of San Jose).
- Union Pacific to retain overhead trackage rights but relinquish local freight service.
- Encourage operation of additional freight including intermodal and transload with short-line freight operator.

Near-Term Planning / Construction

- Construction to Strengthen defenses against flooding, coastal erosion, storm surge and sea level rise.
- Complete construction of Orcutt Road left-hand crossover (San Luis Obispo).
- Complete construction of Templeton Siding into a signaled siding with power switches integrated into signal system for dispatcher-controlled train meets.
- Complete construction of Positive Train Control Gilroy to San Luis Obispo,
- Complete King City station, platform and upgraded controlled siding for train meets.

- Complete infrastructure needs study for Capitol Corridor extension to Salinas.
- Move Coast Line to Step Two of Corridor ID process.

Mid-Term Planning / Funding

- Identify, prioritize and schedule enhanced track maintenance to allow higher speeds facilitated by Positive Train Control (90 mph along key segments rather than 79 mph).
- While undertaking enhanced track maintenance, adjust curve rail superelevation for passenger train speeds rather than freight train speeds
- Additional siding signal system upgrades and siding rehabilitation Santa Margarita through Salinas to facilitate additional frequencies between San Jose and San Luis Obispo.

Identify and prioritized selected speed restricted curves for straightening for higher speeds as outlined in plans dating back to the 1960's. Coastal resiliency investments may provide an opportunity for such right-of-way improvements.

Near-Term Service Improvements

- Local service Ventura – Santa Barbara per 101 in Motion Plan.
- Extended Caltrain service sponsored by the Transportation Authority of Monterey County between Gilroy and Salinas.
- Early morning "Start-up" frequency San Luis Obispo to San Jose with a late afternoon return.

Mid-Term Service Improvements

- Overnight service, based on recent European models, between Los Angeles and San Francisco.
- Southern extension of Capitol Corridor service from San Jose to Salinas and eventually to San Luis Obispo.
- Coordinated schedules and eventually joint through service by Capitol Corridor and LOSSAN JPA's to provide a second daytime frequency Los Angeles to the Bay Area.

Corridor ID

The Corridor ID initiative for the Coast Line, LA to the Bay Area, is to provide additional service between San Jose and San Luis Obispo by providing new frequencies along this route segment. These additional frequencies would likely be extensions of current frequencies now terminating at San Jose or San Luis Obispo. These new frequencies would be in addition to Amtrak's Coast Starlight. The Coast Line is currently in Step 1.

Long Distance Trains (National Network)

Overview

Amtrak's long-distance routes provide convenient and in places the only available public transportation for many Californians. Most passengers on long-distance trains are not traveling between major endpoint cities. They are traveling between small and medium size cities, small

cities and large cities often connecting at major hub cities to other trains. Many of these city pairs are within California which means travel within the state, while many travelers are visitors from other states, and many more are visitors from overseas. One train of note is the Coast Starlight which serves dozens of California cities the length of California. It also enhances two California corridors, Los Angeles – San Luis Obispo and Salinas – Sacramento and is a placeholder for two other corridors San Luis Obispo – San Jose and Sacramento – Chico.



Sunset meets the dawn at Eloy AZ – Drew Mitchem

Service

- It is critical that Federal funding be maintained to retain the service currently operating.
- Full dining car service should be available to all passengers.
- Premium Coach class should be introduced on all trains.

Long Term Objective

- As traffic grows with these additional frequencies explore with Amtrak adding additional capacity to the long-distance train to accommodate increased shorter distance travel.
  Examples of such route segments are:
  - Coast Starlight: San Luis Obispo – San Jose
  - Coast Starlight: Sacramento – Chico
  - California Zephyr: Sacramento – Reno/Sparks
  - Sunset Limited: Los Angeles – Indio
  - Sunset Limited: Los Angeles – Phoenix/Tucson
- Enhance service on key long-distance routes by adding state sponsored frequencies to segments along these routes. This would represent a second frequency along the route.

Rolling Stock

- There is an urgent need for equipment renewal; while a procurement initiative is underway the existing long-distance fleet is slowly shrinking by attrition putting long-distance rail service at risk.

It is critical that California provides strong support for the current initiative to replace Amtrak's long-distance fleet.

- In addition, Amtrak needs steady funding to keep its current life-expired fleet of cars in a state of good repair while the procurement and manufacturing process for new cars plays out. Otherwise train capacity (available seats) will continue to shrink and routes will be discontinued as the car fleet shrinks below the minimum needed for the current network.

Interstate Passenger Rail Compact / Construction

Coordinate with State of Arizona, Sun Valley communities and Riverside County in linking Phoenix/ Tucson and Southern California by forming a Sunset Route Interstate Rail Compact. A key goal is the reroute of the Sunset Limited via Phoenix using Federal Infrastructure funds to rehabilitate the rail line between Wellton and Phoenix.

Northern Region

Objective

To build a northern California rail network, with the busiest sections electrified, in coordination with local and regional transit services to provide door-to-door mobility. The twin cores of the system would be an expanded and improved Capitol Corridor from Sparks NV to Salinas CA, and the ACE/San Joaquin network Chico/Sacramento – Merced (with connections to High-Speed Rail) and Merced to San Jose.



San Joaquin Train 715 with Siemens Coaches at Martinez – Craig Walker

Near-Term Planning / Construction

Capitol Corridor

- Complete Santa Clara interlocking construction.
- Complete Agnew Siding (Santa Clara) construction.
- Complete Albrae siding extension to Mowry (Newark).
- Complete infrastructure needs study and Service Development Plan for Capitol Corridor extension from San Jose to Salinas.
- Complete Third main track construction Sacramento to Roseville.
- Begin construction of a new center platform, serving both tracks, at the Davis Station.
- Move to Capitol Corridor route extensions to Step Two of Corridor ID process.
- Complete planning, design and begin pre-construction of South Bay Connect, double track on the Coast Subdivision South Elmhurst (Oakland) to Newark – and rerouting of passenger trains via the Coast subdivision.
- Begin construction of new station at Ardenwood on the Coast Subdivision.

Altamont Commuter Express (ACE) / San Joaquins

- Complete “mini-high” platforms on San Joaquin route to facilitate level boarding of Venture Cars.
- Complete Stockton Flyover eliminating UP/BNSF level crossing in Stockton.
- Begin construction of new relocated Madera Station (will eventually serve as HSR station for Madera).
- Complete construction of Valley Rail capacity upgrades (ACE and San Joaquins) on both UP and BNSF between Merced, Stockton. Sacramento and Natomas.
- Move to San Joaquin Valley Corridor to Step Two of Corridor ID process.
- Merced Intermodal Track Connection linking the BNSF San Joaquin route to the downtown Merced HSR station.
- Begin construction of Valley Link between Dublin/Pleasanton and Lathrop connecting San Joaquin Valley to BART.

