Camarillo & Oxnard Station ADA Improvements

Accessibility Compliance with USDOT Level Boarding Regulation

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Prepared for: Ventura County Transportation Commission

October 3, 2024

Draft Report

United States Department of Transporation
Federal Transit Administration

U.S. Department of Transportation
Federal Railroad Administration

Accessibility Compliance with USDOT Level Boarding Regulation

Submitted: _____ Date 10/3/2024

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Revision	Author	Organization	Date	Description
Revision 0	Danielle Peña	RailPros	10/3/2024	Draft Issued

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List of Acronyms

AREMA	American Railway Engineering and Maintenance-of-Way Association
CEQA	California Environmental Quality Act
CM	Construction Management
CPUC	California Public Utilities Commission
CTC	California Transportation Commission
DPM	Design Procedures Manual
FEMA	Federal Emergency Management Agency
FRA	Federal Railroad Administration
GCN	Geodetic Control Network
GCOR	General Code of Operating Rules
H&H	Hydrology and Hydraulics
IFB	Information for Bid
LAUS	Los Angeles Union Station
LOSSAN	Los Angeles – San Diego – San Luis Obispo Pacific Surfliner Corridor
MOSI	Metrolink Operational Supplemental Instruction
MT	Main Track
NOE	Notice of Exemption
NSRS	National Spatial Reference System
PDT	Project Development Team
PE	Preliminary Engineering
PS&E	Plans, Specifications, and Estimate
PSR	Pacific Surfliner
PWP	Project Work Plan
QA/QC	Quality Assurance and Quality Control
RCTC	Riverside County Transportation Commission
ROW	Right-of-Way
SCRRA	Southern California Regional Rail Authority (Metrolink)
VCL	Ventura County Line
VCTC	Ventura County Transportation Commission
UPRR	Union Pacific Railroad

1 INTRODUCTION

This Accessibility Compliance Report (Report) is submitted by the Ventura County Transportation Commission (VCTC) for ADA accessibility infrastructure improvements planned for the Camarillo and Oxnard stations (Project). The improvements include the reconstruction of sidewalks, ramps and mini-high platforms which will enhance accessibility at both stations and will serve passengers using both the Metrolink passenger regional (commuter) rail system, operated by the Southern California Regional Rail Authority (SCRRA), and two Amtrak services. Both Stations are located on the Santa Barbara Subdivision which is owned and maintained by the Union Pacific Railroad and is part of the Los Angeles – San Diego – San Luis Obispo (LOSSAN) corridor.

Metrolink services both Camarillo and Oxnard stations on its Ventura County Line (VCL) operating between Los Angeles Union Station (LAUS) and East Ventura. The Amtrak Pacific Surfliner (PSR) operates between San Diego and San Luis Obispo, CA and the Coast Starlight operates between Los Angeles Union Station (LAUS) and Seattle, WA. Camarillo Station is located within the City of Camarillo in the County of Ventura, California at MP 413.4 of the Santa Barbara Subdivision while the Oxnard Station is located within the City of Oxnard, also in the county of Ventura, California at MP 404.0. The station locations on the Metrolink system map are shown in Figure 1.

In accordance with the amended Americans with Disability Act of 1990 (ADA) (42 U.S.C. 1201 et seq.) (49 CFR 37.42), “individuals with disabilities, including individuals who use wheelchairs, must have access to all accessible cars available to passengers without disabilities in each train using a station”. This regulation applies to projects that include new and/or altered station platforms. As such, VCTC prepared this report to outline the analysis conducted on solutions to comply with this regulation.

This Report provides an analysis of the accessibility options for the proposed platform improvements at Camarillo and Oxnard stations. The information provided in this Report constitutes VCTC’s site-specific “Rail Accessibility Plan” for USDOT stakeholder agencies to assess the Project’s compliance with performance standards established in 49 CFR Parts 37 and 38.

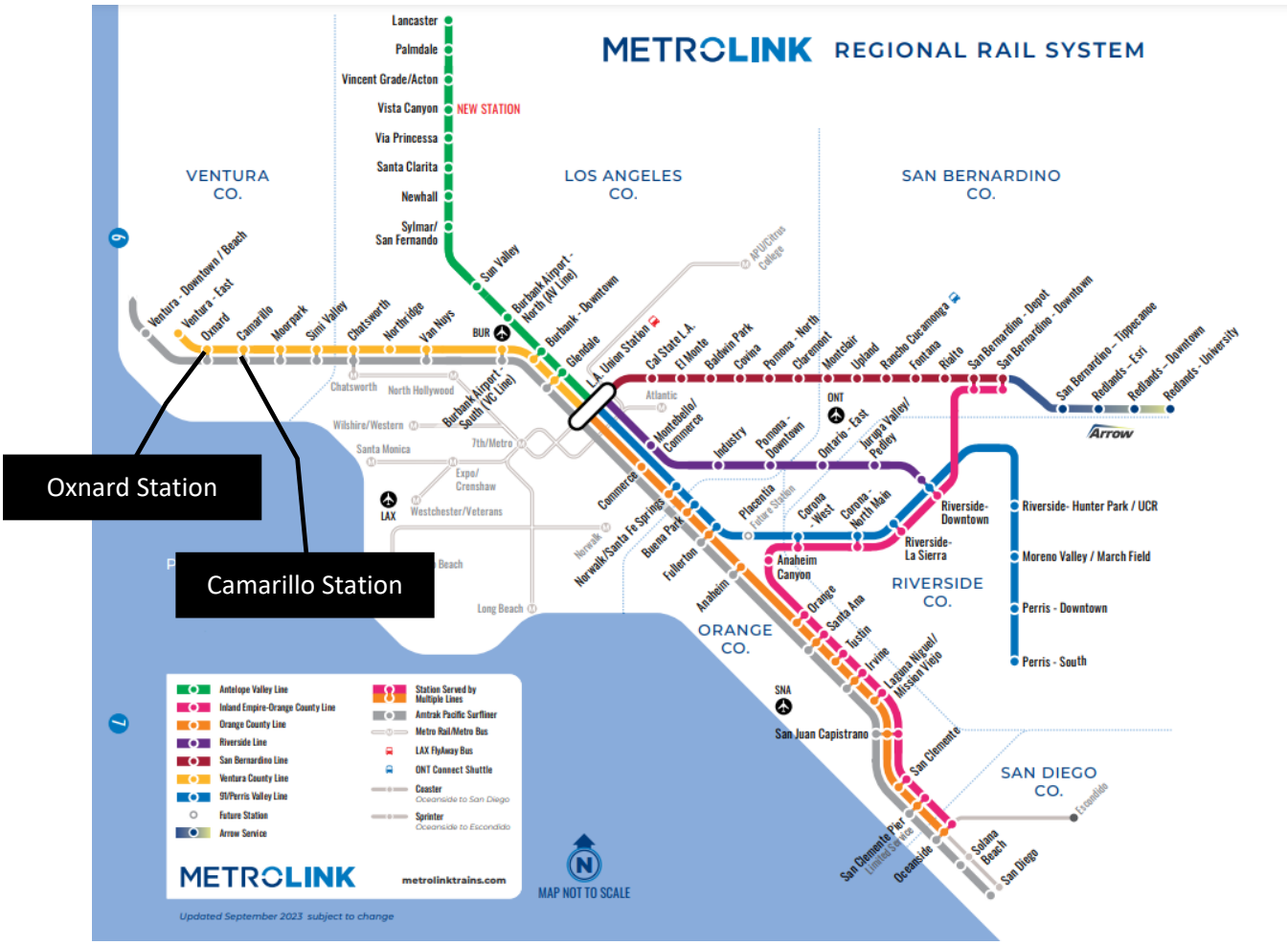


Figure 1. Metrolink Route Map - Camarillo & Oxnard ADA Improvements

1.1 Agency Overviews

1.1.1 Ventura County Transit Commission (VCTC)

The Ventura County Transportation Commission (VCTC) is the regional transportation planning responsible for establishing transportation policies and priorities to ensure an equitable allocation of federal, state, and local funds for highway, transit, rail, bicycle, and other transportation projects. VCTC is one of five member agencies which make up the Southern California Regional Rail Authority (SCRRA) and provides funding and oversight for rail transportation assets within the county of Ventura which are not owned by Metrolink or other agencies, municipalities, or other entities.

1.1.2 Southern California Regional Rail Authority (SCRRA)

The SCRRA is a Joint-Powers Authority (JPA) established in 1991 to plan, design, build, and operate commuter rail service in the southern California region. The JPA is made up of five member agencies; including Los Angeles County Metropolitan Transportation Authority, Orange County Transportation Authority, San Bernardino Associated Governments, Ventura County Transportation Commission, and Riverside County Transportation Commission. This regional commuter passenger rail service known as Metrolink, and operated by SCRRA, began in October 1992. Metrolink serves 67 stations in six counties.

The entire Metrolink system is shown in Figure 1. The SCRRA member-agency for Ventura County is the VCTC.

1.2 Stations

This compliance report covers two stations: Camarillo Station and Oxnard Station, each located in Ventura County and each along the LOSSAN Corridor on trackage owned and maintained by UPRR, with a mix of both freight and passenger traffic. Work at both Camarillo and Oxnard Stations will consist of updates to existing station platforms focusing on improving accessibility.

The ADA pathway locations vary depending on the station. The stations provide ADA pathways from the back of the platform(s) and will then connect to the station parking lot(s) and any plaza areas.

Table 1 – Measurement Summary

	Metrolink	Amtrak Pacific Surfliner & Coast Starlight
Platform Heights Above Top of Rail (ATR)	8" ATR	8" ATR
Platform Edge Horizontal Distance from Centerline of Track	5’4”	5’4”
Vehicle Floor Height ATR	First step is 10” above platform (18” ATR); Floor height is at 25” ATR	California Cars & Superliner: 17.5” ATR Single Level Intercity: 48” ATR
Vehicle Outside Horizontal Extents from Centerline of Vehicle	59”	California Cars & Superliner: 61” ATR Single Level Intercity: 30” ATR

Table 2 – Station Summary

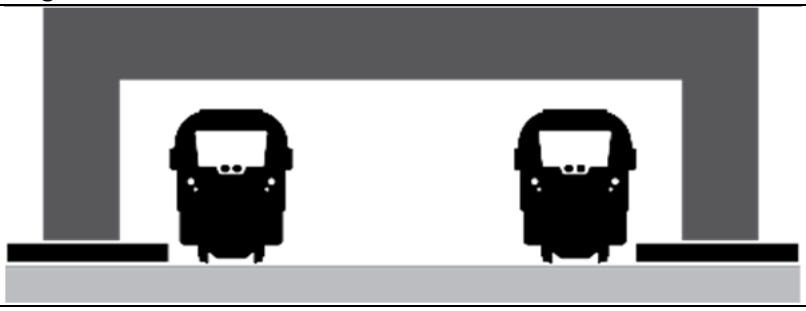
No.	Station	Host RR	UPRR Subdivision	Existing Services
1	Camarillo	UPRR	Santa Barbara	Metrolink, Pacific Surfliner
2	Oxnard	UPRR	Santa Barbara	Metrolink, Pacific Surfliner, Coast Starlight

1.2.1 Camarillo Station

Camarillo Station is located in the City of Camarillo and County of Ventura, CA, at 30 South Lewis Rd, 93010, on the Santa Barbara Subdivision approximately between mileposts 413.3 and 413.5, east of Lewis Road spanning beneath the US-101 overpass. The Project location is shown in Figure 2 and the existing passenger station site is shown in Figures 3 and 4.

Scope of Work at Camarillo Station include station pavement replacement and platform tactile edge replacement for the length of each platform. Mini-high ramps and mini-high platforms will be replaced to meet current SCRRA Standards with some modifications to fit within the constraints of existing surrounding overhead structures. Additionally, non-compliant station signage and reflective glass will be updated to ADA compliant glare resistant glass and ADA compliant signage.

Table 3 – Camarillo Station Data

Data	**Camarillo Station**
City:	Camarillo
County:	Ventura
Community Location or Address:	30 S Lewis Rd, Camarillo, CA 93010
Railroad, Subdivision and MP:	UPRR, Santa Barbara Sub, MP 413.4
Key Nearby Features:	Mission Oaks/ Flynn Rd Industrial Park, Ponderosa Shopping Center, Central Camarillo Residential and commercial neighborhoods
Pedestrian Access Type/Typology:	
Platform Length:	830’
Train Speeds:	79/60 MPH Passenger / Freight
Current Trains/Day:	32 (Passenger) / 4 (freight)
Tracks:	1 mainline, 1 siding track
Proposed Level Boarding Method:	One mini-high platform serving each platform used with bridge plates for Metrolink service.

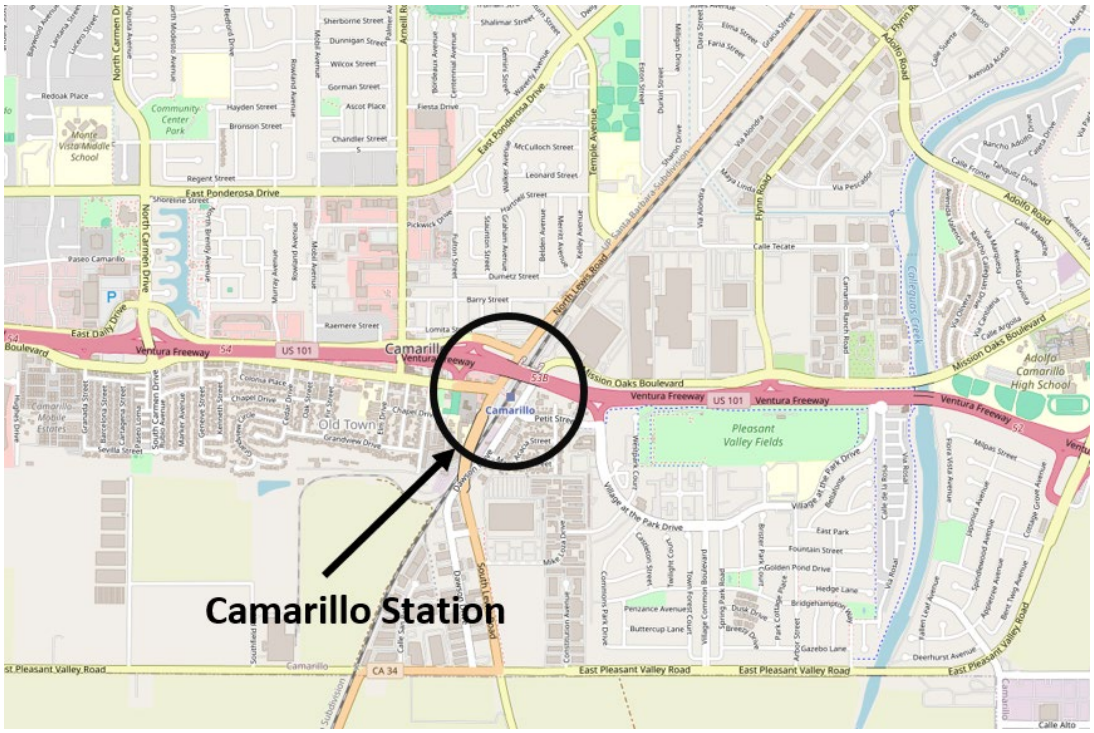


Figure 2. Camarillo Station Location

Figure 3. Camarillo Station Site Map

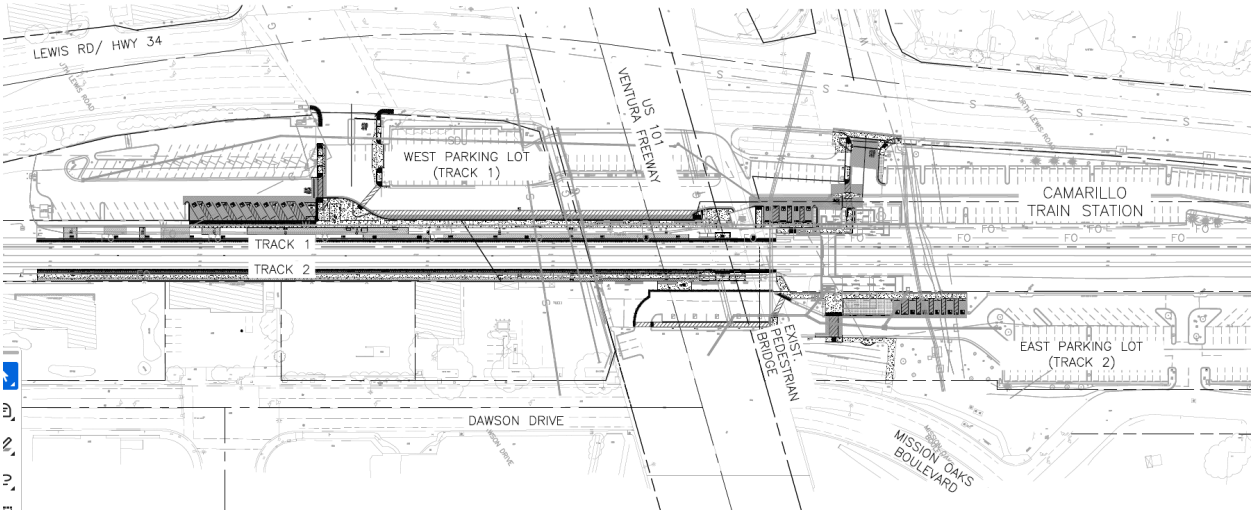


Figure 4. Station ADA Project Layout (not to scale)

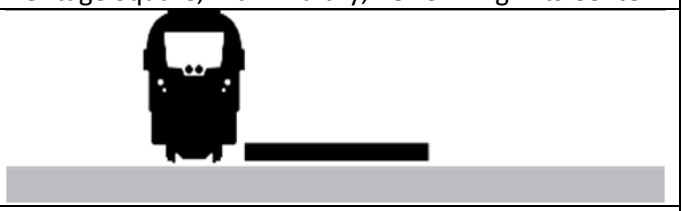
Figure 5. Site Photos of existing Camarillo Station

1.2.2 Oxnard Station

Oxnard Station is located in the City of Oxnard and County of Ventura, CA, at 201 E 4th St, Oxnard, CA 93030, on the Santa Barbara Subdivision at milepost 404.0, The station platform spans beneath the 3rd St. overpass and the station is connected to the adjacent OTC Bus Terminal. The Project location and the existing passenger station site are shown in the upcoming figures.

Scope of Work at Oxnard Station includes station pavement and platform tactile edge replacement. Non-compliant sections of mini-high ramps and platforms will be replaced to meet current SCRRA Standards. Additionally, non-compliant station signage and reflective glass will be updated to ADA compliant glare resistant glass and ADA compliant signage.

Table 4 – Oxnard Station Data

Data	**Oxnard Station**
City:	Oxnard
County:	Ventura
Community Location or Address:	201 E 4th St, Oxnard, CA 93030
Railroad, Subdivision and MP:	UPRR, Santa Barbara Sub, MP 404.0
Key Nearby Features:	OTC Bus Terminal, Oxnard Central Business District, Heritage Square, Main Library, Performing Arts Center
Pedestrian Access Type/Typology:	
Platform Length:	985’
Train Speeds:	45/40 MPH Passenger/Freight
Current Trains/Day:	32 (Passenger) / 4 (freight)
Tracks:	1 mainline, 1 siding, multiple industry tracks
Proposed Level Boarding Method:	One mini-high platform serving the platform used with bridge plates for Metrolink service. A portable wheelchair lift will be used for Amtrak service as well as ADA compliant bridge plate ramps.

