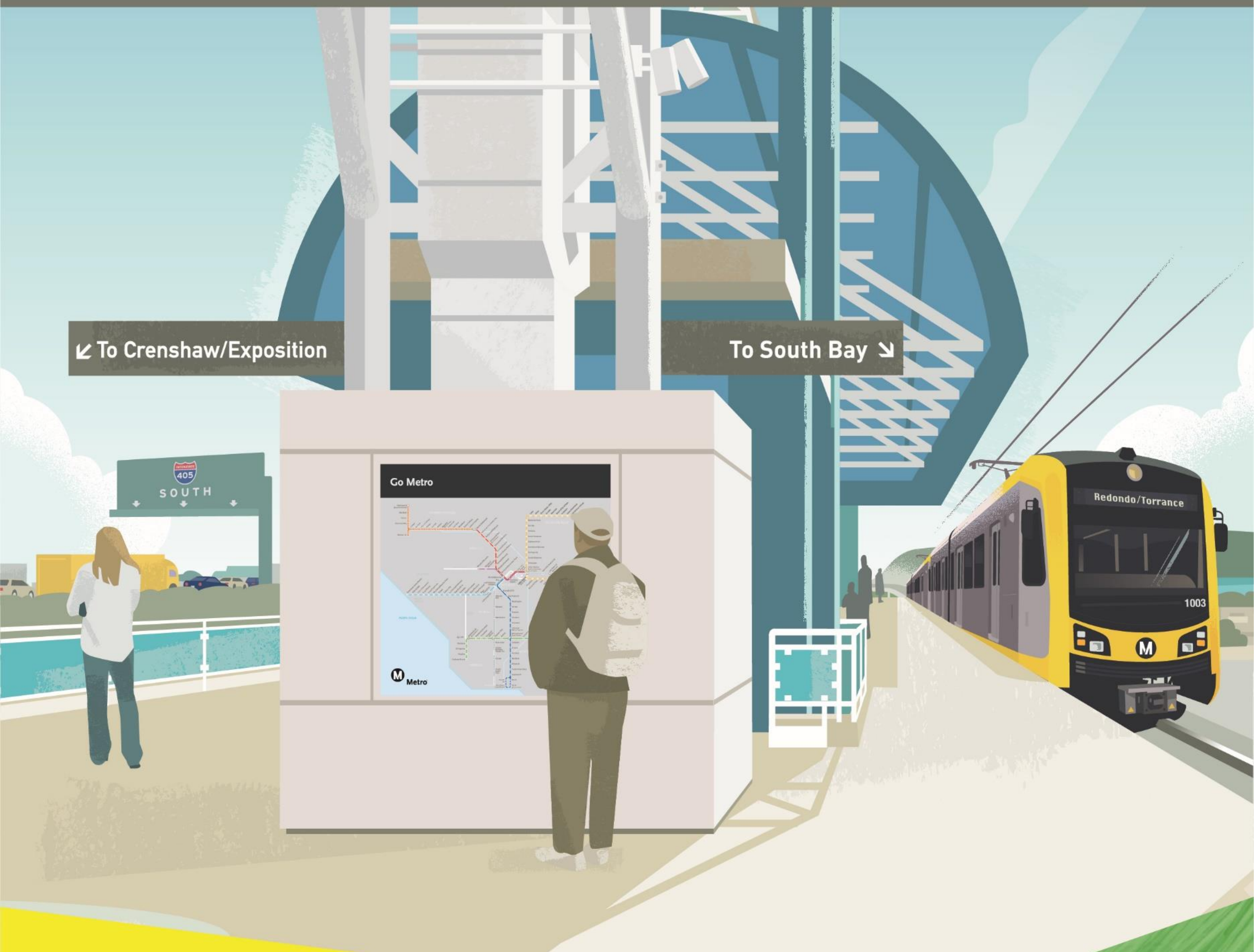
Los Angeles County
Metropolitan Transportation Authority

Ridership Summary Report

C LINE (GREEN) EXTENSION TO TORRANCE



Metro

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January 2023

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Abbreviations/Acronyms

AA........................... Alternatives Analysis

ACS .... American Community Survey

AMC........................ Airport Metro Connector

CBM18A .... Corridor Based Model 2018A

CEQA .... California Environmental Quality Act

EIR .... Environmental Impact Report

HOV .... High-occupancy Vehicle

LAX .... Los Angeles International Airport

LRTP........................ Long Range Transportation Plan

Metro .... Los Angeles County Metropolitan Transportation Authority

ROW .... Right-of-Way

RTP/SCS.................. Regional Transportation Plan/Sustainable Communities Strategy

SAA .... Supplemental Alternatives Analysis

SCAG....................... Southern California Association of Governments

SOV .... Single-occupancy vehicle

TAZs .... Traffic Analysis Zones

TC .... Transit Center

VMT........................ Vehicle Miles Traveled

1 INTRODUCTION

1.1 BACKGROUND

The Los Angeles County Metropolitan Transportation Authority (Metro) has initiated a Draft Environmental Impact Report (EIR) for the C Line (Green) Extension to Torrance Project (Project) pursuant to the California Environmental Quality Act (CEQA). Metro is the lead agency for the Project. The Project is a proposed light rail transit line that would extend approximately 4.5 miles from the end of the existing Metro C Line (Green) in Redondo Beach southeast to Torrance traveling along portions of the Metro-owned Harbor Subdivision freight railroad right-of-way (Metro ROW). The proposed light rail line would connect the Metro system further into the South Bay with connections to the K (Crenshaw), J (Silver) and A (Blue) Lines. The Project Area is primarily urbanized, and includes portions of the Cities of Lawndale, Redondo Beach, and Torrance. The Project has evolved over the year, based on several planning studies, which are discussed in greater detail in the Alternatives Considered and Eliminated Report (Metro, 2023).

The Draft EIR evaluates three alignments, defined as:

> **Metro ROW Alignment (Elevated/Street-Level)**: Follows the existing Metro ROW for the length of the Project from the existing Redondo Beach (Marine) Station to the Torrance Transit Center (TC), with an elevated segment, followed by an at-grade segment. Two rail stations are proposed adjacent to the Redondo Beach TC and Torrance TC. This alignment is referred to as the Proposed Project in the Draft EIR as it is the alignment that has been studied and advanced over the years.

> **Metro ROW Alignment (Trench/Below-Grade)**: Follows the existing Metro ROW for the length of the project, with a below-grade trench segment between Inglewood Avenue and 170th Street, followed by at-grade segments with a short trench to cross under 182nd Street. Includes the same station locations as the Metro ROW Alignment (Elevated/Street-Level). This alignment is referred to as the Trench Option in the Draft EIR.