Caltrain/Transportation Authority of Monterey County (TAMC) / Sonoma Marin Area Rail Transit (SMART)

- Begin acceptance testing and in service testing of the Stadler Battery/electric catenary trainset San Francisco – San Jose – Gilroy.
- Complete SMART extension to Windsor.

- Continue construction of the Caltrain extension to the SalesForce Transit Center.
- Complete Positive Train Control Gilroy – Salinas.
- Continue Planning, design pre-construction and construction (Phases 1 – 3) for extension Caltrain service (sponsored by TAMC), from Gilroy to Salinas.
- Begin construction of SMART extension to Healdsburg.
- Complete planning and design for SMART extension to Cloverdale.

Mid-Term Planning / Funding

Capitol Corridor

- Complete EIR/EIS for a new double track viaduct over the Alviso wetlands.
- Complete Service Development Plan San Jose to Salinas to facilitate extension of the Capitol Corridor route to Salinas.
- Continue planning for extension of route to Reno/Sparks.
- Begin planning efforts to electrify Sacramento – San Jose.
- Continue planning efforts for the second transbay rail crossing Oakland to San Francisco, Link21.

ACE / San Joaquins

- Extension of San Joaquin Valley route to Marysville/Chico.
- Planning for ACE tunnel bypassing Niles Canyon.
- Begin Planning to electrify ACE/San Joaquins Natomas – Stockton and electrify ACE Stockton – Newark.

Capitol Corridor / ACE / San Joaquins

- Develop plans for new interchange station in Sacramento where the Roseville Line (Capitol Corridor) crosses the Natomas Line (ACE/San Joaquins).

Caltrain / SMART

- In conjunction with CAHSRA acquire UP right-of-way Gilroy – San Jose and construct a double track electrified rail line.
- Planning and design to extend SMART to Larkspur ferry terminal.
- Begin construction to extend SMART to Cloverdale.
- Planning to move SMART Extension Novato – Suisun to Step Two of Corridor ID process.

Near-Term Equipment

- Complete deliveries of new Venture cars into San Joaquin service.
- Test hydrogen BEMU’s between Merced and Natomas and between Stockton and Dublin-Pleasanton.
- Test battery/electric catenary trainset in service San Francisco – San Jose – Gilroy.
- Develop new Northern California network equipment requirements. Bi-level dual-mode cars for regional service to San Francisco and dual–mode single level cars for through HSR service from Sacramento to San Diego via the LOSSAN Corridor.

Near-Term Service Improvements

- Development of an innovative quality food service accessed through multiple customer point of contacts, offering a wide variety of products, on the San Joaquins, Capitol Corridor trains and perhaps on longer-distance ACE trains.
- Introduction of Business Class service on San Joaquins.
- Develop and implement ACE/San Joaquin/HSR integrated branding and services.
- Extend ACE service from Merced to Sacramento/Natomas and Merced to San Jose.
- Extend San Joaquin service from Merced to Sacramento/Natomas.

- Additional San Joaquin frequencies between Merced and Sacramento/Natomas.
- Begin Caltrain Service extension from Gilroy to Salinas.

Mid-Term Service Improvements

- Begin HSR operations Merced to Bakersfield, integrate ACE and San Joaquin networks into HSR trunk line.
- Extend San Joaquin Service from Merced to Union City.

Corridor ID

The Corridor ID initiative for the Capitol Corridor is the extension of the corridor to San Francisco to directly serve the SalesForce Transit Center, Reno/Sparks to more directly serve Trans Sierra market and to Salinas to serve Monterey County. It would also enhance the Capitol Corridor with more frequencies. The Capitol Corridor is currently in Step 1.

Another Corridor ID initiative is linking SMART service and the Capitol Corridor with a new service between Suisun and Novato, CA. This initiative is currently in Step 1.

The Corridor ID initiative for the San Joaquin Valley Corridor (ACE and San Joaquins) is the extension of the corridor to Marysville and Chico to serve the Sacramento Valley. This initiative would also enhance the San Joaquin Valley Corridor with more frequencies. The San Joaquin Valley Corridor is currently in Step 1.

High Speed Rail

Objective

Integrate the Northern California passenger rail network into the High-Speed Rail's Initial Operating Segment and begin passenger operations. Expedite construction of the rest of the High-Speed Rail system.

Near-Term Management / Construction

- Utilizing best management and engineering practices, within the funding available, complete and initiate service on the Merced – Bakersfield operating segment as an overhead electrified High-Speed Rail corridor using dedicated high-speed trainsets.



San Joaquin Valley Overcrossing and HSR Right of Way

Near-Term Service

- Begin HSR high-frequency demonstration service linked with a cross-platform transfer at Merced to the San Joaquins and ACE trains. Expand Thruway bus routes with greater frequencies to link all of California to the HSR trunk line.

Near-Term Planning / Engineering

- As funding is available, concurrent with the ramp-up of initial operations, begin pre-construction activities (mapping, geotechnical boring, utility identification and 70% design) for the Gilroy to Carlucci Rd and Bakersfield to Palmdale segments. Explore the cost/feasibility/timeline impacts of initially constructing only one tunnel for each of the longest tunnels of these extensions.
- Coordinate with Caltrain and the Union Pacific on the purchase of the San Jose to Gilroy HSR/ Caltrain right-of-way. Begin pre-construction activities to build an overhead catenary electrified double track rail line.

Mid-Term Management / Construction:

Begin concurrent construction of the San Francisco/San Jose to Carlucci Rd and Bakersfield to Palmdale segments.

Mid-Term Service

With the original HSR trainsets shifted to the San Francisco to Palmdale route, explore the acquisition of dual mode high-speed trainsets. This will enable one-seat auto competitive service between Sacramento and Los Angeles.

Near-Term Southern California Planning and Service:

- Integrate Brightline and Metrolink San Bernardino Line Service with through fares and upgraded car on each consist for Brightline passengers.
- Assist and coordinate with Brightline in the establishment of Thruway Bus connecting routes south to Perris, Escondido, eastern San Diego and Otay Mesa (Tijuana Airport) and routes east to Riverside, Palm Springs and the Coachella Valley.
- Leveraging Metrolink's Zero Emission Vehicle initiative, implement and test Discontinuous Catenary on Metrolink's Antelope Valley Line as a precursor to through HSR service using dual mode trainsets Sacramento – Los Angeles.
- LA Metro, Metrolink and Brightline coordinate on design and timeline for the construction of full overhead catenary between Rancho Cucamonga and Los Angeles.
- Coordinate with Brightline and the High Desert Corridor JPA to move to preconstruction and construction of the High Desert Corridor between Victorville and Palmdale.
- Explore non-high-speed rail funding sources to begin grade separation projects on the Burbank – Anaheim Rail Corridor. Grade separations are critical projects for the corridor and have the advantage of having independent utility, wide-spread near-term benefits and as was noted above can funded through non-HSR sources.
- As funding is available begin pre-construction activities (mapping, geotechnical, utility identification and 30% design) for the Burbank – Anaheim Rail Corridor fourth main track.