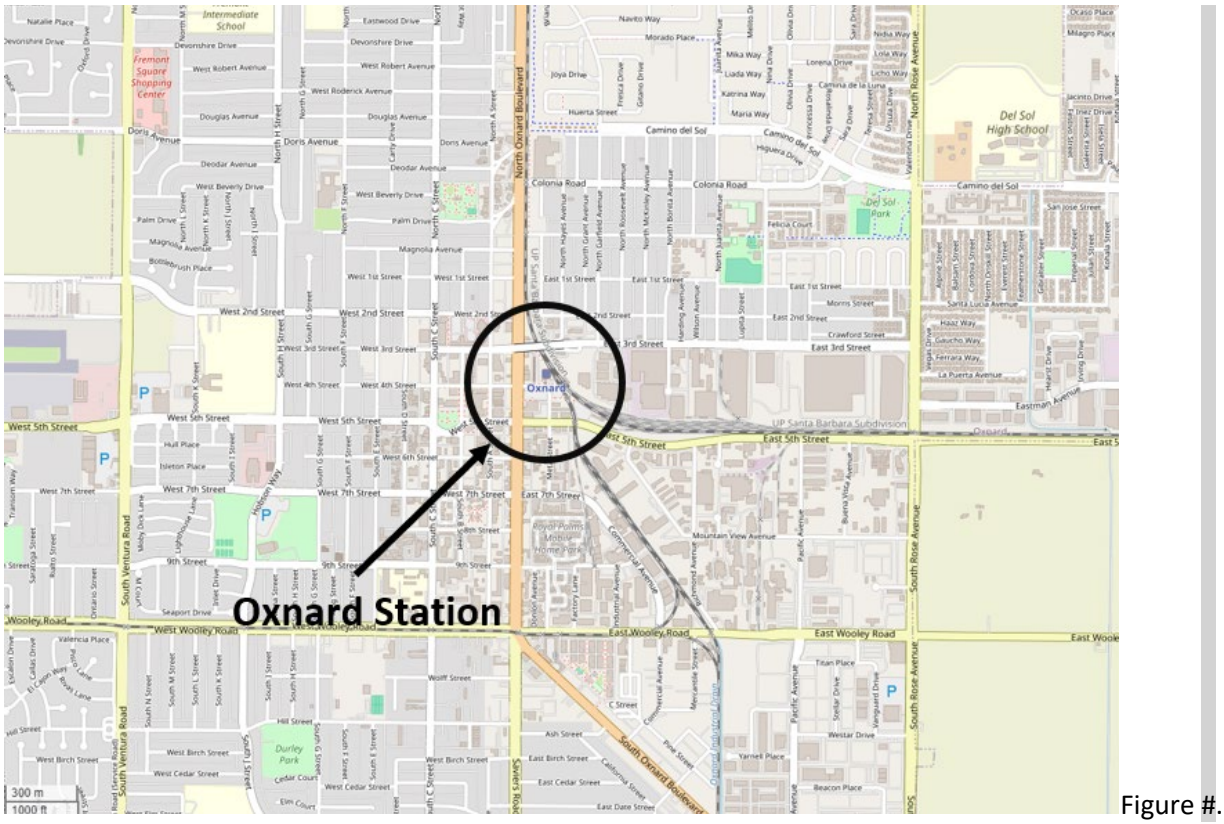


Figure #.

Figure 6. Oxnard Station Location

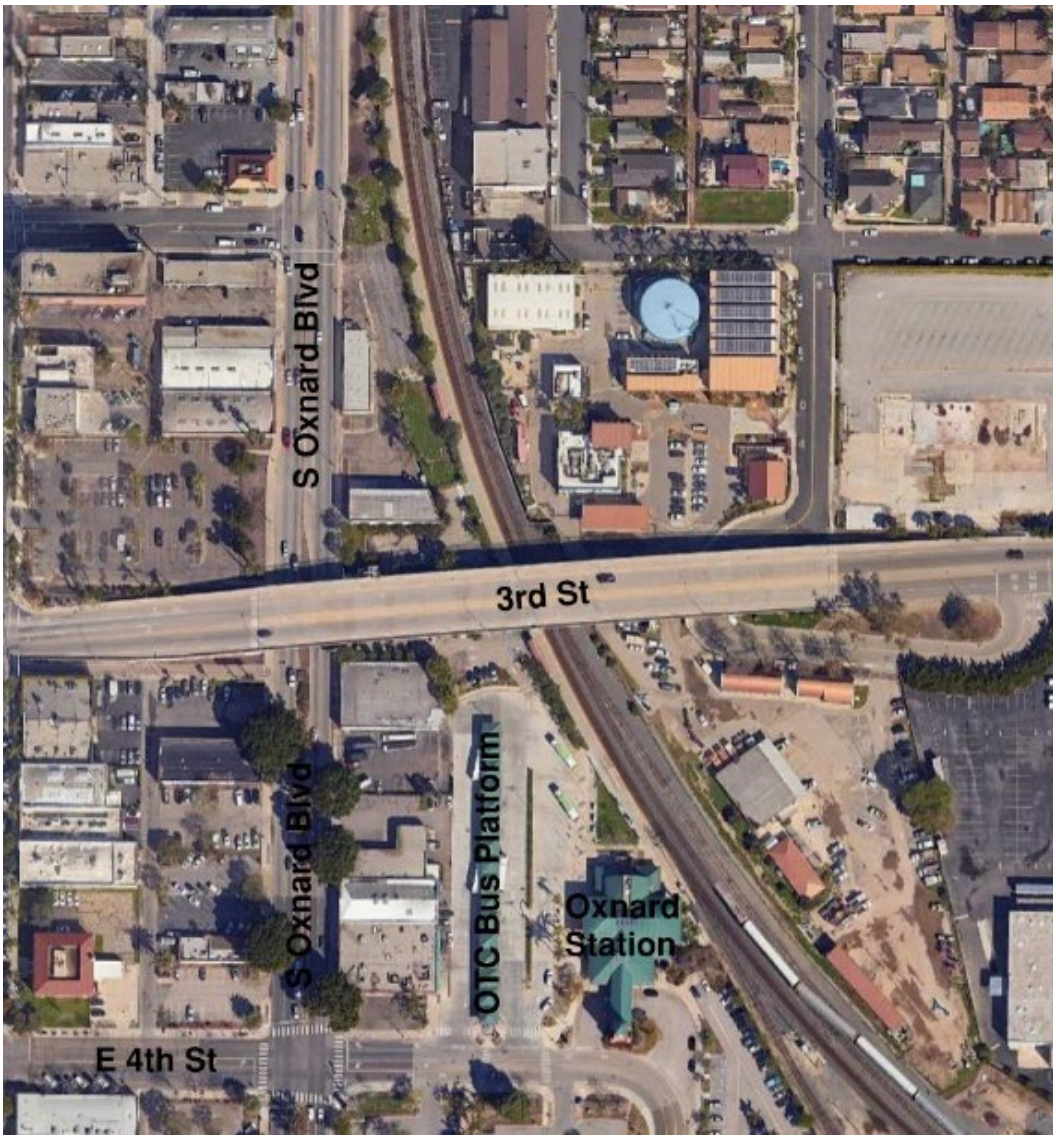


Figure 7. Oxnard Station Site Map

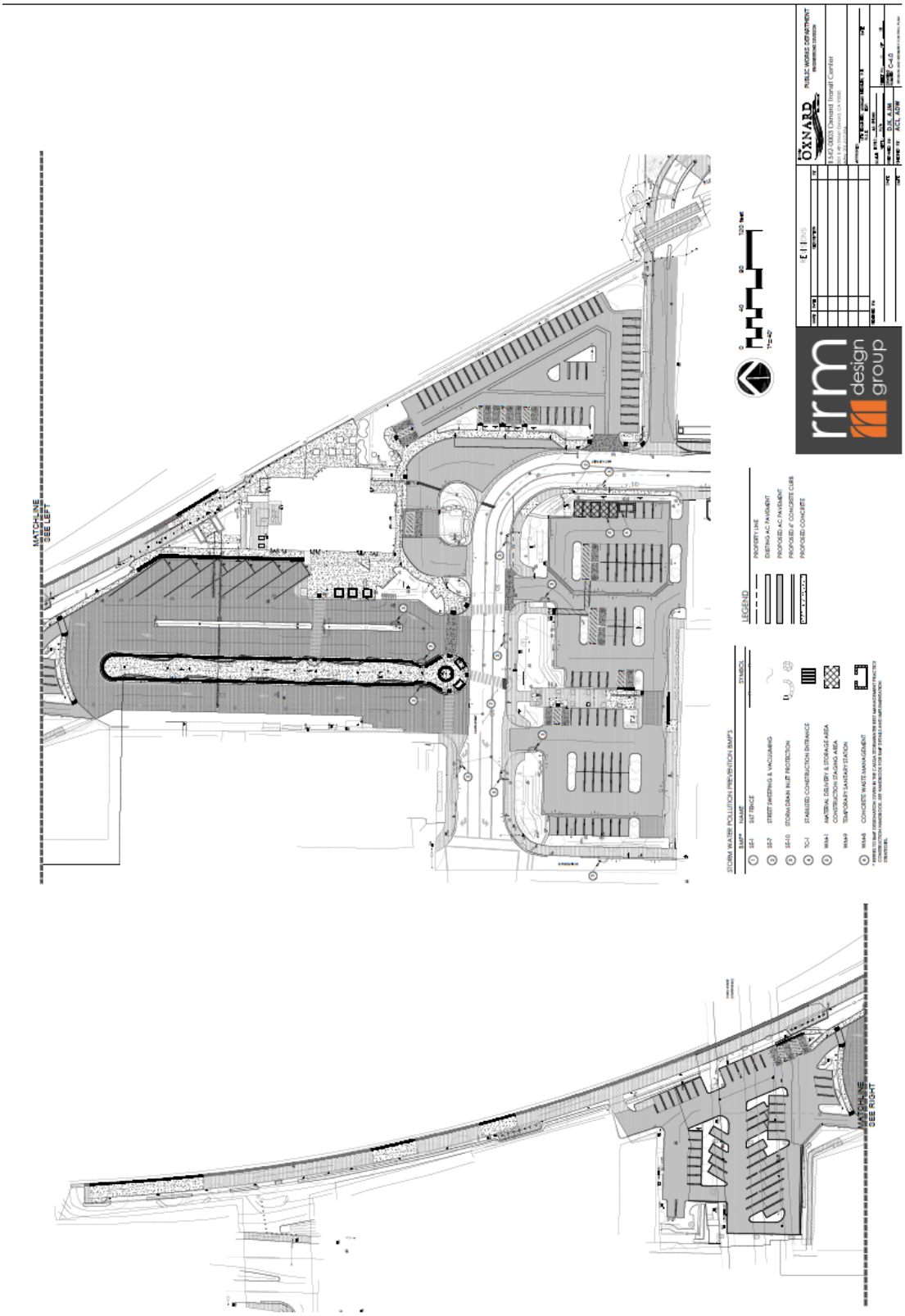


Figure 8. Oxnard Station Design Concept

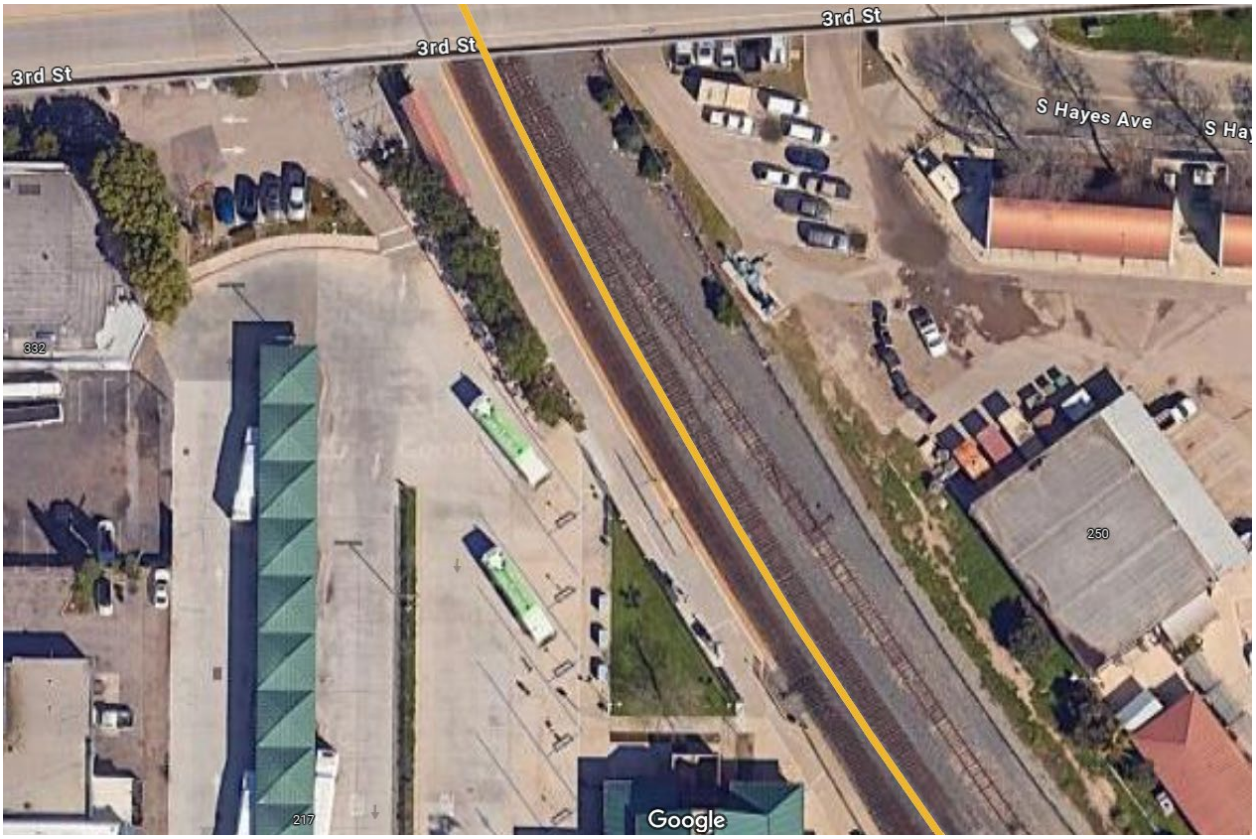


Figure 9. Site Photos of existing Oxnard Station

2 RAILROAD OPERATIONS

Three entities operate over the UPRR tracks at each of the two Stations: Metrolink, Amtrak and UPRR in UPRR's right-of-way. The method of operation on the Santa Barbara Subdivision is Centralized Traffic Control or CTC. The CTC system relies on remotely controlled signals and turnouts under the control of a control operator (a.k.a. train dispatcher). The UPRR trains that operate on UPRR tracks are currently dispatched out of the UPRR Harriman Dispatch Center in Omaha, NE. The CTC system relies on remotely controlled signals and turnouts under the control of a train dispatcher. All trains (Metrolink and Amtrak) on the UPRR Santa Barbara subdivision are dispatched by UPRR. UPRR designates operations on the Santa Barbara Subdivision as an east-west route, with eastbound as the direction towards LAUS and westbound direction towards Ventura / San Luis Obispo.

Table 5 – Trains per Day Overview by Subdivision

Host RR	Subdivision	Existing Freight Trains/Day	Existing Surfliner Trains/Day	Existing Coast Starlight Trains/Day	Existing Metrolink Trains/Day
UPRR	Santa Barbara	4	10	2	20

2.1 Passenger Train Operations

Metrolink provides train service on the VCL, which includes the portion of the Santa Barbara Subdivision serving the Camarillo and Oxnard stations, seven days a week, except on major holidays. The Santa Barbara Subdivision also forms part of the Los Angeles – San Diego – San Luis Obispo Rail (LOSSAN) Corridor which carries the Pacific Surfliner and Coast Starlight services. Maximum passenger train speed through the corridor is 79 miles per hour (MPH) with train speeds operating at 79 mph through Camarillo station and 45 mph through Oxnard station.

On weekdays, 20 Metrolink trains stop at the Camarillo and Oxnard stations. The arrival times are staggered roughly throughout the workday. On weekends, Metrolink runs a reduced schedule of 4 trains. The Metrolink timetable for the VCL is included in Appendix A.

Amtrak Pacific Surfliner runs 10 trains, 7 days a week which stop at both the Camarillo and Oxnard stations. The arrival times are similarly staggered through the day and evening. Amtrak also operates 2 Coast Starliner trains daily which stop at Oxnard Station but do not service Camarillo Station. The Amtrak timetables for the Pacific Surfliner service is included on the Metrolink timetable in Appendix A and the Coast Starlight service timetable is included in Appendix B.

2.2 Freight Train Operations

The UPRR operates and maintains freight trains through the proposed Project sites on the existing tracks. UPRR has many customers along these corridors and operational days/times vary depending on demand.

As shown on Figure 10, the Santa Barbara Subdivision is one of only three routes that UPRR can route trains north out of the Los Angeles Basin, the others being the Valley Subdivision via Antelope Canyon and the Mojave Subdivision via the Cajon Pass.

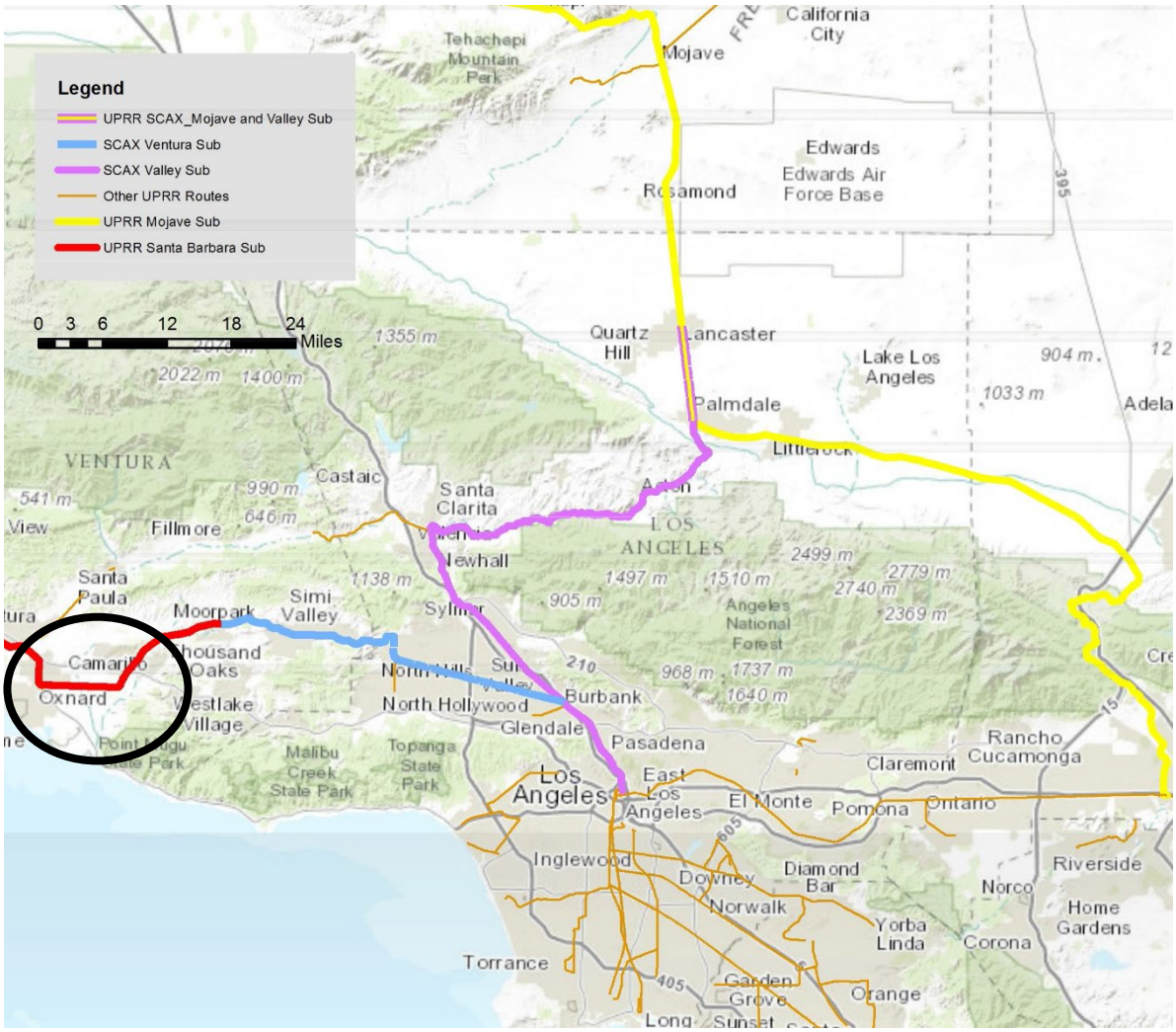


Figure 10. UPRR Routes North from the L.A. Basin

2.3 Freight Railroad Right of Way and Operating Easement

UPRR, as the successor to SPRR, retains full ownership of the Santa Barbara subdivision, which comprises the portion of the LOSSAN railroad corridor serving both Camarillo and Oxnard Stations via Amtrak and Metrolink trains. UPRR, as owner of the track, retains the right to use its tracks for freight service.

Per the "Commuter Train Access Agreement between Ventura County Transportation Commission and Union Pacific Railroad Company" dated March 6, 1998, which per section 3(b), "VCTC and UP hereby incorporate by reference the following terms and conditions of the Saugus and Ventura Shared Use Agreement dated April 18, 1991, between SP and the Los Angeles County Transportation Commission". In Section 2.1 of the Shared Use Agreement, it states that:

> *"Section 2.1 Statement of Purpose. The intent of the Commission and the Railroad in entering into this Agreement for the Saugus and Ventura Line is to permit the Commission to provide Commuter Service on the line, while at the same time preserving the Railroad's ability to provide service-competitive freight service on those Lines, both now and in the future, and to continue to provide intercity passenger service on the Lines."*

Both agreement excerpts are included in Appendix C.

All tracks are within UPRR right-of-way, where all operators may freely use any of the main tracks through both stations for operations.

2.4 Over-Dimensional Freight Operations

UPRR will occasionally operate freight service that exceeds typical clearance dimensions. This type of freight is known as over-dimensional (OD) freight. The UPRR Santa Barbara subdivision, that the Metrolink and Amtrak services operate over, are considered national "Strategic Corridors" with OD Loads.

