four separate sections; the valve cleaning room, the repair area, the valve painting area and the valve test area. The repair and test operations are performed in enclosed, temperature-controlled rooms. Repair operations are performed in individual workstations.

Clean Room/Electronics Shop: This enclosed, temperature controlled room would be equipped to clean, troubleshoot, repair and test trainset electronic components such as panels, relays, inverters, battery chargers, circuit cards and selected control units. Repair activities are generally performed at individual workstations using specialized electronic test equipment.

HVAC Unit Repair Shop: This area would be used to repair the components, associated with air conditioning units.

Pantograph Repair Area: This area would be located on a suspended platform at the roof level of a rail car for the removal and installation of electric propulsion energy collection components.

Battery Room: This area supports the disassembly, cleaning, testing and reassembly of multi-cell battery units.

Wheel Shop: This area supports the fabrication and repair of wheel and axle sets. Machine technology resident in this shop includes a mounting press, demount press, wheel bore, and axle lathes.

Material Inventory and Distribution Area
This area serves as the distribution point in the Main Maintenance and Repair Facility for the material required to maintain, repair, clean, service, and provide for the state of good repair of the high-speed rail fleet. The area includes a loading dock for highway vehicles, space for the storage of transitional components (wheel sets, air compressors, etc.), and equipment (cranes, forklifts, pallet shelving etc.) associated with the efficient storage and distribution of rail car components and equipment.

Component Change-Out Area
This area is configured as a four track "run-through" facility. The hoist section of this area has the capacity to lift eight coupled rail cars on two separate tracks. Located between these tracks, are two tracks configured for the removal and installation of rail car trucks. Car body posts hold the rail vehicle in place while the trucks are removed and positioned on one of the four available truck turntables for efficient transition into the Truck Shop.

Overhaul Area
This area is utilized in the life cycle maintenance program. Rail cars undergo rebuild and major component replacement on either a time or mileage based cycle. Systems and subsystems are removed, rebuilt and replaced.

Heavy Repairs
This area accommodates repairs to a rail car that requires it to be out of service for an extended length of time.

Exterior Maintenance Shop
This area provides for the cosmetic and minor body damage repair, touch-up and periodic re-painting of vehicle exteriors.

One fleet storage/service and inspection/light maintenance facility would be needed for each major branch of the HST system (i.e., Bay Area, Sacramento, and southern California). These facilities would need to be sited as near as possible to the terminal stations. Main repair and heavy maintenance facilities are generally located near the main trunk line of the system (Los Angeles to Merced), where the

majority of trains would pass on a daily basis. Only one main repair and heavy maintenance facility would be necessary; however, three potential sites are considered in this analysis. The specific facilities carried forward for consideration in this Program EIR/EIS are listed below by region and illustrated in Figure 2.6-66 and 2.6-67.

A. BAY AREA TO MERCED

- West Oakland: One site for a fleet storage/service and inspection/light maintenance facility could be located two blocks northwest of where Peralta Street intersects Mandela Parkway and southeast of where the alignment is parallel to I-880.
- Los Banos: One site for a fleet storage/service and inspection/light maintenance facility to support the Pacheco Pass options could be located immediately west of where SR-165 intersects Henry Miller Avenue, also parallel with Henry Miller Avenue.
- Merced: One site for a fleet storage/service and inspection/light maintenance facility to support the Diablo Range direct alignment options could be located near Castle AFB.

B. SACRAMENTO TO BAKERSFIELD

- Sacramento (Power Inn Road): One site for a fleet storage/service and inspection/light maintenance facility could be located south of Alpine Avenue, north of Elder Creek Road, east of Power Inn Road, west of Florin Perkins, and parallel to the UPRR main track alignment.
- Bakersfield: One main repair and heavy maintenance facility could be located west of Lerdo Canal approximately halfway between 7th Standard Road and E-Lerdo Highway O.P., parallel with SR-99.

C. BAKERSFIELD TO LOS ANGELES

- Los Angeles: Two possible sites are being evaluated for a main repair and heavy maintenance facility. One site would be located immediately south of Spring Street, east of the Los Angeles River and north of Condout Street. The second site would be located immediately west of I-5, north of Mission Road, and northeast of Macy Street.

D. LOS ANGELES TO SAN DIEGO VIA INLAND EMPIRE

- San Diego: Two possible sites for a fleet storage/service and inspection/ light maintenance facility are being evaluated. The site associated with the Qualcomm Stadium option would be located immediately north of the Soledad Freeway and parallel to the Escondido Freeway. The site associated with the San Diego downtown option would be immediately east, perpendicular, and adjacent to I-805 and northwest of MCAS Miramar.

2.7 ALTERNATIVES SUMMARY

2.7.1 No Project Alternative

The No Project Alternative is the baseline for comparing the potential environmental impacts and benefits of all alternatives being analyzed in the Program EIR/EIS. The No Project Alternative consists of the state's transportation system that serves the same intercity travel market as the other alternatives. It includes the highway, air, conventional rail, and bus facilities and operations that existed in 1999–2000 as they will be after improvements that have been approved and funded in the fiscally constrained[19] and conforming RTPs, STIPs, and airport development programs (ADPs) are in place. When this financially

[19] "Fiscally constrained" or "financially constrained" plans are limited by the foreseen available funding for a project in a region.

Figure 2.6-66
Support Facilities Considered
(North)

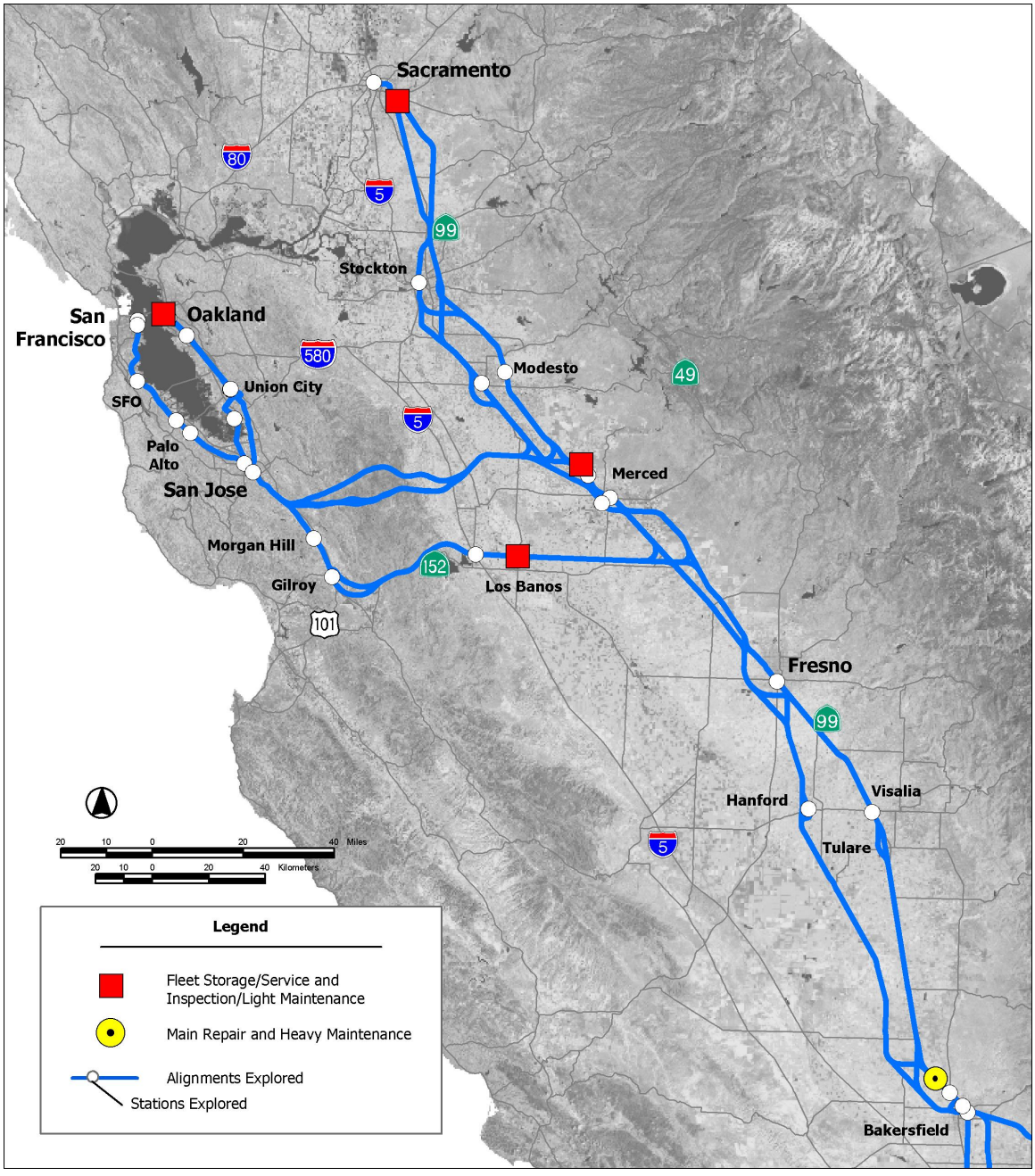
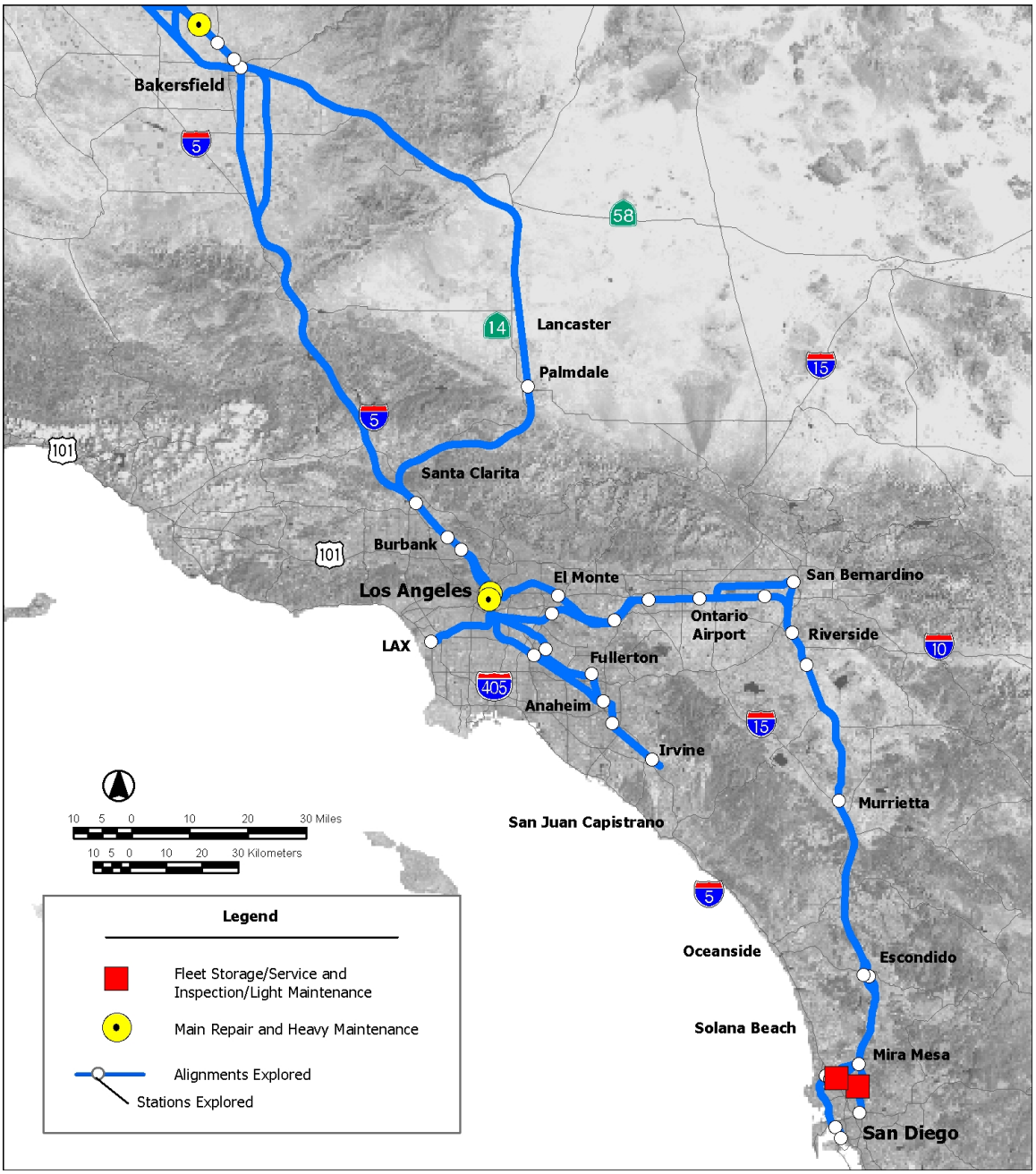