Mid-Term Southern California Planning and Construction

- Develop funding strategy and begin construction on LINKUS Phase B.
- Complete construction of High Desert Corridor between Victorville and Palmdale.
- Complete construction of full overhead catenary Rancho Cucamonga to Los Angeles Union Station to allow through service between Los Angeles and Las Vegas.

Long-Term Southern California Service

- With the high-speed line completed to Palmdale begin service connection with LOSSAN Corridor trains at Palmdale.
- Utilizing the High-Desert Corridor, also operate Brightline between Merced and Las Vegas service while CAHSR can operate fully electrified trains from San Francisco to Rancho Cucamonga.
- Utilizing dual mode HSR trainsets begin through service Sacramento to Los Angeles.

Electrification and Rolling Stock

The Transition from Diesel Traction.

Ultimate goal: Efficient Overhead Electrification, is the World standard.

- Issues – Hydrogen: Hydrogen is far less efficient than overhead catenary and even batteries; 39%, 90% and 77% respectively. This means to power trains by hydrogen require about two and half times more electrical generating capacity than if the train was powered directly, via overhead catenary, from the stationary power source. Also, there are concerns regarding the cost and source of hydrogen (grey or green) and doubts that hydrogen will have the capability to provide sufficient power and range for intercity and longer distance regional services.
- Issues – Batteries: Range, weight, recharge time and the grid improvements required for the single point recharging facility (at stations).
- Issues – Overhead electrification: primarily cost and lineside opposition.



Caltrain Stadler electrified KISS Regional train sets in San Francisco, CA

One option to explore is the overhead electrification of key route segments such as key stations along with high-power demand sections (grades). This investment would extend the range of dual mode battery OCS electric rolling stock. This dual mode rolling stock with a modest number of

batteries, frequently recharged enroute, and batteries not taxed by high power demand segments have the potential to deliver the best balance of start-up cost, reliability, range and performance while minimizing lineside issues.

Priority electrification routes

LOSSAN Corridor Moorpark – San Diego (electrification facilitates the new long tunnels required along the coast).

- Metrolink
  - Moorpark – Laguna Niguel
  - Via Princessa – Burbank
  - Los Angeles – San Bernardino (would enable Brightline trains from Las Vegas to serve Los Angeles Union Station directly)
- Capitol Corridor
  - Sacramento – San Jose
- ACE/San Joaquins
  - Natomas – Stockton
- ACE Stockton
  - Newark

Rolling Stock

There is an urgent need to start planning for a replacement of the California Cars. The largest order possible will drive car builder interest and pricing. To generate the largest order possible a standard design for a double-deck car for both intercity and regional, either loco hauled or multiple -unit, is required. For example, the Stadler KISS cars, newly introduced by Caltrain, are available with different interior designs and these different designs are in use as regional trains and intercity trains. The intercity trains offer first-class seating and dining/café car service.

A double- deck car design delivers maximum efficiency and is recommended because of 154 stations in California, only SMART has high level platforms. Systemwide high level boarding is costly and not necessary. A single car design can serve both high-level and low-level platforms. For example, the Stadler KISS cars, used by Caltrain, have doors that serve low-level platforms and doors that serve high-level platforms.

Near-Term

- Caltrans should establish an engineering/project management task force to identify and develop actionable solutions to the factors causing the cost per mile of overhead catenary system construction in California to exceed per mile costs, by a large measure, of OCS construction in peer European countries.
- In addition to testing the Stadler battery/electric catenary trainset in service San Francisco – San Jose – Gilroy, Caltrans should also support a test of discontinuous catenary by installing a key segment on catenary on a route with more demanding requirements (grades) such as Metrolink's Antelope Valley Line.
- Extend AB2503, the passenger rail exemption for overhead catenary electrification on existing rail rights-of-way from the California Environmental Quality Act, beyond 2030.

Governance and Statewide Planning and Initiatives

Governance

Multiple crises in Southern California demand a strong focus on moving forward with solutions. The combined existential threats of a transformation in the demand for business and work travel, together with multiple infrastructure failures on the busiest passenger rail route, resulting in line closure for prolonged periods, have highlighted the shortcomings found in the current governance structure. The current structure has been found to be lacking in its ability to move forward to meet the challenges outlined above.

In an effort to address this situation, SB1098, the Southern California Rail Revitalization Act, was passed by the Legislature and signed by the Governor. This act reengages Caltrans Division of Rail to be the lead agency tasked, along a specific timeline, to coordinate planning and prioritization of projects designed to move the LOSSAN Corridor forward. The goal is to improve current services and achieve ridership growth and performance consistent with State Rail Plan goals.

The strong expectation of RailPAC and other stakeholders is that Caltrans will bring strong leadership and a regional perspective for the LOSSAN Corridor megaproject vision and to the decision-making process that has been hampered by local parochial concerns in recent years. To meet this expectation, it is critical that several environmentally approved core capacity projects, vital for Metrolink and LOSSAN reliability and ridership growth, begin construction in the Near-Term.

While the Legislature left the current governance structure intact, local county ownership of rail rights-of-way and multiple JPA's operating the service, SB1098 tasked Caltrans and corridor stakeholders with exploring alternative management and operations models or structures that improve intercity and regional rail services.

RailPAC Recommends the Following:

- That Caltrans's Division of Rail takes the proactive lead in the direction of planning and development of the LOSSAN Corridor.
- That Caltrans Division of Rail should become the statewide focal point of leadership, expertise and institutional knowledge of rail within California.
- That Caltrans would continue to lead the initiative to establish a statewide all-agency ticketing system for public transportation, its Integrated Ticketing System.
- Likewise, Caltrans in managing the transition from diesel traction to zero emission along the LOSSAN Corridor, should recommend a ZEV technology commensurate with the goal of a high-performance, high-frequency and higher-speed service. It should also recommend a "future proof" technology that can seamlessly interface with the HSR overhead catenary system and operate safely in tunnels.
- Caltrans should pursue a standard rolling stock design compatible with high-level and low-level platforms (similar to Caltrain's KISS units).

Legislature

- Extend Cap & Trade from 2030 through 2045; retain current transportation allocations and provide a fixed funding allocation to California High-Speed Rail.
- Extend AB2503, the passenger rail exemption for overhead catenary electrification on existing rail rights-of-way from the California Environmental Quality Act, beyond 2030.
- Fully develop the guidelines developed as part of the SB445 legislation to speed up construction permitting and third-party agreements.
- Environmental metrics should be reevaluated. As a result of the public and economic benefits generated and because continuous right-of-way is critical to their operations, railroads have been given eminent domain powers and exempted from local laws. The California Environmental Quality Act should be modified to reflect the environmental and regional public benefits (more efficient land use and energy efficiency) of increased rail transportation. Currently the views of lineside stakeholders are over weighted while the community benefits to regional and statewide stakeholders are underweighted in the environmental analysis.
- Alternatively, the legislature could categorically exempt key rail network projects built within the current right-of-way. The operation of additional energy efficient trains on an existing right-of-way should not be considered a negative impact. Also given the issues RailPAC sees in implementing hydrogen and battery ZEV power, constructing overhead catenary should also not be considered a negative impact.