UPRR, as part of its common carrier obligations, ships OD freight cars as requested by its freight customers. OD cars are allowed on any portion of a common carrier railroad unless the railroad declares an embargo, which is an impairment to track or bridge facilities that would restrict OD freight movements. Railroads publish embargo notices to shippers online at https://aarembargo.railinc.com/epdb. As of the date of this report, there are no published embargoes on the UPRR Santa Barbara Subdivision, therefore, OD permitted loads are allowed on the route within the limits of this project. Furthermore, as discussed above, trains with OD permitted loads may use the main track or sidings through Camarillo and Oxnard Stations.

OD freight is assessed on a case-by-case basis by UPRR, as there are no standard maximum dimensions defined. UPRR examines the corridor to be used for possible conflicts with the customer's requested OD outline. The current Camarillo and Oxnard side platforms are considered when UPRR examines requests for OD movement on the Santa Barbara Subdivision. Any increase in the dimensions of these platforms, and associated reduction in the clearance at the platforms, will diminish UPRR capability to move OD freight on the Santa Barbara Sub.

3 METROLINK ADA ACCESSIBILITY COMPLIANCE

In 1992, as part of the initiation of the new service, SCRRA prepared an Americans with Disabilities Act Accessibility Compliance Plan. This plan, in response to the Americans with Disabilities Act of 1990, set forth areas of compliance and actions to be taken to ensure accessibility to the system by persons with disabilities. The plan also set forth a schedule for compliance, which was stipulated for July 1993. The FTA reviewed and approved the plan in March 1993. The report indicates that:

> "As conceived by SCRRA, the Metrolink system is to comply with provisions of Title 24 of the California Code of Regulations for… Accessibility. This analysis demonstrates that not only is the system in general compliance – but in some ways and as justified by prudent consideration, the intent is that of exceeding the minimum requirements of the ADA."

The report goes on to state that Metrolink double-deck cars are fully accessible to individuals with disabilities. Metrolink employs the use of a mini-high platform (with Bridge plates) at each station to allow riders with disabilities to fully access these cars. All Metrolink cars have ADA compliant doors, wheelchair securement facilities, and ADA compliant restrooms. Riders with mobility limitations are accommodated starting with the first car on each train. If the wheelchair or other ADA compliant features of the car become fully occupied, then the train crew will begin filling those spaces on the adjacent cars as needed to accommodate all riders with mobility limitations.

The following sections describe Metrolink equipment and procedures relating to ADA accessibility. All Metrolink cars have ADA compliant doors, wheelchair securement facilities, and ADA compliant restrooms. These features, combined with operational procedures to make multiple stops at each platform as necessary to board any or all cars at the mini-high platforms, provide full ADA accessibility on all cars on every train.

3.1 Existing Metrolink Accessibility Procedures

The basic Metrolink station configuration is a platform 8-inches above the rail, 5-feet 4-inches from centerline of track. This provides for one car-based step up to the Metrolink car floors. The first step is about 10-inches above the platform. This two-step access provides very flexible, quick access for most riders. It is supplemented by an elevated portion of the passenger platform, the "mini-high platform" used with a bridge plate, which provides fully compliant ADA access to riders with mobility limitations.

As a matter of consistency and predictability, SCRRA's policy is to provide riders with mobility limitations access to the train starting with the first (cab) car on each train per the Metrolink Operational Supplemental Instruction (MOSI) Rule 9.3.2. If the wheelchair or other ADA features of the cab car become fully occupied, then the train crew will begin filling those spaces on the cars behind as needed to accommodate all riders with mobility limitations. In addition, a passenger can request to board any car in a train consist and the train crew will reposition the train per MOSI 9.3.3:

9.3.2 Spotting Non-DMU Cab Car at Mini-High Platform

To comply with ADA regulations, Metrolink train crews must spot the cab car at the Mini-High Platform if PNA's are present.

Authority policies require train crews to assist passengers with special needs and allow delays for assisting passenger with disabilities.

If the cab car is at capacity, or upon passenger needing assistance request to board another car, Conductor shall re-spot the train and assist the PNA to board at "ANY" train car as requested.

EXCEPTION: If there are no PNAs requiring the use of the PNA Mini-High Platform, the following exception will apply at the locations listed below to allow for safe passenger detraining:

- North Main Corona Station, Main Track #2
- La Sierra Station, Main Track #1
- Riverside Downtown Station, Main Track #3 & the South Siding

Eastbound Trains: For the stations listed above, trains heading east must spot as far east as possible.

- Loco Lead trains may take the Lead Loco(s) only off the platform.
- Cab Car lead trains will spot the east most Mini-High Platform.

Westbound Trains: For the stations listed above, trains heading west must spot as far west as possible.

- Loco Lead trains may take the Lead Loco(s) only off the platform.
- Cab Car lead trains will spot the west most Mini-High Platform

Note: Claremont station: Eastbound trains must spot the PNA Mini-High Platform

9.3.3 Stop Beyond Mini-High Platform

Non-DMU trains that stop beyond the station platform, the Conductor shall make certain all passenger doors open on the platform only, before detraining passengers. If PNA's are present, the train must be repositioned at the mini-high access ramp to accommodate "Persons Needing Assistance". If the train has to be respotted, the crew must report:

- As soon as duties permit, notify DOC of the location and reason for not stopping at station platform for reasons i.e., missing or misplaced spot cab sign, blended/dynamic brake failure, decelostat failure, Engineer Train Handling error, etc
- Document the incident in the Explanation of Delays on the Delay Report i.e., "Missed ADA Ramp-decelostat failure". If the cause is due to mechanical failure, it also must be reported on the SMP form and on the Delay Reports SMP section

Metrolink positions the cab car to be on the end of the train closest to Los Angeles. As a result, when the train stops, the mini-high platform is at the second door of the car at the end of the platform closest to Los Angeles. The second door is the one closest to the restroom and wheelchair securement locations. Therefore, using this door for ADA access provides the best access to the wheelchair securement locations and restroom. Access routes from station accessible parking and intermodal connections to the mini-high platforms on the station platform are optimized to facilitate their use by riders with mobility limitations.

Therefore, the new platform will be configured to be consistent with all other 65 Metrolink stations. The dimensions of the mini-high platform results in a stopping precision requirement of about +/- 5 feet. This spotting accuracy is routinely achieved in normal train operations.

As shown in Figure 11, the SCRRA-standard mini-high platform is located as close to the tracks as is permitted by the California Public Utilities Commission (CPUC) to minimize the length of the manually positioned bridge plate. This placement does not interfere with the movement of regular or oversize freight cars. It is consistent throughout the Metrolink network so that employees of the freight railroads are familiar with the clearances and can work safely within these limits.

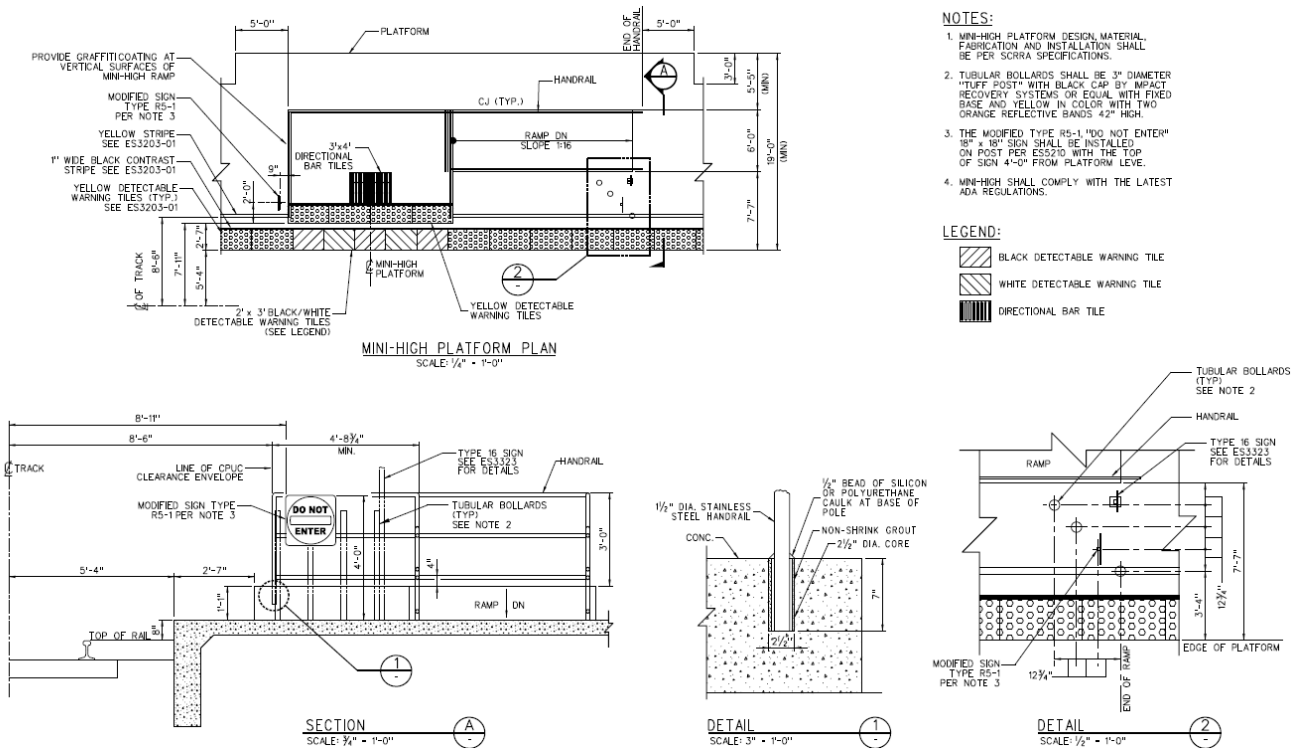


Figure 11. Mini-High Platform Design

Source: SCRRA

The proposed platform configurations with the mini-high platforms will promote the safe and efficient movement of passengers. Metrolink usually performs station stops of 30-40 seconds during which passengers both board and disembark each of the cars. Deployment of the bridge plate and boarding or disembarking of riders with mobility limitations at the mini-high platform is easily accommodated during the 30-40 second station stops.

In the rare event that the riders with mobility limitations cannot be accommodated in the first car (e.g., all the wheelchair securement locations are in use or the non-ambulatory passenger requests to ride in a different car), the train is moved to position the second door of the selected car at the mini-high platform. This does delay the train slightly; however, it is such a rare event that it has no practical effect on system train performance or service quality. Metrolink is not currently aware of any passenger complaints with regard to persons needing assistance not being able to access trains via the mini-high platforms.

The ADA regulation regarding the limits of an acceptable gap is based on a fixed car floor coming within an acceptable “gap” dimension to a fixed high-level platform as is common on urban mass transit systems. At the Camarillo and Oxnard stations, the Metrolink operation is shared with Amtrak and freight trains. Amtrak cars have different floor heights, while freight trains have wider clearance requirements than passenger cars. Therefore, the opportunity to use a single platform height and a platform located very close to the cars is not attainable. The solution is to use a manually positioned bridge plate to provide access from the floor of the Metrolink car to the mini-high platform and to use mobile wheelchair lifts for Amtrak cars.

3.2 Metrolink Passenger Train Equipment

Metrolink commuter rail train service is provided with a locomotive and a series of passenger cars including a cab car. On the Metrolink Ventura County Line (VCL), trains typically consist of five (5) passenger cars (including the cab car) and one (1) locomotive. A cab car is located at the opposite end of the train from the locomotive. The lower-level passenger accommodations of the cab car are very similar to the other passenger cars in the train. Metrolink trains operate in a push-pull formation; that is, the train can run with the locomotive at the "front" or "rear" of the train. With the locomotive at the front of the train, it is in in pull-mode. When the cab-car is leading, the train is in push-mode. The remaining passenger cars, called trailer cars, are located between the cab car and the locomotive. The cab-car is occupied by the train engineer while the trains are in push-mode.

The Metrolink train fleet includes two models of bi-level passenger rail cars, each known by their manufacturer: Bombardier and Rotem. Alstom acquired Bombardier in 2021 and each reference to Bombardier should be understood to also include Alstom. The Bombardier cars are the original railcar model on the Metrolink System. Additional procurements of Bombardier cars were completed in 1997 and 2002. The Rotem cars were procured in 2010. All equipment on the Metrolink system must be interchangeable, regardless of route.

These two cars differ significantly in outward appearance, however the two cars are very similar when compared by their key dimensional traits related to accessibility issues, including vehicle width, floor height and wheelchair layout. This was a required specification by SCRRA for the procurement of the new generation Rotem cars so that all cars could run interchangeably on any existing and future lines. There are several other commonalities between the two railcar models. With both types, a cab car has four wheelchair spaces, and a trailer car has two wheelchair spaces. Every car has an accessible restroom. The overall car-body width for both cars is 9-feet 10-inches. For both types of cars, the first step into the car is 18” above top of rail. The second step to the car floor elevation is approximately 7”.

3.2.1 Bombardier Cars

The lateral width of the opening at the doors is 52 inches for Bombardier cars. Figure 12 shows the floor plan and seating layout for the Bombardier bi-level commuter rail cars, while Figure 13 shows a photo of the recessed doors on a Bombardier car.

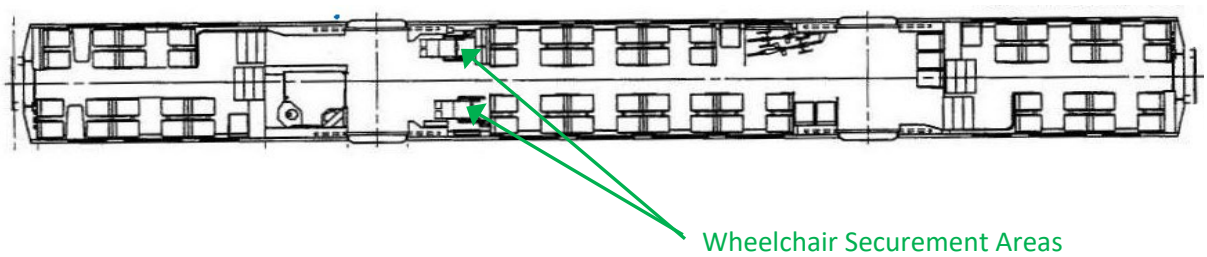


Figure 12. Bombardier Bi-Level Commuter Rail Car Seating Layout

Figure 13. Recessed Doors on Bombardier Commuter Rail Cars

(Photo Courtesy SANBAG)

3.2.2 Rotem Cars

The lateral width of the opening at the door of a Rotem car is 50-inches. The doors on the Rotem car are effectively identical to those on the Bombardier cars, except that the doors on the Bombardier cars are two inches wider. Similarly, the floor layout of the cars is essentially identical with similar boarding, wheel securement areas and accessible restrooms.

4 AMTRAK ADA ACCESSIBILITY COMPLIANCE

Amtrak provides ADA accessibility compliance through the use of mobile wheelchair lifts. This equipment is used throughout the Amtrak system to provide passengers with access to multiple equipment heights.

While on board, passengers may choose to remain in accessible wheelchair spaces or move to accessible seating. If a passenger chooses to transfer to an accessible seat, they may stow their wheelchair nearby, or onboard Amtrak personnel will assist with stowing the device.

4.1 Amtrak Passenger Train Equipment

Amtrak uses four primary types of cars on its coastal routes: Surfliner cars (Cal 1 and Cal 2 both) and Superliner cars for the Pacific Surfliner service, Superliner cars for the Coast Starlight service and single level Horizon and Comet cars as needed. The bi-level Surfliner and Superliner cars are the primary equipment for the coastal services. The single level Horizon and Comet cars are used for additional capacity during peak ridership such as holidays and special events.

The Surfliner and Superliner cars are closely related with identical floor heights. The primary difference between the cars is in the number of side doors, two per side for Surfliner and one per side for the Superliner. Furthermore, the Superliner cars have a variety of interior configurations ranging from baggage, sleeping compartments to coach seating.

The Horizon and Comet cars are single level with a higher floor elevation, relative to the other two car types. These cars are used for added capacity as needed on the Amtrak routes.

All equipment on the Amtrak system must be interchangeable, regardless of route.

4.1.1 Surfliner Cars

Pacific Surfliner inter-city train service is provided with a locomotive and a series of passenger cars. Trains typically consist of six (6) passenger cars, and one (1) locomotive. The passenger car opposite the locomotive includes lights and an operator cab, but the car is otherwise identical to the other passenger cars. Similar to the Metrolink trains, the Surfliner trains operate in a push-pull formation. With the locomotive at the front of the train, it is in in pull-mode. When the locomotive is trailing, the train is in push-mode.

The Amtrak Surfliner service utilizes modified cars from two generations of the Superliner bi-level railcars manufactured by Alstom. The rolling stock is owned jointly by Amtrak and the California Department of Transportation. The two generations of Amtrak bi-level cars include variations such as upper business class and lower café cars. Despite the variations, access to each car is identical. All cars include wheelchair spaces and accessible restrooms. The overall car-body width is 10-feet 2-inches.

The lateral width of the opening at the doors is 52 inches for Surfliner cars. The floor of the cars is 17 ½" above top of rail. There is no second step. Figure 14 shows the floor plan and seating layout, while Figure 15 shows a photo of the recessed doors.

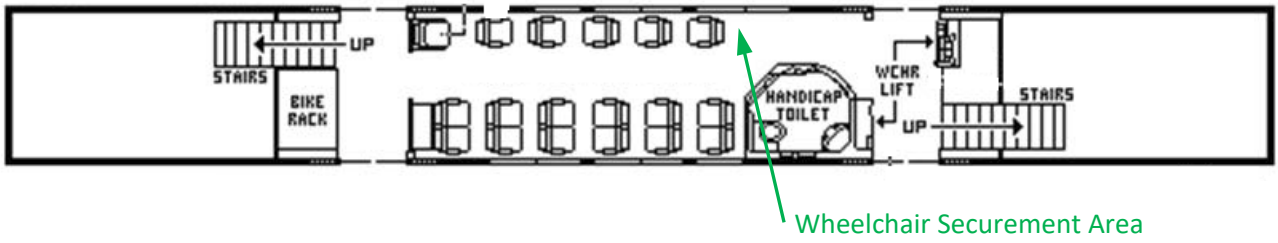


Figure 14. Amtrak Surfliner Seating Layout

Figure 15. Recessed Doors on Amtrak Surfliner Cars

4.1.2 Superliner Cars

Superliner cars in all configurations have single sets of doors on each side of the lower level of the car. These doors are similar in dimensions and height to those found on the Surfliner cars with the floor elevation at 17 ½" above top of rail. The typical layout of sleeping cars and coach cars are shown in Figures 16 and 17 respectively.

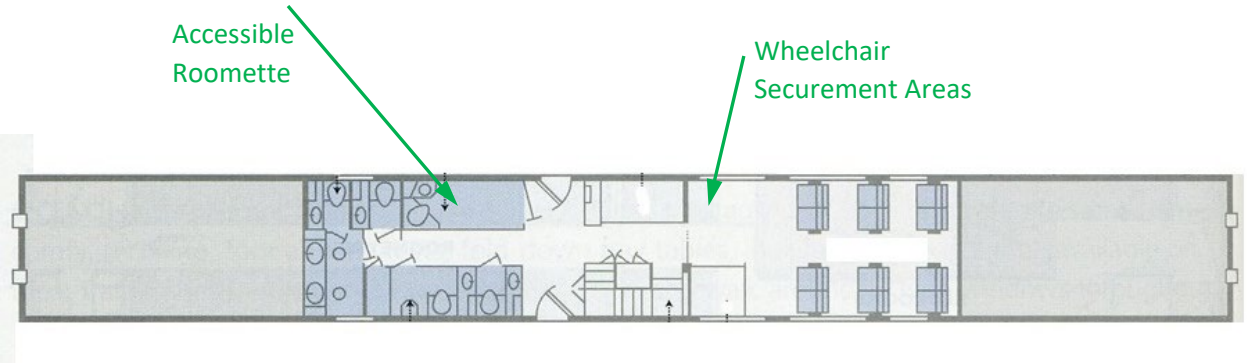


Figure 16. Amtrak Superliner Coach Seating Layout

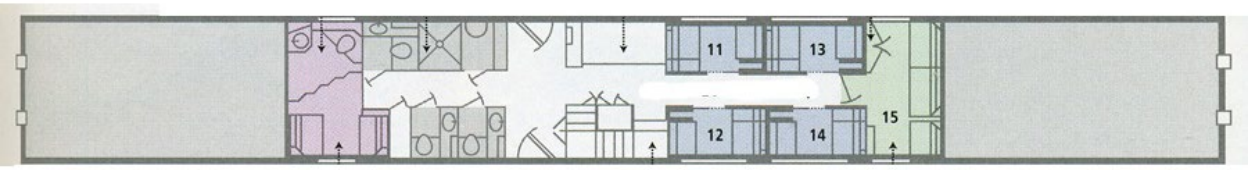


Figure 17. Amtrak Superliner Sleeper Car Layout

4.1.3 Single Level Intercity Cars

Horizon/Comet inter-city cars are used for added passenger capacity on both the Coast Starlight and as needed on the Pacific Surfliner services. Not all trains use the single level cars as they are only added to more heavily booked routes. The single level cars do not permit a passenger to move between cars. The types of single level cars are very similar to the layout shown in Figure 18. The floor elevation of the cars is approximately 48” above top of rail. Passengers must alight by steps into the vestibule at either end of the car similar to the ones shown in Figure 19. ADA compliant access is provided by the use of a portable wheelchair lift. The lift is stored on the passenger platform and is deployed as needed by Amtrak personnel to assist with alighting and departing passengers.

