

**Figure 2.6-54
 March Air Reserve Base to Mira Mesa
 Alignments and Stations Carried Forward**

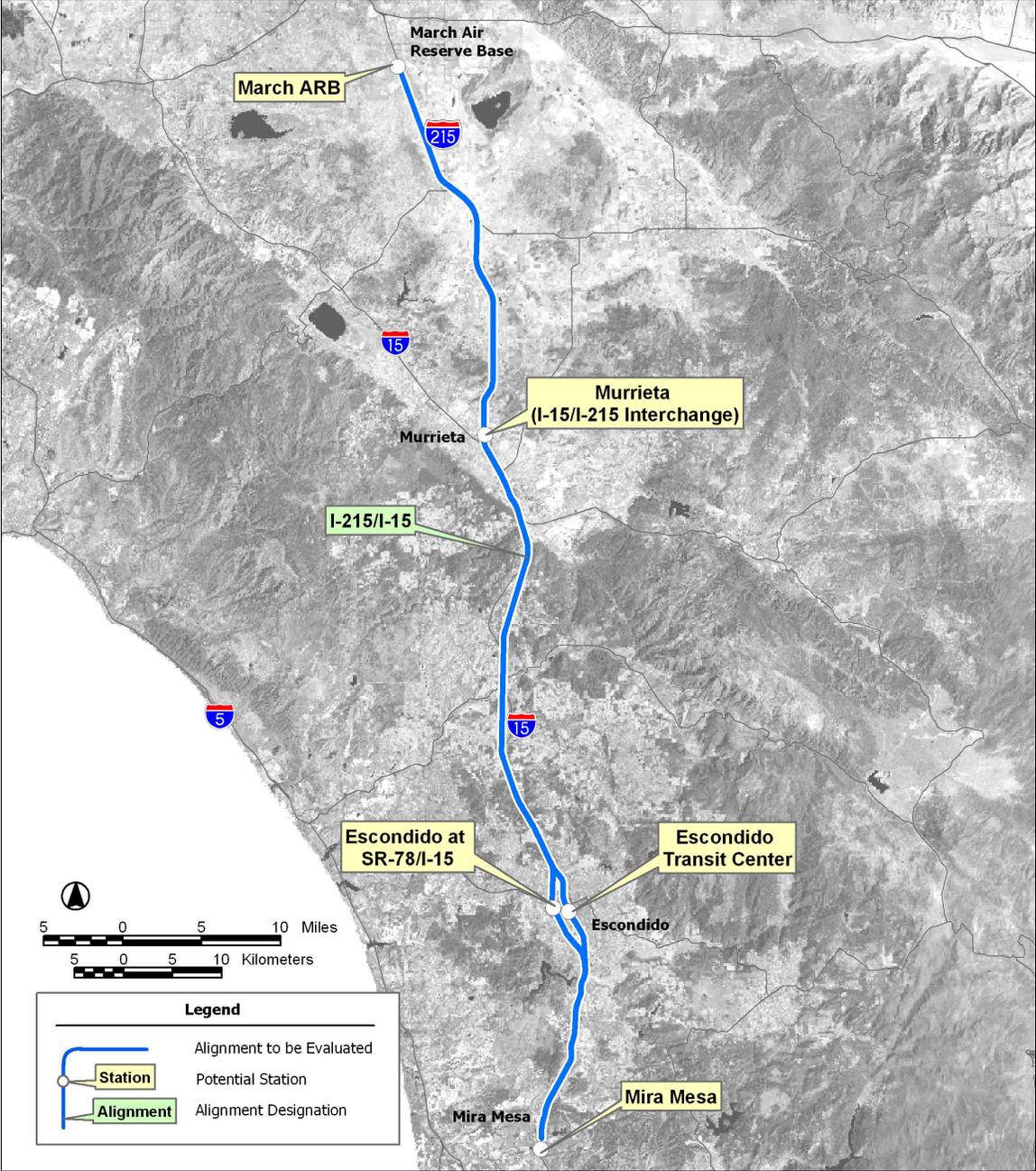
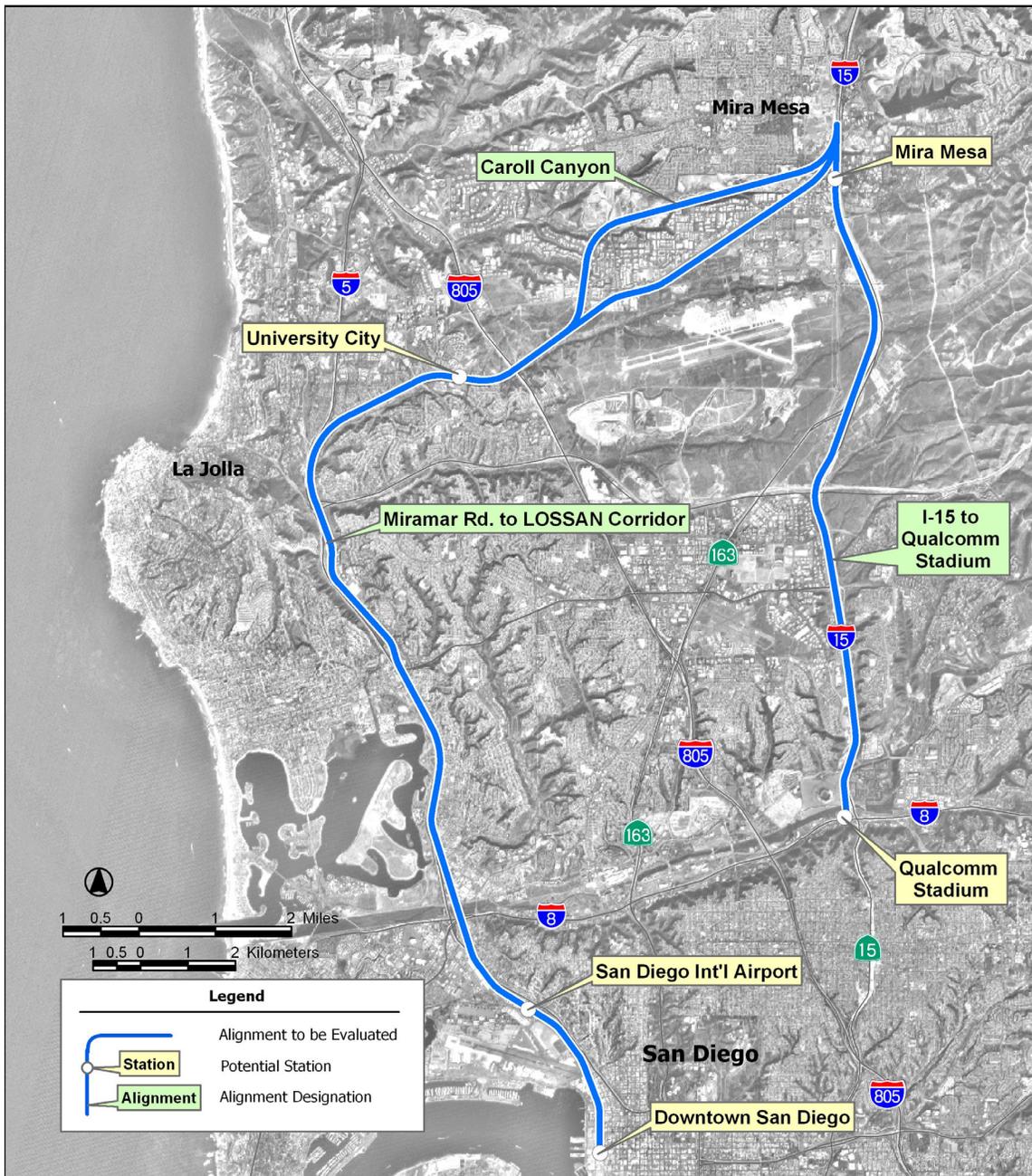


Figure 2.6-55
Mira Mesa to San Diego
Alignments and Stations Carried Forward



- I-15 to Coast via Miramar Road: This alignment would extend south along I-15 from Mira Mesa, then west along Miramar Road to connect to the LOSSAN corridor near UTC. The alignment would then continue on the LOSSAN corridor¹⁷ to the Santa Fe Depot in Downtown San Diego. Station options would include University City, the San Diego Airport, and downtown San Diego at the Santa Fe Depot.

Although curves would reduce the average speed to 93 mph (150 kph) and this alignment option would result in impacts on the northern border of MCAS Miramar, this alignment would provide the most direct connection to the University City HST station option and to the LOSSAN corridor. Miramar Road would provide a feasible route option to link the I-15 corridor to the LOSSAN corridor and to both the potential downtown San Diego high-speed station sites (Santa Fe Depot and SAN).

- I-15 to Coast via Carroll Canyon: This alignment would extend south along I-15 from Mira Mesa, then west through Carroll Canyon to connect to LOSSAN corridor. The alignment would then continue on the LOSSAN corridor¹⁷ to downtown San Diego.

