

FINAL
Project Study Report Equivalent

**Union City Intermodal
Station Phase 3 Project**

County of Alameda

Submitted by:

**San Joaquin Regional Rail Commission
and
San Joaquin Joint Powers Authority**

August 2023

**California Department of Transportation – Division of Rail and Mass Transportation
Project Study Report Equivalent – Union City Intermodal Station Phase 3 Project**

This Project Study Report-Equivalent has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Anthony M. Gura

Anthony M. Gura
Registered Civil Engineer

8/08/2023

Date



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Agency/ies Certification/Signatures

To the best of my knowledge and belief, I certify that the data and information in this request are true and correct.

APPLICANT AGENCY

Name: *San Joaquin Regional Rail Commission*

Title: *Dan Leavitt, Manager of Regional Initiatives*

Signature:  Date: 8/8/2023

CO-APPLICANT AGENCY, if applicable

Name: *San Joaquin Joint Powers Authority*

Title: *Dan Leavitt, Manager of Regional Initiatives*

Signature:  Date: 8/8/2023

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CTC Action Requested

_____ *New STIP Project*

_____ *New Other State Funded Project*

1. *Project Title: Union City Intermodal Station Phase 3 Project*

2. *Project Type:*

_____ *Light Rail* _____ *Commuter Rail*

_____ *X* _____ *Other: Intercity Rail*

3. *Total Project Cost*

(All fund sources: State, Local, Federal, Other):

\$220 million (2023\$)

4. *Total Amount of State Funding*

(Please show one total dollar amount):

\$100 million

(This is a preliminary number subject to change and is based on 2023\$ project cost estimates, a planning-level funding strategy, and an assumption that some federal funds will be obtained.)

5. *Total State Funds Covered by This Application*

(By State Fund Source):

\$500,000

(This is in regard to the next phase of project development – environmental clearance and preliminary engineering – for which state funds have been approved and committed via SJRRC and SJJPA in the amount of \$250,000 each. Local/regional funds are expected to cover the costs remaining costs associated with this phase.)

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Agency Information

Applicant: San Joaquin Regional Rail Commission

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Phone: (530) 400-9475 Email: dan@acerail.com

Co-Applicant (if applicable): San Joaquin Joint Powers Authority

Address: 949 E. Channel Street, Stockton, CA 95202

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Phone: (530) 400-9475 Email: dan@acerail.com

Recipient (if different/applicable): _____

Address: _____

Point of Contact: _____

Phone: _____ *Email:* _____

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Agency Authority

The Union City Intermodal Station Phase 3 Project is included in the *SJRRRC FY 23/24 Work Plan*, which was adopted by the SJRRRC Board of Commissioners. The Union City Intermodal Station Phase 3 Project is referred to as the “Union City Intermodal Station Phase 3 Environmental and Preliminary Engineering” in the *SJRRRC FY 23/24 Work Plan*. The resolution adopting the 2023 SJJPA Business Plan Update is attached as **Exhibit A**.

The Union City Intermodal Station Phase 3 Project (Project) is included in the *2023 SJJPA Business Plan Update*, which was adopted by the SJJPA Board of Directors. The Union City Intermodal Station Phase 3 Project is referred to as the “ACE extension to Union City/BART” in the *2023 SJJPA Business Plan Update*. The resolution adopting the *2023 SJJPA Business Plan Update* is attached as **Exhibit B**.

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Background

The Union City Intermodal Station Phase 3 Project advances the recommendations of the Southern Alameda County Integrated Rail Analysis (SoCo Rail) Study developed by the Metropolitan Transportation Commission (MTC) in June 2023. The SoCo Rail Study builds on the foundation of the 2018 California State Rail Plan (CSRP), which established a 2040 statewide vision for an integrated statewide passenger rail and express bus network that would be implemented in near-term, mid-term, and long-term phases. As part of this vision, the 2018 CSRP identified numerous rail hub stations around the state. One hub identified was an “East Bay” Rail Hub located in southern Alameda County (see **Figure 1**), which sits at the nexus of the megaregional rail services from Sacramento and the Central Valley and the San Francisco Bay Area rail and bus services.

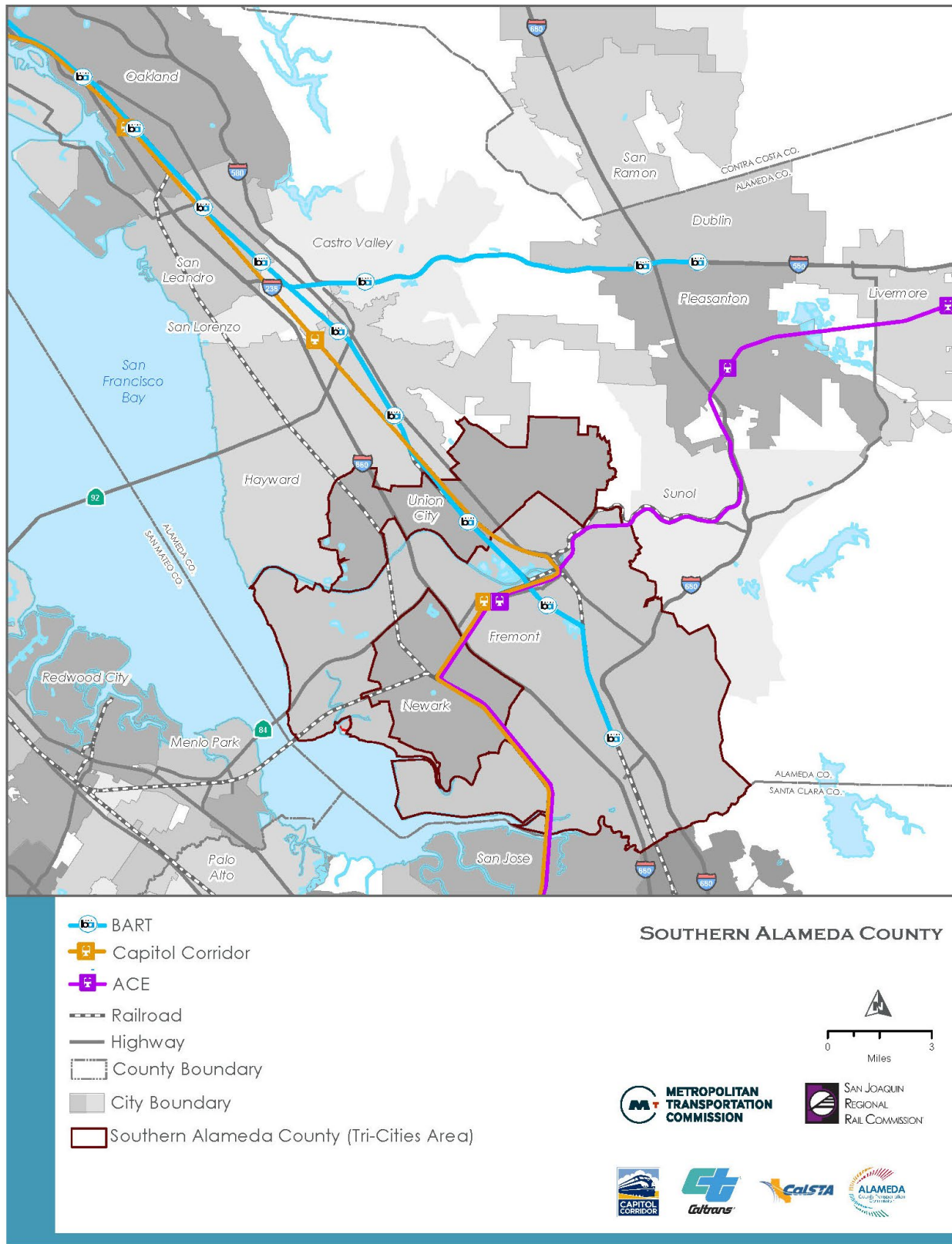
During Phase 1 of the SoCo Rail Study, MTC collaborated with several partners, including the San Joaquin Regional Rail Commission (SJRRRC), Alameda County Transportation Commission (Alameda CTC), Capitol Corridor Joint Powers Authority (CCJPA), and California Department of Transportation (Caltrans) Division of Rail and Mass Transportation (DRMT), as well as multiple stakeholders to identify and study several locations for the East Bay Rail Hub. At the conclusion of Phase 1 of the study the existing Union City Bay Area Rapid Transit District (BART) Station was selected as the best location for a rail-to-rail hub station location and was recommended for further study that would require a new extension of Altamont Corridor Express (ACE) service to connect with BART. In the Mid-Term Horizon (2030 - 2033), the rail-to-rail hub station will allow for additional intercity passenger rail roundtrips into the Bay Area, provide a connection between BART and intercity passenger rail, and facilitate a high level of connectivity to key travel markets throughout the Bay Area. The recommendation of the Union City BART Station as the East Bay Rail Hub has been incorporated into the Draft 2023 CSRP (March 10, 2023).

Phase 2 of the SoCo Rail Study advanced planning and conceptual design of the intercity rail connection at the Union City BART Station (also referred to as the Union City Intermodal Station) and developed the proposed Union City Intermodal Station Phase 3 Project. The Mid-Term service plan for the proposed project consists of three daily train round trips, including one round trip serving Natomas in the Sacramento Region (the same round-trip train is planned to continue north to Chico as part of a separate project, North Valley Passenger Rail)¹ and two round trips serving Merced.

¹ The SoCo Rail Study analyzes a planned round trip train that would run between Union City and Chico. Service to Chico is currently being advanced by another rail planning effort – the North Valley Passenger Rail Strategic Plan – which envisions a total of four round trips serving Chico, including the Union City to Chico roundtrip train. Integrating the entire length of the Union City to Chico round trip into analysis of both planning efforts was conducted to ensure the full operations of the Union City-Chico round trip was captured in each study. The two projects being defined as a result of the SoCo Rail Study and the North Valley Passenger Rail Strategic Plan are the Union City Intermodal Station Phase 3 Project and the North Valley Rail Project, respectively. The Union City Intermodal Station Phase 3 Project would environmentally clear the portion of the Union City-Chico round trip between Union City and Natomas, while the North Valley Rail Project would environmentally clear the portion between Natomas and Chico.

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Figure 1. Southern Alameda County Study Area



Source: HDR, 2021

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This would broaden the range of potential riders by focusing service on intercity, non-commuter trips that include shift workers and other off-peak travelers that are not well served with current ACE trains operated by the SJRRC between Stockton and San Jose. This intercity rail service covers a large swath of the Sacramento and San Joaquin Valleys, providing intercity rail service to the demographically diverse Central Valley of California. Providing this rail service improves geographic equity by connecting key locations in the Central Valley (including Sacramento, San Joaquin, Stanislaus, and Merced Counties) to each other and beyond to the Bay Area and the greater California rail network via a High-Speed Rail (HSR) connection in Merced in the Mid-Term Horizon.

Corridor and System Coordination

The Union City Intermodal Station Phase 3 Project is being advanced in close coordination with several key stakeholders, including the City of Union City, City of Fremont, City of Newark, BART, and AC Transit. Together with the project partners (SJRRC, SJJPA, Alameda CTC, CCJPA, and Caltrans DRMT), the Union City Intermodal Station Phase 3 Project integrates with and complements existing and planned services and infrastructure.

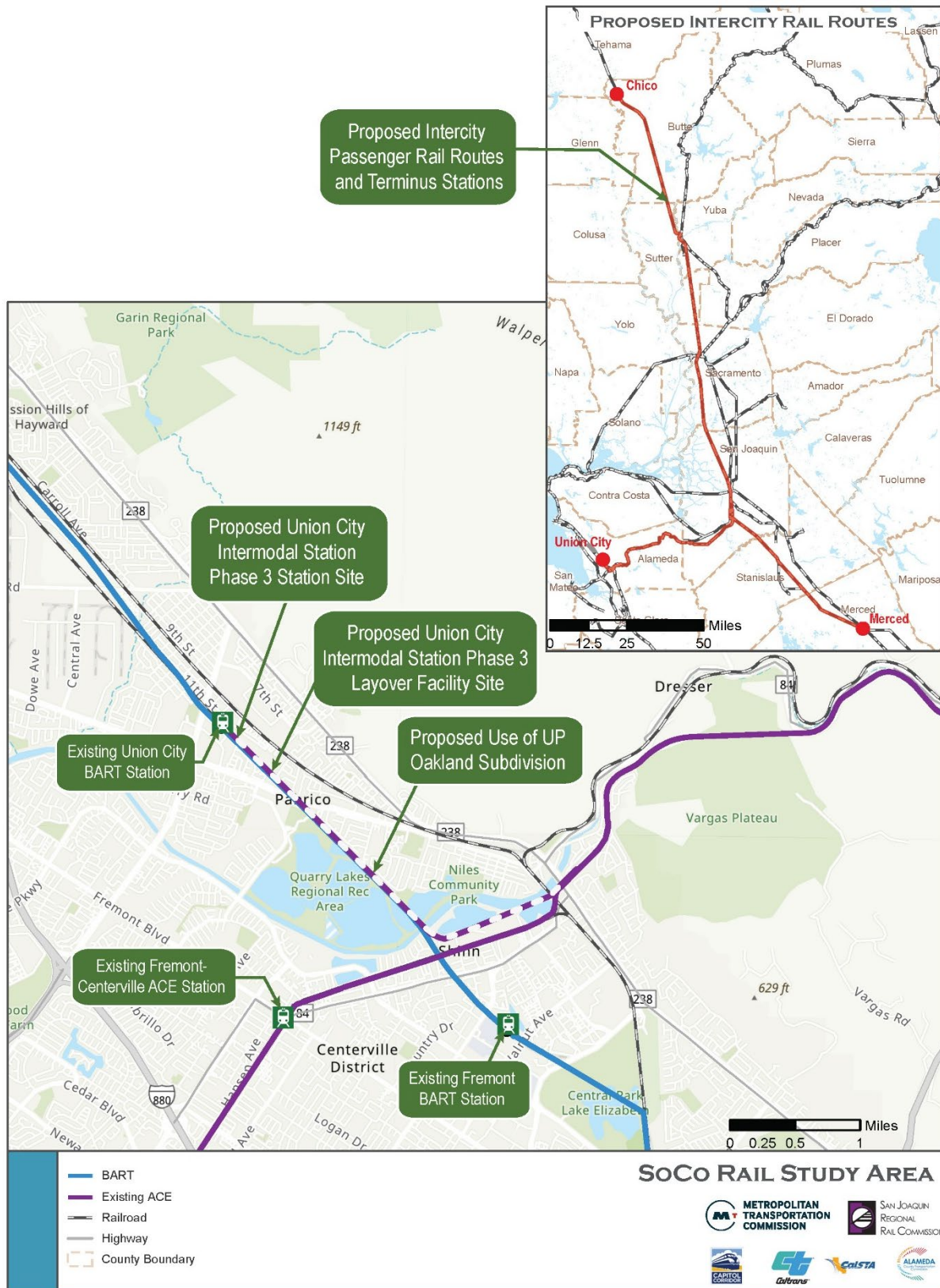
The Union City Intermodal Station Phase 3 Project would construct a new intercity passenger rail platform on the east side of the existing Union City Intermodal Station to accommodate proposed new intercity rail service. Phase 3 represents a key piece of Union City's land use and transportation vision for an intermodal station and surrounding transit-oriented district at the Union City Intermodal Station – a plan that has been in the works for over 20 years and represents a coordinated effort between City of Union City, BART, and other local and regional agencies and stakeholders. **Figure 2** provides the general location of the proposed improvements that comprise the Union City intermodal Station Phase 3 Project.

The City of Union City adopted the *Intermodal Station District Plan* in 2000 to create a pedestrian-oriented community surrounding the Union City BART Station. According to the Plan, the Union City BART Station would be reconfigured to function as an Intermodal Station with direct connections to passenger rail services and bus services. Since the year 2000, Union City developed 90 acres of land surrounding the Union City Intermodal Station to create 1,000 new residential units including 251 affordable family housing units and 443 entitled residential units within one-quarter mile of the Intermodal Station. Union City invested more than \$150 million and leveraged grants to reconfigure the BART Station in two phases to improve pedestrian circulation and passenger capacity and to construct a direct pedestrian connection from BART to a future rail passenger rail station.

Union City constructed infrastructure to support the residential units and continues to work with Union Pacific Railroad (UP) – *the owner and operator of the existing, lightly used rail corridor through central Union City over which the Union City intercity passenger service is proposed to operate* – to complete the needed improvements required for the pedestrian at-grade crossing of the UP Oakland Subdivision that would also provide direct access between BART and the planned intercity passenger rail platform.

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Figure 2. Union City Intermodal Station Phase 3 Project Location and Overview



Source: HDR, 2023

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The initial intercity rail service planned under the Union City Intermodal Station Phase 3 Project would consist of three round trips operating across a geography spanning the Northern California Megaregion, with one roundtrip between Natomas and Union City (via Sacramento and Stockton) and another two round trips between Merced and Union City. At Merced, both of the latter round trips would have timed transfers with the Early Operating Segment (EOS) of the statewide HSR system, providing seamless connections to and from Madera, Fresno, Kings–Tulare (Hanford), and Bakersfield. This intercity service would also connect at Stockton with the existing San Joaquin Joint Powers Authority (SJJPA) *San Joaquins* intercity service between Oakland, Merced, Fresno, and Bakersfield. This intercity rail service is referred to as the “Union City Intercity Rail Service” and is part of the expanded “Valley Rail” ACE and *San Joaquins* expansion program illustrated in **Figure 3**, which also shows the proposed service in the context of the larger combined ACE and *San Joaquins* systems and the HSR EOS.

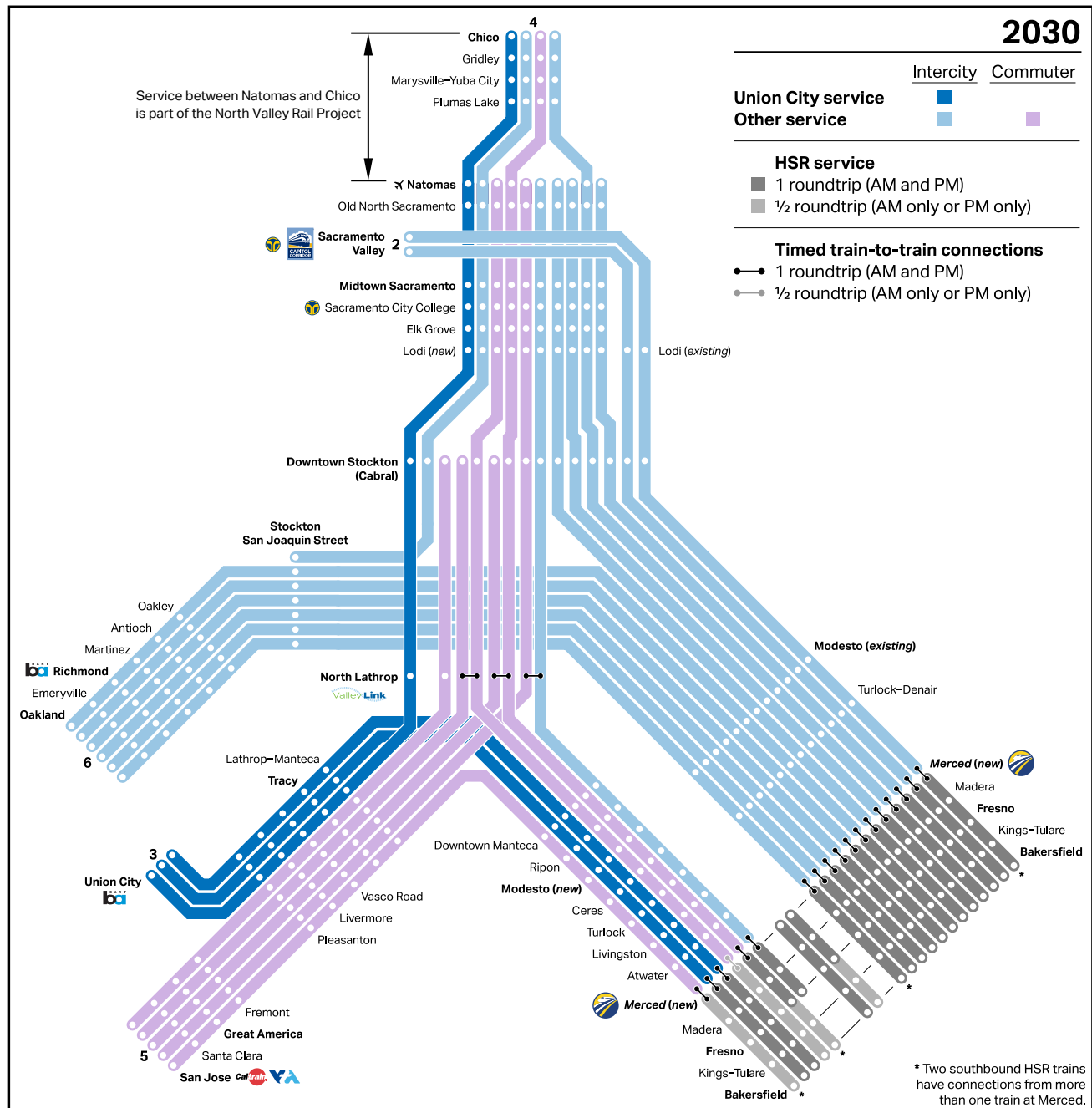
Bringing intercity rail service directly to the Union City Intermodal Station is a critical step in achieving the long-term vision for the station as defined in the Draft 2023 CSRP; this results in BART, regional transit in the Dumbarton Corridor (for connections to and from the Peninsula in the Bay Area), and intercity rail at one location. While the initial service is designed for expedited implementation and contemplates just three daily roundtrips in the mid-term, the infrastructure built as part of the Union City Intermodal Station Phase 3 Project is designed for future expandability to accommodate hourly pulse service to and from Union City via the Altamont Corridor east of Union City. In San Joaquin County, the hourly service could extend north (for service to and from Stockton, Sacramento, and beyond), south (for service to and from Merced and the HSR EOS), or a combination of the two.

The Union City Intercity Rail Service in the mid-term would serve a critical role as a direct rail service linking the southern Bay Area and Altamont Corridor with HSR in Merced. With the direct connection to BART, the Union City Intercity Rail Service would offer good access to and from a large swath of the Bay Area and complement the planned *San Joaquins* service expansion, which would also have timed connections in Merced for services to Oakland and the Sacramento Region.

The Union City Intermodal Station Phase 3 Project also secures a second Bay Area terminal station and layover facility for Altamont Corridor trains. Recognizing the potential challenges of expanding ACE service west of Niles Junction via the Centerville Line section of the UP Niles Subdivision and the UP Coast Subdivision through the sensitive Alviso Wetlands north of San Jose, connecting megaregional intercity rail service to the Union City Intermodal Station helps to set the stage for future expanded service through the Altamont Pass and Niles Canyon east of Union City.

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Figure 3. Proposed Union City Intercity Rail Service within the Context of the Regional Rail Network



Source: AECOM, 2023

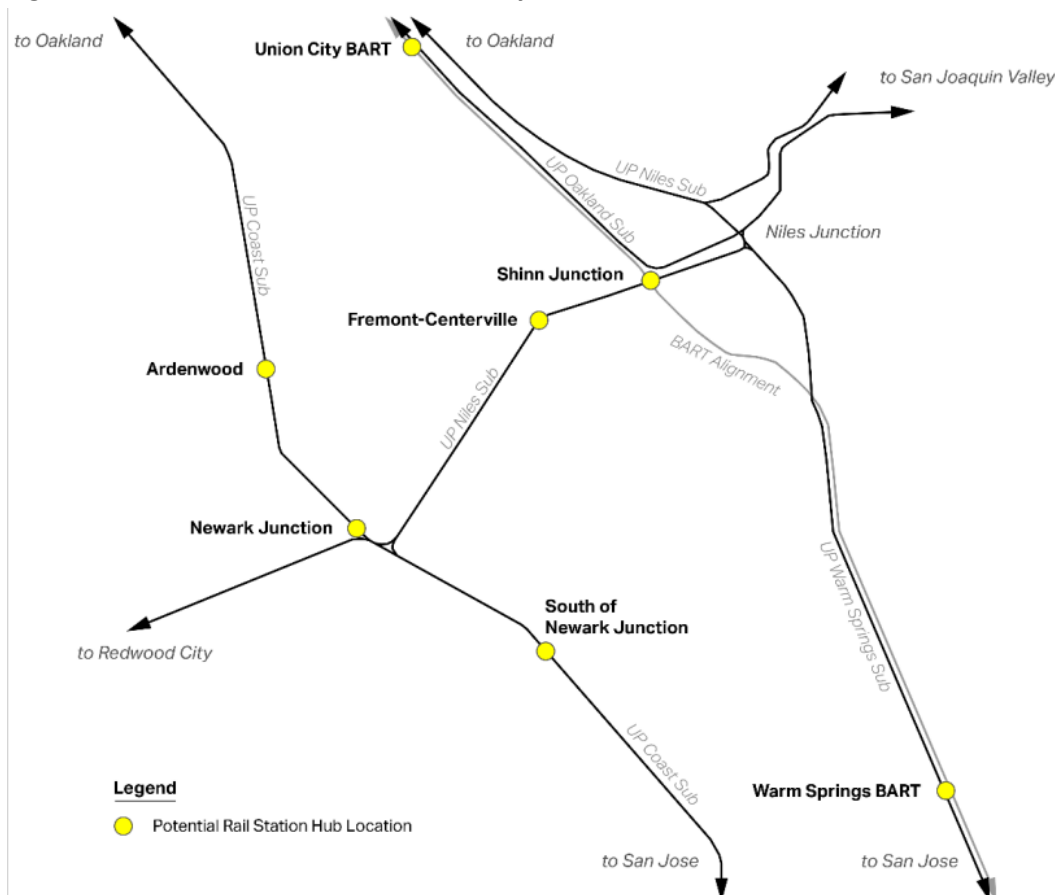
Alternatives Analysis

The *Southern Alameda County Integrated Rail Analysis Phase 1 Report*² identified and evaluated seven potential rail-to-rail hub locations:

- | | |
|----------------------------|--|
| ACE-BART Hubs: | <ul style="list-style-type: none">○ Union City BART○ Shinn Junction○ Warm Springs BART |
| ACE-Capitol Corridor Hubs: | <ul style="list-style-type: none">○ Ardenwood○ Newark Junction○ South of Newark Junction |
| ACE-Only Hub: | <ul style="list-style-type: none">○ Fremont-Centerville |

Figure 4 shows the location of the sites that were analyzed as potential rail-to-rail hubs.

Figure 4. Locations Considered for East Bay Hub



² The *Southern Alameda County Integrated Rail Analysis Phase 1 Report* can be found at:
<https://mtc.ca.gov/planning/transportation/regional-transportation-studies/southern-alameda-county-integrated-rail-analysis-soco-rail-study>

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These seven sites were evaluated using six metrics:

- Connecting Regional Services;
- Connecting to Key Travel Markets and Destinations;
- Equity Considerations;
- Service Reliability;
- Potential Capital Improvement Cost; and
- Consistency with Operator Plans for Mid-Term Horizon (~10 years).

Based on this analysis, the Union City BART Hub was recommended to provide a rail-to-rail hub (ACE-BART) connection, offering the highest level of connectivity to key travel markets throughout the Bay Area. An East Bay Hub at this location is consistent with the 470-acre Union City *Station District Specific Plan* surrounding the Union City Intermodal Station (providing one of the largest opportunities for new transit-oriented development in the Bay Area). Moreover, the East Bay Hub at this location would be consistent with the City of Union City's Intermodal Station Phase 3 Project that includes new rail service at the station.