> **Hawthorne Option (Elevated)**: Starts within the existing Metro ROW, then leaves Metro's ROW to run along Interstate 405 (I-405) and turns onto Hawthorne Boulevard near 162nd Street to travel in the center median of the street before rejoining the Metro ROW south of 190th Street. The entire alignment between the Redondo Beach (Marine Station) and 190th Street is elevated. A station would be located in the median of Hawthorne Boulevard, south of Artesia Boulevard, adjacent to the South Bay Galleria. This alignment is referred to as the Hawthorne Option in the Draft EIR.

As previously noted, the Metro ROW Alignment (Elevated/Street-Level) is referred to as the Proposed Project in the Draft EIR because it is the alignment that has been historically studied and advanced for the extension of the C Line (Green) to the South Bay region. This term does not, however, convey any preference or recommendation as to the alignment or options. Metro staff will prepare a recommendation on its preferred alignment in Spring 2023 based on findings from the Draft EIR, public comments made during the comment period, technical analysis, stakeholder input, and other factors such as cost, ridership, and project objectives.

Figure 1-1 shows the three alignments within the Project Area. The boundaries of the Project Area form roughly a one-mile buffer around the Metro ROW, with the borders generally following city limits and/or major roadways.

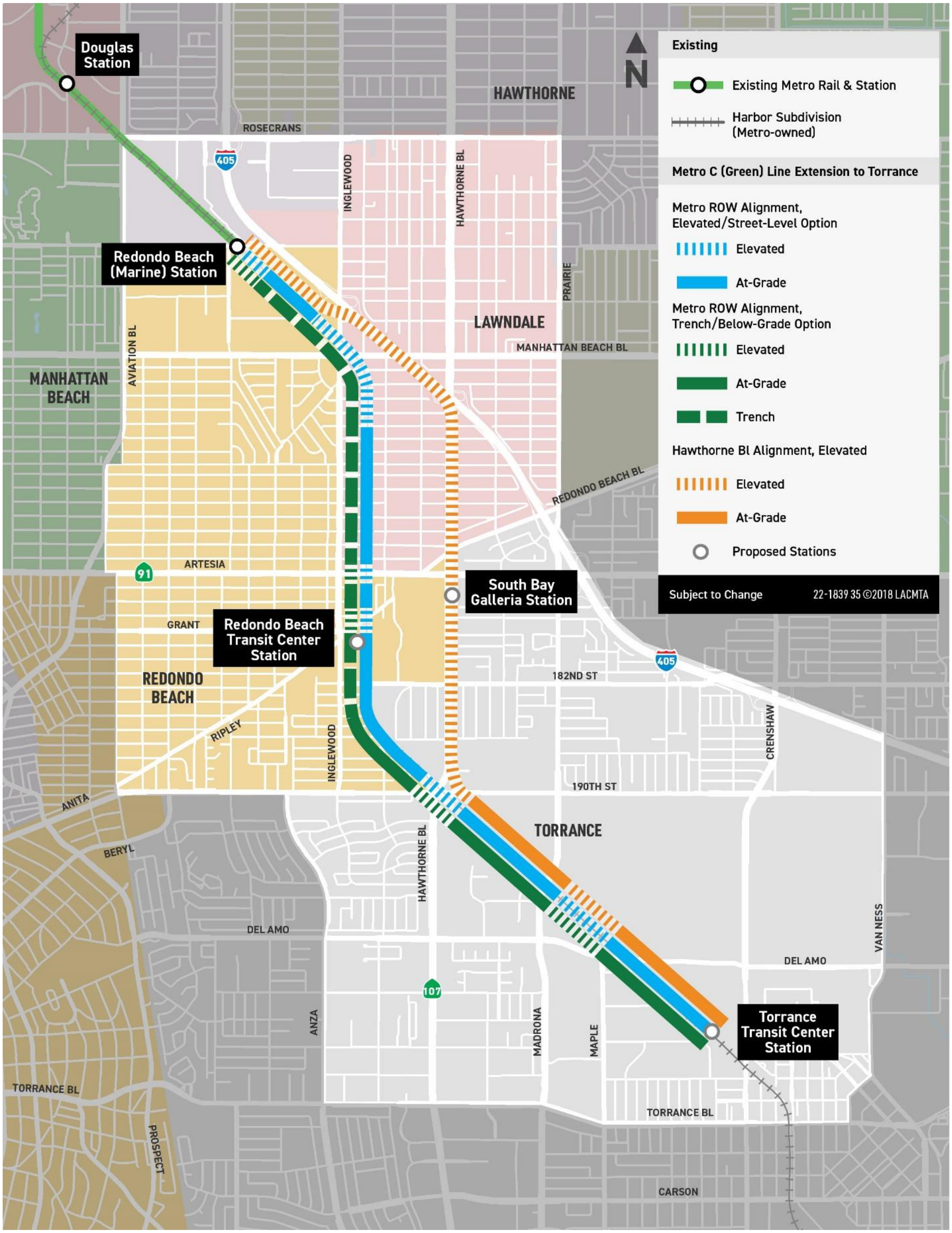
Pursuant to CEQA, the Draft EIR also evaluates three Alternatives to the Proposed Project, to substantially reduce or eliminate significant impacts associated with project development. These are discussed in more detail in Chapter 4, Evaluation of Alternatives of the Draft EIR, and include:

- **No Project Alternative**: Considers future conditions in the corridor without the light rail Project.
- **High-Frequency Bus (HFB) Alternative**: Would implement a rapid bus service alternative instead of a light rail extension.
- **170th/182nd Grade-Separated Light Rail Transit Alternative:** Would be identical to the Metro ROW Alignment (Elevated/Street Level), except the light rail would be grade separated from the roadways at 170th Street and 182nd Street in a below-grade trench configuration.

1.2 Report Overview

This report summarizes the travel demand and ridership assumptions and forecasts for the three alignments evaluated in the EIR, as well as the three Alternatives to the Proposed Project. The following sections of this report describe the alternatives modeled, the ridership forecasts for the alternatives, and the modeling methodology.

Figure 1-1. C Line (Green) Extension to Torrance – Project Overview



Source: STV, 2022

2 ALTERNATIVES CONSIDERED

For this travel demand forecasting analysis, the model runs were conducted for the No Project Alternative and Build Alternatives, described in more detail below.