This alignment would avoid the northern end of the MCAS Miramar and connect, via Miramar Road, to UTC shopping center and to the LOSSAN corridor. Difficult terrain and alignment curves would reduce the average speed to 91 mph (146 kph).

- I-15 to Qualcomm Stadium: This alignment would extend south along I-15 from Mira Mesa to Qualcomm Stadium in East Mission Valley. The Qualcomm Stadium area would be the potential station site.

This option, as initially conceived, would not provide direct access to the San Diego airport or the downtown San Diego Santa Fe Depot but would have few alignment curves and a fast average speed of 153 mph (246 kph). It also would have the shortest length (about 10 mi [16 km]), the shortest travel times (4.2 min), and the lowest cost. This line would stop at the Qualcomm Stadium. It would be necessary to transfer to the San Diego Trolley to reach downtown San Diego. Including the time of transfer and local commute, this alternative would have the longest overall travel time to the San Diego Airport or downtown San Diego Santa Fe Depot, if the time needed for the transfer and local commute is included. Additional evaluation at the request of SANDAG, MTDB, and NCTD indicated that a tunnel option to extend this alternative to serve the San Diego airport and downtown San Diego would require very deep tunneling (to avoid existing deep foundations in poor geologic conditions) and would be impracticable due to difficult and costly construction conditions.

Station Locations:

- University City: This potential station site would serve the La Jolla and northern San Diego areas from the Miramar Road alignment (see LOSSAN region).
- Qualcomm Stadium: This potential station site would serve San Diego via the I-15 alignment.
- San Diego Airport: This potential station site would serve San Diego and San Diego International-Lindbergh Field from the Miramar Road alignment and Carroll Canyon alignment.
- Downtown San Diego at the Santa Fe Depot: This potential station site would serve downtown San Diego from the Miramar Road alignment and Carroll Canyon alignment.

¹⁷ The conceptual design assumed the HST system would operate on separate tracks.

E. LOS ANGELES TO SAN DIEGO VIA ORANGE COUNTY

This region includes the western portion of the Los Angeles basin between downtown Los Angeles and LAX and the coastal areas of southern California between Los Angeles and San Diego, generally following the existing LOSSAN rail corridor. To facilitate this analysis, this region has been divided into four sections.

- LAUS to LAX.
- LAUS to Orange County.
- Orange County to Oceanside.
- Oceanside to San Diego.

While these sections are generally similar in geography, they differ in terms of land use intensity and amount of sensitive ecological areas traversed. The alignment and station options considered in each section of the Los Angeles to San Diego via Orange County region are discussed below and compared in detail in Appendix 2-H.

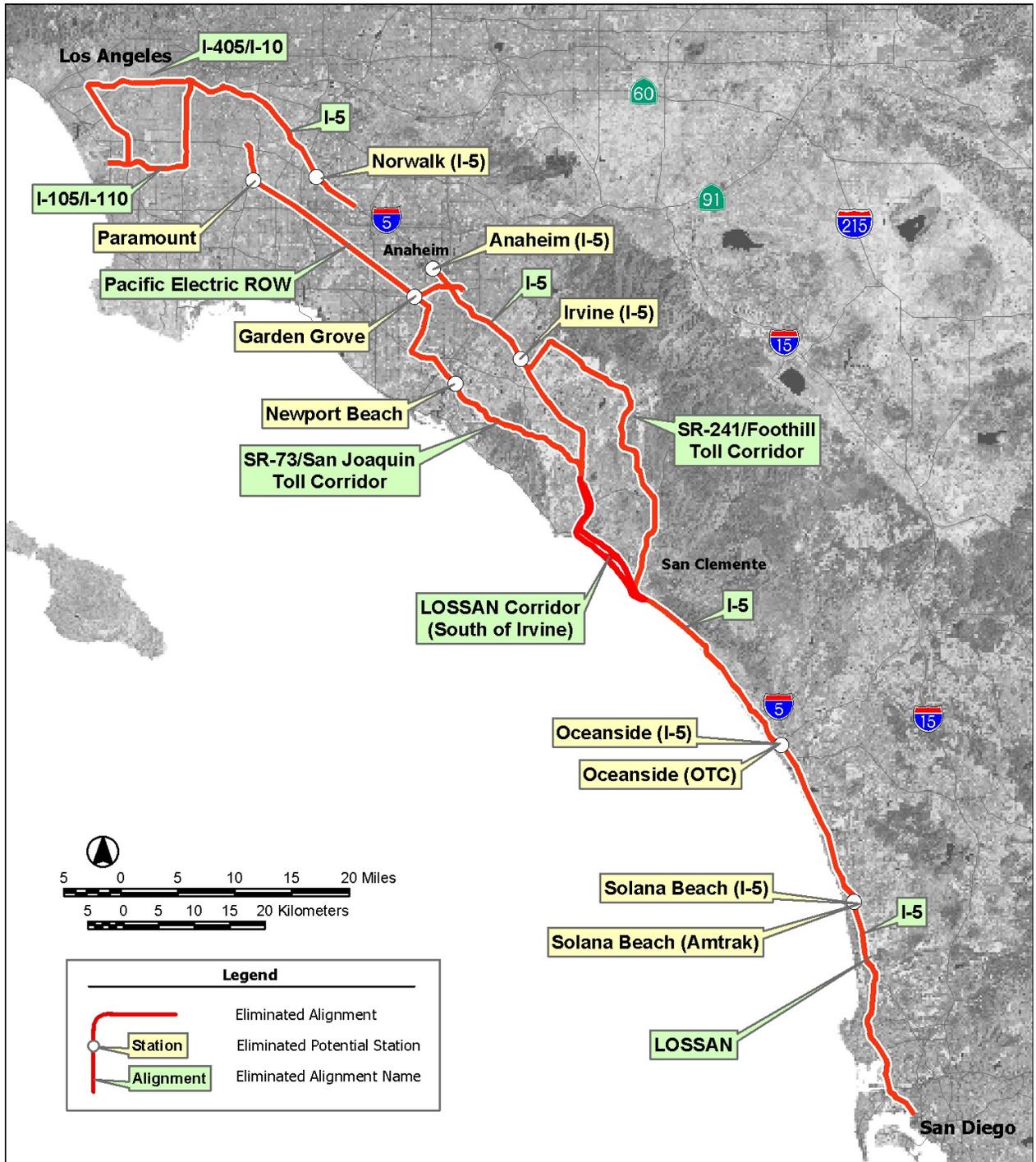
Los Angeles to San Diego via Orange County Options Eliminated

The following alignments and stations were considered and eliminated for this region (see Figure 2.6-56). The reasons for elimination of each of the options in this region are categorically summarized in Table 2.6-10 and further described in the subsections that follow. A summary discussion about each option follows.

**Table 2.6-10
Los Angeles to San Diego via Orange County High-Speed Train
Alternative Alignment and Station Options Considered and Eliminated**

Alignment or Station	Reason for Elimination							Environmental Concerns
	Construction	Incompatibility	Right-of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Alignment Eliminated	Environment	
LAUS to LAX								
I-405 and I-10	P		P				S	Environmental justice, community impacts, parks
I-105 and I-110	P		P				S	Environmental justice, community impacts
Upgrade MTA Green Line to Support HSTs	P							
LAUS to Orange County								
I-5 Freeway	P		P					
Pacific Electric Right-of-Way	P			S				
<i>Station Locations</i>								
Paramount (San Pedro Branch at I-105)						P		
Norwalk (I-5 at Imperial Highway)						P		

Figure 2.6-56
Eliminated Alignments and Stations
Los Angeles to San Diego (Via Orange County)



Alignment or Station	Reason for Elimination							Environmental Concerns
	Construction	Incompatibility	Right-of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Alignment Eliminated	Environment	
Garden Grove (PE ROW at SR-22)		P		S		P	S	Community and neighborhood impacts
Anaheim I-5		P		S			S	Community and neighborhood impacts
Orange County to Oceanside								
I-5 Freeway	P		P					
San Joaquin Corridor (SR-73) with I-5	P			S				
I-5 and Foothill Corridor (SR-241)	P						S	Wetlands, threatened and endangered species, visual
LOSSAN Corridor (south of Irvine)	P						P	Visual, community impacts, and coastal resources.
<i>Station Locations</i>								
Irvine (I-5 at Jeffery Road)						P		
Oceanside (I-5 at Oceanside Boulevard)						P		
Oceanside Transportation Center						P		
Newport Beach						P		
Oceanside to San Diego								
LOSSAN Corridor							P	Visual, community impacts, and coastal resources.
I-5 Freeway			P	S				
<i>Station Locations</i>								
Solana Beach (I-5 at Lomas Santa Fe Drive)						P		
Solana Beach (LOSSAN)						P		
UTC (La Jolla and Genesee Ave.)						P		
Definitions:								
Reason: Primary (P) and secondary (S) reasons for elimination.								
Construction: Engineering and construction complexity, initial and/or recurring costs that would render the project impracticable and logistical constraints.								
Environment: High potential for significant impacts on natural resources, including streams, floodplains, wetlands, and habitat of threatened or endangered species that would fail to meet project objectives.								
Incompatibility: Incompatibility with current or planned local land use as defined in local plans that would fail to meet project objectives.								
Right-of-Way: Lack of available rights-of-way or extensive right-of-way needs would result in high acquisition costs and/or delays that would render the project impracticable.								