During Phase 2 of the SoCo Rail Study, operations and service planning and conceptual design were advanced to define the Union City Intermodal Station Phase 3 Project. Based on a service plan of three daily roundtrips, it is necessary for trains to remain at the Union City Intermodal Station for varying lengths; therefore, a layover facility is required. The *Southern Alameda County Integrated Rail Analysis Phase 2 Report* conducted a high-level feasibility analysis of four potential sites for a layover facility for Union City Intercity Service trains:

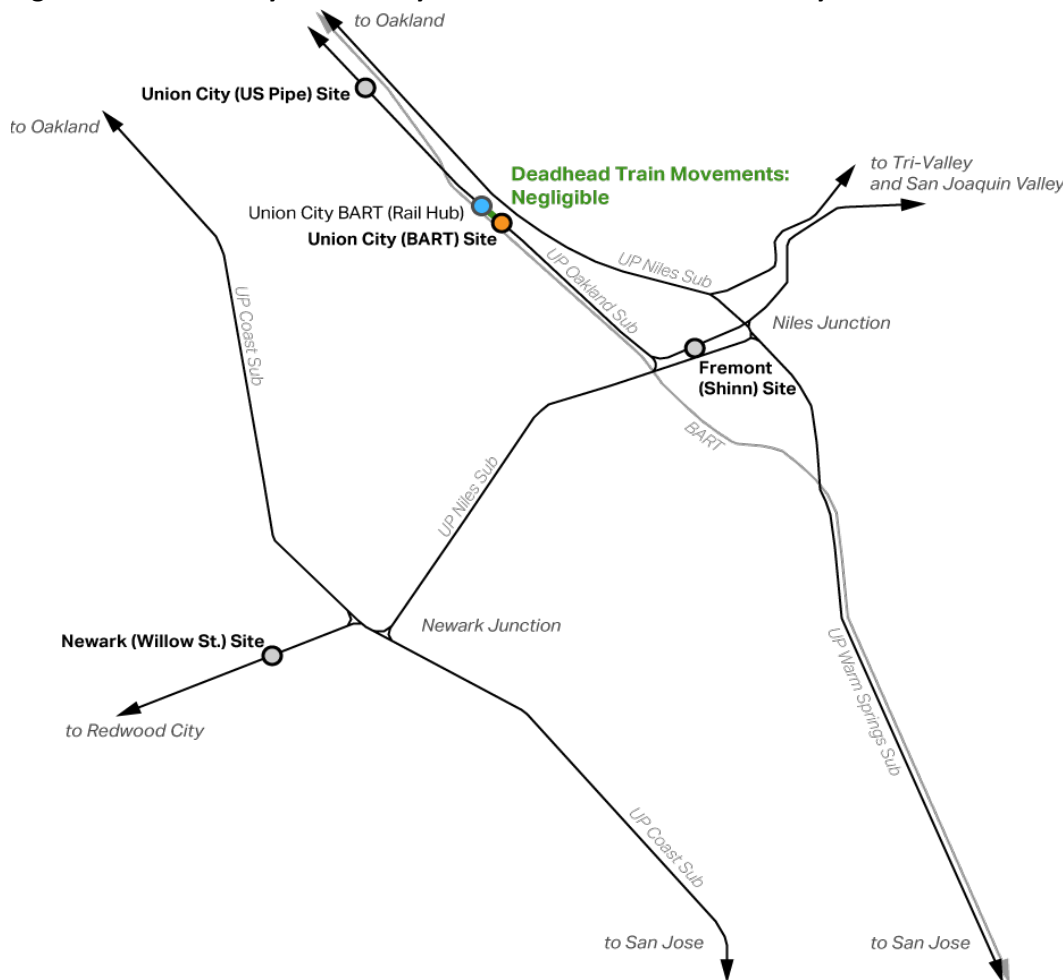
- Union City BART
- Union City – US Pipe
- Fremont – Shinn Street
- Newark – Willow Street

The four layover facility sites were conceptually evaluated using four metrics: Project Complexity; Land Use Compatibility; Environmental Constraints; and Operational Feasibility. Based on this analysis, the Union City BART layover facility (located adjacent to the Union City BART Station) was selected as the most feasible and preferred site. Detailed information on the site selection process is included in the *Southern Alameda County Integrated Rail Analysis Phase 2 Report*³. **Figure 5** presents the locations of these potential layover facilities, highlighting the close proximity of the Union City BART layover facility to the hub location.

³ The *Southern Alameda County Integrated Rail Analysis Phase 2 Report* can be found at: <https://mtc.ca.gov/planning/transportation/regional-transportation-studies/southern-alameda-county-integrated-rail-analysis-soco-rail-study>

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Figure 5. Potential Layover Facility Sites I Relation to the Union City BART Station



Climate Change

The Union City Intermodal Station Phase 3 Project would provide tangible benefits in greenhouse gas (GHG) emissions reduction over the No-Build condition due to the three round trip intercity rail trains. The project would increase overall ridership across the entire ACE system by approximately 1.26 million passengers annually and provide connections to BART and multiple bus services in Union City, HSR in Merced, and other transit services elsewhere along the proposed train routes.

The development and operation of a rail-to-rail hub in the East Bay and the provision of coordinated, well-designed connections are consistent with the overall goals of the Draft 2023 CSRP. The new service and enhanced connections increase travel benefits, promote rail ridership, and reduce regional vehicle miles traveled (VMT). The reduction in VMT is associated with reduced greenhouse gas emissions in the service area, a leading cause of climate change. A proposed conceptual schedule for the new service to and from Union City is summarized in **Figure 6**; confirmation of the schedule is subject to further coordination between SJRRC, ACE, UP, and other stakeholders.

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Figure 6. Summary of Union City Intermodal Rail Service

Inbound Trains (toward the San Francisco Bay Area, terminating at Union City)	Outbound trains (toward the Central Valley, originating at Union City)
<ul style="list-style-type: none">• Originates in Chico at 6:02 AM and arrives in Union City at 10:09 AM• Originates in Merced (with a connection to HSR) at 9:50 AM and arrives in Union City at 12:24 PM• Originates in Merced (with a connection to HSR) at 6:50 PM and arrives in Union City at 9:24 PM	<ul style="list-style-type: none">• Departs Union City at 7:14 AM and arrives in Merced (with a connection to HSR) at 9:56 AM• Departs Union City at 3:40 PM and arrives in Chico at 7:49 PM• Departs Union City at 4:14 PM and arrives in Merced (with a connection to HSR) at 6:56 PM

Project Location

The location of the Union City Intermodal Station Phase 3 Project is shown in **Figure 2**. As the inset in the figure illustrates, the proposed service area encompasses much of the San Joaquin Valley and Sacramento Valley within the Northern California Megaregion, with the most northerly station being Natomas/Sacramento Airport Station as part of this project⁴ and the most southerly station being Merced. The service area also includes the Altamont Corridor, with a new terminus station at Union City. The proposed improvements to support this service plan, as described in the following section, include a platform, layover facility, and supporting improvements for multimodal connectivity located in Union City along the UP Oakland Subdivision and adjacent to the existing Union City Intermodal BART Station. In addition, other proposed improvements include upgrades to the UP Oakland Subdivision between the Union City Intermodal Station and Niles Junction, located in the Cities of Union City and Fremont. Potential additional infrastructure at other locations along the proposed route may be required through coordination with UP.

Project Description

The proposed Union City Intermodal Station Phase 3 Project includes the operation of three round trips of intercity rail service to and from Union City in the Mid-Term Horizon (2030-2033) and the necessary infrastructure at the Union City Intermodal Station to accommodate this service. **See Exhibit C** for a set of conceptual engineering drawings developed for the project.

Proposed Operating Plan

A proposed preliminary operating schedule for the Mid-Term Horizon for the SJRRC and SJPA Valley

⁴ The Union City Intercity Service train serving the Natomas/Sacramento Airport Station is proposed for extension north to Chico as part of the North Valley Passenger Rail Project.

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Rail Program has been developed with the incorporation of the three additional round trips each day (same on weekdays and weekends) to and from Union City.

Figure 3 provides an overview of the proposed preliminary operating plan for three round trips associated with the Union City Intercity Rail Service in the context of the overall planned SJRRC and SJJPA rail expansion program.

The proposed operating schedule for the proposed Union City Intercity Service provides the ability for travel between multiple origins and destinations in the Bay Area, Tri-Valley, Central Valley, and beyond – *including Southern California* – with connections to BART in Union City and HSR in Merced. This service will provide travelers throughout the Central Valley with rail access to/from Southern Alameda County where connections can be made to bus and rail services spanning the Bay Area.

Proposed Infrastructure

Existing Facilities

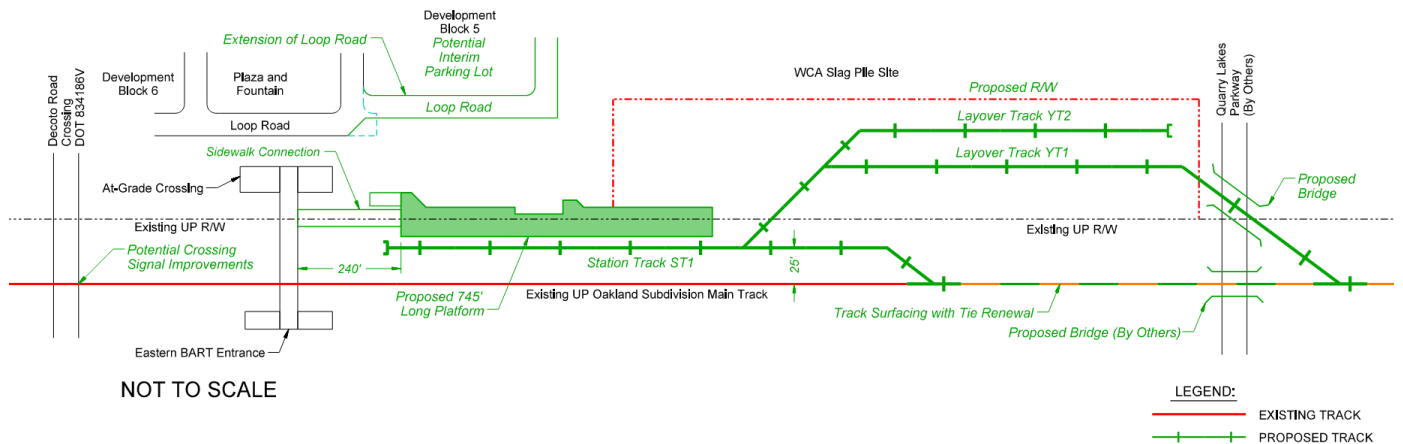
The Union City Intermodal Station is located immediately south of Decoto Road and west of 11th Street in Union City. The station is served by BART, a heavy-rail public transit system that connects the San Francisco Peninsula with communities in the East Bay and South Bay, as well as Caltrain commuter rail, Amtrak intercity rail, and Dumbarton Corridor transbay, regional, and local bus services, and international airports in San Francisco and Oakland. Located in a planned Transit-Oriented Development (TOD) area, the Union City Intermodal Station has residential development and a public plaza to its east, as well as vacant lots south of the station for proposed future development. One vacant parcel is the site of a Waste Consolidation Area (WCA) containing contaminated waste slag from a former steel mill site that would need to be remediated prior to any development. The UP Oakland Subdivision is located just east of and adjacent to the Union City Intermodal Station. This corridor provides freight rail services to local customers and is proposed to be used by the Union City Intermodal Station Phase 3 Project for the operation of the Union City Intercity Rail Service.

Intercity Rail Platform

The intercity rail platform at the Union City Intermodal Station would be located partially within the eastern portion of the UP Oakland Subdivision right-of-way and would include a 745-foot-long platform located adjacent to a vacant lot and the WCA site to the east. The platform would accommodate the initial operations of three roundtrip trains in the Mid-Term Horizon. **Figure 7** shows a schematic of the proposed intercity rail platform that would be implemented in the Mid-Term Horizon, including the relationship of the BART connection and layover facility to the platform. For details on the Union City Intermodal Station Phase 3 Project's proposed conceptual design, please refer to the *Southern Alameda County Integrated Rail Analysis Phase 2 Report*.

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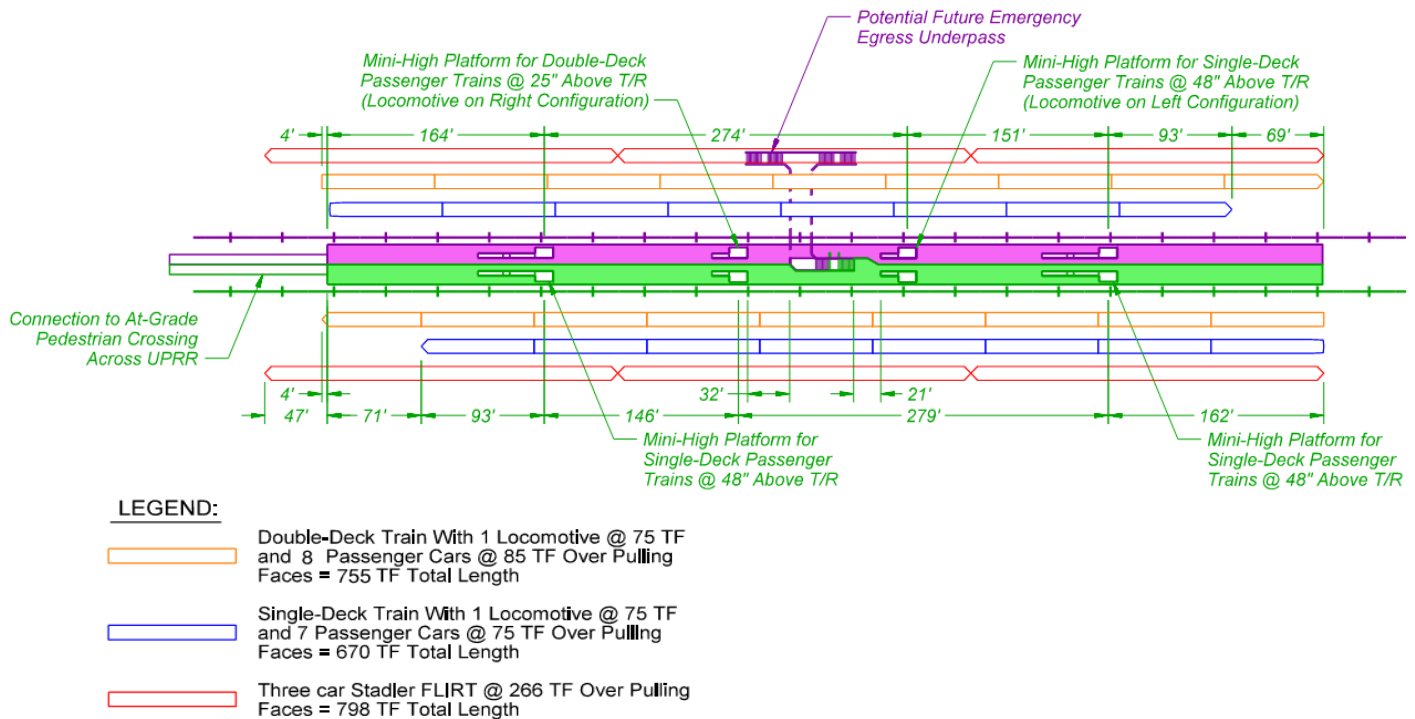
Figure 6. Union City Intermodal Station Phase 3 Project – Initial Operations Configuration



Source: HDR, 2023

The platform would accommodate any of three trainset types currently under consideration for the proposed service. The schematic presented in **Figure 8** depicts the proposed 745-foot-long platform with the locations of mini-high platforms for ADA accessibility and the locations of the alternative Bombardier Bi-Level, Siemens Venture Single-Level, and Stadler FLIRT trainsets along the platform. Potential train equipment types used for the Union City service are subject to coordination between SJRRC (the operator of the proposed intercity rail service), host railroad UP, Caltrans, and other stakeholders.

Figure 7. Union City Intermodal Station Phase 3 Project – General Platform Configuration



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Source: HDR, 2023

Intercity Rail Station Tracks

The recommended x proposes one station track to accommodate the proposed three round trips as part of the Union City Intermodal Station Phase 3 Project (see **Figure 6**) in the Mid-Term Horizon. The design maximizes operational flexibility by allowing for an expansion to a two-track station with a wider platform in the long-term as part of a future project, which would adequately address the Draft 2023 CSRP 2050 vision for hourly service to Union City.

Intercity Rail Layover Facility

The layover facility to accommodate storage of trainsets during periods of non-operation would be located just south of the Union City Intermodal Station's intercity rail station platform (see **Figure 6**). Two layover tracks are included in the project design. In order to construct the layover facility, a portion of the Union City-owned WCA site will need to be removed and remediated. The full site may be removed in collaboration with the City of Union City, which would fund the removal of the portion not necessary for the Union City Intermodal Station Phase 3 Project. Alternatively, a two-phase approach would be implemented and only the necessary portion for the Union City Intermodal Station Phase 3 Project would be removed in the first phase if the City is unable to secure funding for remediation of the remainder of the WCA site, with the remainder being removed at a later date.

Additional Infrastructure Improvements

The proposed Union City Intercity Rail Service would operate on UP-owned rail lines. The proposed project includes upgrades to the UP Subdivision between the Union City Intermodal Station and Niles Junction to accommodate intercity rail service at speeds appropriate for desirable service.

SJRRRC and SJJPA are implementing major UP infrastructure improvements throughout the Central Valley as part of the Valley Rail Program, including the Stockton Diamond Grade Separation Project that will address freight and passenger rail congestion and delays. However, there is a possibility that the proposed project may result in impacts to the rail network and UP may require infrastructure improvements at other locations along the Intercity Rail Service route. Potential additional infrastructure requirements will be examined in detail in the next phase of project development, which is environmental clearance. During this phase, early and routine coordination with host railroad UP will be critical to confirm the project definition and scope and the project development approach and schedule, as well as other items requiring further study and analysis.

Intermodal Passenger Connectivity

The proposed project anticipates use of an at-grade pedestrian crossing of the UP Oakland Subdivision (currently being implemented by the City of Union City as a separate project) for connectivity between the intercity rail service and BART. **Figure 8** illustrates this pedestrian crossing and the sidewalk proposed as part of the Union City Intermodal Station Phase 3 Project to connect intercity rail passengers to BART. This design also provides the Union City TOD east of the station

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convenient access to the transit facilities.

Figure 8. Approved At-Grade Pedestrian Crossing



Source: HDR, 2023

In addition, the proposed Union City Intermodal Station Phase 3 Project includes an extension of Duncan Way, a local roadway parallel and adjacent to the UP Oakland Subdivision, to allow for a pick-up and drop-off area just east of the platform and efficient connectivity with parking, the plaza area, the TOD development area, and bus transit options.

Right-of-Way Acquisition

The proposed Union City Intermodal Station Phase 3 Project would require the acquisition of property from the City of Union City to construct and operate the layover facility on the WCA site (once remediated and removed). It is anticipated that the City-owned property would be donated to SJRRC for the project as a local funding match.

Project Purpose/Need

The Union City Intermodal Station Phase 3 Project is a critical first step in achieving the long-term vision established in the Draft 2023 CSRP, improving transit access and connectivity, and providing critical regional and intercity connections at Union City (for BART and Dumbarton Corridor service), Merced (for HSR), and intermediate stations along the way.

The project is also consistent with the goals developed through collaboration with local and regional

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partners and stakeholders and is anticipated to:

- ✓ Improve regional connectivity and mobility and increase equitable access.
- ✓ Enhance service reliability and safety.
- ✓ Promote sustainability and resiliency.
- ✓ Serve surrounding communities and shape growth.
- ✓ Develop feasible infrastructure improvements.

Enhance Regional Connectivity and Increase Equitable Access

Without the Union City Intercity Rail Service, residents and visitors of the Peninsula and South Bay (as well as southern San Joaquin County) would be dependent on longer, less convenient transit options, as described below:

- The Thruway Bus service (being planned by SJJPA) between Merced and San Jose would serve different markets than the proposed Union City Intercity Rail Service, and which would require a transfer in San Jose for most passengers and be subject to highway congestion and capacity constraints since it is not a rail service.
- ACE service is designed for commuters heading into the Bay Area (currently) or Sacramento or Merced (as planned) and are not well-timed for intercity passengers connecting via HSR. These trains would only be options for passengers traveling in the commute direction during the peak periods and would still require a transfer at North Lathrop.
- *San Joaquins* service is currently routed through Stockton, northern Contra Costa County, and Oakland, and therefore does not directly serve southern Alameda County nor South Bay destinations directly.

With daily service focused on markets outside of ACE's existing weekday-focused commuter service, the proposed Union City Intercity Rail Service, together with the seamless connections to and from BART and local transit, would also improve equity by providing better access to recreation, education, health care, jobs, and other critical needs. With BART's expansive coverage of the inner core of the Bay Area (as well as many Bay Area suburbs), historically disadvantaged populations throughout the region would benefit from the new transit connections created at Union City.

Enhance Service Reliability and Safety

The Union City Intermodal Station Phase 3 Project would create a second Bay Area terminal for Altamont Corridor trains (the other being the existing San Jose Diridon station), allowing for more frequent and expansive service through the key population centers of southern San Joaquin County and the Tri-Valley – including Tracy, Livermore, and Pleasanton – while avoiding the potential challenges of increasing service along the existing ACE route west of Niles Junction, which are considered infeasible in the mid-term due to complexity and cost. In addition, with additional reliable

**California Department of Transportation – Division of Rail and Mass Transportation
Project Study Report Equivalent – Union City Intermodal Station Phase 3 Project**

rail service from a wide variety of locations up and down the Sacramento and San Joaquin Valleys, travel within and through the northern California Megaregion would be improved for many transit-dependent populations.

Promote Sustainability and Resiliency

The Union City Intermodal Station Phase 3 Project would provide tangible benefits in GHG emissions reduction over the No-Build condition by increasing the overall ridership across the entire ACE system by approximately 1.26 million passengers annually⁵. With connections to BART in Union City, multiple bus services in Union City, HSR in Merced, and additional transit connections along its service routes, the new transit service provides a sustainable alternative to driving. The Union City Intercity Rail Service would provide direct rail-to-rail connections with HSR for Bay Area residents and visitors and is therefore critical to ensuring the success of the HSR EOS.

Serve Surrounding Communities and Shape Growth

The Union City Intermodal Station Phase 3 Project is a critical piece of the City of Union City's overall vision for the Intermodal Station and surrounding area. The City has worked extensively for over 20 years on the land acquisition, planning, development, and implementation of this comprehensive land use and transportation vision, which includes several key components:

- The *Union City Station District Specific Plan*, covering 470 acres around the station and providing up to 1,700 transit-accessible housing units and 1.2 million square feet of transit-accessible office space.
- Improvements to the existing BART station, including a new east-side entrance and CPUC-approved at-grade crossing of the UP Oakland Subdivision for pedestrian access that will, with Phase 3, be directly connected with the new intercity rail platform.
- A new arterial roadway (Quarry Lakes Parkway) to provide better multi-modal access to and from the east-side station area (particularly for bicyclists, pedestrians, and transit users) and to alleviate traffic congestion along Decoto Road, which is important to maintaining on-time performance and reliability for Dumbarton Corridor bus services.

Moreover, the proposed intercity rail service at stations along the proposed rail routes would serve residents within each of the station areas with a new transit alternative to driving.

Develop Feasible Infrastructure Improvements

The Union City Intermodal Station Phase 3 Project includes the development of the necessary infrastructure to accommodate the three round trips in the Mid-Term Horizon while planning for hourly service in the Long-Term Horizon. The proposed project includes infrastructure located within

⁵ This is based on ridership forecasts that included a round trip train running all the way to Chico from Union City, which is beyond the proposed project area. Ridership forecasts and VMT calculations will be updated during environmental clearance to reflect a project area with a northern boundary of the Natomas/Sacramento Station.

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Project Study Report Equivalent – Union City Intermodal Station Phase 3 Project**

or adjacent to the UP right-of-way to avoid or minimize substantial property acquisition and impacts on communities. It is anticipated that the Union City Intermodal Station Phase 3 Project could be designed, constructed, and operational within the next 10 years, and through coordination with SJRRC, ACE, UP, City of Union City, and other project stakeholders.

Overall Schedule by Scope of Work Phase/Cost

Table 1 provides a summary of the anticipated overall schedule to implement the proposed Union City Intermodal Phase 3 Project. Confirmation of schedule durations and milestones is subject to additional coordination with project stakeholders during project development. For details on the Union City Intermodal Station Phase 3 Project's implementation plan, please refer to the *Southern Alameda County Integrated Rail Analysis Phase 2 Report*.

TABLE 1. SCHEDULE TO IMPLEMENT THE UNION CITY INTERMODAL STATION PHASE 3 PROJECT

Phase	Activities/Tasks	Start Date	End Date
Preliminary Engineering	UP Coordination; 10% UP Design; 25% UP Design; 15% Station Design; 30% Station Design	November 2023	September 2025
NEPA/CEQA	Environmental Clearance	November 2023	October 2025
Final Design	Final Design; UP Coordination	January 2026	June 2027
Right-of-Way	Right-of-Way Acquisition	January 2026	June 2027
Construction	Construction and Service Testing; UP Coordination	January 2028	June 2030

Source: AECOM, 2023

Project Cost Estimate

The estimated conceptual capital cost of the Union City Intermodal Station Phase 3 Project is shown in Table 2. The proposed project's conceptual operation and maintenance (O&M) costs are summarized in Table 3. For details on the Union City Intermodal Station Phase 3 Project's estimated capital and O&M costs, please refer to the *Southern Alameda County Integrated Rail Analysis Phase 2 Report*. See **Exhibit D** for a capital cost estimates detail.

Funding Commitments

The City of Union City has identified approximately \$3 million in funding from the Alameda CTC through Alameda County's transportation sales tax measure (Measure BB), that may be made available in the immediate term for project implementation through local and regional sources. In addition, SJRRC and SJPA have approved \$500,000 (\$250,000 from each agency) to fund the next phase of project development. This combined amount of \$3.5 million would cover more detailed project planning to better define the project, as well as environmental review and clearance under California

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Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

TABLE 2. ESTIMATED CAPITAL COSTS OF THE INTERMODAL STATION PHASE 2 PROJECT

Cost Item	Estimated Cost (in 2023\$)
Track Construction Items ^a	\$18,000,000
Remove Track Items	\$150,000
Partial WCA Excavation, Rail-Haul, Disposal, and Remediation	\$70,000,000
Civil Construction	\$19,000,000
Quarry Lakes Parkway Bridge	\$2,000,000
Remove Civil Items	\$330,000
Miscellaneous Items	\$5,400,000
Station and Layover Facility Fixtures and Utilities	\$4,200,000
Other Railroad Infrastructure ^b	\$34,000,000
Subtotal (rounded to nearest \$million)	\$154,000,000
30% Contingency (rounded to nearest \$million)	\$45,000,000
Engineering (Environmental, Design, Right-of-way Acquisition, etc.)	\$21,000,000
Estimated Total Cost ^c (rounded to nearest \$million)	\$220,000,000

Source: HDR, 2023

Notes:

- a. The estimated conceptual costs only include the new station track and intercity rail platform at the Union City Intermodal Station, the layover facility tracks, as well as potential other track improvements on the UP Oakland Subdivision west of Niles Junction to the Union City station. Note that confirmation of the improvements necessary to support the service, and the cost of those improvements, are subject to further coordination between SJRRC and UP. This line item does not include any track, signal, or roadway improvements outside of this area.
- b. This line item considers potential costs associated with additional railroad infrastructure that may be required by UP. Note that confirmation of the improvements necessary to support the service, and the cost of those improvements, are subject to further coordination between SJRRC and UP.
- c. The Estimated Total Cost excludes any costs associated with property acquisitions and/or easements.

**California Department of Transportation – Division of Rail and Mass Transportation
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TABLE 3. O&M COST ESTIMATE FOR PROPOSED UNION CITY INTERCITY RAIL SERVICE (\$-MILLION)⁶

Metrics	Stockton – San Jose (Existing)	With Merced and Sacramento Extensions (Base)	With Union City Service (Proposed Project)
Pre-Extensions Train-Miles	174,064	174,064	174,064
Incremental Train-Miles	0	241,514	494,824
Total Train-Miles	174,064	415,578	668,888
Pre-Extensions O&M Cost (\$-2022)	\$26,710,062	\$26,710,062	\$26,710,062
Incremental O&M Cost (\$-2022)	0	\$27,108,695	\$51,918,617
Project O&M Cost (\$2022)	0	0	\$24,809,922
Total O&M Cost (\$2022)	\$26,710,062	\$53,818,757	\$78,628,679
Total O&M Escalated (\$2023)	\$28,312,666	\$57,047,882	\$83,346,400
Project O&M Escalated (\$2023)	\$0	\$0	\$26,298,517

Source: AECOM, 2023

Public Benefits

The public benefits of the Union City Intermodal Station Phase 3 Project include:

- Enhanced intercity rail connectivity in the San Joaquin Valley, Sacramento region, and East and South Bay regions.
- Multi-modal connection between intercity rail and BART services, as well as connections to regional and local bus systems, increasing convenience for passengers.
- Increased convenience of new transportation alternatives to automobile use, which could reduce VMT and greenhouse gas emissions and improve air quality.
- Reduction of emissions from train operations.
- Seven-day-a-week, off-peak service to serve a wide variety of users, including a timed connection to HSR in Merced.
- Improved transportation for lower-income and other disadvantaged riders, providing increased access to a variety of destinations, including education, health care services, recreation, and personal / leisure activities.
- Estimated 36 percent increase in overall forecasted expanded ACE system ridership⁷.

⁶ The O&M cost estimates are based a round trip train running all the way to Chico from Union City, which is beyond the proposed project area. These estimates will be updated during environmental clearance to reflect a project area with a northern boundary of the Natomas/Sacramento Station.

⁷ This is based on ridership forecasts that included a round trip train running all the way to Chico from Union City, which is beyond the proposed project area. Ridership forecasts Vehicle Miles Travelled (VMT) calculations will be updated during environmental clearance to reflect a project area with a northern boundary of the Natomas/Sacramento Station.

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- Estimated VMT reduction of 66.9 million VMT⁸.

The proposed Union City Intermodal Station Phase 3 Project is:

- Consistent with the 2018 CSRP's vision for an East Bay Hub.
- Consistent with the Draft 2023 CSRP's vision to establish service from the Altamont Corridor to the East Bay Hub at Union City/BART in the Mid-Term Horizon.
- Consistent with the Draft 2023 CSRP's focus on Equity in Rail.
- Consistent with Plan Bay Area 2050's strategy to improvement existing ACE service between San Joaquin County and San Jose.
- Consistent with the 2023 SJJPA Business Plan to increase intercity rail service to the Bay Area.
- Consistent with the Draft 2023 SJRRC Work Program for a Mid-Term rail-to-rail connection with Union City BART.
- Consistent with Union City's TOD vision for the Intermodal Station area.

Environmental Clearance

The proposed project would need to obtain CEQA approval to implement the Union City Intermodal Station Phase 3 Project and to obtain state funds. The lead CEQA agency would be SJRRC as the owner/operator of ACE. Should the project pursue federal funding, it would also need to comply with NEPA. These requirements are shown in Table 4.