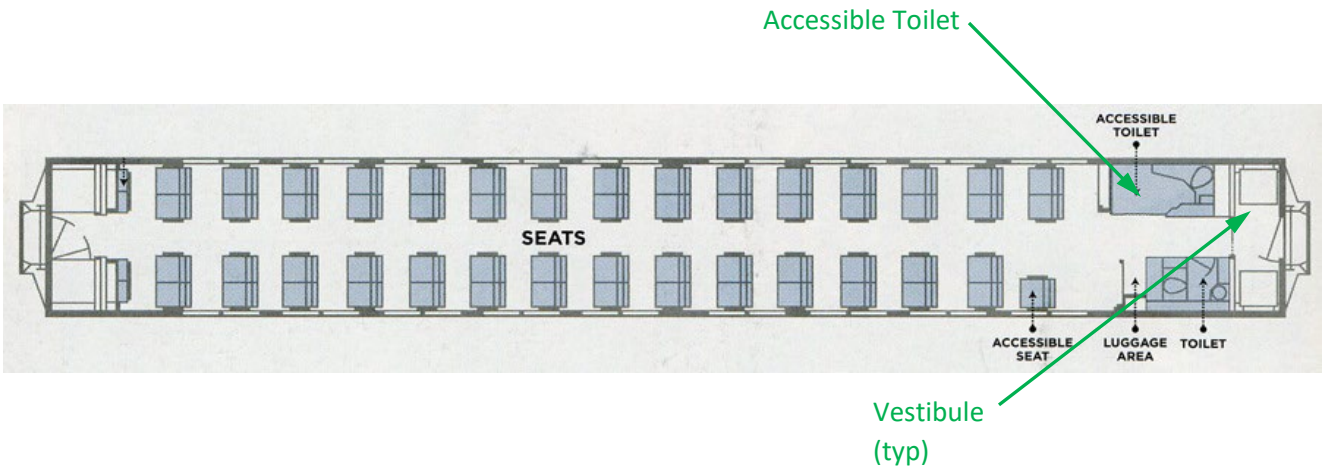


Figure 18. Amtrak Single Level Inter-city Car Layout

Figure 19. Amtrak Single Level Inter-city Car Steps

(Source: Matt' Johnson, https://www.flickr.com/photos/39017545@N02/5622976489)

4.1.4 Future Amtrak Cars

No details have been established for the future cars of this service at this time.

4.2 Existing Amtrak Accessibility Procedures

Since Amtrak cars do not have the same floor height as the Metrolink cars, there is not a single platform or mini-high platform height that is compatible with both sets of equipment. Furthermore, Amtrak utilizes equipment with two different floor heights. The two types of equipment require different procedures and equipment to provide ADA compliant access to all cars.

4.2.1 Traditional Bridge Plates

Amtrak uses manually deployed bridge plates to provide compliant access to the bi-level Surfliner and Superliner cars. The plates are deployed similarly to the Metrolink equipment. However, the plates do not require the use of mini-high platforms due to the lower floor height of the Amtrak cars. This simplifies spotting of the cars. The plates must still be deployed by the train conductor at the cars to be accessed.

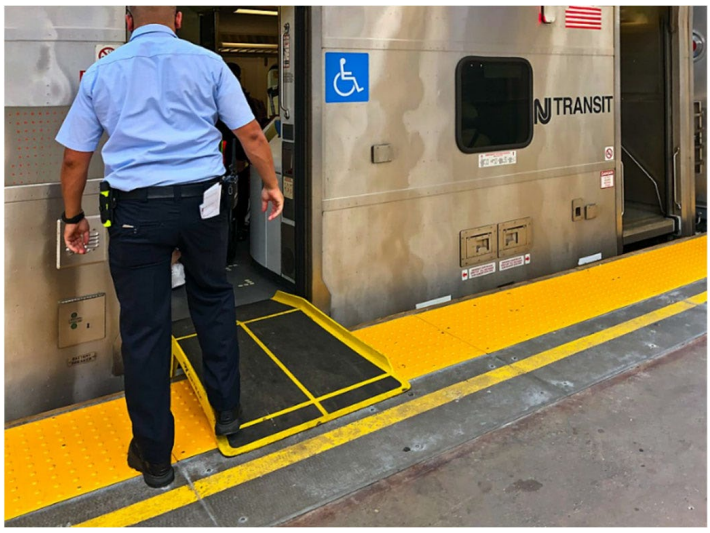


Figure 20. Deployed Bridge Plate
(Photo courtesy of Wikipedia and NJ Transit)

4.2.2 New ADA Compliant Bridge Plate Ramps

Amtrak is in the process of deploying ADA compliant bridge plate ramps at all stations for Surfliner and Superliner equipment and should be fully deployed by the time of release of this report. Some of these ADA bridge plate ramps will be stored onboard and others will be stored at the platforms (varies by service type and car type). These ADA bridge plate ramps do not require the use of mini-high platforms due to the lower floor height of the Amtrak cars. This simplifies spotting of the cars. The ADA bridge plates must still be deployed by the crew at the cars to be accessed. There will be one (1) ADA bridge plate ramp per car plus at least 2 cabinets minimum per platform at each station (e.g. six (6) total cabinets minimum for the Oxnard and Camarillo platforms).

Figure 21. Deployed ADA Ramp
(Photo courtesy of LOSSAN Agency)

4.2.3 Portable Wheelchair Lifts

Amtrak single level inter-city cars require the use of portable wheelchair lifts to provide ADA compliant access. Amtrak coastal services rely on portable wheelchair lift equipment in order to assist passengers with mobility limitations. The wheelchair lift will be stored on the passenger platform. Amtrak employees position the lift as needed to assist passengers alighting and detraining. The lift can be positioned at any door to the train excepting a door positioned adjacent to the Metrolink mini-high platform. Should a passenger require assistance accessing a car positioned near the mini-high platform, the Amtrak conductor will reposition the train to clear the ramp. This method will become a backup method as more bridge plates and ADA Compliant ramps are implemented.

Figure 22. Portable Wheelchair Lift for Horizon and Comet Car Access

(Photo courtesy of Adaptive Engineering Inc.)

5 CLEARANCE REQUIREMENTS

As discussed in the Railroad Operations section of this report, platforms at both Camarillo and Oxnard stations will accommodate the safe passage of both freight and passenger train equipment. This section reviews the clearance requirements and regulations as context to accessibility options.

5.1 Dynamic Clearance Requirements

Dynamic clearance refers to the largest possible envelope in which the moving rail car is likely to operate, given a number of factors including: sway of the vehicle due to wind, vehicle suspension tolerances, track alignment variances, and other factors. The dynamic clearance envelope is generally considered in the design and construction of track, station, and appurtenant facilities. In addition to the dynamic clearance envelope, a variety of other factors are typically added to design clearances to account for such things as track construction and maintenance tolerances, running clearances and safety walkways.

For transit systems where only one type of vehicle operates on the system, it is possible to design the platforms and other support facilities based upon the dynamic clearance envelope of a single vehicle. However, with commuter rail systems, such as Metrolink, that operate on track shared with both Amtrak and freight trains, there are other types of train cars that operate over the system. Therefore, a more comprehensive accommodation for rail vehicles of differing clearance requirements must be considered. To that end, SCRRA is required to meet clearance requirements developed by the California Public Utilities Commission (CPUC). These requirements are described in more detail in the following sections.

Generally, construction and maintenance tolerances are built into the minimum legal clearance requirements prescribed by the CPUC.

5.2 UPRR Clearance Requirements

UPRR has stated that continued freight operations over their rails on all corridors will require sufficient clearance to the passage of standard and OD freight equipment. All tracks must remain accessible for freight movements.

5.3 Freight Train Normal-Widths

The Association of American Railroads (AAR) provides clearance diagrams for different types of freight vehicles. Appendix D shows the clearance diagrams for AAR plates F, H and K, which when combined, represent the widest and tallest types of normally-wide freight rail vehicles that would be operated on the Santa Barbara Subdivision. The dimensions for each of these plates are as follows:

- Plate F – 17’-0” high and 10’-8” wide at 3’-4” above top of rail (T/R)
- Plate H – 20’-2” high and 10’-1” wide at 2’-7” above T/R (Double Stacks)
- Plate K – 20’-2” high and 10’-8” wide at 2’-7” above T/R (Autorack)

5.4 UPRR Clearance standards

The host railroad, UPRR, maintains a common set of Engineering Standard plans that set the requirements for design, construction and maintenance of their stations and facilities. UPRR has its own track clearance standard. The key relevant standards relating to clearance requirements are included in Appendix D. It is important to note that the UPRR standards related to clearance requirements are based upon meeting legal minimum requirements prescribed by the CPUC and the AAR.

5.5 SCRRA Clearance Standards

SCRRA maintains a set of Engineering Standard plans that set the requirements for design, construction and maintenance of their tracks, stations and facilities. The key relevant standards relating to clearance requirements are included in Appendix D. It is important to note that the SCRRA standards related to clearance requirements are based upon meeting legal minimum requirements prescribed by the CPUC. It should also be noted that the Metrolink commuter rail locomotive is larger and extends further into the clearance envelope than the commuter rail cars. Appendix D shows the Metrolink commuter rail locomotive and commuter rail car clearance requirements.

5.6 California Public Utilities Commission (CPUC) Standards

The CPUC has published legal minimum requirements for clearances along railroad tracks that are subject to freight rail service. These clearance requirements are defined in (California Public Utilities Commission) CPUC General Order 26-D: Regulations Governing Clearances on Railroads and Street Railroads with Reference to Side and Overhead Structures, Parallel Tracks, Crossings of Public Roads, Highways and Streets.

General Order 26-D states that the legal minimum clearance from centerline of track to any permanent structure is 8-feet, 6-inches on tangent track and 9-feet, 6- inches on curved track. This dimension is intended to account for the dynamic clearance envelope of the train, including all construction and maintenance tolerances and a walkway for railroad personnel. Station platforms are addressed as a special case. Low-level platforms (8-inches or less above top of rail) can be located within 4-feet, 8-inches of track centerline. The Metrolink standards for platforms and mini-high platforms meet these requirements.

6 ACCESSIBILITY OPTIONS

The station platforms must provide accessibility in compliance with the amended level boarding language of the United States Department of Transportation's (USDOT) Americans with Disabilities Act (ADA) regulations. Level boarding refers to one means of providing integrated access for all passengers by locating the platform at the same level as the entry doors of the railcars.

The USDOT provides guidance on the means by which passenger railroads can comply with the amended regulations. At stations where a track adjacent to a platform is not shared with existing freight service, railroads must provide level-entry boarding. Neither of the stations in this report meet this criteria, as both stations will be located on tracks also utilized by freight trains. The side platforms for each station will be adjacent to tracks that are shared with freight trains; therefore, the selected means of providing level boarding must be compatible with both freight operations and the USDOT requirements.

6.1 Regulations for Platforms Shared with Freight Service

The USDOT also recognizes in its regulations that level boarding may not be feasible for railroads that share tracks with existing freight service. As a result, the USDOT indicates that where track adjacent to platforms is shared with freight railroads, passenger railroads can meet the performance standard through a variety of means, including:

- Deploy bridge-plates at every door,
- Gauntlet or bypass tracks,
- Car-borne lifts,
- Retractable platform edges or
- Mini-high platforms (with trains making multiple stops at such platforms when necessary)
- Portable wheelchair lifts

Passenger railroads are able to choose among a variety of methods to ensure that each train car is accessible, as long as the railroad provides an "integrated, safe, timely, reliable, and effective means of access for people with disabilities," and that they demonstrate that the selected option works.

6.2 Overview of Boarding Methods for Freight-Adjacent Platforms

This section of the report provides a comparative analysis of different boarding methods for stations that are adjacent to shared freight/passenger tracks.

In order to ensure that the best and safest practical means for boarding the train is provided to all passengers, including riders with mobility limitations, other potential platform configurations were evaluated based on the DOT guidance. USDOT ADA guidelines define level boarding as having a horizontal gap of no more than three inches and a vertical gap of no more than 5/8 inches.

As discussed above, the configuration of the Metrolink car doors presents challenges with alternative approaches. The car doors (and interior floors) are recessed into the sides of the train, which creates a

three- to five-inch gap between the platform and the edge of the car body, depending on which Metrolink car is being used (five-inch gap with Bombardier cars; three-inch gap with Rotem cars). Therefore, simply moving the train closer to the platform or moving the platform edge closer to the train does not provide for level boarding. Any station-based device must "intrude" into the clearance envelope of the train cars to effectively bridge the gap.

Of the six methods available to accommodate freight and passenger trains, only the mini-high platform (with portable bridge plates) is compatible with Metrolink trains and operations. Only portable wheelchair lifts are compatible with Amtrak trains and operations. Therefore, both mini-high platforms (with portable bridge plates) and portable wheelchair lifts will be used at the Oxnard and Camarillo platforms.

6.2.1 Method 1: Deploy Bridge-Plates at Every Door

Metrolink and Amtrak railcars have a three- to five-inch gap between the edge of the step (or entry threshold) and the edge of the car body. The federal provision of a full-length level platform of 15" above top of rail (ATR) at 5'5" between the face of the platform and the track centerline would create a horizontal gap in excess of the maximum of three inches, even if a platform were at 15" in height.

One method of eliminating this gap is to manually deploy a bridge plate, ramp or other appropriate device every time a train stopped. A typical bridge-plate placement is shown in the below figure.

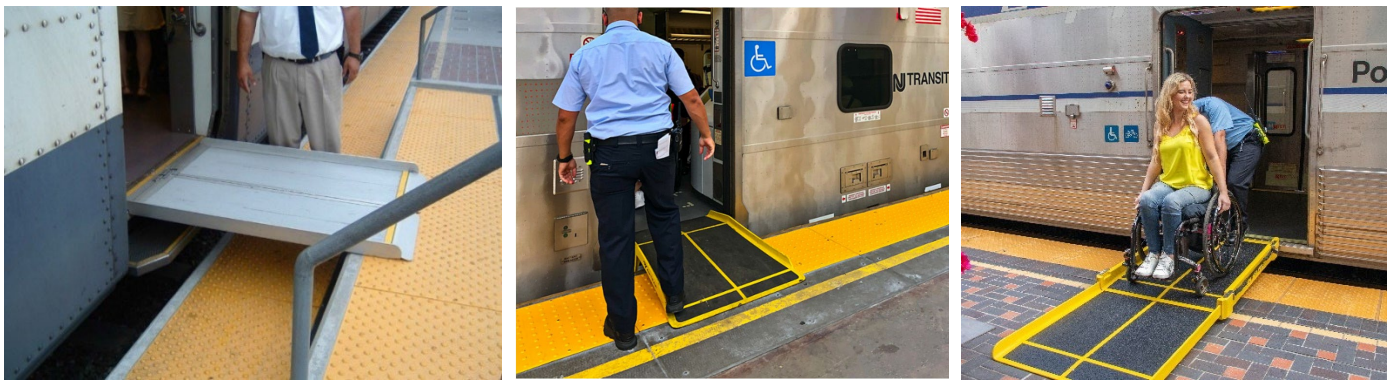


Figure 23. Deployed Bridge Plates and Bridge Plate Ramps
(Photos courtesy of SBCTA, Wikipedia and NJ Transit, and LOSSAN Agency)

The bridge plate would span from the recessed loading floor of the passenger car to a raised platform outside of the track clearance envelope. The dissimilar Metrolink/Amtrak equipment heights as well as the dissimilar door spacing would require an undulating series of elevated ramps to provide compatible loading elevations. There is no consistent elevation/spacing combination that is compatible with the variety of train equipment that will be stopping at the Oxnard and Camarillo stations.

A limited number of onboard train personnel are available to deploy bridge plates at every door. The

use of bridge plates at every door significantly reduces operational efficiency; therefore this method is not compatible with existing operations.

An added reason to reject the proposed full-length level boarding with bridge plates is the platform configuration required to implement deployment of bridge plates at every car door creates an additional safety hazard for all station users. By placing the mini-high platform outside the freight clearance envelope, a secondary platform "ledge" is required. This poses a safety hazard at those locations where passengers may attempt to access a door where a bridge plate is not deployed. This also encourages passenger circulation in foul of the tracks. A single mini-high platform ramp at the east end of the platform will be located out of primary passenger circulation paths and will allow passenger movement on the rest of the platform that does not foul the tracks.

6.2.2 Method 2: Gauntlet or Bypass Tracks

A gauntlet track is an arrangement in which railway tracks run parallel on a single-track bed and are overlapped such that only one pair of rails may be used at a time (see Figure 24). The intent of using a gauntlet track would be for passenger trains to use the set of gauntlet tracks that provides closer proximity to a passenger station while freight trains would utilize the set of gauntlet tracks furthest from the station.

Figure 24. Gauntlet Tracks
Source: http://www.trforum.org/journal/2005spr/article10.php

A bypass track is an approach that utilizes a separate set of tracks that diverges from the main line to serve a train station (or vice versa). Freight trains would operate over the tracks that do not serve the passenger station, and therefore, would not create clearance issues at the platform edge.

The use of both gauntlet and bypass tracks at the Oxnard and Camarillo stations is not feasible because even if passenger trains are moved closer to the platform edge, the resulting gap would be 12 inches, larger than the three-inch maximum, due to the recessed doors and floor edges and the lateral clearance needed for the cars and locomotives. For this reason, a track that places the cars close to the platform edge does not result in an acceptable gap of three inches or less.

The dissimilar floor elevations of the Metrolink/Amtrak fleets would be incompatible with a gauntlet track configuration. There is not a single platform height that matches all equipment types.

Additionally, railroads desire to minimize the number of turnouts, as each turnout carries with it a derailment potential resulting from an inadvertent diversion of a high-speed train onto a gauntlet or station track. Generally, moving trains from one track to another carries with it an inherent and independent potential for safety hazards, including, but not limited to, malfunction, derailment, cessation of service, and death. (Comments by the National Association of Railroad Passengers to USDOT's NPRM, published February 27, 2006, at 71 FR 9761 found at www.narprail.org).

Moreover, when the Legislature drafted and passed the ADA, it recognized the inherent challenges of shared passenger and freight use of railways, and specifically stated in House Report 101-495 that it was not their intent to require track modifications, and recognized mini-high platforms (with portable Bridge plates) and other means of access as acceptable.

6.2.3 Method 3: Car-Borne Ramps

In the car-borne approach, a mechanized ramp is installed at two doors (one door on each side to serve station platforms that exist on different sides of the train) of every rail car. The car-borne ramp is generally kept retracted and out of the way of the car doorway, and then operated manually by a conductor when needed to facilitate boarding of riders with mobility limitations. When placed into position, the ramp would extend outward through the car door and would bridge the gap to the platform edge. Figure 25 shows car-borne ramps aboard Northstar's commuter railcars in Minneapolis.

Figure 25. Car-borne Conductor Deployed Automated Ramps
Source: Metro Transit, 2010

The entire Metrolink, Amtrak Pacific Surfliner and Amtrak Coast Starlight train fleets would require modifications in order to use car borne lifts to provide compliant accessibility at the Oxnard and Camarillo station platforms. The cost impacts of retrofitting Metrolink and Amtrak equipment with this option are further discussed in Section 8.1.2.

6.2.4 Method 4: Retractable Platform Edges

Station-based approaches include alternatives implemented at stations (other than full-length level boarding) to facilitate the boarding of riders with mobility limitations. Retractable (Flip-up) Platform Edges in combination with an additional projecting ramp element could be used at the Oxnard and Camarillo platforms. However, use of retractable edges is not feasible due to differences in door spacing and floor height between the Metrolink and Amtrak railcars.

Due to differences in car door spacing and floor elevations between the Metrolink and Amtrak cars, there would have to be two complete sets of flip up platform edges on both sides of the platform. Furthermore, the ramps spaced for Metrolink cars would have to be elevated to account for the higher floor elevation. These groupings would not allow retractable edges.

Figure 26 shows station-based retractable (flip-up) platform edges utilized for the North County Transit District's (NCTD) *Sprinter* in the San Diego area. The concept behind this approach is that the main platform edge is built outside the CPUC clearance envelope, while moveable flip-up edges are only put into boarding position in advance of passenger train arrival, or when the rail line is closed to freight trains. In the Sprinter example, the freight and passenger services are time separated (with freight operating only at night). The retractable platform edges are only put in place during passenger train operations and retracted during freight train operations.

Figure 26. Station-based Retractable (Flip-up) Platform Edges
Source: North County Transit District, 2010

The ramps also include and extending plate to bridge the remaining gap to the interior car floor. In order for a retractable platform edge ramp to effectively bridge the gap to the car floor, it would have to operate after the train had stopped and the car doors were opened, and it would have to project into the door opening.