Alignment or Station	Reason for Elimination							
	Construction	Incompatibility	Right-of-Way	Connectivity/ Accessibility	Revenue/ Ridership	Alignment Eliminated	Environment	Environmental Concerns
	Connectivity/Accessibility: Limited connectivity with other transportation modes (aviation, highway and/or transit systems) would impair the service quality, could reduce ridership of the HST system, and would fail to meet the project purpose.							
	Ridership/Revenue: The alignment or station would result in longer trip times and/or have suboptimal operating characteristics and would have low ridership and revenue and would fail to meet the project purpose.							
	Alignment Eliminated: Station or connection eliminated because the connecting alignment option was eliminated.							

LAUS to LAX: The alignment and station options eliminated from further consideration in this segment are illustrated in Figure 2.6-57 and discussed below.

- I-405 and I-10: This alignment option would use existing freeway corridors from LAUS to LAX. The alignment would allow for the possibility of adding a station to serve west Los Angeles communities in the future.

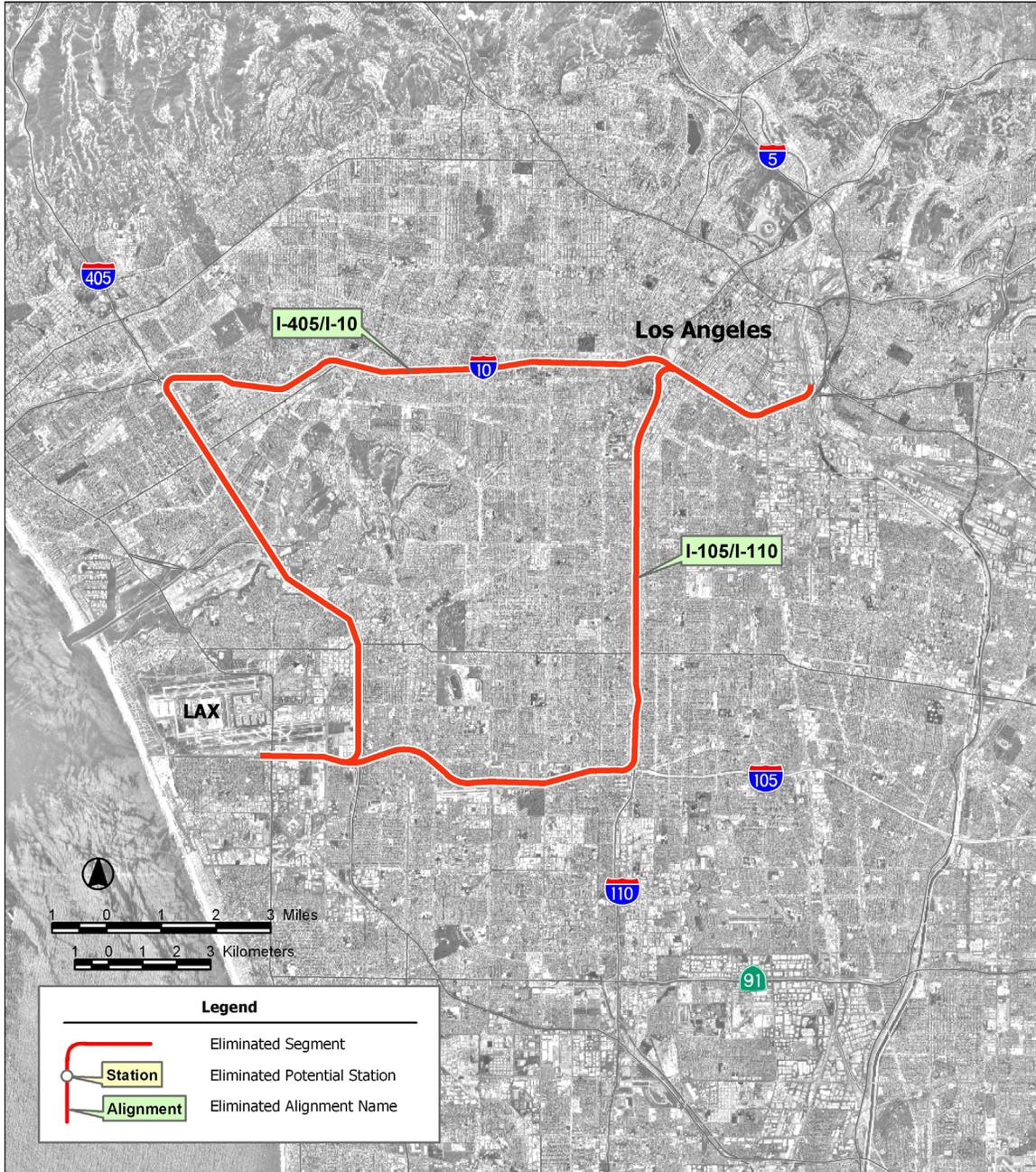
This freeway alignment would have the considerable constraint of limited right-of-way on the freeways, which would require the exclusive use of aerial structures for the proposed HST system. Third or fourth level aerial construction would be required along much of the I-10 and I-405 freeways because there are elevated freeway sections and freeway interchanges along these rights-of-way. This freeway alignment would also require relocating and maintaining freeway access and capacity during construction. Available space is limited along the freeway alignments since available right-of-way is planned for use for needed expansion projects such as additional lanes, HOV lanes, and additional interchange improvements. This option would be impracticable because of logistical constraints and construction issues.

The I-405 and I-10 alignment would cross residential areas with considerable minority and low-income populations. The alignment would result in potential impacts on those communities, and the alignment does not include a proposed station between LAUS and LAX. Further, this alignment would result in potential impacts on social and economic and cultural resources. This option would not avoid or substantially reduce potential impacts on existing communities or on parklands and wildlife refuges.

- I-105 and I-110: This option would provide a southern freeway alignment option to connect LAUS to LAX. This option would be a dedicated high-speed system (i.e., it would not share tracks with other services).

This freeway alignment would have the considerable constraint of limited right-of-way on the freeways, which would require the exclusive use of aerial structures for the proposed HST system. Third- or fourth-level aerial construction would be required along the I-105 and I-110 freeways because of the elevated freeway sections (particularly HOV viaducts along I-105) and freeway interchanges along these rights-of-way. In addition, this freeway alignment would require relocating and maintaining freeway access and capacity during construction. Available space along the freeway alignments is limited since available right-of-way is planned for use for needed expansion projects such as additional lanes, HOV lanes,

Figure 2.6-57
Eliminated Alignments
LA Union Station/Southeast LA County to LAX



and additional interchange improvements. This option is impracticable because of logistical constraints and construction issues.

The I-105 and I-110 alignment option would cross residential areas with substantial minority and low-income populations. The alignment would result in potential impacts on those communities, and the alignment does not include a proposed station between LAUS and LAX. Further, this alignment would result in potential impacts on social and economic resources. This alignment option would not avoid or substantially reduce potential impacts to existing communities.

- Upgrade MTA Green Line to Support HST: This option would require upgrading the existing MTA Green Line to allow for higher-speed trains to share right-of-way with light rail. This alignment option was eliminated for the reasons listed below and is not included as part of the tables in Appendix 2-H.

This impracticable option would be subject to considerable regulatory and operational barriers and would not provide a faster time than transferring to the Green Line because the proposed HST service would be constrained to run between scheduled Green Line trains. Capital costs for this alternative were not developed because it would require completely reconstructing the existing light rail alignment and stations, and potentially parts of I-105. The alignment would be impracticable because of high costs and technology constraints.

LAUS to Orange County: The alignment and station options eliminated from further consideration in this segment are illustrated in Figure 2.6-58 and discussed below.

- I-5 Freeway: This alignment would follow I-5 south of the US-101/I-5/I-10/SR-60 interchange (East Los Angeles interchange) and would involve a dedicated bypass of the freight and commuter rail corridor, and a reasonably direct alignment to central Orange County.