Figure 2.6-67
Support Facilities Considered
(South)



constrained level of infrastructure improvement is analyzed with the significant growth in population and transportation demand that is projected to occur by 2020, the data show that most highways and airports serving the intercity travel market would be at capacity and experiencing a level of congestion that would severely affect the reliability of travel and the travel time between major metropolitan cities in California.

2.7.2 Modal Alternative

The Modal Alternative represents a hypothetical, reasonable build alternative to the proposed HST system consisting of expansion of highways and airports serving the same geographic areas. For consistency, the Modal Alternative was developed to provide an equivalent capacity to serve a representative demand for intercity travel, an estimate based on the independent ridership and revenue forecasts prepared for the Authority (California High Speed Rail Authority 2000).

The Modal Alternative consists of potential improvements to both highway and airport components of the statewide transportation system. The improvements considered for each mode are capacity oriented (e.g., additional traffic lanes for highways with associated interchange reconfiguration and ramp improvements; additional gates and runways for airports with associated taxiways, parking, and passenger terminal facilities). For purposes of this analysis, the projected travel demand has been allocated to the highways and airport facilities described under the No Project Alternative, to identify improvements to those facilities necessary for serving the projected intercity travel demand in lieu of HST service.

Figures 2.7-1 and 2.7-2 summarize the hypothetical improvements included in the Modal Alternative on the existing highway and airport system. The Modal Alternative consists of more than 2,900 new lane-mi (4,667 km) of highway, 6 new runways, and 68 new airport gates statewide.

Table 2.7-1 presents the number of additional lanes included in the Modal Alternative and their assumed configurations. This Program EIR/EIS assesses the potential impacts associated with the implementation of this alternative in comparison with the other system alternatives.