For the Camarillo and Oxnard stations, the use of a retractable flip-up platform edge is not feasible for the following reasons:

- The door spacing and floor elevation is different between the Amtrak and Metrolink cars. This requires two complete sets of retractable ramps on both sides of the platform. The ramps would have to be at different elevations with the associated grade transitions to provide compliant approaches to the ramps.
- In order for the flip-up/retractable platform edge to be effective and provide an acceptably small gap (or no gap), the train would have to be stopped with all doors positioned very precisely oriented to the projecting/retracting ramps. This is impractical using conventional railroad train brakes and power and control systems. Also, the slack in couplers could make car doors at one end of a train out of position with the ramps even if the cars on the other end of the train were in correct position.
- The host freight railroads would not approve a platform extending into their operating envelope (5'-4") as this goes against their standards, criteria and operational needs. A malfunction of the ramp system would block the track until the ramp could be repaired, creating an unacceptable risk to their freight operation.
- Due to the extending plate needing to encroach into the envelope of the car to fill the gap, the projecting ramp would have to be interlocked with the train controls so that it would not activate until the train was correctly positioned and stopped and so that the train could not be moved unless and until all ramps were fully retracted and locked. Due to its complex nature, and all the moving parts in use at all train doors (total of 10 doors on a 5-car train), this system would be less reliable than the manually operated ramp presently used on Metrolink. Reliability issues could occur if ramps are inoperable or become "locked"; both are intolerable situations for passenger service.
- All passengers would experience delay when the ramp is deployed, while the conductor ensures that the platform is clear and for retraction of the ramp. These combined actions could take up to approximately two minutes, much greater than the current 30-40 seconds per station stop.
- The complexity and number of ramps would not allow any future changes in the train makeup for Metrolink and Amtrak. Cars could not be added.

In addition to these operating and reliability challenges, a set of 20 moving ramps for each side of the center platform is a substantial increase of project cost with resulting impacts to the cost-effectiveness of the project and local agency funding resources. Further, the expected maintenance expense of moving ramps would increase the cost of providing service by an unknown, but potentially substantial amount.

6.2.5 Method 5: Mini-High Platforms

Mini-High platforms consist of an elevated concrete surface with ADA compliant ramp approaches. The mini-high platform is set back from the face of the platform to comply with CPUC clearance requirements.

As shown in Figure 27, the SCRRA-standard mini-high platform is located as close to the tracks as is permitted by the CPUC to minimize the length of the manually positioned bridge plate. The bridge plate spans from the mini-high platform to the car floor of the train (Figure 27). This placement does not interfere with the movement of regular or oversize freight cars. It is consistent throughout the Metrolink network so that employees of the freight railroads are familiar with the clearances and can work safely within these limits.

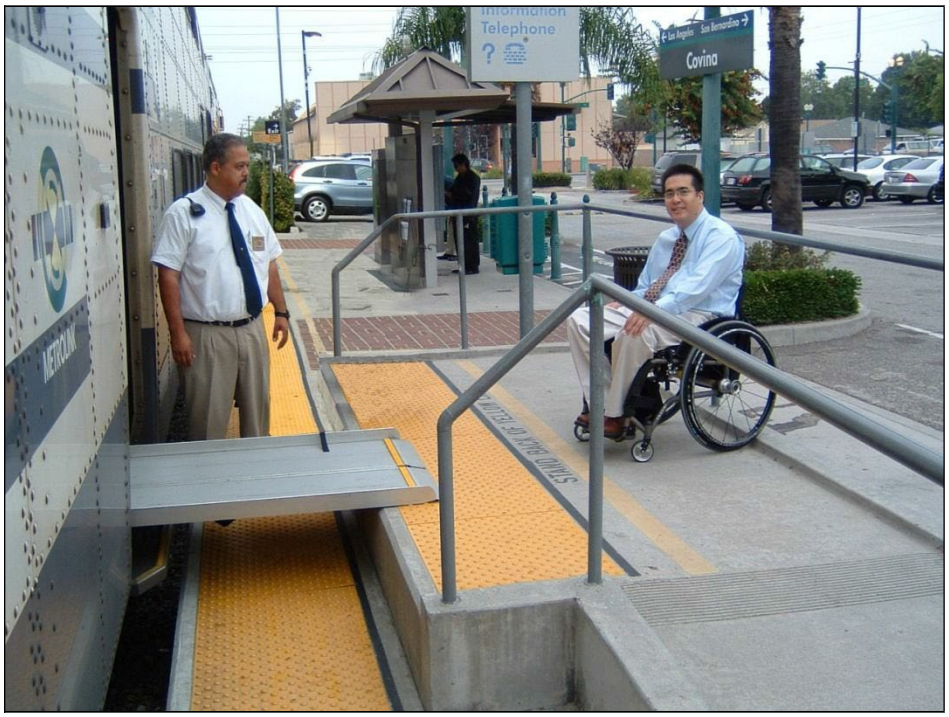


Figure 27. Deployed Bridge Plate at mini-high platform
Photo courtesy SBCTA

This report concludes that the only feasible means of providing "integrated, safe, timely, reliable, and effective access" to Metrolink passengers at the proposed Camarillo and Oxnard platforms is to provide a mini-high platform on the station platform.

6.2.6 Method 6: Portable Wheelchair Lifts

Portable wheelchair lifts are used at numerous Amtrak stations across the country to assist with the needs of the movement impaired (Figure 28).

The portable wheelchair lifts are stowed at either end of the passenger platform when not in use. When the need arises, the lift is maneuvered into place in front of the car door. The rear side of the lift deploys

as a ramp into the passenger compartment. Passengers departing the train travel forward into the space at the top of the lift. The ramp is folded up and the platform is lowered. The passenger than rotates 90° to exit the side of the lift. The lift is then released and removed to its storage. This equipment is used throughout the Amtrak system in the US. The lifts are relatively easy to maintain and are also quite resilient to weather and vandalism.

Figure 28. Portable Wheelchair Lift for Horizon and Comet Car Access

(Photo courtesy of Adaptive Engineering Inc.)

7 OPERATIONAL ISSUES SPECIFIC TO MINI-HIGH PLATFORMS

With the selection of use of a mini-high platform (with portable Bridge plates) as the preferred method of complying with the level boarding regulation, several operational issues need consideration. If a car other than the cab car is used by a person with a disability, the engineer must re-spot the accessible car at the mini-high platform. All stakeholders must be aware of this intention and agree that re-spotting the train is a feasible means of providing access. Furthermore, there should be no conflict between stakeholder consensus and existing agreements or regulations.

7.1 Train Reversal

All the railroads in California are operated in accordance with the General Code of Operating Rules (GCOR). GCOR Rule 6.4 governs the reversal of direction of a train and requires that it be done only within the limits for which the train has track authority. The practical effect of this is that a train can stop and reverse direction provided that the train crew operates with precautions to not move too fast or too far, as indicated by the crew observing the track to the rear for any hazard.

Special precautions are required if the reverse movement would pass a block signal. If the reverse movement would require passing a control signal, the train dispatcher must authorize the movement. With these precautions in place, CPUC does not discourage reversing a train in order to re-spot.

7.2 Train Crew Communications

When using mini-high platforms (with portable Bridge plates) as the selected method of level boarding, it is also important to ensure that train crew communications are thorough, and all eventualities are considered. For example, it is important to know how a conductor will communicate to the rest of the train crew at which station a passenger with disabilities wishes to disembark, and which car other than the cab car the passenger is in, and whether there is or is not a need for double-stopping. Also, it is important that policies are in place to respond if a passenger misses his or her station stop if the passenger's car is not aligned with the mini-high platform.

A Metrolink train crew consists of an Engineer and one Conductor. Metrolink Train Crew Supplemental Instructions require communication of any specific operating condition including spotting particular doors at station stops. Most of these communications are by railroad radio. However, the conductor may be face-to-face with the Engineer on occasion and not need the radio to accomplish these communications. The Conductor supervises and assists (by placing the bridge plate) all passengers that are boarding the train from the mini-high platform. Therefore, the Conductor is aware of cars in which the passengers needing assistance are riding. The normal operating procedure is to align the cab car with the mini-high platform at a station. The Conductor then bridges the car floor and the mini-high platform with a bridge plate at one door of the cab car assisting passengers across the bridge plate to the mini-high platform.

However, if a person needing assistance is riding in a coach car and not the cab car, the Conductor would communicate to the Engineer the need to spot the car to the mini-high platform on approach to the station. After the appropriate car is spotted at the mini-high platform, the Conductor would proceed to assist the passenger per the normal procedures.

If the Engineer misses spotting the car with the mini-high platform, the Conductor would communicate this to the Engineer who would then either pull forward or reverse the train to realign the car with the mini-high platform. If the station stop is missed completely, communication between the Conductor and the passenger would determine whether the passenger would get off at the next stop and wait for a train in the opposite direction or a taxi would be called to transport them to their stop. Therefore, if in the event that a station is missed, it is passenger railroad policy to ensure that a passenger is not stranded and accommodations are made to get them to their proper station stop in the most expeditious manner.

8 COST COMPARISON

In accordance with 49 CFR 37.42(d)(1), a cost comparison was prepared to compare the costs of mini-high platforms versus car-borne lifts. 49 CFR 37.42(d)(1) states:

(d) Before constructing or altering a platform at a station covered by paragraph (c) of this section, at which a railroad proposes to use a means other than level-entry boarding, the railroad must meet the following requirements:
   (1) If the railroad operator not using level-entry boarding chooses a means of meeting the performance standard other than using car-borne lifts, it must perform a comparison of the costs (capital, operating, and life-cycle costs) of car-borne lifts and the means chosen by the railroad operator, as well as a comparison of the relative ability of each of these alternatives to provide service to individuals with disabilities in an integrated, safe, timely, and reliable manner. The railroad operator must submit a copy of this analysis to FTA or FRA at the time it submits the plan required by paragraph (d)(2) of this section.

Therefore, this analysis will compare capital, operating and maintenance and overall life cycle costs for the car-borne lifts and the mini-high platforms (with portable Bridge plates) to serve Metrolink passengers. All equipment on Metrolink or Amtrak must be interchangeable, within their own system, regardless of route.

8.1 Capital Costs

8.1.1 Capital Costs for Mini-High Platform

Based on SCRRA (Metrolink) engineering standard plans, the capital costs associated with a standard side mini-high platform is estimated to be around $27,500 (in 2023 dollars). These costs include the concrete, railings, detectable warning tiles, and ramp floor finish for one mini-high platform per station platform. A cost analysis for platform based mini-high platforms is shown in Appendices E and F.

8.1.2 Capital Costs for Car-Borne Lifts

The capital cost for car-borne lifts was based on several factors. New train cars are not anticipated as part of the Project. SCRRA and Amtrak equipment are used on a system-wide level and therefore it is not possible to buy rail cars solely for the Ventura Line or LOSSAN Pacific Surfliner route. Rather, the current passenger cars would need to be retrofitted with the car-borne lifts. This is the case for Metrolink, Pacific Surfliner and Coast Starlight services.

Theoretically, a very conservative cost estimate for retrofitting cars with car-borne lifts would include the cost to retrofit *every* Metrolink rail car and spares as well as the equipment used in the Pacific Surfliner and Coast Starlight services. The justification for retrofitting every car is explained through the Metrolink operational and maintenance process, which cycles cars throughout the system or along certain lines, as opposed to dedicating only specific cars to specific lines.

Metrolink currently has 285 rail cars, including spares, in their entire system. All of these cars have already been procured by SCRRA as part of a larger fleet expansion and enhancement process; therefore, it is not feasible to order new cars with lifts pre-installed.

Amtrak currently utilizes approximately 70 passenger cars in the Pacific Surfliner service. There are no near term plans to replace the cars. Similarly, it is not feasible to order new cars with lifts pre-installed. Similar to the Metrolink fleet, the entire fleet of Amtrak for the Pacific Surfliner and Coast Starlight services would also have to be retrofitted with car borne lifts.

The Riverside County Transportation Commission (RCTC), in preparing their level boarding report for the Perris Valley Line, developed a cost estimate to retrofit train cars with car-borne lifts. Given that the Perris Valley Line is on the same Metrolink system as the Oxnard and Camarillo Stations, it is understood that the RCTC estimate is comparable to what it would cost to retrofit the trains serving the Camarillo and Oxnard Stations. RCTC developed an estimated cost of $150,000 to retrofit each car with a pair of car-borne lifts in 2014. Adjusted for inflation (per Consumer Price Index calculator), the cost per car-borne lift is $190,617 in 2023 dollars. Therefore, based on the need for over 355 cars to be retrofitted (285 Metrolink and 70 Amtrak Pacific Surfliner) plus the Amtrak Coast Starlight, the total capital cost for retrofitting these cars with car-borne lifts is well over **$135 million**.

The cost estimate developed by RCTC was based on several sources. Minnesota Metro Transit provided an estimate of $150,000 per car ($190,617 adjusted for inflation in 2023 dollars) to install the lifts (two per car) on their Northstar commuter rail service system. The installation of the lifts for the Northstar system would likely be quite different from installation of similar lifts on the Metrolink and Amtrak cars.

First, on the Northstar system, the lifts were installed during manufacture of the cars, while the lifts for the VCL would need to be retrofitted into existing cars. This could cause a number of installation complications that were not present for the Northstar installation.

Second, the parts of the frame around the doors could be structurally different between the newer Northstar cars and the older Metrolink and Amtrak cars, which may necessitate additional reinforcement in the door area in order to install the lifts. In older cars, portions of the doorframe in the area where the lifts would typically be attached used lighter aluminum, while newer cars use stronger steel in those areas.

Due to the difference in the Northstar and RCTC equipment, RCTC undertook and independent cost evaluation. The RCTC cost estimate came to $150,000 ($190,617 adjusted for inflation) per car to install the lifts. This being the same cost as was provided by Northstar, arrived at independently, RCTC believed this is a justifiable number to use, even though it is acknowledged that the installation for their project would likely be more difficult due to having to retrofit existing rail cars. These cost estimates appear in Appendices E and F.

8.2 Operating and Maintenance Costs

Mini-high platforms at the Station would have a negligible operating and maintenance cost. There is no additional operating cost associated with mini-high platforms since the existing single conductors on each Metrolink and Amtrak train assists riders with mobility limitations to board and exit the train at the mini-high platform as part of his/her existing duties. The same conductors are available to assist riders with mobility limitations wanting to board any car in a train consist by repositioning the car to the mini-high platform. The mini-high platforms are essentially maintenance-free, only needing occasional cleaning that is done at the same time as the remainder of the concrete platform.

Car-borne lifts would have negligible operating costs as well. The existing conductors on each train should be able to assist riders with mobility limitations as they board using the car-borne lifts, given the small number of existing riders with mobility limitations that board at each station. However, if the future number of passengers with mobility limitations is significantly higher than at present, additional conductors may be needed. Car-borne lifts would increase annual maintenance costs due to the need for additional maintenance of the lift-equipped cars. Appendices E and F contains the information for the maintenance of car-borne lifts. Based on a 25-year life-cycle, and an annual maintenance cost of $1,906 in 2023 dollars per car, the annual cost of maintenance for a 258 Metrolink car fleet + 70 Amtrak Pacific Surfliner fleet would be $1,349,000 per year (without the Amtrak Coast Starlight).

Life Cycle costs for the two options - mini-high platform and car-borne lift - over 50 years are shown below. Over 50 years, car-borne lifts are projected to cost over $202 million more to install and operate than mini-high platforms. Mini-high platforms are the most cost-effective means of providing level boarding access for the Station.

Table 6 – Life Cycle Cost Comparison – Mini-High Platform and Car-Borne Lifts

Type	Capital Cost	Annual O&M Cost	25-Year Maintenance Cost	50-Year Maintenance Cost	50-Year Total Cost
Mini-High Platform (Metrolink only)	$ 82,500	N/A	N/A	N/A	$ 82,500
Installing Car-Borne Lifts (Metrolink & Amtrak)	$ 135,337,644	$ 1,349,000	$ 33,725,000	$ 67,450,000	$ 202,787,644

Assumptions:

Cost per mini-high	$	27,500.00	
Number of Platform edges		3	for Oxnard + Camarillo

8.3 Operational Delays

This analysis does not anticipate higher frequency of use for the car-borne lifts as compared to the mini-high platforms by riders with mobility limitations. However, because the car-borne lifts allow riders to enter any of the cars of the train when it pulls up to a platform, it is anticipated that riders needing assistance would likely be dispersed along the length of the platform, rather than uniformly directed to the mini-high platform. This could result in potential significant delays caused by the conductor having to assist passengers using the car-borne lifts at any car on the train. While operation of the car-borne lifts would likely cause more frequent minor delays (just due to the time it takes to operate the lift) than for the mini-high platform system, the delays would be small enough that they could be absorbed by the schedule float built into the schedules in the vast majority of cases. Therefore, operational delays are not attributed to the use of car-borne lifts.

Passengers with mobility limitations currently have the right to board any car of a Metrolink train using mini-high platforms. If multiple passengers request to board or alight at the same stop, SCRRA experience shows that they will generally all board or alight at the mini-high platform location during the initial spotting of the train. However, if a double- or triple-stop is required due to passengers requesting to enter a particular car, then a delay would be encountered (7.5 to 11.5 minutes on average for each additional stop, depending on orientation of the train). Because of the rarity of this potential occurrence, operational delays are not attributed to the use of mini-high platforms (with portable Bridge plates).

SCRRA does not keep a record of how many passengers with mobility limitations board their trains. Nor do they keep a record of the frequency of having more than one passenger with mobility limitations boarding or alighting a train at any given stop, but anecdotally, Metrolink has indicated that the occurrence is very low and there are no complaints with the mini-high platform boarding procedures. Operational delays related to car-borne lifts or mini-high platforms may become more prevalent in the future if the number of passengers with mobility limitations increases significantly.

9 CONCLUSIONS

The foregoing analysis of accessibility options for the platform at the Camarillo and Oxnard stations considered and evaluated options to provide equal access to ambulatory and non-ambulatory passengers in an effort to comply with the USDOT Level Boarding Regulation. This report reaches the following conclusions regarding level boarding options at the Stations:

Rejected Level Boarding Methods – gauntlet tracks, bypass tracks, car-borne lifts and retractable platform edges were evaluated and rejected. Also, the use of traditional (non-ADA compliant) bridge-plates at every door for both Metrolink and Amtrak fleet was explored, but deemed impractical based on the inherent problems this method poses for both ambulatory and non-ambulatory passengers for the Metrolink fleet. Freight traffic on the Santa Barbara Subdivision, including over-dimensional freight cars, precludes the placement of platforms higher than 8" above top-of-rail thus conformance with clearance standards.

Feasible Method of Level Boarding of Amtrak Horizon and Comet Cars – the use of mobile wheelchair lifts provides a feasible option for loading Amtrak Horizon and Comet cars to comply with the Level Boarding Regulation.

Feasible Method of Level Boarding of Amtrak Superliner and Surfliner Cars – the use of ADA compliant bridge plate ramps for 1 door per car will be used to comply with the Level Boarding Regulation.

Feasible Method of Level Boarding of Metrolink Bombardier and Rotem Cars – the use of mini-high platforms (with portable bridge plates) provides a feasible option for loading Metrolink Bombardier and Rotem Cars to comply with the Level Boarding Regulation.

Mini-High Platforms Require Additional Assurances to be enforced as Operational Procedures – the provision of a mini-high on the platform at the Station comes with the assurance that Metrolink will afford access to every car for every passenger, including non-ambulatory passengers. Certain operating procedures are implemented in compliance with this policy. These rules are already detailed in Metrolink operation rules:

- Train crews will reposition the train consist to comply with passenger requests.
- Reversing of trains to reposition cars is operationally permitted, with dispatcher approval, and not discouraged.
- Operational agreements with freight railroads do not prohibit double-stopping of passenger trains.
- Train personnel will communicate by radio in the event that a passenger who needs the mini-high platform, and is riding in a car other than the cab-car will not miss his/her stop.

UPRR Operational Track Rights – Union Pacific Railroad's freight rights are identical for all tracks servicing the two stations covered in this report. There is no diminishment of UPRR's freight rights on any track located public-owned right-of-way. Per the agreements with Metrolink and Amtrak, UPRR they must be able to maintain their operations which would include oversized freight loads. An 8" platform is therefore required to meet the terms of the agreement.

Final Recommendation - Mini-High Platforms (with bridge plates) are the preferred level boarding method by Metrolink due to reliability, cost, installation and ease of operation. Alternatively portable wheelchair lifts and ADA bridge plate ramps are the preferred level boarding methods by Amtrak due to reliability, cost, installation and ease of operation.

Appendix A

Metrolink Ventura County Line Timetable

(including Pacific Surfliner)

(As of September 2024)

U.S. Department of Transportation
Federal Railroad Administration

United States Department of Transporation
Federal Transit Administration

VENTURA COUNTY LINE • AMTRAK SERVICE — Ventura to L.A.