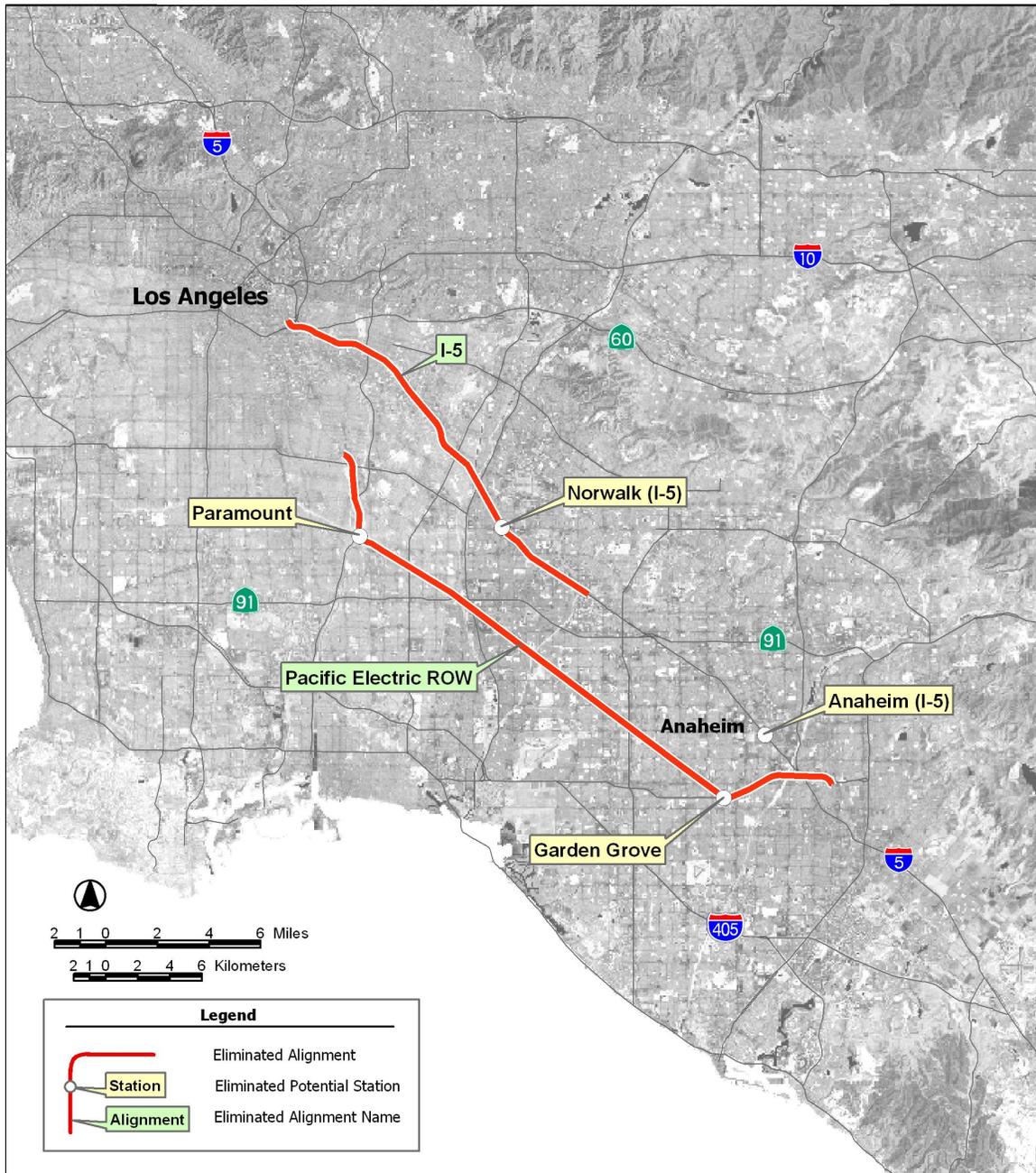
Of the three dedicated alignment options,¹⁸ the I-5 freeway option would be the slowest because of the number and size of curves on the I-5 alignment. It would be impracticable because extremely constrained right-of-way in the corridor would require the construction of high aerial structures, which would result in high construction impacts. Third- or fourth-level aerial construction would be required along I-5 because of elevated freeway sections and freeway interchanges along this right-of-way. This freeway alignment would also require relocating and maintaining freeway access and capacity during construction. Available space along this freeway alignment would be limited since available right-of-way is generally planned for use for needed expansion projects such as additional lanes, HOV lanes, and additional interchange improvements. It would provide a central Orange County station in Anaheim, which would have good freeway access and intermodal transit connections, but it would have conflict with existing and planned land uses.

- Pacific Electric Right-of-Way: This alignment would be along a lightly used rail line between Paramount and Stanton, then along an abandoned corridor to Santa Ana. Its long tangent sections could support HST operation.

The Pacific Electric (PE) right-of-way would provide slightly faster travel times than the other option primarily because it is straighter. However, this alignment option would not meet project objectives because it would not provide sufficient accessibility and connectivity because it would be convenient to only a single freeway and it would not directly serve Anaheim and/or Irvine, the two major transit hubs in Orange County. Further, much of the

¹⁸ Dedicated option in the LOSSAN region would not share tracks with existing Amtrak, Metrolink, or freight services.

**Figure 2.6-58
Eliminated Alignments
LA Union Station to Central Orange County (Anaheim)**



alignment, including the Garden Grove station site, would be located in a residential neighborhood, which is currently being studied as a potential local transit corridor by both the Orange County Transportation Authority and the Gateway Cities of Southeast Los Angeles County. Therefore, it would potentially conflict with future planned development. This option would also be impracticable because of high construction impacts and high costs, with long sections abutting residential areas and potential mitigation requirements, such as trenched construction.

Station Locations:

- Paramount (San Pedro Branch at I-105): This potential station site would only serve the PE right-of-way option that has been eliminated from further investigation.
- Norwalk (I-5 at Imperial Highway): This potential station site would only serve the I-5 freeway option that has been eliminated from further investigation.
- Garden Grove (PE right-of-way at SR-22): This potential station site would only serve the PE right-of-way option that has been eliminated from further investigation. In addition, it would not meet project objectives because it would not provide sufficient connectivity and it would not be compatible with existing land use.
- Anaheim (I-5): This potential station site would serve the UPRR Santa Ana Branch Line option. This potential station would not meet project objectives because it would not provide sufficient connectivity and accessibility and would not connect with Metrolink or Amtrak services. It also would have considerable community and neighborhood impacts and would not be compatible with existing land use. The City of Anaheim has determined that the Anaheim LOSSAN station will be its multi-modal transportation hub.

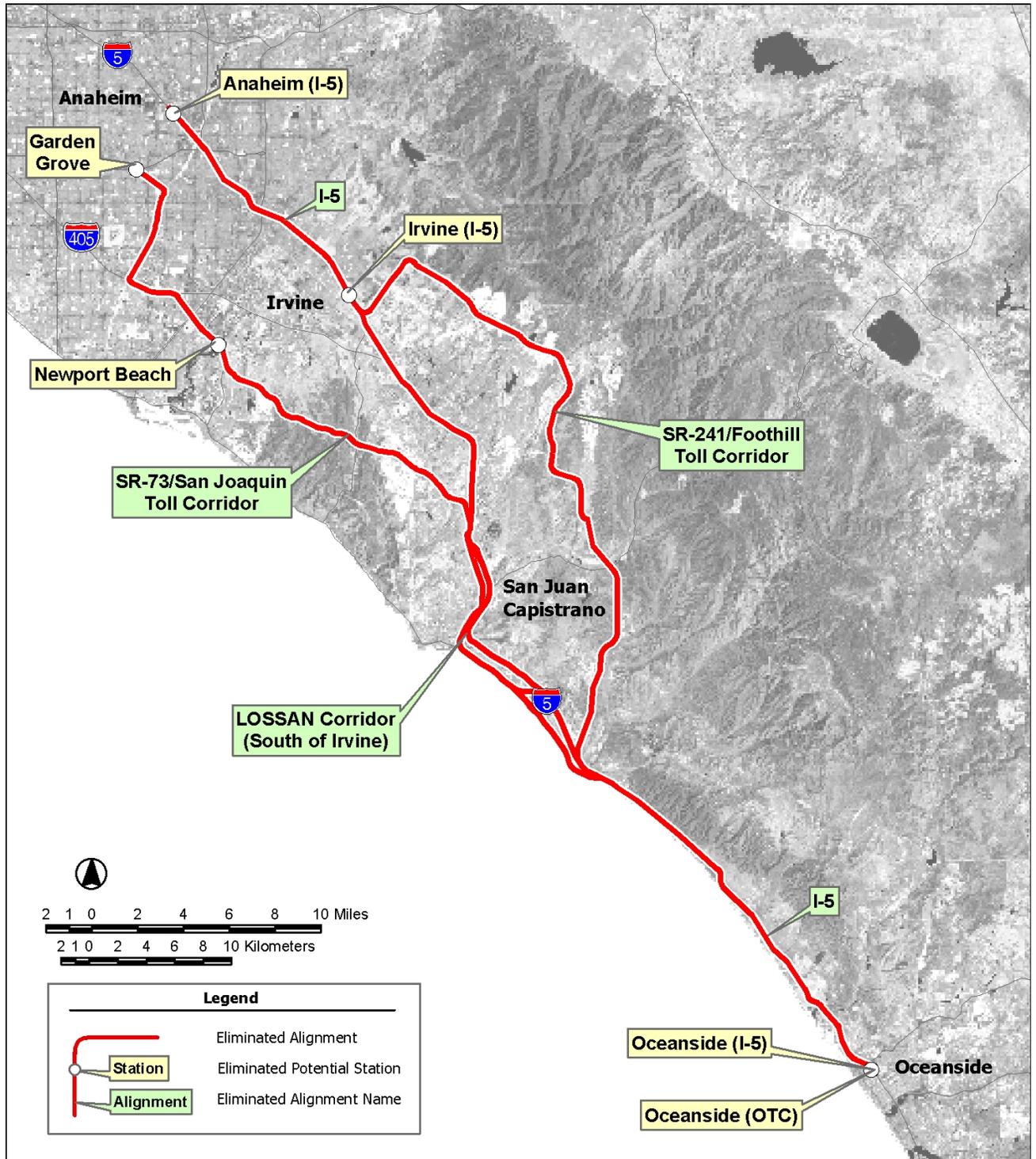
Orange County to Oceanside: The alignment and station options eliminated from further consideration in this segment are illustrated in Figure 2.6-59 and discussed below.