2.1 NO PROJECT ALTERNATIVE

The No Project Alternative would maintain existing transit service through the year 2042. No new transportation infrastructure would be built within the Project Area aside from projects currently under construction or funded for construction and operation by 2042 via the 2008 Measure R and 2016 Measure M sales taxes. This alternative would include the highway and transit projects in Metro's 2019 Long Range Transportation Plan (LRTP) Update and the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which is used in Metro's ridership model.[1]

The No Project Alternative is used for comparison purposes to assess the relative benefits and impacts of constructing a new transit project in the Project Area versus implementing only currently planned and funded projects.

2.2 LIGHT RAIL BUILD ALTERNATIVES

As described in Section 1.1, the Draft EIR evaluates three light rail alignments. For the purposes of ridership modeling, two Light Rail Build Alternatives were defined to measure ridership along two distinct routes shown in Figure 2-1 and described below:

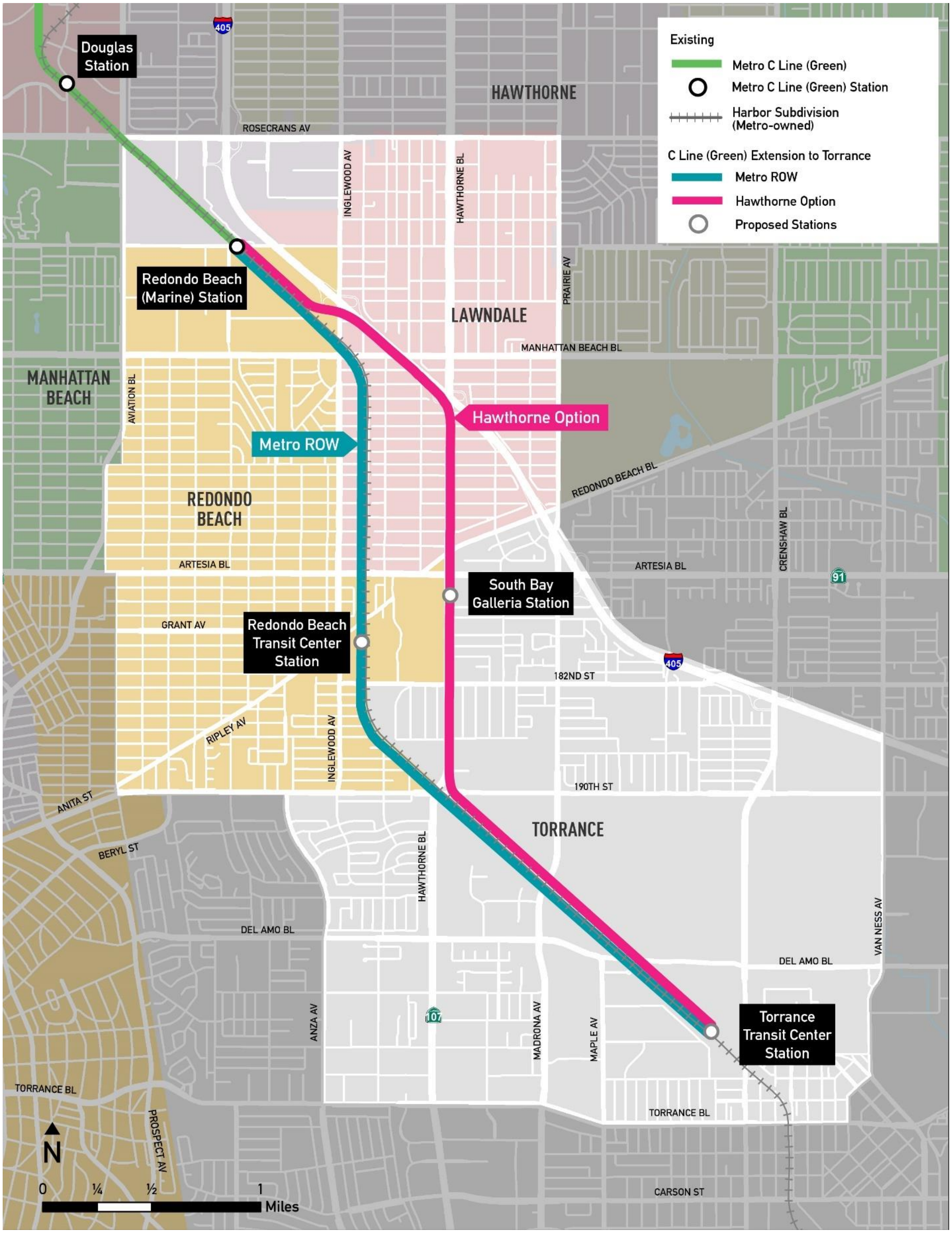
- **Metro ROW**: The Proposed Project, Trench Option, and 170th/182nd Grade-Separated Light Rail Transit Alternative all would travel along the Metro ROW for the length of the project and share the same alignment and station locations. Therefore, forecasts were developed for a single Build Alternative within the Metro ROW, referred to as the Metro ROW Build Alternative throughout this report.
- **Hawthorne Option**: The Hawthorne Option would travel along a different corridor, and therefore it was considered a separate Build Alternative for the purposes of the ridership modeling.

2.3 HIGH-FREQUENCY BUS ALTERNATIVE

As part of the alternatives analysis required under CEQA, the Draft EIR also evaluates an HFB Alternative which is a bus route operating between the Redondo Beach (Marine) station and Torrance Transit Center (TC). The HFB Alternative would implement a rapid bus service instead of a light rail extension. Four stops would be located along the route at existing bus stops or improved relocated stops. Physical improvements would be limited to new signs at bus stops, a shelter, as well as solar lighting, bench, and trash receptacles as a minimum level of bus stop amenities. Where practical, the HFB Alternative may include curb extensions, elimination of street parking, or other improvements to the sidewalk area near new bus stops. A potential route for the HFB Alternative for purposes of evaluation is depicted in Figure 2-2.

[1] The 2020 SCAG RTP/SCS was not available at the time of preparation of this report, so the 2016 RTP/SCS was used in the ridership analysis. However, the population and employment trends for the cities in the Project Area are similar between the 2016 RTP/SCS and 2020 RTP/SCS.