The Federal Railroad Administration (FRA) assigned NEPA responsibilities to the California High-Speed Rail Authority (CHSRA) pursuant to Section 327 of Title 23 of the United States Code, effective July 23, 2019. This delegation of responsibilities applies to projects "necessary for the design, construction, and operation of the California HSR System," to projects "directly connected to stations on the California HSR System" (with provision to designate specific projects under this category pending mutual agreement between FRA and the State of California), and to "the ACE*forward* project within the Altamont Corridor Express system." SJRRC intends to coordinate with the State and FRA on securing a mutual agreement to allow for delegation of NEPA responsibilities to CHSRA for the Union City Intermodal Station Phase 3 Project.

⁸ Ibid.

**California Department of Transportation – Division of Rail and Mass Transportation
Project Study Report Equivalent – Union City Intermodal Station Phase 3 Project**

Table 4. CEQA and NEPA Requirements

CEQA (Check all that apply)	NEPA (Check all that apply)
<input type="checkbox"/> Negative Declaration	<input checked="" type="checkbox"/> Finding of No Significant Impact
<input checked="" type="checkbox"/> Draft EIR	<input checked="" type="checkbox"/> Draft EIS <i>(IF NECESSARY)</i>
<input checked="" type="checkbox"/> Final EIR	<input checked="" type="checkbox"/> Final EIS <i>(IF NECESSARY)</i>
<input type="checkbox"/> Supplemental EIR	<input type="checkbox"/> Supplemental EIS
<input checked="" type="checkbox"/> EIR Certification	<input checked="" type="checkbox"/> Record of Decision <i>(IF NECESSARY)</i>
<input checked="" type="checkbox"/> Notice of Determination	

Permit Completion

No major Federal permits have been identified to date for the Union City Intermodal Station Phase 3 Project. Specific permits will be identified during the NEPA/CEQA process.

Exhibit A: SJRRC Resolution Adopting the SJRRC FY 23/24 Work Plan

SJRRC RESOLUTION 22/23-75

RESOLUTION ADOPTING THE SJRRC/ACE COMBINED FISCAL YEAR 2023/2024 WORK PROGRAM AND OPERATING BUDGET IN THE AMOUNT OF \$43,139,466 AND ADOPTING SJJPA FISCAL YEAR 2023/2024 OPERATING BUDGET OF \$80,640,442 AND A COMBINED CAPITAL BUDGET IN THE AMOUNT OF \$392,561,718

WHEREAS, the San Joaquin Regional Rail Commission Joint Powers Agreement requires approval of an operating and capital budget each year; and

WHEREAS, the adoption of an operating and capital budget is necessary for obtaining Federal, State and Local funds to support the Rail Commission; and

WHEREAS, the Rail Commission budget incorporates the operating, shuttle, and capital budget for the Altamont Corridor Express (ACE) Service and the San Joaquin Intercity Service (San Joaquins); and

WHEREAS, the Rail Commission, ACE and San Joaquins service projects and programs have separate revenue and expense accounts; and

WHEREAS, the Executive Director has prepared and presented the SJRRC/ACE operating budget of \$43,139,466, SJJPA operating budget of \$80,640,442 and a combined capital budget of \$392,561,718 which sets forth the projected revenues and expenses associated with the San Joaquin Regional Rail Commission for Fiscal Year 2023/2024 (hereinafter collectively "2023/2024 Budgets"); and

WHEREAS, as part of the budget approval process, the Executive Director is responsible for, and authorized to implement, the adopted budget; and

WHEREAS, there are many business expenses that are routine in nature and are required to conduct the ordinary day-to-day activities of the Rail Commission, ACE and the Authority; and

WHEREAS, the Executive Director is authorized to make these ongoing expenditures within the approved levels of the adopted budget; and

WHEREAS, all budget increases, amendments, or transfers between operating and capital budgets will be submitted to the Board for approval, and the Executive Director has the authority to transfer funds within the operating or capital budget category; and

WHEREAS, revenue and expense reports comparing the cumulative revenue receipts and expenses to the approved budget are submitted to the Commissioners as part of the monthly meeting packets; and

WHEREAS, these reports provide the Commissioners an opportunity to monitor the budget status regularly throughout the fiscal year and make recommended adjustments when necessary;

NOW THEREFORE, BE IT RESOLVED that the Board of Commissioners of the San Joaquin Regional Rail Commission Adopts the SJRRC/ACE Combined Fiscal Year 2023/2024 Work Program and Operating Budget in the amount of \$43,139,466 and Adopting SJJPA Fiscal Year 2023/2024 Operating Budget of \$80,640,442 and a Combined Capital Budget in the amount of \$392,561,718 (hereinafter collectively "2023/2024 Budgets").

FURTHERMORE, BE IT RESOLVED that in the event there is a delay in the timely adoption of the budgets for the 2024/2025 fiscal year, the 2023/2024 budgets shall be renewed and carry over into 2024/2025 until such time as the 2024/2025 budgets are adopted.

PASSED AND ADOPTED, by the Board of Commissioners this 2nd day of June 2023, by the following vote:

AYES: 4 Nuño, Villapudua, Vice Chair Young, Chair Zuber

NOES: 0

ABSENT: 4 Hernandez, Mei, Craig, Warmsley

ABSTAIN: 0

ATTEST:

SAN JOAQUIN REGIONAL
RAIL COMMISSION


STACEY MORTENSEN, Secretary


LEO ZUBER, Chair

SAN JOAQUIN REGIONAL RAIL COMMISSION

Meeting of June 2, 2023

STAFF REPORT

Item 14

ACTION

Public Hearing: Presentation and Approval of a Resolution Adopting the SJRRC/ACE Combined Fiscal Year 2023/2024 Work Program and Operating Budget in the amount of \$43,139,466 and Adopting SJJPA Fiscal Year 2023/2024 Operating Budget of \$80,640,442 and a Combined Capital Budget in the amount of \$392,561,718

Background:

On an annual basis, the Rail Commission adopts a Work Program that serves to communicate the planned activities of the agency in the coming fiscal year, as well as outlines the Operations and Capital Project Budget. Since the Rail Commission also serves as the Managing Agency for the San Joaquin Joint Powers Authority, a brief description of the Work Program and Budget for the San Joaquins Intercity Rail Service is included. The San Joaquin Joint Powers Authority secures its own funding and directs spending on the San Joaquin service and programs, but the Rail Commission Budget must include these expenses and revenues on behalf of the Authority. In addition, the Authority designated the Rail Commission as the lead agency to implement all the shared Valley Rail Program stations and facilities.

The theme of the Work Program for the upcoming year is “Laying the Groundwork for More Connected Communities.” This includes a continued focus on the existing ACE trunkline service, restoring the San Joaquins to full pre-Covid services levels, and forming new partnerships for project delivery within the various communities slated for Valley Rail expansion.

The following Work Program and Budget includes expenditure authority for each of these efforts. The San Joaquin Joint Powers Authority 2023/2024 Business Plan is also attached for more detail on the Planning, Operations, Marketing and Capital programs in support of the San Joaquins.

Exhibit B: SJJPA Resolution Adopting the SJJPA 2023 Business Plan Update

SJJPA RESOLUTION 22/23-29

RESOLUTION OF THE GOVERNING BOARD OF THE SAN JOAQUIN JOINT POWERS AUTHORITY ADOPTING THE FINAL 2023 SAN JOAQUIN JOINT POWERS AUTHORITY BUSINESS PLAN UPDATE AND AUTHORIZING AND DIRECTING THE EXECUTIVE DIRECTOR TO EXECUTE ANY AND ALL DOCUMENTS ASSOCIATED WITH THE MASTER FUND TRANSFER AGREEMENT SUPPLEMENTS FOR OPERATIONS, ADMINISTRATION, AND MARKETING BUDGETS FOR FISCAL YEAR 2023/2024

WHEREAS, the Intercity Passenger Rail Act of 2012 provides for the creation of a San Joaquin Joint Powers Authority (SJJPA) which, if certain requirements are met, will manage the San Joaquin Intercity Rail Service; and

WHEREAS, ten (10) Member Agencies have approved a Joint Exercise of Powers Agreement to form the SJJPA and have appointed Board Members and Alternates; and

WHEREAS, the SJJPA was required to submit the final Business Plan to the Secretary of the California State Transportation Agency by April 1 each year, it is now required to be submitted to the Secretary of CalSTA in draft form by April 1 of each year, and final form by June 30 of each year to allow Amtrak time to finalize operating cost estimates; and

WHEREAS, in order to continue with the administrative responsibilities of the San Joaquins, the SJJPA must develop and approve a Draft Business Plan to be submitted to the Secretary of the California State Transportation Agency by April 1 each year; and

WHEREAS, the Master Fund Transfer Agreement Supplements for Operations, Administration, and Marketing Budgets for Fiscal Year 2023/2024 must be executed; and

NOW, THEREFORE, BE IT RESOLVED that the Governing Board of the San Joaquin Joint Powers Authority hereby Adopting the Final 2023 San Joaquin Joint Powers Authority Business Plan Update and Authorizing and Directing the Executive Director to Execute Any and All Documents Associated with the Master Fund Transfer Agreement Supplements for Operations, Administration, and Marketing Budgets for Fiscal Year 2023/2024.

PASSED AND ADOPTED, by the SJJPA on this 19th day of May 2023, by the following vote:

AYES: 8 Alternate O'Brien, Gonzalez, Alternate Burgis, Quintero, Shuklian, Young, Vice Chair
Espinosa, Vice Chair Verboon

NOES: 0

ABSTAIN: 0

ABSENT: 2 Haubert, Chair Hume

ATTEST:

SAN JOAQUIN JOINT
POWERS AUTHORITY


STACEY MORTENSEN, Secretary


RODRIGO ESPINOSA, Vice Chair

SAN JOAQUIN JOINT POWERS AUTHORITY

Meeting of May 19, 2023

STAFF REPORT

Item 5

ACTION

Approve a Resolution of the Governing Board of the San Joaquin Joint Powers Authority Adopting the Final 2023 San Joaquin Joint Powers Authority Business Plan Update and Authorizing and Directing the Executive Director to Execute Any and All Documents Associated with the Master Fund Transfer Agreement Supplements for Operations, Administration, and Marketing Budgets for Fiscal Year 2023/2024

Background:

In order to continue the administrative responsibilities of the San Joaquins, the San Joaquin Joint Powers Authority (SJJPA) must develop an Annual Business Plan during the term of the ITA as required by AB 1779 and submit the Plan by April 1 of each year to the Secretary of the California State Transportation Agency (CalSTA). The Annual Business Plan must be submitted to the Secretary of CalSTA in draft form by April 1 of each year, and final form by June 30 of each year. The purpose of establishing the later date for the final version is to allow Amtrak time to finalize operating cost estimates. The final version of the Annual Business Plan is then reviewed and approved by the State and used to develop an annual appropriation request to the State Legislature.

Staff is recommending board action to “adopt” the Final 2023 SJJPA Business Plan Update. Section 7.1(d) of the SJJPA Joint Exercise of Powers Agreement (JEPA) requires adoption of the Business Plan by two-thirds vote of the SJJPA Board Membership. The Draft 2023 SJJPA Business Plan Update was unanimously approved at the March 24, 2023, SJJPA Board Meeting.

On April 11, 2023, Kern COG requested SJJPA edit page 67 “to add four free EV charging stations as station amenities”. Kern COG state it believes it is important for other stations to consider offering EV charging stations (free or metered) to encourage first and last-mile zero-emission connections. Page 66 of the Final 2023 SJJPA Business Plan includes new text acknowledging the four free EV charging stations at the Bakersfield Station. The SJJPA FY 2023/24 and 2024/25 Action Plan, page 46 of the Final 2023 SJJPA Business Plan includes the following action for SJJPA: “Identify locations and funding for electric car charging stations at San Joaquins stations”.

On May 5, 2023, Caltrans Division of Rail and Mass Transportation (DRMT) provided comments on the Draft 2023 SJJPA Business Plan. Please see the Caltrans comments attached and the SJJPA responses to each comment, including the various minor edits made to the Draft 2023 SJJPA Business Plan based on these comments.

Please see the Final 2023 SJJPA Business Plan at the end of this packet.

Key Updates of the Final 2023 SJJPA Business Plan Update:

- Updated cost for Railroad Liability Insurance Premiums
 - Annual Business Plan Other Operations request increase from \$800,000 to \$900,000
- Addition of Zero Emission Multiple Unit Study for Stockton Rail Maintenance Facility
 - Annual Business Plan Other Operations request of \$1,240,000

Fiscal Impact:

Adoption of the 2023 SJJPA Business Plan is required for the SJJPA to continue managing the San Joaquins and receive funding from the State for the administration, marketing, and operations for the San Joaquins.

Recommendation:

Approve a Resolution of the Governing Board of the San Joaquin Joint Powers Authority Adopting the Final 2023 San Joaquin Joint Powers Authority Business Plan Update and Authorizing and Directing the Executive Director to Execute Any and All Documents Associated with the Master Fund Transfer Agreement Supplements for Operations, Administration, and Marketing Budgets for Fiscal Year 2023/2024.

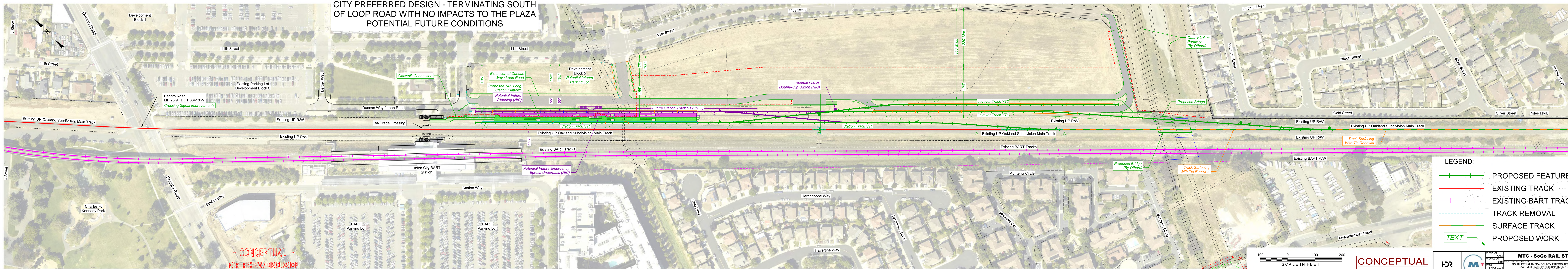
Exhibit C: Conceptual Engineering Drawings

Union City Intermodal Station Phase 3 Project

Conceptual Design

Overall Plan Views

CITY PREFERRED DESIGN - TERMINATING SOUTH OF LOOP ROAD WITH NO IMPACTS TO THE PLAZA
POTENTIAL FUTURE CONDITIONS



- CONCEPTUAL -
FOR REVIEW/DISCUSSION



CONCEPTUAL
NOT FOR CONSTRUCTION 04/12/2023

LEGEND:

- PROPOSED FEATURES
- EXISTING TRACK
- EXISTING BART TRACK
- TRACK REMOVAL
- SURFACE TRACK
- PROPOSED WORK

MTC - SoCo RAIL STUDY

LOCATION: SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY
LAYOVER FACILITY ALTERNATIVES ANALYSIS
CITY OF UNION CITY, CA

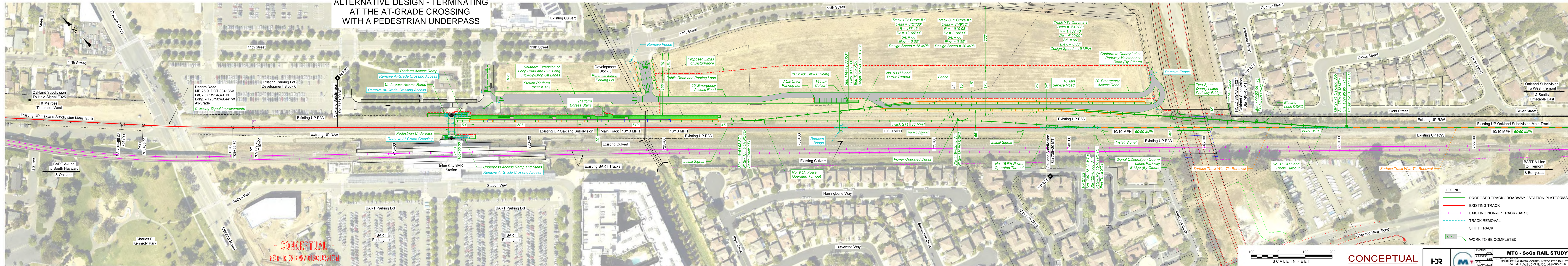
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ALTERNATIVE DESIGN - TERMINATING AT THE AT-GRADE CROSSING WITH A PEDESTRIAN UNDERPASS



- CONCEPTUAL -
FOR REVIEW/DISCUSSION

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NOT FOR CONSTRUCTION 04/12/20

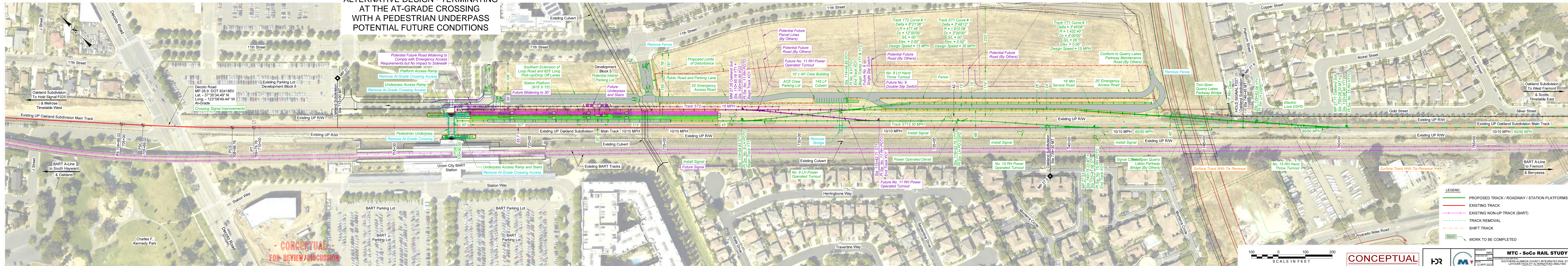
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MTC - SoCo RAIL STUDY		
LOCATION & DESCRIPTION: SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STATION LAYOVER FACILITY ALTERNATIVES ANALYSIS CITY OF UNION CITY, CA		
SHEET TITLE:	OPTION 2 WITH PEDESTRIAN UNDERPASS ACCOMMODATING TEN PASSENGER CARS	



DW//HDB US West 01/609

ALTERNATIVE DESIGN - TERMINATING AT THE AT-GRADE CROSSING WITH A PEDESTRIAN UNDERPASS POTENTIAL FUTURE CONDITIONS



- CONCEPTUAL -
FOR REVIEW/DISCUSSION

CONCEPTUAL
NOT FOR CONSTRUCTION 04/12/20

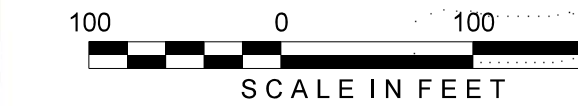
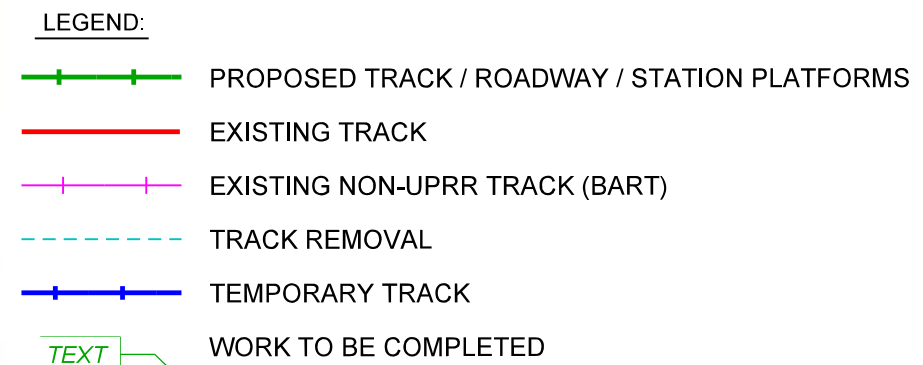
 	AMG CHECKED BY:	MTC - SoCo RAIL STUDY
	EBB DATE: 12 APR 2023	LOCATION & DESCRIPTION: SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL ST LAYOVER FACILITY ALTERNATIVES ANALYSIS CITY OF UNION CITY, CA
SHEET NUMBER		

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Union City Intermodal Station Phase 3 Project

Conceptual Design

Pedestrian Access Exhibits



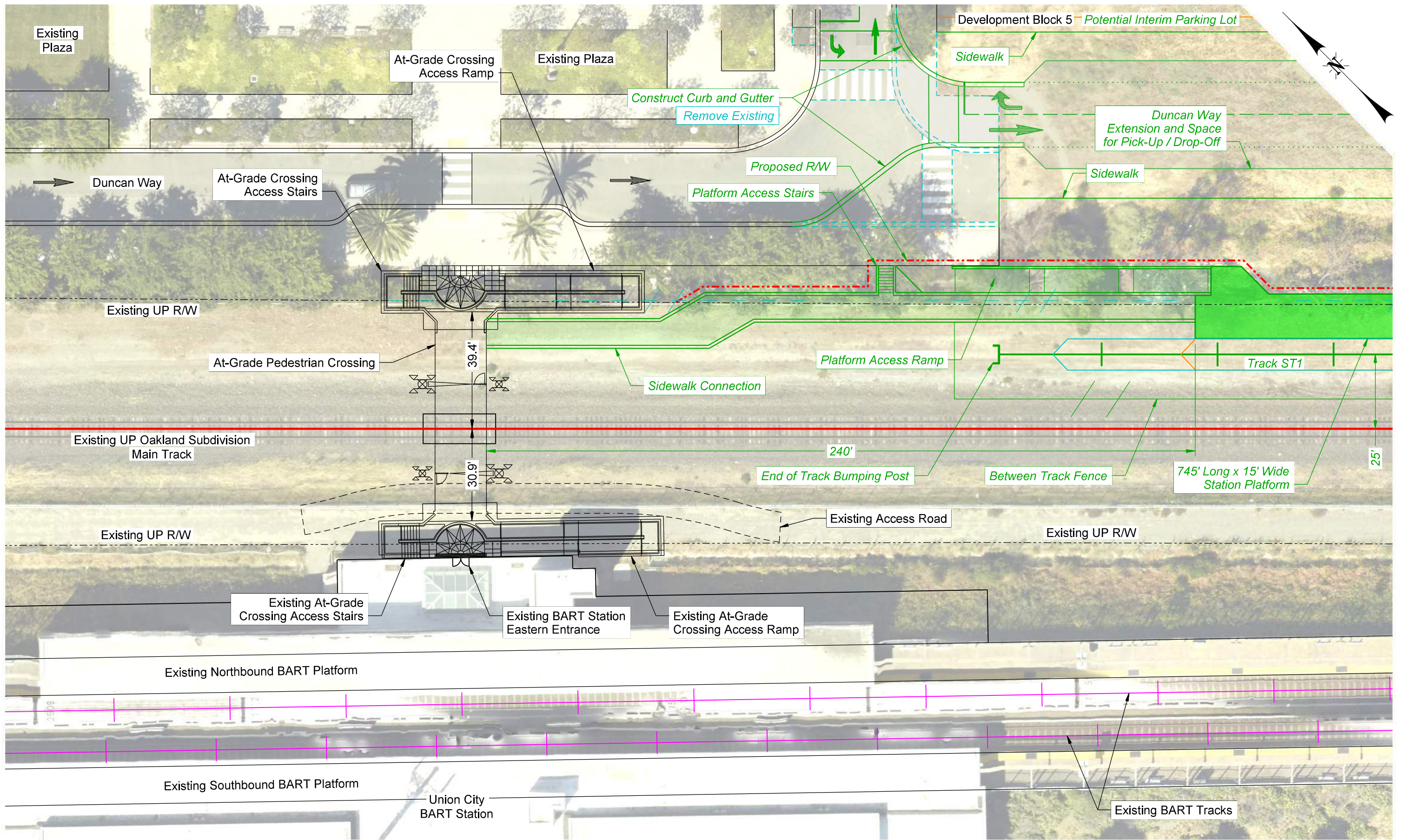
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**MTC - SoCo RAIL STUD**

TITLE: SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL
 LAYOVER FACILITY ALTERNATIVES ANALYSIS
 CITY OF UNION CITY, CA
TITLE: SoCo RAIL PROJECT

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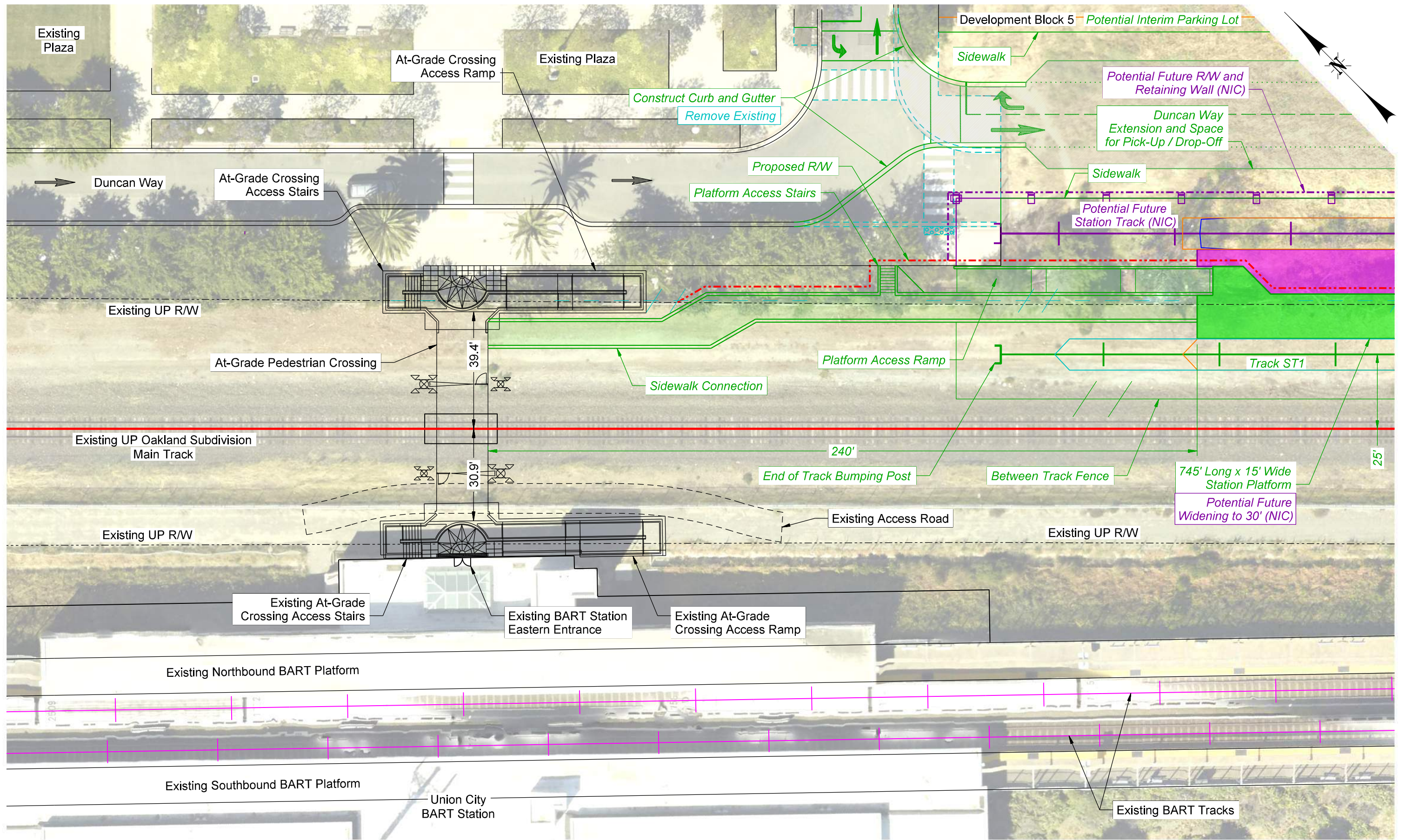
MTC - SoCo RAIL STUDY

LOCATION & DESCRIPTION:
SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY
UNION CITY INTERMODAL STATION - PHASE 3
CITY OF UNION CITY, CA