- I-5 Freeway: This alignment would continue from Anaheim along I-5 in Orange County through Camp Pendleton to Oceanside, providing a dedicated high-speed alignment and bypassing constrained sections of the LOSSAN corridor. The station options for this I-5 alignment are Irvine (I-5 at Jeffrey Road) and Oceanside (I-5 at Oceanside Boulevard).

The I-5 alignment option would provide the fastest express service and would be the costliest of the dedicated options because the number and size of horizontal and vertical curves on I-5 would require extensive aerial and tunnel construction to maintain speeds. Third- or fourth-level aerial construction would be required along much of I-5 because of elevated freeway sections and freeway interchanges along this right-of-way. This freeway alignment would also require relocating and maintaining freeway access and capacity during construction. Available space along this freeway alignment would be limited, since virtually all available right-of-way has been used for recent expansion projects such as additional lanes, HOV lanes, viaduct structures, and additional interchange improvements. This option would avoid sensitive areas in San Juan Capistrano and San Clemente but would result in potential land use impacts alongside the I-5 corridor, which is abutted by commercial and industrial uses in both areas. This option is considered impracticable because of high construction issues and costs, and high right-of-way constraints.

- San Joaquin Corridor (SR-73) with I-5: This option would provide a dedicated alignment, continuing from the PE right-of-way in Garden Grove. This is a southern highway option to the I-5 freeway option discussed above (which would follow I-5 through Santa Ana, Tustin, and Irvine) that would pass through some less developed parts of Orange County than the I-5 option.

**Figure 2.6-59
Eliminated Alignments
Central Orange County (Anaheim) to Oceanside**



The SR-73 alignment option would be more expensive than the I-5 freeway option. Because of its rolling terrain, it would require extensive tunneling. The SR-73 option would not be as accessible as the LOSSAN and I-5 freeway options because it would be convenient to only a single freeway. Moreover, this alignment would not serve either Anaheim or Irvine, and it would only connect to the PE right-of-way alignment (between LAUS and central Orange County) that has been eliminated from further evaluation (see above). This option would not meet basic project connectivity and accessibility objectives and was considered impracticable because of high right-of-way constraints and high construction impacts and costs.

- **I-5 and Foothill Corridor (SR-241):** This alignment option would use the right-of-way of the existing and proposed alignments of the SR-241 toll road in eastern Orange County. This alignment option would bypass the coastal communities of southern Orange County and join the I-5 alignment from San Onofre to Oceanside.

The foothill corridor (SR-241) option would be aligned adjacent to an extension of the foothill corridor, an environmentally controversial toll road project currently being considered. Although several alternatives are being investigated for the potential extension of the toll road, only one of these alternatives would avoid the sensitive beach areas in San Clemente. The one option that would avoid the sensitive beach areas would require the creation of a new transportation corridor in an environmentally sensitive and undeveloped canyon in San Clemente, with high potential impacts to wetlands, threatened and endangered species, and visual resources. The foothill corridor option would also be the longest and slowest of the dedicated alignment options, and would have significant gradients. It was estimated to cost at least \$1 billion more than the most expensive LOSSAN alternative.

The foothill corridor (SR-241) alignment investigation assumed that the proposed infrastructure would be exclusively used by a proposed HST system. Considering the existing use issues and rail impacts in the LOSSAN corridor from existing rail operations, along with the potential impacts of a new HST system, the potential cumulative impacts of the two corridors would be far greater than a single alternative along the LOSSAN corridor. If a new HST system and infrastructure were built along the foothill corridor, shared use would likely be requested by the coastal communities of San Clemente and Dana Point. Shared use would result in diminished performance for the HST system, and the considerable expense of relocating existing Amtrak, freight, and commuter rail stations into the foothill corridor. Moreover, additional services along the foothill corridor would greatly increase the cost of building the infrastructure because of additional commuter stations, additional track requirements, and restrictive freight gradients. If a typical maximum freight gradient of 1.2% were applied, about 20 mi (32 km) of tunnel would be required for this alignment. Based on the above factors, this option was considered impracticable because of high costs, and high potential environmental impacts.

Station Locations:

- **Irvine (I-5 at Jeffrey Road):** This station site would only serve the I-5 freeway and foothill corridor alignment options that have been eliminated from further investigation.
- **Oceanside (I-5 at Oceanside Boulevard):** This station would only serve the I-5 freeway, foothill corridor, and SR-73 alignment options that have been eliminated from further investigation.
- **Newport Beach:** This station site would only serve the SR-73 with I-5 option that has been eliminated from further investigation.

- Oceanside Transportation Center: This station would only serve the LOSSAN corridor that has been eliminated from further investigation.

Oceanside to San Diego: The alignment and station options eliminated from further consideration in this segment are illustrated in Figure 2.6-60 and discussed below.

- I-5 Freeway: This alignment would continue from Oceanside along I-5 to San Diego, providing a dedicated high-speed alignment and bypassing sensitive coastal and other constrained sections of the LOSSAN corridor. This would provide the only option for a dedicated high-speed alignment along the coast in San Diego.

The I-5 freeway dedicated option would provide a faster express travel time than the LOSSAN options, but it would not serve the downtown Santa Fe Depot and would terminate at the San Diego Airport. This I-5 alignment would be a very costly option because the number and size of horizontal and vertical curves on I-5 would require extensive aerial structures to maintain speeds. Third- or fourth-level aerial construction would be required along much of I-5 because of elevated freeway sections and freeway interchanges along this right-of-way. This freeway alignment would also require relocating and maintaining freeway access and capacity during construction. Available space along this freeway alignment is limited because available right-of-way is generally planned for needed expansion projects such as additional lanes, HOV lanes, and additional interchange improvements.

This option would avoid sensitive coastal areas. However, in many places, particularly at lagoon crossings, it would share many of the environmental issues and sensitivities of the coastal areas of the LOSSAN corridor. In addition, because of the constrained right-of-way along the I-5 corridor, there would be potential property impacts on adjacent land uses, which are largely commercial and industrial but include considerable residential areas. The need for aerial construction would result in considerable potential for visual intrusion, including interference with ocean and lagoon views.