Figure 2.7-1
Modal Alternative Highway Improvement Component

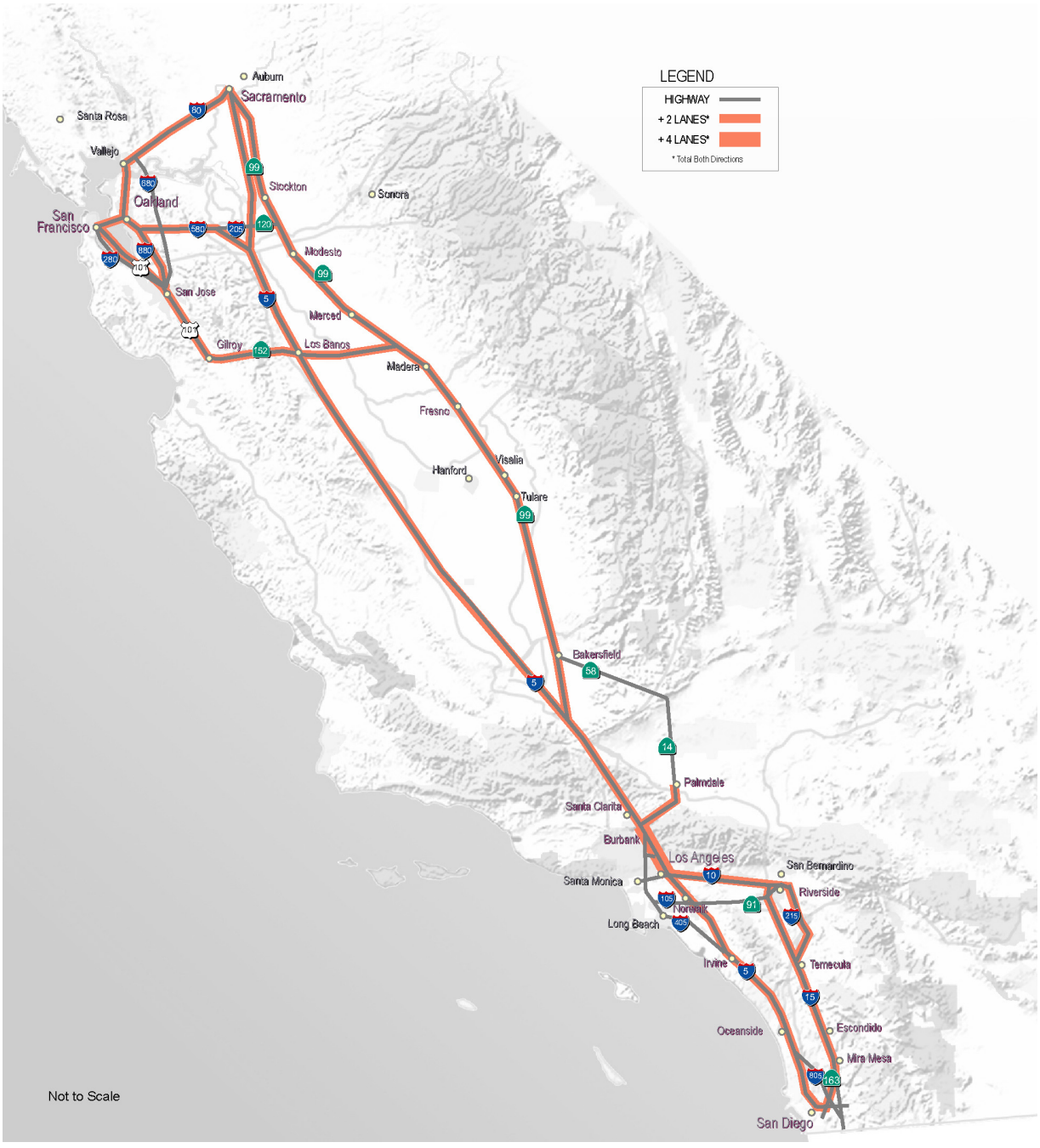
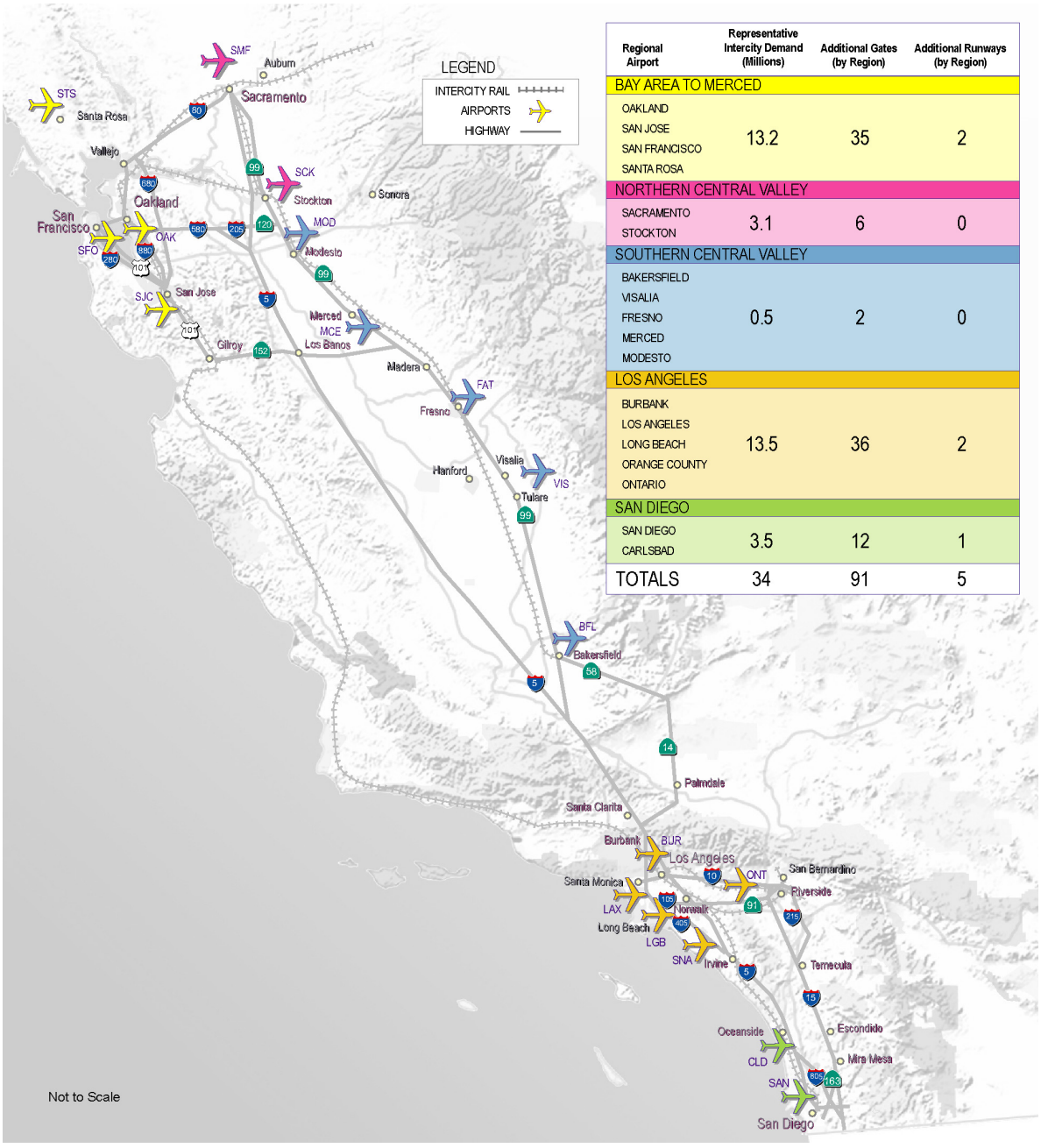


Figure 2.7-2
Modal Alternative Aviation Improvement Component



Regional Airport	Representative Intercity Demand (Millions)	Additional Gates (by Region)	Additional Runways (by Region)
BAY AREA TO MERCED			
OAKLAND SAN JOSE SAN FRANCISCO SANTA ROSA	13.2	35	2
NORTHERN CENTRAL VALLEY			
SACRAMENTO STOCKTON	3.1	6	0
SOUTHERN CENTRAL VALLEY			
BAKERSFIELD VISALIA FRESNO MERCED MODESTO	0.5	2	0
LOS ANGELES			
BURBANK LOS ANGELES LONG BEACH ORANGE COUNTY ONTARIO	13.5	36	2
SAN DIEGO			
SAN DIEGO CARLSBAD	3.5	12	1
TOTALS	34	91	5

Table 2.7-1
Improvement Definition for Highways

Highway Corridor	Segment (From–To)	No. of Additional Lanes[a] (Total–Both Directions)	No. of Existing Lanes (Total–Both Directions)	Type of Improvement
Bay Area to Merced				
US-101	San Francisco to SFO	2	8	Widening
US-101	SFO to Redwood City	2	8	Widening
US-101	Redwood City to I-880	2	8	Widening
I-880	US-101 to San Jose	2	8	Widening
US-101	San Jose to Gilroy	2	6	Widening
US-101	Gilroy to SR-152	2	4	Widening
SR-152	US-101 to I-5	2	2	Widening
SR-152	I-5 to SR-99	2	4	Widening
I-80	San Francisco to I-880	2	10	[b]
I-80	I-880 to I-5 (Sacramento)	2	8	Widening
I-880	I-80 to I-238	2	8	Widening
I-580	I-880 to I-5 (via I-238)	2	8	Widening
I-880	I-238 to Fremont/Newark	2	8	Widening
I-880	Fremont/Newark to US-101	2	6	Widening
Sacramento to Bakersfield				
I-5	I-80 to Stockton	2	6	Widening
I-5	Stockton to I-580/SR-120	2	6	Widening
I-5	I-580/SR-120 to SR-152	2	4	Widening
I-5	SR-152 to SR-99	2	4	Widening
SR-99	I-5 to SR-58	2	6	Widening
SR-99	Sacramento to SR-120	2	4	Widening
SR-99	SR-120 to Modesto	2	6	Widening
SR-99	Modesto to Merced	2	4	Widening
SR-99	Merced to SR-152	2	4	Widening
SR-99	SR-152 to Fresno	2	4	Widening
SR-99	Fresno to Tulare/Visalia	2	6	Widening
SR-99	Tulare/Visalia to SR-58	2	4	Widening
Bakersfield to Los Angeles				
I-5	SR-99 to SR-14	2	6	Widening
I-5	SR-14 to I-405	4	10	Separate facility
I-5	I-405 to Burbank	4	8	Widening
I-5	Burbank to LAUS	4	8	Widening
SR-58/14	SR-99 to Palmdale	0	4	Widening
SR-14	Palmdale to I-5	2	4	Widening

Highway Corridor	Segment (From–To)	No. of Additional Lanes[a] (Total–Both Directions)	No. of Existing Lanes (Total–Both Directions)	Type of Improvement
Los Angeles to San Diego via Inland Empire				
I-10	I-5 to East San Gabriel Valley	2	10	Widening
I-10	East San Gabriel Airport to ONT	2	8	Widening
I-10	ONT to I-15	2	8	Widening
I-10	I-15 to I-215	2	8	Widening
I-15	I-10 to I-215	2	8	Widening
I-215	Riverside to I-15	2	4	Widening
I-215	I-10 to Riverside	2	6	Widening
I-15	I-215 to Temecula	2	10	Widening
I-15	Temecula to Escondido	2	8	Widening
I-15	Escondido to Mira Mesa	2	10	Widening
I-15	Mira Mesa to SR-163	2	10	Widening
SR-163	I-15 to I-8	2	8	Widening
Los Angeles to San Diego via Orange County				
I-5	LAUS to I-10	4	8	Widening
I-5	I-10 to Norwalk	2	6	Widening
I-5	Norwalk to Anaheim	2	6	Widening
I-5	Anaheim to Irvine	2	10	Widening
I-5	Irvine to I-405	2	10	Widening
I-5	I-405 to SR-78	2	8	Widening
I-5	SR-78 to UTC	2	8	Widening
I-5/I-8	UTC to San Diego Airport	2	8	Widening
I-8	SR-163 to I-5	2	8	Widening

[a] Represents the number of through lanes in addition to the total number of lanes in the No Project highway network that would serve the representative demand.

[b] No additional or separate facility assumed. Additional demand is assumed to utilize the existing bridge, spreading the peak period congestion.

2.7.3 High-Speed Train Alternative

The proposed statewide HST system would be capable of speeds in excess of 200 mph (320 kph) on dedicated, fully grade-separated tracks, with state-of-the-art safety, signaling, and automated train control systems. Steel-wheel-on-steel-rail technology would serve the major metropolitan centers of California, extending from Sacramento and the San Francisco Bay Area through the Central Valley, to Los Angeles and San Diego (Figure 2.7-3).