SHEET TITLE: SoCo RAIL STATION CITY-PREFERRED DESIGN
AT-GRADE CROSSING ACCESS EXHIBIT

DWG NUMBER
PED-1

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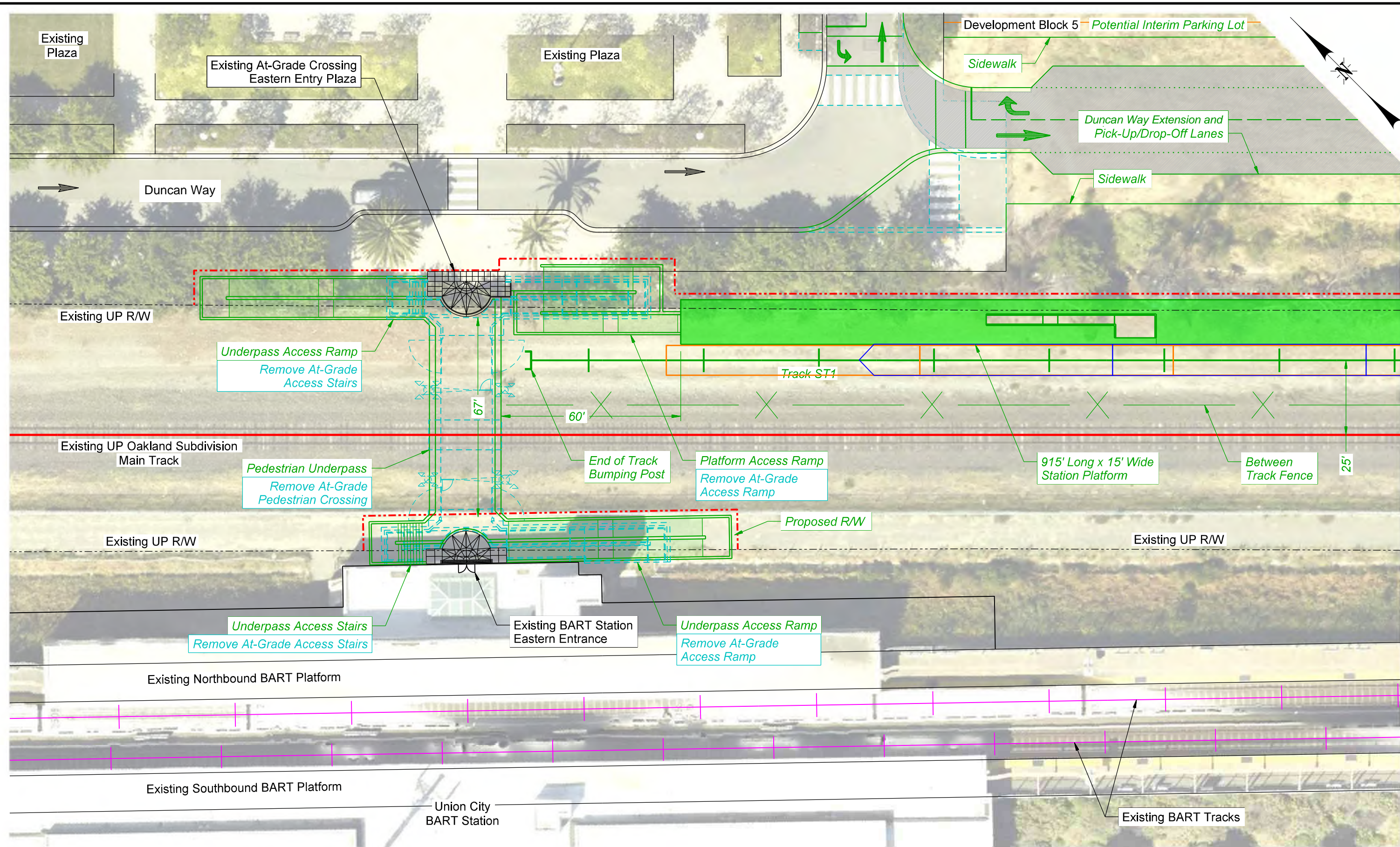
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4/19/2023



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CHECKED BY:
EBB
DATE:
19 APR 2023
SHEET NUMBER

MTC - SoCo RAIL STUDY
LOCATION & DESCRIPTION:
SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY
UNION CITY INTERMODAL STATION - PHASE 3
CITY OF UNION CITY, CA
SHEET TITLE: SoCo RAIL STATION CITY-PREFERRED DESIGN
AT-GRADE CROSSING ACCESS EXHIBIT
DWG NUMBER
PED-1

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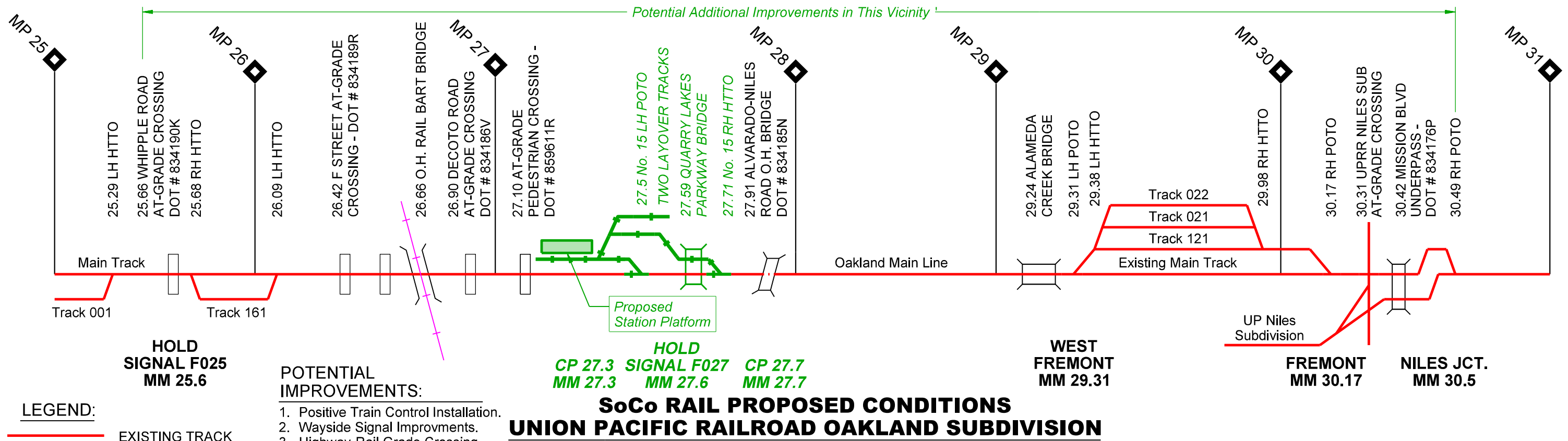
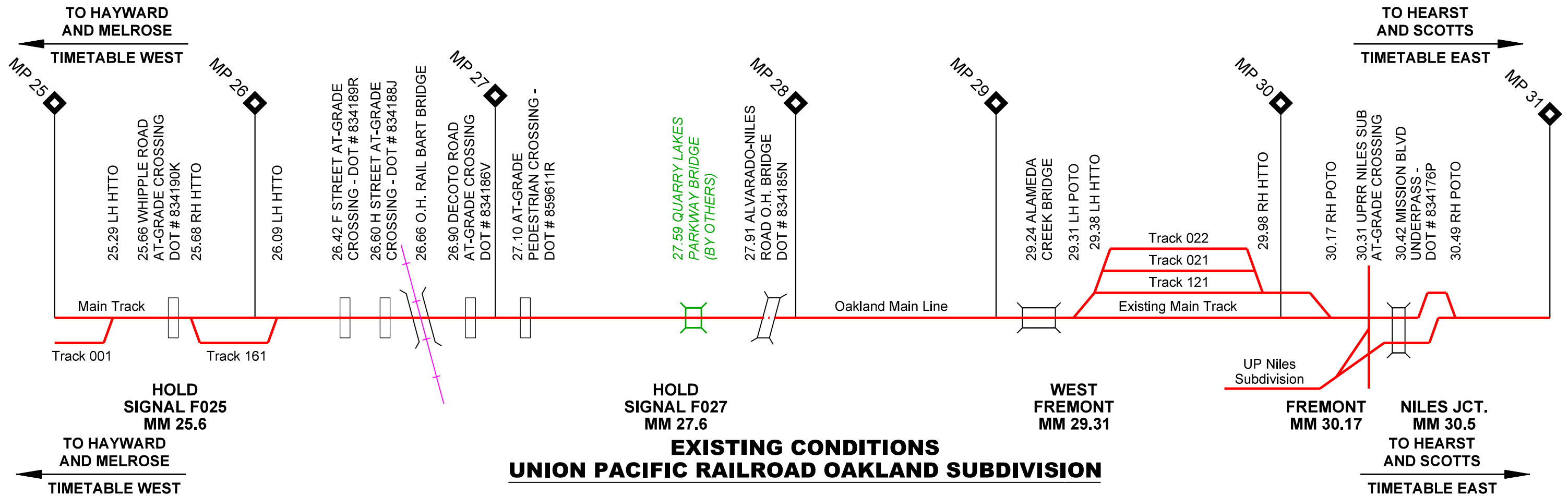
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		SHEET NUMBER	SHEET TITLE: SoCo RAIL STATION - ALTERNATIVE DESIGN PEDESTRIAN UNDERPASS EXHIBIT	DWG NUMBER PED-2

Union City Intermodal Station Phase 3 Project

Conceptual Design

Track Schematic Drawings

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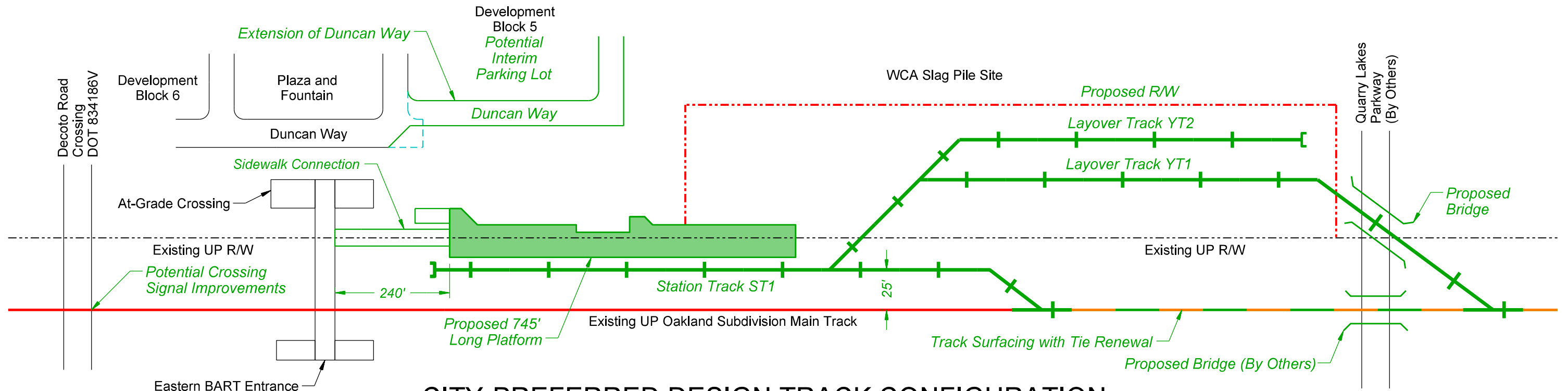
- EXISTING TRACK
- PROPOSED TRACK
- POTENTIAL FUTURE TRACK (NIC)

- POTENTIAL IMPROVEMENTS:**
1. Positive Train Control Installation.
 2. Wayside Signal Improvements.
 3. Highway-Rail Grade Crossing Improvements.
 4. Track Surfacing.
 5. Turnout Installation and/or Replacement.

**SoCo RAIL PROPOSED CONDITIONS
UNION PACIFIC RAILROAD OAKLAND SUBDIVISION**

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4/19/2023

		DRAWN BY: AMG	MTC - SoCo RAIL STUDY	
		CHECKED BY: EBB		
		DATE: 19 APR 2023	LOCATION & DESCRIPTION: SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY UNION CITY INTERMODAL STATION - PHASE 3 CITY OF UNION CITY, CA	
SHEET NUMBER		SHEET TITLE: EXISTING AND PROPOSED TRACK CONFIGURATION SCHEMATIC	DWG NUMBER GT100	



NOT TO SCALE

CITY-PREFERRED DESIGN TRACK CONFIGURATION WITH CPUC-APPROVED AT-GRADE PEDESTRIAN CROSSING

LEGEND:

- EXISTING TRACK
- PROPOSED TRACK

Benefits of the City-Preferred Design:

1. Preserves the Pick-Up and Drop-Off Lane along Loop Road, Consistent With the City's Preferences.
2. No Impact to the Plaza, Consistent With the City's Preferences.
3. Defers Construction of an Intermediate Pedestrian Underpass Along the Platform.

Challenges of the City-Preferred Design:

1. Reduced Platform and Layover Length Reduces Passenger Capacity and Operational Flexibility.
2. Platform Ends 240 Feet South of the At-Grade Crossing, Contrary to the 300 Feet UP Standards.
3. Does not accommodate a UP Access Road on the east side of the Main Track.
4. Only one Layover Track (YT1) has southern access to the UP Oakland Subdivision Main Line.
5. Significant Impacts to the UP R/W.
6. There is a risk that the increased number of people using the At-Grade Crossing could potentially trigger the necessity to construct a grade-separated pedestrian crossing.

CONCEPTUAL

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4/19/2023

HDR



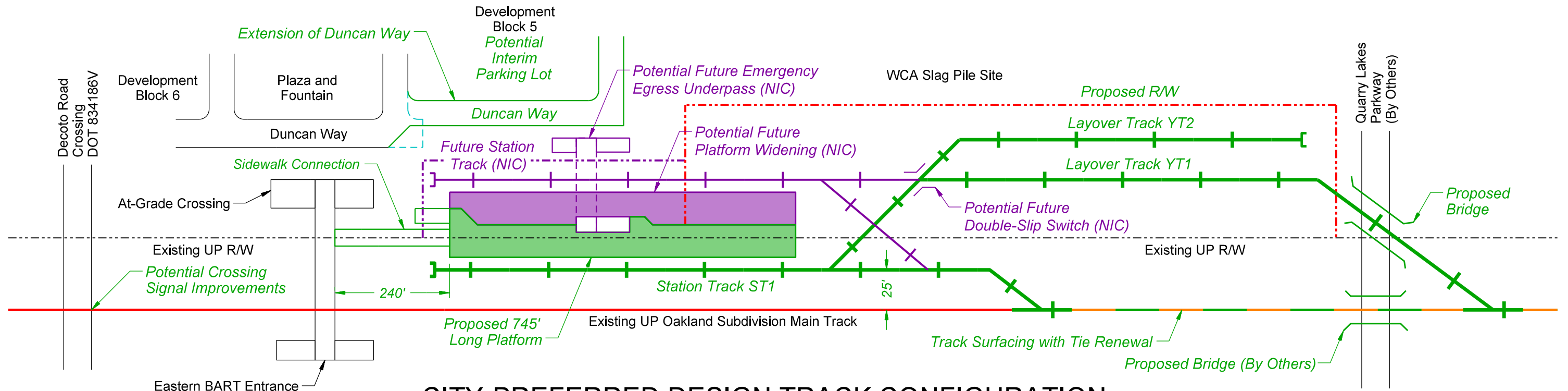
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SHEET NUMBER

MTC - SoCo RAIL STUDY

LOCATION & DESCRIPTION:
SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY
UNION CITY INTERMODAL STATION - PHASE 3
CITY OF UNION CITY, CA

SHEET TITLE:
SoCo RAIL TRACK SCHEMATICS
CITY-PREFERRED DESIGN

DWG NUMBER
GT101



NOT TO SCALE

CITY-PREFERRED DESIGN TRACK CONFIGURATION WITH CPUC-APPROVED AT-GRADE PEDESTRIAN CROSSING

LEGEND:

- EXISTING TRACK
- PROPOSED TRACK
- POTENTIAL FUTURE TRACK (NIC)

Benefits of the City-Preferred Design:

1. Preserves the Pick-Up and Drop-Off Lane along Loop Road, Consistent With the City's Preferences.
2. No Impact to the Plaza, Consistent With the City's Preferences.
3. Defers Construction of an Intermediate Pedestrian Underpass Along the Platform.

Challenges of the City-Preferred Design:

1. Reduced Platform and Layover Length Reduces Passenger Capacity and Operational Flexibility.
2. Platform Ends 240 Feet South of the At-Grade Crossing, Contrary to the 300 Feet UP Standards.
3. Does not accommodate a UP Access Road on the east side of the Main Track.
4. Only one Layover Track (YT1) has southern access to the UP Oakland Subdivision Main Line.
5. Significant Impacts to the UP R/W.
6. There is a risk that the increased number of people using the At-Grade Crossing could potentially trigger the necessity to construct a grade-separated pedestrian crossing.
6. The "double slip" switch used to access both layover tracks increases installation cost and maintenance expenses.

CONCEPTUAL

NOT FOR CONSTRUCTION

4/19/2023

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DATE:
19 APR 2023
SHEET NUMBER

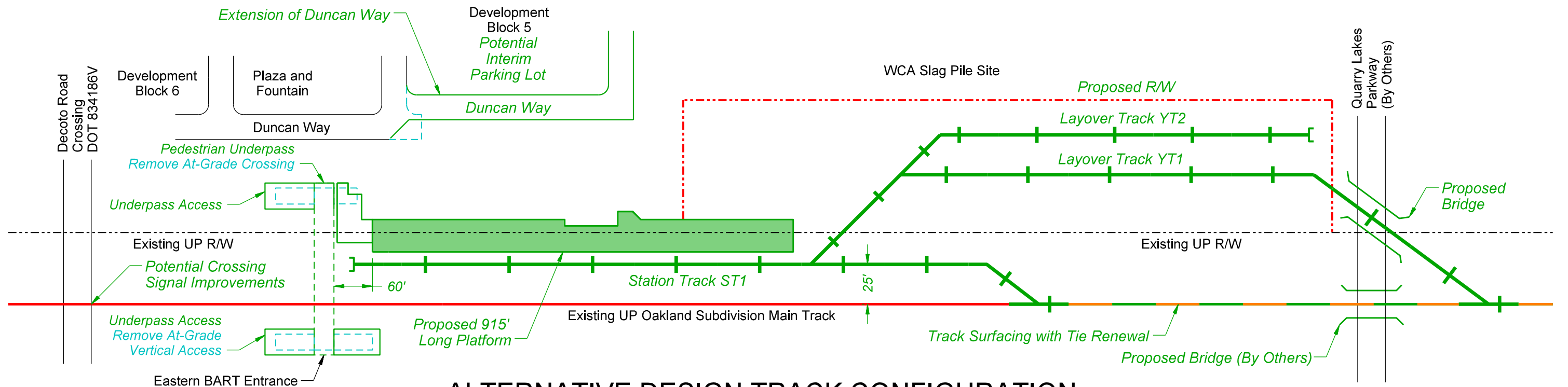
MTC - SoCo RAIL STUDY

LOCATION & DESCRIPTION:
SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY
UNION CITY INTERMODAL STATION - PHASE 3
CITY OF UNION CITY, CA

SHEET TITLE: SoCo RAIL TRACK SCHEMATICS
CITY-PREFERRED DESIGN

DWG NUMBER
GT101

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NOT TO SCALE

ALTERNATIVE DESIGN TRACK CONFIGURATION WITH A PEDESTRIAN UNDERPASS

Benefits of the Alternative Design:

1. No Impact to the Plaza in the Initial Operations Configuration, consistent with the City's preferences.
2. Accommodates a Longer Valley Rail Standard Trainset Length.
3. Platform Extends Nearly to the At-Grade Crossing Minimizing the Distance to the BART Station Entrance.
4. Using a Pedestrian Underpass increases crossing safety and Reduces the Risk of Trespassing in the UP R/W.

Challenges of the Alternative Design:

1. Potential Future Platform and Road Configuration Requires the Removal of Trees on the East Side of Loop Road for Widening.
2. Potential Future Platform Configuration Requires Removing the At-Grade Crossing Access and Replacing it With a Pedestrian Underpass, Contrary to the City's Preferences.
3. Using a Pedestrian Underpass Reduces Perceived Pedestrian Comfort, Requiring Additional Security Measures.
4. Design Does Not Accommodate a UP Access Road on the East Side of the Main Track.
5. Only one Layover Track (YT1) has southern access to the UP Oakland Subdivision Main Line.
6. Significant Impacts to the UP R/W.

LEGEND:

— EXISTING TRACK

+ + PROPOSED TRACK

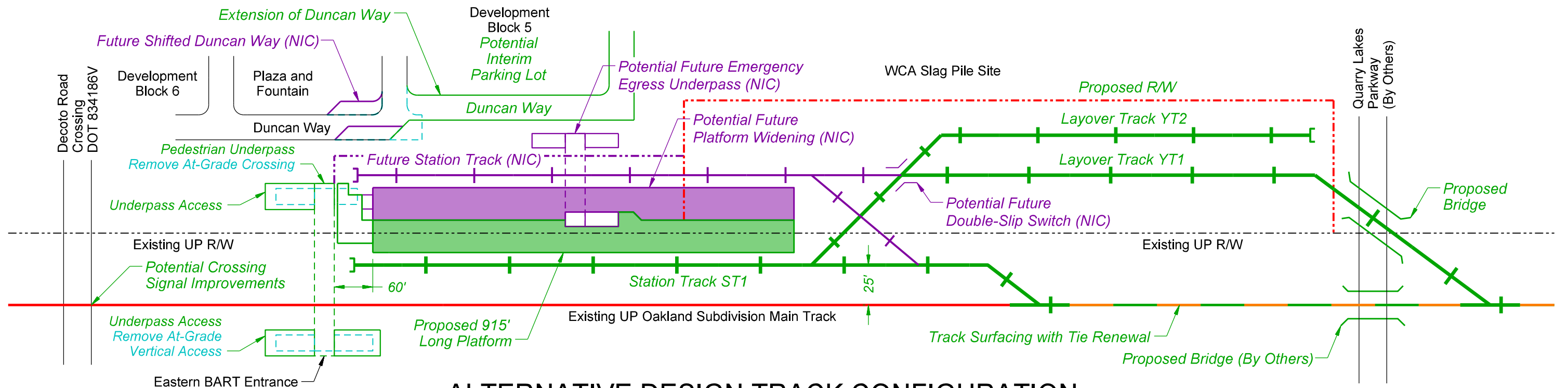
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SHEET NUMBER		SHEET TITLE: SoCo RAIL TRACK SCHEMATICS ALTERNATIVE DESIGN		DWG NUMBER GT102

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ALTERNATIVE DESIGN TRACK CONFIGURATION WITH A PEDESTRIAN UNDERPASS

NOT TO SCALE

LEGEND:

- EXISTING TRACK
- PROPOSED TRACK
- POTENTIAL FUTURE TRACK (NIC)

Benefits of the Alternative Design:

1. No Impact to the Plaza in the Initial Operations Configuration, consistent with the City's preferences.
2. Accommodates a Longer Valley Rail Standard Trainset Length.
3. Platform Extends Nearly to the At-Grade Crossing Minimizing the Distance to the BART Station Entrance.
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6. Significant Impacts to the UP R/W.
7. The "double slip" switch used to access both layover tracks increases installation cost and maintenance expenses.

CONCEPTUAL

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4/19/2023

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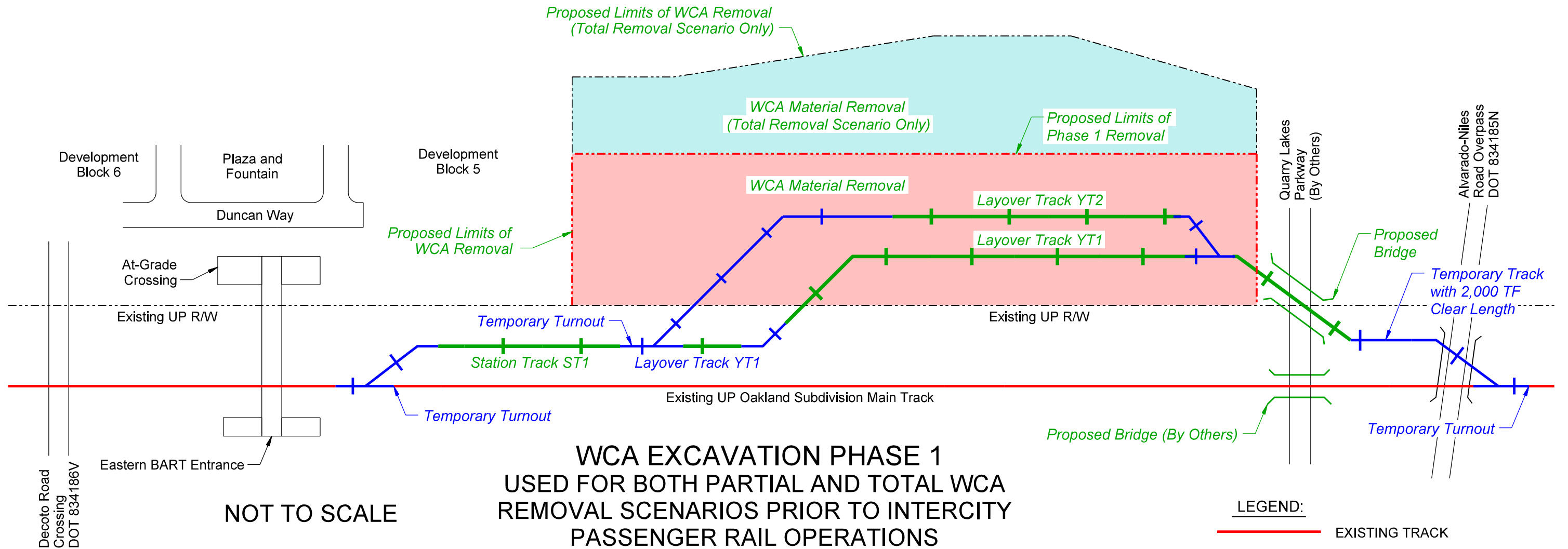
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LOCATION & DESCRIPTION:
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UNION CITY INTERMODAL STATION - PHASE 3
CITY OF UNION CITY, CA

SHEET TITLE: SoCo RAIL TRACK SCHEMATICS
ALTERNATIVE DESIGN

DWG NUMBER
GT102

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WCA EXCAVATION PHASE 1 USED FOR BOTH PARTIAL AND TOTAL WCA REMOVAL SCENARIOS PRIOR TO INTERCITY PASSENGER RAIL OPERATIONS

WCA Excavation Phase 1 Notes:

1. Provides two yard tracks (YT1 and YT2) with 1,630 TF Clear Length, and a temporary South Lead Track with 2,000 TF Clear Length, consistent with the 2018 SCS Report.
2. Requires the installation of two temporary turnouts on the UP Oakland Subdivision Main Track south of the At-Grade Pedestrian Crossing.
3. Requires the installation of two temporary turnouts on the station and layover tracks and a temporary northern access to Track YT2.
4. Temporary trackwork to be removed and the permanent station and layover facilities will be constructed prior to commencement of Intercity Passenger Rail operations.

LEGEND:

	EXISTING TRACK
	PROPOSED TRACK
	TEMPORARY TRACK
	LOCATION OF PHASE 1 WCA MATERIAL REMOVAL
	LOCATION OF WCA MATERIAL REMOVAL (TOTAL REMOVAL SCENARIO)

CONCEPTUAL

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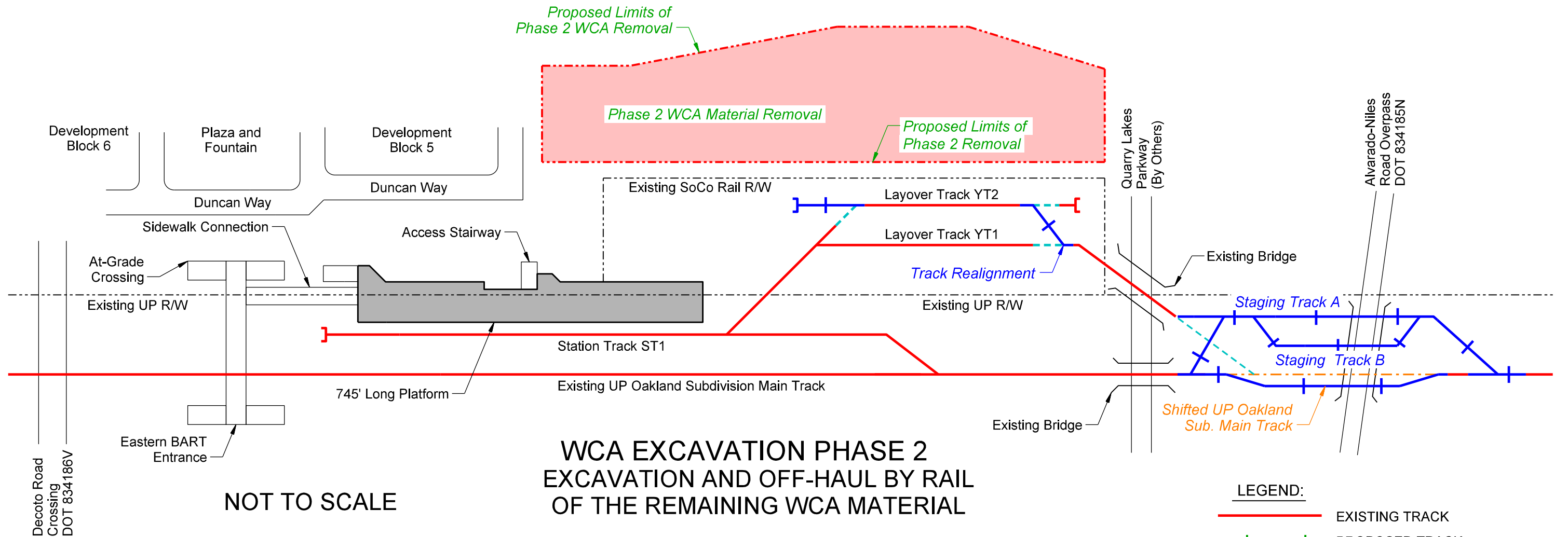


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MTC - SoCo RAIL STUDY

LOCATION & DESCRIPTION:	SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY UNION CITY INTERMODAL STATION - PHASE 3 CITY OF UNION CITY, CA
SHEET TITLE:	SoCo RAIL TRACK SCHEMATICS WCA EXCAVATION - PHASE 1

DWG NUMBER
GT103



WCA EXCAVATION PHASE 2 EXCAVATION AND OFF-HAUL BY RAIL OF THE REMAINING WCA MATERIAL

WCA Excavation Phase 2 Notes:

1. Requires the installation of two temporary turnouts and a track shift along the UP Oakland Subdivision Main Track.
2. Layover Track YT1 is disconnected from the Quarry Lakes Parkway Bridge so the only access is from the station platform.
3. Track YT2 is disconnected from the station platform and realigned to connect to the Quarry Lakes Parkway Bridge.
4. This phase provides One Yard Track (YT2) for WCA material loading with 560 TF Clear Length.
5. This phase provides Two Staging Tracks (A and B) with 1,630 TF Clear Length south of Quarry Lakes Parkway, which are operationally equivalent to the 2018 SCS Report.
6. There is sufficient flexibility that normal Intercity Passenger Rail operations would not be affected by the WCA off-haul operations during Phase 2.