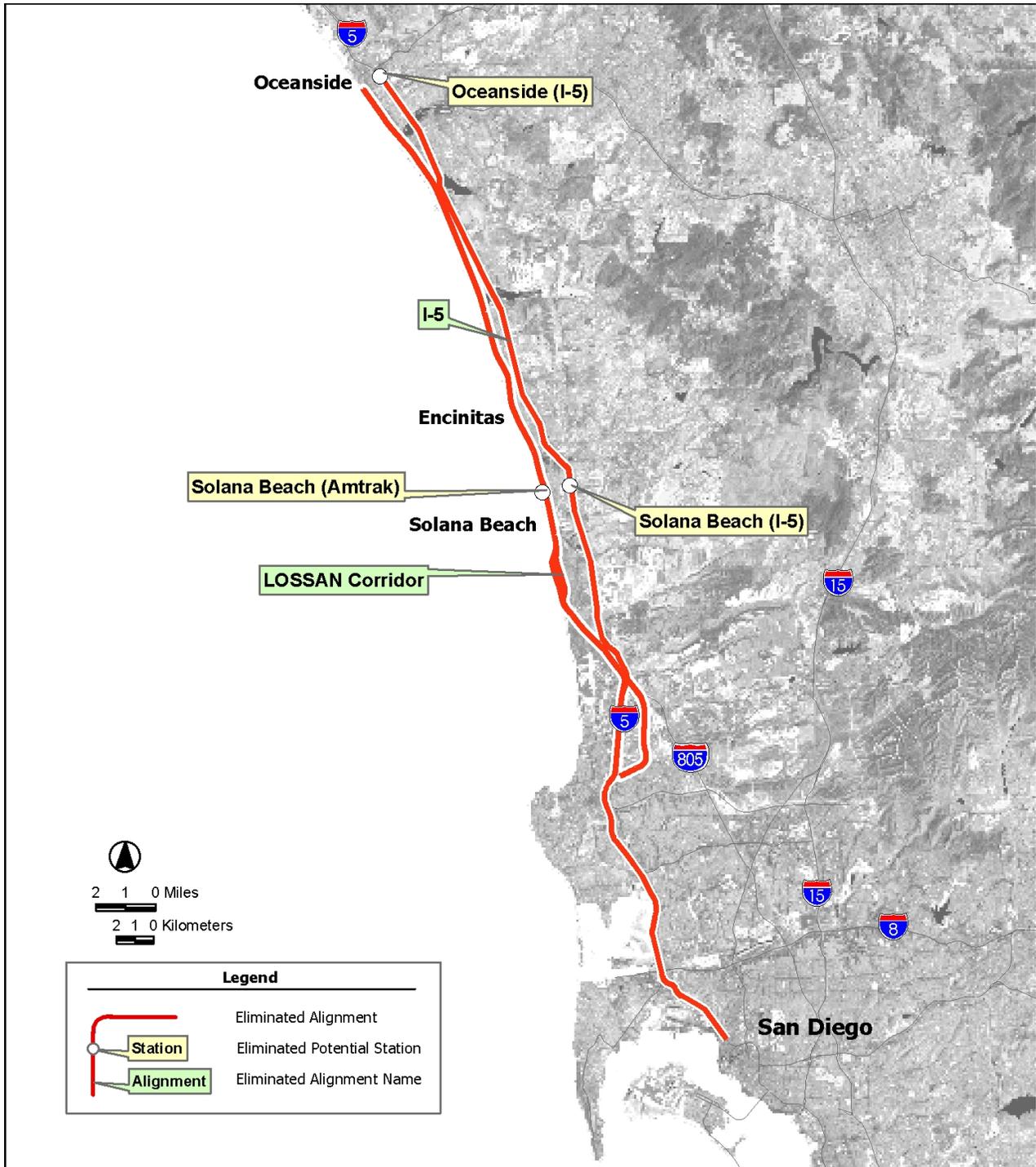
Suitable land for station sites on the I-5 alignment would be scarce, and the development of such new stations would be incompatible with the emerging smart growth principles of San Diego County, which stress the support and development of existing transportation hubs. Therefore, this alternative would have insufficient connectivity and accessibility.

The I-5 alignment investigation assumed that the infrastructure would be exclusively used by a proposed HST system. Therefore, with the existing rail impacts in the LOSSAN corridor and a new proposed HST system, there would be two parallel rail lines. The cumulative impacts of the two corridors would be far greater than a single alignment along the LOSSAN corridor. Combining the existing rail services and the proposed HST system in a completely new corridor with new infrastructure, which would not be fully dedicated to high-speed service, would increase costs and diminish the performance of the proposed HST system and result in extensive costs for the relocation of all existing Amtrak, freight, and commuter rail stations into the I-5 corridor. Moreover, an HST system along I-5 would cause considerable disruption to abutting land uses (and increase environmental impacts), and would result in greatly increased costs of building the infrastructure because of additional commuter stations, additional track requirements, and restrictive freight gradients.

This option would not meet basic project objectives because of poor connectivity and accessibility to regional transit and would not avoid or substantially reduce environmental impacts. It was also considered impracticable because of high right-of-way constraints.

- LOSSAN Corridor: This option would use the existing LOSSAN rail line from Oceanside to San Diego.

**Figure 2.6-60
Eliminated Alignments
Oceanside to San Diego**



From Irvine to San Diego, HST systems are not being further investigated. The travel time differential between non-electrified and electrified HST technology would not be considerable along this heavily constrained right-of-way. For the 78-mi (126-km) stretch of express service between Irvine and San Diego, electrified HSTs would only reduce potential non-electrified HST travel times by less than 3 min.

The potential visual impacts of overhead catenary structures associated with a proposed electrified HST system were of concern to the coastal communities and coastal resources, including state parks. The prior bullet train proposal and feasibility studies of the Intercity HST Commission and the Authority, as well as the scoping and screening portions of this Program EIR/EIS process, indicated substantial opposition to the overhead catenary needed for the electrified HST technology. In the San Diego region, SANDAG, transportation agencies, and cities indicated a preference for the LOSSAN corridor to be an incrementally improved non-electrified service (that would require a transfer to the statewide HST network), and for the I-15 corridor to be evaluated as an option to provide direct HST service on new infrastructure to San Diego via Inland Empire.

Station Locations:

- Solana Beach (I-5 at Lomas Santa Fe Drive): This potential station would serve only the I-5 alignment that has been eliminated from further evaluation.
- UTC (La Jolla and Genesee Ave.): This potential station would serve only the LOSSAN corridor that has been eliminated from further evaluation.
- Solana Beach (Amtrak): This potential station would serve only the LOSSAN corridor that has been eliminated from further evaluation.

Los Angeles to San Diego via Orange County Options Carried Forward

The following alignments and stations are being analyzed for this corridor (see Figure 2.6-61).

LAUS to LAX: The alignment and station options carried forward for further consideration in the Program EIS/EIR in this segment are illustrated in Figure 2.6-62 and discussed below.

- MTA Harbor Subdivision: The Harbor Subdivision alternative follows an existing rail alignment for most of the section from LAUS to LAX.

This alignment would provide the shortest and least costly option for a potential direct connection to LAX. It would also provide the fastest travel time between LAUS and LAX (estimated at 14 min). However, this rail alignment would have the significant constraint of limited right-of-way, which would require the extensive use of aerial and trench construction through residential neighborhoods.

Station Locations:

- LAX Terminal Station: This potential HST station site would serve the MTA Harbor subdivision alignment recommended for further investigation.
- LAUS: This potential station site would serve the MTA Harbor subdivision alignment recommended for further investigation. This station option is evaluated above in the discussion of the Bakersfield to Los Angeles region.

Figure 2.6-61
Los Angeles to San Diego (via Orange County) Corridor
Alignments and Stations Carried Forward