Figure 2-1. Light Rail Build Alternatives for Ridership Modeling



Source: Metro, STV, 2022

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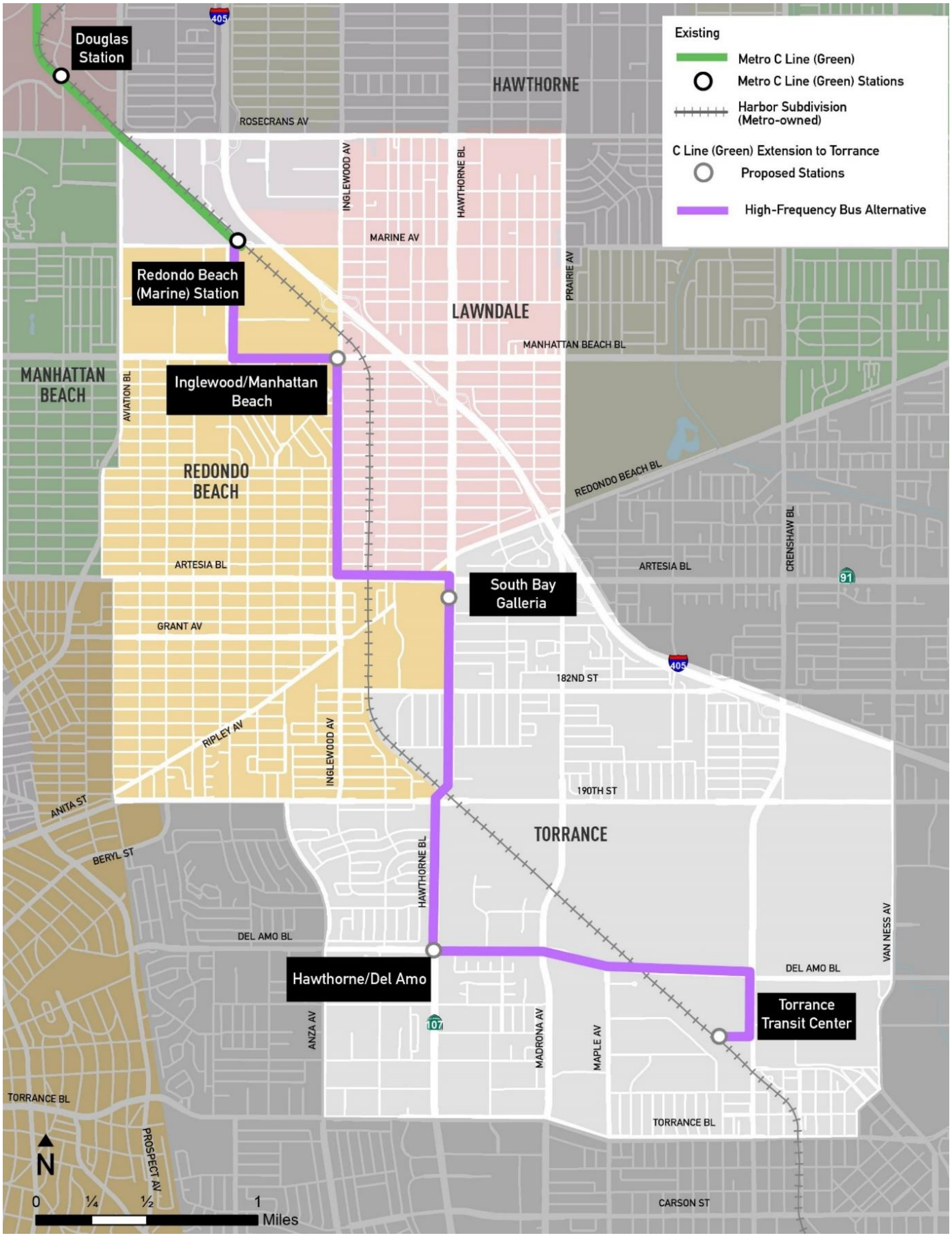
Figure 2-2. Modeled Route and Stops for the HFB Alternative



Source: STV, 2022

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3 TRAVEL DEMAND MODEL RESULTS

3.1 RIDERSHIP METRICS

Transit ridership covers a broad range of statistics that depict the ability of a project to attract riders and the ability of the bus and rail system to serve the traveling public. Important metrics in characterizing the efficiency and utility of a transit alternative are presented below and summarized for each alternative in Table 3-1.

- **Project Boardings (Trips on Project):** Trips on Project represent all trips that use the new stations on the Project, including people who are using the Project to transfer to or from other transit lines or modes. For a new rail line, project boardings are equal to the number of boardings forecast for that service. For projects that are extensions of a pre-existing service (such as the C Line Extension to Torrance), boardings are equal to the number of boardings at each new station plus the number of travelers who are on-board the trains as they leave the last existing station and travel towards the first new station. For example, trips on the Project would include people who are traveling on the transit system and transfer to, start, or end their trip at one of the new Metro C Line (Green) Extension Project stations.
- **New Riders:** New riders represent those who were not previously using the transit system (bus or rail) and are attracted to "join" the transit system based on the access to new stations provided by the Project. New riders is an important metric for the Federal Transit Administration and are used to compare alternatives. A transit alternative that attracts more new riders will do more to reduce highway and local street congestion and will improve the mobility of both the new and existing transit riders, as well as that of the people traveling by private vehicles along highways.
- **Congestion Relief:** Congestion relief is the reduction in highway travel demand in the project study area expressed in the reduction of vehicle miles of traveled (VMT). It includes both auto and truck travel. As more people switch to transit, fewer vehicles are observed on the highway, thus reducing the overall regional VMT. This measure is calculated from passenger miles traveled (PMT) with an occupancy factor. Occupancy factor is determined by the number of passengers in a vehicle during a trip.
- **Station Boardings**: Station boardings are the number of people that board at each station. This metric also looks at the mode that transit riders use to access the station (e.g., walk, bus, or park-and-ride). This statistic provides information on the locations where the project is forecasted to attract demand. It is also useful in understanding the level of activity occurring at each station and the surrounding community. The station boardings information is included in Table 3-2.
- **Transportation System User Benefits (User Benefits)**: User benefits measure the time savings for travelers throughout the transportation system. Travel time savings is one measure of user benefits, which is expressed as travel time savings in person-hours when the project is compared to the No Project Alternative. Although the key benefit of a new fixed guideway project (e.g. rail) is expected to be shorter travel times (i.e., in-vehicle time), fixed guideway projects may also include improved access, egress, frequencies, and fares and all of these elements are embedded in the user benefit measure. User benefits in terms of travel time savings are presented in Table 3-1.

3.2 OPERATING SCENARIOS

For the two Light Rail Build Alternatives, three operating scenarios of the C Line (Green) and K Line (Crenshaw) were modeled, as described below and shown in Figure 3-1 and Figure 3-2. At the time of this report, the operating pattern for the C and K lines have not been determined.