MONDAY THROUGH FRIDAY

Train No.	100	102	104	106	108	CS A770	110	112	CS A774	116	CS A784	118	120	CS A790	CS A794
Ventura - Downtown / Beach						7:39			9:38		**2:34**			**5:28**	**7:43**
Ventura - East		5:21	5:59	6:59		↓			↓		↓			↓	↓
Oxnard		5:34	6:12	7:12		7:57			9:55		**2:53**			**5:42**	**8:03**
Camarillo		5:44	6:22	7:22		8:10			10:09		**3:09**			**5:53**	**8:14**
Moorpark	4:59	5:56	6:34	7:34	7:55	8:24		9:33	10:23	**2:17**	**3:23**		**4:46**	**6:05**	**8:24**
Simi Valley	5:12	6:09	6:47	7:47	8:08	8:41		9:46	10:39	**2:31**	**3:39**		**4:58**	**6:21**	**8:41**
Chatsworth	5:24	6:21	7:00	7:59	8:22	8:53	9:16	9:58	10:52	**2:44**	**3:52**	**4:50**	**5:12**	**6:37**	**8:58**
Northridge	5:30	6:26	7:06	8:06	8:27	8:59	9:22	10:04	↓	**2:49**	**4:05**	**4:56**	**5:18**	↓	↓
Van Nuys	5:38	6:34	7:14	8:14	8:34	9:09	9:29	10:11	11:07	**2:57**	**4:13**	**5:04**	**5:26**	**6:50**	**9:09**
Burbank Airport - South (VC Line)	5:46	6:41	7:21	8:21	8:42	9:17	9:37	10:19	11:15	**3:05**	**4:21**	**5:11**	**5:33**	**7:05**	**9:17**
Burbank - Downtown	5:51	6:46	7:26	8:26	8:46	9:22	9:43	10:24	↓	**3:10**	**4:26**	**5:16**	**5:38**	↓	↓
Glendale	5:58	6:53	7:33	8:33	8:53	9:29	9:50	10:30	11:26	**3:16**	**4:34**	**5:22**	**5:44**	**7:17**	**9:28**
L.A. Union Station	6:12	7:10	7:49	8:49	9:07	9:46	10:00	10:45	11:43	**3:33**	**4:48**	**5:37**	**5:59**	**7:40**	**9:46**

NOTES: ↓ Train does not stop at this station — Boarding information is available at each station. AM times **PM times**

Codeshare Program

All Metrolink ticket and pass holders may travel on codeshare (**CS**) Amtrak (A) trains within the station pairs of their pass. Ride anytime; there are no blackout dates.

Rail 2 Rail® Program

All Metrolink tickets and passes valid between L.A. Union Station and Burbank Airport - South (VC Line) may travel on all Amtrak (A) trains within those station pairs however blackout dates may apply.

Only Metrolink Monthly Pass holders may travel on all Amtrak (A) trains within the station pairs of their pass however blackout dates may apply.

Please note:

The Codeshare and Rail 2 Rail® Programs are available at no additional cost. Bicycles require a paid Amtrak ticket with reservation. The Metrolink Kids Ride Free on Weekends Promotion is not valid on Amtrak trains. For details, please visit metrolinktrains.com.

MONDAY THROUGH FRIDAY

Train No.	101	103	CS A761	105	CS A765	CS A769	109	113	CS A777	115	117	119	121	123	CS A785
L.A. Union Station	6:11	6:58	7:13	8:05	9:13	11:13	**12:48**	**2:49**	**3:13**	**3:50**	**4:29**	**5:10**	**5:54**	**6:26**	**7:13**
Glendale	6:23	7:10	7:26	8:17	9:26	11:26	**12:59**	**3:01**	**3:26**	**4:02**	**4:40**	**5:21**	**6:05**	**6:38**	**7:26**
Burbank - Downtown	6:30	7:17	7:33	8:24	↓	↓	**1:06**	**3:07**	**3:33**	**4:09**	**4:47**	**5:28**	**6:12**	**6:44**	↓
Burbank Airport - South (VC Line)	6:36	7:22	7:39	8:30	9:36	11:36	**1:12**	**3:12**	**3:39**	**4:14**	**4:52**	**5:33**	**6:17**	**6:50**	**7:36**
Van Nuys	6:44	7:29	7:47	8:37	9:44	11:44	**1:20**	**3:19**	**3:47**	**4:21**	**4:59**	**5:40**	**6:24**	**6:57**	**7:44**
Northridge	6:52	7:36	7:55	8:44	↓	↓	**1:28**	**3:27**	**3:55**	**4:28**	**5:07**	**5:48**	**6:32**	**7:05**	↓
Chatsworth	6:58	7:42	8:02	8:52	9:59	11:59	**1:34**	**3:32**	**4:01**	**4:35**	**5:13**	**5:54**	**6:38**	**7:10**	**7:59**
Simi Valley	7:11	7:55	8:14		10:11	**12:11**	**1:46**	**3:46**	**4:13**		**5:25**	**6:06**	**6:50**	**7:23**	**8:11**
Moorpark	7:27	8:10	8:27		10:24	**12:23**	**2:02**	**4:02**	**4:26**		**5:37**	**6:18**	**7:05**	**7:36**	**8:25**
Camarillo			8:41		10:36	**12:36**			**4:41**		**5:49**	**6:29**		**7:47**	**8:47**
Oxnard			8:56		10:54	**12:51**			**4:52**		**5:59**	**6:39**		**7:56**	**8:59**
Ventura - East			↓		↓	↓			↓		**6:16**	**6:58**		**8:15**	↓
Ventura - Downtown / Beach			9:10		11:08	**1:05**			**5:06**						**9:13**

NOTES: See previous page.

VENTURA COUNTY LINE • AMTRAK SERVICE — L.A. to Ventura

SATURDAY AND SUNDAY

Train No.	CS A770	CS A774	162	CS A784	164	CS A790	CS A794
Ventura - Downtown / Beach	7:39	9:38		**2:34**		**5:28**	**7:43**
Ventura - East	↓	↓	**1:10**	↓	**4:14**	↓	↓
Oxnard	7:57	9:55	**1:24**	**2:53**	**4:28**	**5:42**	**8:03**
Camarillo	8:10	10:09	**1:35**	**3:09**	**4:41**	**5:53**	**8:14**
Moorpark	8:24	10:23	**1:47**	**3:23**	**4:53**	**6:05**	**8:24**
Simi Valley	8:41	10:39	**2:00**	**3:39**	**5:05**	**6:21**	**8:41**
Chatsworth	8:53	10:52	**2:12**	**3:52**	**5:17**	**6:37**	**8:58**
Northridge	8:59	↓	**2:17**	**4:05**	**5:22**	↓	↓
Van Nuys	9:09	11:07	**2:25**	**4:13**	**5:30**	**6:50**	**9:09**
Burbank Airport - South (VC Line)	9:17	11:15	**2:32**	**4:21**	**5:37**	**7:05**	**9:17**
Burbank - Downtown	9:22	↓	**2:37**	**4:26**	**5:42**	↓	↓
Glendale	9:29	11:26	**2:43**	**4:34**	**5:48**	**7:17**	**9:28**
L.A. Union Station	9:46	11:43	**2:58**	**4:48**	**6:00**	**7:40**	**9:46**

SATURDAY AND SUNDAY

Train No.	CS A761	CS A765	163	CS A769	CS A777	165	CS A785
L.A. Union Station	7:13	9:13	10:31	11:13	**3:13**	**5:07**	**7:13**
Glendale	7:26	9:26	10:48	11:26	**3:26**	**5:19**	**7:26**
Burbank - Downtown	7:33	↓	10:55	↓	**3:33**	**5:26**	↓
Burbank Airport - South (VC Line)	7:39	9:36	11:00	11:36	**3:39**	**5:32**	**7:36**
Van Nuys	7:47	9:44	11:08	11:44	**3:47**	**5:39**	**7:44**
Northridge	7:55	↓	11:15	↓	**3:55**	**5:47**	↓
Chatsworth	8:02	9:59	11:21	11:59	**4:01**	**5:53**	**7:59**
Simi Valley	8:14	10:11	11:33	**12:11**	**4:13**	**6:06**	**8:11**
Moorpark	8:27	10:24	11:45	**12:23**	**4:26**	**6:20**	**8:25**
Camarillo	8:41	10:36	11:58	**12:36**	**4:41**	**6:32**	**8:47**
Oxnard	8:56	10:54	**12:08**	**12:51**	**4:52**	**6:42**	**8:59**
Ventura - East	↓	↓	**12:22**	↓	↓	**7:00**	↓
Ventura - Downtown / Beach	9:10	11:08		**1:05**	**5:06**		**9:13**

NOTES: See page 10.

Appendix B

Amtrak Coast Starlight Timetable

U.S. Department of Transportation
Federal Railroad Administration

United States Department of Transporation
Federal Transit Administration

AMTRAK

Coast Starlight

Sunday, September 29, 2024

14	*Service Number*	11	
Coast Starlight	*Route*	Coast Starlight	
Daily	*Days of Operation*	Daily	
34h 0m	*Duration*	**35h 16m**	
▼	*Read Direction*	▲	Symbols
9:51a	**Los Angeles, CA - Union Station (LAX)**	**9:11p**	●
—	Burbank, CA (BUR)	8:44p	○
10:18a	Van Nuys, CA (VNC)	8:36p	●
10:49a	Simi Valley, CA (SIM)	8:02p	○
11:22a	Oxnard, CA (OXN)	7:20p	●
12:21p	Santa Barbara, CA (SBA)	6:19p	●
3:05p	San Luis Obispo, CA - Amtrak Station (SLO)	3:37p	●
4:15p	Paso Robles, CA (PRB)	1:57p	○
6:13p	Salinas, CA - Amtrak Station (SNS)	12:06p	●
7:58p	San Jose, CA - Diridon Station (SJC)	10:26a	●
9:21p	Oakland, CA - Jack London Square Station (OKJ)	9:09a	●
9:41p	Emeryville, CA (EMY)	8:39a	●
10:26p	Martinez, CA (MTZ)	7:54a	●
11:11p	Davis, CA (DAV)	7:05a	●
11:49p	Sacramento, CA - Sacramento Valley Station (SAC)	6:48a	●
1:37a	Chico, CA (CIC)	4:12a	○
3:05a	Redding, CA - Amtrak Station (RDD)	2:31a	○
4:58a	Dunsmuir, CA (DUN)	12:45a	○
7:43a	Klamath Falls, OR (KFS)	10:08p	●
8:59a	Chemult, OR (CMO)	8:13p	○
12:37p	Eugene, OR - Amtrak Station (EUG)	5:15p	●
1:23p	Albany, OR (ALY)	4:14p	●
2:04p	Salem, OR - Amtrak Station (SLM)	3:39p	●
3:56p	Portland, OR - Union Station (PDX)	2:22p	●
4:16p	**Vancouver, WA (VAN)**	**1:15p**	●

Appendix C

Excerpts –

Commuter Train Access Agreement between Ventura County Transportation Commission and Union Pacific Railroad Company" dated March 6, 1998

Saugus and Ventura Shared Use Agreement dated April 18, 1991

Commuter Train Access Agreement between Ventura County Transportation Commission and Union Pacific Railroad Company dated March 6, 1998

(b) VCTC and UP hereby incorporate by reference the following terms and conditions of the Saugus and Ventura Shared Use Agreement dated April 18, 1991, between SP and the Los Angeles County Transportation Commission, as amended from time to time (the "SUA"), as though fully set forth herein:

(i) Article One. In its entirety, but only to the extent that the defined terms are applicable and relevant to the portions of the SUA that are specifically incorporated by reference hereinbelow. For the purposes of this Agreement, the term "Shared Use Facilities" shall include the Line Segment (the trackage to Montalvo and to the Ventura Amtrak Station also included for applicable operations), and the term "Commission" shall refer to VCTC and/or its designee SCRRA and/or its successor.

(ii) Section 2.1. First sentence only.

Saugus and Ventura Shared Use Agreement dated April 18, 1991

ARTICLE TWO - Shared Use Facilities

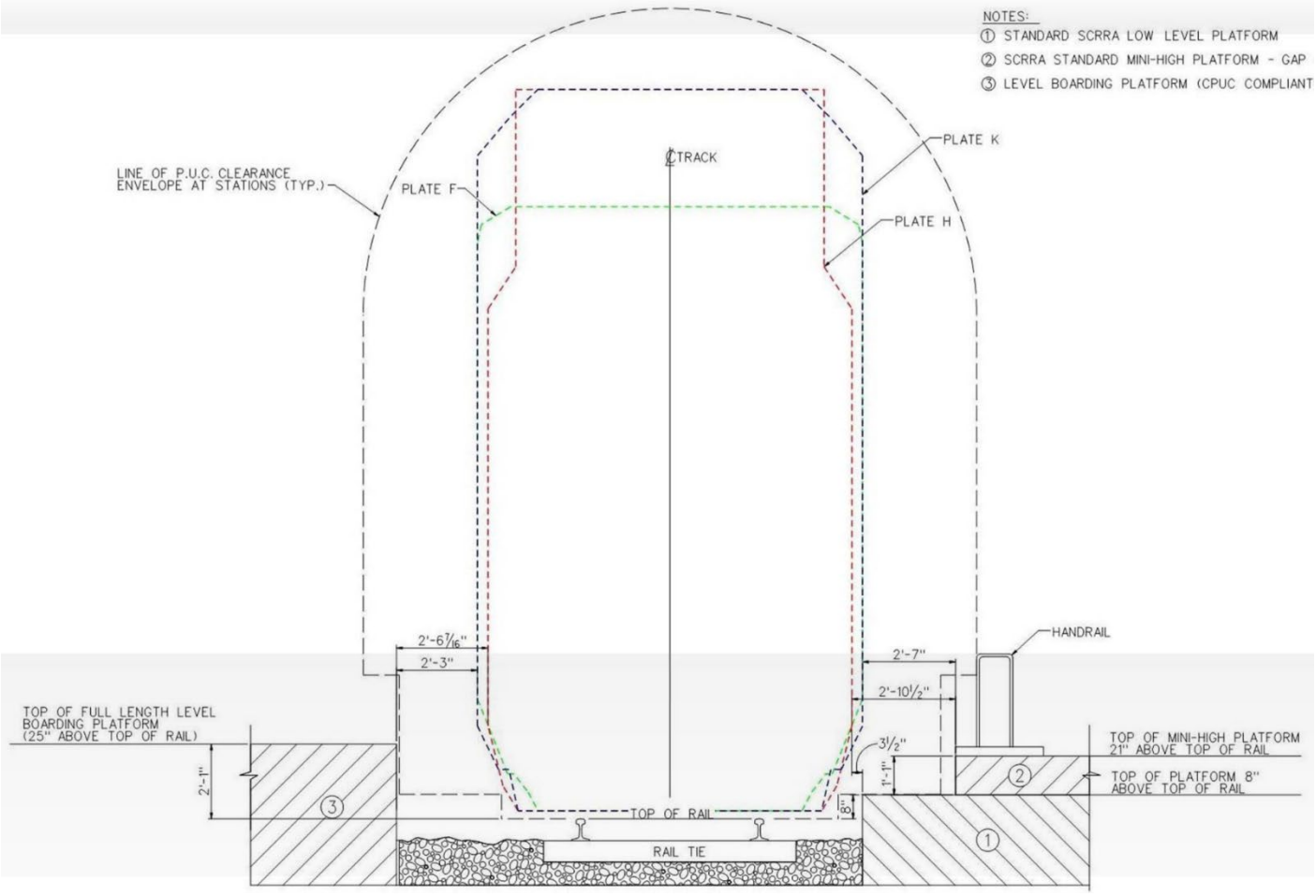
Section 2.1. Statement of Purpose. The intent of the Commission and the Railroad in entering into this Agreement for ~~the Saugus and~~ Ventura Lines is to permit the Commission to provide Commuter Service on those Lines, while at the same time preserving the Railroad's ability to provide service-competitive freight service on those Lines, both now and in the future, and to continue to provide intercity passenger service on the Lines. Growth in the amount, frequency or time-sensitivity of freight, commuter and intercity passenger traffic will be accommodated by the progressive addition by the Commission of a second Track and related facilities. ~~The process of double tracking the Saugus line shall be completed within not more than 20 years.~~

Appendix D

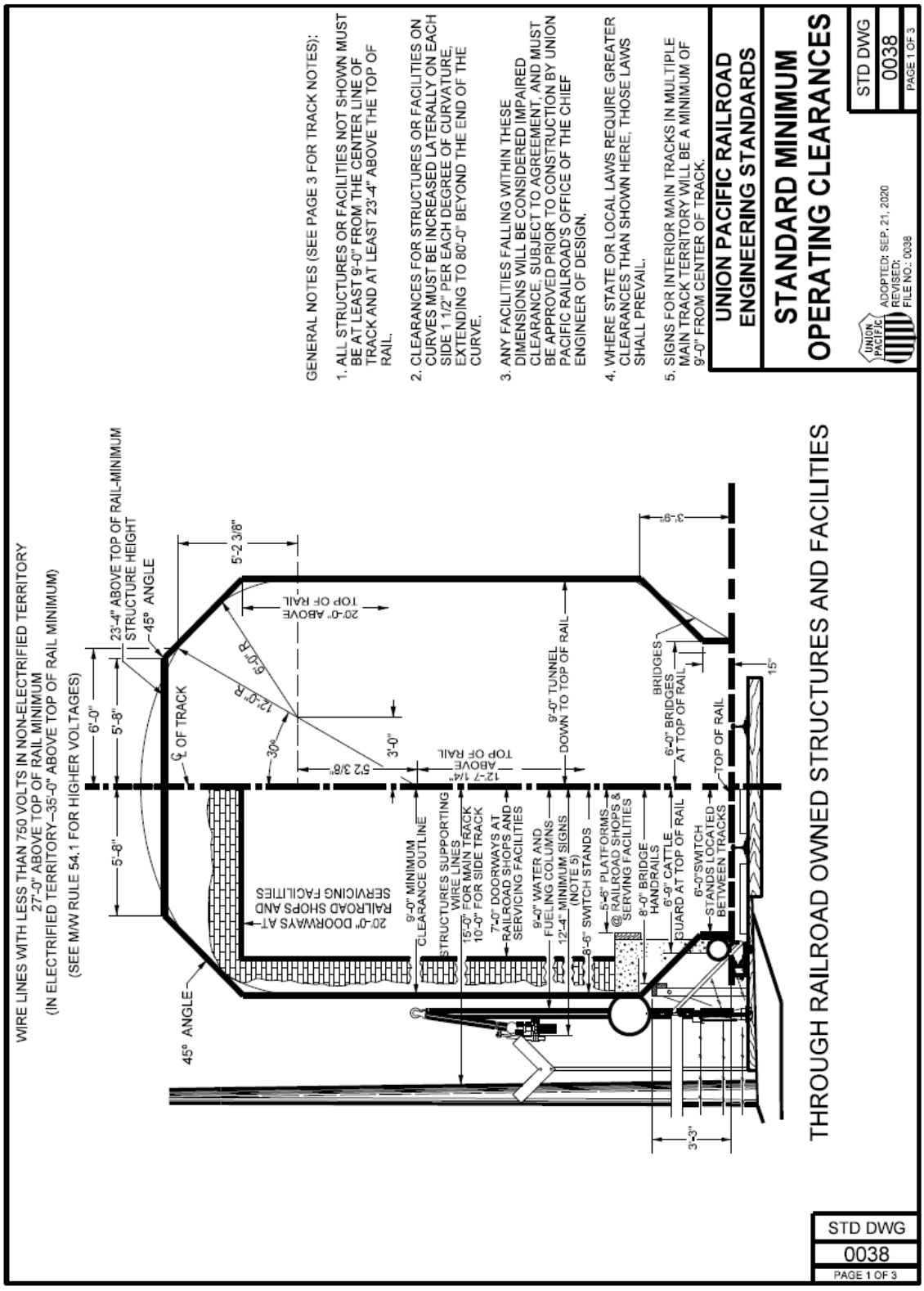
Clearance Standards

U.S. Department of Transportation
Federal Railroad Administration

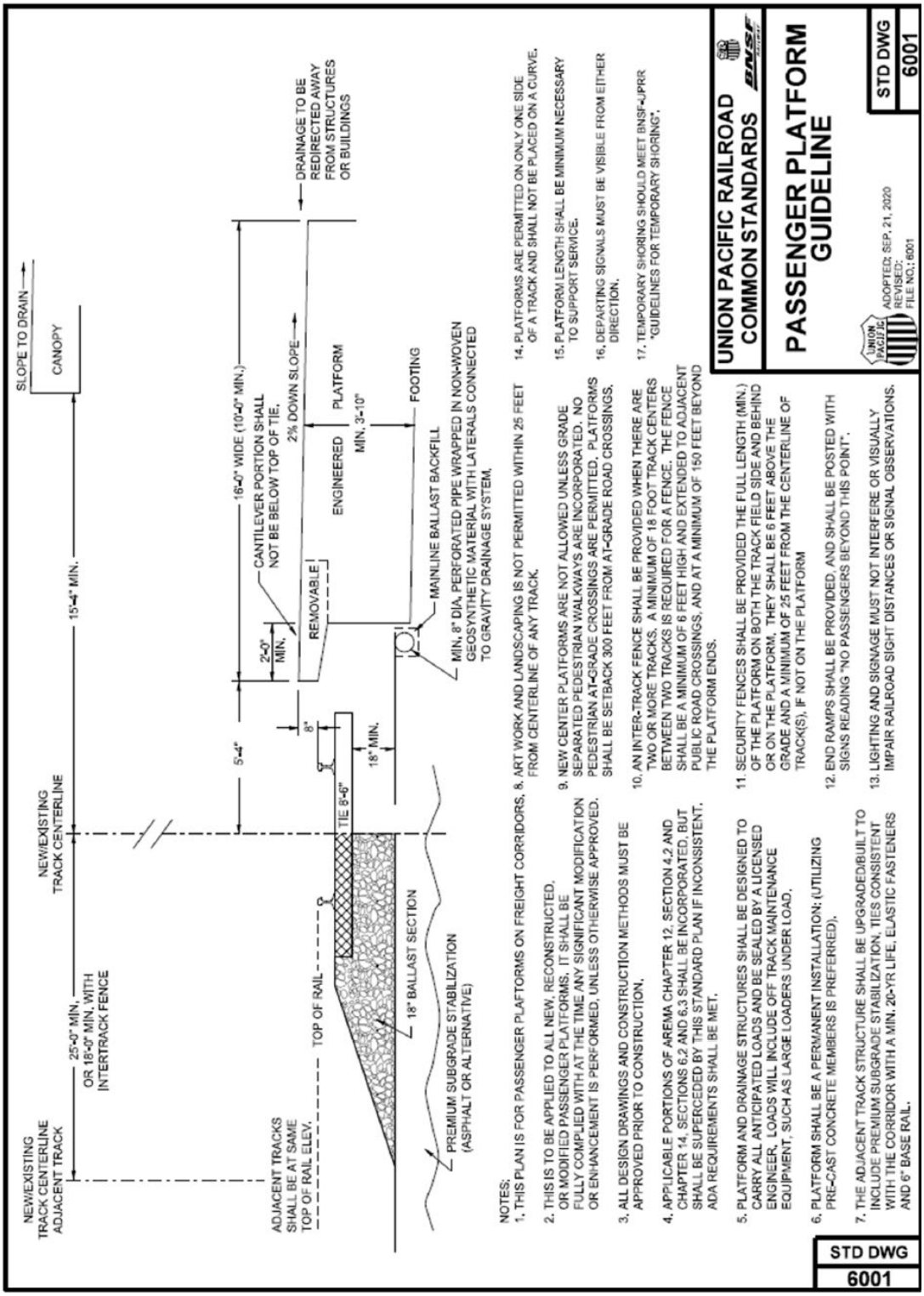
United States Department of Transporation
Federal Transit Administration