Other Statewide Initiatives

- Public ownership of the Coast Line between Moorpark to Lick (South of San Jose).
- Continue to work with Brightline and other private operators of rail service (e.g. Dreamstar Lines overnight LA-SF Coast Service) to facilitate the implementation of these services.

California Starvin' on the San Joaquin Line, Along With a Missed Connection

David Peter Alan, Railway Age Contributing Editor

RAILWAY AGE

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We thank Railway Age for their generous permission to republish this article!

A Siemens Mobility Venture trainset at the San Joaquin Regional Rail Commission facility in Stockton, Calif. (Caltrans)

"California Dreamin'" was one of the iconic songs of the sixties. It was about an Angelino enduring a New York winter and dreaming about his warm hometown (the inverse of the scenario in Irving Berlin's "White Christmas"). Barry McGuire recorded the original version in 1963, and the 1966 version by The Mamas & the Papas with Bud Shank's flute solo defined the song. Nostalgia aside, there seems to be a new custom in part of the Golden State: "California Starvin'" as practiced on Amtrak's San Joaquin trains between Bakersfield at the south end and the Bay Area and Sacramento at the north end.

For the past two months, the trains have not offered any food or beverage sales. On the newly delivered Siemens Venture cars, there are shelves with "free" snacks, cans of soda, and small bottles of water. The snacks consist of small bags of chips, pretzels, crackers, and, sometimes,

packaged cookies. The soda and water are kept at room temperature, and there is no ice to cool them. There is also no coffee or anything else to drink. The situation on the older, bilevel "Amtrak California" equipment is not much different. At one time, the "California Cafe" cars that appear in the consists once served meals as well as snacks. The tables where riders once ate those meals and the lounge area where other passengers consumed snacks and sips are still there, because the furniture is built in. The area where attendants once heated and sold the food and beverages now lies empty and unused. Instead, the booths serve merely as places to put the boxes that hold cans of warm soda, bottles of warm water, and small bags of snacking material that now comprise the only food offered to riders these days.

The move is not popular, and that includes with the train crews. One crew member said: "Salty snacks, warm water and warm soda is all they think you need." That employee also noted that 15 employees lost their jobs and others have taken a $2.00 per hour pay cut since Cinco de Mayo. In particular, the lack of coffee and the lack of ice to cool the water and soda have been sore points.

Did the local operating authority take the food away?

It appears that the agency that runs the San Joaquin trains is responsible for the loss of food and beverage service. Other corridors in California do not appear to be affected, even though many of the trips taken on those corridors are shorter than on the San Joaquin trains. I learned that firsthand on Monday, June 23, when I rode from Simi Valley to Los Angeles Union Station. Some Amtrak *Surfliner* trains honor Metrolink tickets, and I rode on Train 790, which runs from Santa Barbara to San Diego. The equipment on that train consisted of bilevel "Surfliner" cars. The train had a well-stocked snack and beverage inventory, and those items were not sold at a simple snack counter. Rather, that train carried a full-length Superliner observation-lounge car like the ones on long-distance trains.

The entity that oversees the San Joaquin trains, as well as the Altamont Commuter Express (ACE) commuter trains between San José and Stockton is the San Joaquin Joint Powers Authority (SJJPA). Its offices are located in Stockton, and it also oversees connecting bus service. We asked the SJJPA about the reason for eliminating food and drink on the San Joaquin trains, and for specific information regarding any potential claim that the move was made to save money: information about the revenue generated by such sales and about the cost of goods sold and of paying the attendants who used to sell those items. At this writing, the authority has not responded to our inquiry.

An inconvenient misconnect, too

For the most part, the San Joaquin corridor is an isolated service. Trains run through the Central Valley in California, and all of them terminate at Bakersfield, where all passengers going toward Los Angeles must change for connecting buses for a ride that lasts from approximately two hours and 20 minutes to three hours. At the north end, all except one daily frequency terminate at Oakland, in the East Bay. Connections are available at Martinez for the Capital Corridor between Sacramento and San José, through Oakland and Emeryville.

The only connection for passengers on the San Joaquin line to and from a long-distance train has been broken or, at least, is no longer recognized. Only one daily train in each direction does not continue north from Stockton to the East Bay but goes to Sacramento instead. There were previously two daily trains in each direction that served Lodi and Sacramento, but now the only one left was originally scheduled to connect with the *Coast Starlight* at Sacramento to and from points north as far as Seattle.

Northbound, Train 703 leaves Bakersfield at 6:12 PM and is scheduled to arrive at Sacramento at 11:35 PM, in time to catch Train 14, which is scheduled to leave at 11:49 PM. That was a reliable connection in the past, but now Amtrak advises passengers to take Train 719, which leaves two hours earlier, to Stockton. There is a connecting bus at Stockton, but it is scheduled to arrive at Sacramento at 10:10 PM; an hour and 30 minutes before Train 14 is scheduled to leave there. The result is that, instead of a two-seat ride on an all-rail route, riders now are required to put up with a trip time that is two hours longer, with a bus bridge. In theory, a rider could book a segment on Train 703 and another on Train 14 separately, but that would be risky.

Southbound, the former connection form Train 11 to Train 702 does not exist at all. Train 11 is scheduled to arrive at Sacramento at 6:28 AM. Train 702, the only train from there to Bakersfield, now leaves at 6:26 AM; two minutes before Train 11 is scheduled to arrive. In theory, the trains could connect. The running time of Train 14 to Chico, the next stop north of Sacramento, is an hour and 48 minutes. For Train 11 in the other direction, it's two hours and 14 minutes—26 minutes longer. Still, Amtrak will not recognize a connection that is now considered impossible under the advertised schedule. While Train 702 is scheduled to arrive at Bakersfield at 11:57 AM, passengers bound for the San Joaquin line must now take a bus to Stockton at 7:15 AM and spend an extra two hours traveling—the same as their northbound counterparts.

Could Amtrak avoid putting its riders through that additional hassle and longer travel time and negotiate new schedules with BNSF for the San Joaquin line (which runs on former Santa Fe track) and Union Pacific (the *Coast Starlight* and the line from south of Stockton to Sacramento, which run on former Southern Pacific lines)? It seems that it would be feasible to do so, and it depends on how much freight is now running on the old Shasta Route and the segment between Stockton and Sacramento.