LEGEND:

	EXISTING TRACK
	PROPOSED TRACK
	TEMPORARY TRACK
	SHIFTED TRACK
	REMOVED TRACK
	LOCATION OF PHASE 2 WCA MATERIAL REMOVAL

CONCEPTUAL

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4/19/2023

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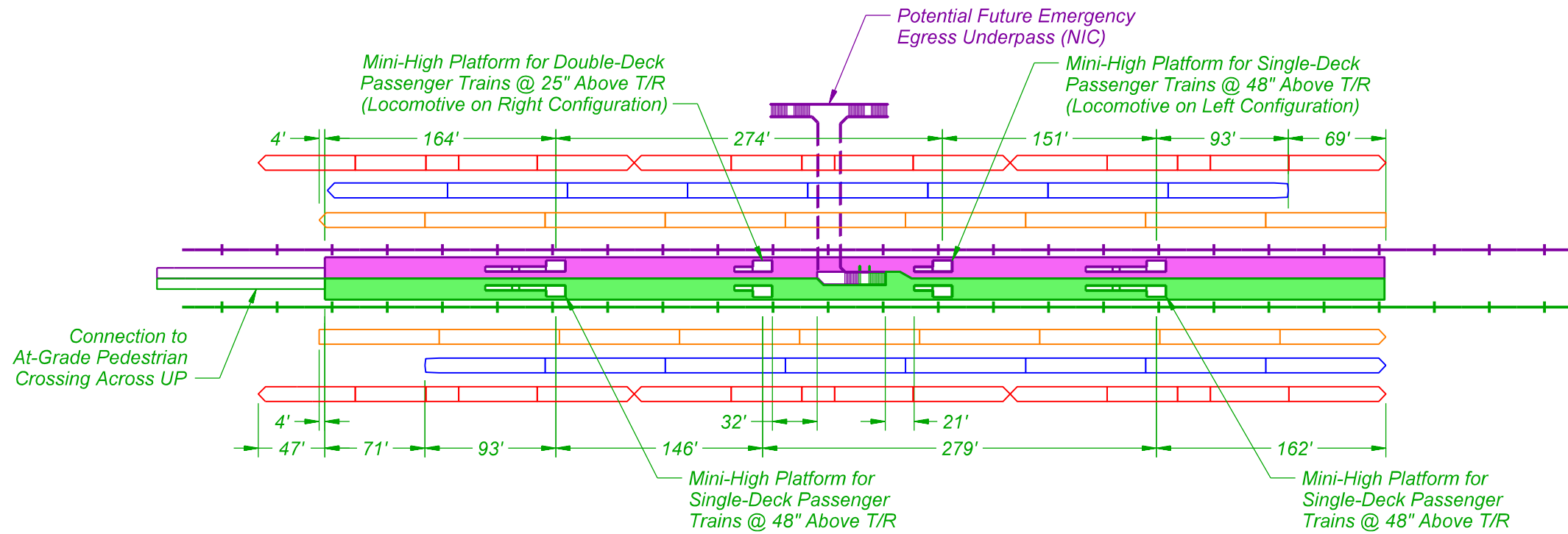
MTC - SoCo RAIL STUDY

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UNION CITY INTERMODAL STATION - PHASE 3
CITY OF UNION CITY, CA

SHEET TITLE: SoCo RAIL TRACK SCHEMATICS
WCA EXCAVATION - PHASE 2




DWG NUMBER
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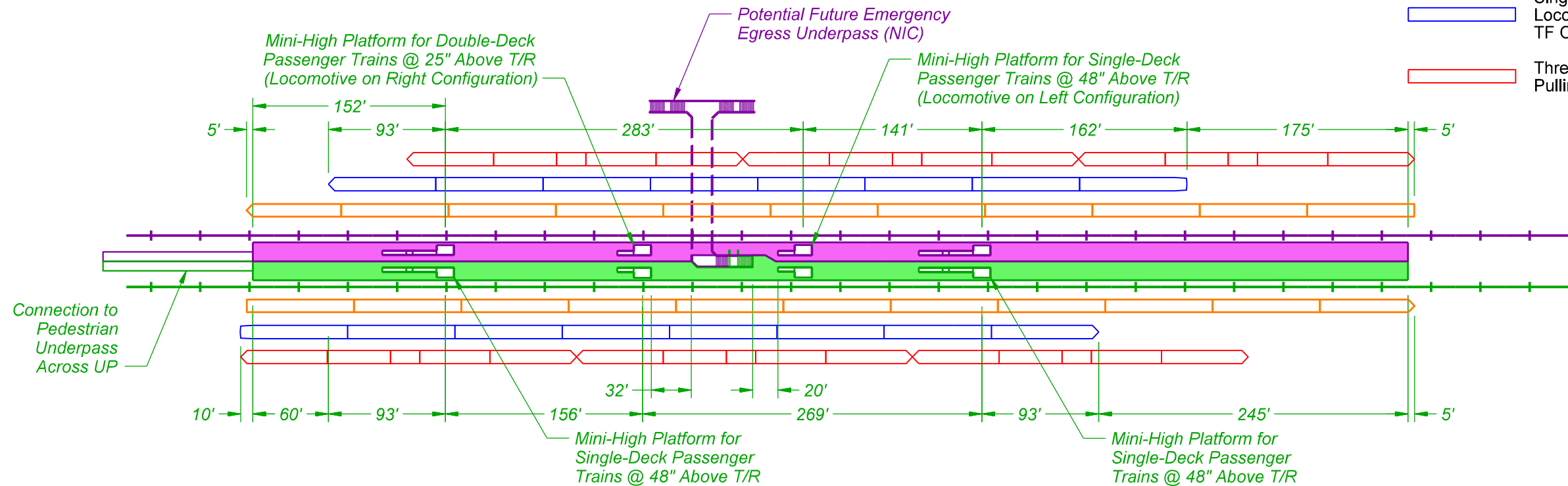
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SoCo RAIL STATION PLATFORM CONFIGURATION
CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING
SHOWING LOCATIONS OF MINI-HIGH PLATFORMS AND
LOCATIONS OF TRAINSETS ALONG THE PLATFORM

LEGEND:

-  Bi-Level Train With 1 Locomotive @ 75 TF and 8 Passenger Cars @ 85 TF Over the Pulling Faces = 755 TF Total Length
-  Single-Deck Siemens Venture Train With 1 Locomotive @ 75 TF and 7 Passenger Cars @ 75 TF Over the Pulling Faces = 670 TF Total Length
-  Three Stadler FLIRTs = @ 266 TF Over the Pulling Faces = 798 TF Total Length



SoCo RAIL STATION PLATFORM CONFIGURATION
ALTERNATIVE DESIGN WITH PEDESTRIAN UNDERPASS
SHOWING LOCATIONS OF MINI-HIGH PLATFORMS AND
LOCATIONS OF TRAINSETS ALONG THE PLATFORM

CONCEPTUAL

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4/19/2023

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19 APR 2023
SHEET NUMBER

MTC - SoCo RAIL STUDY

LOCATION & DESCRIPTION:
SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY
UNION CITY INTERMODAL STATION - PHASE 3
CITY OF UNION CITY, CA

SHEET TITLE:
PLATFORM CONFIGURATIONS
CITY-PREFERRED & ALTERNATIVE DESIGNS

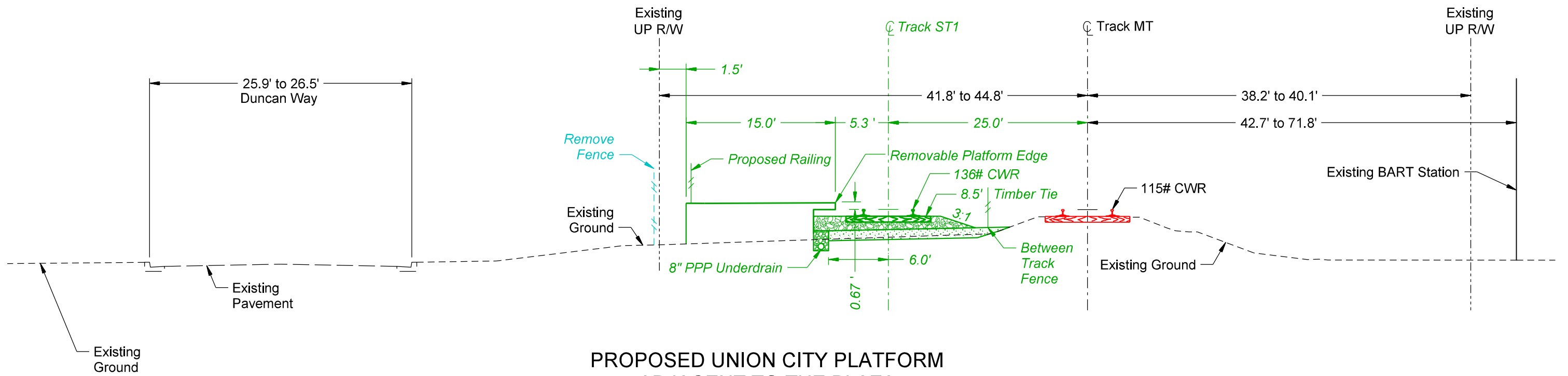
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Union City Intermodal Station Phase 3 Project

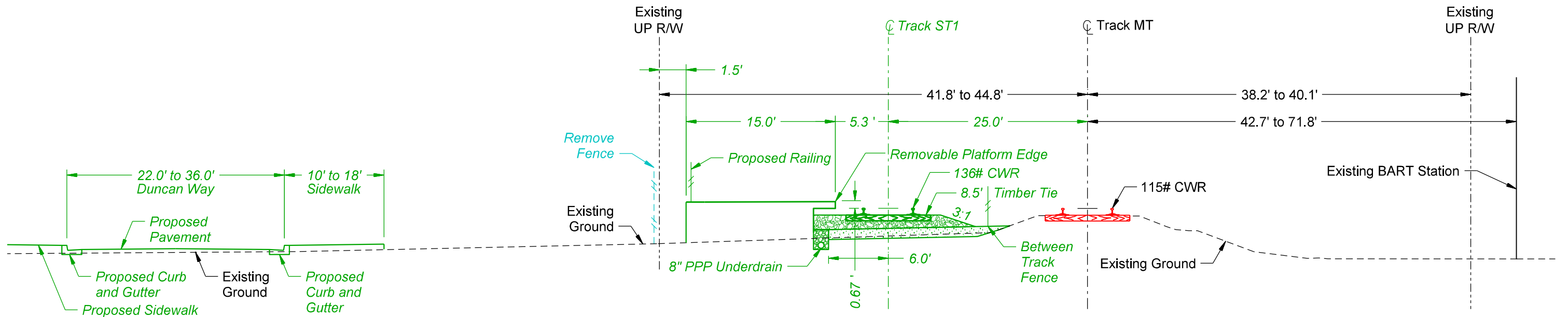
Conceptual Design

Typical Section Drawings

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PROPOSED UNION CITY PLATFORM
ADJACENT TO THE PLAZA
ALTERNATIVE DESIGN - WITH 915' PLATFORM



PROPOSED UNION CITY PLATFORM
ADJACENT TO DEVELOPMENT BLOCK 5
CITY-PREFERRED DESIGN - WITH 745' PLATFORM
ALTERNATIVE DESIGN - WITH 915' PLATFORM

CONCEPTUAL

NOT FOR CONSTRUCTION

4/19/2023

HDR



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19 APR 2023
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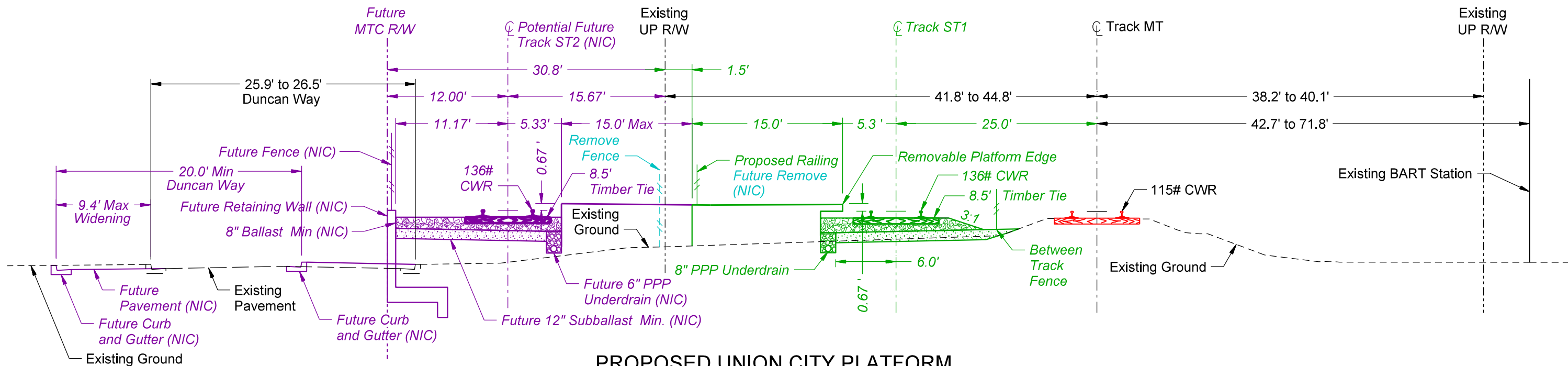
MTC - SoCo RAIL STUDY

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UNION CITY INTERMODAL STATION - PHASE 3
CITY OF UNION CITY, CA

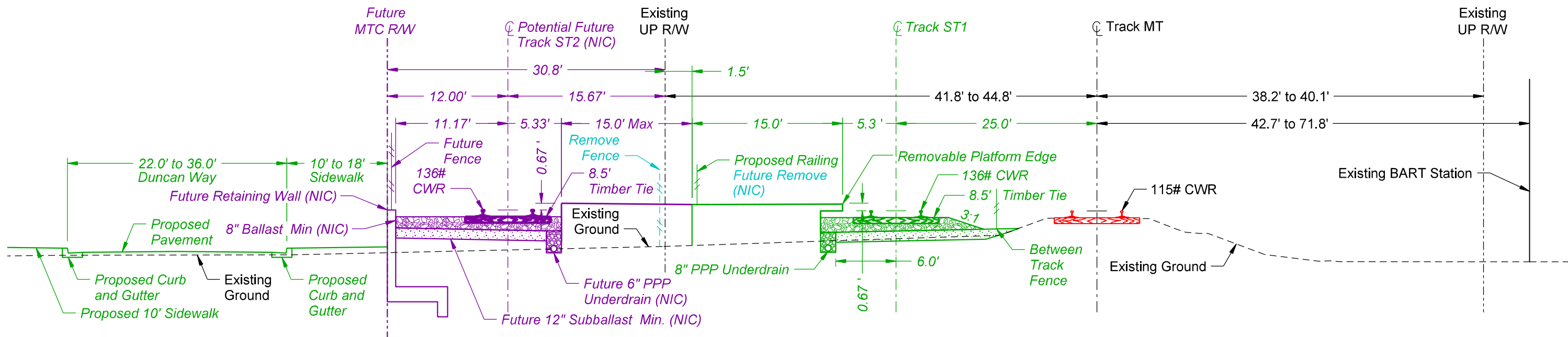
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UNION CITY STATION PLATFORM
TYPICAL SECTIONS

DWG NUMBER
T001

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PROPOSED UNION CITY PLATFORM
ADJACENT TO THE PLAZA
ALTERNATIVE DESIGN - WITH 915' PLATFORM



PROPOSED UNION CITY PLATFORM
ADJACENT TO DEVELOPMENT BLOCK 5
CITY-PREFERRED DESIGN - WITH 745' PLATFORM
ALTERNATIVE DESIGN - WITH 915' PLATFORM

CONCEPTUAL

NOT FOR CONSTRUCTION

4/19/2023

HDR



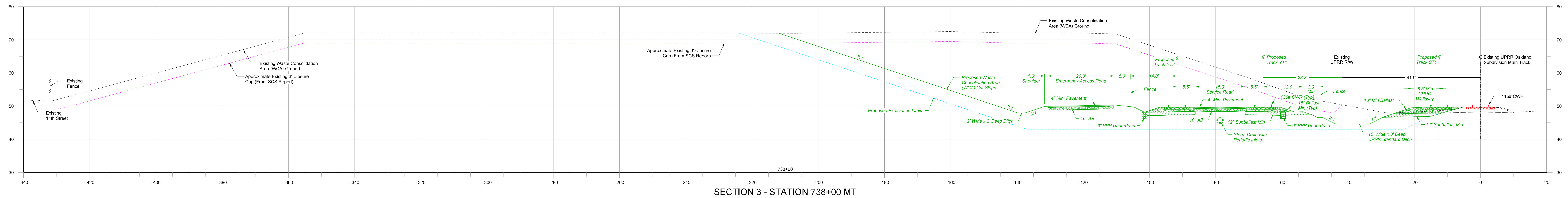
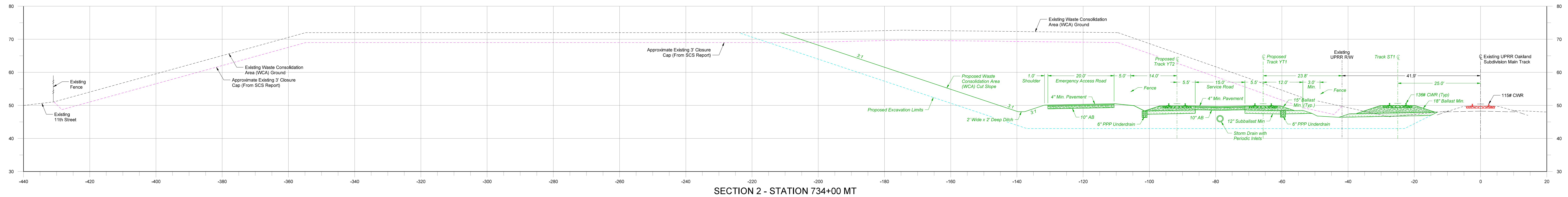
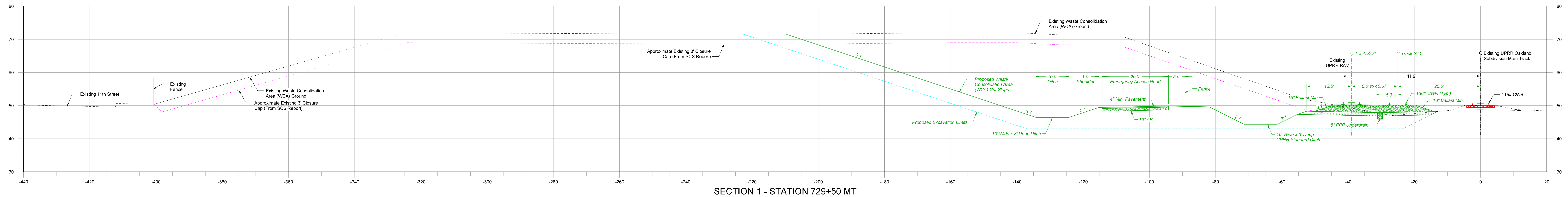
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MTC - SoCo RAIL STUDY

LOCATION & DESCRIPTION:
SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY
UNION CITY INTERMODAL STATION - PHASE 3
CITY OF UNION CITY, CA

SHEET TITLE:
UNION CITY STATION PLATFORM
TYPICAL SECTIONS

DWG NUMBER
T001



- CONCEPTUAL -
FOR REVIEW/DISCUSSION

LEGEND:
 EXISTING GROUND (FROM CCJPA SURVEY)
 3' CLOSURE CAP (FROM SCS REPORT)
 PROPOSED GROUND SURFACE
 PROPOSED EXCAVATION LIMITS
 POTENTIAL FUTURE FEATURES (NIC)

NOTES:

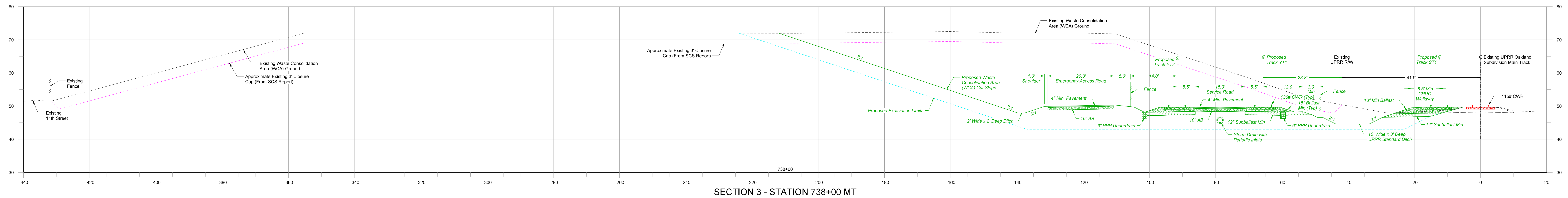
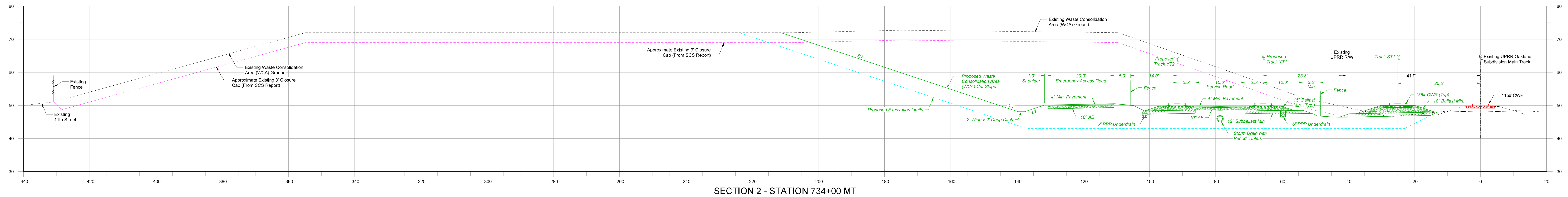
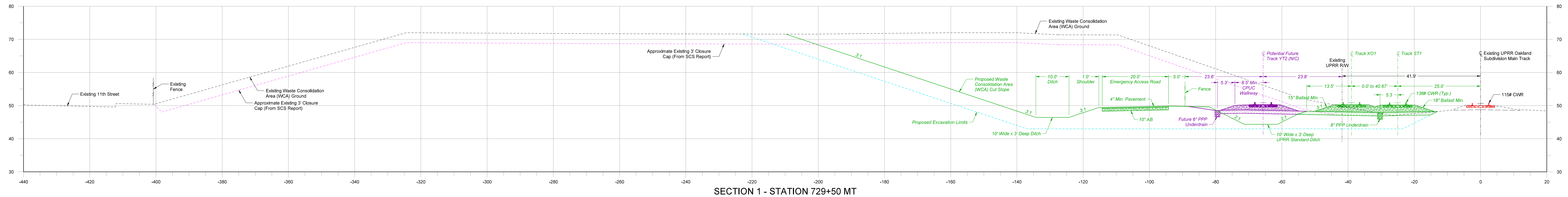
1. THE TOP-OF-RAIL ELEVATIONS, PROPOSED DRAINAGE AND LIMITS OF EXCAVATION ARE BASED OFF CONCEPTUAL DESIGN AND ARE SUBJECT TO REVISION AS DESIGN PROGRESSES.
2. THE PROPOSED TRACK CONFIGURATION ACCOMMODATES THE ADDITION OF A POTENTIAL FUTURE SECOND STATION TRACK (NIC).

CONCEPTUAL
NOT FOR CONSTRUCTION 4/12/2023



AMG	MTC - SoCo RAIL STUDY LOCATION & DESCRIPTION: SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY LAYOVER FACILITY ALTERNATIVES ANALYSIS CITY OF UNION CITY, CA
CHECKED BY: EBB	
DATE: 12 APR 2023	
SHEET NUMBER	

THE TYPICAL SECTIONS LAYOVER FACILITY	DW TY
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- CONCEPTUAL -
FOR REVIEW/DISCUSSION

LEGEND:

EXISTING GROUND (FROM CCJPA SURVEY)

3' CLOSURE CAP (FROM SCS REPORT)

PROPOSED GROUND SURFACE

PROPOSED EXCAVATION LIMITS

POTENTIAL FUTURE FEATURES (NIC)

NOTES:

1. THE TOP-OF-RAIL ELEVATIONS, PROPOSED DRAINAGE AND LIMITS OF EXCAVATION ARE BASED OFF CONCEPTUAL DESIGN AND ARE SUBJECT TO REVISION AS DESIGN PROGRESSES.

2. THE PROPOSED TRACK CONFIGURATION ACCOMMODATES THE ADDITION OF A POTENTIAL FUTURE SECOND STATION TRACK (NIC).

CONCEPTUAL
NOT FOR CONSTRUCTION 4/12/2023



DRAWN BY: AMG	MTC - SoCo RAIL STUDY		
CHECKED BY: EDB	LOCATION & DESCRIPTION: SOUTHERN ALAMEDA COUNTY INTEGRATED RAIL STUDY LAYOVER FACILITY ALTERNATIVES ANALYSIS CITY OF UNION CITY, CA		
DATE: 12 APR 2023			
SHEET NUMBER	SHEET TITLE: WCA SLAG SITE TYPICAL SECTIONS SoCo RAIL LAYOVER FACILITY	DWG N- TYP-	

Exhibit D: Capital Cost Estimates Detail

UNION CITY INTERMODAL STATION PHASE 3 PROJECT (INCL. LAYOVER FACILITY)
CONSTRUCTION COST ESTIMATES DETAIL
(in 2023\$)

	CITY-PREFERRED DESIGN Avoid Loop Road At-Grade Crossing	CITY-PREFERRED DESIGN At-Grade Crossing Potential Future	ALTERNATIVE DESIGN Pedestrian Underpass	ALTERNATIVE DESIGN Ped. Underpass Potential Future
TRACK CONSTRUCTION ITEMS	\$7,000,000	\$2,500,000	\$6,600,000	\$2,600,000
REMOVE TRACK ITEMS	\$50,000	\$30,000	\$30,000	\$30,000
TRACK CONSTRUCTION ITEMS – MP 25.6-30.5	\$11,000,000	—	\$11,000,000	—
REMOVE TRACK ITEMS MP 25.6-30.5	\$100,000	—	\$100,000	—
PARTIAL WCA EXCAVATION, RAIL-HAUL, DISPOSAL AND REMEDATION COSTS	\$70,000,000	—	\$70,000,000	—
ROW AND EASEMENT ACQUISITION	See Note 1	See Note 1	See Note 1	See Note 1
CIVIL CONSTRUCTION	\$19,000,000	\$10,000,000	\$22,000,000	\$13,000,000
QUARRY LAKES PARKWAY BRIDGE	\$2,000,000	—	\$2,000,000	—
REMOVE CIVIL ITEMS	\$330,000	\$40,000	\$390,000	\$90,000
MISCELLANEOUS ITEMS	\$5,400,000	\$5,300,000	\$5,400,000	\$5,300,000
STATION AND LAYOVER FACILITY FIXTURES AND UTILITIES	\$4,200,000	\$2,600,000	\$5,200,000	\$2,000,000
ADDITIONAL UP IMPROVEMENTS REQUIRED ELSEWHERE	\$34,000,000	—	\$34,000,000	—
SUBTOTAL	\$154,000,000	\$21,000,000	\$157,000,000	\$24,000,000
30% CONTINGENCY	\$45,000,000	\$7,000,000	\$48,000,000	\$8,000,000
ESTIMATED CONSTRUCTION COST	\$199,000,000* (add \$21,000,000 for soft costs)	\$28,000,000	\$205,000,000	\$32,000,000
ESTIMATED FULL-BUILD COST	\$227,000,000		\$237,000,000	

NOTES:

1. The Right-of-Way (ROW) and Easement Acquisition costs are currently unknown but will be considered as part of the local match by Union City.
2. Additional UP improvements could be required as a result of coordination with UP which are accounted here.