> C-1 Scenario: This scenario provides a short north/south line between the Airport Metro Connector (AMC) located at Los Angeles International Airport (LAX) and Redondo Beach (Marine) Station.

- K Line runs from Norwalk to Expo/Crenshaw
- C Line runs from AMC to Redondo Beach (Marine) Station
- LAX People Mover runs from AMC to the LAX terminals.

> C-2 Scenario: This scenario provides a north/south line between E Line (Expo) and Redondo Beach (Marine) Station.

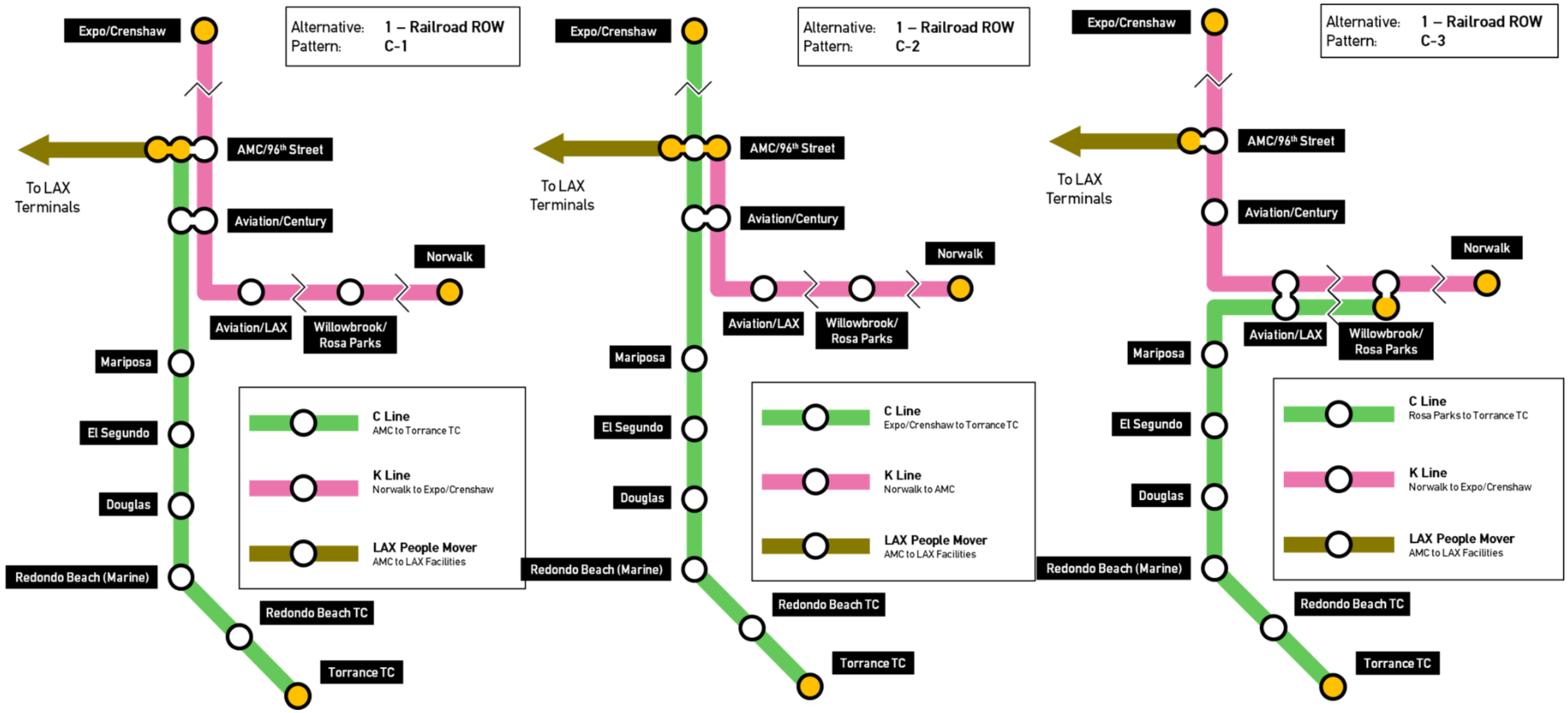
- K Line runs from Norwalk to AMC
- C Line runs from Expo/Crenshaw to Redondo Beach (Marine) Station
- LAX People Mover runs from AMC to the LAX terminals.

> C-3 Scenario: This scenario provides additional east/west service to stations along the I-105 freeway.

- K Line runs from Norwalk to Expo/Crenshaw
- C Line runs from Willowbrook/Rosa Parks to Redondo Beach (Marine) Station
- LAX People Mover runs from AMC to the LAX terminals.