Still, it would seem worth the effort for a governing authority like Amtrak or Caltrans (California's Department of Transportation) to work out a plan to restore the connection between the San Joaquin Valley and the *Coast Starlight* at Sacramento. Even if San Joaquin riders don't have much to eat or drink, they would at least be able to spend less time traveling and avoid a three-seat ride with a bus segment in the middle. Of course, if they could get their food and drink back, that would be good, too.

We also reached out to Amtrak for comment on the issues raised in this story but have not heard back at this writing. If Amtrak responds, we will update this story to tell you what Amtrak said.

Why California must stop investing in unproven hydrogen trains

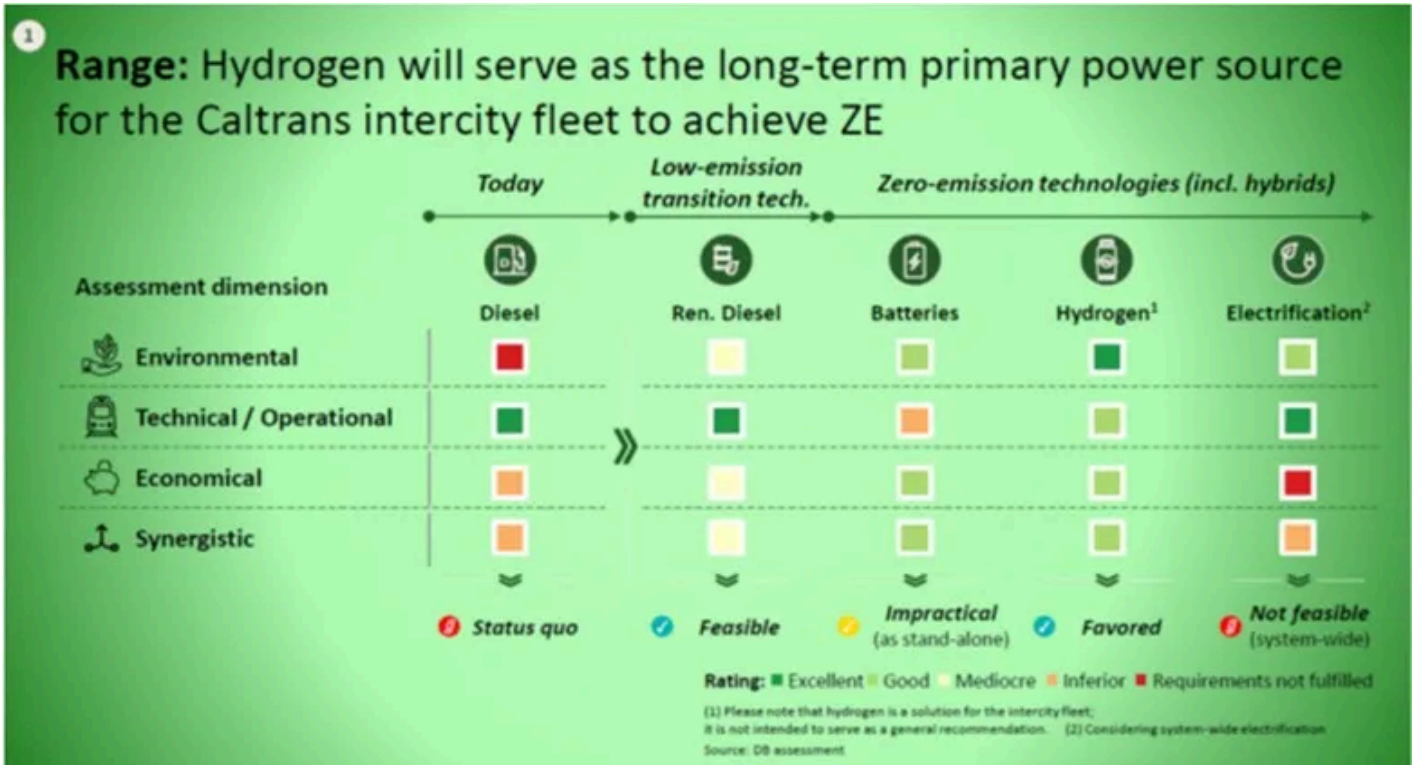
Adriana Rizzo



Modified from image from Nelso M. Silva, used under a Creative Commons Attribution Share Alike 2.0 license.

Over the past few years California has demonstrated remarkable coordination across many areas of state government to develop the market for hydrogen, driven largely by ARCHES, California's hydrogen hub, a public-private partnership run out of the Governor's office and funded by Biden-era tax credits. As the Trump administration has shown a remarkable commitment to clawing back money promised to California, and energy demand from data centers and Trump's war on renewable energy dimming the prospects of affordable green hydrogen, the hydrogen gravy train has hit a road block, but California's hydrogen hype continues to influence policy. CARB's now withdrawn locomotive regulation, the In-Use Locomotive Rule, counted fossil fuel-derived hydrogen as "zero emissions". Despite the new administration in Washington, CARB's August 2025 report to the governor on zero-emission vehicle deployment continues to recommend investment in hydrogen trains with no mention of other modes, and they continue to hype hydrogen in publications such as the zero-emissions rail dashboard. Finally, CalSTA purchased 10 hydrogen fuel cell trains (with an option to purchase 19 more) at the considerable cost of $21 million each for low-capacity trainsets, with no clear end use. Hydrogen trains are an immature technology with no history in North America and a rather poor track record outside of the US. Hydrogen trains have real environmental and operational disadvantages, threatening service disruptions and the locking in of current anemic levels of service for decades, so what was Caltrans' justification for this unusual purchase? Little more than colored squares on a chart, with no detailed technical analysis.

Californians for Electric Rail broke down the flaws in Caltrans' motivated reasoning in a recent whitepaper entitled "Running on Fumes: A Critical Analysis of Caltrans' 'Colored Squares' Justifications for Hydrogen Rail".



Environmental Comparison

Caltrans bizarrely ranks electrification as worse for the environment than hydrogen, which is an indirect greenhouse gas that easily escapes into the atmosphere, is mostly produced from fossil fuels with similar greenhouse gas impact to diesel, still uses 3 times more energy than electrification even for ‘green’ electrolytic hydrogen, consumes fresh water, and poses considerable safety hazards from leaks and explosions. Hydrogen trains have higher operating costs than catenary trains and are less reliable due to their inherent complexity and status as an emerging technology – thus, they discourage the frequent service we need to provide attractive alternatives to driving. A rail strategy built around hydrogen trains will hold back California’s vehicle miles travelled (VMT) reduction progress – the most impactful way rail can benefit climate. Caltrans’ justification for their ranking? “Visual impacts” from overhead wires. We put together our own chart based on actual data, which shows overhead catenary trains are the clear winner on environmental and operational grounds. Read the whitepaper for citations and calculation information.