Forecasted ridership for this system varies between 42 and 68 million passengers (up to 10 million riders are long-distance commuters) for 2020, depending on the assumptions made in the ridership forecast modeling, with a potential for higher ridership beyond 2020. Sensitivity analyses using assumptions of increased costs and congestion of air and automobile travel resulted in the high end of the range of potential ridership. For a conservative assessment of potential impacts, this higher forecast is used as a basis for defining the HST Alternative and is referred to elsewhere in this report as the *representative*

Figure 2.7-3
High-Speed Train Corridors and
Stations for Continued Investigation

demand. The highest return on investment route identified in the Business Plan serves to represent the proposed HST Alternative for general comparison and evaluation with the other system alternatives.

Throughout each region of the state, many alignment and station options have been identified and selected for analysis in the Program EIR/EIS through a comprehensive screening evaluation. These options are evaluated in the Program EIR/EIS, and key differences are addressed in the comparison of system alternatives. Within the alignment and station options are several major design options including the following.

- Northern Mountain Crossing: Mountain crossing options through the Coastal Mountain Range between the Central Valley and the Bay Area. Primarily two options: the Pacheco Pass through Gilroy and a northern crossing more directly aligned with San Jose.
- Southern Mountain Crossing: Mountain crossing options through the Tehachapi Mountain Range between Los Angeles and Bakersfield. Primarily two options: the I-5 corridor and a route through the Antelope Valley.
- Bay Area: Service options to the Bay Area along the peninsula to San Francisco and/or the East Bay to Oakland.
- Southern California: Service to Orange County in addition to service to San Diego via Inland Empire and the I-15 corridor.
- Shared-Use Options: Service to the urban centers on shared tracks with other passenger rail services. Based on the screening evaluation, the state-of-the-art high-speed steel-wheel-on-steel-rail technology considered for the system must also be capable of sharing tracks with other services at reduced speeds in heavily urbanized areas (i.e., San Jose to San Francisco, and Los Angeles to Orange County).
- Link to LAX: Direct or transfer to other transit system.

Conceptual designs were developed for all of the alignment options that include horizontal alignment, profile, and general infrastructure cross-sections. Conceptual designs and design criteria for the passenger stations and other support facilities are presented in *Engineering Criteria*, January 2004Maps illustrating the horizontal alignment and profile type (aerial, at grade, and tunnel) and cross-section schematics are provided in the technical report *Alignment Configuration and Cross Sections*, published by the Authority in January 2003. The relation of each of the alignment options to other existing transportation facilities is also a key aspect of the conceptual designs. This information defines the general physical characteristics of the options for consideration in the environmental technical analyses presented in this Program EIR/EIS. Figures 2.7-4 through 2.7-13 illustrate the alignment characteristics (relation to existing corridors and proposed configurations) for alignment options in each region.

Figure 2.7-4
HST Alignment Options - Relation to Existing Transportation Corridors
Bay Area to Merced Region

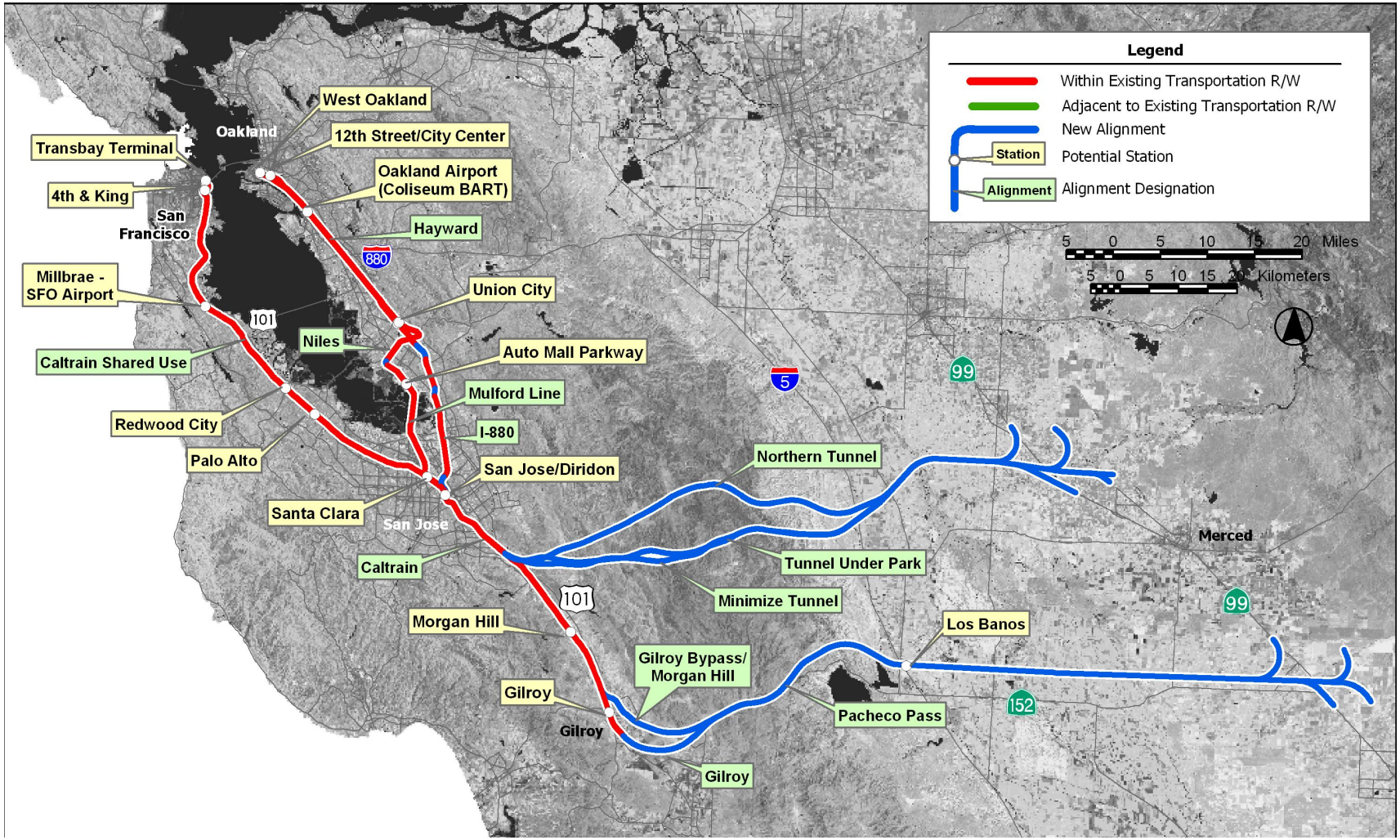


Figure 2.7-5
HST Alignment Options – Profile Characteristics
Bay Area to Merced Region

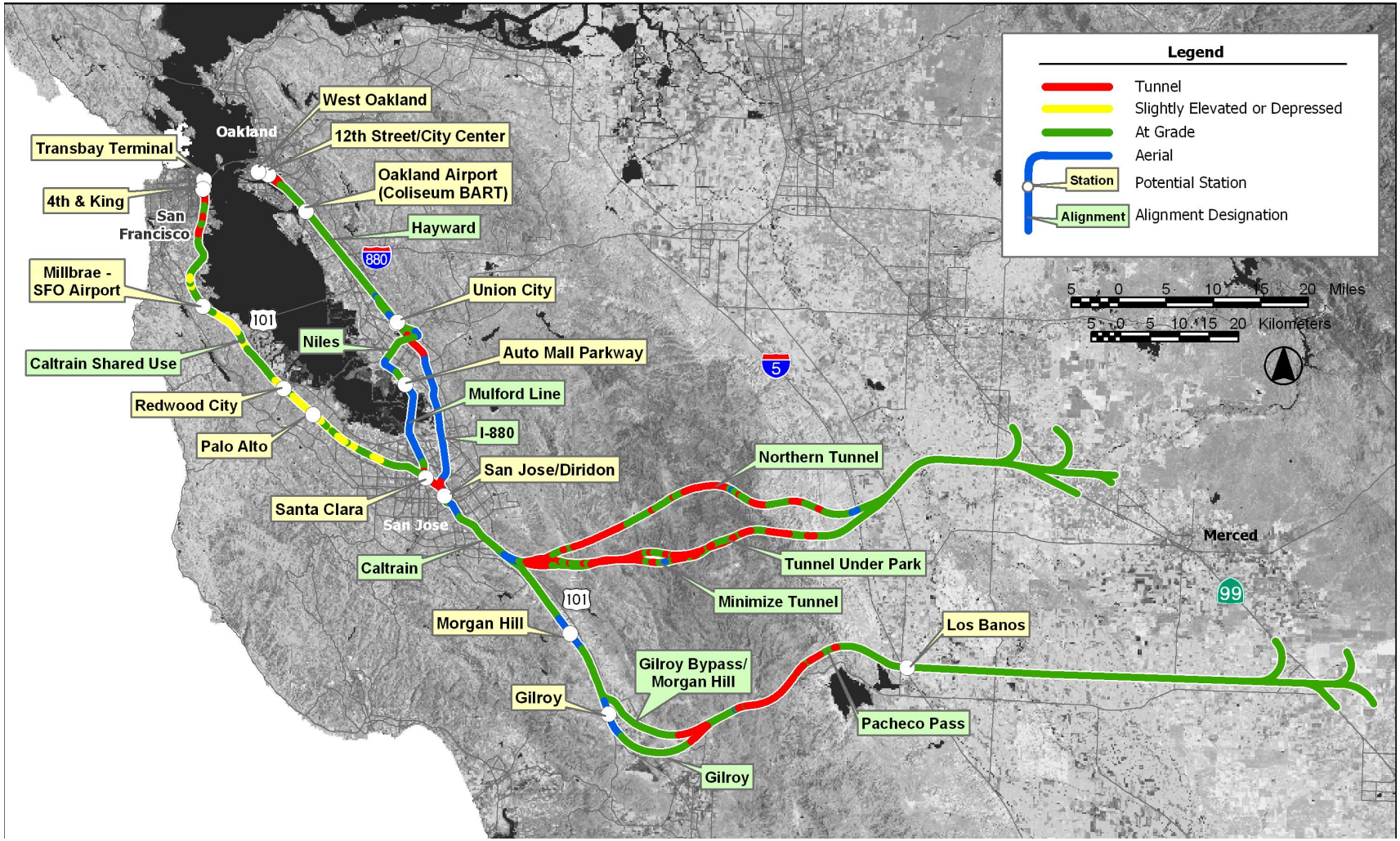


Figure 2.7-6A
HST Alignment Options - Relation to Existing Transportation Corridors
Sacramento to Bakersfield Region (North)