UNION CITY INTERMODAL STATION PHASE 3 PROJECT (INCL. LAYOVER FACILITY)
CONSTRUCTION COST ESTIMATES DETAIL

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
CONSTRUCT BALLASTED MAIN TRACK (136# RAIL)	TF	\$530	2,200	\$1,170,000	1,100	\$590,000	Oakland Seventh Street
CONSTRUCT LAYOVER TRACK (136# RAIL)	TF	\$530	2,800	\$1,490,000	200	\$110,000	Oakland Seventh Street
RAILROAD TRACK SHIFT (50% TIE RENEWAL)	TF	\$135	–	–	–	–	Oakland Seventh Street
SURFACE TRACK (50% TIE RENEWAL)	TF	\$550	2,900	\$1,600,000	–	–	Oakland Seventh Street
INSTALL TRANSITION RAILS (115/136#)	PR	\$2,000	6	\$12,000	–	–	KPC
INSTALL CONCRETE CROSSING PANELS @ 8' TF	TF	\$600	88	\$52,800	–	–	Oakland Seventh Street
INSTALL BUMPING POSTS	EA	\$5,000	2	\$10,000	1	\$5,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
INSTALL No. 11 TURNOUTS POTO	TF	\$325,000	–	–	2	\$650,000	KPC
INSTALL No. 15 TURNOUTS POTO	TF	\$145,500	1	\$145,500	–	–	KPC
INSTALL No. 11 TURNOUTS HTTO	EA	\$70,000	–	–	–	–	KPC but escalated based off Oakland Seventh Street cost for a No. 9 HTTO
INSTALL No. 9 TURNOUTS HTTO	EA	\$35,000	2	\$70,000	2	\$70,000	Oakland Seventh Street
INSTALL No. 9 DOUBLE-SLIP TURNOUTS HTTO	EA	\$1,000,000	–	–	1	\$1,000,000	Puzzle Switch Replacement Port of Beaumont, TX Installed in August 2022 Pro-Rated Costs
INSTALL No. 15 TURNOUTS HTTO	TF	\$325,000	2	\$650,000	–	–	KPC
DOUBLE SWITCH POINT DERAIL EL	EA	\$75,000	1	\$75,000	–	–	EBB
DOUBLE SWITCH POINT DERAIL PO	EA	\$125,000	1	\$125,000	–	–	EBB

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
INSTALL NEW CP 27.3	EA	\$535,000	1	\$535,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022
INSTALL NEW EWL 27.7	EA	\$208,000	1	\$208,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022
INSTALL NEW CP F027	EA	\$54,000	1	\$54,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022
SIGNAL HOUSE	EA	\$50,000	3	\$150,000	–	–	TAMC Salinas Rail Extension Package 2 100% Submittal
TRACK GROUNDING	LS	\$10,000	1	\$10,000	1	\$10,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
INSTALL / CONSTRUCT TRACK SUBTOTAL			\$7,000,000		\$2,500,000		
REMOVE TRACK ITEMS							
TRACK REMOVAL AND SALVAGE	TF	\$50	810	\$40,500	250	\$12,500	Oakland Seventh Street
REMOVE CONCRETE CROSSING PANELS @ 8' TF	TF	\$110	–	–	–	–	Oakland Seventh Street
REMOVE No. 11 TURNOUTS HTTO	EA	\$22,000	–	–	–	–	Estimate
REMOVE No. 9 TURNOUTS HTTO	EA	\$11,000	–	–	1	\$11,000	Oakland Seventh Street
REMOVE No. 11 TURNOUTS POTO	EA	\$50,000	–	–	–	–	KPC
REMOVE SIGNAL	EA	\$1,000	2	\$2,000	–	–	KPC
REMOVE TRACK SUBTOTAL			\$50,000		\$30,000		
INSTALL / CONSTRUCT TRACK ITEMS – OFFSITE BETWEEN MP 25.6 (WHIPPLE ROAD) AND MP 30.5 (CP NILES JUNCTION)							
CONSTRUCT BALLASTED MAIN TRACK (136# RAIL)	TF	\$530	500	\$270,000	–	–	Oakland Seventh Street
CONSTRUCT LAYOVER TRACK (136# RAIL)	TF	\$530	–	–	–	–	Oakland Seventh Street
RAILROAD TRACK SHIFT (50% TIE RENEWAL)	TF	\$135	1,500	\$210,000	–	–	Oakland Seventh Street

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
SURFACE TRACK (50% TIE RENEWAL)	TF	\$550	12,100	\$6,700,000	–	–	Oakland Seventh Street
INSTALL TRANSITION RAILS (115/136#)	PR	\$2,000	2	\$10,000	–	–	KPC
INSTALL CONCRETE CROSSING PANELS @ 8' TF	TF	\$600	–	–	–	–	Oakland Seventh Street
INSTALL BUMPING POSTS	EA	\$5,000	–	–	–	–	TAMC Salinas Rail Extension Package 2 – 100% Submittal
INSTALL No. 11 TURNOUTS POTO	TF	\$325,000	–	–	–	–	KPC
INSTALL No. 15 TURNOUTS POTO	TF	\$145,500	1	\$150,000	–	–	KPC
INSTALL No. 11 TURNOUTS HTTO	EA	\$70,000	–	–	–	–	KPC but escalated based off Oakland Seventh Street cost for a No. 9 HTTO
INSTALL No. 9 TURNOUTS HTTO	EA	\$35,000	–	–	–	–	Oakland Seventh Street
INSTALL No. 9 DOUBLE-SLIP TURNOUTS HTTO	EA	\$1,000,000	–	–	–	–	Puzzle Switch Replacement Port of Beaumont, TX Installed in August 2022 Pro-Rated Costs
INSTALL No. 15 TURNOUTS HTTO	TF	\$325,000	–	–	–	–	KPC
DOUBLE SWITCH POINT DERAIL EL	EA	\$75,000	–	–	–	–	EBB
DOUBLE SWITCH POINT DERAIL PO	EA	\$125,000	–	–	–	–	EBB
INSTALL CP F025 (MP 25.6)	EA	\$115,000	–	–	–	–	Chad Baker at HDR Estimate dated 11/30/2022
INSTALL CP WEST FREMONT (MP 29.3)	EA	\$532,000	1	\$532,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022
INSTALL CP FREMONT (MP 30.17)	EA	\$532,000	1	\$532,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022
INSTALL CP NILES JCT. (MP 30.5)	EA	\$574,000	1	\$574,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
DECOTO ROAD CROSSING SIGNAL IMPROVEMENTS	EA	\$577,000	1	\$577,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022
F STREET CROSSING SIGNAL IMPROVEMENTS	EA	\$346,000	1	\$346,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022
H STREET CROSSING SIGNAL IMPROVEMENTS	EA	\$340,000	1	\$340,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022
I STREET CROSSING SIGNAL IMPROVEMENTS	EA	\$340,000	1	\$340,000	–	–	Chad Baker at HDR Estimate dated 11/30/2022
SIGNAL HOUSE	EA	\$50,000	6	\$300,000	–	–	TAMC Salinas Rail Extension Package 2 – 100% Submittal
TRACK GROUNDING	LS	\$10,000	1	\$10,000	–	–	TAMC Salinas Rail Extension Package 2 – 100% Submittal
INSTALL / CONSTRUCT TRACK SUBTOTAL			\$11,000,000		–		
REMOVE TRACK ITEMS – OFFSITE BETWEEN WHIPPLE ROAD AND CP NILES JUNCTION							
TRACK REMOVAL AND SALVAGE	TF	\$50	700	\$35,000	–	–	Oakland Seventh Street
REMOVE CONCRETE CROSSING PANELS @ 8' TF	TF	\$110	–	–	–	–	Oakland Seventh Street
REMOVE No. 11 TURNOUTS HTTO	EA	\$22,000	–	–	–	–	Estimate
REMOVE No. 9 TURNOUTS HTTO	EA	\$11,000	–	–	–	–	Oakland Seventh Street
REMOVE No. 11 TURNOUTS POTO	EA	\$50,000	1	\$50,000	–	–	KPC
REMOVE SIGNAL	EA	\$1,000	10	\$10,000	–	–	KPC
REMOVE TRACK SUBTOTAL			\$100,000		–		
WASTE CONSOLIDATION AREA (WCA) ESTIMATED EXCAVATION, DISPOSAL AND REMEDIATION COSTS							
WASTE CONSOLIDATION AREA (WCA) ESTIMATED EXCAVATION, DISPOSAL AND REMEDIATION COSTS	LS	\$70,000,000	1	\$70,000,000	–	–	SEE SEPARATE TAB FOR DETAILED COST ESTIMATE
RIGHT-OF-WAY AND EASEMENT ITEMS (SEE NOTE 1)							
EASEMENT IN UPRR R/W	AC		1.7	–	–	–	TBD

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
EASEMENT IN BART R/W	AC		–	–	–	–	TBD
TEMPORARY EASEMENT IN CITY-OWNED R/W	AC		4.9	–	–	–	TBD (See Note 1)
ACQUIRE CITY-OWNED R/W FOR TRACK IMPROVEMENTS	AC		2.9	–	0.5	–	TBD (See Note 1)
ACQUIRE CITY-OWNED R/W FOR ROAD IMPROVEMENTS	AC		1.4	–	–	–	TBD (See Note 1)
RIGHT-OF-WAY AND EASEMENT SUBTOTAL			–		–		
CIVIL CONSTRUCTION ITEMS							
CLEARING AND GRUBBING	AC	\$400,000	12	\$4,800,000	1	\$400,000	Oakland Seventh Street
ROADWAY EXCAVATION	CY	\$140	18,100	\$2,534,000	–	–	Oakland Seventh Street
TRACK EMBANKMENT (IMPORTED BORROW)	CY	\$105	65,800	\$6,909,000	61,500	\$6,458,000	Oakland Seventh Street
HOT MIX ASPHALT	TON	\$215	2,800	\$602,000	–	–	Oakland Seventh Street
CLASS 2 AGGREGATE BASE	CY	\$280.13	2,600	\$730,000	–	–	Caltrans Contract Cost Data Item 260203
MINOR CONCRETE (CURB AND GUTTER)	CY	\$964.82	200	\$200,000	–	–	Caltrans Contract Cost Data Item 731504
CONSTRUCT SIDEWALK (6" THICK) MINOR CONCRETE (SIDEWALK)	CY	\$726.67	300	\$219,000	–	–	Caltrans Contract Cost Data Item 731521
STRUCTURAL CONCRETE (RETAINING WALL)	CY	\$1,300.00	–	–	200	\$260,000	Oakland Seventh Street
STRUCTURAL CONCRETE (PIER PROTECTION)	CY	\$2,100.00	–	–	–	–	Oakland Seventh Street
STRUCTURAL CONCRETE, BOX CULVERT	CY	\$1,700.00	260	\$450,000	190	\$330,000	Oakland Seventh Street
MINOR CONCRETE (STATION ADA RAMPS AND STEPS)	CY	\$1,750.00	300	\$530,000	600	\$1,050,000	Union City At-Grade Crossing 100% Submittal

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
BAR REINFORCING STEEL, (RETAINING WALL)	LB	\$3.02	–	–	118,000	\$360,000	Caltrans Contract Cost Data Item 520103
BAR REINFORCING STEEL, (PIER PROTECTION)	LB	\$2.25	–	–	–	–	Oakland Seventh Street
BAR REINFORCING STEEL, BOX CULVERT	LB	\$2.25	73,000	\$165,000	42,000	\$95,000	Oakland Seventh Street
STATION PLATFORM - CONCRETE	CY	\$300	260	\$78,000	250	\$75,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
STATION PLATFORM - REBAR	LB	\$4.50	15,600	\$80,000	15,000	\$70,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
ARCHITECTURAL TREATMENT (FORM LINERS FOR RETAINING WALL)	SF	\$30.00	–	–	7,000	\$210,000	Oakland Seventh Street
PEDESTRIAN BARRICADE	EA	\$1,150	10	\$12,000	5	\$6,000	Oakland Seventh Street
PIPE HANDRAILING	LF	\$249.66	1,100	\$280,000	400	\$100,000	Caltrans Contract Cost Data Items 833085
PARKING BUMPER (PRECAST CONCRETE)	EA	\$160	100	\$16,000	–	–	Oakland Seventh Street
CHAIN LINK FENCE (TYPE CL-8)	LF	\$70	160	\$12,000	–	–	Oakland Seventh Street
CHAIN LINK FENCE GATE (TYPE CL-6)	EA	\$4,200	1	\$4,200	–	–	Oakland Seventh Street
EXPANDED METAL MESH FENCE, 8' TALL	LF	\$100	3,200	\$320,000	–	–	TAMC Salinas Rail Extension Package 3 – 100% Submittal
20 FT. EXPANDED METAL MESH TRACK GATE	LF	\$5,000	4	\$20,000	–	–	TAMC Salinas Rail Extension Package 2 – 100% Submittal
8" TRACK UNDERDRAIN (INSIDE UPRR R/W)	LF	\$75.88	1,360	\$110,000	–	–	Caltrans Contract Cost Data Item 680905
6" TRACK UNDERDRAIN (OUTSIDE UPRR R/W)	LF	\$59.20	2,225	\$140,000	1,250	\$80,000	Caltrans Contract Cost Data Item 680902
MODIFY INLET	EA	\$2,828.57	1	\$3,000	–	–	Caltrans Contract Cost Data Item 680902
4" WHITE STRIPE	LF	\$2.00	–	–	–	–	TAMC Salinas Rail Extension Package 3 – 100% Submittal

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
CIVIL CONSTRUCTION ITEMS SUBTOTAL			\$19,000,000		\$10,000,000		
QUARRY LAKES PARKWAY UNDERPASS							
STRUCTURAL CONCRETE (RR BRIDGE)	CY	\$1,400.00	280	\$392,000	–	–	Oakland Seventh Street
STRUCTURAL CONCRETE (RETAINING WALL)	CY	\$1,300.00	100	\$130,000	–	–	Caltrans Contract Cost Data Item 510060
BAR REINFORCING STEEL (RR BRIDGE)	LB	\$1.75	338,000	\$591,500	–	–	Oakland Seventh Street
BAR REINFORCING STEEL, (RETAINING WALL)	LB	\$3.02	18,000	\$55,000	–	–	Caltrans Contract Cost Data Item 520103
PIPE HANDRAILING	LF	\$249.66	340	\$85,000	–	–	Caltrans Contract Cost Data Item 833085
SPRAY-APPLIED WATERPROOFING WITH BALLAST PROTECTION MAT (RR BRIDGE)	SF	\$42.00	1,300	\$54,600	–	–	Oakland Seventh Street
PREFORMED MEMBRANE WATERPROOFING (RR BRIDGE)	SF	\$15.00	2,600	\$39,000	–	–	Oakland Seventh Street
DRAIN PIPE (RR BRIDGE)	LF	\$100.00	260	\$26,000	–	–	Oakland Seventh Street
QUARRY LAKES PARKWAY BRIDGE SUBTOTAL			\$2,000,000		–		
REMOVE CIVIL ITEMS							
REMOVE ASPHALT CONCRETE PAVEMENT	SF	\$6.00	1,200	\$7,200	1,300	\$7,800	TAMC Salinas Rail Extension Packages 2 and 3 100% Submittal
REMOVE CONCRETE CURB	LF	\$35.42	–	–	–	–	Caltrans Contract Cost Data Item 731710
REMOVE CONCRETE (CURB AND GUTTER)	LF	\$69.64	155	\$10,800	–	–	Caltrans Contract Cost Data Item 731840
REMOVE CONCRETE SIDEWALK	CY	\$424.76	20	\$8,500	–	–	Caltrans Contract Cost Data Item 731850

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
REMOVE STATION PLATFORM	SF	\$40.00	–	–	–	–	TAMC Salinas Rail Extension Package 2 – 100% Submittal
REMOVE CHAIN LINK FENCE	LF	\$18.38	1,170	\$21,600	–	–	Caltrans Contract Cost Data Item 803020
REMOVE CONCRETE (STATION ADA RAMPS AND STEPS)	CY	\$474.76	–	–	35	\$16,700	Caltrans Contract Cost Data Item 731850
REMOVE METAL RAILING	LF	\$20	–	–	750	\$15,000	Oakland Seventh Street
REMOVE CONCRETE CHANNEL	CY	\$507.00	400	\$202,800	–	–	Caltrans Contract Cost Data Item 710260
REMOVE INLET	EA	\$1,752.44	1	\$1,800	–	–	Caltrans Contract Cost Data Item 710150
REMOVE PAINTED TRAFFIC STRIPE	LF	\$0.94	–	–	–	–	Caltrans Contract Cost Data Item 846020
REMOVE TREE	EA	\$3,250	6	\$20,000	–	–	Oakland Seventh Street
REMOVE CIVIL ITEMS SUBTOTAL			\$330,000		\$40,000		
MISCELLANEOUS ITEMS							
TRAFFIC MANAGEMENT PLAN - PUBLIC INFORMATION	LS	\$20,000	1	\$20,000	1	\$20,000	TAMC Salinas Rail Extension Packages 2 and 3 100% Submittal
UTILITY RELOCATIONS BY OTHERS ²	LS	\$500,000	1	\$500,000	1	\$500,000	Estimate
UPRR FORCES - MOBILIZATION AND LABOR	LS	\$550,000	1	\$550,000	1	\$550,000	TAMC Salinas Rail Extension Package 3 – 100% Submittal
UPRR FLAGGING	LS	\$75,000	1	\$75,000	1	\$75,000	KPC
REMOVAL AND DISPOSAL OF BALLAST (MAY CONTAIN HAZARDOUS WASTE)	LS	\$50,000	1	\$50,000	1	\$50,000	TAMC Salinas Rail Extension Package 3 – 100% Submittal
CONSTRUCTION SURVEYS	LS	\$600,000	1	\$600,000	1	\$600,000	Oakland Seventh Street
EXISTING UTILITY VERIFICATION	LS	\$350,000	1	\$350,000	1	\$350,000	Oakland Seventh Street

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
PROGRESS SCHEDULE (CRITICAL PATH METHOD)	LS	\$15,000	1	\$15,000	1	\$15,000	Oakland Seventh Street
JOB SITE MANAGEMENT	LS	\$85,000	1	\$85,000	1	\$85,000	Oakland Seventh Street
LEAD COMPLIANCE PLAN	LS	\$20,000	1	\$20,000	1	\$20,000	Oakland Seventh Street
ASBESTOS COMPLIANCE PLAN	LS	\$20,000	1	\$20,000	1	\$20,000	Oakland Seventh Street
HEALTH AND SAFETY PLAN	LS	\$6,000	1	\$6,000	1	\$6,000	Oakland Seventh Street
NOISE MONITORING	LS	\$55,000	1	\$55,000	1	\$55,000	Oakland Seventh Street
SOIL MANAGEMENT PLAN	LS	\$340,000	1	\$340,000	1	\$340,000	Oakland Seventh Street
EQUIPMENT RENTAL	LS	\$350,000	1	\$350,000	1	\$350,000	KPC
PERMITS AND FEES	LS	\$100,000	1	\$100,000	1	\$100,000	KPC
STORM WATER POLLUTION PREVENTION PLAN (SWPPP)	LS	\$100,000	1	\$100,000	1	\$100,000	KPC
SITE SPECIFIC POLLUTION CONTROL / RESOURCE PROTECTION PLANS	LS	\$100,000	1	\$100,000	1	\$100,000	KPC
ADMINISTRATION / PLANNING (UPRR)	LS	\$500,000	1	\$500,000	1	\$500,000	KPC
GRADING - MOBILIZATION	LS	\$900,000	1	\$900,000	1	\$900,000	KPC
TRACK MOBILIZATION (CONTRACTOR)	LS	\$300,000	1	\$300,000	1	\$300,000	KPC
ENGINEER'S FIELD OFFICE	MO	\$12,000	18	\$216,000	12	\$144,000	Oakland Seventh Street
MISCELLANEOUS ITEMS SUBTOTAL			\$5,400,000		\$5,300,000		
STATION AND LAYOVER FACILITY FIXTURES AND UTILITIES							
TICKET VENDING MACHINES	LS	\$50,000	1	\$50,000	1	\$50,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
STATION FIXTURES	LS	\$312,500	1	\$312,500	1	\$312,500	Caltrain 25th Avenue Grade Separation – Escalated by 25%

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
STATION MECHANICAL AND PLUMBING	LS	\$400,000		–		–	Caltrain 25th Avenue Grade Separation
PLATFORM ELECTRICAL SYSTEM	LS	\$265,000	1	\$265,000	0.5	\$132,500	TAMC Salinas Rail Extension Package 2 – 100% Submittal
PLATFORM SIGNAGE	LS	\$100,000	1	\$100,000	1	\$100,000	Caltrain 25th Avenue Grade Separation – Escalated by 25%
LAYOVER FACILITY ELECTRICAL SYSTEM	LS	\$550,000	1	\$550,000	1	\$550,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
CREW BASE BUILDING ELECTRICAL SYSTEM	LS	\$145,000	1	\$90,000	1	\$145,000	TAMC Salinas Rail Extension Package 3 – 100% Submittal
SITE LIGHTING	LS	\$80,000	1	\$80,000	1	\$80,000	TAMC Salinas Rail Extension Package 3 – 100% Submittal
STATION POWER SUPPLIES AND DISTRIBUTION	LS	\$350,000	1	\$350,000	0.5	\$175,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
FIRE HYDRANT, ISOLATION GATE VALVE, AND FIRE SERVICE LATERAL	LS	\$10,000	2	\$20,000	–	–	TAMC Salinas Rail Extension Packages 2 and 3 100% Submittal
8" FIRE SERVICE LINE	LF	\$150	4,200	\$630,000	–	–	TAMC Salinas Rail Extension 100% Submittal
FIRE HYDRANTS	EA	\$17,000	16	\$272,000	–	–	Oakland Seventh Street
COMMUNICATIONS NETWORK	LS	\$600,000	1	\$600,000	0.5	\$300,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
FARE COLLECTION SYSTEM	LS	\$20,000	1	\$20,000	0.5	\$10,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
CLIPPER SYSTEM ³	LS	\$70,000	1	\$70,000	1	\$70,000	TAMC Salinas Rail Extension Package 2 – 100% Submittal
CLOSED CIRCUIT TELEVISION CAMERA SYSTEMS (CCTV)	LS	\$125,000	1	\$125,000	1	\$125,000	TAMC Salinas Rail Extension 100% Submittal
SHELTERS	SF	\$625	600	\$375,000	600	\$375,000	Caltrain 25th Avenue Grade Separation – Escalated by 25%

ITEM	UNIT	UNIT COST	CITY-PREFERRED DESIGN At-Grade Crossing		CITY-PREFERRED DESIGN 8 Car Train Avoid Loop Road Potential Future		SOURCE OF UNIT COSTS
			QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
INSTALL / CONSTRUCT TRACK ITEMS							
BENCHES AT SHELTERS	EA	\$3,125	3	\$9,375	3	\$9,375	Caltrain 25th Avenue Grade Separation – Escalated by 25%
DETECTABLE WARNING TILES	LF	\$88	745	\$65,188	745	\$65,188	Caltrain 25th Avenue Grade Separation – Escalated by 25%
DETECTABLE GUIDE TACTILES	LF	\$38	75	\$2,813	75	\$2,813	Caltrain 25th Avenue Grade Separation – Escalated by 25%
CREW BUILDING 10' X 40' MODULAR BUILDING	SF	\$500	400	\$200,000	–	–	Estimate
STATION AND LAYOVER FACILITY FIXTURES SUBTOTAL			\$4,200,000		\$2,600,000		
ADDITIONAL UP IMPROVEMENTS REQUIRED ELSEWHERE			\$34,000,000		– This accommodates any requests UP will make during the next phase of design once coordination commences		
SUBTOTAL ALL CATEGORIES			\$154,000,000		\$21,000,000		
30% Contingency			\$45,000,000		\$7,000,000		
ESTIMATED TOTAL COST			\$199,000,000		\$28,000,000		
ESTIMATED FULL-BUILD TOTAL COST			\$227,000,000				

NOTES:

1. The Right-of-Way (ROW) and Easement Acquisition costs are currently unknown but will be considered as part of the local match by Union City.
2. Subject to change through Utility Coordination Process
3. Placeholder Cost. Clipper equipment is furnished, installed and managed by MTC.
4. Oakland Seventh Street Grade Separation Project unit costs are based on the average of the three companies submitting bids which were released on March 14, 2022
5. TAMC Salinas Rail Extension unit costs were obtained from the 100% Submittal construction cost estimate dated September 2022.
6. Caltrain 25th Avenue Grade Separation unit costs were obtained from the 100% Unit Price Cost Estimate dated December 2016. These values have been increased by 25% to obtain January 2023 values per the online CPI Inflation Calculator. https://www.bls.gov/data/inflation_calculator.htm
7. Unit costs from KPC and EBB are rough orders of magnitude provided by Pat Casey and Buzz Berger at HDR based on past UPRR project experience.

WASTE CONSOLIDATION AREA (WCA) ESTIMATED EXCAVATION VOLUMES										
Station	Distance (ft)	SoCo Rail WCA Cut Area (SF)	SoCo Rail WCA Cut Volume (CY)	Total WCA Area (SF)	Total WCA Volume (CY)	Clean Cut Area (SF) (See Note 1)	Clean Cut Volume (CY)	Fill Area (SF)	Backfill Depth (FT) (See Note 2)	Fill Volume (CY)
724+50	50.000	947.720	—	1,817.412	—	54.878	—	—	—	—
725+00	50.000	1,187.638	1,977.183	2,295.711	3,808.447	66.647	123.420	—	—	—
725+50	50.000	1,384.521	2,381.629	2,988.802	4,893.067	53.711	99.465	—	—	—
726+00	50.000	1,573.722	2,739.113	3,577.144	6,079.580	53.657	99.365	—	—	—
726+50	50.000	1,821.695	3,143.904	4,366.532	7,355.256	58.395	108.139	—	—	—
727+00	50.000	2,084.132	3,616.506	5,211.045	8,868.127	57.380	106.259	—	—	—
727+50	50.000	2,337.122	4,093.753	6,025.640	10,404.339	62.786	116.270	—	—	—
728+00	50.000	2,574.811	4,548.086	6,791.692	11,867.900	52.538	97.292	—	—	—
728+50	100.000	2,931.763	10,197.360	7,590.798	26,634.241	55.470	205.443	—	—	—
729+00	100.000	3,026.884	11,034.531	8,068.613	28,998.910	60.586	224.392	—	—	—
730+00	100.000	3,071.769	11,293.801	8,460.767	30,609.964	61.044	226.090	—	—	—
731+00	100.000	3,111.695	11,450.859	8,658.308	31,701.990	58.778	217.695	—	—	—
732+00	100.000	3,119.190	11,538.676	8,858.444	32,438.428	56.533	209.383	—	—	—
733+00	100.000	3,131.840	11,575.981	9,060.684	33,183.570	61.092	226.266	—	—	—
734+00	100.000	3,140.423	11,615.301	9,261.124	33,929.275	54.790	202.924	—	—	—
735+00	100.000	3,153.856	11,656.072	9,450.231	34,650.657	66.134	244.941	—	—	—
736+00	700.000	3,161.541	81,866.252	9,625.521	247,278.267	65.851	1,707.256	—	—	—
737+00	100.000	3,168.764	11,722.786	9,602.242	35,606.970	70.139	259.774	—	—	—
738+00	100.000	3,133.040	11,670.006	9,283.621	34,973.821	65.199	241.478	—	—	—
739+00	100.000	3,045.508	11,441.755	8,930.110	33,729.131	68.085	252.166	—	—	—
740+00	100.000	2,976.980	11,152.756	8,533.524	32,340.061	62.690	232.185	—	—	—
741+00	100.000	2,955.590	10,986.241	8,220.462	31,025.899	66.427	246.027	—	—	—
741+50	50.000	2,683.529	5,221.406	7,436.638	14,497.315	64.990	120.352	—	—	—
742+00	50.000	1,950.881	4,291.120	5,431.326	11,914.781	69.610	128.908	—	—	—
742+50	50.000	1,181.075	2,899.959	2,380.520	7,233.191	73.334	135.804	—	—	—
743+00	50.000	802.442	1,836.589	924.053	3,059.790	66.338	129.326	—	—	—
TOTAL VOLUMES			266,000	750,000		14,000		—		

NOTES:

1. Assume the excavation area in the UPRR R/W is clean and not contaminated.
2. Assume that WCA backfill is included in WCA items 11015 - Import Soil Backfill and 11020 - Place and Compact so it is not included here.
3. According to the SCS Report, the total volume of the WCA slag pile is 750,000 CY.