Table 1: Side-by-side comparison of different rail propulsion methods

	Gasoline car, driving alone	Petroleum diesel train	Renewable diesel train	Battery electric train	OCS electric train	Fuel cell train, fossil hydrogen	Fuel cell train, green hydrogen
Energy efficiency		36%		56-77%	75-90%		20-39%
CO_2 emissions - grid, g CO_2/passenger-mile	400	149	63	3	1	108	3
Maximum speed	~100 mph	148 mph	148 mph	100 mph	357 mph	79 mph	79 mph
Range	403 mi	800-1000 mi	800-1000 mi	100-150 miles	unlimited	800-1000 miles	800-1000 miles
Optimal Frequency	--	--	--	< 1 train/ 30 min	> 1 train/ 15 min	< 1 train/hr	< 1 train/hr
NOx (mg/ passenger-mile)	190	1,245	1,094	2	1	8	2
PM 2.5 (mg /passenger-mile)	4	7	5	~0	~0	3	~0
Peak Travel Time, LA to San Diego	~3 hrs	2 hr 54 min	2 hr 54 min	2 hr 54 min	1 hr 40 min	2 hr 55 minutes	2 hr 55 minutes

Technical/Operational Comparison

Caltrans' analysis downplays the costs and risks associated with the underdeveloped hydrogen supply chain, while ignoring hydrogen's inability to meet current capacity or future speed requirements. Caltrans also does not even pay lip service to safety, which is the number one priority for transporting passengers. Hydrogen is considerably more prone to leaks and explosions than natural gas, and hydrogen bus fires are already a problem. Does California's hydrogen strategy have any plan to deal with the inevitable service disruptions, property damage, or lives lost to these hazards?

Economic

Caltrans' economic analysis downplays the high cost of hydrogen fuel cell rolling stock (both capital and O&M) and ignores the large capital costs associated with hydrogen refueling and safety infrastructure – which have seen large cost escalations at SBCTA's first in the nation hydrogen Arrow service between San Bernardino and Redlands, now one year behind schedule. In the long term and at higher levels of service, overhead electrification is the most cost-effective way to power a train. Caltrans' economic analyses are largely motivated by the $7 billion in federal money awarded to the ARCHES hydrogen hub, which is now in jeopardy due to the Trump Administration.

Synergistic

Hydrogen trains may be synergistic for the industrial hydrogen industry or Sempra, but not for a rail network. With hundreds of miles of overhead catenary in progress between Caltrain, California High Speed Rail, and Brightline West, overhead electrification is already the dominant zero emissions rail technology in the state. Thankfully the 2024 State Rail Plan recognizes this and calls for 1500 miles of overhead catenary, a major reversal from the 2022 hydrogen strategy critiqued here. Nevertheless, areas of the state rail network where CalSTA's 10 hydrogen fuel cell trains will be deployed will be disconnected from the wider network for the lifetime of the rolling stock – the opposite of synergy.

Hydrogen Trains in the Real World

Real world experience in Germany shows hydrogen trains have been a failure. The EBV line in Lower Saxony, Germany was the first in the world to run hydrogen trains in service, and saw chronic disruption from mechanical issues as well as shortages in hydrogen fuel. Meanwhile, the RMV line in Hesse near Frankfurt, saw a 19% reduction in service due to mechanical issues with its hydrogen trains, and offered an unprecedented two months in free service in an attempt to regain public trust. Both agencies have had to reintroduce diesel service to replace unreliable hydrogen trains, and are pursuing electrification moving forward. Rail agencies in Bavaria, Baden-Württemberg, and Austria have come to similar conclusions and have selected electrification over hydrogen trains due to cost and reliability issues.

Hydrogen-powered service on the Metrolink/SBCTA Arrow is set to begin this month on September 13th, one year late. The project experienced significant cost overruns and difficulties procuring hydrogen, as chronicled in previous RailPAC publications. Let's see whether the Arrow follows Germany's track record of service disruptions and eventual electrification. In the mean time, California would be better off dropping the "colored squares" justification and taking concrete steps to fulfill the State Rail Plan's call for statewide electrification.

SMART Update

Doug Kerr



The long-awaited Sonoma Marin Area Rail Transit (SMART) extension to the Town of Windsor started operations in late

May 2025. This three-mile northward extension was held up for years by a lawsuit and appeals regarding the funding source. Once service started, Windsor rapidly achieved the fifth highest weekday and fourth highest weekend ridership of SMART's 14 stations.

SMART's accomplishments in recent years include being the first Bay Area transit system to achieve pre-pandemic ridership levels after the 2020 pandemic. Ridership for FY24-25 exceeded 1.1 million with average weekday ridership over 4,500 in June 2025. For comparison, the Coaster serving San Diego (California's second largest city), weekday ridership runs about 2,400. San Diego County's population exceeds 3 million while Marin and Sonoma Counties' combined population is about 750,000.

One of the few shortcomings of SMART is its poor connection with other transit systems. SMART is not alone as this is a common problem with transit operations throughout the state. SMART recognizes the issue and is part of the Marin-Sonoma Coordinated Transit Service (MASCOTS) Plan. MASCOTS consists of nine entities, either transit operators or government transportation commissions associated with the two North Bay counties. MASCOTS makes a point that this is not a study, but a plan that will be implemented. The goal is to work as if one agency to grow ridership, increase connections, and reduce duplicate services. SMART will become the primary north-south operation with other operators providing timed connections with SMART trains. Plan implementation is targeted for early 2026. MASCOTS could become a model for other cities and counties to follow. The two North Bay counties account for less than 2% of California's large population but are leading the way on making public transportation a viable choice.

Status of Intercity & Regional Rail Projects in Southern California and on the Coast Line

Brian Yanity and Steve Roberts

Along the Coast Line and throughout Southern California there are significant rail projects underway. Some are in the planning process, others await full funding, some are engaged in pre-construction and permitting activities while others are under construction. Outlined below is a list of rail projects and their status.

Sorrento to Miramar Double-Track

- Phase 1, one mile of track and a bridge replacement, completed.
- Phase 2, two miles of additional track and alignment improvements, final environmental review and property acquisition underway.

Del Mar Bluffs Stabilization

- Phase 5, support columns, new retaining walls and expanded drainage, under construction.

Del Mar Route Realignment

- Route options reduced to three alternatives. An Environmental Study of these three alternatives is underway.

San Dieguito Double Track and Bridge Replacement

- 1 miles of double-track, a bridge replacement over San Dieguito Lagoon and a special events platform at Del Mar Fairgrounds. Construction is scheduled to begin in 2026.

Batiquitos Lagoon Double-Track Bridge Replacement

- New 0.6-mile double-track bridge which will allow additional double track to be constructed. Under construction, completion is estimated in 2028.

North Oceanside Double-Track Bridge Replacement

- Double track bridge replacement and one-mile of double-track. This project will connect two segments of double track allowing a 10.3-mile stretch of double-track. Construction is beginning.

San Onofre – Pulgas Double-Track

- Phase 1, 4.2-miles of double track and bridge replacement completed,
- Phase 2 and 3, Pulgas Rd to San Onofre, under design and permitting.