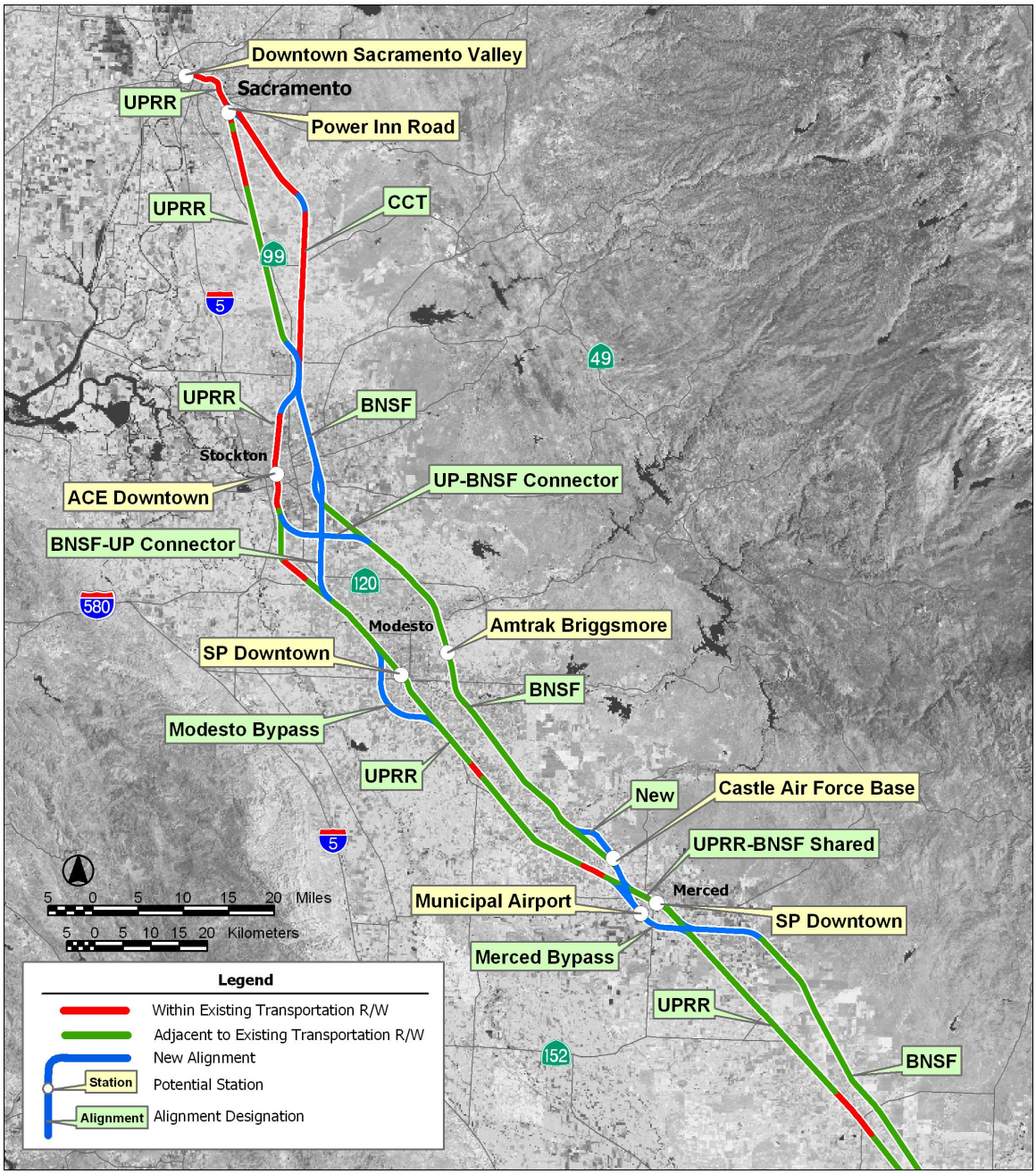


Figure 2.7-6B
HST Alignment Options - Relation to Existing Transportation Corridors
Sacramento to Bakersfield Region (South)

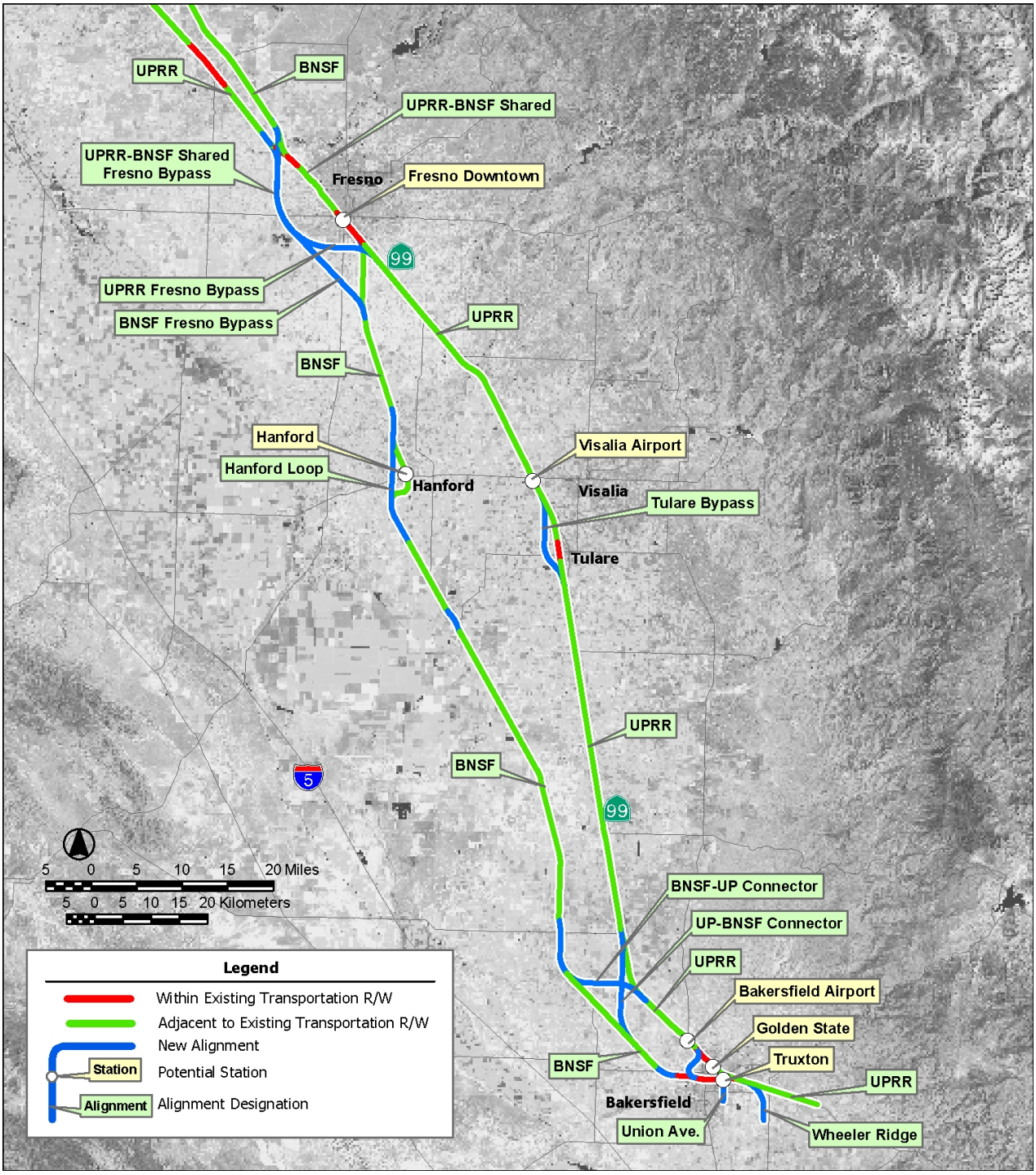


Figure 2.7-7A
HST Alignment Options – Profile Characteristics
Sacramento to Bakersfield Region (North)