UNION CITY INTERMODAL STATION PHASE 3 PROJECT										
WASTE CONSOLIDATION AREA (WCA) ESTIMATED EXCAVATION, DISPOSAL AND REMEDIATION COSTS										
ITEM	UNIT	SCS REPORT UNIT COST MAY 2018	UNIT COST IN FEB. 2023 DOLLARS	SoCo RAIL PARTIAL EXCAVATION		TOTAL WCA EXCAVATION		SPLIT-PHASE REMAINING WCA EXCAVATION		SOURCE OF UNIT COSTS
				QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
1 - PRE-CONSTRUCTION SITE CLEARANCE										
WORK PLAN, H&S PLAN, MEETINS AND PRELIMINARY FIELDWORK	LS	\$10,000	\$12,000	1	\$12,000	1	\$12,000	1	\$12,000	Feasibility Report: Technical/Cost Analysis of Off-Haul and Redevelopment Potential: Waste Consolidation Area, Union City, California (SCS Report) Attachment B May 9, 2018
DRILLER	DAYS	\$5,000	\$6,000	5	\$30,000	10	\$60,000	5	\$30,000	
PROJECT PROFESSIONAL	DAYS	\$2,500	\$3,000	5	\$15,000	10	\$30,000	5	\$15,000	
FIELD STAFF	DAYS	\$2,200	\$2,640	5	\$13,200	10	\$26,400	5	\$13,200	
PROJECT MANAGEMENT / SUPPORT STAFF	DAYS	\$2,000	\$2,400	5	\$12,000	10	\$24,000	5	\$12,000	
MISC. SUPPLIES AND EQUIPMENT	LS	\$18,000	\$22,000	1	\$22,000	1	\$22,000	1	\$22,000	
LAB ANALYSES	SAMPLES	\$250	\$300	30	\$9,000	60	\$18,000	30	\$9,000	
WASTE MANAGEMENT	LS	\$15,000	\$18,000	1	\$18,000	1	\$18,000	1	\$18,000	
REPORT	LS	\$20,000	\$24,000	1	\$24,000	1	\$24,000	1	\$24,000	
SUBTOTAL					\$160,000		\$240,000		\$160,000	
2 - ENGINEERING - PRELIMINARY AND CONCEPTUAL										
GEOTECHNICAL INVESTIGATION	LS	\$100,000	\$120,000		–		–		–	TO BE ESTIMATED SEPARATELY
STABILITY ANALYSIS	LS	\$30,000	\$36,000		–		–		–	
UTILITY SURVEY	LS	\$20,000	\$24,000		–		–		–	
PRELINARY RAILWAY DESIGN	LS	\$20,000	\$24,000		–		–		–	
HUMAN HEALTH RISK (HHR) ASSESSMENT	LS	\$50,000	\$60,000		–		–		–	
CONCEPTUAL DESIGN PLANS	LS	\$100,000	\$120,000		–		–		–	
SUBTOTAL					–		–		–	
3 - ENGINEERING - PLANS / SPECIFICATIONS / BID PACKAGE / CONSTRUCTION										
EXCAVATION / GRADING / SWPPP PLANS	LS	\$125,000	\$150,000		–		–		–	TO BE ESTIMATED SEPARATELY
SPECIFICATIONS	LS	\$20,000	\$24,000		–		–		–	
COST ESTIMATES	LS	\$15,000	\$18,000		–		–		–	
ENGINEERING - CONSTRUCTION SUPPORT (5% OF ITEMS 5, 6, 7 & 11)		5% OF ITEMS 5, 6, 7 AND 11		1	\$800,000	1	\$1,300,000	1	\$1,000,000	
SUBTOTAL					\$800,000		\$1,300,000		\$1,000,000	
4 - PERMITTING										
CEQA / PUBLIC NOTIFICATION	LS	\$1,000,000	\$1,200,000	1	\$1,200,000	1	\$1,200,000	1	\$1,200,000	Feasibility Report: Technical/Cost Analysis of Off-Haul and Redevelopment Potential: Waste Consolidation Area, Union City, California (SCS Report) Attachment B May 9, 2018
ALAMEDA COUNTY WATER DISTRICT (WELL DEST. AND REPLACEMENT)	LS	\$10,000	\$12,000	1	\$12,000	1	\$12,000	1	\$12,000	
UNION CITY GRADING PERMIT	LS	\$20,000	\$24,000	1	\$24,000	1	\$24,000	1	\$24,000	
AIR PERMIT / NOTIFICATION	LS	\$25,000	\$30,000	1	\$30,000	1	\$30,000	1	\$30,000	
UPRR PERMIT	LS	\$50,000	\$60,000	1	\$60,000	1	\$60,000	1	\$60,000	
DTSC - UPDATE COVENANT AND LAND USE RESTRICTION	LS	\$50,000	\$60,000	1	\$60,000	1	\$60,000	1	\$60,000	
DTSC - UPDATE O&M PLAN	LS	\$50,000	\$60,000	1	\$60,000	1	\$60,000	1	\$60,000	
DTSC - RAP / PUBLIC COMMENT PERIOD	LS	\$150,000	\$180,000	1	\$180,000	1	\$180,000	1	\$180,000	

<div> <div>UNION CITY INTERMODAL STATION PHASE 3 PROJECT</div> <div>WASTE CONSOLIDATION AREA (WCA) ESTIMATED EXCAVATION, DISPOSAL AND REMEDIATION COSTS</div> </div>										
ITEM	UNIT	SCS REPORT UNIT COST MAY 2018	UNIT COST IN FEB. 2023 DOLLARS	SoCo RAIL PARTIAL EXCAVATION		TOTAL WCA EXCAVATION		SPLIT-PHASE REMAINING WCA EXCAVATION		SOURCE OF UNIT COSTS
				QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
SUBTOTAL					\$1,700,000		\$1,700,000		\$1,700,000	
5 - MONITORING WELL DECOMMISSIONING AND REPLACEMENT										
WORK PLANS AND H&S PLAN	EA	\$5,000	\$6,000	2	\$12,000	2	\$12,000	2	\$12,000	<div> <div>Feasibility Report:</div> <div>Technical/Cost Analysis of</div> <div>Off-Haul and</div> <div>Redevelopment Potential:</div> <div>Waste Consolidation Area,</div> <div>Union City, California</div> <div>(SCS Report)</div> <div>Attachment B</div> <div>May 9, 2018</div> </div>
DRILLER	DAYS	\$4,000	\$4,800	4	\$19,200	8	\$38,400	4	\$19,200	
PROJECT PROFESSIONAL	DAYS	\$2,500	\$3,000	4	\$12,000	8	\$24,000	4	\$12,000	
PROJECT MANAGEMENT / SUPPORT STAFF	DAYS	\$1,000	\$1,200	4	\$4,800	8	\$9,600	4	\$4,800	
LAB ANALYSES	SAMPLES	\$250	\$300	10	\$3,000	20	\$6,000	10	\$3,000	
WASTE MANAGEMENT	LS	\$5,000	\$6,000	1	\$6,000	1	\$6,000	1	\$6,000	
REPORT	LS	\$5,000	\$6,000	2	\$12,000	2	\$12,000	2	\$12,000	
SUBTOTAL					\$70,000		\$110,000		\$70,000	
6 - RAILWAY IMPROVEMENTS										
WORK PLAN AND H&S PLAN	LS	\$25,000	\$30,000	1	\$30,000	1	\$30,000	1	\$30,000	<div> <div>Feasibility Report:</div> <div>Technical/Cost Analysis of</div> <div>Off-Haul and</div> <div>Redevelopment Potential:</div> <div>Waste Consolidation Area,</div> <div>Union City, California</div> <div>Attachment B</div> <div>May 9, 2018</div> </div>
DESIGN / PERMITTING	LS	\$150,000	\$180,000	1	\$180,000	1	\$180,000	1	\$180,000	
RAIL CONSTRUCTION	LS	\$3,373,000	\$4,048,000	–	–	–	–	–	–	Assume mainly uses the layover tracks constructed by SoCo Rail Project and temporary trackwork is listed individually below
RAILROAD TRACK SHIFT (50% TIE RENEWAL)	TF	N/A	\$135	500	\$68,000	500	\$68,000	5,500	\$743,000	Oakland Seventh Street
CONSTRUCT BALLASTED MAIN TRACK (136# RAIL)	TF	N/A	\$530	3,700	\$1,961,000	3,700	\$1,961,000	4,800	\$2,544,000	Oakland Seventh Street
INSTALL TRANSITION RAILS (115/136#)	PR	N/A	\$2,000	2	\$4,000	2	\$4,000	4	\$8,000	Oakland Seventh Street
INSTALL CONCRETE CROSSING PANELS @ 8' TF	TF	N/A	\$600	64	\$39,000	64	\$39,000	216	\$130,000	Oakland Seventh Street
INSTALL No. 15 TURNOUTS HTTO	EA	N/A	\$145,500	1	\$145,500	1	\$145,500	2	\$291,000	KPC
INSTALL No. 11 TURNOUTS HTTO	EA	N/A	\$70,000	1	\$70,000	1	\$70,000	2	\$140,000	KPC but escalated based off Oakland Seventh Street cost for No. 9 HTTO
INSTALL No. 9 TURNOUTS HTTO	EA	N/A	\$35,000	2	\$70,000	2	\$70,000	2	\$70,000	Oakland Seventh Street
INSTALL DSPD DERAIL	EA	N/A	\$75,000	2	\$150,000	2	\$150,000	2	\$150,000	EBB
INSTALL BUMPING POSTS	EA	N/A	\$5,000	–	–	–	–	2	\$10,000	TAMC Salinas Rail Extension 100% Submittal
TEMPORARY ACCESS ROADS ASSUME 10" THICK CLASS 2 AGGREGATE BASE	SF	N/A	N/A	37,000	–	37,000	–	20,000	–	N/A Charged by CY
	CY	N/A	\$280	1,200	\$337,000	1,200	\$337,000	700	\$197,000	Oakland Seventh Street
TRACK REMOVAL AND SALVAGE	LS	N/A	\$50	3,700	\$185,000	3,700	\$185,000	550	\$27,500	Oakland Seventh Street
STRUCTURAL CONCRETE (RETAINING WALL) ASSUME 3' TALL x 9" THICK	LF	N/A	N/A	–	–	–	–	1,330	–	N/A Charged by CY
	SF	N/A	N/A	–	–	–	–	3,000	–	
	CY	N/A	\$1,300	–	–	–	–	100	\$130,000	Oakland Seventh Street

<div> <div>UNION CITY INTERMODAL STATION PHASE 3 PROJECT</div> <div>WASTE CONSOLIDATION AREA (WCA) ESTIMATED EXCAVATION, DISPOSAL AND REMEDIATION COSTS</div> </div>										
ITEM	UNIT	SCS REPORT UNIT COST MAY 2018	UNIT COST IN FEB. 2023 DOLLARS	SoCo RAIL PARTIAL EXCAVATION		TOTAL WCA EXCAVATION		SPLIT-PHASE REMAINING WCA EXCAVATION		SOURCE OF UNIT COSTS
				QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
BAR REINFORCING STEEL (RETAINING WALL) Assume #6 bars @ 1.502 LB/LF	FT/FT	N/A	N/A	34	–	34	–	34	–	N/A Charged by LB
	FT	N/A	N/A	–	–	–	–	45,000	–	
	LB	N/A	\$3.0	–	–	–	–	68,000	\$210,000	Oakland Seventh Street
STRUCTURAL CONCRETE (PIER PROTECTION) ASSUME 13' TALL x 3' THICK	LF	N/A	N/A	12	–	12	–	–	–	N/A Charged by CY
	SF	N/A	N/A	39	–	39	–	–	–	
	CY	N/A	\$2,100	20	\$42,000	20	\$42,000	–	–	Oakland Seventh Street
BAR REINFORCING STEEL (PIER PROTECTION) Assume 300 lb / CY based off Oakland Seventh Street Cost Estimate	CY	N/A	N/A	20	–	20	–	–	–	N/A Charged by LB
	LB	N/A	\$2.25	6,000	\$20,000	6,000	\$13,500	–	–	Oakland Seventh Street
REMOVE CONCRETE CROSSING PANELS @ 8' TF	TF	N/A	\$110	64	\$8,000	64	\$8,000	216	\$24,000	Oakland Seventh Street
REMOVE NO. 15 HTTO	LS	N/A	\$44,000	1	\$44,000	1	\$44,000	2	\$88,000	Estimate costs twice as much as Oakland Seventh Street No. 9 HTTO removal based off installation cost differences
REMOVE NO. 11 HTTO	LS	N/A	\$22,000	1	\$22,000	1	\$22,000	2	\$44,000	Estimate costs twice as much as Oakland Seventh Street No. 9 HTTO removal based off installation cost differences
REMOVE NO. 9 HTTO	LS	N/A	\$11,000	2	\$22,000	2	\$22,000	2	\$22,000	Oakland Seventh Street
REMOVE DSPD DERAIL	EA	N/A	\$50,000	2	\$100,000	2	\$100,000	2	\$100,000	Estimate
ADDITIONAL DUMP LOCATION RAILROAD ENHANCEMENTS	LS	N/A	\$1,500,000	1	\$1,500,000	1	\$1,500,000	1	\$1,500,000	Steve Young at HDR Estimate dated 11/10/2022
SUBTOTAL					\$5,000,000		\$5,000,000		\$6,700,000	
7 - WASTE EXCAVATION / LOADOUT										
7010 - MOBILIZATION AND DEMOBILIZATION	LS	N/A	\$185,000	1	\$185,000	1	\$185,000	1	\$185,000	Steve Young at HDR Estimate dated 11/10/2022
7020 - TEMPORARY INFRASTRUCTURE	LS	N/A	\$250,000	1	\$250,000	1	\$250,000	1	\$250,000	
7030 - SITE PREPARATION, CLEARING AND GRUBBING	LS	N/A	\$26,000	1	\$26,000	2	\$52,000	1	\$26,000	
7040 - REUSE SOIL EXCAVATION	LS	N/A	\$102,000	1	\$102,000	2	\$204,000	1	\$102,000	
7050 - EXCAVATION LOAD OUT	LS	N/A	\$1,333,000	1	\$1,333,000	3	\$3,759,060	2	\$2,666,000	
7060 - EXCAVATION / STOCK PILE NON- IMPACTED	LS	N/A	\$60,000	1	\$60,000	2	\$120,000	1	\$60,000	
7070 - ON-SITE TREATMENT	LS	N/A	\$656,000	1	\$656,000	2	\$1,312,000	1	\$656,000	
7080 - LOAD OUT, CONVEY AND HOPPER	LS	N/A	\$1,437,000	1	\$1,437,000	3	\$4,052,340	2	\$2,874,000	
7082 - MOBILE RAIL CAR MOVER	LS	N/A	\$771,000	1	\$771,000	3	\$2,174,220	2	\$1,542,000	
7090 -CONSTRUCTION MANAGEMENT	LS	N/A	\$1,428,000	1	\$1,428,000	2	\$2,856,000	1	\$1,428,000	
7100 - INDIRECT COST TRAIL, ETC.	LS	N/A	\$82,000	1	\$82,000	2	\$164,000	1	\$82,000	
7110 - SHORING TEMPORARY	LS	N/A	\$386,000	1	\$386,000	1	\$386,000	1	\$386,000	

<div> <div>UNION CITY INTERMODAL STATION PHASE 3 PROJECT</div> <div>WASTE CONSOLIDATION AREA (WCA) ESTIMATED EXCAVATION, DISPOSAL AND REMEDIATION COSTS</div> </div>										
ITEM	UNIT	SCS REPORT UNIT COST MAY 2018	UNIT COST IN FEB. 2023 DOLLARS	SoCo RAIL PARTIAL EXCAVATION		TOTAL WCA EXCAVATION		SPLIT-PHASE REMAINING WCA EXCAVATION		SOURCE OF UNIT COSTS
				QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
7120 - RAIL SPUR PLATFORM	LS	N/A	\$210,000	1	\$210,000	1	\$210,000	1	\$210,000	
7130 - SURVEY	LS	N/A	\$49,000	1	\$49,000	2	\$98,000	1	\$49,000	
7140 - E&S DUST CONTROL AND SWEEPER	LS	N/A	\$224,000	1	\$224,000	3	\$631,680	2	\$448,000	
7150 - FEES	LS	N/A	\$800	1	\$800	1	\$800	1	\$800	
SUBTOTAL					\$7,200,000		\$16,500,000		\$11,000,000	
8 - HEALTH & SAFETY DURING CONSTRUCTION										
8010 - H&S PLAN	LS	N/A	\$20,000	1	\$20,000	1	\$20,000	1	\$20,000	Steve Young at HDR Estimate dated 11/10/2022
8020 - PPE	LS	N/A	\$11,000	1	\$11,000	2	\$22,000	1	\$11,000	
8030 - ON-SITE MONITORING PERSONNEL	LS	N/A	\$212,000	1	\$212,000	3	\$597,840	2	\$424,000	
8040 - AIR MONITORING EQUIPMENT	LS	N/A	\$62,000	1	\$62,000	3	\$174,840	2	\$124,000	
8050 - ANALYSIS	LS	N/A	\$7,000	1	\$7,000	3	\$19,740	2	\$14,000	
SUBTOTAL					\$320,000		\$840,000		\$600,000	
9 - WASTE TRANSPORTATION										
9010 - RELIC FOUNDATION TRUCKING	LS	N/A	\$25,000	1	\$25,000	2	\$50,000	1	\$25,000	Steve Young at HDR Estimate dated 11/10/2022
9020 - IMPACTED SOILS RAIL TRANSPORTATION TO YUMA, ARIZONA	LS	N/A	\$28,241,000	1	\$28,241,000	3	\$79,639,620	2	\$56,482,000	
9030 - IMPACTED SOILS 10 MILES BY TRUCK FROM SPUR TO YUMA, ARIZONA	LS	N/A	\$1,346,000	1	\$1,346,000	3	\$3,795,720	2	\$2,692,000	
9040 - TRANS- LOADING RAIL SPUR NEAR YUMA, ARIZONA	LS	N/A	\$572,000	1	\$572,000	1	\$572,000	1	\$572,000	
SUBTOTAL					\$30,200,000		\$84,100,000		\$59,800,000	
10 - WASTE ACCEPTANCE TESTING / DISPOSAL										
10005 - WASTE PROFILE	LS	N/A	\$386,000	1	\$386,000	3	\$1,088,520	2	\$772,000	Steve Young at HDR Estimate dated 11/10/2022
10015 - WASTE DUMP FEES	LS	N/A	\$11,387,000	1	\$11,387,000	3	\$32,111,340	2	\$22,774,000	
SUBTOTAL					\$11,800,000		\$33,200,000		\$23,600,000	
11 SITE RESTORATION										
11005 - SITE GRADING	LS	N/A	\$212,000	1	\$212,000	2	\$424,000	1	\$212,000	Steve Young at HDR Estimate dated 11/10/2022
11015 - IMPORT SOIL BACKFILL	LS	N/A	\$1,205,000	1	\$1,205,000	2	\$1,807,500	1	\$1,205,000	
11020 - PLACE AND COMPACT	LS	N/A	\$156,000	1	\$156,000	2	\$234,000	1	\$156,000	
11025 - PLACE REINFORCEMENT FABRIC	LS	N/A	\$460,000	1	\$460,000	0.5	\$230,000	1	\$460,000	
11030 - DRAINAGE IMPROVEMENTS	LS	N/A	\$33,000	1	\$33,000	2	\$66,000	1	\$33,000	
11035 - LANDSCAPE SCREENING	LS	N/A	\$20,000	1	\$20,000	2	\$40,000	1	\$20,000	
SUBTOTAL					\$2,100,000		\$2,900,000		\$2,100,000	
12 - CONTRACTOR MARK-UP AND BONDS										
CONTRACTOR MARK- UP (15% OF ITEMS 5-7 & 9-11)	LS	15% OF ITEMS 5-7 AND 9-11		1	\$8,456,000	1	\$21,272,000	1	\$15,491,000	
CONTRACTOR BOND (2% OF ITEMS 5-7 & 9-11)	LS	2% OF ITEMS 5-7 AND 9-11		1	\$1,128,000	1	\$2,837,000	1	\$2,066,000	

UNION CITY INTERMODAL STATION PHASE 3 PROJECT
WASTE CONSOLIDATION AREA (WCA) ESTIMATED EXCAVATION, DISPOSAL AND REMEDIATION COSTS

ITEM	UNIT	SCS REPORT UNIT COST MAY 2018	UNIT COST IN FEB. 2023 DOLLARS	SoCo RAIL PARTIAL EXCAVATION		TOTAL WCA EXCAVATION		SPLIT-PHASE REMAINING WCA EXCAVATION		SOURCE OF UNIT COSTS
				QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	QUANTITY	ESTIMATED COST	
SUBTOTAL					\$10,000,000		\$25,000,000		\$18,000,000	
TOTAL ESTIMATED WCA EXCAVATION, DISPOSAL AND REMEDICATION COSTS				\$70,000,000		\$171,000,000		\$125,000,000		

NOTES:

1. The Feasibility Report: Technical/Cost Analysis of Off-Haul and Redevelopment Potential: Waste Consolidation Area, Union City, California was created by SCS Engineers in Pleasanton, CA and dated May 9, 2018. Attachment B contains the WCA WASTE REMOVAL/SITE RESTORATION COST ESTIMATE WORKSHEETS used to estimate the costs.

2. The May 2018 unit costs were increased by 20% to obtain February 2023 values per the online CPI Inflation Calculator.

https://www.bls.gov/data/inflation_calculator.htm

3. The SoCo Rail Project impacts 33.3% of the WCA volume and 49.5% of the surface area. All quantities involving surface area are increased by 100% and all quantities involving volume are increased by 200% to estimate the cost required for excavating the entire WCA slag pile. Some quantities are left as 1 since increasing the extent of excavation are assumed to not impact these categories

UNION CITY INTERMODAL STATION PHASE 3 PROJECT

CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
INSTALL MAIN TRACK (136# RAIL)	2,200	TF	See Right		1,100	TF	See Right	
INSTALL LAYOVER TRACK (136# RAIL)	2,800	TF	See Right		200	TF	See Right	
SHIFT TRACK	–	TF	Required for Track Shooflies		–	TF	No Track Shift	
SURFACE TRACK	2,900	TF			–	TF		
TIMBER CROSSTIES - 8.5' TIES @ 18" SPACING	1,000	EA	Assume 18" Tie Spacing 30% Tie Renewal for Track Shift 50% Tie Renewal for Track Surface		–	EA	Assume 18" Tie Spacing 30% Tie Renewal for Track Shift 50% Tie Renewal for Track Surface	
INSTALL TRANSITION RAILS (115/136#)	6	EA	4 on Track MT near layover yard 2 on Shoofly Track		–	EA		
INSTALL CROSSING PANELS @ 8' LF 9' WIDE	88	TF	88 TF at North End of Track YT2		–	TF		
BUMPING POST	2	EA	Track ST1 and YT2		1	EA	North end of second station track	
INSTALL No. 11 TURNOUTS POTO	–	EA	N/A		2	EA	Both ends of Track XO2	
INSTALL No. 15 TURNOUTS POTO	1	EA	South end of Track ST1		–	EA	N/A	
INSTALL No. 11 TURNOUTS HTTO	–	EA	N/A		–	EA	N/A	
INSTALL No. 9 TURNOUTS HTTO	2	EA	Both ends of Track XO1		2	EA	Both ends of Track XO2	
INSTALL No. 9 DOUBLE-SLIP TURNOUTS HTTO	–	EA	N/A		1	EA	Crossing of Tracks XO2, YT1 and YT2	
INSTALL No. 15 TURNOUTS HTTO	2	EA	South end of Track YT1		–	EA	Both ends of Track XO2	
DOUBLE SWITCH POINT DERAIL EL	1	EA	Track YT1		–	EA		
DOUBLE SWITCH POINT DERAIL PO	1	EA	Track ST1		–	EA		
INSTALL NEW CP 27.3	1	EA	South end of Track YT1		–	EA	N/A	
INSTALL NEW EWL 27.7	1	EA	South end of Track ST1		–	EA	N/A	
INSTALL NEW CP F027	1	EA	Replacing existing Hold Signal F027		–	EA	N/A	
SIGNAL HOUSE	3	EA	One signal house at each signal		–	EA	N/A	
REMOVE TRACK ITEMS								
REMOVE TRACK (115# RAIL)	805.58	TF	See Right		–	TF	See Right	
REMOVE TRACK (136# RAIL)	–	TF	See Right		246.58	TF	See Right	
REMOVE CROSSING PANELS @ 8' LF	–	TF	N/A		–	TF	N/A	
REMOVE No. 9 TURNOUTS HTTO	–	EA			1	EA	Replaced by Double-Slip Turnout	
REMOVE No. 11 TURNOUTS POTO	–	EA			–	EA		
REMOVE No. 15 TURNOUTS POTO	–	EA			–	EA		
REMOVE SIGNAL	2	EA	2 @ HOLD SIGNAL F027 (MP 27.6)		–	EA		
RIGHT-OF-WAY AND EASEMENT ITEMS								
EASEMENT IN IDRR R/W	1.65	AC	72,000 SF on the east side		–	AC	N/A	

Install Track (136# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	TYPE OF TRACK	Main Track Length	Layover Track Length
Shoofly Track	N/A		N/A	TF	MAIN	–	–
Shoofly Track	Measured in CADD file		300.00	TF	MAIN	300.00	–
Track MT	731+29.51	731+79.51	50.00	TF	MAIN	50.00	–
Track XO1	Measured in CADD file		259.25	TF	LAYOVER	–	259.25
Track ST1	99+85.00	108+80.86	895.86	TF	MAIN	895.86	–
Track ST1	109+88.44	119+38.63	950.19	TF	MAIN	950.19	–
Track YT1	114+78.78	129+57.43	1,478.65	TF	LAYOVER	–	1,478.65
Track YT2	Measured in CADD file		1,000.00	TF	LAYOVER	–	1,000.00
Total Install Track				TF		2,196.05	2,737.90

Future Install Track (136# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	TYPE OF TRACK	Main Track Length	Layover Track Length
Track ST2	99+85.00	108+80.86	895.86	TF	MAIN	895.86	–
Track ST2	110+05.45	111+98.53	193.08	TF	LAYOVER	–	193.08
Track XO2	Measured in CADD file		186.00	TF	MAIN	186.00	–
			–	TF		–	–
			–	TF		–	–
Total Future Install Track				TF		1,081.86	193.08

Shift / Surface Track (115# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	WORK TYPE	Shift Length	Surface Length
Track MT	740+49.66	748+48.30	798.64	TF	SURFACE	–	798.64
Track MT	750+52.08	771+50.00	2,097.92	TF	SURFACE	–	2,097.92
			–	TF		–	–
			–	TF		–	–
Total Shift /Surface Track				TF		–	2,896.56

Note: Track MT is initially shifted to the Shoofly Track and then shifted back to its original location so the

UNION CITY INTERMODAL STATION PHASE 3 PROJECT
CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
EASEMENT IN CERN R/W	—	AC	0.0 SF on the west side		—	AC	N/A	
EASEMENT IN BART R/W	—	AC	N/A		—	AC	N/A	
TEMPORARY EASEMENT IN CITY-OWNED R/W	4.89	AC	213,000 SF including the emergency access road, drainage and WCA slag pile cut slope		—	AC	N/A	
ACQUIRE CITY-OWNED R/W FOR TRACK IMPROVEMENTS	2.82	AC	123,000 SF on the east side		0.46	AC	20,000 SF on the east side	
ACQUIRE CITY-OWNED R/W FOR ROAD IMPROVEMENTS	1.38	AC	60,250 SF on the east side		—	AC	N/A	
		AC				AC		
CIVIL CONSTRUCTION ITEMS								
CLEARING AND GRUBBING	11.90	AC	Assume 10% greater than R/W acquisition and easement areas		0.60	AC	Assume 10% greater than R/W acquisition and easement areas	
	11.90	AC	TOTAL AREA		0.60	AC	TOTAL AREA	
ROADWAY EXCAVATION	4,100.00	CY	Assume same volume as construct roadway and aggregate base		—	CY	Assume same volume as construct roadway and aggregate base	
	14,000.00	CY	WCA Clean Excavation		—	CY		
	18,100.00	CY	TOTAL EXCAVATION VOLUME		—	CY	TOTAL EXCAVATION VOLUME	
TRACK EXCAVATION	—	CY			—	CY		
UPRR TRACK EXCAVATION	—	CY			—	CY		
TRACK EMBANKMENT (IMPORTED BORROW)	65,750.00	CY	Assume 5.5' under platform Assume 2.5' under platform track		61,500.00	CY	Assume 5.5' under platform Assume 1.0' under platform track	
	—	CY	WCA Backfill Volume		—	CY	WCA Backfill Volume	
	65,750	CY	TOTAL EMBANKMENT VOLUME		61,500	CY	TOTAL EMBANKMENT VOLUME	
CONSTRUCT HOT MIX ASPHALT ASSUMED THICKNESSES: 6" THICK HMA PUBLIC ROADS 4" THICK HMA PARKING LOTS 4" THICK HMA ACCESS ROAD	58,000	SF	60,500 SF of Public Roads Minus the area of Parking Lots		—	SF	N/A	
	29,000	CF	Volume of 6" Thick Streets		—	CF	Volume of 6" Thick Streets	
	24,800	SF	25,500 SF of access roads Minus area of concrete panels		—	SF	N/A	
	8,300	CF	Volume of 4" Thick Access Roads		—	CF	Volume of 4" Thick Access Roads	
	2,500	SF	2,500 SF Crew Parking Lot		—	SF	Area of Parking Lots	
	900	CF	Volume of 4" Parking Lots		—	CF	Volume of 4" Thick Parking Lots	
	38,200	CF	SUBTOTAL - SEE BELOW		—	CF	SUBTOTAL - SEE BELOW	
	5,409,000	LB	Density of 145 pounds per CF		—	LB	Density of 145 pounds per CF	
	2,800	TON	CHARGED BY TONS		—	TON	CHARGED BY TONS	

length measured in the CADD file is doubled

Remove Track (115# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	WORK BY	UPRR Length	Contractor Length
Track MT	731+29.51	731+79.51	50.00	TF	UPRR	50.00	—
Track MT	738+21.87	740+49.66	227.79	TF	UPRR	227.79	—
Track MT	748+24.53	750+52.32	227.79	TF	UPRR	227.79	—
Shoofly Track	Length of Shoofly Install		N/A	TF	UPRR	—	—
Shoofly Track	Length of Shoofly Install		300.00	TF	UPRR	300.00	—
				TF		—	—
Total Remove Track				TF		805.58	—

Note: Assume the Shoofly Track is too far from the proposed tracks to be shifted into place.