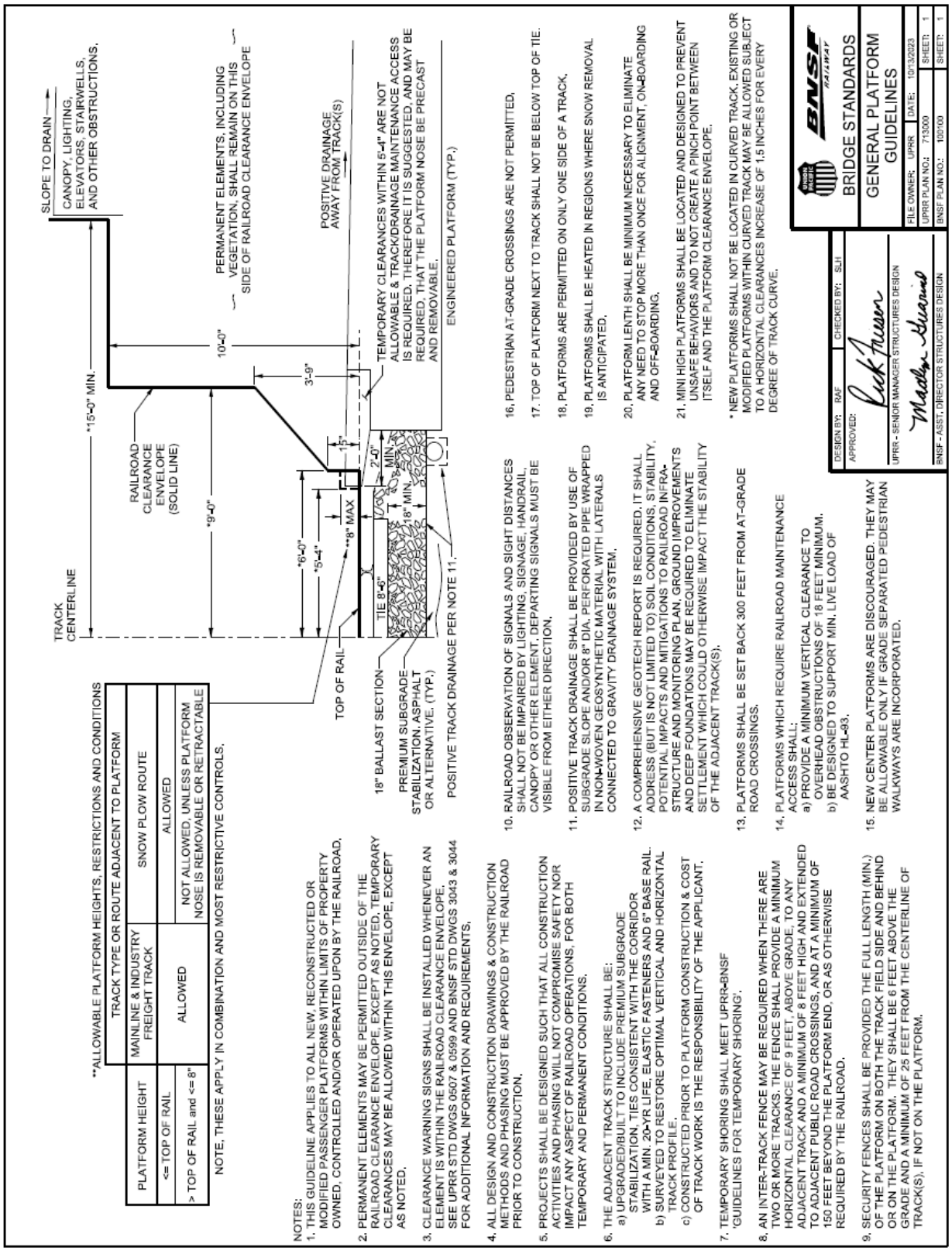
Railcar Clearance Requirements – AAR Plates F, H and K



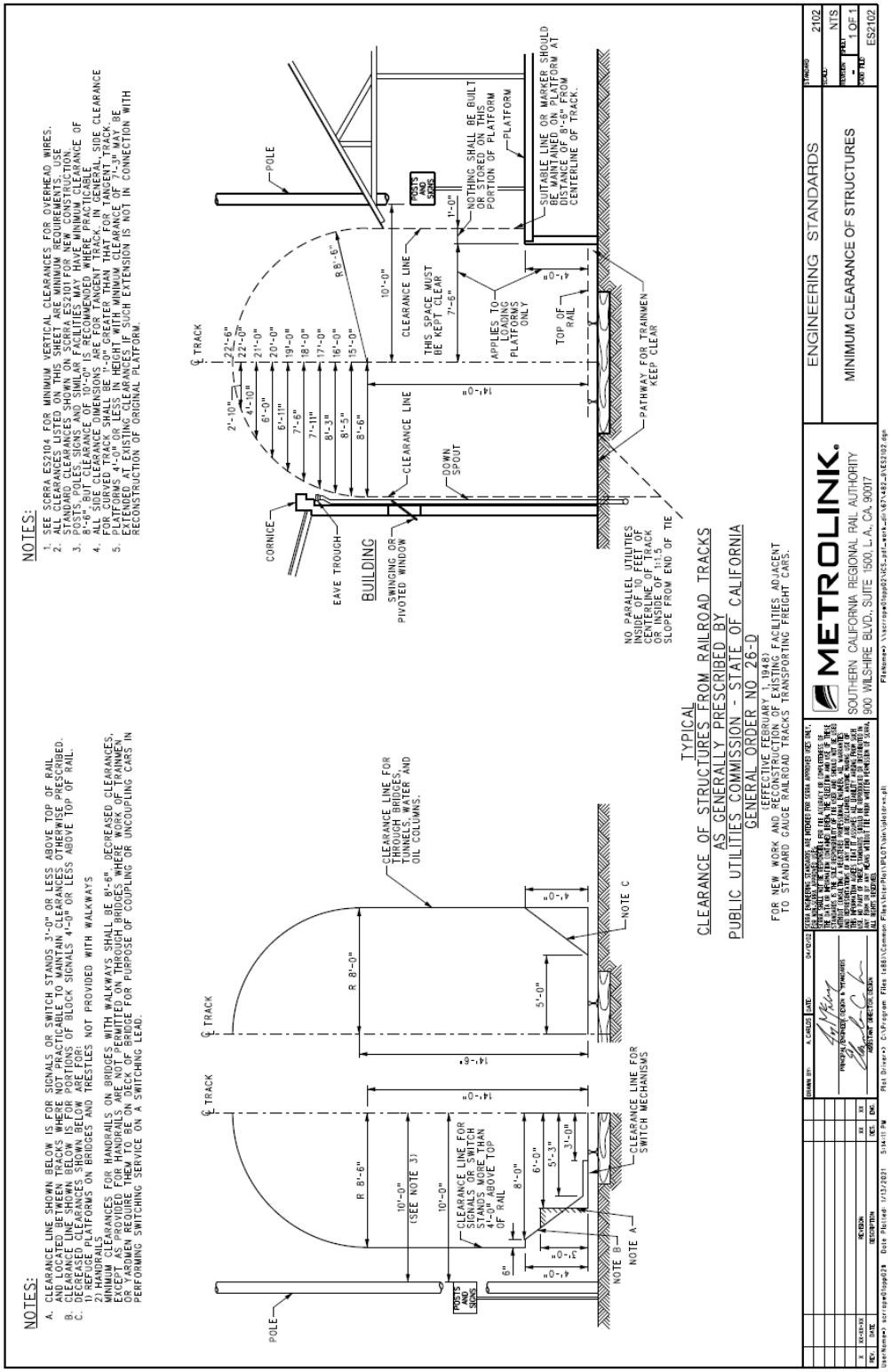
Freight Railcar Clearance Requirements – UPRR Standard Minimum Operating Clearances



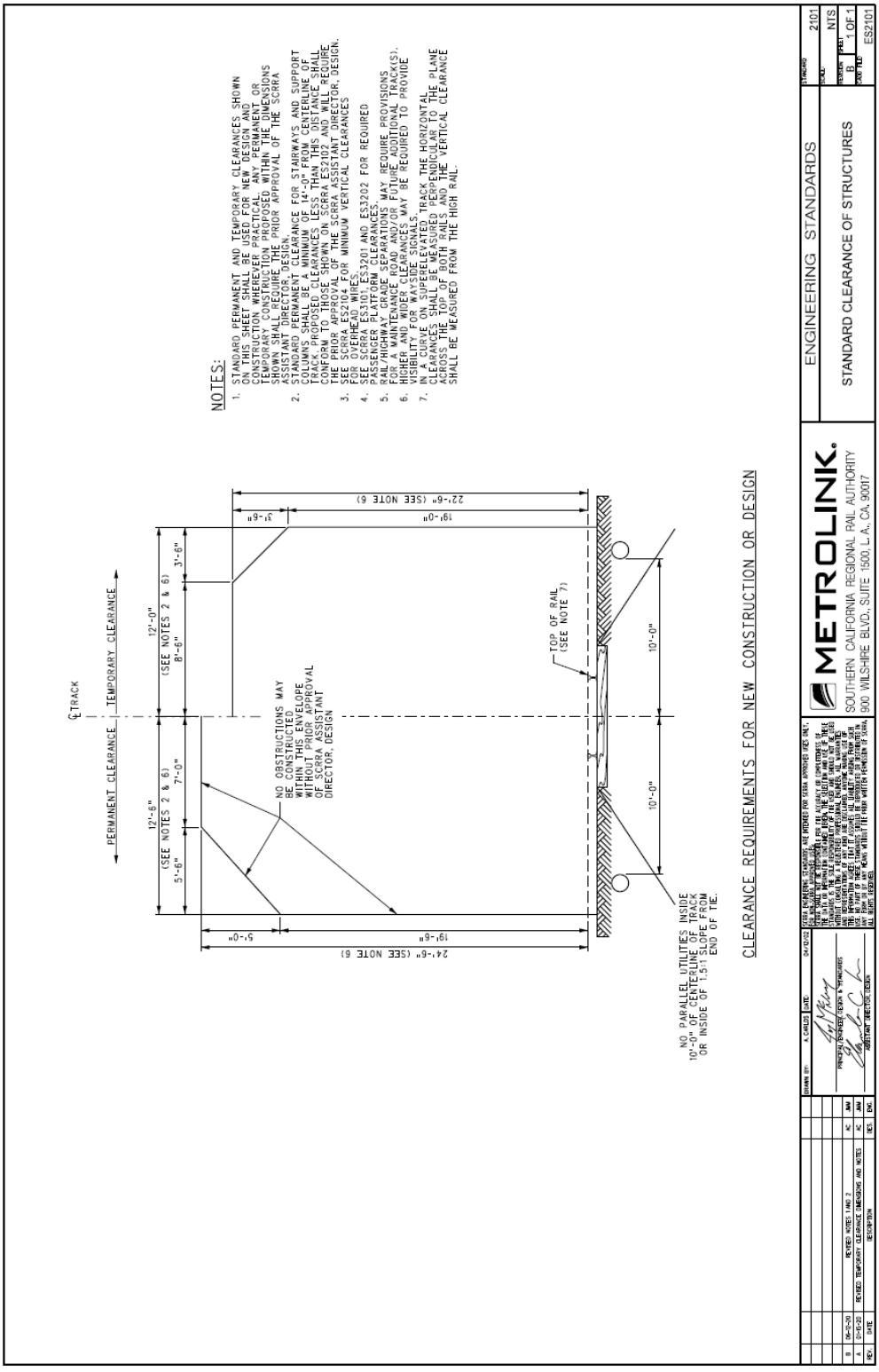
Freight Railcar Clearance Requirements – UPRR Platform Clearances



Freight Railcar Clearance Requirements – UPRR Platform Clearances

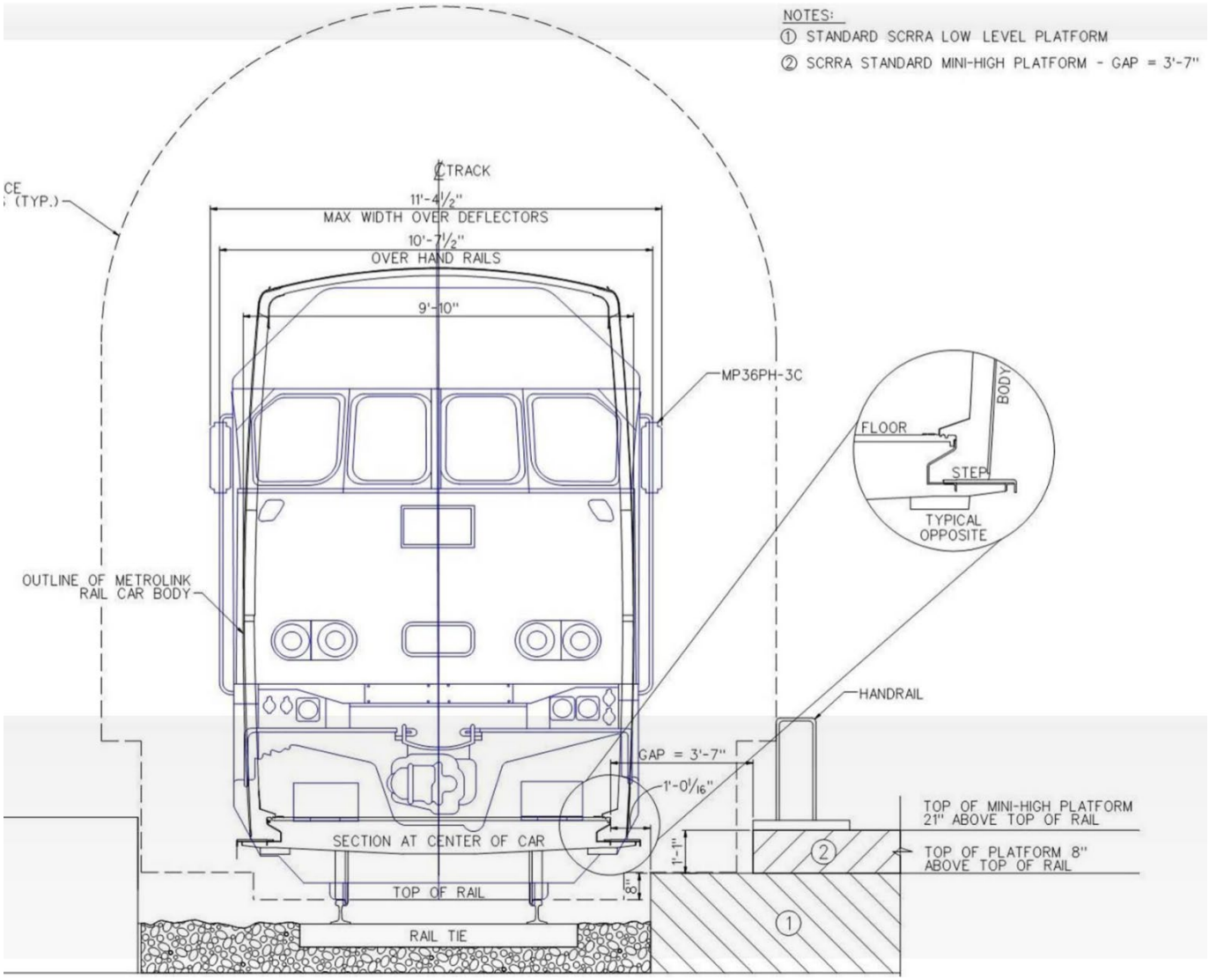


SCRRA Minimum Clearance of Structures



SCRRA Standard Clearance of Structures

SCRRA Commuter Rail Locomotive and Commuter Rail Car at Mini-High Platform



Appendix E

Mini-High vs Car-Borne Lifts Cost Analysis

U.S. Department of Transportation
Federal Railroad Administration

United States Department of Transporation
Federal Transit Administration

Cost Comparison of Solutions (Methods 1 and 3)

Equipment Type	Boarding Method 1 Deploy Manual Bridge Plates at every door (1 per car)						Boarding Method 3 Car-Borne Lifts (2 per car)					
	Maintenance	Operating	Capital	25 year	50 year	Total	Maintenance	Operating	Capital	25 year Maintenance	50 year Maintenance	50 year Total
Metrolink (Bombardier & Rotem Bi-level)	N/A	N/A	$ 199,500.00	There are minimal operating and maintenance costs associated with deploying manual bridge plates		$ 199,500.00	$ 1,083,000.00	N/A	$ 108,651,348.00	$ 27,075,000.00	$ 54,150,000.00	$ 162,801,348.00
Amtrak (All equipment: California Equipment Pool bi-level Surfliner/Superliner and single-level Horizon/Comet)	N/A	N/A	$ 625,500.00	There are minimaloperating and maintenance costs associated with deploying manual bridge plates		$ 625,500.00	$ 266,000.00	N/A	$ 26,686,296.00	$ 6,650,000.00	$ 13,300,000.00	$ 39,986,296.00

Notes/Assumptions/Costs		Comments
Method 1: Cost per Metrolink bridge plate	$ 700.00	
Method 1: Cost per new Amtrak ADA bridge plates	$ 8,250.00	$8250 per bridge plate with 1 per car
Method 1: Cost per new Amtrak ADA bridge plates - cabinet	$ 8,000.00	Cost per cabinet
Method 1: Cost per new Amtrak ADA bridge plates - cabinet	6	2 minimum cabinets per platform (6 total cabinets for Camarillo + Oxnard Stations)
Method 3: Cost per Car-borne lift	$ 190,616.40	Perris Valley Line Preliminary Cost estimate, updated from 2011 using US inflation calculator to 2023 dollars, Coin News Media Group Company
Method 3: Lifts per car	2	Two lifts per car - 1 per each side
Method 3: Cost of Lift Maintenance Annually	$ 1,900.00	
Metrolink Number of Cars in fleet as of Sept 2024	285	SCRRA must be able to interchange any car on any consist throughout the entire system
Amtrak Number of Cars in fleet as of Sept 2024 (Pacific Surfliner only)	70	Amtrak must be able to interchange any car on any consist throughout the entire system

Assumption

All cars can be used on any route and all equipment needs to be interchangeable

Appendix F

Other Cost Analysis

U.S. Department of Transportation
Federal Railroad Administration

United States Department of Transporation
Federal Transit Administration

Mini-High Platform Based Solution - Boarding Method 5

Number	Name	Existing or Future Station	Existing Rail Services	Future Rail Services	Concrete Mini-High Platform	Cost Per Station
1	Camarillo	Existing	Metrolink / Surfliner	Metrolink / Surfliner	2	$ 55,000
2	Oxnard	Existing	Metrolink / Surfliner / Coast Starlight	Metrolink / Surfliner / Coast Starlight	1	$ 27,500
				Per mini-high cost	$ 27,500	
				Number Required	3	
				Capital Project Cost	$ 82,500	