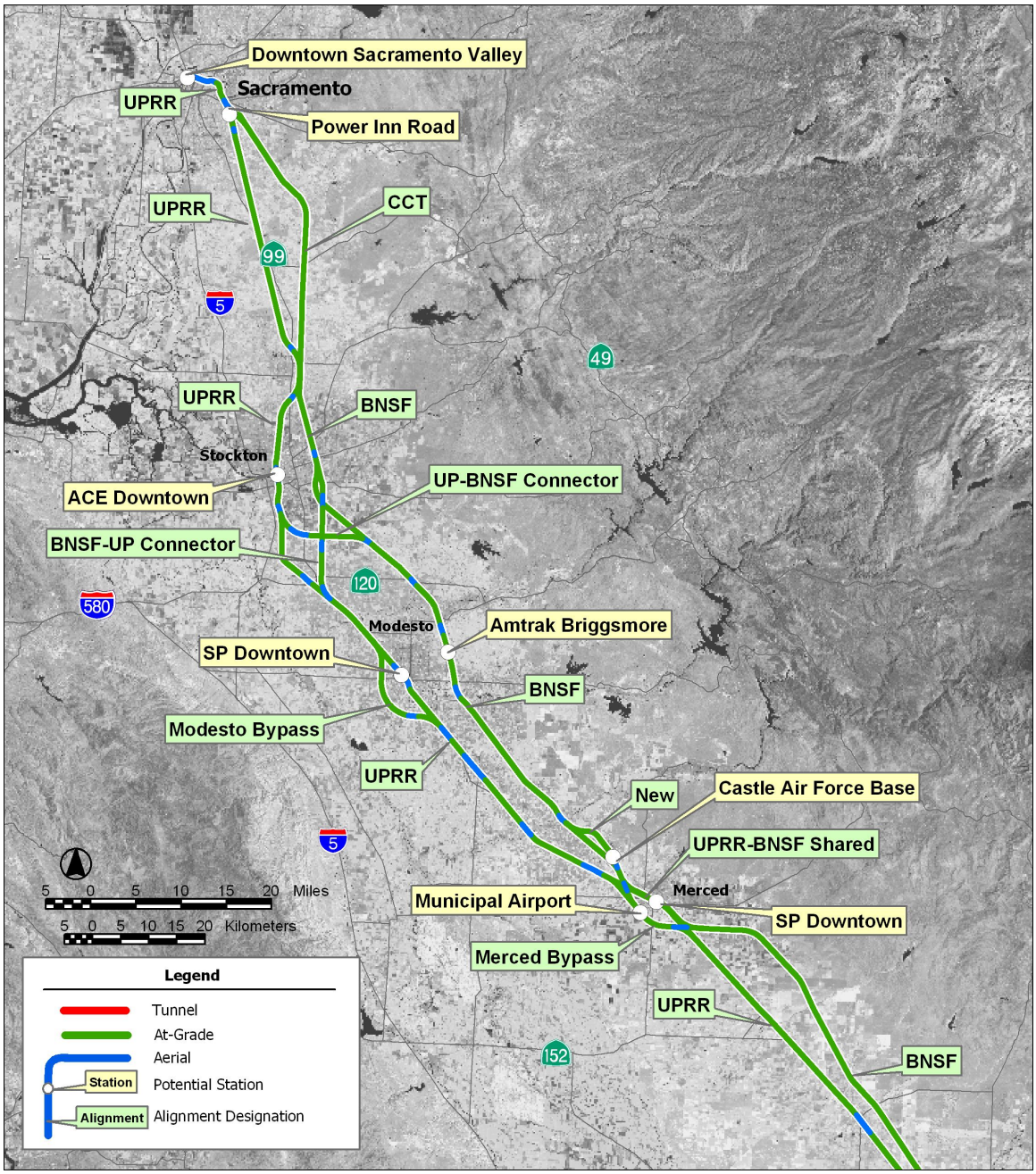


Figure 2.7-7B
HST Alignment Options – Profile Characteristics
Sacramento to Bakersfield Region (South)

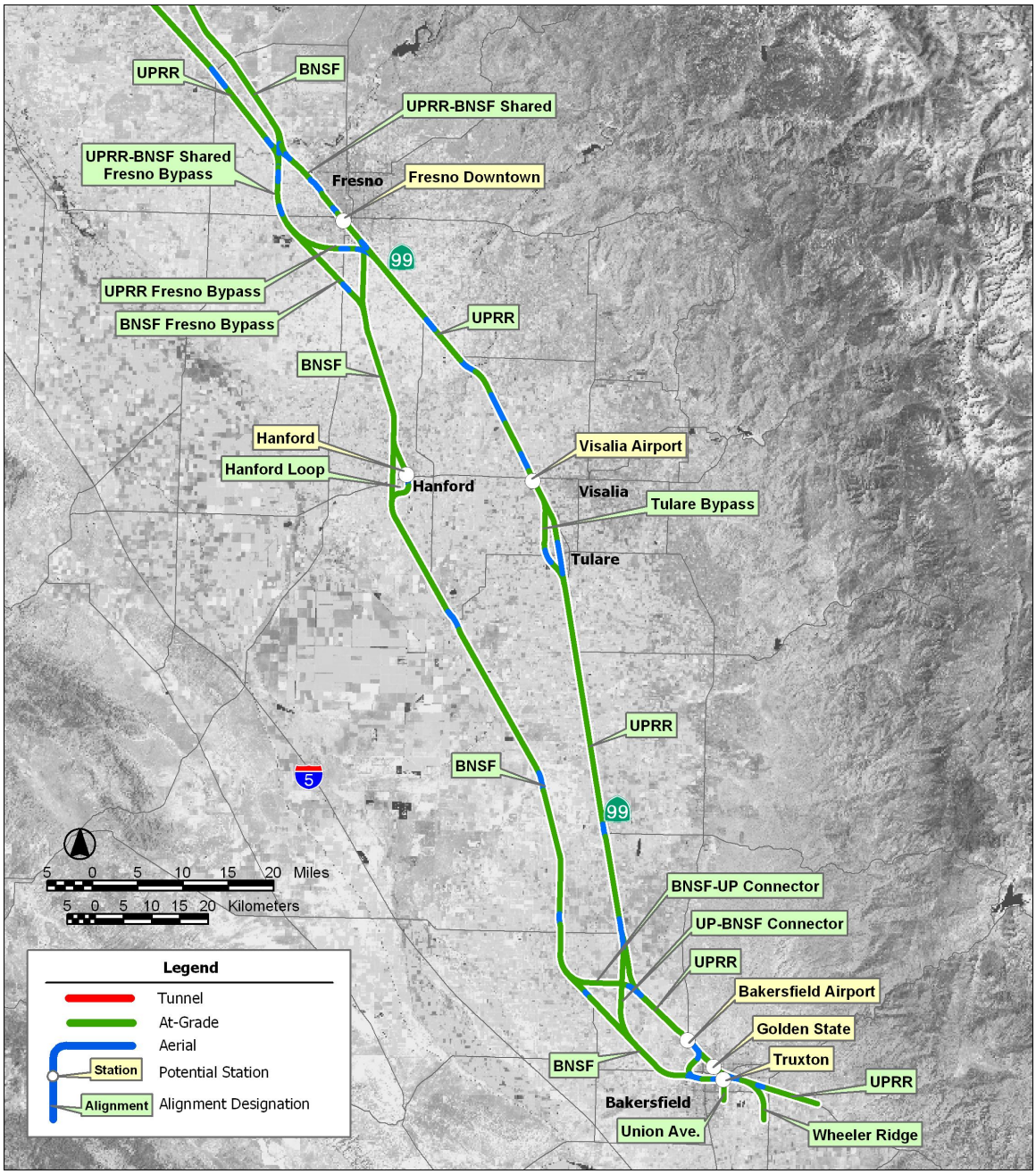


Figure 2.7-8
HST Alignment Options - Relation to Existing Transportation Corridors
Bakersfield to Los Angeles Region