Future Remove Track (136# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	WORK BY	UPRR Length	Contractor Length
Track YT1	112+65.13	113+89.71	124.58	TF	UPRR	124.58	–
Track XO1	Measured in CADD file		75.00	TF	UPRR	75.00	–
Track XO1	Measured in CADD file		47.00	TF	UPRR	47.00	–
			–	TF		–	–
			–	TF		–	–
Total Future Remove Track						TF	246.58
							–

UNION CITY INTERMODAL STATION PHASE 3 PROJECT

CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
CLASS 2 AGGREGATE BASE ASSUMED THICKNESSES: 8" THICK AB PUBLIC ROADS 10" THICK AB ACCESS ROAD 10" THICK AB PARKING LOTS 4" THICK AB SIDEWALKS 4" THICK BELOW CURBS 4" THICK BELOW CURBS AND GUTTERS	58,000	SF	Area of streets		–	SF	Area of streets	
	38,700	CF	Volume of 8" Thick Streets		–	CF	Volume of 8" Thick Streets	
	24,800	SF	Area of Access Roads		–	SF	Area of Access Roads	
	20,700	CF	Volume of 10" Thick Access Roads		–	CF	Volume of 10" Thick Access Roads	
	2,500	SF	Area of Parking Lots		–	SF	Area of Parking Lots	
	2,100	CF	Volume of 10" Thick Parking Lots		–	CF	Volume of 10" Thick Parking Lots	
	20,200	SF	Area of Sidewalks		–	SF	Area of Sidewalks	
	6,800	CF	Volume of 4" Below Sidewalks		–	CF	Volume of 4" Below Sidewalks	
	160	LF	Length of Curbs		–	LF	Length of Curbs	
	100	CF	Volume of 4" Below Curbs		–	CF	Volume of 4" Below Curbs	
	2,350	LF	Length of Curbs and Gutters		–	LF	Length of Curbs and Gutters	
	1,600	CF	Volume of 4" Below Curbs and Gutters		–	CF	Volume of 4" Below Curbs and Gutters	
	70,000	CF	SUBTOTAL - SEE BELOW		–	CF	SUBTOTAL - SEE BELOW	
	2,600	CY	CHARGED BY CUBIC YARDS		–	CY	CHARGED BY CUBIC YARDS	
	CONSTRUCT CALTRANS TYPE A1-6 CURB	160.00	LF	160 LF in the crew parking lot		–	LF	N/A
4.14		CY	CALTRANS STD DWG A87A VOLUME 0.02585 CY/LF		–	CY	CALTRANS STD DWG A87A VOLUME 0.02585 CY/LF	
		CY	SUBTOTAL - SEE BELOW			CY	SUBTOTAL - SEE BELOW	
CONSTRUCT UNION CITY STANDARD CURB AND GUTTER PER UNION CITY DRAWING NO. STD-208	2,350	LF	1,050 LF west side Loop Road 750 LF east side Loop Road Block 5 550 LF east side Loop Road WCA		–	LF	N/A	
	3,200	CF	Area of 1.3299 SF / LF		–	CF	Area of 1.3299 SF / LF	
	120	CY	SUBTOTAL - SEE BELOW		–	CY	SUBTOTAL - SEE BELOW	
MINOR CONCRETE (CURB AND GUTTER)	200	CY	TOTAL MINOR CONCRETE (CURB AND GUTTER) VOLUME		–	CY	TOTAL MINOR CONCRETE (CURB AND GUTTER) VOLUME	
CONSTRUCT SIDEWALK (4" THICK) Per Union City DRAWING NO. STD-203	20,200.00	SF	2,550 SF between platform and at-grade crossing 50 SF south end of Plaza 8,800 SF west side Loop Road 7,100 SF east side Loop Road Block 5 1,700 SF east side Loop Road WCA		–	SF	N/A	
	300.00	CY	COST IS PER CY		–	CY	COST IS PER CY	
INSTALL CURB RAMP	–	EA	Included in Construct Sidewalk		–	EA	Included in Construct Sidewalk	
	–	LF	N/A		1,050	LF	1,050 LF along Future Track ST2 Design based on TAMC Salinas Rail Extension 100% Submittal	
	–	SF	Retaining Wall Surface Area		7,000	SF	Retaining Wall Surface Area	

CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

UNION CITY INTERMODAL STATION PHASE 3 PROJECT

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
	–	–	Assume 6' Avg. Height		–	–	Assume 6' Avg. Height	
CONSTRUCT RETAINING WALL (ASSUMED 9" THICK)	–	LF	N/A		–	LF	N/A	
	–	SF	Retaining Wall Surface Area Assume 3' Avg. Height		–	SF	Retaining Wall Surface Area Assume 6' Avg. Height	
	–	CF	SUBTOTAL - SEE BELOW		5,300	CF	SUBTOTAL - SEE BELOW	
	–	CY	CHARGED BY CUBIC YARDS		200	CY	CHARGED BY CUBIC YARDS	
BAR REINFORCING STEEL (RETAINING WALL)	67.00	FT/FT	Design based on TAMC Salinas Rail 100% Submittal Assume 6' Average Height		67.00	FT/FT	Design based on TAMC Salinas Rail 100% Submittal Assume 6' Average Height	
	33.50	FT/FT	Design based on TAMC Salinas Rail 100% Submittal Assume 3' Average Height		33.50	FT/FT	Design based on TAMC Salinas Rail 100% Submittal Assume 3' Average Height	
	–	LF	SUBTOTAL - CHARGED BY POUNDS Assume #6 bars @ 1.502 LB/LF		78,000	LF	SUBTOTAL - CHARGED BY POUNDS Assume #6 bars @ 1.502 LB/LF	
	–	LB	TOTAL WEIGHT		118,000	LB	TOTAL WEIGHT	
STRUCTURAL CONCRETE, PIER PROTECTION	–	LF	ALVARADO - NILES ROAD OVERPASS ASSUME 12' LONG PER UPRR-BNSF GRADE SEPARATION STANDARDS PLAN No. 71100		–	LF	N/A	
	39.00	SF	CROSS SECTION AREA ASSUME 13' TALL x 3' THICK		39.00	SF	CROSS SECTION AREA ASSUME 13' TALL x 3' THICK	
	–	CY	TOTAL VOLUME		–	CY	TOTAL VOLUME	
BAR REINFORCING STEEL (PIER PROTECTION)	–	CY			–	CY		
	–	LB	ASSUME 300 LB / CY BASED ON OAKLAND SEVENTH STREET COST ESTIMATE		–	LF	ASSUME 300 LB / CY BASED ON OAKLAND SEVENTH STREET COST ESTIMATE	
CONSTRUCT PEDESTRIAN UNDERPASS	–	LF	N/A		30.00	LF	30 LF Egress underpass on the east side underneath Track ST2 Assume 20' x 10' inside clearance	
CONSTRUCT 10' RCB CULVERT	145.00	LF	Measured off the CADD file Assumed 10' x 10' inside clearance		–	LF	N/A	
STRUCTURAL CONCRETE, BOX CULVERT	–	CF	Assume Pedestrian Underpass would be 20' x 10' box culvert Assume 2' thick walls 145 CF / LF Concrete		5,000	CY	Assume Pedestrian Underpass would be 20' x 10' box culvert Assume 2' thick walls 145 CF / LF Concrete	
			Caltrans Std. Dwg. D80				Caltrans Std. Dwg. D80	

UNION CITY INTERMODAL STATION PHASE 3 PROJECT
CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
	7,000	CF	Assumed 10' x 10' box culvert 96 CF / LF Concrete		–	CY	Assumed 10' x 10' box culvert 96 CF / LF Concrete	
	260	CY	TOTAL VOLUME		190	CY	TOTAL VOLUME	
BAR REINFORCING STEEL, BOX CULVERT	–	LB	Assumed 20' x 10' box culvert 1,400 LB / LF Concrete		42,000	LB	Assumed 20' x 10' box culvert 1,400 LB / LF Concrete	
	73,000	LB	Caltrans Std. Dwg. D80 Assumed 10' x 10' box culvert 950 LB / LF Concrete		–	LB	Caltrans Std. Dwg. D80 Assumed 10' x 10' box culvert 425 LB / LF Concrete	
	73,000	LB	TOTAL WEIGHT		42,000	LB	TOTAL WEIGHT	
CONSTRUCT PEDESTRIAN VERTICAL ACCESS RAMP AND STAIRWAY TO STREET LEVEL (HEIGHT = 8')	2	EA	North end of the platform Platform egress stairway on the east side		–	EA	N/A	
	120.00	CY	Assume 60 CY volume due to longer length and width than 35 CY in the Union City At-Grade Ped. Crossing IFB Submittal Estimate		–	CY	Assume 60 CY volume due to longer length and width than 35 CY in the Union City At-Grade Ped. Crossing IFB Submittal Estimate	
	240	CY	SUBTOTAL - SEE BELOW		–	CY	SUBTOTAL - SEE BELOW	
CONSTRUCT PEDESTRIAN VERTICAL ACCESS RAMP AND STAIRWAY TO PLATFORM (HEIGHT = 15')	–	EA	N/A		2	EA	Both ends of the vertical access to the platform egress underpass	
	–	CY	Assume requires 140 CY due to roughly four times longer length and greater width than the Union City At-Grade Ped Crossing IFB Submittal		280	CY	Assume requires 140 CY due to roughly four times longer length and greater width than the Union City At-Grade Ped Crossing IFB Submittal	
	–	CY	SUBTOTAL - SEE BELOW		560.00	CY	SUBTOTAL - SEE BELOW	
MINOR CONCRETE (STATION ADA RAMPS AND STEPS)	300	CY	TOTAL VOLUME Includes all pedestrian vertical access ramps and stairways		600	CY	TOTAL VOLUME Includes all pedestrian vertical access ramps and stairways	
STATION PLATFORM - CONCRETE	11,500	SF	11,500 SF Station Platform Area		11,000	SF	11,000 SF Station Platform Area	
	5,750	CF	Assume 6" Thick station platform SUBTOTAL - SEE BELOW		5,500	CF	Assume 6" Thick station platform SUBTOTAL - SEE BELOW	
	200	CF	Mini-High ADA Platform at 25" above T/R		200	CF	Mini-High ADA Platform at 25" above T/R	
	2	EA	Locations		2	EA	Locations	
	400	CF	SUBTOTAL - SEE BELOW		400	CF	SUBTOTAL - SEE BELOW	
	400	CF	Mini-High ADA Platform at 48" above T/R		400	CF	Mini-High ADA Platform at 48" above T/R	
	2	EA	Locations		2	EA	Locations	

UNION CITY INTERMODAL STATION PHASE 3 PROJECT
CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
	800	CF	SUBTOTAL - SEE BELOW		800	CF	SUBTOTAL - SEE BELOW	
	260	CY	TOTAL VOLUME Includes Station Platform and the Mini-High Platforms		250	CY	TOTAL VOLUME Includes Station Platform and the Mini-High Platforms	
STATION PLATFORM - REBAR	15,600	LB	Assume 60 LB / CY Based off TAMC Salinas Rail Extension 100% Submittal		15,000	LB	Assume 60 LB / CY Based off TAMC Salinas Rail Extension 100% Submittal	
PIPE HANDRAILING TUBULAR HANDRAILING	750	LF	750 LF Handrail along edge of single-sided platform		–	LF	Not required for center two-sided platform	
	500	LF	Handrail along both sides of platform access walkway		–	LF	N/A	
	50	LF	Handrail along Mini-High ADA Platform at 25" Above T/R		50	LF	Handrail along Mini-High ADA Platform at 25" Above T/R	
	2	EA	Locations		2	–		
	100	LF	SUBTOTAL - SEE BELOW		100	EA	Locations	
	115	LF	Handrail along Mini-High ADA Platform at 48" Above T/R		115	–	SUBTOTAL - SEE BELOW	
	2	EA	Locations		2	EA	Handrail along Mini-High ADA Platform at 48" Above T/R	
	230	LF	SUBTOTAL - SEE BELOW		230	–	Locations	
	1,100	LF	TOTAL LENGTH along platform edge and mini-high platforms		400	EA	SUBTOTAL - SEE BELOW	
						LF	TOTAL LENGTH along platform edge and mini-high platforms	
PARKING BUMPER (PRECAST CONCRETE)	13.00	EA	13 Parking spaces in the Crew Parking Lot		–	EA	N/A	
CHAIN LINK FENCE (TYPE CL-8)	160.00	LF	180 LF fence at north end of the WCA site minus length of road gate		–	LF	N/A	
20' CHAIN LINK FENCE GATE (TYPE CL-6)	1.00	EA	20' wide road gate at north end of the WCA site		–	EA	N/A	
EXPANDED METAL MESH FENCE, 8' TALL	3,200.00	LF	2,000 LF on east side of Track YT2 1,250 LF on west side of Track YT1 Minus length of gates		–	LF	N/A	
20' EXPANDED METAL MESH GATE, 8' TALL	4.00	EA	20' wide road gate at north end 40' wide road gate at north end 20' wide track gate at south end		–	EA	N/A	
8" TRACK UNDERDRAIN (INSIDE UPRR R/W)	1,360.00	LF	1,250 LF along platform face 100 LF along Track YT1		–	LF	N/A	

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES

CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
6" TRACK UNDERDRAIN (OUTSIDE UPRR R/W)	2,225.00	LF	1,100 LF along Layover Track YT1 1,125 LF along Layover Track YT2		1,250.00	LF	1,250 LF along Track ST2 / YT2	
MODIFY INLET	1	EA	Intersection at south end of east side plaza at the shifted Loop Road		–	EA	N/A	
4" WHITE STRIPE	–	LF	N/A		–	LF	N/A	
	–	LF	TOTAL LENGTH		–	LF	TOTAL LENGTH	
PLANT TREES	8	EA	Assume 25% more than Remove Trees		–	EA	Assume 25% more than Remove Trees	
SHELTERS	3	EA	Assumption		3	EA	Assume same quantity as in the Initial Phase	
	600.00	SF	Assume 200 SF per shelter		600.00	SF	Assume 200 SF per shelter	
DETECTABLE WARNING TILES	745.00	LF	Along platform edge		745.00	LF	Along Platform Edge	
CREW BUILDING 10' X 40' MODULAR BUILDING	400	SF	Assume 10' x 40' Modular Building		–	SF	N/A	
QUARRY LAKES PARKWAY BRIDGE								
BRIDGE LENGTH	130.00	LF	70 LF Northern Span 60 LF Southern Span		–	LF	N/A	
STRUCTURAL CONCRETE (RR BRIDGE) ASSUME PRECAST CONCRETE DOUBLE CELL BOX BEAMS TWO BOX BEAMS PER TRACK 6'-0" FROM B/R TO T/R	13.50	SF	Assumed Approximate Cross Section of each individual box girder		–	LF	N/A	
	3,600.00	CF	Total Box Girder Volume 2 box girders side-by-side by 130 LF		–	CF	N/A	
	650.00	CF	2.5 SF Walkway Supports on both sides of the bridge		–	CF	N/A	
	1,350.00	CF	Abutment and Pier Caps - Assume 5' Tall x 4.5' Long x 20' Long		–	CF	N/A	
	1,200.00	CF	Center Pier (Excluding Cap) - Assume 3' Thick x 20' Long x 20' Tall		–	CF	N/A	
	280	CY	TOTAL VOLUME		–	CY	TOTAL VOLUME	
CONSTRUCT ABUTMENT RETAINING WALL (ASSUMED 18" THICK)	60.00	LF	Assume reconstruct 30 LF of retaining wall on both ends of the bridge		–	LF	N/A	
	360.00	SF	Retaining Wall Surface Area Assume 6' Avg. Height		–	SF	Retaining Wall Surface Area Assume 6' Avg. Height	
	600	CF	SUBTOTAL - SEE BELOW		–	CF	SUBTOTAL - SEE BELOW	
	100	CY	CHARGED BY CUBIC YARDS		–	CY	CHARGED BY CUBIC YARDS	
	15,000	LF	Assume 50 LF transverse rebar per		–	LF	N/A	

UNION CITY INTERMODAL STATION PHASE 3 PROJECT

CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY 12,000	UNIT LF	BEG STA. double cell box beam @ 12" OC	END STA.	QUANTITY –	UNIT LF	BEG STA. N/A	END STA.
BAR REINFORCING STEEL (RR BRIDGE)	7,000	LF	Assume 24 longitudinal post-tensioned strands per box beam		–	LF	N/A	
	32,000	LF	Abutment and Pier Caps - Assume 6 x 20' long longitudinal beams @ 12" O.C. Assume 20 x 5' long vertical beams @ 12" O.C.		–	LF	N/A	
	103,000	LF	Center Pier - Assume 6 x 20' long longitudinal beams @ 12" O.C. Assume 30 X 20' long vertical beams @ 12" O.C.		–	LF	N/A	
	165,000	LF	SUBTOTAL - CHARGED BY POUNDS Assume #7 bars @ 2.044 LB/LF		–	LF	SUBTOTAL - CHARGED BY POUNDS Assume #7 bars @ 2.044 LB/LF	
	338,000	LB	TOTAL WEIGHT		–	LB	TOTAL WEIGHT	
	BAR REINFORCING STEEL (RETAINING WALL)	140	FT/FT	Design based on TAMC Salinas Rail 100% Submittal Assume 6' Average Height		140.00	FT/FT	Design based on TAMC Salinas Rail 100% Submittal Assume 6' Average Height
8,400		LF	SUBTOTAL - CHARGED BY POUNDS Assume #7 bars @ 2.044 LB/LF		–	LF	SUBTOTAL - CHARGED BY POUNDS Assume #7 bars @ 2.044 LB/LF	
18,000		LB	TOTAL WEIGHT		–	LB	TOTAL WEIGHT	
PIPE HANDRAILING TUBULAR HANDRAILING	260.00	LF	Handrail along both sides of the bridge		–	LF	N/A	
	80.00	LF	Assume extends 20 LF beyond the bridge at all four quadrants		–	LF	N/A	
	340	LF	TOTAL LENGTH along bridge		–	CY	TOTAL LENGTH	
SPRAY-APPLIED WATERPROOFING W/ BALLAST PROTECTION MAT (RR BRIDGE)	1,300.00	SF	Assume one-half the area of the Membrane Waterproofing Based off the Oakland Seventh Street Quantities		–	SF		
PREFORMED MEMBRANE WATERPROOFING (RR BRIDGE)	2,600.00	SF	Assume 20 LF per foot of bridge length		–	SF	N/A	
DRAIN PIPE (RR BRIDGE)	260.00	LF	Assume two drain pipes which run the length of the bridge		–	LF	N/A	
REMOVE CIVIL ITEMS								
REMOVE ASPHALT CONCRETE PAVEMENT	1,200.00	SF	1,200 SF Shifted Loop Road at the southern intersection		1,300.00	SF	1,300 SF Shifted Loop Road at southern intersection	

UNION CITY INTERMODAL STATION PHASE 3 PROJECT
CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
REMOVE CONCRETE CURB	–	LF	N/A		–	LF		
REMOVE CURB AND GUTTER	155.00	LF	75 LF west side of Loop Road in front of the Plaza 80 LF east side of Loop Road south of southern intersection		–	LF	N/A	
REMOVE SIDEWALK	650.00	SF	650 SF at southeast corner of Loop Road		350.00	SF	350 SF at north end of future platform	
	300.00	CF	Assumed 4" thick sidewalk per UNION CITY DRAWING NO. STD-203		200.00	CF	Assumed 4" thick sidewalk per UNION CITY DRAWING NO. STD-203	
	–	SF	N/A At-Grade Crossing remains in use		–	SF	N/A	
	–	CF	9" thick UNION CITY PED CROSSING IFB PLAN SET - JUNE 2022		–	CF	9" thick UNION CITY PED CROSSING IFB PLAN SET - JUNE 2022	
	20	CY	TOTAL VOLUME		–	CY	TOTAL VOLUME	
REMOVE PLATFORM	–	SF	N/A		–	SF	N/A	
REMOVE FENCE	1,170	LF	770 LF on east side of UPRR R/W along Block 5 350 LF on the north end of WCA 50 LF on the south end		–	LF	N/A	
REMOVE METAL RAILING	–	LF	N/A		750.00	LF	Remove platform edge railing when the platform is widened	
REMOVE PEDESTRIAN VERTICAL ACCESS RAMP AND STAIRWAY TO STREET LEVEL (HEIGHT = 8')	–	EA	N/A At-Grade Crossing remains in use		1	EA	Remove platform egress stairway on the east side	
	–	CY	35 CY Volume based off the UNION CITY PED CROSSING IFB PLAN SET - JUNE 2022		35.00	CY	35 CY Volume based off the UNION CITY PED CROSSING IFB PLAN SET - JUNE 2022	
REMOVE CONCRETE CHANNEL	2,200	LF	2,200 LF channel on the west sides of the WCA site		–	LF	N/A	
	5	SF	Assume Box Channel 3' High x 3' Wide x 6" Thick		–	SF	N/A	
	400	CY	TOTAL VOLUME		–	CY	TOTAL VOLUME	
REMOVE INLET	1	EA	North end of WCA Channel		–	EA	N/A	
REMOVE PAINTED TRAFFIC STRIPE	–	LF	N/A		–	LF	N/A	
	–	LF	N/A		–	LF	N/A	

UNION CITY INTERMODAL STATION PHASE 3 PROJECT
CITY-PREFERRED DESIGN – 745' LONG PLATFORM WITH AN AT-GRADE CROSSING AND AVOIDING IMPACTS TO LOOP ROAD

CITY-PREFERRED DESIGN WITH AT-GRADE CROSSING – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
	–	LF	TOTAL LENGTH		–	LF	TOTAL LENGTH	
REMOVE TREE	6.00	EA	Assume removal of 6 trees on the west side of Loop Road		–	EA		
REMOVE BRIDGE	1.00	EA	10 TF Length		–	EA		

UNION CITY INTERMODAL STATION PHASE 3 PROJECT
UP OAKLAND SUBDIVISION IMPROVEMENTS BETWEEN WHIPPLE ROAD AND CP NILES JUNCTION (MP 25.6 to 30.5)

IMPROVEMENTS BETWEEN WHIPPLE ROAD AND CP NILES JUNCTION (MP 25.6 to 30.5) – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
INSTALL / CONSTRUCT TRACK ITEMS								
INSTALL MAIN TRACK (136# RAIL)	490	TF	See Right		–	TF	See Right	
INSTALL LAYOVER TRACK (136# RAIL)	–	TF	See Right		–	TF	See Right	
SHIFT TRACK	1,500	TF	Required for Track Shooflies		–	TF	No Track Shift	
SURFACE TRACK	12,100	TF			–	TF		
TIMBER CROSSTIES - 8.5' TIES @ 18" SPACING	4,400	EA	Assume 18" Tie Spacing 30% Tie Renewal for Track Shift 50% Tie Renewal for Track Surface		–	EA	Assume 18" Tie Spacing 30% Tie Renewal for Track Shift 50% Tie Renewal for Track Surface	
INSTALL TRANSITION RAILS (115/136#)	2	EA	2 at the No. 15 POTO at MP 30.5		–	EA		
INSTALL CROSSING PANELS @ 8' LF 9' WIDE	–	TF	N/A		–	TF		
BUMPING POST	–	EA	N/A		–	EA	N/A	
INSTALL No. 11 TURNOUTS POTO	–	EA	N/A		–	EA	N/A	
INSTALL No. 15 TURNOUTS POTO	1	EA	Left-Hand at MP 30.52		–	EA	N/A	
INSTALL No. 11 TURNOUTS HTTO	–	EA	N/A		–	EA	N/A	
INSTALL No. 9 TURNOUTS HTTO	–	EA	N/A		–	EA	N/A	
INSTALL No. 9 DOUBLE-SLIP TURNOUTS HTTO	–	EA	N/A		–	EA	N/A	
INSTALL No. 15 TURNOUTS HTTO	–	EA	N/A		–	EA	N/A	
DOUBLE SWITCH POINT DERAIL EL	–	EA	N/A		–	EA	N/A	
DOUBLE SWITCH POINT DERAIL PO	–	EA	N/A		–	EA	N/A	
INSTALL CP F025 (MP 25.6)	–	EA	MP 25.6 .North of Whipple Road		–	EA	N/A	
INSTALL CP WEST FREMONT (MP 29.3)	1	EA	MP 29.3 at south end of the Alameda Creek Bridge		–	EA	N/A	
INSTALL CP FREMONT (MP 30.17)	1	EA	MP 30.17		–	EA	N/A	
INSTALL CP NILES JCT. (MP 30.5)	1	EA	MP 30.5 East of Mission Blvd Underpass		–	EA	N/A	
DECOTO ROAD	1	EA	Crossing Signal Improvements		–	EA	N/A	
F STREET	1	EA	Crossing Signal Improvements		–	EA	N/A	
H STREET	1	EA	Crossing Signal Improvements		–	EA	N/A	
I STREET	1	EA	Crossing Signal Improvements		–	EA	N/A	
SIGNAL HOUSE	6	EA	One signal house at each signal		–	EA	N/A	
	–	EA	N/A		–	EA	N/A	
	–	EA	N/A		–	EA	N/A	
REMOVE TRACK ITEMS								
REMOVE TRACK (115# RAIL)	700	TF	See Right		–	TF	See Right	

Install Track (136# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	TYPE OF TRACK	Main Track Length	Layover Track Length
Track MT	Measured in CADD file		83.00	TF	MAIN	83.00	–
Mission Connection	Measured in CADD file		402.00	TF	MAIN	402.00	–
Total Install Track						TF	
						485.00	–

Future Install Track (136# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	TYPE OF TRACK	Main Track Length	Layover Track Length
			–	TF		–	–
			–	TF		–	–
			–	TF		–	–
Total Future Install Track						TF	
						–	–

Shift / Surface Track (115# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	WORK TYPE	Shift Length	Surface Length
Track MT	771+50.00	834+59.94	6,309.94	TF	SURFACE	–	6,309.94
Track MT	835+65.00	848+99.19	1,334.19	TF	SURFACE	–	1,334.19
Track MT	850+19.69	874+19.91	2,400.22	TF	SURFACE	–	2,400.22
Track MT	875+95.91	888+90	1,294.09	TF	SURFACE	–	1,294.09
Track MT	889+00	895+89.25	689.25	TF	SURFACE	–	689.25
Track MT	Measured off CADD File		261.00	TF	SHIFT	522.00	–
Track MT	Measured off CADD File		227.00	TF	SHIFT	454.00	–
Mission Connection	Measured off CADD File		231.00	TF	SHIFT	462.00	–
			–	TF		–	–
			–	TF		–	–
Total Shift /Surface Track						TF	
						1,438.00	12,027.69

UNION CITY INTERMODAL STATION PHASE 3 PROJECT
UP OAKLAND SUBDIVISION IMPROVEMENTS BETWEEN WHIPPLE ROAD AND CP NILES JUNCTION (MP 25.6 to 30.5)

IMPROVEMENTS BETWEEN WHIPPLE ROAD AND CP NILES JUNCTION (MP 25.6 to 30.5) – CONCEPTUAL DESIGN QUANTITIES								
	QUANTITY SUMMARY				POTENTIAL FUTURE QUANTITIES			
ITEM	QUANTITY	UNIT	BEG STA.	END STA.	QUANTITY	UNIT	BEG STA.	END STA.
REMOVE TRACK (136# RAIL)	–	TF	See Right		–	TF	See Right	
REMOVE CROSSING PANELS @ 8' LF	–	TF	N/A		–	TF	N/A	
REMOVE No. 9 TURNOUTS HTTO	–	EA			–	EA	N/A	
REMOVE No. 11 TURNOUTS POTO	1	EA	MP 30.52		–	EA		
REMOVE No. 15 TURNOUTS POTO	–	EA			–	EA		
REMOVE SIGNAL	10.00	EA	2 @ HOLD SIGNAL F025 (MP 25.6) 2 @ CP WEST FREMONT (MP 29.3) 3 @ CP FREMONT (MP 30.17) 3 @ CP NILES JCT. (MP 30.5)		–	EA		
RIGHT-OF-WAY AND EASEMENT ITEMS								
EASEMENT IN UPRR R/W	–	AC	72,000 SF on the east side 0.0 SF on the west side		–	AC	N/A	
EASEMENT IN BART R/W	–	AC	N/A		–	AC	N/A	
TEMPORARY EASEMENT IN CITY-OWNED R/W	–	AC	210,000 SF including the emergency access road and WCA slag pile cut slope		–	AC	N/A	
ACQUIRE CITY-OWNED R/W FOR TRACK IMPROVEMENTS	–	AC	123,000 SF on the east side		0.46	AC	20,000 SF on the east side	
ACQUIRE CITY-OWNED R/W FOR ROAD IMPROVEMENTS	–	AC	60,250 SF on the east side		–	AC	N/A	
		AC				AC		

Remove Track (115# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	WORK BY	UPRR Length	Contractor Length
Track MT	899+90.01	901+83.01	193.00	TF	UPRR	193.00	–
			–	TF	UPRR	–	–
			–	TF	UPRR	–	–
			83.00	TF	UPRR	83.00	–
			402.00	TF	UPRR	402.00	–
Total Remove Track						TF	
						678.00	–

Note: Assume the Shoofly Track is too far from the proposed tracks to be shifted into place.

Future Remove Track (136# Rail)							
Track	Begin Station	End Station	Length (TF)	Unit	WORK BY	UPRR Length	Contractor Length
			–	TF	UPRR	–	–
			–	TF		–	–
			–	TF		–	–
Total Future Remove Track						TF	
						–	–