Serra Siding South

- Replacement of the life-expired bridge over CA-1 in Dana Point under design.
- Extension of Serra Siding south to Capistrano Beach postponed to develop additional community engagement.

Serra Siding North

- San Juan Creek bridge in San Juan Capistrano with double-track footings expected to be completed in November 2025.
- Extension of Serra Siding north over the San Juan Creek bridge to just south of the San Juan Capistrano station platform will be a RailPAC advocacy priority .

Orange County Maintenance Center

- Construction by Metrolink of a mid-route train turn-around, train overnight layover and maintenance facility. Construction delayed by a lawsuit by the City of Irvine. Negotiations underway between the City and Orange County Transportation Authority for a settlement. Construction can begin once the lawsuit is completed.

Fullerton Interlocking

- This project involves the realignment of Fullerton Interlocking (including 3rd Main Track Raymond to Atwood), just east of the Fullerton station on the BNSF line to Riverside. Design and permitting underway. Construction expected to be completed in 2028.

Third Main Track Atwood to Esperanza

- Additional track on BNSF line to Riverside. Design and permitting underway.

Third Main Track between Hobart and Fullerton

- The third main track is in-service improving reliability. Per BNSF, additional Metrolink schedules cannot be added to leverage this capacity until three grade separations are completed – Lakewood Blvd., Pioneer Blvd. and Los Nietos Rd/Norwalk Blvd. There is a possibility that BNSF may let Metrolink utilize the capacity of the third main track during the Olympics in 2028.

LinkUS

- This project involves the conversion of Los Angeles Union Station into a through station. Demolition of buildings in the footprint of the south viaduct have begun. A contractor was brought on-board in July 2025. LA Metro expects final NEPA clearance this Fall. Design is at 65% level. Early works, such as pre-construction and utility relocation, will begin in 2026. FlatironDragos has been chosen as the prime contractor for pre-construction activities. Segments of the project will begin construction in 2027.

Brightline

- Geotechnical word and final design for the project continue. It appears that Brightline has started work on drainage infrastructure on its station property in Las Vegas.

Metrolink: San Bernardino Line

- Three siding extensions, Marengo Siding, El Monte Siding and Rancho Cucamonga have been bundled into one package and are out for bid. These siding improvements should allow half-hour bidirectional frequencies during the Olympics. Lilac to Sycamore Double-Track has been funded so the process toward

construction is set to begin. Lone Hill to White Ave. Double-Track will be the next project undertaken after these other projects are completed.

Metrolink: Antelope Valley Line

- Three projects, Canyon Siding extension, Balboa Double-Track and Lancaster Terminal Improvements. All these projects are moving toward construction but will likely not be completed before the Olympics. Brighton – McGinley Double-Track will be the next track project undertaken on the AVL Line. Despite this short-fall in capacity Metrolink will be able to offer half-hour bidirectional frequency between Santa Clarita and Los Angeles.

Metrolink: Ventura Line

- Simi Valley Double-Track is ready to begin construction but some additional requirements from the Union Pacific have delayed the start of construction. This project likely will not be completed before the Olympics.
- The pedestrian access and safety improvements project at Chatsworth Station is close to moving toward constructions. These improvements, in addition to improving passenger access and safety, increase speeds and operational reliability by eliminating station “hold-outs” and allow two trains to stop at the station at the same time.

Coast Line: Moorpark to San Luis Obispo

- Leesdale siding, between Oxnard and Camarillo, extension is funded, creating a 3.2-mile siding. The project is moving forward with design currently at 60%, with 100% design completed in 2026.
- Rice Ave. grade separation, a very busy road near Oxnard, is under construction.
- Ortega siding, a new siding between Carpinteria and Santa Barbara, is under design (10% completed at present 100% design completion in 2027).
- Redesigned and expanded Goleta turnaround, layover and service facility, 30% design completed.
- New Goleta station, under construction estimated completion 2026.
- There are several locations along the route where the ocean bluffs are eroding. It is critical that this bluff collapse be addressed before service can be expanded. One of these locations, Surfin’ Cowboy, was recently completed. A second location, Hollister Bluffs is under construction.
- The Canada Honda bridge replacement over a major canyon was just completed.
- Santa Ynez River Bridge, located just north of the Surf station, is life-expired and must be replaced before service is expanded. Union Pacific is starting the environmental study to replace this bridge.
- Orcutt Road Left-Hand Crossover, located just south of San Luis Obispo, creates a universal crossover which provides operational capacity and flexibility to operate additional trains. Project is under design with planned completion in 2028.
- Central Coast Layover and Maintenance Facility at San Luis Obispo will provide the capacity to operate additional frequencies north and south. Project is finishing design and near to entering pre-construction. Construction will begin Mid-2026 with completion in late 2027.

Coast Line: San Luis Obispo to San Jose

- Positive Train Control (PTC); a cost increase resulted in a reduction of scope for the PTC installation. Newark – Elmhurst was postponed while Gilroy to Salinas and Salinas to San Luis Obispo will be funded. A letter was sent to the FRA about the scope change while the Union Pacific will move forward with design.
- Templeton Siding Improvements; upgrades Templeton siding (located south of Paso Robles) to a controlled siding with dispatcher-controlled switches and signals. Design, permitting, preconstruction component purchase and construction is pending. Completion is forecast to occur in 2029.
- King City Transit Center and siding upgrade. A new station will be constructed at King City and the siding upgraded to a controlled siding with dispatcher-controlled switches and signals. Completion is forecast for 2029
- Elkhorn Slough is a low-level crossing of a tidal slough that is a few feet above mean sea level. The trestle is life-expired and is over-topped by King Tides. It is at risk for sea-level rise, storm surge and flooding. A new replacement higher level trestle is proposed. The environmental process is just beginning.

- Monterey County Rail Extension is the operation of Caltrain Service (San Jose) Gilroy to Salinas. The Transportation Authority of Monterey County (TAMC) is the lead agency for the extension of Caltrain Service from Gilroy to Salinas. An early phase, the complete rebuilding of the Salinas Station, was completed. The current initiative consists of three phases. The first phase, currently underway, is the construction of the Salinas Layover Facility. The facility is at 30% design, with final railroad negotiations and right-of-way acquisition taking place. Construction will commence once these steps are concluded. Also included in phase one are the Gilroy Station and Track Improvements. Currently Gilroy is a stub end station with platforms and layover facility adjacent to the main line. This project extends one of station platform/layover track south to connect into the mainline and extends the Carnadero double-track through the Gilroy station. This project is in design and railroad negotiations. Phase two is the construction of a Pajaro-Watsonville station. This station will be the connecting point to any Santa Cruz service. The project is in the public outreach step of the environmental planning process. Phase three is the construction of a station at Castroville. Castroville will be the connection station for service to Monterey. The project is environmentally cleared with 60% design completed. Funding is needed to move to 100% design and to begin pre-construction.
- Gilroy – San Jose construction of a double-track higher speed electrified rail line with overhead catenary between Gilroy and San Jose. This project is part of California High-Speed Rail, and the project timeline may be accelerated if the legislature adopts the Authority's recommendation. The project is environmental cleared with 15% design completed.
- San Jose Diridon Station; expansion of San Jose's Diridon Station to accommodate BART, expanded Caltrain, ACE, Capitol Corridor and High-Speed Rail Service. The Alternatives Analysis was completed in August 2025 with the recommendation of an at-grade station. Building on the findings and recommendations of the Alternative Analysis, high-level design and planning work will continue.