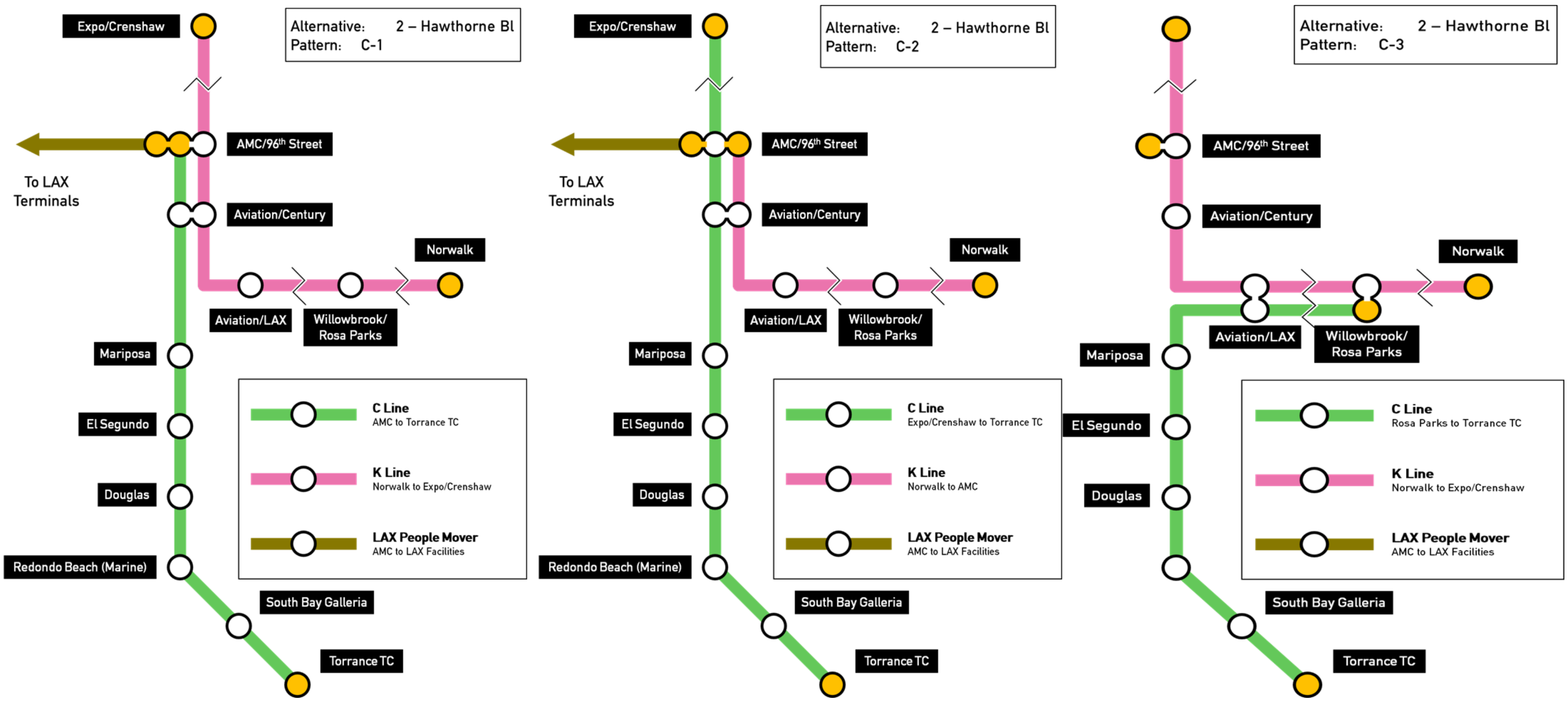
For the HFB Alternative, the scenario that was modeled was a high-frequency bus line with four stops from the Redondo Beach (Marine) Station to the Torrance TC.

Figure 3-1. Metro ROW Operating Schemes Summary



Source: Metro, AECOM, 2020

Figure 3-2. Hawthorne Option Operating Schemes Summary



Source: Metro, AECOM, 2020

Table 3-1. Year 2042 Average Weekday Project Boardings, User Benefits and Congestion Relief Summary for C Line Extension Project Build Alternatives

Build Alternatives	**Metro ROW**			**Hawthorne Option**			**HFB Alternative**		
Operating Scenario	**C-1**	**C-2**	**C-3**	**C-1**	**C-2**	**C-3**	**C-1**	**C-2**	**C-3**
Trips on Project	10,348	11,579	12,812	14,203	15,648	16,251	3,711	4,084	4,003
New Riders	4,077	4,694	5,086	5,101	5,497	5,710	1,111	1,248	1,173
VMT Savings	49,233	61,379	67,243	49,589	60,990	66,726	5,582	7,180	6,254
User Benefit (Travel Time Savings in Hours)	3,895	4,241	4,924	5,062	5,133	5,527	1,114	1,242	1,197
User Benefits per Project Trip (minutes)	22.6	22	23.1	21.4	19.7	20.4	18.0	18.2	17.9

Source: AECOM; Metro Corridor Based Model (CBM18A)

Table 3-2. Average Weekday Boarding at Proposed Stations

Build Alternatives	**Metro ROW**			**Hawthorne Option**			**HFB Alternative**		
Operating Scenario	**C-1**	**C-2**	**C-3**	**C-1**	**C-2**	**C-3**	**C-1**	**C-2**	**C-3**
Redondo Beach Transit Center (Metro ROW only)	2,022	2,287	2,439	n/a	n/a	n/a	n/a	n/a	n/a
South Bay Galleria (Hawthorne Option and HFB Alternative only)	n/a	n/a	n/a	3,029	3,372	3,303	949	953	908
Torrance Transit Center	3,152	3,503	3,968	4,073	4,452	4,823	482	534	512
Total	5,174	5,790	6,407	7,102	7,824	8,126	1,431	1,487	1,420

Source: AECOM; Metro Corridor Based Model (CBM18A)

4 CONCLUSION

Overall, the Light Rail Build Alternatives perform better than the HFB Alternative, attracting more riders, generating more user benefits and congestion relief.

Project Trips & New Riders: The Light Rail Build Alternatives (Metro ROW and Hawthorne Option) would attract between 4,000 to 5,700 new daily riders and between 10,300 and 16,200 new daily project trips, which far exceeds the projected ridership for the HFB Alternative, which is estimated around 1,100 new daily riders and 3,700-4,000 new daily project trips. The HFB Alternative has significantly lower user benefits across all operating scenarios than the Light Rail Build Alternatives (Metro ROW and Hawthorne Option), as it would generate significantly fewer new trips and riders. Overall, rail transit is likely to attract more riders, as it has faster travel times, more reliable service, and a larger population of people are willing to ride light rail than the bus. The Hawthorne Option would generate slightly more trips and new riders than the Metro ROW, although the difference is not substantial. The difference is likely due to the South Bay Galleria Station having better connectivity to activity centers than the Redondo Beach TC Station, leading to slightly more new riders and greater travel time savings for the Hawthorne Option.

User Benefits & Travel Savings: Similarly, the Light Rail Build Alternatives provide higher user benefits of up to 23.1 minutes per rail rider for Metro ROW and 21.4 for Hawthorne, compared to a maximum of 18.1 minutes per bus rider for the HFB Alternative. The Light Rail Build Alternatives would result in user benefits around 5,000 hours (5,527 hours for the Hawthorne Option and 4,924 for the Metro ROW), which is almost five times greater than the HFB Alternative with up to 1,114 hours. This is largely due to the Light Rail Alternatives being separated from traffic, having direct connections to the existing rail network resulting in higher speeds of travel and thus, greater reliability in travel times for riders than the HFB Alternative. Users on the HFB Alternative would also need additional time to transfer at the Redondo Beach (Marine) Station from bus to train, including time to walk and wait between modes.

Congestion Relief & VMT: The VMT savings for the Light Rail Build Alternatives is far greater than the HFB Alternative. The VMT savings for the two light rail alternatives are very similar, with a maximum VMT savings daily of 67,243 for the Metro ROW and 66,726 for Hawthorne Option. The Metro ROW and Hawthorne Option would provide two new rail stations and rail access that would reduce automobile dependency and allow greater reliance on light rail transit for residents of the region. The HFB Alternative would have a maximum savings of 7,180 VMT daily due to the lower number of riders.