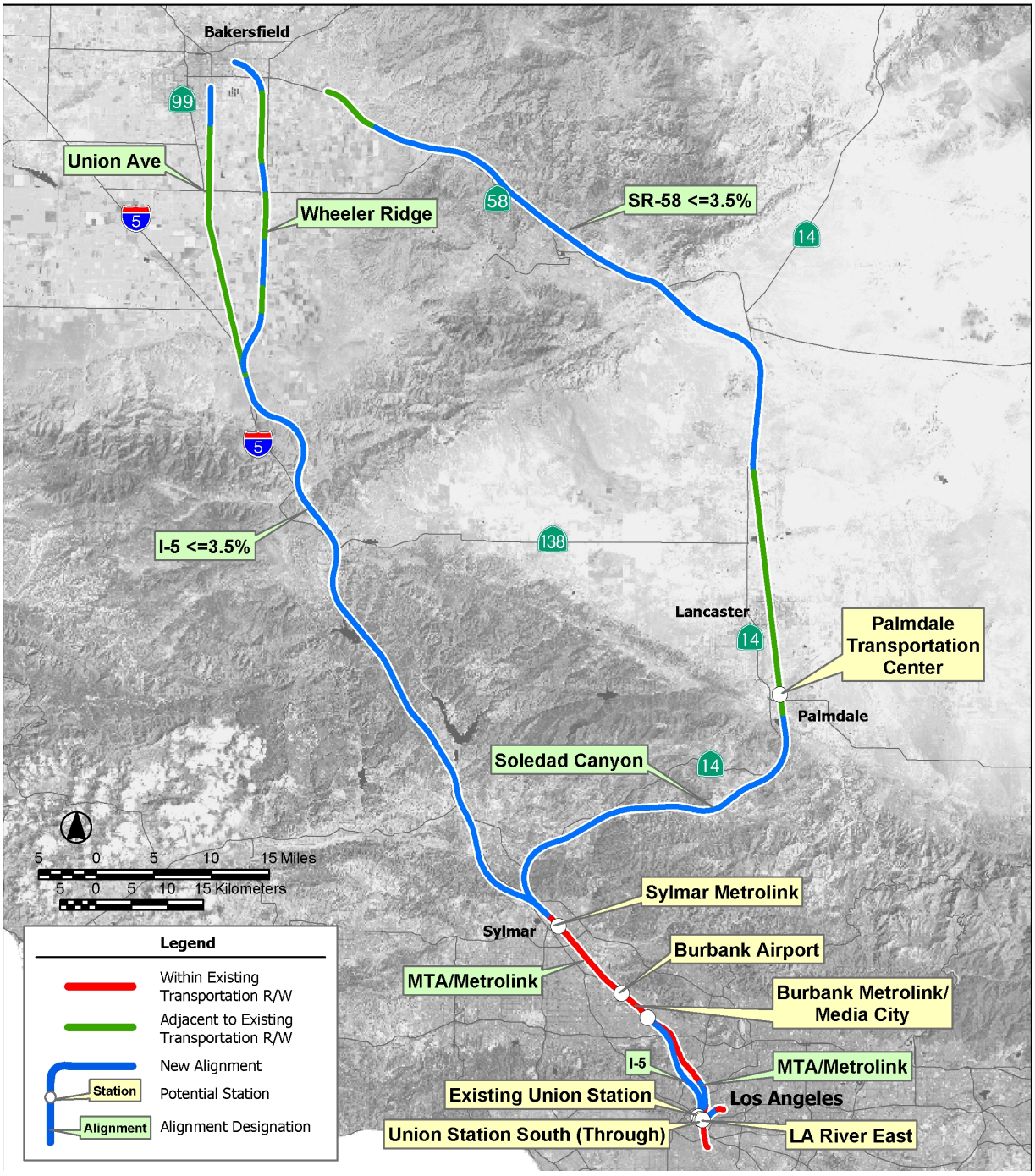


Figure 2.7-9
HST Alignment Options – Profile Characteristics
Bakersfield to Los Angeles Region

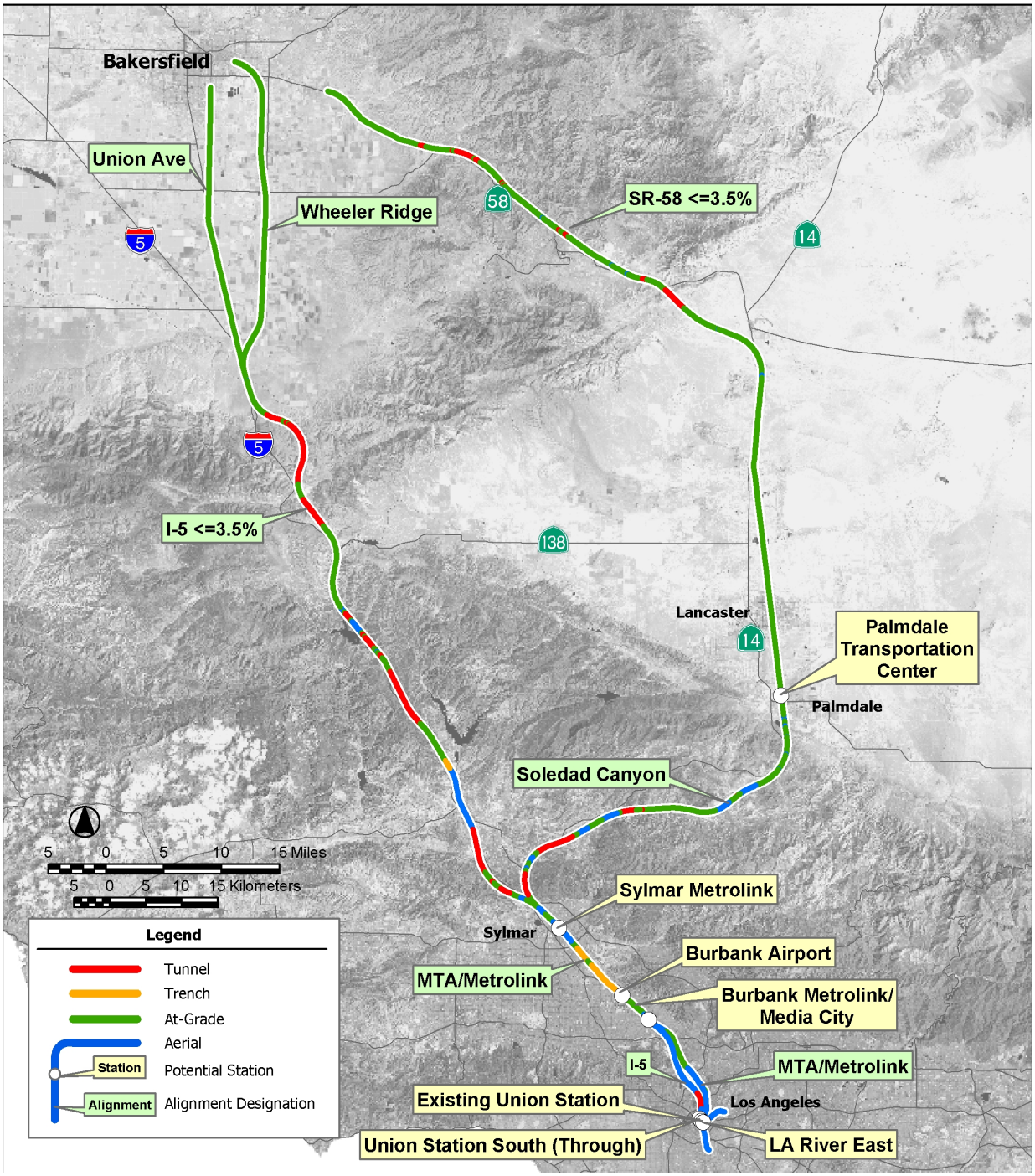


Figure 2.7-10
HST Alignment Options - Relation to Existing Transportation Corridors
Los Angeles to San Diego via the Inland Empire Region

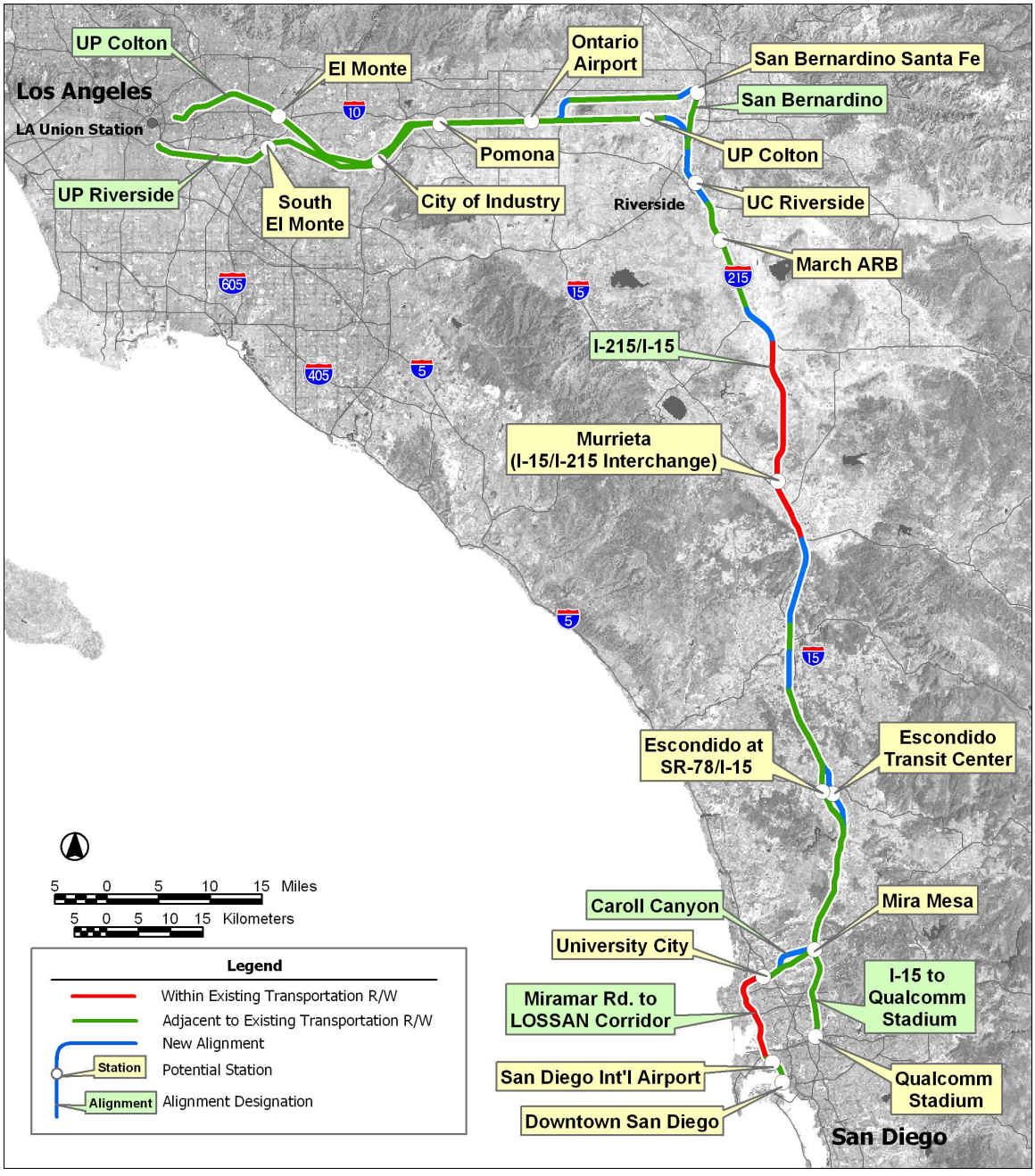


Figure 2.7-11
HST Alignment Options – Profile Characteristics
Los Angeles San Diego via the Inland Empire Region