Coast Line: San Jose to Oakland

- The Santa Clara Interlocking project adds a crossover just north of the Santa Clara Caltrain Station to reduce single tracking and add flexibility to the junction of the Coast Subdivision and the Peninsula subdivision at Santa Clara. Project is funded and under design and pre-construction.
- The Agnew siding project adds a new siding just south of the Santa Clara – Great America ACE/Capitol Corridor Station. This siding adds operational flexibility and improves reliability on this segment of the Coast Line. It also provides a location to stage trains for special events at Levi's Stadium. Project is funded and under design and pre-construction.
- Alviso Wetland Railroad Adaption Alternatives Study; this project addresses life-expired bridges and trestles across the Alviso Wetland, increases the rail line's capacity with a new double-track railroad and raises the railroad while increasing water flow to address sea-level rise, flooding and the health of the wetland. Initial Alternatives Analysis completed, additional planning and environmental studies require funding.
- Newark/Albrae Siding Extension project connects the double-track through Centerville/Fremont with the Albrae siding south of the junction at Newark to add 2-miles to the existing double-track. Project is funded and under design and pre-construction.
- The South Bay Connect constructs an additional track between Newark and North Elmhurst and shifting the Capitol Corridor trains from the Niles subdivision (current route via Hayward) to the Coast subdivision (the current route of the Coast Starlight). A new station would be constructed at Ardenwood (State Route 84). Project is funded and under design and pre-construction.

Corridor ID

All of California Corridors have completed Step 1 of the Corridor ID process, development of scope and budget for the Service Development Plan (Step 2). When the next notice of funding opportunity is announced Caltrans will apply for funding to undertake Step 2 of the Corridor ID process. Fulfilling the requirements of the Corridor ID process is required if a project is to be eligible for Federal funding.

The nine California Corridors in the Corridor ID process are:

- LOSSAN Corridor, San Diego – San Ysidro
- Additional LOSSAN Corridor frequencies San Luis Obispo – San Diego.
- Central Coast Corridor, San Luis Obispo – San Jose.
- Coachella Valley Corridor
- Brightline West
- High-Desert Corridor
- California High-Speed Rail Phase 1
- San Joaquin Valley Corridor, Merced – Natomas (Sacramento) / Oakland
- Capitol Corridor extension to Reno and Suisun – Novato

from the rear platform

Paul Dyson



After a few months of hiatus I'm back to clicking the keyboard and contributing once again to Steel Wheels. While I am sad that we can no longer afford a print version, (if the Atlanta Journal Constitution cannot run a print edition after 150 years, who can?) the online version, coupled with regular posts of news and opinions, enables us to be much more topical. And don't forget that RailPAC still needs funds to operate and still needs members to maintain our credibility with elected officials.

Uncomfortable Parallels

Over the years regular readers of this column will have noted my very high regard for "Modern Railways", the UK monthly magazine that I devour from end to end, all 100 pages of it. One columnist, Ian Walmsley, is a retired mechanical engineer and his to-the-point commentaries should be compulsory reading for rail managers everywhere. From the August 2025 edition I quote because the parallels with the US are extraordinary, and sadly, not in a good way: *"In this 200th year of rail it is good to celebrate the achievements of the past, partly because achievements of the present are few and far between. What's left of HS2 is delayed again, and yet more expensive. New trains are 5 years late and counting…..Train service delays stretching into many hours are no longer surprising."* Walmsley goes on to comment on the "*advertorial trade press" and LinkedIn, where everyone gets a "well done" for things like remaining on a job or just doing what they are paid for."*

It's not hard to see the similarities between CAHSR and HS2, and the comment on new trains vis a vis Superliner replacements and new trains for the California corridors. We are suffering from terrible deficit of execution. There is no shortage of plans. RailPAC Board member Robert Frampton is constantly updating a *long* spreadsheet of infrastructure projects around southern California, but how many are completed, and how long did they take? Leesdale siding, a straightforward three miles of straight track on level ground across the Oxnard plain, is still in planning. The process began in 2022 with completion now expected in 2027. At least 5 years for 3 miles of second main line. Sadly, I get no sense of urgency when I attend meetings of the various Boards responsible for these projects. "That's just the way it is" is the prevailing attitude.

Motive Power Matters

Patch

Clogged Toilets And No AC: Chicago Amtrak Passengers Stranded For Hours In MI

BATTLE CREEK, MI — Passengers traveling from Chicago to Dearborn, Michigan, spent hours trapped inside a hot, smelly Amtrak train with...



When the purchase by Metrolink of the EMD F125 locomotives was announced back in 2016, many of us in the industry expressed concern that the design relied on power drawn from the main engine (prime mover) to provide heat and air conditioning to the train. The locomotives to be replaced all had an auxiliary diesel engine (HEP engine) and therefore independent of the prime mover to perform this function. However, the need to meet the emission target known as Tier 4 drove the decision to eliminate the HEP engine and therefore remove its emissions from the equation. Mission accomplished. The new locomotives could now meet Tier 4, aided not only by the elimination of the HEP emissions but also by removing weight of the second engine. Siemens, the competitor to the EMD F125 with their "Charger" locomotive, followed the same logic and likewise eliminated the HEP engine. But the question arises, what happens when the prime mover fails and the train is stranded?

As the recent incident on the Chicago – Detroit service attests, what happens is that the passengers on the train experience, at minimum, extreme discomfort as, in this case, the interior becomes uncomfortably hot. This discomfort can soon become dangerous to less healthy people, made worse by frustration and ultimately panic. The trains powered by these new locomotives are equally vulnerable in conditions of extreme cold. Those agencies that were responsible for setting the emissions targets were either willing to take on the added risk to the passengers, or more likely were ignorant of the consequences of an in-service main engine failure. Perhaps they were given reassurances by the manufacturers that their engines were so reliable that the risk was minimal.

Once I again I lay the problem at the feet of the Boards of Amtrak, SCRRA/Metrolink and others for passively accepting the specification of these new locomotives without questioning the risk factor to the passenger. And again I am convinced that the fault lies in the selection of Board members for political reasons, rather than for their industry knowledge. I don't expect them to have the answers. They simply don't know the questions to ask.