Station Boardings: The Torrance TC is estimated to have the highest ridership of the stations for the Light Rail Build Alternatives due to the connections for riders beyond the proposed terminus via bus lines. The proposed transit parking lot provided as part of the Project adjacent to the Torrance TC would allow commuters and other users an easy connection between personal vehicles and light rail, also increasing ridership levels. The HFB Alternative would have lower station boardings due to its lower overall ridership.

Operating Patterns: The new trips and project trips generated for the Light Rail Build Alternatives vary based on the potential operating patterns for the Metro C (Green) and K (Crenshaw) Lines. C-3 would have the highest rider benefits, followed by C-2 and C-1. Under C-3, higher benefits would be due to additional connections at stations along both the K Line (Crenshaw) and Interstate 105. Under C-2, riders would have a direct connection between the E Line (Expo) and Torrance TC, whereas under C-1, riders must transfer to the Metro C Line (Green) from the K Line (Crenshaw). Metro will determine operating patterns closer to the date of opening service based on future ridership and operational needs.

5 MODELING METHODOLOGY OVERVIEW

The ridership and mobility benefit forecasts for the Project are based on the latest version of the Metro Transportation Analysis Model, Corridor Based Model 2018A (CBM18A). This section describes the forecasting methodology and model validation.

The Metro Transportation Analysis Model is similar to transit forecasting models used by other large U.S. transit agencies, and uses assumptions regarding regional socioeconomic and transportation network characteristics to develop estimates of the amount of travel (i.e., trips) occurring between different locations in the area, the market share of each transportation mode (i.e. how many people typically drive, take transit, bike, walk), and the routing of these trips over the highway and transit networks. To maintain a manageable modeling process, locations in the model are grouped into smaller geographic areas called Traffic Analysis Zones (TAZs), which are the fundamental geographic unit of analysis for the entire process. This process is repeated for every combination of origin and destination location in the metropolitan area.

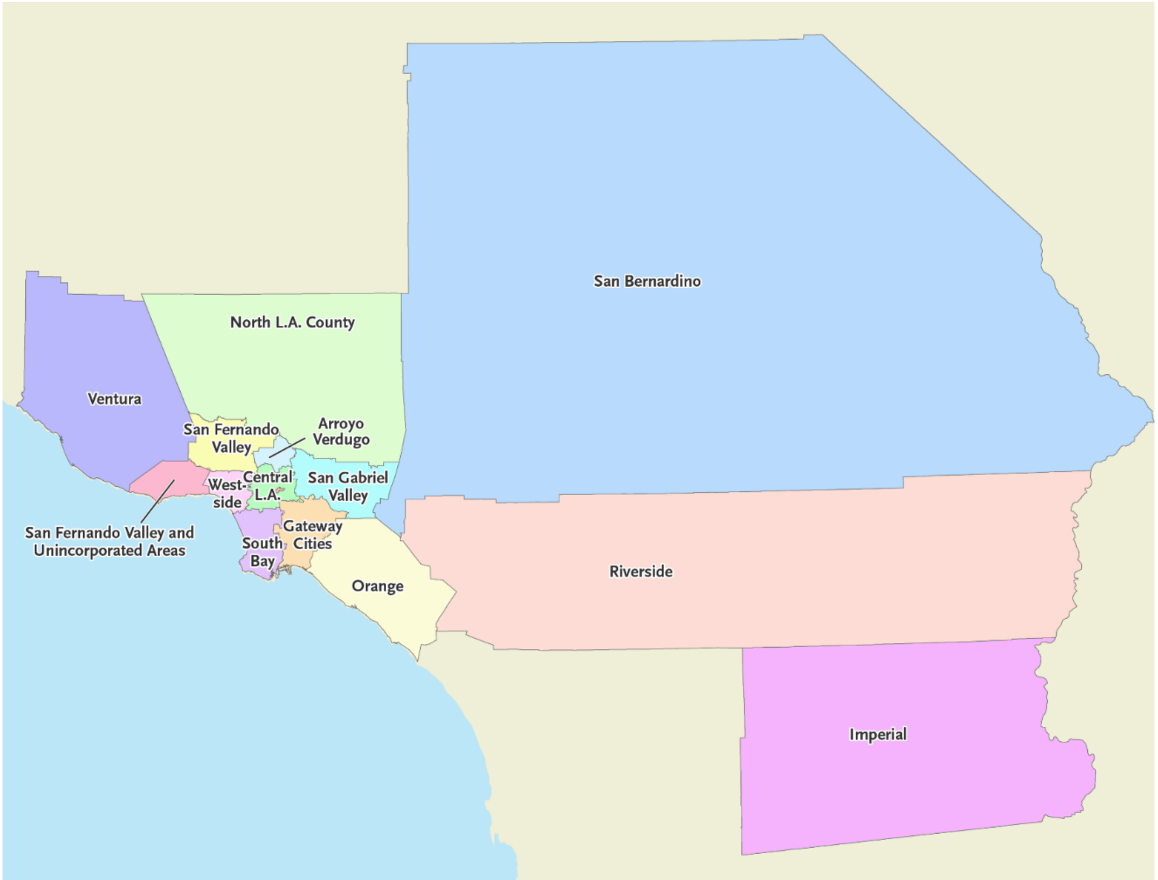
The model is a form of the conventional four-step model used for transportation analysis throughout the United States. Key steps of the model are summarized below and described further in the following sections.

- **Trip Generation -** This step estimates the number of trips produced in and attracted to each TAZ based on socioeconomic variables such as population, households, and employment for that zone. Example: TAZ 165 is expected to produce 5,000 trips per day and attract 3,500 trips per day
- **Trip Distribution -** A computerized network representation of the highway system is used to estimate the time and cost (saved as a “skim matrix”) associated with travel between each pair of TAZs, and these estimates are combined with trip generation results to develop a trip table of all trips between each production and each attraction TAZ in the region. Example: There are expected to be 15 trips from TAZ 165 to TAZ 275 each day, and 20 trips from TAZ 275 to TAZ 165
- **Mode Choice -** Following trip distribution, the skim matrices for each mode of travel (e.g. driving, bus, walking) are used to characterize the quality of each transportation option and to estimate the market share that each mode would attract. Example: Of the 15 trips from TAZ 165 to TAZ 275, 10 are expected to be via cars, 4 are expected to be via bus, and 1 is expected to be via bicycle.
- **Trip Assignment -** Finally, network processing software is used to determine the best path or route that each trip will use to travel between the origin and destination. Ridership results such as boardings by station or route are determined from the results of this element of the model. Example: The four bus riders board Line 54 at the Washington Street stop in TAZ 165 and exit the bus at the Elm Avenue stop in TAZ 275.