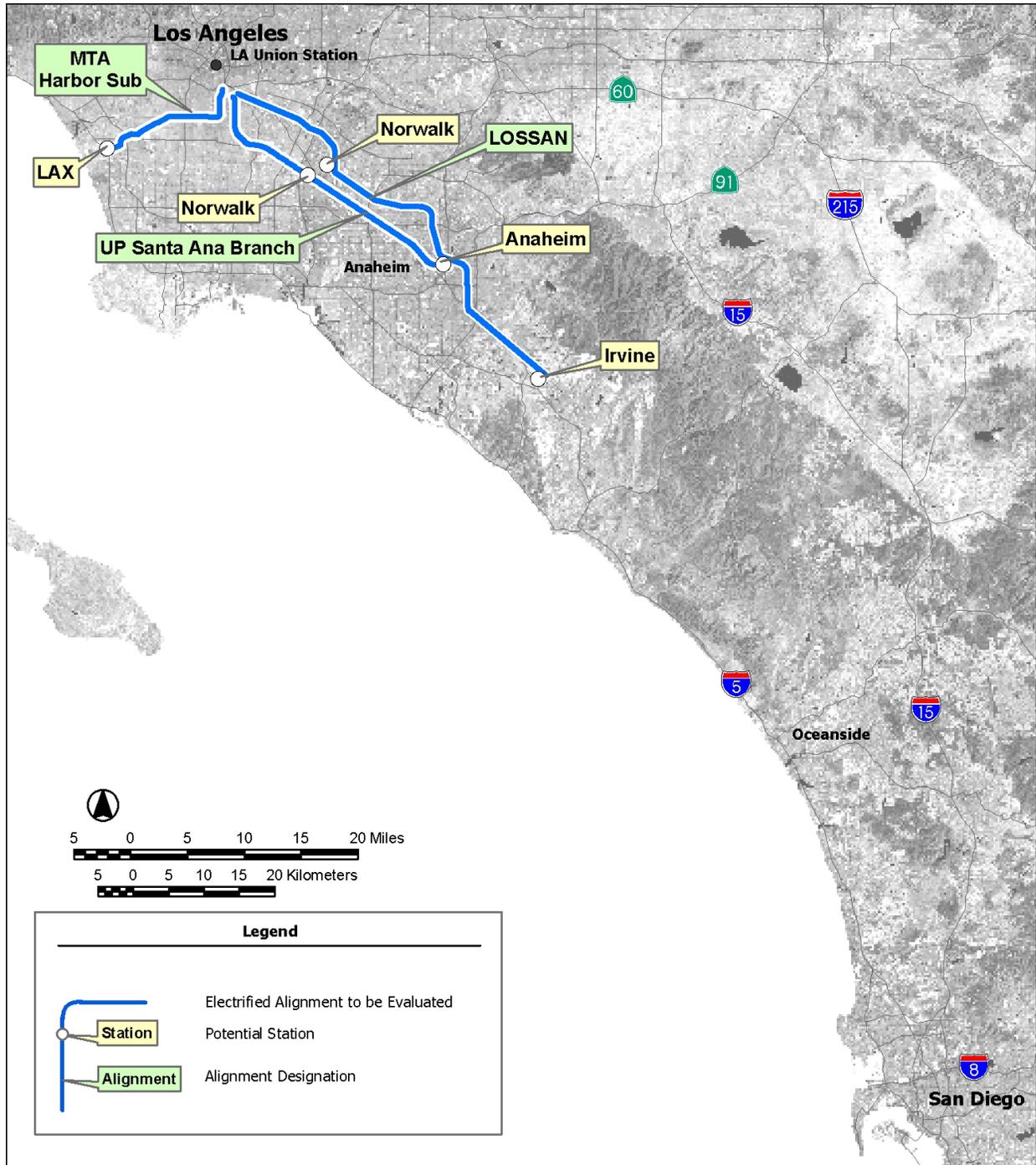


Figure 2.6-62
LA Union Station/Southeast LA County to LAX
Alignments and Stations Carried Forward



LAUS to Orange County: The alignment and station options carried forward for further consideration in the Program EIS/EIR in this segment are illustrated in Figure 2.6-63 and discussed below.

- LOSSAN Corridor: This option would use the existing LOSSAN rail line from southeast Los Angeles to Anaheim.

The HST level of improvement for the LOSSAN corridor would include four tracks between LAUS and Fullerton to increase capacity and reliability of the rail corridor for HSTs and other rail traffic. The improvements would also include full grade separation, bypass tracks at all stations, and the possibility of electrification. Under the lowest level of improvement, all existing Amtrak stations would be served. Station options for additional express for the highest level of improvement would include LAUS, Norwalk (Metrolink Station), and Anaheim (Amtrak/Metrolink Station at Edison Field).

Since it would involve incremental upgrades to an existing system rather than building a new system, the LOSSAN corridor would provide by far the least costly of the options in this section (about \$800 million less than the dedicated options). LOSSAN corridor alternatives would also maximize connectivity, accessibility, and compatibility with existing and planned development. Infrastructure improvements to this corridor would result in benefits for both existing intercity and commuter services that share the same tracks.

- UPRR Santa Ana Branch Line: This option would use an existing UPRR branch line from southeast Los Angeles to Anaheim, where it would connect back to the I-5 alignment. Station options for the UPRR Santa Ana Branch Line include LAUS, Norwalk (UPRR Branch at Imperial Highway), and Anaheim (I-5).

The UPRR Santa Ana Branch Line would be the least costly of the three dedicated route options because it would traverse largely industrial and commercial areas where at-grade operations would be feasible. It would provide a Central Orange County station in Anaheim.

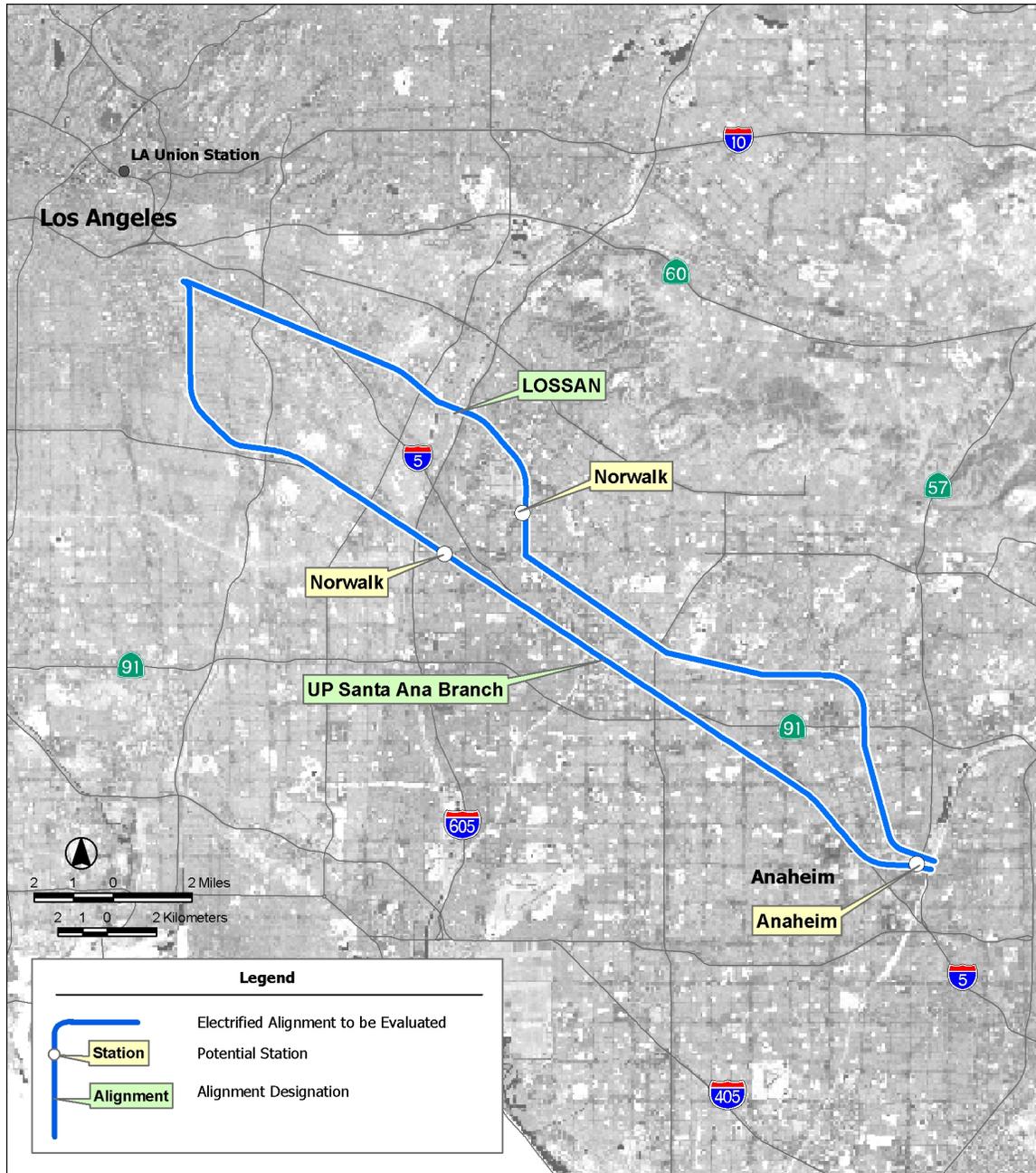
This option would provide travel times similar to or slightly better than the LOSSAN corridor. Travel times for the UPRR Santa Ana Branch Line option would be more certain because the proposed HST system would not share tracks with any other traffic. This option also would provide the possibility of no-transfer operations at LAUS.

Station Locations:

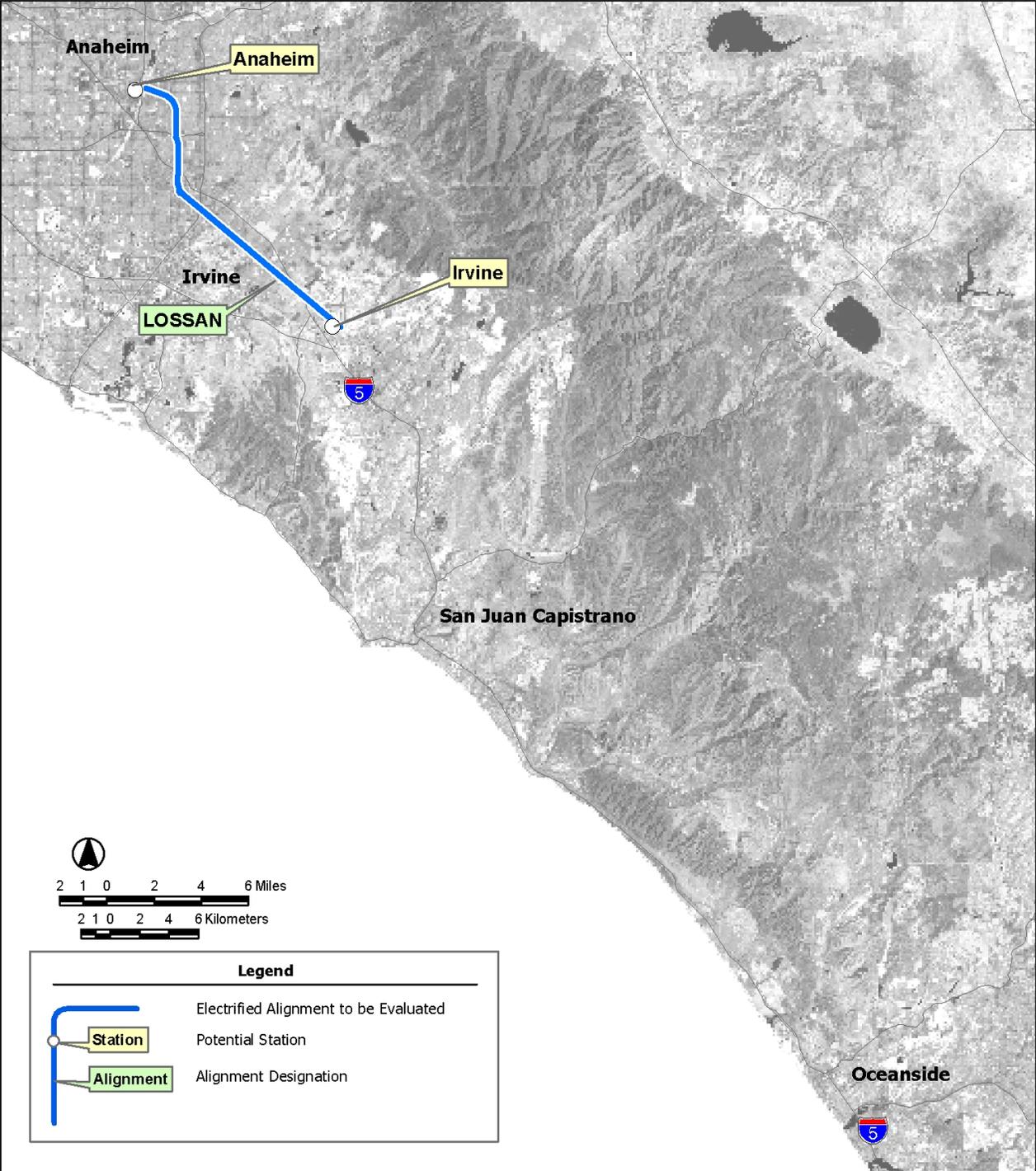
- LAUS: This potential HST station site would serve both the LOSSAN corridor and the UPRR Santa Ana Branch Line. This station option is evaluated above in the discussion of the Bakersfield to Los Angeles region.
- Norwalk (Metrolink Station): This LOSSAN station site could be expanded to serve HST services.
- Norwalk (UPRR Branch at Imperial Highway): This potential station site would serve the UPRR Santa Ana Branch Line HST option.
- Anaheim (Edison Field Amtrak/Metrolink): This LOSSAN station site could be expanded to serve HST services. This site is also assumed to be the Anaheim station location for the UPRR Santa Ana Branch Line.

Orange County to Oceanside: The alignment and station options carried forward for further consideration in the Program EIS/EIR in this segment are illustrated in Figure 2.6-64 and discussed below. No HST alignments are carried forward beyond Irvine.

**Figure 2.6-63
 LA Union Station to Central Orange County (Anaheim)
 Alignments and Stations Carried Forward**



**Figure 2.6-64
Central Orange County (Anaheim) to Oceanside
Alignments and Stations Carried Forward**



- LOSSAN Corridor: This option would use the existing LOSSAN rail line from Anaheim to Irvine.

Irvine would provide the southernmost potential HST station location in Orange County, and electrification/shared-use operations on the LOSSAN corridor below Irvine were not retained for further investigation to San Diego. Therefore, electrification and shared use of the LOSSAN corridor (with HSTs) are only carried forward for further evaluation in this Program EIR/EIS between LAUS and Irvine.

From Irvine to San Diego, HST systems are not being further investigated. The travel time differential between non-electrified and electrified HST technology would not be considerable along this heavily constrained right-of-way. For the 78-mi (126-km) stretch of express service between Irvine and San Diego, electrified HSTs would only reduce potential non-electrified HST travel times by less than 3 min.

The potential visual impacts of overhead catenary structures associated with a proposed electrified HST system were of concern to the coastal communities and coastal resources, including state parks. The prior bullet train proposal and feasibility studies of the Intercity HST Commission and the Authority, as well as the scoping and screening portions of this Program EIR/EIS process, indicated substantial opposition to the overhead catenary needed for the electrified HST technology. In the San Diego region, SANDAG, transportation agencies, and cities indicated a preference for the LOSSAN corridor to be an incrementally improved non-electrified service (that would require a transfer to the statewide HST network), and for the I-15 corridor to be evaluated as an option to provide direct HST service on new infrastructure to San Diego via Inland Empire.

Station Locations:

- Irvine Transportation Center (ITC): This LOSSAN station could be expanded to serve HST services.

Oceanside to San Diego: No HST alignments carried forward.

2.6.10 Maintenance and Storage Facilities

Maintenance and storage facilities that would be necessary to support the HST fleet have been considered in this Program EIR/EIS. A rail system simulation model was used to determine an overall operating and maintenance concept that is responsive to the forecast representative demand and that could deliver the levels of HST service desired. Only general track locations and infrastructure configurations were developed for these facilities to guide the consideration of potential sites in this Program EIR/EIS.

Because of the constraints of existing urban development around some of the terminus station locations, it is assumed that only minimal storage and very basic service, inspection, and light maintenance functions would be integrated into the station infrastructure. The majority of the fleet storage and service, inspection, maintenance, and repair requirements are assumed to be supported at two types of independent facilities that were defined and generally sited.

- Fleet storage/service and inspection/light maintenance.
- Main repair and heavy maintenance.

Fleet Storage/Service and Inspection/Light Maintenance Facility

The desirable configuration for this facility would include tracks for "lay-up" (parking) for trainsets, a Service and Inspection (S&I) facility for inspection and light maintenance, and a train washer located on

the yard approach track for exterior cleaning prior to daily train storage. In addition, adjacent to the S&I facility, on a separate track, would be a wheel truing facility capable of accommodating two cars at a time. There would also be provision for an employee administrative and comfort area.

Main Repair and Heavy Maintenance Facility

The conceptual configuration for this heavy maintenance complex includes a Wheel Truing Area, a Service and Inspection (S&I) Area, a Running Repair facility, Support Shops, Material Inventory and Distribution, Component Change-Out Area, Overhaul Shop, Heavy Repair facility and Exterior Maintenance Shop. The following descriptions are examples of the types of areas, shops and functions that have been considered for the conceptual configuration of the Main Repair and Maintenance Facility:

Wheel Truing Area

The wheel truing facility is configured to accommodate two cars. It is utilized to return wheel diameter parity and profile due to the stresses of track wear, drift, spalling, and wheel flat spots. The wheel truing machine is mounted under the floor for ease of operation. Rail cars are pulled over the machine to expedite turn around time. Candidate vehicles for wheel truing are typically identified during a programmed maintenance inspection.

Service and Inspection Area

The service and inspection area is configured as a two track "run-through" facility. Tracks are equipped with observation pits and door level platforms for ease of inspection and light repair, providing access to under car, interior floor, and roof levels. Located between this area and the main maintenance area is a "runaround" track that would allow direct access/egress to both sides of the shop.

The Running Repair Area

The running repair area is configured with raised rail mounted on post structures and observation pits with depressed side floors. The posted, raised rail provides access to under car components requiring repair or replacement. Side floor and roof height platforms are also assumed in this configuration. The observation pit is equipped with a lift device to facilitate the removal and replacement of larger, heavier component units. Platforms provided at the car body side height provide access to glass, door, and interior and exterior repair requirements. A platform at the roof level provides access to the pantograph, resistor grids and a/c components for servicing activities as required.

Support Shops

Based on the needs of specific fleet design parameters examples of shop areas and functions include the following:

Truck Shop: equipped with a storage track and turntables for the efficient transition of trucks requiring service and trucks ready for installation. Direct access is provided to the Component Cleaning Area, (located on an exterior wall) to prepare the trucks for overhaul/heavy repair. This area includes truck hoists to facilitate efficient repair, disassembly and reassembly. Additional turntables and connecting tracks would be provided in this area to provide for the required maneuverability of truck assemblies.

Component Cleaning Area: This enclosed work area, located on an exterior wall, would be used to pre-clean large components such as rail vehicle trucks, air compressors and air conditioning units (condensers and evaporators) prior to disassembly and repair or shipment.

Brake Shop: This area would be used to clean, disassemble, repair, reassemble and test brake units and all brake actuators.

Air Room: This facility would be used to clean, inspect, troubleshoot, repair, rebuild, paint, and test all types of brake valves and brake system components. The work area would be divided into