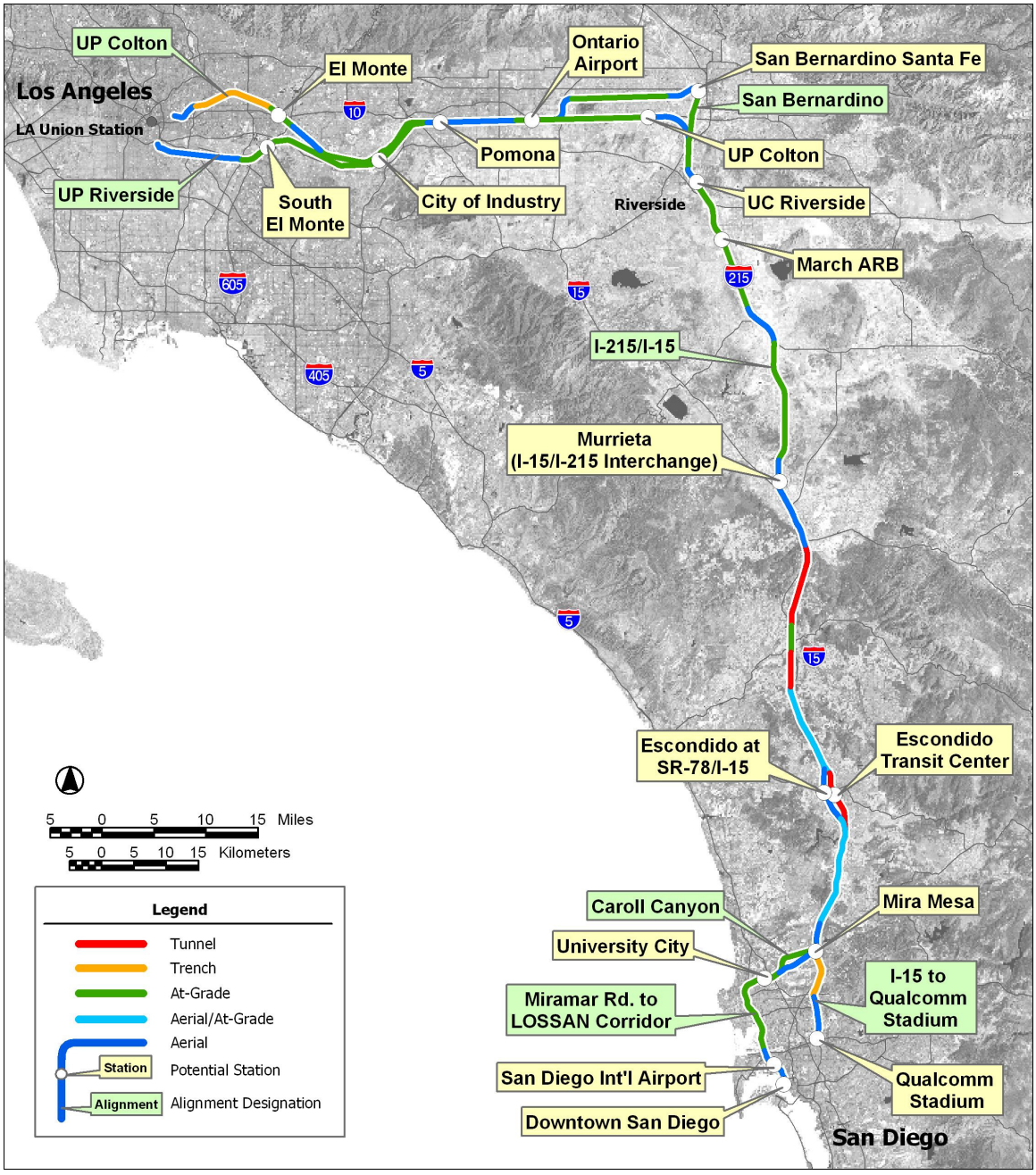


Figure 2.7-12
HST Alignment Options - Relation to Existing Transportation Corridors
Los Angeles to San Diego via Orange County Region

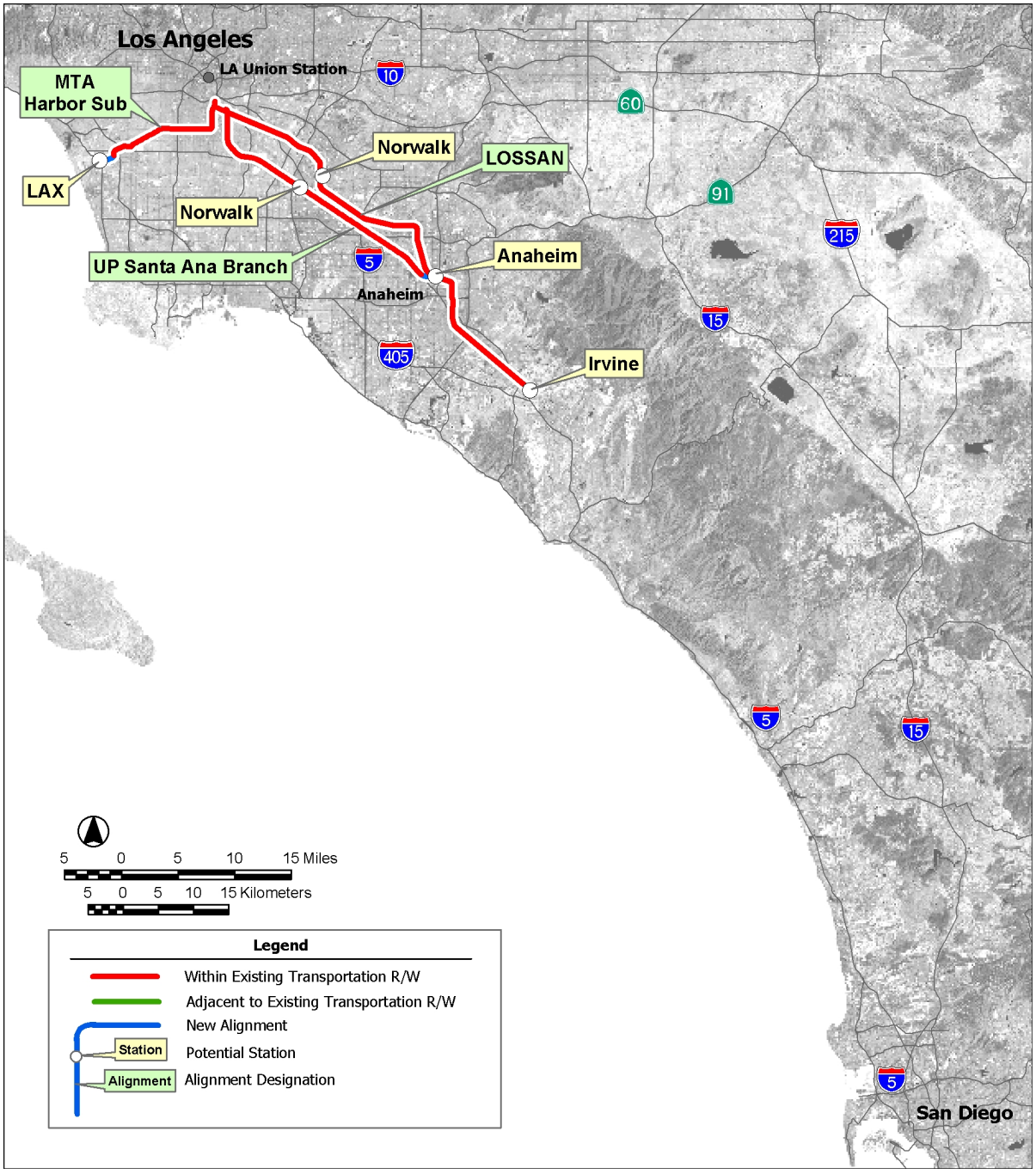


Figure 2.7-13
HST Alignment Options – Profile Characteristics
Los Angeles San Diego via Orange County Region