5.1 TRAFFIC ANALYSIS ZONE SYSTEM

The system of TAZs applied in the Metro Transportation Analysis Model is designed to support an understanding of all travel occurring to, from and within Los Angeles County. Within the model, all travel is represented beginning at the trip origin (e.g., home) and ending at the trip destination (e.g., workplace or shopping location). This approach requires a broad regional geographic system that encompasses the key travel markets to, from, and within Los Angeles County including Ventura, Orange, San Bernardino, Riverside, and Imperial Counties. The TAZ system includes approximately 3,000 TAZs. Figure 5-1 shows the overall modeling district system.

Figure 5-1. Metro Multimodal Model Analysis Districts



Source: AECOM, 2022

5.2 Socioeconomic Data

Existing and projected socioeconomic data are major inputs to the travel demand model. The socioeconomic data include population, employment, and household information and are aggregated by TAZ. Base year (2017) data and forecast year (2042) projections in the model were obtained from the SCAG RTP/SCS. The 2017 data from the CBM18A model is used to represent the 2019 baseline conditions since it is the closest available "model year." The horizon year for this study is 2042, which is nine years after revenue service is expected to begin on the Proposed Project (2033).

5.3 Trip Generation and Distribution

Trip tables contain information on the number of trips produced in and attracted to each zone-to-zone interchange in the modeling area. These tables are structured as large matrices where each row represents a production zone (e.g. the home end of a trip), and each column represents an attraction zone (e.g. the non-home end of a trip). Each cell represents the number of trips traveling between a particular production zone and a particular attraction zone.

The Metro Transportation Analysis Model layers travel by the purpose of the trip and time of travel. Trip purpose was analyzed during peak and off-peak hours for home-based trips (in which the home is the origin between work, university, or another activity with a return trip home), and non-home based trips (those that do not involve the home or a return trip home).

Trip tables for the Metro Transportation Analysis Model were obtained from the model set developed by SCAG and converted to the Metro zone system. This conversion is based on the relative number of trips produced in or attracted to each Metro zone as estimated using the SCAG trip generation model and Metro zone-based socioeconomic data.

5.4 HIGHWAY NETWORK

The highway networks for 2017 and 2042 are based on the SCAG highway networks developed for the 2016 RTP/SCS. These networks are similar to the networks used by all agencies responsible for modeling in Southern California. One key difference is that Metro has developed an additional variable that measures transit accessibility. The year 2017 highway network includes estimates of peak (i.e. rush hour) and off-peak link speeds which were obtained from Caltrans and local municipalities. These speeds are used as part of the network processing procedures.

5.5 TRANSIT NETWORKS

Transit Networks for the year 2017 and 2042 are maintained by Metro and represent all bus and rail public transit services operating and proposed/anticipated services in Los Angeles County and neighboring jurisdictions. Coded services include:

- Metrolink Commuter Rail
- Metro Rail
- Metro Bus operations including Local, Rapid, Express and Transitway services
- Other Municipal Bus operations (e.g. Torrance Transit, Beach Cities Transit)

5.6 TRAVEL TIMES

Peak travel times for a person driving alone (classified as a single-occupancy vehicle (SOV) trip) and multiple in a car (classified as high-occupancy vehicle (HOV) trip) are determined by assigning an initial peak period vehicle trip table onto the highway network and using the resulting volumes to determine congested speeds on each link. HOV lanes are identified as “2+” or “3+” to refer to the minimum number of occupants required in a vehicle to use the HOV lane. A shortest path procedure is used to determine the fastest route between each origin and destination, and the resulting travel times are recorded in a skim matrix. This process results in travel times for SOV and HOV trips.

Transit run times for fixed guideway modes (e.g., rail modes) are directly specified based on scheduled or anticipated station-to-station travel times. Run times for bus services operating in street traffic (without a dedicated bus lane) are based on the roadway travel time including delays due to starting and stopping and passengers boarding and alighting on the corresponding link in the roadway network.

5.7 MODE CHOICE OVERVIEW

The heart of the ridership forecasting process is the mode choice model. This process is designed to subdivide the person trip tables from the trip distribution model into separate trip tables for each travel mode. The share attracted to each mode is based on the travel characteristics of competing highway and transit services, socio-economic characteristics of the production and attraction TAZs, and parameters that define the relative importance of each factor. The proportion of trips selecting each mode is estimated by comparing the relative attractiveness of that mode (typically based on cost and travel time) compared to that of all other modes.

5.8 HIGHWAY ASSIGNMENT

The output of the modal choice process includes work and non-work auto vehicle trips, which reflect the modal trade-offs among driving alone (SOV), using HOV lanes (HOV), and taking various transit options. An equilibrium assignment process is applied that assigns the three vehicle trip tables to appropriate paths and links. During each iteration of the equilibrium assignment, the model loads SOV, HOV2 and HOV3+ trips. The assignment produces a "loaded" highway network that includes "constrained" times and speeds from the final assignment iteration as well as the initial input times and speeds. Times and speeds on both general-use and HOV facilities are included.

5.9 TRANSIT ASSIGNMENT

The resulting loads are reported by link and mode using the standard TRANPLAN "Load Transit Network" module. It should be noted that these assignments are produced in production-attraction format, as is normal for transit analyses, rather than the origin-destination format more commonly used in highway assignments.

5.10 MODEL VALIDATION

In order to validate the CBM18A model for the study corridor, a series of checks were done, and the model was updated accordingly. First, the Home-Based Work Trips in the model were compared with the 2006-2010 American Community Survey (ACS) data and found that the trips going to the North and Northeast of the South Bay district were lower compared to the ACS flows. Modeled person trips to South Bay NE district were multiplied by factor of 1.8 and trips to South Bay North were multiplied by 0.82 to adjust for this discrepancy. After the adjustments, trips to South Bay North and South Bay NE districts looked reasonably close to observed trips.

The modeled transit trips were compared against trip levels from Metro’s 2011 On-Board Survey scaled to model volumes, and modeled transit service was checked against observed transit service and ridership for routes within the corridor. Three current Metro and local bus service routes headways and runtimes were compared between the model and the existing schedules. Model adjustments as part of the validation process have helped improve the transit trips comparison between the model and survey. The model adjustments have decreased the local bus trips and increased rapid bus trips bringing them closer to observed distribution. It was determined that the validation adjustments were suitable for the Project’s forecasting effort and the adjustments were carried forward to the future year network.