Platform Based Solutions (Methods 2, 4, 5, 6)
Camarillo & Oxnard Stations Only

Boarding Method 2						Boarding Method 4					
Guantlet or Bypass Track (One per platform)						Retractable Platform Edges					
Maintenance	Operating	Capital	25 year	50 year	50 year Total	Maintenance	Operating	Capital	25 year	50 year	50 year Total
$ 15,000.00	N/A	$8,276,424.00	$ 375,000.00	$ 750,000.00	$9,026,424.00	$ 1,500.00	N/A	$ 205,800.00	$ 37,500.00	$ 75,000.00	$ 280,800.00

Boarding Method 5						Boarding Method 6					
Mini-High Platforms (One per Metrolink platform edge)						Portable Wheelchair Lifts (1 per platform)					
Maintenance	Operating	Capital	25 year	50 year	50 year Total	Maintenance	Operating	Capital	25 year	50 year	50 year Total
N/A	N/A	$ 82,500.00	There are minimal operating and maintenance costs associated with Mini-High Platforms		$ 82,500.00	$ 300.00	N/A	$ 47,460.00	$ 7,500.00	$ 15,000.00	$ 62,460.00

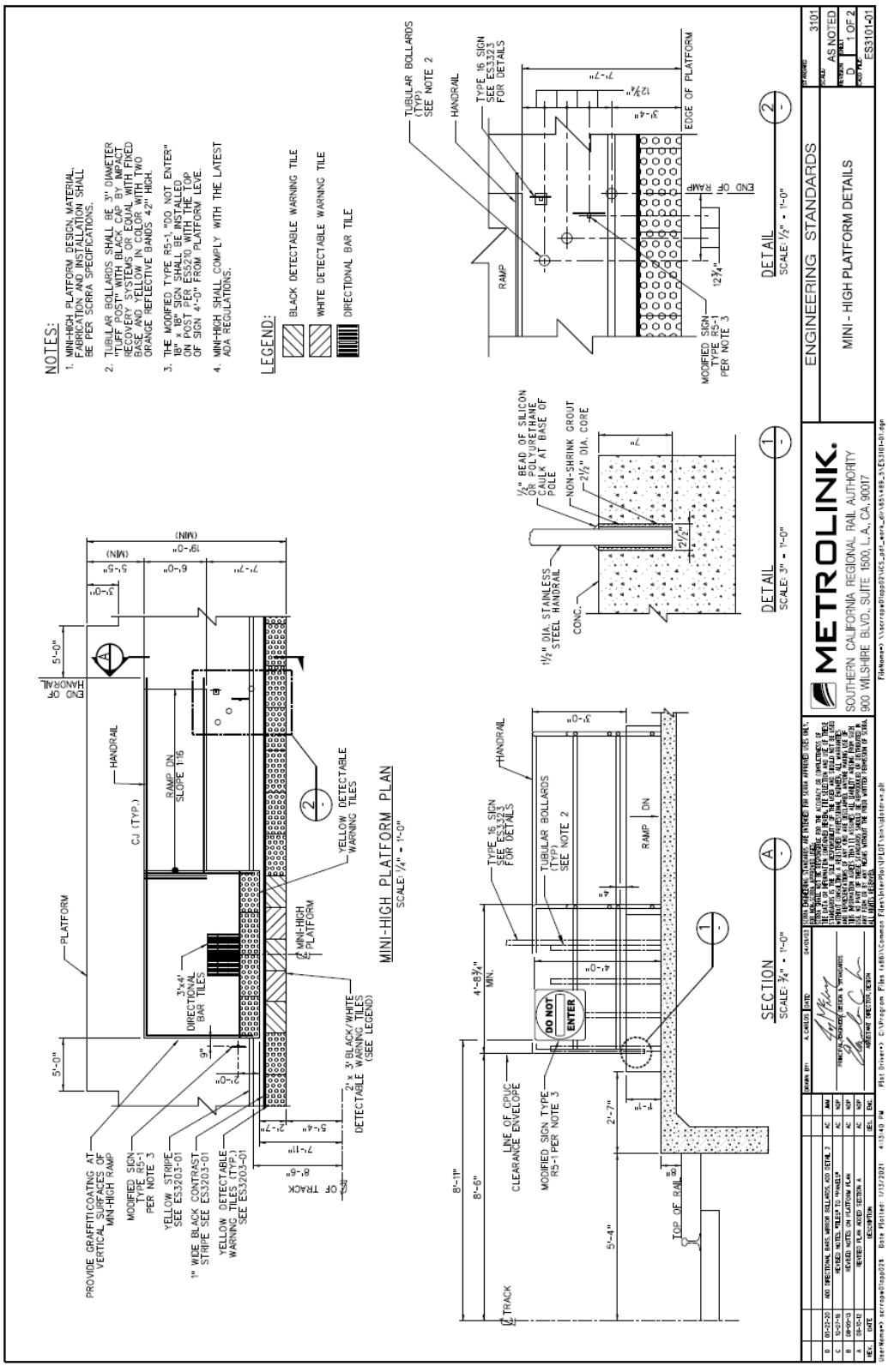
Notes/Assumptions/Costs	Cost/Value	Comments
Method 2: Cost per Gauntlet Track	$2,758,808.00	
Method 2: Maintenance Cost per year	$ 5,000.00	per Gauntlet set
Method 2: Number of Gauntlet Track Sets	3	for Oxnard + Camarillo
Method 4: Retractable Platform Edges (estimate below)		
Assumptions:		
Width (2 NCTD sized ramps)	28	feet
Ramp length per platform	196	feet
Ramps per platform	7	Number of ramps per platform can vary
Number of Platform edges	3	for Oxnard + Camarillo
Cost per foot	$ 350.00	
Time & Material per platform	$ 68,600.00	NCTD Preliminary Cost estimate, updated from 2007 using US inflation calculator to 2023 dollars, Coin News Media Group Company
Maintenance Cost per year	$ 500.00	
Method 5: Cost per mini-high	$ 27,500.00	
Method 5: Number of Platform edges	3	for Oxnard + Camarillo
Method 6: Cost per Wheelchair lift	$ 15,820.00	Telephone conversation with Graham Smith, Adaptive Fabrication, 3-31-2023
Method 6: Number of Platform edges	3	for Oxnard + Camarillo
Method 6: Maintenance Cost per year	$ 100.00	

Appendix G

Metrolink Mini-High Platform Standards

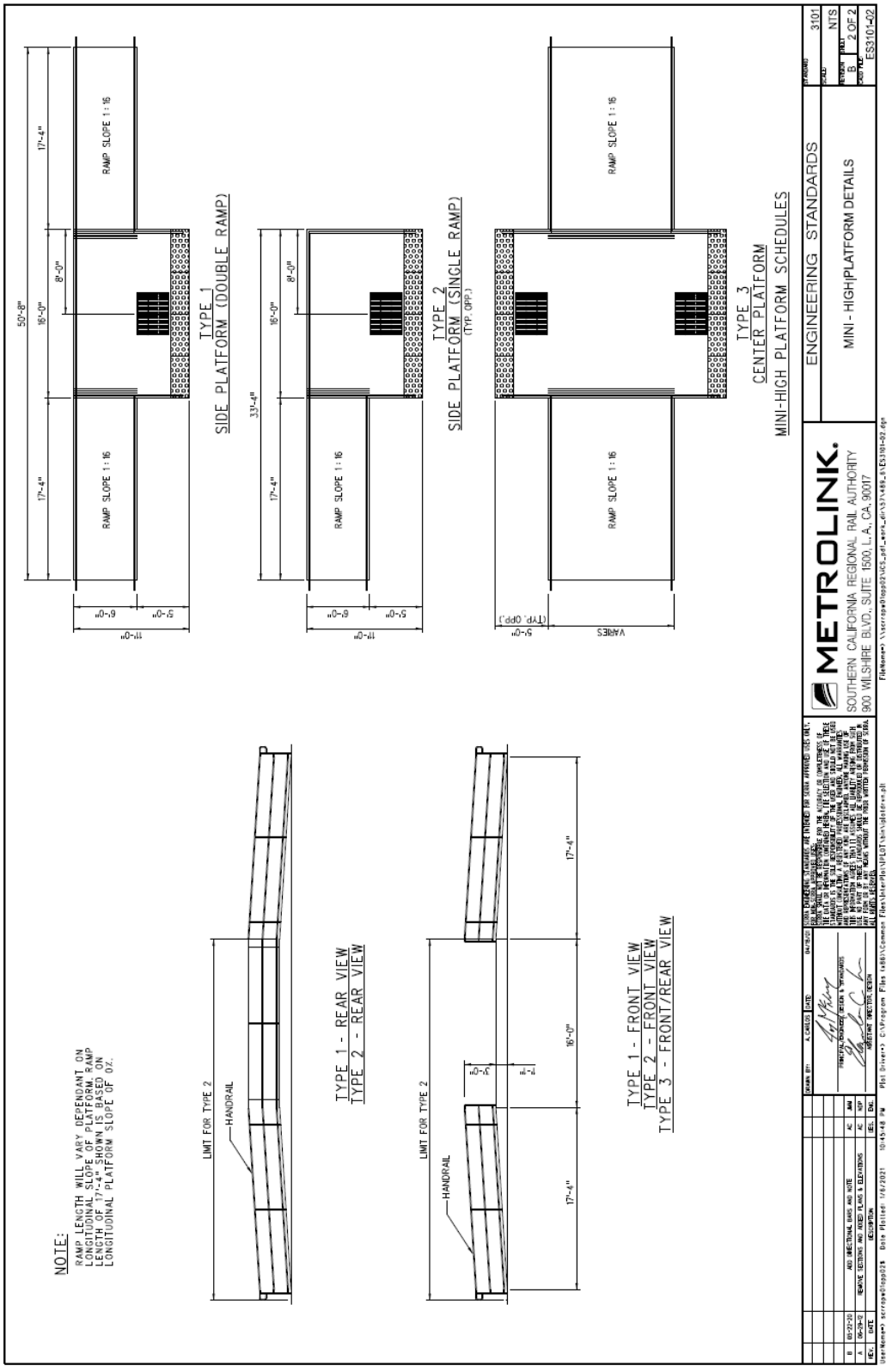
U.S. Department of Transportation
Federal Railroad Administration

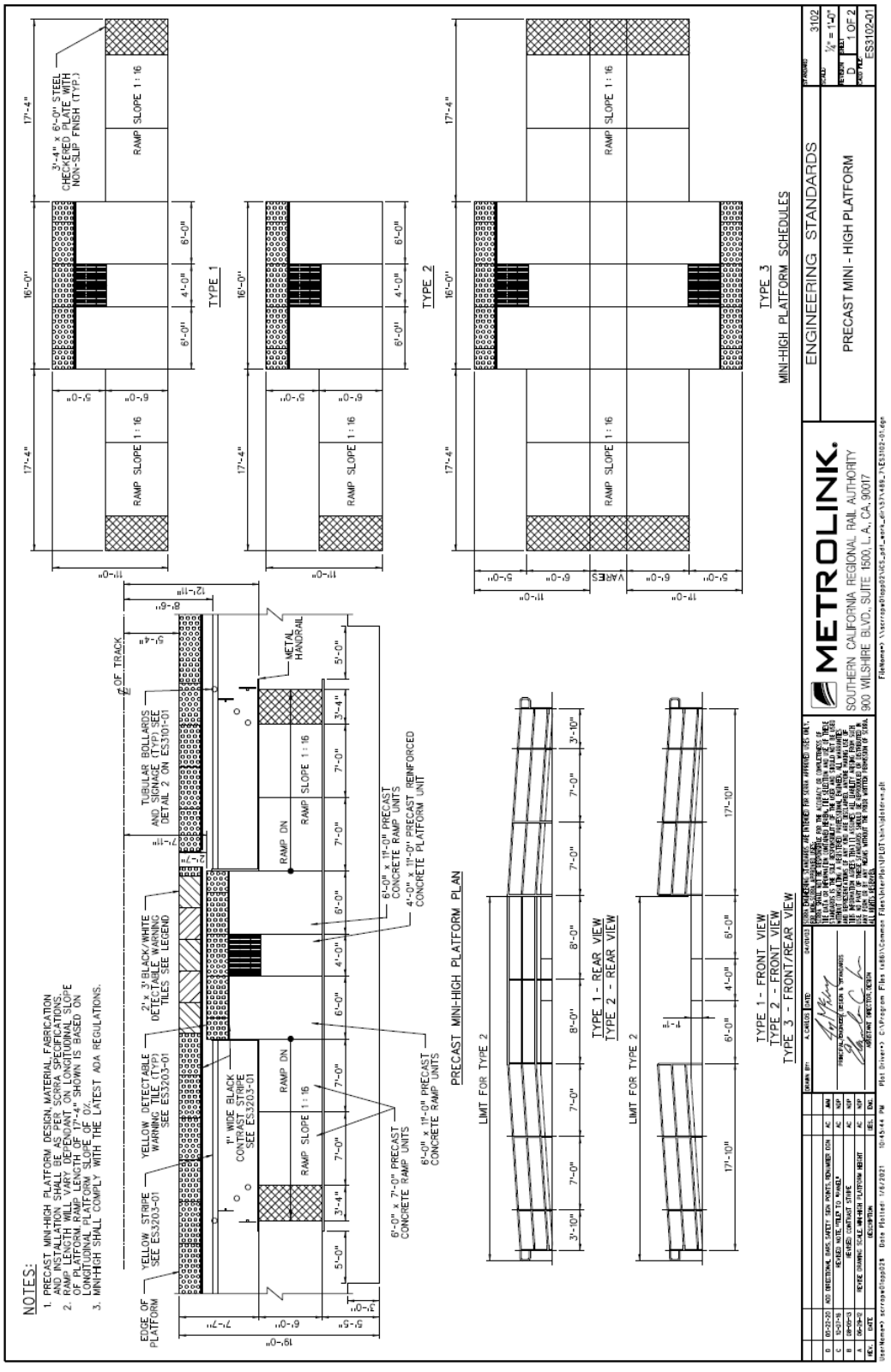
United States Department of Transporation
Federal Transit Administration

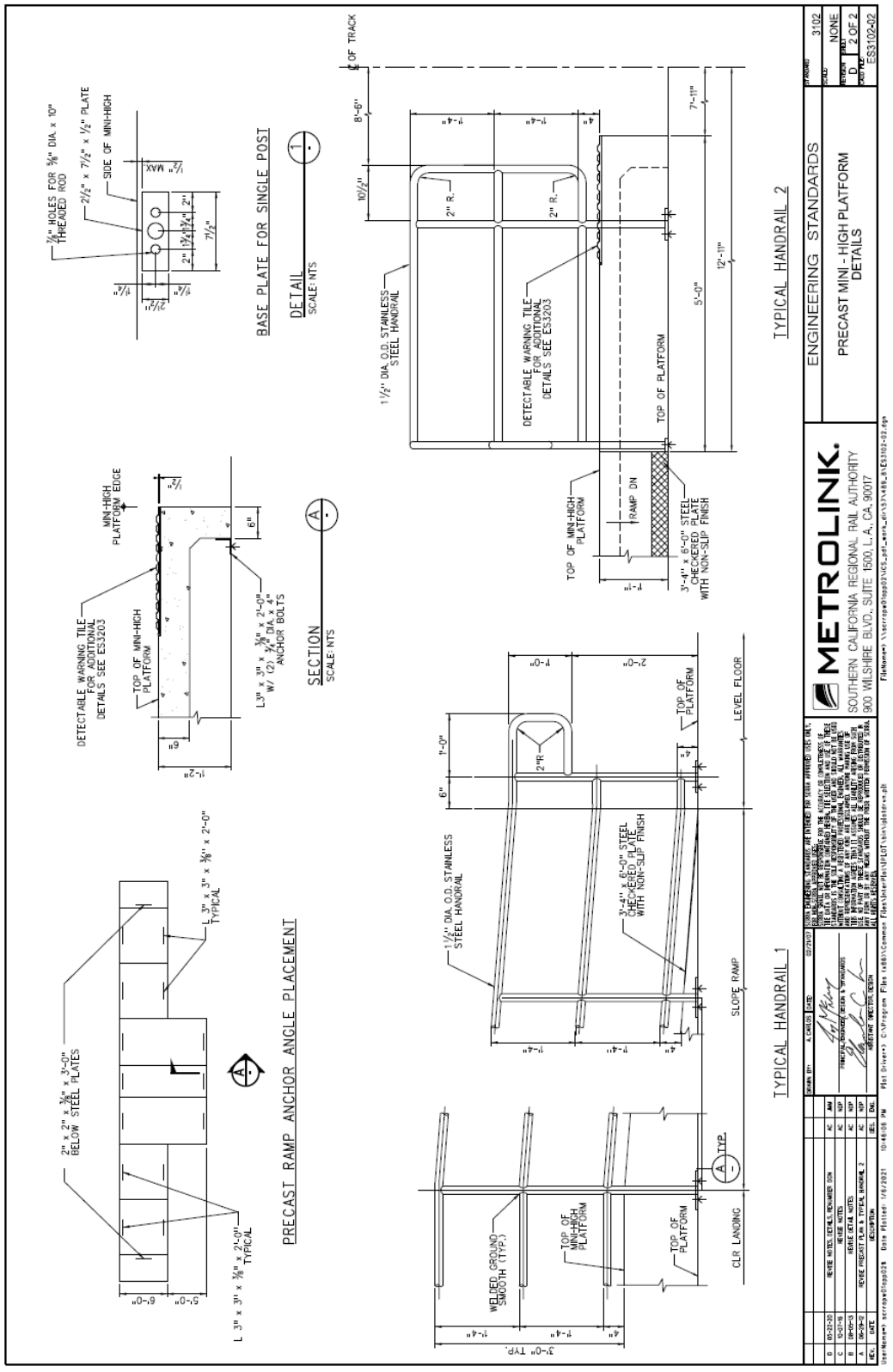


U.S. Department of Transportation
Federal Railroad Administration

United States Department of Transportation
Federal Transit Administration


TYPE 1
SIDE PLATFORM (DOUBLE RAMP)
TYPE 2
SIDE PLATFORM (SINGLE RAMP)
(TYP. OPP.)
TYPE 3
CENTER PLATFORM
MINI-HIGH PLATFORM SCHEDULES
RAMP SLOPE 1:16
17'-4"
8'-0"
5'-0"
6'-0"
11'-0"
VARIES
(TYP. OPP.)
NOTE:
RAMP LENGTH WILL VARY DEPENDANT ON LONGITUDINAL SLOPE OF PLATFORM. RAMP LENGTH OF 17'-4" SHOWN IS BASED ON LONGITUDINAL PLATFORM SLOPE OF 0%.
LIMIT FOR TYPE 2
HANDRAIL
TYPE 1 - REAR VIEW
TYPE 2 - REAR VIEW
TYPE 1 - FRONT VIEW
TYPE 2 - FRONT VIEW
TYPE 3 - FRONT/REAR VIEW
METROLINK.
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
900 WILSHIRE BLVD. SUITE 1500 L.A. CA. 90017
ENGINEERING STANDARDS
MINI - HIGH PLATFORM DETAILS
3101
NTS
2 OF 2
ES3101-02


NOTES:
1. PRECAST MINI-HIGH PLATFORM DESIGN, MATERIAL, FABRICATION AND INSTALLATION SHALL BE PER SCRRA SPECIFICATIONS.
2. ANY DEVIATION WILL VARY ON LONGITUDINAL SLOPE OF PLATFORM RAMP LENGTH OF 17'-4" SHOWN IS BASED ON LONGITUDINAL PLATFORM SLOPE OF 0%.
3. MINI-HIGH SHALL COMPLY WITH THE LATEST ADA REGULATIONS.
TYPE 1
TYPE 2
TYPE 3
MINI-HIGH PLATFORM SCHEDULES
PRECAST MINI-HIGH PLATFORM PLAN
TYPE 1 - FRONT VIEW
TYPE 2 - FRONT VIEW
TYPE 3 - FRONT/REAR VIEW
TYPE 1 - REAR VIEW
TYPE 2 - REAR VIEW
METROLINK.
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
900 WILSHIRE BLVD, SUITE 1500, L.A., CA. 90017
ENGINEERING STANDARDS
PRECAST MINI - HIGH PLATFORM
ES3102-01


BASE PLATE FOR SINGLE POST
DETAIL
SCALE: NTS
SECTION
SCALE: NTS
PRECAST RAMP ANCHOR ANGLE PLACEMENT
TYPICAL HANDRAIL 1
TYPICAL HANDRAIL 2
METROLINK
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
900 WILSHIRE BLVD, SUITE 1500, L.A., CA. 90017
ENGINEERING STANDARDS
PRECAST MINI - HIGH PLATFORM DETAILS
ES3102-02